

### 3 COMMENT ANALYSIS

This section includes a brief description of the methods used to process the comments received during the scoping period, a summary of the issues identified from the scoping comments, and the results of comment analysis.

#### 3.1 Comment Processing

Comments were received during the scoping period in the following ways:

- Project website comment form
- Hard-copy comment forms
- Mailed letters
- Emailed letters
- Verbal comments submitted to a court reporter (at the public meetings)

All submissions were scanned and/or stored electronically. A database was used to compile and categorize comments and generate summary reports. Typically, written and verbal comment submissions contain multiple comments on various topics. All submissions received during the scoping period were reviewed by the project team, and individual comments within each submission were entered into the database. Comments were then categorized by topic. Where comments applied to several topic categories, they were categorized under each subject, ensuring that each comment was fully captured and assessed relative to the scope of the project.

#### 3.2 Summary of Scoping Comments

The following sub-sections provide an analysis of comments received by format, by commenter and by major topic (resource area) categories. The issues identified for consideration in the EIS are summarized based on the comments received.

##### 3.2.1 Comments Received

USACE received a total of 114 comment submissions during the scoping comment period. Table 3-1 and Figure 3-1 summarize the number of submissions received by media format. Some commenters made submissions using multiple formats (e.g. submitted comments on the website and also through a letter). This table counts them as separate submissions. Some submissions were received on behalf of multiple parties, which was counted as a single submission.

The USACE received 545 form emails submitted through the American Rivers website after the scoping period ended (between May 15, 2012 and September 29, 2012)<sup>3</sup>. These form emails commented on two proposed reservoir projects<sup>3</sup> (including the Glades Reservoir) on the Chattahoochee River. These identical or similar emails were received after the scoping period had ended on April 17, 2012, and are not included in the submission total in this report.

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<sup>3</sup> The form email provided by the American Rivers site also includes comments about a reservoir that is not a part of the proposed Glades Reservoir water supply project. A copy of the form email is included in Appendix F.

**Table 3-1. Summary of Comment Submissions by Media Format**

Format	Number of Submissions <sup>1</sup>	Percent of Total
Letter	24	21%
Website	68	59%
Email	2 <sup>2</sup>	<3%
Verbal Comment	14	12%
Comment Form	6	5%
Total	114	100%

<sup>1</sup> A letter/email submitted on behalf of multiple parties was included as one submittal (i.e. One letter was submitted on behalf of six NGOs. This would be counted as one submission on behalf of NGOs).

<sup>2</sup> The 545 form emails submitted through the American Rivers website were received after the scoping period ended (between May 15, 2012 and September 29, 2012) and are not included in the submission total.

**Figure 3-1. Percentage of Comment Submissions by Media Format**

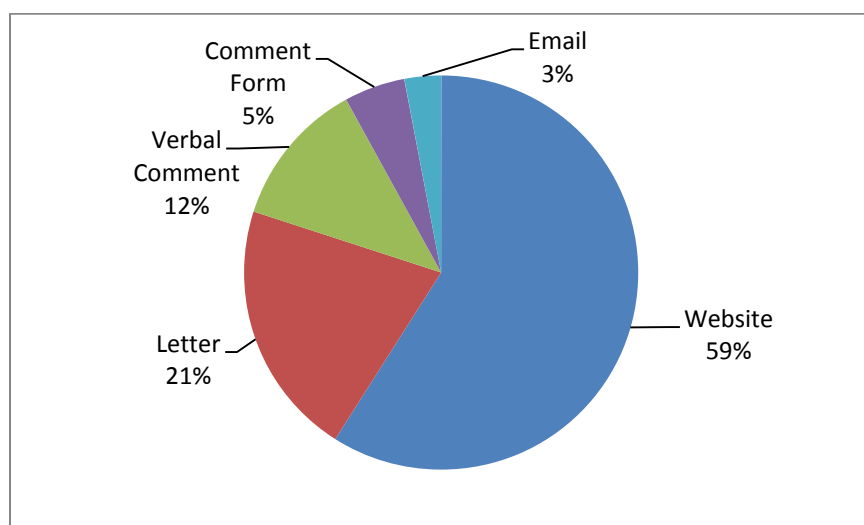
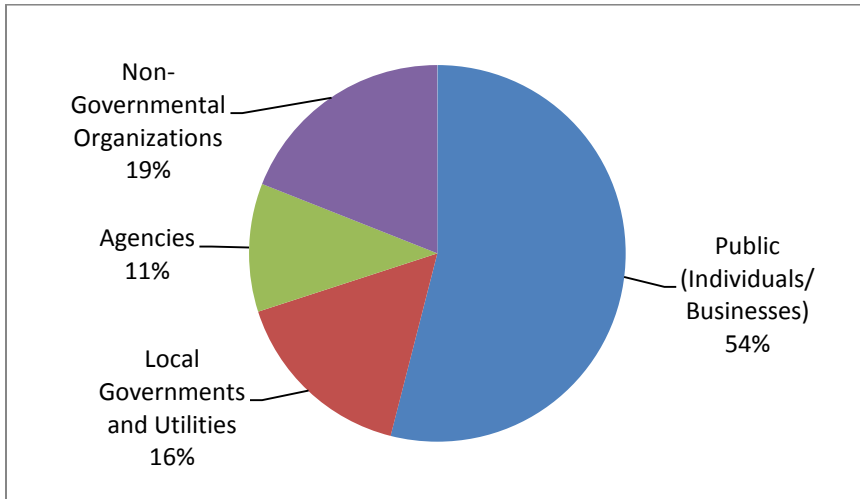


Table 3-2 and Figure 3-2 summarize the number of submissions received by type of commenter: public (individuals and businesses), local governments and utilities, agencies (federal, state and regional), and non-governmental organizations (NGOs).

**Table 3-2. Summary of Comment Submissions by Type of Commenter**

Group	Number of Submissions	Percent of Total
Public (Individuals/Businesses)	61	54%
Local Governments and Utilities	18	16%
Agencies	13	11%
Non-Governmental Organizations	22	19%
Total	114	100%

**Figure 3-2. Percentage of Comment Submissions by Type of Commenter**



### 3.2.2 Comments by Category

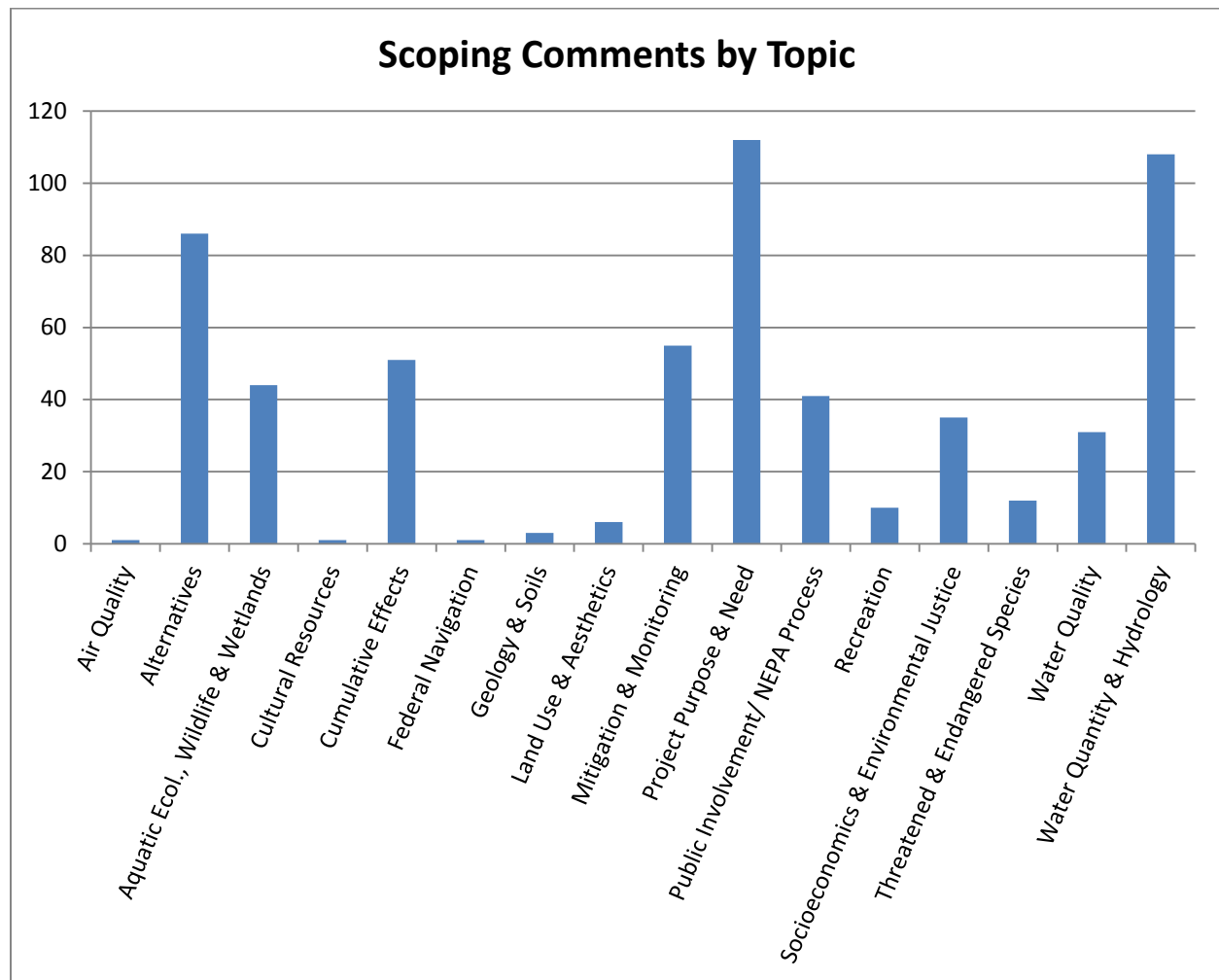
Within the comment submissions, individual comments were identified. A total of 592 individual comments were identified from the 114 submissions. Each individual comment was organized by topic and recorded in the comment database. Table 3-3 and Figure 3-3 present the number of comments received by topic.

