

**Transportation Observations,
Considerations and Recommendations for
Wichita Mountains Wildlife Refuge**
**Provided by the Interagency Transportation Assistance Group (TAG) /
Paul Sarbanes Transit in the Parks (Sarbanes) Program**

**May 31 – June 2, 2009
Indiahoma, OK**

At the request of the U.S. Fish and Wildlife Service (FWS), an inter-agency Transportation Assistance Group (TAG) site review was conducted at the Wichita Mountains Wildlife Refuge (WMWR) in southwest Oklahoma.

On the first day of the site visit, the Refuge Manager and staff took the TAG team on a tour of much of the refuge and vicinity, including the Special Use Area, Lake Elmer Thomas Recreation Area on Fort Sill, and the neighboring town of Medicine Park, introducing the team to the various transportation and visitor use issues facing the refuge and surrounding communities. This introductory tour was done on a Sunday so the team could experience the refuge at a typically busy time. The next day, at refuge headquarters, stakeholders from the surrounding communities participated in a roundtable discussion elaborating on specific issues relevant to local cities and towns, regional authorities (including county, state, and tribal governments), Fort Sill, and private enterprises (including non-profit organizations) in the region. On the final day of the visit, the TAG team compiled a list of problems, issues, and opportunities, and presented them to the Refuge Manager and staff as a precursor to this report.

This report details the status of transportation planning and explores the opportunities for providing integrated alternative transportation, including multimodal and intermodal transportation links between FWS and their planning stakeholders, and to assist the refuge in meeting its management goals and increasing its partnership opportunities with its neighbors. This report includes existing conditions, an examination of transportation issues and considerations, and recommendations arising from the TAG analysis.

Background and Conditions

Background documents

Prior to the site visit, the TAG team reviewed several documents related to the refuge, including the following:

- Fort Sill Regional Growth Management Plan
- 2030 Long Range Transportation Plan, Lawton Metropolitan Planning Organization (MPO)

- 1993 Market Analysis Study for the New Visitor Center, Wichita Mountains Wildlife Refuge
- The Road Inventory of Wichita Mountains National Wildlife Refuge, March 2008
- The Trail Inventory of Wichita Mountains National Wildlife Refuge, June 2006
- Transportation Improvement Plan, Fiscal Year 2008-2011, Lawton MPO
- Wichita Mountains Byway, 2008 Corridor Management Plan
- Wichita Mountains Wildlife Refuge, Paul S. Sarbanes Transit in Parks Program (Transit in the Parks Program) Application, 2009

History and significance

The Wichita Mountains Wildlife Refuge (the “refuge”), part of the National Wildlife Refuge System, is “one of the oldest managed nature preserves in the nation and the site that President Theodore Roosevelt chose for the first effort to save American bison from extinction. Although the National Wildlife Refuge System technically was born when Florida’s Pelican Island was established in 1903, the refuge now known as Wichita Mountains Wildlife Refuge was first [established] two years earlier. In 1901, this area was proclaimed a “Forest Preserve,” and then in 1905 President Theodore Roosevelt created the first ‘Game Preserve’ at the Wichita Mountains for the nearly-extinct bison.”¹

WMWR is the site of the oldest exposed mountains and largest mixed-grass prairie in the world, and is a unique natural treasure in the southern Great Plains of the United States. About 30 minutes northwest of Lawton, Oklahoma and adjacent to Fort Sill, a large and growing U.S. Army base, the refuge stretches across 59,020 acres. When President Roosevelt “arranged for 15 American bison to be sent to the Wichita Mountains from the Bronx Zoo... there were less than a thousand bison remaining; at one time over 60 million bison roamed across North America. Today, the refuge maintains a herd of 600 bison, descendants of the original 15.”¹ The refuge is also home to about 800 elk, 300 Texas Longhorn cattle, prairie dogs, 3,000 breeding pairs of the black-capped Vireo, an endangered bird species whose remaining habitat in southwest Oklahoma is almost entirely on the refuge, and several other bird species, including the Scissor-tailed Flycatcher, Oklahoma’s state bird, and wild turkeys.

Refuge usage and activities

About one-third of the 59,020 acres of the refuge is designated the public use area (PUA) (Figure 1), with recreational activities including hiking, rock climbing (one of the few National Wildlife Refuges to allow this activity), fishing, road cycling, mountain biking, camping and wildlife viewing. Over the course of the year, several special events occur, including annual bison and longhorn cattle auctions, elk and deer hunts, and an Easter performance of the Passion Play at the Holy City, a 66-acre special permit area that has hosted this play since 1926.² Throughout the year, the refuge hosts numerous tour groups, including those arriving on buses and motorcycles.

¹ Corridor Management Plan, 2008

² <http://www.theholycitylawton.com/aboutus2.htm>, accessed July 2009.

The remaining two-thirds of the refuge is a designated special use area (SUA), where wildlife research, management, and further preservation of species occur, in accordance with the refuge's mission: to preserve, protect and maintain the natural habitat and native wildlife while keeping a unique environment for future generations to study and enjoy.³ The SUA is accessible to the public via interpretive tours provided by the Friends of the Wichitas volunteer organization, using a refuge-owned and -maintained bus. These popular three-hour tours require reservations and often sell out within hours of reservations being available for a particular tour. The Friends of the Wichitas charges \$5 per person; however, the refuge receives very little revenue from the tour operation and uses what it does receive to support environmental education activities. However, under the terms of the Memorandum of Understanding (MOU) between the Friends and the refuge, the Friends do contribute the funds they raise from the tours and other sources to the refuge, particularly for environmental education programs.

³ <http://www.fws.gov/southwest/refuges/oklahoma/wichitamountains/faq.html>, accessed June 2009.

