The Raleigh Aquatic Facilities Study
Executive Summary

1.0 Introduction
This study was commissioned by the City of Raleigh Parks and Recreation Department in February of 2007. It is the first comprehensive study of Raleigh's Aquatics Program in thirty years. The report was prepared by Counsilman-Hunsaker, Szostak Design Inc, and Sports & Properties Inc. in consultation with members of the Aquatics Program and the Parks and Recreation Department staff. The stated scope of the study includes an inventory and analysis of existing public and private pools, a market and demographic survey, a needs assessment, an analysis of the spatial distribution of aquatic facilities, costs, and a recommended implementation strategy. The report is to be included in the next City of Raleigh Comprehensive Plan.

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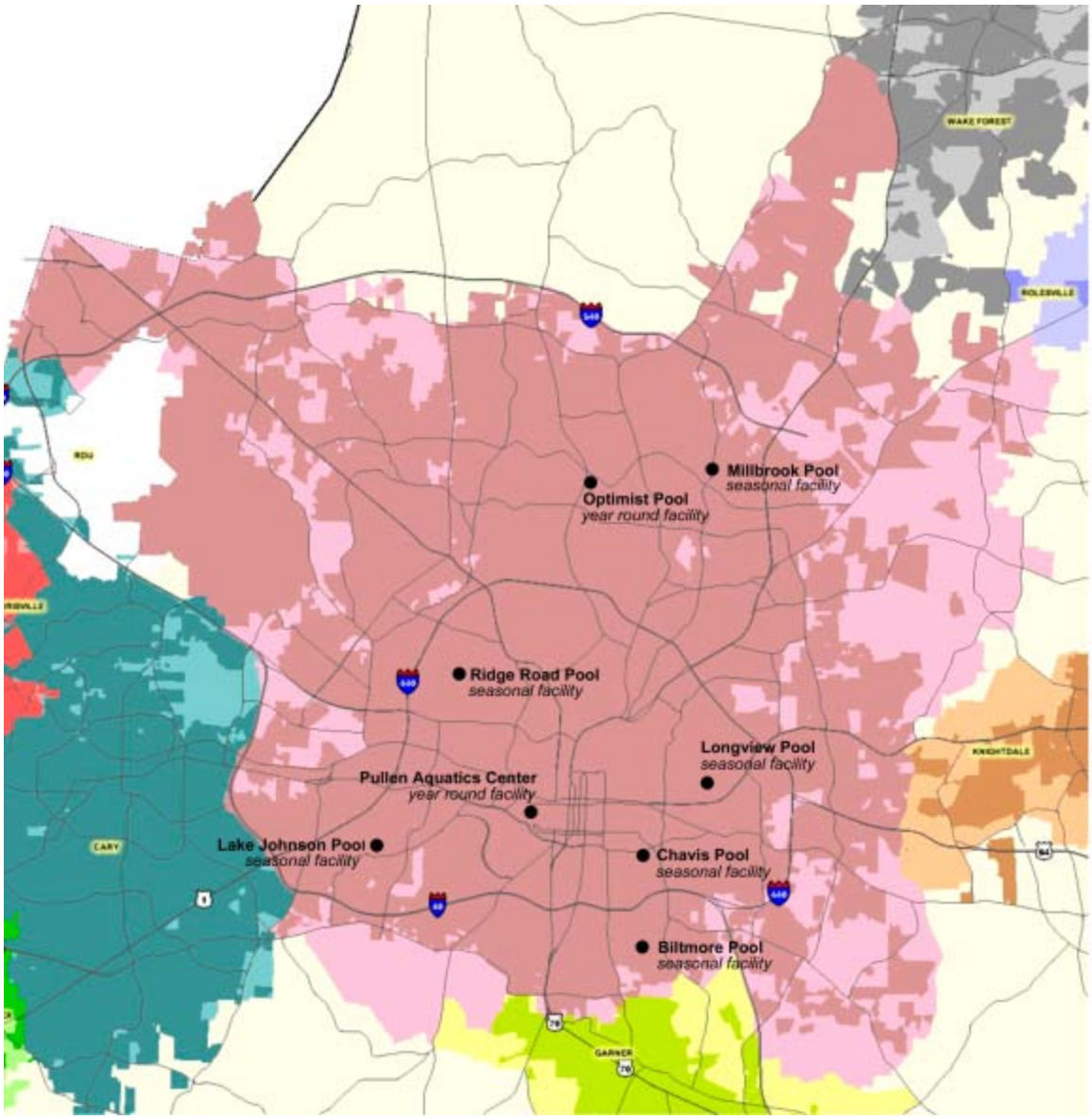
2.0 The Raleigh Aquatics Program:
A Summary of the Current Aquatic Facilities, Programming and Operations

2.1 The Raleigh Aquatic Facilities System
With the exception of Pullen Aquatic Center, the majority of Raleigh's eight swimming pools are aging and lacking in specialized aquatic features capable of addressing the specific needs of the region's aquatics community. The better-attended of these facilities are frequently overcrowded during peak periods of use. All of the facilities are located in older, more established sections of the city and as a consequence, do not address recent changes in the community's patterns of population distribution and growth. The eight current Raleigh Aquatics Program facilities are listed below with their corresponding dates of construction:

2.2 Raleigh Municipal Swimming Pools
(In Order of Year of Construction)

Chavis Pool	1979
Optimist Pool	1981
Biltmore Pool	1983
Ridge Road Pool	1983
Lake Johnson Pool	1984
Longview Pool	1984
Millbrook Pool	1986
Pullen Aquatic Center	1992



Map of Raleigh showing existing pool locations. Note: Millbrook Pool is currently being converted to year-round use.

With the exception of Pullen, all of these pools are nearing the later stages of their anticipated service life and given the close proximity of their original construction dates, will likely be in need of significant renovation or replacement at approximately the same time.

During the 2005-2006 fiscal year, Raleigh Aquatics Program facilities were visited 373, 634 times, roughly the equivalent of one visit per year for every current Raleigh resident.

2.3 Raleigh Aquatics Programming

The Raleigh Aquatics Program provides an extraordinary variety of programmed recreational, educational, fitness, therapeutic, and competitive aquatic activities, for both individuals and independent organizations.

2.4 Raleigh Aquatics Operations

The Raleigh Aquatics Program's staff of nine full-time personnel administers all aspects of the system's day-to-day operations, including facility administration and programming. Since 2005, the responsibility – and staffing – for overall facility maintenance has been shifted to the Parks and Recreation Building Maintenance Department. There are presently four members of the Parks and Recreation Building Maintenance staff serving facility repair and maintenance need's for the program.

2.5 Appropriations, Revenues, and Expenditures

For the most recently completed fiscal year (2006), the Raleigh Aquatics program had an annual appropriation of $1,618,000. Revenues for this period were $939,500 and expenses were Expenditures were $1,779,500. Revenues have been rising at an annual rate of 3% while expenditures have risen approximately 6%.

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3.0 An Assessment of Need Based on Four Determinants

There are four factors which help assess the level of unmet need for aquatic services within the Raleigh community: Present Aquatics Program Demand, Anticipated Future Population Growth, National Trends in Aquatic Planning, and Public Perceptions of Need. Each of these factors are summarized below:

3.1 Assessment of the Present Demand for Aquatic Services

An assessment of the existing level of aquatics use in the community suggests there is now a deficit of aquatic resources available to meet current demand. Despite efforts to optimize the use of Raleigh's existing facilities, there remains an evident unmet need for additional aquatic capacity, evidenced by increased competition for programming by user groups, a perception of facility over crowding, and unsatisfied requests for expanded service. It is a situation that will only become more challenging as Raleigh's population grows in the coming quarter century.

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3.2 Assessment of Future Demand for Aquatic Services Prompted by Anticipated Growth in Population

The current demand for aquatic services is based, at least in part, on the present population of the City of Raleigh as well as the populations of adjoining communities who also utilize these services. Growth in the size of this population and changes to its location will precipitate changes in the demand for aquatic services in the future.

Although Raleigh's metropolitan service area will grow in population approximately 25% in the next twenty-five years, growth in its Umstead, Northwest, Southeast, North, and Northeast districts will be more pronounced. Similarly, increases in population density will also be most pronounced in these same districts. Density will increase in all districts of Raleigh, suggesting the need for expanded facilities throughout the City, but with particular emphasis on those districts with the greatest need based on projected population growth. Sources for the report's cited patterns of growth include the Office of the North Carolina State Demographer, the Capital Area metropolitan Planning Organization, the Wake County Public School System, and the City of Raleigh Planning Department.

3.3 Changes in the Demand for Aquatic Services Based on National Aquatic Trends

In the time since much of Raleigh's present aquatic system was conceived and built, there has been considerable change in the philosophy, technology, and marketing of aquatic services nationwide. Changes in national trends have already influenced the scale, variety, and expectations of other present-day municipal aquatic programs. Such trends are as yet inadequately addressed by the Raleigh Aquatics Program, representing an unmet demand for enhanced capabilities within the present aquatic service.

Overall, the prevalent trend of contemporary aquatic planning is to create multi-featured facilities that offer specialized water environments tailored to the specific needs of

various aquatic user groups. The principal user groups that should be addressed include recreational swimmers, fitness swimmers, aquatic therapy users, competitive swimmers and those in need of swimming instruction.

3.4 Assessment of Demand for Aquatic Services and Facilities Based on Public Perception

Though not an empirical measure, the collective perceptions of Raleigh's citizenry – aquatic and non-aquatic users alike – offer important qualitative insights into the performance of the City's Aquatics Program, drawn from a variety of useful perspectives. For the purposes of this study, citizen assessments have been gathered through the use of facilitated public forums and surveys.

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Those citizens of Raleigh who have participated in this study's public comment process would like more aquatic facilities with more features and amenities that better address their specific aquatic needs. They prefer facilities which are closer to their place of residence or employment. They believe indoor facilities are better than outdoor facilities. They would like the provision of more "patron friendly" amenities. They would like the needs of the Raleigh Aquatics Program to be addressed in a manner which is proportionate to the City's commitment to all other municipal services.

4.0 Approaches for Addressing Aquatic Need

4.1 The Experience of Other Peer Communities in Addressing Aquatic Needs

In terms of aquatic services, the example of peer communities is mixed, both nationwide and within Raleigh's geographic region. Some communities are extremely generous in the provision of aquatic facilities. Others are less so. In comparison to both national trends and regional peers, Raleigh is about average in terms of its per capita provision of aquatics facilities and programming..

4.2 The Contributions of Non-City of Raleigh Area Aquatic Providers in Addressing Aquatic Needs

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Non-Raleigh aquatic providers do make significant contributions in meeting the community's need for aquatic services. On the whole, these providers have been more responsive than the City of Raleigh in addressing those areas of the city that have undergone rapid growth over the past twenty years. Some of these providers – notably faith-based organizations and nearby municipalities – do address a demographic base somewhat comparable to that of Raleigh, while others support more affluent or specialized aquatic-use communities.

Regardless, there still remain broad areas of the region which do not have any aquatic facilities of a scale necessary to support the needs of their population. More significantly, many of these areas are ones that will experience high levels of growth in the coming twenty-five years.

4.3 A Toolkit Approach to Addressing Raleigh's Aquatics Needs

Both the needs of Raleigh's aquatics community and national trends of contemporary aquatic design suggest that an entirely new manner of pool design is required for the future of the Raleigh Aquatics Program. This new kind of pool, termed "The New Aquatic Center Paradigm," can be best characterized as follows:

"…contemporary aquatic centers have evolved into what could be best described as aquatic "super centers;" facilities that offer a variety of swimming environments fitted to the separate needs of various swimming constituencies within single or multiple, multi-purpose venues. The new aquatic center is far more conscious of the interests and desires of the swimming public…"

To realize this vision of the "New Aquatic Center," eight hypothetical aquatic facility elements have been developed by the consultant team to serve as models for use in the creation of a comprehensive redevelopment and expansion of the Raleigh Aquatics Program. These eight elements offer a "toolkit" of aquatic designs, each programmed and scaled to address specific aquatic needs identified in this report. The conceptual ideas underlying each toolkit element have been tested and adopted by other communities to help address aquatic needs very similar to that of Raleigh. The purpose of this conceptual toolkit is to present a diverse approach to the challenge of creating a citywide

aquatic system that can then be precisely tailored to Raleigh's needs in the present and into the future.

Key Attributes of the Aquatic Toolkit

There are four key attributes of the proposed Aquatic Toolkit: Scalability, Specialization, Bundling, and Balance.

Scalability

The Toolkit features hypothetical elements fashioned in a range of sizes. In addition, each element is designed to change, adapt, and grow as future needs of the community become evident over time. The inherent "scalability" of the toolkit ensures that planning decisions made in the present can remain flexible and responsive to changing community needs in the future.

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Specialization

The Toolkit is a direct outgrowth of the recognition that specific aquatic user groups have very specific and distinct aquatic facility needs. Aquatic Toolkit facilities are conceived as multi-purposed, multi-generational aquatic centers in which the specific needs of each aquatic user group – recreation, fitness, therapy, competition, and instructional – can be appropriately addressed at every scale of facility.

Bundling

Bundling recognizes the inherent advantage of economies of scale. Facilities that "bundle" a variety of pool types can share common infrastructures and support amenities, thereby preserving capital resources.

Balance of Facility Types

The Toolkit recognizes both the need and the utility of providing aquatic services with a variety of approaches, whose capital costs represent a broad range of fiscal options. This idea of balance is particularly significant in decisions regarding whether aquatic facilities should be built as indoor or outdoor venues.

Indoor pools and outdoor pools serve very different functions in most communities. Indoor pools tend to be programmed with classes, fitness and competitions. Outdoor pools tend to be used more for recreation, although many summer swim teams utilize outdoor competition pools. Outdoor pools have high recreation and entertainment features spread out over a large area, whereas indoor pools offer year-round swimming in a more compact interior setting.

Specific Aquatic Toolkit Elements Developed for This Study

A.	Neighborhood Family Aquatic Center	Outdoor Facility
B.	Medium Family Aquatic Center	Outdoor Facility
C.	Large Family Aquatic Center	Outdoor Facility
D.	Community Aquatic Center	Indoor/Outdoor Facility
E.	Aquatic Training Center	Indoor/Outdoor Facility
F.	Competition Venue	Indoor Facility
G.	Therapy Pool	Indoor Facility
H.	Sprayground Pad	Outdoor Facility

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5.0 A Strategy of Service
Recommendations for the Raleigh Aquatic Program

5.1 Basis for the Recommended Strategy of Service
The recommended Strategy of Service is based on the findings of the first four chapters of this study, specifically: the history of the Raleigh Aquatics Program and a description of its current status, an assessment of need, and the development of approaches for addressing those needs that have been identified.

5.2 Methodology
The recommended Strategy of Service is the product of a collaborative effort between the consultants to this study and members of the Parks and Recreation staff. A series of five "trial" strategies were proposed, reviewed, and evaluated on the basis of their effectiveness in responding to the report's assessment of need. The most responsive properties of each trial strategy were then coalesced into a single series of recommendations.

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5.3 Critical Factors and the Strategy of Service Response
The Strategy of Service proposed for the Raleigh Aquatics Program builds on all of the information developed in the report and translates these many factors into a concrete, fully realizable blueprint for the future development of the City's aquatic facilities and programming through 2025. Specifically, the Strategy of Service takes into account the following primary needs and offers a corresponding response

> The strategy recognizes that there is ***significant unmet need*** within the present, effective service area of Raleigh's Aquatics Program. As Raleigh continues to grow over the next 25 years, the magnitude of this unmet need will increase The Strategy of Service proposes that this need will be addressed through a phased campaign of upgrades, renovations, and additions to Raleigh's existing aquatic facilities. Given the present advanced age of many of these facilities, the Service Strategy further anticipates that some of these pools will require complete replacement before 2030.
>
> Further, there is an even ***more significant unmet need*** for aquatic services in Raleigh's outlying districts which have experienced - and will continue to experience - high rates of population growth, specifically: the Umstead/Northwest districts, the North district, the Northeast district, and the eastern portion of the Southeast district. The Service Strategy proposes that this need be addressed through a phased campaign of new construction located in these areas of the City.

Underlying this two-pronged response to unmet need is an underlying but essential principle: that unmet need, regardless of location, must be addressed equitably across all segments of the community. It is therefore critically important that the Service Strategy's recommendation of ***concurrent implementation*** of both ***renovation*** and ***new construction*** projects be respected.

Secondary Needs and the Strategy of Service Response

The Assessment of Need also identifies a series of secondary factors important in addressing additional elements of aquatic need in the community. These needs and their corresponding Strategy of Service response are listed below:

Raleigh's present aquatic facilities are outdated and do not adequately address the specific facility needs required by the various categories of aquatic users. The Service Strategy proposes that this need be addressed by incorporating ***user-specific aquatic features*** in all renovations and new construction.

The financial analysis of the recommended aquatic "Toolkit" elements demonstrates that larger facilities generate higher recapture rates and are a more efficient use of operating expenditures than smaller facilities. Further, large, bundled aquatic facilities conserve capital resources due to their inherent ***economies of scale***, limiting site development and infrastructure costs. The Strategy of Service responds by ***favoring larger, multi-purpose facilities*** over smaller single-use facilities.

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As argued in the Toolkit section of this report, there are both pros and cons to the virtue of constructing new indoor aquatic facilities. When evaluated solely on the basis of economic performance, ***outdoor facilities are more economical than indoor facilities***, although when created at a sufficiently large scale, both indoor and outdoor facilities can experience comparable recapture rates.

On the other hand, as noted in the Public Comments section of this report, ***the public strongly favors indoor, year-round facilities.*** The Service Strategy suggests a compromise, offering ***a balance of new indoor and outdoor facilities*** as the more favored use of capital resources.

The Assessment of Need recognizes that the quality of aquatic amenities presently available in Raleigh's pools could offer even greater value for patrons. The assessment further argues that ***better and more user-specific amenities will command greater revenues*** and improve recapture rates, lessening the need for public subsidy. The Strategy of Service responds by recommending that all renovation and new construction ***include aquatic features that will command greater levels of compensation***.

Of equal importance, the Service Strategy supports Raleigh Aquatics' mission of ***providing affordable access*** to aquatic facilities for all segments of its citizenry. Accordingly, the recommended fee-for-services structure has been tailored to strike a careful balance between securing reasonable compensation for enhanced amenities while preserving the Aquatics Program's tradition of affordability.

The review of the Aquatics Program's present status suggests a greater emphasis on contingency planning. Although the Parks and Recreation Department does have an exceptional record of maintaining twenty-five years of uninterrupted aquatic service, the advancing age of the present facilities suggests the need for greater scrutiny and

preventative maintenance in the future. In response, the Service Strategy proposes the implementation of ***long-term contingency planning*** that would ensure the availability of adequate and timely funding of future facility upgrades.

The Assessment of Need recognizes that the public's perception of aquatic facilities is favorably enhanced by the incorporation of relatively modest, patron-friendly amenities. The Service Strategy responds by proposing that all renovations and new construction include such ***amenities to enhance patron satisfaction***.

The assessment of need recognizes that the present systems of management and personnel available to the Aquatics Program are inadequate for the work it must perform, resulting in reduced staff productivity. The Services Strategy responds by recommending further study of the costs and benefits of ***improved management and administrative tools,*** as well as the addition of administrative support staff.

The Service Strategy concludes with a series of additional recommendations including those aimed at providing ***alternative sources of funding*** for these improvements, upgrades, renovations, additions, and new construction.

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5.4 Strategy of Service Physical Plan

A Phased Approach to Concurrent Renovation and New Construction

Recommendations are listed in order of probable cost.

Phase One/Years 1-7

All existing aquatic facilities are to receive funding for patron amenities
Opinion of Probable Cost: $175,000

Lake Johnson and Ridge Road Pools are to receive water play features including water slides and water spray elements.
Opinion of Probable Cost $1,136,000

Chavis Pool is to receive recreational water features and its bathhouse is to be renovated.
Opinion of Probable Cost: $3,299,600

Construct a new, Indoor Therapy Pool located with proposed Raleigh Senior Center.
Opinion of Probable Cost $4,511,100

Construct an Outdoor Large Family Aquatic Center in the Umstead/Northwest district.
Opinion of Probable Cost: $13,985,400

Construct an Indoor Competition Venue in the Northeast district.
Opinion of Probable Cost: $24,508,000

Total Phase One Cost: $47,555,000

Phase Two/Years 8-15

Provide Optimist and Millbrook Pools with water play features
Opinion of Probable Cost $1,458,800

Construct a Water Sprayground in South District.
Opinion of Probable Cost: $1,486,800

Construct new, Indoor Therapy Pool in either South, Northeast or Umstead/Northwest District
Opinion of Probable Cost: $5,741,400

Construct new Outdoor Medium Family Aquatic Center in North District.
Opinion of Probable Cost: $9,126,600

Construct new Indoor/Outdoor Community Aquatic Center in Southeast District.
Opinion of Probable Cost: $22,047,200

Total Phase Two Cost: $39,860,800

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Phase Three/Years 16-22

Construct new Outdoor Neighborhood Family Aquatic Center in Northeast District
Opinion of Probable Cost: $4,715,550

Construct new, warm water Indoor Therapy Pool in either South, Northeast or Umstead/Northwest District.
Opinion of Probable Cost: $5,536,350

Replacement or major reconstruction of either Optimist or Millbrook Pools with the equivalent of an Indoor/Outdoor Aquatic Training Center.
Opinion of Probable Cost $27,676,350

Total Phase Three Cost: $37,930,000

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Phase Four/ Years 23-25

Replace Chavis Pool with Neighborhood-sized recreation pool.
Opinion of Probable Cost: $7,160,650

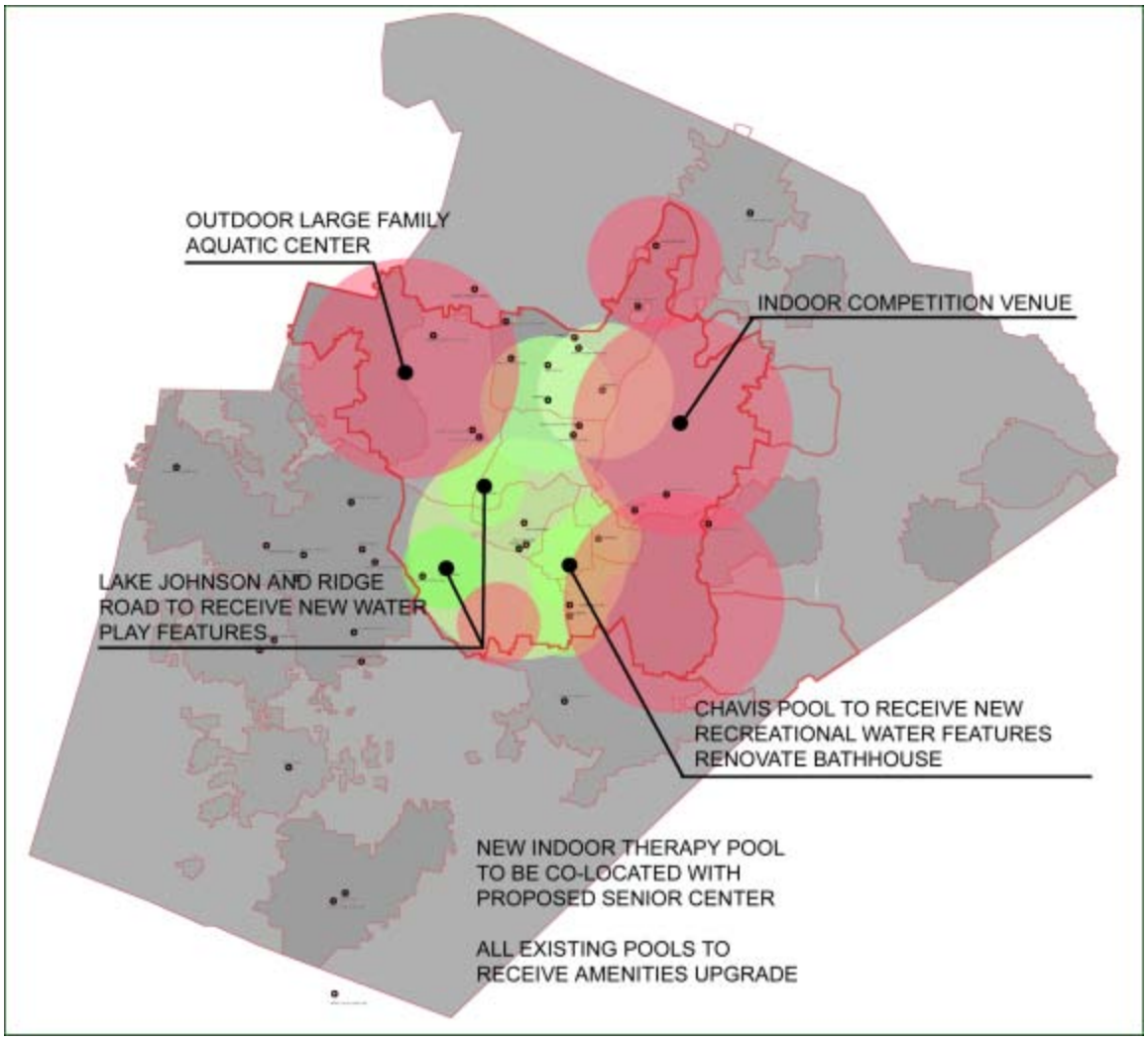
Major renovation of Pullen Aquatic Center.
Opinion of Probable Cost $16,810,820

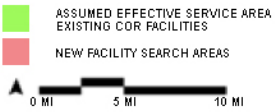
New Indoor/Outdoor Community Aquatic Center in location to be determined
Opinion of Probable Cost: $32,283,400

Total Phase Four Cost: $56,254,000

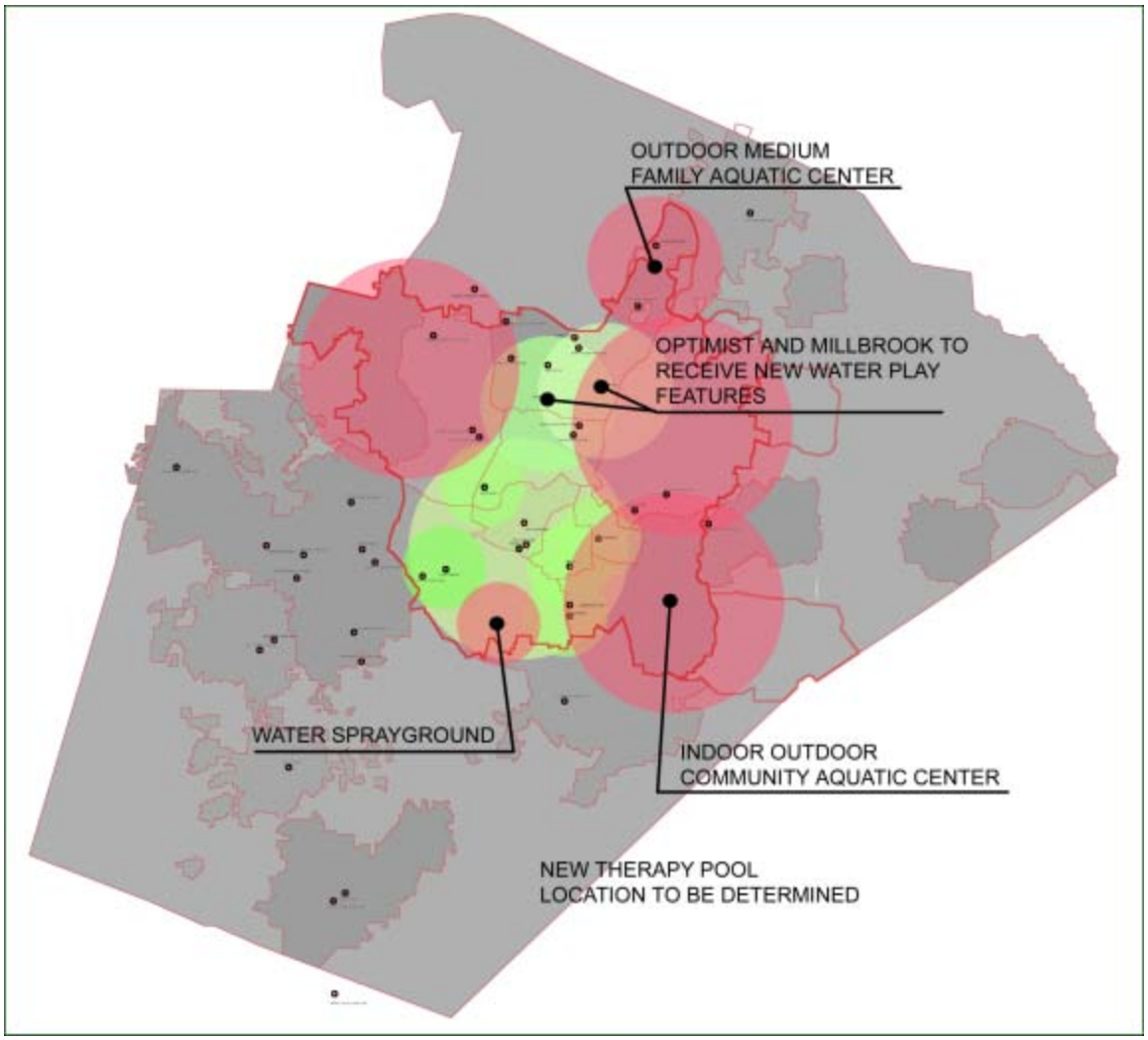
5.4 Strategy of Service/Physical Plan

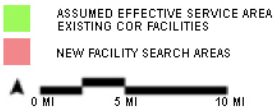
Phase One/Years 1-7



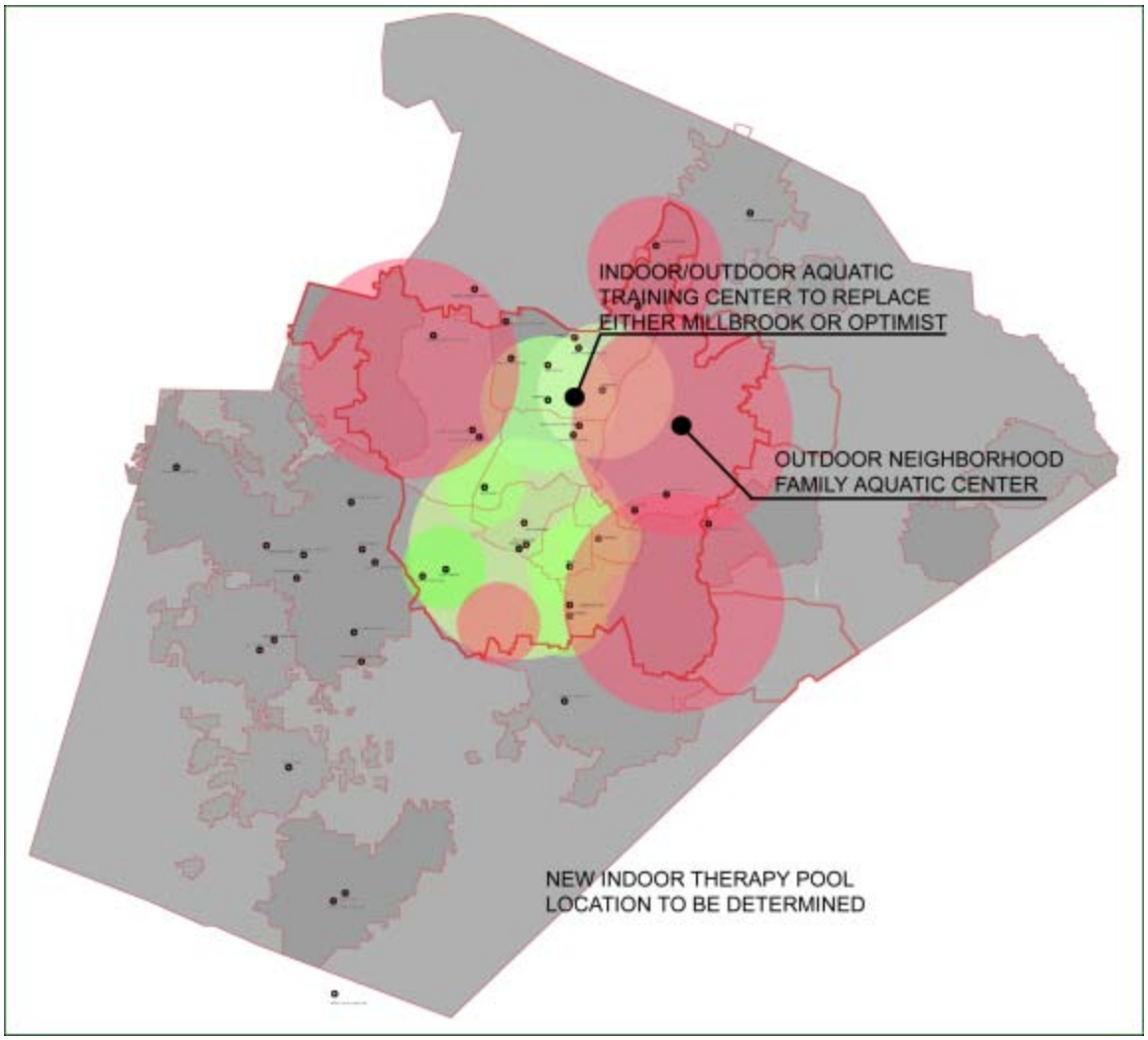


Phase Two /Years 8-15





Phase Three/Years 16-22



ASSUMED EFFECTIVE SERVICE AREA
EXISTING COR FACILITIES

NEW FACILITY SEARCH AREAS

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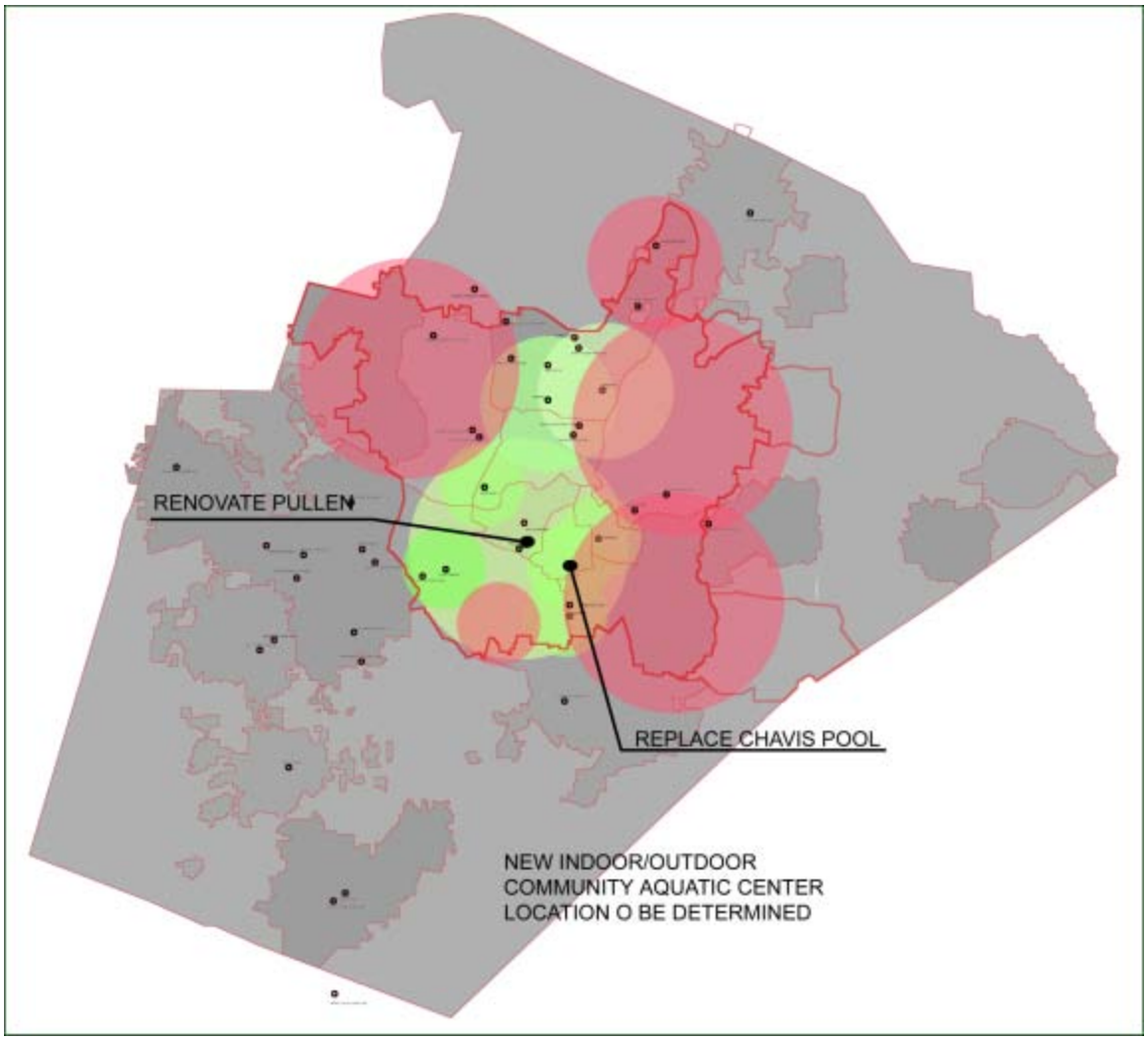
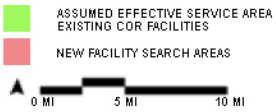
Phase Four/Years 23-25





5.5 Strategy of Service/Physical Plan
An Opinion of Financial Performance

The following summarizes an opinion of financial performance for the proposed Strategy of Service Physical Plan, Phase One through Four. All values have been adjusted based on an anticipated rate of inflation calculated at the midpoint of each phase. ***Operating costs for existing Raleigh Aquatics Program facilities are not included in this analysis.***

Phase One/Opinion of Annual Financial Performance

Total Phase One Cost:	$47,550,000
Attendance:	453,984
Revenue:	$1,831,889
Expense:	$2,872,725
Recapture Rate:	64%
Subsidy:	Approximately $1,000,000 annually

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Phase Two/Opinion of Annual Financial Performance

Total Phase One Cost:	$39,860,800
Attendance:	368,528
Revenue:	$1,678,802
Expense:	$2,276,164
Recapture Rate:	74%
Subsidy:	Approximately $600,000 annually

Phase Three/Opinion of Annual Financial Performance

Total Phase Three Cost:	$37,930,000
Attendance:	330,268
Revenue:	$1,872,169
Expense:	$2,626,363
Recapture Rate :	71%
Subsidy:	Approximately $754,000 annually

Phase Four/Opinion of Annual Financial Performance

Total Phase IV Cost:	$56,254,000
Attendance:	240,307
Revenue:	$1,567,995
Expense:	$2,134,480
Recapture Rate:	73%
Subsidy:	Approximately $566,500 annually

5.6 Operational Recommendations

Managerial Tools

The Aquatics Facilities and Program Director, working in consultation with Parks and Recreation Department staff, should prepare a plan identifying essential managerial tools necessary to enhance the efficiency of Aquatics Program operations.

Additional Administrative Staff

The Aquatics Facilities and Program Director, working in consultation with the Parks and Recreation Department staff, should prepare a cost-benefit justification for the hiring of additional administrative staff. The plan should include all costs associated as well as an expectation of efficiencies that would result from the change.

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5.7 Additional Recommendations

Due Diligence Investigation

A due diligence investigation of all existing Raleigh aquatics facilities should be funded at the earliest opportunity and included as an update to the recommendations and cost analysis of this study.

Contingency Planning

As noted earlier in this summary, many of Raleigh's aquatic facilities are approaching the later stages of their effective service life. Although the Physical Plan of the Strategy of Service does recommend specific renovations to address this concern, there should also be a systematic review of the viability of existing facilities and a contingency plan developed. This plan should identify critical facility maintenance requirements and propose additional renovation funding requests as a supplement to those offered by this study.

Wake County Public School System Participation

Given the use of Raleigh Aquatic facilities by the Wake County Public Pool System, efforts should be made to encourage their participation in the planning and support of this Strategy of Service.

Wake County Participation

Given that the present Raleigh Aquatics Program and its facilities have traditionally been utilized by residents of all of Wake County, the leadership of Raleigh and Wake County should develop strategies for joint participation in the future development of the system.

Alternative Funding Sources

The leadership of Raleigh should pursue alternative sources of funding for the capital costs anticipated by this study. Funding may come from a variety of sources including other government jurisdictions such as county, state, and the local school system, or private sources including corporations, individuals, foundations, and trusts.

Recommended Use of Anticipated Bond
In the fall of 2007, the City of Raleigh is placing before the public a Parks and Recreation Bond referendum. The proposal includes $8 million for the funding of improvements to the Raleigh Aquatics program. It is recommended that these funds be directed to the first phase of the proposed Strategy of Service.

5.8 Summary Conclusions

If the Service of Strategy plan as outlined above is implemented, by the year 2030 Raleigh will average 1 pool facility for every 35,690 residents, an improvement over its present rate of one pool for every 42,440 residents. It will provide 2.8 pools per 100,000 residents, an improvement over its present rate of 2.3. This value will move Raleigh slightly above the national average as defined in Chapter 3.0, assuming all other cited municipalities grow their own systems in a comparable fashion.

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The 2030 Raleigh Aquatics Program will be far more responsive to the needs of individual aquatic user groups because both the system's existing pools and its new facilities will be designed with far greater specialization. The needs of recreational, competitive, fitness, therapeutic, and instructional aquatic users will be far better addressed than is possible with the City's current aquatic facilities.

The Opinion of Probable Financial Performance suggests that the recapture rate for the Raleigh Aquatics program should improve, though this improvement will not be dramatic. The Strategy of Service recommends that the underlying service philosophy of the Raleigh Aquatics Program – to deliver quality aquatic experiences and education at an affordable patron cost - be preserved. Accordingly, the Opinion of Probable Financial Performance projects a continued need for annual City of Raleigh appropriations.

The overall average age of the system's facilities will decrease as new pools and renovated existing facilities are brought on board, potentially lowering annual maintenance expenditures.

Recommendations to broaden the capital funding base for the Aquatics Program, including the use of joint public-private partnerships and the increased participation of the Wake County Public School System, should assist in the procurement of some proportion of the capital funding necessary for improvements to the system.

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Appendix

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Raleigh Aquatic Facilities Study
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1. Costello Report
2. Complete text of interview with Jeff Wikltse
3. Methodology for estimating the effective service area of Raleigh's existing aquatic facilities
4. Raleigh Aquatics Program Summary Financial Statements, 2001-2006
5. Detailed analysis of demographic changes projected for City of Raleigh and Wake County, 2001-2025
6. Detailed requirements for USA Swimming sanctioned meets
7. Public Forum Meeting Notes
8. Cost/benefit analysis of Atlanta Olympic Pool solar power systems
9. Summary of public comments on detailed technical requirements for aquatics facilities.
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    - Invited
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15. Non-COR Aquatic Providers survey, summary
16. Description of Triangle Aquatic Center
17. Aquatics Toolkit Financial spreadsheets
18. Illustrations of alternative Strategies of Service

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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[1] by directing the planning and development of Raleigh's Aquatics Program in the coming twenty-five years.

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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:[2]

> 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[3]

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

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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.

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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[4]

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 4th century BC.

The modern concept of swimming pools was popularized in Britain in the mid-19th 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 20th 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.'"[5]

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[6]

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.

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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.

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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

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.

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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 though a variety of aerobic water-based activities.

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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 aquatics activities that are generally self-directed and without formal aquatic provider programming. Recreational aquatics 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.

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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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919-821-5074

Samuel Reynolds
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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

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.

Chapter 2.0
The Raleigh Aquatics Program: Facilities, Programming & Operations

Chapter Summary

In this chapter, the present capacity and capability of the Raleigh Aquatics Program System is described including summaries of its facilities, programming, administrative operations, and financial performance.

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2.1 The Raleigh Aquatic Facilities System
An Overview of the Present Status of Raleigh's Aquatics Facilities

Section Summary

This section is an overview of the present state of Raleigh's Aquatic Facilities System, including the age and general physical condition of the system, pool locations and their effective service areas, and the system's capacity and capability to support the present needs of the Raleigh aquatics community.

Above: Ridge Road Pool. Photo by Raleigh Aquatics

2.11 Raleigh's Aquatic Facilities

At present, there are eight aquatic facilities managed by Raleigh's Parks and Recreation Aquatics Program, two of which operate year-round. The remaining municipal pools are open on a seasonal basis, typically between the months of June and September. In the coming year, a fabric tension structure will be added to Millbrook Pool, making it the city's third year-round municipal facility.

2.12 Existing Facility Age

The average age of Raleigh's aquatic facilities is a little over 22 years, with the oldest – Chavis – approaching 30 years of service and the most recently constructed – The Pullen Aquatic Center – beginning its sixteenth year. Optimist Pool was built in 1981 and the five other Raleigh pools - Biltmore, Lake Johnson, Longview, Millbrook, and Ridge Road - were all built within a three year timeframe between 1983 and 1986. No new aquatic facilities have been built in Raleigh since 1992, although several existing pools have been renovated and upgraded during this time.[1]

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With the exception of Pullen, all of these pools are nearing the later stages of their anticipated service life[2] and given the close proximity of their original construction, will likely be in need of significant renovation or replacement at roughly the same time.

2.13 Existing Facility Condition

On the whole, each of these facilities has been well maintained over the years, but with the exception of Pullen, many are also swiftly approaching the expected limits of their effective service life.[2] The shells and deck areas of these pools show visual evidence of deterioration: foundation settlement, spawed and cracked concrete surfaces, and in several instances, appreciable water damage. The filtration and mechanical systems vital to these pools' operations have been upgraded where necessary and continue to perform well within the limits of current aquatic regulatory standards, but each nevertheless remain outmoded in terms of energy efficiency. More worrisome, seven of Raleigh's municipal pools have water distribution piping constructed with inaccessible and notoriously brittle PVC piping. The failure of any of these pools' primary piping systems - not an unlikely event given their age – would necessitate the closure of a facility for costly and extended repairs.

In terms of code compliance, particularly those statutes which mandate standards for universal accessibility, it should be noted that most of Raleigh's present facilities were built before adoption of the American with Disabilities Act. Although accommodations and improvements have been introduced at each pool to improve access, budgetary limitations have precluded the incorporation of measures permitting full compliance. [3]

2.14 Existing Pool Locations

The locations of Raleigh's eight municipal pools roughly correspond to the city's population distribution and patterns of growth prevalent at the time of their construction. Pools have typically been sited within existing Parks and Recreation Department properties, (Pullen, Chavis, Biltmore) or co-located with Wake County Public Schools (Ridge Road, Lake Johnson, Longview, and Millbrook). Optimist Pool is built on Wake County land which is leased to the City of Raleigh, which does hold title to the parking area serving the facility.

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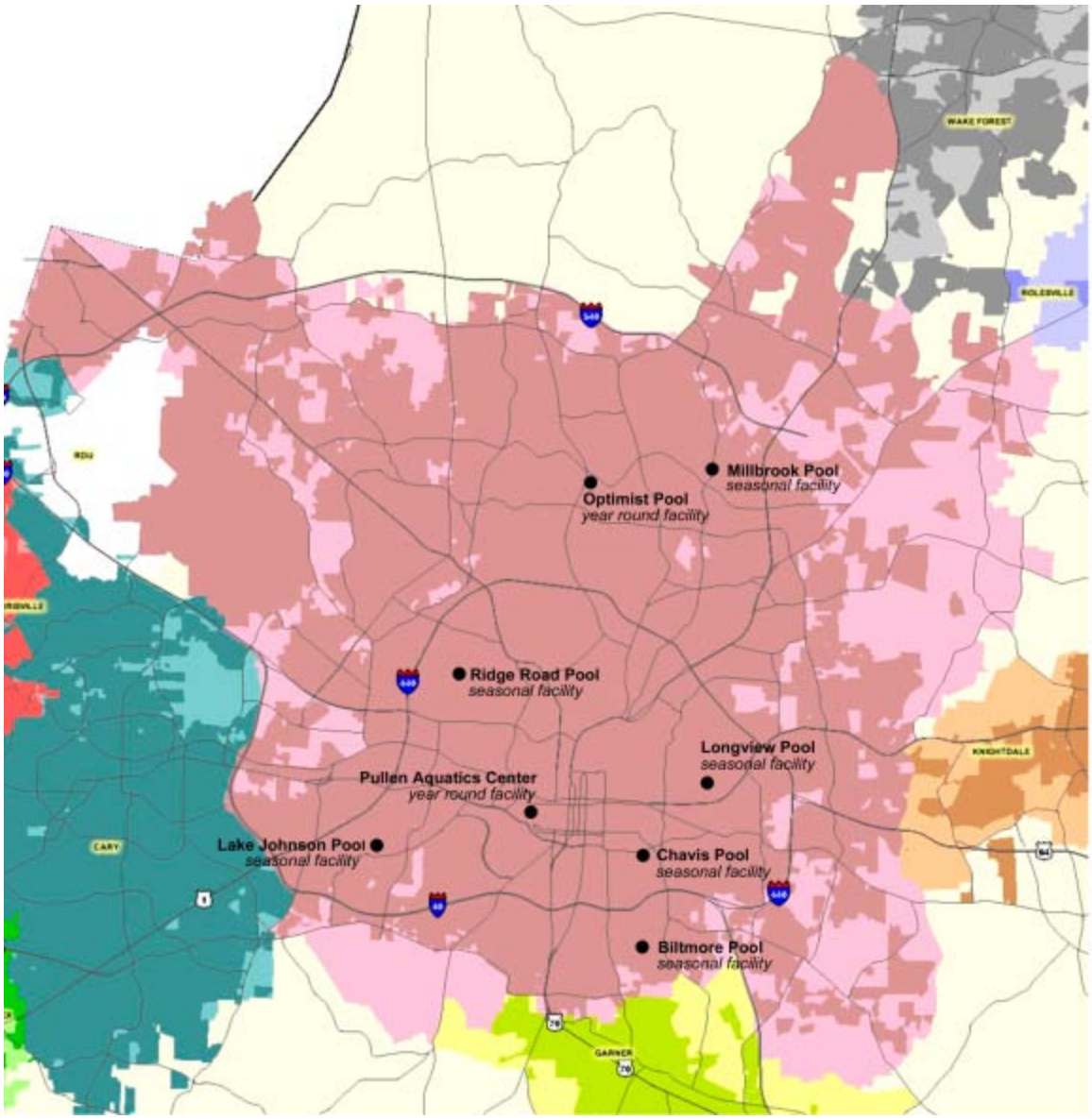
Pullen Aquatic Center and Chavis Pools, built near the sites of earlier, depression era pools, are located close to Raleigh's central business district (CBD). Longview and Biltmore pools are both in the Raleigh's Southeast district, close to the CBD and positioned within a two and three miles of Chavis Pool respectively. Millbrook and Optimist pools, sited in response to their own era's patterns of suburban growth, lie to the north of downtown, midway between the 440 Beltline and what would eventually become the city's 540 Outer Loop. Lake Johnson Pool and Ridge Road Pool were located to the west of downtown, intended to serve this sector's the suburban growth of the late 1970s and early 1980s. There are no municipal pools presently located outside the 540 Outer Loop and none in those portions of the city which have experienced the most pronounced growth in the preceding decade.