**Table 3-3. Number of Comments by Topic**

Topic	Number of Comments <sup>1</sup>	Percent of Total
Air Quality	1	<1%
Alternatives	84	14%
Aquatic Ecology, Wildlife and Wetlands	43	7%
Cultural Resources	1	<1%
Cumulative Effects	51	9%
Federal Navigation	1	<1%
Geology and Soils	3	1%
Land Use and Aesthetics	6	1%
Mitigation and Monitoring	55	9%
Project Purpose and Need	111	19%
Public Involvement and NEPA Process	41	7%
Recreation	10	2%
Socioeconomics and Environmental Justice	35	6%
Threatened and Endangered Species	12	2%
Water Quality	31	5%
Water Quantity and Hydrology	107	18%
Total	592	100%

<sup>1</sup>The contents of the form emails submitted through the American Rivers website were similar or identical; these comments were received after the scoping period ended and are not included in the comment totals.

**Figure 3-3. Number of Comments by Topic**



### 3.2.3 Issues Identified from Comments

The issues identified from the scoping comments are summarized in this section. The sub-sections are organized by topic and listed in an alphabetical order. The full comments for each topic/resource area are presented in Appendix F. The percentage of comments received by commenter type (e.g. agencies, individuals, non-governmental organizations) for each topic can also be found in Appendix F.

#### 3.2.3.1 Air Quality

One individual offered a comment on this topic, as summarized below.

- Assess the effects the projected population growth supported by the project will have on air quality in the region.

#### 3.2.3.2 Alternatives

This topic received 84 comments, or the third highest number of comments (14 percent of all comments received). The comments received on this topic are summarized below.

### *Alternatives Development and Analysis*

- Conduct a robust analysis of alternatives in the EIS and critically evaluate all of the impacts from the numerous components to the proposed Glades Reservoir.
- Consider alternatives that do not meet 100 percent of Hall County's stated unmet 2060 demands.
- Demonstrate selection of the Least Environmentally Damaging Practicable Alternative (LEDPA).
- Define 'reasonable alternatives' broadly so as not to restrict the field of alternatives too much.

### *Operational Scenarios*

- Clarify how the reservoir would be operated, including during drought periods.
- Consider restricting the times that withdrawals can be made for the proposed Glades Reservoir and the Cedar Creek Reservoir from the Chattahoochee River to periods of high flows, such as only when river flows are in the top quartile on a monthly average basis.
- Consider operational alternatives to meeting unmet need.
- Consider limitation of withdrawals from the Chattahoochee River to high flow periods, and restriction of withdrawals from the proposed Chattahoochee pump station to only those periods when ACF composite conservation storage is in Zone 1.
- Consider restrictions on filling the proposed Glades Reservoir when conservation storage in Lake Lanier is below Zone 1.
- Consider limitations of the transfer or sale of water by Hall County outside the ACF Basin.
- Evaluate maximization of return flows to the Chattahoochee Basin.
- Maintain more protective minimum flows above the annual 7Q10 (the lowest annual 7-day average flow that occurs once in 10 years) for both the Chattahoochee River and Flat Creek.
- Devote or allocate a portion of the proposed Glades Reservoir water to the refill of Lake Lanier under certain conditions, such as when Lake Lanier is below Zone 3.
- Consider other alternatives that mitigate the project's impact on the refill rate at Lake Lanier.
- Consider alternatives that convey water directly from the proposed Glades Reservoir to the existing Gainesville Lakeside and/or Riverside Water Treatment Plants.
- Identify any significant operational issues with the configuration of the project as presented.

### *Project Costs*

- Evaluate the energy costs associated with operation of the proposed dam, pumping stations, and pipelines.
- Evaluate the energy implications of this pumping and processing scheme through a life-cycle cost analysis, comparing the proposed option to expansion of the current water supply system.
- Identify the full cost of the proposed project and where the money will come from.
- Provide a detailed analysis, including costs projections, of how water will be treated and distributed.
- Include a detailed cost comparison of all alternatives, including conservation and efficiency measures, that provides line item totals for the dam and reservoir construction, construction of multiple pump stations, construction of each pipeline, mitigation costs, road relocation, water treatment facility and new distribution lines.
- Disclose the anticipated expense of building, maintaining, and operating a water treatment facility on Cedar Creek Reservoir and use this information in the analysis of the preferred alternative.

*Water Sources in Oconee Basins/Expansion of Cedar Creek Reservoir*

- Consider alternatives in the Oconee Basin and other adjoining river basins, including applying for an increased withdrawal for the Cedar Creek Reservoir from the North Oconee River or from any other river or stream in the Oconee Basin.
- Expand Cedar Creek Reservoir as an alternative to Glades Reservoir.
- Increase size/yield of existing reservoirs, including Cedar Creek Reservoir.
- Increase withdrawal from existing sources.

*Water Conservation*

- Consider water conservation and efficiency measures that would not involve damaging waters of the United States, including a utility-specific analysis of water conservation and efficiency as water supply alternatives.
- Consider alternatives which reduce water quantity demands, such as water conservation and wastewater recycling.
- Ensure compliance with EPA Region 4 Guidelines in Water Efficiency Measures for Water Supply Projects in the Southeast, including: pricing for efficiency, full cost pricing, conservation pricing, stopping leaks, metering all water users, and retrofitting of all buildings.

*Recycle and Reuse*

- Evaluate the potential for pump back options using treated wastewater as an alternative (See Comment 19, Appendix F).
- Conduct a thorough assessment of the contributions that recycling and reuse can make to satisfying unmet demand in whole or part.

*Raising Lake Lanier Water Levels*

- Consider raising the level of Lake Lanier for meeting increased demand.
- Consider increasing the size/yield of Lake Lanier.
- Consider increasing withdrawal from existing sources.

*Other Withdrawal or Treatment Locations*

- Consider intake from another location.
- Consider river intake system without reservoir(s).
- Consider river intake system with a reservoir.
- Consider multiple river intakes with storage reservoirs.
- Compare the proposed plan against locating a new plant at some other "strategic" location.

*Consideration of Alternatives in Combination*

- Alternatives should not be considered only in isolation.
- Alternative analysis should include a combination of options to produce the required future water needs, including water conservation, wastewater reuse, groundwater sources, and other options.

- The No Action alternative should be reconsidered in light of the Court of Appeals decision that found that water supply is an authorized purpose of Lake Lanier, other evaluation of population and water demand projections, the availability of aggressive water conservation and efficiency programs, and incentives and mandates that should be considered as viable options for significant water supply for Hall County.
- Minimization alternatives should include: combining water conservation with applicant's proposal, combining groundwater use with applicant's proposal, and reducing the size of the reservoir for applicant's proposal.

#### *Identification of Other Reservoir Sites*

- Describe in a way that is specific and repeatable, how potential reservoir sites were identified.
- Re-evaluate Mud Creek Reservoir (independent of Hagen Creek) as an alternative.
- Consider a reservoir at Tallulah Falls.
- Consider a reservoir near Jefferson in Jackson County.
- Consider upland reservoir(s).
- Consider single or several traditional reservoirs (no pumped storage).

#### *Groundwater*

- Consider expanding groundwater sources to supplement needs.
- Consider use of the 3.5 mgd of groundwater permitted for withdrawal for Hall County by EPD.
- Provide specific data regarding the location of wells, each well's guaranteed performance, each well's drawdown (cone of influence) of groundwater resources under maximum use, what plans the County has for drilling new wells and where specifically, how the groundwater enters or influences the County's existing distribution system.

#### *Other Water Sources*

- Seek water from other resources.
- Consider the Tennessee River as a water source.
- Consider pumping water north from other USACE lakes to meet needs (i.e raising West Point lake storage level minimums and pumping water north from West Point to Lanier as an alternative).
- Consider alternatives such as inter-basin transfers to the ACF Basin and desalination of salt water.

#### *Rate of Wastewater Return*

- Analyze impacts of all alternatives on Lake Lanier, other downstream federal projects, and other resources with a range of assumptions regarding return flows, including zero return flows.

#### *Water Purchase*

- Consider purchase of water.
- Consider alternatives available to third parties (to whom water would be sold).



### *Growth Strategies*

- Consider encouraging growth southwest of Atlanta by the state as a more reasonable alternative. The basin is larger and properly managed water resources southwest of the metro area may offer more realistic support for growth.

### *Pipeline Route*

- Consider another route to reduce the length of pipe proposed.
- Consider placing the pipeline on the other side of Highway 365 than what is currently proposed to avoid interference with two major thoroughfares.

### **3.2.3.3 Aquatic Ecology, Wildlife and Wetlands**

There were 43 comments on this topic, or approximately 7 percent of all comments received. The comments received on this topic are summarized below.

