



CHAPTER SIX

PUBLIC UTILITIES AND INFRASTRUCTURE

presented to

MADISON COUNTY COMMISSION

by

**CHAMBER OF COMMERCE
OF HUNTSVILLE/MADISON COUNTY**

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TENNESSEE VALLEY REGIONAL GROWTH COORDINATION PLAN

DISCLAIMER

This study was prepared under contract with the Madison County Commission, Alabama, with financial support from the Office of Economic Adjustment, Department of Defense. The content does not necessarily reflect the views of the Office of Economic Adjustment.

This report is intended as an aid to planners, managers, elected officials, and other decision makers in the Tennessee Valley/Redstone Arsenal region. Our aim is not to dictate what should be done, but to assist in ongoing efforts to achieve goals and objectives identified and valued by the residents of the region. The recommendations presented in this report are suggestions for how the region could work towards those goals and objectives, based on best available information and current understandings.

The information, projections, and estimates in this report are based upon publicly available data and have been prepared using generally accepted methodologies and formulas. The projections and needs presented in this report are based upon best estimates using the available data. It is important to note that currently available information and understandings are incomplete and cannot account for the inevitable, but unpredictable, impacts of unexpected global, national, state, and/or local events. Actual results and needs may differ significantly from the projections of this report due to such unforeseen factors and conditions, as well as inaccuracy of available data, and/or factors and conditions not within the scope of this project. Persons using this information to make business and financial decisions are cautioned to examine the available data for themselves and not to rely solely on this report.

Neither the Madison County Commission, the Chamber of Commerce of Huntsville/Madison County, nor its subcontractors guarantee or warrant that the projections set forth in this report will, in fact, occur. The Madison County Commission, the Tennessee Valley Regional Growth Coordination Plan Advisory Committee and Task Forces, and the Chamber of Commerce of Huntsville/Madison County and its subcontractors disclaim any liability for any errors or inaccuracies in the information, projections, and needs analysis, regardless of how the data is used, or any decisions made or actions taken by any person in reliance upon any information and/or data furnished herein.

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EXECUTIVE SUMMARY

The utility needs of the Primary Study Area (PSA), which includes Limestone, Madison and Morgan counties in Alabama, are met by a network of county, municipal, and private utility agencies and the Tennessee Valley Authority (TVA), a federal corporation. At the time this analysis was prepared, utility services in the PSA were evaluated as follows:

- Available water and sewer capacity is adequate to accommodate short-term growth in all areas, but significant capacity increases are necessary to keep pace with anticipated growth, particularly in some areas where BRAC-related growth will occur.
- TVA is currently a power exporter from northern Alabama because of a surplus of power. This will not impact TVA's ability to meet future electric needs in the PSA.
- Natural gas capacity appears adequate to support anticipated growth.
- Telecommunications services are strong.

Because of the ongoing growth trends in the PSA, these utility providers are continually planning for extended or improved utility services to meet the needs of a growing population and economy. Therefore, the addition of 4,700 new jobs at Redstone Arsenal and the BRAC buildup to the area will occur within the context of larger and longer-term growth trends. From the perspective of utility planning, the inclusion of additional population and economic growth resulting from BRAC is more of an adjustment in projections rather than a sudden challenge to accommodate major unanticipated growth.

The BRAC-related growth will result in funding needs for utility expansion (both capacity and distribution) occurring more rapidly than planned before the BRAC announcement, and at a higher cost. Planning to meet utility needs is always less expensive than paying for the needed improvements. Of the total \$185,490,000 in utility needs identified as part of this study, \$56,937,200 is directly attributable to BRAC. The vast majority of both the total utility needs and the portion attributable to BRAC are currently unfunded.

As this report is being written, the nation is in the midst of a significant economic downturn with an accompanying credit crisis. The inability of communities to finance infrastructure construction projects at reasonable costs – if at all – has become a national problem. Finding effective means of financing the utility improvement projects caused by or related to BRAC-related growth is a primary challenge for the area.

Provision of adequate infrastructure for the future will require both technical planning expertise and sound political decision-making. While the PSA is blessed with many highly professional utility agencies, meeting the utility needs of the area is highly fragmented. There is an opportunity and desire to seek more collaborative, regional approaches to meeting future utility needs. A regional utility task force dedicated to this effort should be established.

Recommendations include:

1. The PSA should establish a collaborative effort to identify and employ effective financing vehicles to meet utility infrastructure development needs. Costs of such an initiative would be minimal. This effort should include a study of effective regional utility collaborative efforts nationally and internationally to identify approaches and initiatives that can be emulated. The estimated cost of such a study is \$40,000 - \$50,000.
2. Regional officials should continue to collaborate on water supply and treatment issues to assure that the PSA has adequate water supplies in the future. Costs of such an initiative would be minimal.
3. A nationwide (and perhaps global) study of best practices and programs related to regional sewage sludge disposal should be undertaken. The estimated cost of such a study, if undertaken separately, is \$60,000 - \$70,000. Some cost savings may be realized if this study is combined with that recommended in the prior paragraph.
4. Facilitated by the Chamber of Commerce of Huntsville/Madison County, a Telecommunications Task Force comprised of representatives of all governmental entities and telecommunications providers in the PSA should be established and tasked with making recommendations on how to ensure the area's telecommunications facilities and services remain "state-of-the-art". Costs of such an initiative would be minimal.

BACKGROUND

The **Madison County Commission (MCC)** issued a Request for Proposal (RFP) to develop the **Tennessee Valley Regional Growth Coordination Plan (TVRGCP)**. Funding for this study was provided by the U.S. **Department of Defense (DoD)**, Office of Economic Adjustment (OEA) to prepare the Tennessee Valley for the impact of **Base Realignment and Closure (BRAC) 2005** at **Redstone Arsenal (Arsenal)**.

The **Chamber of Commerce of Huntsville/Madison County (Chamber)** submitted a proposal in response to MCC's nationwide search for a consultant as addressed in RFP P-2007-01. This proposal identified the Chamber as the lead consultant with Wadley-Donovan GrowthTech, LLC (WDG) serving as a subcontractor. After completing a competitive bid process, MCC awarded the contract to the Chamber with a Notice-to-Proceed date of October 29, 2007.

The Tennessee Valley **Study Area** for this project includes thirteen counties in northern Alabama and southern Tennessee within an eighty-mile-radius of the Arsenal. The **Primary Study Area (PSA)** includes the three Alabama counties of Limestone, Madison, and Morgan. The **Broader Impact Region (BIR)** includes the additional six counties in Alabama (Colbert, Cullman, Jackson, Lauderdale, Lawrence, and Marshall) and four counties in Tennessee (Franklin, Giles, Lawrence, and Lincoln). A map of the Study Area is shown in Figure 6-1.

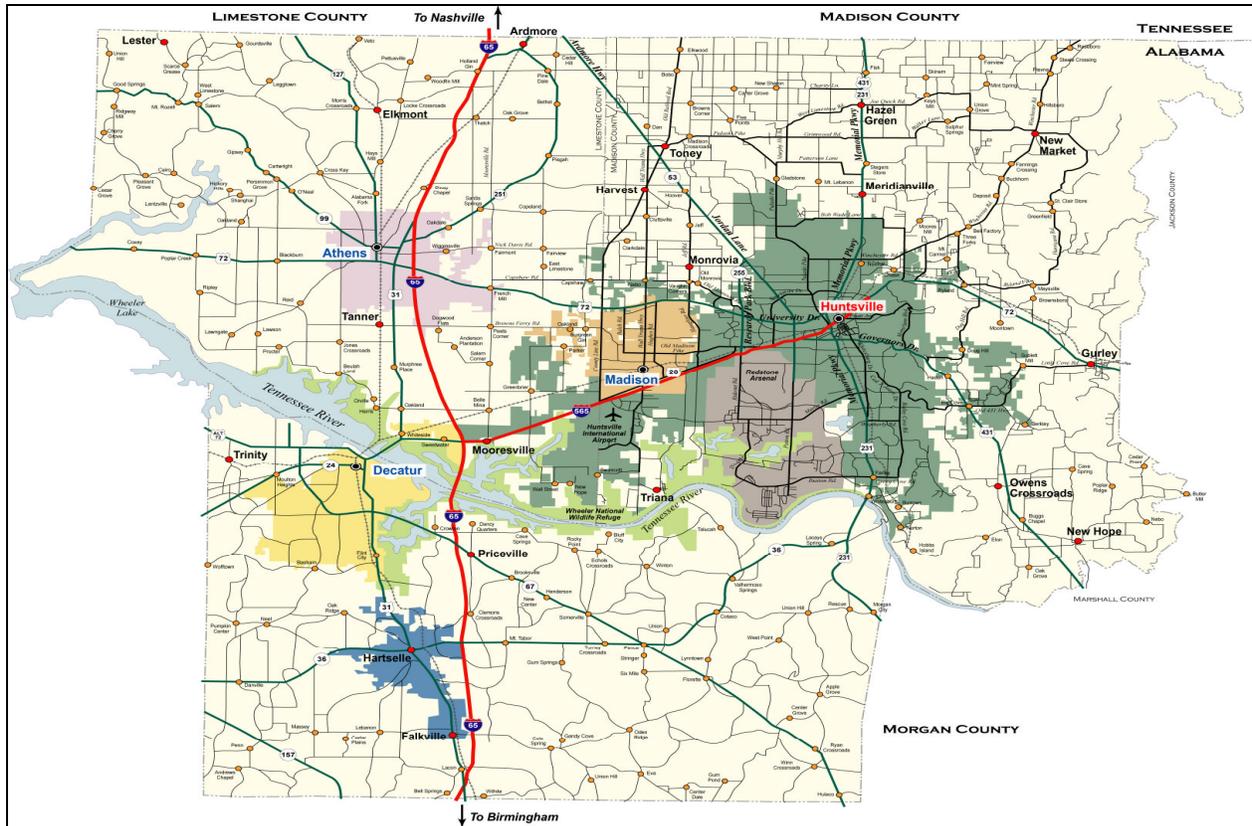
Figure 6-1
Tennessee Valley Regional Growth Coordination Plan Study Area



PRIMARY STUDY AREA

The Primary Study Area (PSA) consists of three counties in Alabama, Limestone, Madison, and Morgan, surrounding Redstone Arsenal (Arsenal). Figure 6-2 shows the relationship of the Arsenal to the three counties and primary cities.