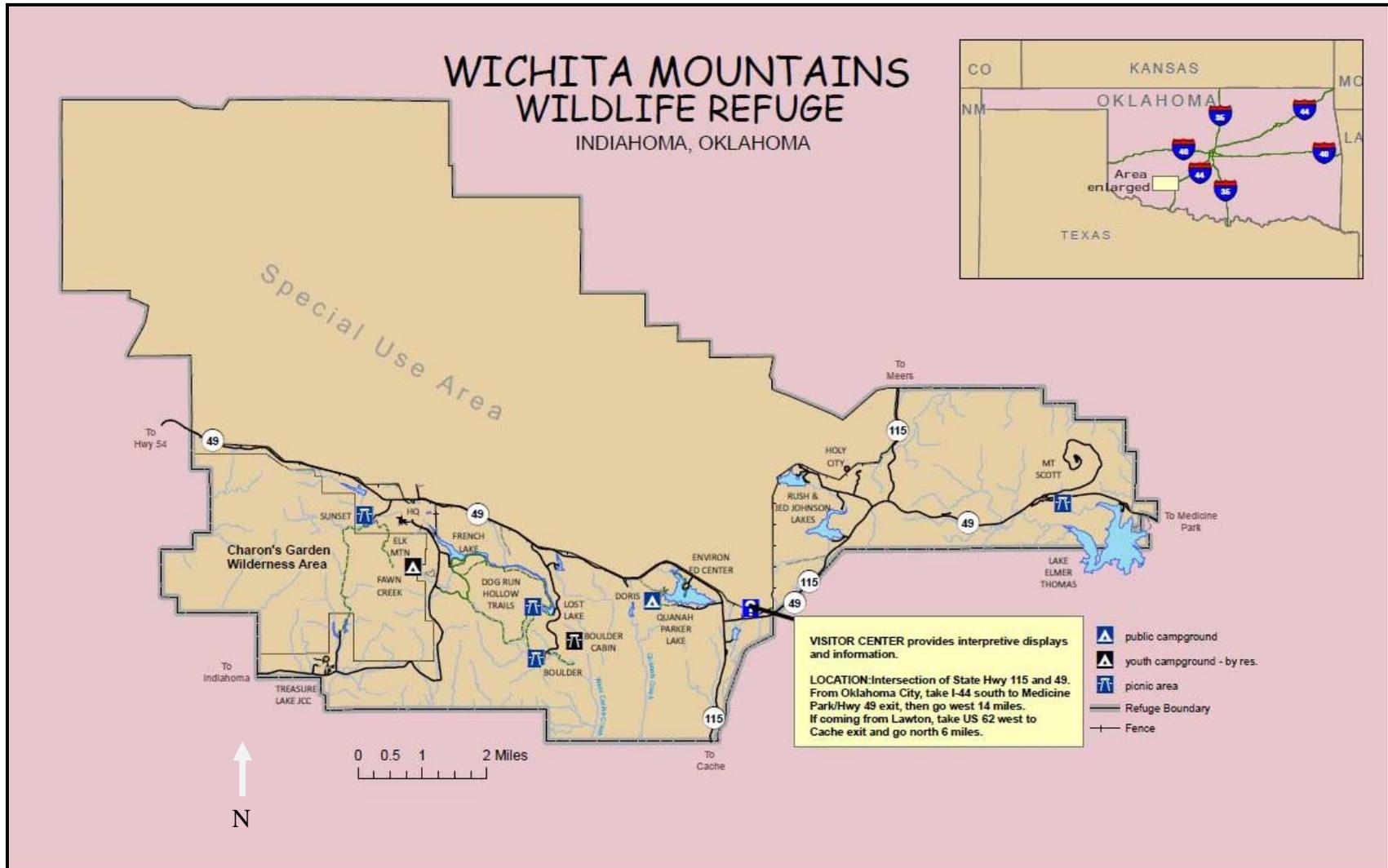


Figure 1 – Wichita Mountains Wildlife Refuge

Source: http://www.fws.gov/southwest/refuges/oklahoma/wichitamountains/pdf_files/refuge_map.pdf, accessed June 2009.

Visitation

In 2008, there were about 1.2 million visitors to the refuge and about 124,000 visitors to the visitor center; however, in recent years, the refuge has averaged 1.5 million visitors. Visitation to the refuge fluctuates year-to-year (see Figure 2) and visitation forecasts can be unreliable. A Market Analysis Study conducted in 1993 as part of the planning for the then-new refuge visitor center, using the best available projected visitation levels, predicted an increase to 2.1 million by 2005, based on an annual growth rate of 2%.

During the spring and fall, as many as 30,000 visitors may enter the refuge on any given weekend. Historically, the highest weekend traffic volumes occur over New Year's and during the months of April and May. Typical traffic volumes include a large number of recreational vehicles, trailers and buses. The refuge does not allow large trucks to enter, and enforces a 15-ton/3-axle weight restriction. Traffic volumes decline for a short period during winter months. The refuge maintains traffic counters at the entrances and exits.

The 1993 study also recorded an annual visitation to the "old" visitor center, now the Environmental Education Center, in 1992 of 39,600 and a 2005 projection of 234,800 (following the construction of the new visitor center).⁴ Refuge staff estimate there are about 300 visitors to the visitor center on an average weekday, and 800-1200 visitors on an average weekend day.

Every year, the refuge also hosts about 80-100 tour buses and upwards of 10,000 schoolchildren for environmental education, one of the National Wildlife Refuge (NWR) System's Big Six wildlife dependent recreational activities specified in the 1997 NWR Improvement Act. Other special events include an annual elk hunt, which draws 30,000-60,000 applicants for 250 permits, a white-tail deer hunt, and annual longhorn and bison auctions (held in September and October, respectively). The Friends of the Wichitas offers almost 60 tours per year into the SUA.