#### *Impacts to the Apalachicola River System*

- Evaluate impacts of a reduction in fresh water entering the Apalachicola river system on the ecosystem.
- Evaluate how the proposed project will adversely impact one of the last great pristine bays in North America.
- Evaluate the effects of altered flow on all hydrologically-connected wetlands in the reservoirs, tributaries entering the reservoirs, and riverine floodplain and wetlands of the Apalachicola River (e.g., changes in vegetation type and acreage, inundation depth and duration, and backwater effects on the tributary wetlands).
- Evaluate the potential for vegetation changes in the Apalachicola River floodplain, including low flow impacts to freshwater aquatic vegetation and fisheries near Apalachicola River delta and Bay.
- Evaluate the potential for disruption in the natural food web if flows are reduced significantly (i.e., crayfish, mussel, macroinvertebrate populations in river and floodplain) in the Apalachicola River and Bay (cf., *Importance of River Flow to the Apalachicola River-Bay System*. Robert J. Livingston, Department of Biological Science, Florida State University, Tallahassee, Florida, September 2008).
- Evaluate whether the proposed project complies with applicable laws, such as the Clean Water Act, National Environmental Policy Act (NEPA), Endangered Species Act of 1973 (ESA), the Water Supply Act, and the Water Resources Act of 1972 (by the Florida Legislature), separately or when the cumulative impacts of the proposed projects and similar projects within the ACF Basin are considered (See Comment 128, Appendix F).
- Evaluate physical estuary structure changes (e.g. increased tidal influence with inflow reduction) for the Apalachicola River and Bay.
- Evaluate the potential for changes to transport of material to estuary in the Apalachicola River and Bay.

#### *Impacts to Fisheries and Habitat*

- Confirm that the proposed project(s) would not occur in the vicinity of essential fish habitat (EFH), as designated by the South Atlantic Fishery Management Council or NMFS.
- Evaluate impacts to species such as striped bass, walleye, shoal bass, spotted bass, and other species that utilize the stretch of the Chattahoochee River within the proposed project either seasonally or year-round.
- Evaluate how the river chub, the shoal bass and other species that do not occur in the rest of the basin will be affected when the Upper Chattahoochee system changes from lotic to lentic (non-flowing).
- Evaluate impacts to the river chub, the shoal bass and other species that are present in the Upper Chattahoochee River.
- Evaluate the effect of water temperature changes downstream of the dam on native species of fish.
- Analyze the validity and conclusions presented in Hall County's *Study of Flow Impacts on the Fish Community in the Chattahoochee River Downstream of the Proposed Water Intake (Dec. 2010)*.
- Evaluate the impacts to fish species if the stream flow in its habitat was limited to an annual 7Q10 flow regime.
- Evaluate effects on the brown trout fishery on the Chattahoochee River below Buford Dam, especially those arising from adverse hydrological impacts to Lake Lanier.
- Evaluate the potential loss of unique and biologically important aquatic habitats and spawning grounds (e.g., rock shelves, natural bank root systems, and woody debris) in the ACF Basin during critical life history stages for fish and wildlife.
- Evaluate fisheries impacts in ACF Basin and effects of decreased connectivity to floodplain/sloughs including, without limitation, impacts on listed species.
- Evaluate the effects of decreased flow on Gulf striped bass and Sturgeon thermal refugia in Apalachicola River.
- Evaluate the potential for vegetation changes in the Apalachicola River floodplain, including low flow impacts to freshwater aquatic vegetation and fisheries near Apalachicola River delta and Bay.
- Review the comprehensive assessment on how reduced flows could specifically impact aquatic organisms in the ACF Basin presented in the USFWS Draft Fish and Wildlife Coordination Act (FWCA) report to the USACE (USFWS 2011).
- Evaluate the effect of the proposed Glades Reservoir and dam on fish migration and recolonization in a watershed that has already been impacted by Lake Lanier.
- Evaluate the effect of the project on host fish availability for native mussels in the immature stage, the glochidia (see Williams et al. 1993).

#### *Impact of Dam Operation on Aquatic Species*

- Evaluate how the dam will block movement of aquatic species for daily and seasonal timeframes.
- Evaluate how the project will affect migration or recolonization of species, particularly in response to droughts or other disturbances.
- Evaluate the effects of the proposed water intake structure on the Chattahoochee River, including adequate fish protection to ensure resident fish populations are not adversely affected due to impingement and entrainment.
- Address structure design to evaluate potential long-term impacts of reservoir construction and operation on fish populations due to the entrainment and impingement of fish and their eggs.

Entrainment occurs when fish and/or their eggs and larvae are killed or injured when they are drawn into a water intake and cannot escape. Impingement occurs when an organism is sucked against an intake screen and is unable to free itself. Impacts are likely to vary by species depending on swimming ability, sensitivity to contact with hard surfaces, and intake design.

#### *Impacts in the Reservoir Footprint*

- Evaluate the effect of a reduction of floodplain forest on the contribution of that area to the trophic base, water quality and habitat in the basin.
- Analyze the potential change to aquatic life that will take place in the footprint of the reservoir.
- Analyze the change in species that will take place as the reservoir is filled, specifically identifying those species that may be extirpated or not be able to survive in non-flowing conditions.
- Conduct a functional assessment of all wetlands, streams and upland habitats to be filled, flooded or cleared at maximum (not just average) pool level including future expansions.

#### *Biological Effects*

- Assess biological and water quality impacts to Lake Lanier.
- Analyze the impact of the project on water quality including temperature, stream flow patterns, and aquatic wildlife.
- Evaluate the effect of impoundment in reservoirs on water temperatures downstream and in the reservoirs themselves.
- Evaluate impacts of the proposed water withdrawals on the water quality and biodiversity of Chattahoochee River and Lake Lanier.
- Evaluate the effect of reduced downstream flows on increased concentrations of contaminants, increased water temperatures, lower dissolved oxygen, reduced sediment transport, and reduced habitat availability, all of which can reduce populations of aquatic organism.
- Evaluate the effect interbasin transfers would have on aquatic life.

#### *Spread of Invasive Aquatic Species*

- Assess the potential for reservoir aquatic weed problems.
- Evaluate the effect of water temperature changes on the spread of invasive species.
- Evaluate the potential increase in invasive species in the Apalachicola River and Bay due to their ability to take advantage of changes.

#### *Stream and Wetland Impacts*

- Include a detailed description of all project stream and wetland impacts resulting from the numerous actions proposed by Hall County including the reservoir and dam construction, pump stations and pipelines, and water treatment facilities and distribution lines.
- Evaluate the effect interbasin transfers would have on aquatic life and overall environmental health of the receiving basin.
- Evaluate the impact of reservoir construction and operation on the fragmentation and destruction of stream and wetland habitat.
- Evaluate the effect of inundating 18 miles of free-flowing stream habitat and 39.20 acres of associated wetlands on natural aquatic habitat within the Flat Creek watershed.
- Evaluate the effect of the Glades Reservoir and dam on stream connectivity.

- Assess impacts to riparian buffers.

#### 3.2.3.4 Cultural Resources

One individual (self-identified as Native American) offered a comment on this resource. The comment is summarized below.

- Evaluate whether the project will have an effect on Native American artifacts.

#### 3.2.3.5 Cumulative Effects

Accounting for almost 9 percent of all comments received, 51 comments were received on cumulative effects. The comments received on this topic are summarized below.

##### *Cumulative Impact Analysis Methodology*

- Analyze cumulative impacts using the best available information on the effects of groundwater pumping on streamflows, which at least equal those quantified by the USGS groundwater model for southwest Georgia (See Comment 143, Appendix F).
- Review reports issued by the USGS regarding cumulative effects of flow reductions on the Apalachicola River (*Professional Paper 1594, Scientific Investigations Report 2008-5062, Scientific Investigations Report 2008-5173*).
- Analyze the “intensity” of the cumulative impacts of water allocation in Georgia and reservoir management on the ACF Basin, including the degree to which the effects on the quality of the human environment are likely to be highly controversial.

##### *Potential Reallocation of Storage at Lake Lanier*

- Analyze the direct, indirect and cumulative impacts of the proposed reallocation of storage at Lake Lanier within the Chattahoochee Basin.
- Analyze impacts to the quantity, quality, or timing of water flow into Alabama as a result of the project and reallocation of storage at Lake Lanier within the Chattahoochee Basin.
- Evaluate the cumulative effects of the uncertainty regarding future allocation out of Lake Lanier for meeting metro Atlanta water supply needs.

##### *Other Reservoirs in the ACF Basin*

- Analyze the direct, indirect and cumulative impacts of proposed or constructed water supply storage reservoirs within the Chattahoochee Basin.
- Evaluate the cumulative effects of future operations of Lake Lanier and the remaining federal reservoirs (West Point Lake, Lake W.F. George and Lake Seminole).
- Consider the cumulative effects of currently proposed and reasonably foreseeable impoundments in the entire Chattahoochee system from North Georgia through Alabama and Florida, not just this project in isolation.
- Examine the river system as a whole, including other proposed reservoirs in the basin such as the Bear Creek project in South Fulton County.
- Evaluate the cumulative effects of any additional water supply sources or diversions necessitated by by other plans, actions or regulations (See Comment 163, Appendix F).

- Evaluate the cumulative impacts of existing and proposed sources for water supply or diversion, such as increases in storage pools of existing federal reservoirs or new reservoirs planned for the ACF Basin on downstream flows.
- Analyze all modifications to seasonal timing or altered timing of flows caused by both federal and non-federal reservoir operations, giving special attention to USACE policies to hold reservoirs high, to operational changes that redistribute and/or store water previously released for navigation support, and to effects of small reservoirs (current and future) in the ACF Basin.

