

# Chapter 1.0

## Introduction to the Raleigh Aquatic Facilities Study

### 1.1 Study Basis and Scope of Investigations

This study was commissioned by the Raleigh Parks and Recreation Department in February 2007 and is intended to further the department's public mission<sup>1</sup> by directing the planning and development of Raleigh's Aquatics Program in the coming twenty-five years.

The study was originally recommended in the Parks, Recreation and Greenways Element of the Comprehensive Plan adopted by the Raleigh City Council in May 2004. The scope of the study is summarized below:<sup>2</sup>

Conduct local aquatic inventory and analysis of existing public and private pools.

Survey the physical condition of all existing Raleigh aquatic facilities.

Conduct market and demographic analysis of facility location and program offerings.

Conduct needs assessment including national trends in aquatic facility programming and management, local trends of service providers, current Raleigh aquatics facilities capacity and capability, and future needs for aquatic facilities in the community.

Conduct analysis of spatial distribution of public and private facilities within Raleigh's Urban Service Area.

Prepare estimated costs including replacement and rehabilitation of existing facilities, economic feasibility and costs for new facilities, and operating costs.

Review fee structure and provide recommendation for business models of aquatic facilities that increase revenue opportunities.

Recommend implementation plan for the next twenty-five years.

### 1.2 Schedule

The study was originally planned to begin with a contract award and notice to proceed in October, 2006 and conclude in December, 2007. The formal notice to proceed was given in February 2007 and the contract for services was executed in March of the same year.

An initial draft of this report was submitted in September and final presentation to the Raleigh City Council is anticipated in November of 2007.

### 1.3 Study Consultant Team<sup>3</sup>

The following firms have prepared this report:

Counsilman-Hunsaker and Associates – Aquatics Facilities Planning  
Saint Louis, MO and Los Angeles, CA

Szostak Design Inc – Architectural Design and Planning  
Chapel Hill, NC

Sports & Properties Inc. – Aquatics Strategic Planning  
Raleigh, NC

Mulkey Engineers & Consultants – Civil Planning and GIS  
Morrisville, NC

RMF Engineering, Inc. – MEP Consulting  
Durham, NC

Reynolds and Jewell - Site Planning  
Raleigh, NC

### 1.4 City of Raleigh Participation

Participants in the study include the following members of the Parks and Recreation Department staff:

Stephen C. Bentley – Parks Planner  
Venessa Garza – Planner 1  
Terri Stroupe – Aquatics Program Director.

### 1.5 Prior Aquatics Studies

This study was preceded by one prepared in 1979: “Aquatic Facilities Report” by Milton Costello, P.E., Amityville, NY. A copy of this study is included in the appendix of this report and a summary of its findings are included in Chapter 3.0.

## 1.6 Summary of the Study's Organization

Chapter 2.0 begins the study with a description of the present status of the Raleigh Aquatics Program including an overall assessment of its existing facilities, individual facility descriptions, a survey of current aquatics programming, a summary of operational and management practices, and an analysis of the system's financial performance.

Chapter 3.0 offers an assessment of the need for aquatic facilities and services based on four determinants: 1.) Present aquatic needs, 2.) Future needs based on population growth and distribution, 3.) Need prompted by national trends in aquatics planning and programming, and, 4.) Public perceptions of the need for aquatic services.

Chapter 4.0 recommends a series of approaches for satisfying the needs identified in Chapter 3.0. The chapter first examines the example of other peer communities facing similar service challenges, both nationally and regionally. The chapter then assesses the potential for aquatic need to be met by area aquatic providers other than the City of Raleigh. Finally, the chapter explores specific aquatic facility types – dubbed the: “Aquatics Toolkit” – that could be employed to address the community's present and future needs.

Chapter 5.0 presents a series of concrete, actionable recommendations for the enhancement and development of the Raleigh Aquatics program system over the course of the next twenty-five years. The recommendations include a phased plan for the renovation of existing aquatic facilities and the construction of new aquatic centers. It defines general locations for each new facility. The chapter further recommends a series of managerial and operational improvements to the Aquatics Program to further enhance its ongoing service capacity. The chapter concludes with specific recommendations for alternative funding sources and the potential use of the proposed 2007 Parks and Recreation Bond Referendum funds.

## 1.6 Use of the Study

A summary of this study will be included in the next update of the City of Raleigh Comprehensive Plan. The implementation of specific recommendations of the study will be subject to the approval of the Raleigh City Council.

