Water Supply Utility Appraisal of Lake Adger and Turner Shoals Dam for Polk County, North Carolina

Effective Date: July 13, 2016

Report Date: September, 2016

By:

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Project Number: 16007.00

Hartman Consultants, LLC
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September 24, 2016

HC #16007.00

Mr. D. Marche Pittman
County Manager
40 Courthouse Street
P.O. Box 308
Columbus, NC 28722

RE: Water Supply Utility Appraisal of Lake Adger and the Turner Shoals Dam

Dear Mr. Pittman:

Presented herein is the Water Supply Utility Appraisal of Lake Adger and the Turner Shoals Dam. This opinion of value was prepared for use by the County in negotiations for the creation of an integrated water supply system with the Polk County Water Utility (County), the Inman Campobello Water District (ICWD), and the Broad River Water Authority (BRWA) which may, in the future, serve additional entities as customers of the integrated system. This is an Appraisal Report as defined by USPAP with the back-up analyses and support in HC's files under project number 16007. The potential water supply of 5.8 million gallons per day (MGD) annual average daily flow (AADF) (Black & Veatch Memorandum) and expected contractual yield of 8.0 MGD (with the 5 foot draw down from the range in normal pool elevation limitation) are the flow/capacity water supply amounts upon which this appraisal is based.

The minimum useable storage volume of 0.51 billion gallons (BG) is the dry weather (drought) condition used in this appraisal. This equates to an equivalent of 5 foot storage area of approximately 314 acres(ac). The Turner Shoals Dam normally impounds 438 acres (ac). The Lake Adger reservoir has an approximate 115 square mile (mi^2) watershed where upstream smaller dams have been removed to allow unimpeded flow to the lake.

The dam has a normal maximum headwater (pool elevation) of 911.6 feet. The tailwater from the dam is at 826 feet MSL. The potential energy is harvested by the 5.4 megawalt (MW) generating station capturing some 70 to 80 feet of head.

The County was the buyer of all of the uses of Lake Adger, including the water supply and flood control use of the lake in 2008 and finished the completion of the necessary easements and other supporting documents in 2009. The purchase price was $1,600,000 which involved (1) the access uses maintained for the users of the Lake (both recreational and land value) and (2) the power generation use of the lake for others. The remaining uses purchased were for economic development/recreational flood control and potentially for raw water supply.

This report initially describes in an overview manner the property.

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Next, the probability of use as a water supply source is analyzed. I concluded that the most cost effective use would be as an alternative water supply to the expansions of the Broad River Water Authority (BRWA) water treatment plant (WTP). This use requires an intake near the confluence of the Green River and the Broad River and pumping approximately $4^{+/-}$ miles to the plant. The Lake Adger/Green River alternative water supply would provide the following:

- additional safe yield
- improved water supply reliability
- emergency storage
- improved raw water quality
- blending opportunities
- threat assessment reduction from "moderate" to "low" for the WTP (contamination risk)
- improved source flexibility/environment compliance

Further, I concluded that a potential Green River WTP increases the value of the use as a primary water supply source yet, as a conceptual comparison, would not be as cost effective as the alternative water supply use and involves a development risk which could manifest in operational financial losses.

Therefore, the property is valued as a probable alternative water supply use.

Thereafter, I reviewed the costs associated with the property. Those costs involve:

(1.) a portion of the Dam Safety cost estimate (the total cost is allocable to all uses including (a) surrounding land values (taxation), (b) recreational value, (c) flood control/environmental value, (d) electric generation value and (e) probable alternative water supply value);
(2.) a portion of the maintenance dredging and sedimentation control cost estimate;
(3.) the anticipated additional watershed management costs for drinking water supply (proportional estimate);
(4.) the anticipated Green River intake a raw water for potable treatment pumping station and pipeline conceptual cost.

The above four (4) items involve adjustments in the determination of the opinion of value.

I found that the Green River and Lake Adger had water quality characteristics (multiple sources and USGS) suitable for surface water treatment to render it potable. The water quality and lack of major pollution sources make the source favorable for use. This analysis was conceptual and does not rise to a treatability analysis, nor a preliminary design, nor final design analysis. This analysis supports the probability of use determination.

After the description of the property and use valued in Section 2. I summarize the valuation methods and present my assessment of the most credible and reliable method to be used for this property.

Additional discussion of the determined probability of water supply use is shown in Section 4.

Section 5 presents the comparable transactions selected for this property. Note that the characteristics of a new sale use raw water supply reservoir developed in-line with the River is only when it is needed as a primary water source for safe yield.

Section 6 presents the reconciliation for the alternative water supply use.

Section 7 presents the interlocal and existing users cooperation anticipated for the Lake Adger. Either (1.) revisiting of a three (3) party interlocal agreement, (2) creating a 63-20 not-for-profit entity, (3) creating an annual lease for the Lake Adger value, (4) creating an authority, (5) having Polk County as a part of BRWA, (6) a cooperative/joint water supply membership, or (7) another interlocal arrangement may be pursued for the alternative water supply use.

Polk County owns significant assets, facilities and properties. Currently, Polk County is burdened with the costs of Lake Adger without revenue streams from various users of the property. Potentially, negotiations with the other users could attain mutual benefits.

Based on the research, analyses, and investigations performed for this report, the opinion of value for the Lake Adger water supply use as of July 13, 2016 as a fair market value is:

$5,150,000

(Five Million One Hundred and Fifty Thousand Dollars)

We appreciate this opportunity to provide the technical expertise you desire. Should you have questions or need further assistance, please feel free to call.

Very truly yours,

Hartman Consultants, LLC

Gerald C. Hartman
North Carolina P.E. # 015264
ASA #7542
BCEE #88-18034

9/24/2016

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Section 1

SECTION 1
INTRODUCTION

The Turner Shoals Dam, Hydroelectric Station, and Lake Adger are owned by Polk County, North Carolina. The recreational uses of the reservoir are enjoyed by the abutting residents and the public at large. The power generation revenues are the property of Northbrook as well as the responsibility and cost of maintenance, renewals and replacements to the hydroelectric station. Duke Energy owns the substation and has easement rights for power transmission from the substation. The remaining uses are for land value enhancement, flood control, water storage and potential alternative raw water supply.

The purpose of this appraisal is to value only the water storage and potential alternative raw water supply use of Lake Adger.

Client: The Client is Polk County, North Carolina.

Intended Users: The intended user is Polk County, and potentially ICWD and BRWA.

Intended Use: Source material for either interlocal agreement or not-for-profit utility formation equity participation.

Type and Definition of Value: Type – Special Purpose Property for public utility use for raw water supply component of potable water system(s) – Definition Source IRS-561- Fair Market Value (FMV).

Terms: Value is in terms of cash and standard industry APA terms and conditions assuming the existing restrictions and agreements.

Exposure Time – is two (2) years.

The characteristics of property and condition assessment is presented in **Section 2**.

Ownership Interest: is fee simple with the full bundle of rights with compliance of Northbrook, HOA, Marina, Duke Energy, and pool elevation agreements.

There are known restrictions, agreements, regulations contracts or other items impacting the property.

Intangible items involve: water supply reliability, emergency storage, safe yield, average yield, quality, threat assessment/contamination and/or blending opportunities.

Extraordinary assumptions: (1) safe yield and contract determinations are valid (2) siltation will be curtailed and rate reduced with a proportion of the cost assigned to the alternative water supply use, (3) releases will flow downstream and be substantially available to BRWA/ICWD for subsequent treatment (4) Lake Adger will not be contaminated or have long term not correctable water quality issues (5) Northbrook or its successors or assigns will not impede the use of Lake Adger for water supply (6) HOA/POA, Marina and/or recreational users of Lake Adger will not impede the use of Lake Adger for water supply (7) DENR will permit at the safe yield and entitlement flow levels (5.8 MGD and 8 MGD) the use of Lake Adger for water supply (8) No environmental condition will impede the use of Lake Adger for water supply, (9) Turner Shoals Dam safety costs will be proportional to the uses and those costs shown herein will be allocated with the alternative water supply allocation as assumed herein; and (10) the Green River intake and raw water pipeline to the BRWA WTP will be proportionately allocated to the Lake Adger water supply use.

Hypothetical Conditions -

1. Polk County, ICWD and BRWA will agree on either an interlocal agreement or participate in an Authority or 63-20 corporation or other entity which uses Lake Adger for water supply at the safe yield and entitlement flow levels (5.8 MGD and 8 MGD respectively).
2. The three (3) party's will accept the level of participation at the FMV opinion delineated herein without discount.
3. An alternative water supply use will be accomplished in a not-for-profit manner or entity or agreement.

Lake Adger's current uses are for flood control, recreation, land value enhancement and hydroelectric power generation. The additional use is assumed for raw water supply and the current uses will not impede or restrict the additional use.

The market context is the limited public utility market due to locational constraints. The public utility use will be in the local North Carolina/South Carolina area.

The relevant economic conditions that exist and the market acceptability for water supply is an essential use required for the public health safety and welfare. The need or absorption of the raw water supply is addressed in **Section 4**.

The sales comparison approach is relied upon for this work and is presented in **Section 5**.

The cost approach is not relied upon for this work and is discussed in **Section 3**.

The income approach is not relied upon for this work and is discussed in **Section 3**.

The property is encumbered by various agreements and uses. The value opinion and

conclusion for this work isolates the additional use for raw water supply and values that additional use.

Assemblage with other water supply components is anticipated, yet the benefits of assemblage are not included in this opinion of value.

The anticipated modifications to the subject property for:

a. Structural Dam Safety and Spillway Improvements
b. Siltation/Dredging

are not fully defined, though studies have been conducted. The extraordinary assumption is that such improvements will be proportionally paid for from each use and sustain the value in a fashion recognized by the market. Proper implementation of cost-effective capital improvements are common in the water industry and are accepted by the parties involved as prioritized and scheduled in a market acceptable fashion.

The real property needed for Lake Adger uses are encumbered by the Lake. No other real property has been identified as necessary for acquisitions to attain the additional water supply use.

The intangible items are included in the comparable sales approach and no additional intangible property value is necessary.

The prior agreements of the sale of Lake Adger are to be honored.

The quantity and quality of data available for the cost approach is quite distant from the present. The major portion of construction was performed and completed in December, 1924 period, approximately 92 years ago. Means, methods, regulations, materials, equipment, etc. have changed dramatically from that time to the present.

The income from Lake Adger does not accrue to the owner (County of Polk, N.C.); rather to the vendors using the lake for (a) hydroelectric power generation and (b) recreation (POA/HOA, Marina, Wildlife Resource Commission). Therefore, there is no positive cash flow specifically attributed to the Lake which benefits the owner other than enhanced land values and economic development. The income approach would not derive reliable results for the additional water supply use. Similarly, the cost approach data is not sufficient to derive reliable results.

1.1 APPROACH EVALUATION

The three standard approaches include the cost (principal of substitution); income (business value from rentals or sales income) and comparable sales/utility value (market approach derived from sales, NARUC accounts, component values trended and depreciated to the effective date.

The cost approach is impacted greatly by the agreements involving electrical easements, hydroelectric rights and operator agreement, dock and marina agreements, property owner agreements and lake level maintenance agreement requirements. The water supply source is a unique natural feature and no direct substitution is possible. The costing of the existing facilities and trending would provide a reproduction cost without compliance or grandfathering of the existing regulations. The functional obsolescence and external obsolescence, while known to be great, would be difficult to quantify.

The income approach, based upon my understanding that there are no rentals or payments derived from the ownership of the dam and lake as direct instruments. The hydro-power sales benefit the vendor. There are no current water supply agreements for the potential potable raw water available from the Lake Adger, yet such agreement(s) are likely in the near future. The County bears the full cost of maintenance of all facilities except for (a) the marina dredging for navigation/access performed by fish and wildlife, (b) the hydroelectric facilities on site by the vendor, (c) the electrical substation and transmission lines by Duke Power and (d) the private facilities. The approach would be speculative at this juncture. We are including the additional value derived from the increased tax revenues from lakefront lots since the/adjoin the Lake and have an enhancement derived therefrom.

The market approach will be used and certain information imputed due to the certain utilities' practice of combined water supply and treatment accounts. Cost allocations are necessary due to the fact that the raw water supply is a component of an integrated water utility system. The pertinent information was derived from the respective Public Service Commissions, Utility Commissions, utilities, sale cost allocations as reported to the federal government and financial disclosures to complement our data bases.

1.2 PREMISE OF VALUE

The premise of value is in the Lake Adger's current use and the potential use as a raw water supply for potable purposes. The average annual daily flow (AADF) safe yield 5.8 MGD as presented by Black & Veatch, the average annual yield is 8 MGD as present in the agreements with additional peak day capabilities due to storage is the yield extraordinary assumption integrated into the work. The facilities will be valued in their highest and best additional use (denoting that hydroelectric and recreational uses are allocated to others and that flood control and land value enhancement exists.) as a raw water supply facility. Therefore the highest and best use for the appraisal is the water utility value as a special purpose property as a public utility component. The fair market value is determined consistent with the stated use and market.

1.3 PROJECT SCOPE AND AUTHORIZATION

This Appraisal Report ("Report") is of the Lake Adger Water Supply Source (LAWSS), in the Columbus area of Polk County, North Carolina and was requested by the County of Polk, Board of County Commissioners. The facilities were constructed and provide water

management, water supply, hydroelectric power, recreation uses and other uses.

1.4 OWNERSHIP INTEREST

The assets are part of the water resources of the region at the effective date of the appraisal. We have performed these services for the specified portion of property in "fee simple," which includes all rights (the bundle of rights) that can be legally vested in an owner, subject to encumbrances whatever they may be. This fee simple ownership includes ownership of all of the property, fee simple ownership of certain real property, operational rights and water rights. In other words, the fee simple value has been determined, without deduction for any liens or other encumbrances that may exist.

Fee simple ownership is the most comprehensive type of ownership since the owner may dispose of the property in any manner they select. One possessing this property has no restrictions or limitations upon ownership except those imposed by governmental entities and those which were willfully created by agreement.

1.5 PURPOSE AND USE OF APPRAISAL

The purpose of this appraisal is to value the water storage and raw water supply uses of Lake Adger.

The uses of this appraisal are for interlocal negotiations concerning utility service matters for the region.

1.6 IMPORTANT VALUATION DEFINITIONS

Appraisal (noun) – the act or process of developing an opinion of value; an opinion of value. (adjective) of or pertaining to appraising and related functions such as appraisal practice or appraisal services.[1]

Client – the party or parties who engage, by employment of contract, an appraiser in a specific assignment.[2]

Cost – the amount required to create, produce, or obtain a property.[3]

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1 Uniform Standards of Professional Appraisal Practice ("USPAP"), 2016-2017 Edition, Published by the Appraisal Foundation, page 1 (lines 8-10)

2 *lbid*, page 2 (line 50)

3 *lbid*, page 2 (line 57)

Easement – an interest in real property that transfers use, but not ownership, of a portion of an owner's property. [4]

Extraordinary Assumption – an assumption, directly related to a specific assignment, as of the effective date of the assignment results, which, if found to be false, could alter the appraiser's opinion or conclusions. [5]

Fee Simple - absolute ownership unencumbered by any other interest or estate, subject only to the limitations imposed by the governmental powers of taxation, eminent domain, police power, and escheat.[6]

Highest and Best Use (in appraising real property) – is the reasonably probable and legal use of vacant land or an approved property that is physically possible, legally permissible, appropriately supported, financially feasible and that results in the highest value.[7]

Hypothetical Condition – a condition, directly related to a specific assignment, which is contrary to what is known by the appraiser to exist on the effective date of the assignment results, but is used for the purpose of analysis.[8]

Intended Use – the use or uses of an appraiser's reported appraisal, appraisal review, or appraisal consulting assignment opinions and conclusions, as identified by the appraiser based on communication with the client at the time of the assignment.[9]

Intended User - the client and any other party as identified, by name or type, as users of the appraisal, appraisal review, or appraisal consulting report by the appraiser on the basis of communication with the client at the time of the assignment.[10]

Jurisdictional Exception – an assignment condition established by applicable law regulation, which precludes an appraiser from complying with a part of Uniform Standards of Professional Appraisal Practice (USPAP).[11]

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4 The Appraisal of Real Estate, 12th Edition, Published by the Appraisal Institute, page 71

5 Uniform Standards of Professional Appraisal Practice, ("USPAP") 2016-2017 Edition, page 3 (lines 67-69)

6 The Appraisal of Real Estate, 12th Edition, Published by the Appraisal Institute, page 69

7 *lbid*, page 305

8 USPAP, 2016-2017 Edition, Published by the Appraisal Foundation, page 3, (lines 75-77)

9 *lbid*, page 3, (lines 84-86)

10 *lbid*, page 3 (lines 87-89)

11 *lbid*, page 3 (lines 91-91)

Leased Fee Interest – a lessor's, or landlord's, interest with specified rights that include the right of use and occupancy conveyed by lease to others. The rights of the lessor (the leased fee owner) and the lessee (leaseholder) are specified by contract terms contained within the lease.[12]

Market Value - a type of value, stated as an opinion, that presumes the transfer of a property (i.e., a right of ownership or bundle of such rights), as of a certain date, under specific conditions set forth in the definition of the term identified by the appraiser as applicable in an appraisal.[13]

Market Value (noun) – the estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller in an arm's length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently, and without compulsion.[14]

Regulated Industry – industry that is regulated by government to a significant extent.

Replacement Cost New ("RCN") – the current cost of a similar new property having the nearest equivalent utility as the property being appraised, as of a specific date.[15]

Reproduction Cost New – the current cost of producing a new replica of a property with the same, or closely similar materials, as of a specific date.[16]

Appraisal Report – a written report prepared under Standards Rule 2-2(a) or 8-2(a) of a Complete or Limited Appraisal performed under STANDARD 1 or STANDARD 7.[17]

Taking – is the acquisition of a parcel of land (or other property) though condemnation.[18]

Value – is the amount, relative worth, functionality, or importance of an item, which may or may not be equal to price or cost.[19]

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12 The Appraisal of Real Estate, 12th Edition, Published by the Appraisal Institute, page 81

13 USPAP, 2016-2017 Edition, Published by the Appraisal Foundation, page 3 (lines 92-94)

14 International Valuation Standards, 2000 Edition, Published by the International Valuation Standards Committee, pages 92-93

15 Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition, Published by American Society of Appraisers, page 585

16 *Ibid*

17 USPAP, 2016-2017 Edition, Published by the Appraisal Foundation, pages AO-11, pages 98-99

18 The Dictionary of Real Estate Appraisal, 4th Edition, Published by the Appraisal Institute, Page 285

19 Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition, Published by American Society of Appraisers, Page 594.

1.7 EFFECTIVE DATE OF APPRAISAL

The effective date of appraisal is July 13, 2016.

1.8 TYPE OF PROPERTY

The owner owns a special purpose property as a public water resource. The system is provided the rights thereof by the State of North Carolina, and by contract, assemblage, and other means. Such properties have the configuration and the local natural resources for the specific region that could be served.

1.9 SPECIAL PURPOSE PROPERTY

The Utility includes resources in its service area and all other attributes of a fully functioning water storage and supply source. The LAWSS is considered a special purpose property. There are four (4) criteria, which establish whether property should be considered special purpose property:

a) Uniqueness;
b) Property must be used for a special purpose;
c) No widespread market for the type of property;
d) The property's use must be economically feasible and reasonably expected to continue.

The function of this property is to connect to County, ICWA, and BRWA property, store, supply water and covey water to a specific service area. The utility system is assumed to have the water resource purposes for which is provided as designed, and continues to be available for those purposes.

There is no question that with any purchase or acquisition of the LAWSS, that the majority of those assets would continue to be substantially used for utility purposes and they would continue to be renewed, replaced and/or maintained for such purposes proportionally with the other uses.

1.10 INTANGIBLE PROPERTY

In the valuation of utility property using the market approach, the intangible property is included in the market consideration. By agreement and practice, the water rights derived from LAWSS are included in this report.

Any purchaser would acquire the LAWSS system completely installed and operational with vendors and users who historically were and are assumed to benefit in the future by the property.

1.11 SUMMARY OF DATA COLLECTION

Data collection on this assignment involved records of the County of Polk, ICWA, BRWD, State of North Carolina market transactions, other transactions, HC reference library and Hartman Consultants, LLC. information and other sources of information.

1.12 SUMMARY OF CONFIRMATION ACTIVITIES

A variety of analyses and surveys were used to confirm and/or cross-check the data and information provided. Calls, comparisons of reports, field inspections, records testing, and comparisons of source information were accomplished.

1.13 SUMMARY OF REPORTING MEASURES

This Report is an Appraisal Report with disclosures included.

1.14 ADDITIONAL EXTRAORDINARY ASSUMPTIONS/HYPOTHETICAL CONDITIONS

In addition to the extraordinary assumptions and hypothetical conditions emphasized in the opinion letter, the following items are presented for the readers information:

a) No responsibility is assumed for legal matters, nor is any opinion on the title rendered herewith. We assume that the title to the property is good and marketable. We assume that future agreement(s) will not reduce the present value.

b) All existing encumbrances, as known, have been included and the property appraised as though the necessary investments will impact value.

c) The appraiser has made no detailed survey or materials testing of the property and, unless specifically stated. It is assumed that there are no encroachments involved.

d) The sketches and maps in this Report are included to assist the reader in visualizing the property and are not necessarily to scale or depict all items above or below ground.

e) It is assumed that the property is in full compliance with all applicable federal, state, and local environmental regulations and

laws unless non-compliance is stated, defined, and considered in this Report.

f) It is assumed that all applicable zoning and land use regulations and restrictions have been complied with, unless a non-conformity has been stated, defined, and considered in this Report.

g) It is assumed that all required licenses, certificates of occupancy, consents, and other legislative or administrative authority from any local, state, or national government or public entity or organization have been or can be obtained or renewed for the use for which the value estimate in this Report is based.

h) The imputed improvements are considered for purposes of this appraisal to be completed in a good and workmanlike manner.

i) Responsible ownership and competent property management are assumed.

j) It is assumed that there are no hidden or unapparent conditions of the property, soils, faults or structures which would render it more or less valuable.

Further, unless otherwise stated in this Report, the existence of hazardous material or any other environmental problems or conditions, which may or may not be present on the property, was not observed or disclosed. We have no knowledge of the existence of such materials or conditions on or in such close proximity that it would cause a loss in value. We, however, did not search to detect such substances or conditions. The presence of substances such as asbestos, ureaformaldehyde foam insulation, radon, or potentially hazardous materials which could have an adverse effect on the value of the property were not observed or detected in our inspections. The value estimate is predicated on the assumption that there is no such material or condition on or in the property that would cause a loss in value. No responsibility is assumed for any such conditions, or for any expertise or knowledge required to discover them.

k) No responsibility is assumed for the absence or presence of any endangered species on this property. This appraisal assumed that there are no endangered species which would prevent, restrict, or adversely affect any development or improvement of this property.

l) No impact studies and/or special market, or feasibility analysis or studies have been required or made unless otherwise specified. We reserve the right to alter, amend, revise, or rescind any of the statement, findings, opinion, value estimates, or conclusions contained herein if any of these studies require it.

m) Certain data used in compiling this report was furnished from sources which we consider reliable; however, we do not guarantee the correctness of such data, although so far as possible, we have checked and/or verified the same and believe the data to be accurate.

n) We have accepted as correct and reliable all information provided by the owner, or the owner's agents, which was used in the preparation of this Report. All data came from sources deemed reliable, but no liability is assumed for omissions or inaccuracies that subsequently may be disclosed in any data used in the completion of the appraisal.

o) Subsequent to the effective date of value of the property, the appraiser reserves the right to consider and evaluate any additional value influencing data and/or other pertinent factors that might become available between the effective date of this Report and any future date if applicable, and to make any adjustments to the Report that may be required.

p) Neither I, nor anyone employed by me, has any present or contemplated interest in the property appraised.

q) Possession of this Report, or copy thereof, does not carry with it the right of publication, nor may it be used for any purpose by anyone except for the client without the prior written consent of Hartman Consultants, LLC and in any event, only in its entirely and with proper qualification.

r) Neither all nor any part of the contents of this report shall be conveyed to the public through advertising, public relations, news, sales, or other media without the written consent and approval of Hartman Consultants LLC excepting appropriate legal requirements.

s) Acceptance of, and/or use of, this Report constitutes acceptance of the above conditions and assumptions.

t) Other than those provided by Polk County, no other legal agreements, developer agreements or other water resources-related agreements were disclosed or provided and therefore have not been included in this Report. It is assumed the provided agreements are in effect and are transferrable to a future entity.

u) It is assumed that any and all permits and easements can be transferred in the event of an acquisition with minimal effort and are renewable.

v) All assets are to be valued "as-is" without warranties or guarantees.

x. The facilities/equipment are in good working order.

y. All of the equipment inspected was functional.

z. All equipment will operate at their nameplate or nominal design capacity as a functional system meeting all federal, state and local regulations at such capacity.

1.15 EFFECT OF EXTRAORDINARY ASSUMPTIONS AND HYPOTHETICAL CONDITIONS

The effects of the Extraordinary Assumptions and Hypothetical Conditions are to value a potential raw water supply source as a regional not-for-profit entity. Presently, the facilities are operating. Due to the nature of the special purpose property which is fixed and non-portable, and the location of the property within the Polk County's service area, the highest and best use of the property cannot be attained without the assumed interlocal cooperation transaction. To the extent that an extraordinary assumption or hypothetical condition is not true, then the value would be lessened.

1.16 PROCESS AND PROCEDURES FOLLOWED

The process utilized was confirming the valuation assignment, gathering the necessary information for the appraisal activities. Mr. Hartman weighed the information and results of the analyses utilizing his training, experience and knowledge of the market and the subject property. Following the consideration of the above, an Opinion of Value was determined and reported in this Appraisal Report.

1.17 HIGHEST AND BEST USE

The highest and best use for the Utility is as a public water supply system component. Note that the use of the utility system is a monopoly and creates a special purpose property and also has the characteristics of an essential use. Since the property is useable as designed, configured, and constructed in a manner that provides for the public water supply use, no alternate highest and best use was considered.

1.18 APPROPRIATE MARKET USED

The appropriate market for the Utility is as a special purpose water supply system providing for utility service in the public utility not-for-profit market.

1.19 EXCLUSIONS

This appraisal has excluded the following aspects of the Utility and those aspects are not included in the Opinion of Value delineated herein:

a) County reserve funds, investment cash equivalents, accounts receivable and other customer or utility derivatives of operations;
b) The assumption of associated debt of the property;
c) Property owned by other associated parties; and
d) Activities, rights, and privileges of other associated parties.

In other words, this appraisal is of all of the property of the water supply system use only.

1.20 DEPARTURES/SCOPE LIMITATIONS

This appraisal has no known departures or scope limitations.

1.21 ASSUMED TERMS AND CONDITIONS

The standard terms and conditions commonly used in the wastewater industry are assumed for this appraisal. The purchase price would be as a cash and/or donation purchase in U.S. Dollars at the time of closing. There are no limitations relative to exposure, financing, futures, or other factors.

The standard terms and conditions assumed are listed below:

- Purchase Price, as Cash at Closing, Paid by Buyer
- Bill of Sale Provided by Seller
- Satisfaction of Liens, Encumbrances or Title Problems to Obtain Free and Clear Title by Seller
- Easement, Land Rights, or Other Utility Rights Transferred by Seller
- Regulatory Conduct and Compliance to Maintain Permits without Deficiency
- Transfer of all Necessary Agreements to Buyer
- Vendor Invoices, Materials, Supplies as Incurred up to Closing Paid by Seller
- Inventory of Consumables at Closing at Appropriate Levels for Continuous Operations
- Inspection of all Closing Documents
- Consideration for Performance and Penalty or Resolution of Non-performance
- Verification of Proper Authorization to Bind a Party
- Conduct After Agreement and Before Closing not to Diminish Value or Hamper Operations
- Seller Keeps Existing Funds, Restricted Funds and Satisfies Debt and Lien Obligations
- "As-is" Type of Transaction
- Rolling Stock, Movable Equipment, Laboratory Equipment, Tools and Accessories or Appurtenances Included in Sale
- Closing Date, Time, Place and Procedures within the exposure time of 2 years
- No Outstanding Litigation
- Assistance in Petitions or Transfer, No Objections, Contractual Extent and Type of Cooperation
- Payment of Representative Fees and Costs as Incurred by Each Party
- Payment of Documentary Stamps, Recording Costs by Buyer
- Payment of Title Search and Policy by Buyer
- Construction Work in Progress Payment to Seller of Actual Costs up to Transfer Date; if any and an increase of the value for Construction Work In Progress (CWIP) and a decrease of the purchase price for retirements.

1.22 CLIENT

The Client is Polk County, North Carolina.

1.23 ADDITIONAL ITEMS

For the purpose of this report, the following additional items warrant attention of the reader.

a) Fair Market Value (FMV) is the price that property would sell for on the open market. It is the price that would be agreed on between a willing buyer and a willing seller, with neither being required to act

and both having reasonable knowledge of the relevant facts (source IRS).

b) Since this property is a special purpose property, it is restricted to its potential use as an alternative water supply component of a regional public utility. No other restrictions are contemplated.

Section 2

SECTION 2
BACKGROUND AND DESCRIPTION OF WATER SUPPLY FACILITIES

2.1 BACKGROUND

Power companies during the early 1900's reviewed areas where hydroelectric power could be generated.

The areas required natural valleys and a river having an adequate drainage basin to sustain the flow necessary for the turbines and generators to be reliable for the customer base to be served. Another characteristic was a sufficient change or drop in elevation to facilitate the creation of a reservoir or lake for those times when flow was at minimum levels and to create sufficient potential energy in at a pool elevation to efficiently turn the turbines and generate electricity at the station.

After the large and more populated areas were served, additional smaller sites were developed for interconnection into the primary electric transmission system.

The Turner Shoals location on the Green River met the above criteria and was developed by Blue Ridge Power Company in the early 1920's. The Turner Shoals Dam and Generating Station was completed in December 1924 and operational in 1925. Initially, the use was for power generation. Later, the use for residential development, recreation and marina development occurred.

Due to the available pool storage in Lake Adger, which was created by impounding the Green River with the Turner Shoals Dam, the facilities also provided stormwater storage to provide water management during potential flooding events. This use benefitted downstream properties.

The initial owner Blue Ridge Power Company sold the property to Duke Power Company. Duke Power Company sold the property to Northbrook Energy Corporation. Duke and Northbrook entered into contracts with certain property owners, the marina and the Lake Adger HOA to maintain the recreational benefits and uses of Lake Adger.

In 2007 Northbrook sold the property to Polk County with these and the Duke Power transmission easement and substation encumbrances. Northbrook desired to operate and maintain the 5.4 Megawatt (MW) hydroelectric generating station and continue to derive the revenues from that use. By 2008, the various other parties had agreed to the transfer of ownership to the County and had their uses protected with agreements with the County or instruments assumed by the County.

In essence, the County paid $1.6 million for the storm water management (flood control) and future potential alternative water supply uses of Lake Adger while ensuring a benefit to land values and the resulting tax revenues.

2.2 DISCUSSION

The use appraised herein is the potential regional water supply use of Lake Adger. There are no records which disaggregate the (1) Stormwater Management/Flood Control use from the (2) potential regional water supply use, from the (3) taxable property enhancement use, from the recreational use, from the (4) private property and HOA use, from the (5) Duke Energy Transmission and substation easement encumbrance use, from the (6) Turner Shoals hydro-electric generation station property ownership rights, from the (7) potential economic development benefits of the County's Lake Adger property.

The $1.6 million consideration in 2007/8 was for the full bundle of rights, fee simple, of the property. This Appraisal Report provides the opinion of value for the potable raw water supply use of Lake Adger as a component of a regional water supply system.

Additionally to the alternative water supply use, the County may or may not decide to:

(1) Obtain value from the existing county utility water transmission and distribution system; or

(2) Obtain value from the ownership rights of the 5.4 MW hydro-electric generating station.

2.3 DISCUSSIONS WITH BRWA AND ICWD

A regional water supply program has been discussed with BRWA and ICWD. Certain efforts were not successful in the 2014/2015 time period.

