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16. Abstract

Investments in public transportation in Texas contribute to the state and local economy by improving transportation options, which in turn creates benefits for individuals, businesses, and governments. Many different agencies provide public transportation services in Texas. Each of these agencies buys goods and services on an individual basis. The purpose of this research is to quantify the purchasing power of public transportation in Texas and to estimate the economic impact on state and local economies. The research also documents how cooperative purchasing can leverage buying power to reduce the cost of equipment, goods, and services and reduce the time and expense for administration of procurement activities for public transportation providers. Case study examples illustrate opportunities for public transportation providers to leverage buying power through cooperative purchasing.

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QUANTIFYING THE PURCHASING POWER OF PUBLIC TRANSPORTATION IN TEXAS: TECHNICAL REPORT

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DISCLAIMER

This research was performed in cooperation with the Texas Department of Transportation (TxDOT) and the Federal Highway Administration (FHWA). The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official view or policies of the FHWA or TxDOT. This report does not constitute a standard, specification, or regulation.

The United States Government and the State of Texas do not endorse products or manufacturers. Trade or manufacturers' names appear herein solely because they are considered essential to the object of this report.

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The authors also wish to express appreciation to former Texas Transportation Commissioner Hope Andrade and former TxDOT Executive Assistant Shawna Russell for the initial concept and support for the research.

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ABL	Texas Department of Transportation (TxDOT) Abilene District
AFDC	Alternative Fuels and Advanced Vehicles Data Center
AFV	Alternative fuel vehicles
AGA	Advancing Government Accountability
AMA	TxDOT Amarillo District
APTA	American Public Transportation Association
ARRA	American Recovery and Reinvestment Act
ATL	TxDOT Atlanta District
AUS TxDOT	Austin District
AVL	Automated vehicle location
BMT TxDOT	Beaumont District
BRY TxDOT	Bryan District
BTD	Brazos Transit District
BWD TxDOT	Brownwood District
CARTS	Capital Area Rural Transportation System
CCG	Council of Competitive Governments
CCSWT	Community Council of Southwest Texas
CHS TxDOT	Childress District
CO-OP Cooperative	Purchasing Program
CPG	Comprehensive Procurement Guidelines
CRP	TxDOT Corpus Christi District
CRS Congressional	Research Service
CTAA	Community Transportation Association of America
CTRTD	Central Texas Rural Transit District
CVT	Colorado Valley Transit District
DAL TxDOT	Dallas District
DART	Dallas Area Rapid Transit
DCTA	Denton County Transportation Authority
DIR	Texas Department of Information Resources
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
ELP	TxDOT El Paso District
EPA	U.S. Environmental Protection Agency
FAR	Federal Acquisition Regulation
FBC	Fort Bend County
FHWA Federal	Highway Administration
FTA	Federal Transit Administration
FTE Full-tim	e equivalent
FTW	TxDOT Fort Worth District
GAO	U.S. General Accounting Office
GCRPC	Golden Crescent Regional Planning Commission
GPP	Green purchasing plan
GPS	Geographical positioning system

GSA	U.S. General Services Administration
HCTD	Hill Country Transit District
HGAC	Houston-Galveston Area Council
HOU TxDOT	Houston District
ICT	Information and Communications Technology
ID/IQ Indefinite	delivery/indefinite quantity
IFB	Invitation for bids
IMPLAN	Impact Analysis for Planning
IRTIC	Iowa Rural Transit ITS Consortium
IT Inform	ation technology
ITS	Intelligent transportation systems
LBB	TxDOT Lubbock District
LFK	TxDOT Lufkin District
LRD	TxDOT Laredo District
MAS	Multiple Award Schedules
MDC	Mobile data computers
MDT Mobile	data terminals
METRO	Metropolitan Transit Authority of Harris County (Houston)
MFC	Most favored customer
MPO	Metropolitan planning organizations
MTED	Mesquite Transportation for the Elderly and Disabled
NASA	National Aeronautics and Space Administration
NASPO	National Association of State Procurement Officials
NCHRP	National Cooperative Highway Research Program
NTD	National Transit Database
NETS	Northeast Transportation Services
NPR	National Performance Review
ODA TxDOT	Odessa District
OFEE	U.S. Office of the Federal Environmental Executive
OMB	U.S. Office of Management and Budget
OPIS	Oil Price Information Service
PAR	TxDOT Paris District
PHR	TxDOT Pharr District
PSA	Public service agency
PTN	TxDOT Public Transportation Division
RCRA	Resource Conservation and Recovery Act
REMI	Regional Economic Modeling Inc.
RFP	Request for proposals
RIMS	Regional Input-Output Modeling System
RMDB	Recycling Market Development Board
ROI	Return on investment
RTI	TxDOT Research and Technology Implementation Division
SAT	TxDOT San Antonio District
SIN	Special Item Number
SJT	TxDOT San Angelo District
SPAN	Denton County Senior Program for Aging Needs

TBPC	Texas Building and Procurement Commission
TDSM	Tourism Development Simulation Model
TEG	Texas E-Purchasing Group
TEIM	Travel Economic Impact Model
The T	Fort Worth Transportation Authority
TML	Texas Municipal League
TMLIRP	TML Intergovernmental Risk Pool
TPASS	Texas Procurement and Support Services
TRB	Transportation Research Board
TTI	Texas Transportation Institute
TxDOT Texas	Department of Transportation
TXMAS	Texas multiple award schedule
TYL	TxDOT Tyler District
VIA	San Antonio Via Metropolitan Transit
VMIS	Vehicle management information system
VTCA	Vernon's Texas Codes Annotated
WAC TxDOT	Waco District
WFS	TxDOT Wichita Falls District
WSCA	Western States Contracting Alliance
WSTIP	Washington State Transit Insurance Pool
WTO West	Texas Opportunities
YKM	TxDOT Yoakum District

CHAPTER 1: EXECUTIVE SUMMARY

QUANTIFYING THE PURCHASING POWER OF PUBLIC TRANSPORTATION IN TEXAS

The purpose of this research is to quantify the purchasing power of public transportation in Texas and to estimate the economic impact on state and local economies. The research also documents how cooperative purchasing can leverage buying power to reduce the cost of equipment, goods, and services and reduce the time and expense for administration of procurement activities for public transportation providers. Case study examples illustrate opportunities for public transportation providers to leverage buying power through cooperative purchasing.

RESEARCH APPROACH

The research for this report was structured into three tracks. In one of the three tracks, researchers gathered data from providers to quantify the purchasing volumes and dollar values of procurement for public transportation in Texas. The data were used to estimate the economic impact of the expenditures for public transportation on state and local economies.

In another track, researchers explored the literature, statutory and regulatory background, and resources available for implementation of cooperative purchasing and cooperative shared services in the public transportation industry. The research team also surveyed public transportation providers to document current practice in cooperative purchasing and to measure industry interest in additional programs for cooperative purchasing and "green purchasing." Green purchasing includes the acquisition of recycled content products, environmentally preferable products and services, and alternatives to hazardous or toxic chemicals.

In the third track, researchers assessed the opportunities for expanded cooperative purchasing or shared services for the public transportation industry in Texas. Findings from previous research tracks were analyzed using case studies to identify opportunities and challenges for cooperative purchasing.

PURCHASING POWER AND ECONOMIC IMPACT

According to research documented in this report, the purchasing power of transit providers in Texas is more than $1.8 billion annually. Transit provider expenditures include more than $1.2 billion in operating expenses (2007) and almost $0.6 billion in capital expenses (average annual 2005–2007).

The estimated impact of expenditures for public transportation on the economy of Texas is based on the multiplier concept. The multiplier concept recognizes that when an expenditure is made, the initial direct outlay of money creates additional business activity and employment and generates household income and government revenue. Economic impacts are composed of three separate impacts: direct, indirect, and induced.

The economic impact of public transportation on the economy of the State of Texas is an estimated multiplier of 2.11. The $1.8 billion in annual expenditures generates more than $3.8 billion in direct, indirect, and induced economic impact in the state on an annual basis.

The research team calculated the estimated economic impact of public transportation for each of the 25 TxDOT districts. The TxDOT districts are divided into three broad categories based on the resulting economic multipliers as follows:

- Category I: 1.21 to 1.46
- Category II: 1.51 to 1.61
- Category III: 1.73 to 1.91

In the first category, the economic multipliers range from 1.21 for Childress (TxDOT District 25) and Wichita Falls (TxDOT District 3) to 1.46 for Tyler (TxDOT District 10). There are 14 districts in this category. The districts in this category are composed of mostly rural counties with lower population concentrations and fewer industries.

There are seven districts in the second category. The multipliers range from 1.51 for Amarillo (TxDOT District 4) to 1.61 for Corpus Christi (TxDOT District 16). This category includes small urban and large urban areas and has relatively higher concentrations of industry compared to the first category.

The third category is composed of four major large urban TxDOT districts. The multipliers range from 1.73 for Austin (TxDOT District 14) to 1.91 for Dallas (TxDOT District 18). The concentration of industries is the highest in this category and ranges from 354 industries in Austin to 412 in Houston (TxDOT District 12). The estimated multipliers are consistent with *a priori* assumptions and expectations. Areas with strong agglomeration of industries tend to have larger multipliers than areas with weak agglomeration.

GOVERNMENT REGULATIONS SUPPORT COOPERATIVE PURCHASING

Cooperative purchasing is becoming increasingly popular at the federal, state, and local levels. Federal laws authorize state and local governments to use the U.S. General Services Administration (GSA) Federal Supply Schedules to acquire information technology (IT) and to purchase products and services to facilitate recovery from a major disaster. The Federal Transit Administration (FTA) encourages recipients to procure goods and services jointly with other recipients to obtain better pricing through larger purchases. Grantees must follow the requirements of FTA Circular 4220.1F and are encouraged to reference the FTA *Best Practices Procurement Manual.*

Texas statutes allow local governments to contract with and between each other to provide governmental functions and services and to join together in contracting with others to provide goods and services. Local governments, including transit agencies, may also participate in state purchasing contracts established by the Texas Comptroller of Public Accounts. The Texas Comptroller of Public Accounts has published the *State of Texas Cooperative Purchasing*

Manual to provide information about the State of Texas cooperative purchasing programs (CO-OP).

RESOURCES FOR COOPERATIVE PURCHASING IN TEXAS

Transit providers in Texas are eligible to use a variety of resources for cooperative purchasing. The three most significant programs are sponsored by the Texas Comptroller of Public Accounts, the Texas Municipal League, and the Houston-Galveston Area Council. Table 1 highlights the cooperative purchasing programs and benefits for these three resources.

Table 1. Cooperative Purchasing Programs and Benefits.

Resources	*Cooperative Purchasing Programs and Benefits*
Texas Procurement and Support Services (TPASS) by Texas Comptroller of Public Accounts	• *State of Texas Cooperative Purchasing Manual* is a guide to local procurement practices. The manual discusses the types of cooperative purchasing in Texas. • Texas multiple award schedule (TXMAS) contracts are developed from contracts that have been competitively awarded by the federal government or any other governmental entity of any state. TXMAS contracts take advantage of most favored customer (MFC) prices. • The State of Texas CO-OP provides volume purchasing power to local governments. Members can purchase goods and services from state term contracts, TXMAS contracts, and piggyback contracts. • TxSmartBuy.com is an online ordering system. Local governments that become a State of Texas CO-OP member can access TxSmartBuy.
Texas Municipal League (TML)	• TML Buyer's Guide is an essential trade resource and a quick reference guide for locating private sector products and services. • TML Intergovernmental Risk Pool (TMLIRP) provides a source of risk financing and loss prevention services at the lowest cost to Texas municipalities and other units of local government.
Houston-Galveston Area Council (HGAC)	• HGACBuy is a government-to-government cooperative procurement service. • The HGAC Energy Purchasing Corporation allows local governments to take advantage of pre-negotiated contracts for the supply of electricity.

SURVEY ON CURRENT PRACTICES IN COOPERATIVE AND GREEN PURCHASING

Researchers conducted a survey of transit providers in Texas in July 2009 to gain an understanding of current practices in cooperative and green purchasing. The survey provides a good snapshot of the state of the practice among Texas transit providers. Nineteen of the 49 respondents to the survey (39 percent) have not participated in cooperative purchasing. Although 30 of 49 respondents (61 percent) have participated in one or more cooperative purchasing programs, the majority (93 percent) of the transit providers used cooperative purchasing to procure transit vehicles. Other than vehicles, the item most often procured through cooperative purchasing is office supplies and equipment. Eight of the transit providers that responded to the survey reported acquiring office supplies and equipment through cooperative purchasing.

A large percent of survey respondents said they are unaware of the variety of cooperative purchasing and green purchasing opportunities available through state and regional programs. Transit providers responding to the survey were asked to indicate interest in a demonstration project or implementation project for one or more of several possible topics. Researchers used survey results to select case study research topics.

CASE STUDY FINDINGS

Researchers used survey results to select case study research topics: purchase cards and fuel cards, green purchasing, and vehicle maintenance.

Purchase Cards

The Texas Comptroller of Public Accounts provides access to the State of Texas purchase card. Transit providers that are participants in the State of Texas Cooperative Purchasing Program are eligible to participate in the purchase card program.

Researchers found that 46 urban and rural transit providers are members of the State of Texas Cooperative Purchasing Program and eligible for a state purchase card; however, only 16 are current state purchase cardholders. Five additional urban and rural transit providers hold a private (non-state) program purchase card. Thirteen of the client-based providers that are funded by TxDOT are current Texas purchase cardholders.

Texas transit providers using a purchase card reported varying reasons for implementing a purchase card program:

- increase in end-user control of small purchases and reduction in check processing costs and small-dollar purchase orders;
- savings in administrative costs for small-dollar purchases; and
- maximization of rebate awards.

The average purchase card expenditures in 2008 by entities providing transit services confirms that purchase cards are used for making "micro-purchases" (purchases under $3,000). The exception is in the case of Fort Worth Transportation Authority (The T), with an average transaction expenditure of $26,000. The T's main goal for implementing purchase cards is to take advantage of the awarded rebates rather than reduce small expenditure administration costs.

Researchers estimated a cost savings of $90 per average transaction by a transit provider that used a purchase card rather than processing a traditional purchase order. If a transit provider reduces 50 small purchase transactions by using a purchase card, the savings is $4,500.

The state purchase card contract has a rebate feature that pays rebates based on a percent of total dollar expenditures. Rebates represent approximately 1 percent of expenditures by purchase card. Average annual purchases of $150,000 by purchase card generate $1,500 in rebates.

Fuel Cards

The Texas Comptroller of Public Accounts contracts for retail fuel and related services cards that are valid statewide. The Texas Comptroller of Public Accounts delegated fuel card program oversight and administration to the State of Texas Council of Competitive Governments (CCG). Fuel and related services cards are available to public service agencies (PSAs), institutions of higher education, and political subdivisions of the State of Texas. Transit providers fall under the category of PSAs. The state fuel card program offers a 1 percent rebate on fuel purchases.

Researchers found that three transit providers use the state fuel card and 26 use a private (non-state) fuel card. All three transit providers that use the state fuel card serve rural areas, and 13 of the 26 agencies that use a private fuel card are rural transit providers. Rural transit providers told researchers the larger and more remote the service territory, the more practical fuel cards become. Seven of the 19 respondents use fuel cards as the only source of fuel, and an additional transit provider that contracts all services stated the contractors use fuel cards as the only source of fuel.

The State of Texas fuel card provides a means for purchase of federal tax-exempt fuel and related automotive goods and services. The CCG lists several advantages including net-out or rebate of federal taxes, discounts on fuel, rebates of 1 percent on all transactions, coverage of fuel payments under a single invoice, payment of maintenance on the same card, acceptance of cards across the state, tailoring of retail fuel cards to meet the needs of agencies, and purchasing of bulk fuel under the contract.

Researchers confirmed the savings from fuel discounts and rebates that can be realized using the state fuel card. During calendar year 2007, the transit providers using the state-issued fuel card received a $0.16 to $0.21 per gallon savings over retail prices. The average rural transit provider operates approximately 700,000 vehicle miles of service annually. At an average fuel economy of 10 miles per gallon, total gallons consumed on average per rural transit provider are approximately 70,000 gallons annually. If the average per gallon saving is a conservative $0.10 using a fuel card, the average rural transit provider could save $7,000 annually.

Researchers also found that interlocal agreements with state, county, or city governments can provide transit providers an opportunity to take advantage of lower cost bulk fuel rates available through other public agencies.

Green Purchasing

As a part of the research for this project, transit providers in Texas participated in a survey to document current practices in cooperative and green purchasing. Overall, the survey clearly reflects the growing importance of environmentally friendly products for transit organizations. However, based on the survey results, few transit organizations have established a green purchasing procurement process, plan, or program. Seventy-six percent of survey respondents indicated an interest in information on green products, as well as resources that could assist with planning and implementing green purchasing programs.

Vehicle Maintenance

Transit providers commit considerable resources to maintenance of transit vehicles, including expenditures for salaries, wages, and related fringe benefits; services; fuel and lubricants; tires and tubes; and parts, supplies, and other materials. For this reason, vehicle maintenance was included for case study analysis.

Transit providers can benefit from cooperatively purchasing vehicle insurance, office supplies, and vehicle parts, and possibly reduce vehicle maintenance costs. The features of a cooperative purchasing program that most agencies expect are flexibility (user friendly, easy processing, and product/service variety); cost savings (both price savings and administrative savings); and short lead times for parts purchases.

A key finding is the need for more information about cooperative purchasing programs. Often, transit agencies find out about cooperative purchasing programs through word of mouth, local relationships with dealers, conferences, or peers.

DEMONSTRATION OR IMPLEMENTATION STRATEGIES

Cooperative purchasing has been demonstrated to save direct costs, generate rebates, and reduce administrative costs. Researchers recommend the following possible strategies to expand the opportunities for transit providers in Texas to use cooperative purchasing.

- Sponsor a webinar or seminar to present and explain the variety of cooperative purchasing programs currently available to transit providers. The focus of the webinar or seminar will be to introduce representatives for programs such as TPASS and HGACBuy and to share best practices.
- Sponsor a webinar or seminar to provide transit providers with information to make an informed decision to implement or not implement a state purchase card. The target audience will be small urban, rural, and combination transit providers.
- Sponsor a webinar or seminar to provide transit providers with information to make an informed decision to implement or not implement a state fuel card. The target audience will be rural and combination transit providers.
- Evaluate the appropriate application of the state purchase card by transit providers for higher-cost items, including utility expenses, to maximize rebates.

- Partner with CGG to test the market for cost savings to purchase fuel for transit vehicles in bulk through cooperative purchasing.
- Establish a task force with HGACBuy to identify additional products that are specifically targeted to transit providers. An opportunity is to request that HGACBuy provide cooperative purchasing of information technology items for transit (software or hardware such as automated scheduling and routing software, mobile data terminals, automated vehicle location or geographic position systems, and electronic payment systems).
- Establish a task force with TPASS to identify additional products that are specifically targeted to transit providers. An opportunity is to request that TPASS introduce cooperative purchasing for items used in vehicle maintenance, including maintenance services and vehicle parts and supplies.

The findings from this research identify the cooperative purchasing concepts that are the most likely to be successful and implementation strategies that may be considered by TxDOT and transit providers.

CHAPTER 2: INTRODUCTION

Investments in public transportation in Texas contribute to the state and local economy by improving transportation options, which in turn creates benefits for individuals, businesses, and governments. While these benefits are generally recognized, there is no formal estimate of the economic impacts of public transportation in Texas. The research for this project documented the purchasing power of public transportation and quantified the impact on state and local economies.

Public transportation services in Texas are provided by many different agencies. Each of these agencies buys goods and services on an individual basis. There are only a few examples of cooperative purchasing, usually to purchase vehicles. The many public transportation providers and the lack of coordination lead to inefficiencies. Research for this project identified how cooperative purchasing can reduce costs and save time and expense for administration of procurement activities.

USE OF TERMS

The terms "public transportation" and "transit" are used interchangeably throughout this report. Public transportation is specifically defined in Texas statute to mean "mass transportation of passengers and their hand-carried packages or baggage on a regular and continuing basis by means of surface, fixed guideway, or underground transportation or transit, other than aircraft, taxicab, ambulance, or emergency vehicle" (*1*). Transit refers most often to public transportation services in an urban area. In this report, the terms "public transportation provider" and "transit provider" refer to any entity that provides a public transportation service.

RESEARCH APPROACH

The research for this report was structured into three tracks. First, researchers explored the literature, statutory and regulatory background, and best practices for implementation of cooperative purchasing in the public transportation industry. Based upon the findings, researchers assessed the opportunities for expanded cooperative purchasing for the public transportation industry in Texas.

In another track, researchers gathered data from providers to quantify the purchasing volumes and dollar values of procurement for public transportation in Texas. The data were used to estimate the economic impact of the expenditures for public transportation on state and local economies.

In the third track, findings from previous research were analyzed using case studies to identify opportunities and challenges for cooperative purchasing. The research team also surveyed public transportation providers to document current practice in cooperative purchasing and to measure industry interest in additional programs for cooperative purchasing and green purchasing. Green purchasing includes the acquisition of recycled content products, environmentally preferable products and services, and alternatives to hazardous or toxic chemicals.

The findings from this research will help TxDOT to identify how a cooperative purchasing program can leverage buying power to reduce the cost of equipment, goods, and services and reduce the time and expense for administration of procurement activities by public transportation providers in Texas. The research team identifies the cooperative purchasing concepts that are the most likely to be successful and recommends implementation strategies that may be considered by TxDOT and transit providers.

Cooperative purchasing for transit vehicles is not a focus of this report. As documented in the research, many transit providers have participated in cooperative purchases for transit vehicles. A goal of this report is to examine new opportunities.

ORGANIZATION OF THE REPORT

This report consists of 12 chapters. Preceding this introduction is the Executive Summary, which is also Chapter 1 of the report. This introduction to the research study is Chapter 2. The body of the report follows this chapter.

Chapter 3 is a summary of the literature search and references for the statutory and regulatory context for purchasing cooperatives in Texas. Chapter 4 provides an overview of the state of the practice. The total dollars expended for public transportation operating and capital purchases in Texas are presented in Chapter 5, and Chapter 6 provides a methodology to calculate the economic impact of purchases for public transportation.

The next five chapters of the report focus on case studies of cooperative purchasing programs by public transportation providers in Texas.

- Chapter 7 provides an explanation of how the specific case studies were selected for this report.
- Chapter 8 summarizes the findings of a survey to gather data and document current practice for cooperative purchasing and green purchasing.
- Chapter 9 is a case study to look at current practice and the opportunities of expanding cooperative purchasing using purchase cards and fuel cards.
- Green purchasing is a growing area of interest in the transit industry. Chapter 10 is a case study analysis of opportunities for public transportation providers in Texas to begin or expand green purchasing through cooperative procurement.
- Chapter 11 provides a case study to investigate opportunities for cooperative purchasing for vehicle maintenance.

Chapter 12 of the report summarizes the research findings and identifies the most promising opportunities to implement additional cooperative purchasing strategies for transit providers in Texas.

CHAPTER 3: REVIEW OF LITERATURE AND GOVERNMENT REGULATIONS

The purpose of this chapter is to document current literature and the statutory and regulatory context for purchasing cooperatives in Texas. The literature review gathers information from state and national procurement professionals who provide technical expertise and proof of practice experience. All purchases are subject to state and federal guidelines. Texas state statutory references and administrative code provisions that are applicable to the public transportation industry are documented. In addition, the procurement guidelines from the Federal Transit Administration are included in the final section of this chapter.

LITERATURE REVIEW

The purpose of the literature review is to gather information from state and national procurement professionals who can provide technical expertise and proof of practice experience.

Defining Cooperative Purchasing

Cooperative purchasing has been known as horizontal cooperative purchasing, group purchasing, collaborative purchasing, joint purchasing, consortium purchasing, shared purchasing, bundled purchasing, and other terms. Cooperative purchasing and group purchasing are among the most popular terms in the literature (*2*). Cooperative purchasing is the cooperation between two or more firms in a purchasing group in one or more steps of the purchasing process by sharing and/or bundling purchasing volumes, information, and/or resources. A purchasing group is an organization in which cooperative purchasing takes place and that consists of dependent and independent organizations. These organizations share or bundle together their efforts to achieve mutually compatible goals that would be rather difficult to achieve in isolation.

Table 2 lists some of the advantages and disadvantages of cooperative purchasing.

Table 2. Typical Cooperative Purchasing Advantages and Disadvantages.

Advantages	*Disadvantages*
• lower purchasing prices	• set-up costs
• higher quality	• coordination costs
• lower transaction costs	• loss of flexibility
• reduced workloads	• loss of control
• reduced (supply) risks	• supplier resistance
• learning from each other	• possible interference by anti-trust legislation

Source: Schotanus and Telgen, Developing a Typology of Organisational Forms of Cooperative Purchasing (2).

Cooperative Purchasing in the Public Sector

The concept of cooperative purchasing is well established in the public sector. The American Bar Association's *Model Procurement Code for State and Local Governments*, which sets the

standard for state and local procurement law, defines cooperative purchasing simply as "procurement conducted by or on behalf of one or more public procurement units" (*3*). The National Institute of Governmental Purchasing's *Public Procurement Dictionary of Terms* defines cooperative purchasing as follows (*4*):

- procurement conducted on behalf of two or more public procurement units;
- the combining of requirements for two or more public procurement units in order to obtain the benefits of volume purchases and/or reduction of administrative expenses; and
- a variety of arrangements whereby two or more public procurement units purchase from the same supplier using a single invitation for bid or request for proposal.

In his article on cooperative purchasing in *Mass Transit* magazine in May 2007, John Adler, vice president for procurement at Dallas Area Rapid Transit (DART), listed the primary benefits of cooperative purchasing (*5*):

- Volume purchases—by combining the requirements of multiple governments, large purchases make it possible for suppliers to take advantage of economies of scale and offer lower pricing than might be available to a single government.
- Reduced administrative costs—small governments spend hundreds of hours making routine purchases and thus increasing the cost of the purchase. Cooperative purchasing gives governments the ability to buy immediately from existing contracts.
- Access to technical experts—cooperative contracts can be prepared and awarded by larger government procurement agencies or associations by experienced professionals with support from technical, financial, and legal experts.
- Better utilization of staff—by using cooperative purchasing contracts, managers can focus procurement resources on other activities, including contracts for unique program requirements.
- Convenience and efficiency—cooperative purchasing contracts provide immediate access to a wider variety of products and services.

Generally, there are three types of cooperative purchasing (*6*):

- True cooperative—two or more organizations combine their requirements and solicit bids or offers for goods or services.
- Piggyback options—one or more organizations represent their requirements and include an option for other organizations to "ride" or "bridge" the contract as awarded. Piggyback procurements have been increasing in popularity for the purchase of transit vehicles in the public transportation industry.
- Third-party aggregators—an organization brings together multiple organizations to represent their requirements and manage the resulting contract or contractor.