#### *ACF Water Control Manual and Future Operating Plans*

- Review proposed update to the ACF Basin water control manual and ensure that adequate water has been set aside to account for the water lost due to the proposed reservoir, and that all other downstream demands can be met (the USACE is working to complete an updated water control manual).
- Re-evaluate the safe yield and its impact downstream when new/revised operations of the ACF River system are known.
- Assess the effects of potential changes in the Revised Interim Operating Plan (RIOP) on downstream threatened and endangered species as well as on hydropower generation at Buford Dam, downstream federal projects, and downstream water quality.
- Review the record of technical objections and concerns by the State of Florida regarding the RIOP and violation of the Apalachicola River flow requirements.
- Consider the effects of the project on the RIOP regime and the USACE's ability to comply with the Incidental Take Statement (ITS) and Reasonable and Prudent Measures (RPMs).
- Analyze the implementation of a new RIOP, and any limitations imposed pursuant to the Endangered Species Act (ESA) Section 7 consultation and resulting Biological Opinion, as a connected and related action to the project.

#### *Evaluation of Requested Surface Water Withdrawals*

- Evaluate the details of the three requested surface water withdrawals as they are integral to the functionality of the preferred alternative. These include:
  - 1) Hall County Government Board of Commissioners, withdrawal from Flat Creek Reservoir (Glades), for 86.5 /81.5 mgd, posted on 5/5/2007, and revised on 9/9/2011, Chattahoochee River Basin;
  - 2) Hall County Government Board of Commissioners, withdrawal from Chattahoochee River (upstream of Lake Lanier), for 108.5/ 108.5 mgd, posted 10/5/2010, Chattahoochee River Basin; and
  - 3) Hall County Government Board of Commissioners, withdrawal from Cedar Creek Reservoir, for 120.0/96.0 mgd, posted 11/5/2011, application number 069-0301-05, Oconee River Basin (See Comment 520, Appendix F).

#### *Cumulative Downstream Effects*

- Evaluate the cumulative impacts of withdrawals in the Upper Chattahoochee River Basin on Apalachicola River and other needs below Lake Lanier, not just the incremental effects.
- Compare the cumulative effects of storing water in Lake Lanier versus releasing water to support downstream needs.

- Evaluate the extent to which the addition of the diversions to the Glades and Cedar Creek Reservoirs will further increase the cumulative withdrawals in the upper portion of the Chattahoochee Basin resulting in additional impacts on the Florida's water needs for Apalachicola River.

#### *Future Land Use Changes*

- Consider potential cumulative impacts from future land use changes around the reservoir as a result of the project.
- Consider potential cumulative impacts from future loss of forest, loss of riparian buffers, construction, future housing, increased impervious surfaces from roads, driveways, parking lots, and other land use changes associated with the project.

#### *Cumulative Impacts to Aquatic Ecology*

- Evaluate the cumulative impact on aquatic biota from reservoirs in the area (including more numerous, smaller impoundments).
- Assess the cumulative effects of the project and historical wetland/stream loss in watershed.
- Analyze the cumulative effects of flow alterations and continued loss of main channel and floodplain aquatic habitats on fish and wildlife populations (including listed species) dependent on such habitats and main channel connectivity for extended spawning and nursery periods.
- Evaluate the cumulative effects of other past, present, and future withdrawals on the Apalachicola River and Bay's water and habitat quality, commercial productivity and listed species.
- Evaluate the cumulative loss of natural stream and wetland habitat in the entire ACF watershed and potential effect on downstream aquatic resources.

#### *Cumulative Impacts to Water Quality*

- Assess the potential impact of future land use changes on water quality.
- Employ landscape models at the watershed scale to estimate potential secondary impacts of the Glades Reservoir project on downstream water quality, utilizing the same watershed/water quality model used to develop the Lake Lanier Total Maximum Daily Load (TMDL). Assess long-term effects on water quality in the Chattahoochee watershed.
- Evaluate water quality impacts from additional wastewater discharges.
- Analyze the cumulative effects of all point source and large-scale non-point source discharges of pollutants.
- Consider cumulative effects on downstream water quality due to lower flows in the Apalachicola River and higher salinity in Apalachicola Bay.
- Evaluate what effects the impoundment will have on water quality under critical conditions, considering the potential decrease in rainfall from climate change and the anticipated increase in land use intensity.

#### *Cumulative Impacts to Air Quality*

- Evaluate the indirect effects on regional air quality.

### *Cumulative Impact of Population Growth*

- Assess potential impacts of any population increase facilitated by the project.

### *Cumulative Impacts of Other Allocations and Diversions*

- Develop an Instream Flow Assessment to determine the needs of the downstream users including, but not limited to, the Apalachicola River and Bay.
- Analyze the cumulative effects of metro-Atlanta water uses.
- Analyze the cumulative effects on irrigation in the Flint River Basin.
- Analyze the intensity of the cumulative impacts of water allocation in Georgia and reservoir management on the ACF.
- Consider the impact the project may have on the planning and development of future drinking water sources for upstream communities.

### *Reservoir Evaporation*

- Analyze the cumulative effects of reservoir evaporation (minimally including grandfathered and permitted acreage).

### *Drought Conditions*

- Analyze the cumulative effects of the implementation of management plans with reasonable "drought condition" triggers.
- Analyze the cumulative effects of the occurrence of more severe and/or extended droughts in the future.

### **3.2.3.6 Federal Navigation**

One State agency commented on this category, as summarized below.

- Consider the effects of the project on downstream navigation, considering the State of Alabama has constructed several port facilities on the Chattahoochee River, and support for navigation is one of the reasons why Congress authorized construction of the federal projects in the ACF Basin. Reliable navigation is considered critical to attracting major industry to the economically challenged region of southwest Georgia and southeast Alabama.

### **3.2.3.7 Geology and Soils**

This area was commented on by federal agencies (67 percent) and NGOs (33 percent), for a total of three comments. The comments received on this topic are summarized below (duplicate comments have been removed).

- Identify the rate at which siltation will decrease conservation storage in the proposed reservoir and compare to rates in similarly located or sized reservoirs.
- Evaluate the effort that would be required to dredge the sediment from the reservoir.

### 3.2.3.8 Land Use and Aesthetics

This comment category received six comments, which are summarized below.

- Evaluate the impacts that would result from land acquisition, eminent domain actions or relocations necessitated by the project.
- Evaluate the effects the pipeline alignment would have on adjacent private property owners.
- Consider the effect of the project changes to adjacent land uses and watershed scale land uses, and any resulting indirect impacts on other resources.
- Evaluate whether the project is in conflict with the zoning for the Glades Farm property, which was rezoned in 2008 to accommodate residential, commercial, and multi-use development.

### 3.2.3.9 Mitigation and Monitoring

Over 9 percent of all comments (55 of 592 comments) concerned mitigation and monitoring. The comments received on this topic are summarized below.

#### *Compensatory Mitigation / Mitigation Banking (for Impacts to Wetlands and Streams)*

- Include a more complete plan for mitigation, including a detailed listing of suitable banked mitigation projects that are available.
- Analyze whether a mitigation proposal for the proposed Glades project meets the preference hierarchy for mitigation as set out in the 2008 Compensatory Mitigation for Losses of Aquatic Resources Rule ("2008 Mitigation Rule"), specifically, that the applicant be required to mitigate in this order: (1) Mitigation bank credits; (2) In-Lieu Fee program credits; (3) Permittee-responsible mitigation under a watershed approach; (4) On-site and/or in-kind permittee-responsible mitigation; and (5) Off-site and/or out-of-kind permittee-responsible mitigation.
- Consider requiring compensatory mitigation early in the alternatives analysis, given the magnitude of direct impacts of the proposed project to aquatic resources and the high quality of much of the stream resources.
- Identify where the mitigation required to offset losses will be located.
- Propose a mitigation plan to ensure unavoidable impacts can be appropriately and practicably mitigated, and allow for public review.
- Include an analysis of alternative methods for calculating appropriate and practicable mitigation. The 2004 Standard Operating Procedures for Calculating Compensatory Mitigation in Georgia ("2004 SOP") is not adequate for use in this instance because the 2004 SOP methodology is applicable to projects resulting in adverse impacts up to 10 acres or less of wetland and/or 5,000 linear feet of stream. Include an analysis of mitigation under the new SOP that would appropriately and practicably compensate for the unavoidable impacts of the project if and when the USACE adopts the proposed SOP.
- Consider multiple mitigation options in an alternatives analysis type process that may also be considered and commented on by the public as part of the EIS process.
- Consider the applicant's ability to implement the mitigation plan as proposed.
- Evaluate whether compensatory wetlands can be developed around the banks of the new reservoirs.
- Consider expanding the service area for mitigation.
- Consider combining the mitigation credits from the Upper Chattahoochee and Middle Chattahoochee basins for compensating wetland impacts for the project .



*Avoidance and Minimization of Impacts to Wetlands and Streams*

- Identify how impacts to streams will be avoided, minimized or mitigated during construction and maintenance.
- Demonstrate adherence to avoidance and minimization requirement.