⁴ Market Analysis Study for the New Visitor Center, Economic Research Associates, April 1993.

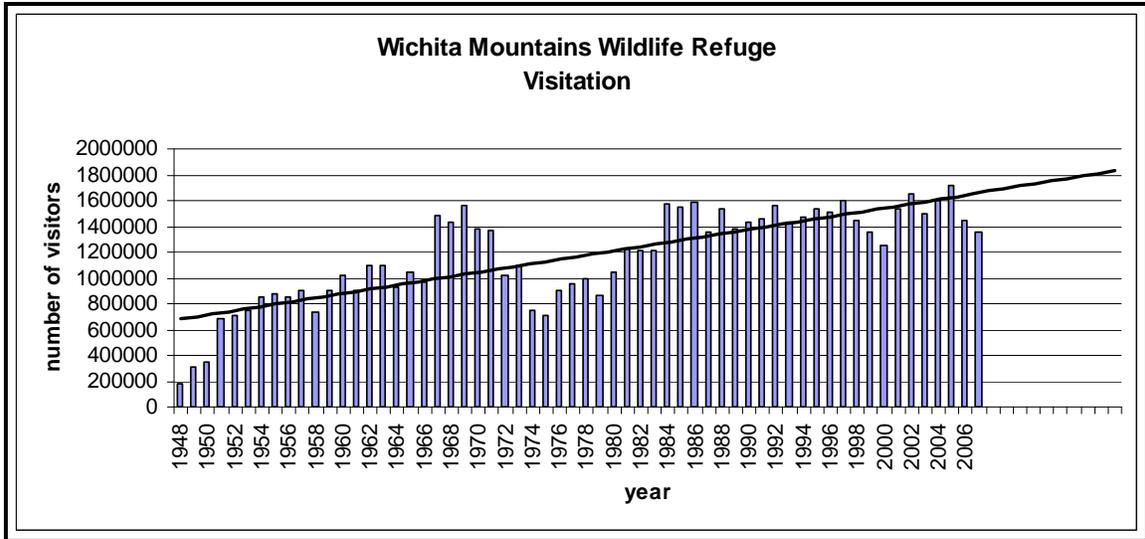


Figure 2 – Wichita Mountains Visitation Trend

Source: Wichita Mountains Wildlife Refuge

Visitor center

The refuge maintains a 30,000 square foot visitor center (Figure 3) that includes interpretive exhibition space, a theater, a bookstore, and gift shop. The refuge also has classrooms for educational and outreach activities for schoolchildren and other groups throughout the region.



Figure 3 – Wichita Mountains Wildlife Refuge Visitor Center

On-site work program

The Treasure Lake Job Corps site, located in the southwest portion of the refuge, has been administered by the USDA Forest Service and provides industrial skills training to at-risk youth from around the country.

Transportation infrastructure

There are approximately 50 miles of paved roads and an additional 70 miles of unpaved gravel roads, mostly in the SUA, on the refuge. Nearly 20 miles of the gravel roads are accessible to the public by bus. The refuge also manages 27 parking areas, with space for approximately 700 vehicles that usually carry 2-4 passengers per vehicle.⁵

During peak visitation, over 5,000 cars per day that enter the refuge and visitors must park alongside narrow two lane roads outside of full parking areas. This leads to roadside disturbance, safety issues and occasionally habitat damage. The refuge manages a number of roadside pullouts, which allow traffic to pull off of the road to view wildlife; however, these pullouts are not adequate to alleviate persistent traffic congestion during peak visitation. A bus with an interpreter and designated interpretive stops would allow for a safer and higher quality wildlife viewing experience with visitors not having to worry about traffic congestion or parking issues.⁶

As shown in Figure 1 above, the primary routes through the refuge are known as Oklahoma State Highways (S.H.) 49 and 115. S.H. 49 runs east-west between Medicine Park and S.H. 54, and S.H. 115 runs generally north-south between Meers and Cache. The refuge is currently at the 95% design stage of the first phase of a project to add level 6-8-foot shoulders along refuge routes 10 (S.H. 49) and 11 (also known as Six Mile Scenic Road/S.H. 115-Scenic, and S.H. 49) through the refuge (see Figure 4, below). This phase will cost approximately \$2 million⁶ and will create a safer environment for pedestrians, bicycles and vehicles to pull off the roadway in case of emergencies and to view wildlife.

⁵ Paul S. Sarbanes Transit in Parks Program Application, 2009

⁶ The first phase of this work is \$2 million and includes shoulders along 1.93 miles of the roadway beginning at the southern boundary of the refuge along route 11. The cost of this project also includes additional roadway work as well as the replacement of the pedestrian bridge at the Elk Mountain day use area.