There are also three types of cooperative purchasing contracts (*5*):

- Definitive quantity and delivery—generally produces the lowest price because cooperative members define quantities and delivery schedule.

- Indefinite quantity and delivery—participating members are identified and requirements are estimated with no specific purchase commitment. Governments may achieve economies of scale and reduce administrative costs by participating in an indefinite quantity/indefinite delivery cooperative purchasing contract.
- Piggyback contracts—contracts are issued by individual governmental agencies that allow other jurisdictions to use the contract. Piggyback contracts represent the most immediate cooperative purchasing resource, especially for smaller communities. Some entities do not have the statutory authority to piggyback.

In the February 2006 publication *Strength in Numbers: An Introduction to Cooperative Procurements*, Lee Ann Pope, program manager for the National Association of State Procurement Officials (NASPO), explained that cooperative contracts are becoming increasingly popular at the federal, state, and local levels (*6*). A cursory review of the state contracting environment reveals dozens of cooperative contracts covering a wide array of goods and services available at the state and local level (*6*).

NASPO highlights the value of cooperative purchasing to save time and money for state and local governments; however, the organization also identifies a series of challenges that may be encountered in using or establishing a cooperative contract (*6*):

- Legal compliance—although most procurement laws are similar, there are often subtle and sometimes large differences in government procurement codes.
- Buy-local laws—many jurisdictions have laws that favor local suppliers and may interfere with the ability of a government to develop and award a cooperative contract.
- Open competition—cooperative purchasers must maintain lists of suppliers who register to compete for contracting opportunities and post public advertisements for invitations for bids and proposals.
- Small business participation—some small businesses may not be equipped to handle procurements for the larger volumes and combined requirements of multiple governments' programs.
- Battle of forms/terms—although most are similar, governments use unique procurement contract terms and conditions. A cooperative contract awarded by one jurisdiction may not conform to the requirements of another.
- Pricing—although most cooperative contracts generate considerable cost savings, not all cooperative contracts achieve the best value.
- Time and resources—it takes more effort to award a contract that services multiple governments.
- Fees—many cooperative purchasing programs assess usage and access fees for cooperative contracts.

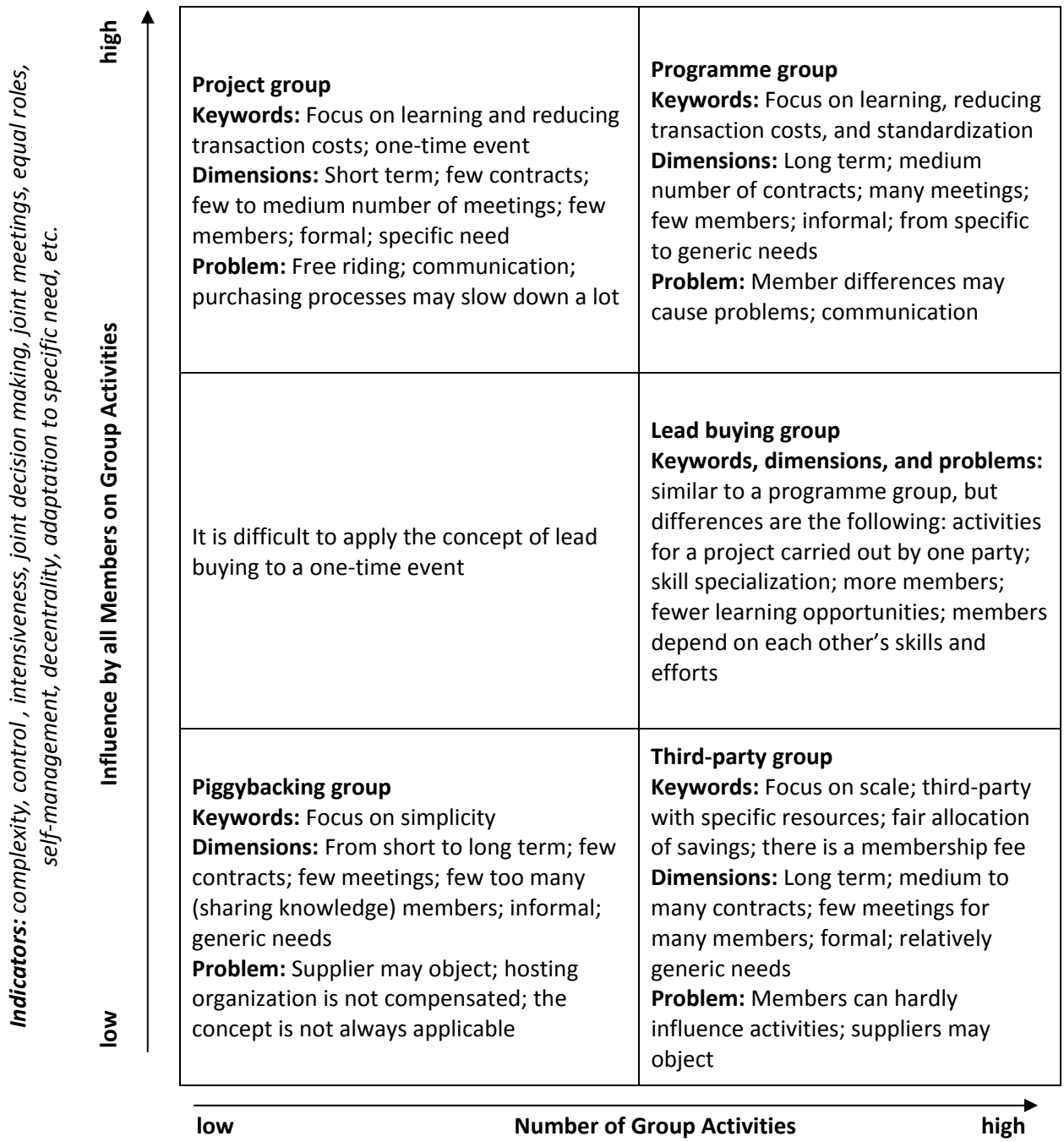
Using best practices and government-sanctioned business processes is important for overcoming these challenges.

Cooperative Purchasing Organizational Forms

Schotanus and Telgen highlight five configurations of cooperative purchasing groups in *Developing a Typology of Organisational Forms of Cooperative Purchasing* (*2*). The five groups increase in terms of organizational structure as follows: piggybacking groups, third-party groups, lead buying groups, project groups, and programme groups. Each of these groups is discussed briefly in the following paragraphs.

- Piggybacking groups are purchasing groups that are informal and focus on keeping the cooperation process as simple as possible. In this group, the benefits to the piggybacking organization are reduced transaction costs and purchasing prices.
- Third-party groups involve long-term piggybacking made possible by public or private external parties or central authorities with dedicated resources. Usually the purchasing activities of these third-party groups are based on expected aggregate purchasing volume and are executed by specific expertise of that external party.
- Lead buying groups entail outsourcing purchasing activities to a specific group member suitable to purchase that item or an external party for expertise, resources, or purchasing volume.
- Project groups are an intensive form of cooperative purchasing that typically results in a one-time purchasing group for a shared purchasing project. Members of such a group bundle their forces together one time to carry out the purchase and typically break up after the purchasing project ends.
- The most intensive cooperative purchasing form is the programme group, which often requires representatives of the management teams of the cooperating organizations to meet on a regular basis on a steering committee to discuss cooperative purchases. These members have high involvement relationships with each other, and all of them can influence supplier selections, specifications, etc.

Figure 1 shows a matrix positioning the various types of cooperative purchasing groups along with distinguishing dimensions of influence by all members on the type and number of different group activities. Besides the five main types of cooperative purchasing groups mentioned above, a wide range of different hybrid organizational configurations can be defined (*2*). Figure 1 shows that these organizational configurations can be defined as coordination by network and range between coordination by hierarchy and coordination by market demand. For example, coordination by hierarchy and market relates to the "intensiveness" of the purchasing group members. Intensiveness is defined as the extent to which group members are compelled to perform an active role in the purchasing group (*2*). To clarify, in third-party group configuration, members are not active because the work is completed by the third party. Whereas, in a programme group, members function in an active role and can influence most of the purchasing activities. The other dimension on Figure 1 is the actual activities of the purchasing group. This activities dimension can range from "occasionally cooperative activity" to "continuously different activities." An external party or the purchasing members themselves perform these activities. Based upon the degree of activities and influence of group members on those activities, it is clear that hybrid organizational configurations or groupings of cooperative purchasing groups are possible.



Source: Schotanus and Telgen, Developing a Typology of Organisational Forms of Cooperative Purchasing (2).

Figure 1. Matrix for Cooperative Purchasing Organiational Forms.

TEXAS STATE REGULATIONS FOR COOPERATIVE PURCHASING

Cooperative purchasing in Texas is addressed in three main statutory references that are described in the following section. In addition, the Texas Comptroller of Public Accounts has published the *State of Texas Cooperative Purchasing Manual* (see State of Texas Resources in Chapter 4). The manual provides information about State of Texas cooperative purchasing contracts.

Interlocal Agreements

Texas Government Code [Vernon's Texas Codes Annotated (VTCA) Chapter 791]—Interlocal Cooperation Act allows local governments to contract with and between each other to provide governmental functions and services and to join together in contracting with others to provide goods and services. There are two pertinent provisions that address cooperative purchasing (*7*).

Sec. 791.011. CONTRACTING AUTHORITY; TERMS.

(a) A local government may contract or agree with another local government or a federally recognized Indian tribe within the boundaries of this state…to perform governmental functions and services in accordance with this chapter.

(b) A party to an interlocal contract may contract with a:

(1) state agency, as that term is defined by Section 771.002; or

(2) similar agency of another state.

(c) An interlocal contract may be to:

(1) study the feasibility of the performance of a governmental function or service by an interlocal contract; or

(2) provide a governmental function or service that each party to the contract is authorized to perform individually.

(d) An interlocal contract must:

(1) be authorized by the governing body of each party to the contract unless a party to the contract is a municipally owned electric utility, in which event the governing body may establish procedures for entering into interlocal contracts that do not exceed $100,000 without requiring the approval of the governing body;

(2) state the purpose, terms, rights, and duties of the contracting parties; and

(3) specify that each party paying for the performance of governmental functions or services must make those payments from current revenues available to the paying party.

(e) An interlocal contractual payment must be in an amount that fairly compensates the performing party for the services or functions performed under the contract.

(f) An interlocal contract may be renewed annually.

(g) A governmental entity of this state or another state that makes purchases or provides purchasing services under an interlocal contract for a state agency, as that term is defined by Section 771.002, must comply with Chapter 2161 in making the purchases or providing the services.

(h) An interlocal contract between a governmental entity and a purchasing cooperative may not be used to purchase engineering or architectural services

Sec. 791.025. CONTRACTS FOR PURCHASES.

(a) A local government, including a council of governments, may agree with another local government or with the state or a state agency, including the comptroller, to purchase goods and services.

(b) A local government, including a council of governments, may agree with another local government, including a nonprofit corporation that is created and operated to provide one or more governmental functions and services, or with the state or a state agency, including the comptroller, to purchase goods and any services reasonably required for the installation, operation, or maintenance of the goods. This subsection does not apply to services provided by firefighters, police officers, or emergency medical personnel.

(c) A local government that purchases goods and services under this section satisfies the requirement of the local government to seek competitive bids for the purchase of the goods and services.

State Purchasing Contracts

Local Government Code (VTCA Chapter 271, Subchapter D, §§271.081-271.083)—State Cooperation in Local Purchasing Program allows a local government to purchase goods on the state's purchasing contracts, and allows the state to solicit bids on the local government's behalf when considered feasible by the Texas Facilities Commission (*8*). The Commission is also required to provide information and technical assistance to local governments about the purchasing program.

Sec. 271.081. DEFINITION.

In this subchapter, "local government" means a county, municipality, special district, school district, junior college district, and a local workforce development board created under

Section 2308.253, Government Code, or other legally constituted political subdivision of the state.

Sec. 271.082. PURCHASING PROGRAM.

(a) The [Texas Comptroller of Public Accounts] shall establish a program by which the comptroller performs purchasing services for local governments. The services must include:

(1) the extension of state contract prices to participating local governments when the comptroller considers it feasible;

(2) solicitation of bids on items desired by local governments if the solicitation is considered feasible by the comptroller and is desired by the local government; and

(3) provision of information and technical assistance to local governments about the purchasing program.

(b) The comptroller may charge a participating local government an amount not to exceed the actual costs incurred by the comptroller in providing purchasing services to the local government under the program.

(c) The comptroller may adopt rules and procedures necessary to administer the purchasing program.

Sec. 271.083. LOCAL GOVERNMENT PARTICIPATION.

(a) A local government may participate in the purchasing program of the commission, including participation in purchases that use the reverse auction procedure, by filing with the commission a resolution adopted by the governing body of the local government requesting that the local government be allowed to participate on a voluntary basis, and to the extent the commission deems feasible, and stating that the local government will:

(1) designate an official to act for the local government in all matters relating to the program, including the purchase of items from the vendor under any contract, and that the governing body will direct the decisions of the representative;

(2) be responsible for:

(A) submitting requisitions to the commission under any contract; or

(B) electronically sending purchase orders directly to vendors, or complying with commission procedures governing a reverse auction purchase, and electronically sending to the commission reports on actual purchases made under this paragraph that provide the information and are sent at the times required by the commission;

(3) be responsible for making payment directly to the vendor; and

(4) be responsible for the vendor's compliance with all conditions of delivery and quality of the purchased item.

(b) A local government that purchases an item under a state contract or under a reverse auction procedure, as defined by Section 2155.062(d), Government Code, sponsored by the commission satisfies any state law requiring the local government to seek competitive bids for the purchase of the item.

(c) The provisions of Chapter 2177, Government Code, shall apply to a local government that exercises the ability to electronically send purchase orders and information under the provisions of this section.

Cooperative Purchasing Program Participation

Local Government Code (VTCA Chapter 271, Subchapter D, §§271.102-271.103) addresses local government participation in cooperative purchasing agreements (*9*).

Sec. 271.102. COOPERATIVE PURCHASING PROGRAM PARTICIPATION.

(a) A local government may participate in a cooperative purchasing program with another local government or a local cooperative organization.

(b) A local government that is participating in a cooperative purchasing program may sign an agreement with another participating local government or a local cooperative organization stating that the signing local government will:

(1) designate a person to act under the direction of, and on behalf of, that local government in all matters relating to the program;

(2) make payments to another participating local government or a local cooperative organization or directly to a vendor under a contract made under this subchapter, as provided in the agreement between the participating local governments or between a local government and a local cooperative organization; and

(3) be responsible for a vendor's compliance with provisions relating to the quality of items and terms of delivery, to the extent provided in the agreement between the participating local governments or between a local government and a local cooperative organization.

(c) A local government that purchases goods or services under this subchapter satisfies any state law requiring the local government to seek competitive bids for the purchase of the goods or services.

Sec. 271.103. FEDERAL SUPPLY SCHEDULE SOURCES.

(a) A local government may purchase goods or services available under Federal supply schedules of the United States General Services Administration to the extent permitted by federal law.

(b) A local government that purchases goods or services under this subchapter satisfies any state law requiring the local government to seek competitive bids for the purchase of the goods or services.

FEDERAL GUIDELINES FOR COOPERATIVE PURCHASING

There are two important documents for reference when contemplating cooperative purchases using FTA funding. The first is FTA Circular 4220.1F, *Third Party Contracting Guidance*, and the second is the FTA *Best Practices Procurement Manual* (*10, 11*).

FTA Third-Party Contracting Guidance

The FTA issued Circular 4220.1F, *Third Party Contracting Guidance*, to provide comprehensive guidance for grantees and recipients of cooperative agreements (recipients) to implement third-party contracting requirements that apply to FTA-assisted procurements. The effective date of the circular is November 1, 2008 (*10*). The purpose of the circular is to assist FTA recipients and their sub-recipients in complying with the various federal laws and regulations that affect their FTA-assisted procurements.

Joint procurements and cooperative purchasing programs are discussed in Chapter V of FTA Circular 4220.1F. Cooperative purchasing programs are identified as either state or local government purchasing schedules or the GSA Cooperative Purchasing Program for federal government use.

Joint Procurement

FTA Circular 4220.1F, Chapter V, paragraph 3 defines "joint procurement" as a method of contracting in which two or more purchasers agree from the outset to use a single solicitation document and enter into a single contract with a vendor for delivery of property and services in a fixed quantity, even if expressed as a total minimum and total maximum (*10*). Unlike a state or local purchasing schedule (discussed below), a joint procurement is not drafted for the purpose of accommodating the needs of other parties that may later want to participate in the benefits of that contract.

Use Encouraged. The FTA encourages recipients to procure goods and services jointly with other recipients to obtain better pricing through larger purchases. According to the FTA Circular 4220.1F, joint procurements offer the advantage of being able to obtain goods and services that may match each participating recipient's requirements better than those likely to be available through an assignment of another recipient's contract rights.

All FTA and Federal Requirements Apply. When participating in a joint procurement, FTA recipients must ensure compliance with all applicable FTA and federal requirements and include all required clauses and certifications in the joint solicitation and contract documents.

Existing Contracts. FTA permits a recipient to use existing contract rights held by another recipient under one of two conditions.

Exercise of Options. A recipient may use contract options held by another recipient with the following limitations:

- FTA expects the recipient to ensure the terms and conditions of the option it seeks to exercise are substantially similar to the terms and conditions of the option as stated in the original contract at the time it was awarded.
- The recipient may not exercise an option unless it has determined that the option price is better than prices available in the market, or that when it intends to exercise the option, the option is more advantageous.
- In some cases, an option must be treated as sole source procurement. If a contract has one or more options and those options were not evaluated as part of the original contract award, exercising those options after contract award will result in a sole source award. Exercising an option after the recipient has negotiated a lower (or higher) price will also result in a sole source award. FTA assistance may be used to support sole source procurement only if that award can be justified under FTA's standards for sole source awards.

Assignment of Contract Rights. FTA expects the recipient to limit its procurements to the amount of property and services required to meet its reasonably expected needs without adding excess capacity simply for the purpose of assigning contract rights to others at a later date. Nevertheless, a recipient may find that it has inadvertently acquired contract rights in excess of its needs. The recipient may assign those contract rights to other recipients if the original contract contains an assignability provision that permits the assignment of all or a portion of the specified deliverables under the terms originally advertised, competed, evaluated, and awarded, or contains other appropriate assignment provisions. Some refer to this process as "piggybacking" (see FTA *Best Practices Procurement Manual* below). Although FTA does not encourage the practice, a recipient may find it is useful to acquire contract rights through assignment by another recipient. To do so:

- The recipient must determine that contract prices remain fair and reasonable.
- The recipient is responsible for determining that contract provisions are adequate for compliance with all federal requirements.
- FTA expects the recipient seeking the assignment to review the original contract to be sure that the quantities the assigning recipient acquired, coupled with the quantities the acquiring recipient seeks, do not exceed the amounts available under the assigning recipient's contract.

Alternatives to Assigned Contract Rights. FTA makes it clear that assigning contract rights is not a preferred approach. FTA encourages recipients to consider joint procurements or use of state or local purchasing schedules.

Impermissible Actions. A recipient may not use federal assistance to finance a contract that has been improperly expanded to include a larger scope, greater quantities, or options beyond the recipient's reasonably anticipated needs. A contract has also been improperly expanded when excess capacity has been added primarily to permit assignment of those contract rights to another entity.

State or Local Government Purchasing Schedules or Purchasing Contracts

FTA Circular 4220.1F, Chapter V, paragraph 4 defines the term "state or local government purchasing schedule" as an arrangement that a state or local government has established with several or many vendors in which those vendors agree to provide essentially an option to the state or local government, and its subordinate government entities, to acquire specific property or services in the future at established prices (*10*).

Use Encouraged. The FTA encourages recipients and sub-recipients to enter into state and local intergovernmental agreements for procurement of property or services. If permitted by state or local authorities, a non-governmental recipient may also use state and local sources of property and services. Texas does permit state and local intergovernmental agreements for procurement of property or services, as discussed in the previous section on State Regulation of Purchasing in this report.

All FTA and Federal Requirements Apply. When obtaining property or services in this manner, the recipient must ensure all federal requirements, required clauses, and certifications (including Buy America) are properly followed and included, whether in the master intergovernmental contract or in the recipient's purchase document. One way of achieving compliance with FTA requirements is for all parties to agree to append the required federal clauses in the purchase order or other document that effects the recipient's procurement. When buying from these schedules, the recipient should obtain Buy America certification before entering into the purchase order. If the product to be purchased is Buy America compliant, there is no problem. If the product is not Buy America compliant, the recipient will need to obtain a waiver from FTA before proceeding.

Federal Supply Schedule

As stated in FTA Circular 4220.1F, Chapter V, paragraph 6, a recipient must be specifically authorized by federal law before it may use the GSA Federal Supply Schedule (GSA Schedules) (*10*). FTA recipients eligible for full use of GSA Schedules are limited to the Washington Metropolitan Area Transit Authority and the District of Columbia.

Limited Use of GSA Schedules. Federal laws authorize state and local governments (including institutions of higher learning) to use GSA Schedules to acquire IT and to purchase products and services to facilitate recovery from a major disaster.

Information Technology. Section 211 of the E-Government Act of 2002, 40 USC Section 502(c), authorizes state and local governments, within limits established by law, to acquire IT of various types through GSA's Cooperative Purchasing Program, Federal Supply Schedule 70 (*8*).

Major Disaster or Emergency Recovery. Since February 1, 2007, state and local government entities may be authorized to use any Federal Supply Schedule to acquire property and services in advance of a major disaster declared by the President of the United States, as well as in the aftermath of an emergency event. The state or local government is then responsible for ensuring that the property or services acquired will be used for recovery (*12*).

All FTA and Federal Requirements Apply. When using GSA Schedules to acquire property or services in this manner, the recipient must ensure all federal requirements, required clauses, and certifications (including Buy America) are properly followed and included, whether in the master intergovernmental contract or in the recipient's purchase document. One way of achieving compliance with FTA requirements is for all parties to agree to append the required federal clauses in the purchase order or other document that effects the recipient's procurement. When buying from these schedules, the recipient should obtain Buy America certification before entering into the purchase order. If the product to be purchased is Buy America compliant, there is no problem. If the product is not Buy America compliant, the recipient will need to obtain a waiver from FTA before proceeding.

Competition and Price Reasonableness. When using GSA Schedules to acquire property or services, an FTA recipient fulfills the requirement to seek competitive pricing from at least three sources. FTA expects a recipient using a GSA price schedule to consider whether the GSA price is reasonable. The recipient may also seek a lower price than that published on the GSA Schedules.

FTA Best Practices Procurement Manual

The FTA *Best Practices Procurement Manual* discusses the topic of piggybacking in Sections 1.3.3.5—Intergovernmental Agreements, Joint Procurements, Piggybacking/Assignments, and 6.3.3—Joint Procurements of Rolling Stock and Piggybacking (*11*).

Inter-Governmental Agreements, Joint Procurements, Piggybacking

A transit agency may be able to take advantage of existing contracts awarded by other governmental entities for goods and services. This practice has become known as piggybacking.

The FTA *Best Practices Procurement Manual* defines the circumstances when piggybacking is permissible (*11*):

- The solicitation and contract include an assignability clause that allows for the assignment of all or part of the specified deliverable items.
- The quantities to be ordered were included in the original bid and evaluated as part of the contract award decision. Note that piggybacking is not permissible when the action would call for an increase in quantities that were not originally bid on and not originally evaluated as part of the contract award. Such an order for additional quantities would constitute a non-competitive procurement. This practice is sometimes referred to as "tag-ons." Such non-competitive procurements would have to be processed as such and approved through the grantee's official approval chain.
- The contract being accessed by the piggybacking procedure contains the clauses required by federal regulations.
- The contractor has submitted the certifications required by federal regulations with its original bid/proposal.
- The procurement in other respects meets federal requirements.

FTA's policy regarding the addition of federal clauses to existing contracts distinguishes between state or local government purchasing schedules and contracts awarded by other grantees. FTA allows recipients to modify contracts using state or local government purchasing schedules to add federally required clauses and certifications when the grantee issues the first purchase order against the contract. The rationale is that, in a state or local government purchasing schedules contract, the purchase order is the transit community's initial work on the contract—much as any buy off the federal GSA Schedules for IT will be when a grantee chooses to use this federal contract. However, FTA has taken the position that grantees may not add federal clauses and certifications to their own contracts or those of other grantees in order to purchase against these contracts with federal funds. Permitting the addition of federal clauses after the fact suggests that a transit agency could essentially avoid most federal rules by placing orders through another transit agency. In short, the integrity of the system would be threatened by extending the after-the-fact option beyond schedule purchases.

Agencies may wish to plan joint procurements in advance with other agencies or governmental users, and competitively award contracts that several governmental entities can draw upon to meet their needs. Such an approach may create economies of scale, reduce procurement lead times in the case of being able to use existing contracts, and reduce administrative effort and expense. Any third-party contracts resulting from or utilized by grantees under inter-governmental agreements are subject to the requirements of FTA Circular 4220.1F. Inter-governmental agreements not involving third-party contracts would not be subject to FTA Circular 4220.1F.

Joint Procurements of Rolling Stock and Piggybacking

FTA Circular 4220.1F applies to all third-party contract actions undertaken by recipients of FTA funds, including actions taken pursuant to the contracts of other entities, such as (*10*):

- the exercise of options that have been assigned to the grantee by another entity that awarded the contract initially,
- the assignment of contracts themselves to a grantee by another entity (under which the recipient will spend FTA funds), and
- joint procurements with other entities (under which the recipient will spend FTA funds).

Recently, there has been a growing trend among transit systems to become involved in joint procurement by several systems. FTA encourages this technique. In these joint procurements, the needs of the various transit systems are defined in the solicitation, and the manufacturers are asked to bid on the total known needs of the agencies involved. In other situations, transit agencies will identify an existing contract of another agency and piggyback that contract by means of an assignment of contract rights such as an assignment of options. Additionally, there is the occasion where an agency awards an indefinite delivery/indefinite quantity (ID/IQ) contract and allows other agencies to purchase from it.

Regardless of the approach used, it is important that grantees be aware of the requirements of FTA Circular 4220.1F with respect to competition, evaluation of options in making the basic contract award, and the existence of a sole-source condition when optional quantities are ordered that were not priced and evaluated as part of the basic contract award process. The FTA policy is that the estimated quantities must reflect the immediate or reasonably foreseeable needs of the parties to the solicitation and, in the case of indefinite delivery/indefinite quantity contracts, a minimum and maximum quantity must be stated.