Figure 6-2
Primary Study Area



Source: City of Huntsville Planning Division and the North Central Alabama Regional Council of Governments

The PSA contains numerous incorporated areas, both large and small, as summarized below:

County	Large Municipalities	Small Municipalities
Madison	Huntsville, Madison	Gurley, New Hope, Owens Cross Roads, Triana
Limestone	Athens	Ardmore, Elkmont, Lester, Mooresville
Morgan	Decatur	Hartselle, Priceville, Trinity

The PSA includes a large amount of unincorporated area in all three of its counties. Alabama State Law allows the annexation of portions of a county by a municipality located in an adjacent county. Thus, the Cities of Huntsville, Madison, and Decatur have annexed portions of Limestone County; this is particularly the case along the I-565/Alabama Highway 20 corridor in the vicinity of I-65 (although this is not the only location).

PURPOSE

The purpose of this section of the study is to analyze the public utility infrastructure serving the PSA, including the Arsenal. Additionally, this study identifies utility issues that will impact the area due to the influx of new jobs to the Arsenal, coupled with contractors who will follow those jobs, trailing families, construction jobs for new facilities at the Arsenal, and the “multiplier impacts” that are caused by direct activity. This analysis looks at both the service providers for water, sanitary sewer, electric, natural gas, and telecommunications services, and the facilities and services themselves.

METHODOLOGY

The analysis of public utilities and related infrastructure in the PSA provided in this section of the TVRGCP was developed from extensive research that included review of many relevant documents provided by the utility providers in the PSA or obtained from other sources; interviews with utility officials from the cities and counties, private utility companies and TVA; interviews with representatives of Redstone Arsenal; review of information contained in numerous city, county and private utility websites; and input from the TVRGCP Advisory Committee. Sources for the data cited in this section of the report are provided in the text or with the accompanying tables.

As part of the process of preparing this analysis, a Public Utilities and Infrastructure (PUI) Task Force was established. This broadly representative group was primarily comprised of individuals who work for various agencies that provide utility services and/or infrastructure in Limestone, Madison, and Morgan counties and the larger communities therein (the cities of Athens, Decatur, Hartselle, Huntsville, and Madison). The task force membership is shown in Appendix 6-A. Utility services and issues were discussed at several meetings of the PUI Task Force. This Task Force met several times during the course of the project and provided both relevant input on existing and planned utility facilities and services as well as commentary on drafts of this analysis to assure its accuracy and relevance.

A Utility Information Research Template was prepared and disseminated to the PUI Task Force members and others as appropriate. A blank copy of this template is provided in Appendix 6-B. Selected interviews were held with representatives of major utility providers in the PSA to obtain additional information or necessary clarification.

During the early stages of this project, a “Data Call” was received from the Office of Economic Adjustment (OEA) Director, Patrick J. O’Brien, seeking “...a prioritized working estimate of local projects that, but for Federal assistance, can’t be undertaken to address mission growth.” To respond to this request, the MCC, assisted by the Consultant Team, prepared a “Tennessee Valley BRAC-Related Utility Needs” data collection spreadsheet (see Appendix 6-C). This was distributed to the PUI Task Force, and a summary list showing priorities was developed. Subsequently, OEA asked for a list showing only level one priorities and information on the methodology for selecting those priorities. Information on projects identified as part of this process is presented later in this report (see Table 6-2).

UTILITY PROVIDERS

As would be expected in a multi-county area, there are multiple utility providers in the PSA, and even more in the Broader Impact Region (BIR). The information provided below focuses on the PSA. Public utilities are provided by both public and private sector entities. It should be noted that while telecommunications is included here as a “public utility”, many telecommunications providers consider themselves to be a “communications services” provider rather than a public utility.

Table 6-1 on the following page summarizes the utility providers in the PSA by area served and type of service. Communities shown in Table 6-1 are those in the PSA that exceed 10,000 in population.

It should be noted that there are other utility providers serving smaller population portions of the PSA. As examples, the Towns of Trinity (in Morgan County) receives water from Trinity Waterworks, electric service from Joe Wheeler Electric Membership Corporation, and natural gas from the Wheeler Basin Natural Gas Company, while the Town of Priceville (Morgan County) provides its own sanitary sewer services, receives electric service from Joe Wheeler Electric Membership Corporation, and natural gas from the Wheeler Basin Natural Gas Company.

Table 6-1
Utility Service Providers in the PSA

Area Served	Type of Utility					
	Water	Sewer	Electric	Natural Gas	Telecom	
Limestone County	a) Limestone County Water & Sewer Authority b) Portion in City of Decatur served by Decatur Utilities. c) Portion in City of Huntsville served by Huntsville Utilities. d) A portion in City of Madison served by Madison Utilities.	a) Limestone County Water & Sewer Authority b) Portion in City of Decatur served by Decatur Utilities. c) Portion served by Huntsville Water Pollution Control. d) Portion in City of Madison served by Madison Utilities.	Athens Utilities	a) Portion including Elkmont & Ardmore served by Athens Utilities. b) Portion in City of Huntsville served by Huntsville Utilities.	The PSA is served by multiple telecom providers including AT&T, Bellsouth, Centurytel, Cherokee Telephone Co., Charter Communication, Deltacom, GTE Mobil Net, Intermedia Communication Southeast, Southeastern Communication Services, Inc., Sprint/Nextel, UCI Communications, US Cellular, Verizon.	
Madison County	Portions served by: a) Madison County Water Department b) Harvest-Monrovia Water & Sewer Authority	Portions served by Harvest-Monrovia Water & Sewer Authority	Huntsville Utilities	Portion served by Huntsville Utilities		
Morgan County	Portions served by: a) Decatur Utilities b) Northeast Morgan County Water & Sewer Authority c) West Morgan-East Lawrence Water Authority	Portions served by: a) Decatur Utilities b) Northeast Morgan County Water & Sewer Authority c) West Morgan-East Lawrence Water Authority	Portions served by: a) Joe Wheeler EMC b) Decatur Utilities	Portion served by Decatur Utilities		
City of Athens	Athens Utilities	Athens Utilities	Athens Utilities	Athens Utilities		
City of Decatur	Decatur Utilities	Decatur Utilities	Decatur Utilities	Decatur Utilities		
City of Hartselle	Hartselle Utilities	Hartselle Utilities	Hartselle Utilities	Southern Natural Gas		
City of Huntsville	Huntsville Utilities	Huntsville Water Pollution Control	Huntsville Utilities	Huntsville Utilities		
City of Madison	Madison Utilities	Madison Utilities	a) Portion in Madison County served by Huntsville Utilities. b) Portion in Limestone County served by Athens Utilities.	North Alabama Natural Gas		
Redstone Arsenal	Huntsville Utilities RA also has its own water supply & treatment system	On-site, privatized system	Served primarily by TVA; Huntsville Utilities serves 1 building	Huntsville Utilities		Not specified

Source: Utility Information Data Collection Forms returned by utilities; Interviews conducted by Garnet Consulting Services, Inc.

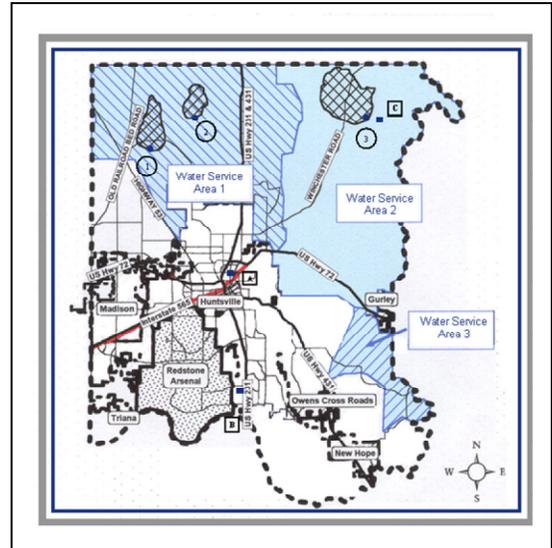
UTILITY SERVICES AND CAPACITIES

This section summarizes utility services and capacity information submitted by major utility providers.