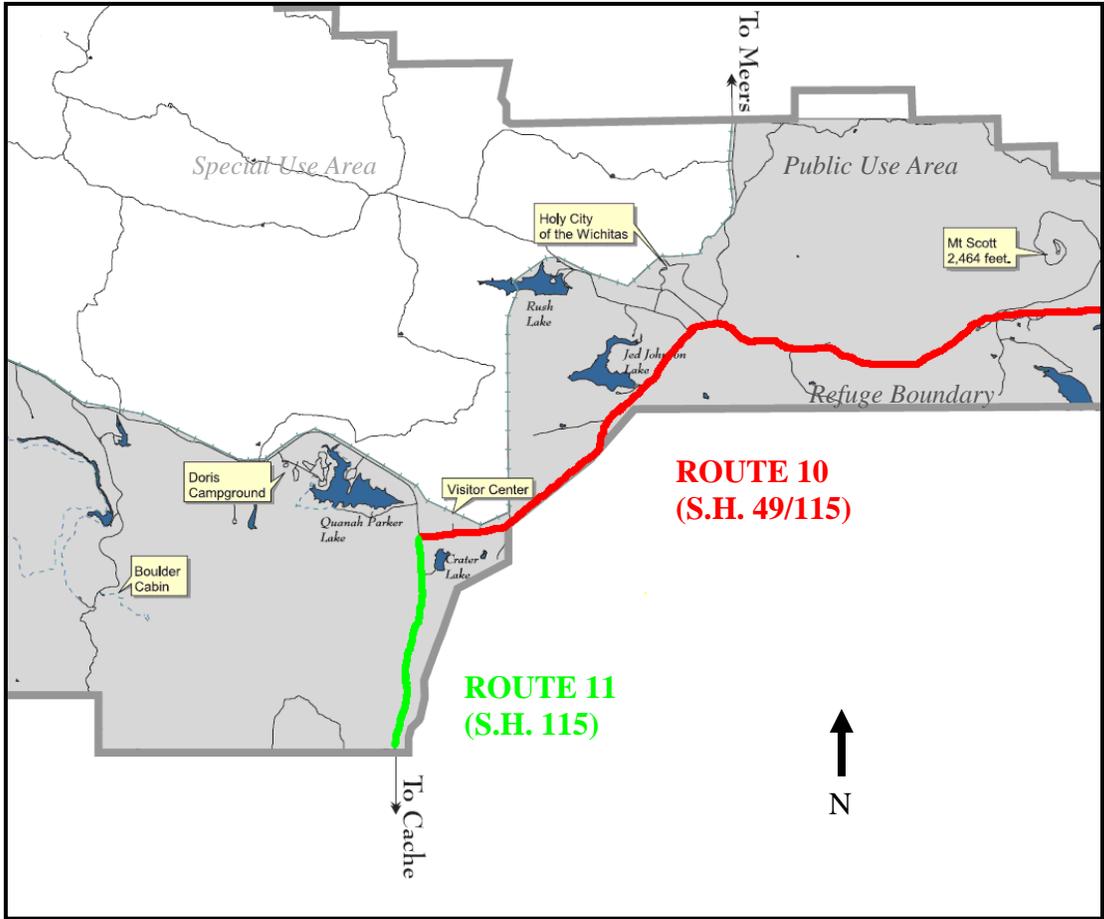


Figure 4 – Refuge Routes 10 and 11 through the refuge

Most of the roads in the SUA are unpaved and require use of a four-wheel-drive vehicle. Many low-water crossings (see Figures 5 and 6) are improved with concrete pads; however, the angle of approach/departure requires the use of vehicles with short wheelbases. Drivers new to the roads can sometimes scrape the pads until they are familiar with the roadway geometry.



Figure 5 – Concrete-pad low-water crossing in the Special Use Area



Figure 6 – Close up of low water crossing in the Special Use Area

The primary public route (S.H 49 and 115, FWS routes 10, 11, 13 and 14) through the refuge is designated as a portion of the Wichita Mountains Byway of the Oklahoma Scenic Byways program. An application has been submitted for National Scenic Byway designation; final determination is in the Federal Highway Administration (FHWA) evaluation process. Formal National Scenic Byway designation is done by the Secretary of Transportation. FHWA staff may announce new byway designations at the August 23-26, 2009 Scenic Byway Conference in Denver.

“The Wichita Mountains Byway corridor is approximately 93 miles in length and encompasses one of the most recognizable features in the region, the Wichita Mountains. The Wichita Mountains Byway corridor follows historic routes through mountain passes, around tranquil lakes, timeless geology and wilderness areas that draw over 1.5 million visitors annually.”⁷ Figure 7 (below) shows the corridor limits and relationship to the refuge.

“The Wichita Mountains Byway is identified as beginning at Apache and extending west on S.H. 19 to the S.H. 58/S.H. 19 junction; the Byway then proceeds north and south on S.H. 58 to Carnegie in the north and Medicine Park in the south; from Carnegie, the Byway proceeds west on S.H. 9 to Mountain View and south on S.H. 115 to the junction of S.H. 49 and S.H. 115; from Medicine Park in the south the project extends east on S.H. 49 to Interstate 44 and west on S.H. 49 through the Wichita Mountains Wildlife Refuge

⁷ Corridor Management Plan, 2008

Transit

The refuge is not served by any external transit services. However, the refuge owns and maintains one 18-year-old, 26-passenger, four-wheel-drive, short-wheelbase Americans with Disabilities Act (ADA)-accessible school bus (see Figure 8). The refuge allows the Friends of the Wichitas to operate tours into the SUA, using this vehicle, throughout the year.



Figure 8 – Wichita Mountains tour bus

Surrounding communities and stakeholders

The refuge is located in Comanche County and is bordered by a number of communities and nearby Lawton, Oklahoma’s fourth-largest city with a population of approximately 83,000⁹. Between the refuge and Lawton is the U.S. Army base of Fort Sill, including the Field Artillery Center (see Figure 7 above). This section describes each of these communities.

Cache is just south of the refuge. Oklahoma S.H. 115 connects Cache to the refuge through the Fort Sill military reservation. The Cache-refuge gate phase of the Comanche County Fitness Trail project includes a shoulder paving and a semi-level area behind the shoulder for cross country running; this project may include other amenities, depending on the bids received. The funding for this project includes a \$600,000 Transportation Enhancements grant and \$150,000 local match provided by the Comanche County Industrial Development Authority, with all funds expended under the jurisdiction of the

⁹ US Census, 2006 Estimate

Comanche County Board of Commissioners. Additionally, Cache is working to secure funding to further connect the trail to the city's park trails.

