LAKE AVONDALE PARK MASTER PLAN

City of Avondale Estates & Lake Avondale Advisory Board

May 2008

Lake Avondale Park Master Plan

City of Avondale Estates, Georgia

Prepared For:
City of Avondale Estates
& Lake Avondale Advisory Board
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May, 2008

The Lake Avondale Park Master Plan was prepared with the participation and guidance of the City of Avondale Estates and the Lake Avondale Advisory Board.

City of Avondale Estates Board of Mayor and Commissioners

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Commissioner:	*Frank Jones*
Commissioner:	*Andy LaRocca*
Commissioner:	*Lyda Steadman*
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Lake Avondale Advisory Board
Sandra Neuse
Steve Sanchez
Ted Waters
Camilla Warren
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Special thanks to the City of Avondale Estates Residents who participated in each Public Meeting. We thank you for your time and efforts.

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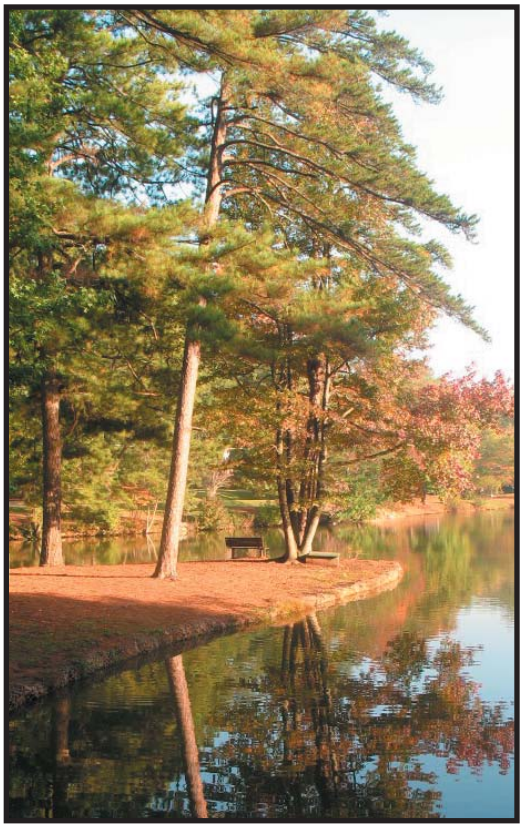
SECTION 1.0 PROJECT GOALS AND OBJECTIVES



Located between Berkeley Road and Lakeshore Drive is an 8 acre lake park, featuring Lake Avondale, a man-made lake created in the 1920's by damming Cobbs Creek at Wilshire Drive. The lake is bordered by picturesque landscaped banks and a small wooded reserve to the north. A gazebo and bridge are located on the northern portion of the lake and a Scout building is located in the wooded reserve. Residents enjoy fishing, walking, picnicking and gathering at the lake as well as special events such as the July 4th fireworks and Christmas Tree lighting.

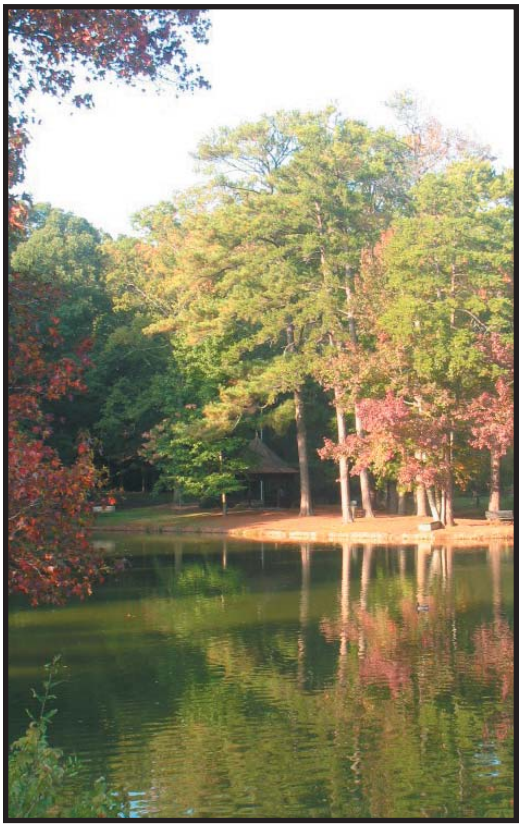
In recent years, the lake park has become environmentally stressed. Several areas along the banks of the lake are experiencing severe erosion as the wooded reserve has seen an increase in invasive plant growth. The community is interested in addressing these issues in the context of a more comprehensive master plan for the lake and its environments. The master plan is intended to consider solutions to existing problems, desired park elements and a low maintenance, environmentally sensitive landscape.

SECTION 2.0 PROJECT UNDERSTANDING

The Avondale Lake Park site is comprised of 2 separate areas encompassing approximately 8 acres on the lake side of the site and an additional 4.7 acre bird sanctuary area south of Wiltshire Drive. The property is located between Berkeley Road and Lakeshore Drive and is surrounded by single family homes.

The northern 8 acres of the park site is extremely popular with neighbors who enjoy walking the perimeter and fishing along the banks of the 4.9 acre stream fed lake. With its popularity this park site is in the process of being "loved to death". The unpaved walking trails have developed severe erosion problems and the banks of the lake are eroding away creating water quality issues. The lakeside vegetation suffers under the constant compaction and exposure of the root zone.

The tree covered area known as "The Woods" includes a variety of large shade tress and pines as well as thickets of exotic invasives such as privet and kudzu. Area residents have make a conscience effort to remove these invasives, selectively clearing them each year and treating the stumps with herbicides.



The 4.7 acres south of the lake known as the "Bird Sanctuary" exhibits lovely large shade trees and a thick undergrowth of invasive privet and kudzu. A stone stairway leads from street level down into the space that raises similar environmental issues in regard to erosion. Deep rutting has developed along the stream bank from the lake outfall at the dam south to the points where the stream exits the site. The "Bird Sanctuary" area thrives with wildlife and there is a strong desire in the community to maintain a high level of habitat.

SECTION 3.0 PROJECT APPROACH

Using a standard Master Planning project approach toward the Lake Avondale Park project, the project passed through a series of design stages before a Final Master Plan was approved. The following represent the milestones completed along the way.

- Notice to proceed issued to jB+a, inc.
- Preparation of base information
- Project Kick-off Meeting
- Consultant Park Site Visit / Analysis
- Review Meeting with LAAB
- Public Meeting #1 - Inventory / Analysis Plans Presentation
- Public Meeting #2 - Conceptual Plans Presentation
- Preliminary Master Plan and Cost Estimate Presentation to LAAB
- Final Master Plan Development w/ phasing prioritization

The following provides a brief description and timeline of sequence of Meetings.

Preparation of Base Information

jB+a, inc. prepared AutoCAD base information utilizing survey information prepared by TerraMark and aerial photography obtained from Google Earth.

Project Kick-off Meeting

A Kick-off meeting was held with representative from the City of Avondale Estates, the Lake Avondale Advisory Board (LAAB) members and the design team on December 20, 2006 . During this meeting the following were accomplished: introduction of team members, review scope of services, discuss issues and concerns, discuss goals and objectives, review the site documents, and establish a project schedule.

Park Site Visit

Consultants conducted their initial walk of the project site on December 29, 2006. Representatives from the design team met on site for the purpose of developing an understanding of the characteristics of the site and field-verifying the base sheet data. During this site review the potential locations of various program elements were delineated.

Review Meeting

Following the site investigation, a meeting was held on January 23, 2007 with the LAAB for the purpose of reviewing the proposed locations of the park program element recommendations and review of the documents to be presented at Public Meeting #1.

Public Input Meeting #1

The first Public Meeting was held at the City of Avondale Estates City Hall on March 3, 2007 with a presentation of the park boundary survey, aerial photography, and park site inventory and analysis diagrams. Diagrams included slope and hydrology analysis, Slope Analysis, Vegetation Analysis, and Opportunities and Constraints Analysis. The intent of the meeting was to gather input from the public on

the desired program elements for the site and to address any issues or concerns they may have.

Public Input Meeting #2

Based on the direction received from the client and the public, the design team prepared a series of three conceptual plans for the park. The plans were presented at the second Public Input Meeting on April 21, 2007 to gather feedback from the public.

Preliminary Master Plan

A Presentation of the Preliminary Master Plan graphic and cost estimate was given to representatives from the City of Avondale Estates and the Lake Avondale Advisory Board on July 25, 2007, by the Consultant. A number of comments from the Board and City were given and the Consultant was asked to incorporate the comments into the Final Master Plan. The Board voted to prioritize park elements for development when funding becomes available, by means of discussion and majority vote.

Final Master Plan

In May of 2008, the Consultant delivered the Final Master Plan graphic and cost estimate to Lake Avondale Advisory Board. By majority acclamation the Board accepted the Master Plan as shown in the graphic (RE: Graphic page 21). The Board voted to submit the graphic plan and their development priorities to the Board of Commissioners for their acceptance.

SECTION 4.0 SITE INVENTORY AND ANALYSIS

Prior to concept development a series of analyses were conducted. These analysis drawings were presented to the public at the Public Input Meeting 1.The following is a summary of each of these analyses; a graphic diagram accompanies each summarization.

Slope Analysis (RE: Graphic Page 9)

- Site reflects fairly level site.
- Majority of slopes on the site range lie in the 5% to 10% slope range.
- Some serious rutting of slopes where stream has eroded away banks.

- Site possesses predominantly positive drainage towards a small stream and drainage swales on site.
- Lake serves as retention basin for site.

Vegetative Analysis (RE: Graphic Page 10)

- Predominantly hardwoods in the "woods" area and "bird sanctuary" areas consisting of oaks, tulip poplar, sycamore with some evergreen trees including southern magnolia and pine.
- Many invasives found throughout the site but specifically in lower lying areas, including: privet, wild rose, smilax poison ivy.
- Many large specimen quality trees (30"+ DBH) located on site would be an asset to the site if they were retained.

Site Analysis (RE: Graphic Page 11)

Constraints

- 75' setback along all waterways, including Lake. (25' undisturbed buffer from top of each bank with and additional 50' setback)
- Significant erosion along banks of lake and along stream in bird sanctuary.
- Sanitary sewer easement located in bird sanctuary

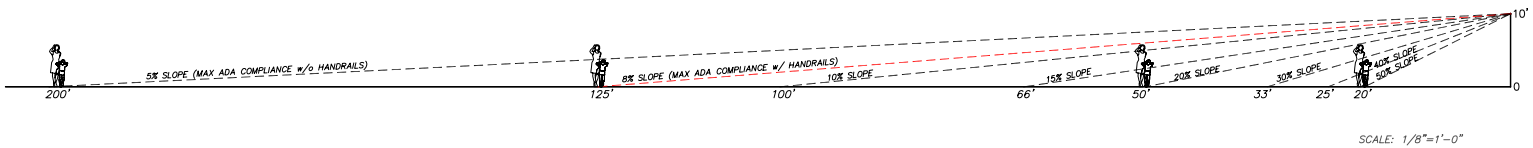
Opportunities

- Many views into the site from surrounding residences.
- Main "Gotcha!" points at the intersections of Berkeley Road and Wiltshire Drive, and Lakeshore Drive and Wiltshire Drive.
- Minimal slopes (majority of site is 5-10%)
- Large specimen trees to be retained
- Existing Lake features- both physical and visual connections
- Neighborhood connections
- Water quality of lake near normal for urban / city conditions

Following the presentation of the Analysis, the meeting was then open discussion. Comments (RE: Appendix B Page 44) regarding current park use, issues and concerns, and needs and desires of the community are as follows:

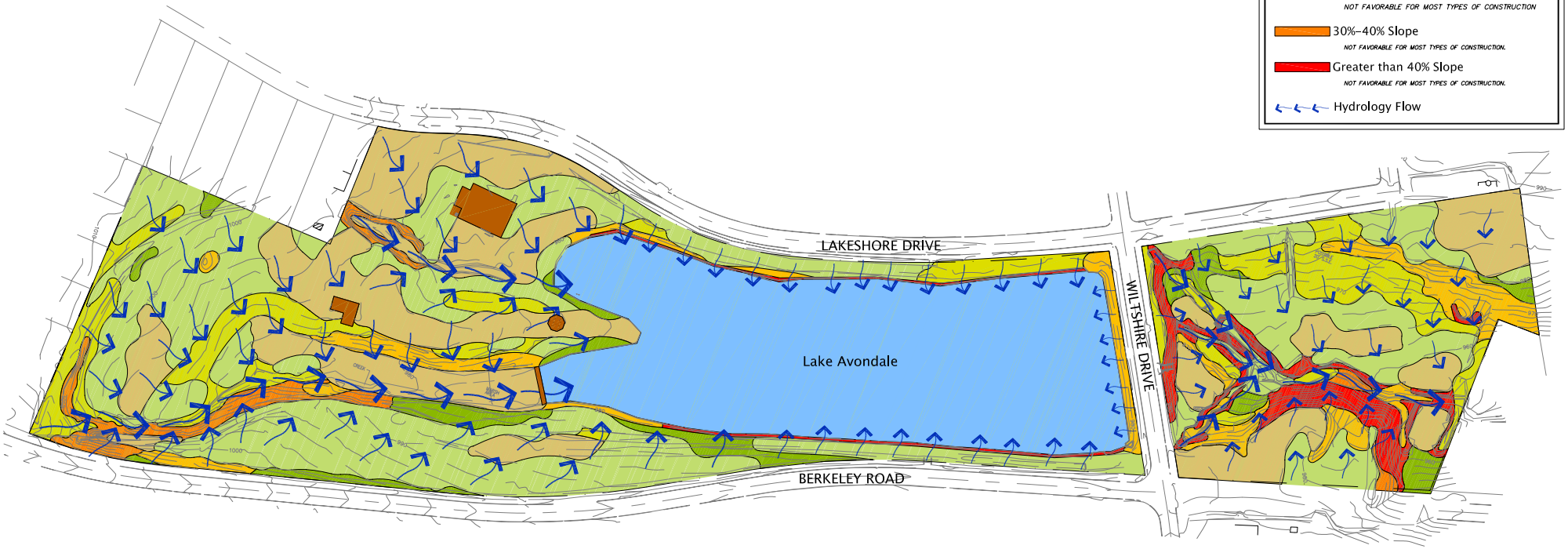
Park Use

1. Fishing
2. Walking
3. Sailing Model Boats
4. Reflecting
5. Enjoying the views



SLOPES LEGEND

- 0–5% Slope
  GENERALLY FAVORABLE FOR MOST FACILITIES AND DEVELOPMENT, INCLUDING BUILDINGS, PARKING, PICNIC AREAS, TRAILS, PLAYGROUNDS, SPORTS FIELDS, ETC.
- 5%–10% Slope
  GENERALLY FAVORABLE FOR MOST FACILITIES AND DEVELOPMENT, INCLUDING BUILDINGS, PARKING, PICNIC AREAS, TRAILS PLAYGROUNDS, SPORTS FIELDS, ETC.
- 10%–15% Slope
  GENERALLY FAVORABLE FOR PICNIC AREAS, PATHS AND TRAILS, POTENTIAL FOR PLAYGROUND, PARKING AND ROADS w/ SOME PLANNING AND DESIGN.
- 15%–20% Slope
  GENERALLY FAVORABLE FOR PATHS AND TRIALS, POTENTIAL FOR PLAYGROUND, PARKING AND ROADS w/ SOME PLANNING AND DESIGN.
- 20%–30% Slope
  NOT FAVORABLE FOR MOST TYPES OF CONSTRUCTION
- 30%–40% Slope
  NOT FAVORABLE FOR MOST TYPES OF CONSTRUCTION.
- Greater than 40% Slope
  NOT FAVORABLE FOR MOST TYPES OF CONSTRUCTION.
- Hydrology Flow