Currently, the County owns a regional water system within Polk County which primarily wheels potable water from the BRWA Surface Water Treatment Plant (WTP) on the Broad River (located approximately 4 miles upstream of the confluence of the Green River into the Broad River) metered at the Rutherford-Polk County line through the County in a 20" potable water transmission main to the North Carolina-South Carolina State line. At that point ICWD owns the interconnected transmission main in South Carolina. The BRWA – County – ICWD agreement provides for a maximum of 4.1 MGD. Polk County is entitles to upto 0.6 MGD within the County and ICWD has a entitlement of 3.5 MGD. Operationally ICWD can take 4 MGD and the County only uses about 0.1 MGD. The term of this agreement is 15 years ending 2023.

BRWA is the wholesale/bulk potable water supplier at the master meter. The BRWA contracted wholesale rate is lower than the wholesale rate offered to ICWD from the Spartanburg regional system which was the previous wholesale provider to ICWD. The beneficial rate from BRWA is valid during the agreement period. As of June 9, 2015 the BRWA wholesale to Polk/ICWD rate schedule was:

0 – 999,000 gal/mo.	$3.00/1,000 gal
1 MG – 27 MG/mo.	$1.55/1,000 gal
27 MG – 39 MG/mo.	$1.25/1,000 gal
Over 39 MG/mo.	$1.25/1,000 gal

The above schedule approximates the Exhibit "C" to the interlocal agreement and is the schedule shown in the 2015 Bonds. BRWA has lost much of its historical large water industries. Polk County is by far its largest customer consuming 25.4% of its water sales year ended 6/30/2014. Currently, the amount has increased. Grassy Pond Water Company (GPWC) is the second largest customer, also a wholesale/bulk customer. GPWC has 3,100 accounts and Polk/ICWD has some 12,200 accounts at 6/30/2014. In 2014 these two bulk customers amounted to 75% of the billed water consumption of BRWA and 33% of the annual revenue (effect of beneficially low bulk rate). Year ending 6/30/2014, bulk sales average 3.73 MGD. With the $16,665,000 BRWA Series 2015 refunding revenue bonds the annual debt service dropped from some $2,930,000 to approximately $2,680,000 per year. Nonetheless, the approximate coverage ratio is only 1.50 and therefore quite sensitive to bulk water sales.

It is reported that the BRWA potable water quality and taste is better than the Spartanburg supply.

Lake Adger reportedly has very good water quality. The Broad River upstream of the BRWA intakes safe yield is somewhat questionable, therefore the BRWA WTP would benefit in reliability and future supply from the Lake Adger source.

In addition, the BRWA has invested funds into their WTP to expand the capacity from 8 MGD maximum daily flow (MDF) to 12 MGD MDF. The BRWA WTP was designed for a very cost effective expansion from 8 MGD MDF to 12 MGD MDF.

The water supply demands of the Rutherford County portion of the BRWA customer base is only 1.3 MGD annual average daily flow. The BRWA customer demand is fairly stable with little growth.

The BRWA historically lost their industrial water customers due to economic reasons and needed a larger customer base to effectively pay the proportionately large debt burden incurred when BRWA brought the water system from Duke. ICWD provided the replacement customers and demand to keep the BRWA cost effective.

ICWD has the largest AADF (approximately 3.0 MGD) and generates the most revenues for the overall system. ICWD has the option to return to the Spartanburg potable water supply if the BRWA costs exceed this alternative in 2023 or to buy water from both or to build their own WTP. BRWA relies on the revenue from the ICWD customer base. Only the ICWD customer base has shown significant historical and projected growth.

The County owns a fairly extensive potable water transmission and distribution system.

Unfortunately, the County has very few customers and therefore is small to economically justify a utility department for operations. The only fashion for the County to individually attain an economy of scale within the County is to merge, purchase, etc. the Tryon, Columbus and Saluda Water Utility Systems.

Only the ICWD potable water system has significant growth. One year of ICWD growth in customers is significantly more than the County's entire existing customer base.

Therefore, the County prudently has retained the ICWD to operate the County's water system.

The County 20" water transmission system can (with certain BRWA HSPS operations) deliver only approximately 4.1 MGD (contract amount) and not much more. The BRWA High Service Pumping Station should be improved during the 8 to 12 MGD MDF WTP expansion to gain some limited additional capacity from the 20" transmission main. With a properly designed repumping station improvement the capacity of the 20" transmission main could be increased from 4 MGD to between 7 MGD to 8 MGD. ICWD has rights of use of the 20" water main for 30 years or to 12/31/2038.

The rights of use of the 20" transmission main by ICWD functionally prohibits flow-through (wheeling) of bulk water to other users without a repumping station.

An expanded Polk County water system to include <u>base</u> water supply to the Towns of Tryon, Columbus and Saluda from the 20" transmission main may be problematic with the:

(1) cost effective existing Columbus supply,
(2) ICWD – 30 year use rights,
(3) lack of a repumping station and appropriate infrastructure

Nonetheless, it is industry practice and good utility management to have cost-effective emergency interconnects (pipe line connections) that are viable when needed or useful as a small incremental/intermittent potable supply augmentation need.

All three parties (the County, BRWA, and ICWD) can continue to derive benefits from working cooperatively. When asked in my meeting with BRWA (1) if Lake Adger would be beneficial and potentially used and (2) if BRWA Management saw benefits to a regionalization study the answer was "yes".

Similarly, ICWD management had the same answer as "yes" with the following caveats:

(1) his lawyer is of the opinion that ICWD cannot join a North Carolina Authority and
(2) he has kept his options open for an ICWD WTP or augmenting existing supplies from Spartanburg and/or an ICWD second pipeline supply.

Nonetheless, it appears probable that an enhanced or expanded regionals solution may be accomplished.

It appears any regional arrangement must include financial security for BRWA to meet their obligations effectively and be competitively superior to the other options available to ICWD with regard to capacity, cost and quality.

2.4 LAKE ADGER

Lake Adger was created by the Turner Shoals Dam (TSD) and is an in-line reservoir of the Green River downstream of Lake Summit. The TSD was constructed by Blue Ridge Power Company and was substantially complete in December of 1924. In 1927, Duke Power Company purchased the facilities, lake, and appurtenances.

The dam has two (2) sections including (a) a multiple arch-buttress concrete facility approximately 300 across and impounding water originally some 90 feet deep at the structure with a spillway at elevation 911.6 feet and (b) a gravity concrete containment section approximately 375 feet across having a higher non-overflow top-elevation of 922.63 feet.

The normal pool elevation is 911.6 feet. The low pool elevation is approximately at 901 feet. The land surrounding the TSD structure is 34 acres upon which Duke Energy has a substation and transmission easement. The lake and, land flooded at 911.6 feet is owned by the County. There is an easement for water storage upto 925 feet on all land abutting the lake to the benefit of the County.

The complete Green River Watershed (GRW) before confluence to the Broad River includes approximately 245 square miles. There are the following creeks/tributaries in GW: Brights Creek, Casey Branch, Cove Creek, Gadd Creek, Ostin Creek, Panther Creek, Pulliam Creek, Rotten Creek, Rash Creek and Silver Creek. Approximately 82 percent of the GRW is forest, 10 percent is agricultural, 7 percent is other and only 1% is developed. There are no water quality impaired waters. There is generally a Good bioclassification. There are no raw water quality results reviewed which make the source not treatable with conventional surface water treatment (removal of turbidity/color, total suspended solids and low levels of fecal coliform). There has been significant depositions of sediment in the lake. No major lake dredging operations have been discovered since 1925. Only minor canal/access dredging has been performed. Sediment deposition and its accumulation over the past 92 years is a maintenance activity which has been deferred.

Lake Adger has a watershed approximately half of the size of GRW at 115 square miles. The reservoir is 438 acres. For raw water supply purposes a 5 foot (out of possible 10 foot high to low level) storage pool encompassing 314 acres was used. The dry weather (drought) condition used was a 90 day period without surface water inflow. The useable storage volume becomes 5 x 7.48 x 43,560 x 314 = 512 MG or 0.51 billion gallons. This storage volume is adequate for the alternative raw water supply.

Contractually, 8 MGD AADF is provided for release or withdrawal which could be used as a primary or alternative water supply. On June 13, 2016 Black & Veatch transmitted the following technical finding for use in this appraisal:

"Also of note: Black & Veatch found that, based on 2014 technical data (rainfall, evaporation, instream flow, etc.) and applicable North Carolina legislation, the reservoir yield was 5.8 mgd. This number is based on information from the NCDENR's Division of Water Resources as well as information included in the agreement between Polk County and North brook Carolina Hydro which mandates a maximum reservoir drawdown of 5 feet during normal operation. A detailed instream flow analysis could prove that the allowable yield is more than 5.8 mgd but we do not have enough information to make that call at this time. In fact, depending on the approach to developing the minimum instream flow requirement mandated by NCDENR, the allowable yield could actually be reduced considering a limited reservoir drawdown."

The TSD has a longitude of -82° 11' 11.4" and a latitude of 35° 20' 6.44". The lake has over 14 miles of shoreline.

The longer section of 5 bays is 375 feet across with the maximum elevation at 922.63 feet. It is a non-overflow portion of the TSD.

The crest of the water intake section is approximately 8 feet higher than the center overflow section. The intake structure was constructed with three bays for three penstocks. Only two penstocks were constructed.

The TSD does not have a separate primary or emergency spillway. The TSD does not have any low level outlet control which could reduce the water level below the two penstocks. The penstocks provide the only pool lowering capability and there is a sidewall penstock by pass at the penstock level dropping water above the base of the TSD. The pool lowering is limited to ten (10) feet.

The flow from Lake Adger is conveyed by two (2) eight (8) foot diameter pipelines (penstocks) approximately 350 feet from the TSD to the brick powerhouse. The brick powerhouse has two (2) turbines. Each turbine is rated at 4,200 Hp at 85 feet of head operating at 300 rpm. These are slow-speed turbines with long service lives. The generators coupled to the turbines are rated 2,750 kW or 2.75 MW each. Combined the plant currently has a generation capacity of approximately 5.4 MW. Recently the station had a new bus installed to maintain efficiency. This facility is a quick start peaking power generation station at a low cost. The grid peaking power needs are typically in the 7 am to 11 pm period. The power is supplied to the Duke Power transmission network. The facility is a FERC regulated generating station.

The generating station and all appurtenances are manned by one operator. The operator manually adjusts the intake levels for lake level maintenance and power supply needs. To

my knowledge, there is no state mandated minimum downstream flow requirement and no 7Q10 flow requirements.

The release times are available on the internet for recreational purposes and do support a recreational industry.

In 2007, a yield analysis was performed using a 58-year period from USGS stream flow records using the most severe drought period on record to establish minimum pool (Lake) elevation. The 2007 yield analysis was not used in this report.

Section 3

SECTION 3
VALUATION METHODS

3.1 GENERAL

The objective of this analysis is to establish an opinion of the fair market value of the Lake Adger Water Supply use with the going concern without all intangibles. Fair Market Value assumes that both the buyer and the seller are aware of all relevant information and the neither party is under the compulsion to act. The method utilized herein to provide a basis for an opinion of value consists of reconciliation of three approaches consisting of:

i. the cost approach;
ii. the income approach; and
iii. the comparable sales approach.

These approaches analyze various aspects of the System, including the physical conditions of the existing System, the cash flows anticipated to be generated by the System in the future, and finally, transaction factors related to the acquisition of similar systems in the past. The remainder of this section provides a general description of the valuation approaches utilized for the Report.

3.2 COST APPROACH

Replacement cost new less depreciation (RCNLD) is the cost approach method selected for consideration in this Report and is commonly utilized in the determination of value in utilities and has been an accepted method in litigation cases involving the acquisition of utilities throughout the United States. The primary reason for this is the fact that most utilities are comprised of complex systems involving, pumping, and piping networks which all have various services lives and different years of installation. In order to address these technically complex facilities, the RCNLD method has been developed.

There is a difference between the reproduction cost and replacement cost of utility assets. The reproduction cost is a duplication of exactly the same facilities. In contrast, the replacement cost is the provision of facilities that would be available today with their improved efficiencies and more effective cost utilizing the commercially available materials, equipment, etc. complete as one single project and obtaining the economy of scale thereof. The replacement cost method assumes that the most economical sequence of construction is utilized. In addition, only one (1) start up and shut down cost is included. Similarly, any premiums or overtime costs or special procurement mobilization/demobilization costs are not included other than for the single large economic construction project. The replacement cost

approach excludes excess capital, which the purchaser would normally not pay for in the existing facilities. Rather, the approach is based upon the theory of substitution and the prevailing market concept that no investor would pay more than the cost to replace the same system with the same characteristics.

There are three (3) components to the overall depreciation taken in this approach. The first component of depreciation, and the first to be applied, is the physical depreciation of the asset. The second level is the functional obsolescence of the existing asset and is deducted from the replacement cost new less physical depreciation. The functional obsolescence is associated with the facilities themselves and is inherent to the System itself being derived from construction, configuration, operations, management, and administration. The final component in the method is for external obsolescence. External obsolescence accrues from all factors impacting the System. The impact of regulation, customer acceptance, historical rate and charge regulation or lack thereof, the ability to generate excess revenues sufficient to support the physical asset value, market conditions development conditions, and many other factors external to the system itself.

The RCNLD analysis is based upon the following assumptions:

1. All utility physical assets are designed, permitted and constructed in one continuous effort.

2. The construction activities are assumed to follow the same historical sequence as that followed in the service area.

3. The engagement of general contractors, acting for the utility and under its supervision, utilizing current construction practices and procedures to replace the property in such a manner so as to achieve all efficiencies that these procedures and practices would allow.

4. The replacement unit prices from recent sources are adjusted based on the appropriate index.

5. The replacement unit prices include the costs of all labor, material, and equipment directly related to specific items.

6. The replacement cost includes the cost associated with overhead and engineering fees incurred throughout the course of the project. These costs are presented as a percentage of the total construction costs of the replaced facilities and depreciated in the replacement cost analysis.

7. The replacement cost includes mobilization/demobilization, contract documents, and contractor risk and profit. These costs are presented as a percentage of the total construction costs of the replaced facilities and depreciated in the replacement cost analysis.

3.3 INCOME APPROACH

The income approach values a utility based on the present value of the available cash flows anticipated to be generated in the future. The theory behind this particular approach is based upon the concept of converting the anticipated financial benefits of ownership in the future to an estimate of the present value in today's environment. Depending upon the circumstances surrounding each acquisition, the income stream may be based on the net operating revenues derived from existing and future growth as well as the value of capital contributions received from new system growth in the future.

Utilizing this approach, the net income for the utility is projected over a specific timeframe and subsequently expressed in terms of its value today based upon the use of an appropriate present value or discount factor.

In general, the consideration of the income approach includes the following steps and decisions:

1. Determine the appropriate term to use for the projection period. Based on the individual circumstances, this period may change from acquisition to acquisition. For example, the anticipated remaining useful life of the physical assets may be used if adequate information exists for this determination.

2. Review relevant past and present financial and operating data available for the utility as it exists today. This will include sources of operating and capital revenues and expenses; transfers; depreciation (if appropriate); personnel and associated costs; historical customer growth and usage patterns; known and anticipated changes in future customer statistics; and similar factors.

3. Develop a usage forecast corresponding to the project period chosen based on the review of past and present actual financial data and any known or anticipated changes in the future.

4. Develop a schedule of revenues and expenses for the projection period based on the customer forecast and current financial statistics of the system while reflecting applicable adjustment thereto pursuant to the ownership assumed in the analysis. In projecting the revenues and expenses, other adjustments may be necessary based on the assumption inherent in the particular analysis.

5. Determine any appropriate capital expenditures and/or capital expenditures which may be necessary as a result of new customer growth or capital improvement needs in the future. This facet of the cash flow analysis will depend on factors such as the remaining capacity in the existing system and the assumed customer forecast. Based on such assumptions, the inclusion of

capital revenues and/or capital expenditures in the present value analysis may be appropriate.

6. Determine the applicable present value discount factor to be utilized in the analysis. This factor will vary depending on the ownership assumed in the future. For example, under a public ownership scenario, the current interest rate on long-term municipal utility revenue bonds may serve as the basis for the discount rate. Alternatively, if private ownership is assumed, the utility's current average cost of capital (or that of other similar utilities) may be used.

7. Apply the present value discount factor to the anticipated cash flows for the projection period.

8. Allow consideration of the reversion value of the assets in the last year of the analysis.

9. Make any other appropriate adjustments which may be necessary.

For this particular valuation, there are factors which diminish the importance of the income approach in the determination of value, such that the weight given to this approach is zero.

3.4 COMPARABLE SALES APPROACH

The comparable sales approach to utility valuation assumes that knowledgeable developers, buyers and sellers of water supply facilities generally know the "Market" for such utility systems. The purpose of this market approach is to examine the history of water supply acquisitions, and to analyze the conditions under which the systems were acquired in an effort to arrive at an implied purchase price for the subject system. Research has been conducted in order to gather a database of information regarding utility acquisitions. In order to compare the different transactions a variety of characteristics are considered. Next, adjustments from the comparable sale to the subject are made.

There are many factors which are involved in the determination of value. These factors create both similarities and differences between the water supply systems, which in essence, result in the formation of a well-mixed market. The comparable sales approach considers such factors and makes adjustments as necessary in order to arrive at an implied value for the subject system.

3.5 APPROACH EVALUATION

In effort to formulate an opinion of value for the System assets being acquired, this Report considers three valuation approaches. The three valuation approaches include the; 1) cost approach; 2) income approach and 3) comparable sales approach. Each approach is independent and results in a separate and distinct finding. The three standard approaches include the cost (principal of substitution); income (business value from rentals or sales income) and comparable sales/utility value (market approach derived from sales, NARUC accounts, component values trended and depreciated to the effective date).

The cost approach is impacted greatly by the agreements involving electrical easements, hydroelectric rights and operator agreement, dock and marina agreements, property owner agreements and lake level maintenance agreement requirements. The water supply source is a unique natural feature and no direct substitution is possible. The costing of the existing facilities and trending would provide a reproduction cost without compliance or grandfathering of the existing regulations. The functional obsolescence and external obsolescence, while known to be great, would be difficult to quantify. Due to the age (92 years) of the property credible costing and FERC only regulation grandfathered would be speculation.

The income approach, based upon my understanding that there are no rentals or payments derived from the ownership of the dam and lake as direct instruments. The hydro-power sales benefit the vendor. There are no current water supply agreements for the potential potable raw water available from the Lake Adger, yet such agreement(s) are likely in the near future. The County bears the full cost of maintenance of all facilities except for (a) the marina dredging for navigation/access performed by fish and wildlife, (b) the hydroelectric facilities on site by the vendor, (c) the electrical substation and transmission lines by Duke Power and (d) the private facilities. The approach would be speculative at this juncture. We are excluding the additional value derived from the increased tax revenues from lakefront lots since the adjoining land had the enhancement prior to the County ownership.

The market approach will be used and certain information imputed due to the certain utilities' practice of combines water supply and treatment accounts. Cost allocations are necessary due to the fact that the raw water supply is a component of an integrated water utility system. We are gathering information from the respective Public Service Commissions, Utility Commissions, utilities, sale cost allocations as reported to the federal government and financial disclosure to complement our data bases.

It is my opinion that the most credible approach is the comparable sales analyses with adjustments to the subject.

Section 4

SECTION 4
PROBABILITY OF USE

4.1 GENERAL

Value is derived by a desire to own, use, or otherwise control. If there is no expectation of a transaction, no probable use, or no benefits of control then there may be no value.

Eastern water law is based upon reasonable beneficial use and the allocation of resource for the use. The water itself is owned by the public and the public has delegated and empowered local, state and federal agencies as applicable to allocate the available water for the beneficial uses in a fashion which protects the public health, safety and welfare. Water supply value is derived from the facilities, property and activities which transform the natural state, configuration and conveyance yield, reliability and quality to saleable product for which a customer pays to have potable (or other grade) water delivered to his location at the quantity, quality, pressure and price. (See Tequesta and other cases).

4.2 SELECTED STUDIES

Lake Adger has been studied as a water supply source. The TSD creates an existing reservoir, there is a significant water shed (the Upper Green River watershed) flowing into the reservoir, the hydro-electric station use simply harvests the potential energy for power generation (no contamination, no consumption, etc.). FERC has allocated the flow to the TSD facilities, the environmental condition is established and the biodiversity is rated as good, the water quality is good, the private and recreational uses of the lake and downstream water sports are established, the lake front/shoreline development is mature (much over 10 years) and impacts known, the remaining lake front development benefits from the agreements/practices currently in place, and multiple engineering firms have studied/reported on the anticipated yield. Both state and federal agencies as well as local groups and the hydro-electric station personnel have monitored, sampled, measured, and recorded information from the Lake.

The studies over the past eleven (11) years selected are quite briefly summarized below:

(a) "Revised Water System Master Plan" prepared for Polk County Board of Commissioners, dated November, 2005 by Odom, Hollifield & Associates Engineering Inc. (OHA).

This report was spurred by the 2002 drought which revealed that the Town of Tryon had, at that time, an inadequate water supply. Currently, Tryon is interconnected with (1) the Town of Columbus's well/groundwater (more drought resistant) system, (2) the Polk County water system and the Saluda water system. The Town of Columbus is interconnected with both Tryon and the County. The Town of Saluda is interconnected with the Town of Tryon. Polk County serves a small customer base, and is interconnected with BRWA, Tryon, Columbus and the ICWD. Due to the age of the report, the various supply capacities and demands require updating. On page 31, as a Phase VII programmed for approximately the year 2025 to 2030 period a 6.0 MGD MDF WTP potentially phased-in with conventional surface water treatment could be developed. OHA estimated the safe yield to be 6.65 MGD.

This amount of 6.65 MGD did not include the effects of storage (which would increase the estimate), nor the various agreements and other potential limitations (which could limit the estimate). The work was done under the historical regulatory climate in the 2002-2005 period.

(b) "ICWD/SJWD Joint Water Supply Feasibility Study – Lake Adger Technical Assessment" prepared for ICWD/SJWD, draft dated 6/8/2007 by Black & Veath Corporation.

The yield analysis done in 2007 did not have a current bathymetric map of the lake bottom and used the available topography. Siltation effects on the elevation 906.6 to 911.6 (5 foot) storage surface area were not available. This same caveat that a current bathymetric survey of the siltation accumulation was also not available is made for this appraisal.

Two conditions were presented:

(i.) No downstream flow requirement (as apparently exists) the safe yield calculated to be 23 MGD (drainage area of 106 mi^2).

(ii.) Continuous minimum downstream flow requirement of 10% of the mean annual flow, then the safe yield reduced to approximately 1.6 MGD (drainage area of 106 mi^2).

(c) "Stability and Remedial Option Analyses Report – Turner Shoals Hydroelectric Project" prepared for Northbrook Power Management, LLC, dated 9/23/2009 prepared by AECOM.

This report is focused on dam safety and estimated improvements with their associated capital investment to maintain hydroelectric operations during an extreme flood or extreme flood and earthquake condition. The report focused on structural options for meeting the extreme conditions.

This report documented the TSD watershed at 115 mi^2, the impact of the Tuxedo Dam hydroelectric generating station approximately 15 miles upstream and the North Carolina dam safety classification as a large and high hazard dam. The probable maximum flood flow was estimated to be 130,300 cfs and the 75% amount of that flow to be 95,000 cfs or approximately 61.4 billion gallons per day (BGD).

No return frequency (only 160% of the one in 500 year event) or actual inundation level was documented. The operator stated he had no documentation or recollection that the pool elevation exceeded three to four feet over the spillway (915.6 BGD). The study found that the TSD was okay at the non-overflow elevation 922.63 feet which was termed unusual (zero freeboard for non-overflow section) only at the case III headwater elevation of 929.23 feet did a failure occur.

Due to the extremely high estimated flow rate, the normal pre-event preparedness, water level management measures, pool drawdown or other activities normally involved from the 911.6 feet usual pool elevation were not considered. Note that with sufficient lead time the pool could be lowered to approximately 902 feet.

Similarly due to the extreme flood flow rate estimated, the potential 3rd penstock pipe at 8' diameter or open bypass option supplementing the two (2) existing penstocks (each potentially at 170 to 200 MGD totaling approx. 500 to 600 MGD) were not considered because that flow rate only amounts to 1% of the 61.4 BGD estimated.

Of course, the extreme flood 929.23 estimated pool elevation is 4.23 feet above the 925 lake easement elevation and seven (7) feet above the non-overflow section of TSD.

(d) "Green River Watershed Assessment" prepared for the Isothermal Planning and Development Commission, dated September 30, 2013 prepared by Altamont Environmental, Inc.

This study considers the entire 245 mi^2 Green River Watershed (GRW). It documents the creeks and tributaries. The focus was on the number one pollutant sediment from unstable streams, rivers, etc. The study incorporated the information from the report "Polk County Stream Water Quality: Year Sixteen" for the period 1993 through 2009 by the Environmental Quality Institute at the University of North Carolina at Asheville with data collection from the Volunteer Information Network (VWIN). Generally the GRW's water quality was shown to be within the 2B Standard (good) except for a high turbidity sample (readily treated at a WTP). Lake Adger did not demonstrate significant water quality

degradation, sample results were essentially the same. No major contamination threats (qualified threat assessment pollution sources) were shown in the water quality sampling.

DENR DWQ stated that none of the typical quality established programs exist for the GRW. If water supply is to be implemented, water quality threat assessment programs and an appropriate watershed protection ordinance/land use rules should be implemented.

The existing water quality was found to be good. My review confirms the above and that the water supply is readily treatable for potable (drinking water) ultimate uses.

(e) "Turner Shoals Dam – Emergency Action Plan (EAP)" prepared for Polk County residents, dated October, 2013 by Polk County Local Government.

The EAP sets forth the events, communications, resources, and actions associated with varying conditions at the TSD. The EAP is demonstrative of good management and coordination for the public health, safety and welfare.

(f) "Dam Safety Inspection Report–TSD-Polk-009" prepared for Polk County Local Government, dated 1/9/2014, prepared by AECOM.

This report has the extreme flood peak flow at 107,500 cfs for analysis or 69.5 BGD. The spillway has minimum capacity of 45,500 cfs or 29.4 BGD. The highest TSD spillway flow in the past 5 years was 4,000 cfs on May 5, 2013 or 2.94 BGD reaching an elevation of 913.91 feet or 2.3 feet in depth over the 911.6 normal pool and overflow spillway elevation. The highest level verbally communicated, versus documented as above, was approximately $4^{+}/_{-}$ feet (say 916 feet rounded). The 2014 report concludes with:

> "The Turner Shoals Dam is well maintained and in fair condition. Based on the inspection of the project and its records, there are no observed conditions which are immediate concerns to the safety of the project."

There were eleven (11) numbered recommendations and a comment to re-inspect in 2018. From a water supply viewpoint, recommendation #8 for a bathymetric survey for siltation levels is important. Siltation accumulation over the past 92 years impacts not only the (1) "stability and design of future bulkhead modification," but also (2) recreation and land values, (3) drought storage capacity for alternative water supply and (4) the ecological system and potential sediment water quality releases.

(g) "Lake Adger Dredging Feasibility Study Report" prepared for the Polk County Soil and Water Conservation District, dated 5/20/2015 by Altamont Environmental, Inc.

Access to Lake Adger from the public marina on the western portion of the lake is impacted by sediment accumulation. Fish and Game moves a sufficient (small) amounts for fishing boat access. This report addresses the feasibility of dredging in the lake. Both dredging and sediment consolidation techniques are common for reservoirs. The following quotations provide a summary of findings and summary of recommendations.

"**Summary of Findings**

- The west end of the lake, from the mouth of the Green River to a point approximately 800 feet east, is severely compromised by sediment accumulation.

- At normal lake level, the water depth at the west end of the lake (as described above) ranges from less than 6 inches to about 5 feet.

- Review of historical documents and interviews suggest that the historical water depth in this area of the lake was probably 15 feet or more.

- Further east, at a point approximately 2,000 feet from the mouth of the Green River, the lake depth increases rapidly to 20 feet and then increases steadily to a maximum depth of approximately 80 feet adjacent to Turner Shoals Dam.

- Sediment deposition has also occurred in the channel of the Green River, and the river is extremely shallow (less than 1 foot deep) for 1 mile or more upstream of the lake.

- Dredging the west end of the lake to a uniform depth of 5 feet would require removing approximately 150,000 cubic yards of sediment.

- Dredging the west end of the lake to a uniform depth of 10 feet would require removing approximately 450,000 cubic yards of sediment.

- Dredging the same area to a uniform depth of 12 feet would require removing approximately 630,000 cubic yards of sediment.

- Dredging the Green River to a depth of 5 feet for 1 mile upstream of the lake would require removing about 20,000 cubic yards of sediment.

- Interviews with dredging operators who are familiar with lake sediments indicate that some portion of the dredged material may be suitable for reuse, but the majority of the dredge spoils will not be suitable for reuse and will need to be disposed of at an on-shore location.

- The cost to dredge, handle, and dispose of sediment (exclusive of land acquisition [for disposal], permitting, and contract administration) is estimated to range from $15 to more than $30 per cubic yard, depending upon the methods utilized.

- Based on these unit rates, dredging the west end of the lake and 1 mile of the Green River to a depth of 5 feet will cost from $2,550,000 to $5,100,000.

- The Green River will continue to transport sediment and, unless a permanent sand-and-gravel-removal operation is established upstream of the lake, sediment will continue to accumulate in the lake.

- Dredging contractors indicated that if material is dredged from the river before being discharged in the lake (where it becomes mixed with organic debris) the dredge spoils can be sorted and reused.

- A nearby lake of similar size and geographic setting (Lake Lure) does not have a sand-and-gravel-removal system upstream of the lake and sections of the lake are dredged annually at a cost of approximately $400,000 to $500,000.

- The State of North Carolina Department of Environment and Natural Resources (DENR) has a grant program for lake dredging. The grant requires a 50-percent match and can be submitted at any time (i.e., it operates on an open application cycle). See Appendix A.

- Any dredging activities must be permitted by the State of North Carolina Department of Natural Resources and the United States Army Corps of Engineers. Two permitting options are available. Permitting will be more time consuming and expensive if dredged materials are stockpiled in the lake rather than removed.

Summary of Recommendations

Based upon the assessment and interviews documented in this report, Altamont recommends that PCSWCD or Polk County:

- Enter into contract to secure an upland property in relatively close proximity to the lake to serve as a long-term disposal area for sediments removed from the lake.

- Perform pre-purchase property assessment. Potentially apply for grant funding to assist with assessment.

- Develop construction details to support permitting and grant applications.

- Apply for permits for dredging operation. Altamont recommends that Polk County remove dredged materials from the lake if possible, to allow a more streamlined permitting process.

- Apply for grant funding to assist with the cost of dredging.

- Promote and facilitate the establishment of a sand-and-gravel dredging operation on the Green River, upstream of Lake Adger. The operation should be designed, permitted, and operated in a manner that is consistent with all environmental regulations and that results in relatively minimal environmental impact.

- Define specific goals for a dredging project (e.g., 5-foot target depth, 10-foot target depth, etc.).

- Select a preferred dredging methodology.

- Define a specific, possibly multi-year phased approach for dredging the lake and meeting the defined goals."

After a bathymetric survey is completed a more precise dredging preliminary design report can be accomplished with a subsequent design/build-dredging (including permitting) procurement.

(h) "Water Issues White Paper" prepared for Protect Polk County Water (PPCW) dated 10/9/2015 by McGill Associates, P.A.

This White Paper (an in-depth authoritative report) is more of (1) an issue background and summary, (2) regional water supply information summary, (3) potential future management options and comment, with suggestions for needed activities. The over-riding constant is that all options will require regional cooperation. The premise is that the Lake Adger resource should be an element of a regional system.

The drought conditions of the 2000-2010 period were cited and a few of the documented "water wars" (water supply allocation litigation) were noted to emphasize the importance of a sustainable long-term water supply.