SUMMARY

Cooperative purchasing is becoming increasingly popular at the federal, state, and local levels. Federal laws authorize state and local governments to use GSA Federal Supply Schedules to acquire IT and to purchase products and services to facilitate recovery from a major disaster. The FTA encourages recipients to procure goods and services jointly with other recipients to obtain better pricing through larger purchases. Grantees must follow the requirements of FTA Circular 4220.1F and are encouraged to reference the FTA *Best Practices Procurement Manual.*

Texas statutes allow local governments to contract with and between each other to provide governmental functions and services and to join together in contracting with others to provide goods and services. Local governments, including transit agencies, may also participate in state purchasing contracts established by the Texas Comptroller of Public Accounts. The Texas Comptroller of Public Accounts has published the *State of Texas Cooperative Purchasing Manual* to provide information about the State of Texas cooperative purchasing programs.

CHAPTER 4: STATE OF THE PRACTICE FOR COOPERATIVE PURCHASING IN THE TRANSIT INDUSTRY

The purpose of this chapter is to provide an overview of the state of the practice for cooperative purchasing in the transit industry. The first section briefly discusses resources available to public transportation agencies. Examples of cooperative purchasing in other states are provided in the second section of the chapter. The third section provides a specific discussion of current practice for state procurement of paratransit vehicles. The final section documents cooperative purchasing that promotes green purchasing.

RESOURCES FOR COOPERATIVE PURCHASING

The following section documents the numerous resources available to transit agencies to facilitate cooperative purchasing and shared-service cooperatives.

Federal Resources

NASPO's *An In-Depth Look at GSA Cooperative Purchasing: The Benefits and Issues Surrounding State Usage of Schedule Contracts* focuses solely on the federal government's cooperative procurement program, known as the Multiple Award Schedules (MAS) program, which the federal government has made available for state and local governments to purchase limited items (*13*). The MAS program is administered by the GSA via the Federal Supply Service. The MAS are also known as the Federal Supply Schedule or as GSA Schedules.

GSA establishes long-term government-wide contracts with commercial firms to provide access to over 11 million commercial supplies (products) and services that can be ordered directly from GSA Schedules contractors or through the GSA *Advantage!*® online shopping and ordering system (*14*). State and local governments are allowed to purchase from GSA Schedule 70—Information Technology and the Consolidated Schedule containing IT Special Item Numbers (SINs) according to Section 211 of the E-Government Act of 2002 (*15*).

The U.S. Department of Agriculture, Rural Business and Cooperative Development Service, developed a manual, *Basics of Organizing a Shared-Services Cooperative*, to provide basic information on how potential members can organize a shared-services cooperative to lower their operating costs by jointly obtaining needed services and products (*16*). Examples of shared-services cooperatives include groups of employers that form alliances to buy health care insurance or to purchase health care services directly from hospitals and physicians. These cooperatives can serve almost any type of business enterprise.

National Associations

The Community Transportation Association of America (CTAA) publishes *Community Transportation* eight times a year. A special buyer's guide edition is published in the summer. The buyer's guide edition includes an indexed list of suppliers, manufacturers, and consultants; preferred community transportation partners that list those suppliers; and manufacturers and consultants that are members or have advertised or exhibited with CTAA (*17*). The guide also includes a community transportation suppliers section that features suppliers to meet the technology, consulting, and equipment needs of the industry and the Transportation Lending Services Corporation catalog of all the products and services available to community and public transportation systems. In order to utilize the services of CTAA, an individual or agency has to become a member (*18*).

The American Public Transportation Association (APTA) has a partnership with TransportMAX to provide an industry e-commerce portal for transit suppliers and buyers. TransportMAX is a commercial operation, financed by user fees. TransportMAX participants have access to catalogs from multiple suppliers aggregated into a single catalog. The online service permits participants to conduct a variety of transactions that range from complex requests for quotations to repetitive purchases of frequently used items. APTA also provides an online *Catalog of Member Products and Services* (*19*).

State of Texas Resources

On September 1, 2007, the state's procurement function moved from the Texas Building and Procurement Commission (TBPC) to the Texas Comptroller of Public Accounts and TBPC became the Texas Facilities Commission. The Texas Comptroller of Public Accounts' office performs a variety of purchasing operations and customer services ranging from administering the Centralized Master Bidders List to processing hundreds of bid invitations, tabulations, and awards for all statewide term and open-market contracts.

Texas Procurement and Support Services is a program of the Texas Comptroller of Public Accounts' office (*20*). TPASS awards and manages hundreds of statewide contracts on behalf of more than 200 state agencies and 1,700 local government agencies.

- The *State of Texas Cooperative Purchasing Manual* is published by the Texas Comptroller of Public Accounts' office to guide local procurement practices. The manual discusses the types of cooperative purchasing available in Texas, such as piggybacking, buying from state contracts, and purchasing through third parties (*21*).
- TPASS has established, as an alternative purchasing method, the use of Texas multiple award schedule contracts that have been developed from contracts that have been competitively awarded by the federal government or any other governmental entity of any state (*22*). TXMAS contracts take advantage of most favored customer pricing; and under certain circumstances, an agency or local government entity may negotiate a lower price for the goods or services offered on a schedule contract. A "best value" purchase can be made by following the TXMAS purchasing procedures.

- TPASS also sponsors the State of Texas Cooperative Purchasing Program (*23*). Created by legislation in 1979, State of Texas CO-OP provides the State of Texas volume purchasing power to local governments and assistance organizations. Members can purchase goods and services from state term contracts, TXMAS contracts, and piggyback contracts. Using these services through the State of Texas CO-OP meets competitive bidding requirements.
- The Texas Comptroller of Public Accounts' office sponsors the TxSmartBuy.com online ordering system (*24*). State and local governments can search TxSmartBuy for items they need. Anyone can look at items offered in the system. State agency purchasers and local government purchasers who belong to the State of Texas CO-OP can place orders in the system. Local governments that become a State of Texas CO-OP member can get access to TxSmartBuy. The benefits of the online ordering system are the opportunity to search and browse contractor e-catalogs for price and product information, the use of a comparison tool to review price and product details side by side for best value, and the ability for contractors to receive purchase orders immediately.
- TxDOT supports cooperative procurement of transit vehicles through the TPASS State of Texas CO-OP program. The TxDOT Public Transportation Division (PTN) also provides many helpful procurement documents, forms, vehicle specifications, and examples on the PTN transit vehicle procurement Web page (*25*).

Texas Department of Information Resources

The Texas Department of Information Resources (DIR)—Information and Communications Technology (ICT) Cooperative Contracts program offers more than 600 cooperative purchasing contracts for technology products and services including hardware, software, staffing services, maintenance, and other ICT services such as managed services and technology training. DIR provides a streamlined cooperative purchasing program for state and local government, public education, and other public entities in Texas, as well as public entities outside the state. Since DIR's creation in 1989, when the Texas Legislature enacted Chapter 2054, Texas Government Code (the Information Resources Management Act), DIR's responsibilities and authority have evolved significantly. In 2005, the 79th Legislature (HB 1516) mandated the state to restructure the roles and responsibilities of agencies for its investment in information and communication technology. DIR provides statewide leadership and oversight for management of government information and communications technology (*26*).

Texas Municipal League

The Texas Municipal League Buyer's Guide is a compilation of services and products. Available in both a printed version and an online searchable reference version, the guide allows city officials to access information on a variety of business categories and business listings (*27*).

The TML Intergovernmental Risk Pool provides Texas municipalities and other units of local government with risk financing and loss prevention services (*28*). The pool offers workers' compensation, liability, and property protection to Texas political subdivisions, which include transit agencies and councils of government. TMLIRP does not insure private, non-profit organizations.

Regional and Local Government

The Houston-Galveston Area Council sponsors a "government-to-government" procurement service—HGACBuy (*29*). As a unit of local government assisting other local governments, HGACBuy has established competitively priced contracts for goods and services, provides customer service, and is compliant with state statutes. All units of local government, including non-profits providing governmental services, are eligible to join HGACBuy.

The HGAC Energy Purchasing Corporation allows local governments to take advantage of pre-negotiated contracts for the supply of electricity. More than 200 local governments in Texas are members of the HGAC Energy Purchasing Corporation (*30*). Members can select their retail electricity provider by a competitive procurement process.

The Texas E-Purchasing Group (TEG) was established by Bexar County in 2002 and has a Web site (Texas Bid System) that has been created for agencies within Texas to notify businesses of bid and contract opportunities (*31*). As of October 9, 2009, there were 5,601 new bids posted on this system (2,344 formal bids and 3,257 quotes). In addition, 3,648 of those documents show awards have been finalized (*31*).

COOPERATIVE PROCUREMENT EXPERIENCE IN OTHER STATES

The following section documents examples of cooperative procurement in states other than Texas. Cooperative purchasing for transit vehicles is addressed in the next section of this chapter.

Iowa Rural Transit ITS Consortium

The Iowa Rural Transit ITS Consortium (IRTIC) consists of 14 rural, two small urban, and one large urban transit systems in Iowa. The IRTIC was established to implement intelligent transportation systems (ITS) technologies for transit providers in the state (*32*). The consortium goal is to standardize software, reporting, and processes; reduce system maintenance and ongoing total costs of ownership; and leverage economies of scale and state purchasing power.

Washington State Transit Insurance Pool

Other states have transit-specific risk pools. The Washington State Transit Insurance Pool (WSTIP) consists of 24 Washington public transit agencies that pool their resources in order to provide and purchase insurance coverage, manage claims and litigation, and receive risk management and training (*33*). WSTIP provides insurance for auto liability, general liability, public officials (errors and omissions), all risk property, crime, and boiler and machinery. WSTIP is accredited by the Association of Governmental Risk Pools. Other transit-specific pools exist throughout the country, in states such as Michigan, Wisconsin, Rhode Island, and Virginia.

Western States Contracting Alliance

All governmental entities in the Western States Contracting Alliance (WSCA) states are eligible to use WSCA contracts if the governmental entity has the legal authority to use its home states' contracts (*34*). Non-WSCA states are generally able to use WSCA contracts if they follow their own statutory processes. WSCA uses a "lead state" model to issue cooperative solicitations. One WSCA state leads the procurement, issues the solicitation, and awards the contracts based on that state's statutory requirements and processes. The lead state owns and manages the contract(s).

U.S. Communities

U.S. Communities Government Purchasing Alliance™ is a nationwide purchasing cooperative for local and state government agencies, school districts, higher education, and nonprofits (*35*). The organization was designed in cooperation with an advisory board of local and state government purchasing officials and is jointly sponsored by the Association of School Business Officials International, the National Association of Counties, the National Institute of Governmental Purchasing, the National League of Cities, and the United States Conference of Mayors.

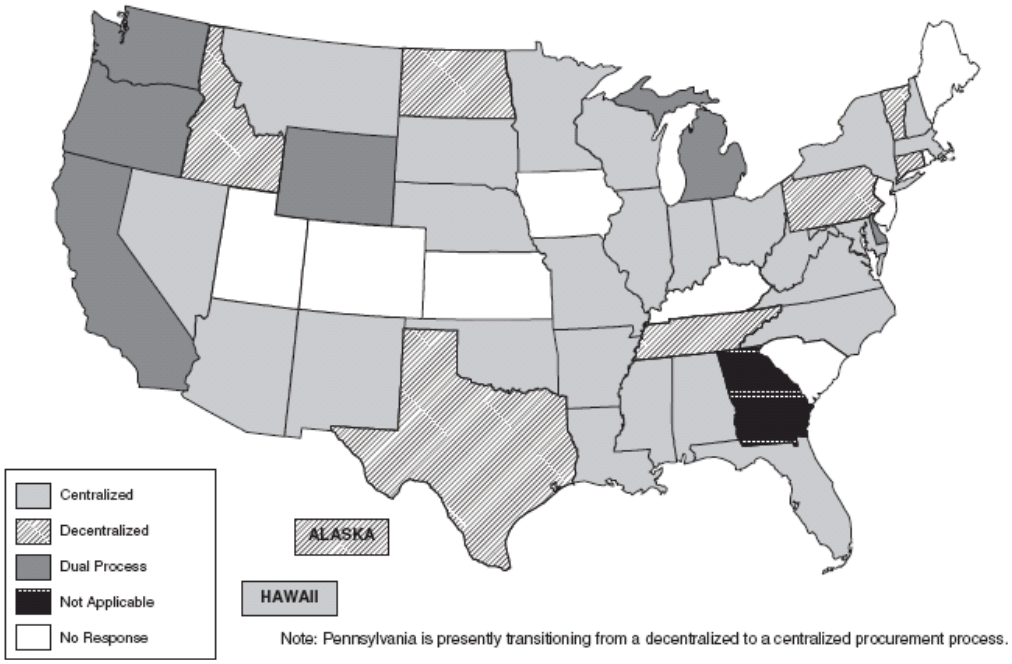
STATE PROCUREMENT OF PARATRANSIT VEHICLES

Recent practices for state procurement of paratransit vehicles are documented in *Research Results Digest 315: Centralized versus Decentralized State Procurement of Paratransit Vehicles for the Federal Section 5310 Program*, by the National Cooperative Highway Research Program of the Transportation Research Board (TRB) (*36*). Federal funds for the FTA Section 5310 Program may be used by states or local grant recipients to purchase vehicles to provide transportation for the elderly and persons with disabilities. *Research Results Digest 315* classified procurement methods for Section 5310 vehicles into three categories:

- centralized procurement,
- decentralized procurement, and
- dual process.

The research included a survey about paratransit vehicle procurement by state departments of transportation responsible for administering the Section 5310 Program. The purchasing approach by each state differs based on abilities, resources, and state size. The survey results showed that 26 states are using a centralized procurement method, eight states are using a decentralized method, and seven states are using a dual process. The remaining nine states were not applicable or had no response (*36*).

Figure 2 shows the graphical illustration for category of vehicle procurement by state.



Source: National Cooperative Highway Research Program (NCHRP) Research Results Digest 315 (36).

Figure 2. Section 5310 Paratransit Vehicle Procurement Approach by State.

Research Results Digest 315 discusses the following two methods for centralized procurement (*36*):

- The "centralized 'turn-key' state procurement process" places complete responsibility for paratransit vehicle purchases with the state. The state notifies applicants of the grant award and then handles all aspects of procurement and purchasing directly.
- The "grant recipient vehicle purchase via central state-procured contract process" allows the grant recipient to purchase from a central state-procured paratransit vehicle contract. The state retains responsibility for procurement of the vehicle, but the grant recipient takes responsibility for placing a vehicle order under the contract and inspecting the vehicle on delivery.

In some states, decentralized purchasing is used instead of centralized purchasing. *Research Results Digest 315* classifies the procurement process for decentralized procurement into the following two categories (*36*):

- The "decentralized third-party/consortium procurement process" includes situations in which two or more grant recipients form a procurement consortium to purchase vehicles. The state designates a lead agency to conduct procurement on behalf of some or all Section 5310 grant recipients in the state, or a third-party agency procures vehicles on behalf of grant recipients.
- In the "decentralized independent procurement process," a grant recipient independently develops its own vehicle specifications, usually following guidance of the state. The grant recipient conducts all steps in the procurement process, including preparation of vehicle specifications, solicitation of offers, procurement, and contract award, with state oversight along the way.

Table 3 compares and summarizes the centralized, decentralized, and dual purchasing methods from the perspective of the states.

Table 3. Procurement Process Issues Summary—State Perspective.

Issues	*Procurement Process*				
	Centralized		*Dual Process*	*Decentralized*	
	Turn-Key	*State-Procured Contract*		*Third-Party/ Consortium*	*Independent*
Oversight and Regulatory Compliance	Eliminates need for oversight of recipients' independent procurement processes, resulting in greater regulatory compliance	State must dedicate resources to provide some oversight and assistance to grant recipients to ensure regulatory compliance	Eliminates the need for oversight of most grant recipients; however, oversight is required to ensure compliance from some grant recipients	State must dedicate resources to provide oversight and assistance to third-party or lead agencies to ensure regulatory compliance	Requires careful oversight of every grant recipient's independent procurement process to ensure compliance with regulations
State Resources	Requires state department of transportation or a central procurement agency to conduct procurement, which may require more state resources than monitoring compliance		Requires sufficient resources to both conduct procurement and monitor compliance of procuring grantees	Absolves state of responsibility for conducting procurement process, but requires resources to monitor compliance with regulations of procuring grant recipients	
Vehicle Quality	Provides improved vehicle quality through in-plant vehicle inspections, allows monitoring of vehicle quality across large purchases, and provides leverage to ensure that the vendor or manufacturer makes warranty repairs when required		Provides ability to monitor quality of vehicles across large purchases, but independent grant recipients will bear this responsibility for their vehicles	Greater grant recipient responsibility for monitoring vehicle quality and approaching vendor or manufacturer regarding vehicle repairs	
Vehicle Price	Large purchasing pools likely result in lower per-unit prices for vehicles		Most grant recipients benefit from purchasing power of pool	Price may be lower than independent procurement, but higher than centralized procurement	Likely the least price-advantageous approach
In-Plant Vehicle Inspection	Direct purchase of more than 10 vehicles by state requires in-plant inspection	Direct purchase by grant recipients generally absolves state of the responsibility for conducting in-plant inspections, which have generally been credited with improving the quality of vehicles			

Source: NCHRP, Research Results Digest 315 (36).

GREEN PURCHASING

Green purchasing includes the acquisition of recycled content products, environmentally preferable products and services, bio-based products, energy- and water-efficient products, alternate-fuel vehicles, products using renewable energy, and alternatives to hazardous or toxic chemicals. Many agencies and political subdivisions participate in cooperative purchasing to

procure green products. The market for these purchases is expanding and, in some cases, is due in part to public policy and law.

Federal Waste Prevention and Recycling

Federal agencies are directed by federal laws, regulations, and executive orders to make purchasing decisions with consideration of the environment. The White House Task Force on Waste Prevention and Recycling, in conjunction with the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Agriculture, assists federal agencies to promote green purchasing. The U.S. Department of Energy (DOE) and EPA assist agencies to implement the energy-related purchasing requirements, including the purchase of alternative-fuel vehicles and alternative fuels. Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, sets federal goals in the areas of energy efficiency, acquisition, renewable energy, toxic reductions, recycling, renewable energy, sustainable buildings, electronics stewardship, fleets, and water conservation (*37*).

The DOE Alternative Fuels and Advanced Vehicles Data Center (AFDC) provides a wide range of information and resources on alternative fuels in addition to other petroleum-reduction options such as advanced vehicle fleet purchasing options (*38*). AFDC acts as a clearinghouse for information on fleet experiences, financial information, and technical assistance.

National Programs for Green Purchasing

The *NASPO Green Purchasing Guide* can be used to navigate information and purchases of environmentally preferable products (*39*). This guide is intended to be a straightforward, easy-to-use document that provides purchasers with a basic understanding of the concept and benefits of green purchasing, offers recommended steps and proven strategies to enable the implementation of a green purchasing program, and supplies links to other resources offering detailed information on specific elements of the process.

Statewide Green Purchasing

Massachusetts was one of the first states to go beyond a buy-recycled program by incorporating various other innovative environmental practices into its procurement practices. The state centralized environmental purchasing decisions and produced a guidebook entitled *Recycled and Environmentally Preferable Products and Services Guide for State Contracts* to assist agencies and political subdivisions in identifying and procuring products made with recycled content and having other environmentally preferable attributes (*40*).

Additional examples of green purchasing are discussed in Chapter 10 of this report.

SUMMARY OF PRACTICES AND RESOURCES

Table 4 provides a summary of practices for cooperative purchasing and resources available to the public transportation industry.

Table 4. Summary of Reviewed Practices and Resources.

No.	*Practices Reviewed*	*Practice Benefits*
1	General Services Administration	GSA establishes government-wide contracts with commercial firms. State and local governments may purchase from GSA Schedule 70–Information Technology.
2	U.S. Department of Agriculture, Rural Business and Cooperative Development Service	The Rural Business and Cooperative Development Service developed a manual, *Basics of Organizing a Shared-Services Cooperative*, to provide basic information on how potential members can organize a shared-services cooperative to lower their operating costs by jointly obtaining needed services and products.
3	Community Transportation Buyers Guide	Community Transportation of America Association publishes an annual buyer's guide with an indexed list of suppliers, manufacturers, and consultants. CTAA services are available to members.
4	American Public Transportation Association	APTA TransportMAX is an Internet-based marketplace that facilitates the buying of goods and services. APTA also provides an online Catalog of Member Products and Services. APTA services are available to members.
5	Texas Procurement and Support Services by Texas Comptroller of Public Accounts	• *State of Texas Cooperative Purchasing Manual* is a local procurement practices guide that discusses the types of cooperative purchasing in Texas. • TXMAS contracts are developed from contracts that have been competitively awarded by the federal government or any other governmental entity of any state. TXMAS contracts take advantage of most favored customer pricing. • State of Texas CO-OP provides the State of Texas volume purchasing power to local governments. Members can purchase goods and services from state term contracts, TXMAS contracts, and piggyback contracts. • TxSmartBuy.com is an online ordering system. Local governments that become a State of Texas CO-OP member can access TxSmartBuy.
6	Department of Information Resources	DIR—Information and Communications Technology Cooperative Contracts procures technology products and services including hardware, software, staffing services, maintenance and other services such as managed services and technology training.
7	Texas Municipal League	• TML Buyer's Guide is an essential trade resource and a quick reference guide for locating private sector products and services. • TML Intergovernmental Risk Pool provides a source of risk financing and loss prevention services at the lowest cost to Texas municipalities and other units of local government.
8	Houston-Galveston Area Council	• HGACBuy is a government-to-government cooperative procurement service. • The HGAC Energy Purchasing Corporation allows local governments to take advantage of pre-negotiated contracts for the supply of electricity.
9	Texas E-Purchasing Group	The Texas Bid System was created for agencies within Texas to notify businesses of bid and contract opportunities.
10	Iowa Rural Transit ITS Consortium	The IRTIC was established to implement ITS technologies for transit providers throughout the state. The consortium goal is to standardize software, reporting, and processes; reduce system maintenance and ongoing total costs of ownership; and leverage economies of scale and state purchasing power.
11	Washington State Transit Insurance Pool	WSTIP provides insurance for auto liability, general liability, public officials, all risk property, crime, and boiler and machinery to members.
12	Western States Contracting Alliance	WSCA uses a "lead state" model to issue cooperative solicitations. One WSCA state leads the procurement, issues the solicitation, and awards the contracts based on that state's statutory requirements and processes.
13	U.S. Communities	U.S. Communities is a nationwide purchasing cooperative for local and state government agencies, school districts, higher education, and nonprofits.
14	U.S. Department of Energy	DOE Alternative Fuels and Advanced Vehicles Data Center acts as a clearinghouse for information on fleet experiences, financial information, and technical assistance.
15	National Association of State Procurement Official	*NASPO Green Purchasing Guide* can be used to navigate information and purchases of environmentally preferable products.
16	State of Massachusetts	State buy-recycled program incorporates various other innovative environmental practices into its procurement practices.

CHAPTER 5: PURCHASING POWER OF PUBLIC TRANSPORTATION

The purpose of this chapter is to document the research methodology and the findings to quantify the purchasing power of public transportation in Texas. The data are used to estimate the economic impact of the expenditures for public transportation on state and local economies in Chapter 6 of this report.

The two primary sources of data for expenditures by transit providers are the FTA National Transit Database (NTD) and the TxDOT Public Transportation Division report known as the PTN-128. All financial data are based on fiscal year information. The NTD and PTN-128 capture operating expenses for 213 transit providers.

CLASSIFICATION OF TRANSIT PROVIDERS IN TEXAS

Transit providers are identified in one of six classifications:

- transit providers in large urban areas (population over 200,000 as of Census 2000), which are further classified in one of three categories:
  - major transit providers in a large urban area serving more than 30 million annual passenger boardings,
  - transit providers in a large urban area serving less than 30 million annual passenger boardings, or
  - transit providers in a large urban area serving only seniors and persons with disabilities, often called limited eligibility providers;
- transit providers in small urban areas;
- rural transit providers, which serve non-urban areas; or
- TxDOT-funded client-based transit providers, which provide public transportation specifically for clients of the agency.

Large Urban

Large urban transit providers are transit providers in urbanized areas with 200,000 or more in population as of the 2000 Census. Because there is a significant difference in the size of the transit systems in areas with a 200,000 or more population, this report categorizes large urban transit providers into three categories. The first category is large urban providers that serve more than 30 million annual passenger trips, referred to in this report as major large urban transit providers. There are four transit providers in the major large urban category. The second category is large urban providers that serve less than 30 million passenger trips, referred to in this report as large urban transit providers. Six transit providers are categorized as large urban. The third category is transit providers that operate in large urban areas but restrict transit eligibility to the elderly and persons with disabilities, referred to in this report as limited eligibility providers. There are four agencies that are limited eligibility providers in large urban areas.

Small Urban

The small urban category is defined as transit providers in urbanized areas with 50,000 to 199,999 in population as of the 2000 Census. There are 24 small urban transit providers.

Rural Transit

Public transportation providers that operate in rural areas are defined as rural transit providers. Rural areas have less than 50,000 in population as of the 2000 Census. There are 39 rural public transit providers in Texas.

TxDOT-Funded Client-Based Providers

TxDOT-funded client-based providers are agencies that receive federal transit funding for public transportation services provided specifically for the clients of the agency. There are 136 TxDOT-funded client-based transit providers in Texas. Table 5 illustrates the number of transit providers in each classification.

Table 5. Number of Transit Providers by Classification.

Classification	*Transit Provider*	*Number*
Major Large Urban	Houston (METRO) Dallas (DART) San Antonio (VIA) Austin (Capital Metro)	4
Large Urban	Fort Worth (The T) El Paso (Sun Metro) Corpus Christi (The B) Denton County (DCTA) Hidalgo County (McAllen Express and Rio Metro) Lubbock (Citibus)	6
Limited Eligibility Providers	Arlington (Handitran) Grand Prairie (Grand Connection) Mesquite (MTED) Northeast Transportation Services (NETS)	4
Small Urban	See Appendix A	24
Rural	See Appendix A	39
TxDOT-Funded Client-Based	See Appendix A	136
Total		213

Appendix A lists each of the 213 agencies by classification.

METHODOLOGY FOR DOCUMENTING OPERATING EXPENSES BY CATEGORY

NTD data capture operating expenditures by expense category, providing the appropriate details to define the purchasing power of public transportation. The operating expense categories include operator salaries and wages, other salaries and wages, fringe benefits services, fuel and lubricants, tires and tubes, other materials and supplies, utilities, casualty and liability costs, purchased transportation, miscellaneous expenses, and leases and rentals. Thirty Texas transit agencies report NTD expenses by category. Transit providers in small urban areas that operate fewer than 10 vehicles may receive a waiver for requirements to file detailed NTD reports. Rural transit districts are not required to report expense detail to NTD, and TxDOT-funded client-based providers are not required to report any data to NTD.