## 1.7 A Brief History of Swimming Pools<sup>4</sup>

The ancient Greeks and Romans built artificial pools for athletic training, for nautical games, and for military exercises. The first heated swimming pool was built by Gaius Maecenas of Rome in the first century BC. The ancient Sinhalese built a series of pools in the kingdom of Anuradhapura, Sri Lanka in the 4<sup>th</sup> century BC.

The modern concept of swimming pools was popularized in Britain in the mid-19<sup>th</sup> century. By 1837, six indoor swimming pools were built in London and with the introduction of Olympic swimming competition in 1886, the popularity of swimming pools became more widespread. In 1939, Oxford University created the first major public indoor pool at Temple Cowley.

In the United States, the first modern above-ground pool was built by the Racquet Club of Philadelphia in 1907. In the early 20<sup>th</sup> century, municipalities began to build aquatic facilities for the general public as an alternative to lake and river swimming, which was deemed dangerous, unsanitary, and unsightly - youth of the day tended to swim in the nude. Pools of this era were primarily conceived as centers of public entertainment and exercise and as such were elaborately scaled with ample amenities. This development reached its height during the 1930's when many large-scale municipal pools were built by the Works Progress Administration (WPA) program.

In a University of Montana interview with Jeff Wiltse, author of Contested Waters: A Social History of Swimming Pools in America, Wiltse describes this period:

“...the first public pools were provided as ‘bathtubs’ for the urban poor and were segregated by gender...For a time - from 1920 to 1950 – municipal pools were hugely popular and often fought over. Some were larger than football fields; about 50,000 people visited the Fairgrounds Park Pool in St. Louis on the day it opened....”

“(Wiltse notes) that there was a ‘pool building spree’ during the Great Depression. ‘We were in the worst depression and yet there was a concerted effort to provide public swimming pools,’ he said.’ ‘Today, we’re in a period of historic prosperity and yet can’t seem to find the money to build public swimming pools.’”<sup>5</sup>

Wiltse further suggests that post-war municipal swimming pools tended to be more utilitarian in nature, designed to meet the median expectations of aquatic users. These pools were generally rectangular, lane-based pools, typically with adjoining diving wells and children’s wading areas. Supporting services including bathhouses, locker rooms, and administrative areas were also highly utilitarian.

In the last twenty-five years, spurred by developments in the commercial aquatics industry, municipal swimming pools have become more multi-purposed, offering a far greater variety of pool types and amenities to serve the specific needs of a variety of swimming users: recreational swimmers, competitive swimmers, fitness swimmers, therapy patients, and swimming instruction participants.

## 1.8 A Brief History of the Raleigh's Aquatics Program<sup>6</sup>

In the late 1800's, Richard Stanhope Pullen donated land to the City of Raleigh to establish a park adjacent to North Carolina State University. This land is the current site of Pullen Park Aquatic Center. Mr. Pullen had already built a wooden tub-like pool on the site when the land was donated. This pool was renovated by replacing the wood with concrete.

In the mid-1930's, the WPA built two large pools at Pullen and Chavis Parks. Pullen Pool at that time also contained a second-story dance floor, roller skating area, and sun deck. Chavis Pool was originally as large as the existing Pullen Pool, but it was renovated later to the existing 25 yard Z-shaped pool. Pullen Pool was renovated again in 1979 to install a gutter and filtration system.

In 1981 Optimist Pool was opened as an outdoor summer pool. An air-supported structure was added in 1982 to make it a year-round facility. Optimist Pool was renovated again in 1987.

As part of a large city bond referendum in the 1980s, five public outdoor pools were built including Ridge and Biltmore Pool (built and opened in 1983), and Lake Johnson, Longview, and Millbrook Pools (built and opened in 1984).

In 1992, an indoor natatorium was constructed in Pullen Park to replace the existing and outdated Pullen Pool. On December 21, 1992, the Pullen Aquatic Center was dedicated and opened to the public. This facility consists of a 50 meter by 25 yard main pool with a moveable bulkhead, a warm-water teaching pool (25 yards), classrooms, locker rooms, and spectator seating.

In 1998, Chavis Pool was renovated. The main pool was fitted with a gutter system and recirculation piping and a new play pool was added to offer a variety of squirting play apparatus in a shallow depth pool.

In recent years, spraygrounds were added to several pools to offer a variety of play features including tumble buckets and water cannons: Millbrook Pool (2000), Lake Johnson Pool (2001), and Ridge Rd. Pool (2004).

