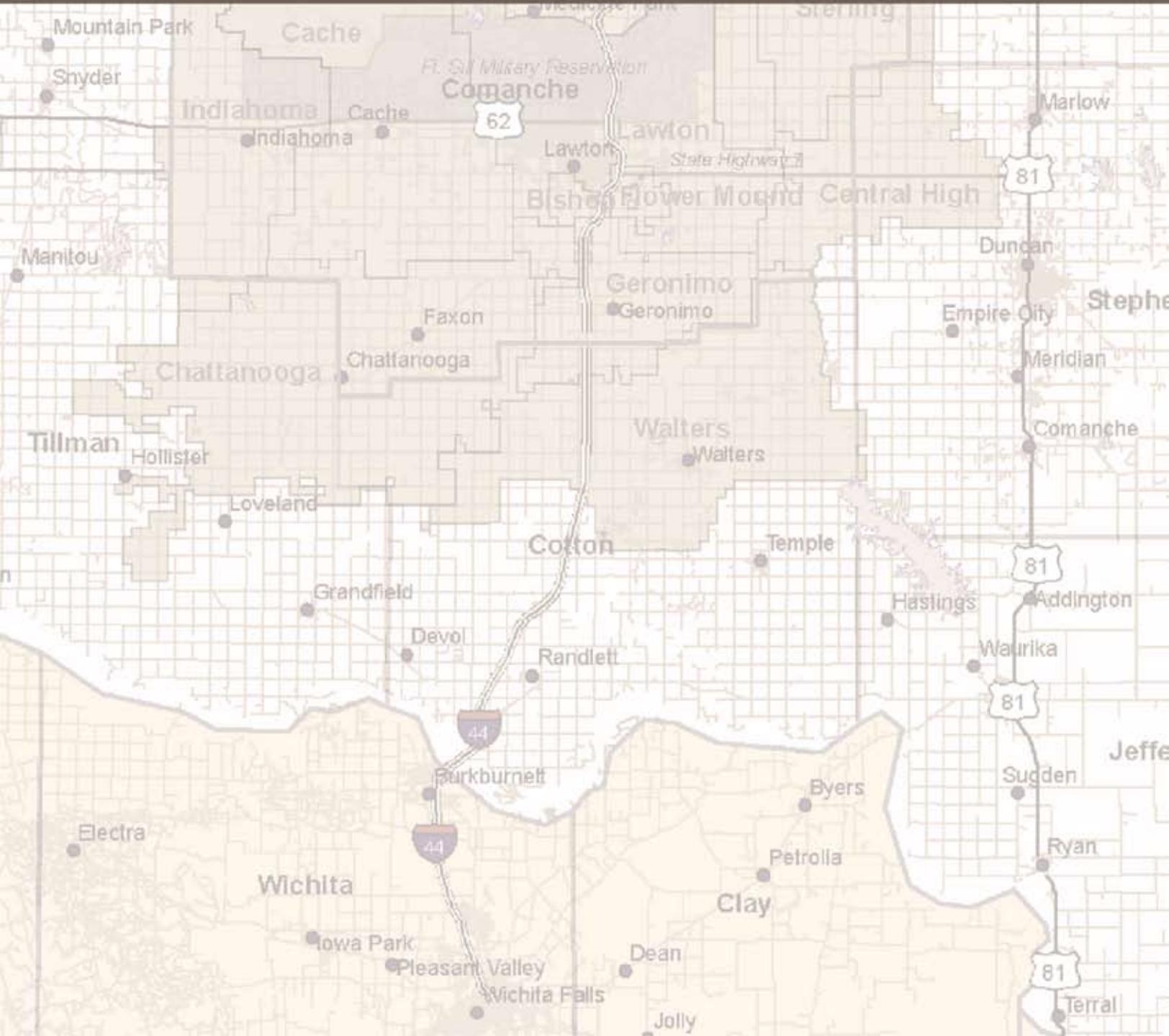
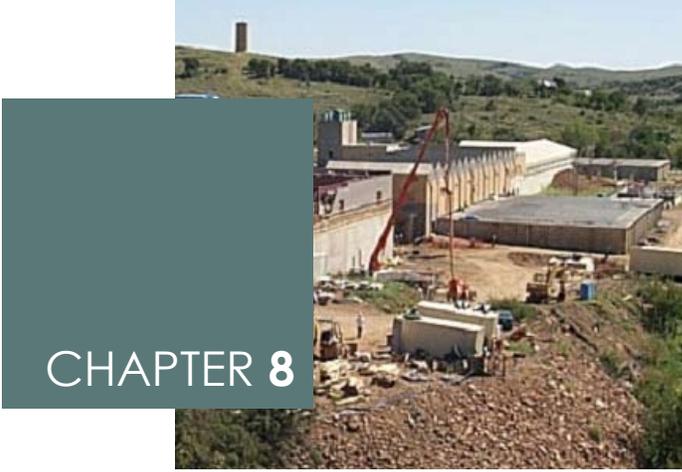