The PPCW concerns are summarized as:

"Recently ICWD presented a proposal to Polk County to enter into a 75 year extension and contract that would grant to ICWD the water rights from Lake Adger and the Green River. In exchange ICWD would fund and make the necessary repairs to the Turner Shoals Dam and would continue to operate the Polk County water system and any future expansion of that water distribution system.

Protect Polk County Water indicated during our meeting and other conversations their concern for this proposed arrangement and would such an agreement be in the best long term future for Polk County and its continued growth and economic stability. Furthermore would such an agreement potentially leave Polk County with a limited water supply in the future?"

The management options presented in the White Paper are:

Option #1 – Continue the Current Operational Agreement with ICWD (and BRWA)

Option #2 – Form the Polk County Water Authority (New Names as an assign from Polk County-Similar to #1)

Option #3 – Form an Expanded Polk County Water Authority (involves the merger of Tryon, Columbus, Saluda and County water systems)

Option #4 – Polk County petition and join the Broad River Water Authority (taking the three parties and making a North Carolina-South Carolina entity)

While the above is a step toward regionalization, additional options do exist which are worthy of consideration.

A significant issue was to determine a "safe yield" for Lake Adger since the only amount noted was the contractual amount of 8 MGD.

My review found the document helpful and expressing a goal of potential regional partnerships for the long-term needs of the County.

(i) "Turner Shoals Dam Draft Improvement Cost Update" prepared for Inman Campobello Water District, dated 4/18/2016 by Black & Veatch.

This report revisits the potential cost for all of the uses at the TSD for (a) dam safety and (b) spillway arch section rehabilitation.

The RCC option was estimated at $4.3 million for dam safety.

The spillway rehabilitation was estimated at an additional $680,000.

For the purposes of this report, a future amount in 2016 dollars of $5 million is used.

The report states that the return recurrence interval is estimated at 2,500 years. The ¾ of the probable maximum flood is greater than a one in 500 year event and how much greater as a recurrence interval is not stated.

(j) Studies Summary as to Probability of use

The above nine (9) technical and water supply studies all provide for a water supply use and therefore a probability of use.

4.3 PRIMARY PARTICIPANTS ACTIVITIES

The primary participants in the water supply use are Polk County (their water system and interconnected entities as needs dictate), BRWA (their retail and governmental wholesale customers – see Series 2015 Refunding Revenue Bonds) and ICWD (with the largest and fastest growing customer base).

All three entities have invested in the preliminary activities associated with Water System Regionalization.

All three entities have attempted an approach to an interlocal agreement in 2014 and 2015.

All three entity management personnel have met with me and stated that they are still interested in an integrated regional and mutually beneficial arrangement. All three stated that the use of Lake Adger is a component to a future program.

I find that there exists a willingness for the water supply use of Lake Adger. Therefore, there is a probability of use.

4.4 A POSSIBLE CONFIGURATION SENARIO OBSERVATION

This subsection identifies one of the possible configurations as a hypothetical condition for this appraisal. I have made the following observations:

(1) While BRWA may have a 7Q10 possibility of 13 MGD, good water supply practices provide for firm capacity which is questionable at a 12 MGD dry weather flow rate.

(2) When the water supply source has a surplus of capacity and there is no contamination events and the threat assessment for the source is moderate or low one intake source is the industry standard configuration for over 85% of surface water treatment plants. Nonetheless, since the year 1993 (City of Milwaukee Cryptosporidium Contamination event) and thereafter, if an alternative high quality source is economically available, utilities have secured the alternative water supply. (USEPA threat assessment and AWWA alternative water supply MOP).

(3) The Green River has a very treatable raw water of good quality. The Green River Watershed is primarily in forest.

(4) BRWA has invested funds for the expansion from 8 to 12 MGD MDF. I find no other Green River 4 MGD MDF possibility which is as comparatively cost-effective. Expansion of the BRWA WTP from 8 to 12 MGD has a greater capital and operational economy of scale then a new 4 MGD facility (see Utility Economy of Scale Study 1998).

(5) Lake Adger has the drought storage available to provide a firm raw water safe yield in the range of 5.8 to 8 MGD AADF.

(6) Most of the transport distance is via the Green River.

(7) Conceptually, only an approximate $2.5 to $3.5 million investment is needed for the Green River intake near the Broad River, raw water pump station and 20-inch raw water transmission to convey the flow to the BRWA WTP.

(8) Lake Adger would provide the following:

- additional safe yield
- improved water supply reliability
- emergency/drought storage
- improved water quality
- blending opportunities

- threat assessment reduction from “moderate” to “low” for the WTP (contamination risk)
- improved source flexibility/environmental compliance.

9. An appropriate repumping station on the existing 20" potable transmission main would assure Polk County/ICWD an estimated capacity of 7 MGD to 8 MGD MDF.

The above observation illustrates one conceptual cost-effective approach with existing facilities attaining their appropriate design capacities providing for an economy of scale and providing for long-term water quantity and quality reliability.

The above was performed to document that at least one configuration scenario exists for the probable use of Lake Adger as a water supply source.

The above fact supports the probability of use.

4.5 NEW SOURCE RESERVOIRS

Lake Adger exists. It is not a new reservoir. The following is provided concerning <u>new</u> reservoirs and their cost:

a) Canton, Georgia
Hickory Log Creek Reservoir
2012/13
Cost - $100 Million plus
Yield – 44 MGD
Cost per MGD = $2.27 Million
Size – 410 acres of pool
Inflated water demands and cost over-runs have created difficult financial conditions

b) Walton County, Georgia
Hard Labor Creek Reservoir
2014/14
Cost as of 2012 - $180 Million + $32 Million
60% completed
Estimate $350 Million
Yield 42 MGD
Cost per MGD = 8.33 Million
Size – 1,400 acres

(c) SFWMD (Palm Beach County, FL)
C-51 Reservoir – Raw Water Only
2015/16
Cost - $286.4 Million
Yield – 132.5 MGD
Cost per MGD = $2.16 Million
Volume = 19.9 Billion Gallons

(d) Bear Creek Reservoir
Barrow, Jackson Oconee Counties, GA
2002
Cost - $21 Million
Yield – 21 MGD
Cost per MGD = $1.00 Million
Volume – 5 Billion Gallons
Size – 505 acres

(e) Bill Elk Creek
Elk Mills Quarry
2006 Cost Dollars
Cost - $64 Million
Yield – 25.7 MGD
Cost per MGD = $2.51 Million
Volume – 8.5 Billion Gallons

(f) Still Branch Regional Reservoir
City of Griffin, GA
2006
Cost - $21 Million
Yield – 12 MGD
Cost per MGD = $1.75 Million
Volume – 3.5 Billion Gallons
Size – 875 acres

The summary of the above as the reservoir cost per million gallons of cost-effective construction is as follows:

Project	$xMM/MGD	Inflation Factor	2016 Metric
Hickory Log Creek	$2.27	1.10	$2.50
Hard Labor Creek[1]	$8.33	1.08	$9.00
C-51	$2.16	1.00	$2.16
Bear Creek	$1.00	1.61	$1.61
Big Elk Creek	$2.51	1.35	$3.39
Still Branch	$1.75	1.35	$2.36
		Simple Average	$3.50
		Average w/o HLC	$2.40

Use $2.4 Million per MGD for New Reservoir Construction.

There are numerous examples where other drivers than cost-effectiveness are adopted. Such examples skew the comparative analyses to a much higher cost metric.

Water resource risks involve environmental challenges high mitigation credit costs, budget over-runs, land owner disputes, access disputes, customer disputes, condemnation issues, regulatory approval difficulties, lack of water demand, customers pursuing alternative supply sources versus the regional supply source mix, loss of water customers and several other factors.

4.6 COMPARISON OF TYPICAL SURFACE WATER TREATMENT PLANT CONSTRUCTION COSTS FOR 4 MGD TO THE BRWA 4 MGD EXPANSION COST

The BRWA has spent or is spending less than 6 million to modernize the WTP (full 12 MGD) and expand the facility from 8 MGD to 12 MGD MDF. The additional 4 MGD of capacity was built for less than $1.5 per gallon.

There are both a 3.88 MGD and a 4 MGD surface water treatment plants on the South Carolina 2016 Priority List of DWSRF projects. These projects average approximately $4 per gallon.

There are no North Carolina DWSRF small surface water treatment plants in the intended use plan for fiscal year 2016. The 2014 NC DWSRF listing included a SWTP

at $4.8 gallon. The 2013 NC DWSRF listing included a small water treatment plant at approximately $6 per gallon of capacity.
For the purposes of this comparison a new facility may cost at least $4 per gallon or for 4 MGD approximately $16 million versus the BRWA at less than $6 million.

The operational unit cost for a start-up 4 MGD MDF WTP is greater than for an existing 12 MGD MDF WTP. Comparatively, the BRWA WTP should be significantly more cost effective.

In 2005, OHA estimated the cost for a 1.0 MGD MDF WTP at $4 per gallon and a 3.33 MGD MDF WTP at $3.33 per gallon. Applying the ENR CCI index for cost escalation a factor of 1.41 is derived. Therefore in 2016 the 1.0 MGD MDF WTP becomes $5.64 per gallon and the 3.33 MGD MDF WTP becomes $4.70 per gallon of capacity. This comparison approximates the $4 per gallon used for the 4 MGD MDF WTP example.

The above are not site specific preliminary or final design values. Rather, the values are used to conceptually compare approaches such that the probability of use of the hypothetical condition may be verified as reasonable.

4.7 CONCLUSION

Based upon the work performed for this appraisal, my personal observations, and professional experience in the field, I conclude that the use of Lake Adger is probable and reasonable as a hypothetical condition for this appraisal.

Section 5

SECTION 5
COMPARABLE SALES OF WATER SUPPLY SOURCES

5.1 GENERAL

When Water is unavailable, it is priceless. Demand and type of use impact pricing. Both the City of Cocoa and SSU examples are alternative water supplies to the respective utility of the same capacity and somewhat similar situations. I have selected (7) reservoir water use sales on facilities that have multiple uses. **Section 5.2** describes those sales.

With a multiple use reservoir, the uses must be analyzed to assure proper allocations. The analysis of the allocations of the liabilities associated with Lake Adger are summarized in **Section 5-3**.

Finally, **Section 5.4** delineates the value determination using the comparable sales approach and adjusting the subject property liabilities which would be considered in the Market.

After the completion of the improvements, I am of the opinion that with an ongoing sedimentation removal maintenance program, the full benefits of Lake Adger will be enjoyed for another 60 years.

5.2 SELECTED WATER SUPPLY RESERVOIR SALES

This section presents the seven (7) sales selected for comparison to Lake Adger.

The sales are summarized on the following pages of this subsection.

Sale #1. Bellwood Quarry

In 2006 the City of Atlanta purchased the 137.327 acres known as the Bellwood Quarry for $25 Million and invested another $15 million for a total of $40 million. The storage capacity is currently estimated at 6 billion gallons (BG). The raw water storage source will serve to augment the 200 MGD Hemphill WTP which has an onsite storage reservoir of 600 MG. The drought in the Atlanta area resulted in over pumping from the river and interlocal and regulatory disputes with the city. The 6 BG can be expanded to 12 BG. There is no stream inflow. The groundwater contribution is minimal.

Due to the amount of raw water storage provided, the safe yield of the Hemphill WTP will be protected. Estimates over the past decade show the

river safe yield has decreased 20% (2000–2010). Those estimates have been increasing as more rainfall has occurred in the past few years.

In addition to insurance of the capacity of the existing Hemphill WTP (10th Street Atlanta), the raw water reservoir at the Bellwood Quarry provides for threat assessment/ source contamination protection for the city's customers in the region.

The transaction was arm's length between Vulcan Materials Company and the City of Atlanta. No prior contract or franchise rights were applicable. The property was sold free and clear. The context was a willing buyer and seller, both knowledgeable, and neither under compulsion or duress.

Sale #1 Summary
Buyer – City of Atlanta, GA
Seller – Vulcan Materials Company
Date – 2006
Amount - $ 40,000,000
Size – 137.327 acres
Storage – 6 Billion Gallons
Amount per Million Gallons of Storage - $6,667/MG
Safe Yield – N/A
Amount per MGD – N/A

Sale #2 Taylor Creek Reservoir

In 1993 the City of Cocoa purchased 8 MGD of Maximum Daily Flow use rights in the Taylor Creek Reservoir from Farmland (CJCLDS) at a lease payment of 436,000 per year. The present value of the transaction in 1993 was $7,540,000. This surface water supply is an alternative water supply to the City's 48 MGD Well Field in Orange County, FL. The City taps the secondary acquifer for 15 MGD along Tram Road and North – South Road. The deeper 31 MGD Floridian Acquifer wells align East-West along Weewahootee Road and then North-South at Farmland's western property line. Historically, the Tram Road wells were deeper and were back plugged to improve water quality due to conate saltwater upcoming. At the Claude Dyal (City of Cocoa) WTP has several acquifer storage and recovery (ASR) wells are located on-site. Only and portion of the storage available in the reservoir is used for alternative potable water supply. The other uses are for flood control and agricultural irrigation by Farmland.

Sale #2 Summary
Buyer – City of Cocoa
Seller – Farmland (CJCLDS)
Date – 1993
Amount - $ 7,540,000
Size – proportioned
Storage – fractional
Amount per Million Gallons of Storage – N/A
Safe Yield committed to Cocoa: 8MGD MDF
Amount per MGD – $0.94 Million

Sale #3 Franklin Reservoir

In 2014 Franklin County, N.C. purchased the Town of Franklin, N.C. utility. I appraised the utility for both parties as they both waived on conflict. The amount allocated to the water supply was $970,000. The capacity was 0.70 MGD AADF and 1.0 MGD MDF. There were two small reservoirs in series containing 19.5 MG of storage but had sedimentation filling all but 10 MG. This system also provided supplemental flows to the county as approximately 40% of the water treated. During a drought, per contract, the city curtailed water use in the County. Subsequently, the County purchased the system and interconnected it into their regional water operation.

The acquisition took approximately 2.5 years to negotiate.

The sale was an arm's length transaction, both knowledgeable, and not under condemnation. The Town of Franklinton, N.C. financial condition was a concern of the NCLGC. The transaction removed the LGC financial concerns.

Sale #3 Summary
Buyer – Franklin County, N.C.
Seller – Town of Franklin, N.C.
Date – 2014
Amount - $ 970,000
Size – 20 acres
Storage – 19.5 MG
Amount per Million Gallons of Storage – $48,500
Safe Yield: 700,000 GPD
Amount per MGD – $1.39 Million

Sale #4 Collier Lakes

In 1995 Barron Collier Enterprises sold the 212.5 acres known as the Collier Lakes property and raw surface water supply to Southern States Utilities (SSU) which is owned by Topeka Group which is owned by Algonquin Power Corporation. This raw water source had a safe yield of 8 MGD and or AADF dry yield of 6 MGD. Both parties hired two appraisers each. The SSU appraisers averaged approximately $4.5 million. Barron Collier's appraisers were significantly higher. The fifth appraiser was at $7.9 million. The agreed upon price was $9.2 million. The lakes had 56.29 acres of pool area. They were used for lime rock and fill for the construction of US 41, SR 951, I-75 and Alligator Alley (SR 84).

The Collier Lakes are the headwaters of Henderson Creek which flows into Rookery Bay. The lakes are in the configuration of a lazy "L". They vary from 20ft. to 40 feet deep. They store approximately 600 million gallons (0.6 BG).

Due to the stalled negotiations and Barron Collier's tax situation, a "friendly" condemnation was filed and settled with the 5th appraiser being closer to the Barron Collier Appraisals and then the court approved the settlement.

Both buyer and seller were quite knowledgeable and it was a two-part (first part pure negotiation and second part settlement) process.

Sale #4 Summary
Buyer – Marco Island Utilities a wholly own subsidiary of Southern States Utilities.
Seller – Barrow Collier Enterprises, Inc.
Date – 1995
Amount - $ 9.2 Million
Size – 212.5 acres
Storage – 0.6 BG
Amount per Million Gallons of Storage – $15,333
Safe Yield: 8 MGD
Amount per MGD – $1.15 Million

Sales #5 C-51 Reservoir (only)

In May of 2013, Palm Beach Aggregates, LLC (Land owner and lime rock mining company) and the South Florida Water Management District (SFWMD) (a State of Florida regulatory and water supply agency) entered into a Memorandum of Understanding for the development and sale of the C-51 Reservoir to the SFWMD serving a group of utilities in Palm Beach and Broward Counties. The SFWMD issues consumptive used permits to the utilities in both counties. The Florida Legislature supported the SFWMD in

designating the area a "water use caution area." The SFWMD had permanently instituted a Phase 2 water use restriction for the two counties. Basically, the existing ground water use permits as of 2014 cannot be increased with expansions of fresh groundwater supplies. The alternatives are reverse osmosis of deep Florida Acquifer saline water, conservation and reuse, or the development of surface water supplies for any growth flows and for existing fresh groundwater wells which become contaminated by saltwater encroachment.

The Phase I portion of the C-51 reservoir system is constructed and sold. The SFWMD is to operate and maintain the reservoirs. The Phase I reservoir has a volume of 5.5 BG. It has a dry season safe yield of 37 MGD. It cost $104.4 million and has certain costs allocable to Phase 2. Phase 2 has not been sold, yet contracted for and not yet built. It has a cost estimate of $182 Million with a storage volume of 14.4 BG and a dry season safe yield of 96 MGD. Consolidated, the C-51 reservoir will have a price/sale of $286.4 million, a storage capacity of 19.9 BG and a dry season safe yield of 132.5 MGD. The land area is 2,200 acres.

The transaction was and is arm's length. No prior contracts or franchise rights were applicable. The property was sold or contracted for free and clear. The context is of a willing seller and buyer, though regulatory pressure has been applied on the customers. Both buyer and seller are knowledgeable and neither under compulsion or duress.

Sale #5 Summary
Buyer – SFWMD/LECRP/Utilities Group
Palm Beach and Broward Counties
Seller – Palm Beach Aggregates, LLC.
Date – 2016 Phase I and Contract Phase 2
Amount - $ 286.4 Million
Size – 2,200 acres
Storage – 19.9 BG
Amount per Million Gallons of Storage – $14,392
Safe Yield: 132.5 MGD
Amount per MGD – $2.16 Million

Sale #6 City of Okeechobee

The City of Okeechobee, Okeechobee County, Lake Okeechobee Water Association and the State of Florida Park Service were in litigation concerning service areas, wholesale rates and water use permits. The SFWMD hired myself and a few others to settle the situation. We created the Okeechobee Water Authority for which I appraised the four systems for acquisition. The City of Okeechobee had a 3 MGD Surface Water Treatment

plant with an intake in Lake Okeechobee. The water allocation facilities, intake and raw water line was sold to the Authority in 1995. The amount of storage in the Lake Okeechobee was allocated by the SFWMD. The allocation of the purchase price to raw water supply was $810,000. The safe yield was 3 MGD.

Sale #6 Summary
Buyer – Okeechobee Water Authority
Seller – City of Okeechobee
Date – 1995
Amount - $ 810,000
Size – N/A
Storage – N/A
Amount per Million Gallons of Storage – N/A
Safe Yield: 3 MGD
Amount per MGD – $0.27 Million

Sale #7 Myakkahatchee Creek Reservoir

General Development Utilities, Inc. (GDU) impounded the Myakkahatchee Creek and inundated wetlands and General Development Corporation property in North Port, Florida. The reservoir is adjacent to the WTP. The reservoir occupies approximately 160 acres. The storage volume is 1.2 BG. The safe yield is 4.9 MGD. The WTP capacity was 4.4 MGD. The City of North Port (City) had a franchise right to purchase (contractually) the General Development Corporation utility after a 30-year term. At the expiration date, the City exercised its right to acquire which was accomplished at an amount of $16.5 million in 1992. The raw water and reservoir were valued by myself at $1.55 million.

Both GDU and the City were knowledgeable sellers and buyers. Only the intangible value was not compensated for (going concern) due to the negotiated right to purchase via franchise. GDU's benefit was the right to serve all customers within the City for 30 years. Full fair compensation was paid for the real property and the tangible personal property.

Sale #7 Summary
Buyer – City of North Port, FL
Seller – General Development Utilities, Inc.
Date – 1992
Amount - $ 1.55 Million
Size – 160 acres
Storage – 1.2 BG
Amount per Million Gallons of Storage – $1,292
Safe Yield: 4.9 MGD
Amount per MGD – $0.32 Million

Another transaction involved in the use of condemnation where the City of Nashua, NH. (City) purchased the Pennichuck Water Company (PWC). The City paid $203 Million for the 35 MGD surface water reservoir, treatment plant, transmission system, storage and re-pumping, distribution system and meters as well as the intakes and reservoir in 2012. Due to the comingling of the allocations, the raw water reservoir, though sold, could not have a credible subaccount developed specifically.

Table 5-1 presents the sales considered for analysis.

Table 5-2 presents the escalation index – Engineering News Record Construction Cost Index – for the time adjustment to the sales in Table 5-1.

Table 5-3 presents the application of the index to the metric values.

Table 5-1
Sales Listing

#	Buyer	Seller	Sales Date	Purchase Amount $X1000	Size	Storage (BG)	$/MG	Safe Yield MGD	$x10^6 /MGD
1	City of Atlanta	Vulcan Materials	2006	40,000	137	6.0	6,667	N/A	N/A
2	City of Cocoa	Farmland	1993	7,540	%	%	N/A	8	0.94
3	Franklin Co.	Town of Franklin	2014	970	20	0.02	48,500	0.7	1.39
4	South States Utilities	Barron Collier	1995	9,200	212.5	0.60	15,333	8	1.15
5	SFWMD/PC & BC	Palm Beach Aggregates, LLC	2016	286,400	2,200	19.9	14,392	132.5	2.16
6	Okeechobee Water Authority (OWA)	City of Okeechobee	1995	810	N/A	N/A	N/A	3	0.27
7	City of North Port, FL	General Development Utilities Inc.	1992	1,550	160	1.2	1,292	4.9	0.32

Table 5-2		
Escalation Indices		
	Engineering News Record Construction Cost Index (1)	
Year	**ENR CCI**	
	Index	**% Chg.**
	3,535	
1982	3,825	8.20%
1983	4,066	6.30%
1984	4,146	1.97%
1985	4,195	1.18%
1986	4.295	2.38%
1987	4,406	2.58%
1988	4,519	2.56%
1989	4,615	2.12%
1990	4,732	2.54%
1991	4,835	2.18%
1992	4,985	3.10%
1993	5,210	4.51%
1994	5,408	3.80%
1995	5,471	1.16%
1996	5,620	2.72%
1997	5,826	3.67%
1998	5,920	1.61%
1999	6,059	2.35%
2000	6,221	2.67%
2001	6,343	1.96%
2002	6,538	3.07%
2003	6,694	2.39%
2004	7,115	6.29%
2005	7,446	4.65%
2006	7,751	4.10%
2007	7,966	2.77%
2008	8,310	4.32%
2009	8,570	3.13%
2010	8,802	2.71%
2011	9,066	2.99%
2012	9,313	2.73%
2013	9,546	2.50%
2014	9,699	1.61%
2015	10,039	3.51%
2016 (July)	10,379	3.39%
(1) ENRCCI is used.		

Table 5-3
Time Adjustment (Inflation)
To Selected Sales

#	Buyer	Date	$/MG	$x10^6/MGD	Inflation Factor	2016 $/MG	2016 $x10^6 /MGD
1	City of Atlanta	2006	$6,667	N/A	1.34	$8,927	N/A
2	City of Cocoa	1993	N/A	$0.94	1.99	N/A (1)	1.87 (1)
3	Town of Franklin	2014	$48,500	1.39	1.07	$51,900	1.49
4	South States Utilities	1995	15,333	1.15	1.90	29,088 (1)	2.18 (1)
5	SFWMD	2016	14,392	2.16	1.00	14,392	2.16
6	Okeechobee Water Authority (OWA)	1995	N/A	0.27	1.90	N/A	0.51
7	City of North Port, FL	1992	1,292	0.32	2.08	2,690	0.67
					Average	$21,399	$1.48
					Most Comparable	$29,088	$2.03

(1) Most Comparable

Table 5-4
2016 Lake Adger Comparison

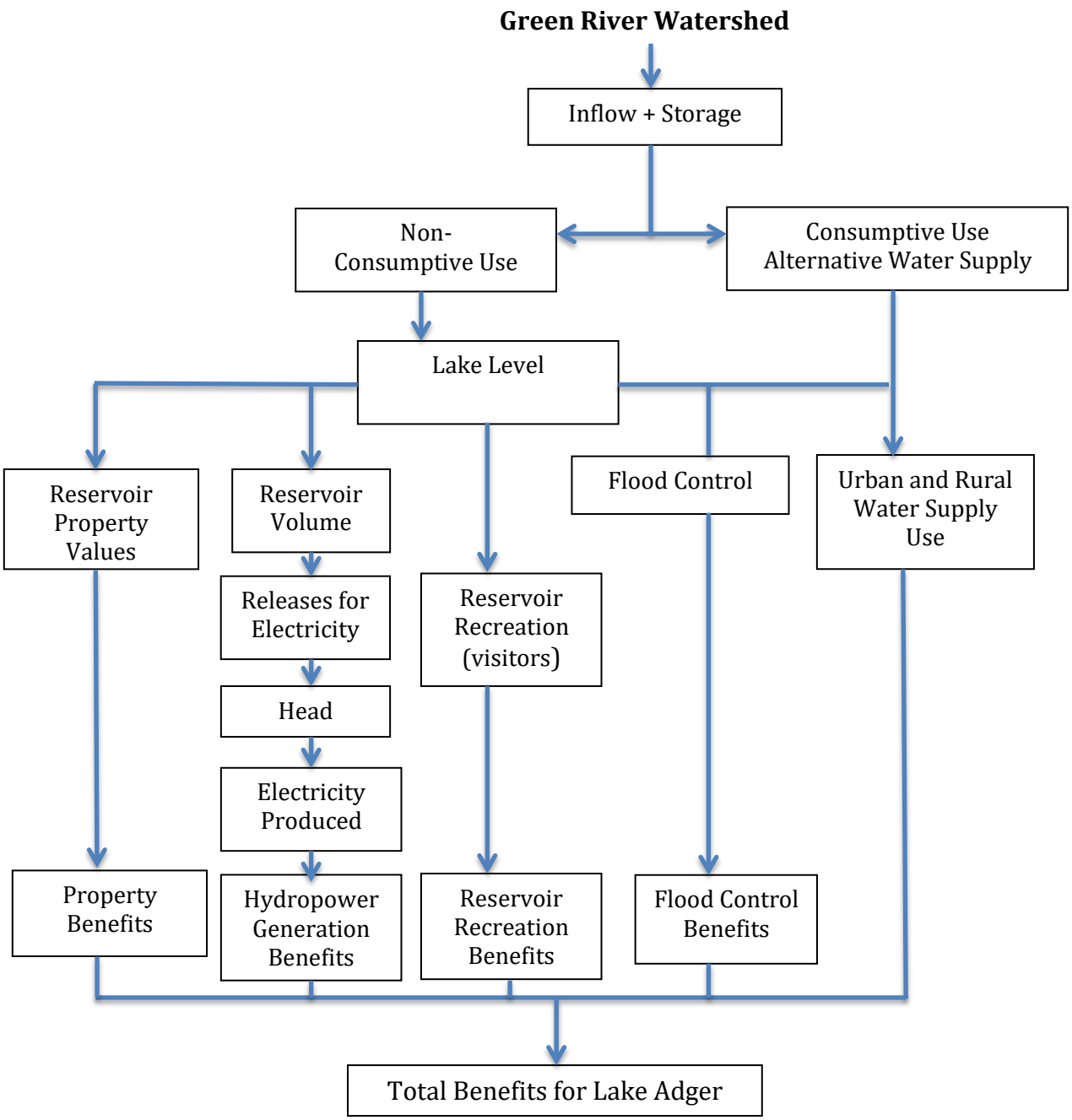
Description	Acres	Storage (BG)	$/MG	MDF Safe Yield	$x106 MGD
Lake Adger (Unadjusted)	436	1.2	$25,200	8	1.87
Cocoa	Several mi^2	Large	N/A	8	1.87
SSU	212.5	0.6	$29,088	8	2.18

5.3 LIABILITY ADJUSTMENT RATIONALE

The proportional benefits method was selected for the Lake Adger uses.

Figure 5-1 presents the flow chart for the consideration of the benefits. Once the comparative benefits are established for each use, the benefits are converted to units and analyzed to determine the comparative allocation of liability costs.

The implicit extraordinary assumption is that in some fashion or method appropriate recovery of costs would be attained.



Flow Chart of Benefits of Lake Adger Figure 5-1.

Allocation of value for reservoirs (lakes) to uses is the industry practice for multi-use reservoirs. When introducing a new use or effectuating an intended use, typically a reallocation of value occurs. The Water Resources Development Act of 1974 is now the primary statute for multiple use reservoirs and water supply projects. Historically, the 1936 Flood Control Act and polices set in the 1950's Lake Adger us a multi-use property. Only one use is being valued in this report. The primary uses identified for liability allocation in adjusting Lake Adger to the comparable sales are:

(a) Land Value Enhancement

(b) Power Generation

(c) Alternative Water Supply

(d) Recreation

(e) Flood Control

The identified liabilities with the property derived from previous reports listed herein include:

(a) Dam Safety - $4.4 million - (Black & Veatch)

(b) Spillway Restoration - $0.7 million - (Black & Veatch - rounded)

(c) Dredging and Lake Enhancement - $6.0 million
(Altamont Environmental)

The property specific total liabilities for all uses is the sum of the above three (3) items or $11.1 million. The capital investment to perfect the alternative water supply use (The Green River intake and pump station with raw water pipeline to the BRWA WTP) is estimated by HC to be $3.5 million. The 20" transmission main repumping station is a future potable water supply cost to attain the full 7 MGD to 8 MGD transmission capacity.

The $11.1 million liability amount is allocable to all uses. The $3.5 million cost is allocable solely to the alternative water supply use.

The allocation of liability to the multiple uses of a multi-use reservoir is delineated in the standards and procedures for evaluating economic benefits and costs by the USGS and the Federal Government opinions on the subject.

The land enhancement loss in value was derived on the basis of the estimated lost tax values for taxable properties abutting the shoreline of Lake Adger and those properties within the Mountain Park and Jackson Cove communities primarily with

a lower loss in identified non-community parcels. For the purposes of this analysis, the tax rate applied was $1,000 per year $150,000 of taxable values. Approximately 204 residential units are reported plus the other parcels. The opinion estimate was an approximate $336,000 loss in tax revenues or some $50 million loss in market value without the Lake being desirable. Using 40 years as the term and 5% as the discount factor resulted in 5.8 units for the allocation.

Power generation value is based upon the demand, priority in call for peaking power, put cost bid, utilization and many other factors. I recently completed the peaking power valuation of three (3) units owned by NRG and others for the cities of Vero Beach, Dover, Lakeland, Fort Meade, Mariana and South Daytona. For the purpose of this report average values were used without the benefit of this company's operating financial and balance sheet records. For 5.4 MW slow speed turbines with a 0.8 power factor either on call, standby reliable generation or on-line the net revenue was approximated at $200,000 per year. Using this amount for 80 years at 4.2% discount factor resulted in 4.6 units for the allocation.

The alternative water supply allocation was calculated by using the 5.8 MGD safe yield and the cost-effective new reservoir average metric of $2.4 per MGD yielding 13.92 million units. Then adjusting that number by the $3.5 million plus $2.9 million yielding $7.52 million as new. After reconstruction and rehabilitation the source should increase from 20% new to 60% new. Taking $7.52 million and applying the 60% factor results in 4.5 units for the allocation.

Recreation was assessed using the persons per day (variable) summed to person days per year. Our estimates may be subject to check. I estimated 22,400 person days per year. This includes lake area hiking, hunting, fishing, boating, horseback riding and release kayaking and canoeing. The net economic benefit for passive, low impact and, serene activities where the persons primarily bring their equipment, food, guns, horses, and boats is only $4.35 per person per day. Applying that amount to the 22,400 person days and using a 30 year term at 5% results in 1.5 units.