Figure 2.1A Existing Pools in the Raleigh Aquatics System



2.15 Effective Aquatic Service Area

It is difficult to reliably define the effective service area of Raleigh's aquatic facilities, based on their present location and utilization. Anecdotal evidence suggests that the majority of Raleigh's pools - Pullen, Optimist, Millbrook, Ridge Road, and Lake Johnson - are operating above or beyond their originally intended capacities during peak periods of use.[4] Accordingly, the actual service area for these pools is far broader than that for which they likely were originally designed.

For example, by contemporary aquatic planning standards, the pool sizes and amenities presently offered at Ridge Road and Lake Johnson pools would classify them as "small neighborhood" facilities, with a service area diameter of approximately three miles and an annual attendance of approximately 15,000 each. Instead, Ridge Road and Lake Johnson currently deliver over 24,700 and 26,650[5] annual visits respectively, suggesting both are oversubscribed and serve population area larger than that for which they were originally designed.

Using a comparable analysis of planning standards, the Pullen Aquatic Center also appears to command a far broader service area population than would be justified on the basis of its present scale and amenities alone. Indeed, anecdotal reports by Raleigh Aquatics program staff suggest that on days of peak use, Pullen's patrons are drawn to the facility from throughout Wake County.

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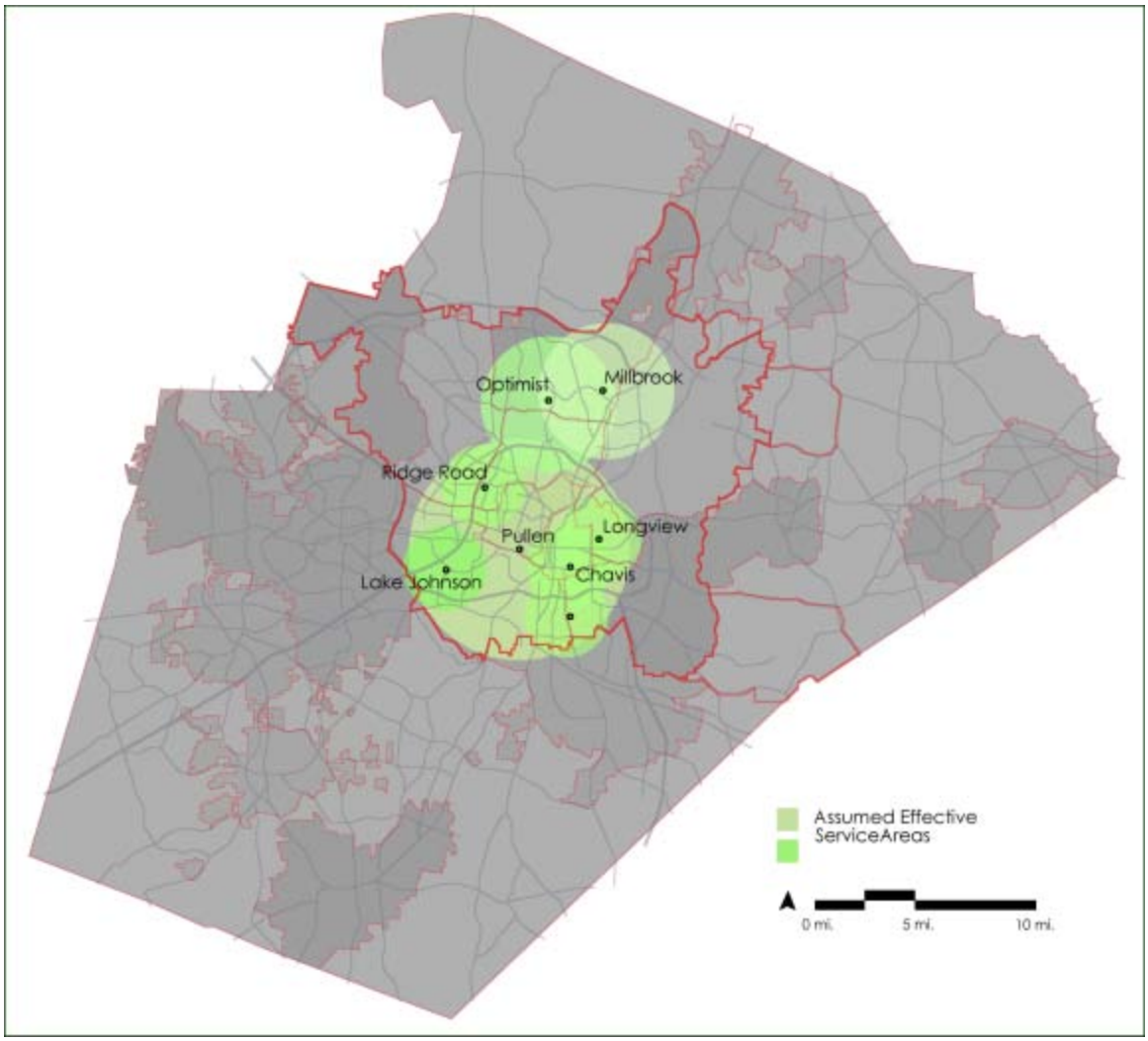
Conversely, on the basis of annual attendance, Longview (9,940 annual daily visits), Chavis (9730 annual daily visits), and Biltmore (7050 annual daily visits) are relatively underutilized and therefore draw from a correspondingly diminished service area. Several explanations have been put forth to account for the low performance of these facilities, including the suggestion that these pools' close proximity to one another creates an overlap of redundant capacity within the areas they serve. Moreover, two of these pools – Longview and Biltmore – are located within fairly insular neighborhoods and as a consequence, have relatively low visibility outside their immediate locations, further diminishing their effective service areas.

Figure 2.1B shows the location of each of Raleigh's existing municipal pools with suggestion of their current effective areas of service[6]. As described above, those facilities with high rates of utilization have an estimated effective service area greater than these with lower rates of utilization. Nevertheless, what is striking in this map is not the resulting aggregate aquatic service area of Raleigh's present facilities, but rather the obvious and significant portions of the city that have no effective aquatic service at all, principally in the Umstead, Northwest, North, Northeast and Southeast planning districts. As previously noted, these are also areas of the city which have experienced the most pronounced population growth in the preceding decade, [7] further intensifying the impact of this apparent shortfall of service.

Figure 2.1B Assumed Effective Service Area of Raleigh Aquatic Facilities



2.16 Existing Pool Design and Capabilities

With the exception of the Pullen Aquatic Center, the majority of Raleigh's pools can be best characterized as general use facilities: rectangular, lane-based pools typical of municipal aquatic centers designed in the late 1950s through the early 1970s. Although many of Raleigh's existing pools do have diving wells, simple water slides, wading pools and more recently, spray grounds, most were built without specialized aquatic features designed to serve specific needs of individual aquatic user groups.

The needs and desires of such groups are specialized and frequently incompatible. For example, competitive swimmers prefer deeper pool depths and cooler water temperatures. Both fitness lap swimmers and competitive swimmers desire more dedicated lap lanes, available at more convenient hours. Wellness and therapy aquatic users require warmer

water temperatures, shallower pool depths and greater ease of pool entry, particularly for users with limited mobility. Instructors of swimming classes would like both shallow water depths and some degree of isolation from the distractions presented by other aquatic users. Recreational users would prefer a greater variety of aquatic experiences, including a host of active water features that have in recent years become fashionable in commercial water parks. Unfortunately, the majority of Raleigh's present aquatic facilities have not been designed to serve any of these specialized needs particularly well.

To address such diverse needs, the Raleigh Aquatics Program administration and staff have made admirable accommodations, either by physically segregating different user groups from one another, for example through the use of floating lane lines or bulkheads to separate recreational users from fitness swimmers, or by scheduling dedicated times for each of the various user groups at different times of day.

However, given the generic design of Raleigh's pools, such administrative accommodations can only satisfy a relatively narrow range of specialized aquatic needs. Pool water temperatures cannot be easily modified to the preference of every user group, nor can an existing pool be conveniently adjusted to the optimum depth and configuration desired by every swimmer[8] Moreover, because there is both a limited number of aquatic facilities in the community and a correspondingly limited number of hours available for the scheduling of water, there is invariably vigorous competition among user groups for access, particularly at times the day most convenient and desirable for the majority of swimmers.

As previously suggested, recent renovations to Raleigh's aquatic facilities have helped - and will continue to help - alleviate some of these competitive pressures. For example, the addition of shallow depth water spray grounds to Chavis, Millbrook and Lake Johnson has expanded their respective recreational capacity while preserving lane space in their main pools for fitness swimmers and instructional users. The conversion of Millbrook from a seasonal facility to year-round operations will further increase the available opportunities for all aquatic users.

Despite the improvement these recent renovations have made in service capacity, Raleigh's aquatic facilities still do not fully address either the present demand for specialized aquatic resources or the anticipated growth in demand that will accompany the region's growth in population. Each of these topics will be more thoroughly discussed in the next chapter of this report.

2.17 Existing Support Amenities

Just as Raleigh's existing pools are themselves the product of an earlier era of aquatic design standards, so too are the amenities and support facilities that serve these pools Bathhouses and changing areas in seasonal pools, though well-maintained, are utilitarian in nature and, as with the pools themselves, do not fully comply with provisions of the Americans with Disabilities Act. Neither do these facilities provide the kind of locker

room amenities that have become increasingly commonplace in newer aquatic centers, for example individual shower stalls, personal dressing areas, and family changing rooms. At most locations there is inadequate space for administrative duties, storage, and classroom instruction.

The poolside deck space of many of Raleigh's pools is limited and less expansive than that offered in more contemporary facilities. Moreover, because there is little enclosed storage for the pools, this available deck space must double as an unsecured storage area for kick boards, life jackets, lane line coils, and maintenance equipment. There is also great need for more comfortable accommodations for aquatic patrons including lounge chairs, shaded or trellised social areas, and staffed or self-service food and drink concessions.

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2.18 Present Utilization of Raleigh's Aquatic Facilities

During the 2005-2006 fiscal year, Raleigh Aquatics Program facilities were visited 373, 634 times, roughly the equivalent of one visit per year for every current Raleigh resident. Of this total number of visits, 211,825 (56.7%) were "at-the-gate" or pool pass admissions. The remaining aquatic visits were made by participants in swimming lessons, exercise and therapy programs, competitive training and meets by both Raleigh Aquatic sponsored teams, area high schools and independent swim clubs, (including spectators), rental lap lane users, and group bookings.

Of those aquatic participants who paid for individual, non-programmed admission, 45.% were classified as youth (ages 1-15), 47% were adults (ages 16-61), and approximately 8% were seniors[9]. Of all paid admissions, only 3,730 (less than 2%) were patrons identifying themselves as residing outside of Raleigh's city limits and paid the higher, non-resident admission fee.

2.19 Facilities Overview/Conclusion

With the exception of the Pullen Aquatic Center, the majority of Raleigh's ***pools are both aging, and lacking in specialized aquatic features and overall capacity.*** *All of these facilities are located in older, more established sections of the city and as a consequence,* ***do not address recent changes in the community's patterns of population distribution and growth****.*

Facilities Overview/Notes

1. Renovations and upgrades to individual pools are listed in the next section under the description for each pool.

2. Pools constructed in this era were assumed to have an effective service life of approximately thirty to forty years without substantial renovation. Source: Counsilman

Hunsaker. The performance of a thorough due-diligence investigation of each pool would further substantiate this assumption.

3. Under the ADA and the North Carolina Accessibility code, existing municipal facilities like Raleigh's swimming pools are not required to be "fully compliant" with the current accessibility standard. Instead, the code requires what can be best described as a "good faith" effort to remove barriers and achieve reasonable access. The specific language of the statute is as follows:

> **Appendix R Excerpts from 28 CFR Part 36 (Title III) Non discrimination on the Basis of Disability by Public Accommodations and Commercial Facilities; Final Rule Subpart C – Specific Requirements, Paragraph 36.304 Removal of Barriers**
>
> (a) **General.** A public accommodation shall remove architectural barriers in existing facilities, including communication barriers that are structural in nature, where such removal is readily achievable, i.e., easily accomplishable and able to be carried out without much difficulty or expense…

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In the instance of Raleigh's aquatic facilities, while there have been both improvements and accommodations made to enhance accessibility, there may well be further improvements that would be considered of value. A due-diligence assessment of each facility in terms of ADA and North Carolina accessibility compliance should be preformed to identify further beneficial improvements.

4. Substantiation of this observation of utilization is presented in the Assessment of Need chapter of this report.

5. Attendance values for 2005-2006. Average attendance for past three years: Lake Johnson-31,300 and Ridge Road-20,300

6. The methodology for estimating the extent of effective service areas for Raleigh's existing pools is included in the Appendix of this report.

7. A more complete analysis of regional growth projections is included in the next section of this report.

8. Current standards for minimum depth for competitive deck starts is 4'-0", although deeper water is preferred and required for block starts. Optimist Pool can only have competitive starts in one end of the pool for 50 meter competition and has only eight 25 yerd lanes which satisfy the four foot depth minimum. The shallow end is 3ft 6in deep. Pullen Aquatic Center has the four foot depth in the shallow end. The depth required for competitive block starts only allows 50 meter starts from the deep end. When the four foot depth minimum was made several years ago, the City of Raleigh competitive

program went to deck starts only since all the seasonal pools [except Chavis] have a 3'6" shallow to 5'-6"deep range in depth.

9. Under the adult group and picture pass plans, seniors are not distinguished from adults ages 16-61. Noted percentages are estimated based on the distribution of adults vs. seniors, drawn from those categories of data which do make this distinction.

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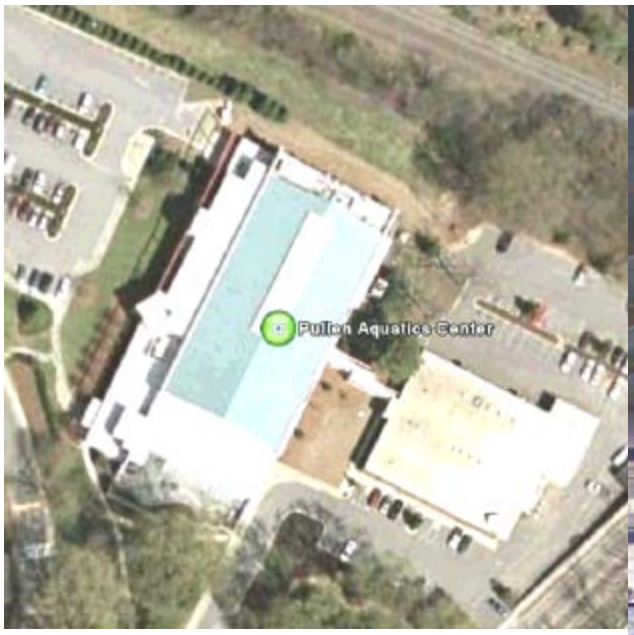
2.2 Descriptions of Individual Raleigh Aquatic Facilities

Section Summary

Each of Raleigh's existing aquatic facilities is described in detail, including a summary of their size and condition, record of maintenance and improvements, potential for expansion, attendance and financial performance, staffing, and schedule of operation. The facilities are listed in order of their annual daily attendance, beginning with Pullen, the best attended Raleigh aquatic facility.

The Pullen Aquatic Center. Photo Counsilman-Hunsaker

2.21 Pullen Aquatic Center
410 Ashe Avenue



Above: Pullen Aquatic Center.
Photo: Google Earth and the Counsilman-Hunsaker

Facility Description

The Pullen Aquatic Center, built in 1992, is located in Pullen Park just west of Raleigh's central business district, approximately one block north of Western Boulevard. It is both the newest and the most heavily utilized of Raleigh's eight municipal pools. The present 39,400 foot facility was built to replace a 1930's era, 40 meter outdoor pool constructed by the Works Progress Administration. Pullen is currently the City of Raleigh's only permanent indoor, year-round facility and has a 50 meter x 25 yard swimming pool

suitable for swimming and springboard diving competition and an adjoining 25 yard x 8 foot warm water teaching pool.

The main pool's depth ranges from four to fourteen feet and is kept at an average water temperature of 82° to 84°. There is a movable bulkhead which can partition the pool to facilitate concurrent, multiple uses. The pool can be used for long and short course competition, but its shallow-end depth of four feet does not allow competitive block starts, so 50 meter starts are staged only from the pool's deep end. The pool is also utilized for training and fitness lap swimming, swimming instruction, and recreational swimming, though it has no specialized recreational amenities.

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The warm water teaching pool at Pullen is 8 feet in width by 75 feet in length with zero depth entry and a maximum depth of 4'- 0". It is Raleigh's only pool with therapeutic capabilities. This pool is used for a variety of wellness and instructional programs including aqua-aerobics, water walking, and arthritis exercise. There is also a class currently offered for the therapeutic treatment of Multiple Sclerosis, but the pool's average water temperature of 88° is generally not recommended for such use. The pool can also be scheduled for rehabilitation therapy sessions offered by area healthcare providers.

Support Amenities

Support amenities for the Pullen Aquatic Center include conditioned changing rooms with individual lockers, a classroom with 30 seats, administrative office space and check-in desk, mechanical equipment areas, storage, and deck seating and elevated spectator seating areas with retractable bleachers for approximately 300 spectators. There is also a small outside sunbathing area located south of the main pool enclosure.

As Raleigh's most recently constructed aquatic facility, Pullen's support areas reflect more contemporary national aquatic standards in terms of the scale and quality of customer accommodations. Support amenities are well-maintained and in compliance with North Carolina's requirements for accessibility[1] in force at the time of their construction.

Summary of Improvements, Upgrades, and Major Repairs, 1997-2006

June 1997	New drains and tile installed in locker rooms
September 1998	Ductwork over the main pool area replaced
August 2000	New gutter grating installed
February 2001	New sand filtration system installed for main pool
December 2001	New sand filtration system installed for teaching pool
February 2003	Roof mounted HVAC system replaced

Potential for Expansion

The Parks and Recreation Comprehensive Plan currently recommends expanding Pullen's capacity, suggesting the addition of an outdoor recreational pool. However,

more recent master plan studies of Pullen Park itself argue that the park is currently very close to its maximum development capacity, evidenced by of overall user population, limited parking capacity, and vehicular congestion. Further expansion of any of the park's present amenities, including aquatic facilities, has been discouraged for the foreseeable future

Aquatic Programming at Pullen Aquatic Center

Pullen Aquatic Center offers a full range of instructional and fitness aquatic programs in addition to recreational uses and lap swimming. The 50 meter pool hosts competitive swimming practice and events for the Wake County Public School System Championships, many USA Swimming swim meets, local and state Special Olympic competition, and NCHSAA State Diving competition. In addition, the facility is host to instructional programming in scuba diving.

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Attendance

In the 2005-2006 fiscal year, Pullen had a total daily attendance of 140,580. Of this number, 42,262 were "at-the-gate" or subscriber paid admissions (approximately 30%) with the remaining visits made up by participants in swimming lessons, exercise and therapy programs, competitive training and meets (including spectators), rental lap lane users, and group bookings. On average, Pullen's attendance accounts for approximately 40% of all Aquatics program attendance. Only 5% of all patrons were non-residents, accounting for approximately 17% of admission revenues.

Revenues and Expenses

For the 2005-2006 fiscal year, Pullen had revenues of $294,075[2] and expenditures of $525,674 for a recapture rate of 56%. Pullen's share of the City of Raleigh Aquatics Program appropriation for this fiscal year was $541,585.

Staffing

Pullen has three full-time aquatic supervisors and approximately 79 part-time staff

Schedule of Operation

Pullen is operated seven days a week, year round, closing to the public only for holidays (Easter, Thanksgiving, Christmas Eve, and Christmas Day), scheduled maintenance (typically14-21 days/year) and special programming events including Raleigh Aquatics-sponsored swim meets (typically 24 days/year) and compensated facility rentals for independently sponsored swimming events (typically 11 days/year).

While Optimist and Millbrook pools are undergoing renovation, operating hours at Pullen will be expanded and limits will be placed on the availability of rental lap lanes, swimming lessons, exercise programs, non-sponsored competitive meets, and training and meets for the Intra-City Swim team. Following completion of these projects, Pullen will return to its prior schedule of operations.

2.22 Optimist Pool

5902 Whittier Drive

Above: Optimist Pool
Photo: Google Earth and Szostak Design Inc.

Optimist Pool, built in 1981, is located in north Raleigh midway between Interstate 440 and the 540 Outer Loop, just west of Six Forks Road. The 38,000 square foot facility has a 50 meter x 25 yard swimming pool, a separate diving well with one and three meter springboards, and a 25 yard wading pool. The 50 meter pool has a 3'-6" minimum depth which limits its full use for competitive swim meets. For 50 meter length events, only the 6'-0" deep end of the pool may be used for block starts. Of its 19 crossing lanes (25 yard), only eight are of sufficient depth for block starts.

For the past 26 years, Optimist has been fitted with a series of air-supported, fabric enclosures which permit year-round use. These pneumatic structures have had a limited life span (approximately ten years) and are susceptible to wind damage, necessitating their removal whenever adverse weather is forecast, resulting in a shut down of the pool. Installation and removal of the structure requires 14-21 days at the beginning and end of

the summer season. Optimist's diving well and wading pool are not covered by this structure and therefore are open only on a seasonal basis.

In the fall of 2007, construction will begin on a permanent, rigid frame, metal paneled enclosure for the 50 meter pool, replacing the current air-supported structure. The new enclosure is scheduled for completion by the summer of 2008 and will have retractable roof and wall panels to permit cross ventilation and daylighting during the summer swimming season. The existing diving well and wading pool will continue as outdoor, seasonal facilities.

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Support Amenities
Optimist has locker rooms, office space, a first aid room, and an outlying building used for storage, maintenance workshops, and additional classroom space.

Summary of Improvements, Upgrades, and Major Repairs, 1997-2006

March 1998	Diatomaceous earth filter replaced with sand filter
September 1999	Pneumatic structure lowered due to heavy rains. Damage to the structure's fabric and lane lines repaired
January 2000	New air heater installed
January 2000	Repairs to pneumatic structure and lighting due to snowstorm
July 2000	Repaired water leak under main deck.
August 2000	Performed leak detection analysis
September 2000	Under deck piping replaced for all three pools
September 2001	Pneumatic enclosure replaced.
September 2004	New (additional) pneumatic air blower installed
May 2006	Plastic grates replaced existing rim flow stones

Current Capital Improvements
As noted above, in the Fall of 2007, Optimist will be closed to permit construction of a permanent enclosure over its main pool. The steel frame structure will feature retractable roof and wall panels for summer use. Additional work will include demolition of the exisiting bathhouse, construction of a new bathhouse with expanded locker rooms, lobby, storage, and concession areas for year-round use. The facility is scheduled to be reopened by the Summer of 2008 and has an estimated construction cost of $3.7 million.

Potential for Expansion
Optimist Pool is sited on land owned by Wake County which is leased to the City of Raleigh. The adjacent parking lot serving the pool is located on land owned by Raleigh. Although there is land area available for future expansion, such use would require approval by Wake County.

Aquatic Programming at Optimist Pool
Optimist Pool offers a full range of instructional and fitness aquatic programs in addition to recreational uses, lap swimming, and other aquatic classes. The 50 meter pool hosts

competitive swimming practice and events for the City of Raleigh's Intra-City Swim Association (ICSA), Wake County Public School system's five swim teams and several USA Swimming Association teams. In addition, the facility is host to instructional programming including learn-to-swim, track-out swimming programs, spring break camp, and kayaking.

Attendance

In the 2005-2006 fiscal year, Optimist had a total daily attendance of approximately 123,200. Of this number, 35,750 were paid admissions (approximately 29%) with the remaining visits made up by participants in swimming lessons, exercise and therapy programs, competitive training and meets (including spectators), rental lap lane users, and group bookings. 0.5 % of all patrons were non-residents.

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Revenues and Expenses

For the 2005-2006 fiscal year, Optimist had revenues of $197,723[2] and expenditures of $463,130 for a recapture rate of 42.7%. Optimist's share of the City of Raleigh Aquatics Program appropriation for this fiscal year was $462,512.

Staffing

Optimist has two full-time aquatic supervisors and approximately 94 part-time staff

Schedule of Operation[3]

Optimist Pool is operated seven days a week, year round, closing to the public only for holidays (Easter, Thanksgiving, Christmas Eve, and Christmas Day), scheduled maintenance (typically 14-21 days/year[4]) and special programming events including both Raleigh Aquatics-sponsored swim meets (typically 16 per year) and compensated facility rentals for independently sponsored swim events (typically 14 days).

2.23 Millbrook Pool
1905 Spring Forest Road

Above and Left: Millbrook Pool
Photo: Google Earth and Raleigh Aquatics

The Millbrook Pool, built in 1986, is located in north Raleigh adjacent to Millbrook High School. The 10,360 square foot facility has a 25 meter x 25 yard main pool with an adjoining spray ground and wading pool. The depth of the main pool is inadequate to permit block starts and therefore is not used for competitive swim meets. Moreover, the existing deck area is too small to permit spectators within the pool area. The pool is presently closed for renovations which will include the erection of a fabric tension structure over the main pool. The structure will feature removable fabric wall panels for summer use. Additional renovations will include heated water for the pool and conditioning for the bathhouse. The pool will resume operations as a year-round facility in the Fall of 2007.

Summary of Improvements, Upgrades, and Major Repairs, 1997-2006

August 2000	New spray ground installed

Current Capital Improvements
In the Summer of 2007, Millbrook was closed to permit construction of a fabric tensile enclosure over its main pool, converting it to a year-round facility. The new structure will feature removable sidewall panels for summer use. The facility is scheduled to be reopened by the Fall of 2007 and has an estimated construction cost of $680,000.

Potential for Expansion
Site constraints that will potentially limit the expansion of this facility include the presence of other recreational facilities in the adjoining park – community center, ball fields, the Raleigh's only municipal tennis complex, and dog park. In addition, parking on the site is already limited.

Aquatic Programming at Millbrook Pool

Millbrook Pool offers a full range of instructional programs in addition to recreational uses and lap swimming. The 25 meter x 25 yard pool supports training for Raleigh Aquatics' intra-city swim team, though the pool's depth and deck space precludes its use for competitions requiring block starts.

Attendance

In the 2005-2006 fiscal year, Millbrook had a total daily attendance of approximately 31,770. Of this number, 22,380 were paid admissions (approximately 70%) with the remaining visits made up by participants in swimming lessons, ICSA training, and rental lap lane users. 0.5 % of all patrons were non-residents.

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It should be noted that Millbrook's conversion to year-round use will alter its annual attendance, revenues and expenditures. The change in these values should approximate those presently experienced at Optimist, adjusted for Millbrook's historically lower levels of attendance and lower revenues from swimming lessons and competitive events. Exercise classes will be added to the pool's programming after the renovation is complete.

Revenues and Expenses

For the 2004-2005 fiscal year, Millbrook had revenues of $43,442.[2] Expenditures were $ 95,024 representing a recapture rate of approximately 46%. Millbrook's share of the City of Raleigh Aquatics Program appropriation for this year was $104,870.

Staffing

Prior to the start of its renovation, Millbrook was staffed with only part-time personnel, supervised by Raleigh Aquatics full time staff members. After Millbrook's conversion to year-round use, two full time aquatic supervisors and approximately 63 part-time staff will be added to the payroll.

Schedule of Operations

Following renovations, Millbrook will operate on a year-round schedule comparable to that of Pullen and Optimist. During Optimist's renovation, Millbrook will also likely have extended hours and limitations on availability of rental lap lanes, swimming lessons, and training slots for the Intra-City Swim team.

2.24 Lake Johnson Pool
1416 Athens Drive

Above and Left: lake Johnson Pool
Photo: Google Earth and Raleigh Aquatics

Lake Johnson Pool is a 10,100 square foot facility built in 1984, located near the campus of Athens Drive High School. The main pool is 25 meters by 25 yards in length with ten lap lanes, separate wading pool, and spray ground.

Support Amenities
Lake Johnson has an enclosed, unconditioned bathhouse, office space, check-in desk, and mechanical space.

Summary of Improvements, Upgrades, and Major Repairs, 1997-2006

July 2001	New spray ground installed

Potential for Expansion
Lake Johnson is co-located with Athens Drive High School. It is relatively isolated from major streets and can be difficult to find without prior experience or guidance. There does seem to be ample site area for future expansion, assuming such use does not conflict with WCPSS plans for the area, and does not overload the site's limited access roads with vehicular traffic.

Aquatic Programming at Lake Johnson Pool
Lake Johnson Pool offers a full range of instructional programs in addition to recreational uses, lap swimming and training for the ICSA team.

Attendance
In the 2005-2006 fiscal year, Lake Johnson had a total daily attendance of approximately 26,650. Of this number, 20,800 were paid admissions (approximately 78%) with the

remaining visits made up by participants in swimming lessons, ICSA training, and exercise class participants. 2% of all patrons were non-residents.

Revenues and Expenses
For the 2004-2005 fiscal year, Lake Johnson had revenues of $49,122 [2]. Expenditures were $ 97,630 representing a recapture rate of approximately 50%. Lake Johnson's share of the City of Raleigh Aquatics Program appropriation for this year was $105,179.

Staffing
Lake Johnson Pool is staffed with only part-time personnel, supervised by Raleigh Aquatics full time staff members.

Schedule of Operations
Lake Johnson typically operates from the beginning of June through the end of August. Scheduled maintenance is performed in the off season.

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2.25 Ridge Road Pool
1709 Ridge Road

Above and Left: Ridge Raod Pool
Photo: Google Earth and Raleigh Aquatics

Ridge Road Pool is located in west Raleigh, inside the beltline adjacent to Martin Middle School on Ridge Road. The 10,000 square foot facility was built in 1983 and includes an "L" shaped 8 lane, 25 yard pool with a 12 foot deep area, and separate spray ground wading pool.

Support Amenities
Ridge Road has an enclosed, unconditioned bathhouse, office space, check-in desk, and mechanical space.

Summary of Improvements, Upgrades, and Major Repairs, 1997-2006

Fall 1999	Diatomaceous earth filter system replaced with sand filter
October 2001	New fiberglass shell installed to replace 1985 plaster shell

Potential for Expansion
Due to challenging topographical conditions at this site, there is little potential for significant expansion of the facility.

Aquatic Programming at Ridge Road Pool
Ridge Road Pool offers a full range of instructional programs in addition to recreational uses, lap swimming and training for the ICSA team. Deep water walking and Aquacise classes are also offered at this pool.

Attendance
In the 2005-2006 fiscal year, Ridge Road had a total daily attendance of approximately 24,700. Of this number, 21,180 were paid admissions (approximately 82%) with the

remaining visits made up by participants in swimming lessons, ICSA training, and exercise class participants. 0.3% of all patrons were non-residents.

Revenues and Expenses

For the 2004-2005 fiscal year, Ridge Road had revenues of $33,471.[2] Expenditures were $92,494 representing a recapture rate of approximately 36%. Ridge Road's share of the City of Raleigh Aquatics Program appropriation for this year was $315,674.

Staffing

Ridge Road is staffed with only part-time personnel, supervised by Raleigh Aquatics full time staff members.

Schedule of Operations

Ridge Road typically operates from the beginning of June through the end of August. Scheduled maintenance is performed in the off season.

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2.26 Longview Pool
321 Bertie Drive

Above and Left: Longview Pool
Photo: Raleigh Aquatics and Google Earth

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Longview Pool is a 10,100 square foot facility built in 1984, located inside the beltline in east Raleigh, north of New Bern Avenue. The site includes an 8 lane, 25 meter x 25 yard pool. There are ten lap lanes in the 25 yard length. Also included is a 12 foot deep area and a separate wading pool and is similar in design to Lake Johnson except for the location and position of its bathhouse and support facilities.

Support Amenities
Longview has an enclosed, unconditioned bathhouse, office space, check-in desk, and mechanical space.

Summary of Improvements, Upgrades, and Major Repairs, 1997-2006

Winter 2000-01	Repair fire damage to office area

Potential for Expansion
Longview is co-located with Longview Alternative High School. Its site is set deeply within a relatively insular neighborhood, lacking exposure or access to major streets. Although there may be sufficient site area to permit the expansion of this facility, any major increase vehicular traffic would likely have an adverse impact on the adjoining neighborhood.

Aquatic Programming at Ridge Road Pool
Longview Pool offers a reasonably complete range of instructional programs in addition to recreational uses, lap swimming, and training for the ICSA team.

Attendance
In the 2005-2006 fiscal year, Longview had a total daily attendance of approximately 9,940. Of this number, 8,416 were paid admissions (approximately 85%) with the remaining visits made up by participants in swimming lessons, ICSA training, and exercise class participants. There were no non-resident patrons during this period.

Revenues and Expenses
For the 2004-2005 fiscal year, Longview had revenues of $17,732.[2] Expenditures were $72,050 representing a recapture rate of approximately 25%. Longview's share of the City of Raleigh Aquatics Program appropriation for this year was $76,167.

Staffing
Longview is staffed with only part-time personnel, supervised by Raleigh Aquatics full time staff members.

Schedule of Operations
Longview typically operates from the beginning of June through the end of August. Scheduled maintenance is performed in the off season.

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2.27 Chavis Pool
720 Chavis Way

Above and Left: Chavis Pool
Photo: Google Earth and Aquatics Photo

Chavis Pool is a 7,350 square foot seasonal pool in south central Raleigh, west of the central business district off Martin Luther King Jr. Boulevard. The present facility was built in 1979 to replace Chavis Park's original 40 meter, WPA-era outdoor pool. The main pool is 25 yards but irregular in shape without lane markings and is not suitable for competitive swimming events because of its shallow (3'-0") water depth. The pool's shell and bathhouse were renovated in 1994 and a spray ground was added in 1997. The sprayground wading pool has a zero depth entry while the main pool has a large step entry and large shallow area that is excellent for novice swimmers.

The facility is located adjacent to a number of other recreational facilities including a community center, playground, historic carousel and gymnasium. The park has been improved in recent years with the addition of enhanced landscaping, play structures, new outdoor athletic areas and a newly inaugurated work of public art.

Support Amenities
Chavis has an enclosed, unconditioned bathhouse, office space, check-in desk, and mechanical space.

Summary of Improvements, Upgrades, and Major Repairs, 1997-2006

June 1998	New recirculation system, pool deck, and shallow water play pool

Potential for Expansion

Chavis Pool is situated in an expanse of relatively flat terrain just north of the entrance to Chavis Park. Although a detailed assessment has not been made of this site, it appears likely that there is ample room for significant expansion to this facility.

Aquatic Programming at Chavis Pool

Chavis Pool currently offers instructional programs and one class in Aquacise, in addition to recreational uses and training for the ICSA team. The main pool does not have designated lap lanes, precluding its use for competitive swim training and lap swimming rentals.

Attendance

In the 2005-2006 fiscal year, Chavis had a total daily attendance of approximately 9,740. Of this number, 9,525 were paid admissions (approximately 98%) with the remaining visits made up by participants in swimming lessons, ICSA training, and exercise class participants. There were no non-resident patrons during this period.

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Revenues and Expenses

For the 2004-2005 fiscal year, Chavis had revenues of $20,073.[2] Expenditures were $86,867 representing a recapture rate of approximately 23%. Chavis's share of the City of Raleigh Aquatics Program appropriation for this year was $96,446.

Staffing

Chavis is staffed with only part-time personnel, supervised by Raleigh Aquatics full time staff members.

Schedule of Operations

Chavis typically operates from the beginning of June through the end of August. Scheduled maintenance is performed in the off season.

2.28 Biltmore Pool
1001 Cross Link Road

Above: Biltmore Pool
Photo: Raleigh Aquatics and Google Earth

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Biltmore Pool is located in south Raleigh just beyond the Beltline near Rock Quarry Road. Like Ridge Road, Biltmore was opened in 1983 and a similarly configured "L" shaped 8 lane, 25 yard pool with a 12 foot deep area and separate wading pool.

Support Amenities
Biltmore has an enclosed, unconditioned bathhouse, office space, check-in desk, and mechanical space.

Summary of Improvements, Upgrades, and Major Repairs, 1997-2006

September 2000	Diatomaceous earth filter replaced with sand filter
October 2001	New fiberglass shell installed to replace plaster shell

Potential for Expansion
Biltmore Pool is sited within a relatively insular neighborhood, lacking exposure or access to major streets. Although there may be sufficient site area to permit the expansion of this facility, any major increase in vehicular traffic would likely have an adverse impact on the adjoining neighborhood.

Aquatic Programming at Biltmore Pool
Biltmore Pool offers instructional programs in addition to recreational uses and training for the ICSA team.

Attendance
In the 2005-2006 fiscal year, Biltmore had a total daily attendance of approximately 7,050. Of this number, 6,340 were paid admissions (approximately 90%) with the remaining visits made up by participants in swimming lessons, ICSA training, and exercise class participants. There were no non-resident patrons during this period.

Revenues and Expenses
For the 2004-2005 fiscal year, Biltmore had revenues of $14,153.[2] Expenditures were $66,062 representing a recapture rate of approximately 21%. Biltmore's share of the City of Raleigh Aquatics Program appropriation for this year was $73,865.

Staffing
Biltmore is staffed with only part-time personnel, supervised by Raleigh Aquatics full time staff members.

Schedule of Operations
Biltmore typically operates from the beginning of June through the end of August. Scheduled maintenance is performed in the off season.

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2.29 Individual Facilities/Conclusions

With the exception of the Pullen Aquatic Center, all of Raleigh's existing aquatic facilities were built between 1979 and 1986. Most are ***approaching the later stages of their effective service life*** *and because of the close proximity of their original years of construction, will require significant renovation or replacement at approximately the same time.* ***Better attended facilities*** *(Pullen, Optimist, Millbrook, Lake Johnson, Ridge Road)* ***exhibit higher recapture rates*** *(avg. 46%). while less well attended facilities (Longview, Chavis, and Biltmore) have a lower recapture rate (avg.. 23%).*

Better attended facilities do have higher operating costs, higher levels of appropriation, and greater investment in renovations and maintenance. A more comprehensive discussion of the relationship between attendance and financial performance of these facilities is included in the Appropriations, Revenues and Expenditures section of this chapter.

Individual Facilities/Notes

1. The scope of this study does not include a comprehensive assessment of the present physical attributes of Raleigh's aquatic facilities. A due diligence investigation at this level of detail is proposed in the Recommendations section of this report and among other things, suggests an evaluation of each facility's current compliance with newer interpretations of the North Carolina Accessibility Code.

2. Annual revenues cited for each facility exclude fees for swim lessons, fitness classes, and other similar "pay-for-service" fees, which are recorded separately, typically as a "pass-through" account, under the heading "Fund 130."

3. While Optimist is undergoing its nine month renovation, a number of changes will be made in aquatic programming to compensate for the loss of its capacity. By the Fall of

2007, renovations to Millbrook should permit its use as a year-round venue, replacing in part the capacity of Optimist during the winter season. In addition, operating hours at Pullen will be expanded, and limits will be placed on the availability of rental lap lanes, swimming lessons, exercise programs, non co-sponsored competitive meets, and training and meets for the Intra-City Swim team. Following the completion of Optimist's renovations, the Aquatics Program should resume a normal schedule of operations.

4. At present, Optimist Pool closes for 14-21 days in the fall for the installation of the pneumatic structure and closes again for 14-21 days for the structure's removal. Other annual maintenance work is also performed during these two closures. It is presumed that following the completion of the planned 2007-2008 renovation, the total annual days required for maintenance will be only 14-21.

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2.3 Aquatics Programming in Raleigh

Section Summary

This section describes the variety of aquatic programming opportunities supported by the Raleigh Aquatics Program, including classes in swimming instruction, water safety, fitness, and therapeutic exercise and support for both City of Raleigh and independent competitive swimming.

Swimming instruction at Ridge Road Pool
Photo: Raleigh Aquatics

2.31 Aquatic Programming in Raleigh

In addition to general recreation, Raleigh's Aquatics Program offers a wide variety of structured aquatic activities for patrons of all ages, abilities, and interests. Program areas include swimming education, water safety instruction, lifeguard certification, emergency responder training, fitness and non-certified therapy programs, supervised recreational activities, and intramural competitive swimming. Several pools also provide leased water for independently sponsored competitive swimming teams, as well as other educational programs including instruction in kayak safety, snorkeling, and scuba diving. The Pullen teaching pool is also available on a lease basis for hospital administered rehabilitation therapy.

The fees for programmed activities are generally set by the Raleigh Aquatics' administration, based on fair-market value instructor compensation and equipment requirements. Pool rental rates for independent program providers or outside user groups (independent swimming teams, social organizations, private and faith-based groups) are based on the recommendation of the Aquatics administration which is subject to the review and approval of Raleigh Parks, Recreation and Greenway Advisory Board and the City Council. A more thorough analysis of program fees, expenses and revenues is included in the Appropriations, Revenues, and Expenditures section of this report.

As previously noted in the Facilities Overview section (2.16), there is great demand for access to aquatics programming and facilities among both individuals and group-based aquatic users, particularly for those with specialized requirements including competitive swimmers, therapeutic aquatics users, and fitness lap swimmers. Invariably these needs are not always fully met and as a consequence, there is vigorous competition for access at convenient times of day, throughout the year. This is especially true in winter months when fewer facilities with year-round accommodations are available. And while the Aquatics Program staff has effectively optimized the equitable allocation of its limited facilities, there remains an unmet demand for additional program services in all aquatic use areas. A more complete assessment of this unmet need is discussed in Chapter 3 of this report.

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2.32 Raleigh Aquatics Sponsored Programs

The following is a summary of individual programs currently sponsored and supported by the Raleigh Aquatics System:

2.32 – 1 Swimming Education

At present, the Raleigh Aquatics Program offers American Red Cross Learn-to-Swim programs for both children and adults. There are two introductory parent-child classes for children, five years and younger. Older children (or those three years of age and up who are ready) may enroll in a series of developmentally sequenced instructional programs beginning with Introduction to Water Skills, followed by Fundamental Skills, Stroke Development, Stroke Improvement, and Stroke Refinement. A parent-aimed, Orientation to Swim Lessons class is offered at four Raleigh pools: Pullen, Optimist, Lake Johnson, and Ridge Road. For teens and adults, lafeguarding and water safety instructor courses are also offered.

Track Out Learn-to-Swim lessons, designed to address the scheduling requirements of students in Wake County Public Schools' year-round academic programs, are offered at Biltmore, Lake Johnson, Longview, and Optimist Pools.

Adults may register for swimming instruction at either beginning or intermediate skill levels. Lifeguard instruction is also offered at Pullen and Optimist Pools. Private and semi-private swimming instruction is also available for both adults and children on a pre-arranged basis.

In the 2005-2006 fiscal year, there were approximately 26,350 participants in both group and private swimming instruction.

2.32 -2 Fitness Programs

Various forms of water exercise are offered through the Raleigh Aquatics Program including Aquacise, Water Walking, Aqua-Motion, Adult Stroke Development, Deep and Shallow Water Exercise, and Warm Water Fitness. Programs offered for arthritis and fibromyalgia therapy require participants to have a current health history on file with Raleigh Aquatics and must be either independently mobile or aided by a personal care assistant. In the 2005-2006 fiscal year, there were approximately 10,450 participants in paid aquatic fitness programs.

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2.32 -3 Intra-City Swim Team (ICSA)

The Raleigh Aquatics Program offers the opportunity for competitive swimming experiences for youth, ages three through eighteen. The program is designed to serve as a more affordable alternative to private or independent swimming team membership. There are presently summer intra-city swimming teams at all Raleigh pools. Because Chavis pool presently lacks adequately defined swimming lanes, its team has scheduled additional, though limited, training opportunities at nearby Longview Pool. In 2007, the competitive program scheduled seven dual and tri-team meets with an all-city championship meet staged at the end of the summer. The program serves an average of 500 competitive swimmers annually and in 2005-2006 accounted for approximately 11,330 Raleigh pool visits.

2.32 - 4 Special Events

Throughout the year, there are a series of special recreational events scheduled at various locations throughout the Raleigh Aquatics Program's system including the annual Fourth of July Jamboree, Noodle Day, Swim with Santa, and Squirt Wars.

2.32 - 5 Future Programming Initiatives

In the 2007-08 season, the Raleigh Aquatics Program anticipates increased program offerings in fitness exercise, specifically aimed to counter obesity among youth and adults. Specialized therapeutic aquatic exercise will be expanded to assist in the treatment of multiple sclerosis, arthritis, fibromylgia, and injury recovery. In addition, programming for Specialized Recreation and Track Out will also be increased.

2.33 Facility Rentals and Bookings by Independent Aquatic Organizations

Raleigh's pools serve a variety of independent swimming groups representing a broad spectrum of aquatic uses and interests. In the 2005-2006 fiscal year, these users accounted for approximately 69,000 Raleigh pool visits or about 18.5% of the annual daily attendance total. An additional 48,400 visitors were classified as spectators, attending independently sponsored activities and events. Participating groups range from competitive swim teams engaged in regularly scheduled training sessions and meets, to social and faith-based groups who book pool facilities for special programs and events.

A summary of lane and facility rental fees and revenues generated by these groups is included in the Appropriations, Revenues, and Expenditures section of this report.

The following summary identifies the interests and levels of participation by several of the more significant independent aquatic groups presently utilizing Raleigh's facilities.

2.38 – 1 CORAS

The Community of Raleigh Area Swimmers (CORAS) is composed of four independent United States Swimming age-group teams, and one United States Masters swim team participating in structured programs of training and competitive swimming. The YMCA's Wake County swimming team is also a member of the CORAS group.[1]

This umbrella organization represents the interests of approximately 1,200 Raleigh-area swimmers and is responsible for equitably scheduling Raleigh's limited municipal facility and swimming lane space allocations among their member teams. In addition, CORAS utilizes a number of other public, semi-public and private aquatic facilities throughout the Triangle to meet their needs, under a variety of use agreements.

According to representatives of the organization, the size of their current membership is severely limited by a continuing shortage of aquatic facilities suitable to their specialized competitive needs. Accordingly, CORAS is acutely impacted by changes in Raleigh Aquatics programming that further limit its access to competitive water and has been a long-standing and vocal advocate for aquatic facility expansion in the region.

2.38 – 2 Wake County Public School System

The Wake County Public School System (WCPSS) presently fields 23 competitive swimming teams, each with an average of forty members. WCPSS has no aquatic facilities of its own and, like CORAS, utilizes a variety of public, semi-public and private aquatic facilities (commercial fitness clubs, private schools, and colleges) in support of the training and competition requirements for these teams. The school system currently leases Raleigh Aquatics Program water at Pullen and Optimist pools for regularly scheduled training sessions and approximately 20 competitive swimming meets each year.

It should be noted that although WCPSS has developed detailed proposals for expansion of county-wide academic capacity in the coming years - including the construction of sixteen new high schools by 2025 - these plans have yet to include projections for the growth of its competitive swimming program, or the likely impact this growth will place on the region's present pool capacity. WCPSS currently has no plans to include aquatic facilities in any of its anticipated high school projects.

2.38 – 3 Special Olympics

The Wake County Special Olympics swim team practices at Optimist and Pullen Pools, but has not been able to expand team membership in the last few years due to limited pool space in Raleigh Aquatics Program facilities. Pullen Aquatic Center hosts two,

large-scale Special Olympic Swim Meets each year – a yearly regional meet drawing teams from up and down the East Coast and the annual North Carolina Special Olympics Meet, drawing teams from all over the state.

2.38 – 4 Kayak Rollover Clinic
Kayak Rollover Clinics are held at Optimist Pool every Friday evening, serving an average of 50-75 participants. In addition, there is an annual, one day special event: Rollapoolooza, for regional kayak instructors and vendors.

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2.39 Aquatic Programming in Raleigh/Conclusions
The Raleigh Aquatics Program provides an extraordinary ***variety of programmed recreational, educational, fitness, therapeutic, and competitive aquatic activities****, both for individuals and independent organizations. As noted in the first section of this chapter, it does so within* ***facilities of limited capacity and capability****, necessitating intensive scheduling of available water, particularly in the winter season. As a consequence, individuals and user groups vigorously compete for access.*

Aquatic Programming in Raleigh/Notes

1. Although Wake County's YMCA and YWCAs do have a number of indoor aquatic centers located within the region, they have chosen to rent swim team training lanes from the Raleigh Aquatics Program in order to preserve their own facilities for the use of their fitness membership.

2.4 Raleigh Aquatics Program Operations

Section Summary
In this section, the operational capabilities and procedures of the Raleigh Aquatics Program are discussed.

2.41 Raleigh Aquatics Operations Overview

The Raleigh Aquatics Program was established in 1982 to assume responsibility for the operation and programming of Raleigh's aquatic system.[1] As a unit of the Raleigh Parks and Recreation Department, the Aquatics Program is directly overseen by the Superintendent and the Director of the Parks and Recreation Department, with the council of the Parks, Recreation and Greenways Advisory Board.