CHAPTER 8

UTILITY INFRASTRUCTURE





CHAPTER 8

Introduction

Adequate utility infrastructure is a crucial element in a community's ability to promote future development and growth, and sound and coordinated infrastructure policies and regulations are critical in managing the anticipated growth. Like many other military communities across the U.S., the Lawton Fort Sill region has struggled with finding the balance between providing adequate water, wastewater and other utilities to all the "suburbanizing" areas of its communities, while at the same time, promoting smart growth initiatives and responsible infrastructure policies that help the municipal entities provide these services in a cost effective and efficient manner. This chapter examines the current status and proposed improvements to the overall infrastructure network within the region and its ability to accommodate and serve the anticipated growth and development induced by BRAC. The primary focus of this section is to identify potential limitations or network conflicts that could limit the provision of adequate housing, commercial, and other private developments that will be needed to accommodate BRAC newcomers and support the overall mission at Fort Sill.

Infrastructure Planning in the Study Area and Key Information Sources Used

The historic settlement and development patterns in the Lawton Fort Sill region strongly influenced the planning and development of its infrastructure systems and similarly influenced the nature and focus of our utility and infrastructure planning and analysis. The study area generally consists of three types of communities when the area's infrastructure development and planning is examined. First, there is the urbanized "core" of the region at the City of Lawton. Lawton's urban level of infrastructure development and sophistication enables it to provide utility services for its community as well as the other smaller communities in

the region. Second, there are the smaller communities within the overall study area (i.e. Cache, Elgin, Walters, etc.) that have developed a network of water and wastewater facilities, but these systems are older, deteriorating and in need of repair if they are expected to accommodate any significant future growth. Finally, there are the rural, agricultural areas and communities in the region that rely on rural water districts and septic wastewater systems and their ability to accommodate future growth is limited without significant facility upgrades at significant capital costs.

For the purposes of this report, our research and analysis was primarily focused on the communities located in Comanche County, particularly the "primary impact area" communities of Lawton, Cache and Elgin. While the smaller communities within the region will experience some growth due to the BRAC deployment, the existing land use, transportation and utility infrastructure systems within Comanche County and the strong local perceptions of these areas as the primary "growth areas," will promote and steer growth to these cities. Furthermore, the analysis of "infrastructure" in this chapter generally is confined to those public utilities that are used in developed or developing areas, such as domestic water supply and fire flow, sanitary sewer service, stormwater management facilities, electric service, natural gas service, and telecommunications.

In order to develop as comprehensive base of knowledge as possible about current and future infrastructure programs and facilities, the planning team evaluated several published reports and sources regarding utilities in the area (see box), and then supplemented this information with data and perspectives from interviews with local utility providers

and additional information from public websites. This research primarily focused on the planning and coordination efforts emanating from the City of Lawton. The utility network and system planning completed in Lawton was far greater than any other community, and because of the size and complexity of Lawton's utility network and its overall impact on the region as a whole, it served as the basis upon which most other communities began their planning effort.

Related Studies and Information Sources:

- *Lawton 2030 Long Range Land Use Plan - City of Lawton, 2007*
- *Lawton Capital Improvements Plan and Budgets, 2000 - 2008*
- *State of Oklahoma 50 year Comprehensive Water Plan, Oklahoma Water Resource Board, 2007 - 2008*
- *Various project specific studies from Lawton, Elgin and Cache communities*

Methodology

In general, our analysis of the region's utilities and infrastructure system included an overall review and analysis of: (1) the primary service provider and service area for each major utility; (2) a review of current and future treatment or generating capacity of the utility and projected short and long term capacity needs; (3) review of utility distribution network or system and capacity of this system to service future growth areas; (4) current and future policies and regulations related to utility infrastructure development for private developers, including funding obligations. The results of this research were used to form an overall perspective of the utility infrastructure within each community and how the region's overall network was coordinated. The primary emphasis of the methodology was to identify any shortcomings in the capacity or distribution systems of the major utilities that service the anticipated growth areas within the primary impact area communities.

Existing Conditions

This section provides a summary review of the capacity and capabilities of the private utility providers within the study area, including natural gas, electric, and telecommunications services. In addition, the status of utility infrastructure systems of several of the smaller communities within the region is provided, as well as a more detailed examination of the factors influencing the provision of utilities in the primary impact area cities of Cache, Elgin and Lawton.

Private Utility Providers

Natural Gas Service

Center Point Energy provides the Lawton Fort Sill region with natural gas service. This publicly-traded company has more than 5 million metered customers of electrical and local natural gas distribution businesses in six states. Officials with the company indicate that they have commenced planning of several new facilities/lines to accommodate future growth in the region and do not anticipate capacity or distribution issues. Major new lines to the southwest growth areas of Lawton are perhaps the greatest infrastructure issue for Center Point Energy, but this need will be met according to officials.

Electric Service

AEP/PSO is the primary electrical service provider to the Lawton area households and businesses. AEP/PSO also produces electricity for the region at their Comanche generating station in Lawton, which has a total capability of approximately 265 megawatts. The existing network of distribution lines and overall system capacity will enable the PSO to sufficiently accommodate the near and long term growth anticipated in the area.