*Mitigation of Impacts to Aquatic Ecology*

- Consider instating boating use limitations around the perimeter of the reservoir to protect against algal blooms and other impacts.
- Propose fish passage structures if appropriate.
- Provide for relocation of species of concern if practicable.
- Consider mitigation for harm to species that could potentially occur during the transfer of water via pipeline from and to the Chattahoochee.
- Mitigate for the loss of fish and wildlife habitat associated with the proposed project.
- Determine the cost of compensatory mitigation for losses of aquatic resources.
- Identify reasonable and prudent measures to minimize the take of known downstream species dependent on specific, seasonal river flows.

*Mitigating Loss of Flood Control Storage*

- Identify mitigation for reallocation or loss of flood control storage on property owned by the USACE.

*Mitigation of Water Quantity and Downstream Flow Effects*

- Minimize the impact on downstream uses by utilizing water withdrawn from the Glades Reservoir for purposes that would yield a 75 percent or higher wastewater return rate (i.e., not septic tanks, land application system, or other highly consumptive uses) .
- Minimize downstream effects by allowing no inter-basin transfers from the Chattahoochee Basin due to withdrawals from the Glades Reservoir.
- Consider actions that the USACE, the Applicant, and the State of Georgia could take to mitigate or alleviate water quantity demands and lower flows downstream.
- Require Glades Reservoir to utilize its entire pool of water, including any dead pool, to sustain water elevations and flows downstream during dry weather so the USACE can meet authorized purposes in its downstream reservoirs.
- Require any new storage in the ACF basin to utilize its entire storage capacity to first and foremost meet requires flows at Jim Woodruff Lock and Dam (JWLD) and the Chattahoochee gage as may be required pursuant to the RIOP.
- Consider the approach used in the 1998 Compact Draft EIS: the USACE specified that mitigation of impacts on water quantity was "an inherent part of [a] State's responsibility," and that "[m]itigation to meet remaining water demands could include alternative sources of water supply, alternative conservation methods, and public programs to encourage wise use of water resources."

*Reservoir Management Plan / Watershed Protection Plan*

- Develop a reservoir maintenance plan including any maintenance dredging and disposal.
- Develop a plan for shoreline buffers/set backs/restrictions on development (with enforcement).

- Develop a dam operation and release plan based on monitoring to simulate natural conditions.
- Describe reservoir destratification measures prior to release if needed.
- Develop and provide for implementation of a watershed management/source water protection plan including measures/ability/willingness to protect reservoir watershed.
- Clarify how the water quality and quantity of releases into Flat Creek and the Chattahoochee will be monitored or maintained.
- Identify what level of enforcement, if any, will be given to ensure that the proposed reservoir will be utilized as a flow augmentation reservoir, if permitted as such, as opposed to a water supply reservoir.
- Prepare a reservoir management plan to address the operations of the reservoir during drought in order to conserve water.
- Consider additional system-wide mitigation with regard to water quantity and flows in the ACF Basin.
- Identify any mitigation measures that will be undertaken and who/what entity will be responsible for them if the project has detrimental effects on downstream communities and industries.
- Provide details of water conservation plans, including wastewater recycling.
- Consider a substantial natural undisturbed buffer of at least 300 feet to protect water quality.
- Consider installing chain link fence with a barbed wire cap around the entire project boundary between the water line and outer edge of the buffer to assure no recreational use, and to protect the resource from any unwanted influence.
- Consider prohibiting recreational access to Glades Reservoir for security purposes.

#### *Water Quality Mitigation*

- Describe how levels of downstream dissolved oxygen, temperature, flow quantity and periodicity, and water quality will be monitored and maintained to ensure maintenance of existing uses.
- Comply with all protections given to water supply reservoirs.
- Develop a plan for erosion and sediment control during construction.

#### *Recreation Mitigation*

- Analyze how the project would repair or improve, rather than detract from, the ability of the USACE to achieve Congressionally authorized purposes for recreation on its existing reservoirs.

### **3.2.3.10 Project Purpose and Need**

This comment category received 111 comments, the highest number of comments (almost 19 percent of the total comments). The comments received on this topic are summarized below.

#### *General*

- Identify whether the project has the dual purposes of water supply and as an amenity lake for development. The narrow set of conditions under which the project could provide any water supply suggests that the project may be intended primarily as an amenity lake.
- Provide a regional perspective on water supply needs and alternatives for meeting regional needs.

- Identify how long it will take until the proposed Glades Reservoir will be utilized based on projected demand.
- Identify whether the water treatment facility plans are a required element of the permit application based on purpose and need for project.

#### *Population Projections*

- Evaluate Hall County's methodology for determining the population projection for the year 2060
- Consider population estimates made by Woods & Poole Economics, Inc. ("Woods & Poole") in 2011 and the Metropolitan North Georgia Water Planning District ("District") in 2009.
- Consider the water demand in 2060 (as opposed to 2040 as shown in the application, *Glade Reservoir Simulation Model for the ACF Basin, June 2011*) to correspond with the projections in the Need Certification.
- Consider the recommendations from the Middle Chattahoochee Regional Water Planning Council, the Upper Flint Regional Water Planning Council and Lower Flint Regional Water Planning Council to meet the current and future water needs.
- Consider the data used by the Atlanta Regional Commission (ARC) during its most recent comprehensive land use planning effort, which projected Hall County to reach 346,147 residents by 2040.
- Consider independent verification of Hall County's population projection.

#### *Water Sale Outside of Hall County*

- Examine any proposed transfer of water to water suppliers outside of Hall County.
- Explain any terms of agreement for entering into contracts with third parties for the transfer or sale of water from Hall County .
- Include third parties who will receive any water from Hall County in the needs analysis .

#### *Lake Lanier Storage Allocation and Overturn of Magnuson Ruling*

- Evaluate the ability of Lake Lanier to meet all or part of Hall County's future water demands.
- Consider requesting Hall County revise their permit application to reflect the 11<sup>th</sup> Circuit decision that overturned the Magnuson Ruling.
- Consider the impact that the 11<sup>th</sup> Circuit's decision has on the future unmet water demand of Hall County.

#### *Water Demand Projections/Per Capita Water Use*

- Identify whether the assumed rate of reduction of per capita demand through the year 2060 is constant or whether it will vary.
- Consider the impact of efficiency and conservation methods, both individually and combined, on per capita demand.
- Consider independent verification of Hall County's per capita water usage projection.
- Examine the difference between the projected water demand for Hall County by the Metropolitan North Georgia Water Planning District (MNGWPD) and that projected by Hall County.

- Include reports describing the methods for projections on the proposed Glades Reservoir project website so that the public has the opportunity to verify the projections used to justify the purpose and need.
- Consider the decreased demand seen during drought periods when verifying the proposed usage rates.

#### *Water Conservation/Efficiency Measures and MNGWPD Plans*

- Consider the use of a cost benefit analysis for additional conservation measures to offset need for project, including water reuse.
- Clarify the inconsistencies seen between the Applicant's and the MNGWPD's water demand calculations. The MNGWPD 2009 Report Page 3-14, Table 3-6 projects that Hall County, at 2050, will have a population of 442,800 and a demand of 57 aad-mgd. Also, on page 6-13 it states that Cedar Creek Reservoir (aka North Oconee River Reservoir) is expected to have a monthly withdrawal of 9 mgd, versus 7.5 mgd from the project safe yields analysis (See Comment 290, Appendix F).
- Consider efficiency opportunities and implementation both individually and in combination to reduce the stated water demand.
- Assess through an independent evaluation how effective conservation and efficiency measures, such as those described in the EPA Region 4 Water Efficiency Guidelines (May 2010), have been implemented, including conservation pricing.
- Provide further materials detailing Hall County's, as opposed to just Gainesville's, efforts to comply with both EPA's and Georgia EPD's water conservation strategies.
- Evaluate the Applicant's assumption that none of Hall County's 2060 unmet demand of 72.5 mgd would be met through recycle and reuse of wastewater.

#### *Cedar Creek Reservoir Ownership*

- Review the Intergovernmental Agreement regarding Cedar Creek Reservoir ownership and operation between Hall County and the City of Gainesville.
- Consider the implications of ownership issues (the City of Gainesville's objection regarding using Cedar Creek Reservoir for the proposed project) on the application, both currently and in the future.
- Consider suspending the application process until Applicant resolves the dispute over the Cedar Creek Reservoir with the City of Gainesville.
- Wait to prepare EIS until Gainesville and Hall County agree on the proposed project configuration (See Comment 28, Appendix F).
- Require a complete public disclosure and review of any existing agreements the applicant may have made concerning the proposed Glades Reservoir, including the full intergovernmental agreement concerning the Cedar Creek Reservoir.

#### *ACF Basin Litigation*

- Consider whether the issuance of a permit for the proposed Glades Reservoir should wait until ACF litigation is complete.
- Identify whether the ACF litigation is a consideration in the permitting process.

### *Water Control Manual Updates*

- Consider suspending consideration of any permits within the ACF basin until the Mobile district has established a new Water Control Plan for the basin and vetted such document fully under NEPA.
- Examine how the forthcoming USACE Water Control Manual Update will impact the project design and operation.
- Allow for public and agency comment on the updated flow management plan, when one is drafted.

### *Planning for Upstream Communities*

- Evaluate upstream communities' ability to use the reservoir to meet their water demand needs.

#### **3.2.3.11 Public Involvement and NEPA Process**

This category received 41 comments, or almost 7 percent of the total comments. The comments received on this topic are summarized below.

### *Permit and EIS Information*

- Provide the materials and models used in the permit application to downstream states, the public, and any other interested parties for their review.
- Ensure that all interested parties have access to the version of the HEC-ResSim model that will be used to evaluate impacts in the EIS process.

