

APPENDIX E: Lawton Area Transit System

History of Lawton Area Transit System

During the 1920-1930's a trolley system operated a route on C Avenue and Fort Sill Boulevard, connecting the downtown area and military post. In the early 1960's, a small privately owned transit company (Lawton-Fort Sill Bus Company) began serving the area. By the mid 1970's this system ceased operation due to lack of ridership and discontinuation of the City subsidy.

In an attempt to bring public transit back to Lawton, the consulting firm McDonald Transit Associates were hired in 1980 to review and make modifications to the 1975 Transit Development Plan. A vote was held in December 1980 and passed overwhelmingly in support of public transportation. The City took steps necessary to purchase the buses, hire a management firm, and set up the necessary routes and schedules. The new federal administration in 1981 considered a cut in Federal expenditures to balance the budget. It indicated that primary targets for cutbacks would be Federal funds for public transit operating costs. There was a high degree of concern within the City administration and to be assured that the City could operate a system autonomously, another public vote was required. The second vote was held in June 1981: "Do the citizens want a mass transit system?" and "Are they willing to fund transit based upon a sales tax increase of ½ percent?" The vote failed by almost 2:1.

The results of a 1988 United-Way Community Needs Assessment pointed out the concern for transportation, especially for the elderly, disabled, and low and moderate income persons. The 1995 Lawton-Fort Sill United Way Needs Assessment indicated once again that public transportation and transportation for the disabled and elderly was the greatest need of the community. The Assessment also projected public transportation as the number one unmet need by the year 2000. The need for transportation for the disabled, the elderly and low income segments of the community rated among the top ten greatest needs out of a list of approximately sixty-three issues. Meetings were initiated by The Association of South Central Oklahoma Governments (ASCOG) to explore the possibility of using existing transportation providers to share transportation resources.

In 1996, representatives with the Lawton Public Schools (LPS) contacted the City to discuss the City of Lawton and LPS developing a public transportation program for the City. A Transit Task Force was developed and after numerous meetings the Task Force recommended that a transit management company be hired to develop a transit plan. In 1998, staff and the consultant incorporated the solicited comments into the final draft report, resulting in the development of four different "Options" for transit. These options, the accompanying capital and operational budgets, and the complete transit report were presented to the Transit Task Force and the Lawton Metropolitan Area Planning Commission, the Transportation Technical and Transportation Policy Committee, and Lawton City Council. The different groups ultimately

agreed to make the following recommendations to the consultant for the finalization of the transit report: fixed route system, operating Monday thru Saturday, 12 hour service, specialized evening service to be contracted with existing providers, taxi voucher system, subscription service, operations and management to be contracted and fare to be \$1.00.

In 2000, the City Transit Trust recommended using 1990 CIP funds for the first year of operation. Staff developed the Request for Proposals for a consultant to assist in the preparation of the FTA grant applications and supporting documentation and the operational management service for the new public transit system. The City Transit Trust in February 2001 accepted the proposal submitted by McDonald Transit Associates, Inc. and purchased fourteen low floor buses from Lasseter Bus & Mobility Bus. The Lawton Area Transit System began operation on April 29, 2002. Map E.1 LATS Route (SEE ENVELOPE AT BACK OF PLAN) shows the current fixed routes of LATS.

Equipment and Facilities

Administrative & Maintenance Facility

LATS operates from an administrative and maintenance facility located at 609 SW Bishop Road. This facility is located within blocks of the City of Lawton's Public Works Yard where fueling and washing of the buses occurs. LATS shares the site with a moving and storage company. There is a shortage of space for LATS operation and maintenance. Other deficiencies include the lack of an assembly area for the bus operators, no meeting or training rooms, and a lack of storage space. Because the facility shares a site with a nationwide moving and storage company the structure and storage area cannot be adequately secured from the public. This is a concern when the threat levels are increased and the need for controlling access to the site is called for.

Fleet

The City Transit Trust purchased fourteen low floor buses in 2001, and in 2005 purchased one paratransit vehicle. The low floor buses are equipped with a factory installed ramps. Each bus has two pairs of tie downs that can safely secure two individual wheelchair passengers if necessary. The dedicated paratransit vehicle has a ramp, twelve seats and three wheelchair locations. In FY 2003-2004, the local MPO purchased and donated 14 bicycle racks. With the objective of updating the fleet the Transit Trust has been approved to apply for FTA Section 5309 funding for the purchase of a replacement bus. The life expectancy for the current buses is seven years or 250,000 miles. New buses will be funded with Federal and State capital assistance grants which cover up to 83 percent of associated costs.

Service

Transit passengers access service throughout the route. Passengers can flag the bus anywhere on the route for boarding/deboarding. Passenger comfort and convenience are essential to the success of a bus stop. There are approximately forty-seven covered bus shelters with a bench located throughout the city. All bus shelter areas must be installed in accordance with the ADA design guidelines.

The 1990 Americans with Disabilities Act (ADA) requires all public transit operators to provide paratransit service to eligible disabled individuals whose disabilities prevent them from using accessible public transit. The service area that paratransit service must be provided is within 3/4 mile of a fixed route. LATS paratransit is a shared ride service. Shared rides lower the cost of paratransit service by increasing system productivity. All paratransit passengers must complete a Paratransit Eligibility Application and must be ADA certified by the LATS General Manager.

Ridership

In Fiscal Year 2002-2003, LATS ridership totaled 187,072 passengers through the fixed route system and 1,730 passengers for paratransit. The ridership from FY 2003 -2004 increased from FY 2002-2003 approximately nineteen percent. Table E.1 provides year to date for FY 2002-2003 through FY 2004-2005 on fixed route ridership, paratransit ridership and revenue for the fixed route and paratransit system.