Cotton Electric Cooperative and Caddo Electric Cooperative are not-for-profit entities, owned by their members, and provide electric distribution and services to the southern and northern portions of the study area, respectively. Cotton Electric currently serves the majority of eight counties in southwest Oklahoma, including the rural areas around Lawton and Fort Sill and have approximately 20,000 meters across their service area and 2,000 meters in the study area. Caddo Electric



serves over 15,500 meters, who utilize more than 4,176 miles of line in eight counties; Blaine, Caddo, Canadian, Comanche, Custer, Grady, Kiowa and Washita. Large portions in the northern study area and beyond and has over 18,000 metered customers in their system. Both systems are part of the Touchstone Energy network and do not anticipate any issues related to distribution or capacity throughout for new developments in the study area.

Telecommunications Service

A T & T and Telco Supply Company provide telecommunication services for the study area. Both companies provide basic phone services, as well as a broad range of internet, broadband and other fiber connections throughout the area. According to company representatives, there are no anticipated issues with providing expanded services to the growth areas throughout the Lawton Fort Sill region.

Utility Infrastructure in Non-Primary Impact Area Communities

While the majority of growth anticipated with BRAC deployments will occur in the Lawton, Elgin and Cache communities, the research indicates that upwards of 350 -500 new residential units will likely be developed in the surrounding rural areas or communities. The research indicates that most of this growth will likely occur across several of these communities, thus spreading the impact and lessening the probability of any single development outstripping the community's ability to service the potential growth. The current status of utilities within these areas summarized below.

Walters, Oklahoma

The existing utility systems (water, sewer and electric) within the City currently are capable of accommodating new growth and development. A recent housing addition was approved for 300 lots in the city and it was determined that the current infrastructure system was capable of accommodating this growth and another 300 – 400 homes. The current water treatment plant is operating at 50% capacity, and the electric and wastewater systems can handle additional loads.

Geronimo, Oklahoma

A recently proposed and approved housing addition has emphasized the need for water and sewer upgrades in this community. The city has proposed these upgrades and currently is seeking funding for the required improvements. Without the required upgrades, only minimal new additional development can occur.

Chattanooga, Oklahoma

The primary issue for Chattanooga is domestic water quality and capacity issues for sewage treatment. The nitrate levels in the water must be addressed. Water and sewer capacity are currently near the maximum level and only an additional 25-50 homes can be accommodated within the current system.

Indiahoma, Oklahoma

The city recently started the rehabilitation and replacement of sewer lines within the City with a grant from the state. The quality of their domestic water supply (from CKT Rural Water District) has been in violation recently, and their sewer and water supply is very limited in the ability to service new growth.

Medicine Park, Oklahoma

The current infrastructure system is aged and in need of repair. Infiltration and inflow problems plague the sewer network. New growth is occurring and is being serviced, but due to the increased maintenance and service costs of the current system, the costs to service this new growth is not offset by the corresponding revenue received from the new connections.

Sterling, Oklahoma

The current water and wastewater treatment and distribution facilities are old and deteriorating. Capacity will be an issue if new growth is proposed, and it is likely that the sewage capacity is insufficient to handle new flows without significant upgrades.

Fletcher, Oklahoma

Based on the research, the city's infrastructure network appears to be able to accommodate new growth. A recent water line rehab project has improved the city's water distribution system and a new sewer lift station has been approved to be constructed to accommodate flows from a new housing addition.



Apache, Oklahoma

Recent water and sewer expansion projects in town have increased the reach of the current system and it has enabled new growth potential on the south side. Existing capacity levels will support limited growth, but if any significant growth is proposed, new capacity is needed.

Factors Influencing Utility Infrastructure in Primary Impact Area Communities

Exhibit 8.1 (next page) graphically displays the major elements of the utility infrastructure system within the primary impact area communities of Cache, Elgin and Lawton. In general, these separate communities have worked to accommodate the growing development demands that have occurred in the short term due to the BRAC announcement, but each of these cities require additional upgrades to their infrastructure to accommodate the forecasted demand for services in the growth areas.

Cache, Oklahoma

Currently, the water system within the city is operating at or near capacity over any given time period with approximately 1,100 customers and a total of approximately 250,000 gallons of water storage capacity in two towers. The most pressing need is for additional domestic water supply (the city's source of water are wells) and enhanced water distribution facilities that can provide potable water at sufficient pressures to handle new growth. Recent grants received by the City are assisting in developing a monitoring system for the water network and will provide additional data that can be used as a means to analyze critical need areas and focus distribution and pressure improvements. Elevated water storage facilities appear to be the greatest need across the service area to improve overall system pressure and flow, followed by the need for additional water capacity to handle growth. An additional 100 homes can be accommodated within the existing system, but growth is anticipated to expand the need beyond this limit.

The sewer system also needs capacity upgrades. An existing lift station on the east side of town (where new growth is occurring and future growth is anticipated) needs upgrading and the sewage treatment facilities require up to 50% additional capacity. A study of existing

sewer lines and facilities would likely indicate infiltration issues that, once eliminated, would free up excess capacity, but it is likely that additional capacity will be needed.