1. Public Water

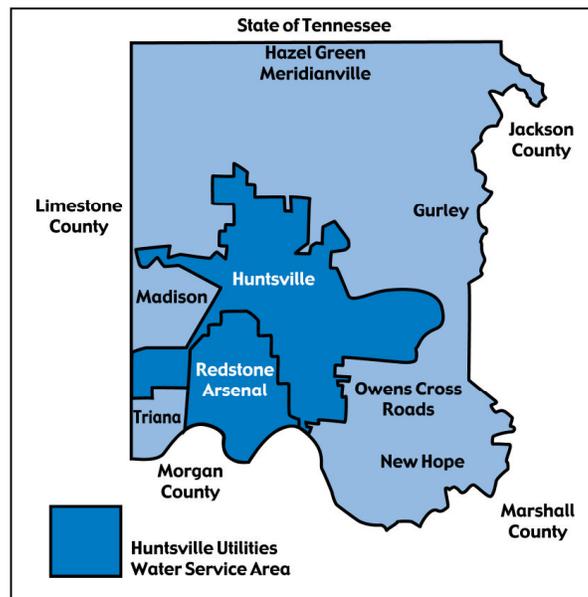
A. Madison County Water Department

The Madison County Water Department (MCWD) serves the northern and majority of the eastern portion of the unincorporated portion of the county with water obtained from three wells and treated at three water treatment plants or purchased from Huntsville Utilities, and distributed through 950 miles of water mains. Current capacity is 13 million gallons per day (MGD), of which 8 MGD is used, leaving a surplus capacity of 5 MGD. A system of 11 water storage tanks provides a storage capacity of 16 million gallons. In anticipation of future growth, additional groundwater (well) sources are being sought and a joint study on long term water supplies is being undertaken with Huntsville Utilities. Due to the extended drought, pressure problems were experienced at higher elevations during the summer of 2007; similar problems can be expected in the future if the drought persists. A system-wide upgrade of water lines smaller than 6 inches (approximately 70 miles) is planned along with a control system to monitor wells and tanks. Unless deemed appropriate by the Madison County Commission, water lines are not extended by MCWD to support a new business park or building unless paid for by the developer.



B. Huntsville Utilities

Huntsville Utilities provides water within the Huntsville city limits (including the portion in Limestone County); to the communities of Madison, New Hope, and Triana, Madison County, and Redstone Arsenal. Water is provided from a system of five wells, ground water, and the Tennessee River. It is treated at two water treatment plants and distributed through a system of 1,215 miles of water mains. Current capacity is 84 MGD with a current



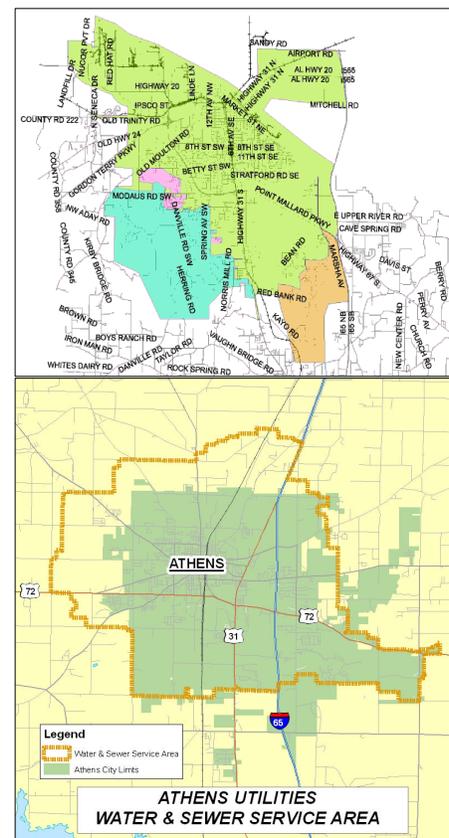
peak usage of 75 MGD, leaving a surplus of 9 MGD (average use is 45 MGD). The South Parkway Water Treatment Plant is being expanded from 36 MGD to 56 MGD. Long range plans call for construction of a third water treatment plant on the Tennessee River, subject to water withdrawal permits from TVA. Plans also call for extension of 36” and 48” transmission mains into northern portions of Madison County. Huntsville Utilities requires developers to pay for main extensions, but the developer is reimbursed as development occurs along the extension.

C. Madison Utilities

Madison Utilities provides water primarily for the City of Madison. (No map of the service territory suitable for inclusion in this report is available.) It draws water from groundwater wells and interconnects with the Limestone County Water & Sewer Authority and Huntsville Utilities for use during seasonal peaking days if needed. Current capacity is 14 MGD with current usage ranging from 7 MGD to 12 MGD at peak, resulting in a minimum surplus capacity of 2 MGD. Three new groundwater wells are being constructed and one of the two treatment plants is being expanded from 8 to 12 MGD. Discussions are ongoing with area suppliers for an increased water supply. A new river intake is being evaluated that could provide 20 MGD. The in-service date for this project is approximately 2012, and it would prepare the city for 20 years of growth. A new 2 million gallon water storage tank is under construction, as well as a 24 inch east-west main to improve system stability. The Board continues to evaluate regional options for water supply.

D. Decatur Utilities

Decatur Utilities provides water for the City of Decatur (including the portion in Limestone County) and portions of Morgan County. Water is provided from surface water, Wheeler Reservoir, and the Tennessee River. Current capacity is 68 MGD with a current usage of 42 MGD (peak), leaving a surplus of 26 MGD. Decatur Utilities has water rights and the ability to acquire additional water in the future. Decatur Utilities will provide aid for the extension of water lines for a new business building or business park.



E. Athens Utilities

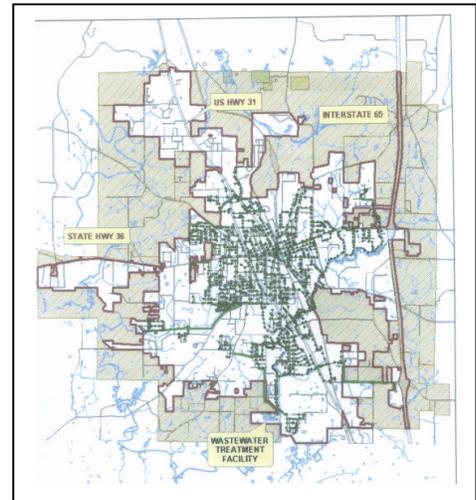
The City of Athens Utilities provides water for the majority of the City of Athens, drawing from the Elk River. Current capacity is 13.5 MGD with a current usage of 10.0 MGD, leaving a surplus capacity of 3.5 MGD. An upgrade and expansion of the water treatment plant to 18.0 MGD is planned in 5 to 7 years at an estimated cost of \$3 - \$5 million. The estimated safe yield at the Elk River intake is 54 MGD, allowing substantial expansion. Athens Utilities will extend water mains to any approved new development to within 1,500 feet at no cost.

F. Limestone County Water & Sewer Authority

The Limestone County Water & Sewer Authority (LCWSA), one of the two largest rural water systems in Alabama, serves the county, as well as wholesaling water to the East Lauderdale County, Elkmont, Minor Hill, Tennessee, and South Giles, Tennessee, water systems. Water is drawn from a system of wells with a total capacity of 2.3 MGD. LCWSA also purchases water from the cities of Decatur and Athens. LCWSA has two water treatment facilities with a combined capacity of 7 MGD. The new Turner Water Treatment Plant is the first Ultra Filtration Water Treatment Facility in the Southeast United States and has a current capacity of 4 MGD, with the ability to expand to 8 MGD. LCWSA maintains 1,100+ miles of water mains and 9 storage tanks with a combined capacity of 8.2 MGD.

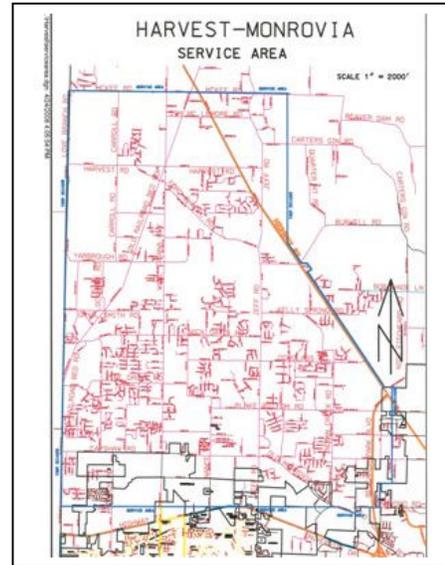
G. Hartselle Utilities

Hartselle Utilities provides water for the entire City of Hartselle. The city has identified a substantial future annexation area. Water is purchased from Decatur Utilities with a current maximum capacity of 5.0 MGD and current usage of 2.4 MGD, yielding a surplus capacity of 2.6 MGD. Possible expansion of water capacity for the future is being explored. Hartselle Utilities has an Aid to Construction policy that compensates a developer for upgrading utility improvements from those needed by the developer to those needed to meet the city's Master Plan.