Fort Sill borders the entire southern edge of the refuge and extends further to the east, north of Lawton. Home to about 20,000 U.S. Army personnel and the Army's main artillery training facility and for international military personnel, the base is expecting to add about 10,000 service members and family members in the next few years through the Base Relocating and Closure process. As a result, according to the 2003 Fort Sill Regional Growth Management Plan, an additional 23,000 residents¹⁰ are projected to relocate to the Lawton area. Fort Sill is working with Lawton and surrounding communities to plan for these changes. The fort's Regional Management Plan specifically details growth issues relating to land use, transportation, quality of life, education and health care. One of its recommendations is that participating governments in the study begin the process of establishing and funding a Fort Sill Regional Coalition to begin implementing the recommendations of the plan.¹¹ The plan does address efforts to improve bicycle and pedestrian conditions in the City of Lawton, particularly with the adoption of citywide "Complete Streets" design standards incorporating bicycle, pedestrian and transit stop needs, but does not have recommendations for transit expansion.

Fort Sill maintains a Family Morale, Welfare, and Recreation (MWR) program, which "provides leisure time opportunities through a network of support services designed to enhance the lives of soldiers (active, Reserve, and Guard), their families, civilian employees, military retirees and other eligible participants associated with the Army."¹² As part of this program, Fort Sill maintains the Lake Elmer Thomas Recreation Area (LETRA) at the junction of the refuge, Fort Sill, and the community of Medicine Park. LETRA features a beach, a water slide, children's play area, a country store, miniature golf, and camping opportunities. LETRA is on military property and entry is currently only available through secure gates managed by Fort Sill, although this configuration is currently under review. Entry is \$6 per car for the general public and \$5 per car for soldiers and other military affiliates (\$3 and \$2.50 per car, respectively, on Wednesdays and Thursdays).

Fort Sill indicates interest in further exploring recreational linkages between the refuge and LETRA as part of the MWR program. Fort Sill leadership also expresses a willingness to relocate the security gates further inside reservation property, allowing full public access to LETRA without requiring a security stop.

Lawton is Oklahoma's fourth largest city, adjacent to Fort Sill and southeast of the refuge. Primary access to the refuge is through either Cache (S.H. 62 to S.H. 115) or Medicine Park (Interstate 44 to S.H. 49). Lawton is currently planning a network of bicycle paths; however, these do not extend beyond city limits.

¹⁰ Fort Sill Regional Growth Management Plan, page 2-11

¹¹ Fort Sill Regional Growth Management Plan

¹² http://www.sillmwr.com/about_us.html, accessed June 2009

The Lawton Area Transit System (LATS) provides five fixed-route bus lines and paratransit services within Lawton and between Lawton and Fort Sill.

Medicine Park is located adjacent to the refuge along S.H. 49 and is a popular stop for tourists. Outdoor activities in this town of approximately 400 include the Medicine Park Trail, a pedestrian trail along Medicine Creek, swimming and trout fishing. The town is also home to a number of popular businesses including several restaurants that in part cater to tourists.¹³

Meers, a former gold-rush town, is located north of the refuge along S.H. 115.

Mountain View is north of Meers along S.H. 115 near the beginning of the Wichita Mountains Byway. The mayor of Mountain View sees the town as a gateway to the refuge and is advocating for improvements to roadways leading to the refuge. The town hosts a major annual horse sale.

The **Comanche Nation** of southwest Oklahoma is based just north of Lawton and Fort Sill. The Comanche Nation operates a transit system that provides assistance for passengers “in a prompt, courteous fashion without discriminating against race, color, physical handicap or disability and national origin. (They) provide services to work, vocational school, college, medical appointments, grocery shopping, pay bills, appointment for dialysis patients, etc. The Comanche Nation Transit has nine buses serving over 28,000 annually” in Lawton, Apache, Elgin, Cyril, Fletcher, Geronimo, Pumpkin Center, and Cache.¹⁴ The Comanche Nation has been awarded \$160,000 from the Federal Transit Administration (FTA) for vehicle replacement but has not completed the grant process to date.

The **Apache and Kiowa** tribes also have jurisdiction in the area surrounding the refuge.

¹³ <http://www.medicinepark.com/attractions.php>, accessed June 11, 2009

¹⁴ <http://www.comanchenation.com/Tribal%20Services/transit.html>, accessed June 11, 2009

Transportation Issues/Needs/Opportunities

Over the course of the site visit, the TAG team was introduced to numerous issues that face the region as a whole, as well as the refuge specifically. Many of these issues are relevant to areas throughout the United States, some of which contain public use lands: visitation fluctuation and regional population growth, health and recreational access, and the operation and sustainability of transportation systems. However, these issues, when combined with the unique situation of the Wichita Mountains Wildlife Refuge, create a complex transportation environment.

Visitation and population growth

- **Refuge status.** Among national wildlife refuges, Wichita Mountains is an outlier in terms of public paved transportation infrastructure and visitation levels. The refuge is the second most visited refuge in the FWS system (over 550 units), at times exceeding 1.5 million annual visitors.
- **Changing visitation.** Refuge staff speculate that visitation levels have fluctuated due to a number of factors: the overall state of the regional/national/world economy, fuel prices, and changes to refuge public use management activities. Of note:
 - Designation of roadways leading to and through the refuge as National Scenic Byways may lead to an increase in visitation, since organizations such as the American Automobile Association and National Geographic Society typically promote National Scenic Byways.
 - There is a growing need to increase access to, and availability of, health and fitness opportunities.
 - Increasing sedentary lifestyles and a lack of recreational and other outdoor activities by children results in a significant portion of children being overweight or obese, and will likely lead to the creation of an entire generation that will have a lower life expectancy than their parents. The Southwest Oklahoma FitKids program aims to improve the health of children in the region through an increase in available recreation and exercise opportunities.
 - The close proximity of Fort Sill, and the efforts of its MWR program with respect to soldiers and their families, presents a unique opportunity to further integrate refuge and Fort Sill facilities, such as LETRA.
 - An important goal of the FWS is to connect people to nature without increasing the human footprint on the refuge. WMWR would like to be able to double visitation within the existing footprint.
 - The refuge seeks to diversify environmental outreach beyond education to include interpretation.