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The Raleigh Aquatics Program has seven full-time staff members including an Aquatic Facilities and Program Director, a Training and Development Specialist, and five Aquatics Center Supervisors. In anticipation of completion of the current renovations to Millbrook Pool, two more full-time aquatic center supervisor positions have been added. This staff manages the operation and programming for Raleigh's eight aquatic facilities, supervising a part-time staff of approximately 500 yearly, the majority of whom are employed during summer months when all facilities are in service. Another 75 to 100 individuals serve as volunteers to the Aquatics Program, assisting with swimming lessons and competitive meet facilitation.

Until recently, the Aquatics Program provided its own maintenance, employing four, full-time maintenance technicians. In 2005, these positions were reassigned to Raleigh's Building Maintenance Division, which now administers the aquatic maintenance budget and schedules its own personnel to address pool repairs, preventative maintenance, and minor renovations. More routine or daily maintenance functions, including housekeeping, minor repairs, and preparations for season opening, closeout, and changeover are handled by Aquatics Program full and part-time, on-site staff.

2.42 Staff Responsibilities

The Raleigh Aquatics Program staff is responsible for the day to day operations of Raleigh's pools. They train, certify, schedule, supervise, audit, and evaluate the lifeguard staff and supporting employees. They ensure that all part-time staff members are well-versed in water safety practices and emergency response techniques. The staff also administers the delivery of swimming lessons and exercise classes by engaging and supervising qualified instructors, scheduling meeting times and locations, registering participants, collecting fees, and performing quality control oversight. They assist individual and group fitness swimmers by coordinating lane use and rental. They sponsor and assist in the coaching of the Intra-City Swim team, including the administration of its schedule of competitive meets. They perform similar logistical responsibilities for the

various independent, faith-based, and pubic school swimming teams who use Raleigh's pools.

The staff successfully creates enjoyable aquatic recreation experiences while maintaining an environment where safety is the first priority. This involves customer service, rule enforcement, emergency response, and follow up. At seasonal facilities, this is often accomplished by college age management staff and high school age lifeguards.

The staff plans festive recreational activities for patrons, promoting a lively, fun-filled aquatic experience for pool users of all ages, interests, and abilities. They maintain calm in what can frequently be a hectic, extremely high energy environment, serving hundreds of patrons in a single afternoon. In particular, while the lifeguarding staff does perform life saving rescues when necessary, their true value lies in the countless number of rescues that were prevented through effective patron surveillance and rule enforcement.

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The staff bears front line responsibility for ensuring that every pool satisfies each of the numerous state, county, and municipal statutory requirements governing the health and safety of aquatic facilities. Working in conjunction with the Parks and Recreation Building Maintenance Department, they monitor the performance of each pool's filtration and recirculation systems to maintain appropriate water quality levels and public health standards. The staff changes light bulbs, repairs broken lane lines and, in short, does whatever needs to be done to keep Raleigh's pools up and running at capacity.

The staff also controls access to facilities and maintains security. They collect admission fees, validate punch passes, and keep the cash drawer straight. They do all of these varied administrative functions frequently without the aid of task-appropriate management software.

For example, until just this year, there has been no networked computer access at individual pools to administer class registration and facility booking, nor did any of these facilities have e-mail access. It was only in the past two years that computerized monitors for mechanical and water purification systems were installed, but only at Raleigh's two year-round facilities. And while aquatic chemical monitoring systems have been computerized, these systems cannot as yet be remotely accessed.

In terms of managing the accounting of revenue and personnel, the COR Aquatics Program presently has no computerized payroll systems, no provisions for part-time employee direct deposit, no automated cash register systems, and no personnel scheduling or management software. In addition, the system does not have employee punch clocks, a modest improvement that would enhance the efficient use of staff's limited administrative time. Overall, the provision of any of these time-saving managerial systems would permit the Aquatics staff to realize far more of their most important mandate: personally addressing the needs of the Raleigh's swimming public.

2.43 Raleigh Aquatics Program Operations/Conclusion

The Raleigh Aquatics Program's staff of nine full-time personnel administers all aspects of the system's day-to-day operations, including facility administration and programming. Since 2005, the responsibility – and staffing – for overall facility maintenance has been shifted to the Parks and Recreation Building Maintenance Department. There is need for enhanced managerial tools to improve the staff's overall effectiveness and efficiency in administering the system at its current level of service.

Raleigh Aquatics Program Operations Notes

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1. Between 1982 and 1984, administrative responsibility for Biltmore and Chavis pools remained with the then-assistant superintendent for Raleigh's Parks and Recreation Department.

2.5 Appropriations, Revenues, and Expenditures

Section Summary

In this section, the overall financial performance of the Raleigh Aquatics Program is examined including its sources of funding, gross revenues, and operational (non-capital) expenditures. The summary describes performance in terms of average trends covering the five year period prior to the 2006-2007 Fiscal Year, followed by a detailed assessment of performance for the most recent year for which complete figures are available (2005-2006).

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2.51 Appropriations

Appropriations for Annual Operations

The Raleigh Aquatics Program derives its funding from an annual, City Council-approved appropriation, drawn from the general revenues of the City of Raleigh. The amount of this appropriation is based on projections of probable annual Aquatics Program expenditures and is initially estimated by the program's Director. This request for funding is included within an overall annual appropriations request prepared by the Parks and Recreation Department and is subject to the department's oversight and approval prior to submission to the City's administration.

For the past five fiscal years (2001-2002 through 2005-2006), The Raleigh Aquatics Program has received an average (adjusted) appropriation of approximately $1,366,400[1]. The amount of this appropriation over this period has risen at an average rate of 6.5% per year. For the 2006-2007 Fiscal Year, the appropriation has increased approximately 4.8%, to a current level of $1,618,100.

Appropriations for Capital Improvements

In addition to an annual appropriation for operating expenses, the City of Raleigh provides annual Capital Improvement funding, typically for repair and refurbishment of existing facilities. For the fiscal years 2003-04 through 200607, Capital Improvement funding averaged $89,000 per year. The needs to which these funds were applied and the individual amounts per year varied widely, ranging from a low of $36,000 for "deck regrouting" in 2004-05 to $200,000 for interior painting and structural work in 2006-07.

Although the City has not always fully funded every Aquatics Program capital request, it has consistently provided more than adequate resources to ensure the uninterrupted operation of all aquatics facilities for the past twenty-five years.

For the next five years, Capital Improvement funding requests total approximately $748,000, averaging $149,600 per year. Approval of these requests will be subject to City Council approval.

In addition, the City funds major capital improvements on a facility by facility basis. In 2006-07, renovations for Millbrook Pool ($68,000) and Optimist Pool ($3,700,000) have been approved.

2.52 Revenues

Revenues for the Raleigh Aquatics Program are derived principally from gate admissions, monthly and annual passes, class fees, facility bookings and rentals, and retail sales[2].

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In the past five fiscal years (2001-2002 through 2005-2006), the Aquatics Program has taken in average yearly gross revenues of $911,400. Changes in revenue for individual years varies widely depending on seasonal conditions – warmer summers yield greater attendance and correspondingly higher revenues than milder summers. For example, from 2001-2002, (a warm summer) to 2002-2003 (a cooler summer), revenues fell 3%. In the following, much warmer year, revenues climbed 12%. Overall, when variations in weather are factored in, annual revenues have been rising at an average annual rate of about 3%. Revenues for the most recently completed fiscal year (2005-2006) were approximately $939,500.[3] Gross revenues over this period have averaged approximately 69% of the average (adjusted) appropriation for the same years.

2.53 Revenues By Source

The following is a summary of each source of revenue for the Raleigh Aquatics Program. It is based on an accounting of revenues received for Fiscal Year 2005-2006 and is proportionately representative of the revenue performance of prior fiscal years. Specifically, the cited percentage contributions of each revenue source in relation to overall gross revenue has remained relatively consistent over the past five years.[4]

2.53 – 1 Revenues Derived From Admission Fees

General admission to Raleigh's facilities can be gained through any of four different fee schedules: daily admission, punch pass admission, monthly pass admission, and annual pass admission. Within each of these admission payment methods, there is a varying scale of fees based on each patron's age and place of residency. The fee structures cited are for the most recent fiscal year (2005-2006) and are the same for admission to any aquatic facility in the City.

Daily Admission Fees

Permits one-time, full day use at any single aquatic facility

Age	Resident Fee	Non-Resident Fee
1-8	$0.75	$1.50
9-15	$2.25	$4.50
16-54	$2.75	$5.50
55+	$1.50	$3.00

Punch Pass Admission Fees
Permits up to fifteen one-time, full day uses at any single aquatic facility

Age	Resident Fee	Non-Resident Fee
1-8	$9.00	$15.00
9-15	$18.00	$30.00
16-54	$25.00	$45.00
55+	$20.00	$30.00

Monthly Pass Fees
Permits unlimited use of any aquatic facility for one calendar month

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Age	Resident Fee	Non-Resident Fee
1-8	$12.00	$20.00
9-15	$23.00	$35.00
16-54	$30.00	$50.00
55+	$24.00	$36.00

Annual Pass Fees
Permits unlimited use of any aquatic facility for one calendar year

Age	Resident Fee	Non-Resident Fee
1-8	$60.00	$95.00
9-15	$85.00	$160.00
16-54	$160.00	$235.00
55+	$125.00	$195.00

Commentary on the Raleigh Aquatics Admission Fee Structure

? In comparison to other municipal aquatic systems, the Raleigh schedule of fees generally offers a greater variety of payment plans. It does not however, offer a discounted group rate for families, something which is frequently a feature of other municipal programs.
? Non-residents pay approximately two times more for daily admission than residents and about 1.7 times more for each of the other categories of payment.
? Resident seniors (age 55+) on average pay about 80% of the admission cost of adults (ages 16-54) under all plans except for daily admission, for which seniors pay approximately 54% of the adult fee.
? Non-resident seniors pay from 55% (daily admission) to 80% (annual pass) of adults.
? The monthly and annual pass schedule does not represent an especially favorable discount over daily and punch pass admissions. For example, a child (1-8) with a monthly pass would need to visit a pool 17 times before their per-visit rate would be less than the daily admission rate. Similar comparisons can be made for each

of the other monthly and annual age categories and are included in the Appendix of this report.

For the 2005-2006 Fiscal Year revenues from all admission revenues were as follows:

Daily Admissions	$191,300	59.7%
Punch Pass Admissions	$104,200	32.5%
Monthly and Annual Passes	$ 25,100	7.8%
Total Admission Revenues	$320,600[5]	

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The total revenue from all admissions of $320,600 for 2005-2006 represents about 34% of all Aquatics Program revenues for the fiscal year.

2.53 – 2 Revenues from Facilities Bookings and Rentals

Revenues in this category are principally derived from either whole facility bookings – typically for independent competitive swim meets – or from the hourly rental of training lane space to independent competitive and fitness user groups.

Full facility rental averages $1,000 per day. Raleigh aquatic facilities most frequently offered for this form of booking include Pullen and Optimist Pools.

Lane rentals are set at $7.00/hour/lane for 25 yard length lanes and $10.00/hour/lane for 50 meter lane lengths.

In fiscal year 2005-2006, revenues from all facility bookings and lane rentals totaled approximately $269,850, representing 28.7% of all annual revenues.

2.53 – 3 Revenues From Fees for Instruction, Exercise Classes and Other Raleigh Aquatics-Sponsored Activities

Revenues in this category are principally derived from fees for group learn-to-swim classes, private and semi-private swimming lessons, fitness and aquatic exercise classes, and Intra-City Swim Team participation. The accounting of these fees is kept separate from all other categories of aquatic revenues and itemized under the heading "Aquatic Fund 130." The account is intended to be maintained as "revenue-neutral," with the fees collected for services directly matching expenditures for instructor wages. Whereas all other revenues from the Aquatics Program are credited directly to the City of Raleigh's general revenues account, Fund 130 funds are maintained independently and disbursed for the direct compensation expense of program instructors. The fee structures cited are for the most recent fiscal year (2005-2006) and are the same for admission to any aquatic facility in the City.

Swimming Lesson Fees
The fee for eight, one half hour, swimming lessons is $42.00 for residents and $52.00 for non-residents. Specialized swim instruction classes that include both parent and child are $45.00 for residents and $55.00 for non-residents.

Private lessons are $28.00 for each half hour of instruction for residents and $38.00 for non-residents. Discounts are offered for multiple private lessons and for seniors.

Fitness and Aquatic Exercise Class Fees
The fee for eight , one hour exercise class sessions is $35.00 for residents and $45.00 for non-residents. Resident and non-resident seniors (55+) receive a discount which reduces their cost to approximately 80% of the full class fee.

Intra-City Swimming Team Fee
The fee for participation in the summer Intra-City Swimming Team is $49.00 for residents and $59.00 for non-residents. Participation includes approximately 21 practice sessions, three dual and tri-meets, and a year-end city-wide championship meet.

In fiscal year 2005-2006, revenues from all class registrations totaled approximately $340,500, representing a little over 36% of all annual revenues.

2.53 – 4 Miscellaneous Revenues
All other revenues sources, including retail sales, concession sales, and other miscellaneous funds totaled approximately $8,750 for the 2005-2006 fiscal year, representing 1.3% of total annual revenues

2.53 – 5 Summary of Revenues by Source

Admission Fees	$320,400	34.0 %
Facility Booking and Rentals	$269,850	28.7 %
Lessons/Classes	$340,500	36.0 %
Misc.	$ 8,750	1.3 %
Total	$939,500	100.0 %

As previously noted, although the revenue values cited represent fiscal year 2005-2006, their relative percentage of the overall five-year revenue performance for the Raleigh Aquatic Program has remained relatively consistent.[4]

2.54 Expenditures
Expenditures for the Raleigh Aquatic Program include non-administrative, full and part-time staff salaries,[6] utility expenses, aquatic chemical expenses, and miscellaneous housekeeping and administrative costs.

In the past five fiscal years (2001-2002 through 2005-2006), the Aquatics Program has had average (adjusted) yearly expenditures of $1,401,540.[7] As with revenues (see 2.52 above), changes in expenditures are indirectly tied to seasonal conditions – warmer summers yield greater attendance and correspondingly higher expenditures than milder summers. Nevertheless, over this five year period, expenditures have increased at an average annual rate of 6.6%. Expenditures for the most recently completed fiscal year (2005-2006) were approximately $1,779,500.[8]

2.55 Comparisons of Appropriations, Revenues and Expenditures

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2.55 – 1 Recapture Rate

There are a number of metrics which can be employed to develop an analysis of the financial performance of the Raleigh Aquatics Program. One compelling measure is "recapture rate": gross revenue calculated as a percentage of operating expenditure. It is, in other words, a measure of the ability of annual receipts to pay for annual operating costs. For a municipality, the difference between receipts and expenditures is bridged by appropriation.

Overall, the average annual Aquatics Program revenues for the five year period from Fiscal Years 2001-2002 through 2005-2006 in comparison to the average annual expenditures yield an average recapture rate of 49.7%.[9] The recapture rate for the most recent fiscal year for which complete figures are available (2005-2006) is 53%.

The overall recapture rate reflects the aggregate performance of all facilities. Individually, the rate for each facility varies appreciably. The average recapture rate for FY 2001-2001 through 2004-2005[10] by facility is as follows:

Facility	Average Aquatics Program Recapture Rate(%)	Percent of Total Facility Recapture Rate
Pullen	48.5	15.1
Optimist	38.0	11.8
Millbrook	63.0	19.7
L. Johnson	61.0	19.0
Ridge Road	35.0	11.0
Longview	24.5	7.6
Chavis	26.5	8.3
Biltmore	24.0	7.5

2.55 – 2 Facility Revenue as Percentage of Overall Revenue

The following list summarizes the average annual revenues for each facility for FY2001-2002 through 2004-2005[10] For the purposes of comparison, the average annual daily attendance for each facility is also listed

Facility	Ave. % of Total Revenue	Ave. % Total Attendance

Pullen	31.2	40.2
Optimist	21.2	35.2
Millbrook	4.3	7.8
L. Johnson	4.9	5.5
Ridge Road	3.6	5.0
Longview	1.7	2.4
Chavis	1.9	2.3
Biltmore	1.3	1.6
Fund 130	29.9 (see 2.53 – 3)	

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2.55 – 3 Facility Expenditures as Percentage of Total Expenditures
The following list summarizes the average annual expenditures for each facility for FY2001-2002 through 2004-2005[10]. For the purposes of comparison, the average annual daily attendance for each facility is also listed

Facility	Ave. % of Total Expenditures	Ave. % Total Attendance
Pullen	33.7	40.2
Optimist	28.6	35.2
Millbrook	3.9	7.8
L. Johnson	4.2	5.5
Ridge Road	4.2	5.0
Longview	3.5	2.4
Chavis	3.8	2.3
Biltmore	3.8	1.6
Fund 130	14.2 (see 2.53 – 3)	

Appropriations, Revenues and Expenditures/Notes

1. The actual five year average of annual appropriations to the Aquatics Program is approximately $1,981,000. The five year average cited above is an adjusted value, reflecting changes in the City's assignment of personnel within its various departments.

Specifically, in the 2005-2006 Fiscal Year, the annual Aquatics Program appropriation fell from the prior year's level of $ 2,279,000 to $1,544,000, a decline of approximately 32%. A portion of this decline is the result of a one-time accounting change in which maintenance staff salaries were shifted out of the Aquatics Program budget and placed within the Parks and Recreation Department Building Maintenance budget.

The adjusted, five-year average assumes a proportionate reduction in the Aquatics Program appropriation for those years in which maintenance staff salaries were still included within the Aquatics Program budget. It is, therefore, a more informative approximation of the City's recent history of funding for the program.

2. In addition to these primary funding sources there are small grants, donations, and other miscellaneous contributions.

3. Approximate value. The actual total revenues for FY 2005-2006 were $939,546.18

4. A more complete accounting of each revenue source and its relation to gross revenues from 2001 through 2006 is included in the Appendix of this report.

5. Approximately 9.5% of all admission revenues were paid by non-resident patrons.

6. Administrative salaries not included in expenditures are those for the Aquatics Program Director and the Training and Development Specialist.

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7. The actual five year average of annual expenditures for the Aquatics Program is approximately $1,491,350. The five year average cited above is an adjusted value, reflecting changes in the City's assignment of personnel within its various departments.

Specifically, in the 2005-2006 Fiscal Year, the annual Aquatics Program expenditures fell from the prior year's level of $ 2,206,040 to $1,779,480, a decline of approximately 19.3%. This decline is the result of a one-time accounting change in which the costs of maintenance staff salaries were shifted out of the Aquatics Program budget and placed within the Parks and Recreation Department Building Maintenance budget.

The adjusted, five-year average assumes a proportionate reduction in the Aquatics Program appropriation for those years in which maintenance staff salaries were still included within the Aquatics Program budget. It is, therefore, a more informative approximation of the City's recent history of funding for the program.

8. Approximate value. The actual expenditures for FY 2005-2006 were $1,779,483.

9. For the calculation of the five year, average recapture rate, the value of the actual average expenditures was used instead of the adjusted average (see note 2.5 – 9). For the recapture rate to accurately reflect the historical record, it must include all expenses, including those dedicated to maintenance, regardless of whether these costs appear in the Aquatics budget or – since 2005-2006 - in the Building Maintenance budget. The complete calculation is included below:

Year		Expenditures	Budget Source
1.	01-02	$1,756,760	Expenditures Including Maintenance
2.	02-03	$1,557,158	Expenditures Including Maintenance
3.	03-04	$1,571,279	Expenditures Including Maintenance
4.	04-05	$2,206.042	Expenditures Including Maintenance
5.	Subtotal 1-4	$7,091,239	

6..	05-06	$1,779,483	Expenditures Excluding Maintenance
7.		$ 557,000	Maintenance Expenditures (Estimated)
8.	Subtotal 6-7	$2,336,483	
9.`	Total 5+8	$9,427,722	
10	Average	$9,427,722/5 = $1,885544.40	
11.	Recapture	$939,546/$1,885,544.4= 0.498 Or 49.8%	

10. The last fiscal year for which a complete record was available for this study. Facilities are listed in order of average annual attendance, the most frequently attended listed first.

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Chapter 3.0.
An Assessment of Need Based on Four Determinants

Chapter Summary

There are any number of factors which can help to assess the present level of unmet need for aquatic services within the Raleigh community. In the sections which follow, the four most compelling of these many determinants of need are discussed in detail. These determinants can be summarized as follows:

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Assessment of the Present Demand for Aquatic Services

The first determining factor is an assessment of the existing level of aquatics use in the community and the extent to which the present system is capable of satisfying this demand. Both anecdotal and empirical evidence suggests there is now an appreciable deficit of aquatic resources available to meet current demand.

Assessment of Future Demand for Aquatic Services Prompted by Anticipated Growth in Population

The current demand for aquatic services is based, at least in part, on the present population of the City of Raleigh as well as the populations of adjoining communities who also utilize these services. Growth in the size of this population and changes in its location will precipitate changes in the demand for aquatic services in the future.

Changes in the Demand for Aquatics Aquatic Services Based on National Aquatic Trends

In the time since much of Raleigh's present aquatic system was conceived and built, there has been considerable change in the philosophy, technology, and marketing of aquatic services nationwide. Changes in national trends have already influenced the scale, variety, and expectations of other present-day municipal aquatic programs. Such trends are not as yet adequately addressed by the Raleigh Aquatics Program, representing an unmet demand for enhanced capabilities within the present aquatic service.

Assessment of Demand for Aquatic Services and Facilities Based on Public Perception

Though not an empirical measure, the collective perceptions of Raleigh's citizenry – aquatic and non-aquatic users alike – offer insights into the performance of the City's Aquatics Program and its unmet need, drawn from a variety of useful perspectives. While these views may not necessarily represent a fully objective assessment of actual need, the public's collective "sense" of this need can be instructive in corroborating independently developed, empirically derived measures. For the purposes of this study, citizen assessments have been gathered though the use of facilitated public forums, stakeholder meetings, and surveys as well as constituent letters and e-mails.

In the following sections, each of these four determining factors is examined in detail.

3.1 Assessment of Present Demand for Aquatic Services and Facilities

Section Summary

In this section, a series of measures of the present demand for aquatic services in Raleigh is discussed. The section looks at both historical and contemporary indications of unmet need in the community.

3.11 Previous Aquatic Facility Recommendations

The last comprehensive study of Raleigh's Aquatics program was prepared in 1979 by Milton Costello of Amityville, New York. In its assessment of need, the Costello report recommended the funding and construction of a series of aquatic centers that would yield approximately 130,000 total square feet of pool surface by 1987. The report further noted that even this magnitude of investment would result in a per capita pool surface area of only 0.614 square feet per capita, less than one half of what the report suggested was an applicable national standard: 1.37 square feet per capita.

To realize this interim goal, the Costello report proposed the phased construction of twenty-one aquatic facilities throughout Raleigh, including thirteen "miniswim" neighborhood pools, four community-scaled pools, and five regional aquatic centers. To address aquatic need after 1987, the report further recommended the construction of an additional 83,000 square feet of pool surface – including the replacement of Pullen's original outdoor pool, significant upgrades to Chavis Pool, and development of a "wave pool" facility – yielding a per capita pool surface area of 0.921 square feet by 1997.[1] According to the report, this was an acceptable value to meet the anticipated need, but nevertheless, one still below the cited national standard.[2]

With its eight pools, the present Raleigh Aquatic Program provides 77,580 square feet of pool surface for a metropolitan population of approximately 370,000 citizens yielding a per capita pool surface area of 0.21 square feet per capita, about one-sixth the 1976 recommended value.

In 1990 the National Recreation and Parks Association (NRPA) published an alternative standard for assessing municipal pool system capacity on the basis of population. This standard recommended the number of public pools needed in any U.S. community should be one for every 20,000 residents. Although this recommendation has never become a widely recognized national standard,[3] it does represent another gauge from which comparisons might be drawn. At present, Raleigh has one pool for every 42,450 residents within its present city limits and one pool for every 47,500 residents within its metropolitan service area. Both values are over double the 1990 NRPA recommended standard.

While neither the Costello pool area standard nor the NRPA recommendation are presently acknowledged as universally accepted national metrics, the overall suggestion

of these guidelines argues that Raleigh's ability to serve the needs of its aquatics community has lessened in the twenty five years since the City's last aquatic facility was built. There is no reason to believe that the public demand for aquatic services has experienced a corresponding reduction during this time, a period of considerable growth in population. Rather, it would be safe to assume the trend of rising population without the provision of new pools would result in an over-subscription of programming, overcrowded facilities during peak periods of use, and an increasingly pent-up demand for access. As it turns out, these are precisely the characteristics evident in the majority of Raleigh's aquatic facilities today.[4]

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3.12 Contemporary Measures of Aquatic Demand

As noted above, contemporary aquatic planning standards no longer rely on general calculations of pool or pool area-per-resident as a tool in assessing need. The increasing specialization of aquatic facilities, (for example, pool shells variously designed to satisfy a number of separate and diverse aquatic needs), suggests that individual needs be evaluated and measured with user-specific aquatic design elements in mind. For example, recreational aquatic need is best measured by the projected number of recreational users and their interest in (and willingness to pay for) a variety of recreational amenities. Similarly, there are equally compelling, recommended correlations between the number of fitness swimmers and lap lanes, between the number of therapy users and warm water pools, between the number of competitive swimmers and competitive venue accommodations, and between the number of swim lesson participants and the availability of shallow teaching water.

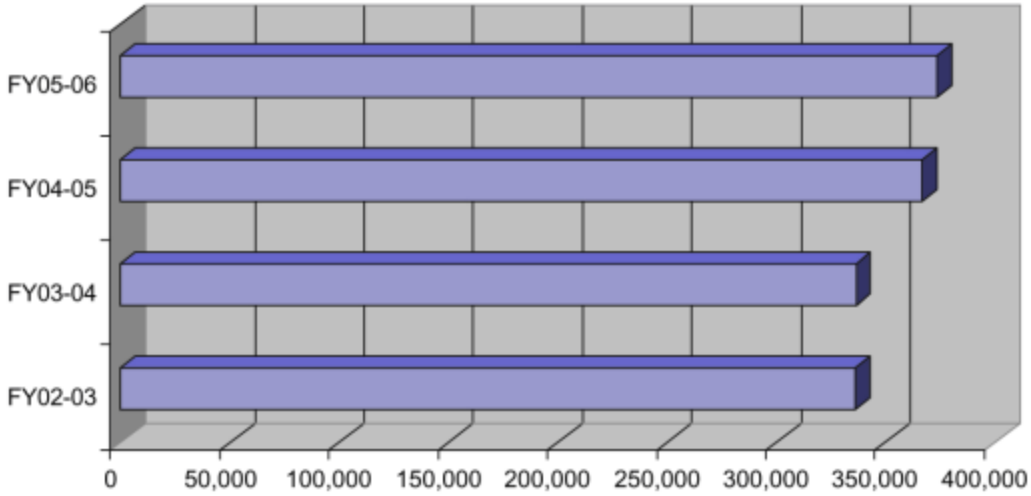
There are a number of statistical indications of Raleigh's growth of demand for these kinds of specialized aquatic uses evident during the past five years. For example, revenues from swimming lessons and exercise classes have steadily risen from $154,495 in 2001-2002 to $404,290 in 2005-2006, a nearly threefold increase. Registrations for instruction have gone from 4,546 in 2002 to 9,136 in 2006. Facility booking and lane rentals revenues, an indication of fitness and competitive aquatic use, have increased even more dramatically, rising from $32,949 in 2002-2003 to $266,333 in 2005-2006, an 800% increase.

Interestingly, in relation to this last measure, the actual numbers of facility bookings have not risen nearly as quickly as revenues, suggesting user groups have been willing to pay increasingly higher per use fees for access. This is a clear demonstration of the classic economist's definition of demand outpacing supply – too many dollars chasing too few goods – and as such, is one highly persuasive indicator of inadequate aquatic capacity. More generally, annual daily aquatic attendance has steadily increased, from 289,985 in 2001-2002 to 373,634 in 2005-2006. During this time, no additional municipal pools have been added to the system's inventory.[5] To compensate, some portion of this attendance growth has been accommodated by intensively optimizing the management of

Raleigh's existing facilities, including extending the hours and days of operation of their operation.

The following graphs - Figures 3.1A through 3.1E – illustrate the recent historical trends for each of these indicators of demand.

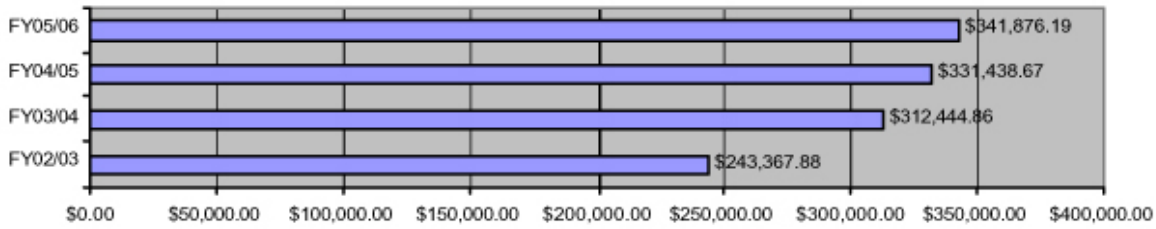
Figure 3.1A Raleigh Pool Attendance 2002-2006



FY02-03	FY03-04	FY04-05	FY05-06
335,933	336,511	366,686	373,634

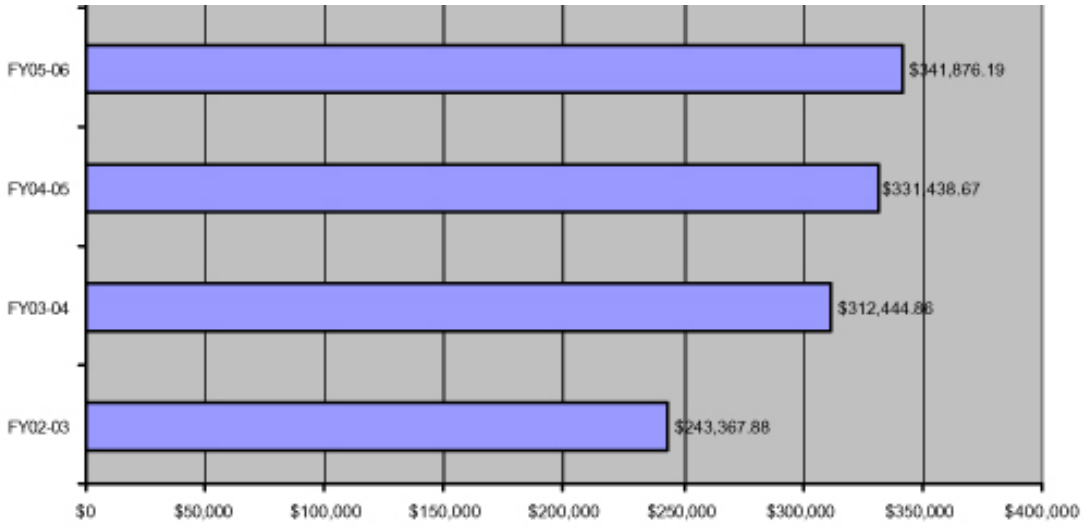
Source: Raleigh Aquatics Program

Figure 3.1B Lesson Revenue, Raleigh Aquatics Program 2002-2006



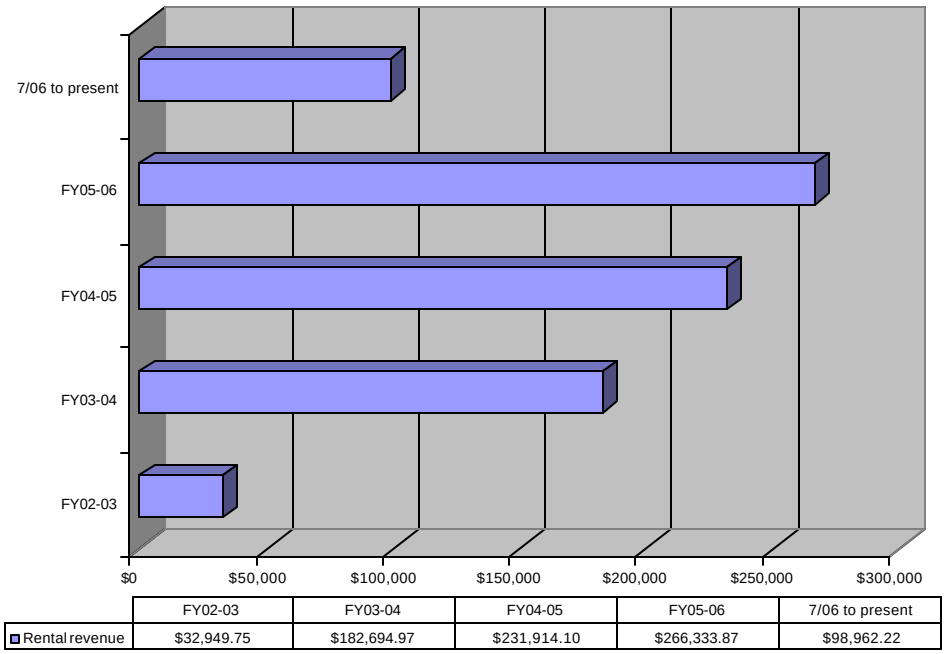
Source: Raleigh Aquatics Program

Figure 3.1C Class Registration Revenue 2002-2006



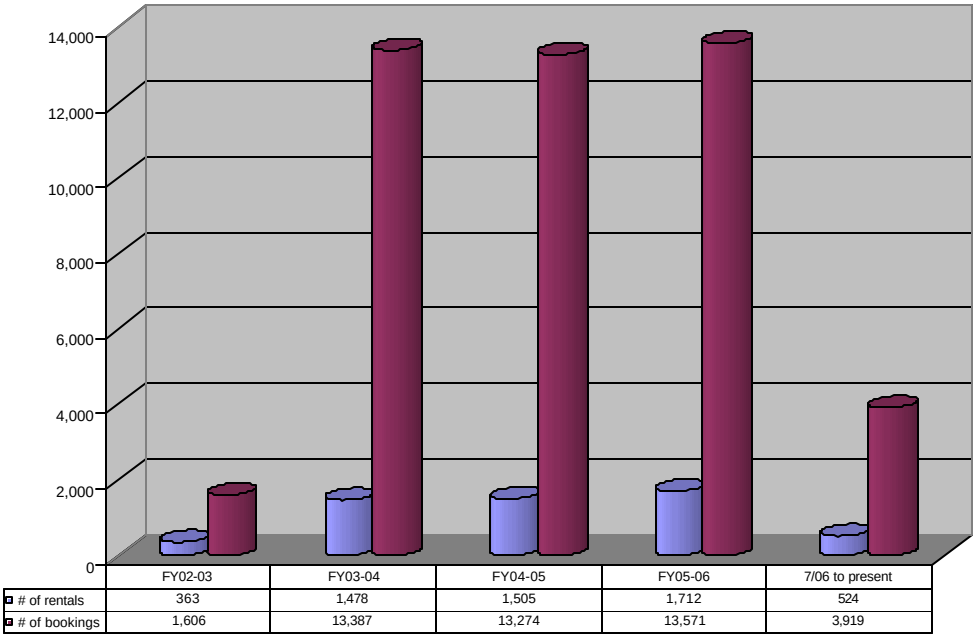
Source: Raleigh Aquatics Program

Figure 3.1 D Rental Revenues



Source: Raleigh Aquatics Program

Figure 3.1E Facility Bookings



Source: Raleigh Aquatics Program

3.13 Present Demand/Conclusion

Despite efforts to optimize the use of Raleigh's existing facilities, there remains ***an evident deficit of aquatic capacity,*** *marked by increased* ***competition for programming*** *by user groups, a perception of facility over crowding, and* ***unmet requests*** *for expanded service. It is a situation that will only become more challenging as Raleigh's population grows in the coming quarter century. The next section of this report identifies the likely effect on future demand, based on projected population growth.*

Present Demand Notes

1. This value of per capita pool surface was based on a projected 1997 Raleigh metropolitan service area population of 231,300.

2. The Costello report recommended aquatic centers for Kiwanis Park, Lions Park, Worthdale, Green Road Park, Cedar Hills, Jaycee Park, Method Park, Kentwood Park, Halifax Park, Enloe High School, Lassiter Mill, Brookhaven Park, Laurel Hills Park, Timberline Park, and Marsh Creek Park, none of which were built. Of these, three – Carolina Pines, Marsh Creek, and Laurel Hills - continue to be recommended for construction in the City's current Comprehensive Plan. One additional park - Lake Lynn

– is also currently master planned for the inclusion of an aquatic center. A further discussion of these proposed aquatic sites is included in the recommendations section of this report.

3. The National Parks and Recreation Association proposal was not widely adopted mostly likely because it was an inadequately facile measure, incapable of accommodating a variety of locally significant variables including the potential contributions of other area providers, regional differences in income levels, climate and culturally-based recreational preferences, differing pool types and their capacities, and differences in aquatic programming.

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4. The perception of over-subscription, overcrowding, and unmet request for services is detailed in the Public Perceptions section of this report.

5. The conversion of Millbrook to year-round use will increase overall capacity in terms of days of use, although system pool surface area will not increase. A further discussion of this topic is included in the Appendix of this report.

3.2 Assessment of Future Demand for Aquatic Services Prompted by Growth in Population

Section Summary

This section describes projections of population growth for the City of Raleigh and its neighboring communities over the next twenty-five years. It identifies likely areas of more intense growth within the region and suggests the impact this growth will have on density and the corresponding demand for all municipal services, including aquatics.

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3.21 Current Population

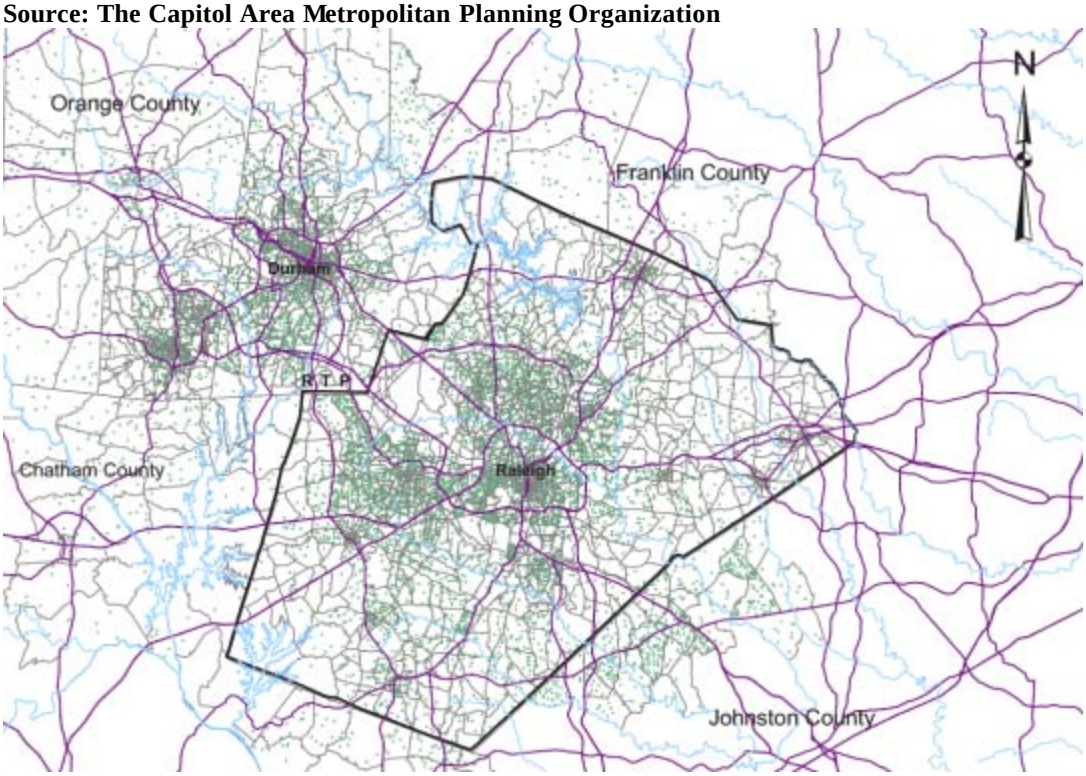
As of 2006, Raleigh's population was roughly 360,000 (not including approximately 20,000 additional residents located within its extraterritorial jurisdiction) and Wake County's population was approximately 720,000. The population of the entire Triangle region is currently approaching 1.5 million. The increase in population in this region has averaged approximately 4% per year, registering a rate of growth in excess of 21% for the years between 2000 and 2005.[1]

3.22 Population Growth in the Future

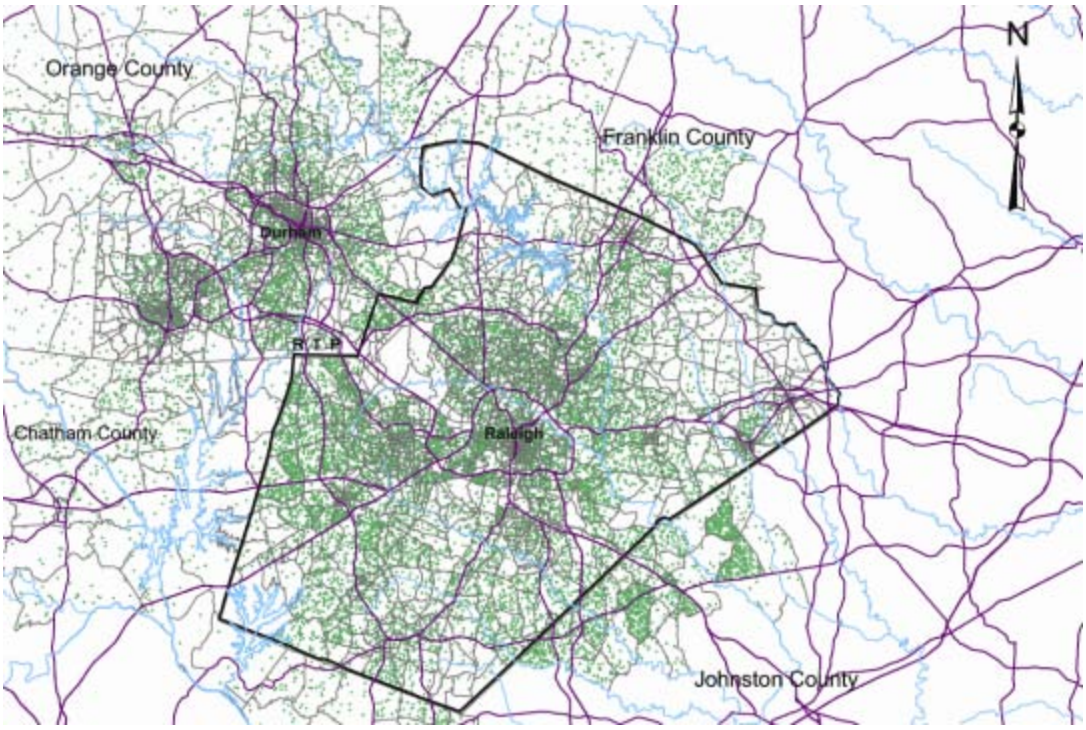
Given this region's powerful mix of economic and cultural resources and its favorable climate, it is evident that Raleigh and its surrounding communities will continue its pattern of growth. It will do so by maintaining its present birth rate, by retaining more of its current residents than other areas of the country, and by attracting new residents both domestically and from abroad.

Population estimates drawn from a variety of sources, including the US Census Bureau, the North Carolina State Demographer's Office, the Capital Area Metropolitan Planning Organization and the City of Raleigh Planning Department, project that by 2030, Raleigh's population will grow to approximately 571,000, an increase of 55% over its population in 2002. During this same time period, the overall population of Wake County is expected to grow by a comparable percentage. (See figure 3.2A below)

Figure 3.2 Projected Growth in Wake County Population, 2002-2030
Source: The Capitol Area Metropolitan Planning Organization



Above: Wake County Population in 2002. Each dot represents 100 people
Below: Projected Wake County Population in 2030. Each dot represents 100 people



These general trends in population growth are also corroborated by the projections of other regional agencies and organizations. For example, by 2025, the Wake County Public School System anticipates its enrollment will double to approximately 211,300 students (See figure 3.2B) and the Greater Raleigh Chamber of Commerce estimates there will be nearly 250,000 housing units within Raleigh's planning jurisdiction by 2030, representing a rate of growth also near the 50th percentile.

Figure 3.2B WCPSS Enrollment Projections

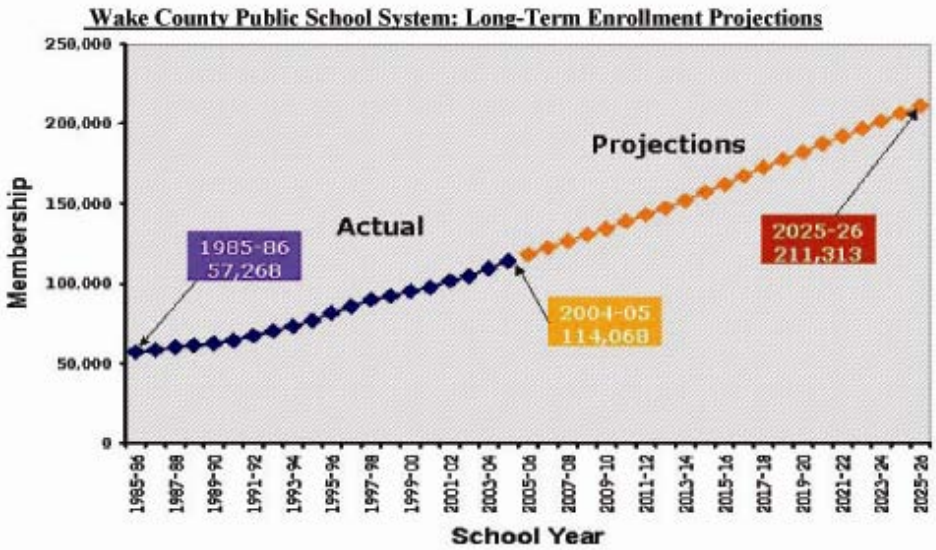


Figure 3. Wake County Public School System actual and projected enrollment

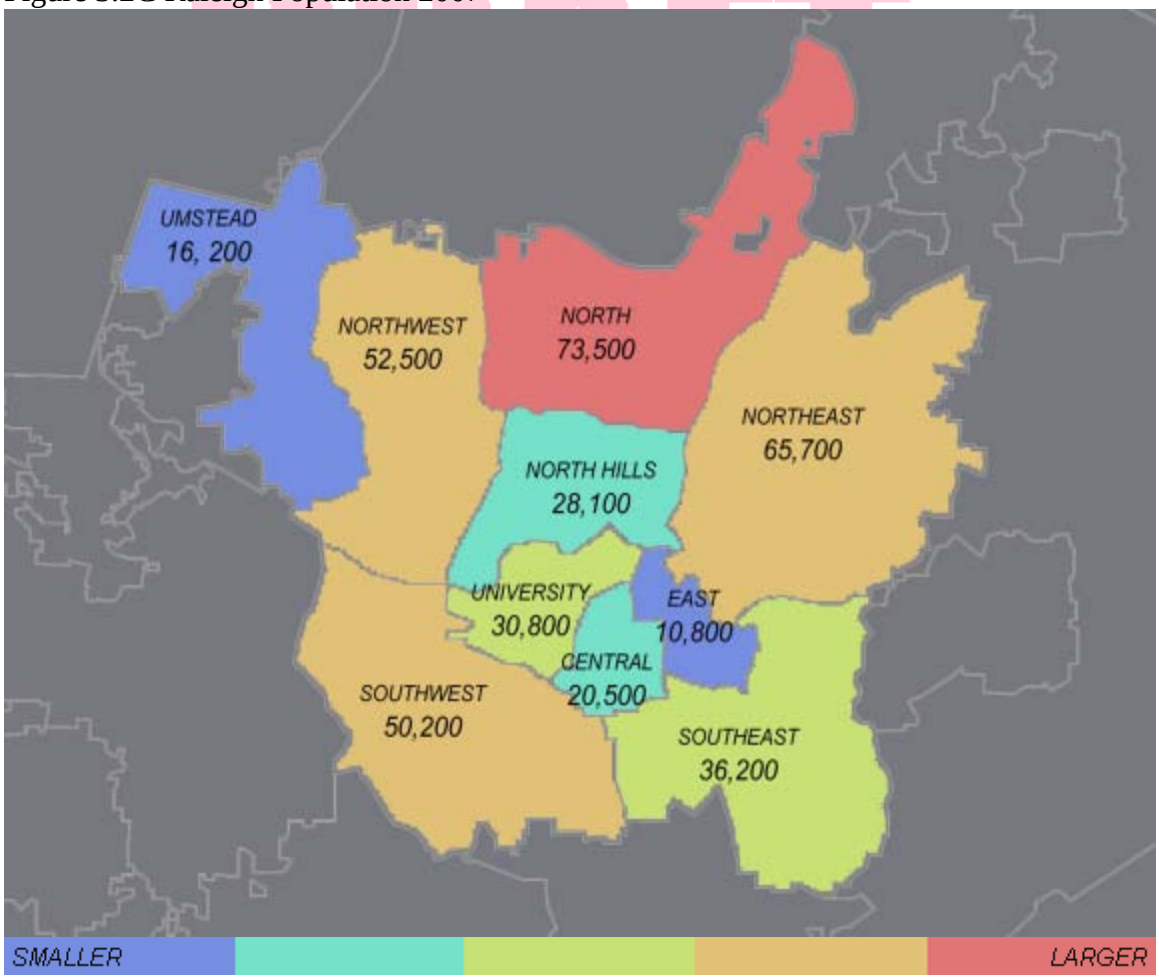
Obviously, projections of overall growth for periods in excess of two decades do bear some degree of uncertainty and may be significantly influenced by unexpected changes in population mortality, economic climate, and cultural preference. Still, in the absence of consequential impediments to current patterns of growth, both Raleigh and Wake County will experience significant increases in population in the coming years. This increase in population will generate a corresponding increase in the demand for public services, including those offered by the Raleigh Aquatics Program.