LAKE AVONDALE PARK MASTER PLAN
Slope Analysis

March 3, 2007

PREPARED FOR:
City of Avondale Estates &
Lake Avondale Advisory Board

jBta park design studio
planning + landscape architecture

NORTH

SCALE: 1"=70'
0 35 70 140 280

LAKE AVONDALE PARK MASTER PLAN
Vegetation Analysis

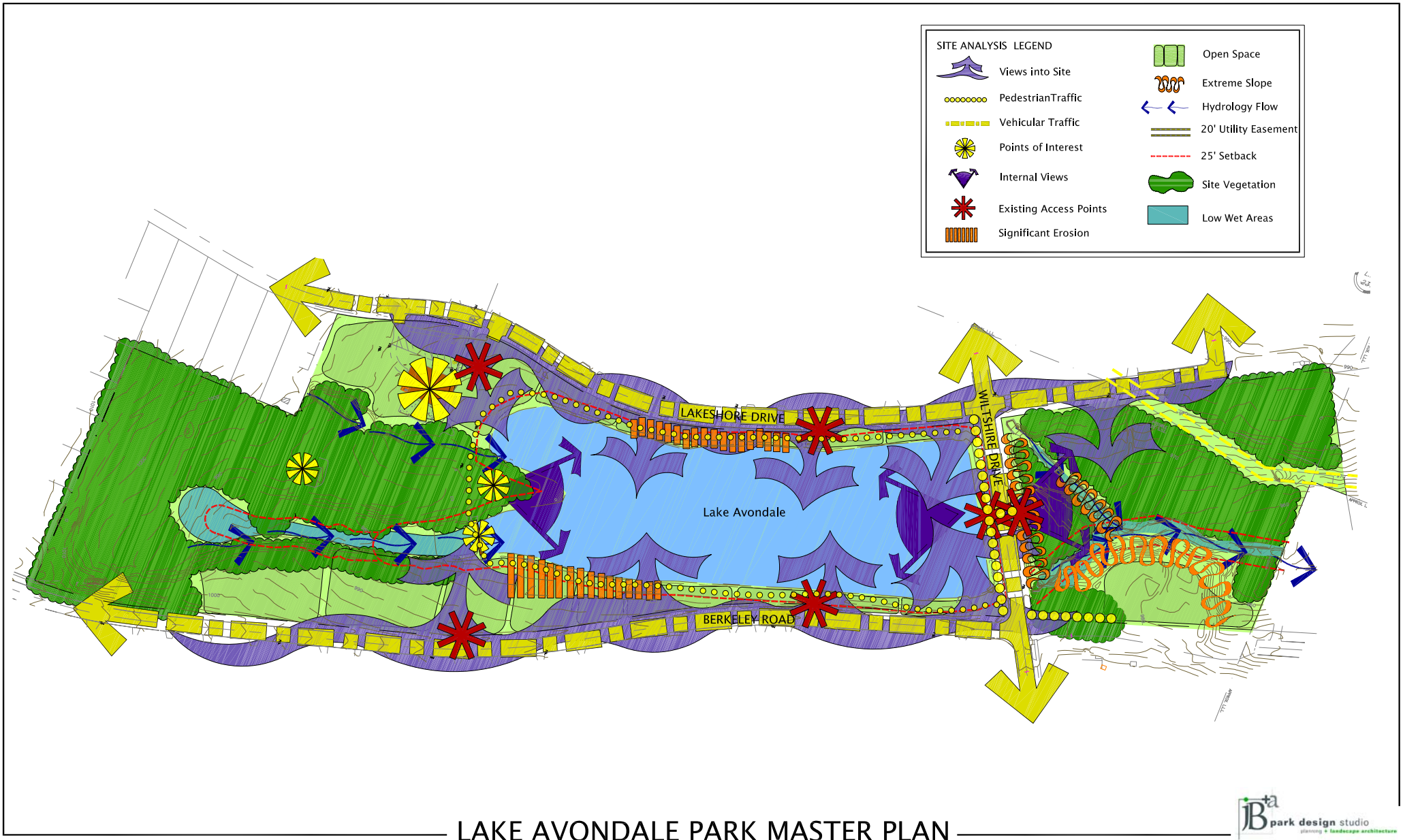
March 3, 2007

PREPARED FOR:
City of Avondale Estates &
Lake Avondale Advisory Board

jBta park design studio
planning + landscape architecture

NORTH

SCALE: 1"=70'
0 35 70 140 280



LAKE AVONDALE PARK MASTER PLAN
Opportunities / Constraints Analysis

March 3, 2007

PREPARED FOR:
City of Avondale Estates &
Lake Avondale Advisory Board

jBta park design studio
planning + landscape architecture

NORTH

SCALE: 1"=70'
0 35 70 140 280

SECTION 5.0 PROGRAM DEVELOPMENT

Working with the City of Avondale Estates and the Lake Avondale Advisory Board, the consultant, jB+a, developed a program outline. What follows is the design stage progression from concept through the final master plan design. A description of each of the stages is included.

5.1 Concept Development

A total of three concept plans were prepared and presented to the public at Public Input Meeting 2, on April 21, 2007. Each concept was depicted utilizing bubble diagrams and they each followed the same program requirements. They differed only through spatial relationships and layout locations.

Concept 1 -Full Scale Park Plan (RE: Graphic page 15)

LAKE

- Multiuse Trail around lake – creates a loop
- Boardwalk connection allows for access from path to gathering space on lake @ south end of lake.
- Platforms for fishing gathering project into water at various locations around lake.
- Aerating fountain centrally located in lake.
- Banks landscapes with low maintenance native grasses and plantings to direct access to water and aid in erosion control
- Engineered lawns to allow for open space at edge of lake.

"THE WOODS"

- Nature Trail meanders through woods allowing for "areas of discovery" (Labeled plants and wildlife habitat)
- Footbridges allow for access over stream
- Rain Garden type feature / Enhanced detention areas at North end of "The Woods" create a series of micro-pools to aid in storm water control and water quality. To be planted as a "discovery area" / improved wetland.

PEDESTRIAN PLAZA

- Center of Wiltshire Road improved to form a Pedestrian Plaza area to link the lake and bird sanctuary so that they function as a continuous park.
- Decorative paving, signature planting, signature streetlights, bollards etc, strengthen this connection.
- Raised Crosswalks and signature welcome corners to announce arrival at park.

BIRD SANCTUARY

- More gardenesque
- Terrace banks down into bird sanctuary. Planted with low maintenance, ornamental plantings to aid in erosion control and aesthetics.
- Paved observation area at the bottom of stairs overlooking "Rain Garden"
- Rain Garden type feature / Enhanced detention areas at North end of Bird Sanctuary create a plunge pool (lake overflow) and series of micro-pools to aid in storm water / erosion control and water quality. Rain garden in this manner will allow slopes to be cut back and banks restored. Large boulders and decorative plantings planned to allow for this space to be used.
- Observation area / Habitat garden to be located on former composting area. Excavated to allow for hard surface viewing platform (overlook bird sanctuary) and allow for Handicapped access, tripod setup, birding, etc. Habitat / Butterfly gardens with appropriate low maintenance.
- Nature trails throughout bird sanctuary connect into Fletcher Park and existing trail.

Concept 2 - Emphasis on Lake Area (RE: Graphic page 16)

LAKE

- Multiuse Trail around lake – creates a loop
- Gathering space @ south end of lake (extension of existing grand staircase).
- Boardwalk protrudes from gathering space further into lake to Lake Pavilion.
- Smaller / more fishing / decking platforms project into water at various locations around lake to allow for different views / experiences of the lake. Aids in erosion control my directing pedestrian access to lake edge.
- Aerating fountain centrally located in lake.
- Banks landscapes with low maintenance native grasses and plantings to direc access to water and aid in erosion control

PEDESTRIAN PLAZA

- Wiltshire Road improved to form a Pedestrian Plaza area to link the lake and bird sanctuary so that they function as a continuous park.
- Decorative paving, signature planting, signature streetlights, bollards etc strengthen this connection.
- Raised Crosswalks and signature welcome corners to announce arrival at park.

Concept 3 - Emphasis on Lake Area (RE: Graphic page 17)

LAKE

- Multiuse Trail around lake – creates a loop
- Edge of lake lined with stone to help control erosion, provide pedestrian access to lake edge.

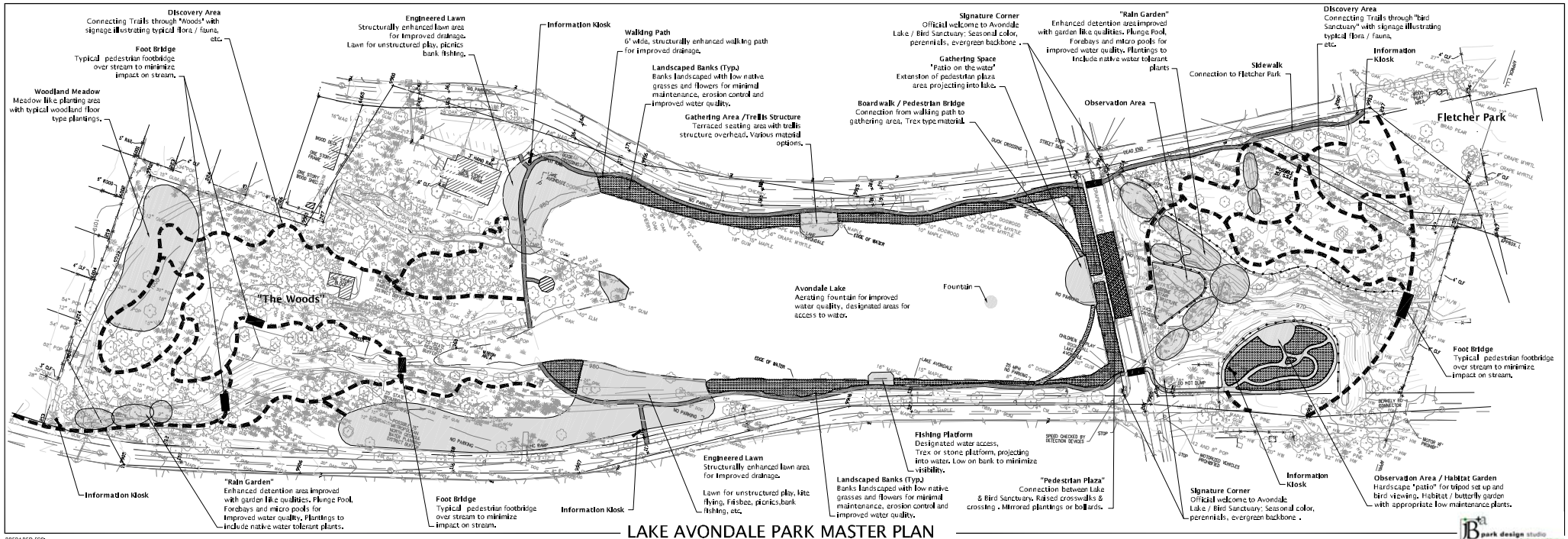
- Lawn extends to stone lake edge. (No plantings around lake)
- South end of lake improved by filling corners to eliminated "debris collection" areas. Allows for multi-use path to flow continuously allowing access to gathering platform.
- Fountain centrally located

Concept Sketches (RE: Graphic Page 18)

A series of sketches were also developed illustrating potential park elements to be incorporated into the Master Plan.

Following the presentation of the Concept Boards, a breakout session that included informal table discussion and brainstorming commenced. Using the spatial bubble diagrams of Concept 1 and Concept 3, real diagrammatic form was given to each of the park program elements. The Concept Plan was adjusted based on comments from the public, and further developed into the Preliminary Master Plan for the next meeting (July 25, 2006). The comments relating to the progression of Concept 1 toward the Preliminary Master Plan are as follows:

- Do not like the boardwalk idea. Utilize the idea from Concept 3 to fill portions of the lake to accommodate the multi-use trail and to eliminate "debris collection" areas.
- Do NOT like the pavilion on the lake.
- Keep the decking off the water or with little protrusion into the lake.
- Low maintenance.
- Path around lake needs to be more aesthetic than granite fines.
- Natural area path could be granite fines type path
- Relocate azaleas in lawn area to woodland path area.
- Park should display "Transitional zones" (grass to some trees to woodland)
- Remove all landscaping from lake
- Park edge should have street trees – single species, oak or elm
- Sidewalk on park edge would be redundant
- Possible Littoral Shelf at north edge of lake
- NO fountain in lake – possibly bubblers for aeration.
- Need dog bag station.