Table E.1: LATS Ridership and Revenues

YEAR - TO - DATE			
FIXED ROUTE	2004-2005	2003-2004	2002-2003
Passengers	258234	222996	182072
Revenue	\$122,598.50	\$109,663.00	\$107,775.00
Revenue Miles	546465	563170	566237
Total Miles	561589	579237	585074
Revenue Hours	36870	36960	36844
Total Hours	37286.7	37428	37291
Road Calls	27	16	18
Collision Accidents	8	7	4
Passengers Per Revenue Mile	0.47	0.4	0.33
Passengers Per Revenue Hour	7	6.03	5.08
Revenue Per Revenue Mile	\$0.22	\$0.19	\$0.19
Revenue Per Revenue Hour	\$3.33	\$2.97	\$2.93
Miles Between Road Calls	20239	35198	31458
Accident Per 100,000 Miles	1.46	1.24	0.7
Full Fare Passengers	88740	80890	76411
Youth/Student Passengers	46731	41002	30959

YEAR - TO - DATE			
FIXED ROUTE	2004-2005	2003-2004	2002-2003
Senior/Disabled Passengers	12707	10151	15988
Monthly Pass Passengers	37182	31801	20153
Tickets	2091	1668	1413
Total Revenue Passengers	195730	171905	144924
Free	12073	10311	8721

Paratransit Ridership and Revenue	2004-2005	2003-2004	2003-2003
ADA Full Fare Passengers	3040	3910	0
Companion	27	0	0
Personal Care Attendant	283	0	0
Free	83	0	0
Tickets	2019	0	0
ADA Revenue Hours	2861.3	2972	0
ADA Revenue Miles	43498	32370	0
Passenger Per Revenue Mile	0.2	0.23	0
Passenger Per Revenue Hour	1.91	1.32	0

Source: LATS General Manager

Expenses and Revenues

Since LATS's inception, most capital improvements, including bus purchases, have been funded using federal and State capital assistance grants which have provided up to 83 percent of total project cost. The City of Lawton has funded the remaining local share from its CIP program and annual operating budget. The discussion below presents expenses and revenues from fiscal years 2002-2003, 2003-2004 and 2004-2005.

The operating expenses and revenues included in this section were obtained from LATS. A summary of LATS's operating expenses for the three-year period identified above is provided in Table E.2, with data in the following categories: operation, planning, capital and ADA. A similar summary of LATS's operating revenue by source for this same three-year period is shown in Table E.3. LATS's revenue sources include passenger fares, charter service fees, advertising

and operating subsidies from the federal, state and local governments.

Table E.2: Summary of LAT Operating Expenses for FY 2002-2003, 2003-2004 & 2004-2005

	OPERATING	PLANNING	CAPITAL	ADA	TOTAL
FY 2002-2003					
FY 2003-2004	\$1,075,579	\$42,183	\$220,601	\$39,982	\$1,378,345
FY 2004-2005	\$1,018,178	\$37,659	\$309,864	\$47,794	\$1,413,495

Source: LATS General Manager

Table E.3: Summary of LATS Revenue for FY 2002-2003, 2003-2004 & 2004-2005

	FARES	FTA	ODOT	TRANSIT TRUST	MISC	ADVERTISING	CHAR TER	TOTAL
FY 2002-2003	\$112,490	\$669,408	\$8,125	\$477,059	\$0	\$0	\$0	\$1,267,082
FY 2003-2004	\$141,121	\$734,155	\$57,606	\$373,422	\$14,335	\$0	\$0	\$1,320,639
FY 2004-2005	\$149,062	\$796,213	\$79,662	\$474,982	\$0	\$2,700	\$2,524	\$1,505,143
TOTAL	\$402,673	\$2,199,776	\$145,393	\$1,325,463	\$14,335	\$2,700	\$2,524	\$4,092,864

Source: LATS General Manager

What Makes Good Transit?

Good transit is capable of attracting large numbers of passengers from cars and of attracting residents and businesses to urban areas. Some of the factors involved are:

1. **Speed:** Perhaps the biggest factor affecting the popularity of transit is its speed, relative to driving. If a particular journey can be made in less time by car than by transit, most people will opt to drive.
2. **Service Interval:** The time spent waiting for a bus is part of the overall journey time, whereas a journey by car or on foot includes no waiting time. As a guide, the service interval should be no longer than the journey time. A five-minute bus ride across town should have a service interval of no more than five minutes, whereas a two-hour inter-city train ride should have a service interval of no more than two hours.
3. **All-Day All-Year Service:** In areas where good transit services are provided from around 6 a.m. to midnight, seven days a week, transit is able to compete for around 99% of journeys.
4. **Information:** A good transit system provides its passengers with easy-to-use information

such as maps and schedules at every transit stop, as well as over the phone and on the internet. Transit stops should be clearly marked with a symbol recognizable to residents and tourists alike.

5. **Easy Fare Payment:** Paying the fare should be the easiest part of a transit trip. Bus fareboxes should give change and journeys that require a transfer should only require one ticket, even if the routes of more than one operator are used.
6. **Comfort:** Passengers on a bus should have plenty of legroom and a seat at least as comfortable as a car seat. Transit stops should be well lit, and have a shelter with seating and other services such as telephones and vending machines.
7. **Image:** Transit providers should follow the lead of car manufacturers, and spend more money on advertising, image promotion and customer service.
8. **Reliability:** The reliability of a transit system is the percentage of services that arrive on time.

Performance Standard & Route and Service Evaluation

Development of an efficient and effective public transit system requires the coordination of route design and service levels with the demographic, geographic, and economic characteristics of a particular area. Route coverage includes transit service to major trip generators and attractors, which are identified as selected residential areas and other areas such as employment centers, major shopping centers, hospitals, education facility centers, major airports, libraries, and other major recreational centers and other major transit trip demand centers. Comparison of these transit trip generators and attractors with the existing bus routes indicates that the majority of the trip generators and attractors are served by the LATS bus routes. However, LATS must maintain its awareness of the creation of new trip generators and attractors and adjust its route coverage accordingly.

Service guidelines are proposed in the following areas: route expansion or new transit services, on-time performance, route directness, route structure, policy headways, service spans, and marketing.

- **Route Expansion:** New routes are generally preferable to extensions of existing routes, especially if community circulation is the goal of the new service. Extensions of existing routes can create schedule adherence problems. It can also be difficult to reconcile heavy demand for existing service along existing portions of the route with lower demand in new areas served. All new services will be subject to performance evaluation and will be expected to meet the performance standards for its service type within two years of implementation. All new routes or extensions will be categorized as demonstration routes. At the end of the evaluation time frame, a determination will be made whether to include the service as a permanent part of the transit system.
- **On-time Performance:** As LATS moves toward an Automatic Vehicle Locator (AVL) system, it will establish a baseline for on-time performance and set guidelines for improvement. On time is defined as a departure from a given timepoint within zero to five minutes from the scheduled time, and is measured at each timepoint on each trip.
- **Route Structure:** Operate bus routes on major streets with good pedestrian access. The suburban nature of the area results in less-than-optimal operating and facility

conditions, but route planning should attempt to minimize these conditions where possible. LATS routes are designed so that turns across arterials occur at signalized intersections.