Finally, there are no significant stormwater management facilities or programs/policies in Cache presently. As development increases within the City and stormwater runoff increases, the city may experience localized flooding that can damage structures and endanger health and safety.

Elgin, Oklahoma

The city currently has several providers of water service to their incorporated areas, including Caddo County Rural Water District #3, Comanche County Rural Water District #1 and #2 and the city's water supply. The primary issue related to these providers is the provision of adequate distribution facilities to provide adequate flow and pressure in high growth areas. Many of the existing lines are 4" and 6" in size and require significant upgrades to provide capacity and pressure. Recently, the U.S. Department of Agriculture (USDA) made a loan/grant to Elgin PWA for construction of a new water tower within the City that will enable the City to increase pressure for water lines in urban areas of Elgin.

In terms of sanitary sewer, the city's current lagoons have recently been expanded with a grant from the U.S. Department of Commerce (Economic Development Administration) and other matching state and local funds to increase capacity and improve overall system collection lines to the proposed BAE Systems manufacturing facility near Interstate 44. While these improvements have ensured capacity for this facility and the adjoining industrial park, the excess capacity in these facilities will not be sufficient to accommodate the anticipated growth that is projected for Elgin. In addition, the city is under an EPA mandate in terms of their overall sewer distribution system and they have recently undertaken a test of their overall sewer collection system and found that the pipes are deteriorated and have significant infiltration issues. Capacity for new housing is available but very limited, and significant new developments or lots, beyond those already approved, remains questionable due to capacity and distribution constraints.



Finally, there are no significant stormwater management facilities or programs/policies in Elgin presently. As development increases within the City and stormwater runoff increases, the city may experience localized flooding that can damage structures and endangers health and safety.



Insert Exhibit 8.1



Lawton, Oklahoma

The city of Lawton has been very active since 2000 in developing an adequate utility infrastructure network to handle their current and future growth areas. Approximately \$75 million in utility infrastructure has been committed in various parts of the City, and while many of these current and proposed improvements resulted from advance planning on the part of the City, some of the improvements have been prompted by EPA mandates on the existing sewer system and treatment plants. In general, the City has the following infrastructure facilities in place to accommodate growth:

Water Treatment Capacity and Distribution

The improvement of the Medicine Park water treatment plant and the addition of the Southeast water treatment plant has supplied Lawton with an overall treatment capacity of 50 million gallons per day. This capacity is sufficient to handle current and projected demands through the year 2030 and is supplied by major water intakes at Lake Ellsworth, Lake Lawtonka, and Lake Waurika. In addition, the City has upgraded its distribution network in the northwest and eastern parts of the city to provide adequate flow and pressure to these growth areas. Major water distribution lines and storage facilities completed in the recent past include:

- Cache Road 24" waterline in northwest Lawton
- New storage tank and 24" water distribution lines in the Bishop Road, Coombs Road and SE 15th Street areas of east Lawton
- Eleven (11) miles of undersized or inadequate water line replacements across the City since 2000
- Expansion of the North Plant (Water Treatment Plant) in Medicine Park from 25MGD to 40MGD
- Construction of new Southeast Water Treatment Plant

Sanitary Sewer Capacity and Distribution

The current sewer treatment plant in the far southeast portion of the city (Tinney Road east of I-44) has enough capacity to handle current and anticipated future growth based on recent estimates of new housing and commercial development as a result of BRAC. Based on current flow data and projected increases, the plant provides enough projected capacity through the year 2025. In an effort to provide adequate advance planning, however, the city of Lawton has undertaken a review

of the current and projected capacity needs of the plant and a feasibility study of its improvement. From a distribution standpoint, new sewer rehab projects have been completed (or are under construction) in the northwestern portions of the city (West Wolf Creek) that are forecasted for growth. Additionally, the city has begun study of two other sewer basins that will require sewer collection networks to handle future growth, the South Wolf Creek basin (to serve the southwestern growth areas in Lawton) and the Nine Mile Creek basin (to serve the eastern growth areas of Lawton).

Stormwater Management Measures

Lawton has developed a sophisticated and effective pre-treatment program and maintains a system of stormwater detention facilities that enable the city to protect its public and private investments and water quality during large rainfall events. The city's regulations and policies are good models for other area communities.



Water Line Work in Lawton

Needs Assessment

Based on this analysis, with a few exceptions, the communities within the primary impact area and the secondary impact area have sufficient utility infrastructure networks and systems in place to handle the near and short term impacts of growth associated with BRAC, but in order to handle the long term opportunities and impacts, significant infrastructure upgrades are needed. Private utility providers of natural gas, electric and telecommunications are equally prepared to meet short term demands, and they have the necessary resources and planning programs to identify and meet long term demands also.