### *Public and Agency Involvement*

- Consult with the National Marine Fisheries Service to satisfy the requirements of the Endangered Species Act.
- Ensure sufficient opportunity for public participation in the development, revision, and content of the Water Control Manual for the ACF Basin, in light of any modifications needed as a result of its resolution of the Glades Reservoir Project application.
- Re-open the scoping process once details regarding operation of the Cedar Creek Reservoir become finalized, and all related information is made public.
- Coordinate with EPD's modeling group on hydrologic modeling efforts in the EIS process.
- Initiate formal consultation with the US Fish and Wildlife Service (USFWS) on additional withdrawals.
- Consult with the NOAA Fisheries Service as to impacts the proposed project may have on the federally listed Gulf sturgeon.
- Consult with the USFWS concerning the potential impacts on downstream species in the ACF Basin, including those in Alabama and Florida. The USFWS is currently reassessing a biological opinion it previously issued in connection with operation of USACE projects in the ACF Basin, and the potential for reduced downstream flows as a result of the proposed project could exacerbate ill effects of USACE operations on downstream species. All necessary consultation under the Endangered Species Act must be undertaken.

### *EIS Development*

- Follow NEPA guidelines when determining the impact to the ACF basin.
- Consider the environmental impact of the 18 miles of pipeline proposed during the EIS process.
- Develop and utilize a clear process for identifying the preferred alternative. The process should be outlined in the Draft EIS and be written in a manner that the public will be able to understand the selection process for the preferred alternative.
- Develop a summary comparison table that includes all the alternatives and potential impacts to different resources.
- Fully evaluate all of the direct, indirect, and cumulative impacts of the proposed project and its alternatives, including any impact to downstream communities and federal operation of ACF reservoirs.
- Include a system-wide analysis (including direct, indirect, and cumulative impacts) for the ACF Basin and the USACE Mobile District's operations downstream on the Chattahoochee.
- Include a comprehensive review of the potential impacts of the project on conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership and in general, the needs and welfare of the people.

#### **3.2.3.12 Recreation**

There were 10 comments for this category, which comprised less than 2 percent of the total number of comments. The comments received on this topic are summarized below.

- Evaluate impacts to recreation in Chattahoochee River National Recreational Area (CRNRA), containing the first National Water Trail designated in the country, especially those arising from adverse hydrological impacts to Lake Lanier.
- Evaluate the visual and noise impacts of a pump station and large pipe crossing the river on the recreational experience.
- Evaluate impact of the pump stations, pipelines, surface water withdrawal, and low flows on the recreational values of the Chattahoochee upstream of Lake Lanier.
- Identify impact of project and associated flow restrictions on navigation and recreation, which have been included as expressed purposes of federal projects for the Chattahoochee River and West Point Lake through congressional authorization.
- Consider effect of project on angling and boating on the stretch of river upstream of Lake Lanier, either floating (e.g. kayaks and canoes) from upstream access points or motor-boating from downstream boat ramps in Lake Lanier.
- Evaluate effects of the project on fishing and other recreation on the Chattahoochee River and Lake Lanier
- Identify impact of project on the four-mile stretch of Flat Creek, its tributaries, Glades Shoals (120-foot waterfall), and other waterfalls along the creek. Flat Creek is on the National Database of American Whitewater, is a wild natural stream, and receives some canoe and kayak use.
- Evaluate impact of a drop in West Point Lake levels on lake visitation, tournaments, and tourism.

### 3.2.3.13 Socioeconomics and Environmental Justice

A total of 35 comments in these topic areas were received, or about 6 percent of the total comments. The comments are summarized below.

#### *Impacts to Local Governments and Taxpayers*

- Identify the total estimated cost of the project and estimate the cost per citizen and per gallon of water delivered. Cost estimates should include details regarding dam and reservoir construction, construction of multiple pump stations, construction of each pipeline, mitigation costs, road relocation, water treatment facility and new distribution lines, as well as necessary ancillary facilities, such as the new or expanded water treatment plant on Cedar Creek Reservoir. Potential savings (e.g., by siting a new water treatment plant on Cedar Creek Reservoir) should also be identified and quantified.
- Evaluate the impact to citizens if the project goes over the estimated cost.
- Assess impacts to local government finances.
- Identify any planned sources of funding in addition to the City of Gainesville's water ratepayers.
- Evaluate the water quantity/quality effects of the proposed Glades Reservoir project on the water systems of the Cities of Gainesville and Oakwood.
- Clarify the legal ramifications of protection of water quality and quantity under various alternatives on upstream entities, such as White County.
- Consider the effect to downstream municipalities (e.g., City of Columbus, and those in Alabama) that withdraw water for municipal and industrial purposes if the quality of the water is degraded by the proposed Glades Reservoir Project.

#### *Impacts to Local Economies*

- Consider the economic impact of the project on downstream communities and industries, including the seafood industry, power generation, industrial growth (e.g., Troup County/West Point Lake area).
- Evaluate the impacts to Hall County's poultry industry, especially as it relates to changes in water cost as a result of the selected alternative.
- Evaluate the effects the pipeline alignment would have on adjacent private property owners. These include relocations, condemnations, and potential impacts on property value and salability.
- Consider the economic impacts the project may have on the City of Gainesville.
- Consider the potential harm to an ecosystem that supports many families through oystering, shrimping and fishing.
- Evaluate how the impact to water quality would affect Alabama businesses that are already threatened with closure due to the inability to meet National Pollutant Discharge Elimination System (NPDES) discharge permit limits.

#### *Impacts to Recreation and Tourism Economy*

- Evaluate the total impact of the projected growth on the Lake Lanier recreation economy.
- Evaluate potential impacts to recreational use and tourism in the Apalachicola River and Bay ecosystem
- Evaluate the impact of a drop in West Point Lake levels on lake visitation, tournaments, and tourism.

- Assess the potential impact to the ecosystem of the ACF basin that would limit the recreational and commercial use of West Point Lake.

#### *Environmental Justice*

- Consider the impacts of the project on environmental justice.
- Evaluate the potential environmental justice issues that might result if West Point Lake experienced a drop in water elevation due to the Glades project. A decrease in the elevation of West Point Lake could make it increasingly difficult for low income people, minorities, or other people that rely on fishing for sustenance, to fish from the bank.

#### *Transportation and Traffic*

- Assess the impacts of the project and all alternatives on current traffic rates and future traffic rates by requiring a traffic study for the study area.
- Consider whether the project or its alternatives will require additional roads to be built (e.g., rerouting of Glades Farm Road).

#### *Population Growth*

- Evaluate the indirect effects the project may have, including effects from the growth that would be enabled if this reservoir were constructed.

### **3.2.3.14 Threatened and Endangered Species**

There were 12 comments for this category, or 2 percent of the total. The comments received on this topic are summarized below.

- Evaluate the degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.
- Assess the effects of the proposed project on threatened and endangered species throughout the ACF Basin. The materials submitted by Hall County with its Section 404 permit application indicate that the assessment was limited to the Hall County area.
- Address impacts on threatened and endangered species in the section of the Chattahoochee River between the intake structure for the project and Lake Lanier.
- Evaluate direct and indirect effects on endangered species, including endemic and fluvial dependent species in the greater watershed.
- Examine any potentially adverse impacts to rare and federally protected fish and wildlife species, particularly those found in Lake Lanier's headwaters.
- Initiate formal consultation with the USFWS regarding the project.
- Evaluate any potential adverse effects of reduced flow in the Apalachicola River on federally listed mussels (purple bankclimber, fat three-ridge, Chipola slabshell) and the Gulf sturgeon in the Apalachicola River delta and Bay (critical habitat and food supply).
- Include a thorough discussion of endangered and threatened species, aquatic resources (including wetlands and streams), and migratory birds.
- Survey for aquatic fish and mussels above and below the location of the proposed intake structure on the Chattahoochee River. The 2003 Threatened and Endangered Species Survey (Straight et al. 2003) did not locate any endangered or threatened species in Flat Creek and an



unnamed tributary to Flat Creek (Straight, 2003 from the Hall county 404 Permit Application). However, the Chattahoochee River was not surveyed at the proposed intake location, where the above mentioned entrainment and impingement would occur. USFWS is currently reviewing several aquatic species in the north Georgia area in regard to the need for listing under the Endangered Species Act and does not currently have comprehensive information about where these species occur.

- Assess the potential project impacts on the Halloween Darter<sup>4</sup>, which may be present in the two-mile stretch above the water intake on the Chattahoochee. The USFWS was petitioned to list this species under the Endangered Species Act, although it is unclear when or whether it would be listed. A fish survey around the river intake location was suggested to survey the presence of Halloween Darter and fish community composition.
- Evaluate whether consultation with the USFWS will need to be reinitiated for the Apalachicola mussels if the proposed Glades Reservoir causes changes in the flow release below the Woodruff Dam. USFWS previously prepared a Biological Opinion (BO) in 2008 for the impacts of the Revised Interim Operating Plan for Jim Woodruff Dam on three federally protected mussels in the Apalachicola River.

### 3.2.3.15 Water Quality

This topic received 31 comments, which represents more than 5 percent of the total comments. The comments received on this topic are summarized below.