- Policy Headways: The City Transit Trust policy for headway is no more than 60 minutes.
- Service Span: The standard span of service for LATS is 6:00 a.m. to 6:00 p.m. on Monday-Friday and 9:00 a.m. to 9:00 p.m. on Saturdays. Weekday evening service and additional weekend service are priorities, and will be considered for implementation based upon funding and need.
- Marketing Program: Aggressive marketing/public relation is the number one assessment conveyed by patrons and bus operators within the LMA. A Transit Ridership Initiative Report printed by the American Public Transportation Association shows that aggressive marketing and public relations contributed to increase ridership of some of the transit companies that they surveyed. People that were surveyed locally stated that they would like to see more advertisements on the current routes, see flyers and route maps posted in prominent viewing locations and see inserts in local newspapers. Newspaper and television advertisements are the best way to inform the general public about this valuable service. LATS currently advertises via radio and newspaper. It must be noted that advertising must be done on regular predetermined intervals. The Lawton-Fort Sill community is partly responsive to the movement of support staff in and out of the Fort Sill Military Installation. A group reached through advertisement today may not be present tomorrow.

Amenities

Passenger comfort and convenience is essential to the success of a bus stop. Passenger amenities are installed at selected locations to improve passenger comfort. Factors that influence the selection of amenities include: average daily boardings, proximity to major trip generators, future development, proximity of other amenities and community requests. Passenger amenities include but are not limited to shelters, benches, vending machines, trash receptacles, lighting, art, landscaping and phone booths. Selection of bus stops at which to install amenities takes into account a number of factors including: availability of funding, average daily boardings, proximity to major trip generators, passenger transfer activity, planned neighborhood improvements, proximity of other nearby sheltered areas, and customer and community requests.

Amenities include the following:

1. Waiting areas: The stop should include adequate area and clearance for passenger access to buses, other amenities, and connecting sidewalks.
2. Benches: Benches should be placed no closer than 5' from the curb where the posted speed limit is 35 MPH or less; no closer than 10' from the curb where the posted speed limit is greater than 35 MPH; and no closer than 10' from the pavement where there is no curb. At least 60 inches of clearance for wheelchairs should be provided on either the front or backside of the bench.
3. Shelters: Shelters should include complete walkways, inside and behind the shelter with an outside bench if site conditions allow, interior and exterior lighting, trash receptacle,

display area for route and schedule information and concrete base. Shelters should be included at the following locations: any stop serving more than 40 boarding passengers per day within major commercial areas; any stop that is adjacent to a major generator; any stops where large concentration of the young or elderly are expected. An important consideration of determining the location of a bus shelter is the orientation of the shelter with respect to the environmental conditions of the site. Shelters must be positioned so that riders in wheelchairs have enough room to enter and exit the shelter.

4. Signs: A bus stop sign should contain the words “Bus Stop” and LATS. Other information that may be included LATS logo, LATS phone number, route name/color, direction i.e., clockwise/counter clockwise, connection to different routes, and approximate arrival time. A separate sign may be included to identify this location as “No Parking”.
5. Route and Schedule Information: Information including bus route, schedule information, transit riding tips and other appropriate information should be placed at all shelters.
6. Illumination: Passenger safety and security is enhanced by adequate lighting of the stop. Direct illumination of waiting passengers by a streetlight located near the start of the bus stop allows the bus driver to easily see waiting passengers. Lighting significantly influences riders’ and non-riders’ perception of safety and security. When considering lighting for bus stops the installer and/or designers must insure that lighting does not negatively impact adjacent land uses.
7. Bicycle Storage: Bicycle storage is often overlooked as an amenity at transit stops. Our community is currently encouraging residents to incorporate walking and riding bicycles in their daily lifestyles. Facilitating bicycle storage is necessary to support the goals of the community as attempts are made to get people out of their cars and to use alternative means of transportation (LATS). Bike racks are a simple and relatively low-cost approach to encourage people to use public transportation and ride their bicycles.
8. Park and Ride Facilities: Design criteria for park and ride facilities follow the same design standards as any other parking lot. Bus loading areas should be designed to be near the facility entrance.

Transfer Point Improvements

The attractiveness, convenience, and safety provided at transfer points are key elements in both the public’s perception of a transit service as well as the attractiveness of the service to the passengers. Other than the quality of the buses, the transfer points are what both the riding and the non-riding public see and use on a daily basis. At present, the transfer points between connecting routes do not provide any improvements.

Transfer Center

Transfer centers should have amenities to make use of the facilities more pleasant. For proper systemwide bus circulation, buses should be able to enter the transit center from all major street directions. The location should, if possible, facilitate left hand turns from one-way streets and right-hand turns from two-way streets for safer movement. Circulation into the site should separate automobile and bus traffic to ease access for both. When feasible, access points should be a minimum of 150 feet from the centerline of the nearest intersection to avoid traffic

conflicts. Two access points located on different streets should be provided to the facility whenever possible. Vehicle and pedestrian access should be designed to minimize conflict between buses and pedestrians. In addition to the passenger loading bays, it is often beneficial to provide at least one parking location for an out-of-service transit bus. This can allow one vehicle to be traded out for another without affecting traffic flow around the center.

Bus Stop Location

Bus stop accessibility is directly influenced by bus stop location, function of stop design, street configuration, right-of-way and the availability or lack of sidewalks. According to the Americans with Disabilities Act (ADA), bus stop sites shall be chosen such that, to the maximum extent practical, lifts or ramps may be deployed. New bus stops, landings and shelters must meet the standards as established by ADAAG. The following paragraphs recommend a process for the location and design of bus stops and amenities.

What is a bus stop? A bus stop is any location that is designated for buses to stop. Examples of bus stops in Lawton are:

- Flag Stop: Unmarked stop that is served by request of the passenger.
- Regular Stop: Your standard bus stop marked with a sign.
- Transfer Center: This is the area where all fixed route buses arrive on the hour.