City of Lawton Utility Infrastructure Gaps/Needs

While the advance planning studies and analysis completed by the city of Lawton have prepared them particularly well for the growth, their current policies and patterns of growth will place an unusually high burden of future distribution needs upon them. The city's current policy of extending and expanding infrastructure systems to all areas of the City, regardless of overall costs and needs, encourages sprawl development and effectively subsidizes private development at the cost of public ratepayers and the overall quality of life, growth and development within the city. "Smart Growth" policies regarding land use decisions and infrastructure extensions are needed. Based on the City's prior commitments to expand the current network of infrastructure, Exhibit 8.2 (next page) highlights the some of the major gaps in their current infrastructure network, including:

- Development of sanitary sewer trunk lines in the West Wolf Creek basin (north of Gore Blvd. and east of 75th Street to Cache Road) to service the proposed developments occurring in this northwestern portion of the community;
- Development and Upsizing of sanitary sewer trunk lines in the South Wolf Creek basin (from just east of Railroad Road at I-44 west to the Lee Blvd. areas of west Lawton) to service the proposed developments occurring in the southwestern portion of the city and

to upsize the downstream trunk lines beginning at 11th Street;

- Development of sanitary sewer trunk lines in the Nine Mile Creek basin (north of the existing WWTP and north to Cache Road in east Lawton) to service the proposed developments occurring in this eastern portion of the community; and
- Construction of a new water transmission line (48" in size) from the current Southeast Water Treatment Plant to connect to the current water main on the west side of I-44 at Lee Blvd. and Sheridan Road to provide an overall "loop" for the system that connects the east and west sides of Lawton together to improve flow and pressure in the far reaches of the western portions of the service area.

City of Cache and Elgin Utility Infrastructure Gaps/Needs

In many ways, the infrastructure needs within these two communities are identical. The current utility infrastructure in both areas is older, deteriorating and contributing to a decrease in capacity and capabilities of the overall water and sewer system because of their condition. Additionally, although recent upgrades in both communities have increased service capabilities and thus their ability to provide adequate infrastructure for short term growth, the long term needs are significant and will be inhibitors to future development opportunities. Finally, the lack of formal land use and infrastructure policies based on smart growth initiatives within these growth communities threatens the long term quality of life and viability of the community's infrastructure systems. The size and financial capacity of these communities is insufficient to sustain a growth policy that subsidizes new development with rate increases.



Insert exhibit 8.2 here, 11 x 17



Regional Infrastructure Needs/Issues

The Lawton Fort Sill region would seem to be immune from the increasingly sophisticated and extreme needs for additional water supplies that have begun to impact the growth possibilities and potentials in the western United States and parts of Texas. Upon closer examination, however, the recent drought conditions in the area in 2005-2007 and the predatory actions of north Texas communities on the waters of the Red River may provide sufficient reason for the Lawton region to begin to evaluate the need for a regional water approach. In many ways, the strength of the region is found in the ability of the area to offer diverse living environments (i.e. “suburban” or small town atmospheres of Cache, Elgin, Sterling, etc versus the “big city” nature of Lawton). If this diversity is undermined due to the smaller communities inability to provide adequate and affordable water supplies for future growth, the region as a whole will suffer.

Recommendations

In general, the local communities surrounding Fort Sill have incorporated the utility requirements at the Post into their advance planning and capital budgeting in order to ensure that the existing utility infrastructure in the region can accommodate the BRAC changes at Fort Sill. With the exception of purchasing potable water from the City of Lawton, Fort Sill maintains its own utility infrastructure as an autonomous utility provider, thus the impact of any deficiencies in the local communities is minimized at the Post.

On the other hand, the primary impact area communities of Cache, Elgin and Lawton have significant infrastructure needs in order to meet the anticipated demands of the projected population and business growth associated with BRAC. The specific recommendations for each community are described in more detail in the following sections.

City of Lawton – Utility Infrastructure Recommendations

The Lawton area is projected to see significant new residential and commercial development and growth

associated with the BRAC deployment. Private real estate developers and builders have already planned, designed or permitted over 5,800 new residential units in the high growth areas of west, southwest and east Lawton. Accordingly, the following recommendations are offered:

- 1. Develop a Smart Growth Plan and Policies for limiting the sprawl pattern of development and infrastructure extensions in the City:** The Land Use and Planning chapter of this Growth Management Plan described the need for a coordinated and comprehensive strategy for addressing the fiscal and environmental impacts associated with the City’s historic patterns of development at its fringes. These sprawl or leapfrog development patterns are understandable due to the abundant availability of affordable, developable land at the city’s edges, but the short term capital costs to extend utilities and the long term maintenance costs associated with these facilities are significant. Lawton should develop a comprehensive land use, planning and infrastructure “smart growth” strategy and plan that limit this practice in the future.
- 2. Plan, Design and Implement a coordinated set of Utility Capital Improvement projects that provide the necessary services to high growth areas:** The west, southwest and eastern portions of Lawton are poised for growth and the previous policy decisions by the leaders of Lawton have essentially committed the City to provide the necessary infrastructure to support the growth and development of these areas. As such, the following major capital improvement projects should be undertaken:

 - Sanitary Sewer Trunk Line – East Lawton:* Nine Mile Creek Sewer Trunk Main (approx. 9 miles of 10” - 30” line from existing WWTP at Tinney Road and running northeast to NE60th Street and Rogers Lane). Estimated cost is \$8.0 million.
 - Sanitary Sewer Trunk Line – Northwest Lawton:* West Wolf Creek Sewer Trunk Main (approx. 1.5 miles of 15” - 27” line from existing terminus of sewer main at 75th Street northwest to Cache Road west of 82nd Street). Estimated cost is \$2 million.