- **Personnel growth at Fort Sill.** Fort Sill is planning to increase its personnel level by about 10,000, above the 20,000 existing personnel. The total associated increase in area population is expected to be 23,000 over the next 10 years¹⁵, living mostly off-base in and outside of Lawton.
- **Communities, Groups and Friends Opportunities.** There are several groups and tour opportunities at the refuge.
 - If realized, it is expected that with National Scenic Byway designation, the area will experience additional bus traffic, as well as additional visitation in general.
 - Nature-based tourism in the area continues to be popular and may increase as environmental awareness continues to grow.
 - The Holy City, located on the refuge, continues to attract many visitors, especially during special events.
 - Motorcycle groups make up an increasing visitor base to and through the refuge.
 - Demand for SUA tours is very high and is limited not only by the availability of only one bus, but also by the availability of refuge and Friends of the Wichitas volunteer staff.
- **Lack of funds and staff.** The refuge currently lacks sufficient funding for additional transportation-related visitor services programs.

Access to recreation and a healthy environment

- **Sustainable growth.** Encouraging an increase in visitation to the refuge without altering the physical human footprint and human impact to wildlife and habitat resources is consistent with local and national goals of considering climate change by introducing people to the natural environment.
- Sustainable and authentic tourism are goals of local communities seeking to prevent an influx of “chain” tourist outlets.
- There is growing interest in the use of green energy and alternative fuel vehicles. The refuge’s Paul S. Sarbanes Transit in Parks Program Application, 2009, requests funding to purchase two hybrid-electric buses and two additional vehicles to “expand the opportunities for the refuge and ... partners to provide more guided tours, involve more students for field trips, provide bus service to/from adjacent gateway communities, and add bus service for hikers using the Charon’s Garden Wilderness Trail (a one way trail connecting two areas of the Refuge) and the Dog Run Hollow National Recreation Trail.”¹⁶

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http://www.lawtonfortsillgrowthplan.com/MapsReportandPresentations/growth_management_plan_and_reports.htm, Accessed July 2, 2009

¹⁶ Paul S. Sarbanes Transit in Parks Program Application, 2009

- **Increasing environmental awareness.** Maintaining access to the entire refuge, including the SUA, is critical to providing environmental education and interpretive services to the public.
 - The refuge is exceptional within the NWR System in that it owns and maintains many miles of public paved roads.
 - Public and staff access to the SUA relies on an extensive system of roads with concrete low-water crossings, which currently have a large angle of approach/departure (vehicle clearance problem) and require careful traversing by bus drivers.

- **Non-motorized transportation.** There are several approved/funded opportunities to improve non-motorized transportation in and to the refuge.
 - A \$600,000 roadway improvement between Cache and the refuge gate will add bicycle lanes and a soft path for trail running.
 - Extending the walk/bicycle trail along Medicine Creek in Medicine Park through the refuge and to LETRA is possible along a closed fire road and levee along Lake Elmer Thomas. (see Figures 9 and 10)
 - The current shoulder improvement program is at 95% design, with construction bidding expected to occur during the summer of 2009. When completed it will connect to the trail from Cache and any pedestrian/bicycle connecting the refuge, Medicine Park and LETRA, creating a opportunity for a safe non-motorized connection from Medicine Park or LETRA to the visitor center and through to Cache.



Figure 9 – Opportunity to extend trail between LETRA and Lake Elmer Thomas levee (background)



Figures 10 –Lake Elmer Thomas levee

Transit and transportation

There are significant opportunities at and around the refuge to improve and introduce transit and transportation options, specifically with regard to regional transportation planning, transit vehicle procurement, parking and coordination with regional transit partners.

- Regional transportation planning
 - Specific regional transportation issues include:
 - Roadway condition, especially along the Byway route, is a concern among stakeholders. For example, along S.H. 115 between Meers and Mountain View, the roadway is narrow, with no shoulder.
 - There is a lack of transportation planning and specifically bicycle and pedestrian planning in Comanche County outside of Lawton, Fort Sill, and Cache. The lack of trails is a major concern to residents.
 - There is a need for better wayfinding (directional signage) to and through the refuge.
 - Local communities are dependent on sales tax revenues and resources for matching funds to tap into federal resources (Recreational Trails Program, Transportation Enhancements, Scenic Byways, etc.).
 - There is an overall lack of regional planning and coordination.

- The Lawton Metropolitan Planning Organization (MPO) does not extend beyond the City of Lawton
 - There is no county-wide transportation planning organization.
 - Transportation improvements in Comanche County outside of Lawton are specified only in the Oklahoma Statewide Transportation Improvement Plan (STIP).
 - Several opportunities exist in the near future to address transportation issues in and around the refuge, including the following:
 - The Comprehensive Conservation Plan/Environmental Impact Statement (CCP/EIS), which is due by the end of 2012. The refuge indicates that they are developing the scope of the CCP/EIS based on four public scoping workshops held in early 2009. Work on drafting the CCP is underway with a goal to release a draft CCP for public review in the Fall of 2010.
 - A Visitor Services Review for the refuge is scheduled by FWS in the summer of 2009. It will encompass visitation needs, public expectations, staffing, physical and/or operational improvement needs, and how well the refuge is meeting visitor needs for both facility and interpretive services and other wildlife dependent recreation. The Review should consider transportation needs and opportunities/benefits.
 - The upcoming Banking on Nature report provides an opportunity to study the local and regional economic benefits of the refuge.
 - The FWS will begin a regional long-range transportation plan within the next year that will consider transportation across and to the refuge on a 15-20 year timeframe.
 - Fort Sill organized a regional alliance consulting planning team that worked closely with three groups of local leaders and technical advisors in the creation of the Regional Growth Plan to study the proposed base expansion.¹⁷
 - A National Scenic Byway designation, if received in August 2009, may present significant opportunities to plan transportation regionally.
- Bus replacement at the refuge is currently constrained (in size/wheelbase) by the need to consider the vehicles' ability to traverse the numerous low-water crossing facilities throughout the SUA. The refuge should consider reducing the sharp angles (approach/departure) present at these existing low water crossings to improve access by reducing necessary vehicle clearance allowing access by larger buses, if desirable. The refuge should be mindful of both the size and maintenance requirements for new hybrid-electric buses under review for transit in the PUA as well.