The PTN-128 data capture operational, administrative, maintenance, planning, and purchased transportation expenses but do not provide appropriate detail to define the purchasing power of public transportation by expense category. To allocate the PTN-128 expenses to the appropriate expense categories, NTD data were used to distribute expenses by transit provider. To complete this allocation, a percent of NTD expense by category was calculated for each of the 30 agencies that reported NTD data. Because the percent of expense by category differs depending on the agency classification, average percents by expense category were determined by classification of transit provider. Table 6 presents these data. Small urban transit providers that purchased transportation were separated from the small urban average because purchased transportation skews the category percents. Purchased transportation is transportation that is purchased from a public or private transportation provider based on a written contract. For all small urban transit providers that purchase transportation, the average for purchased transportation is 21 percent of all expenditures. The percent of labor, fuel, utilities, and other expense categories is affected because of the relatively large amount of purchased transportation.

Table 6. Operating Expenses by Category and by Transit Provider Classification.

National Transit Database Operating Expense Category*	*Major Large Urban*	*Large Urban*	*Limited Eligibility Provider*	*Small Urban without PT*	*Small Urban with PT*
Total**	100%	100%	100%	100%	100%
Operator Salaries and Wages	16.6%	21.6%	32.2%	26.4%	26.3%
Other Salaries and Wages	22.9%	18.7%	16.3%	15.8%	11.4%
Fringe Benefits	23.4%	15.1%	15.5%	18.5%	10.7%
Services	5.6%	9.9%	2.1%	10.4%	3.6%
Fuel and Lubricants	7.8%	9.1%	6.4%	11.7%	6.5%
Tires and Tubes	0.5%	0.6%	0.7%	0.7%	1.2%
Other Materials/Supplies	5.6%	6.8%	3.5%	6.9%	9.0%
Utilities	2.0%	1.7%	0.5%	1.7%	1.9%
Casualty and Liability Costs	0.6%	1.4%	0.5%	2.3%	0.4%
Purchased Transportation	13.5%	12.2%	14.4%	0.0%	20.9%
Miscellaneous Expenses	0.9%	1.8%	0.1%	2.7%	4.1%
Leases and Rentals	0.0%	0.5%	7.3%	2.4%	3.6%

**30 transit providers reporting 2007 NTD data*
***Totals may not equal 100% due to rounding.*

Small Urban Transit Provider Expense Allocation

To distribute the small urban transit provider expenses for providers that did not report NTD data, researchers allocated total expenditures to each expense category based on the percent expense by category for the small urban average. For small urban transit providers that had zero purchased transportation expenses, the expenses were distributed by expense category using the "Small Urban without PT" percent distribution (see Table 6). For small urban transit providers *with* purchased transportation expenses, researchers distributed the expenses by first allocating the actual purchased transportation expense amount and then redistributing the remaining expenses among the categories.

Rural Transit Provider Expense Allocation

Researchers allocated rural transit district expense by category based on the Hill Country Transit District expense allocation, as shown in Table 7. The Hill Country Transit District is representative of the typical rural transit district expense allocation. Fuel and operator labor costs are a larger percent of overall costs for rural transit providers than for small urban transit providers.

Table 7. Rural Transit Provider Expenses by Category. (Based on Hill Country Transit District)

Operating Expense Category	*Percent of Total Operating Expense*
Total*	100%
Operator Salaries and Wages	30.0%
Other Salaries and Wages	19.4%
Fringe Benefits	18.1%
Services	1.5%
Fuel and Lubricants	12.8%
Tires and Tubes	0.6%
Other Materials and Supplies	7.1%
Utilities	1.3%
Casualty and Liability Costs	2.1%
Purchased Transportation	0.0%
Miscellaneous Expenses	6.5%
Leases and Rentals	0.0%

**Totals may not equal 100% due to rounding.*

Of the 39 rural transit providers, 28 directly operate all transit service and do not purchase transportation. For these 28 rural transit providers, researchers distributed operating expenses based on the percents in Table 7. Eleven rural transit providers purchase a portion of transportation. One rural transit provider that purchased transportation in 2007, Fort Bend County, reported NTD expenses by category; therefore, researchers used actual expenses in the expense allocation for this provider. Researchers distributed the expenses for the remaining 10 rural transit districts that purchased transportation by first allocating the actual purchased

transportation expense amount and then redistributing the remaining expenses among the categories.

TxDOT-Funded Client-Based Transit Provider Expense Allocation

The 136 TxDOT-funded client-based transit providers report only the total operating expense on PTN-128. A variety of agencies ranging from social service agencies to county agencies to very small city agencies provide TxDOT-funded client-based transportation. The number of passenger trips provided range from 12 trips to 116,000 trips annually. The majority of the expenditures reported are for operator wages, fuel, and light maintenance costs. Table 8 illustrates the percent allocation assumptions used to distribute the TxDOT-funded client-based transportation expenses. This allocation assumes that drivers are paid (not volunteers), benefits include only federal employment taxes and state worker's compensation, and there is minimal agency overhead expense.

Table 8. TxDOT-Funded Client-Based Transit Provider Assumptions for Expenses by Category.

Operating Expense Category	***Percent of Total Operating Expense***
Total*	100%
Operator Salaries and Wages	45.0%
Other Salaries and Wages	5.0%
Fringe Benefits	7.0%
Services	2.0%
Fuel and Lubricants	23.0%
Tires and Tubes	1.0%
Other Materials and Supplies	7.0%
Utilities	1.0%
Casualty and Liability Costs	2.0%
Purchased Transportation	0.0%
Miscellaneous Expenses	7.0%
Leases and Rentals	0.0%

**Totals may not equal 100% due to rounding.*

FINDINGS: OPERATING EXPENSES BY CATEGORY AND CLASSIFICATION

Total operating expenditures for public transportation in Texas were $1.3 billion in 2007, as shown in Table 9. The four major large urban transit providers generated 78 percent of operating expenditures for transit, and the six large urban transit providers generated another 11 percent. Major and large urban Texas transit providers together generated a total $1.1 billion of transit operating expenditures. Small urban and rural transit districts generated an additional 10 percent of expenditures, or $124 million. Limited eligibility providers and TxDOT-funded client-based transit providers generated 1.5 percent of expenditures, or $18.7 million.

Table 9. Total 2007 Operating Expenditures by Category and Classification.

Operating Expense Category	*Total*	*Major Large Urban*	*Large Urban*	*Limited Eligibility Providers*	*Small Urban*	*Rural*	*Client-Based*
Total	**$1,257,975,991**	**$976,992,414**	**$138,160,900**	**$3,974,898**	**$62,098,732**	**$62,007,242**	**$14,741,805**
Percent		**77.7% 11.**	**0%**	**0.3%**	**4.9%**	**4.9%**	**1.2%**
Operator Salaries and Wages	$232,058,150	$162,173,312	$30,019,076	$1,282,267	$16,076,719	$15,872,964	$6,633,812
Other Salaries and Wages	$270,981,918	$224,290,133	$25,747,239	$649,424	$9,375,805	$10,182,227	$737,090
Fringe Benefits	$273,029,739	$229,144,980	$21,016,667	$617,033	$11,372,610	$9,846,522	$1,031,926
Services $77,	610,744	$55,548,071	$13,741,243	$83,536	$6,245,821	$1,697,237	$294,836
Fuel and Lubricants	$107,440,556	$77,094,586	$12,745,199	$255,204	$7,127,981	$6,826,971	$3,390,615
Tires and Tubes	$7,246,679	$5,356,178	$935,177	$29,619	$411,065	$367,223	$147,418
Other Materials and Supplies	$73,817,629	$55,376,136	$9,457,662	$142,432	$4, 169,391	$3,640,081	$1,031,926
Utilities $24,11	2,685	$19,677,934	$2,422,956	$21,293	$1, 105,725	$737,3 58	$147,418
Casualty and Liability Costs	$11,723,571	$6,763,458	$2,079,732	$22,216	$1, 390,472	$1,172,8 57	$294,836
Purchased Transportation	$159,027,657	$131,943,123	$16,564,107	$573,389	$1,792,143	$8,154,896	$0
Miscellaneous Expenses	$17,860,291	$9,501,870	$2,600,774	$4,938	$1,323,597	$3,397,185	$1,031,926
Leases and Rentals	$3,066,372	$122,633	$831,068	$293,547	$1,707,404	$111,720	$0

Table 10 illustrates the percent of operating expenditure by category. Labor is the largest operating expenditure, making up 40 percent of the total operations expenditure. The proportion of operator wages increases when moving from the major and large urban transit providers toward the more rural and TxDOT-funded client-based agencies. Fringe benefits are an overall average of 22 percent of operating expenditures. The next sizeable expenditure is purchased transportation at 13 percent of operating expenditures; $159 million in operating expenditures are to contractors of transit services. Fuel is the next largest expenditure at 9 percent. The proportion of fuel increases when moving from the major and large urban transit providers toward the more rural and TxDOT-funded client-based agencies. Services make up an average 6 percent of operating costs but fluctuate considerably between agency classifications, from 2 percent to 10 percent. Tires/tubes, other materials, utilities, and casualty/liability costs are approximately equal distributions for all transit provider classifications. Miscellaneous expenses and leases/rentals fluctuate slightly across transit provider classification but are a small proportion overall.

Table 10. Percent of 2007 Operating Expenditures by Category and Classification.

Operating Expense Category	*Total*	*Major Large Urban*	*Large Urban*	*Limited Eligibility Providers*	*Small Urban*	*Rural*	*Client-Based*
Total*	100%	100%	100%	100%	100%	100%	100%
Operator Salaries and Wages	18.4%	16.6%	21.7%	32.3%	25.9%	25.6%	45.0%
Other Salaries and Wages	21.5%	23.0%	18.6%	16.3%	15.1%	16.4%	5.0%
Fringe Benefits	21.7%	23.5%	15.2%	15.5%	18.3%	15.9%	7.0%
Services	6.2%	5.7%	9.9%	2.1%	10.1%	2.7%	2.0%
Fuel and Lubricants	8.5%	7.9%	9.2%	6.4%	11.5%	11.0%	23.0%
Tires and Tubes	0.6%	0.5%	0.7%	0.7%	0.7%	0.6%	1.0%
Other Materials and Supplies	5.9%	5.7%	6.8%	3.6%	6.7%	5.9%	7.0%
Utilities	1.9%	2.0%	1.8%	0.5%	1.8%	1.2%	1.0%
Casualty and Liability Costs	0.9%	0.7%	1.5%	0.6%	2.2%	1.9%	2.0%
Purchased Transportation	12.6%	13.5%	12.0%	14.4%	2.9%	13.2%	0.0%
Miscellaneous Expenses	1.4%	1.0%	1.9%	0.1%	2.1%	5.5%	7.0%
Leases and Rentals	0.2%	0.0%	0.6%	7.4%	2.7%	0.2%	0.0%

**Totals may not equal 100% due to rounding.*

Isolating purchased transportation from expenditures provides another look at the operating expenditure distribution in Table 11. If purchased transportation is excluded, operator salaries are a higher percent of overall operating expenditures.

Table 11. Percent of 2007 Operating Expenditures by Category Excluding Purchased Transportation.

Operating Expense Category	*Percent of Total Operating Expense*
Total*	100%
Operator Salaries and Wages	20.9%
Other Salaries and Wages	24.9%
Fringe Benefits	25.0%
Services	7.0%
Fuel and Lubricants	9.7%
Tires and Tubes	0.7%
Other Materials and Supplies	6.7%
Utilities	2.2%
Casualty and Liability Costs	1.1%
Purchased Transportation	0.0%
Miscellaneous Expenses	1.6%
Leases and Rentals	0.2%

**Totals may not equal 100% due to rounding.*

Operating Expenditures by TxDOT District

TxDOT is organized into 25 geographic districts. Table 12 identifies each district, the corresponding district office location, and the district code (number). Each transit provider is identified with one specific TxDOT district. The transit provider service area does not necessarily correspond to the TxDOT district geographic area. The service area of a transit provider may fall within the boundaries of one or more TxDOT districts. Table 12 also provides a summary of 2007 public transportation operating expenditures and service levels (revenue miles, revenue hours, and passengers served) for each TxDOT district. The order of the data is by district, from the most operating expenditures to the least.

Table 12. Operating Expenditures and Operating Data by TxDOT District. (2007—Sorted by Total Operating Expenses)

District Code	*Districts*	*Total Operating Expenses*	*Revenue Miles*	*Revenue Hours*	*Passengers*
	Total	**$1,258,762,991**	**223,268,771**	**14,543,938**	**308,206,522**
12	Houston (HOU)	$379,131,669	65,650,930	3,945,274	103,165,915
18	Dallas (DAL)	$363,777,053	45,157,992	2,991,349	76,957,482
14	Austin (AUS)	$139,073,752	22,291,507	1,557,170	37,118,387
15	San Antonio (SAT)	$134,411,558	30,952,548	2,078,719	42,421,081
2	Fort Worth (FTW)	$58,299,968	10,243,159	696,296	8,004,420
24	El Paso (ELP)	$50,960,277	11,151,097	821,492	12,460,608
16	Corpus Christi (CRP)	$22,092,753	5,044,523	376,242	5,414,676
22	Laredo (LRD)	$14,160,550	2,452,564	223,275	4,558,975
5	Lubbock (LBB)	$12,646,264	3,401,675	243,064	3,250,128
21	Pharr (PHR)	$12,395,791	2,260,587	170,454	2,644,676
17	Bryan (BRY)	$11,743,795	3,049,948	151,536	1,475,110
9	Waco (WAC)	$9,117,245	2,682,423	151,615	1,056,420
20	Beaumont (BMT)	$7,377,854	1,732,728	115,455	867,566
4	Amarillo (AMA)	$6,035,214	1,768,327	121,197	595,356
6	Odessa (ODA)	$5,671,763	2,036,014	100,118	623,346
19	Atlanta (ATL)	$5,247,616	2,680,999	140,095	987,056
23	Brownwood (BWD)	$4,839,689	1,954,744	99,004	264,481
10	Tyler (TYL)	$4,787,492	1,606,247	84,430	449,624
1	Paris (PAR)	$4,020,690	2,073,221	106,325	434,000
13	Yoakum (YKM)	$3,728,264	1,656,745	104,685	441,184
8	Abilene (ABL)	$3,548,675	1,468,259	92,338	4,286,552
7	San Angelo (SJT)	$3,236,294	959,321	112,254	328,602
3	Wichita Falls (WFS)	$1,325,492	511,330	31,708	309,121
25	Childress (CHS)	$1,123,672	471,563	28,306	90,654
11	Lufkin (LFK)	$9,601	10,320	1,537	1,102

Citibus vs. METRO Detailed Template Comparison of Data

To analyze expenditures in greater detail, researchers created a template to gather more specific data than provided in the NTD and PTN-128 reports. Houston METRO and City Transit Management Company, Inc. (Citibus) in Lubbock agreed to complete the template. Table 13 shows the METRO and Citibus 2007 operating expenditures by object class and subcategory. METRO purchases 17 percent of its transportation, which results in lower percents for direct operations expenses including operator wages and fuel. Citibus contracts for maintenance, which represents 7 percent of expenditures and increases the service expenditure category. The METRO fringe benefits are a greater percent of operating expenditures than those of Citibus. In particular, pension and hospital/medical/surgical plans are higher, which reflects a difference in the level of benefits offered by the transit authority.

Table 13. Comparison of METRO and Citibus Expenditures by Object Class. (Fiscal 2007)

		Metropolitan Transit Authority of Harris County, Texas (Houston METRO)		*City Transit Management Company, Inc. (Lubbock Citibus)*	
Operating Expense Object Class and Subcategory		***Operating Expense***	***% of Total***	***Operating Expense***	***% of Total***
Grand Total		**$373,312,121**	**100.0%**	**$9,485,063**	**100.0%**
501	**Labor**	**$135,660,803**	**36.3%**	**$4,088,240**	**43.1%**
01	Operators' Salaries and Wages	**$49,071,146**	**13.1%**	**$2,652,518**	**28.0%**
02	Other Salaries and Wages	**$86,589,657**	**23.2%**	**$1,435,722**	**15.1%**
502	**Fringe Benefits**	**$95,453,031**	**25.6%**	**$1,542,802**	**16.3%**
01	FICA	$11,300,875	3.0%	$320,542	3.4%
02	Pension Plans	$18,199,987	4.9%	$121,376	1.3%
03	Hospital, Medical, Surgical Plans	$33,459,603	9.0%	$462,456	4.9%
04	Dental Plans	$541,512	0.1%		0.0%
05	Life Insurance Plans	$941,515	0.3%	$8,670	0.1%
06	Short-Term Disability Insurance Plans	$704,513	0.2%		0.0%
07	Unemployment Insurance	$223,935	0.1%	$64,307	0.7%
08	Worker's Compensation Insurance or Federal Employees' Liability Act Contribution	$4,963,003	1.3%	$204,026	2.2%
09	Sick Leave	$4,183,276	1.1%	$0	0.0%
10	Holiday	$4,236,229	1.1%	$64,180	0.7%
11	Vacation	$10,732,785	2.9%	$146,859	1.5%
12	Other Paid Absence	$3,770,338	1.0%		0.0%
13	Uniform and Work Clothing Allowance	$814,141	0.2%	$30,188	0.3%
14	Other Benefit	$1,381,319	0.4%	$120,198	1.3%

Table 13. Comparison of METRO and Citibus Expenditures by Object Class (Continued). (Fiscal 2007)

		Metropolitan Transit Authority of Harris County, Texas (Houston METRO)		*City Transit Management Company, Inc. (Lubbock Citibus)*	
Operating Expense Object Class and Subcategory		***Operating Expense***	***% of Total***	***Operating Expense***	***% of Total***
503	**Services**	**$11,627,569**	**3.1%**	**$1,033,455**	**10.9%**
01	Management Service Fees	$1,762,544	0.5%	$175,200	1.8%
02	Advertising Fees	$1,064,607	0.3%		0.0%
03	Professional and Technical Services	$2,263,715	0.6%	$224,868	2.4%
04	Temporary Help	$724,262	0.2%		0.0%
05	Contract Maintenance Services	$3,942,444	1.1%	$631,767	6.7%
06	Custodial Services	$235,936	0.1%		0.0%
07	Security Services	$493,131	0.1%	$167	0.0%
99	Other Services	$1,140,930	0.3%	$1,453	0.0%
504	**Materials and Supplies**	**$51,864,505**	**13.9%**	**$2,159,664**	**22.8%**
01	**Fuel and Lubricants**	**$32,204,500**	**8.6%**	**$1,235,236**	**13.0%**
	Gasoline	$620,918	0.2%	$18,796	0.2%
	Diesel Fuel	$30,634,541	8.2%	$1,160,466	12.2%
	Propane		0.0%		0.0%
	Other Fuel	$62,407	0.0%		0.0%
	Lubricating Oil	$488,738	0.1%	$39,317	0.4%
	Transmission Fluid	$256,124	0.1%		0.0%
	Grease and Other Lubricants	$141,772	0.0%	$16,657	0.2%
02	**Tires and Tubes**	**$2,213,684**	**0.6%**	**$43,099**	**0.5%**

Table 13. Comparison of METRO and Citibus Expenditures by Object Class (Continued). (Fiscal 2007)

		Metropolitan Transit Authority of Harris County, Texas (Houston METRO)		*City Transit Management Company, Inc. (Lubbock Citibus)*	
Operating Expense Object Class and Subcategory		***Operating Expense***	***% of Total***	***Operating Expense***	***% of Total***
99	**Other Materials and Supplies**	**$17,446,321**	**4.7%**	**$881,329**	**9.3%**
	Engine Parts	$1,426,113	0.4%	$763,354	8.0%
	Transmission Parts	$353,216	0.1%		0.0%
	A/C and Heat Parts	$1,180,377	0.3%		0.0%
	Heating/Cooling/Exhaust Parts	$781,193	0.2%		0.0%
	Other Vehicle Maintenance Parts	$8,621,418	2.3%	$55,128	0.6%
	Cleaning Supplies	$1,987,711	0.5%	$44,310	0.5%
	Paper	$274,413	0.1%		0.0%
	Toner/Ink Cartridges	$463,905	0.1%		0.0%
	General Office Supplies	$1,004,420	0.3%	$18,537	0.2%
	Other	$1,353,555	0.4%		0.0%
505	**Utilities**	**$6,864,508**	**1.8%**	**$110,979**	**1.2%**
01	Propulsion Power	$773,640	0.2%		0.0%
02	Utilities Other than Propulsion Power	$6,090,868	1.6%	$110,979	1.2%

Table 13. Comparison of METRO and Citibus Expenditures by Object Class (Continued). (Fiscal 2007)

Operating Expense Object Class and Subcategory		*Metropolitan Transit Authority of Harris County, Texas (Houston METRO)*		*City Transit Management Company, Inc. (Lubbock Citibus)*	
		Operating Expense	*% of Total*	*Operating Expense*	*% of Total*
506	**Casualty and Liability Costs**	**$3,187,305**	**0.9%**	**$262,239**	**2.8%**
01	Premiums for Physical Damage Insurance	$1,387,727	0.4%	$7,030	0.1%
02	Recoveries of Physical Damage Losses	-$990,797	-0.3%	$12,500	0.1%
03	Premiums for Public Liability and Physical Damage Insurance	$2,894,525	0.8%	$170,513	1.8%
04	Payouts for Uninsured Public Liability and Physical Damage Settlements		0.0%	$62,974	0.7%
05	Provision for Uninsured Public Liability and Physical Damage Settlements		0.0%	$9,223	0.1%
06	Payouts for Insured Public Liability and Physical Damage Settlements		0.0%		0.0%
07	Recoveries for Public Liability and Physical Damage Settlements	-$197,806	-0.1%		0.0%
08	Premiums for Other Corporate Losses	$93,656	0.0%		0.0%
09	Other Corporate Losses		0.0%		0.0%
10	Recoveries of Other Corporate Losses		0.0%		0.0%
507	**Taxes**	**$2,895,424**	**0.8%**	**$111,792**	**1.2%**
508	**Purchased Transportation**	**$64,741,515**	**17.3%**	**$0**	0.0%
01	In NTD Report	$64,741,515	17.3%	$0	0.0%
02	Filing Separate NTD Report	$0	0.0%	$0	0.0%

Table 13. Comparison of METRO and Citibus Expenditures by Object Class (Continued). (Fiscal 2007)

Operating Expense Object Class and Subcategory		*Metropolitan Transit Authority of Harris County, Texas (Houston METRO)*		*City Transit Management Company, Inc. (Lubbock Citibus)*	
		Operating Expense	*% of Total*	*Operating Expense*	*% of Total*
509	**Miscellaneous Expenses**	**$1,017,461**	**0.3%**	**$175,891**	**1.9%**
01	Dues and Subscriptions	$306,719	0.1%	$30,276	0.3%
02	Travel and Meetings	$381,884	0.1%	$38,178	0.4%
03	Bridge, Tunnel, and Highway Tolls		0.0%	$10,371	0.1%
04	Entertainment Expenses		0.0%		0.0%
05	Charitable Donations		0.0%		0.0%
06	Fines and Penalties		0.0%		0.0%
07	Bad Debt Expense		0.0%	$0	0.0%
08	Advertising/Promotion Media		0.0%	$74,711	0.8%
99	Other Miscellaneous Expenses	$328,858	0.1%	$22,355	0.2%
512	**Leases and Rentals**	**$1,072,351**	**0.3%**	**$0**	**0.0%**
01	Transit Way and Transit Way Structures and Equipment	$67,431	0.0%		0.0%
02	Passenger Stations		0.0%		0.0%
03	Passenger Parking Facilities	$56,160	0.0%		0.0%
04	Passenger Revenue Vehicles		0.0%		0.0%
05	Service Vehicles		0.0%		0.0%
06	Operating Yards or Stations		0.0%		0.0%
07	Engine Houses, Car Shops, and Garages		0.0%		0.0%
08	Power Generation and Distribution Facilities	$172,784	0.0%		0.0%
09	Revenue Vehicle Movement Control Facilities		0.0%		0.0%
10	Data Processing Facilities	$719,280	0.2%		0.0%
11	Revenue Collection and Processing Facilities	$27,742	0.0%		0.0%
12	Other General Administration Facilities	$28,954	0.0%		0.0%

METHODOLOGY FOR DOCUMENTING CAPITAL EXPENSES BY CATEGORY

Researchers used two main data sources to capture capital expenditures by transit providers in Texas:

- NTD capital expenditures for urban transit providers for fiscal 2005, 2006, and 2007; and
- TxDOT PTN-128 capital expenditures for rural transit districts for fiscal 2008.

Because capital expenditures vary considerably from year to year, researchers collected three years of NTD data to represent capital expenditures more accurately for urban transit providers. Twenty-eight urban transit providers reported NTD capital expenditures for 2005, 2006, and 2007.

NTD data capture capital expenditures by expense category, providing the appropriate detail to define the purchasing power of public transportation. The capital expense categories include passenger stations, administrative buildings, maintenance facilities, revenue vehicles, service vehicles, fare revenue collection equipment, communication and information systems, and other capital and guideway expenditures. Table 14 presents the capital expense category definitions.

Table 14. Capital Expense Category Definitions.

Category	***Definition***
Maintenance Facilities	Includes garages, shops, and operations centers, bus diagnostic equipment. Does not include systems such as computers to process data.
Revenue Vehicles	Includes vehicles used in providing transit service for passengers including revenue vehicles in major rehabilitation.
Service Vehicles	Includes all vehicles not used in providing transit service for passengers (supervisor vehicles, tow trucks, mobile repair trucks, police cars, staff cars).
Fare Revenue Collection Equipment	Includes turnstiles, fare boxes, automated fare boxes and related software, money changers, fare dispensing machines.
Communication and Information Systems	Includes information systems, which process information and communication systems that relay information between locations. Includes two-way radios, automatic vehicle locators, automated dispatching, vehicle guidance, telephone facsimile, public address, computers, monitors, printers, scanners, data storage, accounting, scheduling, planning, vehicle maintenance, non-vehicle maintenance, and customer service functions.
Other Capital	Includes furniture, shelters, signs, passenger amenities (benches).
Guideway	Includes buildings and structures dedicated for the operation of transit vehicles such as at grade, elevated and subway structures, tunnels, bridges, track and power systems for rail modes, and paved highway lanes dedicated to bus modes.

Rural transit districts are not required to report capital expenditure details to NTD. TxDOT PTN began requiring total capital expenditures in 2008. PTN-128 reports for 2008 capital expenditures are the source of data for rural transit providers. The PTN-128 data capture total capital expenditures only and do not provide appropriate detail to define the purchasing power of public transportation by category; however, the total expenditure levels are useful for comparison.