Current pool improvement projects include Millbrook Pool, which will be converted from a seasonal pool to a year round pool in 2007 and Optimist Pool, which will be renovated with a more permanent cover over the main pool and a new bathhouse as well as other infrastructure replacements.

The City of Raleigh presently offers comprehensive aquatics programming at two year-round facilities and six seasonal pools. Adult lap swim and family recreational swimming is offered at each site. Raleigh Aquatics' diverse program offerings include:

American Red Cross Swimming Lessons  
American Red Cross Lifeguard Training and Instructor Certifications  
Adult Swimming Lessons  
Water Exercise Classes Including Deep Water Walking, Triathlon Training, Strike Development, and High School Swimming Development.  
Specialty Water Exercise Classes (arthritis, MS)  
Intra-City Swim Team  
Specialized Courses in Diving Fundamentals, Fitness Swimmer, Personal Water Safety, and Lifeguard Readiness  
Special Events Including Swim with Santa, Spooktacular Swim, etc.

A program brochure and other information regarding the City of Raleigh pools and aquatic programs can be found on the Parks and Recreation webpage:

[www.parks.raleighnc.gov](http://www.parks.raleighnc.gov)

## 1.9 Aquatics Terminology

The following is a brief guide to terminology utilized in this study

### Aquatics

Encompasses a variety of water-based activities including swimming, diving, water sports, exercise, therapeutics, and water safety instruction.

### Aquatics Programming

Structured, supervised, and generally fee-based aquatic activities offered by the providers of aquatic services. The term includes programs in recreational, competitive, fitness, therapeutic, and instructional swimming.

### Aquatics Toolkit

A term applied to a series of consultant-recommended, hypothetical aquatic facilities of varying sizes and capabilities that can be used as templates in the creation of a system of aquatic service, in this instance directed to the needs of the Raleigh Aquatics Program.

### Area Aquatic Provider

Any swimming pool operator within the general proximity of Raleigh, including but not necessarily limited to locations in Wake County.

### Block Start

An elevated platform from which competitive swimmers begin a race event. Elevated blocks allow a racer to enter the water more deeply and as a consequence, increase speed. Block starts require greater pool depths than deck starts – generally 4'-0" minimum,

although 6 to 7 feet is preferred for the fastest times. Block starts are required for most US Swimming and collegiate-sanctioned meets.

### Bundling

The grouping of a range of diverse aquatic pool types within a single, multi-purpose facility. The term is also used to define a facility which includes a variety of community service amenities, for example, a gymnasium which might be co-located with an aquatic center and public meeting spaces. In both strategies, there is an economic benefit by reducing the duplicity of separate, stand-alone facilities.

### Competitive Aquatics

Aquatic activities involving competition at a variety of age and ability levels. Includes swimming, diving, water polo, and other similar events. Competitive aquatics programs may be sponsored by municipalities, public and private school systems, colleges and universities, faith-based organizations, or independent swimming associations.

### Competitive Pool

A generally rectangular pool which satisfies the certification requirements of a competitive swimming sanctioning body. For US Swimming or collegiate programs, this includes a pool length of either 50 or 25 meters. For most high school programs, a standard competitive pool length is 25 yards. Each sanctioning body has further, more detailed requirements, for example defining minimum pool depth, spectator seating provisions, warm-up pool availability and others, which vary depending on the scale and level of the anticipated competition event. A competitive pool will also include an attached or separate diving well with springboards of 1 and 3 meters. For collegiate, Olympic, and some US Swimming competitions, a 10 meter diving platform is also required.

### Deck

The flat, generally paved area surrounding the swimming pool.

### Deck Start

A competitive swimming race event begun from the surface of the pool deck. A deck start is mandatory for pools with entry depths less than 4'-0". A deck start results in slower speeds and is not approved for many types of sanctioned competitive events.

### Diatomaceous Earth

Abbreviated: "D.E." A method of pool filtration used in smaller facilities. In the Raleigh Aquatics Program, original D.E. filter systems have been gradually replaced with sand filters.

### Drownproofing

Aquatics instruction and lifeguarding techniques intended to minimize the potential hazard of drowning.

#### Fast Pool

In competitive swimming, a pool noted for fast times. Special design features include deep and cool water, and wave-reducing guttering and lap lines.

#### Instructional Aquatics

A series of programs intended to teach swimming, ranging from an introduction to swimming to advanced stroke techniques.