The last use is flood control preventing downstream damage. Little was documented in the GRW. Using the low end of national values and the only 5 feet of compensating storage is available per the agreement calculates as 436 acres x 5 feet x $100 per acre-foot resulting in $218,000. Using five (5) years as the maintenance term and a 5% discount factor results in 0.9 units.

Table 5-5 summarized the Use Value Allocation Analysis results. The resulting percentages are applied to the $11.1 million of all use costs to determine proportional amount to be allocated to the alternative water supply use.

The liability adjustment for the alternative water supply use is 26% of $11.1 million or $2.9 million.

Table 5-5
Lake Adger
Use Value Allocation Analysis Results

Use	Amount	Percentage
Land Value Enhancement	5.8 units	33.5%
Power Generation	4.6 units	26.6%
Alternative Water Supply	4.5 units	26.0%
Recreation	1.5 units	8.7%
Flood Control	0.9 units	5.2%
Totals	**17.3 units**	**100%**

5.4 ADJUSTMENTS SUMMARY

The unadjusted implied price is $14.96 million gross. First the liability adjustments as shown herein are applied with the allocation percentage appropriate for the water supply use.

The Green River raw water intake, pumping station and raw water transmission main to the BRWA WTP is 100% allocable to the water supply use and is estimated at $3.5 million. These improvements perfect the alternative water supply conveying the flow to the WTP for subsequent potable water production.

In subsection 5.3 the alternative water supply use was quantified at 26% of the multiple reservoir uses. This percentage is applied to the Dam Safety, Spillway and Dredging improvements for the lake. The sum of the liability for these items was $2.88 million or $2.9 million rounded.

Once the above adjustments are applied the resulting undepreciated subtotal becomes $8.58 million.

Next, we integrated the effects of the pro-forma improvements to attain an effective age of the 100 year average service life property which is 92 years old. It is the opinion of HC that the impact of the improvement will reduce the effective age from 92 years to 40 years. In other words, we believe the improvements will have an average service life of 60 years as long as an on-going sedimentation control

program is instituted at the same time. The Lake Adger property would only be 40% depreciated.

After the depreciation adjustment the value in-place and in-use is found to be $5,150,000 or Five Million One Hundred and Fifty Thousand Dollars as of July 13, 2016.

The aforementioned adjustments are shown on **Table 5-6**.

My opinion value of the alternative water supply use for Lake Adger in the configuration describe herein is:

$5,150,000

(Five Million One Hundred and Fifty Thousand Dollars)

as of July 13, 2016.

Table 5-6
Application of Liability Adjustment
As Applicable to Lake Adger Water Supply Use

Description		**Amount $x10^6**
Unadjusted Implied $		$14.96
BRWA RW System		(3.50)
Dam Safety	$4.4 x 0.26	(1.14)
Spillway Restoration	$0.7 x 0.26	(0.18)
Dredging & Environ.	$6.0 x 0.26	(1.56)
Subtotal without Depreciation		$8.58
40% Depreciation 92 yrs. @ 100 yr. ASL = 92%, though base salvage continued % good is 20% Restorations effects 20% good to 60% good (i.e. 60 yrs. ASL)		(3.43)
Lake Adger Water Supply Use Value		**$5.15**

Section 6

SECTION 6
RECONCILIATION

Within this report Lake Adger was analyzed based upon the available information and the opinion of value of the potential water supply use was concluded at $5,150,000 given the accrued liabilities associated with the property and the 92 year old age of the property.

Also, my investigation of new water supply reservoirs without accrued liabilities like dam safety, spillway needs and significant sedimentation resulted in a cost of $2.40 per gallon of capacity. For an 8 MGD normal capacity this metric would create a $19.20 million present value. Depreciated 40% results in $11.52 million removing the allocated corrective cost of $2.88 million results in $8.64 million.

The new adjusted facility includes its connection for use. The $8.64 is greater than the $5.15 million opined herein. One would expect a superior condition from the adjusted new to the reconditioned.

HC experience and research show a raw water resource value from $0.15 per thousand gallons (ECFS @ $0.19 to $0.24 thousand gallons metered) to $0.50 per thousand gallons for sources without pumping, piping and related costs. An alternative water supply source is primarily used in the dry season during drought and if superior quality, then at a blending level during the year. Assuming a 1.0 MGD blending use year around yields $54,750/yr at $0.15/1,000 gallons. Assuming a 60 yr ASL at 4.25% that generates a base value of $1.18 million. During peak use dry season/periods at 120 days per year at the $0.50/1,000 gallons (peak demand use) an average of peaking flows may be an additional 3 MGD. This peak availability which includes standby contamination or emergency use would create a current payment of $180,000/yr. Again the present value at 60 years and 4.25% results in an additional value of $3.89 million. The summation of the two present values is $5.07 million. This amount is somewhat less than the opinion of value.

The reasonable check of the opinion of value based upon cost-effective like facilities construction cost and based upon a scenario for reliability, water quality and drought protection I find as appropriate.

As stated herein, there are several inter-related factors which support the integration of Lake Adger into the regional water supply system.

Section 7

SECTION 7
REGIONALIZATION

7.1 GENERAL

Initially, those cost-effective and local water supply sources available are used. As time progresses either additional capacity is needed, existing sources are compromised, contamination events occur, or historical suppliers increase costs to inacceptable levels. These and other factors are drivers for securing additional water supply.

Due to the need for 50 year planning horizons for water resources and supply, typically smaller local utilities individually exhibit the following characteristics which inhabit the ability to implement the programs necessary:

- One utility may have supply and the neighboring utility desires supply.
- One utility may have cost-effective and expandable treatment capacity and neighboring utilities face expensive "greenfield" new construction for additional or replacement capacity.
- One utility may own major transmission and alternative high quality water supply, but have not matured or connected sufficient customers to support continued and desired future capital outlays.
- One utility may have near term growth while the neighboring utilities await growth which continues to be slow.
- One utility may have a significant debt burden needing customers to support the debt obligations, while neighboring utilities are relatively debt free.
- One utility may wish to supplement or support or integrate with other utilities within its jurisdiction, yet not have the cost-effective surface water treatment facilities.

Logically, the beneficial characteristics of each entity can be pooled together cooperatively to alleviate the individual constraints and attain positive attributes. A few of those positive attributes include:

- diversity in customer base improving creditworthiness
- expansion of the water supply and treatment service area to provide for stability
- attain and economy of scale for more long-term cost-effective operations
- attain improved financial characteristics to fund major renewal, replacement and/or rehabilitation projects

- attain the ability to readily fund future capital improvement programs including a possible future 20" transmission main repumping station as well as other future needs.

7.2 A FEW REGIONAL WATER SYSTEM GOVERNANCE FRAMEWORKS

In many instances the function of the regional water supply entity becomes planning and managing the water supply, treatment and regional transmission of potable water. Local entities are usually responsible for the local transmission, fire flow and hourly peaking demand storage and repumping, distribution, metering, billing resident customers and purchasing flows wholesale from the regional entity.

Although some regional entities purchase the local entity water utility property (local equity recapture) and provide all functions. The stakeholders determine the initial approach and potential future activities.

The Peace River/Manasota Regional Water Supply entity is an independent district and four counties (Manatee, Sarasota, Charlotte and DeSoto) as membered and one City (North Port) as a wholesale customer. This entity as well as Tampa Bay Water and others operate in the first fashion. The Clay County Utility Authority was created initially as a dependent district of the County while it started up buying 5 water systems and incorporating a couple associations and the County's very small customer base. Now it is an independent district. Destin Water Users is a water cooperative similar to an electric cooperative with customers as members and customer elected board. It has integrated the small water systems along the panhandle of Florida. The Pine Island Water Association and North Key Largo Utility Authority as well as some 20 others in the Southeast are special purpose IRS 63-20 not-for-profit corporations. The governance structure is typically specifically crafted by the initial participants to fit the needs of the situation.

The Lower Cape Fear Water Authority is primarily a raw water entity. In contrast the Clayton County Water Authority (GA) provides a "one-stop-shop" for complete water, wastewater and stormwater services.

Coweta County Water and Sewer Authority is interconnected with the local cities within and outside of the County, but does not own the City distribution systems.

In South Carolina there are the:

- Santee-Cooper Regional Water System
- Lowcountry Regional Water System
- Lake Marion Regional Water Authority
- Anderson Regional Joint Water System
- Berkeley County WSA/Sangaree WD

- Georgetown County WSD/Waccamaw Neck
- Lexington County Joint Municipal WSC
- Grand Strand WSA
- Beaufort-Jasper WSA

The South Carolina Legislature in 2011 passed a bill adding Chapter 39 to Title 6 stating that each entity or political subdivision who obtains water in whole or part from a regional producing center shall have a special water board to perform the duties of rate setting and other items where there is over 7,000 customers (as in this case).

In July of 2016, C.D. Rhodes, Esq. assembled the operative statutes for ICWD and the email is shown in the Appendix. The initial consultation was the ICWD is a local governmental unit and the Authority (if that structure is used) "has to be a local government of South Carolina…"

There are also numerous North Carolina regional water systems. The North Carolina-South Carolina state-line may require investigations of blended structures or contractual arrangements or a non-Authority structure of the regional entity.

The most common method in the United States is a cooperative agreement between utilities.

7.3 IMPLEMENTING THE REGIONAL ENTITY(IES)

One or more entities could be created. A study of the best governance structure or combination thereof is anticipated to be implemented such that the use of Lake Adger as a water supply source can be realized.

Appendix A

Selected References Used

The Value and Depreciation of Existing Facilities: The Case of Reservoirs

April 1989

US Army Corps of Engineers
Institute for Water Resources
Hydrologic Engineering Center
609 Second Street
Davis, CA 95616

(530) 756-1104
(530) 756-8250 FAX
www.hec.usace.army.mil

TP-126

Proceedings of 2nd Federal Interagency Hydrologic Modeling Conference, Subcommittee on Hydrology of the Advisory Committee on Water Information, July 28-August 1, 2002, Las Vegas, NV

PLANNING WATER ALLOCATION IN RIVER BASINS, AQUARIUS: A SYSTEM'S APPROACH

Thomas C. Brown, Economist, U.S. Forest Service, Fort Collins, Colorado
Gustavo E. Diaz, Faculty Affiliate, Colorado State University, Fort Collins
Oli G. B. Sveinsson, PostDoc, Colorado State University, Fort Collins

Brown is at Rocky Mountain Research Station, U.S. Forest Service, Fort Collins, Colorado, 80526, 970-295-5968, tcbrown@lamar.colostate.edu. Diaz is at Department of Civil Engineering, Colorado State University, Fort Collins, Colorado 80523, gdiaz@lamar.colostate.edu. Sveinsson is at Department of Civil Engineering, Colorado State University, Fort Collins, Colorado 80523, oli@lamar.colostate.edu.

INTRODUCTION

Concern for the environment, demand for outdoor recreation, and interest in sustainable development are redefining how water is stored and distributed in river basins. In particular, tradeoffs between instream and offstream water uses have become increasingly important in planning and managing water resources. These tradeoffs are important in new water developments as virtually all water projects have an impact on recreation and environmental quality. However, they are also important for existing water developments, especially when they are reevaluated for license renewal. Such concerns require modeling to determine how water used for traditional activities and that used for nontraditional activities affect each other.

Most water management systems were designed and are typically operated for traditional water uses, including flood control, hydropower, irrigation, and urban water supply. Nontraditional uses include preserving the geomorphological and biological integrity of a river, as well as providing opportunities for water-based recreational activities. Similar to the systems they were designed to analyze, river-basin models have focused on traditional water uses. Even multipurpose operation models usually included only traditional purposes such as hydropower and diversions to farms or cities. Nontraditional water uses, to the extent they were incorporated in models, were considered of secondary importance. The degree that nontraditional water uses have been incorporated into river-basin models has been limited by the perceived lower importance of nontraditional uses, lack of knowledge about geomorphology and riparian ecosystems, and by the difficulty of measuring the benefits of nontraditional uses.

The values of most traditional uses are quantifiable in terms of a benefit function that relates resource availability to the benefits generated. However, benefits of nontraditional uses were generally not estimable in units commensurate with the traditional uses, so they were often omitted from quantitative reservoir analyses and operations. Over the past 30 years, the increasing value of outdoor recreation and other amenities has encouraged economists to develop techniques to estimate the economic value of nonmarket goods and services. These methods have been applied to water uses including activities that rely on instream flow. This has created the

REVISED WATER SYSTEM MASTER PLAN

Prepared for:

POLK COUNTY BOARD OF COMISSIONERS

Tom Pack, Chairman
Harry Denton, Vice Chairman
Jack Lingafelter
Ted Owens
Kim Talbot

Michael Talbert, County Manager

November 2005

Prepared by:

ODOM HOLLIFIELD & ASSOCIATES Engineering, Inc.

152 East Main Street
Forest City, North Carolina 28043

THE 100 LARGEST PUBLIC WATER SUPPLIES IN SOUTH CAROLINA—2005

Compiled by
Roy Newcome, Jr.

STATE OF SOUTH CAROLINA
DEPARTMENT OF NATURAL RESOURCES

LAND, WATER AND CONSERVATION DIVISION

WATER RESOURCES REPORT 37

2005

This document is available on the Department of Natural Resources web site at http://www.dnr.state.sc.us/

STILL BRANCH REGIONAL RESERVOIR PERMITTING, OPERATION, MANAGEMENT AND STORAGE

Brant D. Keller PhD

AUTHOR: Director of Public Works and Utilities, City of Griffin, P.O. Box T, Griffin, Georgia 30224
REFERENCE: *Proceedings of the 2007 Georgia Water Resources Conference*, held March 27–29, 2007, at the University of Geogia.

Abstract. The City of Griffin in 2006 completed the construction of Still Branch Regional Reservoir. This regional water source supplies finished drinking water to the City of Griffin and seven wholesale customers in the region currently with an anticipated four more to sign at a later date and time. This presentation will focus on thirteen years of permitting, conflict resolution, construction and management of the facility. The paper will outline the permitting process beginning with the U. S. Army Corp of Engineers, United States Fish and Wildlife Service, and host of other agencies involved in the permit process. The author will present an overview of property acquisition as well as negotiation and condemnation issues. In addition this paper will demonstrate exhibit newest technologies and process times and how they reduce money and manpower while still operating a high volume water treatment facility.

BACKGROUND

Still Branch Regional Reservoir in located 22 miles south of Griffin, Georgia. It is over 875 acres with 476 acres of water holding 3.5 billion gallons of water in supply. The transmission lines consist of 27.5 miles of high pressure water lines to transmit finished water to the regional system. The dam is 81 feet in height and 69 feet a pool elevation. This lake it a GADNR fish and wildlife project stocked with F1 Florida bass, catfish, shellcrackers and blue gills. The plant today is capable of producing 12mgd and will be expanded to 48mgd. The reservoir operates under seasonal stream flow conditions to ensure downstream conditions will not be impacted The maximum 24 hours withdrawal is 48mgd and not to exceed a monthly average of 42mgd. The reservoir is capable of supplying the regions needs for the next 50 years.

INTRODUCTION

In 1993 the City of Griffin conducted a needs analysis projection model for it supply needs for the next 25 years to supply the customers. The current water supply Heads Creek Reservoir constructed in 1964 was not going to be able to meet future demands in the high growth in the service area. When it constructed the Heads Cr Reservoir had a capacity of 1.0 billion gallons of stor It was found that over the years one third of the volu was lost to sedimentation. This was mainly do to sediment in the Flint River as raw water was pumpe the reservoir. There was no development up stream in watershed other than the natural occurrence of sedin runoff. Several avenues were erxplored for restoring original volume but none were feasible either financi or structurally.

After discussion with Georgia Environmental Pro tion Division, it was determined that a new supply re voir was the appropriate solution to supply drinking ter in this region of the state. It was determined that were to happen, Griffin would have to take the lead cause of their existing distribution system and the fi cial whereabouts to finance the system from an op tional standpoint.

Griffin proceeded to meet with GAEPD and de what the regional system would entail. Meriwe County, Spalding County, Pike County, City of Zebu City of Molena, City of Meansville and Coweta Co were included in GAEPD's regional plan. Immedi Griffin began dialog with those governments and lo to them for long term contracts to satisfy the pay bac revenues bonds needed for the construction and buil of the system. At the same time Griffin was explorin potential sites for the location of the reservoir in conj tion with the Flint River and set a goal to be in oper in late 2000.

By 1997 the most suitable site was determined presented to the appropriated State and Federal age for review and approval. Now the rest of the story.

Permitting Process 1998

After the site selection was finalized 22 miles Griffin on Still Branch Creek, 4000 feet east of the River in Pike County. The first draft submittal was mitted for comments in the summer of 1998 to US USEPA, USFWS, GASHPO, Alabama Departme Economic and Community Affairs, Northwest Fl Water Management District, GAEPD, for p #980001900.

BLACK & VEATCH CORPORATION

MEMORANDUM

ICWD/SJWD
Joint Water Supply Feasibility Study
Lake Adger Technical Assessment

B&V Project 97241.800
B&V Files B-1.2 and E-1.1
Draft: June 8, 2007

To: Mike Caston, SJWD
Jeff Walker, ICWD

From: Greg Zamensky, Hope Walker, Robert Osborne, and Clint Shealy

1.0 Introduction

Black & Veatch has been assisting the joint water supply plan participants with evaluating alternatives for water supply sources and treatment to meet long-term projected water demands. As part of this ongoing study, Black & Veatch was asked to perform an assessment of the Lake Adger Dam and hydroelectric facility. This assessment included:

- Field examination of the existing condition of the dam and power plant based on a site visit and review of information provided to B&V.
- Yield analysis of the reservoir.

Lake Adger Dam (also known as Turner Shoals Dam) is located on the Green River, downstream of Lake Summit, as shown in Figure 1.0. The dam was constructed by the Blue Ridge Power Company, placed in operation in 1925, and subsequently purchased by Duke Power Company in 1927.

In 1996, Northbrook Carolina Hydro, LLC (Northbrook) purchased Lake Adger and associated facilities from Duke Power Company. Excluding the lake, the land near the dam is approximately 34 acres. There currently is a perpetual easement on all land around the reservoir below elevation 925.0 feet (normal pool elevation is 911.6) that allows intermittent and recurrent flooding due to the dam.

FILED in POLK County, NC
on May 02 2008 at 11:16:07 AM
by SHEILA W. WHITMIRE
REGISTER OF DEEDS
BOOK 364 PAGE 1582

STATE OF NORTH CAROLINA

COUNTY OF POLK

MEMORANDUM OF AGREEMENT FOR PURCHASE

AND SALE OF PROPERTY

THIS MEMORANDUM OF AGREEMENT FOR PURCHASE AND SALE OF PROPERTY is dated as of the 29th day of April, 2008, by and between Northbrook Carolina Hydro, L.L.C., SELLER, and the County of Polk, BUYER.

WITNES SETH:

Seller and Buyer have entered into a certain Agreement for Purchase and Sale of Property dated the 29th day of April, 2008, pertaining to the sale of the properties described in Exhibit A hereto and desire to give record notice of such instrument.

The Agreement for Purchase of Sale of Property contemplates a closing of the sale on or before March 31, 2009.

* * *

[Remainder of page intentionally left blank; signature pages follow]

AGREEMENT
BRWA/POLK/ICWD
CONSTRUCTION OF WATER TRANSMISSION LINE
SALE OF FINISHED WATER

THIS AGREEMENT is made and entered into the 7th day of July, 2008, by and between Broad River Water Authority, an authority organized and existing pursuant to the provisions of Chapter 162A of the North Carolina General Statutes, hereinafter referred to as BRWA; County of Polk, a municipal corporation and body politic organized and existing under the laws of the state of North Carolina, hereinafter referred to as Polk; and Inman-Campobello Water District, a water district created and existing pursuant to Act 939 of the 1954 Acts and Joint Resolutions of the General Assembly of South Carolina as Amended by Act 521 of 1954, hereinafter referred to as ICWD.

WITNESSETH:

BRWA, Polk, and ICWD desire to expand the supply and distribution of water to the residents of Rutherford County, Polk County, and the Inman-Campobello Water District and each has determined that the project hereinafter set forth will best serve the interests of its customers, both existing and potential.

BRWA is the owner and operator of a water treatment plant located in Rutherford County, North Carolina. ICWD is the owner and operator of a water distribution system located in Spartanburg County, South Carolina.

ICWD wishes to obtain a source of finished water for distribution and sale to its customers. Polk has agreed that, upon the terms and conditions herein set forth, ICWD may construct a water transmission line across Polk to allow ICWD access to finished water sold by BRWA. The line, as constructed in Polk by ICWD, will be owned by Polk. Polk will have the ability to serve, as it deems appropriate, the citizens and residents of Polk from the line. ICWD will retain the right to transport water through the transmission line as located in Polk for a period of thirty (30) years in consideration of maintaining the same.

BASED ON THE FOREGOING, and for good and adequate consideration, the receipt of which is hereby acknowledged, BRWA, Polk, and ICWD agree as follows:

1. Transmission Line; Components Thereof

STATE OF SOUTH CAROLINA) **AMENDMENT TO AGREEMENT TO CONSTRUCT**
) **WATER TRANSMISSION LINE AND PROVIDE**
COUNTY OF SPARTANBURG) **FOR THE SALE OF FINISHED WATER**

WHEREAS, an Agreement to Construct a Water Transmission Line and Provide for the Sale of Finished Water was executed on July 7, 2008 ("Agreement") by and between Broad River Water Authority ("BRWA"), County of Polk, N. C. ("Polk") and Inman-Campobello Water District ("ICWD"); and

WHEREAS, ICWD constructed the water transmission line ("line") across Polk which allows ICWD access to finished water sold by BRWA as contemplated by the Agreement; and

WHEREAS, Polk has the ability to serve, as it deems appropriate, the citizens and residents of Polk from the line, and

WHEREAS, Polk and ICWD agreed that ICWD will operate and maintain all of the transmission line lying within Polk ("Polk County Line") and any distribution lines running therefrom, for a period of five (5) years from the Connect Date which was December 31, 2008, and

WHEREAS, Polk and ICWD have agreed to amend the Agreement to allow ICWD to operate and maintain all of the Polk County Line and any distribution lines running therefrom for an additional eight (8) years for a total period of thirteen (13) years from the Connect Date.

NOW, THEREFORE, in consideration of this mutual written agreement of Polk and ICWD, the Agreement for the Operation and Maintenance of the Polk County Line is hereby revised to modify paragraph 6 in its entirety as follows:

6. Polk and ICWD Agreement for Operation and Maintenance of the Polk County Line; Thirteen (13) Year Term.

ADDENDUM

THIS ADDENDUM is made and entered into by and between Broad River Water Authority, an authority organized and existing pursuant to the provisions of Chapter 162A of the North Carolina General Statutes, hereinafter referred to as BRWA; County of Polk, a municipal corporation and body politic organized and existing under the laws of the State of North Carolina, hereinafter referred to as Polk; and Inman-Campobello Water District, a water district created and existing pursuant to Act 939 of the 1954 Acts and Joint Resolution of the General Assembly of South Carolina as Amended by Act 521 of 1954, hereinafter referred to as ICWD, as an Addendum to the Agreement between BRWA/Polk/ICWD Construction of Water Transmission Line Sale of Finished Water entered by the parties on July 7th, 2008 ("Agreement");

WHEREAS, the parties entered into the Agreement for the purpose of expanding the supply and distribution of water to the residents of Rutherford County, Polk County and the Inman-Campobello Water District for an initial term of ten (10) years; and

WHEREAS, the parties now desire to extend the initial term of the Agreement to a period of fifteen (15) years because the financing for the construction of the necessary additions to the water distribution system to facilitate the providing of water as required by the Agreement is for a term of fifteen (15) years; and

WHEREAS, Polk County desires to obtain the right to purchase an additional one hundred thousand (100,000) gallons and BRWA and ICWD desire to grant such a right; and

WHEREAS, pursuant to paragraph 15.1 of the Agreement, the parties may amend the Agreement provided such amendment is in writing and signed by all parties.

NOW THEREFORE, in consideration of the promises made herein, the parties, agree that the Agreement is hereby amended as follows:

1. By deleting Paragraph 1.3 (f) in its entirety and inserting in lieu thereof the following: Paragraph 1.3 (f). Polk, subject to its rights to obtain .6 MGD of finished water from the Polk transmission, line, may allow parties to tap onto and obtain water from the Polk County line.

2. By deleting Paragraph 3.1 in its entirety and inserting in lieu thereof, the following: Paragraph 3.1. BRWA shall furnish, at Meter 1, sufficient finished water to deliver to Polk/ICWD a maximum of 4 million gallons per day ("MGD") for two years and increasing to a maximum of 4.1 million gallons per day ("MGD") for the next thirteen years for a total term of fifteen (15) years from Commencement Date subject to the terms and conditions in Section 15.2 below. In the event ICWD/Polk desires to purchase in excess of 4 MGD or 4.1 MGD, as applicable, BRWA may provide such additional quantity but is not obligated to do so.

AGREEMENT

BRWA/POLK/ICWD

CONSTRUCTION OF WATER TRANSMISSION LINE

SALE OF FINISHED WATER

THIS AGREEMENT is made and entered into the 7th day of July, 2008, by and between Broad River Water Authority, an authority organized and existing pursuant to the provisions of Chapter 162A of the North Carolina General Statutes, hereinafter referred to as BRWA; County of Polk, a municipal corporation and body politic organized and existing under the laws of the state of North Carolina, hereinafter referred to as Polk; and Inman-Campobello Water District, a water district created and existing pursuant to Act 939 of the 1954 Acts and Joint Resolutions of the General Assembly of South Carolina as Amended by Act 521 of 1954, hereinafter referred to as ICWD.

WITNESSETH:

BRWA, Polk, and ICWD desire to expand the supply and distribution of water to the residents of Rutherford County, Polk County, and the Inman-Campobello Water District and each has determined that the project hereinafter set forth will best serve the interests of its customers, both existing and potential.

BRWA is the owner and operator of a water treatment plant located in Rutherford County, North Carolina. ICWD is the owner and operator of a water distribution system located in Spartanburg County, South Carolina.

ICWD wishes to obtain a source of finished water for distribution and sale to its customers. Polk has agreed that, upon the terms and conditions herein set forth, ICWD may construct a water transmission line across Polk to allow ICWD access to finished water sold by BRWA. The line, as constructed in Polk by ICWD, will be owned by Polk. Polk will have the ability to serve, as it deems appropriate, the citizens and residents of Polk from the line. ICWD will retain the right to transport water through the transmission line as located in Polk for a period of thirty (30) years in consideration of maintaining the same.

BASED ON THE FOREGOING, and for good and adequate consideration, the receipt of which is hereby acknowledged, BRWA, Polk, and ICWD agree as follows:

1. Transmission Line; Components Thereof.

Appendix B: COUNTY LEVEL SUMMARIES

COUNTY-BY-COUNTY WATER FACILITY CAPACITY AND EXPANSION SCHEDULE

This Appendix outlines the schedule for expanding water facility treatment capacities in the Metro Water District. Appendix B details the capital projects and non-capital programs specific to each county in the Metro Water District. Capital projects include new water treatment facilities, as well as facility expansions. Non-capital programs include planning, intergovernmental agreements and other studies necessary to protect water resources and facilitate planned expansions.

The schedule shown is intended to be a general guideline to identify water supply and treatment needs through the planning horizon of 2035. In Appendix B, the expansion capacities are intended to be in operation before the end of the period shown, however planning, design and construction of expansions or new supplies may begin in the previous period. Actual timing of new or expanded facilities or supplies will occur when local growth and planning indicates the need for additional capacity.

Appendix B focuses on facility capacity and does not reflect upgrades to the level of treatment at existing water facilities. Facility capacities listed in Appendix B of the Water Supply and Water Conservation and Wastewater Management Plans for each planning period are considered as maximums and that local jurisdictions may plan within and up to that capacity. All new facilities and facility expansions identified in Appendix B are subject to permitting by Georgia EPD and must meet all state standards associated with the necessary permits. Inclusion within this plan does not guarantee a permit, however facilities must be reflected within Appendix B to initiate permitting discussions with Georgia EPD.

PLANT CAPACITIES

Plant capacities, listed in Appendix B, were determined to meet or exceed the projected 2035 peak day water demand. It is recognized that plant capacity is added in convenient increments and not to match a specific projected flow. At times, it may be desirable to construct somewhat more capacity than is shown in Appendix B to add a convenient increment of capacity. For example, if a WTP with 5 MGD capacity needs to handle a projected demand of 8 MGD, the most cost efficient plan may be to double the current capacity to 10 MGD. The convenient increments of plant capacity for expansion projects should be determined through local water master plans tailored both to the facility and the community.

The projections of plant capacity in Appendix B were based on a District-wide average peaking factor of 1.6 (peak day/average annual day). This peaking factor was calculated for the 2003 Water Supply and Water Conservation Management Plan and is considered appropriate for the 2008 Plan. In reality, due to variations in system storage and unaccounted-for-water, the peaking factors will vary for each local water provider. Each local water provider must determine an appropriate peaking value and the impacts of water conservation measures on future flows in the local water master plans.

Stability and Remedial Option Analyses Report

Turner Shoals
Hydroelectric Project
Polk County, North Carolina

AECOM Project No. 60098257
September 23, 2009

Prepared by:
Michael D. Carpenter, P.E.
Senior Project Engineer
AECOM
906.226.4963

9/23/09

Filed in POLK County,NC
on Nov 20 2009 at 03:37:34 PM
by SHEILA W. WHITMIRE
REGISTER OF DEEDS
Book 377 Page 421

Prepared by and return to: Rebecca J. Reinhardt of Roberts & Stevens, PA
PO Box 7647, Asheville, NC 28802

STATE OF NORTH CAROLINA
COUNTY OF BUNCOMBE

MEMORANDUM OF LEASE

THIS MEMORANDUM OF LEASE is dated as of November 20, 2009, between COUNTY OF POLK, a body politic and corporate existing under the laws of the State of North Carolina, ("County"), as Landlord, and NORTHBROOK CAROLINA HYDRO, L.L.C, a Delaware limited liability company ("Northbrook"), as Tenant, and provides as follows:

County owns the Turner Shoals Project more particularly described on **Exhibit A** attached hereto (the "Project") including the Dam and related dam appurtenances more particularly described on **Exhibit B** attached hereto ("the Dam") located on the Green River in Polk County, NC, which Project is located on the property legally described on **Exhibit C** attached hereto.

County and Northbrook have entered into a certain Lease Agreement for the lease of a portion of the Project, which portion is more particularly described as "The Premises" on **Exhibit D** attached hereto, and desire to give record notice of such Lease Agreement as follows:

Name of Landlord:	County of Polk, a body politic and corporate existing under the laws of the State of North Carolina
Name of Tenant:	Northbrook Carolina Hydro, L.L.C., a Delaware limited liability company
Reference to Lease:	That certain Lease Agreement by and between County and Northbrook dated as of November 20, 2009
Term:	40 years commencing November 20, 2009, subject to two (2) ten (10) year Renewal Options

R&S 719672-1

$30M reservoir will help during droughts

Posted by Rob, article copied from newspaper listed below on December 17, 2010

Mark Knight hopes a new water storage project will protect Lancaster County during a water emergency.

Knight, manager of the Lancaster County Water and Sewer District, is promoting the creation of a new raw water storage reservoir in the county. The reservoir will be built at the site of the Catawba River water treatment plant, as part of a joint venture between the district and Union County, N.C.

Knight said the district realized the need for more water storage after severe drought conditions affected the area in recent years.

"We've always taken water for granted in this country because we always felt we had enough," Knight said. "But the drought opened everyone's eyes. It showed that the river is a limited supply of water."

In an emergency, the current storage reservoir at the treatment plant only holds enough for a three-day supply of water. The plan is to build a 92-acre reservoir at the Catawba plant, located near S.C. 5 and the Catawba River. The addition would allow for a 30-day supply of water.

"We're excited about our project," Knight said. "It will help us provide the service we need to provide."

Mike Bailes, director of the Catawba River water treatment plant, said the new reservoir will help county residents in the event of a "worst-case scenario."

"A drought buffer is what it is," Bailes said. "This will also help downstream users because we won't have to depend on the river in bad times, which would lower the river even further."