- Examine the effect the project may have on the water quality in the middle Chattahoochee River due to diminished releases from Buford Dam, particularly in times of drought.
- Clarify the legal ramifications of protection of water quality and quantity under various alternatives on upstream entities, such as White County.
- Evaluate how the impact to water quality would affect Alabama businesses that are already threatened with closure due to the inability to meet NPDES discharge permit limits.
- Consider the effect to Alabama municipalities that withdraw water for municipal and industrial purposes if the quality of the water is degraded by the proposed Glades Reservoir Project.
- Evaluate whether the potential lower water levels at Lake Lanier will lead to longer periods during which the Peachtree Creek flow requirement will be lowered and what the water quality and other environmental effects of such reductions will be, both at Peachtree Creek and downstream.
- Evaluate the potential impacts on water quality in the Chattahoochee River below the proposed return flow point located upstream of Belton Bridge.
- Examine the potential impacts to flow conditions and water quality in the segment of river between withdrawal points on the Chattahoochee River and the point where water from the proposed Glades Reservoir would be discharged back into the river.
- Consider land use changes around the reservoir and what impact they would have on water quality. This includes loss of forest, loss of riparian buffers, construction, future housing, increased impervious surfaces from roads, driveways, parking lots, and other land use changes.
- Consider the water quality impacts of hydro-modification to determine physical (including thermal) as well as chemical impacts on aquatic life.

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<sup>4</sup> This comment clarification was made by the USFWS through an email after the public scoping period had ended and is considered an addendum to their official comment letter sent on April 11, 2012.

- Analyze the full range of flow-regimes resulting from withdrawals from the Chattahoochee River, and associated impacts to water quality.
- Examine the impact of flow-modification in the Flat Creek embayment of Lake Lanier due to construction of the proposed Glades Reservoir to demonstrate if significant changes to embayment retention time result in adverse water quality effects.
- Evaluate how operation of the reservoir will impact NPDES permits and/or TMDLs in the area, particularly related to assimilative capacity and critical conditions.
- Evaluate whether the project construction or operations will affect designated trout water streams or raw drinking water sources.
- Assess whether the tail water discharges into the remaining segment of Flat Creek, the Chattahoochee River, or nearby Lake Lanier cause or contribute to violations of water quality standards.
- Evaluate whether the project will affect assimilative capacity, water chemistry, nutrient cycling, retention time, dissolved oxygen, temperature or other chemical, physical or biological parameters for water bodies in the study area.
- Identify the presence of any 303(d) listed or outstanding resource waters for all alternatives that involves impoundment.
- Examine the potential for reservoir eutrophication, including modeling of nutrients.
- Evaluate the impact that the project may have on water quality in all streams in the watershed.
- Clarify how the proposed project will be operated such that it will meet state water quality standards tied to the designated uses of drinking, fishing, and recreation, as water stored in Glades Reservoir could be used for all three purposes in each of the water bodies in which it is collected and discharged.
- Evaluate the impacts caused by changes in the watershed on water quality in Lake Lanier.
- Analyze the impacts to the Apalachicola River and Bay caused by water quality changes in floodplain habitats and sloughs from increased disconnection. Reduced river levels have cut off flows to the floodplain and sloughs, disconnected backwater swamps for long periods of time, and caused die offs of fish and shellfish due to low dissolved oxygen levels, increased temperature, stagnant conditions, and dried up sloughs and swamps.
- Assess whether the project could increase in Apalachicola Bay salinity and temperatures, which could precipitate the reductions and loss of oysters, crab, and other species.
- Evaluate the temperature of the proposed Glades Reservoir return flow to the Chattahoochee River and whether it will have an impact on water quality.
- Identify any chemicals or pollutants that may be present in the soil that could impact water quality if the proposed Glades project is built.
- Assess the water quality and flow implications for the river and for the downstream reservoirs in regards to the ecosystem services provided by aquatic life.
- Evaluate the effects of the project on Apalachicola Bay salinity and nutrient composition.
- Consider what impact the existing land use protections (or lack of) around the Glades Reservoir will have on water quality in the new reservoir, as well as to Flat Creek and the Chattahoochee River.
- Employ landscape models at the watershed scale to estimate potential secondary impacts of the Glades Reservoir project on downstream water quality, utilizing the same watershed/water quality model used to develop the Lake Lanier Total Maximum Daily Load (TMDL).

### 3.2.3.16 Water Quantity and Hydrology

This topic received the second highest number of comments of any category (107 comments, or 18 percent of the total). The comments received on this topic are summarized below.

#### *Drought of Record/Critical Drought Period*

- Consider the drought of record for the assessment of effects on downstream projects.
- Examine the impact of the proposed withdrawals on all drought periods, including the 2007-2008 drought.
- Evaluate the proposed project's impacts to Lake Lanier levels using the 2007-2008 drought record; compare its impacts to downstream releases using the actual 2007-2008 drought occurrence. During this drought, actual releases to the Apalachicola River for the period of May 27, 2007 to December 16, 2007 averaged just 5,163 cfs and dropped to a low of 4,760 cfs.

#### *Time Frame for Evaluation*

- Analyze the impact of this proposed project on the ability of existing water systems that depend on Lake Lanier to meet their 2060 water needs (using the same time frame of analysis for the proposed project).
- Consider the water demand in 2060 for the ACF basin (as opposed to 2040 as shown in the application, *Glade Reservoir Simulation Model for the ACF Basin, June 2011*) to correspond with the projections in the Need Certification.

#### *Accounting for Rate of Wastewater Return*

- Examine the calculation of the assumed 70 percent wastewater returns.
- Examine the basis for assuming a substantial increase in future return flows to 70 percent, as the Withdrawal Application submitted to the State of Georgia states that return flows in Hall County in 2009 were only 57 percent (See Comment 497, Appendix F).
- Consider the potential interbasin transfer from the Chattahoochee Basin to the Oconee Basin when assessing the rate of wastewater returns to the Chattahoochee Basin.
- Assess the effects of the proposed project on Lake Lanier and other downstream federal projects with an assumption of no wastewater returns from a future wastewater treatment plant (zero percent return), considering the USACE's current national policy of not taking returns into account when allocating storage in a federal project or for assessing effects of projects such as the Glades Reservoir (See Comment 497, Appendix F).
- Take into account the effect on wastewater return if Hall County intends to sell a significant amount of the water from the proposed project to third-party entities (which presumably could involve interbasin transfers or returns to points in the Chattahoochee Basin below Lake Lanier) (See Comment 497, Appendix F).
- Factor the effect of water recycle and reuse (if increase is anticipated) into the calculation of assumed returns.
- Consider how future water conservation and reuse efforts will impact the return rates.
- Consider requesting a firm commitment by the Applicant on the return rate.
- Clarify whether the return flow occurs above Lake Lanier or below Lake Lanier.

#### *Minimum Instream Flow (MIF) Requirement*

- Evaluate whether the proposed MIF (the annual 7Q10 flow) at the Chattahoochee River withdrawal location will become the maximum flow at all times except when the river flow is so high that it exceeds the combined capacity of the pumps for diversions to the Glades Reservoir and the Cedar Creek Reservoir.
- Evaluate how the proposed annual 7Q10 flows (estimated to be approximately 22 percent of average annual daily flows) will reduce or eliminate the seasonal variation in flows that is critical to aquatic life.
- Provide modeling data to establish how many days (on average) flows will exceed the annual 7Q10 level after diversions and to show how many days during the drought of record that the MIF level would have been exceeded.
- Provide a copy of any and all reports, analyses, or modeling files used to justify use of the annual 7Q10 as opposed to the monthly 7Q10.
- Consider the Interim Instream Flow Policy adopted by the Georgia Board of Natural Resources in May 2001; evaluate the three minimum instream flow options (none of which include the annual 7Q10 that the applicant proposed). The 2001 white paper indicated that flows based on an annual 7Q10 are often not sufficient to prevent significant stress on aquatic environments.
- Include evaluation of downstream effects in the EIS process using more protective minimum instream flows, including options using monthly 7Q10 flows and the 30/60/40 percent mean annual flow as contemplated in Georgia's instream flow policy.
- Consider the goal and options for low flow augmentation: the Applicant's proposed flow augmentation is minimal (to maintain the annual 7Q10 flow or the "natural flow" whichever is less) and provides little if any offset for the withdrawals.
- Evaluate the data used to compute the 7Q10 and whether the synthetic data is representative of the Chattahoochee River at the intake or Flat Creek.
- Coordinate with Georgia EPD as they evaluate the "minimum flow requirements" as part of the water withdrawal application.
- Consider requiring the Applicant to determine the "minimum natural flow" as part of the permit application so that the minimum flow requirements are clearly specified prior to commencing the EIS.
- Consider how the proposed diversions will alter the low flow regime of the Chattahoochee River from the intake to terminus of the river in Lake Lanier (See Comment 582, Appendix F).
- Verify the range of proposed diversions to the Glades and Cedar Creek reservoirs when the Chattahoochee River flows are above the 7Q10 level; the proposal indicates that the diversions could range from 133 to 245 cfs.
- Provide a reference in the EIS, from either Georgia's rules, regulations or an authorizing statute which explicitly defines the State's instream flow requirement, and describe what instream flow endpoint will be used for project operations.
- Incorporate percentage of (annual average) flow approaches or variable targets, rather than a single, minimum flow for more defensible downstream flow targets.

#### *Interbasin Transfer*

- Evaluate the increase in interbasin transfers from the Chattahoochee River Basin to the Oconee River Basin resulting from the project.
- Evaluate the effects of the proposed project operations on the Oconee River Basin, as this project proposes the transport of water across the subcontinental divide and a HUC6 basin line dividing waters tributary to the Atlantic Ocean from the Gulf of Mexico.