¹⁷ Fort Sill Regional Growth Management Plan

- Parking and turnaround areas are not formalized in many locations on the refuge; in some areas, the striping, if present, is worn out. This situation creates visitor confusion and safety problems, and results in parking areas not being utilized efficiently, wasting space that could accommodate additional vehicles. Appropriate safety and directional signage/stripping may reduce visitor confusion, improving both the visitor experience and parking/circulation efficiencies.
- The Comanche Nation and Lawton Area Transit provide regional transit services outside the refuge but not to/through the refuge.

Analysis and Recommendations

- The refuge, surrounding communities, and stakeholders should **consider transportation as a catalyst for integrated and comprehensive local, regional and tribal planning, project identification/prioritization and development.** This approach is sometimes referred to as the “3C” planning process of continuous collaboration, coordination and cooperation. Stakeholders should meet regularly and should consider establishing a Scenic Byway 501(c)(3) non-profit organization to seek and coordinate funding for on-going planning and cooperation efforts. For example, the group could work with Lawton and Cache (through the Oklahoma Department of Transportation) as they fund bicycle improvements using Federal Highway Administration funds. The group can then together plan regional connections not only for roads and wayfinding, but also pedestrian, bicycle and transit connections.
 - Emphasis on the importance of establishing and maintaining the vitality of “gateway” communities which provide direct access to the refuge is important, particularly if the refuge defines itself partially in terms of these communities, thereby strengthening the regional partnership. By focusing on regional improvements to transportation infrastructure, the group can work on creating a strong regional identity and shared common vision promoting sustainable tourism, consistent with the goals of the communities surrounding the refuge, and which relate to changes outside the refuge, such as population growth at Fort Sill. This effort should be consistent with the recommendations in the Fort Sill Regional Growth Plan, particularly with regard to the establishment of a regional planning committee.
- **Coordination of marketing and traveler information by local partners.** Through a non-profit for the Wichita Mountain Byway, marketing and traveler information could be coordinated with the group, using a consistent theme (to be developed) for wayfinding, wayshowing, and wayside interpretation. A good resource is America’s Byways Resource Center (<http://www.bywaysresourcecenter.org/>). Marketing and traveler information can extend beyond static materials (signage, hardcopy materials, CDs and DVDs) to dynamic information technologies such as podcasts, radio broadcasts, and

cellular, such as used at the Great River Road – Upper Mississippi Refuge cellular tour (<http://www.friendsofuppermiss.org/>). The use of wikis (web services that enable users to create and edit web page content¹⁸) and GPS-based self-guided tours are other possibilities. Through marketing efforts, the local partners can establish a strong working relationship while creating and maintaining a unified regional identity consistent with refuge and community goals.

- **The refuge and Byway group, perhaps sponsored through the Oklahoma Department of Transportation, should complete a new visitor study** as an update to the 1993 Market Analysis. The study should survey visitors' origin and destination, willingness to pay, spending habits, trip purpose, party size, length of stay, and other demographics. The study should also investigate historical visitation trends compared to fluctuations in visitation to public lands in Oklahoma and nationwide, gas prices and other economic trends, weather data collected at the refuge, and other local and regional factors. The results of a visitor study will help guide planning efforts for the refuge and the region. An upcoming Traffic Monitoring study from the Coordinated Transportation Implementation Program (CTIP) may provide some data and equipment to supplement this.

- **The refuge should engage in short-and long-term transportation planning, starting with goal-setting.** This transportation plan could expand upon the ideas and recommendations in this TAG report, as a stepping point for the CCP/EIS process. Through development of a transportation plan, the refuge may establish formal transportation-related planning goals, such as:
 - Increase visitation and distribute visitor impact while staying within the established developed footprint; maintain the status of the SUA.
 - Identify and accommodate various visitor groups: e.g., families, rock climbers, the elderly, motorcycle/car clubs and/or tour groups.
 - It may be desirable to have the escorted tours into the SUA operate on a self-sustaining basis while maintaining a reasonable admission fee. It may also be desirable to offer more tours to meet demand.
 - Maintain emergency response and evacuation capabilities.
 - Explore working with youth groups to improve trail conditions and increase opportunities for local youth to connect with nature.
 - Explore opportunities to use non-motorized transportation (e.g. walking/hiking, running and bicycling) for fitness and health.
 - Identify partners for regional transportation system connectivity, promoting efficient multimodal and/or intermodal opportunities.
 - Reduce the carbon footprint of transportation by reducing reliance on modes heavily dependent on fossil fuels; and, by promoting the use of reduced and non-polluting transportation options to access and travel through the refuge.

¹⁸ <http://wiki.org/wiki.cgi?WhatIsWiki>, Accessed July 14, 2009

- **The transportation plan can also identify alternative transportation opportunities** consistent with the goals above. The alternatives include the following:

Friends of the Wichitas tours

The refuge should improve the condition of low-water crossings by decreasing the angle of approach/departure or by constructing longer concrete pads. This will allow for less-specialized tour buses to operate the tour, possibly reducing costs, provide a more comfortable ride for passengers and reduce the chance of vehicle scraping due to clearance problems.