The project calls for building a 110-foot-tall earthen dam about 700 feet from the Catawba River to help create the reservoir. Bailes said there won't be any problems with runoff in the new reservoir because natural buffers will be planted around the lake.

The estimated cost to construct the new reservoir is $30 million, which will be split evenly between the Lancaster County district and Union County. Knight said the LCWSD will likely issue revenue bonds to pay for its $15 million portion of the project. The district won't raise rates to pay for the project.

"We're not asking for any money," Knight said. "This is an educational process and we just want support from the community."

Bailes said the reservoir facility will be secure, due to strict security rules put into place by the Department of Homeland Security.

"9-11 really changed our world," Bailes said. "Now, we can't even allow people to fish on the bank near the facility."

Their next step is to present the project to Lancaster City Council and County Council within the next few weeks. Once permits have been granted by the U.S. Army Corps of Engineers and the S.C. Department of Health and Environmental Control, construction can begin. The permitting process can take up to 12 months and Bailes expects construction to last about 24 months. If all goes well, Bailes expects the project to be complete by 2013.

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Add

South Carolina Water Resources Conference
October 2010

Water Supply Withdrawals from South Carolina's Reservoirs: A Comparison of Legal Schemes

M. McMullen Taylor, Esq.
McAngus Goudelock & Courie
Columbia, South Carolina

Most of South Carolina's surface water is stored in man-made reservoirs located on the State's major rivers. The twelve largest reservoirs hold almost 15 million acre-feet of surface water, covering approximately 444,000 acres of land. Lakes Hartwell, Thurmond, and Russell impound the Savannah River. Lakes Keowee and Jocassee impound the Seneca River. Lakes Murray and Greenwood impound the Saluda River. Lakes Wylie and Wateree impound the Catawba-Wateree River. Lake Marion impounds the Santee River. Lake Moultrie impounds the Cooper River. Lake Monticello is located off of the Broad River.

Lake	River	Owner	Surface Area - Acres	Acre-Feet
Hartwell	Savannah	USACE	56,000	2,549,000
Thurmond	Savannah	USACE	70,000	2,510,000
Murray	Saluda	SC E&G	51,000	2,114,000
Marion	Santee	Santee Cooper	110,000	1,400,000
Moultrie	Cooper	Santee Cooper	60,000	1,211,000
Jocassee	Seneca	Duke Energy	7,565	1,185,000
Russell	Savannah	USACE	26,650	1,026,000
Keowee	Seneca	Duke Energy	18,382	1,000,000
Monticello	Broad	SC E&G	6,800	431,050
Wateree	Catawba-Wateree	Duke Energy	13,710	310,000
Wylie	Catawba-Wateree	Duke Energy	12,455	281,900
Greenwood	Saluda	Greenwood County	11,400	270,000
Total			443,962	14,287,950

Source: S.C. Department of Natural Resources, South Carolina Water Plan, Second Edition (2004)

All of these reservoirs are owned or operated by either the United States Army Corps of Engineers ("USACE") or public electric utilities for the purpose of electric power generation. The USACE reservoirs are operated primarily to generate hydropower. Duke Energy, SCE&G and Santee Cooper use its reservoirs for hydropower purposes as well as a source for cooling water needed for thermoelectric or nuclear power. About 98% of South Carolina's surface water is used for power generation. Excluding power generation, the remaining water use categories and amount of surface water withdrawn in 2006 is shown below:

Year 2006	Surface Water Withdrawn (million gallons)	% of Surface Water Use
Aquaculture	171.87	.05%

DENR
November 8, 2011

ERC 11/9/11 @ 9:00a

North Carolina Reservoirs developed within the last 20 years:
compiled on September 26, 2011
The following information is based on records maintained by the Division of Water Resources.

2009 Rocky River Lower Reservoir Expansion - Charles L. Turner Reservoir (Siler City)
Siler City increased the impounded area of an existing reservoir from 24 acres to 162 acres by constructing a new dam downstream of the existing one. Consultation on the proposed project began in 1989. A draft Environmental Assessment was submitted in November 2001 and the final EA was submitted in 2002. DENR issued a water quality certification, a mandatory precursor to receive the necessary federal permit, in May 2006. The project was completed and the town obtained final approval to impound water in October 2009. This impoundment, in combination with another reservoir upsteam, provides storage for 440 million gallons of water with an estimated yield of 4 million gallons per day.

2008 Horse Creek Reservoir (Southern Pines -water pumped from Drowning Creek)
May 2007 planning began for an off-stream raw water storage reservoir. An Environmental Assessment was submitted for the project. A finding of no significant impact (FONSI) and permission for construction were issued in December 2008. The impoundment covers 36 acres and provides off-stream storage for 140 million gallons of water.

2002 Nicks Creek Reservoir Modifications (Town of Carthage)
In the summer of 2002 reservoir modifications were completed under temporary permits issued because of extreme drought conditions. The temporary permits expired in 2003. Subsequent applications and review led to a final permit being issued in 2005. The impoundment provides on-stream storage of 1 million gallons of water.

2000 West Fork Eno Reservoir (Town of Hillsborough)
Hillsborough constructed a new on-stream water supply reservoir on the West Fork of the Eno River. Consultation and scoping for an Environmental Impact Statement began in June 1993 and a final EIS was submitted in June 1994. In 1998, an "Approval to Construct" was issued by DENR Division of Land Resources. This reservoir was completed and permission to impound water was granted in October 2000. The impoundment covers about 206 acres providing on-stream storage for 786 million gallons of water with an estimated yield of 1.8 million gallons per day.

1999 Buckhorn Dam and Reservoir Expansion (City of Wilson)
The City of Wilson expanded an existing reservoir on Contentnea Creek by constructing a dam downstream. In May 1990 Wilson submitted preliminary plans for operation of an expanded reservoir. In June 1991 DWR confirmed previously recommended minimum flow requirements and provided guidance for the Environmental Assessment. Design

Turner Shoals Dam

Emergency Action Plan (EAP)

State ID: POLK-009

Polk County, North Carolina

Revised: October 2013

Owner Information:
Polk County, North Carolina
40 Courthouse Street
Columbus, North Carolina 28722

Day Phone: 828-894-3301
Emergency Phone: 911 (within county) or 828-894-0187

The Regionalization of Public Utilities

Posted on March 28, 2013 by **admin** in **Asheville**, **North Carolina**, **Utilities**, **Water**

On March 28, Representatives Tim Moffitt, Nathan Ramsey, Mike Hager and I filed state legislation — House Bill 488 — which would have the effect here locally of establishing an independent Metropolitan Water and Sewerage District Authority.

The bill grew out of decades of disputes over how to manage the region's water resources. Those disputes led to two appellate court decisions and several local laws (the so-called Sullivan Acts) restricting or directing how the City of Asheville could manage the water system.

By all accounts, on the sewer side, MSD has worked well. It, too, was a legislative creation. It came about when failing sewer systems caused the legislature to create a regional sewer authority. Over time, that authority has invested in needed infrastructure, and

Contact Representative McGrady

Sign up for my Weekly Newsletter

Please send an email to my ***Legislative Assistant*** and we'll add you to our newsletter distribution list.

General Interest

About Chuck McGrady
Glossary of Terms
How laws are made
Opening Prayers
Our State Seal
State Agencies

ALTAMONT ENVIRONMENTAL, INC.

ENGINEERING & HYDROGEOLOGY

Green River Watershed Assessment

Isothermal Planning and Development Commission

September 30, 2013

Prepared for
Isothermal Planning and Development Commission
111 West Court Street
Rutherfordton County, North Carolina 28139
Project Number 2354.03

Prepared by
Altamont Environmental, Inc.
231 Haywood Street
Asheville, NC 28801
828.281.3350

AECOM

Prepared for:
Polk County
North Carolina

Prepared by:
AECOM
Marquette, MI
Project No. 60307542
January 9, 2014

Dam Safety Inspection Report

Turner Shoals Dam
North Carolina State ID: Polk-009
Polk County, North Carolina

Prepared By:
AECOM
Matthew W. Drewek, Ph.D., P.E.
Project Engineer
(906) 226-4988

AGREEMENT FOR WATER SYSTEM SERVICES

BY AND BETWEEN

INMAN-CAMPOBELLO WATER DISTRICT, SOUTH CAROLINA

AND

POLK COUNTY, NORTH CAROLINA

AND

BROAD RIVER WATER AUTHORITY

Dated: _____, 2014

ALTAMONT ENVIRONMENTAL, INC.

ENGINEERING & HYDROGEOLOGY

Lake Adger Dredging Feasibility Study Report

Polk County, North Carolina

May 20, 2015

Prepared for
Polk County Soil and Water Conservation District
156 School Road
Mill Spring, NC 28756
Project Number 2295.19

Prepared by
Altamont Environmental, Inc.
231 Haywood Street
Asheville, NC 28801
828.281.3350

New Issue/Book-Entry-Only

Rating Moody's: A2
(See "RATING" herein)

$16,665,000
Broad River Water Authority
(North Carolina)
Water System Refunding Revenue Bonds, Series 2015

Dated: Date of Delivery

Due: June 1, as shown on the inside cover

The bonds offered hereby (the "Series 2015 Bonds") will be special obligations of the Broad River Water Authority (the "Authority") payable solely from, and secured solely by a pledge of, the Net Receipts of the System (each as defined herein) and from certain reserves and other moneys of the Authority under the terms of the Trust Agreement and the Fifth Supplemental Trust Agreement (each as defined herein). **Neither the faith and credit nor the taxing power of the State of North Carolina nor any political subdivision thereof, including the Authority, is pledged for the payment of principal of, premium, if any, or interest on the Series 2015 Bonds, and no registered owner of the Series 2015 Bonds has the right to compel the exercise of the taxing power by the State of North Carolina or any of its political subdivisions, including the Authority, or the forfeiture of any of their respective properties in connection with any default on the Series 2015 Bonds, except as provided in the Trust Agreement and the Fifth Supplemental Trust Agreement. The Authority has no taxing power.**

The Series 2015 Bonds are being issued for the purpose of providing funds, together with other available funds, to (a) refund all of the outstanding Series 2005 Bonds (as defined herein) and (b) pay the costs incurred in connection with the sale and issuance of the Series 2015 Bonds.

The Series 2015 Bonds will be initially issued as fully registered bonds and when delivered will be registered in the name of Cede & Co., as registered owner and nominee for The Depository Trust Company ("DTC"). DTC will act as the initial securities depository for the Series 2015 Bonds. Individual purchases of the Series 2015 Bonds by the beneficial owners will be made in denominations of $5,000 or any whole multiple thereof. So long as Cede & Co. is the registered owner of the Series 2015 Bonds, as nominee for DTC, references herein to registered owners or Owners shall mean Cede & Co. and shall not mean the beneficial owners of the Series 2015 Bonds. So long as Cede & Co. is the registered owner of the Series 2015 Bonds, the principal of and interest on the Series 2015 Bonds are payable by the Trustee to Cede & Co., as nominee for DTC, which will in turn remit such principal and interest to the DTC participants for subsequent disbursement to the beneficial owners. See Appendix F hereto.

In the opinion of Bond Counsel, under existing law, (1) subject to compliance with the provisions of the Internal Revenue Code of 1986, as amended (the "Code"), as described herein, interest on the Series 2015 Bonds is excludable from gross income for federal income tax purposes and is not an item of tax preference for purposes of the federal alternative minimum tax imposed on individuals and corporations (however, such interest is taken into account for purposes of computing the alternative minimum tax imposed on certain corporations), and (2) interest on the Series 2015 Bonds is exempt from State of North Carolina income taxes. See "TAX TREATMENT" herein.

The Series 2015 Bonds are offered subject to prior sale, when, as and if issued and accepted by the Underwriter, subject to the approval of their validity and certain other matters by Robinson Bradshaw & Hinson, P.A., Charlotte, North Carolina, Bond Counsel. Certain legal matters will be passed upon for the Authority by King Law Offices, PLLC, Rutherfordton, North Carolina, counsel for the Authority, and for the Underwriter by Womble Carlyle Sandridge & Rice, LLP, Raleigh, North Carolina, counsel to the Underwriter. First Southwest Company, Charlotte, North Carolina, is serving as financial advisor to the Authority. It is expected that the Series 2015 Bonds will be available for delivery through the facilities of DTC on or about June 22, 2015.

Wells Fargo Securities

June 9, 2015

ORNL/TM-2015/550

Environmental Sciences Division

THE ECONOMIC BENEFITS OF MULTIPURPOSE RESERVOIRS IN THE UNITED STATES- FEDERAL HYDROPOWER FLEET

Marisol Bonnet
Adam Witt
Kevin Stewart
Boualem Hadjerioua
Miles Mobley

Date Published: September 2015

Prepared for
U.S. Department of Energy
Wind and Water Program

Prepared by
OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37831-6283
Managed by
UT-BATTELLE, LLC
for the
US DEPARTMENT OF ENERGY
under contract DE-AC05-00OR22725

"WATER ISSUES WHITE PAPER"

DISCUSSIONS AND INFORMATION RELATED TO WATER SUPPLY PLANNING

For

Protect Polk County Water

PREPARED FOR:

Protect Polk County Water
684 Coxe Road
Tryon North Carolina 28782

PREPARED BY:

McGILL ASSOCIATES, P.A.
Post Office Box 2259
Asheville, North Carolina 28802
License: C-0459
828-252-0575 (phone)
828-252-2518 (fax)

DATE: October 9, 2015
M. Keith Webb, PE

10-9-15

TURNER SHOALS DAM

Draft Improvement Cost Update

B&V PROJECT NO. 191486

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PREPARED FOR

Inman Campobello Water District

18 APRIL 2016

BLACK & VEATCH
Building a world of difference.

North Carolina
Drinking Water State Revolving Fund
Intended Use Plan
Fiscal Year 2016

Division of Water Infrastructure

Funding Actions Taken by the State Water Infrastructure Authority on the Applications Submitted On March 31, 2015 to the Division of Water Infrastructure: Actions Taken at May 21, 2015 Meeting of the Authority

On March 31, 2015, the Division of Water Infrastructure (Division) received applications for funding for the Clean Water State Revolving Fund (CWSRF) loan program and the Community Development Block Grant-Infrastructure (CDBG-I) grant program.

The number of applications, amount of funding requested and amount of funding available, by program is shown in Table 1.

Table 1.
Summary of Applications Received by Division of Water Infrastructure on March 31, 2015

Funding Program	Number Applications Received	Amount of Funding Requested	Amount of Funding Available
Federal CWSRF	15	$41.8 million	Approx. $65 million
Federal CDBG-I	50	$90.1 million	Approx. $13 million
Totals	**65**	**$131.9 million**	**Approx. $78 million**

At its meeting on May 21, 2015, the State Water Infrastructure Authority (Authority) approved the following projects, by program, as eligible to receive funding as shown on the following Tables 2 and 3:

Table 2.
Federal Clean Water State Revolving Funds (CWSRF) Project Funding Approved by Authority on May 21, 2015

Project No.	Applicant Name	Project Name	Funding
1	Washington	Sanitary Sewer Rehabilitation - 2015	$2,000,000
2	Kinston	Queen Street Sewer Rehabilitation Project: Ph II	$2,500,000
3	Marshville	Inflow Elimination Project	$1,015,000
4	Windsor	Wastewater Collection System Rehabilitation	$820,640
5	Greenville Utilities Commission	Rehabilitation of Air Distribution System at WWTP	$1,760,920
6	Hickory	Central Business District Infrastructure Rehab	$1,364,100
7	Walnut Cove	Replacement of 4 Pump Stations	$1,357,506
8	Ayden	Sewer Rehabilitation	$980,000
9	Stanly County	West Stanly WWTP and Sanitary Sewer Improvements	$2,648,894

5 yrs.

2014
2013
2012

SOUTH CAROLINA SRF STATE REVOLVING FUND

DRINKING WATER

South Carolina's Comprehensive Priority List of DWSRF Projects

June 8, 2016

2015
Also 2014
2013
2012

SCDHEC
Bureau of Water
2600 Bull Street
Columbia, SC 29201
www.scdhec.gov/srf

D H E C
PROMOTE PROTECT PROSPER
South Carolina Department of Health and Environmental Control

Appendix B

Lake Adger Lot/Real Estate & Recreation Information

Lake Adger Highlights:

~ 438 Acres in Size
~ 14 Miles of Shoreline
~ Regulated by NC Department of Natural Resources
~ 873 feet elevation
~ 50+ feet deep
~ Lake level varies up to five feet, especially during the summer
~ Creek and park surrounded by perpetually dedicated conservation easement
~ NOT fully Recreational Lake (Kayaks and Canoes are welcome, however Jet Ski's and Water Skiing are not allowed and there are restrictions to the size of motors for boats and pontoons)
~ Community marinas
~ The lake abounds with many species of fish
~ Docks are allowed
~ Equestrian trails: 15 miles of protected trail plus 20 miles private road system deeded as bridle path
~ Miles of walking paths
~ Breathtaking mountain views

The Lake has over 14 miles of shoreline, totaling over 438 acres of surface area. Lake Adger offers community marinas, miles of walking paths and equestrian trails. The creek and park are surrounded by a perpetually dedicated conservation easement. Lake Adger is not a full recreational lake. Kayaks and canoes are welcome, however jet skis and water skiing are not allowed. In addition there are restrictions on the size of motors for boats (60 hp) and pontoons (80 hp). The lake abounds with many species of fish.

There are several things that have made Lake Adger extremely attractive: the natural shoreline, panoramic mountain views, spacious acreage tracts, and wooded creek front getaways. The attractive shoreline of Lake Adger is one of its greatest assets. The shoreline displays custom built homes, ranging in price from $230,000 to $500,000 for dockable waterfront lots and $795,000 to $1,200,000 for lakefront homes and cabins. With boating traffic rated as low to moderate, you can see why so many people describe the natural beauty of Lake Adger as "breathtaking." And when you see it, you will feel the same.

Lake Adger, North Carolina has two beautiful communities located along its shore, Mountain Park and Jackson Cove. The communities are luxurious and include large estate style lots ranging in size from one to twenty-five acres and the houses are built by some of the area's leading custom home builders. Home architectural guidelines are in place to ensure that proper homes will meet the overall theme of the neighborhood. Precautions have been taken to keep the land in its pristine state. And to further protect the value of this community, certain subdivision deed restrictions apply, designed to assure the quality of the natural environment for years to come. Each individual property is unique and must be visited in person to truly appreciate.

To view available NC Lakefront Properties, visit http://www.nclakefront.com

Three types of properties here include: Lake front or water front, lake view or water view, and lake access or water access property. Lakefront or waterfront property is defined as having the lake out your back door. Your property borders the lake and you live on the lake. Lakeview or waterview property is defined where you have a view of the lake, but your property doesn't border the lake. Lake access or water access property is defined as having access to the lake (your property doesn't border the lake, and you don't see the lake). With lake access or water access property, you are just a short walk or drive away from enjoying the lake. Whatever type of lifestyle you desire, we'll be able to help!

What's the first rule of Real Estate? Location, Location, Location. Residents in this area will be conveniently located minutes from cultural attractions, local events, entertainment establishments, shopping, hospitals, and fine dining. This area has become famous for its quality lifestyle and family friendly activities fit for all ages. From museums to shopping, there's something for everyone to enjoy and explore. North Carolina has many major metropolitan areas throughout the state. The largest cities include the Charlotte Area (Cornelius, Mooresville, Huntersville, Davidson, Denver), Raleigh Area (Durham, Chapel Hill, Cary, and Apex), Asheville, Wilmington, Hickory, Burlington, Salisbury, Greensboro, Winston Salem, and High Point. Wherever you live, you're a short distance to a major metropolitan area. Why is NC #1 on many people's short list to live? All of the reasons above plus a Better Climate, Lower Taxes, Lower Cost of Living, and Southern Hospitality.

What to do on the lake today? How about:

~ Awake with coffee and watch the morning fog rise off the lake

~ Spend the morning bass fishing on the glistening water.
~ Take family and friends boating around noon.
~ Lazy afternoons relaxing in a hammock.
~ Complete the day with a sunset wine cruise.

NC Lake Property is not just a financial investment - but also an investment in your family, your future, your enjoyment, and your peace of mind.

There's nothing better than living along the lake - The water draws us in with its promise of peaceful times and recreational family fun. To own property beside it is a dream for many. And the Southeastern part of the United States has the waterfront property (Oceanfront or Lakefront) in the highest demand. To help you investigate North Carolina and make a sound waterfront investment, we founded NClakefront.com Realty.

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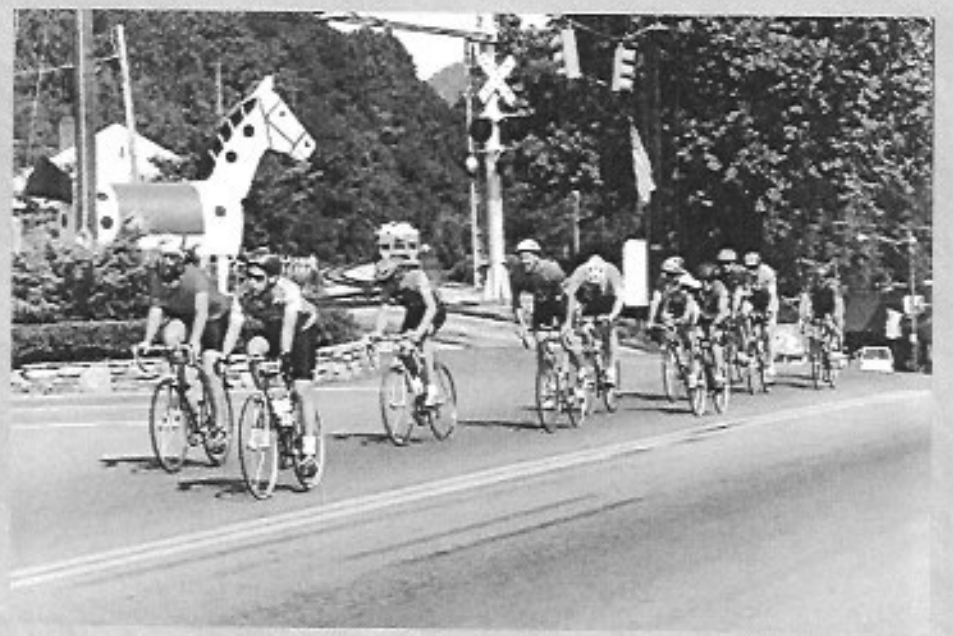

Historic Places

1. Green River Plantation - Listed on the National Register of Historic Paces. This stately home was built in 1804 and has been lovingly restored to its original grandeur. Open to the public by reservation. 828-286-1461 or 828-287-0983. Coxe Rd., Rutherfordton, NC.

2. Historical Marker - N.C. Colonized 1585, settled in 1650. Hwy 9 South at NC/SC state line.

3. Historical Marker - Governor Tryon's march to survey the Cherokee boundary, 1767. Hwy 9 South at NC/SC state line.

4. Four Columns Farm - Built in the late lath century upon the ruins of the pre-revolutionary outpost known as Earls Fort. On the National Register of Historic Places. Hwy 14 at 1-26, Landrum, SC..

5. Gowensville Baptist Church - Began as a preaching station in 1809, the Church was built in 1820. Hwy 14 Gowensville. SC.

6. Campbell's Covered Bridge - Built in the 1800's. Hwy 14 to Hwy 414. Follow signs. Gowensville, SC.

7. Good Shepherd Episcopal Church - The original slave chapel at Coxe Plantation, known as St. Francis, was moved to Tryon in 1955. It still has original furnishings and glass. Jackson Rd., Tryon.

8. Pine Crest Inn - Built in 1900 as a sanitarium, later converted into a retreat in 1917 by Carter Brown. Once a favorite of F. Scott Fitzgerald and Ernest Hemmingway. It is listed on the National Register of Historic Places. A guest cottage, Sway Back Cottage - Circa 1760, is located on the property. Pine Crest Lane. Tryon

9. Polk County Historical Museum - The Polk County Historical Association's collection includes

area artifacts dating back to the time of the Cherokee as well as the cannonball that was fired on Fort Sumter at the beginning of the Civil War. The museum is open Tuesday and Thursday, 10 am to 1 pm and Saturday 10 am to 4 pm. Monthly programs with fascinating speakers are held on the first Tuesday of each month, September through May at 2:30 pm. Located at 60 Walker Street (rear entrance), one block from the historic Polk County Courthouse in Columbus.

10. Tryon Cemetery - Dates back to the early 1700's. Markham Rd.

11. Seven Hearths - Built in 1740, is said to be the first clapboard house in the county. Moved piece by piece to present location in 1934 and completely restored. Harmon Field Rd. Tryon. *

12. Log Cabin Slave Quarters - Circa 1740. Moved from and reconstructed next to Seven Hearths. Harmon Field Rd. Tryon, NC.

13. Historical Marker- Stoneman's raid, April 1865. Hwy 108, Lynn.

14. Sidney Lanier House - Sidney Lanier, a well known poet, died in the Wilcox home Sept.7,1881. It has been called the Lanier House ever since. Hwy 108, Lynn..

15. Mimosa Inn - This Inn can lay claim to 200 years of history but the present day structure was built in 1916 after fire destroyed the original Inn. Hwy 108, Lynn

16. Scriven's Plantation - Built in the late 1700's by Govan Mills this beautiful pro-civil war home has been lovingly maintained by several owners. It is listed on the National Register of Historic Places..

17. Polk County Courthouse - Built by slaves, using native clay bricks, in 1857. In front stands the original slave block that is now covered with a planter. On the National Historic Register. Columbus.

18. Doughboy Statue - Built to honor the men who fought and died in WWI. Constructed of local materials and built facing the mountains, the young man is leaning on a White Oak stump. Court St., Columbus

19. Sears House - C. A. Hughes ordered a kit from the Sears Catalog and built this house in 1894. Original in every detail. N. Peak St., Columbus..

20. Warrior Mountain Monument - Warrior Mountain Monument-Marker commemorating the defeat of the Cherokee Indians in 1776 at Howard Gap. Formerly located at a site on Howard Gap Road in Saluda, the monument is now located in Stearns Park in downtown Columbus, across from the Doughboy Statue, at the corner of E. Mills Street and Hampton Court.

21. The Mountain Home - Built in 1910 as a retreat for the Brotherhood of Railway Clerks. Now The Orchard Inn. Hwy 176. Saluda.

22. Episcopal Church of the Transfiguration - Built in 1892. still has the original furnishings and beautiful and unusual stained glass windows Charles St. Saluda

23. Saluda Depot - Built early 1800's. Now a shop. Main. St., Saluda

24. The Oaks - This beautiful Victorian home was built in 1894 for a local banker. Now a Bed & Breakfast Inn. Greenville St. Saluda.

25. Historic Bank of Tryon Building - (now Tryon Daily Bulletin office)-Build circa 1908 and listed on the National Register of Historic Places in January 2008, the two story brick and stone Romanesque-revival style commercial building constructed to house the first bank established in Polk County displays a beautiful brick and stone facade. From 1935 to the present the building has been the home of the Tryon Daily Bulletin, the world's smallest daily newspaper. 16 North Trade Street, Tryon, NC

26. Historic Mill Farm Inn - Listed on the National Register of Historic Places in January of 2009, this former guest inn is now a private residence. The Mill Farm Inn, was designed by Chicago architect Russell Walcott and construction was completed in 1939. It is a two-story, Colonial Revival-style, stone building topped by an asphalt-shingle side-gable roof with exposed rafter ends. It is located at the intersection of three important roads in southern Polk County - Highway 108 (Lynn Road), Howard Gap Road and Harmon Field Road between Tryon and Lynn.

27. Birthplace of Nina Simone - Visit the house where Eunice Waymon (who later became internationally famous under her professional musical performance name Nina Simone) was born on February 21, 1933. Waymon / Nina Simone would grow up to introduce to the world a unique infusion of pop, gospel, classical, jazz, folk, and ballads -- that she would call, "Black Classical Music." Her birthplace is located at the top of a hill on East Livingston Street just off Markham Road, Tryon.

28. Tryon Toy Makers and Wood Carvers Cottage - Built in 1925 as a workshop and showroom by Eleanor P. Vance and Charlotte Yale (formerly of the Biltmore Industries) for the wooden toys manufactured by local woodcrafters trained by Vance and Yale, this alpine style gem was the site for a July 4th address by Eleanor Roosevelt in 1934 and is currently being restored as a future museum for wooden items once made and sold there. Located on East Howard Street just off of North Trade Street in Tryon.

29. Tryon Depot and Depot Garden - Built in 1906, the Tryon Depot was the third depot building build to serve the train travelers passing through Tryon. The lovely garden next to the Depot is maintained by the Tryon Garden Club and features a metal sculpture celebrating the role of the railroad in bringing the world to Tryon. Depot Street, Tryon.

Parks and Scenic Areas

1. Shunkawauken Fall's - The highest waterfalls east of the Rockies before the road was put in. It is still a spectacular 500 ft. split level waterfall. White Oak Mountain, Columbus.

2. Sunset Rock - Elevation of approximately 3000 ft. looking west over the Green River and Holbert's Cove, on a clear day you can see 3 states and 16 counties. White Oak Mountain, Columbus.

3. Pacolet River - Scenic drive along the river on Hwy 176 between Tryon and Saluda, offers curves and climbing roadway with views of the rushing river, waterfalls and gorges.

4. Saluda Grade - The train tracks follow the steepest, class 1, main-line grade in the U.S. With a total of over 50 curves, the gradient ranges from 3.7% to 5.59%, rising 885 ft. in a three mile section. Hwy 176 between Tryon and Saluda.

5. Pearson's Falls - With the falls thundering over a 90 ft. drop, this property of the Tryon Garden

Club is a remarkable botanical wonderland. Offering hiking, bird-watching, picnicking and more. Pearson's Falls Rd, off of Hwy 176, Saluda.

6. Green River Cove - Runs from Saluda to Lake Adger and has 2 access areas to the Green River, Fish Top and Big Rock, for swimming, tubing, kayaking and other outdoor activities. Saluda.

7. Bradley Falls/Little Bradley Falls - Beautiful trails that cover acres of woods, streams and breathtaking waterfalls & gorges. Parking is on the right 3.2 miles from brick columns at Heaven's View Motel. Trails to the falls are on the left before the bridge. 1-26 Saluda exit. Holbert's Cove Rd. Proper clothing/footwear advised.

8. Lake Adger, Red Barn Access - The only lake in Polk County. Open to the public for fishing and other water sports. Boat needed to access lake via the Red Barn Access Point. Silver Creek Rd., Mill Spring.

9. Chimney Rock Park - A breathtaking view from the mountain's giant monolithic "chimney". The park offers nature trails, rock formations and the 404 ft. Hickory Nut Falls. Chimney Rock, NC.

10. Foothills Equestrian Nature Center (FENCE) - A 220 acre nature preserve with marked riding and hiking trails, offers bird and nature walks and hosts equestrian events, including the Steeplechase Races. Also has outdoor concerts and educational camps. Hunting Country Rd. Tryon.

11. Lake Lanier - Built in the 1920's, it is a is a very scenic 5 mile drive. The lake is private and has no public access. Dam is located at the NC/SC state line off Hwy 176, Tryon.

12. Harmon Field - Home to the first Tryon Horse & Hound Show in 1926. Many equestrian events are still held here. Picnic area, tennis courts, track. softball field or relax by the Pacolet river as children play on the swings. Harmon Field Rd.. Tryon, NC.

13. Stearns Park - Across from the historic County Court House in Columbus it was originally Stearns School playground built in 1917. Walking track. gazebo and picnic tables. Columbus.

14. Gibson Park - Run by the Polk County Recreation Dept. the park offers a public swimming pool and picnic area Fork St. Columbus

15. Rogers Park - Site of the Summer Tracks concert series, the Rogers Park amphitheater is a wooded open-air concert and performance venue with seating for up to 200 people. The park and amphitheater are often used for school programs and weddings. A small stream bubbles across the park and in front of an oval stage with beautiful rock-work and a retractable awning. Permanent seating in rows up the facing hillside provides good visibility of the stage area. The park also has green space, picnic tables and pergolas. Located on West Howard Street across from Tryon Fire Department in Tryon.