PREPARED FOR:
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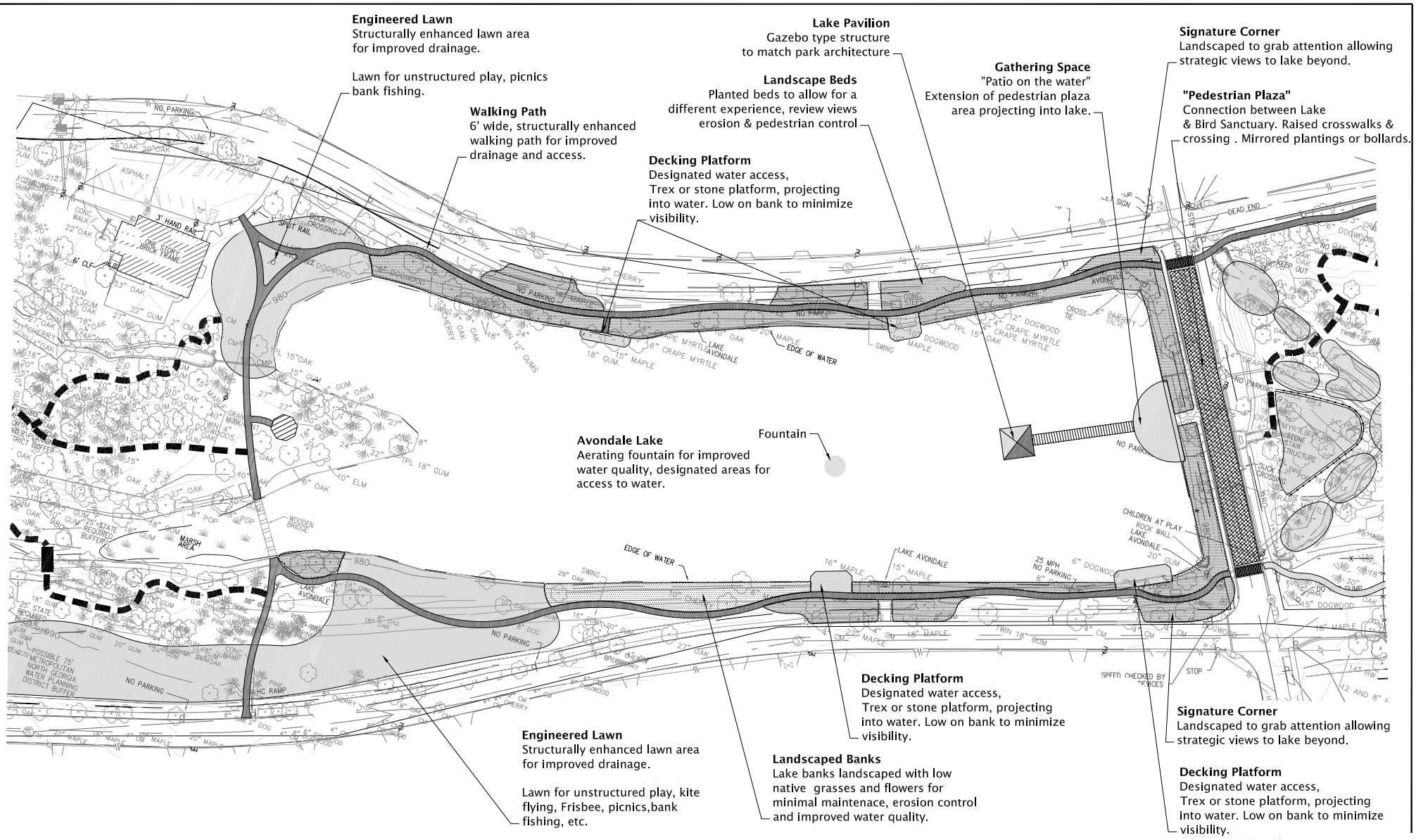
LAKE AVONDALE PARK MASTER PLAN
Concept 1

April 21, 2007

park design studio

NORTH

SCALE: 1"=40'
0 20 40 80 160



LAKE AVONDALE PARK MASTER PLAN
Concept 2

April 21, 2007

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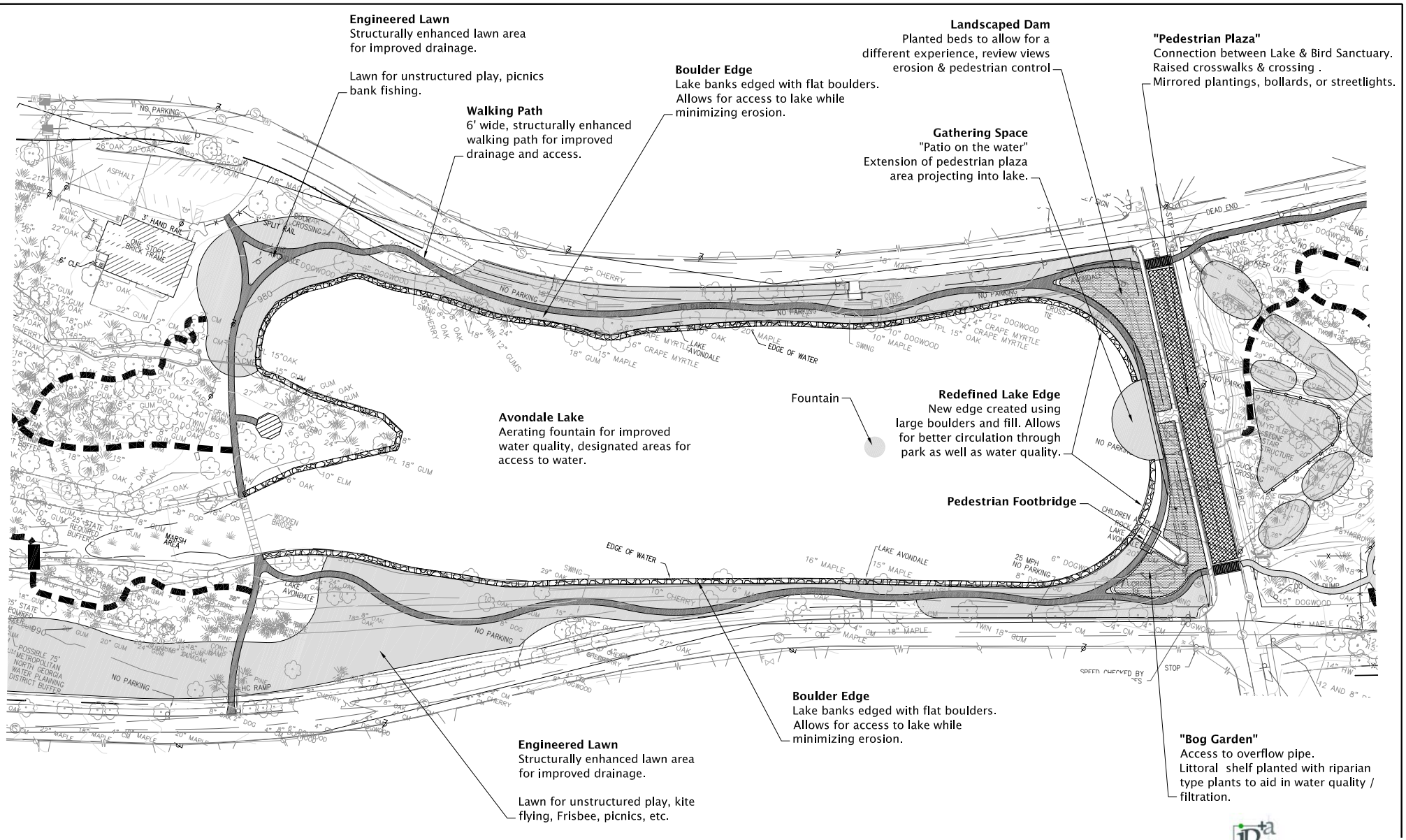
park design studio
planning • landscape architecture

NORTH

SCALE: 1"=40'

0 20 40 80 160



LAKE AVONDALE PARK MASTER PLAN
Concept 3

April 21, 2007

PREPARED FOR:
City of Avondale Estates &
Lake Avondale Advisory Board

park design studio
planning • landscape architecture

NORTH

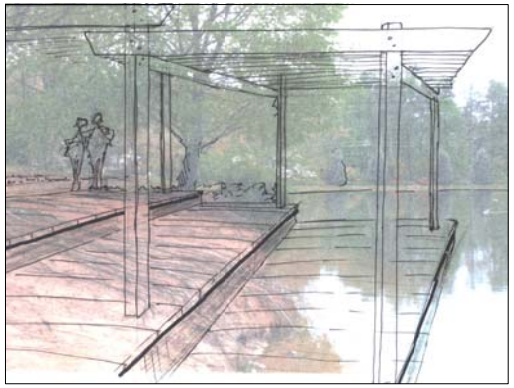
SCALE: 1"=40'
0 20 40 80 160

Connection to Fletcher Park
Sidewalk and natural plantings

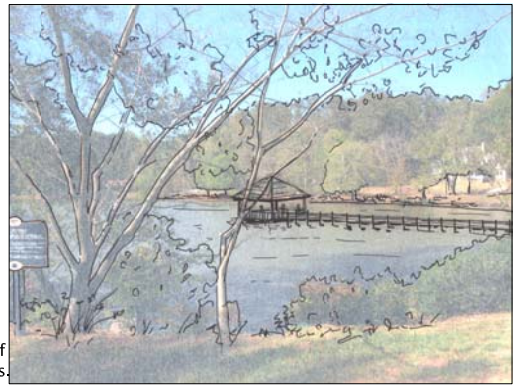
Signature Corner
Welcome to Lake Avondale & Bird Sanctuary Dense plantings of flowering and ornamental shrubs and grasses. The "Gotcha" Corner

Lake Edge Treatment
Natural Stone on boulder base, turf to stone edge

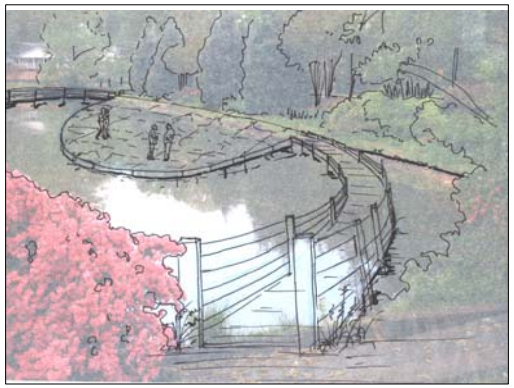
Platform Type 1 at waters edge
Natural stone on boulder base



Platform Type 2 at waters edge
Terraced Trex type material with trellis structure.



Lake Pavilion
Gathering area on the water. Architecture to match context of Avondale Estates.



Main Gathering Area
Natural Stone terrace extended over water. Trex type boardwalk connecting walking path to terrace.

Terrace @ Bird Sanctuary.
Granite retaining walls to match existing. Low maintenance, native plants to provide food and shelter for wildlife.

"Rain Garden"
Enhanced detention area improved with garden like qualities. Plunge pool with fore-bays and micro pools.

LAKE AVONDALE PARK MASTER PLAN
Concept Sketches

April 21, 2007

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jBta park design studio
planning + landscape architecture

5.2 Preliminary Master Plan (RE: Graphic Page. 20)

The Preliminary Master Plan was presented and a preliminary cost estimate was distributed to Representative from the City of Avondale Estates, and the Lake Avondale Advisory Board on July 25, 2007.

Based on comments from the Preliminary Master Plan Meeting, the Master Plan was revised and further developed into the Final Master Plan. The comments relating to the progression of the Preliminary Master Plan toward the Master Plan are as follows:

- Re-contour the northern area of the lake to allow access to pipe stream. Remove pipe to allow for healthier wetlands in that area. Add footbridge for pedestrian access over water.
- Add trail connection in "The Woods" near Boy Scout Building. (as per drawing markup 07.25.07)
- Adjust boulders / stone along lake edge to allow for selective access to water. Landscape with low maintenance native plants to aid in erosion control.
- Show more of a transition between landscape zones. Retain some of the existing trees along lake edge.

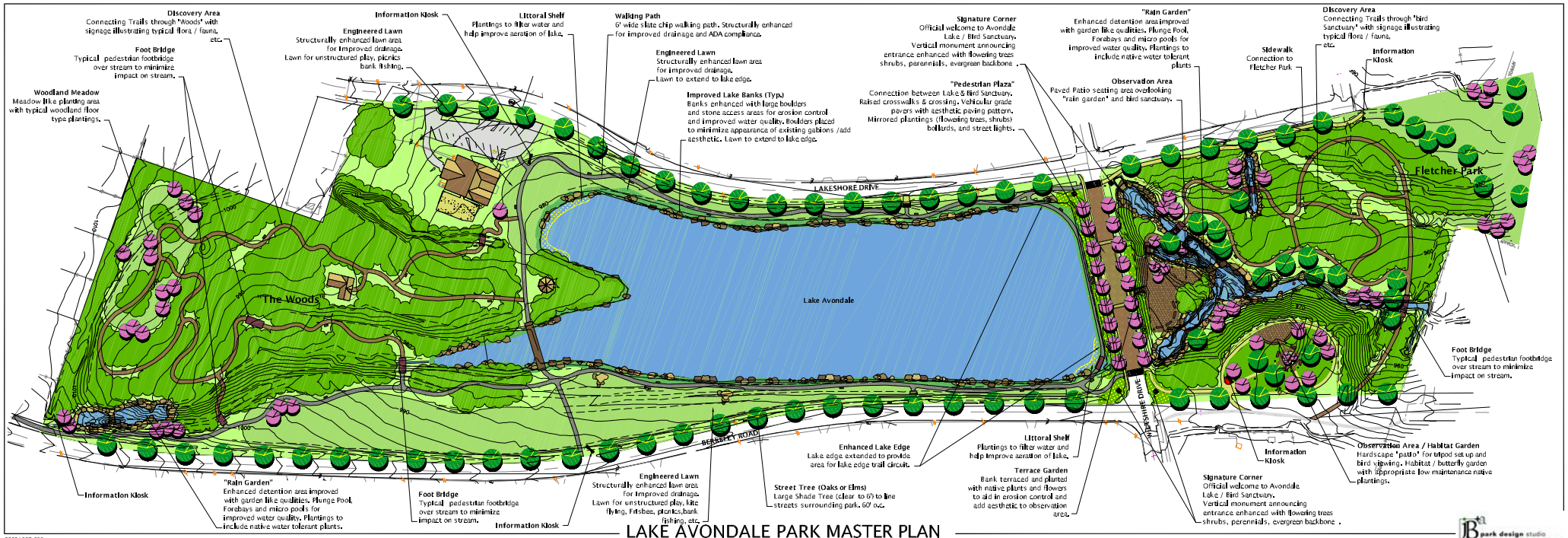
Note: Lake Avondale Advisory Board to determine which trees are to remain and which are to be removed from the lake edge. Additionally, LAAB to determine prioritization of park elements.

Note: Additional revisions were requested by the Lake Avondale Advisory Board and incorporated into the master plan by the Consultant. The additional revisions included the following:

- Relocate the nature trails in both the northern section of the park and bird sanctuary as per drawing mark up (02/19/08)
- Include boardwalk section in "the Woods" and "Bird Sanctuary to allow crossing over wet areas / tie into nature trails.
- Convert observation / habitat garden to a community garden
- Resize the observation area in the bird sanctuary area for smaller area
- Locate multi-leveled stone landings and wood decking as per drawing mark up (02/19/08)

5.3 Master Plan (RE: Graphic page 21)

jB+a developed a final color graphic, and cost estimate for the Lake Avondale Advisory Board during April 2008.