TxDOT-funded client-based providers are not required to report any data to NTD and are not required to report capital expenditures on the PTN-128 report. Therefore, capital expenditures are not available for the TxDOT-funded client-based classification.

FINDINGS: CAPITAL EXPENSES BY CATEGORY AND CLASSIFICATION

Table 15 provides the three-year capital expenditures by transit provider classification. The urban provider three-year capital expenditures represent the NTD data for 2005 through 2007. Researchers based the rural transit district capital expenditures on 2008 reported expenses multiplied by three to obtain a rough estimate for three years. Total three-year capital expenditures across urban and rural providers are estimated as $1.7 billion. Major large urban providers represent 90 percent of all capital expenditures, or $1.5 billion dollars. Large urban providers represent an additional 6 percent, or $100 million. Small urban providers represent 2 percent, or $38 million, and rural and limited eligibility providers represent 2 percent, or $23 million.

Table 15. Three-Year Capital Expenses by Category and Classification. (Fiscal 2005–2007; Rural Based on Fiscal 2008)

Capital Expense Category	*Total*	*Major Large Urban*	*Large Urban*	*Limited Eligibility Providers*	*Small Urban*	*Rural (Based on 2008)*
Three-Year Capital Expenditures (2005–2007)	**$1,665,466,171**	**$1,505,031,898**	**$100,195,326**	**$1,518,350**	**$36, 820,291**	**$21, 900,306**
Passenger Stations	$162,845,494	$140,738,351	$15,989,594	$0	$6,117,549	
Administrative Buildings	$38,934,133	$32,128,757	$2,631,798	$24,768	$3,791,562	
Maintenance Facilities	$121,283,800	$105,099,533	$7,681,025	$199,156	$5,431,5 09	
Revenue Vehicles	$371,926,539	$296,431,780	$42,095,046	$1,206,537	$14, 790,384	
Service Vehicles	$9,493,266	$8,494,238	$475,917	$0	$523,111	
Fare Revenue Collection Equipment $30,	689,740	$30,056,851	$139,700	$0	$493,189	
Communication and Information Systems	$103,559,868	$98,922,863	$3,197,704	$12,813	$1, 241,676	
Other Capital	$20,218,653	$10,821,341	$4,139,945	$75,076	$4,099,413	
Guideway $806,	514,679	$782,338,184	$23,844,597	$0	$331,898	

Table 16 shows the variability of capital expenditures for 2005 through 2007; the largest fluctuation is in guideway expenditures and administrative buildings. Expenditures vary year to year depending on major construction projects in these two categories.

Table 16. Annual Urban Capital Expenses by Category.
(Fiscal 2005, 2006, and 2007)

Capital Expense Category	*2005*	*2006*	*2007*
Total	**$419,628,046**	**$441,274,130**	**$782,338,848**
Passenger Stations	$44,084,278	$51,023,152	$67,713,331
Administrative Buildings	$25,706,710	$8,989,584	$3,880,591
Maintenance Facilities	$42,607,686	$42,099,380	$33,704,157
Revenue Vehicles	$94,409,200	$102,555,486	$157,258,953
Service Vehicles	$1,628,116	$5,241,349	$2,623,801
Fare Revenue Collection Equipment	$12,242,528	$5,794,417	$12,652,795
Communication and Information Systems	$23,527,173	$30,576,306	$49,271,577
Other Capital	$4,700,967	$7,260,052	$7,174,756
Guideway	$170,721,388	$187,734,404	$448,058,887

Table 17 illustrates the percent of capital expenditure by category for each transit provider classification. The largest percent of expenditures is 48 percent for guideways, with the majority of expenditures being by major large urban and large urban transit providers. Revenue vehicles are the second largest expenditure, representing 21 percent across all providers; revenue vehicles are the largest portion of capital expenditures for small urban providers (42 percent). Passenger stations are the third largest capital expenditure at 10 percent across all providers and the second largest expenditure for small urban providers. Significant expenditures for maintenance facilities for large urban (8 percent) and small urban (15 percent) transit providers were made during this period.

Table 17. Percent of Three-Year Capital Expenses by Category and Classification.
(Fiscal 2005–2007; Rural Based on Fiscal 2008)

Capital Expense Category	*Total*	*Major Large Urban*	*Large Urban*	*Limited Eligibility Providers*	*Small Urban*	*Rural*
Total*	100%	100%	100%	100%	100%	100%
Passenger Stations	9.8%	9.4%	16.0%	0.0%	16.6%	
Administrative Buildings	2.3%	2.1%	2.6%	1.6%	10.3%	
Maintenance Facilities	7.3%	7.0%	7.7%	13.1%	14.8%	
Revenue Vehicles	22.3%	19.7%	42.0%	79.5%	40.2%	
Service Vehicles	0.6%	0.6%	0.5%	0.0%	1.4%	
Fare Revenue Collection Equipment	1.8%	2.0%	0.1%	0.0%	1.3%	
Communication and Information Systems	6.2%	6.6%	3.2%	0.8%	3.4%	
Other Capital	1.2%	0.7%	4.1%	4.9%	11.1%	
Guideway	48.4%	52.0%	23.8%	0.0%	0.9%	

**Totals may not equal 100% due to rounding.*

The majority of rural transit districts' capital expenditures have historically been used for revenue vehicle, buildings, and communication/information system purchases.

Capital Expenditures by TxDOT District

Table 18 provides a summary of the capital expenditures by TxDOT district and ranks the districts from most capital expenses to least. Each transit provider is identified with one specific TxDOT district. The transit provider service area does not necessarily correspond to the TxDOT district geographic area. The service area of a transit provider may fall within the boundaries of one or more TxDOT districts. Appendix B provides a listing of the transit providers included in each TxDOT district. Capital expenses are as reported by transit providers to NTD and PTN-128.

Table 18. Three-Year Capital Expenses by TxDOT District. (Fiscal 2005 through 2007)

District Code	*District*	*Three-Year Capital Expenses (2005–2007)*	*Average Annual Capital Expenses*
	Total	**$1,665,466,171**	**$555,155,390**
18	Dallas	$732,981,008	$244,327,003
12	Houston	$597,542,284	$199,180,761
14	Austin	$143,063,498	$47,687,833
15	San Antonio	$54,482,415	$18,160,805
2	Fort Worth	$44,750,657	$14,916,886
24	El Paso	$35,791,216	$11,930,405
21	Pharr	$9,907,076	$3,302,359
5	Lubbock	$8,945,518	$2,981,839
16	Corpus Christi	$6,317,941	$2,105,980
9	Waco	$5,950,299	$1,983,433
20	Beaumont	$5,180,545	$1,726,848
8	Abilene	$5,084,753	$1,694,918
22	Laredo	$5,015,972	$1,671,991
6	Odessa	$3,911,463	$1,303,821
4	Amarillo	$1,877,677	$625,892
23	Brownwood	$1,855,812	$618,604
13	Yoakum	$1,474,940	$491,647
10	Tyler	$543,816	$181,272
1	Paris	$371,065	$123,688
7	San Angelo	$373,285	$124,428
25	Childress	$26,547	$8,849
19	Atlanta	$18,384	$6,128
3	Wichita Falls	$0	$0
11	Lufkin	$0	$0
17	Bryan	$0	$0

SUMMARY

As shown in Table 19, an estimated total $1.8 billion dollars is expended annually by major large urban, large urban, limited eligibility providers, small urban, rural, and TxDOT-funded client-based transit providers in the state of Texas. The four major large urban providers make the majority of expenditures, with an estimated $1.5 billion dollars annually, or 82 percent of total transit provider expenditures (representing 78 percent of operating and 90 percent of capital expenditures).

Table 19. Estimated Service Levels and Expenditures by Transit Provider Classification.

	Total	*Major Large Urban*	*Large Urban*	*Limited Eligibility Providers*	*Small Urban*	*Rural**	*Client-Based***
Annual Total Expenditures	**$1,813,131,381**	**$1,478,6 69,713**	**$171,559,342**	**$4,481,0 15**	**$74,372,162**	**$69,307,344**	**$14,74 1,805**
		81.6%	**9.5%**	**0.2% 4.**	**1% 3.**	**8%**	**0.8%**
Operating Expenditures	$1,257,975,991	$ 976,992,414	$138,160,900	$3,974,898	$62,098,732	$62,007,242	$14,741,805
		77.7%	11.0%	0.3% 4.	9% 4.	9%	1.2%
Annualized Capital Expenditures	$555,155,390	$501,677,299	$33,398,442	$506, 117	$12, 273,430	$7,300,102	$0
		90.4%	6.0%	0.1% 2.	2% 1.	3%	0.0%

*****Rural capital expenditures based on 2008 PTN-128 reports*

***No data available for TxDOT-funded client-based capital expenditures*

Table 20 represents the percent of operating and capital expenditures by category. Labor and fringe benefits are the largest operating expenditures. A large percent of transit operating expenditures (13 percent) goes to purchased transportation. Fuel and lubricants represent 9 percent to 10 percent of the total operating expenditures. Guideway expenditures are the largest capital expenditure for 2005–2007 at 48 percent. Revenue vehicles are second at 21 percent, and passenger stations are third at 10 percent.

Table 20. Percent of Operating and Capital Expenditures by Category.

Operating Expense Category	*With Purchased Transportation*	*Without Purchased Transportation*
Total Operating Expense %*	100%	100%
Operator Salaries and Wages	18.4%	20.9%
Other Salaries and Wages	21.5%	24.9%
Fringe Benefits	21.7%	25.0%
Services	6.2%	7.0%
Fuel and Lubricants	8.5%	9.7%
Tires and Tubes	0.6%	0.7%
Other Materials and Supplies	5.9%	6.7%
Utilities	1.9%	2.2%
Casualty and Liability Costs	0.9%	1.1%
Purchased Transportation	12.6%	0.0%
Miscellaneous Expenses	1.4%	1.6%
Leases and Rentals	0.2%	0.2%

Capital Expenses	*Total*
Total Capital Expense %*	100%
Passenger Stations	9.8%
Administrative Buildings	2.3%
Maintenance Facilities	7.3%
Revenue Vehicles	22.3%
Service Vehicles	0.6%
Fare Revenue Collection Equipment	1.8%
Communication and Information Systems	6.2%
Other Capital	1.2%
Guideway	48.4%

**Totals may not equal 100% due to rounding.*

Table 21 provides a summary of annual operating and capital expenditures by TxDOT district. The major metropolitan areas of Dallas-Fort Worth, Houston, Austin, and San Antonio are ranked at the top of the list for largest operating and capital expenditures.

Table 21. Annual Operating and Capital Expenditures by TxDOT District.
(Operating Expenditures Fiscal 2007; Capital Annualized Expenditures Fiscal 2005–2007)

District Code	*Districts*	*Total Operating Expenses (2007)*	*Annualized Capital Expenditure (2005–2007)*	*Total Annualized Expenditure Operating and Capital*
	Total	**$1,257,975,991**	**$555,155,390**	**$1,813,131,381**
18	Dallas	$363,777,052	$244,327,003	$608,104,055
12	Houston	$379,131,669	$199,180,761	$578,312,430
14	Austin	$138,755,136	$47,687,833	$186,442,969
15	San Antonio	$134,411,558	$18,160,805	$152,572,363
2	Fort Worth	$58,299,924	$14,916,886	$73,216,810
24	El Paso	$50,960,277	$11,930,405	$62,890,682
16	Corpus Christi	$22,092,753	$2,105,980	$24,198,733
22	Laredo	$14,160,550	$1,671,991	$15,832,541
21	Pharr	$12,395,791	$3,302,359	$15,698,150
5	Lubbock	$12,646,264	$2,981,839	$15,628,104
17	Bryan	$11,743,795	$0	$11,743,795
9	Waco	$9,117,245	$1,983,433	$11,100,678
20	Beaumont	$7,377,823	$1,726,848	$9,104,671
6	Odessa	$5,671,763	$1,303,821	$6,975,584
4	Amarillo	$6,035,213	$625,892	$6,661,105
23	Brownwood	$4,839,689	$618,604	$5,458,293
19	Atlanta	$5,247,616	$6,128	$5,253,744
10	Tyler	$4,787,492	$181,272	$4,968,764
8	Abilene	$3,080,370	$1,694,918	$4,775,288
13	Yoakum	$3,728,264	$491,647	$4,219,910
1	Paris	$4,020,687	$123,688	$4,144,375
7	San Angelo	$3,236,294	$124,428	$3,360,722
3	Wichita Falls	$1,325,492	$0	$1,325,492
25	Childress	$1,123,672	$8,849	$1,132,521
11	Lufkin	$9,601	$0	$9,601

The research for this project captures the majority of expenditures for public transportation provided in the state of Texas. These data focus on the public sector and have not included additional expenditures for that portion of medical transportation programs provided by private providers, for intercity buses, or for student transportation by school districts.

The data included in this report represent historical operating and capital expenditures. Future operating expenditures may increase as populations increase and levels of service increase.

CHAPTER 6: ECONOMIC IMPACT OF PUBLIC TRANSPORTATION ON STATE AND LOCAL ECONOMIES

In the previous chapter, researchers documented operating and capital expenditures by transit providers in Texas. A total of $1.8 billion dollars is expended annually by 213 major large urban, large urban, limited eligibility providers, small urban, rural, and TxDOT-funded client-based transit providers. In this chapter, researchers estimate the economic impacts of the expenditures for public transportation on state and local economies. The chapter begins with a review of literature related to impact studies and a discussion of input-output analysis of economic impacts. The next section documents the methodology for calculating the economic impact of expenditures for public transportation using an input-output modeling system called Impact Analysis for Planning (IMPLAN). Using the IMPLAN tool, researchers estimate the economic impact of public transportation expenditures in Texas on the state economy and on the local economy for each TxDOT district.

REFERENCES FOR IMPACT STUDIES

There exists a large body of literature related to economic impact studies. The following section summarizes selected references to provide pertinent background for the analysis of public transportation expenditures.

Basic and Non-Basic Industries

A number of studies focus on the impact of visitors on host communities. These studies range from analyzing the impact of non-local visitors to state parks, festivals, casinos, convention centers, and other tourist attractions to evaluating the potential impacts of different projects on the economies of host communities. The majority of these studies concentrate on analyzing the impact of exporting sectors. Very few studies analyze local industries that serve local markets, such as public transit. One reason for the lack of interest in analyzing industries that serve local markets is because they do not inject outside money into the economy and do not generate additional economic activity; industries that serve local markets re-circulate existing domestic money. In fact, economic theory divides industries into two categories: basic and non-basic. Basic industries (or exporting industries) sell goods and services to markets located outside the local area, in turn injecting outside money into the community. Non-basic industries (or service industries) provide goods and services to the local community. This study is unique in that it quantifies the economic impact of a non-basic industry, public transportation, on the economy of Texas and on each local TxDOT district.

Multiplier Magnitude and Types

When it comes to economic impact studies, questions often center on the appropriateness of the magnitude and type of multipliers used. The multiplier effect demonstrates the process through which initial spending in a region generates further rounds of re-spending within the region. The ripple effect of successive re-spending is the multiplier effect. The basic principle of the multiplier effect begins with an initial spending of an increased income in an economy. A portion of the increased income is spent and further re-spent within the region (*41*). There are three types

of effects associated with total economic impact analyses: direct impact (the first-round effect of spending), indirect impact (the ripple effect of additional rounds of re-circulating the initial spending), and induced impact (the further ripple effects caused by employees of impacted business spending their salaries and wages in other businesses in the host community) (*42*).

Modeling Techniques

There are a number of modeling techniques designed to derive multipliers: Travel Economic Impact Model (TEIM), Regional Input-Output Modeling System (RIMS and RIMS II), Tourism Development Simulation Model (TDSM), Regional Economic Modeling Inc. (REMI), measuring financial return on investment (ROI), and Impact Analysis for Planning. There are over 1,500 users of the IMPLAN model, making it the most popular method for conducting economic impact analyses and deriving multipliers (*43*). In addition to the variety of models available, the interpretation of the model results is also important. Researchers Crompton and McKay list and discuss additional questions involving economic impact studies emphasizing the importance of measuring net benefits rather than gross benefits (*44*). Crompton and McKay also discuss the fact that most impact studies never measure negative impacts of economic activity. Negative costs may include traffic congestion and environmental degradation. When evaluating investment, a benefit-cost analysis is important in overall decision making.

Input-Output Analysis

Input-output models organize a nation's or a region's economy into a matrix representation. The matrix representation can predict the effect of changes in one industry on other related industries. The changes can be caused by changes in demand from consumers, government, and foreign trade. Input-output tables trace inter-industry relationships within an economy. Input-output analysis is an econometric technique used to examine relationships within an economy.

A matrix format organizes industry linkages. Inputs are listed in the column of an industry, and its outputs are listed in its corresponding row. The output of one industry is an input to other industries. The matrix format shows how industries are linked through their production processes. Each column of the input-output matrix reports the monetary value and the expenditures on that industry's inputs, and each row represents the value of an industry's outputs.

Input-output models track two types of economic effects, one on supplying industries and one on demanding industries. Guo and Planting explain that when industry *i* increases its production, the industry increases its demand for inputs from other industries (*45*). This demand for inputs is referred to as *backward linkage*. When an industry has higher backward linkages than other industries, its expansion of production is more beneficial to the economy in terms of causing induced productive activities. On the other hand, an increase in production by other industries leads to additional output required from industry *i* to supply inputs to meet the increased demand. This supply function is referred to as *forward linkage*. When an industry has higher forward linkages than other industries, its production is relatively more sensitive to changes in other industries' output. The Bureau of Economic Analysis defines backward and forward linkage as follows (*46*):

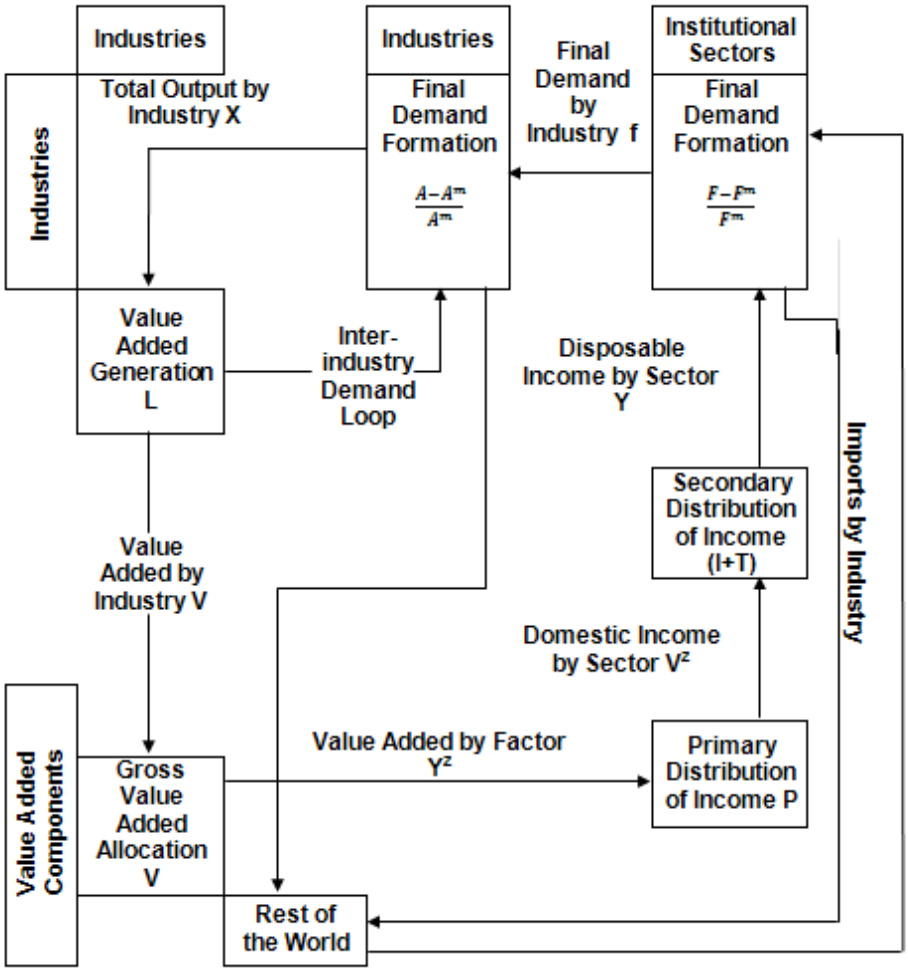
- Backward linkage is the interconnection of an industry to other industries from which it purchases its inputs in order to produce its output. Backward linkage is measured as the proportion of intermediate consumption to the total output of the sector (direct backward linkage) or to the total output multiplier (total backward linkage). An industry has significant backward linkages when its production of output requires substantial intermediate inputs from many other industries.
- Forward linkage is defined as the interconnection of an industry to other industries to which it sells its outputs. Forward linkage is measured as the row sum of the direct requirements table (direct forward linkage) or as the row sum of the total requirements table (total forward linkage). An industry has significant forward linkages when a substantial amount of its output is used by other industries as intermediate inputs to their production.

The Leontief inverse matrix derives backward and forward linkages (*47*). This format shows the dependency of an industry on all others in the economy both as customers of outputs and as suppliers of inputs. Appendix C provides the basic mathematical framework of the Leontief inverse matrix.

ESTIMATING THE ECONOMIC IMPACT OF EXPENDITURES FOR PUBLIC TRANSPORTATION

The economic impact of public transportation in Texas is estimated using input-output analysis and IMPLAN, an econometric modeling system developed by applied economists at the University of Minnesota and the U.S. Forest Service (*48*).

Figure 3 shows the output-income circular flow in a typical economy.



Source: Miller and Blair, Input-Output Analysis: Foundations and Extensions (49).

Figure 3. Output-Income Circular Flow.

The IMPLAN modeling system combines the U.S. Bureau of Economic Analysis' input-output benchmarks with other data to construct quantitative models of trade-flow relationships. These trade-flow relationships are between businesses, and between businesses and final consumers. From these data, one can examine the effects of a change in one or several economic activities to predict its effect on a specific state, regional, or local economy (impact analysis). The IMPLAN system uses a user-friendly interface for customizing input-output models for specific application. The IMPLAN economic impact model traces the flow of goods and services, income, and employment among related sectors of the economy. IMPLAN also estimates direct, indirect, and induced effects of an economic activity in a specific region. The IMPLAN input-output accounts capture all monetary market transactions for consumption in a given time period. The IMPLAN input-output accounts are based on industry survey data collected periodically by

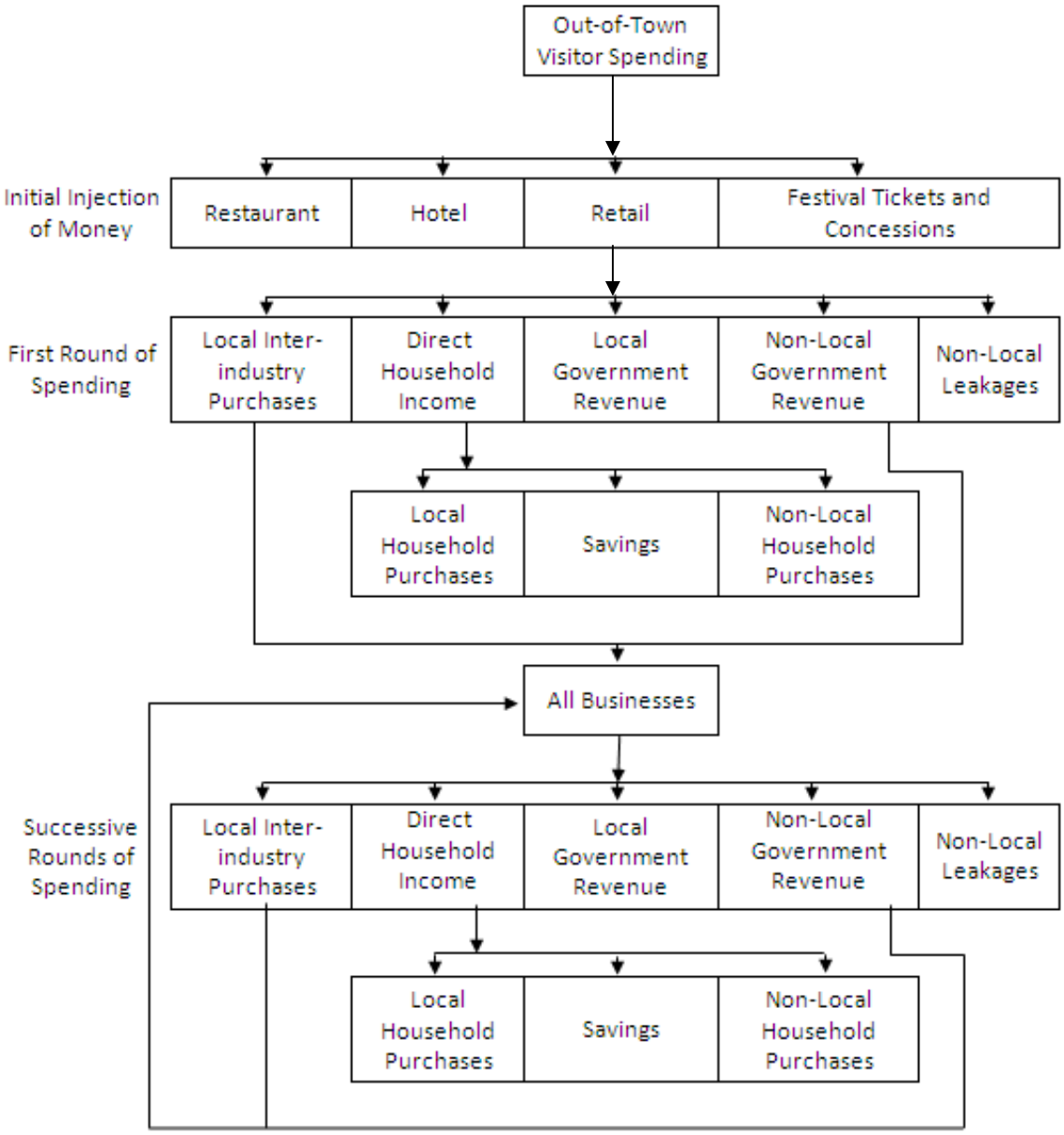
the U.S. Bureau of Economic Analysis and follow a balanced account format recommended by the United Nations.

IMPLAN calculates the economic impact by applying regional purchase coefficients to predict regional purchases based on an economic area's particular characteristics. The regional purchase coefficient represents the proportion of goods and services that will be purchased regionally under normal circumstances, based on the area's economic characteristics described in terms of actual trade flows within the area. The data and information produced can be used to evaluate the tradeoffs between the benefits (that will accrue if public transportation spending is centralized through cooperative purchasing) and the cost to counties (in terms of decreased economic activity if cooperative purchasing occurs in another region).