3.23 Population Growth in Relation to Location

In terms of planning for future growth, it is important to identify not only the overall magnitude of the anticipated change, but also a credible sense of its distribution throughout the region under consideration, particularly when such projections will help determine the location and intensity of proposals for the expansion of municipal services. Nevertheless, just as with more general assumptions of a region's growth, twenty-five year projections of probable changes in population tied to specific geographic districts also will possess an inescapable measure of uncertainty.

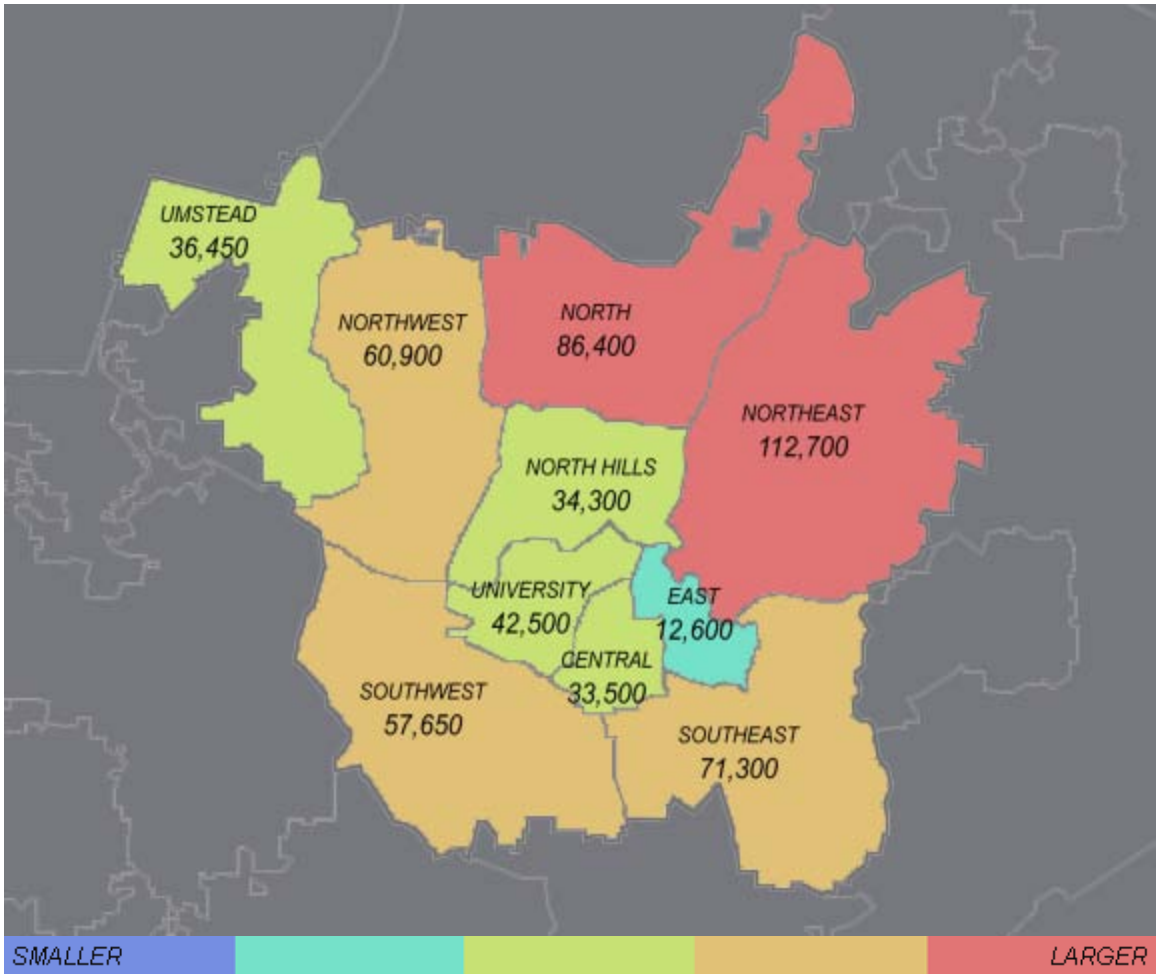
Current estimates of growth in each of Raleigh's ten planning districts do offer some sense of likely patterns of population distribution that might be anticipated in the next twenty-five years. In general, Raleigh will become more populous and significantly denser. Increases in population will range from approximately 15% in the Southwest Raleigh planning district to over 97% and above in the Southeast, Northeast, and Umstead districts. Growth, evaluated as the percentage of change in population, will be greatest in the Northeast District (71.5%), the Southeast District (97 %) and the Umstead District (100.3%). Growth from 2006 through 2025 across all districts of the city the entire city will average approximately 40%. (See figures 3.2C and D).

Figure 3.2C Raleigh Population 2007



Information Source: City of Raleigh Planning Department
Graphic Representation by Szostak Design Inc.

Figure 3.2D Raleigh Population 2025

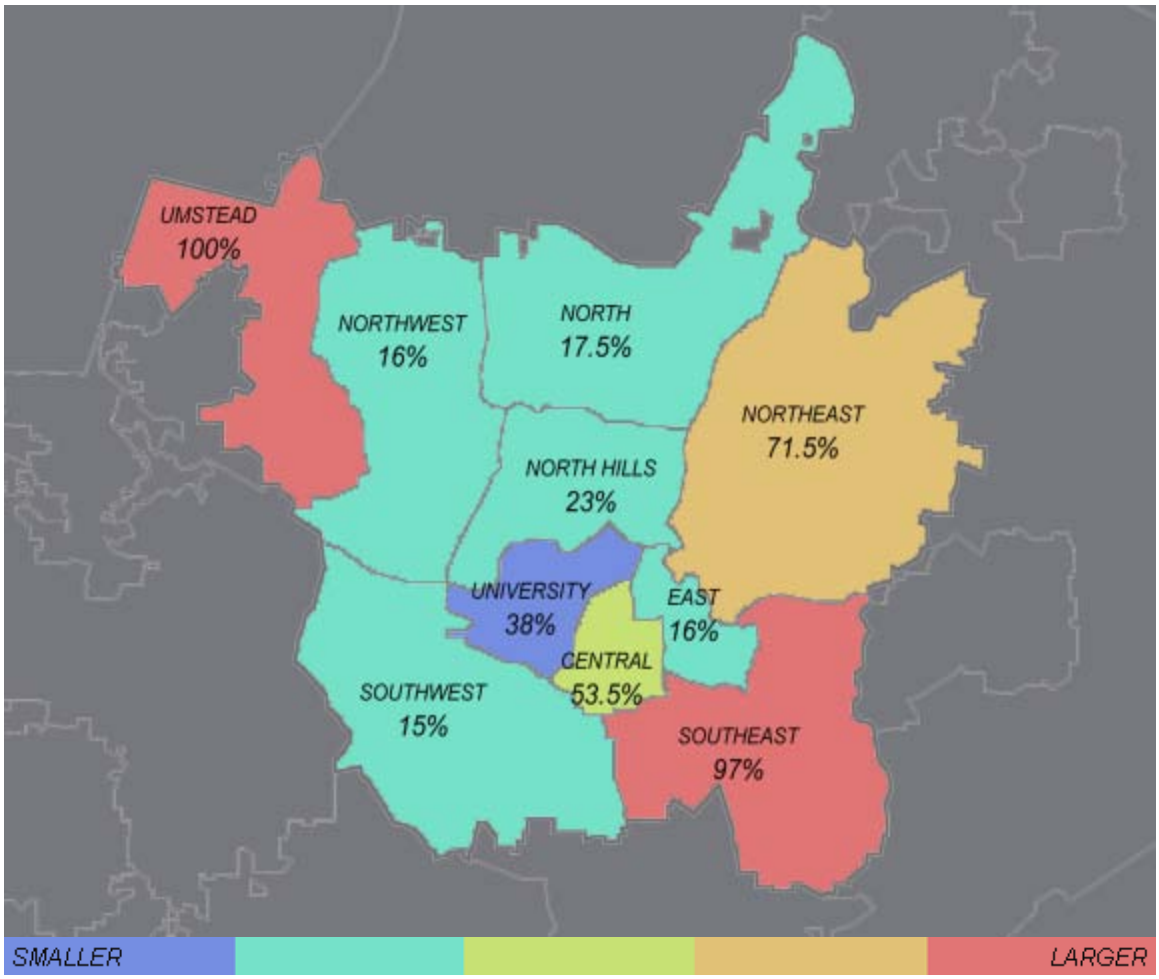


Information Source: City of Raleigh Planning Department
Graphic Representation by Szostak Design Inc.

Although population growth by district as a percentage of change over time offers useful guidance in identifying areas of the city which, due to their growth, may warrant increased capital investment, this statistic alone does not offer a completely representative picture of a district's actual relationship to overall growth. For example, the Central planning district is projected to grow by over 53% between now and 2025 but even so, its population as a percentage of Raleigh's total number of residents (approximately 6%) will remain virtually unchanged. Umstead, with a projected increase in population of over 100% will still only rise from its current 5.2 % of Raleigh's total population to a little over 6%. In contrast, the Southeast district which is estimated to experience 97% growth will, by 2025, will represent 13% of Raleigh's total population, an increase of over 3.5 % from its present ranking. Figure 3.2E illustrates a

comparison of Raleigh districts on the basis of their respective percentage of total Raleigh population in 2006 and in 2025.

Figure 3.2E Change in Population 2007-2025 by Percentage



Information Source: City of Raleigh Planning Department
Graphic Representation by Szostak Design Inc.

3.24 Population Density

An alternative and perhaps more compelling measure of geographic need considers the anticipated changes within Raleigh on the basis of change in population density over time. Density, a measure of the average number of residents requiring service as a factor of the district's area, would be helpful in gauging the present uniformity (or inequities) in the distribution of municipal services to various sectors of the city. Less dense districts would be expected to demand and receive a smaller percentage of services than more densely populated areas. Changes in district population density over time would

therefore suggest a corresponding change in both demand for and allocation of municipal services.

In the next twenty-five years, the average density in Raleigh will grow from approximately 3.5 residents per acre to 5.0 residents per acre. For some districts, the expected increase in density will be appreciable: The Southeast will become 100% more dense than it is today (4.8 residents per acre verses 2.4 residents/acre), Umstead will become 8% more dense and the Northeast will become 70% more dense. At the opposite end of the scale, the Southwest, East, and North district, though also becoming more densely populated, will increase by an average of only 16.5%. Figures 3.2F and 3.2G illustrate the projected changes in population density by district between 2006 and 2025.

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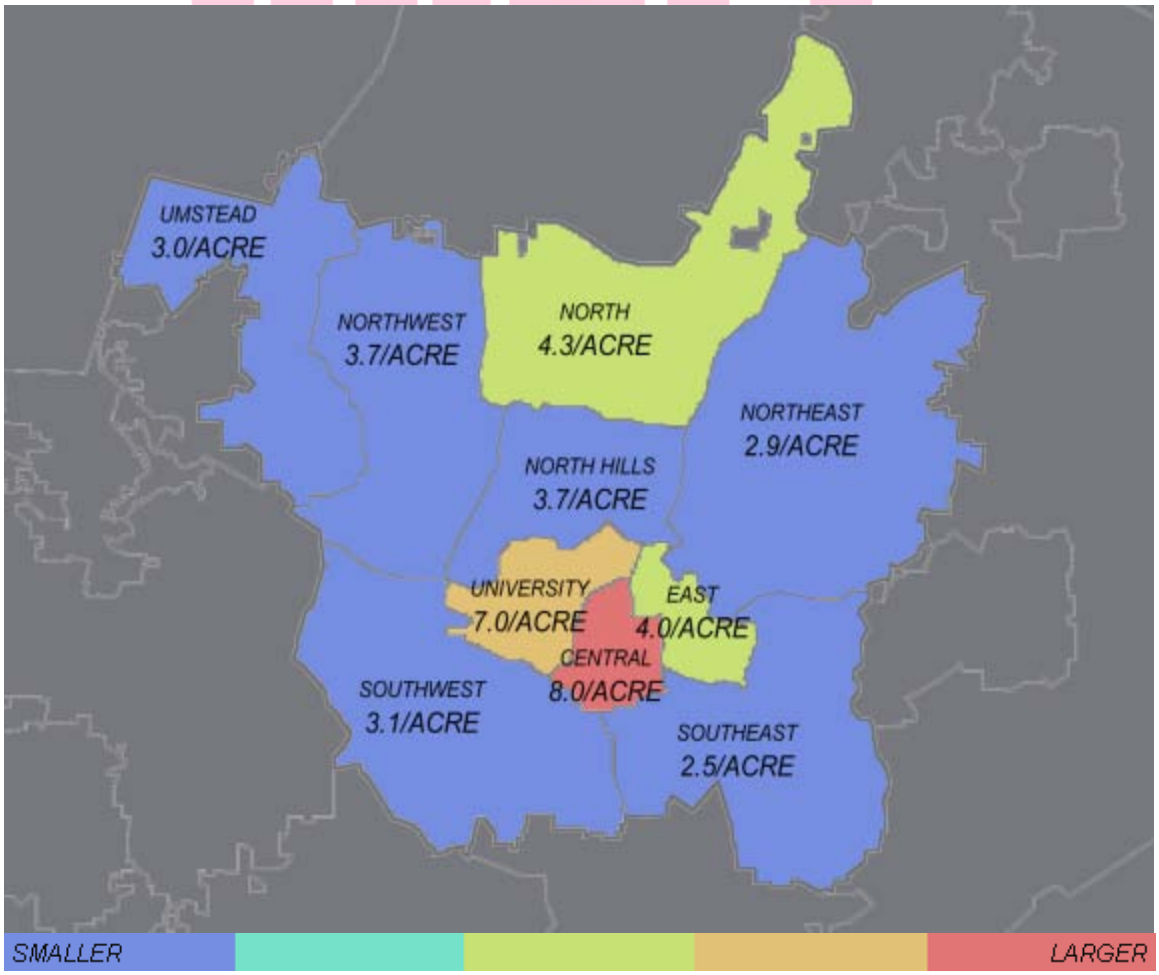
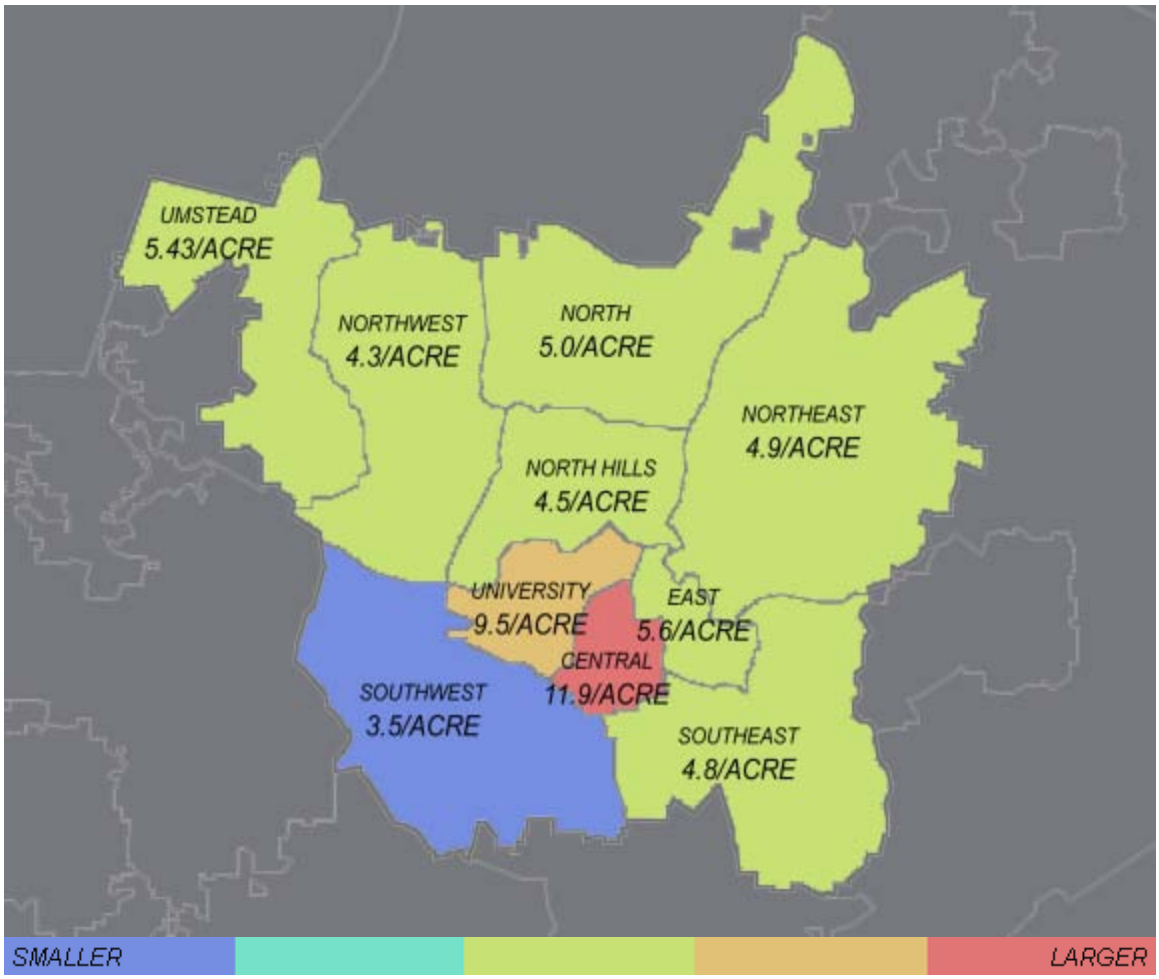
Figure 3.2F Raleigh Density 2007



Information Source: City of Raleigh Planning Department
Graphic Representation by Szostak Design Inc.

Figure 3.2G Projected Raleigh Density 2025



Information Source: City of Raleigh Planning Department
Graphic Representation by Szostak Design Inc.

3.25 Population Diversity

In addition to these aggregate measures of population change, there are other important subordinate demographic measures of the distribution of Raleigh's population, principally distinguished by age, family composition, and ethnicity. In the next twenty-five years, Raleigh's population will become older, and more ethnically and culturally diverse, factors which will influence choices in the provision of municipal services, though to a lesser extent than the overall growth in population. A more detailed analysis of these changes is included in the Appendix of this report.

3.26 Growth in Population/Conclusions

Although Raleigh will grow in population throughout its metropolitan service area, ***growth in its Umstead, Southeast, and Northeast districts will be most pronounced.*** *Similarly, increases in population density (and presumably a corresponding demand for increased municipal services) will also be most pronounced in these same districts.* ***Density will increase in all districts*** *of Raleigh, suggesting* ***a need for expanded facilities throughout,*** *but with particular* ***emphasis on those districts with the greatest projection of need, based on density.*** *A more thorough exploration of the implication of these projections relative to the allocation of aquatics facilities and programming is developed in the* ***Strategy of Service*** *chapter of this report.*

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Growth in Population/Notes

1. Sources: Greater Raleigh Chamber of Commerce, the Office of The State Demographer, North Carolina, the Capitol Area Metropolitan Organization and the City of Raleigh Planning Department.

3.3 Changes in Aquatics Expectation Based on National Trends

Section Summary

In this section, recent national trends in aquatic facility planning and design are discussed. Design concepts are categorized by their utility by one of five aquatic user groups: recreational swimmers, fitness swimmers, aquatic therapy users, competitive swimmers, and those learning to swim. The descriptions make evident the very different requirements for each of these aquatic user groups and recommend facility capabilities and amenities essential to accommodating these needs.

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3.31 National Aquatic Trends: An Overview

As suggested previously, in the past twenty years there has been considerable change in the philosophy, technology, and marketing of aquatic services nationwide. These trends, first developed for large-scale commercial aquatics providers and later adopted by many private and public institutions of higher education, have amplified the general public's expectations for the quality, specialization, sophistication, and variety of all aquatic environments, including those provided by municipalities.

3.31 – 1 Historical Context

In the post-war era, municipal swimming pools were largely utilitarian in character and designed to satisfy only the median expectations of aquatic use. These were typically outdoor, rectangular lane-based pools in 25 yard, 25 meter or 50 meter lengths. More often than not, only a floating rope line would demark areas of differing use and there was little or no specialization of the pool's shell to address specific aquatic user needs or interests. A single, simple run water slide might be provided. Separate or adjoining diving wells might also be included, usually with one and three meter springboards, and a fenced infant wading pool was generally attached nearby. Beyond these basic provisions, the philosophy of this era of aquatic facilities could best be summarized as "one size - and shape of pool - fits all."

Patron amenities in this era were equally utilitarian, featuring un-conditioned, open-air changing enclosures and basket room storage for clothing. Construction materials for these ancillary structures were durable, but unsophisticated: typically concrete slabs, painted or glazed concrete block, and occasional ceramic tile-clad walls.

3.31 – 2 The Modern Recreational Water Park and Its Influence

Photo: Counsilman-Hunsaker

Beginning in the late 1970's, a new generation of aquatic facilities emerged, spurred by the innovations of the for-profit aquatics industry. These swimming facilities, originally conceived as family "water parks," were at first constructed in conjunction with existing recreational theme parks. They were designed to create a richly varied, family-oriented aquatic experience that included elaborate water slides, spray grounds, wave machines, and simulated beach environments. Patron amenities and support structures were up-scale in quality, constructed with conspicuously stylish materials and details. The provision of food concessions, well-equipped bathhouses, and private lockers, showers, and changing stalls all contributed to an enhanced consumer experience.

The intention of this new style of swimming facility was to create a variety of exciting aquatic activities within a comfortable, patron-friendly environment for which the private sector entrepreneur could then charge a premium admission fee. Because there were a great variety of activities available to patrons of all ages, the average length of stay was longer than for that of conventional pools and the water park's higher admission price was therefore perceived as being a much better economic value. The concept of the water park was immediately profitable and widely imitated. In time, "water park"- style amenities found their way into smaller commercial pools and, eventually into many more progressive community and municipal aquatic settings.

3.31 – 3 The Influence of an Increasingly Health Conscious Populace

Therapy Pool, Photo: Counsilman-Hunsaker

Concurrent with the development of recreational aquatic centers, was a parallel growth in the public's interest in programs promoting fitness and wellbeing. Aquatic exercise, including lap swimming, water walking, and water aerobics were perceived as excellent, low-impact training regimens that could be highly beneficial and enjoyable, regardless of a participant's age, ability, or level of athleticism. And while fitness swimming does not demand specialized aquatic facilities – the shallow depth lap lanes of the traditional rectangular pool work perfectly well for this need – the increased demand for prioritized use of swimming lanes limited pool access for other aquatic users.

The demand for therapeutic aquatic activities - water-based medical programs offering a broad range of rehabilitative treatments - also experienced growth in demand during the 1980s and 1990s, due to both increasing public awareness of the benefits of such treatments and a greater willingness of healthcare insurers to reimburse patients for the cost of prescribed aquatic therapies. Unlike fitness users, participants in aquatic therapy programs have highly specialized needs. Rehabilitation patients may be infirm or possess limited mobility, making barrier-free, zero depth access to water essential. Many patients are also highly sensitive to temperature extremes and require heated water,[1] generally kept at a uniform temperature of 88^0 to 92^0. In addition, prescribed aquatics programs

usually require the supervision of certified therapists who will employ specialized diagnostic and rehabilitative equipment and prefer a controlled therapeutic setting, free from the distractions of non-therapy aquatic users.

Virtually none of these essential therapeutic requirements can be satisfied by the conventional, "one-shape-fits-all" municipal pool of the 1960s, and while healthcare system providers and insurers have increased investment in the construction of therapy pools for subscribing members, there remains an unfulfilled demand for warm water therapy available to a broader cross section of the general population, particularly individuals who may otherwise have only limited access to such services.

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3.31 – 4 The Influence of Growth in Competitive Swimming

Competition Pool, Photo: Counsilman Hunsaker

The demand for aquatic facilities appropriate to the needs of competitive swimmers has also grown in the preceding three decades. Swimming clubs that field competitive youth swim teams, particularly independent aquatic organizations like USA Swimming, have experienced rapid growth in membership nationwide and precipitated corresponding

pressures on the resources of all aquatic providers, public and private alike. As with previously cited users, this aquatic group has specialized requirements for facilities – deeper and cooler water, as well as dedicated venues for training, competition, and spectator seating – which are rarely addressed adequately by older, 60s-era municipal pools.

3.31 – 5 The New Aquatics Paradigm

Due to the increasing demand presented by each of these aquatic users and their interest in facilities tailored to their individualized needs and interests, contemporary aquatic centers have by necessity, become more sophisticated. They have evolved into what could be best described as aquatic "super centers," facilities that offer a variety of swimming environments fitted to the separate needs of various swimming constituencies within single or multiple, multi-purpose venues. The "new" aquatic center is far more conscious of the interests and desires of the swimming public and as a consequence, has benefited financially by presenting highly desirable, consumer and family-friendly aquatic facilities and programming.

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3.32 The New Aquatic Center:
A Planning Response to the Diverse Needs of the Swimming Public

Today, aquatic facilities across the country are designed with a community-wide approach to attract the entire spectrum of swimmers. Trends of greater specialization and convenience continue to evolve in the aquatic industry as user expectations mature. New aquatic designs are stretching the boundaries of the traditional swimming pool, literally pushing out the fences to offer a greater variety of pool types and wider deck spaces for lounging and socializing. Leisure pools invite recreation with broad, irregularly shaped expanses of water with ample amenities for participation. Multi-use facilities provide bodies of water for lessons, fitness lap lanes, wellness needs, competitive needs, and family leisure amenities with separate spaces for different age groups.

Municipalities are shifting emphasis from facilities designed specifically for competitive swimming to considering the entire community's needs. The old theory of building a rectangular pool and expecting everyone to use the same pool is unrealistic for tiny tots, families, the ADA population, and seniors. Often, multiple bodies of water are necessary to accommodate greater representation from the community, resulting in aquatic centers with recreation swimming and wellness pools augmenting the revenue of competitive swimming. This trend has led to the creation of *bundled*, multi-generational facilities that share operating expenditures across the spectrum of aquatic users.

3.32 – 1 Bundling

Bundling recognizes the inherent advantage of economies of scale. Facilities that "bundle" a variety of pool types can share common infrastructures (utilities, site features,

parking) and support amenities (bathhouses, administrative space), thereby preserving capital resources.

Moreover, a bundled facility is also a useful means to further custom-fit facilities to specific community needs at an overall lower cost. In the following chapter, there are suggestions of a variety of bundled pool configurations that are specifically designed to serve either as stand-alone facilities, or as elements that can be combined with other facility types to better address specific community needs.

3.32 – 2 Potential User Groups

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National surveys show that swimming ranks as one of the nation's top favorite recreational activities. Newly designed aquatic centers now include countless opportunities for swim lessons, swim teams, and aquatic fitness activities that need not be too challenging to be beneficial. As more athletes cross train with water fitness components, and more doctors recommend water rehabilitation for injured, obese and aging populations, multi-generational aquatic centers have become highly successful for all age groups.

Figure 3.3A. Sports and Fitness Participation Statistics (in millions of participants)

	2005	2004
Swimming	58.0	53.4
Exercise w/ Equipment	54.2	52.2
Bicycle Riding	43.1	40.3
Aerobic Exercising	33.7	29.5
Weight Lifting	35.5	26.2
Running/Jogging	29.2	24.7
Basketball	29.9	27.8
Golf	24.7	24.5
Baseball	14.6	15.9
Soccer	14.1	13.3
Volleyball	13.2	10.8
Tennis	11.1	9.6

Source: National Sporting Goods Association

As discussed in the previous section, contemporary aquatics centers respond to the individual needs of the four principal groups of swimmers: recreational, competitive, fitness, and therapeutic. In addition, municipal aquatic facilities continue to support a longstanding educational mission, offering the public instruction in basic swimming skills, water safety, and life guard certification.

3.33 Specific Provisions for Individual User Groups: Recreational Users

Photo Counsilman-Hunsaker

Recreational swimmers have evolved most over the past three decades. In this time, they have become increasingly willing to pay more per aquatic visit, particularly if their expectations for the experience are satisfied. As a consequence, their increased attendance and repeat visits help to offset the operating costs of less self-sustaining aquatic activities, for example, competitive swimming.

The ultimate test of recreational users' satisfaction with a given aquatic facility design is their continued patronage. A valued recreational aquatic experience, embodied by the choreography of people and a favorable perception of the facility's amenities, results in tangible increases in repeat visits and revenues.

To substantiate the economic value of offering greater access to recreational aquatic activities, the experiences of other municipalities is instructive. The following chart offers data shared by municipalities that have recently opened new, recreationally-enhanced pools and were, as a consequence, able to charge significantly higher user fees.

Figure 3.3B Pay to Play: The Response of Admission Fees to Enhanced Aquatic Recreational Amenities

City	Population 2000	2000 Admission Fee	Previous Attendance at This Fee	New Pool Built	New Admission Fee	New Attendance at New Fee
Rowlett, TX	44,503	$ 1.00	12,000	2001	$ 4.50	89,000
Edmond, OK	68,315	$ 2.00	48,000	2002	$ 6.00	68,000
Collinsville, IL	24,707	n/a	n/a	2003	$ 11.50	62,000
Waco, TX	113,726	n/a	n/a	2002	$ 5.00	31,000
Cleburne, TX	26,005	$ 0.50	605	2005	$ 6.00	92,000
Upper Arlington, OH	33,686	$ 5.00	31,428	2006	$ 10.00	73,227
Hatfield, PA	2,605	$ 6.00	22,000	2007	$ 8.00	50,000

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Source: Counsilman-Hunsaker
Photos: Counsilman-Hunsaker

Notes to above chart: Upper Arlington charges $12 on weekends. Some of these facilities allow free admissions for children under three. "n/a" indicates a municipality that did not previously have a pool.

Rowlett, TX

Cleburne, TX

Collinsville, IL

Summary of Enhanced Aquatic Amenities for Selected Municipalities

Rowlett's Wet Zone features a leisure pool with zero-beach entry, participatory play feature, two 125-foot body slides, swirl slide, 6-lane lap pool, lazy river, tot pool, birthday pavilion, bathhouse, and concessions.

Edmond's Pelican Bay offers a leisure pool with zero-beach entry, participatory play feature, 6-lane 25 yard pool, one-meter diving board, opened flumed 150-foot waterslide, closed flumed 150-foot waterslide, tot pool with slide, water sprayground, current channel, vortex, bathhouse, and concessions.

Collinsville' Splash City attractions include a leisure pool with zero-beach entry, participatory play feature, family play structure, two waterslides, water walk, lazy river, 6-lane 25 yard pool, FlowRider, large group pavilion, sand play area, bathhouse, and concessions.

The Waco Water Park includes a zero-beach leisure pool, participatory play feature, two water slides, current channel, 6-lane 25 yard pool, bathhouse, and concessions.

The idea that enhanced recreational amenities yield higher potential revenues can also be corroborated with anecdotal evidence including the following interview with the aquatics director for the City of Colorado Springs:

Colorado Springs, CO
Photo: Counsilman Hunsaker

> "The response to Wilson Ranch, the first of the (three new pools) to open last year, was phenomenal," says Deborah Barry, aquatics supervisor for the City of Colorado Springs. "We reached capacity in the first week. People came from all over the area: Castle Rock, Pueblo, Monument, and other towns."
>
> "The amazing thing is how much money has been made from birthday parties and other facility rentals," Barry says. "At Cottonwood and Wilson Ranch, 100 percent of the available rental dates have been filled. We're also seeing a serious increase in money from public swimming," she says. "In the past, the majority of our funds came from swim lessons. However, this is no longer the case at any of the new facilities."[2]

Age Specific Recreational Aquatic Design

Aquatic attractions have become increasingly defined by the age groupings of their users and are therefore designed in response to age-specific interests, abilities, and physical limitations. It goes without saying, youth swimmers are most often attracted to physically challenging activities that offer a sense of thrill and excitement. Conversely, adult and senior users may prefer more relaxing and less physical recreational activities.

Separate spaces for age-specific user groups are highly desirable and are varied by water depth, ability level, and requirements for supervision.

For example, in the past, children ages six months to seven years have been bundled together in shallower areas of the traditional pool. As a result, second graders were assumed to enjoy the same aquatic expectations as infants, a highly unlikely presumption.

In contemporary aquatic centers, differing age groups have the benefit of their own specifically designed recreational areas. For the six month to three year age group, well-defined and supervised tot pools with gentle water features and play areas are most appropriate and should be tucked securely out of the way of the more active aquatic areas. Once children mature beyond the tot stage, they can romp in zero-beach leisure pools and make adventuresome use of participatory play features, like "just-their-size" water slides. Older children will be drawn to flume and drop slides and enjoy climbing on large water play structures. Pre-teens will make good use of mat racers while teens will naturally gravitate to social gathering spots, like action islands, equipped with access to deep water pools and "extreme" sports and recreational features. Almost every age group will enjoy lazy rivers and current channels. Spas and lap lanes are geared for adult and senior use and positioned away from the high-traffic activity areas used by younger patrons.

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Figure 3.3C. Recreational Age-Group National Trends

Age 0-3	Tot Pool, Tot Slides, Gentle Spray Features
Age 4-7	Water Sprayground, Zero-Beach Pool, Participatory Play Features, Sand Play
Age 8-11	Water Walks, Large Play Structures, Water Slides, Open Water
Age 12-16	Water Slides, Open Water, Diving, Lazy River, Gathering Places, Sand Volleyball, Mat Racer
Age 17-22	Action Island, Water Slides, Flow Rider, Mat Racer, Climbing Wall, Sand Volleyball, Place to be Seen
Age 23-45	Zero-Beach Pool (w/children), Open Water, Spa, Sun Deck, Lap Lanes, Lazy River, Water Slides
Age 45+	Spa, Sun Deck, Lap Lanes, Lazy River

Source: Counsilman - Hunsaker

The following are descriptions of aquatic recreational features commonly found in many contemporary pool facilities. Photos in this section by Counsilman Hunsaker

3.33 – 1 Leisure Pools

The free-form Leisure Pool provides an inviting atmosphere with shallow water depths from zero (beach-style entry) to four feet, allowing adults and children to interact for playful entertainment and shared family recreation. With a wide choice of size, configuration, and recreational offerings, the leisure pool is a highly flexible aquatic amenity, desirable across a broad range of ages, interests, and skill levels. The greater the variety of interactive water attractions available to patrons, the greater their aquatic experience and satisfaction, an attribute which has been demonstrated to increase the number of pool visits and average length of stay.

3.33 – 2 Deep Water Diving

Flexible springboards in one meter or three meter heights located in designated deep water areas offer experienced swimmers the challenge of diving. Deep water can also be programmed for advanced swimming lessons, lifeguard training, diving lessons, water safety, water polo, scuba, synchronized swimming lessons, and deep water fitness classes.

3,33 – 3 Participatory Play Feature

Located in shallow areas of the Leisure Pool, Participatory Play Features are multi-level, interactive structures where children scamper through spraying water, climb across bridges, scurry over and under tunnels, and slide down "just-their-size" water slides. As children manipulate valves and chains, they control where and when the water sprays will occur - all within sight of parents and lifeguards. Features come in many sizes and colors providing an engaging, hands-on experience.

3.33 – 4 Zero-Beach Entry and Wet Decks

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Users enjoy easy entry into leisure pools, simulating an ocean beach where the pool bottom slopes gradually toward deeper water. Instead of jumping or climbing into the pool, patrons simply walk in. A wet deck is a shallow water surface where sunbathers can lounge in cool, lapping water.

3.33 – 5 Current River

A Current River travels at approximately three miles per hour and provides a similar experience to the Lazy Rivers found in larger waterparks, but at a more moderate cost. It also provides an ideal setting both for fitness classes and adults seeking non-programmed exercise by walking against the current. A current river is usually 6-8 feet wide.

3.33 – 6 Lazy River

Larger than a Current Channel (see 3.33 – 6), a Lazy River is normally six feet wide with a current of three miles per hour, meandering through an aquatic park. A Lazy River whisks patrons away in inner tubes on an adventurous but tranquil journey through the aquatic park. Within this configuration, picnic areas can be positioned along the path of the river or the feature can offer access to other aquatic attractions. Eating areas are frequently designed to overlook the lazy river offering a relaxing, entertaining view.

3.33 – 7 Water Vortex

A Water Vortex is generally a well-defined pool area in which sidewall jets propel water in a circular motion. Children enjoy swimming in the swirling water and adults find it a relaxing aquatic atmosphere for social interaction. When the vortex pool is not activated, the area can also serve as instructional space for classes or other activities.

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3.33 – 8 Water Slide

Very popular with children, teens and adventurous adults, Water Slides add excitement to pools. The thrill of mounting the stairs and the exhilarating rush of acceleration sliding down into the water makes water slide features among the most desired attractions of recreational aquatics.

3.33 – 9 Otter Slide

Otter Slides are smaller water slides scaled for children who are too big for the kiddy slides, but too short for the height restrictions of the larger water slides.

3.33 -10 Mat Racer

A Mat Racer provides patrons the exhilaration of racing others down a multi-lane slide with a wet deck, run-out. Its combination of thrilling acceleration coupled with the challenges of one-on-one competition offers both users and spectators a high degree of entertainment.

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3.33 – 11 Spray Features

Spray features present a variety of refreshing water sprays including dribbling trickles, gushing torrents, spray bars, bubblers, water curtains, and water arches lending a “water wonderland” effect to the recreational experience. Constructed of durable reinforced fiberglass, spray features are generally located in the shallow ends of pools and offer engaging aquatic play experiences for younger swimmers.

3.33 – 12 Water Play Structures

Large water play structures are in essence, aquatic gyms that are frequently given thematic settings - water jungles, pirate coves, or rainforest temples - for added entertainment value. Equipped with a variety of slides, waterfalls, and water features, the water play structure is an excellent center for shared family aquatic activities.

3.33 – 13 Flow Rider

This artificial surfing environment uses high-output water pumps to produce a flow of water approximately two inches thick over a fixed foam-padded surface. A Flow Rider can be used by individuals or as a venue for competitions with spectator viewing. By combining a challenging physical activity with high-energy excitement, the introduction of a Flow Rider in aquatic centers has proven a popular attraction, increasing attendance and repeat visits.

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3.33 – 14 Water Sprayground

An array of pleasing visual sights and sounds for children interacting with water, a Water Sprayground enhances the recreation value of a park or aquatic facility. Water Spraygrounds feature interactive play elements located on a concrete splash pad, either with or without standing water. Spray elements can either be manipulated by children, or pre-programmed with timers. Because of the minimal water depth, spraygrounds can be operated in most jurisdictions without certified lifeguards, making them a cost-effective addition for all types of parks, recreational areas, and aquatic centers.

3.33 – 15 Water Walks

Incorporating physical action and adventure, a Water Walk is a suspended walkway spanning narrow areas of the pool, composed of spun braided rope or cargo net. For hours of imaginative and exciting water play activity, Water Walks are tethered to the

bottom of the pool and available in several themes: lily pads, fossils, crocodiles, seashells, and logs.

3.33 – 16 Shade Structures

Shade Structures are placed on the deck or in the pool, providing protection from UV radiation. Typically constructed in a wide range of colors, these structures can offer a festive atmosphere to the facility for social gathering, food concessions, and picnics. They can be lowered in times of stormy weather or when not needed.

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3.34 Specific Provisions for Individual User Groups: Fitness Users

Photo: Counsilman Hunsaker

Water aerobic programs have become one of the fastest growing segments of the adult fitness industry. Water's inherent qualities of buoyancy and moderating temperatures have many benefits for athletes recovering from injuries as well as healthy adults seeking a less stressful, low, or no-impact form of exercise. The aquatics industry has responded to the growing popularity of aquatic fitness by creating a wide range of activities with related devices and equipment for a greater diversity of water-based, aqua exercise options.

Aerobic dancing, walking and running in shallow and deep-water environments and current channels are just a few of the choices available to people wishing to add less stressful elements of a cross-training regimen or even use aqua aerobics for their entire fitness program. Moreover, businesses may sponsor or subsidize aquatic fitness as part of their employee wellness training discipline. Though some large corporations have their own facilities, most do not.

Aquatic fitness also remains one of the most popular forms of exercise among senior adults. Data taken from the U.S. Census Bureau shows lifetime expectancy is up 30 years since 1900, increasing by approximately two years every decade. Seniors represent an increasingly significant share of the aquatics marketplace and are anxious to

participate in water aerobics programming, wellness programming, and other recreational opportunities.

Figure 3.3D. Average Life Expectancy in the United States, 1900 to 2000

Year	Male	Female
1900	48.2	51.1
1940	60.8	65.2
1950	65.6	71.1
1960	66.6	73.3
1970	67.1	74.7
1980	70.0	77.4
1990	71.8	78.8
2000	74.3	79.7

Source: US Census Bureau

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Seniors can be enthusiastic aquatics participants provided certain requirements are met. They typically feel uncomfortable in an environment with teens and generally respond better to programming that is strictly defined with definite starting and finishing times of well-structured activities such as water aerobics, arthritis water fitness, water walking, physical therapy, adult swim lessons, and save-a-life workshops, lap swimming, Masters swimming, and water volleyball.

The following provides a snapshot of many of the more popular aquatic fitness programs.

3.34 – 1 Lap Lanes

Fitness lap swimming and water walking are important to many adults and seniors. Opportunities for lap swimming can be accommodated in as little as a two to four lane, 25-yard lap areas, adjacent to, but separated from other aquatic activities. Greater numbers of lanes are typically available in pools that double as competitive venues. In addition, lap lanes areas can be also be programmed for alternative use as instructional areas.

3.34 – 2 Walking and Jogging in Shallow and Deep Water

Thirty minutes of aqua jogging is equal to 80 minutes of jogging on land (www.waterart.org). Many fitness swimmers enjoy walking/jogging against the current in Current Channels and Lazy Rivers.

3.34 – 3 Water Aerobics
Water Aerobics remains one of the fastest growing segments of the adult fitness industry. The movements and exercise techniques parallel those of a typical aerobics class, only performed in water. Water aerobics exercise typically burns calories at a much higher rate than a comparable land-based aerobics program.

3.34 – 4 Water Weight Workouts
A workout with foam water weights or water proof plastic weights in the water.

3.34 – 5 Finning

Requires fins or flippers and utilizes fitness lap lanes of a pool. The kicking and pulling enhances conditioning and toning.

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3.34 – 6 The Liquid Gym
An aqua-training workout that can be scaled to the fitness needs of a variety of user abilities and age.

3.34 – 7 Navy Seals
Similar to the Liquid Gym, but geared for younger swimmers.

3.34 – 8 H20 Training
A muscular endurance workout performed in deep water.

3.34 – 9 Basic Training and Boot Camp
An amphibious program combining land and water fitness exercise to add variety to training regimens.

3.34 – 10 Water Yoga
A yoga-based series of exercises that enhances the effects of "asanas" (stretching positions) to relax muscles and increase range of motion. The technique is most often employed in a warm water therapy pool, but can be adapted to lap lane aquatic environments.

3.34 – 11 Scuba and Snorkeling

Although most often thought of as a recreational activity, snorkeling and scuba diving are also excellent forms of aquatic exercise. Initial training for both typically takes place in the controlled environment of a swimming pool. Scuba Rangers for kids (8-12) teaches snorkeling and scuba diving skills in a pool setting, using underwater flashlights, navigation compasses, and underwater photography as aids to developing aquatic skills.

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3.34 – 12 Underwater Hockey

This fast moving "no contact" sport is also excellent exercise. Played on the bottom of a pool by two teams of six, participants wear fins, mask, snorkel, a protective glove and headgear. The "hockey stick" is short, approximately 1 foot long, the puck is around 3 lb., and the goal is 9' long. Scoring depends on teamwork as players must go to the surface to take breaths. Games are two, 15 minute halves and can have up to 4 substitutes who can enter at will.

3.34 -13 Triathelete Cross Training

There is an increasing interest in this sport for both competition and fitness. Although it is principally an outdoor event utilizing natural water features, event training frequently takes place in structured swimming facilities.

3.34 -14 Aqua-lympics

Exercise and training for a host of competitive events including water volleyball, inner tube water polo, and waterslide speed challenges.

3.34 – 15 Aquatic Personal Training:

Personal trainers design individual aquatic programs to help participants achieve specific fitness goals.

3.35 Specific Provisions for Individual User Groups: Aquatic Therapy Users

Therapy Pool, Photo: Counsilman-Hunsaker

Aquatic therapy is rehabilitation performed in water and involves physical activity, exercise, and motion in the presence of an aquatic therapist. Warm water increases the dynamics of blood pressure and blood and lymph circulation, as well as decreasing swelling in skin and other tissues. The goal of participation in an aquatics program is to improve overall health and fitness, to increase stretching capacity, range of motion, movement capabilities, coordination, physical stamina, and endurance; to partake in cardiovascular exercise at the participant's target heart rate, and to improve swimming safety, skills, and abilities.

Aquatic therapy requires a much more controlled environment than that needed for general exercise. Water temperature is usually between 87 - 92 degrees Fahrenheit and water depths range from three feet six inches to over six feet, depending on the type of program offered. The term aquatic therapy has been applied to a variety of health-oriented aquatic programs for arthritis, obesity, surgery recovery, athletic injuries, etc. In order to maximize revenue potential and health benefits to the community, programming needs to concentrate on therapy associated with a medical provider.

Though some who employ aquatic therapy are enthusiasts of meditation or massage, most are looking for rehabilitation and improving or maintaining an overall level of health. The Arthritis Foundation certifies instructors to teach arthritis aquatics. Many participants in these programs report reduced arthritis symptoms, including increased mobility, reduced pain and decreased inflammation. New studies suggest that the management of diabetes can also be enhanced by water exercise. Though still in the theoretical stages, studies suggest that water exercise and therapy, when applied to diabetics as a regular program, can reduce diabetes symptoms and assist insulin level management. When moderate exercise is recommended for pregnant and obese patients, the low-gravity qualities of aquatic therapy can be very appealing to these user groups.

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The following are specific types of aquatic therapy that are typically programmed in a comprehensive therapy pool facility pool.

3.35 – 1 Ai Chi

Ai Chi is a form of active aquatic therapy or fitness exercise modeled after the principles of T'ai Chi and yogic breathing techniques. The patient stands in chest-deep water and is instructed to perform a slow, rhythmic combination of therapeutic movements and deep breathing.

3.35 – 2 Aquatic PNF

PNF (Proprioceptive Neuromuscular Facilitation) is based on functional human anatomy and neurophysiology that seeks to improve motor skill output in the therapy patient. In aquatic PNF, the patient is instructed in a series of functional, spiral, and diagonal mass movement patterns while standing, sitting, kneeling, or lying in the water. The patterns can be performed actively or with assistance or resistance provided by specialized aquatic equipment. The goal is improved motor skills and maximum flexion. Aquatic PNF is often sought by rehabilitation patients who are more comfortable in the easy-on-your-joints environment that water provides.

3.35 – 3 Bad Ragaz Ring Method

The Bad Ragaz Ring method is a form of active or passive aquatic therapy modeled after the principles and movements of the Knupfer and PNF methods. In many ways, it is similar to PNF except that the patient is supported by rings or floatation devices and is almost always positioned horizontally.

3.35 – 4 Fluid Moves®

During active Fluid Moves, the patient follows a sequence of movements based on the early developmental stages of the infant. The patient stands chest deep in water, typically with his or her back to the pool wall, and is then instructed by the provider to perform a slow, rhythmic combination of therapeutic movements and deep breathing. This method is based on functional integration and is especially popular among mediation enthusiasts.

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3.35 – 5 Halliwick Method

The Halliwick method is meant to teach postural control and balance. The therapist leads the patient through a series of activities that require sophisticated rotational control, teaching the client to control body movements. The patient is then required to react to, and eventually to predict, the demands of an unstable environment.

3.35 – 6 Swim Stroke Training and Modification

Swim stroke training and modification is a form of active aquatic therapy, which makes use of swim stroke techniques in a program of rehabilitation. Typically in this type of therapy the patient is horizontal and is instructed in a variety of swim strokes. Often, water weights are used in the therapy to focus rehabilitation on specific muscle groups.

3.35 – 7 Task Type Training Approach

The Task Type Training Approach (TTTA) to aquatic therapy is an adaptation of existing therapeutic techniques applied to an aquatic setting. This method was first described as a way to teach functional activities to therapy patients who had suffered strokes, but has in recent years expanded its patient base to include other disorders, especially cases of neurological dysfunction. TTTA emphasizes functional skills to be performed by the therapy patient in an aquatic environment.

3.35 – 8 Watsu®

Watsu® is a form of passive aquatic therapy modeled after the principles of Shiatsu (massage). The patient is usually held or cradled by the provider while the aquatic therapy provider stabilizes or moves one segment of the body, resulting in the stretch of another segment due to "drag effect." This type of therapy is typically not rehabilitative in nature, but is more designed for meditation enthusiasts.

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3.36 Specific Provisions for Individual User Groups: Competitive Users

Photo: Counsilman Hunsaker

Competitive athletes (USA Swimming, USA Diving, US Masters Swim Teams, summer swim and dive teams, high school swim and dive teams, water polo teams, etc.) are extremely dedicated aquatic sport enthusiasts who have highly specialized aquatic needs. As a whole, such groups are prodigious users of aquatics facilities and can be counted on to provide a steady stream patronage and financial support.

By the same token, aquatic venues exclusively dedicated to competitive use have not performed as well in financial terms as have more diversely programmed, general use aquatic centers. Except in relatively limited circumstances, stand-alone competitive swimming facilities have historically not been financially self-sustaining.[4]

In the following section, the various components of the competitive user groups are reviewed. Facilities designed to the standards established by these groups will be better positioned to host competitive swimming meets, the more prestigious of which offer considerable financial benefits, both in direct facility rental fees and secondary economic activity – retailing, hospitality, and dining.

3.36 – 1 High School Varsity Swimming

High School Varsity Swimming is typically well-supported in most communities across the U.S., however, many schools lack the ideal facility for training and competition. School systems that rent pool time from area aquatic providers face significant challenges due to financial commitment needed for both training and competitive meet hosting.