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LAKE AVONDALE PARK MASTER PLAN
Preliminary Master Plan

June, 2007

park design studio

NORTH

SCALE: 1"=40'
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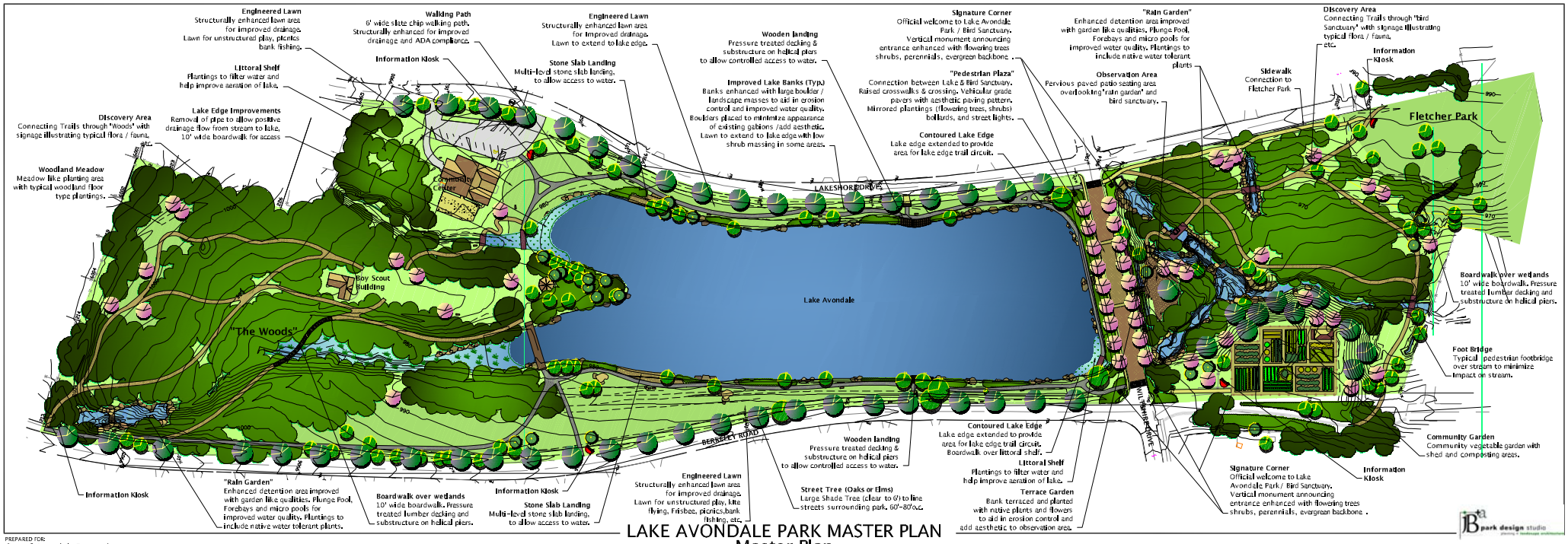

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Lake Avondale Advisory Board

LAKE AVONDALE PARK MASTER PLAN
Master Plan

April, 2008

5.4 Phasing Options

The prioritization of park elements was developed by the LAAB to include 11 phases of development. Each phase will be installed as funding becomes available. Prioritization is as follows:

Phase I - West side (Berkeley Road) Improvements –from the bridge on the north end to the dam, exclusive of fill designed for the south end. Contract Documents detailing the following items and the implementation of improvements.

- Tree removal based on notes on survey.
- Re-grade slopes to remove south end trench and create a more gentle slope to the lake's edge. Top dress with an engineered soil (top 3").
- Placement of decorative boulders along approximately 50% of lake edge to stabilize edge. The remainder of the lake will be sloped with a more gentle grade to the water's edge and appropriate plants placed at the lake's edge to preserve views and stabilize the soil on the edge.
- Design of one (1) deck platform over the water near the current location of the stairs.
- Design of a stone landing along the north end.
- Irrigation, seeded lawn, landscaping, and littoral shelf plantings.
- Irrigation pump
- 6' granite fines path with granite cobble edge restraint.

Phase II – East side (Lakeshore Drive) Improvements –from the area immediately in front of the Community Club House on the north end to the dam, exclusive of fill designed for the south end. Contract Documents detailing the following items and the implementation of improvements.

- Tree removal based on notes on survey.
- Re-grade slopes to create a more gentle slope to the lake's edge. Top dress with an engineered soil (top 3").
- Placement of decorative boulders along approximately 50% of lake edge to stabilize edge. The remainder of the lake will be sloped with a more gentle grade to the water's edge.
- Design of one (1) deck platform over the water near the current location of the stairs.
- Design of a stone landing along the north end.
- Irrigation, lawn, landscaping, and littoral shelf plantings.
- 6' granite fines path with granite cobble edge restraint.

Phase III – North End Improvements (including in front of the community club and gazebo peninsula. Contract Documents detailing the following items and the implementation of improvements.

- Tree removal based on notes on survey.
- Minor grading and a top dressing with an engineered soil (top 3").
- Re-grade and open up the drainage swale on the east side of the peninsula (between the Community Club and the gazebo) to allow for a free flow of water and plant with emergent plant material.
- Design and construction of a wide boardwalk (10') to accommodate pedestrian and small "golf-cart" size vehicles.
- 6' granite fines path with granite cobble edge restraint.

Phase IV – Wiltshire Drive – Lake Edge Improvements
Contract Documents detailing the following items and the implementation of improvements.

- Re-grade the two corners of the lake at the dam to allow for a walkway along the lake and to help prevent the collection of debris in the corners.
- Placement of decorative boulders along approximately 50% of lake edge to stabilize edge. The remainder of the lake will be sloped with a more gentle grade to the water's edge.
- Irrigation, lawn, landscaping, and littoral shelf plantings.
- 6' granite fines path with granite cobble edge restraint.

Phase V – Street Trees on Berkeley Rd. and Lakeshore Drive
Contract Documents detailing the following items and the implementation of improvements.

- Street tree planting along the two side streets flanking the park. These trees should be large maturing to allow for the pruning up of the canopy to prevent any long term blocking of lake views from the surrounding homeowners. They should also be tough to handle the constant compaction of foot traffic through the park. Recommended spacing is between 60 and 80' on center.

Phase VI – South Side (Bird Sanctuary) – Wet Detention and Erosion Control
Contract Documents detailing the following items and the implementation of improvements.

- Design of a wet detention facility below the dam to abate the water velocity and to prevent erosion of the stream beds. This facility needs to handle the outflow from the dam as well as the runoff from Berkeley Rd. and Lakeshore Drive. The facility should be a combination of attractive large weathered boulders as well as a series of forebays which will dissipate the stream velocity along with a wetland system to provide the benefits of phytoremediation in the cleansing of the storm-water.

Phase VII – North end Constructed Wetland.
Contract Documents detailing the following items and the implementation of improvements.

- Design of a Constructed Wetland to dissipate runoff from Berkeley Road .
- An attractive rock flume to carry storm-water from Berkeley Rd. while dissipating some of the velocity.

Phase VIII – South side – Community Garden
Contract Documents detailing the following items and the implementation of improvements.

- Survey and re-grading of the old organic debris dump site.
- Design, layout and construction of a community Vegetable Garden.
- Associated shed and water hook ups for a community Garden.
- Plantings necessary to stabilize large slope adjacent to creek.
- Appropriate fencing for the perimeter of the community Garden.

Phase IX – North Woods – trail system
Contract Documents detailing the following items and the implementation of improvements.

- Removal of all invasive species
- Layout and construction of mulch (or possibly granite fines) path through the north woods.
- One or two boardwalks to traverse the wetland/ stream.

Phase X – South Side (Bird Sanctuary) – trail system
Contract Documents detailing the following items and the implementation of improvements.

- Removal of all invasive species
- Layout and construction of mulch (or possibly granite fines) path through the north woods.
- One or two boardwalks to traverse the wetland/ stream.
- Possible stone stairs to access the south side along Lakeshore Dr.

Phase XI– Wiltshire Dr. Roadway and Pedestrian Crosswalk Improvements
Contract Documents detailing the following items and the implementation of improvements

- Roadway replacement of asphalt with pavers to create a more pedestrian scale to road.
- Small corner monuments to accentuate the parks entrance. Reworking of the landscape to improve views and create an avenue on Wiltshire Drive.

The final color master plan and cost estimate were prepared and submitted to the Lake Avondale Advisory Board May, 2008.

5.5 Program Elements

Northern Section of Park (Lake Avondale and "The Woods")

Lake Edge
The lake will be managed as a visual amenity, and irrigation source. The lake is to be maintained as a "Living" entity. The existing slopes are to be re-graded to create a more gentle slope to the lake's edge. Decorative boulders are to be placed along approximately 50% of the lake edge to help stabilize the lake edge. The remaining 50% of the lake edge will be regraded to a more gentle grade down to the water's edge. Appropriate plants (preferably native plant materials) will be placed at the lake's edge to preserve views and stabilize the soil, filter water and provide shelter and food for wildlife habits.

The drainage swale at the northern end of the lake (currently piped) will be opened up to allow for free flow of water. The existing pipe will be removed to accommodate this and the area will be planted with emergent plant material to serve as a bio-filtration device.

The southern corners of the lake will be re-contoured to provide better circulation of the water within the lake and prevent debris from accumulating at these points. This re-contouring will provide a smother transition for the walking trail connecting the east and west sides of the lake.

Controlled public access to the lake for fishing opportunities will be provided at small wooden decks and multi-level stone landings.

Wooden Deck Platform (2)
Narrow wood deck platforms, constructed utilizing a helical pier substructure and extending over the water near current location of stairs on both east and west sides of Lake

Avondale. Decking is to be pressure treated lumber with a 42" rails system at the edge of the deck. The decking is intended to provide an unobtrusive, controlled access to the water which protects the root systems of existing trees along the banks and minimizes pedestrian impact on the lake banks.

Stone Landing (2)
Two multi-level stone landings are to be constructed on both the east and west sides of the lake at the north end. Large ornamental stone slabs (fieldstone or equal) are to be utilized as the surface. The intent is to provide controlled access to the waters edge while minimizing the impact on the lakes banks.

Littoral shelf (2)
An important characteristic of filtration is the inclusion of a shallow sloping grade at the northern (reclaimed drainage swale) and southern (area at lake outfall) ends of the lake. The shallow slope forms a shelf (littoral "edge" shelf). These shallow littoral shelves will provide an area well suited to the growth of wetland plants. This vegetation will serve as a filter of the lake water both entering and exiting the lake. In addition the wetland plants that grow on these littoral shelves provide a habitat for wetland animals, most importantly dragonflies, the primary predatory of mosquitoes.

Engineered Lawns
The lawns adjacent to the lake are intended for unstructured play including blanket picnics, pick-up games, and kite flying. The lawns are to be constructed utilizing a soil profile that includes; 6"-#57 stone, 2"- #89 stone, 2"- stone dust and topsoil. This structural soil base will provide a well aerated soil substrate for root growth as well as help to eliminate the rutting and erosion issues that typically accompany heavily used lawn areas.

Walking Path
The master plan calls for a 6' wide, compacted, granite fines trail loop with granite cobble edge restraint. The .4 mile path connects the elements of the park and loops around the entire perimeter of the lake. Spur trials connect this loop to the neighborhood and provide access to the "Bird Sanctuary" area. As the trail winds through the park it allows for a variety of park experiences and views. Two new pedestrian bridges will allow access across wetland and littoral areas while the existing pedestrian bridge is to be maintained. The majority of the walking path trail will allow for handicapped accessibility.

Nature Trail
The nature trails meander through "The Woods" providing connecting trails throughout the discovery areas. The 6' wide shredded bark trail is to be field located to minimize

disturbance of existing vegetation and to take advantage of highlighting the most aesthetic areas. The nature trail will serve as a spur off the walking path and also provide access to the more natural areas of the site.

Boardwalk
The 10' wide boardwalk section provides access over the wetter portions of "The Woods". The board walk is intended to be a connecting spur trail off the nature trail and therefore will need to provide structure that will accommodate a small golf cart or Gator sized vehicle. Although no wetlands have been designated, construction methods will utilize non invasive techniques by employing a helical pier substructure with pressure treated decking and 42" rail system.

Discovery Area
"A place for refreshment and a place to learn". The "Discovery" areas are designated areas along the nature trails throughout "The Woods" that call attention to native plants and animals, the environment and environmental practices through informational signage and demonstration areas (Rain Gardens). The intent is to provide a learning environment for families, neighborhood groups and community organizations.

Woodland Meadow
The more open area within "The Woods" that is to be planted with woodland floor type native plants. Identification plaques and signage is intended to be included in this area as part of the "Discovery" aspect of this area of the site.

"Rain Garden"
The "Rain Garden" or more appropriately, enhanced detention, is located near the northwest corner of the site. This "Rain Garden" captures runoff as it flows from Berkeley road into a plunge pool and a series of micro pools. This type of system helps to reduce the water velocity; minimizes rutting and erosion, and filters the storm water before releasing it. This type of "Rain Garden" will allow for existing rutted and eroded slopes to be cut back and restored. Large boulders and decorative plantings create a space that is good for visual and sensory pleasure as well as play and education.

Pedestrian Plaza Area

Streetscape
The intent of the pedestrian plaza area is to create a stronger visual and physical connection between Lake Avondale and "The Bird Sanctuary". This connection is to occur along Wiltshire Drive. It is intended that the areas between and including the crosswalks

at either end serve as the raised pedestrian plaza- mountable by vehicular traffic. Vehicular grade concrete pavers will supply an aesthetic as well as tactile quality that will announce the entrance into Lake Avondale Park. This entrance is to be reinforced with monument signage at each corner of the plaza, ornamental pedestrian scale lighting standards, and signature landscaping that includes plantings of shrubs, ground cover and flowering trees mirrored on either side of the road.

Signature Corner
Defined at each of the four corners of the pedestrian plaza, these landscaped areas are intended to announce the entrance and accentuate views into Lake Avondale Park. Eye-catching flowers, groundcovers, and shrubs are to be installed. An evergreen backbone is preferred with native (if possible) plant materials as accents, creating four seasons of interest in the landscape.

Monument Signage (4)
Monument signage should be small corner monuments located at each of the four corners of the pedestrian plaza within the landscape. It is intended that these monument signs help to announce the entrance of Lake Avondale Park. The master plan graphic and cost estimate suggests four granite pillar-type monuments with etched park name. Monuments should be visible from the road but not encroach on sight triangles.