- *Sanitary Sewer Trunk Line – Southwest Lawton:* South Wolf Creek Sewer Trunk Main (approx. 9 miles of 30" - 54" line from existing terminus of sewer main at SE15th Street and running northwest to Lee Blvd and Goodyear Blvd areas in southwest Lawton). Estimated cost is \$14.0 million.
- *Water Transmission Line – Southeast Water Treatment Plant to central Lawton distribution system:* Southeast Water Transmission Line (approx. 5 miles of 48" line running northwest from SE Water Treatment Plant to the current system tie-in point at Sheridan Road at Lee Blvd.) that provides a connected system and improves flow and pressure to the city service areas west of Interstate 44. Estimated cost is \$7.0 million.

- 3. Organize and Convene a Regional Water Summit and Investigate/Evaluate the Benefits of Developing a Coordinated Regional Water Plan and Supplier:** Lawton's role in this potential organization and network would be pivotal and they should take a leadership position in organizing the initial planning efforts of a "summit." For additional information regarding this recommendation, see "Miscellaneous Area-Wide Utility Infrastructure Recommendations" at the end of this section.

City of Cache – Utility Infrastructure Recommendations

While the number of units projected for the Cache area does not approach the volume anticipated in Lawton, their growth projections represent a similar order of magnitude impact on the city's existing infrastructure network as Lawton's growth numbers will have on its infrastructure system. Private real estate developers and the City have already planned, designed or permitted over 300 new residential units in the City, and accordingly, the following recommendations are offered:

- 1. Develop a Smart Growth Plan and Policies for limiting the sprawl pattern of development:** Cache has a unique opportunity to develop in an environmentally-sensitive and fiscally-responsible manner based on the location of currently planned

developments. The limitations of the current utility infrastructure network has informally regulated development proposals to those areas adjacent to or within current city limits or service boundaries, thus the sprawl effect and leapfrog development patterns have not yet commenced. Like Lawton, however, cheap, developable land lies outside current service limit areas and there will likely be pressure to extend infrastructure to these areas at significant costs. Cache should use their current system limitations to their planning advantage and develop a comprehensive land use, planning and infrastructure "smart growth" strategy and plan that controls sprawl development practices in the future.

- 2. Develop a detailed and coordinated Utility Infrastructure Master Plan and Capital Improvements Plan for the City:** The analysis indicates that the City has developed an initial planning document and strategy to address current water and sewer system deficiencies, but this strategy may not provide sufficient long term capacity and distribution improvements to handle the anticipated growth due to BRAC. The City should seek funding assistance to procure technical support to develop a long term strategy of key improvements and capital budgeting that is coordinated with other regional providers to ensure cost effective solutions. Based on preliminary estimates, the capital costs to provide short term (2008-2013) utility infrastructure improvements exceed \$2.5 million.
- 3. Develop and Implement a Stormwater Management Ordinance for new developments:** Develop, adopt and implement new stormwater management regulations/ordinances for all proposed public and private developments in the city. Utilize the current stormwater management ordinance and best practices developed in Lawton as a prototype.
- 4. Participate in a Regional Water Summit to Investigate/Evaluate the Benefits of Developing a Coordinated Regional Water Plan and Supplier:** Cache's role and beneficial use in this potential organization and network should be examined and they should assist in the organizing of the initial planning efforts of a "summit." For additional information regarding this recommendation, see

“Miscellaneous Area-Wide Utility Infrastructure Recommendations” at the end of this section.

City of Elgin – Utility Infrastructure Recommendations

The growth projections for the Elgin area are larger than those estimated for Cache but much smaller than Lawton, but like Cache, the number of units projected for Elgin presents similar order of magnitude issues for their current infrastructure network. Elgin’s recent success in developing new water and sewer upgrades for the proposed BAE Systems plant in their industrial park has permitted the City to provide services to the near term growth they are experiencing, but the long term growth projections of 500 – 1,000 homes will strain their upgraded system beyond its capacity. Accordingly, the following recommendations are offered:

- Develop a Smart Growth Plan and Policies for limiting the sprawl pattern of development: Elgin, like Cache, has not developed or committed to an overwhelming sprawl development pattern as of yet, thus the City has a unique opportunity to limit the impact and effects of leapfrog development and promote land use and infrastructure policies that are environmentally-sensitive and fiscally-responsible for the long term quality of life of the community. Elgin should use their current system limitations to their planning advantage and develop a comprehensive land use, planning and infrastructure “smart growth” strategy and plan that controls sprawl development practices in the future and provides for feasible and logical utility and infrastructure extensions to the current system.
- Develop a detailed and coordinated Utility Infrastructure Master Plan and Capital Improvements Plan for the City: The City should work with Caddo County Rural Water District #3 to develop a coordinated and comprehensive strategy to address current and long term water and sewer system deficiencies. The City should seek funding assistance to procure technical support to develop a long term strategy of key improvements and capital budgeting that is coordinated with other regional providers to

ensure cost effective solutions. Based on preliminary estimates, the capital costs to provide short term (2008-2013) utility infrastructure improvements exceed \$5.0 million.