High school competitive swimming meets typically have the following requirements:

6-lane 25yd pool is the required course for high school swimming
125 spectator seats
Training and meet equipment generally includes kickboards, fins, paddles, pull buoys, course caps pace clocks, stretch cords, mats (for sit-ups, etc.), free weights, medicine balls, and weight training equipment

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Photo: Raleigh Aquatics

3.36 – 2 NCAA/NAIA Swimming

Smaller market aquatics programs may wish to focus a marketing effort on hosting visiting national and international competitive swim teams for short term training trials. The United States NCAA and NAIA collegiate programs represent a substantial element

in this potential market, as holiday training sites are highly desired by these organizations.

3.36 – 3 Special Olympics

The goal of Special Olympics is to create positive and enduring changes in the lives of people with disabilities, their families, friends, coaches, and volunteers. The Special Olympics serves more than 2.25 million persons in more than 200 programs representing 150 countries. In Aquatic Special Olympics competition, individual events usually take place in 25 meter pools and are offered for all strokes styles. Individual and relay events mirror those offered in other international swimming competitions. Currently there are 159,100 Special Olympic athletes involved in aquatics.

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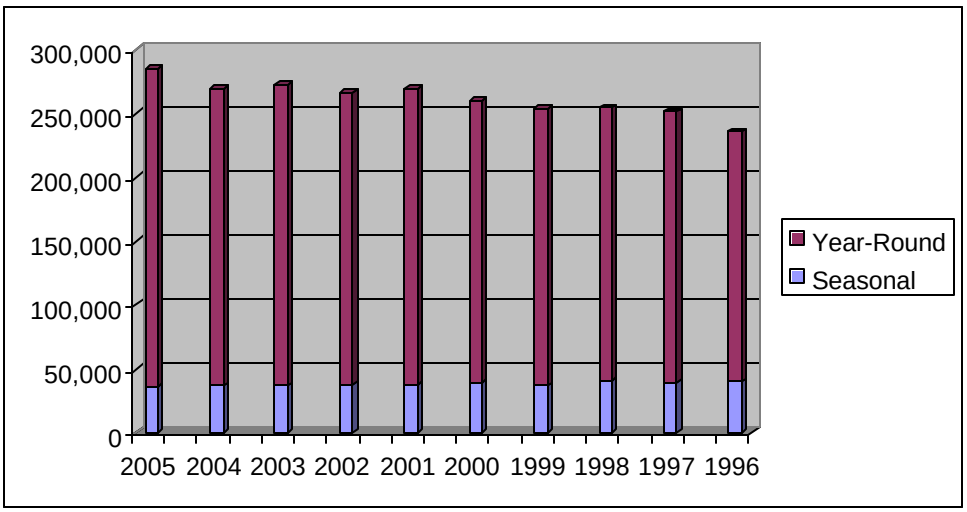
3.36 – 4 USA Swimming

USA Swimming's corporate formation was made possible by the passage of the Amateur Sports Act of 1978. National participation in USA Swimming has risen every year since 1988. As the National Governing Body for competitive swimming in the United States, USA Swimming formulates rules, implements policies and procedures, conducts national championships, disseminates safety and sports medicine information, and selects athletes to represent the United States in international competition. The organization presently has more than 300,000 members and sanctions more than 7,000 events each year.

USA Swimming has four zones nationwide, which are subdivided into fourteen regions. USA Swimming delegates local governance to 59 local swim committees or LSCs, whose geographic boundaries approximate that of individual U.S. states. USA Swimming organizes regional and national competitions for age group competitive swimming in the United States. The following chart illustrates the growth of this organization.

Figure 3.3C USA Swimming Membership Trends



Source: USA Swimming

Figure 3.3D Average Age of USA Swimming Membership, 2005

AGES	FEMALE	MALE
8 and under	11.1	14.6
9	12.7	8.8
10	15.8	10.6
11	17.5	11.3
12	17.3	11.3
13	16.2	10.3
14	14.8	9.1
15	12.3	8.0
16	9.7	6.9
17	7.6	5.6
18	5.1	4.3
19 and over	3.8	4.5

Source: USA Swimming

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The chart above indicates the average age of male and female USA Swimming members as a percentage of total membership

USA Swimming, Minimum Facility Requirements

The minimum facility requirement for local USA Swimming meets during the academic year is a 6-lane 25 yard pool. During the summer months, when long course swimming prevails, 6- or 8-lane 50 meter pools are the norm. In either case, seating for spectators is considered a valuable amenity, especially if the seating is off deck. A minimum depth of 4 feet is required for starting block competitions, although 6 feet 7 inches is preferred and is also the minimum depth for all nationally-sanctioned USA Swimming championship meets. Detailed requirements for larger-scale meets, including many of those described below, are included in the Appendix of this report.

Meet Bidding Process[5]

The vast majority of competitions are scheduled and sanctioned by the 59 Local Swim Committees who establish bidding requirements and submission deadlines for venues wishing to host USA Swimming sanctioned events. The following categories of swimming competition have a moderate set of bidding guidelines. Pool length and water depth standards remain constant, but variables including deck space, sight lines for officials, spectator seating capacity off the pool deck, and warm-up/cool down pool availability for competitors are important and often taken into account by the selection committee.

Speedo Champions Series (Sectional Meets)

Each of the four zones is charged with hosting two to four sectional championships each year, held over three days and titled the Speedo Champions Series. As an incentive to encourage hosts to make the meets a special experience for participating athletes, a $10,000 grant is available to hosts willing to meet certain advertising and exclusivity conditions. In 2001, the first year under this system, 13 sectional meets were hosted in the spring, and 13 more were contested near the end of the summer. The meets require a

minimum of 400 athletes. The sections have the authority to determine dates and host sites, while the Zone must approve these suggestions.

General minimum standards require eight lanes for the competition venue, preferably designated to be a "fast" pool. In these events, the availability of warm-up/cool down lanes becomes an important consideration. In short course venues, an additional eight lanes for continual warm-up/cool down are preferred, but an adjacent diving well may also be used. In long course venues, long course warm-up/cool down is preferred, but difficult to find. Officials prefer venues where diving board stands or other amenities do not impede sight lines or the ability to walk the deck for the entire length of the competition pool. Preferred spectator seating is separated or elevated from the pool deck, accommodating an audience of 250 to 400.

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Zone Championships

The four zones are the Eastern, Southern, Central, and Western. These long course meets are held over three days and typical attract 500 and 900 athletes. Zone hosts will receive $6,000 in enhancement funding from USA Swimming upon satisfying specific meet requirements. The zones strongly encourage the hosts to offer an open water race one day immediately before or after the meet, with an additional $1,000 incentive for doing so.

High Profile Competitions[6]

The meets that follow tend to draw international participation and are attractive to various news media. Economic impact to the area - hotels, restaurants, vehicle rentals and retail sales - can be significant. Facility requirements are high, as are expectations for impeccable organization and hospitality. Potential hosts are encouraged to gain event management experience by hosting smaller scale USA Swimming events.

Grand Prix Meets

USA Swimming supports four or five meets each year that are part of a Grand Prix Series. In concept, the nation's most elite athletes are anticipated to compete head-to-head several times before reaching the championship portion of the season. The Olympic International Operations Committee (OIOC) makes the final decisions regarding meet hosts and presents the winners at the annual convention. The meets must be held in 50 meter pools, though they need not be limited to indoor venues. Any dates will be considered, but USA Swimming has four sets of preferred dates from mid-May to mid-July. USA Swimming will provide matching funds of up to $10,000 as an incentive to provide travel reimbursement for high profile domestic athletes in order to insure the highest possible level of competition. Foreign athletes are encouraged to attend, and the potential for travel reimbursement exists, but only after USA's National "A" and "B" team members have first been offered reimbursements.

U.S. Open
The U.S. Open Swimming Championship is an international invitational held in early December each year. The meet is held long course (50 meters) in pre-Olympic years and in a 25 meter course the other three years of each Olympic quadrennial. In order to host, venues must conform to the more stringent requirements for national championships. Generally, 800-900 elite athletes attend these meets. In pre-Olympic years, over 1100 entrants from 48 countries have participated in the U.S. Open. $15,000 in enhancement money is available from USA Swimming.

FINA World Cup
The Federation Internationale de Natation Amateur, or FINA, is the global governing body for amateur aquatic sports. The FINA World Cup is a ten meet, worldwide series. The United States is awarded one of the ten meets, typically over two days in late November. The meets are held in 25 meter pools. FINA prefers these meets to be held in major metropolitan areas and often arranges for television coverage on ESPN or ESPN2. In its first three years in the U.S., this event has averaged 250 athletes from 35-40 countries.

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National Disability Championships
USA Swimming conducts an annual, long course championship swim meet for athletes from all disability populations—physical, sensory, and cognitive. The USA Swimming Adapted Swimming Committee works closely with the host in the administration and organization of this event. Historical participation indicates that anywhere from 100 to 250 athletes will take part.

National Championships
Two championships are held each year. The Spring Championships are conducted in a 25 meter course; the Summer Championships are held in a 50 meter course. National Championships are the premier domestic meets in a given year, attracting from 900-1200 of the nation's finest athletes. Hosts can earn up to $20,000 from USA Swimming. Indoor venues are preferred, as are separate warm-up/cool-down pools of equal length to the competition pool. Seating for several hundred spectators is preferred. Lighting of 100 foot candles is required for television coverage.

Trials for International Competitions
International meets (such as the World Championships, Pan American Games and Olympic Games) are the pinnacle of elite competition in the United States. Our nation's international teams are selected from the results of these meets. Most years, the National Championships will serve a dual role, doubling as the international team selection meet. In some cases, the international team selection meets will be stand-alone competitions. The Olympic Trials will always be a separate meet. Hosts must bid the Olympic Trials nearly four years in advance, submitting a non-refundable $1,000 deposit with their letter of interest. Only the finest venues in the country - with proven records of hosting major events - will be considered. For the past six Olympiads (24 years), only three venues

(University of Texas Swim Center at Austin, Indiana University/Purdue University at Indianapolis, and the Heritage Park Aquatic Complex in Irvine, California) have won the rights to this prestigious meet. Indianapolis, the 2000 host, sold out every single session of spectator seating (4300 seats) six months in advance. Economic impact to the area was estimated at $6.7 million.

3.36 – 5 Masters Swimming Teams

U.S. Masters Swimming is an organized program of swimming for adults 18+ who participate in everything from lap swimming to international competition. Some join for health, fitness, camaraderie, fun, the thrill of competition, travel, coaching, or just for a regular work-out routine. With 40,000 members in over 450 local Masters Swim Clubs, the U.S. is divided into Local Masters Swimming Committees (LMSC), which are composed of smaller teams and unaffiliated swimmers. About 30% of Masters swimmers compete in swimming meets on a regular basis. For the serious competitors, opportunities to test skill and conditioning include:

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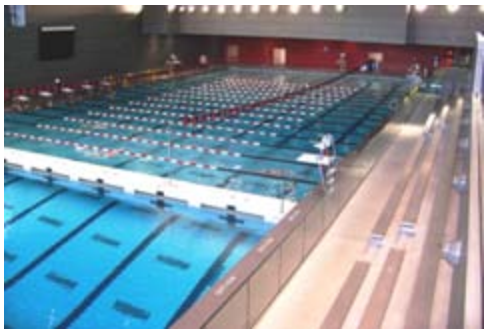
Short Course (25 yard and 25 meter)
Long Course (50 meter) pool meets
Lake and Ocean Open Water Swims
Postal Meets
Special Events
International Championships

Many of the competitive events held by Masters Swimming Zone championships draw as many as 300 athletes or more twice a year, plus spectators.

3.36 – 6 Senior Competitive Swimming

Senior Competitive Swimming is also growing in popularity for adults 55+. According to participation figures compiled by the National Senior Sports Classic, competitive swimming rated as the most popular of 18 sports offered in their competition, with over 19% of all entrants registered for swimming events. The most recent Senior Olympics National Competition drew more than 10,000 competitors.



Photos: Counsilman Hunsaker

3.36 – 7 Pool Rental

Competitive swimmers, particularly those who are members of independent swimming associations like USA Swimming, are accustomed to renting lane space for training as well as leasing entire facilities, either for long-term use or on a one to three day basis for special events and competitions. There is more than one accepted way to receive fees from swim teams. Pool lane rental is usually based on a cost per lane/per hour. Entire facilities leased on a per day basis generally have a fixed schedule of costs for such use. Long-term facility leases are generally the product of negotiation and accordingly are too varied and specialized for consideration in the context of this study.

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Figure 3.3E Pool Lane Rental Costs for Various Facility Management Types

The table below represents information on a variety of lane rental fees, drawn from a 1999 survey by USA Swimming Association members.[7]

Pool Rent in Dollars Per Lane

Program Type	Average Fee (1999 Dollars)	Average Fee Excluding Free Lane Use (1999 Dollars)	Average Fee Excluding Free Lane Use (2007 Dollars)	Max. Fee (1999 Dollars)	Max Fee (2007 Dollars)	# of Free Lane Use Providers	Total Providers in Survey
Parent Run	$3.78	$5.26	$6.52	$25.00	$31.00	53	188
YMCA	$2.11	$3.00	$3.72	$11.00	$13.64	18	27
Parks and Rec	$1.38	$2.24	$2.78	$8.00	$9.92	8	13
School District	$0.33	$0.43	$0.53	$2.00	$2.48	10	13
Corporation	$3.84	$7.09	$8.79	$25.00	$31.00	13	24
Coach Owned	$3.17	$8.15	$10.11	$14.00	$17.36	7	18

Notes: "Free" referes to the program type swim clubs that use the facilities free.
" Total" refers to the total of number of respondents for each program type.

Reference for 1999 figure is cited above
Reference for 2007 numbers: Inflationdata.com, Financial Trend Forcaster. Calculation by Szostak Design Inc.

Pool Rent in Annual or Monthly

	Average (1999)	Low (1999)	High (1999)	Average (2007)
Monthly	$694.00	$60.00	$3,500.00	$860.60
Annual	$17,579.00	$1,000.00	$35,000.00	$21,798.00

Other financial provisions or the rental of pools include:

1. 40% of all fees
2. 20% of all fees
3. 30% of all income
4. $10 per swimmer preseason
5. All revenues minus salaries
6. 10% of gross dues

3.37 Specific Provisions for Individual User Groups: Swimming Instruction

Public health policies typically stress strategies that educate the public about hazards of open bodies of water, promote swimming and water safety classes, and encourage CPR training for children and teenagers.

A well run water lesson program is an important ingredient in introducing young swimmers to safe aquatic skills that will be used during their lifetimes. By offering community youth a comfortable, controlled aquatic environment, swimming and diving lessons can become an enjoyable experience. There are many different types of water safety lessons that can teach children not only how to swim and dive, but how to survive in adverse water conditions. From small water craft instruction to drown proofing to lifeguarding to surf lessons that help ensure safe water experiences, water safety lessons are an integral part of any community's educational and safety mission..

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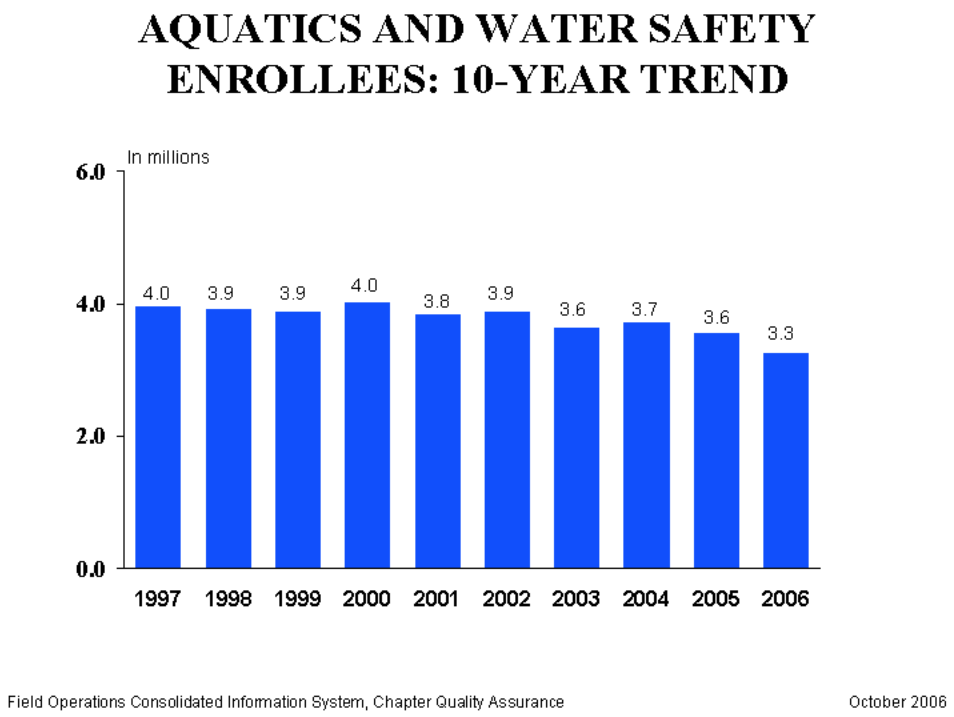
Figure 3.3F Trends in Aquatic Instruction

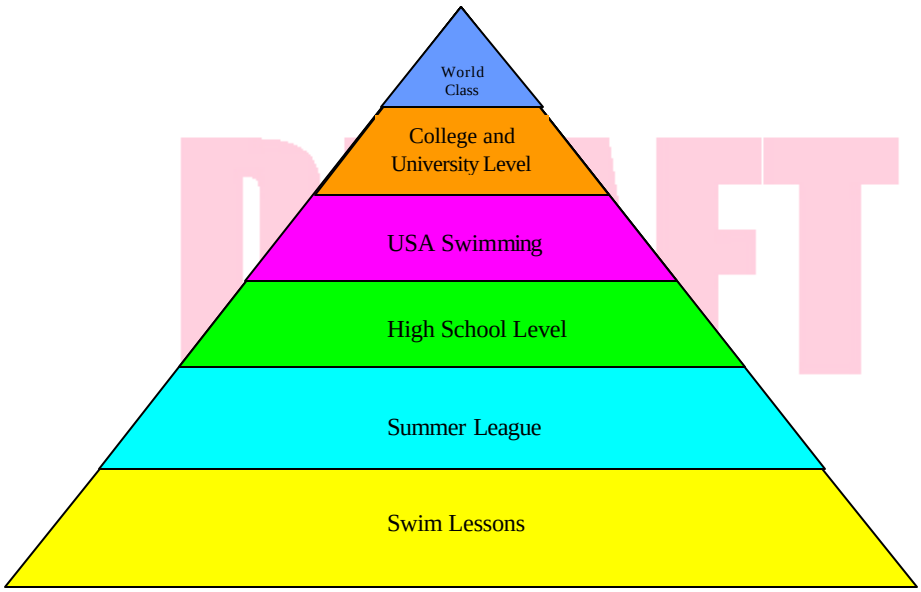


Source: https://crossnet.redcross.org/chapters/focis/corp/FY06/hs406.htm

Swimming instruction programs are also the base of a triangle of aquatic participation that underlies competitive swimming. Hundreds of children will be trained in safe swimming techniques. Many will go on to formal competitive aquatic programs in school or age-group swimming programs. Some will excel to become state champions.

Benefits, such as scholarship offers, may occur when a swimmer or diver selects a college, which could lead him or her to national level competition.

Figure 3.3 G The Aquatic Triangle



The following is a summary of swimming instruction methodologies, programs and providers:

3.37 – 1 The American Red Cross Swimming and Water Safety Program
The American Red Cross Swimming and Water Safety Program is a comprehensive training program that teaches people to swim and to help them be safe in, on, or around water. The program includes swimming courses for all age groups and abilities. It also includes a variety of presentations and courses to help teach all age groups how to enjoy the water safely and how to take effective action if an emergency does occur.

The Red Cross Swimming and Water Safety program consists of the following components:

Six levels of Learn-to-Swim instruction:
Parent and Child Aquatics
Water Safety Courses and Presentations
Water Safety Instructor Course

3.37 – 2 Drown-Proofing

In 2004, there were 3,308 unintentional fatal drownings in the United States, averaging nine people per day. This figure does not include the 676 fatalities from drowning and other causes due to boating-related incidents. For every child 14 years and younger who dies from drowning in 2004, five receive emergency department care for nonfatal submersion injuries. More than half of these children were hospitalized or transferred to another facility for treatment. Nonfatal drownings can cause brain damage resulting in long-term disabilities ranging from memory problems and learning disabilities to the permanent loss of basic functioning.[8]

There are many different means and methods to teach drown-proofing. Some of these means and methods mimic the natural environment through instructor creativity (examples include creating wave action with hands and arms to mimic river tides), while others simply require small children to memorize what they would do in a situation where drowning is likely, and then enact those memorized skills in the safety of a swimming pool with an instructor present. Regardless of the instruction method, knowing how to avoid drowning is essential for children and adults alike, especially those living in areas where natural water bodies are prevalent. Typically, teaching many different people skills of drown-proofing all at one time may be difficult. However, with a large pool with a moveable floor and more than one available water body, a large number of people can be taught at once.

3.37 – 3 Lifeguarding and CPR

Water rescue skills are typically taught to all lifeguards, as is CPR. However, these skills are equally valuable for anyone who may be called upon to rescue a drowning victim. Teaching water rescue and CPR skills should be offered to the community, as families are the true lifeguards for each other whether they are at the beach or at a backyard pool party. Often such courses are sponsored or offered by NASCO, the Red Cross and/or other American providers of safety training.

3.37 – 4 Water Craft Instruction

Drowning often occurs when non-swimmers are aboard a craft that experiences accidental, mechanical, or weather-related failure. Large indoor and outdoor 50-meter pools can provide excellent teaching environments for the operators of water craft, honing their water safety skills in anticipation of an emergency.

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3.37 – 5 School District Lesson Users

School districts can make valuable contributions to indoor aquatic programming. In many communities, school-based curricular and extracurricular aquatics play a vital role in providing programming in swimming lessons for elementary students, lifeguarding classes, physical education classes, and therapy for high school athletes. During school hours, activity programming is one of the biggest challenges of indoor aquatics facilities, and aquatic sports such as water polo, synchronized swimming, underwater hockey, etc., all contribute to the overall use of the facility. Other uses would include fitness use by faculty, special education therapy, and recreation. In addition, an aquatic facility may provide aquatic opportunities to pre-school children cared in private day care programs.

3.38 National Aquatic Trends/Conclusions

Overall, the prevalent trend of contemporary aquatic planning is to create ***multi-featured facilities that offer specialized water environments tailored to the specific needs of various aquatic user groups.*** *The principal users groups that should be addressed include* ***recreational swimmers, fitness swimmers, aquatic therapy users, competitive swimmers*** *and those in need of* ***swimming instruction.***

National Aquatic Trends/Notes

1. There are aquatic treatment therapies which employ cool water pools as well as salt water pools, but they are not as common, nor as broadly utilized by the general population as warm-water therapy pools.

2. Hunsaker, D. Scot. "Rocky Mountain Reply." Aquatics International Magazine March 2002. www.chh2o.com/Articles/RockyMountainReply.aspx

3. Organizations such as the Arthritis Foundation, Red Cross, Aquatic Exercise Association, American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD), and United States Water Fitness offer additional information on aquatic fitness programs and instructor training.

4. In terms of the financial viability of "stand-alone" competitive facilities, USA Swimming offers the following commentary: "Most meets can make money with proper advertising and community involvement. However, meets will not solely support a facility, especially one that is larger than 30,000 square feet. Proper community and learn-to-swim programming can help, but indoor 50 meter pools, especially those in northern latitudes, usually need some sort of operational endowment or subsidy. It (is a) challenge to produce a verifiable business plan that will show an indoor 50 meter facility that will earn a profit. One rule of thumb that is of utmost importance is never plan a single pool facility. Regardless of what your goals are, the facility will have to have a variety of water depths and water temperatures with convenient pool access to run successful programs."

Source: www.usaswimming.org/USASWeb/ViewNewsArticle.aspx?TabId=1&Alias=Rainbow&Lang=en&mid=45&ItemID=748

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5. Due to limited space for staging meets, the Raleigh Aquatic Program limits its advance registrations to a maximum of five years.

6. The Raleigh Aquatic Program currently has no facilities that meet the criteria to bid for meets on this level.

7. This information was compiled by the American Swimming Coaches Association, and comprised of only those clubs that completed and returned the 1999 survey, this information does not account for regional cost of living. New York City or San Francisco based teams would likely pay higher fees than a team in Fargo, ND, or Biloxi, MS, for example. The average monthly dues paid are noted for "Parent Run" USA Swimming clubs.

8. U.S. Centers for Disease Control and Prevention, http://www.cdc.gov/ncipc/factsheets/drown.htm

3.4 Assessment of Need Drawn from Public Perceptions: Public Forums and Surveys

Section Summary

This section, the process in which citizens of Raleigh were invited to offer their comments and suggestions regarding the Aquatics Program. Public comments were drawn from a variety of sources: discussion during ***four public forums****, mail surveys, and phone and e-mail comments placed directly with the Raleigh Aquatics Program. The following is a summary of* ***all public comments*** *recorded during this process. A more complete record of public commentary is included in the Appendix of this report.*

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3.41 Public Forums: An Overview

In order to solicit constituent viewpoints regarding Raleigh's Aquatics facilities and programming, and to help formulate strategies for addressing the future, a series of public meetings were convened beginning in April and concluding in July of 2007.

Four of these meetings were open forums held in the Municipal Building on April 4th, May 8th, June 19th, and July 24th. Four additional presentations were directed to invited representatives of recognized aquatic stakeholder groups, specifically: the Raleigh Aquatics Program staff, competitive swimmers, aquatic educators, and fitness and therapeutic service providers. [1] These discussion sessions were held on April 3rd and 5th.

Announcements advertising each public forum were placed in the City of Raleigh's newsletter: The Leisure Ledger, on its web site, in Community Advisory Committee agendas, public service announcements, and posters placed at all Raleigh aquatic facilities. Invitations for representative stakeholders were drawn from Aquatics Program mailing lists and distributed via e-mail and by letter.

3.41 - 1 Meeting Format

Each of these ninety minute forums was facilitated by representatives of the Raleigh Aquatics Facilities Study consulting team with the assistance of Raleigh Parks and Recreation Department staff. Sessions would generally begin with a thirty minute presentation describing the purpose and processes of the study, trends in aquatic facilities planning, and the current progress of the study group's work. This presentation was followed by a facilitated discussion among the forum's participants. Detailed notes of all public comments were recorded by hand, edited, and later posted on the Aquatic Facilities Study web site along with a copy of the session's presentation materials. A sign up list of attendees was also collected and all participants were encouraged to forward further comments to the Aquatic Facilities study group, either by e-mail, letter or phone call. A detailed summary of all recorded public comments is included in the

Appendix of this report. Letters, e-mails, and other communications related to public comment are on file with the Parks and Recreation Department.

3.41 – 2 Meeting Attendance

Attendance in the early forums was somewhat lower than initially anticipated, averaging between fifteen and twenty participants. Later sessions were better attended with the final forum having approximately fifty attendees. A wide variety of constituencies were represented including advocates for competitive swimming, fitness, education and therapy programming. Anecdotal observation suggests the participants were representative of a reasonably diverse cross section of Raleigh residents in terms of age, income, and location of residency, although no formal mechanism was utilized to verify this perception.

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3.41 – 3 Public Comments: Organization of the Summary

The following is a synopsis of key aquatic facilities and programming issues that were discussed by participants during the public and stakeholder sessions. The comments are organized under a series of topic headings of recurrent themes brought forth in the discussions.

This synopsis is a consolidation of the broad range of comments and opinions expressed by participants during each meeting. The comments were recorded in summary form by hand and as such do not represent actual quotations, except where so noted. However, the summarized comments do attempt to remain faithful to the each speaker's essential viewpoint. In some instances, similar or complementary comments by separate speakers have been combined into a single recommendation or comment.

Because the collective comments have been edited by the consultants to this study, they may not necessarily fully represent the precise views of every participant. As noted previously, a more complete summary of all public comments, organized by forum and stakeholder meeting, is included in the Appendix of this report.

3.41 – 4 Public Comment Topic Headings

A. General Goals and Ambitions for Aquatics in the City of Raleigh

B. Assessment of Need Based On Use
   - B-1. Educational and Instructional Aquatic Use
   - B-2. Competitive Swimming Use
   - B-3. Senior Aquatic Use
   - B-4. Senior Use of Therapeutic Aquatic Facilities
   - B-5. Other Senior Aquatic Needs
   - B-6. Therapeutic and Fitness Aquatic Use

C. Facility Design Recommendations
- C-1. Renovation Verses New Construction
- C-2. Bundling
- C-3. Indoor Verses Outdoor Facilities
- C-4. Pool Use and Size
- C-5. Environmentally Sustainable Practice

D. Amenities and Details for Aquatic Facilities
- D-1. Complementary Aquatic Center Uses
- D-2. Changing Rooms
- D-3. Security and Safety
- D-4. Waterside Deck Amenities
- D-5. Spraygrounds, Water Slides, and Lazy Rivers
- D-6. Technical Facility Design Recommendations
- D-7. Water Temperature

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E. Existing Raleigh Aquatic facilities: Specific Recommendations
- E-1. Perception of Pool Utilization
- E-2. Chavis Pool
- E.3. Longview Pool
- E-4. Pullen Aquatic Center

F. Aquatic Facility Operations
- F-1. User Fees
- F-2. Staffing

G. Implementation Strategies
- G-1. Facility Location
- G-2. Alternative and Supplemental Sources for Aquatic Services
- G-3. Contributions by Adjoining Communities
- G-4. Private Sector and Non-Profit Group Participation
- G-5. WCPSS Participation
- G-6. Aquatic Facilities Funding

H. Strategies for Mobilizing Support

3.41 – 5 Public Comments Summary

A. General Goals and Ambitions for Aquatics in the City of Raleigh

Overall, there was a broad consensus that there should be far greater support for aquatic facilities and programming in the City of Raleigh. Attendees recommended that there be more aquatic facilities, more aquatic programming, higher standards of quality for both

existing and planned facilities, and greater financial support for the operations of the Raleigh Aquatics Program.

There was an overriding impression that the needs of Raleigh's aquatic users have been underserved in the past, and a corresponding apprehension that, given this region's anticipated growth in the coming years, the present level of aquatic services will not be sustained in the future.

Numerous participants cited anecdotal evidence of the present demand for water resources in the community, including the perception of overcrowding in many facilities, increasing wait times and wait lists for lap lanes and swimming instruction, and constraints on the growth of independent swimming team memberships due to a shortfall of available rental training facilities.

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It was noted that given the growth in population in the 15 years since the last Raleigh facility was built (Pullen) there are now appreciably fewer opportunities than there were in the past. As one participant noted: "We do not have the right number of pools per person."

It was further suggested that the growth of competition and fitness aquatic use likely parallels the evident growth of other athletic and recreational activities uses (for example, soccer participation). A similar argument was advanced for the expectation of growth for therapeutic aquatic needs.

Participants agreed that Raleigh's aquatic facilities should be significantly upgraded in terms of quality as well as capacity. They requested the creation of "marquee facilities" that represented a "creative" and even "edgy" vision for the future of aquatics in the city. There was also agreement that facilities should offer a variety of capabilities tailored to the diverse needs of various aquatic user groups and that these capabilities be equitably developed in relation to a fairly arbitrated magnitude of need. Attendees requested facilities that "meet the needs of each individual," and "balance" the requirements of competitive, recreational, fitness, therapeutic, and instructional swimmers.

The balancing of need was also encouraged across differing age groups of swimmers. There was recognition of the need for both a reasonable segregation of age groups in new facility design, as well as encouragement of opportunities for multi-generational, family-oriented aquatics programming. Participants also anticipated coming changes in the demographics of age in the region over time. Many cited projections that Raleigh's population will be growing older in the coming years, necessitating the need for greater and more specialized services tailored to an aging population, a prospect that suggests an increasing demand for therapeutic and fitness based aquatics facilities and programming. Other participants anticipated an influx of new residents from other regions of the country; likely a younger, more urbane constituency whose expectations of aquatic services will be more sophisticated and less tolerant of utilitarian aquatic facilities.

Despite these differing demographic interpretations, there was a shared recognition that Raleigh's aquatic programs and facilities must appeal to the younger generation in order to build base of support for aquatic use in the future. Aquatic programming was cited as providing an excellent resource for the development of the region's youth.

B. Assessment of Need Based on Use

At each public forum, there was ample representation of aquatic user groups whose needs and concerns related directly to their preferred aquatic activities. It should be noted that given the open invitation for attendance in these forums, user groups advocating their own, more narrowly focused agendas may or may not be proportionately representative of the breadth of views of Raleigh's overall population. The more general and presumably more representative expression of the general public's views on aquatics is addressed in the next section of this report: The Aquatic Facility Survey. In addition, it should be recognized that unlike many of the groups represented in the following summary, recreational aquatic users generally are not part of any obvious or organized advocacy group and therefore their views are likely underrepresented in the public comment process.

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B-1 Educational and Instructional Aquatic Use

The importance of aquatic programming as a valuable educational and instructional resource for the community was endorsed by many forum participants. There was great concern for members of the region's population who, for lack of adequate training, are at risk of injury or death due to drowning. This concern was noted as being especially acute for less-advantaged members of the Raleigh community who either do not have reasonably affordable access to swimming education programs or who lack sufficient information stressing the critical need for such training.

It was also suggested that educationally-based (as well as competitive) swimming programs represent an excellent, well-supervised activity, important to the development of Raleigh's youth. They are as well, a highly effective means to address the growing problem of obesity in our adolescent population.

In addition to basic swimming education programs, there were endorsements of specialized aquatic training programs that contribute to the safety and well-being of the Raleigh community, including lifeguard education and water safety training.

Overall, there was a perception that the current municipal-based swimming education programming should be expanded to serve a greater percentage of the community and that greater effort should be made to raise public awareness of the need for comprehensive swimming instruction.

Several participants, noting the attendance pressures on the region's municipal and faith-based swim instruction programs, suggested such training be made a responsibility of the

public school system. More than one cited their experience in other regions of the country where swimming education is a mandatory requirement of the public school system's curriculum. This recommendation was countered by the recognition that at present, the Wake County Public School System does not offer such programs and has traditionally not invested its capital expenditures in the construction of its own aquatic facilities. This policy, though the norm for school systems in North Carolina, was contrasted with the example of other regions of the country, particularly the Northeast and Texas, where it is common practice to provide swimming pools in the majority of newly constructed high schools.

Forum participants strongly urged that the Wake County School System be encouraged to provide far greater fiscal support for aquatics programs in the area, either through the construction of its own facilities or significant financial participation in jointly developed aquatic projects. (A further discussion of this topic is included in under the headings of "Competitive Use" and "Wake County Public School System Participation").

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B-2 Competitive Swimming Use

The interests of competitive swimmers were well represented in each of the public forums. Participants included both the leadership of independent swim clubs in the region and public school officials responsible for Wake County's high school athletic swimming programs. Without exception, each of these representatives expressed a pressing need for more aquatic resources to address what they interpret as an overwhelming demand by their constituents.

It was acknowledged that North Carolina has historically been a national leader in competitive aquatic program participation and that Raleigh itself has more competitive swimmers than any other community in the state. As evidence of this depth of interest, it was noted that the Raleigh area presently has four USA swimming clubs with an average membership of over 300 participants each. It was argued that this membership has been limited not by demand – each club has lengthy wait lists for new members – but rather by the lack of available water for both training and competition. The Wake County Public School System contributes another 23 competitive teams (approximately forty members each) to the overall demand for aquatic resources. Wake County's YMCA network adds another swimming team, which at present is not granted significant pool access to the Y's own aquatic facilities. In addition to this aggregate external demand for competitive water space are the intramural competitive programs offered by the Raleigh Aquatic Program itself, with nine[2] swimming teams supporting a total of approximately 500 competitive swimmers. Each of these competitive user groups must vie for access not only among themselves, but with all other categories of aquatic users. It has been, in the words of one forum participant, a "perfect storm" of unaddressed need.

To meet at least some portion of this need, competitive swim teams make good use of a wide variety of available aquatic resources in addition to Raleigh's municipal pools. They have funded their own private training venues, they lease lane water from

commercial vendors and private clubs, and they rent space from those private schools and institutions in the region that have excess capacity. Through their advocacy, they have also encouraged other communities and private entities to expand the region's available competitive water, most recently by vigorously supporting several aquatic initiatives in the Town of Cary.

In addition to the overall lack of pool space, competitive users annotated a number of specific requirements essential to their sport. Representatives for USA Swimming cited the need for 50 meter length pools which address the "long course" format of their competitions. Also, because their programs operate on a year-round basis, they expressed a strong preference for the construction of more indoor facilities. All competitive users endorsed cooler water temperatures, deeper water depths and the provision of warm-up pools to enhance competitor performance.

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Competition swimming representatives did readily acknowledge that specialized indoor competition venues are very expensive to build and operate, noting that revenues from lane rentals and competitions have historically been inadequate to cover the costs associated with their provision. Accordingly, most participants endorsed bundling competition venues with recreational pools to realize economies of scale and spread the financial burden among a greater population of users.

The advocates of competitive swimming also suggested there were appreciable indirect economic benefits to their sport, including secondary expenditures for food, lodging and other commercial services that support participants and spectators attending competitive events. Advocates suggested that the presence of high quality competition venues would present an attractive "draw" for co-locating commercial interests, for example retailing.[3]

B-3 Senior Aquatic Use

The aquatic needs and preferences of Raleigh's senior community were also well represented in each of the public forums. Although it is tempting to associate senior needs only with the provision of therapeutic aquatic facilities, it was noted by many participants that seniors possess a wide variety of aquatic interests beyond therapy including fitness, recreation, and social engagement. It is equally true that not all therapy users are necessarily seniors. Accordingly, the needs of seniors and therapeutic users are considered separately in this synopsis, although areas of overlap between the two categories will be evident.

B-4 Senior Use of Therapeutic Aquatic Facilities

Senior participants in the public forums did express a clear desire for far greater access to therapeutic aquatic facilities. Warm water pools were cited as offering valuable therapeutic benefits for seniors with a variety of common, late-life ailments including arthritis, neuropathy and pulmonary deficiencies. By 2020, one is four Raleigh residents will be a senior, so the demand for this form of treatment will likely increase over time.

At present, the Raleigh Aquatic Program has only one pool with therapeutic capability: the teaching pool at the Pullen Aquatic Center. This pool, though a warm-water facility and accessible for persons with disabilities, has many demands on its scheduling and is not exclusively available for senior or therapeutic use. Moreover, the design of the teaching pool and the lack of certified staff precludes its use for medically prescribed, therapeutic procedures.

It was also noted that although there are a number of healthcare institutions (Rex and Wake Med) and commercial operations in the area that do have therapeutic pools, access to these facilities is limited, either by membership in a prescribed healthcare plan or by their prohibitive cost. Seniors believe there should be reasonable and conveniently located alternative facilities provided by the municipal aquatic program that are available and affordable for all of Raleigh's citizenry.

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B-5 Other Senior Aquatic Needs

Seniors indicated that beyond therapy, they have a high interest in, and demand for, a variety of aquatic services including lap swimming and walking, and water aerobics. They noted that seniors exhibit high rates of enrollment in classes that offer a variety of fitness opportunities. And while some seniors indicated a preference for facilities that can be isolated from more youthful aquatic users, many also expressed support for "multi-generational" aquatic centers that offer programs for all members of their families. Citing their frequent responsibilities as caregivers to adolescent family members, seniors endorsed the creation of facilities that could appeal to all age groups.

Specific aquatic features cited by seniors as important to their needs included the provision of zero-depth pool entry, warm water, and a safe, secure social environment both within the aquatic center as well as its exterior pathways and parking areas. Covered drop-offs, adequate site lighting, and defensible environmental design were all suggested as valuable factors contributing to a sense of safety and security for seniors using aquatic facilities. The interior air quality and acoustic treatment of indoor facilities was also cited as being an important to the seniors' aquatic experience.

B-6 Therapeutic and Fitness Aquatic Use

The comments of aquatic therapy and fitness providers echoed those of senior participants in the forums. They too felt there was a legitimate need for municipally-sponsored therapy pools in Raleigh, either as independent facilities or co-located with other aquatic centers.

Therapy providers did offer several additional features they believed would be highly beneficial in the planning of new therapeutic aquatic facilities. First, they noted that a variety of pool depths up to approximately five feet offered them the greatest flexibility in addressing the treatment needs of individual patients. Conversely, for group therapy classes which might have as many as thirty participants at a time, a broader pool area of uniform depth was considered advantageous. Pullen's present teaching pool was cited as

being too narrow (approximately twenty feet) for many of the larger therapy and fitness classes being offered there. There was, in addition, a recommendation to create pools large enough to accommodate concurrently scheduled classes. A salt water-based pool and a cool water facility were both suggested as being useful for specialized programs of medical treatment.

C. Facility Design Recommendations

During the course of the public discussions, many recommendations regarding the design of aquatic facilities were offered, addressing a wide range of subject areas. Some suggestions were strategic in scope, impacting the large-scale planning of a facility's use or layout. Other suggestions were more technical in nature, addressing small elements of a facility's design which could benefit from a greater attention to detail. Many of these recommendations could be equally well applied to both new construction and any renovations anticipated for existing Raleigh aquatic facilities. The following series of design recommendations are more strategic in nature. The section is followed by a series of more technical, detail-oriented suggestions.

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C-1 Renovation vs. New Construction

While there was unquestioned consensus that the construction of new aquatic facilities is essential to meeting the present and future demands for the Raleigh community, there was also debate regarding the extent to which the renovation and expansion of existing aquatic facilities should contribute to the overall improvement of the aquatic systems' capacity.

It was noted that renovation is likely to be appreciably less expensive than new construction, given that it would benefit from existing, in-place infrastructure improvements, i.e. utilities, site development, parking, etc. Conversely, it is understood that many of Raleigh's existing pools are fast approaching the later stages of their effective life, particularly those with aging shells, increasingly worn and uneven decks, and brittle, largely inaccessible PVC piping. Renovation costs for the oldest of these pools could potentially rival that of new construction. Moreover, the location of Raleigh's existing pools, positioned in the city's central, near west, near southeast, and near north precincts, does not address either the locus of the city's present day population or the direction of its expected growth in the future.

Nevertheless, it was acknowledged that the renovation and/or replacement of some of these facilities may well be warranted in order to meet the population growth projected within the areas these pools presently serve.

It was concluded that the likeliest scenario would be some blend which included both proposals for renovation and new construction. According to forum participants, what is necessary is developing a reasonable consensus on where and at what pace capital resources should be placed throughout the city. It was further suggested that such

consensus may present as much a political consideration as it is an economic or demographic choice.

C-2 Bundling

Bundling, a technique of grouping a variety of discrete, but co-located aquatic elements within a single facility, was strongly endorsed by most forum participants. The strategy was favored for its inherent economies, its flexibility in offering a broad range of activities to satisfy a diverse number of aquatic user groups, and its appeal for family-oriented users. Participants also suggested the coupling of aquatic facilities with other complementary Parks and Recreation Department projects including community centers, athletic parks, and senior centers.

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One additional advantage offered for a comprehensively bundled aquatic facility is its favorable impact on adjoining commercial and residential development. It was suggested that such a benefit could be used as leverage to encourage some degree of financial participation by real estate interests in close proximity to proposed aquatics projects.

C-3 Indoor Verses Outdoor Facilities

When forum participants were asked whether they would prefer indoor or outdoor facilities, the overwhelming response was in favor of indoor swimming pools. Even when informed that that the construction cost of an indoor pool was roughly twice that of a comparably sized outdoor pool, and that the utility costs for indoor pools were 30% to 40% higher than outdoor pools, the consensus still remained largely in support of the indoor option.

The most compelling argument in favor of this point of view suggests that because an indoor pool can be used twelve months out of the year, it is three to four times more effective in its utilization of capital investment than is an outdoor facility with its limited useful season running only from June through early September. Under this premise, the indoor option was argued as being a much better use of limited funding sources.

There were two other secondary arguments that participants employed in justifying their preference for indoor over outdoor facilities. First, in the summertime there are numerous aquatic alternatives to outdoor municipal pool use, namely private homeowners and apartment resident pools, recreational water parks, lakes, and the ocean. As there is no equivalent off-season alternative, an indoor pool is inherently more valuable in its ability to satisfy off-season aquatic needs.

The second argument raised in favor of indoor facilities is the presumption that the Wake County School System's increasing emphasis on year-round schools will diminish the unique "vacation-time" character of the traditional summer season and therefore more evenly distribute the demand for aquatic services on a yearly basis. The latter of these two arguments, though intuitively plausible, is difficult to substantiate "before the fact." of a full implementation of year-round schools by WCPSS.

An alternative interpretation regarding the impact of year-round schools was also expressed, suggesting that aquatics use is actually most influenced by season (summer being traditionally high use, winter traditionally low use), and accordingly the transition to a growing proportion of year-round schools will not have a significant impact on present utilization. In fact, it may open up more opportunities and corresponding use as families defer extended summer vacations away from the community in favor of shorter, closer-to-home recreational opportunities.

Despite the preference of indoor over outdoor among the majority of forum participants, there remained several speakers who steadfastly preferred the sunlight and fresh air of an outdoor facility to the more artificial environment of an indoor venue. They requested that at least some facilities continue to have outdoor components. Another participant recommended indoor facilities with mechanically removable roofs, citing their increasing use in major sports arenas both stateside and abroad. It was noted that the renovation plans for Optimist Pool do include retractable roof panels, although their removal will be achieved manually, not mechanically, at the beginning of each summer season.

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C-4 Pool Use and Size

As previously discussed, those advocates for competitive swimming firmly recommended the construction of new 50 meter competition pools. Although their preference that these pools be predominantly indoor facilities was in keeping with other participants' recommendations, they seemed equally anxious to have access to as much lane-based water as possible, regardless of enclosure.

Alternatively, several competition advocates requested what they described as a "bare-bones" 50 meter, year-round facility, utilizing a simplified enclosure similar to that being proposed for the renovation of Optimist Pool. These same advocates suggested that specialized recreational pools were an unnecessary expense, citing the successful use of Pullen and Optimist – both 50 meter, competition pools – for scheduled recreational programming. At minimum, they recommended that if there were a choice to be made between having an indoor competition pool or an indoor recreational pool, they would overwhelmingly prefer the former, not the latter. Recreational pools, they suggested, were much better candidates for outdoor-only installations.

Of course, as previously discussed in the introduction to this section, there are no well-organized groups or organizations representing the interests of purely recreational aquatic users. As such, there was little organized advocacy in the public forums on behalf of greater expenditures for recreational uses. As a consequence, justification of the need for recreational investments is discussed in more germane sections appearing elsewhere in this report.

For bundled aquatic facilities, i.e. those with a blending of recreational, fitness, therapeutic and instructional uses, fitness advocates requested a minimum provision of four designated lap lanes.

C-5 Environmentally Sustainable Practice

Several forum participants strongly urged the adaptation of sustainable design and construction practices for the development of all new aquatic facilities, including the solar heating of air and water. The 1996 Atlanta Olympic Games pool was cited as evidence of the economic viability of solar power as an alternative to conventional aquatic air and water conditioning systems. (See Appendix for a summary of the cost benefit analysis for the Atlanta pool). It was suggested that with a 50 year lifespan for newly constructed facilities, sustainable upgrades to facilities with a predicted 15 year payback would represent a very good bargain.

It was further recommended that the City of Raleigh pursue North Carolina grant monies for solar power demonstration projects and that the city adopt LEED[4] green building standards for all future projects. In response, staff of the Parks and Recreation Department noted that the city is already pursuing LEED compliant standards for its upcoming projects.

D. Amenities and Details for Aquatic Facilities

There were many substantive recommendations by forum participants that addressed relatively small but highly important enhancements to the aquatic experience. Most of these suggestions could be incorporated either into new construction or existing facilities.

D-1 Complementary Aquatic Center Uses

Participants recommended a series of complementary uses and functions that would improve the overall performance and enjoyment of Raleigh's aquatic facilities including adjoining fitness centers (aerobic and cardio machines, weights), on-site daycare facilities, snack, juice and coffee bars, meeting and classrooms, and possibly a public safety substation.

D-2 Changing Rooms

Changing rooms should be well illuminated, preferably with natural daylight where feasible. They should be comfortably organized with ample circulation space, ADA compliant, and easy to maintain. The character of the changing rooms should be more gracious and less utilitarian with careful consideration for the personal privacy of users. Multiple family changing areas should be provided in all new aquatic facilities both as an alternative to the traditional locker room setting and as a convenient accommodation for families and persons with special needs.

D-3 Security and Safety

Elements of design that offer clear visibility of users, defensible space, and ample nighttime illumination should be incorporated into the interior and exterior design of all aquatic facilities, particularly in parking areas and pedestrian paths to and from the main entry of the facility.

D-4 Waterside Deck Amenities

Provide simple, inexpensive amenities that will enhance the aquatic experience including comfortable lounge seating, overhead shading trellises, and children's play structures.

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D-5 Spraygrounds, Waterslides, and Lazy Rivers

Spraygrounds should have automated features with a variety of creative water jet applications that offer captivating engagement for younger aquatic users. The introduction of more entertaining waterslides and water features like "Lazy Rivers" were endorsed.

D-6 Technical Facility Design Recommendations

In the course of discussions about aquatic planning concepts, a few questions and comments were raised regarding the technical requirements of swimming pool design and operation. Though informative, much of this discussion involved issues at a level of detail well beyond the scope of this study's focus on feasibility and planning. A summary of the majority of these discussions is included in the Appendix of this report.

D-7 Water Temperature

One technical issue that did generate a more extended discussion involved the question of pool water temperature and its relation to health. Excessive pool water temperature was suggested as having potential for the growth of harmful bacteria. Statutory regulations prescribing maximum water temperature were cited, though not specifically referenced (a subsequent letter listing cited regulations is included in the Appendix of this report). It was suggested that during summer hours, these maximum temperatures are exceeded at Raleigh outdoor pools, although specific pools and conditions were not listed.