Bird Sanctuary

Terrace Garden
Terracing is both picturesque and practical. Used by farmers and horticulturalists alike, it is the standard way of growing things on difficult, hilly terrain and entails leveling a slope into a procession of broad steps supported by low walls, in this case granite faced walls, which are then prepared for planting by adding extra soil and nutrients.

Located on the southern side of Wiltshire Drive the terrace garden descends from Wiltshire drive down into the observation area. Access into the garden is via the existing stone stairway. Several of the existing stone treads will need to be reset for safer access into the garden. Low granite faced retaining walls will hold back the soil creating the terraces that extend perpendicular from the stairway along Wilshire Drive. Native shrubs, perennials and grasses are to be planted along the terraces.

Observation Area
The observation area is to be a more gardenesque area of the park. Located within the "Bird Sanctuary" with access via the existing stone stairway and terrace garden, the main focal elements of the observation area are the adjacent "Rain Gardens".

This plaza area will be comprised of concrete pavers laid on top of structural soil to aid in permeability. The plaza will be broken down into smaller gathering areas to allow for a variety of activities to take place. Bench swings, benches, trash receptacles, and a bike rack will be sited as amenities in this observation area.

Rain Garden
These "Rain Gardens" or enhanced detention areas are located south of the dam and within the "Bird Sanctuary". These "Rain Gardens" capture the outflow from Lake Avondale as well as runoff from both Berkeley Road and Lakeshore Drive. A combination of plunge pools and a series of micro pools, this system helps to reduced the water velocity; minimizes rutting and erosion, and filters the storm water before releasing it. This type of "Rain Garden" will allow for existing rutted and eroded slopes of the stream bank to be cut back and restored. Large boulders and decorative plantings create a space that is good for visual and sensory pleasure as well as play and education.

Located next to the overlook area, one of the key features of this "Rain Garden" is the enhanced role of planting; the more diverse the planting the greater the benefit. Mixed naturalistic plantings not only results in the overall reduced needs for maintenance, input of fertilizer, water and energy, but will greatly increase the wildlife and habitat value of the "garden". Rain gardens are largely composed of flowering perennials and grasses together with scattered shrubs – an ideal mix for encouraging greater diversity of wildlife.

Nature Trail
The nature trails meander through "The Bird Sanctuary" providing connecting trails throughout the discovery areas. The 6' wide shredded bark trail is to be field located to minimize disturbance of existing vegetation and to take advantage of highlighting the most aesthetic areas. This nature trail is intended to provide access to the more natural areas of the site. Small pedestrian bridges provide access over the rain gardens and provide an additional experience in which to partake.

Boardwalk
The 10' wide boardwalk section provides access over the wetter portions of "The Bird Sanctuary". The board walk is intended to be a connecting spur trail off the nature trail and therefore will need to provide structure that will accommodate a small golf cart or gator sized vehicle. Although no wetlands have been designated, construction methods will utilize non invasive techniques by employing a helical pier substructure with pressure treated decking and 42" rail system.

Discovery Area
"A place for refreshment and a place to learn". The "Discovery" areas are designated areas along the nature trails throughout "The Bird Sanctuary" that call attention to native plants and animals, the environment and environmental practices through informational signage and demonstration areas (Rain Gardens). The intent is to provide a learning environment for families, neighborhood groups and community organizations.

Community Garden
The Community Garden is to be developed to provide gardening and learning opportunities for the physical and social benefit of the residents of Avondale Estates. The approximate 1 acre lot will be fenced and provide and area for residents to grow flowers, vegetables and community. A storage shed and composting bins are to be sited for use by the community.

Miscellaneous

Irrigation system
The engineered lawns and landscaped areas are to be irrigated. An irrigation pump is to be installed to pump water from Lake Avondale for use in irrigating the park site. All controller heads, piping, irrigation emitters and supporting elements will be per City of Avondale standard.

Site Signage
In addition to the entrance monument signage, five information kiosks should be located at each pedestrian entrance to the park. Locations of the kiosks include; the pedestrian entrance at the northwest corner of the park on Berkeley Road, the west pedestrian entrance on Berkeley Road, the entrance to the Community Garden, The entrance to the Bird Sanctuary at Fletcher Park, and the pedestrian entrance at the Community Center. The kiosks are to be double sided with a UV resistant overlaminate. Information included on the kiosks may include wayfinding information or any additional information deemed appropriate by the City of Avondale Estates. Signs should be visible from the road but not encroach on sight triangles. Smaller, one sided with a UV resistant overlaminate should be included as informational signage within the Discovery Areas of the park.

Site Amenities
Benches and bench swings are to be located along the length of the walking path at a rate of 1 per every 300'. These amenities are to be field located to take advantage of key views within the park. Trash receptacles are to be located in key gathering areas, such as at the existing shelter, the overlook area and community garden, as well as sporadically along the walking path. Two doggie bag stations are to be located within the park, one near the Community Center on the east side of the lake, the other midway along the walking

path on the west side of the lake. Style and color of the park amenities are to match or compliment furnishings within the City of Avondale Estates.

Site Landscaping
There are several large signature trees located on site. During construction tree protection fencing is to be put up and maintained at the dripline of each tree to be retained. Absolutely no encroachment into the tree protection area is to be tolerated, including storage of construction machinery or materials. These trees are to be retained and protected to add to the aesthetic of the park site.

Trees along the lake edge have been analyzed and many are to be retained to help maintain "living" lakes. The Avondale Tree Board should be consulted before any trees are removed from the lake edge or roadside.

Large growing shade trees (oaks or elms) are to be installed along both Berkeley Road and Lakeshore Drive at an interval of 60'-80'o.c. These large maturing trees should allow for the pruning up of the canopy to prevent any long term blocking of views from the surrounding homeowners. Trees should be matching and a minimum of 3" caliper at the time of installation.

Small flowering trees (Crape Myrtles, Fringe Tree, Yoshino Cherry, 'Autumnalis' Cherry, etc.) are to be planted along Wiltshire Drive as part of the streetscape concept. Trees should be matching and a minimum of 2" caliper at the time of installation. If crape myrtles are selected they should be of a cultivar that provides an ultimate height that is appropriate for the location to prevent topping out or pruning or the tree. *Note: The only pruning necessary for a crape myrtle is the removal of suckers from the base of the tree.*

Shrub plantings at lakes edge should be low enough so as to preserve views yet aggressive enough to stabilize the soil on the edge.

SECTION 6.0 **APPENDICES**

Appendix A: Priortized Cost Estimate page 33

Appendix B: Meeting Minutes - Public Input Meetings 1 & 2 page 44

APPENDICES

Appendix A: Cost Estimate

Refer to the attached itemized Master Plan level Spreadsheet

park design studio
planning + landscape architecture

FINAL COST ESTIMATE FOR
LAKE AVONDALE PARK
CITY OF AVONDALE ESTATES
LAKE AVONDALE ADVISORY BOARD
April 25, 2008

Item Description	Quantity	Unit	Unit Price	Total
PHASE I-West Side (Berkeley Road) Improvements, from bridge on north end of dam exclusive of fill designed for the south end.				
INFRASTRUCTURE / SITE PREPARATION				
A. STAKING	1	ALLOWANCE	$2,500.00	$2,500.00
B. EXOTICS REMOVAL	1	ALLOWANCE	$2,000.00	$2,000.00
C. CONSTRUCTION ENTRANCE	1	EA	$800.00	$800.00
D. EROSION / SEDIMENT CONTROL				
1.) SILT FENCE "TYPE C" -Double row	3,000	LF	$3.50	$10,500.00
2.) HAY BALES	1	ALLOWANCE	$500.00	$500.00
3.) ROCK CHECK DAM	1	ALLOWANCE	$1,500.00	$1,500.00
4.) WATER BOOM SILT FENCE	1	ALLOWANCE	$2,000.00	$2,000.00
5.) MULCH / SEED	1	ALLOWANCE	$1,500.00	$1,500.00
6.) NPDES	1	LS	$2,500.00	$2,500.00
E. IRRIGATION WATER PUMP -Lake Water	1	ALLOWANCE	$50,000.00	$50,000.00
			INFRASTRUCTURE / SITE PREPARATION SUBTOTAL	**$73,800.00**
LAKE SIDE IMPROVEMENTS	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. LAKE EDGE STABILIZATION (Existing gabion areas)				
1.) DECORATIVE BOULDER EDGE PLACEMENT	120	LF	$150.00	$18,000.00
2.) EROSION CONTROL MATTING	600	SF	$2.50	$1,500.00
B. LAKE EDGE STABILIZATION (Non-gabion areas)				
1.) DECORATIVE BOULDER EDGE PLACEMENT	300	LF	$150.00	$45,000.00
2.) FILTER FABRIC	1,200	SF	$2.50	$3,000.00
3.) #57-STONE	16	CY	$20.00	$320.00
4.) DEWATERING	1	ALLOWANCE	$800.00	$800.00
5.) COMPACTED FILL	166	CY	$25.00	$4,150.00
6.) 4" TOP SOIL	18	CY	$35.00	$630.00
7.) EROSION CONTROL MATTING	1,500	SF	$2.50	$3,750.00
C. LITTORAL SHELF CONSTRUCTION				
1.) BOULDER EDGE PLACEMENT	200	LF	$150.00	$30,000.00
2.) FILTER FABRIC	800	SF	$2.50	$2,000.00
3.) #57-STONE	11	CY	$20.00	$220.00
4.) DEWATERING	1	ALLOWANCE	$800.00	$800.00
5.) COMPACTED FILL	100	CY	$25.00	$2,500.00
6.) EROSION CONTROL MATTING	1,000	SF	$2.50	$2,500.00
D. WOOD DECK CONSTRUCTION				
1.) HELICAL PIER SUBSTRUCTURE (Two 5' sections per pier, assumed 10' depth to resistance)	4	EA	$2,800.00	$11,200.00
2.) PRESSURE TREATED DECKING (Cost includes PT substructure and 42" rail system at edge of deck)	600	SF	$40.00	$24,000.00
E. STONE LANDING CONSTRUCTION				
1.) 18" SURGE STONE	80	CY	$50.00	$4,000.00
2.) FILTER FABRIC	800	SF	$2.50	$2,000.00
3.) #57-STONE	11	CY	$20.00	$220.00
4.) DEWATERING	1	ALLOWANCE	$800.00	$800.00
6.) EROSION CONTROL MATTING	950	SF	$2.50	$2,375.00
7.) STONE SLAB SURFACE (Ton = approx. 100sf)	15	TON	$500.00	$7,500.00
F. LANDSCAPING				
1.) LAKE EDGE PLANTINGS	1	ALLOWANCE	$10,000.00	$10,000.00
2.) LITTORAL SHELF PLANINGS	1	ALLOWANCE	$2,000.00	$2,000.00
3.) TREE REMOVAL (As noted on tree survey)	1	ALLOWANCE	$500.00	$500.00
			LAKE SIDE IMPROVEMENTS SUBTOTAL	**$179,765.00**

ENGINEERED LAWN AREAS	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. STAKING	1	ALLOWANCE	$1,500.00	$1,500.00
B. GRADING	2,200	CY	$18.00	$39,600.00
C. STRUCTURAL SOILS				
1.) 6" WASHED #57 STONE	1,500	CY	$20.00	$30,000.00
2.) 2" #89 STONE	500	CY	$18.00	$9,000.00
3.) 2" STONE DUST	500	CY	$15.00	$7,500.00
D. SEED	84,000	SF	$0.07	$5,880.00
E. IRRIGATION	1	ALLOWANCE	$20,000.00	$20,000.00
F. AMENITIES				
1.) PICNIC TABLES	4	EA	$500.00	$2,000.00
2.) GRILLS	4	EA	$350.00	$1,400.00
3.) BENCH SWING	4	EA	$1,500.00	$6,000.00
4.) INFORMATION KIOSK	1	ALLOWANCE	$1,200.00	$1,200.00
			ENGINEERED LAWN SUBTOTAL	**$124,080.00**

TRAIL SYSTEM	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. SLATE CHIP TRAIL				
1.) STAKING	1	ALLOWANCE	$1,000.00	$1,000.00
2.) GRADING	844	CY	$18.00	$15,192.00
3.) GRANITE COBBLE EDGE RESTRAINT (100 lf per ton)	38	TON	$400.00	$15,200.00
4.) 4" GAB	140	CY	$20.00	$2,800.00
5.) 2" SLATE CHIPS	18	TON	$55.00	$990.00
			TRAIL SYSTEM SUBTOTAL	**$35,182.00**
			PHASE I TOTAL	**$412,827.00**

PHASE II -East side (Lakeshore Dr.) Improvments - from area in front of Country Club on north end of dam, exclusive of fill designed for south end

INFRASTRUCTURE / SITE PREPARATION				
A. STAKING	1	ALLOWANCE	$2,500.00	$2,500.00
B. EXOTICS REMOVAL	1	ALLOWANCE	$2,000.00	$2,000.00
C. CONSTRUCTION ENTRANCE	1	EA	$800.00	$800.00
D. EROSION / SEDIMENT CONTROL				
1.) SILT FENCE "TYPE C" -Double row	1,800	LF	$3.50	$6,300.00
2.) HAY BALES	1	ALLOWANCE	$500.00	$500.00
3.) ROCK CHECK DAM	1	ALLOWANCE	$1,500.00	$1,500.00
4.) WATER BOOM SILT FENCE	1	ALLOWANCE	$2,000.00	$2,000.00
5.) MULCH / SEED	1	ALLOWANCE	$1,500.00	$1,500.00
6.) NPDES	1	LS	$2,500.00	$2,500.00
			INFRASTRUCTURE / SITE PREPARATION SUBTOTAL	**$19,600.00**

LAKE SIDE IMPROVEMENTS	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. LAKE EDGE STABILIZATION (Existing gabion areas)				
1.) DECORATIVE BOULDER EDGE PLACEMENT	220	LF	$150.00	$33,000.00
2.) EROSION CONTROL MATTING	1,100	SF	$2.50	$2,750.00
B. LAKE EDGE STABILIZATION (Non-gabion areas)				
1.) DECORATIVE BOULDER EDGE PLACEMENT	365	LF	$150.00	$54,750.00
2.) FILTER FABRIC	1,500	SF	$2.50	$3,750.00
3.) #57-STONE	20	CY	$20.00	$400.00
4.) DEWATERING	1	ALLOWANCE	$800.00	$800.00
5.) COMPACTED FILL	200	CY	$25.00	$5,000.00
6.) 4" TOP SOIL	23	CY	$35.00	$805.00
7.) EROSION CONTROL MATTING	1,800	SF	$2.50	$4,500.00
C. LITTORAL SHELF CONSTRUCTION				
1.) BOULDER EDGE PLACEMENT	350	LF	$150.00	$52,500.00
2.) FILTER FABRIC	1,400	SF	$2.50	$3,500.00
3.) #57-STONE	20	CY	$20.00	$400.00
4.) DEWATERING	1	ALLOWANCE	$800.00	$800.00
5.) COMPACTED FILL	250	CY	$25.00	$6,250.00
6.) EROSION CONTROL MATTING	1,700	SF	$2.50	$4,250.00