There are several elements to a good bus stop. The list below provides some of these elements:

- Accessibility: The stop must be accessible to the passengers, whether they are disabled or not.
- Passenger Facilities: The stop should have the appropriate facilities for the passengers. These include such things as benches, information signs, shelters and trash receptacles.
- Visibility: Stops should be visible to the driver of the bus. This also includes not only the sign being visible, but the passenger being visible.
- Convenience: The stop should be placed in a location that makes it convenient for the passengers' origin or destination.
- Spacing: The distance between stops can help or hurt stops. Placing stops too far apart makes them inconvenient to use. Placing them too close together can make the vehicle stop too many times.
- Safety: Stops have to be safe for both the passenger and the bus that has to stop.

Bus stops should be established along the fixed route in the following order: major generators, major transfer points, and intermediate stops. The proper location of a bus stop requires a site investigation of the stop under consideration. Stops should be located within a short walk from schools, major retail shopping areas, major employment centers, and high density apartments. Stop locations should minimize the potential for jaywalking as well as minimizing user walking distance. The maximum walking distance between two bus stops serving connecting routes should be no more than 300 feet.

Bus stop placement should be related to ridership density and stops should be close together in

the major retail areas and farther apart in the outlying areas. Generally bus stops should be located after (far-side of) an intersection or driveway to facilitate bus and traffic operations. However, far-side stops are occasionally impractical or conflict with existing commercial development. Long blocks and arterials with long distances between intersecting streets also require mid-block stops. The decision to place a bus stop off-street in a turnout should be made carefully. The decision will affect the ability of the roadway and transit to move people safely and quickly. On-street stops need to be located a minimum distance from intersections and driveways to avoid conflicts. On-streets with on-street parking, the parking must be removed to allow for the stop and is a consideration in siting stops.

On-street or off-street bus stops depend on the street's functional classification, anticipated transit ridership, traffic volume and speed. The design of a bus stop on a principal arterial is often difficult because the tradeoffs between general vehicular traffic and transit are difficult to predict. Lack of quick re-entry into the traffic stream from a turnout will, especially if repeated often, increase the transit trip time. However, stopping in the through lane may reduce the roadway level of service and may precipitate rear-end accidents. Therefore, the decision to place a bus stop off-street in a turnout should be made carefully. Turnouts are not necessary on collector level or lower functional classifications.

Bus Stop Analysis

A policy to assess current and new bus stop sites is recommended. Because of the number of factors involved, current, new or relocated stop must be examined on a case-by-case basis. It is especially important to consider the unique circumstances at each intersection when selecting bus stop locations, including:

- intersection angles,
- spacing along the route,
- location of the expected passenger traffic generator for the stop,
- traffic and pedestrian safety,
- availability of adequate right-of-way to ensure that the bus stop meets the Americans with Disabilities Act (ADA) accessibility standards,
- curb clearance, bus turning requirement, relation to nearest intersection,
- traffic patterns,
- restricted turning lanes,
- traffic controls,
- curb clearance needs,
- location of crosswalks,
- location of nearby driveways,
- Are there major conflicts with turning or merging traffic?
- Is it far-side of a signalized intersection?
- Is it a major commercial area?
- Is it a major employment area?
- Are there schools nearby?
- Are there recreation facilities nearby?
- Is the road an arterial?
- What are posted speeds?

- Is there right-of-way for a bus turnout?
- Have the Director of Public Works and Traffic Engineer approved the site?
- An inventory of land-uses within a quarter-mile corridor of the road under consideration should be developed, making certain those uses which serve as major trip producers and attractors are noted.
- Location of intersections where the routes connect.
- Number of boardings and deboardings;
- Proposed major trip generators; and
- Sight distance.

Intelligent Transportation System

Intelligent Transportation System (ITS) involves the use of computer and electronic technology to improve the safety and efficiency of the transportation system. ITS is new for the LMPO. The regional ITS for the LMPO is included in the ODOT adopted ITS Architecture Plan. Advances in technology have impacted the transportation system to include transit. Table E.4 summarizes LATS's ITS projects.

Table E.4: LATS ITS Projects

ITS PROJECT	TIMING	PRIORITY
Global Positioning System Capabilities to furnish users with real-time travel information while they are traveling. Transit Shelters with GPS and real time travel	Intermediate between 5-7 years	3
Communication System integrated dispatching/scheduling Capable of using weather and roadway information from external sources to aid in scheduling route changes. Ride Matching and Reservation (RMR)	Immediate within five years	2
Automatic Vehicle Location Mileage accumulated by individual buses. Real-time vehicle location reports.	Intermediate between 5-7 years	5
Electronic Fare Collector Collection by fare category, Smart Card	Intermediate between 5-7 years	4
Financial Tracking & Billing System	Between 7- 15 years	8
Safety & Security Video Surveillance System. Silently activated alarms and/or audible alarms on board public transit vehicles which are capable of activation by the operator, monitored by central dispatch or local police. Installation of smart shelters at designated locations.	Immediate within five years	1
Automatic Passenger Counters Vehicle passenger loading by bus stop and trip segment.	Between 7- 15 years	6

ITS PROJECT	TIMING	PRIORITY
Archived Data Management Archive data in format that is retrievable by Transit and LMPO	Between 7-15 years	9
Vehicle Fleet Management Automatic tracking/validating the number of work hours for each individual vehicle operator. Preventive and predicted maintenance. Inventory management Vehicle life cycle and history. Warranty recovery management. Fuel management.	Between 7-15 years	7

Source: LATS, General Manager

Future Needs

The purpose of the section is to develop a blueprint for capital expenditures. LATS's capital investments over the next five to twenty years will be targeted primarily to the bus fleet replacement, passenger amenities, ITS and maintenance. Table E.5 summarizes the projected transit capital items.

Further, population growth, energy shortages, and the location of development are some examples of the factors that may increase the demand for public transit services. Two major gaps exist in LATS service span. Public transportation service is not available in the evenings or on Sundays.

Table E.5: LATS Projected Capital Investment

REQUEST	TIMING	COST ESTIMATE	TOTAL
Paratransit Vehicle	2007 - 2009	\$65,000	\$65,000
Replacement Bus (replace 2 vehicle per year)	2009 - 2016	\$300,000 per vehicle	\$4,200,000
Passenger Amenities (upgrade Downtown Transfer Center)	2008 - 2015	\$100,000	\$100,000
Facility	2007 - 2008	\$600,000	\$600,000
Administrative Vehicles	2008 - 2015	\$300,000	\$300,000
Capital Supplies/Equipment	2010	\$100,000	\$100,000

Source: LATS, General Manager

Hours of Operation

In response to needs expressed through passenger surveys, the plan recommends by 2030 an extension of Monday through Friday service to include the hours between 6 p.m. and 10 p.m. and extension of Saturday service to include the hours between 9 p.m. and 11 p.m. Prior to expansion of service hours, it should be evaluated to determine if full route service is warranted.