In response, it was noted that water temperature regulations in North Carolina apply only to indoor facilities and that Raleigh's facilities are operated in full compliance with these restrictions. Bacteria and other water contaminants in all pools, including outdoor facilities, are suppressed principally through the use of water treatment techniques – most typically by chlorination - and their levels are maintained at levels below that mandated by statute.

E Existing Raleigh Aquatic Facilities: Specific Recommendations

The example of Raleigh's existing aquatic facilities was frequently employed by forum participants to illustrate particular concerns and viewpoints. Many of these comments

have been highlighted under preceding topic headings. Others, specific to particular Raleigh facilities, are summarized below.

E-1 Perception of Pool Utilization

The Pullen Aquatic Center, Optimist Pool, and Millbrook Pool were cited as having very high rates of utilization, based on participants' anecdotal observation of use, program availability, and their impressions of "overcrowding." Conversely, Biltmore, Longview, and, to a lesser extent, Chavis were each acknowledged as being underutilized facilities. Lake Johnson and Ridge Road Pools, when referenced, were perceived as being reasonably well-utilized. Corroborating attendance figures for each of these pools is included in the Existing Facilities section of this report.

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Overall, participants expressed concern that Raleigh's best utilized facilities were extremely overcrowded at peak periods of use, a perception advanced in support of recommendations for expansion of the Aquatic Program's capacity.

E-2 Chavis Pool

Chavis Pool, given its historic role in service to Raleigh's southeastern neighborhoods, was noted as being in particular need of improvement. Suggestions included making a portion of the facility indoor, providing competition-compliant pools, either 50 meter or 25 meter x 25 yard, and upgrading or replacing its outdated bathhouse and public amenities.

It was noted that given Chavis's proximity to the central business district, it could be better marketed as a recreational and fitness destination for downtown workers and residents, both through improvements to its physical plant as well as enhancements to its perceived image. One participant went so far as to suggest its name be changed to help transform its public perception. Conversely, it was also reiterated that Chavis has been underutilized in recent years and its continued viability may depend most on energizing the neighboring community to better support use of the facility.

E-3 Longview Pool

It was recommended that Longview Pool receive improvements to its user amenities including better shower mats, better handicapped and senior accessibility, and more shaded seating areas. Although these suggestions were offered specifically for Longview, forum participants generally endorsed similar improvements for all of Raleigh's existing aquatic facilities.

E.4 Pullen Aquatic Center

Despite its limitations (few recreational amenities, over-utilization), Pullen was most frequently cited as an excellent example of the scale and quality of aquatic facility that should emulated in new aquatic planning proposals. It was suggested that Pullen would be a good candidate for the addition of an adjoining outdoor recreational pool. The viability of this suggestion is discussed in the Existing Facilities section of this report.

F. Aquatic Facility Operations

Forum participants, especially those who were longtime users of Raleigh's aquatic programs, were general satisfied with current pool operations and policies. There was a clear consensus that the present Aquatics Programs staff makes excellent use of what was acknowledged to be very limited facility, fiscal, and personnel resources. The Aquatics Program was credited as making enormous contributions to the cultural life of the Raleigh community. Suggestions or complaints pertaining to immediate and non-systemic aquatic operations issues – for example, the need for increased access to suitable training water for the Chavis municipal swim team – were referred directly to Aquatic Program staff for resolution.

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Operational issues more pertinent to the Aquatic Feasibility Study are summarized below.

F-1 User Fees

There was uniform consensus that the admission fees for the use of aquatic facilities and programming should be affordable for all members of the community, a point of view also stressed during the Raleigh City Council's interim review of the Aquatic Study.

However, it also was observed that Raleigh's fees for both admission and lane rental are consistently below nation-wide averages for comparable services, suggesting that an increase in fees would place the Raleigh system more on par with both national trends and peer communities.

In response, Aquatic Program staff indicated that although their present recapture rate of 50-55% (revenue to operating cost) could be improved by the adoption of higher user fees, such fiscal decisions were ultimately the responsibility of city's administration and subject to City Council review and consent. It was conceded that any change to the fee structure would require prudent economic and political judgment.

Several suggestions were offered related to the various fee plans available for general aquatic users. One participant suggested a simpler system with fewer options be offered. Another recommended discounting punch card passes for patrons whose family members are enrolled in swim education classes. Finally, nearly all participants agreed that there should be a more reliable system instituted to enforce higher fees for non-resident users.

F-2 Staffing

Several questions were raised about the ability to adequately staff new aquatic facilities, especially in securing qualified applicants for positions as certified pool operators and lifeguards. In response, it was noted that modest enhancements to the present employee compensation and benefits package, particularly direct deposit payroll, would be helpful in recruiting the required additional staff.

G. Implementation Strategies

Forum speakers were outspoken, but far from unanimous in their recommendations regarding how a strategy for bringing more pools to Raleigh should be developed. The following is a summary of discussions regarding the best means to implement changes in the Raleigh Aquatics Program.

G-1 Facility Location

The most reliable indicator of a forum participant's preference for the location of new aquatic facilities was, unsurprisingly, the speaker's home address. No one said, "We have enough pools. Give ours to someone else." Rather, speakers representing north Raleigh claimed, with some justification, that their side of town was underserved, just as speakers from the southeast and west made equally credible arguments for their own neighborhoods.

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Participants from older areas of town, notably the central and near south side, suggested that although there were existing aquatic facilities in close proximity to their neighborhoods – Chavis, Biltmore, and Longview – these pools were outdated and lacking in amenities. Several participants recommended locating new facilities tied to current downtown redevelopment as a way to serve a growing central business district residential population, including either an expansion of Pullen or Chavis, or as an element of the presumed redevelopment of the Dorthea Dix property.

In general, everyone wanted pools located closer to their personal homes, preferring a travel time of no more than about twenty minutes. For corroborating data of desired travel times among the general Raleigh population, see Public Survey, the section which immediately follows this section.

There was agreement on several additional points. First, all concluded that facility location and capability choices should be made on the basis of geographic need within region, although participants were hard pressed to define an equitable means of determining "geographic need." Second, regardless of the specific locations proposed, participants urged that aquatic facilities be accessible by a variety of transportation modes, including public transit, bicycles, greenways, and on foot.

G-2 Alternative and Supplemental Sources for Aquatic Services

A variety of alternative or supplemental methods for addressing aquatic facilities needs in the region was recommended by forum participants. None of these suggestions were offered as a means to eliminate the necessity of new municipal pool construction. Rather, most were seen as effective ways to marshal additional support to realize aquatic goals more quickly and thoroughly, and as a means to more equitably distribute responsibility for the cost of expansion.

G-3 Contributions by Adjoining Communities

Participants acknowledged that a significant percentage of Raleigh Aquatic Program users from come from adjoining communities in Wake County and beyond. By anecdotal reckoning, the Aquatic Programs staff estimates that as many as 40% of the peak-time users of the Pullen Aquatic center reside outside Raleigh's city limits. Forum participants suggested that these communities be encouraged to make contributions to the growing need for aquatic services in proportion to their use of Raleigh programs, either by constructing their own facilities or sharing in the cost of jointly sponsored projects. In the words of one participant, these communities should be asked to "…step up to the plate."

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It was noted that the communities of Morrisville, Wake Forest, and Knightdale do have outdoor municipal pools and that the Town of Cary anticipates construction of a major $30 million multi-purpose pool in 2009. There was agreement that while the presence of these facilities did (or will) help in offsetting some regional aquatic demand, they were far short of that which would be needed to address future growth in the area.

Participants urged greater cooperation among adjoining municipalities and reiterated the (previously cited) suggestion that higher non-resident user fees be more rigorously enforced.

G-4 Private Sector and Non-Profit Group Participation

There was a general recognition that the private sector and the non-profit community, do make substantial contributions to the overall capacity of aquatic services in the region, either through the lease of existing swim lanes and facilities, or through the construction of their own aquatic centers. There was however, a corresponding acknowledgement that access to aquatic services through such non-municipal entities was generally less affordable and enrollment opportunities more limited, for example, to the membership in a private club or faith-based organization, or residency in a particular community or subdivision. A more thorough discussion of this topic is included in the next chapter of this report in the Area Providers section.

Several anticipated private sector projects were identified for their expected role in addressing the future needs of aquatics users. The Triangle Aquatic Center's (TAC) proposal for a 1,000 seat, competitive swimming venue in the Town of Cary, slated for completion in 2008, was cited as making a much needed contribution to the needs of area competitive swimmers, although at user rates far higher than that of municipal facilities. The proposed development of an outdoor recreational aquatic center in Rollesville was also mentioned.

Interestingly, several participants cautioned against the creation of publicly-subsidized competitive aquatic venues that would compete with, and potentially undermine the profitability of private venues such as TAC. It was recommended that Raleigh could

better support the aquatics community by providing training water, not a spectator-driven competition facility.

Other suggestions of private sector participation were discussed, including public/private partnerships in the joint development of new aquatic facilities and the prospect of naming rights revenues in support of signature aquatic centers. The location of new aquatic facilities could also be leveraged, exploiting their value as magnets for adjoining real estate development. To support this suggestion, it was noted that commercial developers are building indoor aquatic facilities (both recreational and competitive use), either for profit or as a draw for complementary development, i.e. malls and other retailing, resort, and hospitality uses.

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Collaboration between healthcare providers, insurers, and major area employers in support of aquatic fitness programming was also cited as offering a promising strategy for increasing non-subsidized financial resources.

G-5 Wake County Public School System Participation

The participation of the Wake County School System in support of aquatic programming and facilities procurement was repeatedly stressed. There was consensus that the school system's present financial contribution to the Raleigh Aquatic Program (currently about $40,000 per year) is significantly less than the cost of the benefits they receive in return, particularly in support of their competitive swimming teams. It was recommended that Wake County Schools should contribute their fair share of the aquatics tab by providing their own facilities or by participating in joint venture funding of proportionately representative aquatics facility development projects.

G-6 Aquatic Facilities Funding

A majority of participants recommended aggressive funding of aquatic capital expansion plans. Swimming pools, it was suggested, should be investments in the future instead of stopgap measures relying on incremental upgrades to existing facilities. There was also noted a great need to change the mindset of the city's administration, which several participants characterized as being skeptical of the economic performance of aquatic facilities and therefore unwilling to support programming with adequate financial resources.

The magnitude of the current $8 million allocation in the upcoming bond referendum was questioned, especially in light of both the great, citywide need for new aquatic facilities and their expense. Said one participant, "Eight million dollars is a drop in the bucket. We are thirty years behind." It was further suggested that some portion of the $15 million in land acquisition funds identified in the next bond that should be directed to pool siting and infrastructure costs.

H. Strategies for Mobilizing Support

The most often stated recommendation regarding the process was the importance of the community and its leadership finding the political will to fund the needed facilities adequately. Among the suggestions for mobilizing this political will were to: "engage the involvement of the community (by) bringing the reality of the need to the people." Participants suggested "seeking broadly-based user input" and "developing a toolkit of facility and program options that address real needs." "(Perform) the necessary background homework, develop support of core stakeholders, and ramp up efforts to the point of decision." "Understand the motivations and interests of key decision makers" in the political process and "…see that those interests are satisfied."

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In terms of concrete proposals for aquatic facilities expansion, participants recommended presenting only the most comprehensive and forward-looking approaches, regardless of cost. They argued that the long-term needs of the Raleigh Aquatics Program had for too long been ignored and that only through far-reaching, ambitious planning could it adequately address both the present and future demand. They held that prior initiatives had been short-sighted and inadequately funded, leading to the current deficit in aquatic services. They concluded that only a "Marshall Plan"-scaled response to the need could withstand the inevitable political erosion that had weakened earlier efforts to build a comprehensive, fully resourced aquatic program in the City of Raleigh.

3.42 Aquatic Facility Survey

In order to better gauge the public's understanding and expectations of Raleigh's aquatic programs and facilities, a survey was conducted in conjunction with this study. A fourteen item questionnaire was developed in consultation with staff members of the Parks and Recreation Department and mailed to 3,800 Raleigh residents (approximately 1% of Raleigh's current population), randomized by zip code.

For the purposes of comparison, the same survey was also distributed to individuals with an express interest in aquatics, either as evidenced by their participation in a Raleigh aquatic program activity, as an attendee of any of the four public information meetings held during this study, or as selected aquatic stakeholder groups interviewed during the course of this investigation.

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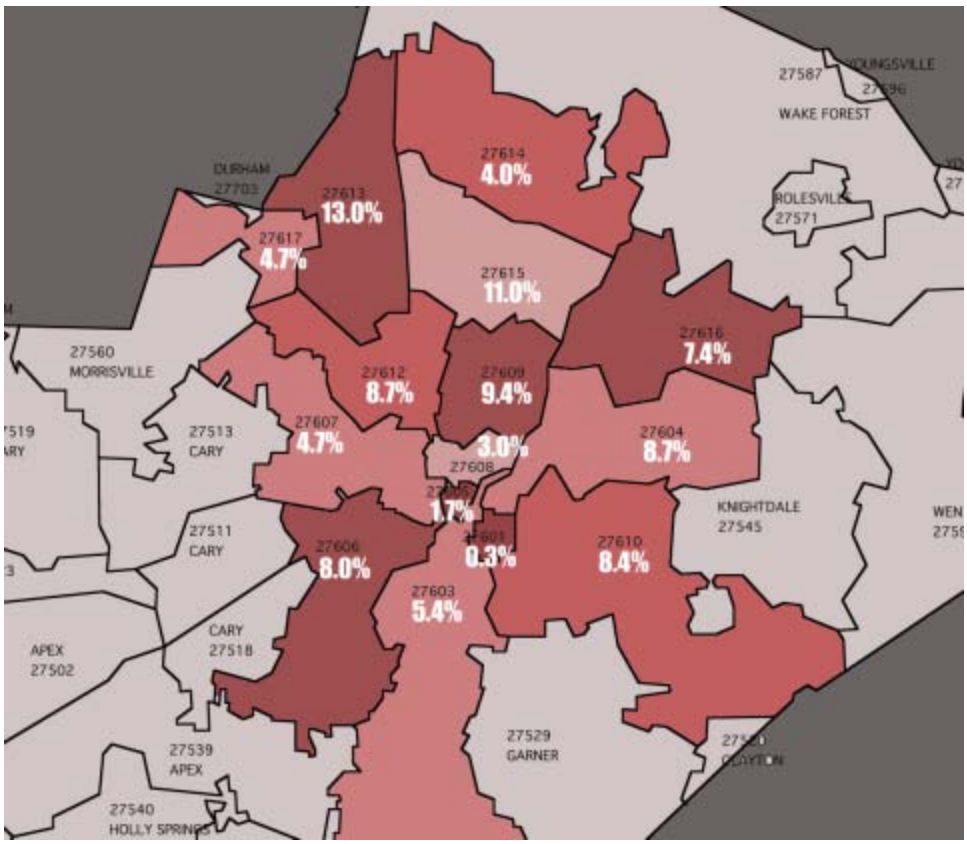
Of the randomized, general public surveys, over 375 were returned, a response rate just under ten percent. The responses represented a reasonably uniform geographic distribution across the sixteen Raleigh zip code areas surveyed (see figure 3.4A). Respondents represented all age groups although the majority (79%) were between the ages of 30 and 59.

Fig. 3.4A Percentage of Response to Survey by Zip Code



Of those surveys distributed to aquatic users and meeting attendees, over 350 were returned.

A copy of the survey, details of its distribution, analysis methodology, as well as a detailed synopsis of the responses from each survey group is included in the Appendix of this report. Data collected from randomly mailed surveys is tabulated under the heading "Randomized Responses." Data collected from aquatic users and meeting participants is tabulated under the heading "Invited Responses." A file of all completed surveys has been retained by the Parks and Recreation Department. The following is a summary of the key findings of this survey.

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3.42 – 1 Randomized Public Survey of Raleigh Residents

Residents Are Familiar with Raleigh's Municipal Pools

A majority of responders to the survey (62%) had visited a Raleigh municipal pool at least once, although a smaller percentage (22%) identified themselves as being regular users (six or more visits in the past year). For these Raleigh residents, Pullen and Optimist were the most frequently visited sites (14% and 12% respectively). Millbrook was visited by approximately 6% of survey respondents with all other sites registering at 4% or less.

Residents Are Seeking Opportunities for Recreation and Exercise

When asked which aquatic activities were most enjoyed by the residents surveyed, activities associated with recreational swimming ranked highest (16% preferred either "recreation or "swimming for fun"). Swimming for fitness was second in preference (8% preferred "lap swimming") followed closely by "taking children to swimming for recreation or lessons" (7%).

When asked which aquatic activities would encourage greater participation, the preferences for recreation and fitness reversed position, with "exercise" outranking "recreation" by a margin of six percentage points (18% to 12%), suggesting the somewhat unsurprising recognition that as a community we would do well to exercise more and play less. Other activities cited as encouraging greater participation included "swimming lessons" (8%), opportunities for "social gathering" (7%), and "competitive swimming and diving" (6%).

Residents Would Like More Year-Round Pools, More Conveniently Located

In a series of questions specifically directed to an assessment of Raleigh's existing facilities, survey participants were asked to identify factors that discourage greater participation in aquatic activities. The inconvenience of aquatic facility location was the most frequently cited factor (11% average) followed by a perceived lack of indoor, year-round facilities (10%) and the sense that Raleigh's pools are too often "overcrowded" (9%).

The desirability of convenient location also figured prominently in respondents' assessment of their preferred travel times required to visit aquatic facilities. An overwhelming majority (89% average) would prefer to travel no more than twenty minutes to participate in swim lessons, lap swimming, rehabilitation therapy, or recreational activities. Competitive swimmers did express a slightly greater willingness to travel further for training or meets (31% would travel 30 or more minutes).

External Factors Influencing Aquatics Participation

It should be noted that respondents also suggested there were a number of factors competing with aquatics for their time, attention, and resources. 8% indicated they were "too busy" to participate on a regular basis and 9% cited their use of privately-operated pools as an alternative to municipal facilities. The survey also suggests that some residents are either "unaware" of Raleigh's aquatic opportunities (8%) or desire more information about aquatics programming (7%). The cost of Raleigh's aquatics fees was also cited as a factor, but to a lesser extent (5%).

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Residents' Most Desired Features

A final survey question requested that respondents prioritize a "wish list" of sixteen aquatic amenities or features they would most like included in future plans for Raleigh's pools. In general terms, a series of relatively modest features that offer convenience and comfort ranked high among residents. 11% would like more shade structures to be added to outdoor pools. 9% would like more "lounge seating" and 7% would like to see greater access to concessions. In terms of improvements that would require significant capital investment, 10% of respondents would like to see the construction of more indoor aquatic centers and 8% would prefer more "warm water" pools. Amenities that would increase recreational enjoyment were also cited as being desirable (7% favor both more "play structures" and the construction of "Lazy River" water features).

Competitive Swimming

In the randomized survey, which should represent a broad cross-section of potential Raleigh aquatic users, there was less support for competitive swimming than was evident in the public forum sessions. The randomized survey results generally rank both interest in competitive swimming and the desire for aquatic features specific to competition below that of other aquatic preferences. A more complete review of survey results relative to competitive swimming is included in the Appendix of this report.

3.42 – 2 Invited Public Survey

In general terms, the responses of invited survey participants closely paralleled those of randomized responders. Invited respondents tended to be more familiar with Raleigh's aquatic facilities and programs, and expressed a greater enthusiasm for enhancements to facility capacity and amenities, but they did not differ markedly from randomized respondents on most issues. The tabulation of invited respondents as well as that of those from the randomized mail survey is included in the Appendix of this report.

2.42 – 3 Corroborating Survey Data
The results of these surveys were compared to previous patron surveys conducted by the Raleigh Aquatics Program. Again, there is good correspondence between the preferences expressed in these surveys and those recorded for this study. A summary of Raleigh Aquatics conducted patron surveys is included in the Appendix of this report.

3.43 Qualifications to the Public Comments Section
It is reasonable to assume that citizens who chose to attend a public forum on aquatics are more likely to have a high degree of interest in the issues of swimming than those who chose not to attend. Similarly, citizens who took the effort to respond to the mailed survey might easily have been motivated by their personal interest in aquatics, as much as by their sense of civic duty. Accordingly, it is safe to assume that the public comments and survey responses recorded in this document do not necessarily reflect a completely unbiased assessment of public sentiment regarding the Raleigh Aquatics Program.

The consultants to this study, as well as those City staff members who have participated in its review, have been very conscious of this limitation to the empirical value of the public comment process. They have chosen to strike the following balance: all public comments are valued for their contribution to the transparency of this process and for their importance in achieving a broadly-based, publicly-embraced consensus of opinion. Specific public comments which help to reinforce or better illuminate other empirically and independently derived assessments of need are further valued as corroborating, but not determining, support for the recommendations of this study.

3.44 Public Perceptions/Conclusions
Those citizens of Raleigh who chose to participate in this study's public comment process would like ***more aquatic facilities with more features and amenities*** *that better address their specific needs. They prefer* ***facilities which are closer to their place of residence or employment****. They think* ***indoor facilities are better than outdoor facilities.*** *They would like the provision of* ***more "patron friendly" amenities****. They would like the needs of the Raleigh Aquatics Program to be addressed in a manner which is* ***proportionate to the City's commitment to all other municipal services.***

Public Perceptions/Notes

1. Business leaders and members of the Raleigh Chamber of Commerce were also invited to participate in a stakeholder forum, but the meeting was canceled due to scheduling conflicts.

2. Of the nine Raleigh Aquatics-sponsored swimming teams, eight are part of the Intra-City Swimming team and one is the Wake County Special Olympics Team.

3. This economic contribution for this supposition was not substantiated with verifiable data and although some measure of benefit would seem likely, it is beyond the scope of this study to ascertain the magnitude of the benefit relative to capital expenditure.

4. LEED: Leadership in Energy and Environmental Design, a program of the U.S. Green Building Council intended to promote standards for energy efficient buildings and sustainable design practices.

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Chapter 4.0
Approaches for Addressing Aquatic Need

Addressing Raleigh's Need for Aquatics Facilities in the Present and the Future

Chapter Summary

This chapter examines approaches to the provision of aquatic services and facility design for the City of Raleigh that will address many of the issues raised in the prior chapter defining an assessment of need. The chapter begins with the example of other municipalities in addressing their own aquatic needs, examining in particular those peer communities whose size, location, and cultural heritage closely matches that of Raleigh.

The second section of this chapter analyzes the potential role that can be played by other Triangle area aquatic providers in bearing their share of responsibility in addressing present and future aquatic needs. Finally, the chapter concludes with the suggestion of a series of hypothetical aquatic facility proposals, each tailored to address specific elements of aquatic need within the Raleigh community.

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4.1 Addressing Raleigh's Aquatic Needs: The Experience of Other Communities

Section Summary

This section suggests levels of aquatic programming and pool capacities provided by other municipalities both nationwide and regionally.

4.11 Pools Per Resident: National Averages

In a list of 60 medium to large American cities compiled by the Center of City Park Excellence in 2006, Raleigh ranked 29th in the number of municipal swimming pools it provides for every 100,000 residents. At 2.3 pools per 100,000, Raleigh is just under the national average of 3.0.[1] There are communities much larger than Raleigh that provide far fewer pools. New York for example, averages 0.8. In contrast, Cincinnati tops the list with 12.4 pools for every 100,000 residents.

Those cities comparable to Raleigh in population also bear a wide range of representative values. Omaha, with a population of 415,000, provides 4.3 pools per 100,000 residents, while Minneapolis, population 372,800, has an average of 1.1. Cities with climates similar to Raleigh's - and presumably comparable hot-weather demand for aquatic services - are also quite variable in their numbers of pools. Atlanta has 4.6 pools per 100,000 residents, Virginia Beach, only 1.4.

Counsilman Hunsaker has collected data similar to that used in the Park Excellence study. In this analysis, the number of residents for each municipal pool is tabulated for various cities across the U.S. On average, the U.S. has approximately one public pool for every 46,000 people. Pools range from one pool for every 14,686 people in Austin, TX, to San Jose, CA, which has one pool for every 456,166 people[2]. Raleigh has one pool for approximately 42,440 people[3].

Figure 4.1A Municipal Pools by Population, 2007.

City	Population	Municipal Pool	Residents/ Pool
Houston, TX	2,106,582	39	54,015
Phoenix, AZ	1,461,575	29	50,399
San Antonio, TX	1,256,509	25	50,260
San Diego, CA	1,255,540	13	96,580
Dallas, TX	1,213,825	22	55,174
San José, CA	912,332	2	456,166
Jacksonville, FL	782,623	34	23,018
San Francisco, CA	739,426	9	82,158
Austin, TX	690,252	47	14,686
Fort Worth	635,800	7	90,829
Sacramento, CA	407,018	15	27,135
Raleigh, NC	339,500	8	42,438
Lubbock, TX	210,039	4	52,510
Laredo, TX	216,912	6	36,152
Shreveport, LA	199,370	9	22,152
Spokane, WA	197,520	5	39,504
Irving, TX	193,571	7	27,653
Salt Lake City, UT	178,238	2	89,119
Salem, OR	150,361	2	75,181
Eugene, OR	145,981	3	48,660
Torrance, CA	145,516	1	145,516
Hampton, VA	145,646	7	20,807
Independence, MO	109,159	1	109,159
	13,693,295	**297**	
AVERAGE			**46,105**

Source: Counsilman Hunsaker

Neither of these studies distinguish between large pools and small pools, nor do they identify whether a city's stock of pools are aging or relatively new. The best that can be said of these particular studies is only that in view of a very generalized assessment of swimming pool provisions by other municipalities, Raleigh lies somewhere in the approximate middle.

4.12 Peer Communities

To assess regional municipalities that might be considered more representative of Raleigh, the aquatic facilities and programs of four – Asheville, Charlotte, Knoxville, and Richmond – are reviewed below.

4.12 -1 Asheville, North Carolina

Asheville is a western Carolina mountain community of approximately 68,900 residents. It is centered in Buncombe County, which has a population of 221,300. At present, Buncombe County has six pools, five of which are 25 meter outdoor facilities and one smaller, six lane, 25 yard indoor venue. The City of Ashville itself has three pools, two of which are "neighborhood" sized and one which has an outdoor 50 meter by 25 yard pool. The nearby community of Black Mountain has a single 25 yard outdoor pool.

When viewed as a region, Asheville/Buncombe has about 60% of Raleigh's population, but two more swimming pools. And while its indoor facilities are not nearly as capable as is the Pullen Aquatic Center, overall, the community generally considers its aquatic needs well served at present.

4.12 – 2 Charlotte, North Carolina

In contrast to Ashville, the Charlotte/Mecklenburg County region, population 827,000, has only four municipal pools. In the Center for City Park Excellence survey, the area ranks second from the bottom, surpassing only Anaheim and San Jose [2] in pools per 100,000 residents. Three of Charlotte's pools would be considered "large," comparable to Raleigh's Optimist Pool. One is a relatively small neighborhood facility and one, the Mecklenburg County Aquatic Center, is an indoor venue with 50 meter x 25 yard competition pool, a 25 yard warm water instructional pool and a diving well, essentially equivalent to Pullen Aquatic Center.

4.12 – 3 Knoxville, Tennessee

Knoxville, population 173,900, has five swimming pools, three of which are indoor facilities. Of the outdoor facilities, the largest features a 50 meter x 25 yard, eight-lane competitive pool. The largest indoor pool has a four lane, 25 yard pool. The remaining pools would be considered small to medium sized, neighborhood aquatic centers. In addition to these municipal facilities, there is one medium-sized pool provided by the public school system, available for public use, and a collegiate facility at Maryville College, fifteen minutes from downtown Knoxville. The county provides a sprayground facility at Powell Station Park.

4.12 – 4 Richmond, Virginia

Richmond, population 192,000, has twelve municipal swimming pools, two of which are indoor facilities. Eight of these pools are "medium" in size, assumed to be comparable to Millbrook Pool. Two of Richmond's pools would be considered "large." Based on the Center for City Park Excellence survey methodology, Richmond would have 6.25 pools per 100,000 residents and rank within the top five of all US municipalities.

On the basis of this review of municipalities with climates, cultural norms, and populations comparable to Raleigh's, the City of Raleigh does not do as well as Asheville and is far behind Richmond's example. Raleigh does, however, far exceed the performance of Charlotte and is roughly on par with Knoxville. As with the previously cited national measures of aquatic service, Raleigh lies roughly in the middle of its peers.

4.13 Other Communities/Section Summary

*In terms of aquatic services, **the example of other communities is mixed**, both nationwide and within Raleigh's geographic region. Some communities are extremely generous in the provision of aquatic facilities. Others less so. In comparison to both national trends and regional peers, **Raleigh is about average.***

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Other Communities/Notes

1. Based on more current population statistics, Raleigh's present rate of pools/100,000 residents, including all of its Metropolitan Service Area, falls to 2.1.

2. San Jose is presently concluding a comprehensive aquatic master plan which, if implemented, will move it appreciably higher on this list. Source: Counsilman Hunsaker

3. Raleigh has one pool for every 47,500 residents within its metropolitan service area.

4.2 Addressing Raleigh's Aquatic Needs: The Contributions of Other Area Aquatic Providers

Section Summary
No municipality meets every aquatic need without the assistance of other pool providers. In Raleigh, there are a number of alternative aquatic centers which offer a wide range of services to swimmers, ranging from faith-based organizations to commercial, for-profit facilities. In this section, the relative contributions of each of these providers is discussed, including a vicinity analysis of their impact in addressing Raleigh's aquatic need.

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4.21 Non-Raleigh Aquatic Providers

There are over 600 swimming pools in Wake County, excluding those of private homeowners. These pools vary widely in size, capability, and requirements for admission. Generally speaking, each of these pools will fall into one of the following categories of ownership or operation:

Municipality
Private or Public School, College or University
Faith-Based Organizations
Healthcare Providers
Corporate
Private or Independent Swimming Clubs or Associations
Commercial/For-Profit
Homeowners Associations and Country Clubs
Apartment Complexes
Hospitality

Unquestionably, these 600 or more pools do serve a considerable percentage of Raleigh's demand for aquatic services. For example, on a very pragmatic level, the resident of an apartment complex who wishes to cool off will in all likelihood chose to visit the pool provided by the complex, rather than travel to one of Raleigh's municipal pools. The same is equally true of recreational users who are members of a homeowners association, a county club, or an independent swim team with its own conveniently located facility.

4.22 Criteria for Inclusion or Exclusion as a Contributing Area Aquatic Provider

In further considering the kinds of contributions made by non-Raleigh aquatic providers, what is important to determine is the breadth of the population they serve and the diversity of services they are capable of offering. To begin to explore this question, fifty of Wake County's largest aquatic providers were identified and surveyed. The following

criteria were utilized in determining facilities selected for - or excluded from - assessment.

4.22 – 1 Access
Facilities made available as a privilege of residency were excluded for consideration in this assessment under the assumption that they are scaled to provide aquatic services to no one other than their immediate members, and that on the whole, these are relatively small, recreational pools. This criteria eliminated from consideration pools attached to hotels and motels, homeowners associations and country club pools, and apartment complex pools.

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4.22 – 2 Size
Pools selected for review are of a size roughly equivalent to the smallest of Raleigh's present municipal pools under the assumption that pools of this scale would have features, capacity, and programming that might reasonably be expected to offset overall aquatic demand.

4.22 – 3 Private High Schools, Private and Public Colleges and Universities
These institutions were also excluded form the review because, like homeowners associations or apartment complexes, they too provide aquatic services to a select and limited constituency, namely students enrolled in their programs. It is assumed that the aquatic facilities of these institutions are scaled to satisfy the needs of their particular community and provide no additional support to the outside community. This presumption is, of course, only true in the most limited sense. If students did not have access to their own institutions facilities, likely they would seek services elsewhere, increasing demand, so in this sense, private schools, colleges and universities do make some contribution to the community's overall aquatic service capacity. On the other hand, particularly in the circumstance of colleges and universities, were their students not enrolled in these particular schools, they might just as likely be seeking aquatic services in their hometown communities instead of Raleigh, creating a zero sum in relation to aquatic service provision and demand.

It should also be noted that several area private high schools – among them Ravenscroft and North Raleigh Christian Academy – do lease their pools to outside users to absorb unutilized capacity. This provision of aquatic service does offset some percentage of need, but it is assumed to be a relatively small proportion of the total need, and is subject to reduction as each of these high schools expand their enrollment in the future.

4.22 – 4 Corporate Providers
These providers (of which the only prominent member is the SAS Institute) were excluded for many of the same reasons cited above for educational institutions.

4.23 Contributing Area Aquatic Providers

After the above cited exclusions, the remaining classifications of area aquatic providers were segregated into the following three groupings:

4.23 – 1 Faith-Based and Non-Raleigh Aquatic Providers

This group includes aquatic providers who possess a very similar mission to that of the Raleigh Aquatics Program – education, community health, youth development, and family services - and who also share an interest in serving less economically advantaged members of the community. This grouping includes municipal pools in Morrisville, Wake Forest, and Knightdale, all Wake County YWCAs & YMCAs, and the Jewish Community Center in north Raleigh.

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4.23 – 2 Independent Swim Clubs and Commercial Aquatic Providers

This grouping includes aquatic providers who cater to users who are either more capable of making - or more willing to make - significant financial investment in support of their personal aquatic activities.

For swimming clubs that are principally interested in competitive team swimming, this willingness secures access to aquatic facilities best suited to their need for specialized training space and competition water. For commercial providers (who may also cater to competitive swimming organizations), membership dues, rental revenues, and admission fees are set, not on the basis of need, but for their likelihood of generating profit. In both instances, access to the services of this grouping of aquatic providers is limited by an ability to pay and it is this factor that most distinguishes their contributions from that of the City of Raleigh, other area municipalities, or faith-based providers.

4.23 – 3 Therapy Providers

This is a specialized and somewhat limited grouping that includes area healthcare providers who offer access to therapeutic, warm water pools. While these are semi-public institutions with a statutory mandate to serve the interests of public health, access to their facilities is limited by a variety of mechanisms, principally HMO membership, insurer reimbursement, or employer healthcare plans. And while these providers do make vital contributions to the overall health of the community, they do not necessarily have the same - or as broad - a mandate of service as does a taxpayer-supported municipality like the City of Raleigh.

4.24 Area Providers: Mapping

To reiterate, the fifty most significant aquatics providers, divisioned by the aforementioned groupings, were contacted and interviewed. They were asked general questions regarding the scale and capacity of their aquatic services, their fee structure, and requirements for user participation. All were asked about their plans for future expansion, although most were either uncertain of such plans, or reluctant to share it with an outside interviewer.

From these interviews, maps were developed to suggest the respective Raleigh aquatic service areas addressed by each of the aforementioned providers. The methodology employed to access the anticipated service is similar to that previously used to estimate Raleigh municipal pool service areas, and a summary of both the initial survey results and the resulting vicinity analysis is included in the Appendix of this report.

Figures 4.2A through 4.2C show the relative impact of each of the three principal aquatic providers groups in the context of Raleigh and its surrounding metropolitan area and a composite map (Figure 4.2D) which shows these area providers overlaid with the previously described Raleigh Aquatics Program effective service area.

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Figure 4.2A Faith Based and Non-COR Municipalities

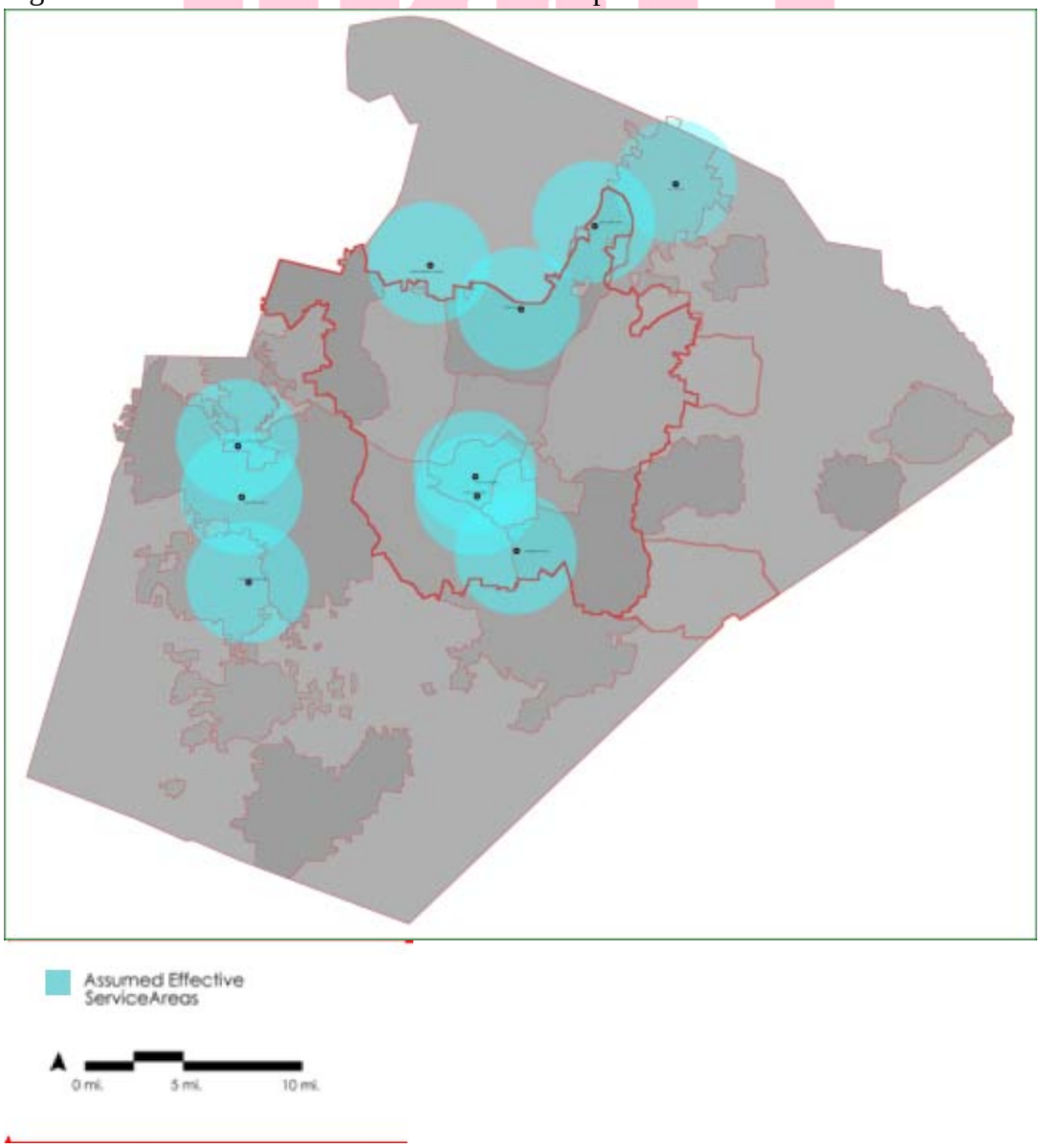


Figure 4.2B Independent Swim Clubs and Commercial Aquatic Providers

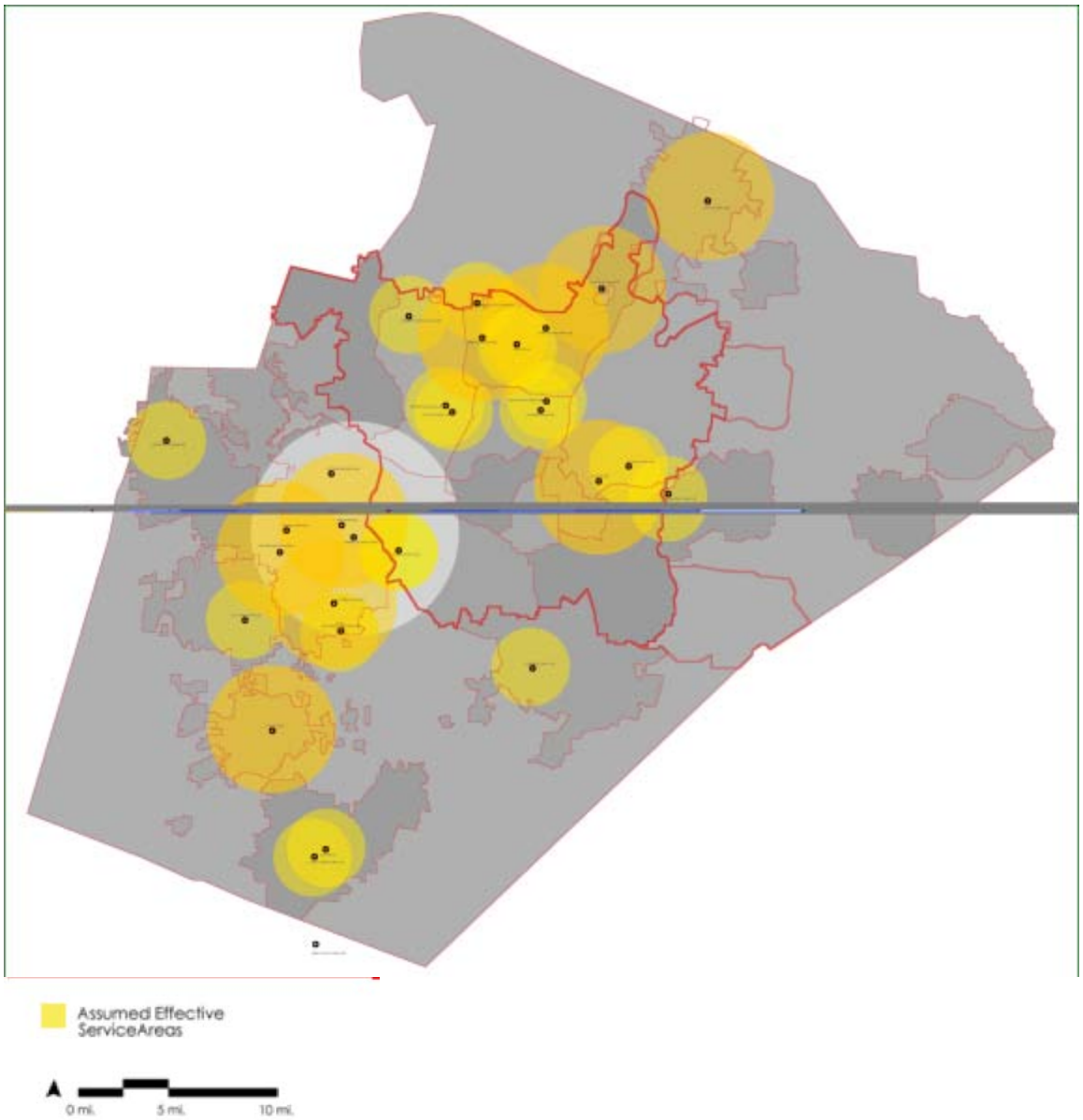


Figure 4.2C Therapy Providers

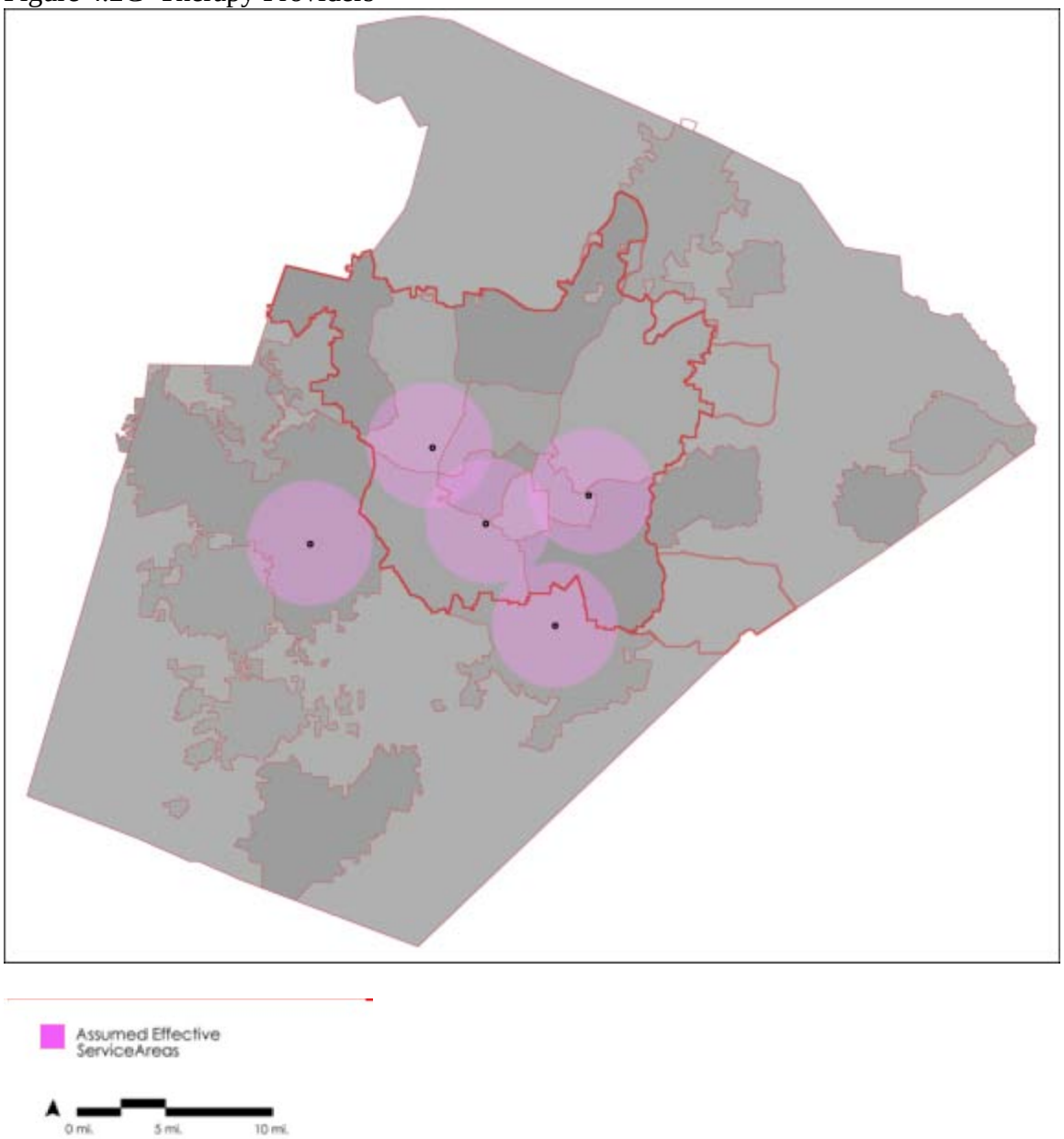


Figure 4.2D Composite of All Area Providers Including Raleigh Aquatics

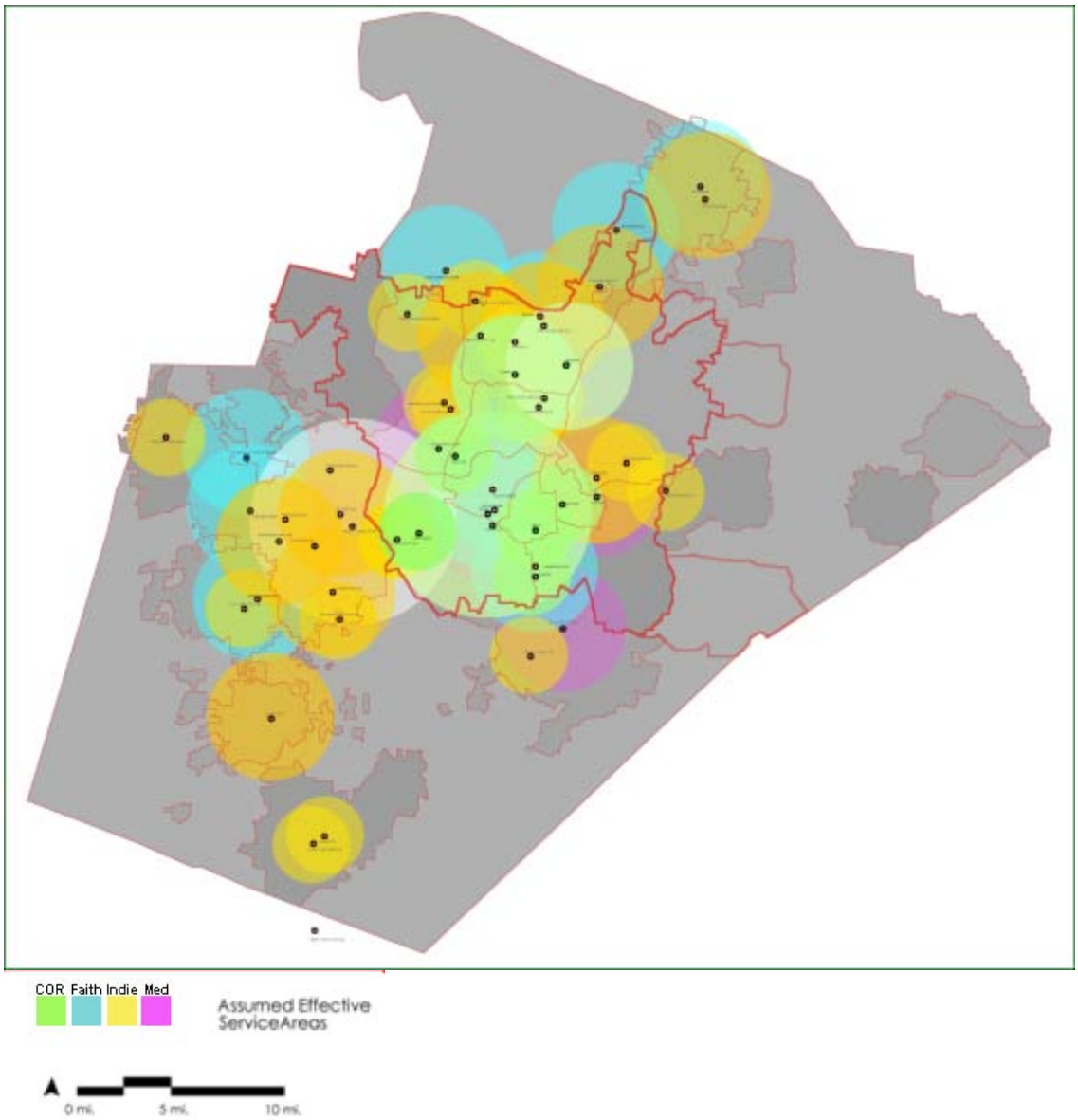
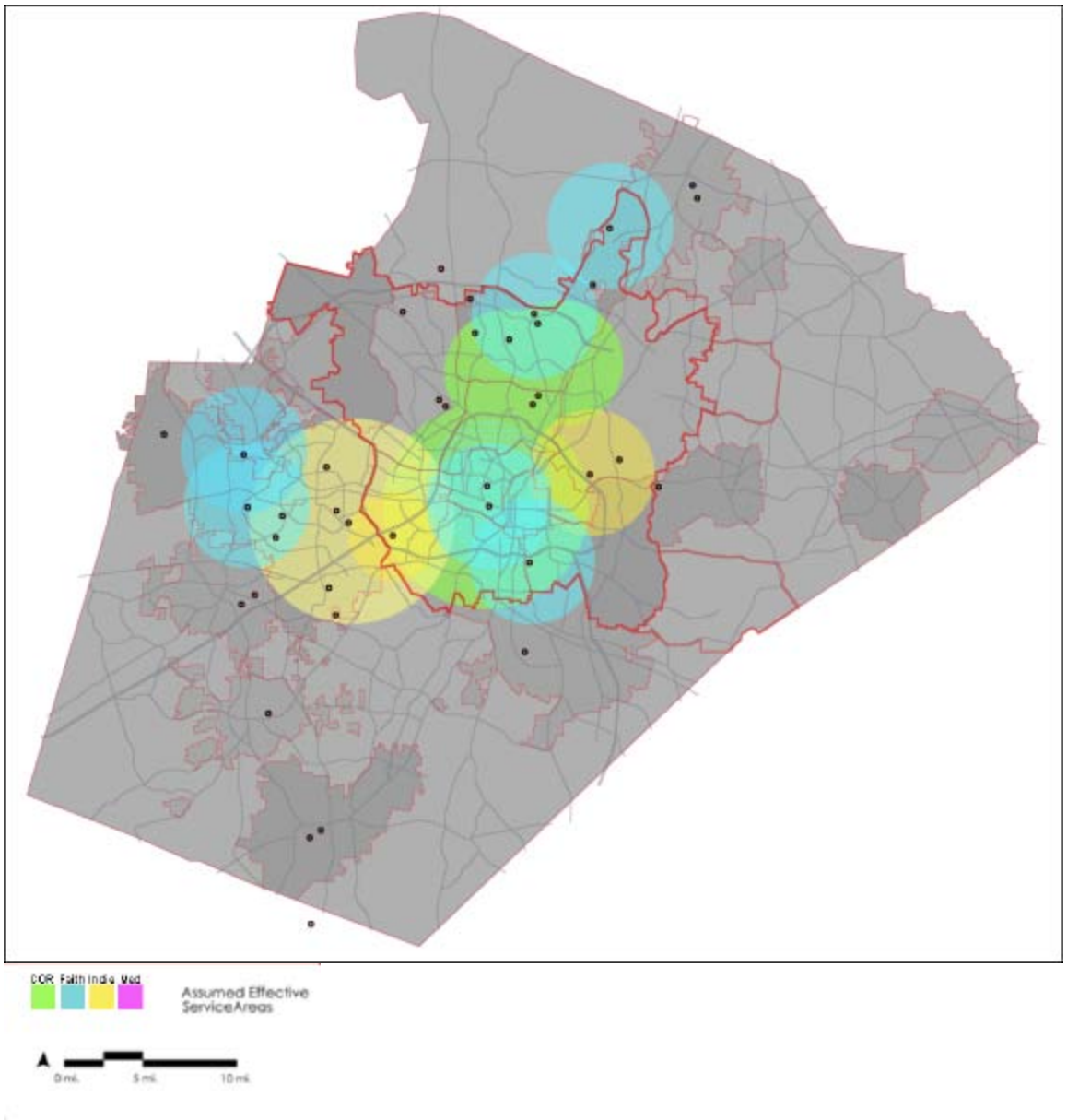


Figure 4.2E Composite of All Indoor Area Providers Including Raleigh Aquatics



4.24 Aquatic Service Providers: A Composite Overview

There are a number of useful inferences that can be drawn from these mapping demonstrations. First, both faith-based aquatic providers, and independent and commercial providers have been more responsive than the City of Raleigh in recognizing emerging patterns of population growth in northern sections of the city. The YMCA system in particular has made insightful and aggressive inroads into previously underserved north and northeast Raleigh neighborhoods.