H. Harvest-Monrovia Water & Sewer Authority

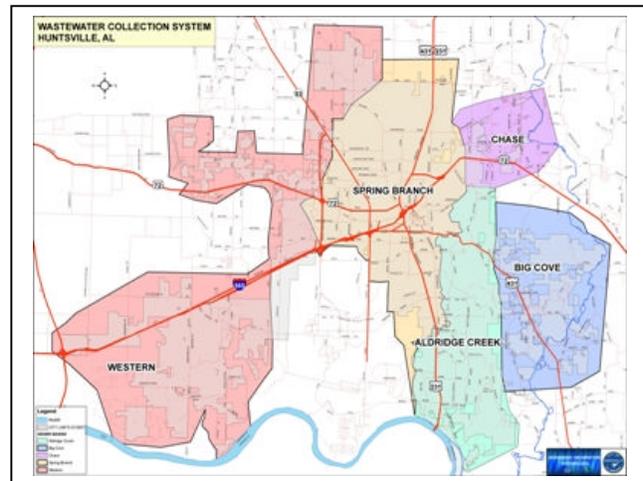
The Harvest-Monrovia Water & Sewer Authority (HMWSA) provides water for the rapidly growing portion of Madison County that includes the communities of Harvest and Monrovia. HMWSA has a 10 MGD water treatment plant with 2 MGD available at a new treatment plant that eventually will have a 4 MGD capacity. The water source is groundwater drawn from 4 wells. Current consumption is 4.5 MGD with a peak demand of 8.5 – 9 MGD, resulting in a surplus capacity of 3 MGD at peak use and 7.5 MGD at normal consumption.



2. Public Sewer

A. Huntsville Water Pollution Control Department

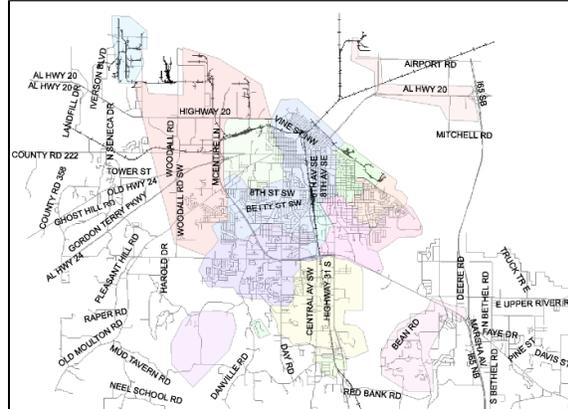
The City of Huntsville Water Pollution Control Department (WPC) collects and treats wastewater within the City of Huntsville, including the portions within Limestone County. The WPC is prohibited by ordinance from serving any areas not within the Huntsville city limits. The WPC operates 6 wastewater treatment plants with a combined capacity of 79.65 MGD, and a current usage of 44-50 MGD, yielding a surplus of 30-36 MGD; however, surplus capacity varies by treatment plant. The capacity of the Big Cove



Plant, which serves part of the eastern portion of the city, is being doubled from 6 MGD to 12 MGD. The WPC maintains nearly 1,300 miles of sewer lines and 57 pumping stations. Minimal infiltration problems are experienced. Approximately \$50 million is being invested in a variety of system upgrades and improvements. A main ranging from 30 to 40 inches in diameter is planned between I-565 and Route 72, serving a 5,000-acre-area recently annexed by the city. This is also the area where the Memphis-Huntsville-Atlanta Highway is expected to cause substantial growth in the future.

B. Madison Utilities

Madison Utilities provides wastewater collection and treatment services for the City of Madison and a portion of Limestone County (the Limestone Creek area). (No map of the service territory suitable for inclusion in this report is available.) The Board placed its first wastewater treatment plant into service in 2003, with a capacity of 6 MGD and a current normal usage of 5 MGD, yielding a surplus capacity of only 1 MGD. Therefore, a \$14 million expansion to 8.25 MGD is under construction (with a design capacity for short-term flow during heavy rain of 36 MGD using an ultra-violet treatment system). As soon as this is completed, the next phase will be started to increase capacity to 12 MGD. The city has recently annexed a nearly 3-square-mile-portion of Limestone County that will increase flow potential by more than 4 MGD. Minimal infiltration problems are experienced due to an ongoing Inspection/Infiltration (I/I) program that includes annual smoke testing and line testing/cleaning/replacement. The city's wastewater system includes the Madison Wastewater Treatment Plant, 20 pump stations, and 250 miles of mains. Treated effluent is discharged into the Tennessee River.



C. Decatur Utilities

Decatur Utilities provides wastewater collection and treatment services for the City of Decatur (including the portion in Limestone County) and portions of Morgan County. A secondary treatment plant has a capacity of 36 MGD with a peak flow of 26 MGD, providing a surplus capacity of 10 MGD. Decatur Utilities provides aid for the extension of sewer lines for a new business building or business park. Local, state, and federal pre-treatment guidelines pertain to industrial effluent, and an updated Local Sewer Use Ordinance has recently been adopted.

D. Athens Utilities

The City of Athens Utilities provides wastewater collection and treatment services for the majority of the City of Athens. The service territory is shown in the previous map under Public Water service. A tertiary treatment plant has a 7.0 MGD capacity with a current use of 5.0 MGD, providing surplus capacity of 2.0 MGD. A new 9.0 MGD treatment plant is under construction and is expected to be complete in 2010. This plant will cost \$24.5 million for which a \$4.5 million federal grant is being sought. Older sewer lines in the central part of the city have an infiltration problem, but an active I/I

program has reduced flows by 2.5 - 3.0 MGD over the past ten years. Industrial effluent must be treated to equivalent municipal standard concentrations.

E. Hartselle Utilities

Hartselle Utilities provides sanitary sewer service for the City of Hartselle. The service territory is shown in the previous map under Public Water service. A secondary treatment plant is located in the southern portion of the city and has a total capacity of 2.7 MGD and a peak capacity of 5.4 MGD. Current usage is 1.75 MGD providing a normal surplus capacity of .95 MGD or a peak surplus capacity of 3.65 MGD. Planned improvements include the Ausley Bend decentralized treatment plant and installation of the Barkley Bridge Interceptor and mains serving the city's Industrial Park and the Fox Ridge Subdivision. The city's Policy EN-13 provides financial sharing between the city and a developer of utility infrastructure that exceeds developer needs in order to meet the city's Master Plan.

F. Limestone County Water & Sewer Authority

LCWSA has four small wastewater facilities including those serving Elkmont Rural Village (.061 MGD), Bay Hill (.020 MGD), East Limestone Sewer (.96 MGD) and Limestone County Schools (capacity is shown on the LCWSA website as "various").

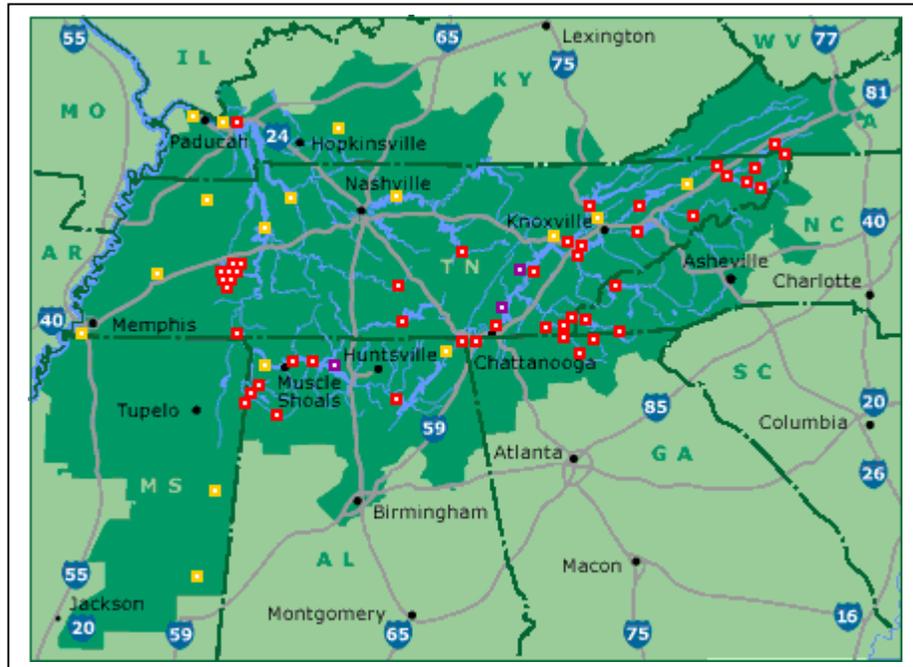
G. Harvest-Monrovia Water & Sewer Authority (HMWSA)

HMWSA provides sewer service to a portion of Madison County that includes the communities of Harvest and Monrovia. A map showing HMWSA's service territory is presented in the previous section on Public Water. The sewer service area is essentially the same as the water service area, with some small exceptions in the southern portion of the service area. HMWSA has 4 wastewater facilities with a total capacity of 850,000 GPD with discharge to various streams in the area. HMWSA also uses sand filter package treatment plants in 20 subdivisions with more to be approved in the future as needed.