16. Woodland Park - A rustic wooded park with trails adjacent to downtown Tryon. The main access point and vehicle parking area are located off South Trade Street and may be accessed by the one-way section of Chestnut Street from Melrose Avenue.

17. Greene Corner / Sassoon Park - A beautiful garden and gazebo located across from the Melrose Avenue entrance of the Tryon Fine Arts Center, Greene Corner is a favorite location for wedding photos. The Sassoon Park across from it sports modern sculpture and greenery. Located on Melrose Avenue, Tryon.

18. Park on Trade - A jewel of a pocket park developed and maintained by the Green Blades Garden Club offers a bubbling fountain with a millstone base, shrubs, flowerbeds and a rustic bench and arbor. This park is located at the corner of North Trade Street and West Howard Street next to the Tryon Town Hall building and near Rogers Park amphitheater.

19. Ziglar Field - Historic site of the games for the local semi-pro African-American baseball team, the Tryon All-Stars, from 1948 until the 1960s, Ziglar Field currently sports a soccer field and a baseball field for public use. The park is located on East Howard Street near its intersection with Vaughn Street.

20. Bryan Park - Located adjacent to the historic Tryon Cemetery, Garrison Chapel Baptist Church, St. Luke's CME Church and the Nina Simone Birthplace and not far from Good Shepherd Episcopal Church, Bryan Park offers picnic tables, grills and benches in a sunny green pocket park. Markham Road, Tryon.

21. Nina Simone Plaza - A larger than life size bronze statue of the international songstress, Nina Simone, née Eunice Waymon, may be seen in a small landscaped plaza. The statue celebrates native daughter, Nina Simone, who was born and began her musical training in Tryon, North Carolina. South Trade Street in Tryon, just south of the Tryon Horse and across from the Tryon Theater

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General Interest

1. "Morris" The Tryon Horse - 5th generation jumbo version of the Tryon Toymakers most popular toy now stands in the middle of Tryon. The 1st horse was made in 1928 for the Tryon Riding & Hunt Club.

2. Tryon Theater - Originally built in 1939 as a movie and vaudeville theater, it still uses it's original **carbon arc projectors.** It shows movies 4 nights a week and has a matinee on Sunday. Tryon.

3. Jack Scruggs & Son General Store - Bread and boots to barbed wire. The last old time general store in Polk County. 3 miles off Hwy 9 on Chesnee Road., Green Creek.

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Sedimentation built up in Lake Adger this past July after heavy rains filled waterways. The assessment of the Green River watershed said sedimentation is one of the main concerns in tributaries. (photo submitted)

By Mark Schmerling

Recent Posts

- Tryon delays tennis court replacement to research asphalt
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Green River Watershed assessment available to public

Published 10:44pm Thursday, January 9, 2014

Comments

From world-class whitewater kayaking to hunting in rugged wooded terrain and trout fishing in cold mountain streams, area residents and visitors are blessed with a wealth of active and passive recreational opportunities in the Green River Watershed (GRW).

However, the 2013 Green River Watershed Assessment (visit www.regionc.org/Planning/Docs/Report%20Green%20river.pdf) carried out through the Green River Watershed Alliance (GRWA), pinpoints numerous concerns, including water quality issues in many parts of the basin.

In particular, the study, prepared by Altamont Environmental Inc. of Asheville, found sedimentation (soil carried away by erosion, and deposited in waterways), the number one pollutant in North Carolina waterways. Erosion is common in numerous tributaries of the Green River and in the river itself (including in Lake Adger).

According to a summary of the report, sedimentation "severely impacts aquatic life and wildlife habitat, degrades water quality, carries harmful chemicals and nutrient pollutants, and negatively affects recreation, navigation, property values, water treatment systems (increases costs to clean and filter drinking water), hydroelectric plants operation and water storage capacities (sediment fills in reservoirs and increases costs to produce electricity). Sediment loads matter because it directly affects our Green River watershed health and our pocket books."

Green River Watershed Alliance (GRWA) founder Schuyler (Sky) Conard said prior to this assessment, very little data existed to identify or quantify issues.

Conard noted the irony of having such a wealth of recreational opportunities, but little data, and scant resource protection to ensure that those opportunities exist far into the future.

Protecting the resource is a win-win, Conard and the report note, as best management practices for protecting streams and rivers return economic benefits to residents.

The study, completed in September 2013, was limited to a 60-square-mile area within the entire 245 square miles of the GRW, because of funding limitations.

The Green River, from the county line at the Narrows down through Lake Adger, includes the following tributaries: Casey Branch, Brights, Cove, Gadd, Ostin, Panther, Pulliam, Rotten, Rash and Silver creeks. All together, about 182 stream miles were studied. Altamont identified and examined existing conditions of 31 sites along the waterways.

The report notes that of the 31 sites, 22 exhibit signs of erosion, channel incision and sediment accumulation. Potential for large, heavily sediment depositional islands was observed at Panther and Ostin creeks and the Green River entrances and public marina to Lake Adger, as well as throughout the lake.

Coves of Panther and Ostin creeks, and Bright's Creek (at confluence with the Green River) were filled heavily

with sediment. Rotten Creek was also observed to be largely impacted by sediment pollution. It is a matter of time before the public marina is cut off from the lake and Green River because of the growing/expanding sediment, according to the report.

Much of the Lake Adger shoreline is eroded, stressed/unstable and tall, near vertical banks. This contributes to sediment into the lake. Water shallowness was observed throughout the public marina and at multiple tributary entrances, the report said.

Sediment accumulation in the lake is likely attributed to lake shoreline erosion, unstable/eroded stream tributaries, upland current and historic development and land clearing within the GRW.

Damming the Green River 90 years ago prevented the contributing streams to carry and transfer their sediment loads from the watershed so all sediment deposits and erosion accumulate in Lake Adger.

As the Green River approaches Lake Adger, the channel slope and velocity decrease, and the channel substrate changes from boulders and cobble to sand bed. Large sediment deposits were observed, said the report.

Causes or stressors of sedimentation identified were lack of riparian (stream-side) buffers, construction activities past or present, livestock creek access, actively eroding hillsides and banks, runoff from agriculture areas or eroding bare dirt/gravel roadsides or parking lots, clear cutting and stream morphology changes over time (90 years post construction of dam).

Water quality data within the GRW study area was not abundant and there is no ambient water quality monitoring, the report said.

The project was funded through a 2012 Clean Water Act Section 205(j) Grant by the North Carolina Department of Environmental and Natural Resources, Division of Water Quality (now DWR) for the "Assessment of the Green River Watershed: A Supplement to the NCDWQ Broad River Basin.

The impacts become more clear, the report says as Polk County moves closer to reclassifying waterways for public drinking water.

In spite of the resource base, and the risks presented by sedimentation, no watershed assessment team projects (WAT), watershed assessment and restoration programs (WARP) or local watershed plans (LWP) exist in the Green River Watershed, according to North Carolina Department of Environment and Natural Resources/Department of Water Quality NCDENR/DWQ).

The 2008 NC DWQ Broad River Basin Plan/Green River Watershed is the most recent basin plan available. Updates were due in 2013 (five-year cycles), but were changed to 2018 (10-year cycles).

Recommendations include:

Stop further sedimentation by adopting best management practices (BMPs), whenever and however the county can. Sediment is being continually supplied to the streams, Green River and Lake Adger.

Stabilize exposed soil throughout the Green River Watershed. Reducing sediment would preserve the water quality and the recreational resource of the Green River and Lake Adger. Examples are: bioretention basins and storm water wetlands, cattle exclusion fencing along streams, stabilizing exposed and vulnerable soil slopes and Lake Adger shorelines.

Restore eroding lake and stream banks and riparian buffers. Utilize low impact development strategies like

proper silt fencing, erosion control techniques, preventing road runoffs, maintaining buffers and avoiding steep slope grading.

Remove sediment by dredging. Lake Adger has not been thoroughly dredged since its construction in 1925 and this reduces the storage capacity, and is a nuisance to residents and recreational users of the reservoir. Conduct a dredging analysis/plan to determine optimal and priority locations in the lake to remove the sediment. Public marina, Panther and Ostin Creek entrances to lake are critical.

Investigate further the stressors identified in report and partner with the other stakeholders to implement the BMPs that would remediate the problems while improving the water quality within the watershed.

Conard said the importance of the study lies in the fact that it is the first official documentation of the present reality of conditions and lack of data available for the Green River Watershed within Polk County. She said the report serves as baseline information that will require further intensive studies.

"A great paradox on the Green exists… while its notoriety, popularity and human prosperity continue to grow exponentially from … the International Green River Narrows (kayak) Race, Green River Games, Green River Adventures, Gorge Zip Line, Green River Gamelands, Lake Adger reservoir and community (hydroelectric power dam and the eventual drinking water source for the county)… the monitoring, protection, proper management and needed restoration for it has not even begun," Conard said. "What an enigma that this internationally famous Green River is apparently really a forgotten Green River."

Conard said it is the mission of the Green River Watershed Alliance to change this course.

"Water resources are precious; they are not inexhaustible, immune to deterioration from the inevitable bane of erosion/sedimentation pollution or able to just manage themselves," Conard said. "We humans, all stakeholders of this great asset need to balance the scales and give something back, invest some work and efforts to address these ever pressing problems.

"GRWA tries diligently to be a voice for these waters.

The GRWA is a grass-roots, citizen-led organization, that has been addressing the need to build, collaboratively, an economically sound (smart), conservation based (green infrastructure) management plan for our Green River for the last four years.

The plan aims to promote clean water, responsible stewardship and the sustainability of these waters for generations to come.

"Water is life," Conard added.

Print Article

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Comments

FROM AROUND THE WEB

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Fishing and Boating at Lake Adger

http://www.lakeadger.com

, NC

Lake Adger

Lake Adger, located in Mill Spring off Silver Creek Rd., has been stocked with Muskellunge (Muskies) as part of the North Carolina Wildlife Resources fish stocking program. The Muskies are raised at the Table Rock State Fish Hatchery and the juvenile fish are released into Lake Adger in October. The average size fish released is 8" to 18' in length.

For further details on fishing, consult the Regulations Digest for North Carolina Inland Fishing, Hunting and Trapping. The book and licenses are available at Columbus Hardware 828-894-8985, Silver Creek Campground, Mill Spring 828-894-2331, Green River Adventures, Saluda 828-749-2800, Jack Scruggs and Son, Green Creek 828-863-2691.

Boating: Public boat ramp. Personal boat needed to access lake.

Boat Tours: Schedule a private, serene boat tour of beautiful Lake Adger and enjoy the amazing splendor of Polk County from the water. http://www.lakeadgerboattours.com Email: info@lakeadgerboattours.com Phone: 828-894-2144

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Boating

Boating on a North Carolina lake treasure

Lake Adger is approximately 438 surface acres with approximately 14.5 miles of shoreline.

Boating, fishing and water recreation are a focus here. Restrictions are in place to provide a safe environment for the full recreational use and enjoyment of the lake, including boating, swimming and fishing.There is an 80 horsepower limit on pontoon boats and a 60 horsepower restriction on any other water craft; to maintain it's tranquil environment, no jet skis or water skiing is permitted on the lake

Lake Adger draws its unique character from following the course of the scenic Green River. Miles of the Green River, upstream, are protected by conservation easements.

Kayaks and canoes are welcome and encouraged at Lake Adger.You may see native vegetation along the shore, these natural areas provide habitat for the fish and other wildlife.The lake level can only fluctuate up and down by five feet, especially during the summer when Northbrook Hydro is generating power. Please do not tie your boat to the shore, docks or marina slips without the express permission of the individual property owner. While the land was once paper company land, it is now the property of Lake Adger Developers or individual property owners.

Please be courteous while boating. We encourage you to enjoy your time at Lake Adger, but ask that others be allowed to enjoy theirs as well. Remember to cut your engine when passing fishermen along the shore or individuals in smaller water craft, watch for children swimming from shore and private docks. Lake Adger is patrolled by the NC Department of Natural Resources. Use good judgement and obey laws and regulations while boating.

Enjoy your time at Lake Adger, it is a true mountain treasure.

LAKE ADGER LIVING
Learn more about the benefits of being a part of the Lake Adger community.

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an uncommon lake and mountain community...3,250 acres+/- of carefully planned, small, private communities fitted to the natural contour of the land...13+ miles of Equestrian Trails...miles of pristine shoreline almost surrounding Lake Adger. Fully developed lots - underground utilities in place, each lot has an approved septic tank permit, paved streets, architecturally designed entranceways, roadside planting and landscaping. Lake Use Restrictions are 80 HP for pontoon boats, 60 HP for other boats, canoes, sailboats and paddle boats welcome, no jet skis or skiing. The entire 3,250 acres +/- is restricted for your protection. The 204 + homes already built in Lake Adger range from beautifully designed weekend cottages to multi-million dollar estates. There is no time limit in which you must build - all the lots offered are ready to build on now or for your retirement home and offer an excellent investment opportunity.

Close to nature . . . close to town

Make the most of each day as a resident of Lake Adger, where natural beauty, plenty of privacy, and modern amenities are perfectly blended in a scenic lake and mountain getaway. This 3200-acre development offers North Carolina lake property, spectacular, panoramic mountain view lots, spacious acreage tracts, horse farms and private, wooded creek front getaways, from one to twenty-five acres, all nestled within private communities in spectacular settings. The 438-acre lake, community marinas, parks, abundant wildlife, permanent conservation areas and miles of walking paths, nature & equestrian trails make it easy to enjoy a place at the lake . . . and a place in the mountains.

Lake Adger is nestled in the splendor and majesty of the Blue Ridge Mountains. It is hidden off the beaten path near the Hendersonville/Asheville area, between Tryon, Columbus and Lake Lure, NC, with easy access to Charlotte and the new Tryon Resort. A truly rural community that is also conveniently located, Lake Adger is a rare find. Near several popular vacation destinations, as well as the charming towns of Landrum, Tryon, Saluda and Columbus, NC, residents are just minutes from fine dining, shopping and entertainment. In addition, Lake Adger is just a short drive from two major interstates and easily accessible from several major metropolitan areas.

Lake Adger and its 14 miles of pristine shoreline are in an unspoiled condition - a rarity in today's world. With the respect and sensitivity it deserves, Lake Adger Developers have planned and developed a resort/residential community in harmony with nature, the landscape and the beauty of the lake and mountains. Lake use restrictions are in place to provide a safe environment for the full recreational use and enjoyment of the lake, including boating, swimming and excellent fishing.

Privacy. Comfort. Convenience. Value. They're all part of the Lake Adger communities. Discover an unhurried, uncomplicated lifestyle where recreation, relaxation, personal pursuits and reflections are the norm rather than the exception.

We believe that at a glance, you will share our appreciation for this fine property and we invite your inspection.

The Lake Adger Vision

A low density, upscale, environmentally-sensitive community which is a credit to the Western North Carolina area and which provides property owners both aesthetic satisfaction and economic appreciation through thoughtful planning, superior infrastructure, and good stewardship of the land. A place where pure springs and clear streams are protected, parks and conservation areas are set aside and wildlife habitat is encouraged ~ a place with a sense of community, understated elegance and lasting value.

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Lakefront Lots

Most of these properties are intentionally priced for immediate sale in the current market and all of them represent extraordinary value.

All of these properties are located within Lake Adger Communities where development has been fully completed – paved streets with rolled curb and gutter, underground utilities, septic tanks have been approved for each lot. These are high quality properties in an established, upscale community where approximate 200 homes have already been built. Restrictions on these properties are designed to facilitate an attractive weekend/resort cabin or a permanent, estate quality home.

We will be pleased to provide a boat tour of the scenic, pristine Lake Adger and to show you each of these properties.

Imagine your next North Carolina home overlooking a pristine mountain lake. That's the promise of life at Lake Adger, a landmark 3200-acre lake and mountain community. So whether you're looking for a home for sale in Asheville, NC, luxury Hendersonville NC homes or equestrian homes for sale in Tryon NC, Lake Adger is the answer, a truly rural community that is also conveniently located.

Lot 44 – $219,900 - Lot #44 - Great view of mountains, and Lake - In Gated area of Lake Adger on biggest section of Lake - Easy walk to your dock - one of the best lots on Lake
PHOTOS

24 MOUNTAIN PARKWAY – $99,900 - 2.24 ACRE LAKEFRONT LOT WITH SPECTACULAR YEAR ROUND VIEWS, MARINA SLIP, EASY ACCESS TO HWY 9 IN GATED MOUNTAIN PARK COMMUNITY
PHOTOS

12 SOUTH COVE ROAD – 109,000 - 1.29 ACRE LOT - BEAUTIFUL LAKE LOT WITH MOUNTAIN VIEWS, VERY PRIVATE BUILDING SITE, STAIRS BUILT TO LAKE WITH FLOATING DOCK IN WATER. CLOSE TO LAKE ADGER ENTRANCE NEAR HWY 9. CALL FOR DETAILS.
PHOTOS

23 North Coast Drive – 99,900 -Lake lot with beautiful long lake and mountain views - dock permit - paved driveway - inside gated &34;Jackson Cove West&34
PHOTOS

G-24 North Mountain Lane – $114,900 - 2.68 acres. Beautiful lot with level building site, gentle slope at water. 275 +/- ft. of shoreline with a dock permit. Great views, perfect for your lakefront dream home.
PHOTOS

HAWK RIDGE DRIVE – $115,900 - Lakefront Property - Pristine 1.2 acre lot with floating dock, level building site, 230+ ft. on Lake Adger, very private, beautiful hardwoods.
PHOTOS

MP3B-18 MOUNTAIN PARKWAY – $149,900 - THIS PROPERTY IS IN A QUITE, DEEP WATER COVE AT LAKE ADGER. THE LOT HAS A MARINA SLIP ADJACENT TO OTHE PROPERTY. THIS BEAUTIFUL LOT OFFERS PRIVACY, A LEVEL LOT AND A GOOD BUILDING SITE FOR YOUR NEW HOME. THERE ARE LARGE HARDWOOD TREES ON THE LOT. A BEAUTIFUL LOT TO BUILD YOUR NEW DREAM HOME ON. LOCATED NEAR THE NEW TRYON INTERNATIONAL RESORT.
PHOTOS

G-7 PARKWAY NORTH – $295,000 - LARGE PRIVATE WATERFRONT 3.16 ac TRACT PROPERTY WITH A GENTLE SLOPE TO THE WATER AT LAKE ADGER. GREAT WATER FRONTAGE, GOOD VIEW OF THE LAKE AND THE MOUNTAINS FROM THE BUILDING SITE. THE TRACT HAS WATER FROM A SHARED WELL AND HAS BEEN APPROVED FOR A SEPTIC SYSTEM
PHOTOS

G-14 PINEY POINTE LANE – $87,900 - LAKE ADGER WATERFRONT LOT - 2.27 ACRES TO BUILD YOUR DREAM HOME ON - PRIVATE BUILDING SITE - 440+/- FEET OF LAKE FRONTAGE - BEAUTIFUL VIEWS - DON'T MISS THE OPPORTUNITY TO PURCHASE THIS GREAT LOT IN THE PRESTIGIOUS LAKE ADGER COMMUNITIES
PHOTOS

MP3B-11 MOUNTAIN PARKWAY – BEAUTIFUL LOT ON LAKE ADGER IN GATED MOUNTAIN PARK. DOCK IN PACE - READY TO ENJOY THE LAKE
PHOTOS

LOT 24 NORTH MOUNTAIN LANE – $99,900 - LOT #24 MOUNTAIN LANE - BEAUTIFUL LAKE LOT WITH OVER 275 FEET OF SHORELINE AND A DOCK PERMIT; AT THE MOUTH OF A PRETTY COVE; THE PERFECT PLACE FOR YOUR DREAM HOME OR A PEACEFUL GETAWAY
PHOTOS

LOT #6 POINTE LANE – $225,000 - BEAUTIFUL LOT ON LAKE ADGER WITH BOAT SLIP IN WATER - GENTLE SLOPE TO WATER, PAVED DRIVE, OPEN AND WOODED AREA, EASY TO BUILD ON
PHOTOS

MP-15 LAUREL CREST – $199,900 - LAKE LOT IN BEAUTIFUL MOUNTAIN PARK WITH 250+ FEET ON MAIN CHANNEL - LEVEL BUILDING SITE - MOUNTAIN VIEWS - EASY WALK TO THE WATER - IN GATED SECTION OF LAKE ADGER - JUST OFF HWY. 9 - VERY CONVENIENT LOCATION
PHOTOS

SOUTH POINTE DRIVE – $99,900 - C-7 - SOUTH POINTE DRIVE - 1.08 ACRESPRIVATE LOT ON LAKE ADGER, EXCELLENT BUILDING SITE CLOSE TO WATER, DOCK IN PLACE - READY FOR BOAT

PHOTOS

116 PINEY POINTE LANE – $499,900- BEAUTIFUL CUSTOM LOG HOME IN A PRIVATE SETTING. LAKEFRONT WITH DOCK ON PEACEFUL LAKE ADGER. SPACIOUSE AND OPEN FLOOR PLAN, FIREPLACE IN GREAT ROOM OVERLOOKING LAKE, 3 DECKS, SCREENED PORCH, DETACHED 2 CAR GARAGE WITH FINISHED BONUS ROOM ABOVE A BEAUTIFULLY LANDSCAPED YARD. AN IDEAL HOME AT THE LAKE AND THE MOUNTAINS.
PHOTOS

LOT #3 INDIAN SUMMER LANE – $99,900 - 1.24 ACRES - BEAUTIFUL LOT ON POINT ON LAKE ADGER WITH DOCK IN PLACE - LOCATED IN THE EXCLUSIVE LAKE ADGER PRIVATE RESORT COMMUNITIES
PHOTOS

LOT 66 LAKE ADGER PARKWAY – $129,900 - BEAUTIFUL 2.47 ACRES ON LAKE ADGER - GREAT BUILDING SITE IN THE PRESTIGIOUS LAKE ADGER RESORT COMMUNITIES
PHOTOS

LOT 5 (JCW) HUSKEY POINT – $125,000 - LAKEFRONT TRACT WITH STUNNING MOUNTAIN AND LAKE VIEW, LARGE BUILDING SITE WITH MARINA SLIP ALREADY IN THE WATER, VERY PRIVATE WITH GREAT VIEW - IN JACKSON COVE WEST
PHOTOS

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Jim Smith and Associates, P.O.Box 4125, Spartanburg S.C. 29305
1-800-785-7542 | Fax 864-597-0107 | customerservice@lakeadger.com
Site design and development by S2L Design
ALL INFORMATION HEREIN DEEMED TO BE RELIABLE BUT NOT GUARANTEED

Acreage for Sale

Most of these properties are intentionally priced for immediate sale in the current market and all of them represent extraordinary value.

All of these properties are located within Lake Adger Communities where development has been fully completed – paved streets with rolled curb and gutter, underground utilities, septic tanks have been approved for each lot. These are high quality properties in an established, upscale community where approximate 200 homes have already been built. Restrictions on these properties are designed to facilitate an attractive weekend/resort cabin or a permanent, estate quality home.

We will be pleased to provide a boat tour of the scenic, pristine Lake Adger and to show you each of these properties.

4 N. Highland Road – $149,900 Lake Access, Mountain View, Private, Slopping, Trees, Year Round View. Private peaceful setting - 15+ acres with year round mountain views, summer lake views, deeded marina slip close by and Lake Adger Marina, open and wooded land, suitable for small pasture, Lake Adger community has many miles of nature/equestrian trails; great for horseback riding or hiking. Easy access to Hwy 9, Close to Tryon Equestrian Center - Highly motivated seller-Priced to sell!
PHOTOS

12 SOUTH COVE ROAD – 109,000 - 1.29 ACRE LOT - BEAUTIFUL LAKE LOT WITH MOUNTAIN VIEWS, VERY PRIVATE BUILDING SITE, STAIRS BUILT TO LAKE WITH FLOATING DOCK IN WATER. CLOSE TO LAKE ADGER ENTRANCE NEAR HWY 9. CALL FOR DETAILS.
PHOTOS

JACKSON COVE WEST LOT 1 – $89,900 - Beautiful long lake views, private building site with mountain view, direct access to lake to fish and swim, marina slip in Jackson Cove Marina, approved for septic
PHOTOS

26 Mountain Parkway – $50,000 - 1.66 acres with great mountain views, cleared, level building site with paved road frontage. Lot has a water tap already in place. Lot is in Mountain Park, a gated community off Hwy 9. A great place to call home.
PHOTOS

MOUNTAIN PARKWAY – $79,900 - Mountain Park Section 3B Lot 24 – 2.91 acre building site, fronting paved Mountain Parkway, driveway in, building site cleared, septic tank permit issued, mountain views, includes deeded marina slip in Mountain Park Marina.
PHOTOS

MOUNTAIN PARKWAY – Mountain Park Section 3B Lot 22 – located in the gated Mountain Park Community, just off NC Hwy 9,

fronts paved Mountain Parkway, 3.04 acre wooded tract, driveway installed, building site cleared, mountain views, septic tank permit issued, shared water well tap on property, includes deeded marina slip in Mountain Park Marina.
PHOTOS

MOUNTAIN PARKWAY – Mountain Park Section 3B Lot 23 – 2.49 acre tract with mountain views, located in gated in Mountain Park Community, septic tank permit issued, driveway and building site cleared, ideal for basement or split foyer home, includes deeded marina slip in Mountain Park Marina, shared well water tap on property.
PHOTOS

H3A-17 SILVER RIDGE ROAD – GREAT CABIN SITE WITH LOTS OF PRIVACY AND CLOSE TO LAKE ADGER MARING - OPEN/WOODED
PHOTOS

30 & 31 SILVER RIDGE ROAD – $42,500 - OVER 8 ACRES WITH PRIVACE AND SOME VIEWS - VERY CLOSE TO PUBLIC LAKE ACCESS AND PRICED TO SELL
PHOTOS

G-35 PARKWAY NORTH – $194,900 - DRIVEWAY IN AND PROPERTY CLEANED UP - BUILDING SITE IS EASY TO WALK - MOUNTAIN VIEWS - MARINA SLIP INCLUDED
PHOTOS

LOTS #51 & 52 NORTH BOUNDARY DRIVE – $189,900 - LARGE EQUESTRIAN TRACT WITH ONE HALF OF PROPERTY IN GRASS. GREAT MOUNTAIN VIEWS FROM THE BUILDING SITE AND PASTURES. PROPERTY LIES WELL AND HAS NICE HARDWOOD TREES - PRIVATE BUT ACCESSIBLE TRACT
PHOTOS

LOT 3 N. HIGHLAND ROAD – $46,300 - BEAUTIFUL 3.58 ACRES IN THE LAKE ADGER COMMUNITIES;GOOD BUILDING SITE; PEACEFUL AND AN ENJOYABLE PLACE TO MAKE YOUR NEW HOME; COME VISIT LAKE ADGER AND VIEW THIS LOT
PHOTOS

LOT 28 SILVER RIDGE ROAD – $95,300 - 5.90 ACRES IN BEAUTIFUL LAKE ADGER COMMUNITIES; MARINA SLIP; WINTER VIEWS; COME VISIT LAKE ADGER; THIS GORGEOUS LOT WOULD BE PERFECT FOR YOUR MOUNTAIN HOME
PHOTOS

26.33 Acres – located on Green Hills Road, Garrett Road and NC Hwy 9, adjacent to Lake Adger South Side Entranceway, timber thinned, several excellent building sites, good horse farm potential, adjoins Lake Adger Trails, paved road frontage, possible owner financing, very competitively priced at $4,950 per acre
PHOTOS

HOME

Appendix C

Selected Regionalization Information

Maria Hunnicutt

From: Jeff Walker <jwalker@icwd.org>
Sent: Wednesday, July 6, 2016 11:03 AM
To: 'Maria Hunnicutt'
Subject: FW: Joint Water Authority

Maria,

I had promised you this at our last meeting but forgot until now. Please let me know if this isn't what you need. Thanks.

Jeff

Jeffrey A. Walker, P.E.
General Manager
Inman-Campobello Water District
5 Prospect Street
Inman, SC 29349
(864) 472-2858, Ext. 18
(828) 863-2295, Ext. 18

From: C.D. Rhodes [mailto:cdrhodes@popeflynn.com]
Sent: Wednesday, July 06, 2016 10:17 AM
To: jwalker@icwd.org
Subject: Joint Water Authority

Jeff, I've pasted in the operative statutes below. Ultimately, the problem is that the statute says that any two "authorities" can join together to form a joint system, and an "authority" has to be a local government of South Carolina, at least in every instance that matters. Let me know if you need anything else on this. Thanks, C.D.

SECTION 6-25-30. Creation of joint systems.

(A) The governing body of an authority may join another authority to form a joint system after ascertaining by resolution that a joint system best serves the interests of the authority, its citizens, and its customers.

(B) A joint system may be formed:

(1) to plan, finance, develop, construct, acquire, improve, enlarge, sell, lease, maintain, and operate a project to service the needs of its service area;

(2) to create a finance pool; or

(3) both.

(C) A governing body of a member of a joint system may plan and enter a contract in connection with a project of the joint system consistent with the terms of this chapter.

(D) An authority may conduct a study to assess the necessity and feasibility of a project.

HISTORY: 1983 Act No. 82, Section 2; 1999 Act No. 113, Section 6; 2007 Act No. 59, Section 1, eff June 6, 2007.

SECTION 6-25-20. Definitions.

For purposes of this chapter:

(2) "State" means the State of South Carolina.

(5) "Governing body" means with respect to an authority; the board, commission, council, or other entity charged by law with governing the authority.

(6) "Authority" includes:

(a) a county or municipality incorporated under the laws of this State;

(b) a consolidated political subdivision of this State;

(c) a commission of public works; and

(d) an agency or public body created under the laws of this State and authorized by legislation to be engaged in the sale and service of water for industrial and domestic purposes, or the collection for treatment of wastewater.

HISTORY: 1983 Act No. 82, Section 2; 1986 Act No. 312, Section 1; 1986 Act No. 456, Sections 1-4; 1997 Act No. 74, Section 2; 1999 Act No. 113, Sections 4, 5; 2001 Act No. 78, Section 3; 2007 Act No. 59, Section 1, eff June 6, 2007.

C. D. Rhodes III
ATTORNEY

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REQUEST FOR QUALIFICATIONS

FOR A

WATER SYSTEM REGIONALIZATION STUDY

September 6, 2016

Broad River Water Authority
Inman-Campobello Water District
Polk County, NC

1. NOTICE TO PROPOSERS

The Regional Stakeholder Group (Broad River Water Authority, Inman-Campobello Water District, and Polk County, NC) is requesting Statements of Qualifications from firms to conduct a water system regionalization study focused on the Regional Stakeholder Group. The primary goal of the study is for the selected Proposer to identify, evaluate, and prioritize several organizational alternatives that might allow the Regional Stakeholder Group to enter into a long-term water system regionalization arrangement.

Regional Stakeholder Group Background

The Broad River Water Authority (BRWA) is a local government entity founded in 1999 which currently owns and operates an 8 mgd water treatment facility (currently being expanded to 12 mgd) located on the Broad River. The distribution system serves the Towns of Ruth, Rutherfordton, Spindale, as well as many other areas of the county such as the Cliffside and Harris communities. The Inman-Campobello Water District (ICWD) was created in 1954 to serve Inman, Campobello and the surrounding areas. In 2008, ICWD elected to enter into an agreement with the BRWA and Polk County, both in North Carolina. The BRWA agreed to sell a combined maximum of 4.1 mgd of water to ICWD and Polk County for a duration of 15-years, ending December 31, 2023. Of that 4.1 mgd, 0.6 mgd is reserved for Polk County, leaving 3.5 mgd for ICWD. Finished water is transferred through Polk County into the ICWD service area through a 20 inch transmission main. Based on information from ICWD, this main has a hydraulic capacity of approximately 7 mgd with booster pumping and 3.5 mgd without. Polk County owns the portion of the transmission main within their county, but ICWD currently operates it as a contracted service to the County. As a part of the contract, ICWD has the rights to transport water through this line for a duration of 30 years.