Developed by Wassily W. Leontief, the input-output analysis traces the interdependence of an economy's various productive sectors (*50*). The interdependence is found by tracking the product of each industry as a commodity for final consumption and as a factor in the production of itself and other goods. Input-output analysis produces a set of multipliers that measure the magnitude of the impact of different industries on the economy. The multiplier concept is a central component of economic impact analyses. It recognizes that when an expenditure is made, the initial direct outlay of money creates additional business activity and employment and generates household income and government revenue in the host economy (*51*).

Figure 4 diagrammatically shows the multiplier process. The example shows the economic impact of visitors on a community (*52*). The visitors spend their money at four different types of establishments in the community. This initial expenditure represents the direct economic impact on the community (first round of spending). This figure shows five different ways in which these establishments can disburse the money they received. The hotel is used to demonstrate the process, but the pattern is identical for each establishment. Three local depositories of funds receive the money that did not leak out of the local economy in the first round (and in successive rounds). The money will continue to be spent in these five ways. This spending will go through many rounds as it trickles through the local economy, with portions of it leaking out each round until it declines to a negligible amount.

These successive rounds of economic activity represent the indirect impacts. The share of household income spent locally represents the induced impacts. Induced impacts are the increase in economic activity generated by local consumption due to increases in income.



Source: Crompton (51).

Figure 4. Multiplier Process.

There are three types of multipliers: Type I, Type II, and Type III. IMPLAN computes only Types I and III. Type I multipliers include direct or initial spending and indirect spending or businesses buying and selling to each other. The Type I multiplier is direct plus indirect effect divided by direct effect. Type I ignores the induced component. Type II multipliers capture induced effects by assuming a linear relationship between income and consumption changes. Type III multipliers also include the direct, indirect, and induced effects (*44*). Type III multipliers adjust Type II multipliers based on spending patterns among different income groups.

The model accounts for substitution and displacement effects by deflating industry-specific multipliers to levels well below those recommended by the U.S. Bureau of Economic Analysis. In addition, multipliers are applied only to personal disposable income to obtain a more realistic estimate of the multiplier effects from increased demand. Importantly, IMPLAN's Regional Economic Accounts exclude imports to an economic area so the calculation of economic impacts identifies only those impacts specific to the economic impact area. IMPLAN calculates this distinction by applying regional purchase coefficients to predict regional purchases based on an economic area's particular characteristics.

Model Inputs and Data Sources

The economic data for IMPLAN come from the system of national accounts of the U.S., which is based on data collected by the U.S. Department of Commerce, Bureau of Labor Statistics, and other federal and state government agencies. The data are organized into 509 industries corresponding to the North American Industry Classification System. Corresponding data sets are also produced for each county in the U.S. allowing analyses at the county level and for geographic aggregations such as clusters of contiguous counties. IMPLAN organizes the economy into 509 industries, with 432 of those industries present in Texas. Most of these industries are clustered in major large urban areas in Texas. Data used in the IMPLAN model to conduct this study include expenditures for public transportation, as presented in Chapter 5.

IMPLAN's Regional Economic Accounts and the Social Accounting Matrices were used to construct state-level and regional/county multipliers. The multipliers describe the response of the state or county economy to a change in demand or production as a result of the activities and expenditures of the public transportation system. Each industry that produces goods or services generates demand for other goods and services. This demand is multiplied through a particular economy until it dissipates through "leakage" to economies outside the specified area. IMPLAN models discern and calculate leakage from local, regional, and state economic areas based on workforce configuration, the inputs required by specific types of businesses, and the availability of both inputs in the economic area. Consequently, economic impacts that accrue in other regions or states as a consequence of a change in demand are not counted as impacts within the economic area.

SIMULATION RESULTS: ECONOMIC IMPACT OF PUBLIC TRANSPORTATION IN TEXAS

The estimated economic impact of public transportation was calculated for the state of Texas as a whole and on the 25 TxDOT districts. The state of Texas economic multiplier is an estimated impact of 2.11. The 25 TxDOT districts are divided into three broad categories based on the resulting economic multipliers as follows:

- Category I: 1.21 to 1.46
- Category II: 1.51 to 1.61
- Category III: 1.73 to 1.91

In the first category, the economic multipliers range from 1.21 for Childress (TxDOT District 25) and Wichita Falls (TxDOT District 3) to 1.46 for Tyler (TxDOT District 10). There are 14 districts in this category. The districts in this category are composed of mostly rural counties with lower population concentrations and fewer industries.

There are seven districts in the second category. The multipliers range from 1.51 for Amarillo (TxDOT District 4) to 1.61 for Corpus Christi (TxDOT District 16). This category includes small urban and large urban areas and has relatively higher concentrations of industry compared to the first category.

The third category is composed of four major large urban TxDOT districts. The multipliers range from 1.73 for Austin (TxDOT District 14) to 1.91 for Dallas (TxDOT District 18). The concentration of industries is the highest in this category and ranges from 354 industries in Austin to 412 in Houston (TxDOT District 12). The estimated multipliers are consistent with *a priori* assumptions and expectations. Areas with strong agglomeration of industries tend to have larger multipliers than areas with weak agglomeration.

There are two types of expenditures associated with public transportation: capital expenditures and operating expenditures. The impacts for capital and operating expenditures were estimated separately and then were combined to estimate the impact of total expenditures.

Capital expenditures are expenditures on fixed assets that create future benefits. Capital expenditures are incurred when an asset is acquired or value is added to an existing fixed physical asset such as equipment, property, or industrial buildings. Table 17 shows the capital expenditures for public transportation in Texas for the three-year period of 2005–2007. The largest capital expenditure was for guideways (48 percent) followed by service vehicles (22 percent) and passenger stations (10 percent). Capital expenditures of $555 million represent 31 percent of total annual operating and capital expenditures ($1.8 billion) (see Table 21).

Capital expenditures impact the economy differently than operating expenditures. Capital expenditures are one-time expenditures. For example, when a guideway is constructed, the expenditure is made only once. The economic impact results from the construction process and lasts as long as the construction of the guideway lasts. The economic benefits, on the other hand, will stretch over the lifespan of the guideway. Once construction is completed, the guideway becomes part of the stock of assets. Any additional impact linked to the guideway will usually be associated with maintenance and repairs (operating expenses). The magnitude of the impact will depend on whether the industries affected by the guideway construction are local or not. The multiplier will be large if a majority of the industries impacted are local, and small if a majority impacted are not local. Similarly, for purchased transportation vehicles, Texas' share of the total value of the vehicles purchased will determine the size of the impact. In other words, the purchase of transportation vehicles will generate a large impact if a larger share of the production (parts and assembly) of these vehicles happens in Texas. The multipliers capture Texas' share of these vehicles' value added. Most of the capital expenditures for facilities are local in Texas.

Although, the impact of capital expenditures is not a continuous process, its importance is significant. Capital expenditures increase the stock of capital and generate economic benefits that can span over a long period. Capital stock is an important determinant of economic growth.

Operating expenditures are the ongoing day-to-day expenses necessary for running a business or system. They include labor expenses, facility expenses such as rent and utilities, maintenance and repair expenses, and office expenses. Table 20, in the previous chapter, shows the percent of operating expenditures for public transportation in Texas for 2007. The data shows that labor expenses and fringe benefits are the largest operating expenditures (62 percent). Purchased transportation is also large (13 percent). Expenditures on fuel and lubricants represent about 10 percent of the total operating expenditures. Operating expenditures of $1.257 billion make up 69 percent of total annual operating and capital expenditures ($1.813 billion) (see Table 21).

Operating expenditures are ongoing expenditures, and their impact is a continuous process. The largest expenditures in operating expenditures are compensation or salary costs. Compensation represents household income and is typically spent on finished consumer goods, most of which are produced outside of Texas. The greater share of these expenditures represents a leakage from the state of Texas, and the remaining share stays within the local economy in the form of distributor mark-up (mainly in the retail industry). For example, if a household purchases an appliance that was manufactured in another region, the largest share of the purchase price will leak out of the local economy and into the manufacturing economy. The remaining share (usually the retailer's mark-up) stays in the region and generates further rounds of re-spending within the region. The impact, in this case, will be smaller than if the purchased item was locally produced.

Later in this chapter, summaries of the estimated total economic impacts of public transportation on the 25 TxDOT districts are organized and presented in the three categories described above. Economic impacts are composed of three separate impacts: direct, indirect, and induced impacts.

- Direct impacts represent the effects in terms of permanent jobs, wages, and output on those industries directly affected by the event. These direct economic impacts ripple through the economy and generate additional indirect and induced impacts.
- Indirect impacts represent the number of jobs, wages, and output created by businesses that supply goods and services to industries that are immediately affected by the event. They are also referred to as "supplier" impacts, since these businesses benefit indirectly by the event.
- Induced impacts are household impacts that measure the effects of the changes in household income. They are the result of changes in spending due to the changes in wages and salaries from the direct and indirect impacts. This spending creates an additional round of economic activity and induced employment in almost all sectors of the economy, especially sectors that cater to households.

Economic Impact on the State of Texas

Table 22 presents the economic impact category and its definition. The impacts are divided into the three types—direct, indirect, and induced—and are determined for employment, employee

compensation, total value added, labor income, proprietor income, other property type income, output, and indirect business taxes.

Table 22. Economic Impact Categories and Definitions.

Impact Category	*Definition*
Employment	Employment impact is estimated in terms of full-time equivalents (FTEs). An FTE is assumed to work 2,080 hours per year (40 hours times 52 weeks). An FTE is not stated in terms of full- or part-time employment since the data do not distinguish between full-time and part-time employment.
Employee Compensation	Employee compensation describes the total payroll costs (including benefits) of each industry in the region.
Total Value Added	Total value added is the sum of labor income, other property type income, and indirect business taxes.
Labor Income	The sum of employee compensation and proprietor income represents labor income.
Proprietor Income	Proprietor income consists of payments received by self-employed individuals as income.
Other Property Type Income	Other property type income consists of payments for rent, royalties, and dividends.
Output	The output measures the market value of an industry's total production.
Indirect Business Taxes	Indirect business taxes consist of excise taxes, property taxes, fees, licenses, and sales taxes paid by businesses. Indirect business taxes do not include taxes on profit or income.

Table 23 provides the estimated impact of public transportation spending on Texas as a whole, resulting in a multiplier of 2.11. The impact to Texas of 2.11 is larger than the impact to the largest single TxDOT district—District 18, Dallas—at 1.9. Because the number of industries in Dallas is 411 and the number of industries in Texas is 432, some expenditures made in Dallas leak out to other districts (Houston for example). Although it leaks out of Dallas, it remains in Texas, therefore resulting in a greater multiplier.

Public transportation spending in Texas contributes a total of 26,745 FTEs. Total employee compensation impact is estimated at $1,049 million, with an average salary of $39,217. The total proprietor income is estimated at $223 million. Other property type income is $2,024 million. Indirect business taxes are $188.5 million. The total value added to Texas' economy is $2,011 million. The estimated output generated by public transportation spending is $3,833 million.

Table 23. Economic Impact of Public Transit Expenditures—State of Texas.

Texas	*Impact*			
Capital Expenditures	**$555,047,110**			
Operating Expenditures	**$1,260,017,426**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	11,008	3,118	12,619	26,745
Employee Compensation	$404,405,779	$134,942,938	$509,516,786	$1,048,865,495
Total Value Added	$770,006,732	$287,237,210	$954,401,682	$2,011,645,607
Labor Income	$505,219,030	$174,253,654	$592,642,526	$1,272,115,212
Proprietor Income	$100,813,247	$39,310,712	$83,125,736	$223,249,692
Other Property Type Income	$173,465,323	$91,112,289	$286,458,991	$551,036,607
Output	$1,667,601,425	$538,649,645	$1,626,863,639	$3,833,114,704
Indirect Business Taxes	$91,322,383	$21,871,267	$75,300,173	$188,493,821
Multiplier				**2.11**
Population size	23,904,380	Number of Industries		**432**

Economic Impact on the Local Areas by TxDOT District

The following section presents summaries of the estimated total economic impacts of public transportation on the 25 TxDOT districts. The districts are organized and presented in the three categories described above.

Category I: Low-Multiplier Districts: Multiplier Range 1.21–1.46

Table 24 through Table 37 present the total economic impacts of the TxDOT districts that represent the lowest multipliers.

Most of the districts in Category I are rural and small urban counties. The population size in these districts is smaller than that of the districts in the other two categories with the exception of Tyler, San Angelo, El Paso, and Fort Worth. These tables also show the population size in each district and the number of industries present in the district. These districts tend to have a lower concentration of industries. The impacts estimated are mostly the result of operating expenditures. The largest share of the operating expenditures is in the form of employee compensations and is spent locally. Capital expenditures in these districts have a comparatively smaller impact than in the larger districts. Most of these expenditures tend to leak out of the small districts with light industrial presence and into the larger districts with greater industrial concentration.

The district that represents the lowest total expenditures for public transportation is TxDOT District 11, Lufkin (see Table 24). Operating expenditures ($9,601) represent 100 percent of total expenditures for public transportation in the district. The impact on employment is less than one FTE. The total employee compensation for less than one FTE is $2,748. Employee compensation and proprietor income (self-employment) are summed up to arrive at a total labor income of $3,714. Other property type income (includes corporate income, rental income, interest, and

corporate transfer payments) is $2,024. Indirect business taxes (sales, excise, and other taxes paid during normal operation of industry) are $817. Total value added is $6,554 and is the sum of labor income, other property type income, and indirect business taxes. The total impact on output is $12,214, 1.27 times larger than the expenditure outlay.

Table 24. Economic Impact of Public Transit Expenditures—District 11, Lufkin.

District 11—Lufkin	***Impact***			
Capital Expenditures	**$0**			
Operating Expenditures	**$9,601**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	<1	<1	<1	<1
Employee Compensation	$1,313	$312	$1,122	$2,748
Total Value Added	$3,916	$621	$2,017	$6,554
Labor Income	$2,041	$373	$1,299	$3,714
Proprietor Income	$728	$61	$177	$966
Other Property Type Income	$1,271	$203	$550	$2,024
Output	$7,779	$1,124	$3,311	$12,214
Indirect Business Taxes	$604	$45	$168	$817
Multiplier				**1.27**
Population size	82,812	Number of Industries		**183**

Usually, the direct impact from an event (expenditure for public transportation) is equal to the initial expenditure on that event. However, in the case of several districts in Category I, most if not all expenditures are for operating and affect consumer goods, most of which are produced outside of the district. Therefore, the direct impact may be less than the initial expenditure. For example, in the case of TxDOT District 25, Childress, the direct impact is 79 percent ($893,087/$1,136,437) of the initial expenditure because most of the impact is due to increased household income (through operating expenditures) and is affecting consumer goods, most of which are produced outside of the district. In other words, for every dollar in transportation expenditures, $0.79 is spent locally and creates an additional round of economic activity as it ripples through the economy.

The following is an example of the interpretation of the economic impact of public transportation on the local economy of a TxDOT district in Category I. As shown in Table 25, TxDOT District 25, Childress, operating expenditures ($1,123,672) represent 99 percent of total expenditures ($1,136,437). The impact on employment is 13 FTEs, mostly in the consumer sector. The total employee compensation is $293,369, an average yearly income of $22,567. Employee compensation and proprietor income are summed up to arrive at a total labor income of $371,260. Other property type income is $222,069. Indirect business taxes are $75,299. Total value added is $668,628 and is the sum of labor income, other property type income, and indirect business taxes. The total impact on output is $1,136,437, 1.27 times larger than the expenditure outlay.

Table 25. Economic Impact of Public Transit Expenditures—District 25, Childress.

District 25—Childress	*Impact*			
Capital Expenditures	**$8,849**			
Operating Expenditures	**$1,123,672**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	8	1	4	13
Employee Compensation	$144,558	$27,785	$121,026	$293,369
Total Value Added	$387,252	$59,572	$221,804	$668,628
Labor Income	$199,690	$35,369	$136,202	$371,260
Proprietor Income	$55,132	$7,584	$15,176	$77,891
Other Property Type Income	$131,523	$19,601	$70,945	$222,069
Output	$893,087	$117,462	$358,634	$1,369,182
Indirect Business Taxes	$56,039	$4,602	$14,658	$75,299
Multiplier				**1.21**
Population size	179,739		Number of Industries	**232**

Table 26. Economic Impact of Public Transit Expenditures—District 3, Wichita Falls.

District 3—Wichita Falls	*Impact*			
Capital Expenditures	**$0**			
Operating Expenditures	**$1,325,492**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	11	1	4	16
Employee Compensation	$202,035	$37,387	$154,052	$393,474
Total Value Added	$480,727	$75,266	$277,664	$833,656
Labor Income	$280,346	$45,921	$171,054	$497,322
Proprietor Income	$78,311	$8,535	$17,002	$103,848
Other Property Type Income	$138,364	$23,889	$88,649	$250,902
Output	$1,040,770	$139,824	$422,078	$1,602,671
Indirect Business Taxes	$62,016	$5,455	$17,961	$85,432
Multiplier				**1.21**
Population size	128,025		Number of Industries	**208**

Table 27. Economic Impact of Public Transit Expenditures—District 7, San Angelo.

District 7—San Angelo	***Impact***			
Capital Expenditures	**$16,148**			
Operating Expenditures	**$3,236,294**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	25	4	12	41
Employee Compensation	$495,339	$120,996	$397,799	$1,014,135
Total Value Added	$1,106,048	$255,186	$742,678	$2,103,912
Labor Income	$647,615	$154,386	$450,794	$1,252,796
Proprietor Income	$152,276	$33,390	$52,995	$238,661
Other Property Type Income	$329,896	$82,313	$237,416	$649,625
Output	$2,731,243	$504,900	$1,271,485	$4,507,629
Indirect Business Taxes	$128,537	$18,487	$54,468	$201,491
Multiplier				**1.39**
Population size	437,272		Number of Industries	**291**

Table 28. Economic Impact of Public Transit Expenditures—District 1, Paris.

District 1—Paris	***Impact***			
Capital Expenditures	**$123,688**			
Operating Expenditures	**$4,020,690**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	31	4	14	49
Employee Compensation	$704,988	$123,717	$446,861	$1,275,566
Total Value Added	$1,613,178	$261,536	$802,951	$2,677,665
Labor Income	$888,545	$152,556	$507,157	$1,548,258
Proprietor Income	$183,556	$28,839	$60,296	$272,692
Other Property Type Income	$460,232	$88,704	$230,216	$779,153
Output	$3,450,015	$510,435	$1,381,259	$5,341,709
Indirect Business Taxes	$264,401	$20,275	$65,578	$350,254
Multiplier				**1.29**
Population size	269,023		Number of Industries	**261**

Table 29. Economic Impact of Public Transit Expenditures—District 13, Yoakum.

District 13—Yoakum	***Impact***			
Capital Expenditures	**$491,647**			
Operating Expenditures	**$3,728,264**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	27	4	13	44
Employee Compensation	$705,444	$116,077	$423,901	$1,245,423
Total Value Added	$1,574,473	$251,690	$777,509	$2,603,672
Labor Income	$911,371	$148,014	$483,863	$1,543,248
Proprietor Income	$205,927	$31,937	$59,961	$297,825
Other Property Type Income	$434,391	$84,840	$230,878	$750,109
Output	$3,544,209	$489,833	$1,382,301	$5,416,343
Indirect Business Taxes	$228,711	$18,835	$62,768	$310,314
Multiplier				**1.28**
Population size	374,683		Number of Industries	**269**

Table 30. Economic Impact of Public Transit Expenditures—District 10, Tyler.

District 10—Tyler	***Impact***			
Capital Expenditures	**$181,272**			
Operating Expenditures	**$4,787,492**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	37	6	19	62
Employee Compensation	$823,320	$186,581	$642,653	$1,652,555
Total Value Added	$1,945,198	$404,863	$1,230,204	$3,580,265
Labor Income	$1,075,544	$244,895	$741,410	$2,061,849
Proprietor Income	$252,224	$58,313	$98,757	$409,294
Other Property Type Income	$589,073	$131,303	$391,425	$1,111,801
Output	$4,299,002	$762,127	$2,215,578	$7,276,708
Indirect Business Taxes	$280,581	$28,666	$97,369	$406,616
Multiplier				**1.46**
Population size	801,216		Number of Industries	**328**

Table 31. Economic Impact of Public Transit Expenditures—District 23, Brownwood.

District 23—Brownwood	*Impact*			
Capital Expenditures	**$618,604**			
Operating Expenditures	**$4,839,689**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	42	5	18	65
Employee Compensation	$1,012,571	$167,042	$784,712	$1,964,326
Total Value Added	$2,168,497	$340,423	$1,344,518	$3,853,438
Labor Income	$1,227,496	$196,587	$847,232	$2,271,315
Proprietor Income	$214,924	$29,545	$62,520	$306,989
Other Property Type Income	$555,131	$116,577	$425,458	$1,097,166
Output	$4,402,157	$612,901	$1,940,769	$6,955,827
Indirect Business Taxes	$385,870	$27,259	$71,827	$484,957
Multiplier				**1.27**
Population size	436,284	Number of Industries		**240**

Table 32. Economic Impact of Public Transit Expenditures—District 19, Atlanta.

District 19—Atlanta	*Impact*			
Capital Expenditures	**$6,128**			
Operating Expenditures	**$5,247,616**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	43	5	21	69
Employee Compensation	$1,145,701	$176,638	$687,267	$2,009,606
Total Value Added	$2,343,562	$344,027	$1,182,948	$3,870,537
Labor Income	$1,435,907	$208,283	$771,733	$2,415,922
Proprietor Income	$290,206	$31,645	$84,465	$406,316
Other Property Type Income	$475,351	$110,649	$320,565	$906,565
Output	$4,498,032	$624,454	$1,923,942	$7,046,428
Indirect Business Taxes	$432,304	$25,095	$90,650	$548,049
Multiplier				**1.34**
Population size	275,972	Number of Industries		**243**

Table 33. Economic Impact of Public Transit Expenditures—District 8, Abilene.

District 8—Abilene	*Impact*			
Capital Expenditures	**$1,694,918**			
Operating Expenditures	**$3,548675**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	47	5	17	69
Employee Compensation	$1,124,669	$115,025	$442,918	$1,682,611
Total Value Added	$2,520,644	$308,851	$909,279	$3,738,774
Labor Income	$1,443,372	$172,290	$544,747	2160409
Proprietor Income	$318,704	$57,265	$101,829	477798
Other Property Type Income	$630,624	$109,265	$294,326	$1,034,215
Output	$5,293,871	$638,818	$1,619,419	$7,552,107
Indirect Business Taxes	$446,648	$27,296	$70,206	$544,150
Multiplier				**1.44**
Population size	35,829	Number of Industries		**149**

Table 34. Economic Impact of Public Transit Expenditures—District 20, Beaumont.

District 20—Beaumont	*Impact*			
Capital Expenditures	**$1,726,848**			
Operating Expenditures	**$7,377,854**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	66	10	31	107
Employee Compensation	$2,168,739	$371,708	$1,121,893	$3,662,339
Total Value Added	$4,017,160	$662,791	$1,859,954	$6,539,905
Labor Income	$2,459,988	$419,759	$1,218,486	$4,098,233
Proprietor Income	$291,249	$48,051	$96,594	$435,893
Other Property Type Income	$873,953	$196,624	$496,741	$1,567,319
Output	$7,819,092	$1,271,457	$3,160,335	$12,250,884
Indirect Business Taxes	$683,219	$46,408	$144,726	$874,354
Multiplier				**1.35**
Population size	376,241	Number of Industries		**256**

Table 35. Economic Impact of Public Transit Expenditures—District 22, Laredo.

District 22—Laredo	*Impact*			
Capital Expenditures	**$1,671,991**			
Operating Expenditures	**$14,160,550**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	120	17	59	196
Employee Compensation	$2,477,127	$428,803	$2,125,553	$5,031,484
Total Value Added	$5,661,608	$1,028,894	$3,536,165	$10,226,668
Labor Income	$3,148,729	$573,881	$2,345,810	$6,068,419
Proprietor Income	$671,602	$145,077	$220,257	$1,036,936
Other Property Type Income	$1,694,045	$364,922	$939,373	$2,998,340
Output	$12,483,099	$1,839,546	$5,325,797	$19,648,443
Indirect Business Taxes	$818,834	$90,091	$250,983	$1,159,908
Multiplier				**1.24**
Population size	281,181	Number of Industries		**192**

Table 36. Economic Impact of Public Transit Expenditures—District 24, El Paso.

District 24—El Paso	*Impact*			
Capital Expenditures	**$11,930,405**			
Operating Expenditures	**$50,960,277**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	454	84	287	825
Employee Compensation	$11,657,982	$2,423,014	$10,634,931	$24,715,927
Total Value Added	$25,528,314	$5,474,069	$19,002,998	$50,005,381
Labor Income	$14,368,177	$3,098,166	$12,157,959	$29,624,302
Proprietor Income	$2,710,195	$675,152	$1,523,028	$4,908,375
Other Property Type Income	$7,184,722	$1,910,512	$5,535,369	$14,630,603
Output	$52,358,472	$9,910,886	$29,315,705	$91,585,063
Indirect Business Taxes	$3,975,416	$465,390	$1,309,670	$5,750,477
Multiplier				**1.46**
Population size	734,669	Number of Industries		**296**

Table 37. Economic Impact of Public Transit Expenditures—District 2, Fort Worth.

District 2—Fort Worth	*Impact*			
Capital Expenditures	**$14,916,886**			
Operating Expenditures	**$58,299,968**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	573	85	260	918
Employee Compensation	$15,735,009	$2,881,936	$8,135,180	$26,752,126
Total Value Added	$30,449,853	$6,111,692	$15,976,578	$52,538,124
Labor Income	$20,033,230	$3,619,753	$9,479,829	$33,132,812
Proprietor Income	$4,298,221	$737,816	$1,344,650	$6,380,687
Other Property Type Income	$6,026,231	$2,011,889	$5,134,713	$13,172,834
Output	$63,140,633	$11,935,928	$28,285,917	$103,362,478
Indirect Business Taxes	$4,390,391	$480,050	$1,362,036	$6,232,476
Multiplier				**1.41**
Population size	351,565	Number of Industries		**272**

Category II: Moderate-Multiplier Districts: Multiplier Range 1.51–1.61

Table 38 through Table 44 summarize the total economic impacts of the districts with moderate multipliers. This category consists of large urban center districts with population sizes ranging from 339,784 in TxDOT District 9, Waco, to 1,210,835 in TxDOT District 21, Pharr. Districts in Category II have a higher concentration of industries and higher multipliers than districts in Category I. Capital expenditures are significantly larger than the first category with the exception of TxDOT District 17, Bryan, but operating expenditures are much higher than capital expenditures.