3. Electricity

A. Tennessee Valley Authority (TVA)

TVA is a federal corporation and the wholesaler of power to many electricity providers in North Alabama, which includes approximately 461,000 households and over 90,000 commercial and industrial customers across 16 North Alabama counties. These North Alabama customers are served through 25 distributors of TVA power, while TVA serves electricity directly to 13 large industries or federally-owned installations.



Source: Tennessee Valley Authority Website

In the PSA, TVA supplies power directly to Redstone Arsenal, while partnering with five distributors to serve residential, commercial, and most of the industrial customers. In Madison County, Huntsville Utilities is the sole distributor. In Limestone County, Athens Utilities is the sole distributor. In Morgan County, Joe Wheeler Electric Membership Corporation, Decatur Utilities, and Hartselle Utilities are the distributors.

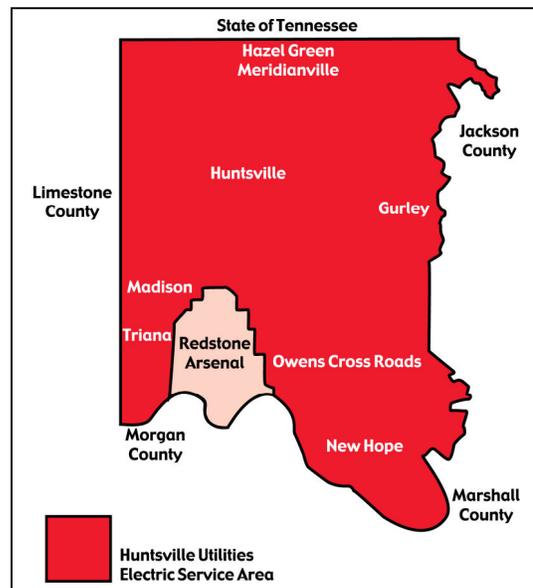
TVA provides electric power through a transmission system in North Alabama consisting of 77 substations/switchyards and 2,364 circuit miles of 500 kilovolt, 161 kilovolt, and 46 kilovolt transmission lines. TVA is a net exporter of power in North Alabama with more than 6,700 megawatts generated by three hydroelectric dams, two coal-fired generation plants, one nuclear plant and one combustion turbine site. While the amount currently being exported varies widely by both local and out-of-area demand factors, TVA states that adequate electric power will be available to support growth of the PSA in the foreseeable future. TVA's diversified fuel mix provides important operating flexibility. This is part of a TVA-wide system that serves a portion of seven states across the Southeast United States. The whole system is 15,800 circuit

miles of transmission lines and over 34,000 megawatts of generation. The system is operated out of a control center in Chattanooga, Tennessee, with a reliability of 99.999%.

TVA does semi-annual load forecasting for its generation needs to ensure its long-range generation plan remains viable. Also, TVA does annual transmission planning with its distributor customers to ensure that long-range transmission plans are viable. While BRAC may impact and cause changes in some of the five local distributors and Redstone Arsenal, it is well within the generation and transmission parameters of TVA's plans.

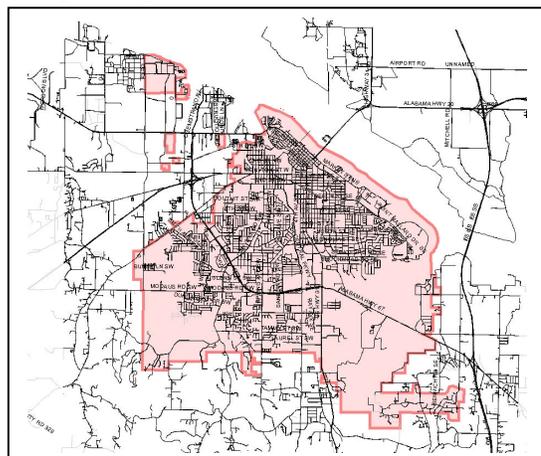
B. Huntsville Utilities

Huntsville Utilities (HU) provides electric service for the City of Huntsville and Madison County. HU has 9 delivery stations connecting to TVA with 2 additional delivery stations planned in the near future. Power is received from TVA at 161 KV and distributed to 84 substations at 46 KV. Most distribution voltages are at 12.47/7.2 KV with some northern portions of the county at 25/14.4 KV. There are no current limitations on power supply for new development. No reliability statistics were available, but HU reports an aggressive annual maintenance program that includes \$6 million per year for ROW clearance and cable replacement. During the past five years, HU has completed substantial work including 7 new substations, 13 new transformers, 25 new breakers, 1 relocated substation and 2 upgraded transformers. During the 2008 - 2012 periods, planned work includes 8 new substations, 14 new transformers, 32 new breakers, 2 rebuilt and upgraded substations, and 1 upgraded transformer. All business areas are served with 3-phase power and HU will extend electric lines a reasonable distance to support a new business building or business park.



C. Decatur Utilities

Decatur Utilities purchases power from TVA and distributes it within the City of Decatur and portions of Morgan County. Planned improvements include:

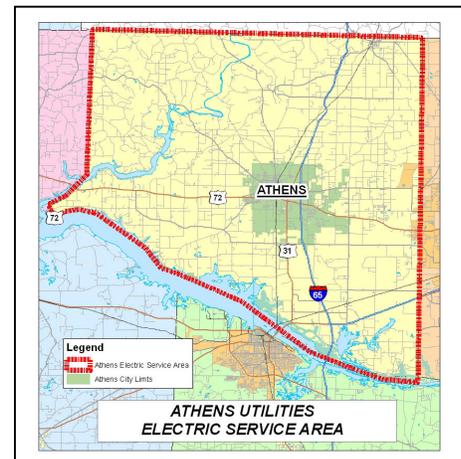


- Re-conductor 46kV transmission circuit C434 from Cedar Lake Primary to Morgan substation (5 miles; \$1,500,000)
- Build new 15mVA, 161-12.5kV distribution substation and distribution circuits in west Decatur in the vicinity of Bunny Lane (\$2,700,000)
- Build a new 15mVA, 46-12.5Kv distribution substation with distribution circuits in the Chapel Hill Rd area (\$3,200,000)
- New 46kV transmission line to substation in the prior item (2.5 miles; \$800,000)
- New 46kV transmission tie line between C434 and T434 (2 miles; \$600,000)
- Replace and upgrade capacity of transformers at Trinity Primary substation (\$5,500,000)

Decatur Utilities' reliability indices (SAIDI = 104.85; CAIDI = 47.41; SAIFI = 2.21, ASAI = 0.999801) are all within typical ranges. Decatur Utilities will extend power lines for a new business building or business park, but the developer must pay the increased cost of installing underground lines.

D. Athens Utilities

The City of Athens Utilities Electric Department (AED) provides electric services to all of the City of Athens and Limestone County, serving approximately 39,000 customers. AED has a 10-year all-requirements contract with TVA for power supply. AED purchases power at four 161 kV delivery points. From these delivery points, AED distributes power and serves seven distribution substations via a 46 kV transmission system owned and maintained by AED. AED distributes power at a primary voltage of 12.47 kV over approximately 2,423 miles of line. Three phase power is available to most locations presently identified for commercial use.



E. Joe Wheeler Electric Membership Corporation

Joe Wheeler EMC (JWEMC) is a Touchstone Energy Cooperative providing electric power and services to all of Morgan County, other than the cities of Decatur and Hartselle. JWEMC also serves the majority of Lawrence County. JWEMC purchases power from TVA and distributes it through a network of substations and 46 kV lines. The company reports a 99.98% reliability index and maintains a rolling four-year capital improvements plan that includes the replacement of single phase service with three phase service.

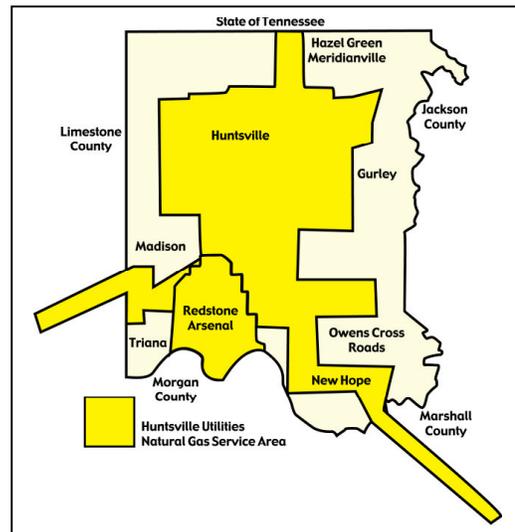
F. Hartselle Utilities

Hartselle Utilities distributes power purchased from TVA within the City of Hartselle. Plans call for line upgrades, purchase of new power transformers and load shifting. All business areas are served by three phase power. Hartselle Utilities will pay for extending power lines to serve a new business park or building.

4. Natural Gas

A. Huntsville Utilities

Huntsville Utilities provides natural gas service to the City of Huntsville and portions of Madison, Limestone and Marshall counties. The gas is supplied from the Southern Natural Gas and Enbridge pipelines. Maximum demand has fallen since December 2000 because large industrial customers are now allowed to procure their gas supply directly from a third party supplier. (The maximum system demand of 68,000 mcf/d occurred in December 20, 2000. The greatest total system daily thru-put in January 2008 was 59,297 mcf/d.)