Procurement Schedule and Procedures

The Regional Stakeholder Group is using a Request for Qualifications (RFQ) to solicit this project where firms are invited to submit Statements of Qualifications (SOQs) for completion of the work. The anticipated schedule for the procurement process is outlined below. Dates are subject to change at the discretion of the Regional Stakeholder Group.

Procurement Activity/Milestone	Date
RFQ issue	September 6, 2016
Final date to submit questions	September 16, 2016
SOQ due date	October 7, 2016
Interviews (if necessary)	October 21, 2016
Notice of Award	October 28, 2016
Notice to Proceed	November 18, 2016
Project complete	April 30, 2017

Proposers should not contact the Regional Stakeholder Group or other personnel regarding this project. All questions must be submitted to Morgan Young of Black & Veatch Corporation at youngdm@bv.com by September 16, 2016

Statements of Qualifications, including all information described in this RFQ, must be submitted by email by 5:00 p.m. EDT on the date listed above to Morgan Young with Black & Veatch at youngdm@bv.com. Failure to submit SOQs by that time will result in SOQs being deemed non-responsive and will be returned unopened.

2. STATEMENT OF QUALIFICATIONS CONTENTS

SOQs should be no longer than 20 pages in length (including a one-page cover letter) and should be written to demonstrate the Proposer's experience on similar projects. Any Table of Contents, tabs, or divider pages will not count towards the 20 page limit. However, 11x17 pages will count as two pages. Each SOQ should include the following information:

- A cover letter (1-page limit) that includes an explanation as to why the Proposer's firm is best qualified for this work as well as the contact information for the Project Manager. The cover letter shall be signed by an authorized representative.
- A section titled "Background" that serves to introduce the Proposer and summarize its organization and history.
- A section titled "Personnel" which includes an organizational chart as well as descriptions of individual personnel education, work history, project experience, and proposed roles on this project.
- A section titled "Experience" which includes overall Proposer experience on similar projects. Each project experience example should identify the project title, location, client, reference contact, year completed, and any proposed personnel who worked on the project. It is imperative that the Proposers demonstrate experience in working with interstate water arrangements (preference will be given to examples which focus on North Carolina and South Carolina).

- A section titled "Approach" which includes a proposed schedule to meet the overall project schedule included in this RFQ. Also, this section should include any recommended changes to the draft scope below in order to improve the final product delivered to the Regional Stake holder Group. This section should also include the Proposer's proposed fee for this project.

Draft Scope of Services

The Regional Stakeholder Group developed a draft scope of services to be reviewed as a part of this RFQ process.

Task Series 1: Project Management

1.1. *Project Administration* – This task includes general project administration duties including, but not limited to, monthly invoicing, schedule management, and miscellaneous client interaction.

Task Series 2: Project Kickoff

2.1 *Project Kick-off/Initial Data Collection (meeting #1)* – Prior to meeting with the Regional Stakeholder Group, the Consultant will transmit a list of information that will be needed to complete the Water System Regionalization Study. The required information will include financial, organizational, and technical data. Water demand projections as well as regional water source supply information will be provided to the Consultant during this phase. A kick-off meeting will be conducted with utility staff to discuss the project, schedule and deliverables. During this meeting, information will be collected from the Regional Stakeholder Group.

2.2 *Initial Data Review* – The project team will review the data collected during the kick-off meeting. The information will be reviewed for consistency and completeness. Missing or inconsistent data will be identified.

Task Series 3: Goal Setting

3.1 *Conduct Interviews with the Regional Stakeholder Group (meeting #2)* – This task includes the Consultant conducting interviews with each member of the Regional Stakeholder Group to discuss the goals and vision of each stakeholder as it pertains to the Water System Regionalization Study. The three members of the Regional Stakeholder Group are:

- Broad River Water Authority;
- Inman-Campobello Water District; and

- Polk County, NC.

Interviews will be conducted with the General Manager of the Broad River Water Authority, the General Manager of the Inman-Campobello Water District, the Polk County Manager, and the Polk County Commissioners. This task includes no more than 8 interview sessions with representatives from the Regional Stakeholders.

3.2 *Summary Memorandum* –Memorandum No. 1 will be developed which summarizes the vision and goals of the Regional Stakeholder Group based on the interviews from Task 3.1.

Task Series 4: Evaluation of Organizational Alternatives

4.1 *Identify and Evaluate Organizational Alternatives* – This task requires that the Consultant identify and subsequently evaluate organizational alternatives that are available to the Regional Stakeholder Group assuming that the three parties are willing to enter into a water system regionalization arrangement. The organizational alternatives should consider organizational characteristics including, but not necessarily limited to: ownership, financial management, operations, governance, possible rate impacts, and legal framework/constraints (applicable North Carolina and South Carolina state law will need to be evaluated). No more than 5 organizational alternatives will be identified, evaluated, and prioritized.

4.2 *Planning Schedule* – A schedule will be developed which identifies the key components and associated duration of those key components for the implementation of the most promising organizational alternatives.

4.3 *Memorandum and Report* – The information developed for each of the Task Series 4 tasks will be compiled into Memorandum No. 2 on organizational alternatives. Once approved, this memorandum will be combined with Memorandum No. 1 into a report. The draft report will be submitted to the Regional Stakeholder Group for review and comment.

4.4 *Meeting #3* – The final draft of the Water System Regionalization Study will be reviewed with the Regional Stakeholder Group. Comments will be discussed and decisions confirmed on final revisions to the plan.

Task Series 5: Public Participation

5.1 *Presentations to Governing Bodies* – After comments have been received from the Regional Stakeholder Group, the final Water System Regionalization Study will be presented to each of the local governing bodies of each of the regional stakeholders to request official adoption of the plan.

3. MISCELLANEOUS PROVISONS

a. The Regional Stakeholders Group expressly reserves the rights to waive any and/or all irregularities in the SOQs submitted. In addition, the Regional Stakeholders Group expressly reserves the right to reject any and/or all SOQs in response to the subsequent bid or portions thereof if it is determined to be in the best interest of the Regional Stakeholders Group. If in the best interest of the Regional Stakeholders Group, it may request additional information or clarification from Proposers or allow corrections of errors or omissions.

b. SOQs received after the hour and date specified will not be considered and will be returned. It is the sole responsibility of the Proposer to ensure receipt of SOQs by the Regional Stakeholders Group in the location designated by the specified time.

c. SOQs may be withdrawn on written request received from Proposer prior to the closing time.

d. Costs for developing the SOQs in response to this RFQ are entirely the obligation of the Proposer and shall not be chargeable in any manner to the Regional Stakeholders Group. All SOQs and supporting materials shall, upon delivery to the Regional Stakeholders Group, become the property of the Regional Stakeholders Group.

e. All SOQs shall provide a straightforward, concise description of Proposer's ability to satisfy the requirements of the RFQ. SOQs that have conditions placed on them by the Proposer which materially alter the contract may render that SOQ non-responsive.

e. SOQs must be made in the official name of the individual, firm, or corporation under which the business is conducting, with official business address, and must be signed in ink by a person duly authorized to legally bind the business submitting the SOQ.

f. This solicitation does not commit the Regional Stakeholder Group to award a contract or to procure or contract for the services.

g. Selection Process: The contract will be awarded to the Proposer who provides the Regional Stakeholder Group with the best value.

h. Public Access to Procurement Information: Subject to the requirements of the Freedom of Information Act, commercial or financial information obtained in response to this RFQ which is deemed privileged and confidential by the Proposer will not be disclosed after award. Such privileged and confidential information includes information, which if disclosed, might cause harm to the competitive position of the Proposer supplying the information. All Proposers, therefore, must visibly mark as "CONFIDENTIAL" each specific part of the SOQ which such Proposers consider to contain proprietary or other privileged information. Additionally, all Proposers shall be solely responsible for identifying as exempt from the Freedom of Information Act and for visibly marking as "EXEMPT FROM FREEDOM OF INFORMATION ACT" each specific part of their SOQ which

Proposers deem to be so exempt and shall further be solely responsible for any consequences that might be related to arise from the nondisclosure of any information that is subsequently determined not to have such an exemption. Proposer may not identify their entire SOQ as exempt. Such action may result in disclosure of the entire SOQ. The Regional Stakeholder Group hereby disclaims any responsibility for not disclosing information identified by any Proposer as exempt from the Freedom of Information Act and further hereby disclaims any responsibility for any information which is disclosed as a result of Proposer's failure to visibly mark it as "CONFIDENTIAL."

Appendix D

Reservoirs

UTILITY ASSET PURCHASE AGREEMENT

THIS UTILITY ASSET PURCHASE AGREEMENT ("Agreement") is entered into this 16th day of December 2014, between **Town of Franklinton, NC** ("Seller"), and **Franklin County, NC** ("Buyer").

RECITALS:

WHEREAS, Seller owns a water system that consists of: (i) a flocculation, sedimentation and filtration water plant sized for 1 MGD, with 2 sand filters each 0.750 MGD one of which is out-of-service, plus a 6-foot wash water basin on site, plus a two-story building with chemical storage on the first floor, an office and laboratory on the second floor, as well as a storage building previously used as the water plant; (ii) a two-reservoir water supply system, with a 500,000 gallon GSR and a 250,000 gallon GSR; and (iii) a water transmission and distribution system, including 2 elevated storage tanks, one 100,000 gallon and one 200,000 gallon, and 157,670 LF of water mains ranging from ¾ inch to less than 16 inches;

WHEREAS, Seller owns a wastewater system that consists of: 432 manholes, 97,919 LF of wastewater mains, and 7 lift stations within 7 sub-basins (US 56 and US 1, Pine Street, Korea Street, Oak Ridge Road, Howard Harris Road, Regional Sub-Basin, and Park Avenue Sub-Basin), the sub-basins are comprised of the mains and manholes which empty into a sub-basin lift station delivering wastewater to the Regional Sub-Basin that then flows into the Regional Lift Station owned and operated by Buyer;

WHEREAS, the afore described water and wastewater systems of Seller, together, provide water and sewer services to the area identified on **Appendix A** to this Agreement pursuant to a statutorily-authorized service territory, N.C. Gen. Stat. § 160A-312(a) (1992), and in accordance with permits issued to Seller by NC DENR, along with certain other personal property assets of Seller, all of which enable Seller to furnish water and sewer service to 1,055 water and 932 wastewater customers within the municipal limits and within the historically agreed ETJ of Seller;

WHEREAS, the LGC has expressed concerns to Seller about the financial condition or operations of Seller's utility enterprise;

WHEREAS, in addition to the financial concerns of the LGC, Seller recognizes the safe yield of its raw water supply will require substantial improvement, Seller's water lines may have to be repaired or replaced in order to reduce water loss, and Seller's wastewater infrastructure is experiencing significant infiltration / inflow, all of which necessitate expensive capital improvement projects likely to have an impact on Seller's rates charged to its customers because any Grants are not likely to defray the entire cost of the capital improvements;

WHEREAS, in addition to the financial pressures on the utility enterprise of

CITY COUNCIL
ATLANTA, GEORGIA

06-O-0202

AN ORDINANCE
BY COUNCILMEMBERS HOWARD SHOOK AND IVORY LEE YOUNG, JR.

AS SUBSTITUTED BY FINANCE/EXECUTIVE COMMITTEE

AN ORDINANCE AUTHORIZING THE MAYOR OR HER DESIGNEE, ON BEHALF OF THE CITY, TO ACQUIRE THE FEE INTEREST IN 137.327 ACRES OF PROPERTY KNOWN AS THE BELLWOOD QUARRY FROM FULTON COUNTY FOR FAIR MARKET VALUE AND THE LEASEHOLD INTEREST FROM VULCAN MATERIALS COMPANY FOR $25,000,000; TO DESIGNATE BELLWOOD QUARRY RESERVIOR ACQUISITION PROJECT FUNDS, PARK IMPROVEMENT BOND PROCEEDS AND BELTLINE TAX ALLOCATION DISTRICT BOND PROCEEDS, AS THE SOURCE FOR PAYMENT OF THE COST OF ACQUISITION; AUTHORIZE THE NEGOTIATION OF A PURCHASE CONTRACT AND THE EXECUTION AND DELIVERY OF TRANSFER DOCUMENTS; AND DEDICATE BELLWOOD QUARRY FOR PARK USE AND RAW DRINKING WATER STORAGE, AND FOR OTHER PURPOSES.

WHEREAS, City of Atlanta ("City") is a proponent of the BeltLine and the City recognizes that new parks and new recreational facilities are needed to create an attractive and prosperous community; and

WHEREAS, the City is in the process of acquiring properties along the BeltLine for park purposes; and

WHEREAS, Council adopted by majority vote on November 7, 2005 and the Mayor approved on November 9, 2005 legislation 05-O-1733 providing for the creation of a BeltLine Tax Allocation District ("BeltLine TAD") for the purpose of improving the BeltLine Redevelopment Area and to enhance the value of a substantial portion of other real property in the district; and

WHEREAS, the Atlanta Board of Education adopted the BeltLine TAD legislation by majority vote on December 12, 2005.

WHEREAS, the Fulton County Commission adopted the BeltLine TAD legislation by majority vote on December 21, 2005.

WHEREAS, part of the monies raised through the BeltLine TAD shall be used for the purpose of creating new parks and recreational areas; and

WHEREAS, the City of Atlanta has a need to ensure that its citizens have an adequate and available drinking water supply; and

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Reclamation plan to turn quarry into giant water reservoir

By Megan Smalley| July 6, 2015

The Bellwood Quarry, a 100-year-old granite quarry in Atlanta, has generated a lot of talk in Georgia lately. The quarry will soon undergo construction to be converted into one of the nation's largest urban water storage reservoirs and a park.

According to the *Atlanta Journal-Constitution* (AJC), Vulcan Materials Co. sold the Bellwood Quarry property to the city of Atlanta $40 million in 2006, as the quarry finished operations. Aside from trespassers and several TV and movie crews, the quarry has remained almost untouched the last decade.

Turning the Bellwood Quarry into a water storage reservoir will cost Atlanta an estimated $270 million, the AJC reports, but the c thinks it will be worth the expense. Currently, Atlanta only has a three-day backup water supply in case of drought or emergency Macrina, Atlanta's Department of Watershed Management commissioner, told the AJC that the reservoir would provide Atlanta a raw water supply, which could be extended to 60 or 90 days if water is used conservatively.

Pumping stations will be built to draw water through a 10-ft.-wide tunnel about 200 ft. underground, which will connect to the Hea Water Treatment Plant. A second tunnel will connect the plant to the quarry.

Although the Bellwood Quarry has been an eyesore to locals the last decade, it's great to hear that the 100-year-old granite qua continue giving back to its community. The reclamation plan seems beneficial to locals, as it incorporates both fun and practicali park for recreation and a backup water supply for emergencies.

This article is tagged with Atlanta, Bellwood Quarry, environment, Megan Wilkinson, reclamation, Vulcan Materials, water storag reservoir and posted in Editors' Blog

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112

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DOCKET NO.: 950495-WS - [Southern States Utilities, Inc.]

WITNESS: **Direct Testimony of Robert F. Dodrill, Appearing On Behalf of the Staff of the Florida Public Service Commission, Division of Auditing and Financial Analysis**

DATE FILED: February 26, 1996

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C-51 RESERVOIR INDEPENDENT COST ESTIMATE AND FINANCIAL ANALYSIS

Prepared for:

Palm Beach County Water Utilities Department
8100 Forest Hill Boulevard
West Palm Beach, FL 33416

Participating Utilities:
Boca Raton, City of
Boynton Beach, City of
Broward County
Davie, Town of
Fort Lauderdale, City of
Hallandale Beach, City of
Sunrise, City of
West Palm Beach, City of

Prepared by:

MWH

100 S Dixie Hwy, Suite 300
West Palm Beach, FL 33401

www.mwhglobal.com

June 2014

TABLE OF CONTENTS

Water Supply Assessment for Barber Creek 06

Barrow County, Georgia

5.7 BG

Prepared for:

Georgia State Soil and Water Conservation Commission

Prepared by:

Schnabel Engineering

Jordan Jones and Goulding

January 16, 2009

JORDAN JONES & GOULDING

Schnabel

Schnabel Engineering, LLC

Appendix E

APPRAISERS CERTIFICATION

I certify that, to the best of my knowledge and belief, the statements of fact contained in this report are true and correct. I further certify that the reported analyses, opinions and conclusions are limited only by the reported assumptions, extraordinary assumptions, hypothetical conditions and limiting conditions, and are my personal, unbiased professional analyses, opinions and conclusions.

I have no present or prospective interest in the property which is the subject of this report, and I have no personal interest or bias with respect to the parties involved. My compensation is not contingent upon the reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value estimate, the attainment of a stipulated result, or the occurrence of a subsequent event.

My analyses, opinions, and conclusions were developed, and this Report has been prepared, in conformity with the requirements of the Code of Professional Ethics and the Uniform Standards of Professional Appraisal Practice of The Appraisal Foundation.

The use of this Report is subject to the requirements of the American Society of Appraisers and the State of North Carolina relating to review by its duly authorized representatives. As of the date of this report, Mr. Gerald C. Hartman has completed the requirements of the continuing education program and testing of the American Society of Appraisers for a public utility specialized MTS Accredited Senior Appraiser and holds an active North Carolina P.E. license and is a Water/Wastewater Diplomat of the American Academy of Environmental Engineers & Scientists as a BCEE.

I have made personal inspections of the property that is the subject of this Report. This occurred on 3 occasions and performed most recently on July 8th and 9th, 2016.

I do not authorize the out-of-context quoting from or partial reprinting of this Appraisal Report. Further, neither all nor part of this Report shall be disseminated to a third party without prior written consent of Hartman Consultants, LLC. Note that this report was prepared for a specific use and no other use is authorized.

Gerald C. Hartman, P.E., BCEE, ASA

9/24/2016
Date

Appendix F

ASA
American Society of Appraisers
Providing Value Worldwide

The American Society of Appraisers

Attests that

GERALD C. HARTMAN, ASA

has successfully participated in the
Society's mandatory Reaccreditation Program
and has complied with its continuing education requirements, as set forth in the organization's Constitution, Bylaws and Administrative Rules. Therefore, formal reaccreditation has been granted by the International Board of Governors and will remain valid through

August 15, 2021

International President

Chairman, Int'l Board of Examiners

The American Academy of Environmental Engineers and Scientists®

Certifies That

Gerald C. Hartman

Has maintained the requirements for

Board Certified Environmental Engineer

in the specialty(ies) of

Water Supply and Wastewater

This certification is valid through **December 31, 2016**.

Certification Number: ***88-10034***

North Carolina Board of Examiners for Engineers and Surveyors

This is to certify that
Gerald C. Hartman
is duly licensed and entitled to practice
Engineering
until December 31, 2016 when this certificate expires.
Registration Number: 015264 Status: CURRENT

Nils W. Joyner Jr., Chair

Richard M. Benton, Secretary

Appendix G

Gerald C. Hartman, PE, BCEE, ASA

Education

M.S. Duke University, 1976

B.S. Duke University, 1975

Registrations/Certifications

Arizona No. 28939

Colorado No. 31200

Florida No. 27703

Georgia No. 17597

Illinois No. 062-053100

Indiana No. 10100292

Kentucky No. 22463

Louisiana No. 30816

Maine No. 10395

Maryland No. 12410

Mississippi No. 12717

Nevada No. 20259

New Mexico No. 15990

New York No. 088623-1

North Carolina EIT

No. A03351

North Carolina No. 15264

Ohio No. 70152

Pennsylvania No. 38216

South Carolina 15389

Tennessee No. 105550

Virginia No. 131184

W. Virginia No. 21803

Washington No. 53433

Wisconsin 32971-6

NCEES National P.E.

No. 20481

American Society of Appraisers Accredited Senior Appraiser No. 7542

BCEE from American Academy Certificate

No. 88-10034

Professional Summary

Management Consulting/Appraisal/Expert Testimony

Mr. Hartman is an experienced utility engineer and appraiser specializing in utilities and systems. He is a qualified expert witness in the area of utility system valuation and financing, facility siting, certification/service area/franchises and formation/creation, management and acquisition projects. Mr. Hartman is accepted in various Federal Courts, Circuit Courts, Division of Administrative Hearings, Public Service Commissions, arbitration, and quasi-judicial hearings conducted by cities and counties, as a technical expert witness in the areas of utility systems (water, wastewater, stormwater, solid waste, gas and electric), certification/service area/franchises, facility planning, utility conveyance, transmission and distribution, utility resources, utility treatment, engineering, permitting and regulations, utility system design and construction, and utility systems valuation (water , wastewater, stormwater, solid waste, gas, and electric systems), costing and damages.

Professional Experience

Machinery and Technical Specialties, ASA – Public Utilities

Public Utilities Appraisal Specialty Certified, ASA

Tangible Personal Property – VAB, Magistrate
Orange County, FL (2009 and 2010)

Tangible Personal Property – Special Magistrate Osceola
County, FL (2011, 2012, and 2013/2014) Hendry
County, FL (2012 and 2013/2014)

Financial Reports

Mr. Hartman has been involved in over 300 capital charge, impact fee and installation charge studies involving water, wastewater and fire service for various entities. He also has participated in over 150 user rate adjustment reports. Mr. Hartman assisted in the development of over 70 revenue bond issues, 20 short-term bank loan systems, 10 general obligation bonds, numerous grant/loan programs, numerous capacity sale programs, and 20 privatization programs. Mr. Hartman has been involved in over $3 billion in utility bond and commercial loan financings for water and wastewater utility, and over $4 billion in utility grants, matching funding, cost-sharing; SRF loans and Federal Loans (R.D., etc.), assessments and CIAC programs.

Utility Appraisals, Valuations and Evaluations

Mr. Hartman has been involved in over 500 utility negotiations, appraisals, fairness opinions and review appraisals, and has been a qualified expert witness by the courts with regard to utility arbitrations and condemnation cases. He has participated in the valuation of numerous utility systems. His experience includes:

Skills

Management Consulting
Utility System Valuation
Expert Witness Services
Rates, Fees, and Charges
Funding and Financing
Utility Certifications, Franchises, Service Areas
Economic Evaluations
Creditworthiness Analysis
Environmental Engineering
Water/Wastewater Systems Engineering
Stormwater Systems
Water Resource Services
Electric System Appraisals

Relevant Training/Courses

Numerous AWRA, AWWA, ASCE, WEF, AASE, ASA, NSPE, PE Seminars, Courses, Ethics, Continuing Education (multiple states)
USPAP Exams 2003, 2004, 2009/10, 2015
ASA ME201, ME202, ME203, ME204 Mach. & Technical Specialties, BV201 Public Utilities, PP201.
ASA Public Utilities Specialty Designation Exam Parts I, II, and III Numerous Technical Appraisal Courses/Exams in personal property (tangible & intangible), business valuation, and other areas
Appraisal Review & Management ARM 201 and 204

Year	Project	Party Represented
2016	Rainbow MWD, CA	Owner
2016	Lake Adger WR & IM, NC	Owner
2016	7 Systems Jefferson County West Virginia	Owner
2016	Cauley Creek WRF (IRS)	Seller
2016	Village of Sadorus – IAWC (2)	Buyer
2016	Bushell/SECO Electric	Buyer
2016	APPOA W/WW N.C (Ongoing)	Buyer
2016	Celina SA	Buyer
2016	OTUC Donation W&WW Systems	Owner
2015	City of Fairbanks 8 MGD/22 MGD WRF	Buyer
2015	Village of Ransom Water System	Buyer
2015	Vulcan/Fla Rock 1/1/2011	ACPA
2015	Crystal Clear Water Company	Buyer
2015	5-Service Areas Mustang SUD & 1 Water System	City Consultant
2015	Bayou Cove Peaking Power Plant 1/1/2015 TPP Appraisal	Parish
2015	Bayou Cove Peaking Power Plant 1/1/2014 TPP Appraisal	Parish
2015	Bayou Cove Peaking Power Plant 1/1/2013 ARM-TPP	Parish
2015	Peoples Condemnation	Owner
2015	Kessler AFB	Private
2015	Eglin AFB	Private
2015	Eastwood Manor	Private
2015	NUNDA Utilities	Private
2015	Manalapan/Hypoluxo	City
2015	Royal Manor W/WW	City
2015	BH Waste Management Co.	Bank
2015	O'Fallon Utilities, Value Consulting	Private
2015	Mt. Vernon Utilities, Value Consulting	Private
2015	Tupelo/Verona Water	Both Cities
2015	Confidential (On-Going) Condemnation	Confidential
2015	Rolling Oaks Utilities	Bank
2015	Village of Arthur	Village
2015	NFP	NFP
2015	MS Water System Annex	City
2015	Value Consulting	Confidential/Investor
2015	KWRU – Wastewater Utility	Owner
2015	New River Light & Power (Electric)	Owner
2014	Power System Value Consulting	Confidential
2014	Citrus County/Duke Energy 1/1/13 TPP	County
2014	Minto Prop./SID W&WW&RU	District
2014	North Maine Utilities Transaction Adv. F.O.	Village
2014	3 Appraisals Review	Glenview
2014	Eastlake W&WW (Condemn)	County
2014	Pebble Creek Utilities W&WW (Condemn)	County
2014	Mooresville Water (Condemn) ARM	Attorney
2014	Heritage Hills W&WW (NY) to Corix	Owner
2014	Cauley Creek WRF	Owner
2013	Tega Cay Water and Wastewater	Both
2013	Harrison, Ohio Water	City
2013	Water Management Services	Bank
2013	North Lee Rural Water Association, Tupelo, MS (Partial)	City

Affiliations

American Society of Appraisers

American Society of Civil Engineers

American Water Works Association

Florida Engineering Society

National Society of Professional Engineers

Water and Environment Federation

Year	Project	Party Represented
2013	NPUC (Cost/Comp) Wastewater	Bank
2013	Progress Energy Florida (Citrus County) TPP 1/1/12	County
2013	Village of Oakwood Water/Wastewater System	Village
2013	Richmond Generation Station (Review)	City
2013	Peru Generation Station (Review)	City
2013	Dover, Delaware Electric System	City
2013	C-51 Reservoir	Owner
2013	C-25 Reservoir	Owner
2013	Eglin Air Force Base	Proposer
2013	Duke Energy (Citrus County) TPP Electric #1, 2, 4, 5	County
2012	Beverly Hills Waste Management	Owner
2012	Town of Belleair	Town
2012	Orchid Springs Utilities	City
2012	Tymber Creek Utilities – Stock Transfer	Owner(s)
2012	Senoia Water System	County
2013	Duke Energy (Citrus County) TPP Electric #3	County
2012	Peoples of Balstrop – (Condemnation)	Owner
2011	Town of Franklinton Water/Wastewater System/County	Both
2011	Pine Island Utility System	Owner
2011	Town of Franklinton Water/Wastewater System/County	Both
2011	Kill Devil Hills Wastewater Treatment Plant	Bank
2011	Chesapeake Electric Utility – Marianna, Florida	City
2011	City of South Daytona Electric Utility	City
2011	On Top of the World Communities Water, Wastewater, and Reuse System – Marion County, Florida (Bay Laurel Center Community Development District)	District
2011	City of Vero Beach Water, Wastewater, and Reuse System	City
2011	City of Vero Beach Electric Utility	City
2010	Fearington Utilities	Own
2010	Rolling Oaks Water and Wastewater System,	Owner/Bank
2010	Liberty Water – Tall Timbers Wastewater (Condemn) System, TX (Condemnation)	Owner
2010	Heritage Hills Water and Sewer System, NY - City	Owner
2010	Waterside Villages of Currituck Waste Water Treatment Plant, NC	District
2010	Tindall Hammock Irrigation and Soil Conservation District Water/Wastewater System	District
2010	Town of Indian River Shores Water and Sewer System Assets	Town
2010	City of Vero Beach Water and Sewer System Assets, Town of Indian River Shores (Partial)	City
2010	City of Griffin Water System Assets, GA	Water Authority
2010	Golden Beach Water and Wastewater Assets	City
2010	Thunder Enterprises, Inc. Water System Assets, AL (Condemnation)	Owner
2010	River Forrest, S.C., Spartanburg	Both
2010	Stonecreek, S.C., Spartanburg	Both
2009	On Top of the World Communities Water, Wastewater, and Reuse System – Marion County, Florida (Bay Laurel Center Community Development District)	District
2009	Aquarina Water and Wastewater	Bank
2009	Cocoa Beach (electric)	City
2009	Parkland Utilities	Owner
2009	GISTRO	NFP
2009	Fruitland Park (electric)	City
2008	Park Water Company	City

Year	Project	Party Represented
2008	Crooked Lake Sewerage Company	City
2008	Vanguard Wastewater System	City
2008	Traxler Enterprises	City
2008	Louisiana Land and Water Company	Owner
2008	Sandy Creek Water and Wastewater	County
2008	Bayside Water and Wastewater	County
2008	Fern Crest Utilities, Inc.	Buyer
2008	Turnpike Utilities, LLC – W/S North Carolina (IRS)	Owner
2008	Nags Head, Moneray Shores, Currituck Sewer, Corollo #1 & #2	Buyer
2008	Service Management Systems, Inc.	Bank
2008	Slash Creek Utility System	Owner
2008	Kill Devil Hills Utility Company	Owner
2008	Orchid Springs Utilities	City
2008	City of North Miami Beach – Utilities	Owner
2007	Ocean Reef/NKLUA/Card Sound I.Q.	FKAA
2007	Marion Utilities, Sunshine Utilities and Windstream	County
2007	Gulf Coast Electric Cooperative	County
2007	Pine Island Currituck Sewer	Owner
2007	Pine Island Water System	Owner
2007	Irish Acres	County
2007	Service Management Systems, Inc.	C.B. Ellis
2007	Bulow Village Resort	County
2007	Intercoastal Utilities	Owner
2006	Donaldsonville/Peoples Utilities (Condemn)	Owner
2006	MSM Utilities, Inc.	Owner
2006	BSU/Citrus Park	Owner
2006	Jasmine Lakes and Palm Terrace	City
2006	The Arbors	County
2006	Oak Centre	County
2006	Silver Oaks Estates	County
2006	Regal Woods	County
2006	Golden Glen	County
2006	Willow Oaks	County
2006	South Oak	County
2006	Gulf State Community Bank – Utility Holdings	Bank
2006	Rolling Green	County
2006	South 40, Citrus Park and Raven Hill	County
2006	Holiday Utility Company, Inc.	Bank
2006	Old Bahama Bay	Management
2006	Utility Consolidation Program	County
2006	Loch Harbor Water & Wastewater System	Owner
2005	Lake Wales Utility Company	Bank
2005	Pennichuck Water Company	City
2005	K.W. Resort Utilities, Inc.	Owner
2005	Water Management Services, Inc.	Owner
2005	Town and Country Utility Co.	Buyer
2005	Village of Royal Palm Beach, Palm Beach Co.	Village
2005	Orange/Osceola/Lake/Seminole Counties	Confidential
2005	Utilities, Inc. (Partial) (Condemnation)	Owner
2005	Village of Royal Palm Beach	Village
2005	Bald Head Island Utilities, Inc.	Village
2005	Broward County	Confidential
2005	Burkim Enterprises, Inc. (Condemnation)	Owner