The following is an example of the interpretation of the economic impact of public transportation on the local economy of a TxDOT district in Category II. Table 38 shows the impact of $7,561,106 transportation expenditures on the economy of TxDOT District 4, Amarillo. The impact on employment is 81 FTEs. The total employee compensation is $2,400,068 with an average yearly income of $29,630. Labor income is $3,026,247. Other property type income is $1,381,982. Indirect business taxes are $533,389. Total value added is $4,941,617. The total impact on output is 10,026,039, 1.51 times larger than the initial expenditures.

Table 38. Economic Impact of Public Transit Expenditures—District 4, Amarillo.

District 4—Amarillo	***Impact***			
Capital Expenditures	**$625,892**			
Operating Expenditures	**$6,935,214**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	44	8	29	81
Employee Compensation	$1,198,570	$255,038	$946,460	$2,400,068
Total Value Added	$2,586,826	$565,858	$1,788,933	$4,941,617
Labor Income	$1,565,206	$349,982	$1,111,058	$3,026,247
Proprietor Income	$366,637	$94,945	$164,598	$626,179
Other Property Type Income	$673,408	$173,922	$534,652	$1,381,982
Output	$5,729,975	$1,111,116	$3,184,949	$10,026,039
Indirect Business Taxes	$348,212	$41,954	$143,223	$533,389
Multiplier				**1.51**
Population size	411,521	Number of Industries		**269**

Table 39. Economic Impact of Public Transit Expenditures—District 17, Bryan.

District 17—Bryan	***Impact***			
Capital Expenditures	**$0**			
Operating Expenditures	**$11,743,795**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	92	15	57	164
Employee Compensation	$2,347,365	$483,941	$1,894,552	$4,725,858
Total Value Added	$5,087,313	$1,110,183	$3,454,407	$9,651,903
Labor Income	$3,033,213	$610,065	$2,155,520	$5,798,798
Proprietor Income	$685,848	$126,124	$260,968	$1,072,940
Other Property Type Income	$1,149,047	$410,837	$1,018,457	$2,578,341
Output	$10,234,752	$1,907,944	$5,673,636	$17,816,332
Indirect Business Taxes	$905,054	$89,281	$280,429	$1,274,764
Multiplier				**1.52**
Population size	546,138	Number of Industries		**254**

Table 40. Economic Impact of Public Transit Expenditures—District 5, Lubbock.

District 5—Lubbock	***Impact***			
Capital Expenditures	**$2,981,839**			
Operating Expenditures	**$12,646,264**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	136	22	74	231
Employee Compensation	$2,864,317	$723,032	$2,490,733	$6,068,082
Total Value Added	$6,548,315	$1,492,919	$4,550,538	$12,591,772
Labor Income	$3,797,960	$873,104	$2,818,423	$7,489,488
Proprietor Income	$933,643	$160,072	$327,691	$1,421,406
Other Property Type Income	$1,752,856	$500,047	$1,370,449	$3,623,352
Output	$13,820,144	$2,859,514	$7,672,138	$24,351,796
Indirect Business Taxes	$997,498	$119,768	$361,666	$1,478,933
Multiplier				**1.56**
Population size	414,762		Number of Industries	**257**

Table 41. Economic Impact of Public Transit Expenditures—District 6, Odessa.

District 6—Odessa	***Impact***			
Capital Expenditures	**$1,303,821**			
Operating Expenditures	**$5,671,763**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	54	8	32	94
Employee Compensation	$1,574,816	$274,078	$1,196,944	$3,045,838
Total Value Added	$3,133,306	$539,362	$2,171,950	$5,944,617
Labor Income	$1,870,870	$324,324	$1,321,820	$3,517,015
Proprietor Income	$296,054	$50,246	$124,877	$471,177
Other Property Type Income	$760,070	$169,132	$682,466	$1,611,668
Output	$6,138,212	$1,027,301	$3,749,994	$10,915,507
Indirect Business Taxes	$602,366	$45,905	$167,664	$815,934
Multiplier				**1.56**
Population size	413,153		Number of Industries	**259**

Table 42. Economic Impact of Public Transit Expenditures—District 9, Waco.

District 9—Waco	***Impact***			
Capital Expenditures	**$1,983,433**			
Operating Expenditures	**$9,117,245**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	90	18	51	159
Employee Compensation	$2,095,037	$566,150	$1,673,375	$4,334,562
Total Value Added	$4,562,587	$1,098,179	$2,906,864	$8,567,630
Labor Income	$2,717,619	$677,326	$1,879,456	$5,274,400
Proprietor Income	$622,582	$111,176	$206,080	$939,838
Other Property Type Income	$1,206,359	$337,223	$795,630	$2,339,213
Output	$9,885,597	$2,245,035	$5,149,980	$17,280,612
Indirect Business Taxes	$638,609	$83,630	$231,778	$954,018
Multiplier				**1.56**
Population size	339,784		Number of Industries	**279**

Table 43. Economic Impact of Public Transit Expenditures—District 21, Pharr.

District 21—Pharr	***Impact***			
Capital Expenditures	**$3,302,359**			
Operating Expenditures	**$12,395,791**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	158	25	79	262
Employee Compensation	$3,493,242	$662,465	$2,443,426	$6,599,133
Total Value Added	$7,441,750	$1,426,768	$4,255,420	$13,123,938
Labor Income	$4,341,854	$869,561	$2,771,603	$7,983,017
Proprietor Income	$848,612	$207,096	$328,176	$1,383,884
Other Property Type Income	$2,135,113	$449,362	$1,147,040	$3,731,515
Output	$15,055,998	$2,770,974	$6,956,453	$24,783,425
Indirect Business Taxes	$964,783	$107,845	$336,777	$1,409,406
Multiplier				**1.58**
Population size	1,210,835		Number of Industries	**290**

Table 44. Economic Impact of Public Transit Expenditures—District 16, Corpus Christi.

District 16—Corpus Christi	*Impact*			
Capital Expenditures	**$2,105,980**			
Operating Expenditures	**$22,092,753**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	222	30	124	376
Employee Compensation	$5,172,319	$970,005	$4,652,456	$10,794,781
Total Value Added	$11,153,976	$1,983,064	$8,289,650	$21,426,690
Labor Income	$6,676,769	$1,180,560	$5,213,200	$13,070,529
Proprietor Income	$1,504,449	$210,555	$560,744	$2,275,749
Other Property Type Income	$2,608,450	$653,597	$2,511,182	$5,773,230
Output	$21,456,490	$3,647,309	$13,870,408	$38,974,207
Indirect Business Taxes	$1,868,757	$148,907	$565,267	$2,582,931
Multiplier				**1.61**
Population size	546,138		Number of Industries	**254**

Category III: High-Multiplier Districts: Multiplier Range 1.73–1.91

Table 45 through Table 48 present the impact results of public transit in the major urban areas. The four TxDOT districts in this category have the largest population size and the highest concentration of industries. In fact, most industries that are present in Texas are present in the Dallas and Houston Districts. There are 432 industries in Texas, 412 and 411 of which are present in the Houston and Dallas Districts, respectively. This high concentration of industries minimizes leakages in these districts and captures some of the leakages from other districts. Capital expenditures are the largest in these districts, with the Dallas and Houston Districts spending $244.3 million and $199.2 million, respectively.

The following is an example of the interpretation of the economic impact of public transportation on the local economy of a TxDOT district in Category III. The largest investment in public transportation is in TxDOT District 18, Dallas. Table 48 summarizes the economic impact of transportation expenditures on the economies of the Dallas District. The impact on employment is 8,252 FTEs. The total employee compensation is $341,995,154, with an average yearly income of $41,444. Labor income is $415,242,137. Other property type income is $154,292,850. Indirect business taxes are $60,834,889. Total value added is $630,369,876. The total impact on output is $1,163,168,237, almost twice the initial expenditures.

Table 45. Economic Impact of Public Transit Expenditures—District 14, Austin.

District 14—Austin	*Impact*			
Capital Expenditures	**$47,687,833**			
Operating Expenditures	**$139,073,752**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	1213	255	1004	2,472
Employee Compensation	$48,341,160	$11,021,942	$41,223,844	$100,586,946
Total Value Added	$83,951,974	$22,115,677	$72,443,707	$178,511,357
Labor Income	$54,523,769	$13,244,367	$46,458,451	$114,226,587
Proprietor Income	$6,182,611	$2,222,426	$5,234,607	$13,639,643
Other Property Type Income	$17,784,238	$7,174,902	$19,992,926	$44,952,065
Output	$167,949,431	$38,082,023	$117,390,129	$323,421,585
Indirect Business Taxes	$11,643,964	$1,696,407	$5,992,331	$19,332,702
Multiplier				**1.73**
Population size	1,689,810		Number of Industries	**354**

Table 46. Economic Impact of Public Transit Expenditures—District 12, Houston.

District 12—Houston	*Impact*			
Capital Expenditures	**$199,180,761**			
Operating Expenditures	**$379,131,669**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	3,757	849	2,721	73,267
Employee Compensation	$141,505,405	$37,892,830	$118,963,071	$298,361,310
Total Value Added	$255,345,479	$79,341,076	$232,295,858	$566,982,413
Labor Income	$170,978,739	$48,890,812	$140,047,899	$359,917,450
Proprietor Income	$29,473,332	$10,997,983	$21,084,829	$61,556,144
Other Property Type Income	$49,019,210	$24,306,134	$73,802,337	$147,127,679
Output	$522,296,034	$138,714,052	$393,556,207	$1,054,566,292
Indirect Business Taxes	$35,347,527	$6,144,128	$18,445,618	$59,937,274
Multiplier				**1.82**
Population size	5,052,668		Number of Industries	**412**

Table 47. Economic Impact of Public Transit Expenditures—District 15, San Antonio.

District 15—San Antonio	*Impact*			
Capital Expenditures	**$18,160,805**			
Operating Expenditures	**$134,411,558**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	1016	223	948	2187
Employee Compensation	$32,182,064	$8,722,757	$37,063,352	$77,968,174
Total Value Added	$67,545,582	$17,574,588	$66,824,195	$151,944,365
Labor Income	$38,314,938	$10,488,060	$42,719,742	$91,522,741
Proprietor Income	$6,132,872	$1,765,303	$5,656,390	$13,554,566
Other Property Type Income	$17,706,897	$5,722,395	$19,250,653	$42,679,945
Output	$141,607,534	$30,056,866	$106,827,642	$278,492,042
Indirect Business Taxes	$11,523,748	$1,364,133	$4,853,801	$17,741,682
Multiplier				**1.83**
Population size	2,207,221		Number of Industries	**367**

Table 48. Economic Impact of Public Transit Expenditures—District 18, Dallas.

District 18—Dallas	*Impact*			
Capital Expenditures	**$244,327,003**			
Operating Expenditures	**$363,777,053**			
IMPACT	***Direct***	***Indirect***	***Induced***	***Total***
Employment	3,847	1051	3,354	8,252
Employee Compensation	$151,423,386	$49,903,549	$140,668,222	$341,995,154
Total Value Added	$271,115,208	$96,942,382	$262,312,286	$630,369,876
Labor Income	$188,542,123	$62,140,007	$164,560,005	$415,242,137
Proprietor Income	$37,118,736	$12,236,459	$23,891,782	$73,246,976
Other Property Type Income	$51,528,035	$27,647,023	$75,117,793	$154,292,850
Output	$560,097,102	$163,873,704	$439,197,445	$1,163,168,237
Indirect Business Taxes	$31,045,051	$7,155,351	$22,634,487	$60,834,889
Multiplier				**1.91**
Population size	5,790,040		Number of Industries	**411**

SUMMARY

TxDOT districts fall in one of three categories with very different economic characteristics: rural and small urban, large urban, and major large urban. Rural and small urban districts have low population density and low industrial agglomeration. Economic multipliers in these districts are small, and most of the capital expenditures in these districts leak out and are captured by the major large urban districts. Large urban districts are more populous, and the concentration of industries is higher. The economic multipliers are slightly higher because a larger share of capital expenditures is captured. Capital expenditures do not contribute significantly to the economies of rural, small urban, or large urban areas. Major large urban areas have high population density and high industrial concentration. The multipliers in these districts are highest. If capital expenditures are centralized in order to take advantage of economies of scale, the impact on the transportation districts will vary depending on the level of industrial concentration. The impact on rural and small urban districts will be insignificant on average since capital expenditures do not contribute to those economies in any significant way. The impact on large urban districts, although larger than the impact on rural and small urban districts, will not be very significant either. Only major large urban areas will experience a significant impact because of the magnitude of their multipliers and high industrial concentration.

The economic impact of public transportation in Texas is significant. Public transportation contributes $3.8 billion to the state economy and creates 27,000 FTEs with an average annual salary of $39,217. Every dollar spent on public transportation generates $2.11 of economic activity. The economic impact of public transportation provides a partial measure of its contribution to the state's economy. In cluster analysis, public transportation is considered a supporting sector that increases the efficiency of most other sectors in the economy. In fact, parts of every sector's production can be attributed to public transportation. Without it, access to work, to hospitals, and to schools and universities would be difficult and costly.

CHAPTER 7: SELECTION OF TOPICS FOR CASE STUDIES

The research team conducted case studies to document the opportunities and challenges for cooperative purchasing for public transportation in Texas. This chapter revises the classification of transit providers and presents the methodology for selecting case studies.

Following this chapter are four case studies about cooperative purchasing. Chapter 8 presents the findings of a survey of transit providers in Texas to document current practice for cooperative purchasing and green purchasing. Chapter 9 is a case study to look at current practice and the opportunities of expanding cooperative purchasing using purchase cards and fuel cards. A case study analysis of green purchasing through cooperative procurement is the topic for Chapter 10. Chapter 11 provides a case study to investigate opportunities for cooperative purchasing for vehicle maintenance.

REVISED CLASSIFICATION OF TRANSIT PROVIDERS

In this report, the term transit provider refers to any entity that provides a public transportation service. In Chapter 5, the research team classified the 213 transit providers that reported 2007 expenditures into six classifications as follows:

- major large urban,
- large urban,
- limited eligibility providers,
- small urban,
- rural, and
- TxDOT-funded client-based.

The definition of each classification is provided in Chapter 5. For Chapters 8 through 11 of this report, an additional classification is introduced—combination transit provider. A combination transit provider refers to an entity that is responsible for more than one classification of transit provider service. For example, Concho Valley Transit District operates both small urban and a rural transit provider service. This additional classification is necessary to report case study survey results in Chapter 8. Survey respondents included entities that represent two or more classifications of transit provider services.

There are eight transit providers classified as combination that collectively operate 20 urban and rural transit provider services as follows:

- Brazos Transit District:
  - Bryan/College Station—small urban,
  - The Woodlands—small urban, and
  - Brazos Transit District—rural;
- Collin County Committee on Aging:
  - City of McKinney—small urban, and
  - Collin County Committee on Aging—rural;

- Concho Valley Transit District:
  - Concho Valley Transit District—small urban (City of San Angelo), and
  - Concho Valley Transit District—rural;
- Golden Crescent Regional Planning Commission:
  - City of Victoria—small urban, and
  - Golden Crescent Regional Planning Commission—rural;
- Gulf Coast Center:
  - City of Texas City—small urban,
  - City of Lake Jackson/Angleton—small urban, and
  - Gulf Coast Center—rural;
- Hill Country Transit District:
  - City of Temple—small urban,
  - City of Killeen/Copperas Cove/Harker Heights—small urban, and
  - Hill Country Transit District—rural;
- Lower Rio Grande Valley Development Council:
  - City of McAllen/Hidalgo County—large urban,
  - City of Harlingen/San Benito—small urban, and
  - Lower Rio Grande Valley Development Council—rural; and
- Texoma Area Paratransit System:
  - City of Sherman/Texoma Council of Governments—small urban, and
  - Texoma Area Paratransit System—rural.

In Chapter 5, data reflect 77 urban and rural transit providers. With the inclusion of the combination classification, Chapters 8 through 11 data consolidate the urban and rural transit providers into 65. This is a result of the combination classification combining urban and rural transit provider services under one entity. Table 49 illustrates the classification differences.

Table 49. Case Study Transit Provider Classification.

Case Study Transit Classification	***Number of Case Study Transit Providers***
Combination	8*
Major Large Urban	4
Large Urban	5
Limited Eligibility Providers	4
Small Urban	13
Rural	31
Total	**65**

**Includes 20 urban and rural transit providers*

One additional difference exists between Chapter 5 data and the case study data. The difference is in the number of TxDOT-funded client-based transit providers. In Chapter 5, researchers report 2007 expenditure data for 136 TxDOT-funded client-based transit providers. Case study data reflect the 2009 number of TxDOT-funded client-based transit providers of 141. The difference is that the number of TxDOT-funded client-based transit providers increased from 2007 to 2009.

METHODOLOGY FOR CASE STUDY SELECTION

Researchers first considered needs and opportunities for case studies for cooperative purchasing based on:

- site visits with statewide and regional cooperative purchasing organizations to identify opportunities;
- a review of the American Recovery and Reinvestment Act (ARRA) of 2009 (federal stimulus funding) for Texas public transit projects to determine near-future capital purchases; and
- a survey of public transit providers to further assess needs, opportunities, and challenges for cooperative and green purchases.

Prior to visiting with statewide and regional cooperative purchasing organizations and developing the survey, researchers reviewed information collected and findings in Chapter 3, Review of Literature and Government Regulations, and Chapter 4, State of the Practice for Cooperative Purchasing in the Transit Industry. This review enabled the researchers to:

- be familiar with and identify terminology and definitions of cooperative purchases;
- better identify what federal, state, and local cooperative purchase programs are currently offered;
- understand cooperative purchase resources and regulations at federal, state, and local levels; and
- understand recent changes in cooperative purchase federal regulations.

In addition, Chapter 5, Purchasing Power of Public Transportation, provided researchers with summary expenditure data by category of expenditure. Researchers used this information to identify survey categories where cooperative purchases may have the greatest impact. Direct labor and fringe benefits are the largest transit expenditure, at 82 percent of total operating expenditures. Fuel and lubricants represent 9 to 10 percent of operating expenditures. Other materials and supplies, tires, and tubes represent 7 to 8 percent of operating expenditures. Capital expenditures over the last three years (outside of fixed guideway expenditures) have been largely for revenue vehicles, passenger stations, maintenance facilities, and communication/information systems. Although direct labor is not a cooperative purchase category, health benefits, fuel/lubricants, materials, supplies, tires/tubes, vehicles, and communication information systems can be purchased cooperatively.

Visits with Statewide and Regional Organizations

Chapters 4 identified state and regional organizations that provide cooperative purchasing programs. Researchers used this information to set up visits with state and regional organizations to gather more in-depth information. Representatives of the research team made site visits to meet with representatives from the State of Texas, the State of Texas Cooperative Purchasing Program, and the Houston-Galveston Area Council HGACBuy Cooperative Purchasing Program. These visits were to gather information and to learn about the cooperative purchase

programs currently offered and possible opportunities for case studies. The cooperative purchasing programs visited provided information including:

- the number of public transit providers currently purchasing through the programs;
- cooperative purchase products offered and items not offered;
- program eligibility requirements;
- marketing of cooperative purchase programs;
- handling of FTA procurement requirements, such as *Buy America*;
- vehicle procurement process;
- program administrative costs and savings; and
- involvement in ARRA 2009 purchases.

ARRA 2009: Transit Provider Funding

Researchers compiled the Texas transit provider ARRA funds to document the near-future opportunities for cooperative purchases and to determine the extent and types of new purchases planned. Funds are awarded to FTA Section 5311 (rural transit providers) and FTA Section 5307 (urban transit providers).

Section 5311 Non-Urbanized (Rural) ARRA Funding

The Texas Transportation Commission approved an initial $32 million of ARRA funding for Section 5311 programs in non-urbanized (rural) areas to rural transit providers on February 26, 2009, and approved additional funding for a total of $43 million on August 27, 2009. Grants will fund the purchase of replacement vehicles and vehicles for expansion; facilities including new construction and rehabilitation of administrative buildings, intermodal bus terminal, and park-and-ride lots; shop equipment and bus shelters; and IT equipment and other miscellaneous capital items (see Appendix D).

Section 5307 Urbanized ARRA Funding

The research team identified the ARRA funding awards by metropolitan planning organizations (MPO) for Section 5307 programs in urbanized areas to urban transit providers. Appendix E provides a table of ARRA funding amounts for Section 5307 urban transit providers as of March 31, 2010. The majority of ARRA funding will be used by Texas transit providers for vehicles, communication and technology equipment, bus shelters, fare collection equipment, and security equipment. In major urban areas, ARRA funds may be used for guideway projects. Table 50 provides a summary of ARRA funding to Texas transit providers.

Table 50. ARRA Funds to Texas Transit Providers as of March 31, 2010.

Transit Provider Classification	*ARRA Funds as of March 31, 2010 (in millions)*
Major Large Urban and Large Urban	$340.5
Small Urban	$61.4
Other Agencies Receiving Section 5307 Funds	$9.0
Rural	$43.8
Total	**$453.9**

SELECTED CASE STUDY TOPICS

For conducting the case studies on cooperative purchasing, researchers focused on four selected topics.

Survey of Public Transit Providers

Researchers developed a survey to assess the opportunities and challenges for cooperative and green purchases. The purpose of the survey was to gain a better understanding of how individual organizations and purchasing officials consider, evaluate, and utilize cooperative purchasing and green purchasing. The survey included general questions divided into two sections: cooperative purchasing and green purchasing. The survey also asked if the organization is interested in participating in a cooperative purchasing implementation project. The responses to the survey are presented as a case study in Chapter 8.

Purchase Card and Fuel Card Case Study

Survey respondents showed a high interest in investigating further the use of purchase cards (53 percent of survey respondents) and in investigating fuel cards (43 percent of survey respondents). Because of the high interest, investigators researched this topic as both a descriptive and an explanatory case study.

The hypothesis of this case study is that transit providers use purchase and fuel cards because they derive a benefit either monetarily or administratively. Investigators selected transit providers currently using purchase and fuel cards as the unit of analysis for the case study. Researchers theorized that purchase and fuel cards have a monetary and administrative benefit if transit providers implement proper controls and a monitoring program enforced on an ongoing basis. Researchers also theorized that the use of purchase cards is largely for specific commodities and smaller purchase amounts. Chapter 9 documents the findings of the case study. The contribution of this case study is to provide transit providers with information that will enable the provider to implement and monitor a purchase and/or fuel card program if desired, understand the variety and quantity of purchases that can be made, and understand the advantages and disadvantages of implementing a program.

Green Purchasing

The term *green purchasing* includes the acquisition of recycled content products, environmentally preferable products and services, bio-based products, energy- and water-efficient products, alternate fuel vehicles, products using renewable energy, and alternatives to hazardous or toxic chemicals. Green purchasing programs are becoming the norm across all levels of government because of public policy and/or law. Transportation organizations are in need of resources and tools to understand how to plan for, implement, and develop standard operating procedures for such programs. The case study methodology for green purchasing is descriptive as an overview of the purpose, need, and function of such purchasing trends. In addition, researchers identified strategies for implementing effective green purchasing programs. Researchers discussed non-transportation examples that demonstrate successful green purchasing procedures and programs. Chapter 10 summarizes the research in the case study discussion.

Vehicle Maintenance Case Study

Transit providers commit considerable resources into maintenance of transit vehicles, including expenditures for salaries, wages, and related fringe benefits; services; fuel and lubricants; tires and tubes; and parts, supplies, and other materials. For this reason, vehicle maintenance was included for case study analysis.

In the case study analysis, researchers identified four transit providers already using cooperative purchasing programs and compared purchasing experiences to four transit providers not using cooperative purchasing. The researchers developed a questionnaire specific to the vehicle maintenance case study. The questionnaire was administered to each agency to identify the economic implications to either participating in a cooperative purchasing program or not participating in a cooperative purchasing program. The case study questionnaire requested specific information and costing structures.

As a result of the case study findings, researchers developed a mapping of the most ordered items/products by agency type and performed a Pareto analysis, which identified the most frequently ordered items along with items with the highest cumulative cost for the agency. Pareto analysis identifies where the initial attention should be placed to maximize the benefit. Finally, researchers conducted a comparison of agencies with and without cooperative purchasing programs from an economic perspective. Chapter 11 includes a discussion of the vehicle maintenance case study.

CHAPTER 8: SURVEY ON CURRENT PRACTICES IN COOPERATIVE AND GREEN PURCHASING

In order to gain an understanding of the experiences of public transportation providers in Texas that have participated in cooperative purchasing or green purchasing programs, the researchers conducted a survey in July of 2009. The survey was available in electronic format through an online Web-based survey service. Appendix F provides a hard copy of the survey.

Researchers announced the survey and requested responses from 65 urban and rural and 141 TxDOT-funded client-based transit providers in Texas. Table 51 provides the number of respondents by transit provider classification. Rural and small urban transit providers responded satisfactorily to the survey with a total response rate of 42 percent. Sixteen percent of TxDOT-funded client-based transit providers responded to the survey. Appendix G provides a listing of the specific transit provider respondents.

Table 51. Public Transit Providers Responding to Survey on Cooperative Purchasing.

Category	*Total Number of Providers*	*Number of Respondents*	*Response Rate*
Combination	8	3	38%
Major Urban	4	1	25%
Large Urban	5	2	40%
Limited Eligibility Providers	4	1	25%
Small Urban	13	6	46%
Rural	31	14	45%
Total Urban and Rural	**65**	**27**	**42%**
Client-Based	**141**	**22**	**16%**

COOPERATIVE PURCHASING

The initial question on the survey asked if the transit provider participates in cooperative purchasing. The first question provided a filter for the following three questions dealing specifically with the transit provider's experience in cooperative purchasing. Table 52 provides a summary of the responses to the first survey question. The verbatim question is provided in bold, italics font.

Table 52. Transit Provider Participation in Cooperative Purchasing.

During approximately the past 3 years, has your organization participated in the following cooperative purchasing? Please check all that apply.

Transit Provider Category	HGACBuy (Houston-Galveston Area Council)	State of Texas Cooperative Purchasing (TPAAS, TXMAS, TxSmartBuy)	Joint procurement with another agency	"Piggyback" procurement as a lead agency or a "ride" agency	My organization has not participated in cooperative purchase programs in approximately the last 3 years	Other cooperative purchasing utilized
Total 15		**14**	**18**	**14**	**19**	**1**
Combination 2		2	2	2	0	0
Major Large Urban 0		1	0	1	0	1
Large Urban	2	1	2	2	0	0
Small Urban	3	3	4	4	0	0
Limited Eligibility Providers 0		0	0	0	1	0
Rural 7		6	4	3	2	0
Client-Based 1		1	6	2	16	0

Of the 49 transit providers that responded to the survey, 30 providers, or 61 percent, have taken part in one or more cooperative purchasing programs during the past three years, and 19, or 39 percent, have not participated in cooperative purchasing. Of the transit providers that took part in cooperative purchasing, 63 percent participated in two or more types of cooperative purchasing. For example, Golden Crescent Regional Planning Commission indicated participation in four cooperative purchasing programs. The one provider that chose the "other" option listed DIR (Department of Information Resources) Store as the other cooperative purchasing program. DIR provides cooperative purchasing for technology products.