There are no limitations on use other than normal and occasional curtailment of interruptible service based on weather conditions. There are no unusual pressure limitations; delivery pressure is limited to 50 psig or less depending on need and application. Huntsville Utilities will extend gas mains to service a new business park or building in accordance with their gas main extension policy. Planned improvements include:

- Completion of the Eastern Loop (\$1.4 million);
- Highway 53 widening and Jeff Road intersection improvements (\$2.0 million);
- Meridian Street relocation (\$81,000);
- Johns Road and Oakwood Road system improvement (\$68,000); and
- New main extensions for new subdivisions (\$575,000).

B. Decatur Utilities

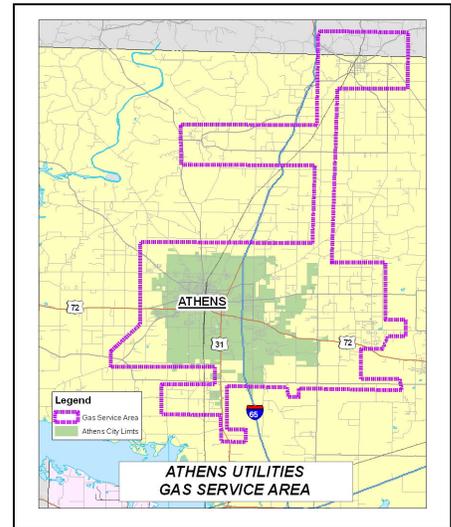
Decatur Utilities provides natural gas within the city limits of Decatur, as well as in portions of Morgan County (industrial areas northwest of the city), Lawrence County along Highway 20 from the Morgan County line to State Highway 33, and to the International Paper mill near Courtland along County Roads 389, 400 and 150. (No map of the service territory suitable for inclusion in this report is available.) Gas is supplied by the Southern Natural Gas (SNG) pipeline that runs parallel to and on the east side of I-65 and from the Enbridge pipeline at State Highway 20 and McEntire

lane that runs parallel to the Tennessee River in the northwest corner of Morgan County. SNG supplies gas at a contracted 25,525 MMBTU firm limit while Enbridge supplies gas at a 500 MMBTU firm limit. Decatur Utilities will extend gas mains to serve a new business park or building if the gas load justifies the expense. Planned improvements to Decatur Utilities’ natural gas services include:

- New gate station, pipeline extension on Highway 20 in Limestone County west of I-65 - \$600,000;
- Chapel Hill Road distribution upgrade - \$110,000;
- Burleson Mountain/Indian Hills Road pipeline extension - \$130,000;
- Distribution expansion north of Highway 20 in Limestone County - \$160,000;
- West Chapel Hill Road pipeline extension - \$65,000;
- Kensington Way/Chapel Hill Road connector pipeline extension - \$40,000;
- Auburn Drive/Modaus Road connector pipeline extension - \$75,000;
- Bird Spring Road pipeline extension - \$125,000; and
- Red Bank Road pipeline extension - \$220,000.

C. Athens Utilities

Athens Utilities Gas Department serves the City of Athens as well as portions of Limestone County. Athens Gas also serves natural gas within and around the City of Ardmore, which is located in Limestone County, Alabama, as well as Giles County, Tennessee. The department purchases its gas from Enbridge Pipeline at multiple locations. The department has a main extension policy stating that facilities will be constructed to areas of development where the load justifies the cost of the project.



D. Southern Natural Gas/North Alabama Natural Gas

Southern Natural Gas Company, headquartered in Birmingham, Alabama, is a natural gas pipeline company founded in 1928 and is currently a division of El Paso Corporation. It operates the Southern Natural Pipeline that brings gas from the Louisiana Gulf of Mexico coast to the southeastern United States. Availability statistics from mid-April 2008 show 62,656 million



BTUs (MMBTU) available for the Huntsville Utilities Gas System, 24,618 MMBTU available for Decatur Utilities, and 5,280 MMBTU available for Hartselle Utilities.

E. Enbridge Gas Transportation

Enbridge Gas Transportation, a subsidiary of Enbridge, Inc., has a gas pipeline across the northern tier of Alabama. Both Huntsville Utilities and Decatur Utilities receive natural gas from this pipeline.



5. Telecommunications

The PSA is served by an extensive network of telecommunications providers offering a very competitive environment for wireless and wireline voice and data, Internet and video entertainment services. The primary providers for “triple play” combinations of phone, Internet and digital television include: AT&T, Charter Communications, Comcast, Knology and PCL Cable. Other communications providers, primarily for businesses, include CenturyTel and DeltaCom. Wireless voice and data providers include: Alltel, AT&T, Corr Wireless, GTE MobileNet, Sprint/Nextel, T-Mobile, US Cellular and Verizon.

The assessment of a region’s telecommunications capabilities has become increasingly difficult, in part due to the complexity of the multitude of services provided by many companies, and in part due to telecommunications companies’ sensitivity to security and business intelligence issues. The Consultant Team found no consolidated write-up of the telecommunications capabilities in the PSA; however, a recent survey of businesses in Morgan County indicates a high level of satisfaction with telecommunications services in the area. This would indicate that the region is adequately served with Central Offices, Points of Presence, SONET rings, high speed voice and data transmission capabilities, and similar telecommunications facilities and services. Most of the major investment in communications infrastructure comes from private companies. Providers say that environments with less regulation tend to attract more capital dollars or more rapid investment for communications networks.

PUBLIC UTILITIES SERVING REDSTONE ARSENAL

Information provided by Redstone Arsenal notes that there are 4.8 million feet of utility systems within the Arsenal and summarizes its utilities as follows:

Electric System

- Supplied by TVA at 2 delivery points (Huntsville Utilities serves Building 6230, the UAH Aerophysics Range)
- 402± miles of wires
- 3 primary substations, 161 kV transmission
- 20 substations, 44 kV distribution
- 5 switching stations, 44 kV
- Capacity: 90,000,000 kWh per month
- Peak demand ranges from 59,000± KW in March to 73,000± KW in July
- 334± metered locations

Natural Gas System

- Supplied by Huntsville Utilities; gas suppliers are SONAT (Birmingham) and Enbridge (Canadian Company)
- 8 gas bills (accounts); city reads 16 meters; there are 14 master metering points; 77± metered locations
- 2 primary meters on Patton Road with capacity of 246,176 cu. ft./hour @ 50 p.s.i., or total of 492,352 cu. ft./hour (12 inch pipeline)
- 55 miles of Arsenal-owned pipeline; 10 miles of city-owned pipeline (12 inches along parts of east boundary; 6 inch feed to housing area from Space & Rocket Center area)
- Capacity: 454,745 Mcf per month
- Peak demand ranges from 17,000± Mcf in July to 42,000± Mcf in July

Water Supply System

- Redstone Arsenal currently purchases its water from Huntsville Utilities with three 8-inch feeds on Martin, Buxton and Patton roads and one 12-inch feed running down Rideout Road
- Huntsville Utilities supplies a small part of north Redstone Arsenal and Building 6230, the UAH Aerophysics Range
- The Arsenal has its own water utility with 3 water treatment plants (1 producing industrial water, 2 in standby capacity)
 - Plant #1 – 2.4MGD potable water; can pump 22 MGD from river; industrial and domestic use
 - Plant #2 – Mothballed and permitted as standby only; can pump 11.3 MGD
 - Plant #3 – 4.6 MGD potable water; process water from plants 1 and 2
- Peak demand of 107,000 Kgal per day occurs in June
- 226± miles of water pipeline

- 2 wells for service to remote locations
- 14 potable water storage tanks with 2.89 million gallon capacity
- 3 industrial water storage tanks with 7.5 million gallon capacity
- 5 buildings with potable water for cooling towers
- 90± billing locations

Sewer System

- Has been privatized
- 4 sewage treatment plants (1 inactive)
- Peak treatment capacity is 9 MGD
- Peak usage currently ranges from 1.5 to 2.0 MGD

Steam System

- Purchased steam from City of Huntsville Solid Waste Disposal Authority
- Waster to steam plant
- 65 RSA boilers in 11 boiler houses and other locations
 - 26 natural gas boilers
 - 19 natural gas/fuel oil duel fuel boilers
 - 15 fuel oil only boilers
 - 5 electric boilers
- 3 delivery points; farthest is 5+ miles from steam plant
- 60+ miles of steam pipeline
- Capacity: 180,000 pounds/hour from waste; 400,000 pounds/hour from gas
- Demand averages 110,000 pounds/hour and varies from 80,000 to 200,000 pounds/hour
- Steam delivery from plant is 350 psi @ 450° F
- Redstone Arsenal delivery is 320° F with 1% moisture; limited to 250 psi by valves on the Arsenal
- 22± metered locations

Fuel Oil

- 113,300 gallon storage; 59,300 gallons for duel fuel boilers

Propane

- 29± tanks at 19 locations
- Capacity: 20,250+ gallons

Arsenal officials report no limitations on activity from utility availability and expect no problems with BRAC-related growth. All utility systems have ample excess capacity to support BRAC-related and other mission growth.