- Develop and Implement a Stormwater Management Ordinance for new developments: Develop, adopt and implement new stormwater management regulations/ordinances for all proposed public and private developments in the city. Utilize the current stormwater management ordinance and best practices developed in Lawton as a prototype.
- Participate in a Regional Water Summit to Investigate/ Evaluate the Benefits of Developing a Coordinated Regional Water Plan and Supplier: Elgin’s role and beneficial use in this potential organization and network should be examined and they should assist in the organizing of the initial planning efforts of a “summit.” For additional information regarding this recommendation, see “Miscellaneous Area-Wide Utility Infrastructure Recommendations” at the end of this section.

Miscellaneous Area-wide Utility Infrastructure Recommendations

Based on the findings of our land use and infrastructure planning research and analysis, several of the smaller, high-growth communities are struggling to provide efficient, reliable utility (water/sewer) services to their existing population base and this challenge will only intensify as BRAC growth continues and the development of new housing and businesses intensify as new “BRAC’ residents begin to relocate to the area. Although each of these communities presently can provide sufficient service to their existing customers, the sources and capacities of raw water in the region are likely to become dramatically impacted by future growth, and if individual communities (protecting their own interests) move to consolidate or guarantee future water sources and capacities, the region as a whole may suffer due to individual community actions versus an integrated, region-wide approach to providing water and sewer service to each municipality. Accordingly, a Regional Water Supply Summit is proposed to

develop a coordinated strategy for providing raw water supplies for these communities and to determine if a regional approach to this issue is warranted. Based on the conclusions of the summit, a Regional Water Study should be initiated and this proposed study would investigate the overall future demand for water treatment, distribution, etc. and determine if a regional approach would be more efficient in the long run. This is particularly important to Fort Sill since they are a large customer of the City of Lawton and the Fort could be negatively impacted if future demands outstrip potential capacities. Anticipated cost of study: \$250,000.

Implementation

The following pages indicate the specific implementation steps, processes, participants and costs for the recommendations included in this chapter.



Lawton Fort Sill Growth Management Plan Implementation Checklist Subject: Utility Infrastructure				Responsibilities	Timing	Estimated Cost	Potential Funding Sources
				Primary	Secondary		
Issue: Future development and growth will strain the capacity and distribution of Cache, Elgin and Lawton utility infrastructure systems and potentially limit long term growth and development needed to adequately address BRAC population growth projections							
Recommendation: Plan, develop, adopt, design and implement a coordinated set of Infrastructure Capital Improvement projects in these areas to provide long term capacity and adequate water and sewer services for future growth							
Develop, advertise and solicit technical assistance consultant for Cache and Elgin in an utility infrastructure feasibility study RFP to determine the most feasible and cost efficient means to provide water and wastewater facilities and capacity for growth areas within the city				City	OWRB	Near	\$125,000 per city OEA, OML/OMUP, LOCAL, OSMC
Action 1: Revise the current Capital Improvements Plan and budgets for the city of Lawton to include the following infrastructure capital projects							
Action 2: Plan, design and begin construction on the following waterline distribution project: Southeast Water Transmission Line (approx. 5 miles of 48" line running northwest from SE Water Treatment Plant to the current system tie-in point at Sheridan Road at Lee Blvd.)					ENG, LCD, ODEQ, OWRB	Long	\$7.0 million LOCAL, STATE, OWRB
Action 2.1 Plan, design and begin construction on the following sewer collection system and trunk line project: West Wolf Creek Sewer Trunk Main (approx. 1.5 miles of 15" - 27" line from existing terminus of sewer main at 75th Street northwest to Cache Road west of 82nd Street)				City	ENG, LCD, ODEQ	Long	\$2.0 million LOCAL, STATE, OWRB
Action 2.2 Plan, design and begin construction on the following sewer collection system and trunk line project: South Wolf Creek Sewer Trunk Main (approx. 9 miles of 30" - 54" line from existing terminus of sewer main at SE15th Street and running northwest to Lee Blvd and Goodyear Blvd areas in southwest Lawton)				City	ENG, LCD, ODEQ	Long	\$14.0 million LOCAL, STATE, OWRB
Action 2.3 Plan, design and begin construction on the following sewer collection system and trunk line project: Nine Mile Creek Sewer Trunk Main (approx. 9 miles of 10" - 30" line from existing WWTP at Tinney Road and running northeast to NE60th Street and Rogers Lane)				City	ENG, LCD, ODEQ	Long	\$8.0 million LOCAL, STATE, OWRB
Action 2.4							
Implementation Partners/Agencies CITY - Local government; planning departments or city administrations CO - County governments FORT - Fort Sill ODOT - Oklahoma Dept. of Transportation ASCOG - Association of South Central Oklahoma Governments ENG - City of Lawton Engineering Department LCD - Lawton Community Development department OEA - Office of Economic Adjustment OWRB - Oklahoma Water Resources Board OML - Oklahoma Municipal League ODEQ - Oklahoma Dept. of Environmental Quality							
Timing Near - 2008 - 2009 Mid - 2010 - 2011 Long - 2012+							
Funding Sources LOCAL - bond/general revenues from local governments STATE - state revenue source OWRB - Oklahoma Water Resources Board OEA - Office of Economic Adjustment ODOT - Oklahoma Dept. of Transportation Federal Aid funds OML/OMUP - Oklahoma Municipal League (Water/Wastewater Engineering Technical Assistance Program) OSMC - Oklahoma Strategic Military Commission							