Commercial and independent swim teams have followed suit, although the focus of their development has been concentrated in the areas near the 540 Outer Loop and to the west in Cary, an emphasis anchored by the soon-to-be-completed, privately financed Triangle Aquatic Center.[1]

Aquatic therapy providers have been somewhat less responsive to Raleigh's pattern of growth in its northern quadrants. Rex Hospital has sited new aquatic therapy facilities in Cary, Garner and near its flagship campus off Lake Bone Trail, but it has not as yet included comparable aquatic amenities in northern Raleigh. Wake Med presently has one aquatic therapy facility at its New Bern campus and might be expected to include a similar facility in its Wake Med North healthcare center (Six Forks Road, north of 540), but has yet to hint at such additions in its publicly stated plans for expansion.

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What remains evident in the composite maps of all aquatic service providers (Figure 4.2D) as well as those offering indoor, year-round facilities (Figure 4.2E), are broad areas of Raleigh that remain unserved by conveniently located aquatic centers of any description, either by public, semi-public, or private sponsorship. These unserved areas include the Umstead district, The Northwest district, The North district, The Northeast district and the more eastern sections of the Southeast district. Most worrisome, these are also the areas of Raleigh that are projected to experience the greatest percentage of growth in population and density in the coming twenty-five years. Any future plans for the expansion of aquatic facilities in Raleigh must begin by addressing this pronounced deficit of service.

4.25 Area Aquatic Providers/Conclusions

Non-Raleigh aquatic providers do ***make significant contributions to meeting the community's need for aquatic services.*** *On the whole, these providers have been more responsive than Raleigh in addressing areas of the City that have undergone rapid growth in the past twenty years. Some of these providers – notably faith-based organizations and nearby municipalities – do* ***address a population and economic base comparable to that of Raleigh****, while others* ***support more affluent or specialized aquatic users.***

Regardless, there still remain ***broad areas of the region which do not have any aquatic facilities*** *of a scale or access necessary to support the needs of their population. More significantly, many of these areas are ones that will experience high levels of growth in the coming twenty-five years*

Area Providers/Notes

1. A complete description of the capabilities of the Triangle Aquatic Center is included in the Appendix of this report.

4.3 Addressing Raleigh's Aquatic Needs: An Aquatic "Toolkit"

Section Summary

*In this section, an **aquatic "toolkit"** is proposed and described. The elements of this toolkit are **designed to satisfy a broad range of community aquatic needs**, at scales and capabilities that can be applied to Raleigh's assessment of need as defined in the preceding chapter of this study.*

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4.31 An Aquatic Toolkit

As has been developed in the preceding chapter of this report, both the needs of Raleigh's Aquatics Program and national trends of contemporary aquatic design suggest that an entirely new manner of pool-making is required. This new kind of pool, previously termed "The New Aquatic Center Paradigm" was characterized in Chapter 3.0 as follows:

"…contemporary aquatic centers have, by necessity, become more sophisticated. They have evolved into what could be best described as aquatic "super centers," facilities that offer a variety of swimming environments fitted to the separate needs of various swimming constituencies within single or multiple, multi-purpose venues. The "new" aquatic center is far more conscious of the interests and desires of the swimming public…"

To realize this vision of the "New Aquatic Center," eight hypothetical aquatic facility elements have been developed by the consultant team to serve as models for use in the creation of a comprehensive redevelopment and expansion of the Raleigh Aquatics Program. These eight elements offer a "toolkit" of aquatic designs, each programmed and scaled to address specific needs identified previously in this report. The conceptual ideas underlying each toolkit element have been tested and adopted by other communities to help address aquatic needs very similar to that of Raleigh. The purpose of this conceptual toolkit is to present a diverse approach to the challenge of creating a citywide aquatic system that will be precisely tailored to Raleigh's needs in the present and into the future.

4.32 Key Attributes of the Aquatic Toolkit

There are four key attributes of the proposed Aquatic Toolkit: Scalability, Specialization, Bundling, and Balance.

4.32 – 1 Scalability

The toolkit features hypothetical elements fashioned in a range of sizes from the small "Neighborhood Aquatic Center" to the more regionally focused "Community Aquatic Center." This breadth of sizing options offers planners a full range of elements with which to fine-tune the capacity and service area of a comprehensive municipal aquatics system. In addition, each element is designed to change, adapt, and grow as future needs of the community become evident over time. The inherent "scalability" of the toolkit ensures that planning decisions made in the present can remain flexible and responsive to changing community needs in the future.

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4.32 – 2 Specialization

The Toolkit is a direct outgrowth of the recognition that specific aquatic user groups have very specific and distinct aquatic facility needs. Aquatic Toolkit facilities are conceived as multi-purposed, multi-generational aquatic centers in which the specific needs of each aquatic user group – recreation, fitness, therapy, competition, and instructional – can be appropriately addressed at every scale of facility, from the Neighborhood Aquatic Center up to the Community Aquatic Center. Differing aquatic user groups are not placed in the uncomfortable position of competing for a single, narrowly designed space of water. Instead, each group is granted their own distinct aquatic environment, tailored expressly to their own particular aquatic needs.

4.32 – 3 Bundling

Bundling recognizes the inherent advantage of economies of scale. Facilities that "bundle" a variety of pool types can share common infrastructures (utilities, site features, parking) and support amenities (bathhouses, administrative space),thereby preserving capital resources.

Moreover, a bundled facility – one that might include more than one Toolkit element, or a single element tied to other non-aquatic community assets, for example, a senior or community recreation center - is also a useful means to further custom-fit facilities to specific community needs at an overall lower cost. Several of the Toolkit elements are specifically designed to serve either as stand-alone facilities, or as elements that can be bundled with other facility types to better address specific community needs.

4.32 – 4 Balance of Facility Types

The Toolkit recognizes both the need and the utility of providing aquatic services with a variety of approaches, whose capital costs represent a broad range of fiscal options. This idea of balance is particularly significant in decisions regarding whether aquatic facilities should be built as indoor or outdoor venues.

Indoor pools and outdoor pools serve very different functions in most communities. Indoor pools tend to be programmed with classes, fitness and competitions. Outdoor pools tend to be used more for recreation, although many summer swim teams utilize outdoor competition pools. Outdoor pools have high recreation and entertainment

features spread out over a large area, whereas indoor pools offer year-round swimming in compact interior spaces.

Natatoriums (indoor aquatic facilities) offer an inviting, year-round environment for classes, recreation, fitness, and competition. They are however about twice as expensive to build as a comparably scaled outdoor facility and have 40% higher operating costs, principally due to energy consumption.

The obvious virtue of the indoor facility is its availability year-round. Its greater capital and operating expenses can be amortized over a 365 day period of use, rather than the typically shortened, three month outdoor pool season. This added efficiency of utilization is not sufficient to offset the natatorium's overall higher capital and operating costs, but it is a factor worth noting when making side-by-side comparisons between indoor and outdoor facility costs. Moreover, the indoor facility helps to maintain provision of service for all of a municipality's citizens at times of year when other aquatic opportunities - for example, homeowners or apartment complex pools - are not available.

Outdoor pools, though less expensive, are seasonal and therefore do not provide year-round fitness, competition, and recreation for the community. Warm, sunny days do bring bathers to outdoor pools in great numbers in the summer at a time year-round facilities are likely to be underutilized, except on rainy days[1]. Outdoor pool elements require more maintenance and can have indirect effects on water chemistry. Construction materials must be chosen for durability and safety.

Overall, outdoor pools are more capable of recouping a greater percentage of their operating costs than are indoor facilities, and when all other factor are equal (convenience of location, admission fees, programming) outdoor facilities are generally better attended than indoor centers.

This supposition is borne out by the anecdotal experience of Nancy Battersby, Director of Fenton Parks and Recreation, MO, a municipality which has both indoor and outdoor pools. When asked which pool does better attendance, she says their outdoor pools do much better attendance than their indoor pool. In July, they see approximately 1,200 daily swimmers outdoors. In February they see approximately 200-300 daily swimmers indoors[2]. Based on both aquatic industry financial analysis and supported by Ms. Battersby's observations, outdoor pools are generally a better economic value.

Conversely, as was noted in the public comments section of the previous chapter, residents of Raleigh who attended public forums or filled out questionnaires were overwhelmingly in favor of indoor pools.

It is for this reasons that the Toolkit offers a mixture of indoor and outdoor facilities that may be utilized to create a balanced approach to the creation of a municipal aquatic

system – a system that may possess both the economy of outdoor facilities and the convenience of indoor venues where the community's assessment of need suggests their use is most important.

4.33 The Aquatic Toolkit/Notes on the Drawings and Descriptions

4.33 – 1 In the drawings and descriptions that accompany the following Aquatic Toolkit Elements, the suggested site plans are **hypothetical** and, while representative of typical park locations in the Triangle vicinity, do not yet reflect actual sites in Raleigh. The issue of specific facility site location is addressed in the Strategy of Service chapter of this report. Similarly, projections of demographics, anticipated revenues, and expenses described in this section are drawn from generic data, based on the characteristics common across all of Raleigh.

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4.33 – 2 The plan illustrations for each element are drawn to scale, but because there are both very large and very small facilities proposed, the scale of drawing from one element to the next are not necessarily the same. In the concluding graphic of this section, there is a side-by-side comparison of all the Aquatic Toolkit elements, indicating their relative size in relation to one another.

4.33 – 3 Cost figures associated with each Toolkit element do not include land costs. It is assumed that any actual site for future Raleigh facilities would be on property already owned by, or available to the City. The cost figures do include an estimate of potential site development expenditures and a contingency value for anticipated inflation over two years.

4.33 – 4 The recommended site areas for each element are approximate and generally include a reasonable allowance for future expansion.

4.33 – 5 Specific pool features identified in the following text are described more fully in the Aquatic Trends section of this report.

4.33 – 6 For all cost, revenue, expenditures, and cashflow projections cited for each element, a detailed spreadsheet is included in the Appendix of this report.

4.34 The Toolkit Elements

4.34 – 1 The Outdoor, Neighborhood Family Aquatic Center (NFAC)

Figure 4.4A

The outdoor Neighborhood Family Aquatic Center features a 5,467 square foot leisure pool with zero-beach entry, which is a safe and easy way for patrons to enter the pool without steps or ladders. Play features include a water slide, a participatory play feature located near the zero-beach entry, climb across bridges, slide down water slides, and an otter slide - designed for in-between children who do not yet meet the height restriction of the water slide.

Three lap lanes offer adults and seniors a place to enjoy fitness lap swimming while a 700 square foot tot pool with slide offers young children an opportunity to become acquainted with aquatics in an age-appropriate setting. Also included are five shade structures, bathhouse, snack bar, two family changing rooms, and locker rooms. Filtration includes a UV sanitizer. Based on 2009 construction cost dollars, the estimated project cost is approximately $3,493,000.

Summary Opinion of Probable Project Cost:[3]
The Neighborhood Family Aquatic Center

Bathhouse	$ 600,390
Aquatics	$1,347,970
Support	$ 197,181
Subtotal Construction Cost	$2,145.541
Site Development	$ 431,435
Inflation (Two Years)	$ 257,698
Contingency (10%)	$ 283,467
Indirect Costs[4]	$ 347,177
Total Estimated Project Cost	$3,492,317
Approximately	**$3,493,000**
Recommended Parking	102 Cars
Recommended Site Area	5.85 Acres

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4.34 – 2 **The Outdoor, Medium Family Aquatic Center (MFAC)**

Figure 4.3B

The outdoor Medium Family Aquatic Center features a 6-lane 25 yard pool with two diving boards. This pool provides an area for swim events in the summer season and will accommodate water exercise, aerobic classes, swim team training, diving opportunities, and other aquatic lessons. A 9,200 square foot leisure pool provides a swimming experience where children can romp in the zero-beach and make a big splash on the participatory play feature. This colorful "wet playground" provides climbing opportunities as well as operating valves, sprays, and slides for hands-on activities. Two water slides provide plunging excitement for teens and adventurous families while tumble buckets delight children when filling up and splashing down. An otter slide is child-friendly for those children who are not tall enough to ride the water slide but too big for the kiddy slide. A current river provides a serene journey for all ages and a great way to water walk against the current. A 700 square foot tot pool with slide offers the facility's youngest guests a safe place to enjoy the water. Also included are eight shade structures, bathhouse, snack bar, two family changing rooms, and locker rooms. Based on 2009 construction cost dollars, the estimated project cost is approximately $6,519,000.

Summary Opinion of Probable Project Cost:[3]
The Medium Family Aquatic Center

Bathhouse	$ 883,680
Aquatics	$2,688,950
Support	$ 458,749
Subtotal Construction Cost	$4,031,379
Site Development	$ 865,875
Inflation (Two Years)	$ 489,725
Contingency (10%)	$ 538,698
Indirect Costs[4]	$ 592,568
Total Estimated Project Cost	$6,518,245
Approximately	**$6,519,000**
Recommended Parking	206 Cars
Recommended Site Area	12.7 Acres

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4.34 – 3 The Outdoor, Large Family Aquatic Center (LFAC)

Figure 4.3C

To accommodate the competitive and recreation aquatic needs of the residents of Raleigh, the outdoor Large Family Aquatic Center is designed to be very attractive to many organized swimming events as well as recreational opportunities for all ages. It features a separate 50 meter competitive pool with two diving boards, two bulkheads, and 800 spectator seats to provide swim team events in the summer while accommodating water exercise, aerobic classes, swim team training, diving opportunities, and aquatic lessons. The recreation component of this element consists of a heated 13,300 square foot leisure pool with zero-beach entry, two water slides, a participatory play feature, tumble buckets, and a current river. A 2,000 square foot tot/spray pool features a slide and a gentle spray feature. Also included are a group pavilion, bathhouse, twelve shade structures, snack bar, two family changing rooms, and locker rooms. Filtration includes UV sanitizer. Based on 2009 construction cost dollars, the estimated project cost is approximately $12,714,000.

Summary Opinion of Probable Project Cost: [3]
The Large Family Aquatic Center

Bathhouse	$1,420,073
Aquatics	$5,282,600
Support	$ 873,823
Subtotal Construction Cost	$7,576,496
Site Development	$1,975,700
Inflation (Two Years)	$ 955,220
Contingency (10%)	$1,050,742
Indirect Costs[4]	$1,155,816
Total Estimated Project Cost	$12,713,973
Approximately	**$12,714,000**
Recommended Parking	297 Cars
Recommended Site Area	18.75 Acres

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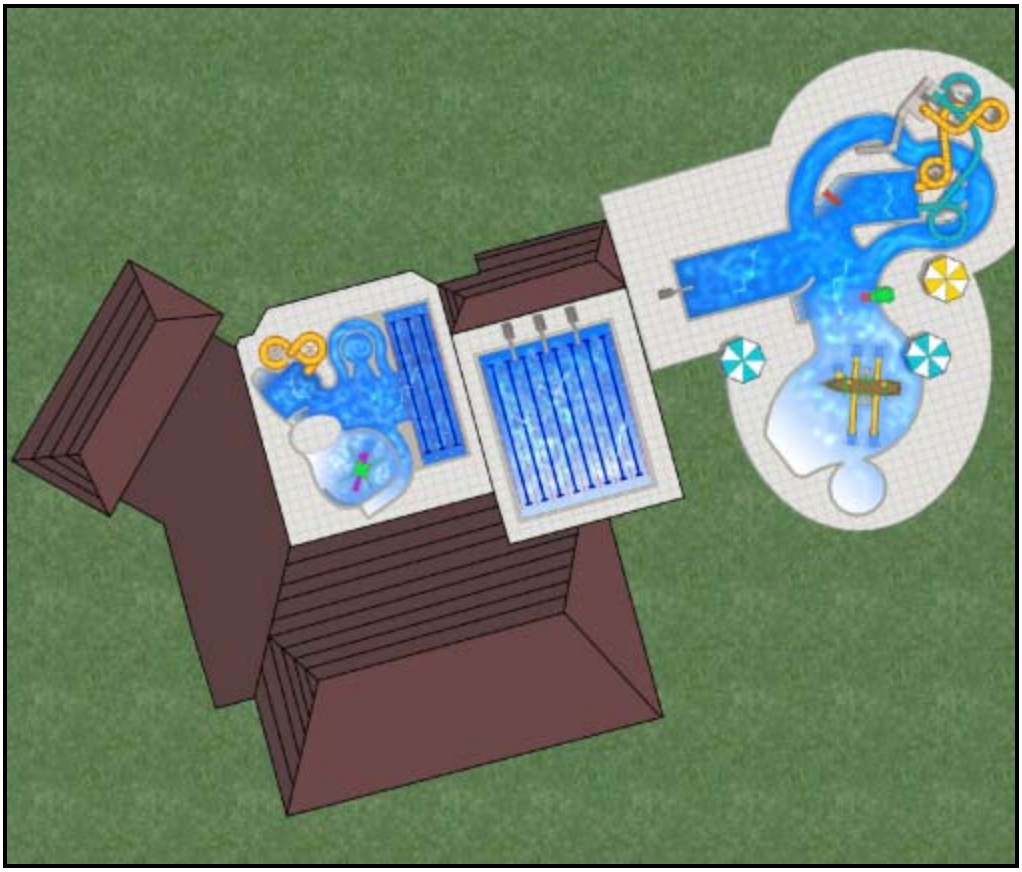
4.34 – 4 Bundled Indoor/Outdoor Community Aquatic Center (CC)

Figure 4.3D



Popular for communities desiring year-round family fitness, the Bundled Indoor/Outdoor Community Aquatic Center has access to an existing or future community center (not included in construction cost) and features an indoor 8-lane 25 yard competitive pool with two diving boards and 125 spectator seats. A 5,800 square foot indoor leisure pool offers a participatory play feature, water slide, current channel, and water vortex where kids enjoy swimming around the swirling play area. Three fitness lap lanes and a 300 square foot spa entice adults. The outdoor facility offers a 9,200 square foot leisure pool with three fitness lap lanes, two water slides, a participatory play feature, current river, otter slide, tumble buckets, and a 700 square foot tot pool with slide. Also included are six shade structures, bathhouse, two family changing rooms, locker rooms, and snack bar. Filtration includes a UV sanitizer. Based on 2009 construction cost dollars, the estimated project cost is approximately $15,748,000.

Summary Opinion of Probable Project Cost:[3]
The Community Aquatic Center

Public Space	$ 560,813
Natatorium	$6,083,713
Outdoor Aquatics	$2,758,445
Support	$ 212,800
Building Circulation	$ 816,240
Subtotal Construction Cost	$10,432,010
Site Development	$1,399,500
Inflation (Two Years)	$1,183,151
Contingency (10%)	$1.301,466
Indirect Costs[4]	$1,431,613
Total Estimated Project Cost	$15,747,740
Approximately	**$15,748,000**
Recommended Parking	317 Cars*
Recommended Site Area	17.7 Acres*

* Excludes parking and site area required for co-located community center

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4.34 – 5 The Indoor/ Outdoor Aquatic Training Center (Training)

Figure 4.3E

The Aquatic Training Center includes a natatorium with a 50 meter pool, two bulkheads, movable floor, four diving boards, and 400 spectator seats. An outdoor, seasonal aquatic center includes an 11,175 square foot leisure pool, two water slides, a participatory play feature, otter slide, tumble buckets, current channel, eight shade structures, and a 700 square foot tot pool with slide. Filtration includes a UV sanitizer. Based on 2009 construction cost dollars, the estimated project cost is approximately $20,501,000.

Summary Opinion of Probable Project Cost:[3]
The Aquatic Training Center

Public Space	$1,565,860
Aquatic Center	$7,064,280
Outdoor Aquatics	$2,450.250
Outdoor Aquatics Support	$ 437,394
Classrooms	$ 31,160
Administration Support	$ 161,640
Building Support	$ 321,200
Building Circulation	$1,243,512
Subtotal Construction Cost	$14,175,296
Site Development	$1,227,150
Inflation (Two Years)	$1,540,245
Contingency (10%)	$1,694,269
Indirect Costs[4]	$1,863,696
Total Estimated Project Cost	$20,500,656
Approximately	**$20,501,000**
Recommended Parking	286 Cars
Recommended Site Area	18.2 Acres

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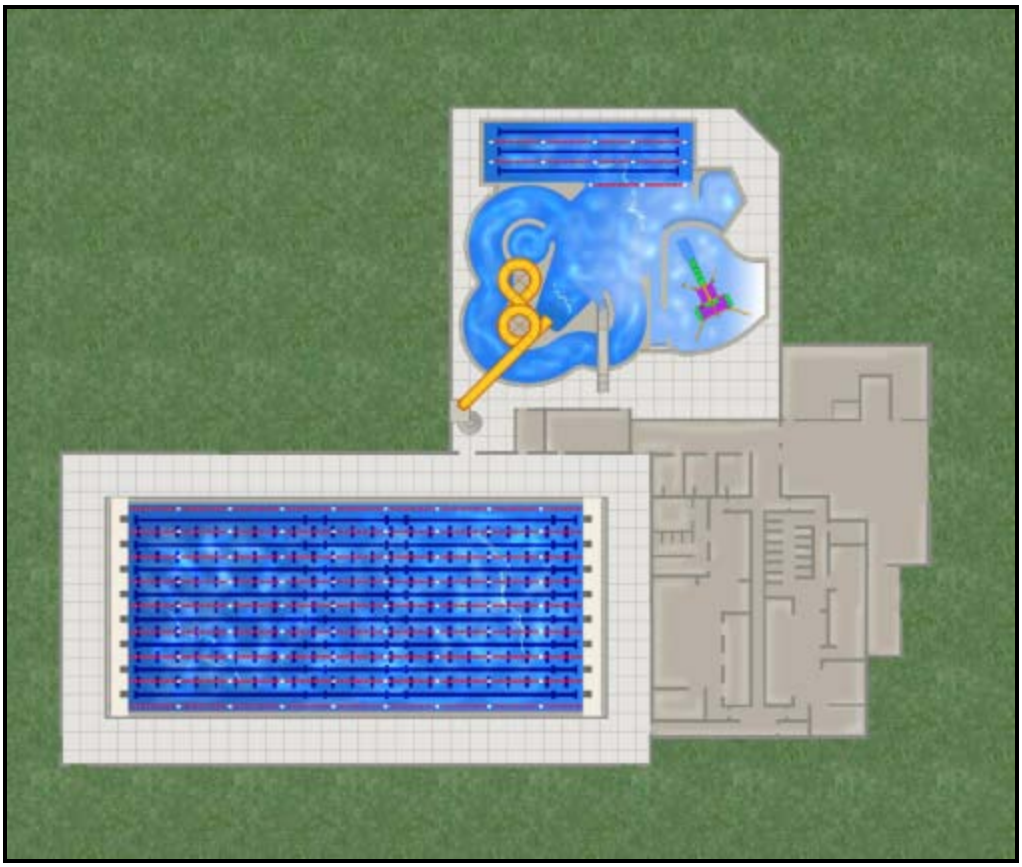
4.34 – 6 Indoor Competition Venue (Competition)

Figure 4.3F



The Indoor Competition Venue is designed to meet the needs of year-round major swimming meets as well as year-round programming for aquatics, fitness, lessons, and leisure. Features include an indoor 50 meter by 25 yard competitive pool with four diving boards, 400 spectator seats[5], two bulkheads, and a movable floor. The bulkheads and movable floor permits a variety of pool shell configurations to support instructional, fitness, and recreational opportunities, adding to the facility's revenue potential. Also included is a snack bar, meeting room, locker rooms, and family changing room. The recreation component includes an indoor 6,800 square foot leisure pool with fitness lap lanes, water slide, current channel, participatory play feature, and a water vortex. Based on 2009 construction cost dollars, the estimated project cost is approximately $22,280,000.

Summary Opinion of Probable Project Cost:[3]
The Indoor Competition Venue

Public Space	$1,021,060
Aquatic Center	$12,082,400
Classrooms	$ 31,160
Administration Support	$ 161,640
Building Support	$ 321,200
Building Circulation	$1,571,224
Subtotal Construction Cost	$15,188,684
Site Development	$1,550,550
Inflation (Two Years)	$1,673,923
Contingency (10%)	$1,841,316
Indirect Costs[4]	$2,025,447
Total Estimated Project Cost	$22,279,920
Approximately	**$22,280,000**

To increase spectator seating to 2,000 add $2.3 million.

Recommended Parking	202 Cars
Recommended Site Area	12.7 Acres

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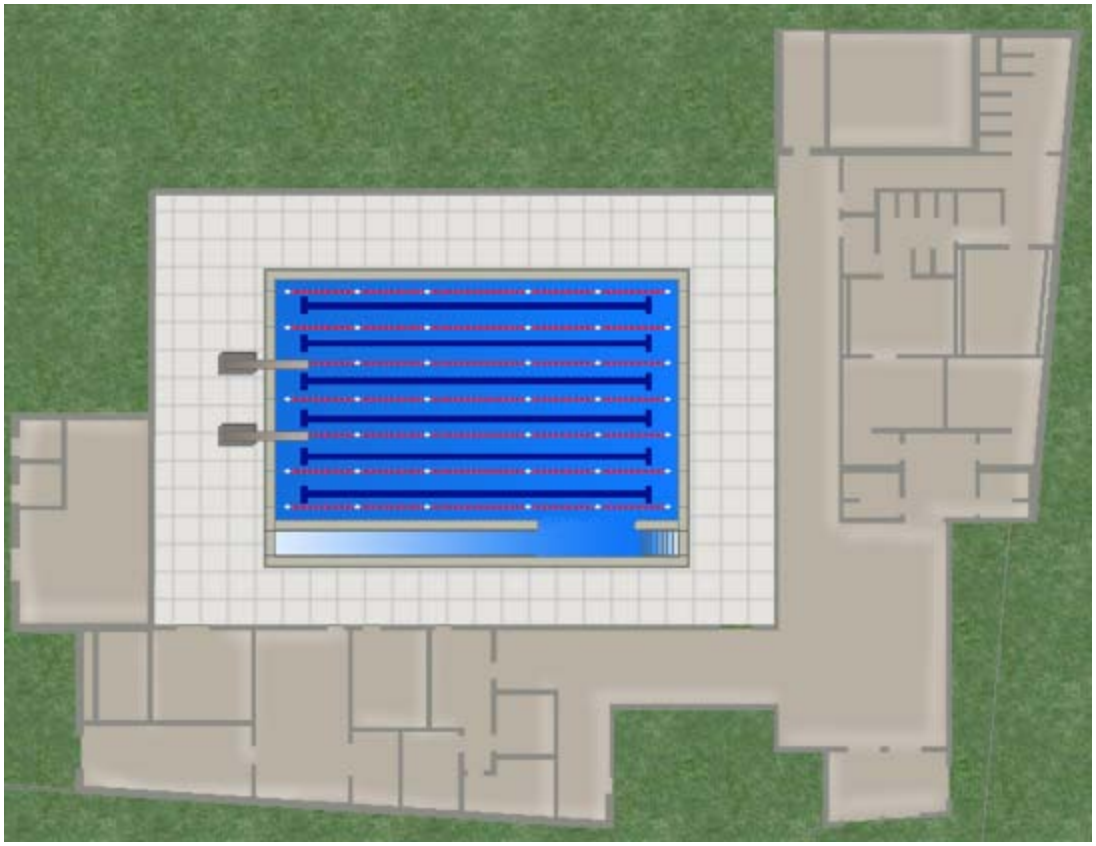
4.43 – 7 Indoor Therapy Pool (Therapy)

Figure 4.3 G



The Indoor Therapy Pool features a 6,800 square foot natatorium with a 3,400 square foot warm water therapy pool with movable floor. The therapy pool is designed to assist those with strained muscles, arthritis, and other aquatic therapy needs as well as aqua aerobics and gentle water exercise users. In order to maximize revenue potential and health benefits to the community, programming needs to concentrate on therapy which is associated with or prescribed by a medical provider. This approach is not commonly incorporated with a municipal aquatics program and as such, is a good candidate for a joint public/private partnership (See Strategy of Service chapter, Alternative Funding) The Indoor Therapy Pool is an ideal candidate to be bundled with either other aquatic elements or non-aquatic, community service elements. Based on 2009 construction cost dollars, the estimated project cost is $4,101,000.

Summary Opinion of Probable Project Cost:[3]
The Indoor Therapy Pool

Public Space	$ 229,900
Aquatic Center	$2,196,400
Building Support	$ 79,040
Building Circulation	$ 263,568
Subtotal Construction Cost	$2,768,908
Site Development	$ 312,120
Inflation (Two Years)	$ 308,103
Contingency (10%)	$ 338,913
Indirect Costs[4]	$ 372,804
Total Estimated Project Cost	$4,100,848
Approximately	**$4,101,000**
Recommended Parking	57 Cars
Recommended Site Area	3.25 Acres

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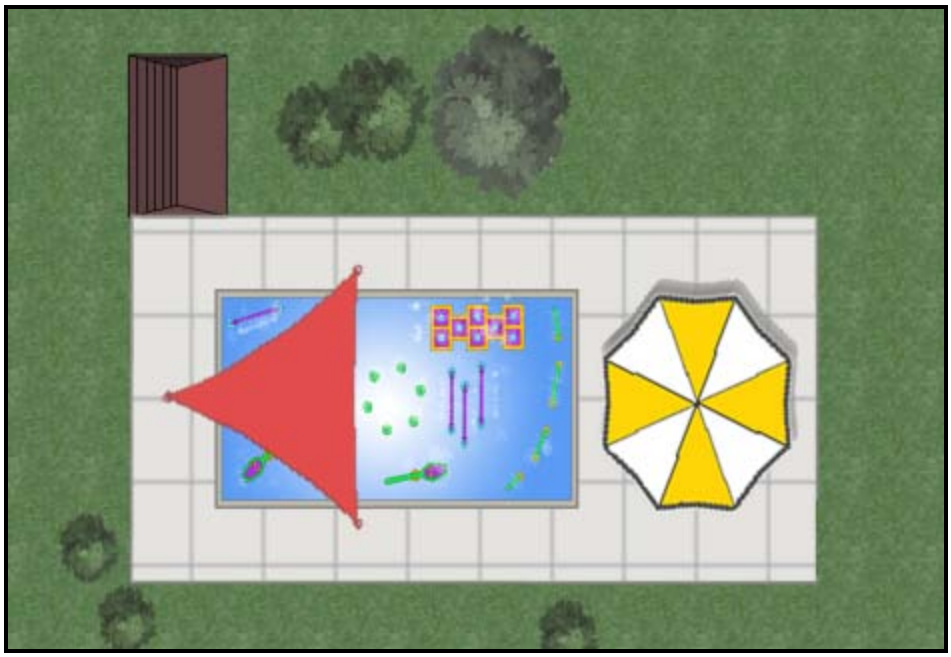
4.34 – 8 The Water Sprayground (Pad)

Figure 4.3H



The 2,100 square foot water sprayground delights children with a colorful water wonderland for hours of zipping around the interactive spray features. It includes a splash pad, fencing, lighting, mechanical, three shade structures, pool deck, and UV sanitizer. A water sprayground is an excellent "add-on" feature for an existing aquatic facility or can be used as a stand-alone enhancement to a public park recreation center. Based on 2009 construction cost dollars, the estimated project cost is $1,062,000.

Summary Opinion of Probable Project Cost:[3]
The Water Sprayground

Bathhouse	$ 87,552
Aquatics	$ 356,840
Support	$ 96,840
Subtotal Construction Cost	$ 540,423
Site Development	$ 243,180
Inflation (Two Years)	$ 78,360
Contingency (10%)	$ 86,196
Indirect Costs[4]	$ 113,779
Total Estimated Project Cost	$1,061,939
Approximately	**$1,062,000**
Recommended Parking	35 Cars
Recommended Site Area	2.4 Acres

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4.34 – 9 Summary of Toolkit Elements at Comparative Size

Figure 4.3 J The following graphic displays each of the Aquatic Toolkit elements, illustrated at the same scale to suggest their relative size in relation to one another.

4.35 The Aquatic Toolkit: Opinion of Financial of Performance

Simply put, the Opinion of Financial Performance is a multiple-year snapshot of each Toolkit element, based on a series of assumptions regarding the likely revenues and expenditures of each over the indicated time period. The assumptions underlying these projections of revenue and expenditure can be summarized as follows.

4.35 - 1 Opinion of Revenue From General Admissions

For each Toolkit element, an estimate has been made of the probable daily attendance, by facility. Based on a hypothetical location within the locus of Raleigh's metropolitan planning district, the opinion of likely attendance assimilates a number of determining attendance factors including historical data compiled by the consultants to this study, expected pool capacity based on size, climactic influences on attendance, and the relative appeal of enhanced aquatic amenities.[6] This opinion of probable daily attendance is projected over the anticipated season for each Toolkit element to generate an annual rate of probable attendance.

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Concurrent with the estimate of attendance is the development of a recommended schedule of admission fees for all classifications of aquatic patrons - youth, adults, seniors, families, individual admissions and those purchasing annual passes. This assumed fee schedule is again, based on historical data compiled by the consultants to this study as well as a "dead-reckoned" sense of the value potential Raleigh-area aquatic patrons would place on enhanced aquatic features and amenities of the kind described in this study. For Raleigh, this assumption of fees, though nominally higher than that now charged in the Raleigh Aquatics Program current schedule of fees, is still well below national averages for comparable aquatic services.

This recommended fee schedule and an assumption of its use distribution by patrons (how many pay at the gate verses how many get annual passes and so on) is multiplied by the projected annual attendance to derive an estimate of yearly admission revenues for each Toolkit element.

Charts describing opinions of attendance, proposed fee schedules and use distribution, and resulting revenue projections, as well as underlying assumptions for each Toolkit element are included in the Appendix of this report.

4.35 – 2 Opinion of Revenue from Programmed Classes, Activities, and Facility Rentals

Anticipated revenues from fees for instructional and fitness classes, lane rentals, whole-facility rentals, and other programmed income sources are also estimated, again based on a combination of historical data and assumptions of the market value of such offerings in the Raleigh region. Charts detailing the calculation of programmed revenues are included in the Appendix of this report. This programmed revenue is then coupled with an estimate of admissions revenue to yield an opinion of probable gross revenues for each Toolkit element.

4.35 – 3 Opinion of Probable Expenses
For each Toolkit element, an opinion of probable expenditures has been developed. Projections include staffing requirements and their respective wages, benefits and incidental costs, costs for expendable materials – i.e. pool chemicals - , insurance, maintenance, and energy costs based on regional utility rates. Again, charts detailing these assumptions are included in the Appendix of this report.

4.35 – 4 Operating Cashflow and Recapture Rate
From the preceding values, a projected estimate of probable operating cashflows and recapture rates can be calculated. To this calculation is added a value of recommended capital replacement allocations to fund future maintenance and renovation costs for each Toolkit element. A projection of annual debt service completes the Opinion of Probable Financial Performance.

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4.35 – 5 Disclaimer to the Opinion of Probable Financial Performance
It should be recognized that financial projections of this complexity and duration are highly susceptible to the exigencies of even modest changes in marketplace parameters. Unforeseen changes in demand, wages, inflation, energy costs, as well as a thousand other factors could significantly alter the estimates of financial performance suggested herein. Accordingly, projections are offered only though 2012, a reasonably safe interim for which these assumptions might be expected to retain credibility.

What can – and should – be drawn from this analysis is the recognition that with appropriate planning, the economic performance of proposed aquatic facilities based on the suggested Aquatic Toolkit of elements can be expected to yield higher outcomes of both patron service and fiscal performance.

4.35 – 6 Summary of Opinion of Financial Performance of Toolkit Elements
The following charts suggest the probable financial performance of each of the suggested Toolkit elements. As previously noted, substantiating documentation for these estimates is included in the Appendix of this report.

Figure 4.5 A The Outdoor Neighborhood Family Aquatic Center (NFAC)

	2008	2009	2010	2011	2012
Project Cost	$3,493,000				
Recreation Attendance	27,472				
Total Attendance	29,452				
Revenue	$61,970	$64,673	$67,434	$70,250	$73,123
Expense	175,846	180,242	184,748	189,366	194,101
Operating Cashflow	(113,876)	(115,568)	(117,314)	(119,116)	(120,977)
Recapture Rate	**35%**	**36%**	**37%**	**37%**	**38%**
Capital Replacement	17,500	17,500	17,500	17,500	17,500
Debt Service	(273,246)	(273,246)	(273,246)	(273,246)	(273,246)
Cashflow	(404,622)	(406,314)	(408,060)	(409,862)	(411,723)

Figure 4.5B The Outdoor Medium Family Aquatic Center (MFAC)

	2008	2009	2010	2011	2012
Project Cost	$6,519,000				
Recreation Attendance	60,705				
Total Attendance	68,990				
Revenue	$170,622	$179,414	$188,443	$197,710	$207,215
Expense	301,817	309,362	317,096	325,024	333,149
Operating Cashflow	(131,194)	(129,948)	(128,653)	(127,313)	(125,934)
Recapture Rate	**57%**	**58%**	**59%**	**61%**	**62%**
Capital Replacement	32,600	32,600	32,600	32,600	32,600
Debt Service	(509,960)	(509,960)	(509,960)	(509,960)	(509,960)
Cashflow	(673,754)	(672,508)	(671,213)	(669,873)	(668,494)

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Figure 4.5C The Outdoor Large Family Aquatic Center (LFAC)

	2008	2009	2010	2011	2012
Project Cost	$12,714,000				
Recreation Attendance	91,255				
Total Attendance	131,371				
Revenue	$486,766	$508,750	$531,329	$554,505	$578,276
Expense	560,301	574,308	588,666	603,382	618,467
Operating Cashflow	(73,535)	(65,558)	(57,336)	(48,878)	(40,191)
Recapture Rate	**87%**	**89%**	**90%**	**92%**	**94%**
Capital Replacement	63,600	63,600	63,600	63,600	63,600
Debt Service	(994,574)	(994,574)	(994,574)	(994,574)	(994,574)
Cashflow	(1,131,709)	(1,123,733)	(1,115,511)	(1,107,052)	(1,098,365)

Figure 4.5D The Bundled Indoor/Outdoor Community Aquatic Center (CC)

	2008	2009	2010	2011	2012
Project Cost	$15,748,000				
Recreation Attendance	162,920				
Total Attendance	210,855				
Revenue	$918,027	$963,544	$1,010,349	$1,058,442	$1,107,824
Expense	1,158,205	1,187,160	1,216,839	1,247,260	1,278,441
Operating Cashflow	(240,177)	(223,616)	(206,490)	(188,817)	(170,617)
Recapture Rate	**79%**	**81%**	**83%**	**85%**	**87%**
Capital Replacement	78,800	78,800	78,800	78,800	78,800
Debt Service	(1,231,914)	(1,231,914)	(1,231,914)	(1,231,914)	(1,231,914)
Cashflow	(1,550,892)	(1,534,330)	(1,517,204)	(1,499,532)	(1,481,332)

Figure 4.5E The Indoor/Outdoor Aquatic Training Center (Training)

	2008	2009	2010	2011	2012
Project Cost	$20,501,000				
Recreation Attendance	155,323				
Total Attendance	265,599				
Revenue	$1,100,328	$1,143,949	$1,188,811	$1,234,915	$1,282,260
Expense	1,367,780	1,401,975	1,437,024	1,472,950	1,509,774
Operating Cashflow	(267,452)	(258,026)	(248,213)	(238,035)	(227,513)
Recapture Rate	**80%**	**82%**	**83%**	**84%**	**85%**
Capital Replacement	102,600	102,600	102,600	102,600	102,600
Debt Service	(1,603,726)	(1,603,726)	(1,603,726)	(1,603,726)	(1,603,726)
Cashflow	(1,973,778)	(1,964,352)	(1,954,539)	(1,944,361)	(1,933,839)

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Figure 4.5F The Indoor Competition Venue (Competition)

	2008	2009	2010	2011	2012
Project Cost	$22,280,000				
Recreation Attendance	116,823				
Total Attendance	234,599				
Revenue	$937,743	$970,736	$1,004,673	$1,039,554	$1,075,380
Expense	1,654,608	1,695,973	1,738,372	1,781,832	1,826,378
Operating Cashflow	(716,865)	(725,237)	(733,700)	(742,277)	(750,997)
Recapture Rate	**57%**	**57%**	**58%**	**58%**	**59%**
Capital Replacement	111,400	111,400	111,400	111,400	111,400
Debt Service	(1,742,891)	(1,742,891)	(1,742,891)	(1,742,891)	(1,742,891)
Cashflow	(2,571,156)	(2,579,529)	(2,587,991)	(2,596,569)	(2,605,289)

Figure 4.5G The Indoor Therapy Pool (Therapy)

	2008	2009	2010	2011	2012
Project Cost	$4,101,000				
Recreation Attendance	24,087				
Total Attendance	35,217				
Revenue	$111,287	$114,348	$117,484	$120,693	$123,976
Expense	243,015	249,091	255,318	261,701	268,244
Operating Cashflow	(131,729)	(134,742)	(137,834)	(141,008)	(144,267)
Recapture Rate	**46%**	**46%**	**46%**	**46%**	**46%**
Capital Replacement	20,600	20,600	20,600	20,600	20,600
Debt Service	(320,808)	(320,808)	(320,808)	(320,808)	(320,808)
Cashflow	(473,137)	(476,150)	(479,242)	(482,415)	(485,675)

Figure 4.5H The Water Sprayground (Pad)

	2008	2009	2010	2011	2012
Project Cost	$1,062,000				
Recreation Attendance	21,387				
Total Attendance	21,387				
Revenue	$0	$0	$0	$0	$0
Expense	50,475	51,737	53,030	54,356	55,715
Operating Cashflow	(50,475)	(51,737)	(53,030)	(54,356)	(55,715)
Recapture Rate	**0%**	**0%**	**0%**	**0%**	**0%**
Capital Replacement	5,400	5,400	5,400	5,400	5,400
Debt Service	(83,077)	(83,077)	(83,077)	(83,077)	(83,077)
Cashflow	(138,952)	(140,213)	(141,507)	(142,833)	(144,192)

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See note 7 below

4.36 The Aquatic Toolkit/Conclusions

The Aquatic Toolkit offers ***a systematic approach to addressing the needs of the Raleigh Aquatic Program*** *in both quantitative and qualitative terms. Toolkit elements are designed to be* ***multi-purposed, flexible, and capable of expansion*** *or modification to meet changing needs within the community. The variety of Toolkit elements permits a* ***fine-tuning of aquatic system proposals*** *to address the specific needs of the community in a timely and measured fashion.*

The design of each of the Toolkit elements are conscious of the ***new "paradigm of aquatic planning"*** *while also representing an exceedingly good economic value for addressing Raleigh's aquatic needs. Projections of financial performance suggest that if thoroughly implemented,* ***Toolkit elements will more than exceed the financial and service expectations of the present Raleigh Aquatics Program*** *system in the future.*

Aquatic Toolkit/Notes

1. It should be noted that the supposition that indoor pools are not well utilized in summer has been contradicted by the Raleigh Aquatics Program's experience at the Pullen Aquatic Center. Summertime use of Pullen is as intense as that of other Raleigh seasonal pools, roughly equaling Pullen's wintertime attendance numbers.

2. Source: Counsilman Hunsaker interview, 2007

3. Indirect costs include, but are not necessarily limited to: professional consulting fees, permitting and other regulatory fees, surveys, insurance and bonding costs, printing and other reimbursable expenses, and materials testing.

4. A more complete summary of project costs is included in the Appendix of this report.

5. USA Swimming recommends a minimum of 400 seats for USA Swim Invitational meets; a minimum of 600 seats for USA Swim LSC Championships or Sectional meets, and a minimum of 1,000 seats for USA Swim National caliber meets.

6. Attendance typically increases as amenities become more diverse and exciting. For example, Collinsville Area Recreation Department, Illinois added a FlowRider (surfing mechanism) in 2006, and attendance increased from 61,422 in 2005 to 66,998 in 2006. According to Mark Badash, Executive Director, "The FlowRider brought in a lot of surfers and spectators as competitions were formed. We even hosted the FlowRider Competitive Circuit [established for existing FlowRider locations worldwide]." When master planning a facility, phasing in new features every few years keeps community interest in the aquatic center high. Source: Counsilman Hunsaker interviews, 2006

7. When located as a "stand-alone" facility, a water sprayground is assumed to have free admission, hence it generates no revenues.

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Chapter 5.0
A Strategy of Service
Recommendations for the Raleigh Aquatic Program

Chapter Summary

In this concluding chapter, a Strategy of Service is proposed for the Raleigh Aquatics Program. This strategy builds on all of the information developed in each prior section of this report and translates these many factors into a concrete, fully realizable blueprint for the future development of the City's aquatic facilities and programming through 2025. Specifically, this Strategy of Service takes into account the following determinants and considerations, drawn from Chapters Two through Four of this report, which for reference, are briefly reiterated below:

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5.1 Determinants and Considerations That Form the Basis for the Strategy of Service

The Raleigh Aquatics Program: Facilities, Programming & Operations

An Assessment of Need Based on Four Determining Measures of Need
- Assessment of Present Demand for Aquatic Services
- Assessment of Future Demand for Aquatic Services Prompted by Anticipated Growth in Population
- Changes in Demand for Aquatic Services Based on National Trends of Aquatic Planning
- Assessment of Demand for Aquatic Services Based on Public Perception

Approaches for Addressing Aquatic Need
- The Experience of Other Communities
- The Contributions of Area Aquatic Providers
- The Aquatics Toolkit

5.2 Strategy of Service Development Methodology

The consulting team for this study worked closely with the Aquatics Program staff and members of the Parks and Recreation Department to fashion an implementation strategy for the future development of the Raleigh Aquatics system. During this process, five alternative "strategies of service" were proposed. These alternatives were evaluated on the basis of the effectiveness of response to the community's needs, as well as their likely capital costs, revenues, and expenditures. Out of this investigation, a single "strategy of service" was developed which best addressed the present and future needs of Raleigh's aquatic community. Illustrations of each of the alternative proposals are included in the Appendix of this report.