BRAC-RELATED UTILITY NEEDS IDENTIFIED FOR THE PSA

As discussed earlier in this report, during the course of the project a prioritized list of BRAC-related utility needs for the PSA was developed. This list is provided in Table 6-2 on the following pages.

The project list shown in Table 6-2 was developed over a very short period of time, indicating that county and local utilities have anticipated such needs and had begun planning for them since the announcement of the relocations to Redstone Arsenal as a result of the BRAC 2005 process. This anticipatory planning is consistent with information provided by multiple sources during meetings of the project's PUI Task Force. During these meetings, utility representatives stated they were constantly in "planning mode" due to the continual growth of the PSA, so that the inclusion of additional population and economic growth caused by BRAC is more of an adjustment in projections rather than a sudden challenge to accommodate major unanticipated growth.

The corollary to this, however, is the fact that planning to meet utility needs is always less expensive than paying for the needed improvements. The first priority needs alone in Table 6-2 totals \$66,811,000, of which sources for only \$24,200,000 have currently been identified. The total of all the BRAC-related utility needs shown in Table 6-2 is \$185,490,000, of which sources for only \$28,200,000 have been identified.

Table 6-2 also indicates the portion of each project that is estimated to be a direct result of population and other growth in the PSA caused by BRAC. Of the total \$185,490,000 in utility needs shown in Table 6-2, applying the percentage shown as the "Portion of this Project Caused by BRAC Growth" to each project's cost yields a total of \$56,937,200 of utility funding needs directly attributable to BRAC.

In short, while the benefits to the PSA and Broader Impact Region created by BRAC-caused growth at or related to Redstone Arsenal are substantial, as discussed in this and other portions of the Tennessee Valley Region Growth Coordination Plan, there are also substantial utility (and other) costs to the region.

As this report is being written, the nation is in the midst of a significant economic downturn with an accompanying credit crisis. The inability of communities to finance infrastructure construction projects at reasonable costs – if at all – has become a national problem. On October 1, 2008, a New York Times article ("Under Strain, Cities Are Cutting Back Projects") noted: "Analysts said the dysfunction in the municipal bond markets appeared to signal the end of an era of relatively cheap money for governments and, probably, the start of an era of tough choices for communities." The impacts of the subsequently enacted "rescue package" on the availability of the financing needed by the cities and counties of the PSA remain to be seen. Finding effective means of financing the utility and road infrastructure improvement projects caused by or related to BRAC-related growth is a primary challenge for the area.

Table 6-2
Tennessee Valley BRAC-Related Utility Needs

Community/County	Project Name	Portion (%) of this Project Caused by BRAC Growth	Project Timeframe			Estimated Total Project Budget	Sources of Local, State or Federal Funding Already Identified		Gap Funding Required
			Immediate	Short-Term 2 - 5 Years	Long-Term 6+ Years		Source	Amount	
First Priority									
Huntsville Water	Redstone Arsenal 36" Transmission Main	50-60%	X			\$7,109,000	No Sources Yet		\$7,109,000
Harvest-Monrovia	Water reservoir	50%	X			\$5,200,000	Local	\$1,700,000	\$3,500,000
City of Athens Gas	Gas Line - Hwy 72 Mooresville to E Limestone	25%	X			\$322,000	None	\$0	\$322,000
City of Athens Sewer	Athens Sewage Treatment Plant	20%	X			\$24,500,000	SRF Loans	\$20,000,000	\$4,500,000
Madison County Water	New Market Tank: Construct new 5 MG water storage tank in New Market Area	20%	X			\$5,000,000	Local	\$2,500,000	\$2,500,000
Decatur Utilities-Gas	Gas-New gate station, pipeline extension on Highway 20 in Limestone County west of I-65	75%	X			\$600,000			\$600,000
Decatur Utilities-Gas	Gas-Burleson Mountain/Indian Hills Road pipeline extension	80%	X			\$130,000			\$130,000
Decatur Utilities-Water	Water - Indian Hills Road Replace/Upsize	80%	X			\$750,000			\$750,000
Decatur Utilities-Sewer	Wastewater - Indian Hills Road Main Extension	50%	X			\$500,000			\$500,000
Decatur Utilities-Electric	Electric - Build new 15mVA Substation and Distribution Circuits in SW Decatur near Bunny Lane	50%		X		\$2,700,000			\$2,700,000
Madison Utilities	Expand Wastewater Treatment Plant	10%			X	\$20,000,000	Bonds		\$20,000,000
Second Priority									
City of Athens	Gas Line - Huntsville-Browns Ferry - Mooresville past Gray Rd	25%	X			\$184,000	None	\$0	\$184,000
Harvest-Monrovia	Sewer Plant expansion Hwy 53	50%		X		\$4,000,000	Local	\$0	\$4,000,000
Madison County Water	Mountain Fork Upgrade: Upgrade Mountain Fork Treatment Plant from 8 MGD to 16 MGD	30-40%		X		\$16,000,000	Local	\$4,000,000	\$12,000,000
Decatur Utilities-Gas	Gas-West Chapel Hill Road pipeline extension	90%		X		\$65,000			\$65,000
Decatur Utilities-Electric	Electric - Build new 15mVA Substation, Transmission Line and Distribution Circuits in the Chapel Hill Area	70%		X		\$4,000,000			\$4,000,000
Decatur Utilities-Water	Water - Chapel Hill Area Main Replace/Upsize	50%		X		\$1,200,000			\$1,200,000
Decatur Utilities-Sewer	Wastewater - Hwy 31 Basin improvements	35%		X		\$2,000,000			\$2,000,000
Madison Utilities	Construct River Intake (water)	15%		X		\$28,000,000	Bonds		\$28,000,000

TABLE CONTINUES NEXT PAGE

Table 6-2, continued
Tennessee Valley BRAC-Related Utility Needs

Community/County	Project Name	Portion (%) of this Project Caused by BRAC Growth	Project Timeframe			Estimated Total Project Budget	Sources of Local, State or Federal Funding Already Identified		Gap Funding Required
			Immediate	Short-Term 2 - 5 Years	Long-Term 6+ Years				
Third Priority									
Madison County Water	Mountain Fork & Hurricane Road Upgrade: Install additional 24 inch ductile iron water main from Mountain Fork Treatment Plant to water storage tanks. 15,000' 24" DI	20%	X			\$1,200,000	None	\$0	\$1,200,000
Decatur Utilities-Gas	Gas-Kensington Way/Chapel Hill Road connector pipeline extension	75%	X			\$40,000			\$40,000
Decatur Utilities-Electric	Electric-Reconductor 46kV Ckt from Cedar Lake Sub to Morgan Sub	30%		X		\$1,200,000			\$1,200,000
Harvest-Monrovia	Sewer Trunk Line expansion	50%		X		\$2,500,000	Local	\$0	\$2,500,000
Decatur Utilities-Gas	Gas-Chapel Hill Road distribution upgrade	70%		X		\$110,000			\$110,000
Decatur Utilities-Gas	Gas-North of Highway 20 in Limestone County, distribution expansion	90%		X		\$160,000			\$160,000
Decatur Utilities-Sewer	Wastewater - Sandlin Road Collector Extension	60%		X		\$2,500,000			\$2,500,000
Decatur Utilities-Water	Water - Danville Road Main Replace/Upsize	40%			X	\$750,000			\$750,000
Madison Utilities	Construct water storage tank	15%			X	\$5,000,000	Bonds		\$5,000,000
Fourth Priority									
Madison County Water	Hurricane, County Lake, Maysville Road Loop: Install 95,000 feet of 12 inch PVC water main to provide greater flow with less pressure loss during periods of high demand	20%	X			\$3,000,000	None	\$0	\$2,900,000
Decatur Utilities-Water	Water - City View/SW Pressure Zone Looping	25%		X		\$100,000			\$100,000
Decatur Utilities-Gas	Gas-Auburn Drive/Modaus Road connector pipeline extension	70%			X	\$75,000			\$75,000
Decatur Utilities-Electric	Electric - Build Transmission Tie Line Between Circuits C434 and T434 (2 mi)	80%			X	\$600,000			\$600,000
Decatur Utilities-Sewer	Wastewater - Chapel Hill Road Force Main Extension	20%			X	\$1,500,000			\$1,500,000
Harvest-Monrovia	Additional Water source and plant	50%			X	\$15,000,000	Local	\$0	\$15,000,000