Administration & Maintenance Facility

The facility must provide adequate parts storage, meet safety requirements, and provide necessary equipment, facilities, and room for maintenance activities. Functional areas should be located in an efficient and safe proximity to each other. Adequate facilities must be provided for the following functions:

- Operations employee office space and employee restrooms.
- Driver/mechanics' room, serving as both a locker area and as a lunch room.
- Radio/dispatching area, assuming room for future AVL/real-time dispatching equipment and personnel.
- Money room, located on the bus service line.
- Multi-purpose room of 150 square feet, which would be used as a training/meeting room.
- Vehicle maintenance area, providing three general maintenance bays.
- Bulk storage space.
- Separate parts storage space (including tires).
- Tire repair area with cage.
- Separate welding shop, constructed to OSHA standards.
- Battery storage room.
- Transit vehicle parking and employee and visitor vehicle parking.

Improved Bus Schedule

LATS services are detailed in the LATS's Maps & Timetables. The maps are not to scale and the print resolution is relatively low. These media are available in alternative accessible formats. Finally, the system map does not include route numbers (only the route colors). One suggested change is to upgrade the quality of the map, and to work with regional independent living centers (such as the Center for Independent Living) to develop these media in alternative formats.

Improved Internet Website

LATS's recently created a website that is separate from the City of Lawton's website. It provides an overview of current services and contact information. The greatest shortcoming of the website is the lack of an easily printed map/schedule. LATS could consider developing a link to an Acrobat Reader portable document file version of the map/schedule information with a Macromedia Flash feature, which will facilitate zooming to a particular area on the map, as well as printing by website users. In addition, the website must meet ADA requirements.

Service Monitoring

The need to minimize costs and maximize the efficiency of the service requires that sound business practices be followed in a transit service organization. Just as one would not run a retail store without knowing exactly what items are selling, it is imprudent to operate transit service without knowing which routes and which runs are attracting ridership. Similarly, the quality of the service provided must be closely monitored.

Lawton's contractor does a good job of collecting and reporting service data in its monthly report, as required in the operating contract. This information is provided to the Transit Trust.

However, the following periodic data would be helpful in assessing service quality and assist in future service planning:

- Paratransit Trip Refusals and Denials: This information is not currently being reported in the monthly reports. It is worthwhile to assess this information, particularly if a pattern of ADA trip denials begins to occur (trip denials are forbidden under the ADA). The contractor should be required to report the total number of trip denials and trip refusals by passenger category (ADA, non-ADA elderly/disabled, and general public).
- Annual Passenger Survey: Onboard surveys are a vital source of planning information regarding the ridership and the purpose of their transit trip. In addition, surveys are the single best way to gain “feedback” regarding the service. Questions that should be addressed in the annual passenger survey include the following: Day and date that the survey is completed, Time at which the survey is completed, Route that the passenger is traveling, Passenger gender, Passenger age (0-14, 15-18, 19-24, 25-44, 45-59, 60 and above), Whether the passenger is disabled, and if so, if the passenger uses a wheelchair, Residency status, Origin of trip (major intersection near trip origin) and trip destination (major intersection near trip destination), Purpose of trip, typically categorized as work, shopping, recreational, social, educational or other, Rating of the transit service (poor, fair, good, very good, excellent), and Suggestions for improvements in transit service.
- Boarding and Deboarding Counts: It is worthwhile, on an annual basis, to conduct a daylong count for boarding and deboarding by stop for each of the routes. There are a number of useful pieces of information that can be gleaned from a boarding and alighting count: Identify the most important stops; Rank bus stops for potential passenger amenities, such as shelters or benches; and Identify the section along the route where the maximum load occurs.

APPENDIX F: Pedestrians and Bicyclist

An important element of SAFETEA-LU is that bicycling and walking are vital to the development of an integrated and intermodal transportation system. Bicyclists and pedestrians must be given due consideration in the planning process and that bicycle facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation facilities except where bicycle use and walking are not permitted. The design of bicycle and pedestrian facilities is determined by ODOT and local design standards and practices, many of which are based on publications of the American Association of State Highway and Transportation Officials (AASHTO) such as the Guide to the Development of Bicycle Facilities and A Policy on Geometric Design of Streets and Highways and Design and Safety of Pedestrian Facilities by Institute of Transportation Engineers.



Constructing sidewalks, installing bicycle parking at transit stops, teaching children to ride and walk safely, installing curb cuts and ramps for wheelchairs, striping bike lanes and building trails all contribute to our national transportation goals of safety, mobility, economic growth and trade, enhancement of communities and the natural environment. All of these activities, and many more, are eligible for funding as part of SAFETEA-LU.

Within the SA there are limited areas with sidewalk facilities. Most of the sidewalks extend through the City of Lawton downtown area and through subdivisions developed within the City, constructed after 1992. Subdivisions outside the city limits do not require sidewalks. However, as you move away from the downtown area there are virtually no pedestrian/bike facilities. Pedestrians and bicyclists are forced to travel in the roadways which may not be safe to walk on, next to, or to cross.

Barriers

Some of the greatest barriers for pedestrian crossings are long crossing distances, short signal timing, lack of pedestrian actuated signal devices, medians and islands without ramps or cut through, curbs without ramps, curb ramps without level landing, conditions that make it difficult to identify the boundary between the sidewalk and street, blocked sight distance, crosswalk locations that are only detectable by sight, and motorists making right turns on red. Crosswalks should be designed in accordance with the Manual of Uniform Traffic Control Devices (MUTCD). Barriers are not limited to physical items in the pathway but also development practices. The historical development pattern emphasizes low density residential separated from employment and shopping. These types of development practices lead to spread-out/leap frog development. Policies should be developed to encourage infill and discourage leap-frog development. Table F.1 provides guidelines for installing



sidewalks from the Institute of Traffic Engineers. Wider sidewalks should be installed near schools, at transit stops, in downtown areas, or anywhere high concentrations of pedestrians exist. Sidewalks should be continuous along both sides of a street and sidewalks should be fully accessible to all pedestrians, including those in wheelchairs.