D. WOOD DECK CONSTRUCTION				
1.) HELICAL PIER SUBSTRUCTURE (Two 5' sections per pier, assumed 10' depth to resistance)	4	EA	$2,800.00	$11,200.00
2.) PRESSURE TREATED DECKING (Cost includes PT substructure and 42" rail system at edge of deck)	600	SF	$40.00	$24,000.00
E. STONE LANDING CONSTRUCTION				
1.) 18" SURGE STONE	60	CY	$150.00	$9,000.00
2.) FILTER FABRIC	500	SF	$2.50	$1,250.00
3.) #57-STONE	7	CY	$20.00	$140.00
4.) DEWATERING	1	ALLOWANCE	$800.00	$800.00
5.) EROSION CONTROL MATTING	700	SF	$2.50	$1,750.00
6.) STONE SLAB SURFACE (Ton = approx. 100sf)	11	TON	$500.00	$5,500.00
F. LANDSCAPING				
1.) LAKE EDGE PLANTINGS	1	ALLOWANCE	$10,000.00	$10,000.00
2.) LITTORAL SHELF PLANINGS	1	ALLOWANCE	$2,000.00	$2,000.00
3.) TREE REMOVAL (As noted on tree survey)	1	ALLOWANCE	$500.00	$500.00
			LAKE SIDE IMPROVEMENTS SUBTOTAL	**$239,595.00**

ENGINEERED LAWN AREAS	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. STAKING	1	ALLOWANCE	$1,500.00	$1,500.00
B. GRADING	630	CY	$18.00	$11,340.00
C. STRUCTURAL SOILS				
1.) 6" WASHED #57 STONE	450	CY	$20.00	$9,000.00
2.) 2" #89 STONE	150	CY	$18.00	$2,700.00
3.) 2" STONE DUST	150	CY	$15.00	$2,250.00
D. SEED	24,400	SF	$0.50	$12,200.00
E. IRRIGATION	1	ALLOWANCE	$10,000.00	$10,000.00
F. AMENITIES				
1.) BENCHES	4	EA	$350.00	$1,400.00
2.) BENCH SWING	4	EA	$1,500.00	$6,000.00
			ENGINEERED LAWN SUBTOTAL	**$56,390.00**

TRAIL SYSTEM	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. SLATE CHIP TRAIL				
1.) STAKING	1	ALLOWANCE	$1,500.00	$1,500.00
2.) GRADING	350	CY	$18.00	$6,300.00
3.) GRANITE COBBLE EDGE RESTRAINT	16	TON	$500.00	$8,000.00
4.) 4" GAB	60	CY	$20.00	$1,200.00
5.) 2" SLATE CHIPS	8	TON	$55.00	$440.00
			TRAIL SYSTEM SUBTOTAL	**$17,440.00**
			PHASE II TOTAL	**$333,025.00**

PHASE III- North End Improvements (Community Center / Gazebo Areas Improvements)				
INFRASTRUCTURE / SITE PREPARATION				
A. STAKING	1	ALLOWANCE	$1,000.00	$1,000.00
B. EXOTICS REMOVAL	1	ALLOWANCE	$500.00	$500.00
C. CONSTRUCTION ENTRANCE	1	EA	$800.00	$800.00
D. EROSION / SEDIMENT CONTROL				
1.) SILT FENCE "TYPE C" -Double row	600	LF	$3.50	$2,100.00
2.) HAY BALES	1	ALLOWANCE	$500.00	$500.00
3.) ROCK CHECK DAM	1	ALLOWANCE	$1,500.00	$1,500.00
4.) WATER BOOM SILT FENCE	1	ALLOWANCE	$2,000.00	$2,000.00
5.) MULCH / SEED	1	ALLOWANCE	$1,500.00	$1,500.00
6.) NPDES	1	LS	$2,500.00	$2,500.00
D. DRAINAGE PIPE REMOVAL	150	LF	$140.00	$21,000.00
			INFRASTRUCTURE / SITE PREPARATION SUBTOTAL	**$33,400.00**

ENGINEERED LAWN AREAS	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. STAKING	1	ALLOWANCE	$1,500.00	$1,500.00
B. GRADING	400	CY	$18.00	$7,200.00
C. STRUCTURAL SOILS				
1.) 6" WASHED #57 STONE	203	CY	$20.00	$4,060.00
2.) 2" #89 STONE	65	CY	$18.00	$1,170.00
3.) 2" STONE DUST	65	CY	$15.00	$975.00
D. SEED	12,000	SF	$0.07	$840.00
E. IRRIGATION	1	ALLOWANCE	$10,000.00	$10,000.00
F. AMENITIES				
1.) INFORMATION KIOSK	1	ALLOWANCE	$1,200.00	$1,200.00
2.) BENCH SWING	2	EA	$1,500.00	$3,000.00
			ENGINEERED LAWN SUBTOTAL	**$29,945.00**

TRAIL SYSTEM	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. SLATE CHIP TRAIL				
1.) STAKING	1	ALLOWANCE	$500.00	$500.00
2.) GRADING	130	CY	$18.00	$2,340.00
3.) GRANITE COBBLE EDGE RESTRAINT (100 lf per ton)	7	TON	$500.00	$3,500.00
4.) 4" GAB	20	CY	$20.00	$400.00
5.) 2" SLATE CHIPS	13	TON	$55.00	$715.00
B. BOARDWALK CONSTRUCTION (10' wide)				
1.) HELICAL PIER SUBSTRUCTURE (Two 5' sections per pier, assumed 10' depth to resistance)	4	EA	$2,800.00	$11,200.00
2.) PRESSURE TREATED DECKING (Cost includes PT substructure and 42" rail system at edge of deck)	300	SF	$40.00	$12,000.00
			TRAIL SYSTEM SUBTOTAL	**$30,655.00**
			PHASE III TOTAL	**$94,000.00**

PHASE IV - Wiltshire Drive -Lake edge improvements

INFRASTRUCTURE / SITE PREPARATION				
A. STAKING	1	ALLOWANCE	$2,500.00	$2,500.00
B. EXOTICS REMOVAL	1	ALLOWANCE	$2,000.00	$2,000.00
C. CONSTRUCTION ENTRANCE	1	EA	$800.00	$800.00
D. EROSION / SEDIMENT CONTROL				
1.) SILT FENCE "TYPE C" -Double row	900	LF	$3.50	$3,150.00
2.) HAY BALES	1	ALLOWANCE	$500.00	$500.00
3.) ROCK CHECK DAM	1	ALLOWANCE	$1,500.00	$1,500.00
4.) WATER BOOM SILT FENCE	1	ALLOWANCE	$1,000.00	$1,000.00
5.) MULCH / SEED	1	ALLOWANCE	$1,500.00	$1,500.00
6.) NPDES	1	LS	$2,500.00	$2,500.00
E. GEOTECHNICAL TESTING (Dam)	1	ALLOWANCE	$1,500.00	$1,500.00
			INFRASTRUCTURE / SITE PREPARATION SUBTOTAL	**$16,950.00**

LAKESIDE IMPROVEMENTS	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. LAKE EDGE CONTOURING (South End)				
1.) DECORATIVE BOULDER EDGE PLACEMENT	200	LF	$150.00	$30,000.00
2.) FILTER FABRIC	800	SF	$2.50	$2,000.00
3.) 57-STONE	14	CY	$20.00	$280.00
4.) DEWATERING	1	ALLOWANCE	$400.00	$400.00
5.) COMPACTED FILL	90	CY	$25.00	$2,250.00
6.) 4" TOP SOIL	9	CY	$35.00	$315.00
7.) EROSION CONTROL MATTING	1,000	SF	$2.50	$2,500.00
B. LANDSCAPING				
1.) LAKE EDGE PLANTINGS	1	ALLOWANCE	$10,000.00	$10,000.00
3.) TREE REMOVAL (As noted on tree survey)	1	ALLOWANCE	$500.00	$500.00
C. SLATE CHIP TRAIL				
1.) STAKING	1	ALLOWANCE	$1,500.00	$1,500.00
2.) GRADING	150	CY	$18.00	$2,700.00

3.) GRANITE COBBLE EDGE RESTRAINT (100 lf per ton)	4	TON	$500.00	$2,000.00
4.) 4" GAB	25	CY	$20.00	$500.00
5.) 2" SLATE CHIPS	3	TON	$55.00	$165.00
D. BOARDWALK CONSTRUCTION (10' wide)				
1.) HELICAL PIER SUBSTRUCTURE (Two 5' sections per pier, assumed 10' depth to resistance)	3	EA	$2,800.00	$8,400.00
2.) PRESSURE TREATED DECKING (Cost includes PT substructure and 42" rail system at edge of deck)	250	SF	$40.00	$10,000.00
			LAKE SIDE IMPROVEMENTS SUBTOTAL	**$73,510.00**
			PHASE IV TOTAL	**$90,460.00**

PHASE V - Street Trees on Berkeley Road and Lakeshore Drive

STREETSCAPE IMPROVEMENTS	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. LANDSCAPING				
1.) STREET TREES (60'-80' o.c.)	43	EA	$600.00	$25,800.00
			STREETSCAPE SUBTOTAL	**$25,800.00**
			PHASE V TOTAL	**$25,800.00**

PHASE VI - South Side (Bird Sanctuary) - Wet Detention and Erosion Control

SITE PREPARATION	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. STAKING	1	ALLOWANCE	$3,000.00	$3,000.00
B. SELECTIVE CLEARING / EXOTICS REMOVAL	1	ALLOWANCE	$3,000.00	$3,000.00
C. CONSTRUCTION ENTRANCE	1	EA	$800.00	$800.00
D. EROSION / SEDIMENT CONTROL				
1.) SILT FENCE "TYPE C" (Double row)	3,400	LF	$3.50	$11,900.00
2.) HAY BALES	1	ALLOWANCE	$800.00	$800.00
3.) ROCK CHECK DAM	1	ALLOWANCE	$1,500.00	$1,500.00
4.) MULCH / SEED	1	ALLOWANCE	$1,500.00	$1,500.00
5.) NPDES	1	LS	$2,500.00	$2,500.00
			SITE PREPARATION SUBTOTAL	**$25,000.00**

"RAIN GARDEN"	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. RAIN GARDEN 1				
1.) GRADING	680	CY	$18.00	$12,240.00
2.) FOREBAY				
a.) STONE SPLASH PAD	73	CY	$35.00	$2,555.00
b.) ROCK WALL WEIR	1	ALLOWANCE	$2,500.00	$2,500.00
c.) DECORATIVE BOULDER EDGE	170	LF	$150.00	$25,500.00
d.) EROSION CONTROL MATTING	950	SF	$2.50	$2,375.00
e.) LANDSCAPE (Water tolerant plants)	1	ALLOWANCE	$1,000.00	$1,000.00
3.) MICROPOOL				
a.) STONE CHANNEL	25	CY	$35.00	$875.00
b.) 6" GAB - CLEAN RUN	76	CY	$20.00	$1,520.00
c.) 2" STONE DUST	24	CY	$15.00	$360.00
d.) ROCK WALL WEIR	1	ALLOWANCE	$5,000.00	$5,000.00
e.) DECORATIVE BOULDER EDGE	340	LF	$150.00	$51,000.00
f.) EROSION CONTROL MATTING	1,800	SF	$2.50	$4,500.00
g.) LANDSCAPE - Typical native wetland species	1	ALLOWANCE	$3,000.00	$3,000.00
B. RAIN GARDEN 2				
1.) GRADING	680	CY	$18.00	$12,240.00
2.) FOREBAY				
a.) STONE SPLASH PAD	112	CY	$35.00	$3,920.00
b.) ROCK WALL WEIR	1	ALLOWANCE	$5,000.00	$5,000.00
c.) DECORATIVE BOULDER EDGE	180	LF	$150.00	$27,000.00
d.) EROSION CONTROL MATTING	1,700	SF	$2.50	$4,250.00
e.) LANDSCAPE - Water tolerante plants	1	ALLOWANCE	$3,000.00	$3,000.00

3.) MICROPOOL				
a.) STONE CHANNEL	30	CY	$35.00	$1,050.00
b.) 6" GAB - CLEAN RUN	45	CY	$20.00	$900.00
c.) 2" STONE DUST	14	CY	$15.00	$210.00
d.) ROCK WALL WEIR	1	ALLOWANCE	$1,500.00	$1,500.00
e.) DECORATIVE BOULDER EDGE	300	LF	$150.00	$45,000.00
f.) EROSION CONTROL MATTING	1,600	SF	$2.50	$4,000.00
g.) LANDSCAPE - Typical native wetland species	1	ALLOWANCE	$3,000.00	$3,000.00
C. RAIN GARDEN 3				
1.) GRADING	240	CY	$18.00	$4,320.00
2.) FOREBAY				
a.) STONE SPLASH PAD	40	CY	$35.00	$1,400.00
b.) ROCK WALL WEIR	1	ALLOWANCE	$1,500.00	$1,500.00
c.) DECORATIVE BOULDER EDGE	140	LF	$150.00	$21,000.00
d.) EROSION CONTROL MATTING	770	SF	$2.50	$1,925.00
e.) LANDSCAPE - Water tolerant plants	1	ALLOWANCE	$3,000.00	$3,000.00
3.) MICROPOOL				
a.) STONE CHANNEL	5	CY	$35.00	$175.00
b.) 6" GAB - CLEAN RUN	10	CY	$20.00	$200.00
c.) 2" STONE DUST	3	CY	$15.00	$45.00
d.) ROCK WALL WEIR	1	ALLOWANCE	$1,500.00	$1,500.00
e.) DECORATIVE BOULDER EDGE	100	LF	$150.00	$15,000.00
f.) EROSION CONTROL MATTING	650	SF	$2.50	$1,625.00
g.) LANDSCAPE -Typical native wetland species	1	ALLOWANCE	$3,000.00	$3,000.00
D. CHANNEL IMPROVEMENTS				
1.) GRADING	460	CY	$18.00	$8,280.00
2.) DECORATIVE BOULDER EDGE PLACEMENT	3,100	LF	$150.00	$465,000.00
3.) EROSION CONTROL MATTING	3,200	SF	$2.50	$8,000.00
4.) LANDSCAPE -Typical native wetland species	1	ALLOWANCE	$3,000.00	$3,000.00
E. FENCING - 4' Black vinyl fencing	400	LF	$15.50	$6,200.00
			"RAIN GARDEN" SUBTOTAL	**$768,665.00**
			PHASE VI TOTAL	**$793,665.00**