TABLE CONTINUES NEXT PAGE

Table 6-2, continued
Tennessee Valley BRAC-Related Utility Needs

Community/County	Project Name	Portion (%) of this Project Caused by BRAC Growth	Project Timeframe			Estimated Total Project Budget	Sources of Local, State or Federal Funding Already Identified		Gap Funding Required
			Immediate	Short-Term 2 - 5 Years	Long-Term 6+ Years				
Fifth Priority									
Decatur Utilities-Water	Water - Hwy 20 Main Replace/Upsize	35%	X			\$1,200,000			\$1,200,000
Madison County Water	Frank Hereford Road Upgrade: Install 15,000 feet of 36 inch ductile iron water main to connect storage tanks to 24 inch, 18 inch, current and new 12 inch water mains along Winchester Road and Railroad ROW.	30-40%		X		\$3,000,000	None	\$0	\$3,000,000
Decatur Utilities-Sewer	Wastewater - Beltline Highway - Main Extensions	20%		X		\$5,700,000			\$5,700,000
Decatur Utilities-Sewer	Wastewater - Limestone Force Main Replace/Upsize	35%		X		\$750,000			\$750,000
Decatur Utilities-Sewer	Wastewater - Baker's Creek Force Main	20%		X		\$1,500,000			\$1,500,000
Decatur Utilities-Electric	Electric - Upgrade Transformer Capacity at Trinity Primary Substation	50%			X	\$5,500,000			\$5,500,000
Decatur Utilities-Gas	Gas-Bird Spring Road pipeline extension	85%			X	\$125,000			\$125,000
Decatur Utilities-Gas	Gas-Red Bank Road pipeline extension	80%			X	\$220,000			\$220,000
Decatur Utilities-Water	Water - Red Bank Road Upsize/Looping	25%			X	\$1,500,000			\$1,500,000
Other Priors									
Madison County Water	Winchester Road Main Upgrade: Install 59,000 feet of 12 in Ductile Iron Water Main along south side of Winchester Road. Replace 59,000 feet of existing 12 inch PVC on north side of Winchester Road with 59,000 feet of 18" ductile iron	30-40% (estimate)			X	\$6,000,000	None	\$0	\$6,000,000
Madison County Water	Grimwood, Pulaski Pike and Patterson Lane Loop: Install 25,000 feet of 24 inch ductile iron and 25,000 feet of 12 PVC to form a loop to provide more water.	30-40% (estimate)			X	\$3,000,000	None	\$0	\$2,800,000
Madison County Water	New Wells FY 2012: Develop new well or wells producing 2.3 MGD	30-40% (estimate)			X	\$1,000,000	None	\$0	\$500,000

CONCLUSIONS

1. The utility needs of the Primary Study Area (PSA) are met by a network of county, municipal, and private utility agencies and the Tennessee Valley Authority (TVA), a federal corporation.
2. Because of the ongoing growth trends in the PSA, these utility providers are continually planning for extended or improved utility services to meet the needs of a growing population and economy.
 - Available water and sewer capacity is adequate to accommodate short-term growth in all areas, but significant capacity increases are necessary to keep pace with anticipated growth, in particular in some areas where BRAC-related growth will occur.
 - TVA is currently a power exporter from northern Alabama because of a surplus of power. This will not impact TVA's ability to meet future electric needs in the PSA.
 - Natural gas capacity appears adequate to support anticipated growth.
 - Telecommunications services are strong.
3. The addition of 4,700 new jobs at Redstone Arsenal and the support contractors and new population that will be attracted to the area will occur within the context of larger and longer term growth trends. This will result in funding needs for utility expansion (both capacity and distribution) occurring more rapidly than planned before the BRAC announcement.
4. From the perspective of utility planning, the inclusion of additional population and economic growth resulting from BRAC is more of an adjustment in projections rather than a sudden challenge to accommodate major unanticipated growth.
5. Planning to meet utility needs is always less expensive than paying for the needed improvements. Of the total \$185,490,000 in utility needs identified as part of this study, \$56,937,200 is directly attributable to BRAC. The vast majority of both the total utility needs and the portion attributable to BRAC are currently unfunded.
6. As this report is being written, the nation is in the midst of a significant economic downturn with an accompanying credit crisis. The inability of communities to finance infrastructure construction projects at reasonable costs – if at all – has become a national problem. Finding effective means of financing the utility improvement projects caused by or related to BRAC-related growth is a primary challenge for the area.
7. There is concern within the PSA about long-term water supply, which utilities are working hard to address. In particular, there is a widespread desire to assure that water taken from the Tennessee River in the future is used within the Tennessee River watershed.
8. While the PSA is blessed with many highly professional utility agencies, meeting the utility needs of the area is highly fragmented. There is an opportunity and desire to seek more collaborative, regional approaches to meeting future utility needs.

9. The development of a regional wastewater treatment sludge disposal facility is a second utility need that would benefit from a collaborative approach with representation of all appropriate utility providers from throughout the region. Such an approach would both provide a more cost-effective method for meeting sludge disposal needs, while also contributing to enhanced quality of life for the region's residents including BRAC transferees.
10. While most utility infrastructure and services in the PSA are provided by governmental agencies, telecommunications are provided by the private sector. To assure the most rapid delivery of the highest quality telecommunications infrastructure and services, governmental policies must be constructed and applied in a way that attracts and encourages private sector investment.
11. Provision of adequate infrastructure for the future will require both technical planning expertise and sound political decision-making.

RECOMMENDATIONS

1. The PSA should establish a collaborative effort to identify and employ effective financing vehicles to meet utility infrastructure development needs. Costs of such an initiative would be minimal.
2. Regional officials should continue to collaborate on water supply and treatment issues to assure that the PSA has adequate water supplies in the future. Costs of such an initiative would be minimal.
3. A regional utility task force established and dedicated to facilitating greater regional cooperation in utility planning and service delivery. A study of effective regional utility collaborative efforts nationally and internationally should be undertaken to identify approaches and initiatives that can be emulated. The estimated cost of such a study is \$40,000 - \$50,000.
4. A nationwide (and perhaps global) study of best practices and programs related to regional sewage sludge disposal should be undertaken. The estimated cost of such a study, if undertaken separately, is \$60,000 - \$70,000. Some cost savings may be realized if this study is combined with that recommended in the prior paragraph.
5. Facilitated by the Chamber of Commerce of Huntsville/Madison County, a Telecommunications Task Force comprised of representatives of all governmental entities and telecommunications providers in the PSA should be established and tasked with making recommendations on how to ensure the area's telecommunications facilities and services remain "state-of-the-art". Costs of such an initiative would be minimal.

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Utility Research Data Collection Form
 County or City Name: _____

(Please attach additional sheets as necessary)

Water Service	
Water Service Provider Name(s)	
Portions of County/City with water service (attach map if desired)	
Size (diameter) of water main(s) serving this area	
Source of water supply (e.g., wells, reservoir, etc.)	
Water capacity available for this area	Total MGD _____ MGD Current MGD Being Used _____ MGD Surplus MGD _____ MGD
Planned treatment plant or service territory expansions or additions and budgets:	
Any known pressure, quality or other problems in this area	
Will water provider extend lines for a new business building or business park if necessary?	<input type="checkbox"/> Yes <input type="checkbox"/> No Conditions:
<u>Other water information:</u>	

Sanitary Sewer Service	
Sewer Service Provider Name(s)	
Portions of County/City with sewer service (attach map if desired)	
Size (diameter) of sewer main(s) serving this area	
Sewer capacity available for this area	Total MGD _____ MGD Current MGD Being Used _____ MGD Surplus MGD _____ MGD
Type of treatment	<input type="checkbox"/> Primary <input type="checkbox"/> Secondary <input type="checkbox"/> Tertiary
Planned treatment plant or service territory expansions or additions and budgets:	
Areas with known infiltration problems and correction plans	
Areas with combined sanitary and stormwater sewers and plans to correct	
Will sewer provider extend lines for a new business building or new business park if necessary?	<input type="checkbox"/> Yes <input type="checkbox"/> No Conditions:
Sewer limitations on industrial effluent	
<u>Other sewer information:</u>	

Electric Power Service	
Electric Power Provider Name(s)	
Location of power generator(s)	
Power generator type (oil, coal, nuclear, hydro, etc.)	
Are all business areas served by 3-phase power? If not, what areas are not?	<input type="checkbox"/> Yes <input type="checkbox"/> No Areas not served by 3-phase power:
Current limitations on power supply if any	
Generating plant or distribution system improvements or expansions planned and budgets:	
SAIDI, CAIDI, SAIFI or other reliability measures:	
Will power provider extend lines for new business building or new business park if necessary?	<input type="checkbox"/> Yes <input type="checkbox"/> No Conditions:
<u>Other electric power information:</u>	

Natural Gas Service	
Natural Gas Provider Name(s)	
Source (location) of natural gas supply	
Location of transmission lines (attach map if desired)	
Portions of County/City served by natural gas (attach map if desired)	
Natural gas supply limitations if any	
Natural gas pressure limitations if any	
Natural gas supply or distribution system improvements or expansions planned and budgets:	
Will natural gas provider extend lines for new business building or new business park if necessary?	<input type="checkbox"/> Yes <input type="checkbox"/> No Conditions:
<u>Other natural gas information:</u>	

Telecommunications Service	
Telecommunications Provider Name(s)	
Types of telecommunications services available in the County/City	
Free long distance calling area	
Location of Central Offices	
Location of POPs	
Portions of County/City with good cellphone service	
Portions of County/City served by SONET rings	
Telecommunications system improvements planned and budgets:	
Will telecommunications provider extend lines for new business building or new business park if necessary?	<input type="checkbox"/> Yes <input type="checkbox"/> No Conditions:
<u>Other telecommunications information:</u>	

Other Utility Information: (attach additional sheets if necessary)