Table F.1: ITE Guidelines for Installing Sidewalks

LAND USE/FUNCTIONAL CLASSIFICATION	NEW URBAN & SUBURBAN STREETS	EXISTING URBAN & SUBURBAN STREETS
Commercial & Industrial (all streets)	Both sides	Both sides. Every effort should be made to add sidewalks where they do not exist and complete missing links.
Residential (Major Arterials)	Both sides	Both sides
Residential (Collectors)	Both sides	Multifamily both sides. Single family prefer both sides require at least one side.
Residential (Local Streets) More than 4 units per acre	Both sides	Prefer both sides; require at least one side
1 to 4 units per acre	Prefer both sides; require at least one side	One side preferred, at least 4 feet shoulder on both sides required.
Less than 1 unit per acre	One side preferred; shoulder on both sides required.	At least 4-ft. shoulder on both sides required.

Source: Design and Safety of Pedestrian Facilities, Institute of Traffic Engineers

Notes: 1) Any local street within two blocks of a school site that would be on a walking route to school- sidewalk and curb and gutter required. 2) Sidewalks may be omitted on one side of a new street where that side clearly cannot be developed and where there are no existing or anticipated uses that would generate pedestrian trips on that side. 3) Where there are service roads, the sidewalk adjacent to the main road may be eliminated and replaced by a sidewalk adjacent to the service road on the side away from the main road. 4) For rural roads not likely to serve development, a shoulder of at least 4 feet in width, preferably 8 feet on primary highways, should be provided. Surface material should provide a stable, mud-free walking surface.

Safe Routes to School

SAFETEA-LU established the Safe Routes to School program to enable and encourage children to walk and bicycle to school for children in Kindergarten through 8th grade. Funding for this program is distributed to state departments of transportation in proportion to the number of primary and secondary school students in the state. The ODOT Safe Routes to School Program Advisory Committee at the time of this writing is developing the application criteria, application and supporting information for these funds.

APPENDIX G: Freight

Freight is the movement of goods, services or commodities and its associated cost from one point to another. Freight planning attempts to identify these varied linkages that are responsible for getting freight from origin to destination and improve or replace them if they operate in an inefficient manner. A region's vitality and businesses, jobs, and consumers all rely on a transportation system that can handle goods efficiently and safely. The movements of freight carrying vehicles also affect the amount of urban congestion, air and noise pollution.

Federal transportation legislation challenges MPOs to maintain and improve freight mobility. This enables the development of economic strategies to strengthen the area's ability to compete with outside markets and improve the standard of living of its residents. Some of the markets that are in proximity of the LMA are Dallas, Fort Worth, and Oklahoma City. Table G.1 provides distances to the distant markets.

SAFETEA-LU helps focus federal, state, and metropolitan attention to freight issues by encouraging state DOTs and metropolitan planning organizations (MPO) to consider freight movements in their existing transportation planning programs. Designated funding for freight improvement projects particularly those that are multi-modal or intermodal in scope is not available. While highway-related projects are usually eligible for funding under federal and state highway programs, multi-modal and intermodal projects must often be shoehorned into other funding categories.

The U.S. Department of Transportation (USDOT) and the FHWA have identified the following economic benefits that relate to transportation investments:

1. Reduction in transportation cost to individual firms.
2. As freight networks expand, the density of its links increases making point-to-point trips less indirect and reducing transportation distances.
3. The adding of new roads to a freight network and including incident control management can reduce road congestion and travel times by freight operators.
4. Improve reliability.
5. Reduce the cost of storage.

Table G.1: SA and Market Area

CITY	MILES	CITY	MILES
Dallas, Texas	156	Tulsa, Oklahoma	172
Little Rock, Arkansas	347	New Orleans, Louisiana	582
Houston, Texas	405	Oklahoma City, Oklahoma	78
Denver, Colorado	506	Wichita Falls, Texas	54

Source: Oklahoma Department of Commerce

The proximity to the highway network allows connectivity to other cities; this makes the LMA a prime candidate to be a central freighting hub in the region. Improvements to existing freight

infrastructure will allow increased regional access to the SA freighting facilities, i.e., airports, warehouses, commercial and retailing outlets.

Freight and the Economy

The FHWA in a recent research project attempted to identify the linkages between the movement of freight and its relationship to the national economy. Results of this research give evidence that links improved the infrastructure with increase freight traffic, and that increased freight traffic aids to an increase Gross Domestic Product (GDP) of a region.



Tonnages, routes, and commodity are not readily available. According to the Bureau of Labor Statistics (BLS), 2001 the LMA employed two-thousand fifty persons within the occupational group Transportation and Material Moving. From this number, four-hundred twenty persons are categorized as Heavy and Tractor-Trailer Drivers, three-hundred thirty persons are categorized as Laborers and Freight, Stock, and Material Movers while the rest in this occupation group are classified as Managers, Packers, Transit and Intercity Operators. The remaining persons in this category are identified as other supporting service providers for the industry.

According to the FHWA, Oklahoma registered 1,515,152 trucks in 2001, an increase of 7.4% from 2000. The Report consolidates trucks that are used for private and commercial purposes. Nevertheless, truck-freighting traffic has been forecast to increase throughout the United States by FHWA. The LMA is well represented in the Heavy Truck and Tractor-Trailer subcategory of Transportation and Material Moving occupations. Local percentages of this subcategory match State totals of about 21% while National totals are recorded to be about 17%.

Industrial and Freight Location

The majority of industrial and freight facilities are located south of Lee Boulevard, on SW 97th Street and between SW 24th Place and SW 20th Street and north of Bishop Road between 11th and SW 3rd Street. The southwestern industrial section of the LMA is home to Goodyear Tire and Rubber Company, Bar-S Foods, Republic Paperboard Company and one trucking company. These industries are the primary destination of large trucks that enter the LMA via US Highway 62. Map G.1 illustrates the general location of the industrial and freight facilities in relation to the road network, rail facilities and streets identified as problematic by truckers.