- Evaluate the effects of interbasin transfer for both the donor and receiving basins.
- Evaluate effects on both the Oconee/Altamaha River Basin and the Etowah/Coosa River Basin, since these basins are closely tied to the Chattahoochee Basin as a result of interbasin transfers.
- Consider the makeup of the population growth and residential development in the area dependent on the Cedar Creek Reservoir and evaluate the assumption that 70 percent of the water withdrawn from the Chattahoochee will be returned to Lake Lanier.
- Evaluate the wastewater treatment and discharge into the Oconee River basin as a result of pumping to the Cedar Creek Reservoir.
- Evaluate the maximum withdrawal the county anticipates being allocated from the Oconee River and/or Basin.
- Evaluate the probability of downstream water shortages caused by the potential loss of an additional 80 million gallons per day. Currently, the Chattahoochee River is losing 70 million gallons of water per day due to inter-basin transfers.
- Include an explanation and justification for increasing the size of the reservoir from 6.4 mgd (see Table 2-2 of the May 2009 MNGWPD Water Supply and Water Conservation Management Plan) to 80 mgd.

#### *Evaluation of Impacts to Lake Lanier*

- Consider the imbalance between the size of Lake Lanier and the size of the drainage area as a reason to operate the project in a conservative manner, considering that it takes a relatively long time to refill Lake Lanier.
- Evaluate Hall County's estimates that the only impact on Lanier would be a reduction in the water level by 3 ½ inches.
- Provide both average and maximum reduction in the water level and frequency of water level reduction at Lake Lanier. Consider that Lake Lanier experienced 21 feet water loss during drought conditions.
- Analyze downstream impacts on Lake Lanier and other ACF reservoirs to determine how the proposed projects will impact the timing and duration of when and how long Lake Lanier is in each of the various action zones. For example, would the proposed Projects keep Lake Lanier in Zone 4 earlier and more often?
- Evaluate the impact of the proposed project on the yield of Lake Lanier.
- Evaluate how the level of Lake Lanier could be incorporated into the acceptable withdrawal rate.
- Consider maintaining the existing flow releases from Lake Lanier without adversely affecting the pre-project levels of Lake Lanier as a project goal.
- Evaluate how the proposed project will impact other communities that depend on Lake Lanier for water supply.

#### *Evaluation of Downstream Impacts/Operation of ACF Reservoir Projects*

- Evaluate the water quantity/quality effects of the proposed Glades Reservoir project on the water systems of the Cities of Gainesville and Oakwood.
- Closely evaluate the effects of the proposed project on downstream federal projects in the ACF Basin .
- Evaluate potential impacts on lake levels for all lakes on the Chattahoochee River (not just for Lake Lanier and West Point Lake).
- Assess the impacts to all streams, described by stream level of function and in length

- Describe pre-impoundment flows and water quality to streams.
- Assess the impacts of upstream and downstream discharges and withdrawals and interbasin transfers on streams.
- Analyze the impacts of the water supply alternatives on flows downstream in the State of Florida, (1) during periods of high, median, and low flows; (2) during drought periods; (3) and on a monthly or daily basis, rather than averaged annually.
- Evaluate how composite conservation storage for the ACF system would be impacted.
- Evaluate how the proposed project would impact recovery of the ACF system from drought protocols.
- Evaluate downstream impacts using a monthly time step, and provide daily flow results.
- Extend the downstream impact evaluation through the 2007-08 droughts.
- Evaluate changes to freshwater inflow, including quantity, timing and quality, in the Apalachicola River and Bay for each alternative.
- Evaluate how the proposed project (the diversion of waters from the Chattahoochee River) would adversely impact the implementation of multiple project purposes in the Water Control Manual being updated by the Mobile District, USACE and the Stakeholders and communities affected.
- Assess how the cyclical nature of high water/low water that is needed in Apalachicola Bay will be affected. The surges of water are needed to make the Apalachicola Bay oysters productive (See Comment 540, Appendix F).
- Consider performing an Ecological Instream Flow Assessment to determine the freshwater flows required to sustain the resources and economies of our (Florida) region.
- Consider the potential changes in hydrology throughout the ACF Basin.
- Evaluate the impact to the USACE's ability to meet the authorized purposes of the ACF project, assessing the impact to the flows, as well as reservoir levels.
- Define adequate flows (conditions for withdrawal from the Chattahoochee River).
- Require the Applicant to provide a complete HEC ResSim model including the input data used in preparation of the Glades Reservoir Simulation Model for the ACF Basin prepared by Schnabel Engineering dated May 24, 2011, and revised on June 23, 2011.
- Identify where Hagans Creek enters the Chattahoochee. Evaluate effects if it is below Flat Creek.
- Evaluate the effect of impoundment in reservoirs on natural water flow patterns in rivers downstream.
- Evaluate the direct impacts of the construction of the reservoir on Flat Creek.
- Assess impacts to existing water supply sources.
- Examine a future drought that is more severe than the droughts of last decade for modeling of the proposed project's effects on Lake Lanier.
- Evaluate whether the potential lower water levels at Lake Lanier will lead to longer periods during which the Peachtree Creek flow requirement will be lowered and what the water quality and other environmental effects of such reductions will be, both at Peachtree Creek and downstream. Peachtree Creek must meet a 750 cfs daily instantaneous flow standard at the confluence.

#### *Operation of Glades Reservoir*

- Assess how the elevation of the proposed Glades Reservoir would change in response to growing demand.
- Assess how the reservoir operations would differ during drought and non-drought periods.

*Reduction in Flood Storage*

- Verify potential encroachment to Lake Lanier flood pool elevation.
- Estimate the potential flood storage reduction if the toe of the dam encroaches on the flood pool elevation.
- Assess the loss of floodplains and flood storage capacity.

*Evaporative Loss*

- Include an analysis that quantifies the amount of water loss from the system through evaporation due to the proposed impoundment and provide a comparison to current conditions.
- Analyze the impact of water loss from evaporation in the proposed Glades Reservoir on the Chattahoochee River system including Lake Lanier.
- Evaluate alternatives to using annual averages data in analysis of evaporative loss.

*System Yield*

- Verify the system yield of the proposed Glades Reservoir project and the assumptions made to calculate the system yield.
- Evaluate what the yield of the Glades Reservoir project would be under standard EPD permitting conditions, namely monthly 7Q10 or 30/60/40 percent mean annual average flow requirements. A determination of impacts should be balanced against this yield as a more likely actual yield if the project were permitted.
- Clarify Hall County's management strategy for water flows and utilization for the Cedar Creek Reservoir.

*Pipeline Crossing*

- Verify the water bodies the proposed pipelines will cross.

*Climate Change*

- Consider incorporating climate change projections.
- Examine a future drought that is more severe than the droughts of last decade for modeling of the proposed project's effects on Lake Lanier.

### **3.3 Scope**

#### **3.3.1 Comments within the Scope of the EIS**

Comments that are ‘in scope’ for an EIS process are those that are relevant to evaluating the impacts of the proposed project and its alternatives. The majority of the issues identified in section 3.2.3 are within the scope of analysis for the Glades Reservoir EIS. Except as identified below in section 3.3.2, the issues identified in the scoping comments will be considered in the development of the purpose and need, alternatives, affected environment, environmental consequences, and mitigation and monitoring chapters of the EIS.

#### **3.3.2 Comments outside the Scope of the EIS**

Nearly all comments received during the scoping period are applicable to the scope of analysis for the EIS. One comment that is outside of the scope for this EIS relates to encouraging future population growth to the area southwest of Atlanta as an alternative to managing water resources and demand growth in the region. The comment can not be addressed within the context of this EIS because it does not address the Applicant’s stated need. The purpose of preparing the EIS is to identify the direct, indirect, and cumulative effects, beneficial and adverse, of the Applicant’s proposal. Reasonable alternatives to the Applicant’s proposal will be evaluated, including practicable alternatives to minimize adverse impacts to wetlands and waters of the US. Alternatives which would require the development of policies and possibly legislation to implement growth controls and/or local and regional land use ordinance/regulations are outside the scope of review for this EIS.

#### **3.3.3 Significant Issues**

Virtually every resource area typically covered by USACE EIS reviews is mentioned in the scoping comments. Approximately 75 percent of the comments received were in the following six topic categories: water quantity and hydrology; the purpose of and need for the proposed project; alternatives to the Applicant’s proposal; cumulative effects; mitigation and monitoring of impacts; and impacts to aquatic resources. The high number of comments indicate that these areas are of greater significance to stakeholders and should receive detailed analysis in the EIS.

Resource areas that received fewer comments are not automatically deemed to require less analysis but will be evaluated carefully to determine how much analysis is appropriate for the EIS. Resource areas that received more than 5 percent of the comments include water quality, socioeconomics and environmental justice, and public involvement and NEPA process. Consideration will be given to utilizing secondary information where available in order to evaluate resource areas that received few comments, such as air quality, federal navigation impacts, geology and soils, cultural resources, and recreation.

#### **3.3.4 Issues Addressed by Prior Environmental Reviews**

It is recognized that some issues such as reservoir operations in the ACF basin have been the subject of previous environmental review by federal, state and local agencies and organizations. USACE intends to make use of relevant information contained in previous or concurrently prepared environmental



documents in analyzing issues of concern. This approach will help reduce duplication of effort and allow the best available information to be utilized in the EIS.