PHASE VII - North End Constructed Wetland

SITE PREPARATION	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. STAKING	1	ALLOWANCE	$3,000.00	$3,000.00
B. SELECTIVE CLEARING / EXOTICS REMOVAL	1	ALLOWANCE	$3,000.00	$3,000.00
C. CONSTRUCTION ENTRANCE	1	EA	$800.00	$800.00
D. EROSION / SEDIMENT CONTROL				
1.) SILT FENCE "TYPE C" (Double row)	550	LF	$3.50	$1,925.00
2.) HAY BALES	1	ALLOWANCE	$800.00	$800.00
3.) ROCK CHECK DAM	1	ALLOWANCE	$1,500.00	$1,500.00
4.) MULCH / SEED	1	ALLOWANCE	$1,500.00	$1,500.00
5.) NPDES	1	LS	$2,500.00	$2,500.00
			SITE PREPARATION SUBTOTAL	**$15,025.00**

"RAIN GARDEN"	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. STAKING	1	ALLOWANCE	$1,000.00	$1,000.00
B. GRADING	580	CY	$18.00	$10,440.00
C. FOREBAY				
1.) STONE SPLASH PAD	64	CY	$35.00	$2,240.00
2.) ROCK WALL WEIR	1	ALLOWANCE	$2,500.00	$2,500.00
3.) DECORATIVE BOULDER EDGE	160	LF	$150.00	$24,000.00
4.) EROSION CONTROL MATTING	950	SF	$2.50	$2,375.00
5.) LANDSCAPE -Water tolerant plants	1	ALLOWANCE	$3,000.00	$3,000.00
D. MICROPOOL				
1.) STONE CHANNEL	11	CY	$35.00	$385.00
2.) 6" GAB - CLEAN RUN	38	CY	$20.00	$760.00
3.) 2" STONE DUST	12	CY	$15.00	$180.00
4.) ROCK WALL WEIR	1	ALLOWANCE	$1,500.00	$1,500.00

5.) DECORATIVE BOULDER EDGE	230	LF	$150.00	$34,500.00
6.) EROSION CONTROL MATTING	1,250	SF	$2.50	$3,125.00
7.) LANDSCAPE - Typical native wetland species	1	ALLOWANCE	$3,000.00	$3,000.00
E. AMENITIES				
1.) TRASH RECEPTACLES	1	EA	$450.00	$450.00
2.) BENCHES	3	EA	$350.00	$1,050.00
			"RAIN GARDEN" SUBTOTAL	**$90,505.00**
			PHASE VII TOTAL	**$105,530.00**

PHASE VIII - South Side - Community Garden / Observation Area

SITE PREPARATION	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. STAKING	1	ALLOWANCE	$3,000.00	$3,000.00
B. SELECTIVE CLEARING / EXOTICS REMOVAL	1	ALLOWANCE	$3,000.00	$3,000.00
C. CONSTRUCTION ENTRANCE	1	EA	$800.00	$800.00
D. EROSION / SEDIMENT CONTROL				
1.) SILT FENCE "TYPE C" (Double row)	1,000	LF	$3.50	$3,500.00
2.) HAY BALES	1	ALLOWANCE	$800.00	$800.00
3.) ROCK CHECK DAM	1	ALLOWANCE	$1,500.00	$1,500.00
4.) MULCH / SEED	1	ALLOWANCE	$1,500.00	$1,500.00
5.) NPDES	1	LS	$2,500.00	$2,500.00
E. ELECTRICAL SERVICE	1	LS	$10,000.00	$10,000.00
F. WATER SERVICE	1	LS	$10,000.00	$10,000.00
			SITE PREPARATION SUBTOTAL	**$36,600.00**

OBSERVATION AREA	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. STAKING	1	JOB	$2,500.00	$2,500.00
B. GRADING	400	CY	$18.00	$7,200.00
D. TERRACED GARDEN				
1.) GRANITE RETAINING WALLS	310	LF	$75.00	$23,250.00
2.) FILTER FABRIC	650	SF	$2.50	$1,625.00
3.) # 57 STONE	12	CY	$20.00	$240.00
4.) COMPACTED FILL	70	CY	$25.00	$1,750.00
5.) 4" TOP SOIL	11	CY	$35.00	$385.00
6.) LANDSCAPE - Native habitat species	1	ALLOWANCE	$10,000.00	$10,000.00
E. STAIR IMPROVEMENTS (Replace / re-set stone treads)	1	ALLOWANCE	$2,000.00	$2,000.00
F. PLAZA				
1.) CONCRETE PAVERS	3700	SF	$3.50	$12,950.00
2.) 4" GAB	45	CY	$20.00	$900.00
3.) 2" STONE DUST	21	CY	$15.00	$315.00
3.) LIGHTING	4	EA	$2,000.00	$8,000.00
G. FENCING - 4' Black vinyl fencing	140	LF	$15.50	$2,170.00
H. AMENITIES				
1.) TRASH RECEPTACLES	3	EA	$450.00	$1,350.00
2.) BENCHES	5	EA	$350.00	$1,750.00
3.) PICNIC TABLES	2	EA	$500.00	$1,000.00
			OBSERVATION AREA SUBTOTAL	**$77,385.00**

COMMUNITY GARDEN	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. SURVEY	1	ACRE	$1,000.00	$1,000.00
B. STAKING	1	JOB	$2,500.00	$2,500.00
C. EXCAVATION	1	JOB	$10,000.00	$10,000.00
D. GRADING	1,100	CY	$18.00	$19,800.00
E. COMMUNITY GARDEN (Design, Layout and Construction)	1	ALLOWANCE	$20,000.00	$20,000.00
F. FENCING - 4' Black vinyl fencing	550	LF	$15.50	$8,525.00
G. FRONTAGE - PEDESTRIAN ACCESS (To Community Garden))	900	SF	$6.50	$16,900.00
(6' Wide Concrete Sidewalk x 6" Thick w/ 4" GAB)				
H. AMENITIES				
1.) TRASH RECEPTACLES	3	EA	$450.00	$1,350.00
2.) BENCHES	4	EA	$350.00	$1,400.00
3.) STABILIZING LANDSCAPE (Slope plantings)	1	ALLOWANCE	$20,000.00	$20,000.00
4.) GARDENING SHED (w/ Hose bibs)	1	ALLOWANCE	$20,000.00	$20,000.00

5.) COMPOST BINS	1	ALLOWANCE	$2,000.00	$2,000.00
6.) LIGHTING	4	EA	$2,000.00	$8,000.00
7.) INFORMATION KIOSK	1	ALLOWANCE	$1,200.00	$1,200.00
			COMMUNITY GARDEN SUBTOTAL	**$132,675.00**
			PHASE VIII TOTAL	**$246,660.00**

PHASE IX - North Woods Trail System

SITE PREPARATION	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. STAKING	1	ALLOWANCE	$3,000.00	$3,000.00
B. SELECTIVE CLEARING / EXOTICS REMOVAL	1	ALLOWANCE	$3,000.00	$3,000.00
C. CONSTRUCTION ENTRANCE	1	EA	$800.00	$800.00
D. EROSION / SEDIMENT CONTROL				
1.) SILT FENCE "TYPE C" (Double row)	2,700	LF	$3.50	$9,450.00
2.) HAY BALES	1	ALLOWANCE	$800.00	$800.00
3.) ROCK CHECK DAM	1	ALLOWANCE	$1,500.00	$1,500.00
4.) MULCH / SEED	1	ALLOWANCE	$1,500.00	$1,500.00
5.) NPDES	1	LS	$2,500.00	$2,500.00
			SITE PRPARATION SUBTOTAL	**$22,550.00**

TRAIL SYSTEM	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. MULCH TRAIL				
1.) STAKING	1	ALLOWANCE	$2,000.00	$2,000.00
2.) GRADING	100	CY	$18.00	$1,800.00
3.) 4" GAB	25	CY	$20.00	$500.00
4.) 2" SHREDDED BARK MULCH	12	CY	$25.00	$300.00
B. BOARDWALK CONSTRUCTION (10' wide)				
1.) HELICAL PIER SUBSTRUCTURE (SIngle 5' section per pier, assumed 5' depth to resistance)	11	EA	$1,400.00	$15,400.00
2.) PRESSURE TREATED DECKING (Cost includes PT substructure and 42" rail system at edge of deck)	1,000	SF	$40.00	$40,000.00
C. AMENITIES				
1.) TRASH RECEPTACLES	5	EA	$450.00	$2,250.00
2.) BENCHES	5	EA	$350.00	$1,750.00
3.) BENCHES SWINGS	2	EA	$1,500.00	$3,000.00
4.) PEDESTRIAN BRIDGES	2	EA	$5,000.00	$10,000.00
5.) INFORMATION KIOSK	1	EA	$1,200.00	$1,200.00
6.) TRAIL MARKERS	1	ALLOWANCE	$1,000.00	$1,000.00
7.) SIGNAGE	1	ALLOWANCE	$1,000.00	$1,000.00
8.) LANDSCAPE (Includes woodland meadow plantings)	1	ALLOWANCE	$10,000.00	$10,000.00
			TRAIL SYSTEM SUBTOTAL	**$90,200.00**
			PHASE IX TOTAL	**$112,750.00**

PHASE X - South Side (Bird Sanctuary) - Trail System

SITE PREPARATION	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. STAKING	1	ALLOWANCE	$3,000.00	$3,000.00
B. SELECTIVE CLEARING / EXOTICS REMOVAL	1	ALLOWANCE	$3,000.00	$3,000.00
C. CONSTRUCTION ENTRANCE	1	EA	$800.00	$800.00
D. EROSION / SEDIMENT CONTROL				
1.) SILT FENCE "TYPE C" (Double row)	1,600	LF	$3.50	$5,600.00
2.) HAY BALES	1	ALLOWANCE	$800.00	$800.00
3.) ROCK CHECK DAM	1	ALLOWANCE	$1,500.00	$1,500.00
4.) MULCH / SEED	1	ALLOWANCE	$1,500.00	$1,500.00
5.) NPDES	1	LS	$2,500.00	$2,500.00
			SITE PREPARATION SUBTOTAL	**$18,700.00**

TRAIL SYSTEM	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. MULCH TRAIL				
1.) STAKING	1	ALLOWANCE	$1,000.00	$1,000.00
2.) GRADING	500	CY	$18.00	$9,000.00
3.) 4" GAB	100	CY	$20.00	$2,000.00
4.) 2" SHREDDED BARK MULCH	50	CY	$25.00	$1,250.00
B. FRONTAGE - PEDESTRIAN ACCESS (To Fletcher Park) (6' Wide Concrete Sidewalk x 6" Thick w/ 4" GAB)	2,600	SF	$6.50	$16,900.00
C. BOARDWALK CONSTRUCTION (10' wide)				
1.) HELICAL PIER SUBSTRUCTURE (Single 5' section per pier, assumed 5' depth to resistance)	13	EA	$1,400.00	$18,200.00
2.) PRESSURE TREATED DECKING (Cost includes PT substructure and 42" rail system at edge of deck)	1,200	SF	$40.00	$48,000.00
D. AMENITIES				
1.) TRASH RECEPTACLES	4	EA	$450.00	$1,800.00
2.) BENCHES	4	EA	$350.00	$1,400.00
3.) TRAIL MARKERS	1	ALLOWANCE	$1,000.00	$1,000.00
4.) SIGNAGE	1	ALLOWANCE	$1,000.00	$1,000.00
5.) PEDESTRIAN BRIDGES	3	EA	$5,000.00	$15,000.00
6.) INFORMATION KIOSK	1	EA	$1,200.00	$1,200.00
			TRAIL SYSTEM SUBTOTAL	**$117,750.00**
			PHASE X TOTAL	**$136,450.00**

PHASE XI - Wiltshire Dr. Roadway and Pedestrian Crosswalk Improvements

PEDESTRIAN PLAZA AREA	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. EROSION / SEDIMENT CONTROL				
1.) SILT FENCE "TYPE C" - Double Row	1,300	LF	$3.50	$4,550.00
2.) MULCH / SEED	1	JOB	$1,000.00	$1,000.00
3.) NPDES	1	JOB	$1,500.00	$1,500.00
B. PLAZA				
1.) STAKING	1	ALLOWANCE	$2,500.00	$2,500.00
2.) PAVERS				
A. DEMOLITION - Asphalt Removal	1	ALLOWANCE	$5,000.00	$5,000.00
B. CONCRETE PAVERS - Installed	8000	SF	$10.00	$80,000.00
2.) LIGHTING	12	EA	$6,000.00	$72,000.00
3.) RAISED CROSSWALK	2	JOB	$2,000.00	$4,000.00
4.) BOLLARDS	8	EA	$500.00	$4,000.00
5.) STREET TREES - Understory Flowering Trees	18	EA	$800.00	$14,400.00
6.) LANDSCAPE - Low maintenace shrubs, perennials, grasses	1	ALLOWANCE	$10,000.00	$10,000.00
C. MONUMENT SIGNAGE - 1 ea. side of road @ ea. end of Wiltshire Dr.	4	EA	$5,000.00	$20,000.00
			PEDESTRIAN PLAZA AREA SUBTOTAL	**$218,950.00**
			PHASE XI TOTAL	**$218,950.00**

Item Description	**Quantity**	**Unit**	**Unit Price**	**Total**

MISCELLANEOUS

RENOVATIONS / IMPROVEMENTS	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. SILTATION REMOVAL	1	ALLOWANCE	$75,000.00	$75,000.00
			SUBTOTAL RENOVATIONS	**$75,000.00**

SITE LANDSCAPING	*QUANTITY*	*UNIT*	*UNIT PRICE*	*TOTAL*
A. LANDSCAPE (General Park Landscape)	1	ALLOWANCE	$50,000.00	$50,000.00
			SUBTOTAL SITE LANDSCAPING	**$50,000.00**
			MISCELLANEOUS TOTAL	**$125,000.00**
			GRAND TOTAL	**$2,695,117.00**
			MOBILIZATION, FEES, BONDS, ETC. (10% TOTAL)	$269,511.70
			SUBTOTAL	**$2,964,628.70**
			15% CONTINGENCY FOR PRELIMINARY PLAN LEVEL COST ESTIMATE	$444,694.31
			SUBTOTAL	**$3,409,323.01**
			12% DESIGN, ENGINEERING AND PROGRAM MANAGEMENT FEES	$409,118.76
			PROJECT TOTAL	**$3,818,441.77**

NOTE:
jB+A Project Total $3,818,441.77 (April 25, 2008)

Note: Totals reflecting quantities different from those listed above, have not been approved by jB+a, inc.