Lawton Fort Sill Growth Management Plan Implementation Checklist Subject: Utility Infrastructure				Responsibilities	Timing	Estimated Cost	Potential Funding Sources
				Primary	Secondary		
Issue: Sprawl development patterns create inefficient and costly-to-maintain utility infrastructure systems							
Recommendation: Develop and implement a coordinated set of infrastructure and development policies and standards that encourage compact development in existing urban service areas and lessen the impact of future development on the environment and rural character of the area							
Action 1:	Revise planning, zoning and code regulations to promote urban development patterns and provide infrastructure to urban areas and discourage infrastructure extensions into rural areas						
Action 1.1	Develop a Regional Infrastructure Plan that is the regulatory template for future growth and development (Urban growth boundaries, Extraterritorial Planning Jurisdictions, etc.) to be reviewed and adopted by each municipality and county	CITY	CO	Near	\$150,000	LOCAL, STATE, OSMC, OEA	
Action 1.2	Develop and implement an ETJ for primary impact area communities of Lawton, Cache and Elgin to provide a logical urban growth boundary for each city and to ensure that new development meets the minimum infrastructure design and construction standards and no utility extensions occur outside the UGB	CITY	CO	Near	NA - included in the Regional Infrastructure Plan funding	NA	
Action 1.3	Investigate the use of an Infrastructure Impact Fee (or facilities fee) on all new developments within the cities of Elgin and Cache to help finance the required infrastructure development and upgrades necessitated by new development	CITY		Long	\$50,000	LOCAL	
Issue: Lack of adequate stormwater management measures or standards in Cache and Elgin have and will increasingly contribute to increased runoff and deterioration of area waterways							
Recommendation: Develop comprehensive stormwater management regulations and guidelines for all new development and construction projects within the City							
Action 1:	Develop, adopt and implement new stormwater management regulations/ordinances for all proposed public and private developments in the city. Utilize the current stormwater management ordinance and best practices developed in Lawton as a prototype.	CITY	ODEQ, CO	Short	\$15,000	LOCAL, ODEQ	
Issue: Projected growth and development in the southwest Oklahoma and north Texas areas will strain regional water supplies and the growing incidence of drought-type conditions in the region will further exacerbate the potential for limited growth in raw water supplies							
Recommendation: Develop a coordinated and comprehensive approach and strategy for the region in terms of developing and consolidating a raw water supply and transmission network that can supply the forecasted needs of the Lawton Fort Sill region even if other regional "actors" (i.e. north Texas, Oklahoma City, etc.) seek to tap the region's raw water resources							
Action 1:	Investigate the feasibility of a coordinated regional water utility provider for Cache, Elgin and Lawton communities (and other communities as appropriate)						
Action 1.1	Convene a regional water summit of area communities to determine if combined and coordinated actions could provide a more efficient and cost effective approach to providing potable water for the region's communities	CITY, CO	OWRB, COE	Near	\$5,000	LOCAL, OWRB	
Action 1.2	Develop, advertise and conduct a feasibility study of regional water provision that provides the engineering, fiscal and organizational rationale, basis and feasibility for the proposal	CITY, CO	OWRB, COE	Mid	\$250,000	LOCAL, OWRB, OEA	
Implementation Partners/Agencies							
CITY -	Local government/planning departments or city administrations						
CO -	County governments						
FORT -	Fort Sill						
ODOT -	Oklahoma Dept. of Transportation						
ASCOG -	Association of South Central Oklahoma Governments						
ENG -	City of Lawton Engineering Department						
LCD -	Lawton Community Development department						
OEA -	Office of Economic Adjustment						
OWRB -	Oklahoma Water Resources Board						
OML -	Oklahoma Municipal League						
ODEQ -	Oklahoma Dept. of Environmental Quality						
COE -	U.S. Army Corps of Engineers						
Timing							
Near - 2008 - 2009							
Mid - 2010 - 2011							
Long - 2012+							
Funding Sources							
LOCAL - bond/general revenues from local governments							
STATE - state revenue source							
OWRB - Oklahoma Water Resources Board							
OEA - Office of Economic Adjustment							
ODOT - Oklahoma Dept. of Transportation Federal Aid funds							
OML/OMUP - Oklahoma Municipal League (Water/Wastewater Engineering Technical Assistance Program)							
OSMC - Oklahoma Strategic Military Commission							