Year	Project	Party Represented
2005	Lyman Utilities, Inc. Harrison County, MS (Condemnation)	Owner
2004	Quail Meadow Utility Company	County
2004	Silver Springs Shores Regional	County
2004	Matanzas Shores	County
2004	El Dorado Utilities, NM (Condemnation)	Owner
2004	CDF to City of Tupelo, MS	CDF
2004	Pesotum, Illinois – IAWC	Village
2004	Philo, Illinois – AIWC	Village
2004	Central Florida	Confidential
2004	Skyview	City
2004	Polk Utilities	NFP
2004	St. Johns Services Company	County
2004	Intercoastal Utilities Company	County
2004	Stonecrest Utilities	County
2004	Meredith Manor	County
2004	Lake Harriet Estates	County
2004	Lake Brantley	County
2004	Fern Park	County
2004	Druid Hills	County
2004	Dol Ray Manor	County
2004	Apple Valley	County
2004	Kingsway Utility Area (IRS)	Both
2004	Lake Suzy Utilities (water portion)	County
2004	Sanibel Bayous Wastewater Corporation	City
2004	Ocean City Utilities	FCURIA/County
2004	People's Water of Donaldsonville, LA (Condemnation)	Owner
2003	Harmony Homes	County
2003	Florida Central Commerce Park	County
2003	Chuluota	County
2003	District 3C (Miramar portion)	City
2003	Lincoln Utilities/Indiana Water Service (UI)	Owner
2003	Gibsonia Estates	City
2003	Lake Gibson Estates	City
2003	Jungle Den Utilities	Association
2003	Holiday Haven Utilities	Association
2003	Salt Springs	County
2003	Smyrna Villas	County
2003	South Forty	County
2003	Citrus Park	County
2003	Spruce Creek South	County
2003	Spruce Creek	County
2003	Spruce Creek Country Club Estates	County
2003	Longwood Franchise (electric)	City
2003	Casselberry Franchise (electric)	City
2003	Apopka Franchise (electric)	City
2003	Winter Park Acquisition (electric)	City
2003	Stonecrest/Steeplechase	County
2003	Marion Oaks	County
2003	Kingswood Utilities	County
2003	Oakwood Utilities	County
2003	Sunny Hills Utilities	Confidential
2003	Interlachen Lake/Park Manor	Confidential
2003	Tomoka/Twin Rivers	Confidential
2003	Beacon Hills	Buyer
2003	Woodmere	Buyer
2003	Bay Lake Estates	City
2003	Fountains	City

Year	Project	Party Represented
2003	Intercession City	City
2003	Lake Ajay Estates	City
2003	Pine Ridge Estates	City
2003	Tropical Park	City
2003	Windsong	City
2003	Buenaventura Lakes	City
2002	Lelani Heights Utilities	County
2002	Fisherman Haven Utilities	County
2002	Fox Run Utilities, Inc.	County
2002	Ponce Inlet	City
2002	Amelia Island Utilities	City
2002	Florida Public Utilities (Condemnation)	City
2002	AquaSource – LSU	County
2002	Park Place Utility Company, GA	Owner
2002	Kingsway Utility System	Owner/County
2002	Pennichuck Water Company, NH	City
2002	Pasco County – 2 systems	County
2002	Marion Consolidation – 10 systems	County
2002	Sugarmill (Condemnation)	UCCNSB
2002	Deltona (Condemnation)	Owner
2002	Palm Coast	FCURIA
2002	Bald Head Island Utilities, NC	Village
2002	White's Creek – Lincolnshire, SC (Condemnation)	Owner
2002	Bluebird Utilities, Tupelo, MS	NFP
2001-2002	Due Diligence – 260 systems (VA, NC, SC)	Buyer
2001	Shady Oaks	County
2001	Davie/Sunrise	City
2001	Lindale Utilities	County
2001	Aquarina	Owner
2001	Intercoastal Utilities	County
2001	Beverly Beach	City
2001	Citrus County Utility Consolidation Plan (numerous)	County
2001	Pasco County Utility Acquisition Plan (numerous)	County
2001	Skylake Utilities	City
2001	Town of Lauderdale-By-The-Sea	Town
2001	John Knox Village	City
2001	Silver Springs Regional	County
2001	DeSoto Countywide FWSC Franchise and Assets	County
2001	Zellwood Station Co-Op	Co-Op
2001	Palm Cay	County
2000	The Great Outdoors	Owner
2000	Destin Water Users	City
2000	Pine Run	County
2000	Oak Run	County
2000	Dundee Wastewater (partial)	City
2000	Polk City Water	City
2000	A.P. Utilities (2 systems)	County
2000	CGD Utilities	Bank
2000	Boynton Beach (partial)	City
2000	Aqua-Lake Gibson Utilities	City
2000	Bartelt Enterprises, Ltd. (2 systems)	Owner
2000	49 'Ner Water System, Tucson, AZ (Condemnation)	Owner
2000	Stock Island Wastewater and Reuse System	Owner
1999	Osceola Power Station (Electric)	Owner
1999	Okeelanta Power Station (Electric)	Owner
1999	Del Webb (3 systems)	County

Year	Project	Party Represented
1999	Destin Water Users Co-Op	City
1999	O&S Water Company	City
1999	Rolling Springs Water Company	County
1999	ORCA Water & Solid Waste	Authority
1999	Marianna Shores Water and Wastewater	City
1999	Mount Olive Utilities	City
1999	AP Utilities (3 systems)	County
1999	Tangerine Water Association	City
1999	Laniger Enterprises Water & Wastewater	Bank
1999	IRI golf Water System, AZ (Condemnation)	Investor
1999	South Lake Utilities	City
1999	Garlits to Marion County	County
1999	Rampart Utilities	County
1999	Dobo System, Hanover County, NC	County
1999	Polk City/City of Lakeland	Lakeland
1999	St. Lucie West CDD	City
1998	Golf and Lake Estates	City
1998	Sanibel Bayous/E.P.C.	City
1998	Tega Cay Utility Company, SC	City
1998	Marlboro Meadows, MD (Condemnation)	Owner
1998	Sugarmill Water and Wastewater/Volusia County Condemnation	UCCNSB
1998	SunStates Utilities, Inc.	Owner
1998	Town of Hope Mills/FPWC, NC	Town
1998	River Hills, SC	County
1998	Town of Palm Beach	Town
1998	K.W. Utilities, Inc.	Buyer
1998	Orange Grove Utility Company, MS (Condemnation #2)	Owner
1998	Garden Grove Water Company	City
1998	Sanlando Utilities, Inc.	County
1997	Golden Ocala Water and Wastewater System	County
1997	Holiday Heights, Daetwyller Shores, Conway, Westmont	County
1997	University Shores	County
1997	Sunshine Utilities	County
1997	Bradfield Farms Utility, NC	Owner
1997	Palmetto Utility Corporation	Owner
1997	A.P. Utilities	County
1997	Village of Royal Palm Beach – City of WPB	Village
1997	Jasmine Lake Utilities Corporation	Lender
1997	Arizona (confidential)	Owner
1997	Village Water Ltd., FL	Owner
1997	N.C. System – CMUD (3 systems)	Owner
1997	Courtyards of Broward	City
1997	Miami Springs	City
1997	Widefield Homes Water Company, CO (IRS)	Company
1997	Peoples Water System	ECUA
1997	Quail Meadows, GA	County
1997	Rolling Green, GA	County
1996	Keystone Heights	City
1996	Buchannan	Owner
1996	Keystone Club Estates	City
1996	Lakeview Villas	City
1996	Geneva Lakes	City
1996	Postmaster Village	City
1996	Landen Sewer System, CMUD, NC	Company
1996	Citizens Utilities, AZ – Bullhead City	City
1996	Widefield Water and Sanitation, CO	District
1996	Consolidation Program Game Plan	County

Year	Project	Party Represented
1996	Marion Oaks	County
1996	Marco Shores	Company
1996	Marco Island	Company
1996	Cayuga Water System, GA	Authority
1996	Glendale Water System, GA	Authority
1996	Lehigh Acres Water and Wastewater, GA	Authority
1996	Lindrick Services Company	Company
1996	Carolina Blythe Utility, NC	City
1996	Ocean Reef R.O. WTPs	NKLUA
1995	Sanibel Bayous	City
1995	Rotunda West Utilities	Investor
1995	Palm Coast Utility Corporation	ITT
1995	Sunshine State Parkway	Company
1995	Orange Grove Utilities, Inc., Gulfport, MS	Company
1995	Georgia Utilities, Peachtree, GA (Condemnation)	City
1995	Beacon Hills Utilities	Company
1995	Woodmere Utilities	Company
1995	Springhill Utilities	Company
1995	Okeechobee Utility Authority	OUA
1995	Okeechobee Beach Water Association	OUA
1995	City of Okeechobee	OUA
1995	Mad Hatter Utilities, Inc.	Company
1994	Eastern Regional Water Treatment Plant	Owner
1994	GDU – Port St. Lucie Water and Wastewater (Franchise/Condemnation)	City
1994	St. Lucie County Utilities	City
1994	Marco Island/Marco Shores	Sun Bank
1994	Heater of Seabrook, SC (Condemnation)	Company
1994	Placid Lake Utilities, Inc.	Company
1994	Ocean Reef Club Solid Waste System	ORCA
1994	Ocean Reef Club Wastewater System	ORCA
1994	South Bay Utilities, Inc.	Company
1994	Kensington Park Utilities, Inc.	Company
1993	River Park Water System	SSU/Allete
1993	Taylor Woodrow, Sarasota Cnty (Condemnation)	Taylor Woodrow
1993	Atlantic Utilities, Sarasota Cnty (Condemnation)	Company
1993	Alafaya Utilities, Inc.	Bank
1993	Anden Group Wastewater System, PA	Company
1993	West Charlotte Utilities, Inc.	District
1993	Rolling Oaks (SW)	Owner
1993	Sanlando Utilities, Inc.	Investor
1993	Venice Gardens Utilities	Company
1992	Myakka Utilities, Inc.	City
1992	Kingsley Service Company	County
1992	RUD#1 (4 systems review)	Meadowoods/ Kensington Park
1992	Mid Clay Utilities, Inc.	County
1992	Clay Utilities, Inc.	County
1992	Fox Run Utility System	County
1992	Uddo Landfill (SW) (Condemnation)	Owner
1992	Martin Downs Utilities, Inc.	County
1992	Leilani Heights	County
1992	River Park Water and Sewer	SSU/Allete
1992	Central Florida Research Park	Bank of America
1992	Rolling Oaks Utility	Investor
1992	City of Palm Bay Utilities	PBUC

Year	Project	Party Represented
1992	North Port – GDU Water and Sewer (Franchise/Condemnation)	City
1992	Palm Bay – GDU Water and Sewer (Franchise/Condemnation)	City
1992	Sebastian – GDU Water and Sewer	City
1991	Sanibel – Sanibel Sewer System, Ltd.	City
1991	St. Augustine Shores, St. Johns County	SSU/Allete
1991	Remington Forest, St. Johns County	SSU/Allete
1991	Palm Valley, St. Johns County	SSU/Allete
1991	Federal Bankruptcy – Lehigh Acres	Topeka/Allete
1991	Meadowoods Utilities, Regional Utility District #1	Investor
1991	Kensington Park Utilities, Reg. Utility District #1	Investor
1991	Industrial Park, Orange City	City
1991	Country Village, Orange City	City
1991	John Know Village, Orange City	City
1991	Land O'Lakes, Orange City	City
1991	Sanibel – Sanibel Sewer System, Ltd.	City
1991	Hershel Heights, Hillsborough County	SSU/Allete
1990	Orange-Osceola Utilities, Osceola County	County
1990	Morningside East and West, Osceola County	County
1990	Magnolia Valley Services, Inc., New Port Richey	City
1990	West Lakeland Industrial, City of Lakeland	City
1990	Highlands County Landfill (Condemnation)	Owner
1990	Venice Gardens Utilities, Sarasota County	SSU/Allete
1990	South Hutchinson Services, St. Lucie County	SHS
1990	Indian River Utilities, Inc.	City
1990	Coraci Landfill (SW) (Condemnation)	Owner
1990	Terra Mar Utility Company	City
1989	Seminole Utility Company, Winter Springs	Topeka/Allete
1989	North Hutchinson Svcs., Inc., St. Lucie County	NHS
1989	Sugarmill Utility Company (Condemnation)	UCCNSB
1989	Ocean Reef Club, Inc., ORCA	Company
1989	Prima Vista Utility Company, City of Ocoee	PVUC
1989	Deltona Utilities, Volusia County	SSU
1989	Poinciana Utilities, Inc., Jack Parker Corporation	JPC
1989	Julington Creek	Investor
1989	Silver Springs Shores	Bank
1988	Twin County Utilities	Company
1988	Burnt Store Utilities	Company
1988	Deep Creek Utilities	Company
1988	North Beach Water Co., Indian River County	NBWC
1988	Bent Pine Utility Company, Indian River County	BPUC
1988	Country Club Village, SSU	CCV
1987	Sugarmill Utility Co., Florida Land Corporation	FLC
1987	N. Orlando Water & Sewer Co., Winter Springs	NOWSCO
1987	Osceola Services Company, FCS (nfp)	OSC
1987	Orange City Water Company, Orange City	City
1987	West Volusia Utility Company, Orange City	City
1987	Seacoast Utilities, Inc., Florida Land Corporation	FLC
1987	Utilities Commission, City of New Smyrna Beach (partial SA/Assets) (Electric) - FPL	Commission

and numerous other utility valuations in the 1976-1987 period.

Utility Management Consulting

Mr. Hartman has been involved in utility transfers from public, not-for-profit, district, investor-owned, and other entities to cities, counties, not-for-profit corporations, districts, and private investors. He has been involved in staffing, budget preparation, asset classification, form and standards preparation, utility policies and procedures manuals/training, customer development programs, standard customer agreements, capacity sales, and other programs. Mr. Hartman has been involved in over 100 interlocal agreements with respect to service area, capacity, service, emergency interconnects, back-up or other interconnects, rates, charges, service conditions, ownership, bonding and other matters.

Additionally, Mr. Hartman has assisted in the formation of newly certificated utilities, newly created utility departments for cities and counties, new regional water supply authorities, new district utilities, and other utility formations. Mr. Hartman has assisted in utility reserve areas for the Cities of Haines City, Sanibel, Lakeland, St. Cloud, Winter Haven, Bartow, Palm Bay, Orange City, and many others. He has participated in the certification of many utilities such as ECFS, Malabar Woods, B&C Water Resources, Inc., Farmton Water Resources, Inc. and many others; and certification disputes such as Windstream, Intercoastal Dulay Utilities, FWSC/ITT, and others and served as service area certification staff of the regulatory for St. Johns County; i.e., Intercoastal, etc.; as service area transfer/certification staff of the regulatory for Flagler County; i.e., Palm Coast to FWSC. He has served as a local County regulatory staff professional in Collier, Citrus, Hernando, Flagler and St. Johns Counties, as well as elsewhere. Mr. Hartman also provided technical assistance to many utility service area agreements such as Winter Haven/Lake Wales/Haines City, etc. and North Miami Beach – MDWASD and others. For over 30 years, Mr. Hartman has been a professional assisting in the resolution of utility issues.

Utility Finance, Rates, Fees and Charges

Mr. Hartman has been involved in hundreds of capital charge, impact fee, and installation charge studies involving water, wastewater, stormwater, solid waste, gas and electric service for various entities and at the rate regulatory commissions. He also has participated in hundreds of user rate adjustment reports. Since 1976, Mr. Hartman assisted in the development of over 50 revenue bond issues, 20 short-term bank loan systems, 2 general obligation bonds, 26 grant/loan programs, 10 capacity sale programs, and 20 privatization programs. He has been involved in over hundreds of utility acquisition/utility appraisals for acquisition, and is a qualified expert witness with regard to utility rates and charges, and utility negotiation, arbitration and condemnation cases. A few of his rate, charge and bond projects include:

- City of Polk City, 2014/2015
- Bay County Revenue Bond Issue Series 2015
- City of Fort Meade Wastewater Study, 2015
- City of Fellsmere Stormwater, 2015
- City of Pleasant Prairie – WPSC, 2014
- City of Tega Cay SCPSC, 2013/2014
- NPUC Cert. Expansion – FPSC, 2015

- Oakwood – ICC, 2014
- Village of Bald Head Island – NCPUC, 2010
- City of Polk City, 2014/2015
- City of Dunnellon Rate Surcharge Case, 2014
- City of Dunnellon Impact Fee Case, 2013
- City of Fernandina Beach, Impact Fee Case and Bond Issue City of Fernandina Beach, Revenue Bond Issue, 2013
- City of North Miami Beach Water and Wastewater Rate, Fee and Charge Study, 2013
- City of North Miami Beach $65 Million Water Revenue Bond Issue, 2012
- DeKalb County Revenue Bond Issue $373 Million Services, 2011
- Polk City Services 2010 - $10 Million Revenue Bond Issue
- Bay Laurel Services 2011 - $45 Million Revenue Bond Issue
- Bay County Water Rate, Charge and Fee Study, Wholesale and Retail, 2013
- Bay County Wastewater Rate, Charge and Fee Study, AWT and Retail, 2013
- Bucks County – City of Philadelphia Wholesale Utility Services Analysis, 2011
- Timber Creek FPSC Utility Rates and Charges, 2011 and 2012
- Polk City Water and Wastewater Rate, Fee and Charge Study, 2010
- Lake Worth Wholesale Charges Analysis for 7 entities, 2012
- THISCD Water and Wastewater Rate, Fee and Charge Study, 2012
- City of Ft. Meade Water and Wastewater Rate, Fee and Charge Study, 2013
- City of Ft. Meade Stormwater Rate Study, 2012
- City of Ft. Myers Beach Water/Wastewater Rate, Fee and Charge Study, 2013
- Dunnellon Rate and Surcharge Review, 2012/2013
- Bay Laurel Center Community Development District – Water, Wastewater and Reclaimed Water Rate Study, Line Charge Study, and Miscellaneous Charge Study, 2010
- Skyland Utilities, LLC – FPSC, 2009
- Bluefield Utilities, LLC – FPSC, 2009
- Grove Land Utilities, LLC – FPSC, 2009
- Tindall Hammock Irrigation and Soil Conservation District – Water and Wastewater Rate and Charge Study, 2008
- Bay County – Wholesale Rate Study and Impact Fee Study – 2007
- Flagler County – Impact Fee Analysis, 2005

- Flagler County – Base Facility Charge Analysis, 2005
- Marion County – Silver Springs Regional – Water/Wastewater Revenue Sufficiency, 2004
- Beverly Beach – Water and Wastewater System, 2004
- Village of Bald Head Island – Water and Wastewater Rate Sufficiency, 2004 - NCPUC
- Farmton Water Resources, Inc. – FPSC, 2004
- B&W Water Resources, Inc. – FPSC, 2004
- Marion County – Stonecrest, Marion Oaks, Spruce Creek, Salt Springs
- Lincoln Utilities/UI – IURC, 2003
- South Forty, Smyral Villas – Rate Integration/Phasing Program, 2003
- City of North Miami Beach – Water and Wastewater Adjustment, 2003
- City of Fernandina Beach – Water and Wastewater Rate Study, 2002
- St. Johns County – St. Johns Water Co. Rates, 2003
- St. Johns County – Intercoastal Rates, 2001
- Nashua, NH – Pennichuck Water Co., 2002
- City of Deltona – Water and Wastewater, 2002
- Town of Lauderdale By-The-Sea, 2001
- FCURA – Palm Coast Rates, Certification, 2000
- Marion County – Pine Run, Oak Run, A.P. Utilities – Rate Integration, 2000
- City of North Miami Beach – Revenue Sufficiency Analysis, 2000
- North Key Largo Utility Authority, 2000
- Port St. Lucie – St. Lucie West – CDD, 1999
- Hanover County – Water and Wastewater, 1999
- UCCNSB/Sugarmill, 1999
- Town of Hope Mills, 1998
- Town of Palm Beach, 1998
- City of Winter Haven, 1998
- Palmetto Resources, Inc. – Raw Water, Reuse, Water, and Wastewater, 1997 FPSC
- City of Miami Springs – Analysis, 1997
- Widefield – Water and Wastewater, 1997
- Bullhead City – Citizen, 1997 - ACC

- Bullhead City – Wastewater, 1996
- Marion County, 1996
- Utilities Commission, City of New Smyrna Beach – Water/Wastewater Rate Study, 1995
- Okeechobee Utility Authority - Rate and Charge Study, 1995
- Southern States - Statewide Rate Case, 1995
- Lee County - Rates and Charges, 1995
- Venice - Reuse Rate Study, 1994
- Utilities Commission, City of New Smyrna Beach - Capital Charge Study, 1996
- Port St. Lucie - Water, Gas and Wastewater Rates, 1994
- Port St. Lucie - Capital Charge Study, 1995
- Bullhead City - Assessment Study, 1996
- Englewood - Assessment Study, 1996
- Sanibel - Capacity Sale Study, 1995
- City of New Port Richey - Rate and Charge Study, 1995
- Acme Improv. District, Wellington, Florida - Water/Wastewater Studies, 1994
- Charlotte County, Florida - Water/Wastewater Studies; Rotunda West Rate Case, 1993
- Clay County, Florida - Water/Wastewater Studies, 1992
- City of Deerfield Beach, Florida - Water/Wastewater Studies, 1992
- City of Dunedin, Florida - Water/Wastewater Studies, 1991
- Englewood Water District, Florida - Water/Wastewater Studies, 1993
- City of Green Cove Springs, Florida - Water/Wastewater Studies, 1991
- Hernando County, Florida - Water/Wastewater Studies, 1992
- City of Lakeland, Florida - Water Studies, 1976-89
- Martin County, Florida - Water/Wastewater Studies, 1993
- City of Naples, Florida - Water/Wastewater and Solid Waste Studies, 1992/94
- City of New Port Richey, Florida - Water/Wastewater Studies, 1994
- City of North Port, Florida - Water/Wastewater Studies, 1992
- City of Orange City, Florida - Water/Wastewater Studies, 1985-94
- City of Palm Bay, Florida - Water/Wastewater Studies, 1985-94
- City of Panama City Beach, Florida - Water/Wastewater Studies, 1993

+ City of Sanibel, Florida - Water and Reuse Studies, 1988-94
+ Southern States Utilities Inc., Florida - Water/Wastewater Studies and Statewide Rate Cases, 1991/93, FPSC
+ City of Tamarac, Florida - Water/Wastewater Studies, 1993
+ Utilities Commission, City of New Smyrna Beach, Florida - Water/Wastewater and Reuse Studies, 1992/94
+ Volusia County, Florida - Solid Waste Studies, 1989
+ City of West Palm Beach, Florida - Water/Wastewater/Reuse Studies, 1993/94
+ City of Sebastian, Florida - Water/Wastewater Studies, 1993
+ City of Tarpon Springs, Florida - Water/Wastewater Studies, 1994
+ City of Miami Springs, Florida - Water/Wastewater/Solid Waste Studies, 1994
+ City of Edgewater, Florida - Water/Wastewater/Solid Waste Studies, 1987-90
+ City of Venice, Florida - Reuse Studies, 1994
+ City of Port St. Lucie - Water/Wastewater Studies, 1994
+ Ocean Reef Club, Monroe County, Florida - Wastewater Studies, 1994
+ Placid Lakes Utilities Inc., Florida - Water/Wastewater Studies, 1994
+ Old Overtown-Liberty Park, Birmingham, Alabama - Wastewater Studies, 1994
+ Bullhead City, Arizona - Wastewater Studies, 1994
+ Lehigh Utilities Inc., Lee County, Florida - Florida Public Service Commission Rate Cases for Water, Wastewater and Reuse, 1993
+ Marco Island and Marco Shores Utilities Inc., Collier County, Florida – 1993 - FPSC
+ Florida Public Service Commission Rate Cases for Water, Wastewater and Reuse, 1993
+ Venice Gardens Utilities Inc., Sarasota County, Florida - Rate Cases for Water, Wastewater and Reuse, 1989/91/93
+ Mid-Clay and Clay Utilities Inc., Clay County, Florida - Water/Wastewater Studies, 1993

Several expert witness assignments including Palm Bay vs. Melbourne; Tequesta vs. Jupiter; Town of Palm Beach vs. City of West Palm Beach; City of Sunrise vs. Davie; Kissimmee vs. Complete Interiors; and others.

Economic Evaluations/Credit Worthiness Analyses

Credit Worthiness Analysis for Drinking Water State Revolving Fund (1999) – Florida Department of Environmental Regulation

Credit Rating Reviews (1980-2000) – for numerous investor-owned utilities; many city-owned utilities (Winter Haven, Port St. Lucie, Miramar, Tamarac, Palm Bay, North Port, etc.); many county-owned utilities; several not-for-profit utilities; and utility authorities (OUA, etc.)

Financial Feasibility and Engineer's Revenue Bond Reports (1980-2000) – for over $2 billion of water and/or wastewater bonds for some fifty (50) entities in the Southeast United States including Clay, Lee, Hernando, Martin, and other counties; Lakeland, West Palm Beach, Miramar, Tamarac, Panama City Beach, Winter Haven, Naples, North Port, Palm Bay, Port St. Lucie, New Port Richey, Clermont, Orange City, Deerfield Beach, Sanibel, City of Peachtree City, Widefield, and many other cities; Lee County Industrial Development Authority, Englewood Water District, and other utilities.

Privatization Procurement and Analysis for many water and wastewater systems including Sanibel, Town of Palm Beach, Temple Terrace, Palm Bay, Widefield, Bullhead City and sever others.

Service Areas and Negotiations

Mr. Hartman has participated in over thirty-five (35) service area formations, Chapter 25 F.S. certifications, Chapter 180.02 reserve areas, authority creations, and interlocal service area agreements including Lakeland, Haines City, Bartow, Winter Haven, Sanibel, St. Cloud, Palm Bay, SBWA, ECFS, MWUC, Edgewater, Orange City, UCCNSB, Port St. Lucie, Martin County, OUA, NKLUA, DDUA, and many others. Mr. Hartman has been a primary negotiator for interlocal service agreements regarding capacity, joint-use, bulk service, retail service, contract operations and many others for entities such as the Town of Palm Beach, Miramar, Lauderdale-By- The-Sea, North Miami Beach, Collier County, Marion County, St. Johns County, JEA and many others.

Expert Testimony

Mr. Hartman has been accepted in various Circuit Courts, Florida Division of Administrative Hearings, Florida Public Service Commission, arbitration, and quasi- judicial hearings conducted by cities and counties, as a technical expert witness in the areas of electric systems, solid waste systems, stormwater systems, gas systems, wastewater systems and/or biosolids facilities, water supply, facility planning, water resources, water treatment, water quality engineering, water system design and construction, wastewater collection, wastewater transmission, wastewater treatment, effluent/reclaimed water use, sludge processing and disposal, costing, damages, rates/charges, service and service areas, and utility systems valuation and utility systems valuation. Recently, Mr. Hartman has been an expert witness on utility condemnation, utility arbitration, water rates and use permitting DOAH case, utility rate setting DOAH case, service area and utility service civil case, City of Atlanta Water Treatment Plant Construction, City of Milwaukee Cryptosporidium, Jupiter vs. Tequesta Water Contract Services, Winter Park electric, Okeelanta/Osceola Power Plants, UCCNSB and many other condemnation cases. Mr. Hartman has been an expert witness in permitting and regulatory cases.

Mr. Hartman has given oral testimony on some 200 occasions over the past 38 years. He has assisted in the resolution of a similar number of matters without formal testimony.

Publications / Presentations

Papers/Presentations (Since 1994)

2016 "What Special Masters are Looking For"
By Gerald C. Hartman and Dr. L. Golicz, December 10, 2015
FC – IAAO – TPP Conference

2015 "Perspectives for Utility Sales – (City/Co./Auth./NFP/CDD)"
By Gerald C. Hartman, August 26, 2015
Philadelphia, PA - Business Seminar

2015 "Water Privatization and the Systems Viability Act Legislation"
Gerald C. Hartman, et al., 102nd
Illinois Municipal League Annual Conference
September 18, 2015

2014 Hartman, G.C. and Hollis, Tara L. "Financial Forces Impacting Small Utility Systems." 2014 Indiana Section AWWA Conference, February 2014.

2014 Hartman, G.C. and T.L. Hollis "Utility Optimization and Ownership Considerations", Indiana Section AWWA February 12-13, 2014.

2013 Hartman, G.C. "Stormwater Reuse/Water Harvesting", Fl. Water & Environment Association, January 24, 2013.

2012 Hartman G.C., T.L. Hollis "Optimization of Utility Performance", Florida-CFOA.

2008 Hartman, G.C., Hollis, Tara L. and Isaacs, Tony W. "Discussion of Outside City Utility Rate Surcharge." Special Meeting – Various Municipality Leaders in State of Florida (Hosted by the City of North Miami Beach and the City of North Miami). October 28, 2008.

2007 Hartman, G.C. and Wanielista, M. P. "Stormwater Reuse: The Utility Business Practice." 9th Biennial Conference on Stormwater Research & Watershed Management. May 2, 2007.

2005 Wanielista, Marty and G.C. Hartman, "Regional Stormwater Facilities", Stormwater Management for Highways Transportation Research Board TRB AFB60, July 12, 2005.

2004 Hartman, G.C., D. Cooper, N. Eckloff and R. Anderson, "Water," The Bond Buyer's Sixth Southeast Public Finance Conference, February 23, 2004.

2003 Hartman, G.C., "Utility Valuation," Wake Forest University Law School Seminar Series, February 6-8, 2003.

2003 Hartman, G.C., H.E. Schmidt, Jr. and M.S. Davis, "Biosolids Application in Rural DeSoto County, Florida," WEF/AWWA/CWEA Joint Residuals and Biosolids Management Conference, February 19-22,2003.

2003 Hartman, G.C. and Dr. M. Wanielista, "Irrigation Quality Water – Examples and Design Considerations," ASCE Conference, April 4, 2003.

2003 Hartman, G.C., M.A. Rynning and V. Hargray, "Assessing the Water Demands of Commercial Customer," WEF Volume 6, No. 4, July/August 2003 – Utility Executive.

2002 Hartman, G.C., M. Sloan, N.J. Gassman, and D.M. Lee, "Developing a Framework to Balance Needs for Consumptive Use and Natural Systems with Water Resources Availability," WEF Watershed 2002 Specialty Conference, February 23-27, 2002.

2000 Hartman, G.C., M.A. Rynning, and V. Hargray, "Assessment of Commercial Customer Water Impacts," AWWA 2000.

1999 Hartman, G.C. contributing author, Chapter 14B, Nichols on Eminent Domain, RCNLD Valuation of Public Utilities, March 1999 Edition, Release No. 48.

1998 Hartman, G.C., "In-House, Outsourcing and the Not-for-Profit Utilities Option," Florida Government Finance Officers Association (FGFOA) Conference, March 27, 1998.

1998 Hartman, G.C. and D.P. Dufresne, "Understanding Groundwater Mounds – A Key to Successful Design, Operation and Maintenance of Rapid Infiltration Basins," April 4-7, 1998, FWWA/WET/FPCOA Joint Meeting.

1998 Hartman, G.C. and Seth Lehman, "Financing Water Utilities – Acquisition and Privatization Projects," AWWA Annual Conference, June 24, 1998.

1997 Hartman, G.C., Seth Lehman, "Financing Utility Acquisitions," AWWA/WEF Joint Management Conference, February 1997.

1997 Hartman, G.C., B.V. Breedlove, "Water: Where It Comes From and Where It Goes," FRT & G/FDEP Conference, September 1997.

1997 Hartman, G.C., W.D. Wagner, T.A. Cloud, and R.C. Copeland, "Outsourcing Programs in Seminole County," AWWA/WEF/FPCOA Conference, November 1997.

1997 Hartman, G.C., M.B. Alvarez, J.R. Voorhees, and G.L. Basham, "Using Color as an Indicator to Comply with the Proposed D/DBP Rule," AWWA, Water Quality Technology Conference, November 1997.

1996 Hartman, G.C., M.A. Rynning, and R.A. Terrero, "5-Year Reserve Capacity – Can Customers Afford the Cost?" FSASCE Annual Meeting, 1996.

1996 Hartman, G.C., T.A. Cloud, and M.B. Alvarez, "Innovations in Water and Wastewater Technology," Florida Quality Cities, August 1996.

1995 Hartman, G.C. and R.C. Copeland, "Utility Acquisitions – Practices, Pitfalls and Management," AWWA Annual Conference, 1995.

1995 Hartman, G.C., "Safe Drinking Water Act," and "Stormwater Utilities," FLC Annual Meeting, 1995.

1994 Hartman, G.C. and R.J. Ori, "Water and Wastewater Utility Acquisition," AWWA National Management Specialty Conference, 1994.

Books

Hartman, G.C., *Utility Management and Finance*, (presently under contractual preparation with Lewis Publishing Company/CRC Press).

Vesilind, P.A., Hartman, G.C., Skene, E.T., *Sludge Management and Disposal for the Practicing Engineer*; Lewis Publishers, Inc.; Chelsea, Michigan; 1986, 1988, 1991