5.3 Recommended Strategy of Service: Need and Response

The recommended Aquatic Service Strategy for the City of Raleigh is most impacted by two critical factors, drawn from the previously identified assessments of need, specifically: unmet need within the present effective Raleigh Aquatics program service area and unmet need in those areas of the City not presently served by the program.. The Strategy of Strategy recommendations respond to these factors by proposing two concurrently implemented facility improvement approaches: ***renovation*** and ***new construction***. These two factors and their respective responses are summarized below:

5.31 Critical Factors and Service Strategy Response

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5.31 – 1 There is ***significant unmet need*** within the present, effective service area of Raleigh's Aquatics Program. As Raleigh continues to grow in the next 25 years, the magnitude of this unmet need will increase The Service Strategy proposes that this need will be addressed through a phased campaign of upgrades, renovations, and additions to Raleigh's existing aquatic facilities. Given the present advanced age of many of these facilities, the Service Strategy further anticipates that some of these pools will require complete replacement before 2030.

5.31 – 2 There is an even ***more significant unmet need*** for aquatic services in Raleigh's districts which have experienced - and will continue to experience - high rates of population growth, specifically: the Umstead/Northwest districts, the North district, the Northeast district, and the eastern portion of the Southeast district. The Service Strategy proposes that this need be addressed through a phased campaign of new construction located in these areas of the City.

Underlying this two-pronged response to need is an underlying but essential principle: that unmet need, regardless of location, must be addressed equitably across all segments of the community. It is therefore critically important that the Service Strategy's recommendation of ***concurrent implementation*** of both ***renovation*** and ***new construction*** projects be respected.

5.32 Secondary Factors and Service Strategy Response

The previously discussed assessments of need also identify a series of secondary factors important in addressing additional elements of aquatic need in the community. These factors and their corresponding Service Strategy response are listed below:

5.32 – 1 For the most part Raleigh's present aquatic facilities are outdated and do not adequately address the specific facility needs required by the various categories of aquatic users. The Service Strategy proposes that this need be addressed by incorporating ***user-specific aquatic features*** in <u>all</u> renovations and new construction.

5.32 - 2 The financial analysis of recommended aquatic "Toolkit" elements demonstrates that larger facilities generate higher recapture rates and are a more efficient use of operating expenditures than smaller facilities. Further, large, bundled aquatic facilities conserve capital funding due to their inherent ***economies of scale***, limiting site

development and infrastructure costs. The Service Strategy responds by ***favoring larger, multi-purpose facilities*** over smaller single use facilities.

5.32 - 3. As argued in the Toolkit section of this report, there are both pros and cons to the virtue of constructing new indoor aquatic facilities. When evaluated solely on the basis of economic performance, ***outdoor facilities are more economical than indoor facilities***, although when created at a sufficiently large scale, both can experience comparable recapture rates.

On the other hand, as noted in the Public Comments section of this report, ***the public strongly favors indoor, year-round facilities.*** The Service Strategy suggests a compromise, offering ***a balance of new indoor and outdoor facilities*** as the more favored use of capital resources.

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5.32 – 4 The Assessment of Need recognizes that the quality of aquatic amenities presently available in Raleigh's pools could offer even greater value for patrons. The assessment further argues that ***better and more user-specific amenities will command greater revenues*** and improve recapture rates, lessening the need for public subsidy. The Strategy of Service responds by recommending that all renovation and new construction ***include aquatic features that will command greater levels of compensation***.

Of equal importance, the Service Strategy supports Raleigh Aquatics mission of ***providing affordable access*** to aquatic facilities for all segments of its citizenry. Accordingly, the recommended fee-for-services structure has been tailored to strike a careful balance between securing reasonable compensation for enhanced amenities while preserving the Aquatics Program's tradition of affordability.

5.32 – 5 The review of the Aquatics Program's present status suggests a greater emphasis on contingency planning. Although the Parks and Recreation Department does have an exceptional record of maintaining twenty-five years of uninterrupted aquatic service, the advancing age of the present facilities suggests the need for greater scrutiny and preventative maintenance in the future. In response, the Service Strategy proposes the implementation of ***long-term contingency planning*** that would ensure the availability of adequate and timely funding of future facility upgrades. Such a provision would lessen the impact of down-time due to emergency maintenance, particularly for year-round facilities with high demand.

5.32 - 6. The assessment of need recognizes that the public's perception of aquatic facilities is favorably enhanced by the incorporation of relatively modest, patron-friendly amenities. The Service Strategy responds by proposing that all renovations and new construction include such ***amenities to enhance patron satisfaction***.

5.32 – 7 The assessment of need suggests that the present systems of management and personnel available to the Aquatics Program may be inadequate for the work it must perform, resulting in reduced staff productivity. The Services Strategy responds by

recommending further study of the costs and benefits ***improved management and administrative tools*** as well as the addition of administrative support staff.

5.33 Additional Recommendations

The Service Strategy concludes with a series of additional recommendations including those aimed at providing ***alternative sources of funding*** for these improvements, upgrades, additions, renovations, and new construction.

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5.4 The Strategy of Service Physical Plan

A Phased Approach to Concurrent Renovation and New Construction[1]

The following recommended projects are listed in order of cost: lowest to highest.

5.41 Phase One/Years 1-7

5.41 – 1 Phase One - Item 1. All existing aquatic facilities are to receive funding for patron amenities including lounge seating, permanent shade structures, additional youth play structures, and necessary storage areas. The total amount of recommended funding is to be divided among the facilities on the basis of their average annual attendance.

Opinion of Probable Cost: $175,000

5.41 – 2 Phase One - Item 2. Lake Johnson and Ridge Road Pools are to receive additional funding for water play features including water slides and water spray elements.

Opinion of Probable Cost $1,136,000

5.41 – 3 Phase One - Item 3. Chavis Pool is to be renovated with expanded bathhouse and support facilities. The existing pool is to be refurbished and equipped with an assortment of upgraded recreational and water play features.

Opinion of Probable Cost: $3,299,600

5.41 – 4 Phase One-Item 4. Construct a new, warm water Indoor Therapy Pool co-located with proposed Raleigh Senior Center, location to be determined.

Opinion of Probable Cost $4,511,100

5.41 – 5 Phase One-Item 5. Construct an Outdoor Large Family Aquatic Center in the Umstead/Northwest district.

Opinion of Probable Cost: $13,985,400

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5.41 Phase One/Years 1-7 (Continued)

5.41 – 6 Phase One – Item 6. Construct an Indoor Competition Venue in the Northeast district. Facility to be funded as joint public/private venture with sale of naming rights and other considerations contributing to the capital cost. See Alternative Funding Recommendations below.

Opinion of Probable Cost: $24,508,000

5.41 – 7 Total Phase One Cost: $47,555,000

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5.42 Phase Two - Years 8-15

The following recommended projects are listed in order of cost: lowest to highest.

5.42 – 1 Phase Two-Item 1. Provide Optimist and Millbrook Pools with water play features equivalent to those proposed for Lake Johnson and Ridge Road Pools cited in Phase One-Item 2 above.

Opinion of Probable Cost $1,458,800

5.42 – 2 Phase Two-Item 2. Construct a Water Sprayground in South District.

Opinion of Probable Cost: $1,486,800

5.42 – 3 Phase Two – Item 3 Construct new, Indoor Therapy Pool in either South, Northeast or Umstead/Northwest District, whichever is farthest from Therapy Pool constructed in Phase One. This facility may be bundled with other proposals in this phase.

Opinion of Probable Cost: $5,741,400

5.42 – 4 Phase Two-Item 4. Construct new Outdoor Medium Family Aquatic Center in North District.

Opinion of Probable Cost: $9,126,600

5.42 – 5 Phase Two-Item 5. Construct new Indoor/Outdoor Community Aquatic Center in Southeast District. Consider joint public/.private partnership. See Alternative Funding Recommendations below.

Opinion of Probable Cost: $22,047,200

5.42 – 6 Total Phase Two Cost: $39,860,800

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5.43 Phase Three-Years 16-22

The following recommended projects are listed in order of cost: lowest to highest.

5. 43 – 1 Phase Three-Item 1. Construct new Outdoor Neighborhood Family Aquatic Center in Northeast District

Opinion of Probable Cost: $4,715,550

5.43 – 2 Phase Three – Item 2. Construct new, warm water Indoor Therapy Pool in either South, Northeast or Umstead/Northwest District, whichever is farthest from Therapy Pools constructed in Phases One and Two.

Opinion of Probable Cost: $5,536,350

5.43 – 3 Phase Three – Item 3. Anticipate replacement or major reconstruction of either Optimist or Millbrook Pools with the equivalent of an Indoor/Outdoor Aquatic Training Center. Facility to be partially funded as joint public/private venture with sale of naming rights and other considerations contributing to the capital cost. See Alternative Finding Recommendation below.

Opinion of Probable Cost $27,676,350

5.43 – 4 Total Phase Three Cost: $37,930,000

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5.4 Phase Four-Years 23-25

The following recommended projects are listed in order of cost: lowest to highest.

5.44 – 1 Phase Four-Item 1. Replace older Chavis Pool with Neighborhood-sized recreation pool. Replace bathhouse.

Opinion of Probable Cost: $7,160,650

5.44 – 2 Phase Four-Item 2 Anticipate major renovation of Pullen Aquatic Center.

Opinion of Probable Cost $16,810,820

5.44 – 3 Phase Four – Item 3. Anticipate construction of new Indoor/Outdoor Community Aquatic Center in location to be determined, based on reassessment of need at end of Phase Two.

Opinion of Probable Cost: $32,283,400

5.44 – 4 Total Phase Four Cost: $56,254,000

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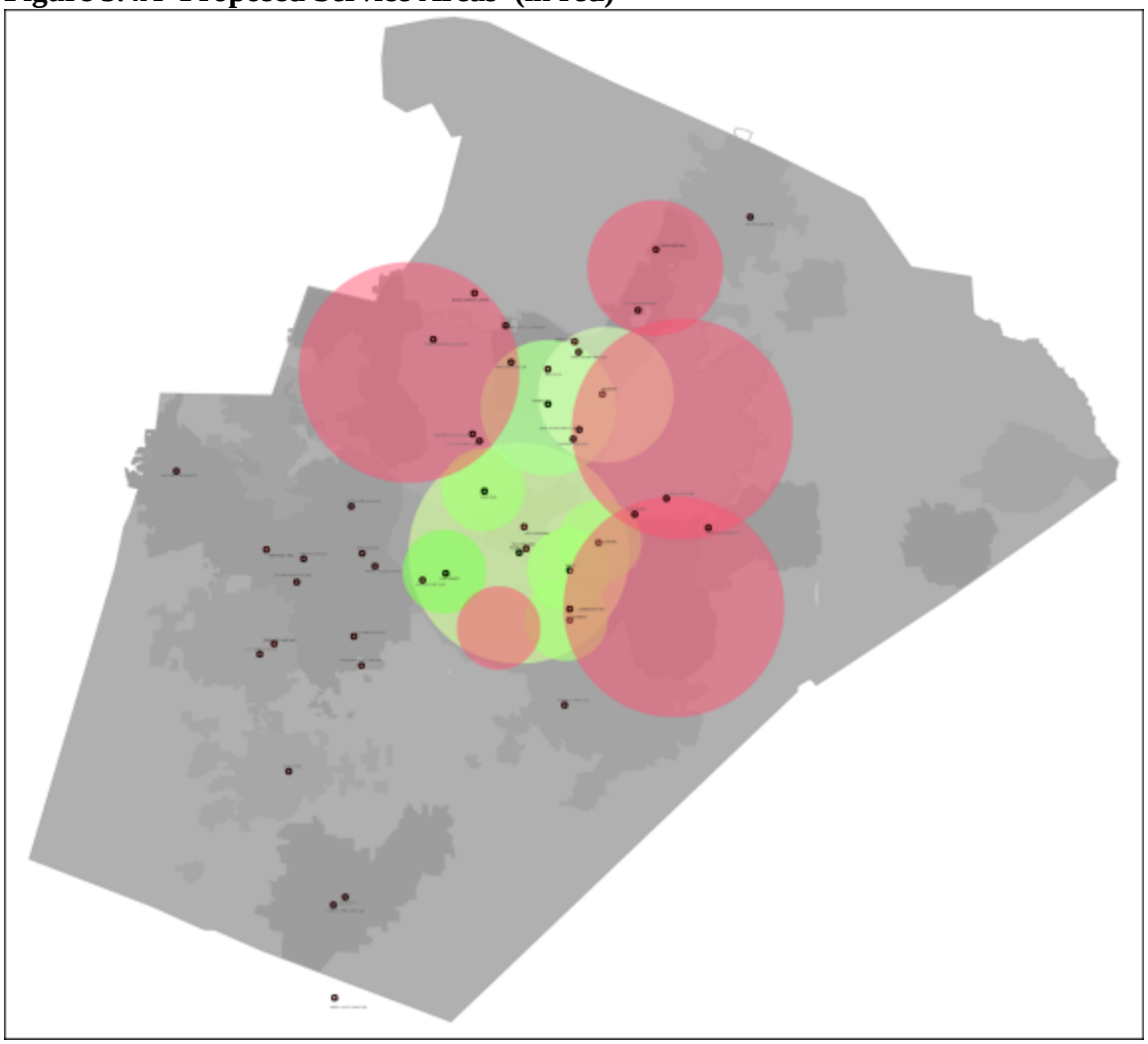
5.45 Maps of Proposed Service Strategy: Physical Plan By Phase

Figure 5.4A Proposed Service Areas (in red)



ASSUMED EFFECTIVE SERVICE AREA
EXISTING COR FACILITIES

NEW FACILITY SEARCH AREAS

0 MI 5 MI 10 MI

Figure 5.4B Phase One Strategy of Service

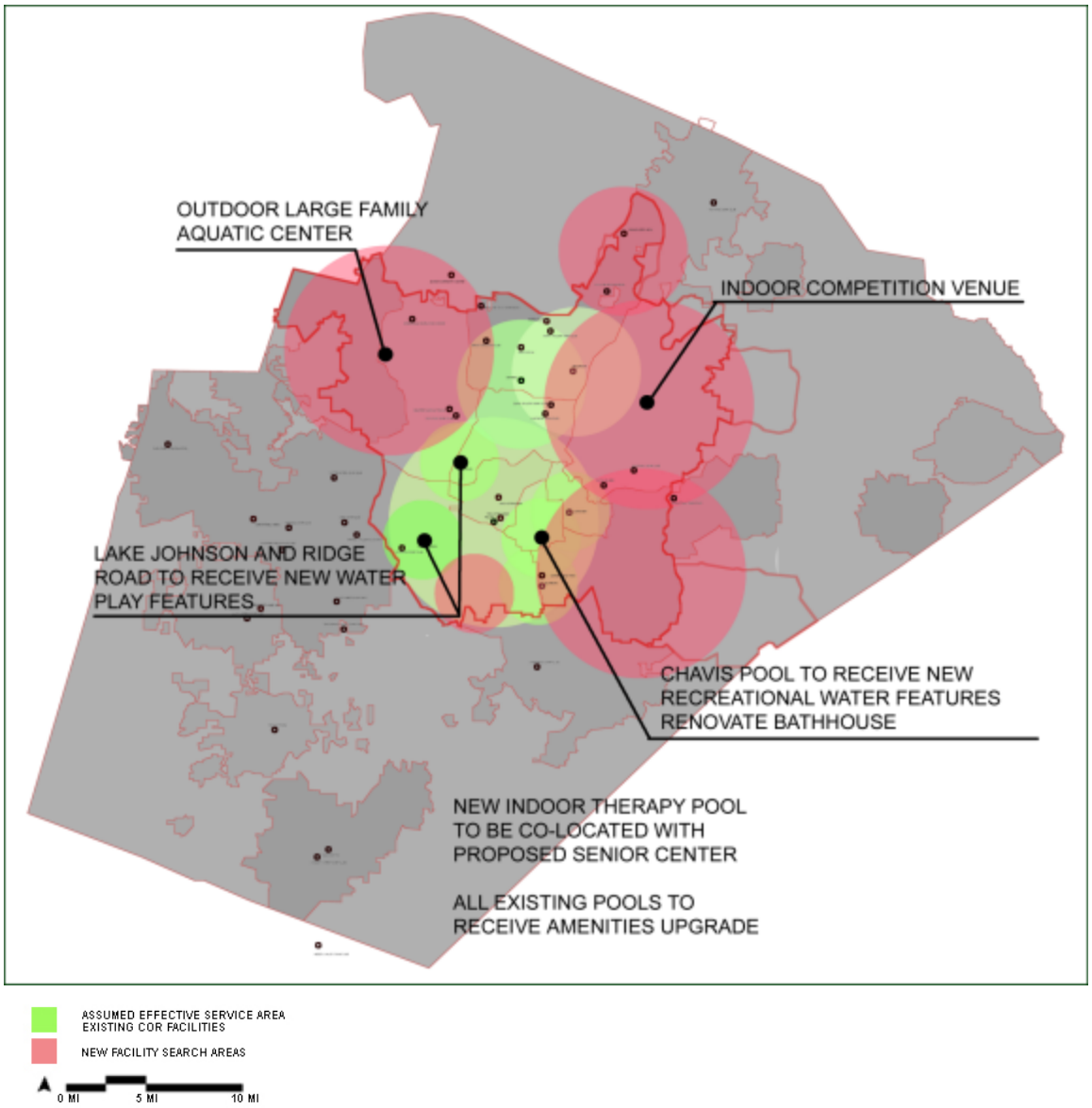
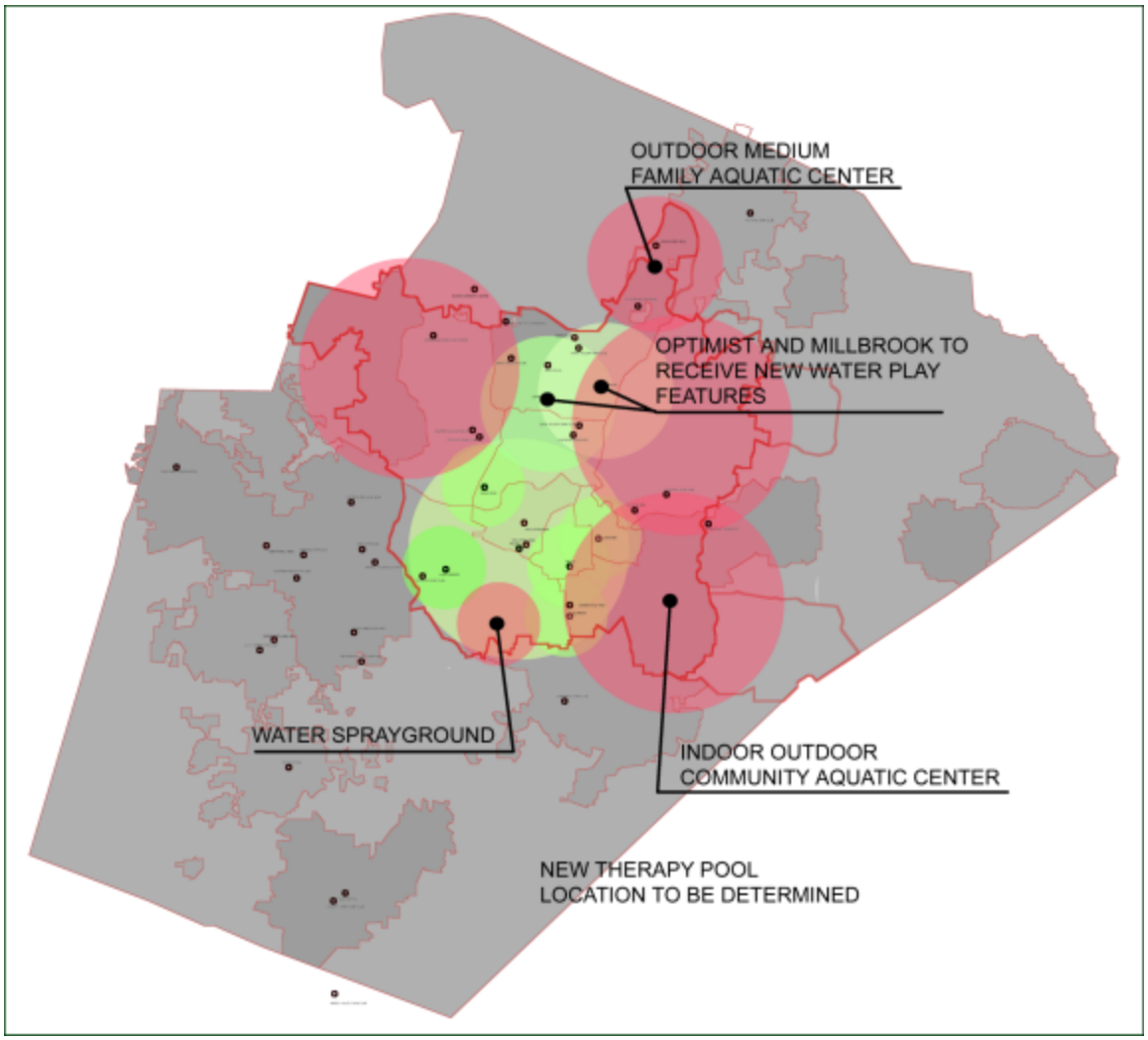


Figure 5.4C Phase Two Strategy of Service



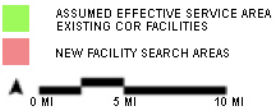
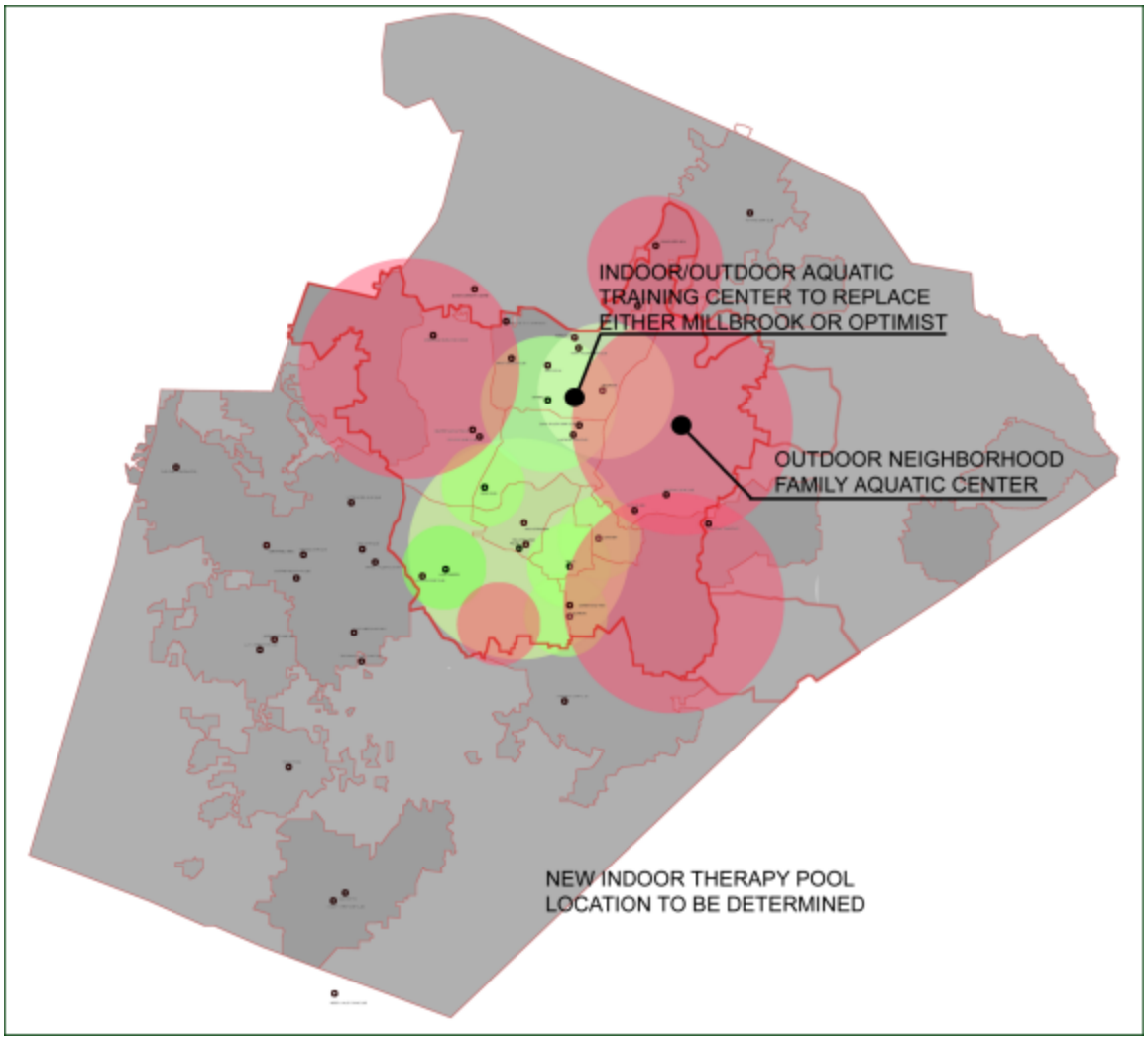


Figure 5.4D Phase Three Strategy of Service



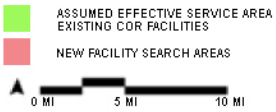
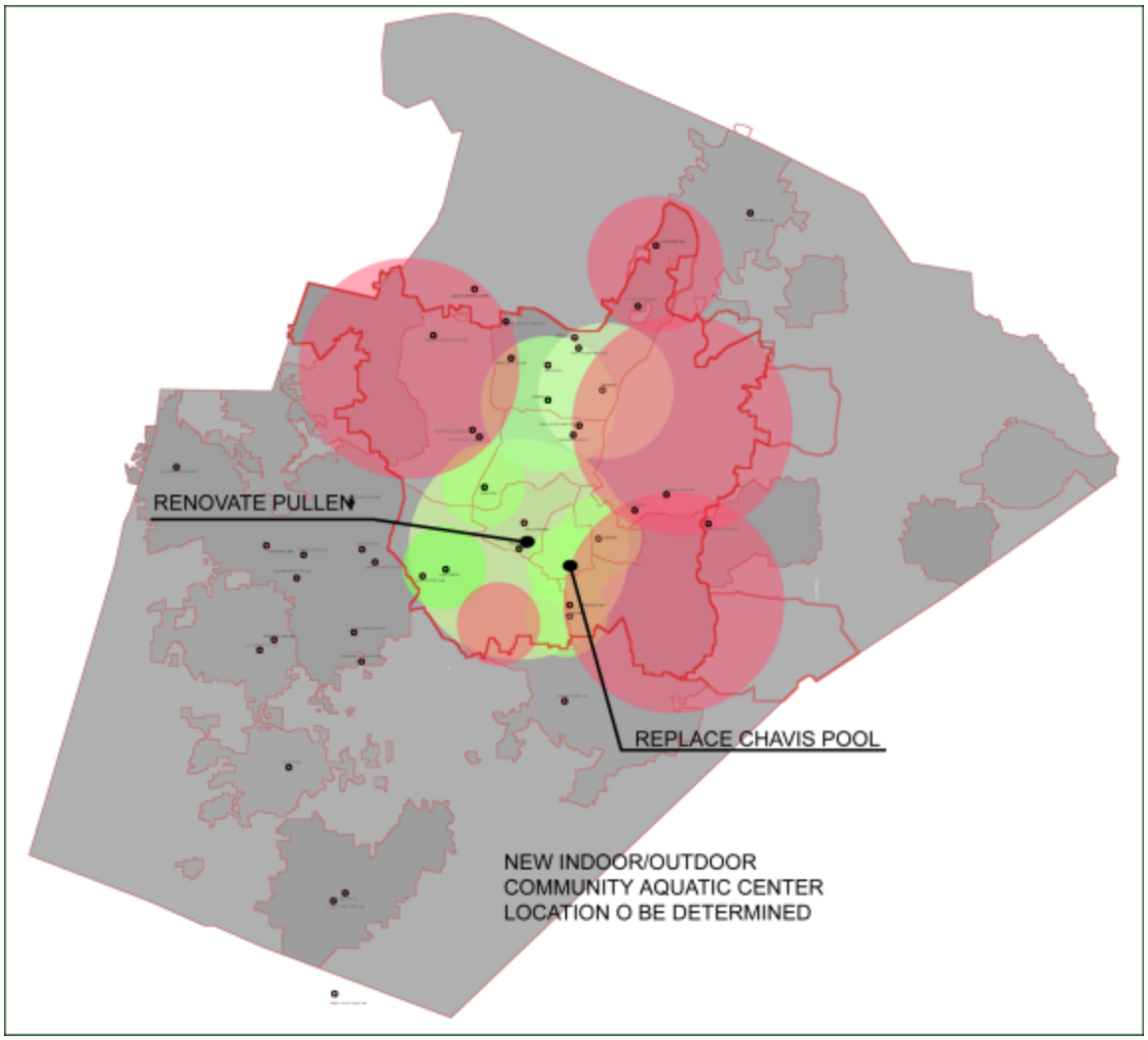
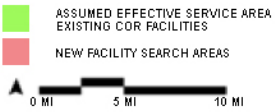


Figure 5.4E Phase Four Strategy of Service





5.45 Site Selection Criteria

In terms of facility location, the scope of this study is limited to only the identification of broad search areas which will address future district-level service needs. The selection of primary or alternative sites for any of the facility proposals recommended above is to be contained in a scope of work defined during the pre-design phase of each individual project. Nevertheless, during the needs assessment phase of this study, criteria for site selection was developed. The following annotated list suggests factors that should be taken into consideration during the process of site selection for all future Raleigh Aquatic facilities. The list is ordered by relative priority, highest to lowest.

Sites which fall within the recommended Aquatic Service Strategy Search Areas. All other factors being equal, prospective sites closest to the geographic center of the Aquatics Service Strategy Search Areas identified in figure are to be favored.

Location on available Parks and Recreation properties that are also identified in prior Council-adopted park master planning studies and are included in Raleigh's current Comprehensive Plan. Examples of the latter condition include master plans for Carolina Pines, Laurel Hills, Lake Lynn, and Marsh Creek.

Location on available Parks and Recreation property.

Location on available City of Raleigh property.

Location on Wake County property.

Sufficient size for initial construction and future expansion as recommended by this study. See aquatics Toolkit. Site which have suitable topographical and geotechnical features, good drainage, and elevations above floodways and/or floodplains.

Unconstrainded by protected watersheds or stream buffers.

No adverse environmental hazards requiring mediation.

Convenient to existing or proposed public transit routes.

Accessible by pedestrians and bicyclists.

Connected to existing or proposed greenways.

Good vehicular access and visibility; that will not impose excessive vehicular traffic on adjoining residential neighborhoods.

Additional factors as determined by the Parks and Recreation Department.

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5.5 Strategy of Service/Physical Plan
An Opinion of Financial Performance

The following charts summarize an opinion of financial performance for the proposed Strategy of Service Physical Plan, Phases One through Four. These values have been generated by the same process of evaluation described in the Aquatics Toolkit section of this report (See 4.45). It should be noted that the analysis for each phase is mutually exclusive of all other phases.

All values have been adjusted based on an anticipated rate of inflation calculated at the midpoint of each phase. Operating costs for existing Raleigh Aquatics Program facilities are not included in this analysis.

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Figure 5.5A Phase One Opinion of Financial Performance

2011 Year 4	Johnson	Ridge Rd.	Chavis	Therapy	LFAC	Comp	Total
Project Cost	$573,100	$573,100	$3,229,600	$4,511,100	$13,985,400	$24,508,000	47,380,300
Attendance	16,040	16,040	20,717	35,217	131,371	234,599	453,984
Revenue	$37,141	$37,141	$110,835	$122,415	$535,442	$1,031,517	$1,874,491
Expense	37,081	37,081	161,655	267,317	616,331	1,820,069	2,939,533
Operating Cashflow	60	60	(50,820)	(144,902)	(80,888)	(788,551)	(1,065,042)
Recapture Rate	**100%**	**100%**	**69%**	**46%**	**87%**	**57%**	**64%**
Capital Replacement	2,700	2,700	14,700	20,600	63,600	111,400	215,700
Cashflow	60	60	(50,820)	(144,902)	(80,888)	(788,551)	(1,065,042)

Total Phase One Cost: $47,550,000 (Includes $175,000 for Phase One-Item #1)
Recapture Rate: 64% recapture rate range.
Subsidy: Approximately $1,000,000

Figure 5.5B Phase Two Opinion of Financial Performance

Year 10	Optimist	Millbrook	Spray Ground	Therapy	MFAC	Community	Total
Project Cost	$729,400	$729,400	$1,486,800	$5,741,400	$9,126,600	$22,047,200	39,860,800
Attendance	16,040	16,040	21,387	35,217	68,990	210,855	368,528
Revenue	$42,205	$42,205	$0	$139,108	$307,749	$1,147,534	$1,678,802
Expense	42,137	42,137	63,094	303,769	377,271	1,447,756	2,276,164
Operating Cashflow	68	68	(63,094)	(164,661)	(69,521)	(300,222)	(597,362)
Recapture Rate	**100%**	**100%**	**0%**	**46%**	**82%**	**79%**	**74%**
Capital Replacement	2,700	2,700	5,400	20,600	32,600	78,800	142,800
Cashflow	68	68	(63,094)	(164,661)	(69,521)	(300,222)	(597,362)

Total Phase Two Cost: $39,860,800
Recapture Rate: 74%
Subsidy: Approximately $600,000

Figure 5.5C Phase Three Opinion of Financial Performance

Year 19	Training	Therapy	Neighborhood	Total
Project Cost	$27,676,350	$5,536,350	$4,715,550	$37,928,250
Attendance	265,599	35,217	29,452	330,268
Revenue	$1,617,482	$163,591	$91,095	$1,872,169
Expense	2,010,637	357,233	258,493	2,626,363
Operating Cashflow	(393,155)	(193,641)	(167,398)	(754,194)
Recapture Rate	**80%**	**46%**	**35%**	**71%**
Capital Replacement	102,600	20,600	17,500	140,700
Cashflow	(393,155)	(193,641)	(167,398)	(754,194)

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Total Phase Three Cost: $37,930,000
Recapture rate : 71%
Subsidy: Approximately $754,000

Figure 5.5D Phase Four Opinion of Financial Performance

Year 24	Pullen	Neighborhood	Community	Total
Project Cost	$16,810,820	$7,160,650	$32,283,400	$56,254,870
Attendance	N/C	29,452	210,855	240,307
Revenue	N/C	$99,151	$1,468,843	$1,567,995
Expense	N/C	281,353	1,853,127	2,134,480
Operating Cashflow	N/C	(182,201)	(384,284)	(566,485)
Recapture Rate	**N/C**	**35%**	**79%**	**73%**
Capital Replacement	N/C	17,500	78,800	96,300
Cashflow	N/C	(182,201)	(384,284)	(566,485)

Total Phase IV Cost: $56,254,000
Recapture Rate: 73%
Subsidy: Approximately $566,500.

5.6 Strategy of Service Operations Recommendations

It has been suggested that an investment in better management tools and the hiring of additional administrative staff would greatly enhance the performance of the present Aquatics Program staff, permitting them more time to focus on the direct programming and operations of the aquatics system. The following recommendations address this need

5.61 Managerial Tools

The Aquatics Facilities and Program Director, working in consultation with Parks and Recreation Department staff, should prepare a plan identifying essential managerial tools necessary to enhance the efficiency of Aquatics Program operations. Items to be considered in this plan include, but are not necessarily limited to the following:

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5.61 – 1 A computerized payroll system which permits real-time accounting of employee time, wages and payroll deductions, and facilitates employee direct deposit of compensation.

5.61 – 2 An automated cash register system for all existing and new facilities.

5.61 – 3 Computerized personnel scheduling or management software.

5.61 – 4 Employee punch clocks for all existing and new facilities.

5.61 – 5 Off site computerized monitoring and control of aquatic systems performance.

This plan should itemize all costs associated with its implementation and include a recommended phasing schedule.

5.62 Additional Administrative Staff

The Aquatics Facilities and Program Director, working in consultation with the Parks and Recreation Department staff, should prepare a cost-benefit justification for the hiring of additional administrative staff. The plan should include all costs associated with the additional staffing recommendation, as well as an expectation of the efficiencies that would result from the change.

The plan should also address the relative advantages of promoting selected members of the part-time staff to permanent status to improve continuity of service. Finally, the plan should consider the provision of housekeeping services similar to those provided for the City of Raleigh Community Centers for all year-round and seasonal aquatic facilities, if such provision can be shown to make more efficient use of the present, full-time Aquatics Program staff.

5.7 Strategy of Service: Additional Recommendations

The following additional recommendations address a number of issues critical to the successful implementation and further development of the Strategy of Service previously described.

5.71 Due Diligence Investigation

As noted in an earlier section of this study, a comprehensive analysis of the physical plant of Raleigh's existing aquatic facilities was not included in the scope of work identified as being part of this investigation. A due diligence investigation should be funded at the earliest opportunity and included as an update to the recommendations and cost analysis of this study. This investigation should include, but not necessarily be limited to the following assessments:

5.71 – 1 Evaluation of all existing filtration, conditioning, and other critical mechanical and water circulation systems.

5.71 – 2 Evaluation of all existing aquatic elements including pool shells, decks, support buildings, and security and safety measures.

5.71 – 3 Evaluation of all existing facilities' conformance with regulatory statues, including the North Carolina Accessibility Code and the Americans With Disabilities Act.

This investigation should include a prioritization of physical plant improvements, their relative costs, and a recommended plan for regular maintenance or renovation.

5.72 Contingency Planning

As noted in and earlier section of this report, many of Raleigh's existing aquatic facilities are approaching the later stages of their effective service life. Although the Physical Plan of the Strategy of Service does recommend specific renovations to address this concern, there should also be a periodic and systematic review of the viability of existing facilities and a contingency plan developed. This plan, based in part on the Due Diligence Investigation recommended above, should identify critical facility maintenance requirements and propose additional renovation funding requests as a supplement to those offered by this study. The Contingency Plan should be reviewed and updated on an annual basis. Further, an outside consultant should conduct a comprehensive review of all existing facilities on a five-year basis

5.73 Wake County Public School System Participation

Given the use of Raleigh Aquatic facilities by the Wake County Public Pool System, efforts should be made to encourage their participation in the planning and support of this Strategy of Service. Specifically, the following steps are recommended:

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5.73 – 1 The leadership of the City of Raleigh and the Wake County Public School System should jointly identify the school system's need for aquatic services in the future.

5.73 – 2 WCPSS should be encouraged to participate in the provision of these services, either through equitably adjusted fees for facility use, through joint-venture financial partnerships with the City of Raleigh, or by providing their own aquatic facilities for all new WCPSS academic projects.

5.74 Wake County Participation

Given that the present Raleigh Aquatics Program and its facilities have traditionally been utilized by residents of all of Wake County, the leadership of Raleigh and Wake County should develop strategies for joint participation in the future development of the system.

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5.75 Alternative Funding Sources

The leadership of Raleigh should pursue alternative sources of funding for the capital costs anticipated by this study. The following is a summary of funding opportunities that should be considered:

5.75 – 1 Introduction

Across the country, with the current continued rising expense of developing any new facilities - sports or otherwise - there is an increased need to identify and maximize the potential of additional funding sources beyond traditional municipal government funding.

Additional funding may come from a variety of sources including other government jurisdictions such as the county, the , and the local school system, or private sources including corporations, individuals, foundations, and trusts.

The significant costs of new facilities for recreation, sports, and entertainment has led in many instances to significant public-private partnerships to adequately develop and finance those facilities. Such cost sharing often has great appeal to taxpayers who see their dollars going further, and to private organizations who want to see added amenities important to the development and prestige of the community

The City of Raleigh is no different from other cities across the U.S. with respect to the challenges that arise when seeking to add to their sports and recreation infrastructure. Some of the recommendations for additional funding sources cited below are ones that can be applicable to almost any city. However, there are also some sources specific only to Raleigh and Wake County (e.g. interlocal funds) that have been included and which could reasonably be applied to help Raleigh meet its long-term aquatics facilities plan.

5.75 – 2 Naming Rights

One funding source that has risen to prominence across the sports and entertainment world during the last decade has been corporate naming rights. Naming rights in this

sense constitute a large sponsorship in which a company gets its name on a building in exchange for certain sponsorship benefits.

The use of naming rights started with professional sports faculties – e.g. Bank of America Stadium and FedEx Field – and professional sports venues continue to boast the most-expensive and extensive (in terms of years) naming rights deals of all.

Many other levels of sports facilities, including college stadiums, high school venues, and even local sports and recreation facilities have followed the trend and have successfully landed title sponsors. Even performing arts venues (Four Seasons Center, Cobb Energy Performing Arts Centre, etc.) and entertainment venues (Verizon Amphitheater) have created corporate entitlements.

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Here in Raleigh, the RBC Center (sponsored by RBC Centura Bank at $4 million per year for 20 years) and the Progress Energy Center ($375,000/year for 20 years) and in Cary the SAS Soccer Park ($150,000 per year for 3 years) all have naming rights sponsorships.

Advantages of Naming Rights

One of the attractions for using naming rights is what they can do to help offset annual operating costs, particularly with respect to aquatic facilities that are often challenged to recapture a major portion of their operating expense.

Naming rights typically consist of a level annual fee for an extended term of years. The Town of Cary reports that the $150,000 annual payment by SAS covers the yearly operating deficit that the SAS Soccer Park would have. This allows the town to report no deficit from its operations of the park which plays very well with town leaders, the press, and citizens alike.

Placement

Naming rights are all about marketing, branding, and visibility for a corporation. Companies want their names associated with venues that bring out excitement and positive feelings in people, and they want exposure.

In order to be able to take advantage of naming rights for its new aquatic facilities, Raleigh is going to have to consider changing the way it currently locates and develops its pools. At present, the City's aquatic facilities are hidden away in parks, deep in neighborhoods, or behind schools. Driving by, even on adjacent roadways, a new person in town would not even realize he or she was passing by a City pool facility. To be able to attract potential naming rights sponsors, new venues will need to be given prominent, very visible locations adjacent to high-traffic roadways.

The Challenge

The biggest challenge with respect to corporate naming rights for aquatic facilities is delivering value for the investment. Professional sports venue naming rights are driven in large part by the extensive television exposure that a title sponsor gets. Even performing arts centers, which do not receive TV exposure as a general rule, at least have

VIP tickets, box suites, and VIP hospitality to offer. An aquatics facility on the other hand has very little, if anything, to offer in terms of either TV exposure or VIP hospitality and entertainment.

That primarily leaves venue attendance, drive-by impressions, and facility marketing and public relations to provide value for the naming rights sponsor. While not as powerful as the primary drivers above, these are not insignificant.

The Amount

It would not be unreasonable, therefore, to think in terms of a new large-capacity and very-well-located aquatics center being able to garner an annual naming rights sponsorship fees in the range of $100,000 to several hundred thousand dollars per year, for a period of 3 to 10 years.

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5.75 – 3 Major Sponsorship

Taking the naming rights concept down one notch, major sponsorships could offer an alternate or additional source of funds to naming rights. Just like naming rights, sponsorships require a quid-pro-quo of some value in exchange for the sponsor investment. To be the Official Soft Drink at the new "Raleigh Aquatics Park" might require a commitment of both pouring rights and marketing rights by the City to the sponsoring company.

There are at least four different levels on which the City could structure major sponsorships to secure additional revenues:

A. Venue Specific – Sponsorships limited to a single facility (e.g. Pullen Park Aquatic Center).

B. Park Specific – Sponsorships applicable to all facilities in a park including the aquatics center (e.g. Pullen Park).

C. Program Specific – Sponsorships covering all the aquatic facilities throughout the City.

D. System wide – Sponsorships involving all facilities within the Raleigh Parks and Recreation system

The opportunity to grow the size of the sponsorships increases as we move from A to D above. However, enlarging the sponsorship coverage also adds complexity to the deal and may also complicate the ability to dedicate all, or at least some, of the sponsorship dollars specifically to aquatics facilities.

5.75 – 4 Interlocal Funds

Depending on the design and capabilities of some of the new facilities recommended in the long-range aquatics plan, the largest potential source of additional funds may be Wake County hotel/motel and prepared food taxes, commonly known as Interlocal funds (since expenditures of those funds require an "interlocal agreement" between the City of Raleigh and Wake County). These taxes currently amount to over $22 million in revenues per year.

In the last major allocation cycle of these funds, $10 million was committed to a major aquatics facility for the Town of Cary. When the Town of Cary went a different direction on the proposed aquatics facility, the Wake County Commissioners allowed these funds to remain dedicated to a qualifying project in Cary other than aquatics.

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This has two major implications:

> The City of Raleigh and Wake County Commissioners have demonstrated a willingness to dedicate major dollars to the right aquatics project.
>
> Those major dollars in Cary are not going to be spent on aquatics, so there is still an opportunity for an aquatics project to be the first of its type to receive interlocal funds and actually have the funds used for that purpose.

Interlocal funds are specifically designated for destination tourism projects in Wake County. To meet this standard the project must demonstrate that it will draw visitors from outside the county on a regular basis.

Large aquatic facilities as described in the plan that have the capacity to host numerous and/or major aquatics events could readily qualify for interlocal funds. The City of Raleigh is also well-positioned to secure such funds.

With the exception of the $10 million designated for Cary, every one of the millions of dollars in major appropriations that have been made of interlocal funds since the statute was enacted have been spent in the City of Raleigh. The Raleigh City Council controls 50% of the interlocal funds vote, while the Wake Commissioners control the other 50%.

Thus if the City of Raleigh plans for a significant destination aquatics facility and sets its focus as a city on securing interlocal funds as part of the financing of such a facility, the odds are significantly in the City's favor to secure such funds.

5.75 – 5 Philanthropic Gifts

An additional approach, which could readily be used in conjunction with any of the above-described sources of funds, would be a traditional philanthropic fundraising campaign.

Contributions to the City of Raleigh are tax deductible, or a campaign-specific 501(c)(3) charitable non-profit organization could be set up for facility fundraising purposes.

Similar to a capital campaign at a church, school, YMCA, or museum, donors could contribute to specific "naming opportunities."

For example, for a $20,000 donation, the contributor will name, or at least fund, the aquatics director's office. The contributions might range form grassroots levels (e.g. $50 for brick pavers in the entry plaza) to high dollar amounts (such as $1 million for the main pool itself).

Depending on the newness, size, quality, and uses of a particular facility, at the high end (e.g. for a destination venue) there is no reason to think that such a campaign could not bring in several million dollars in additional revenues for Raleigh aquatic facilities.

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5.76 Recommended Use of Anticipated Bond

In the fall of 2007, the City of Raleigh is placing before the public a Parks and Recreation Bond referendum. The proposal includes $8 million for the funding of improvements to the Raleigh Aquatics program. It is recommended that these funds be directed to the first phase of the proposed Strategy of Service

Specifically, the bond monies should be used to fund the following Phase One project:

5.41 – 6 Phase One – Item 6. Construct an Indoor Competition Venue in the Northeast district.

Opinion of Probable Cost:	$24,508,000
Total Opinion of Probable Cost	$29,194,100
Proposed Referendum Funding	$8,000,000
Balance	$21,194,100

It is recommended that the balance of funding required for these projects be generated by a combination of joint-venture, public-private partnerships as described in the pervious section, by the use of Interlocal funds, also described above and by additional City of Raleigh appropriations in the 2008-2009 fiscal year.

5.77 Future Updates to This Study

It is recommended that this study be revised and amended within five to seven years of its acceptance and implementation.

5.8 Summary and Conclusion

If the Service of Strategy plan as outlined above is implemented, by the year 2030 Raleigh will average ***1 pool facility for every 35,690 residents****, an improvement over its present rate of one pool for every 42,440 residents. It will provide* ***2.8 pools per 100,000*** *residents, an improvement over its present rate of 2.3. This value will move Raleigh slightly above the national average as defined in Chapter 3.0, assuming all other cited municipalities grow their own systems in a comparable fashion.*

The 2030 Raleigh Aquatics Program will be ***far more responsive*** *to the needs of individual aquatic user groups because both the system's existing pools and its new facilities will be designed with far greater specialization.* ***The needs of recreational, competitive, fitness, therapeutic, and instructional aquatic users will be far better addressed*** *than is possible with the City's current aquatic facilities.*

The Opinion of Probable Financial Performance suggests that ***the recapture rate for the Raleigh Aquatics program should improve,*** *though this improvement will not be dramatic. The Strategy of Service recommends that the underlying service philosophy of the Raleigh Aquatics Program – to* ***deliver quality aquatic experiences and education at an affordable patron cost*** *- be preserved. Accordingly, the Opinion of Probable Financial Performance projects a continued need for annual City of Raleigh appropriations.*

The overall average ***age of the system's facilities will decrease*** *as new pools and renovated existing facilities are brought on board, potentially* ***lowering annual maintenance expenditures.***

Recommendations to ***broaden the capital funding bas****e for the Aquatics Program, including the use of joint public-private partnerships and the increased participation of the Wake County Public School System, should assist in the procurement of some proportion of the capital funding necessary for improvements to the system.*

A Strategy of Service/Notes

1. **All cost estimates have been adjusted for anticipated rates of inflation, calculated at the mid-point of each phase**. Nevertheless, because projections of future inflation are less reliable over time, Phase 1 and 2 should be considered the most accurate, representing priorities based on current and projected demand for the period described. Estimates of cost and demand beyond 10-12 years are assumed to be less reliable. Accordingly Phases 3 and 4 will be re-addressed and amended as necessary during an update of this study, anticipated to be performed no later than the midpoint of Phase 2.