#### Fitness Aquatics

Aquatics programming designed to improve fitness and well-being through a variety of aerobic water-based activities.

#### Lane Rental

The rate which a swimming pool operator charges for the exclusive use of a single swimming lap lane. The rate is generally based on a lane-per-hour basis. Subscribers may frequently schedule up to five or six users in the space of a single lap lane.

#### Leisure Pool

Any pool facility whose features and amenities are generally geared for recreational use. In this study, the terms “leisure pool” and “recreational pool” are used interchangeably, although the term “recreational pool” is preferred.

#### Long Course

Competitive swimming events staged on a 50 meter length pool

#### Opinion of Probable Cost (Also Opinion of Financial Performance)

As the term suggests, suggestions of cost and financial performance portrayed in this report are only opinions, based on reasonable professional judgment, historical economic data, and generally-accepted metrics of future economic behavior. These opinions are not intended as either an implied or express guarantee of outcome. They are instead, reasonable projections based on generally well-documented expectations of present and future events.

#### Randomized Public Survey

The public survey mailing solicitation utilized in this study was randomized, based on a proportional, but random distribution of addresses selected within US Postal Service area codes for the Raleigh metropolitan district.

#### Recreational Aquatics

This term refers to leisure aquatic activities that are generally self-directed and without formal aquatic provider programming. Recreational aquatic activities include swimming, diving, informal competition, water play, sunbathing, and social interaction.

#### Recapture Rate

The ratio of a facility’s annual revenues as a percentage of its annual operating expenditures.

### Shell

The water-containing enclosure of a swimming pool

### Short Course

For collegiate and US Swimming events, a 25 meter pool length. For high school competition, a 25 yard pool length.

### Sprayground (Also Splash Pad or Spray Pad)

A shallow depth – 1 to 3 inch – recreational facility featuring colorfully designed elements which emit a variety of water sprays. Although supervision is recommended for such facilities, certified lifeguards are not required.

### Therapy Pool

Any of a number of pool types which are specifically designed for therapeutic or rehabilitative use. Among the most common types are warm-water pools, cool-water pools, and salt water pools. Therapeutic pools are designed to be fully accessible to persons of all abilities.

### Therapeutic Aquatics

Water-based exercises which have a therapeutic or rehabilitative purpose, generally under the supervision of a certified aquatics therapist. Treatments may be physician-prescribed and reimbursed by health insurance providers. Such programs are frequently sponsored by both profit and non-profit healthcare providers

### Wellness Pool

A term generally interchangeable with “therapy pool.” In this study, the term “therapy pool” is preferred.

### Water Park

The term applied to a commercially sponsored recreational aquatics facility that features enhanced recreational aquatic activities. Generally, a for-profit private enterprise.

### Water Vortex

A confined aquatic environment with water propelled by sidewall air jets.

### Zero-Depth Entry (Also Zero-Beach Entry)

A pool which has a gradually increasing depth or “beach-like” entry.

## **Introduction/Notes**

1. The Raleigh Parks and Recreation Department’s Mission Statement is to actively encourage, provide, promote and protect quality leisure, recreation and cultural opportunities, facilities and environments that are essential for the enhancement of the lives of the citizens of Raleigh and surrounding municipalities. Furthermore, it is the

Department's philosophy that emphasis be placed on providing basic level recreational services in an effort to benefit the greatest number of people and allow for incremental levels of advancement in individual ability and skill. The Raleigh Aquatics Mission is to provide safe and quality experience for the guests of aquatic facilities and programming in the areas of education, fitness, competition, and recreation. Source: Raleigh Parks and Recreation Department.

2. Excerpted from "City of Raleigh Department of Parks and Recreation Request for Qualifications, Aquatic Facilities Study, July 25, 2006." The complete text of this document is included in the appendix of this report.

3. Contact information for the Raleigh Aquatic Facilities Study consulting firms:

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4. Drawn from a variety of resources including: Weissmuller to Spitz, the History of Swimming and [http://en.wikipedia.org/wiki/Swimming\\_pool](http://en.wikipedia.org/wiki/Swimming_pool)
5. “Professor Dives Into History of Swimming Pools,” Main Hall to Main Street, The University of Montana, 2007 Further interview information with Mr. Wiltse is included in the appendix of this report.
6. Excerpted from “City of Raleigh Department of Parks and Recreation Request for Qualifications, Aquatic Facilities Study, July 25, 2006.” The complete text of this document is included in the appendix of this report.