Survey

The Planning Division in the Summer-Fall 2004 mailed surveys to freight carrier companies for the purpose of identifying areas in the LMA that obstruct the movement of freight. Interviews conducted with freight company representatives identified sections of roadways in the LMA that should be evaluated for the purpose of making the movement of freight more safe and efficient. Survey responses identified the following streets that need improvements:

1. Lee Boulevard

- a. Rising and falling paved surfaces in the SA western section.
- b. Traffic lights cause frequent stopping along Lee Boulevard's eastern section.
2. Goodyear Boulevard
 - a. Traffic congestion occurs where this boulevard intersects Lee Boulevard. This is primarily due to shift change at the industrial complexes in this area.
 - b. Unpaved section south of Lee Boulevard needs speed limit postings.
3. 11th Street/Fort Sill Boulevard between Lee Boulevard and Cache Road.
 - a. The major concern for this road section is that it is too narrow. Freight movers whose primary clientele are local businesses must traverse this street as well as others throughout the LMA. They indicate that it is difficult to negotiate turns as well as lane changes because of the road width and its traffic frequency.
4. SW Bishop Road between SW 11th Street and I-44.
 - a. Carriers indicate that Bishop Road between 11th Street and I-44 needs to be widened and resurfaced to allow better turning movement.
 - b. This section is potentially hazardous to regular traffic. While the north side of this section is zoned industrial, the south side is zoned industrial with a section designated as multifamily residential. This mixed zoning forces neighborhood and industrial traffic to share the same strip of narrow roadway.

Some carriers also mentioned that congestion on the roadway was another barrier that reduces their company's efficiency. Carriers were asked to state how they cope with congested roads - they stated:

1. Trucks are re-routed to roads that are less congested.
2. Trucks are scheduled to drive through potential congested location at a time of less congestion.
3. Smaller trucks are dispatched that can easily negotiate traffic.

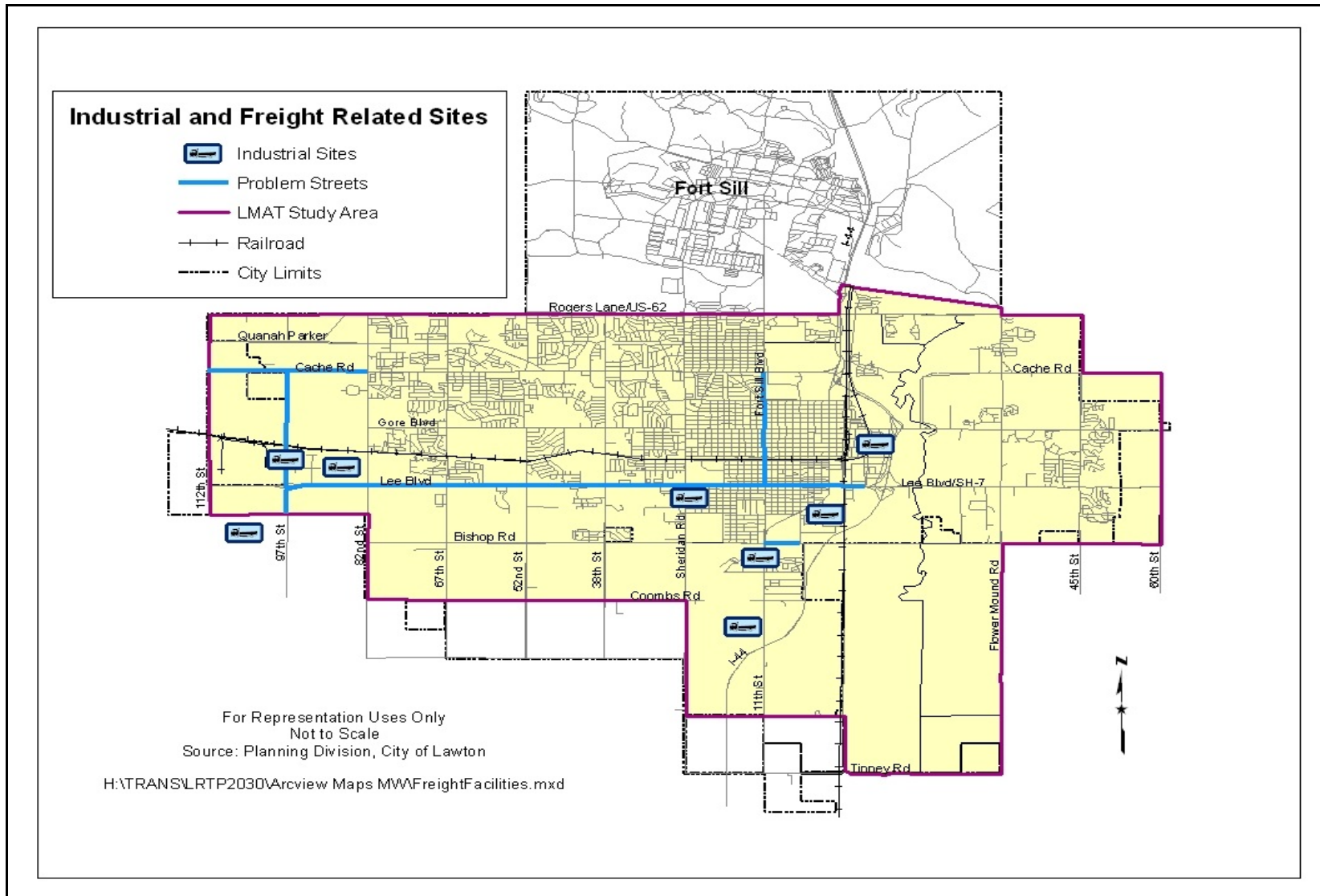
Lee Boulevard is extensively used by freight carriers to move their cargo in and out of the LMA. Survey results also indicate that a substantial amount of freight enters and leaves the LMA via US 62 and I-44. Interviews with Carriers reveal that inadequate signage on I-44 causes the US 62/Rogers Lane route to be missed.

Freight Safety

The Insurance Institute for Highway Safety (IIHS) states that large trucks have higher fatalities per mile driven, although most of their travels are on interstates which according to the USDOT are the safest roads. The Report which was updated in June 2004 lists US truck occupant fatalities at about 700 annually. In addition, it further states that about 3600 – 3700 occupants of passenger vehicles die each year in collision with trucks. The report explains that the main problem is the vulnerability of people traveling in smaller vehicles. Trucks weigh 20 to 30 times more than cars and therefore requiring greater distances to stop.

To assist the freight industry, a truck route with signage in accordance with MUTCD should be identified, heavy industrial uses should not abut low density residential, and street standards for industrial uses should be developed.