Note: this cost estimate is the Landscape Architect's opinion of probable cost but is not guaranteed because the Landscape Architect has no control over the market, the contractor's bid or the length of time between the estimate creation and the project bid.

APPENDICES

Appendix B: Meeting Minutes
Public Input Meetings 1 & 2

LAKE AVONDALE PARK MASTER PLAN

Minutes from: 03.03.07 Public Input Meeting #1

Attendees: **Mayor and Commissioners** – Mayor Jerry McCumber, Andy LaRocco, Frank Jones, Sandra Varian, Lyda Steadman
City of Avondale Estates City Manager – Ron Rabun

Lake Avondale Advisory Board – Sandra Neusa, Steve Sanchez, Chris McArthur, Camilla Warren
jB+a, inc. – Steve Provost, Raigan Carr
Aquascapes Environmental – Jim Lanier

Public participants – Rutledge Gross, Bob Gross, Laura Sanchez, Peggy Burnette, Richard Starcher, David Greenberg, Donna Fay, David Mattingly, Greta Mattingly, Thomas Brooks, Ted Penrod, Jean Pulliam Penrod, Betty Jones, Kendall Neuman, Nick Mann, Julie Feely, Ken Feely, Allan Kirwan, Robert Elrod, Ben Bell, Lindy Newman, Charles Absher, Camille Harvey, Gail Ronan, Leila Finn, Bob Allison, Kathryn Kelly, Sidney Murphey, Red Murphey, Eve Jones, Phil Jones, Ernelle Itle

Location: City of Avondale Estates City Hall

Time: 1:00pm

City Manager Ron Rabun opened the meeting and welcomed the community participants to the first Public Input Meeting for the Lake Avondale Park Master Plan. Introductions of the City of Avondale Estates Commissioners, Lake Avondale Advisory Board, and Consultants were also presented.

Steve Provost of jB+a, inc. outlined the layout of the meeting and reviewed the intent and importance of the public input meeting.

- Establish park program that meets the needs of the park community
- Establish appropriate activities for the park
- Help interested users design / create their park with guidance from professionals

The Lake Avondale Park Site Analysis boards were then presented by Raigan Carr of jB+a. Analysis boards included slope and hydrology analysis, vegetative analysis, and opportunities / constraints analysis. The following points regarding the site were emphasized:

Slope Analysis

- Site reflects fairly level site.
- Majority of slopes on the site range lie in the 5% to 10% slope range.
- Some serious rutting of slopes where stream has eroded away banks.
- Site possesses predominantly positive drainage towards a small stream and drainage swales on site.
- Lake serves as retention basin for site.

Vegetative Analysis

- Predominantly hardwoods in the "woods" area and "bird sanctuary" areas consisting of oaks, tulip poplar, sycamore with some evergreen trees including southern magnolia and pine.

- Many invasives found throughout the site but specifically in lower lying areas, including: privet, wild rose, smilax, poison ivy.
- Many large specimen quality trees (30"+ DBH) located on site would be an asset to the site if they were retained.

<u>Site Analysis</u>

Constraints

- 75' setback along all waterways, including Lake. (25' undisturbed buffer from top of each bank with and additional 50' setback)
- Significant erosion along banks of lake and along stream in bird sanctuary.
- Sanitary sewer easement located in bird sanctuary

Opportunities

- Many views into the site from surrounding residences.
- Main "Gotcha!" points at the intersections of Berkeley Road and Wiltshire Drive, and Lakeshore Drive and Wiltshire Drive.
- Minimal slopes (majority of site is 5-10%)
- Large specimen trees to be retained
- Existing Lake features - both physical and visual connections
- Neighborhood connections
- Water quality of lake near normal for urban / city conditions

Following the presentation of the Analysis, the meeting was then open discussion. Comments are as follows regarding current park use, issues and concerns, and needs and desires of the community.

Park Use

1. Fishing
2. Walking
3. Sailing Model Boats
4. Reflecting
5. Enjoying the views

Issues / Concerns

1. Boats on the Lake (no motorized boats)
2. Dog Maintenance (bag disposal)
3. Goose Issues (get rid of them)
4. Address Laws / Regulations
    - Require and check permits
    - Fishing
5. Erosion Problems
6. Over developing park
7. Grades / Slopes at Lake Edge
8. Random Growth of Vegetation
9. Improved Drainage
    - Lawn at Community Building
    - Pipe runoff
    - Pervious Surfaces
    - Berkeley / Wiltshire

10. Water Quality at four corners of Lake
11. Dam maintenance
12. Funding / Costs
13. Bird Sanctuary safety issues
14. Outlaw use of specific species of plants to aid in maintenance of park
15. Protection of lake edge
    - Small platform
    - HC accessible

Needs / Desires

1. Improve signage
2. Better access to path / paved
3. More swings and benches
4. Creative gathering spaces / seating areas
5. Maintain views into and around park
6. Keep park natural but not too pristine
7. Work to keep the animals
8. Bring back the ducks
9. Adopt either a formal or natural theme
10. Dog Park
11. Maintenance Plan
12. Improve water quality – Dredge lake?
13. Determine way to reclaim land fill
14. Nature trails in Bird Sanctuary
15. Potential Certification at bird sanctuary
16. Potential link to Fletcher Park
17. Nature Trails in the "woods"
18. Use of Native plants
19. Maintain "antique" look of Avondale Estates
    - Trees
    - Lake
20. No more Memorial Trees
21. Eliminate Crape Myrtles / Volunteers
22. Improve view shed to lake

Comment cards were issued at the commencement of the meeting to be returned at the end of the meeting. Data was recorded as follows:

1. Drainage, drainage, drainage!! I live across from the bird sanctuary. When it rains, I watch the water rush down through our yard and down the street.
2. How about some "volunteer days" for removing ivy and privet?
3. More appealing entrance to bird sanctuary.
4. Better transition, connection between lake and bird sanctuary areas.
5. Do not pave or lay concrete paths around the lake
6. Create better aesthetics around benches to make them more inviting to sit on.
7. Develop a small botanical garden or aviary type setting in bird sanctuary.
8. Remove the geese.
9. Red clay "is not feasible" we need a TRAIL at the lake and nature trails on both ends (Boy scout hut and bird sanctuary)
10. Can we have raw edge slate / stone walkway? Gravel is not good with strollers or wheelchairs.

11. Dog Park
12. More seating areas
13. What about a "Running trail" with distance markers?
14. Information boar with species descriptions for birds, turtles, amphibians.
15. Reclaim dump area for bird watching.
16. Stop all fireworks displays
17. Past dam and bird sanctuary clear and create pathway around a "bog" area to contain and bleed off water, plant species that attracts birds and filters water.
18. User friendly!
19. I think a level walk (wood / recyclable material like a beach boardwalk) area around the lake would make traversing safe and comfortable and would keep areas protected. Would love a nice lawn area for picnicking and lounging.
20. Clearer water
21. Dog bag / poop utility
22. Walking trails in woods and sanctuary
23. During the garden show they had a waterfall element by the bridge and it was wonderful – added a great nature feel to the lake.
24. Picnic table or two – some Adirondacks on lawn near club.
25. I would like to see the edges of the lake graded at a gradual slope. This is the way that most lakes on golf courses are graded.
26. Remove the random growth along the edges for better visibility
27. Any walkways should be natural in materials of construction.
28. Determine whether our lake and park are open to all or limited access. Whatever we decide, should be enforced. If open – take down the signs, if closed – then enforce.
29. Good input from residents. Consensus seems to be KEEP LAKE AVONDALE NATURAL!!
30. improve erosion as best you can
31. Provide "natural" nature trails in areas behind clubhouse, but no zoned areas and no playground equipment
32. Encourage, in any way you can, for people to observe, study, and enjoy the "wildlife" (ducks, geese, turtles)
33. Be careful what you do with the tree issue! Keep existing ornamental trees, i.e. ornamental cherry trees, crape myrtle bushes, etc.
34. Natural, natural, natural! Easy kickback experience.
35. No boardwalks around trees at lake edge, no concrete, no gathering spots that encourage loitering.
36. Reflections in water of seasons are important.
37. Geese are number one problem – get rid of them.
38. I would like to see minimum amount of change to lake – no playgrounds, leave natural.
39. I would enjoy being able to canoe the lake – with permit for city residents only, no motor boats, no boats left in the lake.
40. I would be okay if duck population reduces if geese were eliminated – for example, no feeding of any birds, geese or ducks.
41. Keep present swings and benches in good repair; however, not sure that I would increase number, it would just attract more people from outside Avondale, placing more demand on the lake.

If there are any additions or corrections to these meeting minutes, please contact Raigan Carr of jB+a as soon as possible at 678.247.0727.

LAKE AVONDALE PARK MASTER PLAN

Minutes from: 04.21.07 Public Input Meeting #2

Attendees: **Mayor and Commissioners** – Mayor Jerry McCumber, Andy LaRocco, Frank Jones, Sandra Varian, Lyda Steadman

Lake Avondale Advisory Board – Sandra Neusa, Steve Sanchez, Chris McArthur, Camilla Warren, Ted Waters
jB+a, inc. – Steve Provost, Raigan Carr

Public participants – Mel Hatfield, Peggy Burnette, Gail Burbridge, Frank Jones Ted Penrod, Bob Ailion

Location: City of Avondale Estates City Hall

Time: 1:00pm

Sandra Neusa opened the meeting and welcomed the community participants to the second Public Input Meeting for the Lake Avondale Park Master Plan. Introductions of the Lake Avondale Advisory Board, Consultants, and public participants were made.

Steve Provost of jB+a, inc. outlined the layout of the meeting and reviewed the intent and importance of the second public input meeting.

- Review Concepts for feedback
- Help interested users design / create their park with guidance from professionals

The Lake Avondale Park Site Analysis boards were then reviewed by Raigan Carr of jB+a. Analysis boards included slope and hydrology analysis, vegetative analysis, and opportunities / constraints analysis. Raigan then presented 3 concepts for the Lake Avondale Park that had been generated by jb+a based on input from the first public meeting. Concepts illustrated the following characteristics.

Concept 1 (Full scale park plan)

Lake

- Multiuse Trail around lake – creates a loop
- Boardwalk connection allows for access from path to gathering space on lake @ south end of lake.
- Platforms for fishing gathering project into water at various locations around lake.
- Aerating fountain centrally located in lake.
- Banks landscapes with low maintenance native grasses and plantings to direct access to water and aid in erosion control
- Engineered lawns to allow for open space at edge of lake.

"**The Woods"**

- Nature Trail meanders through woods allowing for "areas of discovery" (Labeled plants and wildlife habitat0
- Footbridges allow for access over stream

- Rain Garden type feature / Enhanced detention areas at North end of "the Woods" create a series of micro-pools to aid in storm water control and water quality. To be planted as a "discovery area" / improved wetland.

Pedestrian Plaza

- Center of Wiltshire Road improved to form a Pedestrian Plaza area to link the lake and bird sanctuary so that they function as a continuous park.
- Decorative paving, signature planting, signature streetlights, bollards etc, strengthen this connection.
- Raised Crosswalks and signature welcome corners to announce arrival at park.

Bird Sanctuary

- More garden-esque
- Terrace banks down into bird sanctuary. Planted with low maintenance, ornamental plantings to aid in erosion control and aesthetics.
- Paved observation area at the bottom of stairs overlooking "Rain Garden"
- Rain Garden type feature / Enhanced detention areas at North end of Bird Sanctuary create a plunge pool (lake overflow) and series of micro-pools to aid in storm water / erosion control and water quality. Rain garden in this manner will allow slopes to be cut back and banks restored. Large boulders and decorative plantings planned to allow for this space to be used.
- Observation area / Habitat garden to be located on former composting area. Excavated to allow for hard surface viewing platform (overlook bird sanctuary) and allow for Handicapped access, tripod setup, birding, etc. Habitat / Butterfly gardens with appropriate low maintenance.
- Nature trails throughout bird sanctuary connect into Fletcher Park and existing trail.

<u>Concept 2 – (Emphasis on Lake Area)</u>

Lake

- Multiuse Trail around lake – creates a loop
- Gathering space @ south end of lake (extension of existing grand staircase).
- Boardwalk protrudes from gathering space further into lake to Lake Pavilion.
- Smaller / more fishing / decking platforms project into water at various locations around lake to allow for different views / experiences of the lake. Aids in erosion control my directing pedestrian access to lake edge.
- Aerating fountain centrally located in lake.
- Banks landscapes with low maintenance native grasses and plantings to direct access to water and aid in erosion control

Pedestrian Plaza

- Wiltshire Road improved to form a Pedestrian Plaza area to link the lake and bird sanctuary so that they function as a continuous park.
- Decorative paving, signature planting, signature streetlights, bollards etc, strengthen this connection.
- Raised Crosswalks and signature welcome corners to announce arrival at park.

<u>Concept 3 – (Emphasis on Lake Area)</u>

Lake

- Multiuse Trail around lake – creates a loop
- Edge of lake lined with stone to help control erosion, provide pedestrian access to lake edge.

- Lawn extends to stone lake edge. (No plantings around lake)
- South end of lake improved by filling corners to eliminated "debris collection" areas. Allows for multi-use path to flow continuously allowing access to gathering platform.
- Fountain centrally located

Following the presentation of the Concept Boards, a breakout session that included informal table discussion and brainstorming commenced. The comments and sketches produced are to be used to produce the Preliminary Master Plan for the Park. The following comments were made.

1. *Do not like the boardwalk idea. Utilize the idea from Concept 3 to fill portions of the lake to accommodate the multi-use trail and to eliminate "debris collection" areas.*
2. *Do NOT like the pavilion on the lake.*
3. *Keep the decking off the water or with little protrusion into the lake.*
4. *Low maintenance.*
5. *Path around lake needs to be more aesthetic than granite fines.*
6. *Natural area path could be granite fines type path*
7. *Relocate azaleas in lawn area to woodland path area.*
8. *Park should display "Transitional zones" (grass to some trees to woodland)*
9. *Remove all landscaping from lake*
10. *Park edge should have street trees – single species, oak or elm*
11. *Sidewalk on park edge would be redundant*
12. *Possible Littoral Shelf at north edge of lake*
13. *NO fountain in lake – possibly bubblers for aeration.*
14. *Need dog bag station.*

If there are any additions or corrections to these meeting minutes, please contact Raigan Carr of jB+a as soon as possible at 678.247.0727.