The refuge should evaluate tour pricing, as the current \$5 fee may be inappropriately low, particularly for long-distance visitors who may be willing to pay a higher price for the tours. The study should also consider a pricing structure that maintains a low price for locals, considering the average income in the surrounding area (depending on the variable-fee authority the refuge may have under the law, FWS regulations, and FWS policy). An increase in tour revenue may allow the refuge and Friends group to enhance interpretive opportunities for visitors.

The refuge should also consider offering additional tours into the SUA, as the existing tours fill up rather quickly. It may be possible to run two buses as part of one tour, or run multiple tours over the course of the day depending on staff/volunteer availability, thereby increasing tour availability to visitors.

New alternative transportation vehicle procurement

The refuge should consider the maintenance, storage and finance of equipment and fuels if/as it acquires new vehicles, as requirements might be significantly different than the existing vehicle. For example, the procurement of four new vehicles to replace the single 26-passenger bus creates new long-term maintenance commitments. Offering additional tours and/or changing the pricing structure of the tours may provide revenue to meet these needs. The refuge should also consider a concessionaire-operated tour to help meet demand.

New alternative transportation options

The refuge should evaluate introducing **new transit services** that links Mt. Scott, the visitor center, trail-heads, parking and recreation areas, campgrounds, and possibly gateway communities. The refuge should study a pilot shuttle bus route that connects main attractions throughout the refuge and neighboring communities. A shuttle bus route through the Public Use Area may enable some visitors to keep their cars parked; providing access to many parts of the refuge via transit, without increasing the demand for limited parking and reducing traffic congestion. This approach is consistent with the refuge's goal of maintaining and increasing access to the resources without increasing the human footprint and human impact to wildlife and habitat resources.

The above shuttle bus could include capacity for hiking and bicycling gear as well, enabling visitors to do one-way hikes or bicycle rides through the refuge without having to worry about transportation back to their camp site or car. Furthermore, if the shuttle bus operates to neighboring communities, locals would be able to access hiking and bicycling opportunities without using a car at all. This helps to improve access to recreational and physical fitness activities for both local and non-local visitors while maintaining a low impact on the existing footprint.

The refuge should **improve trails on and through the refuge** to create additional recreational opportunities, reducing the stress on existing overcrowded facilities, while also opening up car-free connections to neighboring communities. For example, the refuge should improve the walkway to Lake Jed Johnson. Hiking and bicycling trail improvements are a good way to improve access to the many recreational resources at the refuge. One idea is to create summer work projects for local high school students that improve trails on the refuge, creating opportunities for these students to spend time outdoors while making improvements to the refuge.

The refuge should also study a **hike/bicycle link between Medicine Park and LETRA through the refuge**, particularly as Fort Sill considers moving the LETRA security gate to allow freer public access. Creating this car-free trail between Medicine Park and LETRA through the refuge is one way to further establish connections to gateway communities and leverage all of the recreational opportunities in the area, without increasing the footprint of visitation, especially by private automobiles. This trail would create a seamless link between three important area recreational resources and be yet another marketing opportunity not only for the refuge but also Medicine Park and LETRA.

The refuge should also consider **introducing bicycle-sharing/rentals**. As part of the Southwest Oklahoma FitKids and local safe-routes-to-school programs, the refuge should investigate the introduction of bicycle-sharing and/or rentals as a way to encourage more people, particularly kids, to enjoy the refuge without having to rely on a car. It may be worthwhile and possible to market the programs with these two initiatives as well. Ft. Sill is in the process of implementing a “yellow bike” sharing program. Another CTIP project may provide this opportunity.

Finally, the refuge should **consider partner-operated van/bus/bicycle tours**. Many public lands facilities use concessionaires to operate and maintain transportation and tour services. The Friends of the Wichitas is an example of this type of partnership and further consideration of outsourced transportation options allows refuge staff to focus on resource preservation.

- **A transportation plan should analyze congested areas** and should include a capacity and utilization analysis at all public areas on the refuge. The plan could

include the implementation of traffic counters, intelligent transportation systems providing real-time transit and parking information to visitors, and the striping of parking, turnaround and bus stops. A transportation plan can also address campground capacity, congestion at trailheads, and analyze trail connectivity within the refuge and to surrounding hiking and biking trails. This effort will help the refuge assess acute parking, trail, and other transportation needs as well as anticipate future needs. A parking analysis, for instance, may help guide the decision making process of stops for a shuttle bus pilot program.

- **The refuge should seek out cooperation with academic institutions and other local resources in the area to conduct studies and community outreach.** Nearby Cameron University, for example, is a member of the Southwest Oklahoma Impact Alliance, and through the university, the Alliance, or both, the refuge could work to implement some of the goals and recommendations they identify as important. The refuge may also be able to work with the university (possibly including students, such as those in the marketing department) on future studies, helping to better leverage local resources while reducing refuge financial outlays. The refuge should explore similar partnerships to the Fort Sill Regional Growth Plan committee, which relied on City of Lawton’s technical staff for mapping and data resources¹⁹.

The members of the TAG would like to applaud the members of the transportation, recreation, resource management, and tourism communities in southwest Oklahoma for having the foresight to investigate the role of transportation in sustainable tourism and recreation – before congestion and resource damage can be caused by increased or uncontrolled visitation. We hope that the initial energy and enthusiasm generated by the TAG will continue to foster the “3C” planning process of continuous collaboration, coordination and cooperation among the community elements that contributed to the TAG’s success.

¹⁹ Fort Sill Regional Growth Management Plan

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NOTICE

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