Map G.1: SA Industrial and Freight Facilities Location



Freight Survey

About You

First Name: _____ Last Name: _____

Your Title/Position: _____

Phone Number: (_____) _____ E-mail Address: _____

Business Name: _____ Address _____

Facility

1. Facility type: (check one)

- Independent Operation (*company's only location*)
- Chain/Branch/Franchise (*one of company's many locations*)

2. How many people work at your facility? (check one)

- 1-4
- 5-9
- 10-19
- 20-49
- 50-59
- 100+

3. Nature of operation at facility: (check all that apply)

- Farming/ Forestry/ Mining
- Manufacturing/Factory
- Construction
- Distribution Center/Warehouse/Wholesale
- Retail Sales
- Motor Carrier/Truck Operator
- Truck Rest Stop/ Food Service
- Truck Service/ Fueling/Repair & Maintenance
- Other: _____

4. Types of materials, products or equipment RECEIVED (inbound) at your facility:

- Raw Agricultural & Animal Products (i.e. crops, livestock, animal feed)
- Food Products, Alcohol, & Tobacco (i.e. meat, bakery products, dairy products, etc)
- Forestry, Wood, and Paper Products (i.e., logs, lumber, paper) [EXCEPT furniture]
- Chemicals & Chemical Products (i.e., basic chemicals, fertilizers, pharmaceuticals)
- Petroleum Products (Refined) (i.e., plastics & rubber, gasoline, fuel oils)
- Mining Materials (Raw Form) (i.e., coal, sand, gravel, ores, crude petroleum, salt, clay)
- Manufactured Metal & Mineral Products (i.e. metal bars, rods, pipes, nails, screws; cement; concrete products, bricks; glass)
- Other Manufactured Products or Equipment (i.e. furniture, tools, electronics, cameras, clocks, machinery, textiles, vehicles, aircraft, boats etc.)
- Waste, Refuse, Recycling (i.e. hazardous waste, trash, yard waste, recyclable products)
- Miscellaneous (i.e. mail & courier parcels, mixed freight)
- Other: _____

5. Types of materials, products or equipment SHIPPED (outbound) from your facility:

- Raw Agricultural & Animal Products (i.e. crops, livestock, animal feed)
- Food Products, Alcohol, & Tobacco (i.e. meat, bakery products, dairy products, etc)
- Forestry, Wood, and Paper Products (i.e., logs, lumber, paper) [EXCEPT furniture]

- Chemicals & Chemical Products (i.e., basic chemicals, fertilizers, pharmaceuticals)
- Petroleum Products (Refined) (i.e., plastics & rubber, gasoline, fuel oils)
- Mining Materials (Raw Form) (i.e., coal, sand, gravel, ores, crude petroleum, salt, clay)
- Manufactured Metal & Mineral Products (i.e. metal bars, rods, pipes, nails, screws; cement; concrete products, bricks; glass)
- Other Manufactured Products or Equipment (i.e. furniture, tools, electronics, cameras, clocks, machinery, textiles, vehicles, aircraft, boats etc.)
- Waste, Refuse, Recycling (i.e. hazardous waste, trash, yard waste, recyclable products)
- Miscellaneous (i.e. mail & courier parcels, mixed freight)
- Other: _____

Activity at Facility

6. On an average workday, how many trucks are coming in and out of your facility?
- | | |
|-----------------------------|-----------------------------|
| IN: (check one) | OUT: (check one) |
| <input type="radio"/> 1-4 | <input type="radio"/> 1-4 |
| <input type="radio"/> 5-9 | <input type="radio"/> 5-9 |
| <input type="radio"/> 10-24 | <input type="radio"/> 10-24 |
| <input type="radio"/> 24-49 | <input type="radio"/> 24-49 |
| <input type="radio"/> 50-99 | <input type="radio"/> 50-99 |
| <input type="radio"/> 100+ | <input type="radio"/> 100+ |
7. How many days do you operate in a week? (check one)
- 1-4 5 6 7
8. How far do most trucks travel to and from your facility? (check one)
- Local (within 10-mile radius) Out of Town (more than 10-mile radius)
9. Where do most trucks travel to and from your facility? (check one)
- Inside Lawton Outside Lawton
10. Other than Lawton, what are the 3 most common ORIGIN towns for materials, products, and equipment received at your facility?
- | | | |
|------------------------------------|------------------------------------|-------------------------------------|
| <input type="radio"/> Duncan | <input type="radio"/> Chickasha | <input type="radio"/> OKC |
| <input type="radio"/> Norman | <input type="radio"/> Tulsa | <input type="radio"/> Wichita Falls |
| <input type="radio"/> Altus: _____ | <input type="radio"/> Other: _____ | <input type="radio"/> Other: _____ |
11. Other than Lawton, what are the 3 most common DESTINATION towns for materials, products, and equipment shipped from your facility?
- | | | |
|------------------------------------|------------------------------------|-------------------------------------|
| <input type="radio"/> Duncan | <input type="radio"/> Chickasha | <input type="radio"/> OKC |
| <input type="radio"/> Norman | <input type="radio"/> Tulsa | <input type="radio"/> Wichita Falls |
| <input type="radio"/> Altus: _____ | <input type="radio"/> Other: _____ | <input type="radio"/> Other: _____ |
12. Truck trips or activities- which times are your peak periods? (Check all that apply)
- 5am-10am 4pm-7pm 10am-4pm 7pm-5am

13. Which months are your peak periods? (Check all that apply)

- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

14. Which roads do the trucks moving in and out of your facility use?

- 11th St.
- I44
- Rogers Lane
- Sheridan Ave
- HWY7/LeeBlvd
- Other_____
- Gore Blvd
- 82nd St.
- Other_____
- Cache Rd.
- 97th St.
- Other_____

15. Does your facility use railroad transportation?

- Yes, percentage of freight volume using railroad transportation: _____%
- No
- Don't Know

If you do not use railroad transportation, why not? (If you do use rail transportation, why?) *If this space is not sufficient, please continue on back.*

16. Which roadway/s should be improved to help your business? *If this space is not sufficient, please continue on back.*

17. Identify any traffic problems related to roadway/s you listed above (i.e., bottlenecks, congestion, turning radius, safety). *If this space is not sufficient, please continue on back.*

Thank you for your participation.

When complete, please fax or mail in the self address stamped envelope provided

If you have questions about this survey please email or call: The City of Lawton, Planning Division, 103 SW 4th Street, Lawton Ok 73501 (580) 581-3540 / fax (580)581-3573 (attn: Gary Copeland) gcopeland@cityof.lawton.ok.us