Transit Providers That *Have Not* Participated in Cooperative Purchasing

The three questions following the initial cooperative purchasing program question were directed to the 19 transit providers that have not participated in cooperative purchasing. The 19 transit providers are from three transit provider classifications: TxDOT-funded client-based (16), rural (2), and limited eligibility providers (1). Table 53 provides the summary results to the initial question to this group. Of the 19 transit providers that did not participate in cooperative purchasing, 16 gave specific reasons for not participating. Forty-two percent of the respondents who gave a reason for not participating in cooperative purchasing were not aware of available programs.

Table 53. Transit Provider Factors in Decision to Not Cooperatively Purchase.

What factors most influenced the decision not to use cooperative purchasing programs? Check up to 3 factors.

Transit Provider Class	Not aware	No admin. cost savings	No price advan-tage	No staff cost savings	Needed products are not available in cooperative programs	No improvement in quality of products/ services	No flexibility of products and vendor choice	Turn-around time is no better	Other factors not listed
Total 8		**0**	**1**	**1**	**2**	**0**	**1**	**2**	**5**
Limited Eligibility Providers 1		0	0	0	0	0	0	0	0
Rural 0		0	0	0	1	0	1	1	1
Client-Based 7		0	1	1	1	0	0	1	4

Of the 19 transit providers that did not participate in cooperative purchasing, 17 answered the next follow-up question: *How do you purchase consumable items?* Each transit provider specified the purchasing means (retail, wholesale, local government/parent agency, other) for the following items:

- parts,
- fuel,
- office supplies, and
- other consumables.

Of the 17 providers who answered the question, 12, or 71 percent, purchased parts and office supplies through retail sources and 8, or 47 percent, purchased fuel through retail sources.

Transit Providers That Participate in Cooperative Purchasing

The transit providers that participated in cooperative purchasing programs during the past three years were asked several different questions regarding the specific details about purchasing. The first question directed toward the cooperative purchasing group was as follows: *What equipment, goods or services have you purchased through cooperative purchasing in the past 3 years? Please check all appropriate boxes for each line item.* Respondents selected cooperative purchasing method types for each line item of equipment, goods, and services provided in a matrix format. Table 54 provides a summary of the responses.

Table 54. Equipment, Goods, and Services Purchased Cooperatively.

What equipment, goods or services have you purchased through cooperative purchasing in the past 3 years? Please check all appropriate boxes for each line item.

Line Item	HGACBuy	State of Texas Cooperative Purchasing	Joint Procurement	Piggyback	Other Cooperative Purchasing	Not Cooperatively Purchased
Vehicles 15		10	13	12	0	1
Office Supplies/ Equipment 1		4	2	0	1	4
Communication Equipment 1		1	0	0	1	5
MDT/MDC* 1		0	1	0	1	5
AVL or GPS**	1	0	0	0	0	4
Fuel 0		0	1	0	2	3
Parts 0		0	1	0	0	5
Scheduling/Routing Software 0		0	0	0	0	6
Electronic Payment Systems 0		0	0	0	0	3
VMIS*** 0		0	0	0	0	3
Maintenance Services 0		0	2	0	0	3
Other Equipment, Goods, or Services	0	0	0	0	0	3

* *Mobile data terminals (MDT)/mobile data computers (MDC)*
** *Automated vehicle location (AVL) or geographical positioning system (GPS)*
*** *Vehicle management information system (VMIS)*

Of the 30 transit providers that participate in cooperative purchasing, 29 answered the question regarding cooperative purchasing programs used to purchase equipment, goods, and services. A majority (27 of 29 respondents, or 93 percent) used cooperative purchasing programs to purchase vehicles. Table 55 displays the survey results for transit providers that cooperatively purchased vehicles.

Table 55. Cooperative Purchasing Programs for Vehicle Purchases.

Purchasing Program	***Number of Transit Provider Responses***	***Percent of Respondents* n=27***
HGACBuy 15		56%
Joint Procurement	13	48%
Piggyback 12		44%
State of Texas Cooperative Purchasing	10	37%
Other Cooperative Purchasing	0	0%

**Respondents indicating vehicles purchased cooperatively*

Other than vehicles, the item most identified for purchases by cooperative programs is office supplies/equipment. Eight of the 29 respondents (or 28 percent) use cooperative purchasing programs to purchase office supplies/equipment. The most popular cooperative purchasing program for purchasing office supplies/equipment is the State of Texas Cooperative Purchasing Program (see Table 54).

Next, the survey provided a series of questions pertaining to objectives for using cooperative purchasing. Table 56 provides a summary of the first question pertaining to objectives. Of the 30 transit providers that use cooperative purchasing, 29 responded to this question. Lower purchase costs and savings in staff time are the top two reasons transit providers use cooperative purchasing programs.

Table 56. Transit Provider Objectives in Using Cooperative Purchasing.

What objectives were most important in your decision to use cooperative purchasing? Check up to 3 objectives. If appropriate, please identify what other objectives were most important.

Objective	Number of Transit Provider Responses	Percent of Respondents n=29
Lower Purchase Costs	22	76%
Save Staff Time	21	72%
Save Administrative Costs	15	52%
Faster Turnaround Time	15	52%
Good Contract Terms and Conditions	9	31%
Improve Product/Service Quality	6	21%
Flexibility of Products and Vendor Choice	3	10%
Gain Technical Assistance from Cooperative Purchasing Program Staff	3	10%

The next question allowed the respondent to evaluate how well the cooperative purchasing program benefited the transit provider. Table 57 displays the survey question results. Other cooperative purchasing programs referenced are interlocal agreements and DIR program purchases. In general, the feedback on meeting the objectives of cooperative purchasing in Texas was largely successful, with an almost 80 percent rating of successful or very successful.

Table 57. Transit Provider Success Rating of Cooperative Purchasing Programs.

To what extent was your organization able to successfully reach its objectives through the cooperative purchasing? Please rate below.

Purchasing Program	Very Successful	Successful	Neutral	Somewhat Successful	Not Successful	Total
HGACBuy	7 58%	2 17%	1 8%	1 8%	1 8%	**12** **100%**
State of Texas Cooperative Purchasing	3 37%	4 50%	1 12%	0 0%	0 0%	**8** **100%**
Joint Procurement	7 58%	2 17%	2 17%	1 8%	0 0%	**12** **100%**
Piggyback	2 22%	5 56%	0 0%	2 22%	0 0%	**9** **100%**
Other Cooperative Purchasing	1 33%	2 67%	0 0%	0 0%	0 0%	**3** **100%**
Total*	**20** **45%**	**15** **34%**	**4** **10%**	**4** **10%**	**1** **2%**	**44** **100%**

** Totals may not equal 100% due to rounding.*

The transit providers that took part in cooperative purchasing programs were asked to identify the reasons they did not use cooperative purchasing for certain items. The question posed was as follows: *For items, services and equipment NOT cooperatively purchased, what factors most influenced the decision not to use cooperative purchasing programs? Check up to three factors.* Of the 30 providers involved in cooperative purchasing, 25 answered this question. The most common answer (44 percent) stated, "Needed products are not available in cooperative programs." The second most stated reason (40 percent) for not using cooperative purchasing for certain items was "Not aware of programs." The next most popular reasons transit providers did not utilize cooperative purchasing were "No price advantage" (24 percent) and "Procurement turnaround time is no better" (24 percent).

Twenty-eight of the 30 providers involved in cooperative purchasing responded to the following: *Check the ways YOU are involved with specifying or purchasing decisions affecting your organization's transportation operations. Check all that apply*. Table 58 provides a breakdown of responses to this question. Of the 28 respondents that answered the question, seven responded they are involved in every aspect of the purchasing process. The responses to this question raise a concern about appropriate separation of duties to maintain independence in procurement decisions.

Table 58. Respondent Involvement in Cooperative Purchasing Decisions.

Check the ways YOU are involved with specifying or purchasing decisions affecting your organization's transportation operations. Check all that apply.

Decisions	Number of Responses	Response Rate n=28
Identify the Need for Products, Equipment Systems, or Services	25	89%
Prepare Plans/Budgets	25	89%
Research/Recommend Suppliers	20	71%
Prepare/Administer Request for Proposals (RFP) or Invitation for Bids (IFB)	21	75%
Meet with Suppliers	17	61%
Evaluate Products/Suppliers	20	71%
Educate/Inform Others in the Institution on What Was Learned	18	64%
Involved in the Final Selection of Products/Equipment/Suppliers	22	79%
Approve the Product/Supplier Recommendations of Others	15	54%
No Involvement in this Process	0	0%
Other	1	4%

TRANSIT PROVIDER INSURANCE

The 49 transit providers responded to two questions regarding how insurance was purchased for the agency. Forty-six of the 49 responded to the first question. Table 59 displays the survey question and results.

Table 59. Transit Provider Insurance Purchase.

How do you purchase insurance (worker's compensation, liability, and property protection) for your transit agency?

Transit Provider Category	Direct purchase with an insurance company	Texas Municipal League Intergovernmental Risk Pool	My agency is covered as part of a larger government organization or company Other	
Total 18		**22**	**11**	**1**
Combination 0		2	1	0
Major Large Urban	1	0	0	0
Large Urban	0	2	0	0
Limited Eligibility Providers 0		1	1	0
Small Urban	2	4	2	0
Rural 3		10	1	1
Client-Based 1	2	3	6	0

The two most common answers are the "Texas Municipal League Intergovernmental Risk Pool" (48 percent) and "Direct purchase with an insurance company" (39 percent). Three providers chose both "Texas Municipal League Intergovernmental Risk Pool" and "My agency is covered as part of a larger government organization or company." Also, one provider chose all three of the choices. The majority of rural transit providers selected "Texas Municipal League Intergovernmental Risk Pool," and the majority of TxDOT-funded client-based transit providers selected "Direct purchase with an insurance company."

Forty-five of the 49 respondents responded to the second question regarding purchase of medical and health insurance. Table 60 displays the survey question and results.

Table 60. Transit Provider Medical and Health Insurance.

How do you purchase employee health and medical insurance for your transit agency?				
Transit Provider Category	**Direct purchase with an insurance company**	**My agency is covered as part of a larger government organization or company**	**My agency does not provide health and medical insurance for our employees**	**Other**
Total 19		**17**	**6**	**3**
Combination 1		2	0	0
Major Large Urban	1	0	0	0
Large Urban	1	0	0	1
Limited Eligibility Providers	0	1	0	0
Small Urban	3	3	0	0
Rural 6		7	0	2
Client-Based 7		4	6	0

The most common means in which transit provider respondents provide health care to their employees (42 percent) is by direct purchase with an insurance company. The second most frequent means (38 percent) is through coverage as part of a larger government organization or company. Thirteen percent of transit provider respondents do not offer their employees health insurance. All 13 percent are TxDOT-funded client-based transit providers.

GREEN PURCHASING

The 49 transit providers responding to the survey answered a series of questions regarding green purchasing. Green purchasing was defined as "the acquisition of recycled content products, environmentally preferable products and services, bio-based products, energy- and water-efficient products, alternative fuel vehicles, products using renewable energy, and alternatives to hazardous or toxic chemicals." The first question asked respondents to compare how the organization's emphasis on the use of green purchasing may have changed in the last three years. Forty-one of the 49 transit providers responded to this question. Table 61 provides the number of responses and percent of respondents for each emphasis rating. Over the last three years, 46 percent of respondents reported "greater emphasis" or "much greater emphasis" on green purchasing. About 50 percent of transit providers reported "no real change," and 4 percent reported "less emphasis" or "much less emphasis" on green purchasing.

Table 61. Transit Provider Emphasis on Green Purchasing.

Compared to approximately 3 years ago, how has your organization's emphasis on the use of "green" purchasing changed?

Emphasis on Green Purchasing	Number of Responses	Percent of Respondents n=41
Much Greater Emphasis	5	12%
Greater Emphasis	14	34%
No Real Change	20	49%
Less Emphasis	1	2%
Much Less Emphasis	1	2%

Table 62 provides a summary of responses to a question about commitment to green purchasing. Of all respondents, 43 percent are "committed" or "very committed" to green purchasing. Another 40 percent of respondents are "somewhat committed," and 17 percent are "not really committed."

Table 62. Transit Provider Level of Commitment to Green Purchasing.

How would you rate your organization's commitment to green purchasing?

Rating	Number of Transit Providers	Percent of Respondents n=42
Very Committed	5	12%
Committed 13		31%
Somewhat Committed	17	40%
Not Really Committed	7	17%

The next question in the survey asked about the degree to which environmental or green considerations are taken into account for purchasing new products, equipment, systems, or services. Forty-two of the 49 transit providers responded to this question, and Table 63 displays the results. Twenty-nine percent of the respondents rated green purchasing as a "significant" or "very significant" part of the decision to purchase, while 47 percent rated green purchasing as "somewhat significant" and 24 percent rated it as "not very significant."

Table 63. Transit Provider Importance of Green Considerations in Purchasing New Products.

In the decision for new products, equipment, systems, and services, to what degree does your organization take into account the environmental/green considerations of the products/services?

Rating	Number of Transit Providers	Percent of Respondents n=42
Very Significant	5	12%
Significant	7	17%
Somewhat Significant	20	47%
Not Very Significant	10	24%

The survey also asked to what extent the transit providers evaluate a supplier's ability to offer green products. Forty-two of the 49 transit providers responded to this question. Table 64 presents the results of the question. Fourteen percent of respondents said a supplier's ability to offer green advantages is "always" or "almost always" a factor in evaluation. Of the 42 responses, 12, or 29 percent, said a green advantage is "usually" a factor in evaluation. Fifty-seven percent of the respondents indicated that the supplier's ability to offer green products is "sometimes" or "rarely/never" an evaluation factor.

Table 64. Purchase Decisions Based on Supplier's Ability to Offer Green Advantages.

In addition to performance and price considerations, how often does your organization also evaluate a supplier's ability to offer products, equipment, systems or services that have green advantages?

Frequency	Number of Transit Providers	Percent of Respondents n=42
Always 3		7%
Almost Always	3	7%
Usually 12		29%
Sometimes 15		36%
Rarely/Never 9		21%

The survey sought to examine the extent to which different levels within the transit provider's organization are involved in establishing green initiatives. Forty of the 49 transit providers responded to the question. Table 65 presents the results of the question regarding level of involvement within the transit provider's organization. Sixty-three percent of respondents indicated administrators and general managers have "significant" or "very significant" involvement. Thirty-seven percent of respondents said operations personnel have "significant" or "very significant" involvement, and 36 percent of respondents said board members have significant involvement. These results indicate green initiatives are introduced at the top levels of the organization.

Table 65. Involvement in Green Initiatives at Different Levels.

To what level of involvement does each of the following groups have in establishing or supporting green initiatives within your organization? Select one answer for each.

Level	Administrators/General Manager	Operations Personnel	Local Community Members	Board Members	Others
Very Significant Involvement 20	%	3%	0%	8%	6%
Significant Involvement 43	%	34%	14%	28%	12%
Moderate Involvement 25	%	39%	37%	40%	12%
No Real Involvement	13%	24%	49%	25%	71%
Total* 10	0%	100%	100%	100%	100%

* *Totals may not equal 100% due to rounding.*

The next question regarding green initiatives dealt with the local, state, or federal initiated regulations or incentives influencing the organization. Forty of the 49 transit providers responded to the question. Table 66 provides the results to this inquiry. Fifty-six percent of respondents selected local, state, or federal regulations/incentives as being "significant" or "very significant" in influencing the organization to adopt green initiatives.

Table 66. Significance of Local, State, or Federal Influence on Green Initiatives.

How significant are local, state or federal regulations/incentives in causing your organization to adopt green approaches with your organization?

Rating Number	of Respondents	Percent of Respondents n=40
Very Significant	11	28%
Significant 11		28%
Somewhat Significant	13	33%
Not Significant	5	13%

The survey inquired about environmentally friendly janitorial supplies used to clean facilities or vehicles. The question on the survey asked the following: *Within the last 3 years has your organization switched to any janitorial product/equipment that is more environmentally friendly (e.g., cleaning supplies, aerosols, insecticides, etc.)?* Of the 49 respondents to the survey, 43 answered this question. Fifty-three percent of the providers stated the agency has switched some of the janitorial supplies to something more environmentally friendly; 12 percent stated the agency has not switched but has plans to do so; 14 percent said the agency has not switched; and 21 percent answered "do not know." The majority of affirmative answers reflect the growing importance of environmentally friendly products.

Transit providers must judge purchases as green or not. The survey addressed this by asking which items will be most likely judged as green purchases for future procurements. Thirty-nine of the 49 transit providers responded to this question. Table 67 contains the list of consumable items listed on the survey and the number of transit provider respondents judging the item as a green purchase.

Table 67. Consumable Products Judged as Green Purchases.

Check all of the consumable products listed below that your organization will likely judge as "green" purchases in future procurements.

Consumable Product	Number of Respondents Judging as Green Purchase	Percent of Respondents n=39
Paper for Copiers/Printers	29	74%
Vehicle Care Products (e.g., pesticides, cleaning products)	26	67%
Office Supplies	25	64%
Fuel 16		41%

The survey also asked about the transit provider's most recent green purchases. The survey requested the following: *Please list the environment/green issues that were taken into consideration for your most recent green purchases (e.g., recycling of water, reduction of pollutants, etc.). Please be specific.* Twenty-one of the 49 transit providers responded to this question. The answers varied, from procurement for bus shelters to recycling of water. The most common answer or theme involved recycling of office waste and reduction of pollutants. These two categories of recycling and reduction of pollutants make up 63 percent of the respondents.

The transit providers were asked if they would be interested in a service that provided information on green products. Forty of the 49 transit providers responded to this question. Table 68 displays the results. Thirty of the 40 respondents (76 percent) said they would be interested in a service providing information on green products.

Table 68. Transit Provider Interest in Green Product Services.

Would your organization be interested in a service that provided information on green and environmentally focused products to better make informed purchasing decisions?		
Response Number	**of Respondents**	**Percent of Respondents n=40**
Yes, If at No Cost	23	58%
Yes, If at Minimal Cost	7	18%
No 3		8%
Not Sure at This Time	7	18%

Researchers surveyed transit providers to determine topics of interest regarding future demonstration projects for cooperative purchasing. Table 69 provides the list of demonstration projects and number of respondents indicating interest. The survey respondent selecting "other" listed interest in financial software. Researchers used the results to provide guidance and information in case studies selected. Researchers did not pursue a case study on the topic of intelligent technology products (47 percent interest), because this topic is the subject of a current University Transportation Center for Mobility/TTI/The Texas A&M University System project entitled *Facilitating Creation of Rural Transit System Technology User Groups* (*53*).

Table 69. Transit Provider Interest in Demonstration Projects.

Would your organization be interested in participating in a demonstration project or implementation project to further investigate the advantages and disadvantages of cooperative purchasing? Please select all projects your organization may be interested in below.

Demonstration Project	Number of Transit Providers Indicating Interest	Percent of Respondents n=30
Green Purchasing for Items such as Office Supplies or Vehicle Care Products	21	70%
Vehicle Maintenance Parts and Supplies	17	57%
State Purchasing Card that Permits Rebates on Qualified Purchases 16		53%
ITS Products (software or hardware such as automated scheduling and routing software, mobile data terminals, automated vehicle location or geographic positioning systems, electronic payment systems)	14	47%
Fuel Cards for Purchase of Retail (Non-Bulk) Fuel	13	43%
Vehicle Management Information Systems	10	33%
Travel Services through the State Travel Management Program 6		20%
Other 1		3%

The final question on the survey required an open-ended response. This allowed the transit providers to provide any additional comments. The survey stated the following: *Please provide any further comments you might have regarding cooperative purchasing and/or green purchasing.* Four providers responded to this question with a variety of answers. The verbatim responses were as follows:

- *We are thankful that we can purchase utilizing the State Procurement Process.*
- *We did participate in the TxDOT mandate for purchasing vehicles that use propane. I think that we all know what a disaster that was for transit across the state.*
- *I do not know anything about "green" items. I buy thinner water bottles, recycle plastic bottles and reuse plastic bags every day but vehicle maintenance is a foreign field for me. I'm not sure I would have much input into purchases but without information I cannot even try.*
- *"Green" purchasing is new to me.*

SUMMARY

The survey on current practices in cooperative and green purchasing provides a good snapshot of the state of the practice among Texas transit providers. Nineteen of the 49 respondents to the survey (39 percent) have not participated in cooperative purchasing. Although 30 of 49 respondents (61 percent) have participated in one or more cooperative purchasing programs, the majority (93 percent) of the transit providers used cooperative purchasing to procure transit vehicles. Other than vehicles, the item most often procured through cooperative purchasing is office supplies and equipment. Eight of the transit providers that responded to the survey reported acquiring office supplies and equipment through cooperative purchasing.

A large percent of survey respondents said they are unaware of the variety of cooperative purchasing and green purchasing opportunities available through state and regional programs. Transit providers responding to the survey were asked to indicate interest in a demonstration project or implementation project for one or more of several possible topics. Researchers used survey results to select case study research topics: purchase cards and fuel cards, green purchasing, and vehicle maintenance.

CHAPTER 9: PURCHASE CARD AND FUEL CARD CASE STUDY

Researchers pursued a case study on the topic of purchase and fuel cards in response to the interest shown about this topic in the responses to the survey summarized in the previous chapter.

There were three objectives for this case study. The first objective was to document how purchase and fuel cards are used by public transit providers in Texas. The second objective was to determine if purchase cards and fuel cards provide dollar savings and increased efficiency in administrative procedures for public transit providers that use the cards. The third and last objective was to provide transit providers that have an interest in using purchase cards or fuel cards with information to make an informed decision to implement or not implement purchase and fuel card programs. Researchers included both state-issued and private-company (non-state-issued) purchase and fuel card information in this research inquiry.

BRIEF HISTORY OF FEDERAL AND STATE PROGRAMS

The concept of purchase cards and fuel cards are not new to the public sector. The following section provides a brief history of the federal and state programs for purchase cards and fuel cards.

Federal Purchase Cards

In 1982, President Ronald Reagan signed a federal executive order that called for the establishment of programs to "simplify small purchases, minimize paperwork burdens, and ensure timely payments" and called for the U.S. Department of Defense (DOD), U.S. General Accounting Office (GAO), and the National Aeronautics and Space Administration (NASA) to consolidate procurement regulations into a single Federal Acquisition Regulation (FAR) (*54*). The use of purchase cards was established in the FAR as a means to accomplish the executive order goals. The FAR designates the purchase card as the preferred method for making micro-purchases. The FAR defined micro-purchases as small purchases under a threshold amount of $2,500 in 1982. The threshold amount for micro-purchases increased from $2,500 to $3,000 September 28, 2006 (*55*).

In 1986, a U.S. Department of Commerce pilot program concluded that purchase cards had significant advantages and recommended that federal departments expand use of purchase cards. The 1993 National Performance Review (NPR) led by Vice President Al Gore identified the purchase card as a procurement reform initiative. The NPR study concluded that a purchase card provides a less costly and more efficient way to acquire goods and services. The purchase card provides a means to purchase products directly from vendors instead of processing requests through government procurement offices. The NPR study prompted significant expansion in the use of purchase cards for micro-purchases by federal agencies (*56*).

State Programs

States began to use the purchase card in the early 1990s and increased use after the 1993 NPR study documenting the cost effectiveness of purchase cards. Texas implemented a state program in 1995. The 74th Legislature passed legislation in 1995 that was then codified, authorizing Texas public agencies to use purchase and fuel cards (*57*). Texas Government Code Title 10§2155 gives authority to the Texas Comptroller of Public Accounts to administer state purchasing programs including the purchase and fuel card programs.

Purchase Cards

Since 1995 the Texas Comptroller of Public Accounts has contracted for State of Texas purchase card services. The most recent purchase card contract was executed in 2003 with a private company (MasterCard™). The Texas Comptroller of Public Accounts and the private company entered into a contract to provide purchase card programs to eligible State of Texas entities for the period June 13, 2003, through August 31, 2009. This six-year contract has three one-year renewal options. The first one-year renewal option was exercised for the extension of the contract through August 31, 2010 (*58*). The Texas entities eligible to use this contract are:

- state agencies,
- institutions of higher education, and
- participants in the State of Texas Cooperative Purchasing Program.

There are no card transaction or implementation fees, no minimum number of cards, and no minimum volume to participate in the purchase card program. For Texas public transportation providers, membership in the State of Texas Cooperative Purchasing Program is the only prerequisite for participation in the purchase card program. The Texas Comptroller of Public Accounts states that the state purchase card is "designed to establish a more efficient and cost-effective method of paying for small dollar transactions" (*58*). State purchase cards also offer rebates for qualified purchases.

Fuel Cards

The Texas Comptroller of Public Accounts contracts for retail fuel and related services cards that are valid statewide. The original fuel card contract established in 1995 included multiple fuel vendors but is now consolidated to one vendor. The Texas Comptroller of Public Accounts delegated fuel card program oversight and administration to the State of Texas Council of Competitive Governments. CCG entered into the most recent fuel and related services card contract with a private vendor for the period February 26, 2006, through August 31, 2009. This three-and-a-half-year contract has two additional one-year renewal options. The first one-year renewal option was exercised for the extension of the contract through August 31, 2010 (*59*). Fuel and related services cards are available to public service agencies, institutions of higher education, and political subdivisions of the State of Texas. Transit providers fall under the category of political subdivisions of the State. The state fuel card program offers a 1 percent rebate on fuel purchases.

USE OF PURCHASE CARDS AND FUEL CARDS BY TEXAS TRANSIT PROVIDERS

The first research objective was to document how both purchase and fuel cards are used by public transit providers in Texas. Researchers documented use of both state-issued and private-company-issued (non-state) purchase and fuel cards by Texas transit providers. Appendix H provides a detailed listing of transit providers by classification, and Table 70 summarizes the information. These classifications reflect the size and range of transit provider expenditures. Definitions of classifications can be found in Chapter 7.

Table 70. Case Study Transit Providers by Classification.

Transit Provider Classification	*Number of Case Study Transit Providers*
Combination	8
Major Large Urban	4
Large Urban	5
Limited Eligibility Providers	4
Small Urban	13
Rural	31
Total	**65**
Client-Based	**141**

Of the 65 urban and rural transit providers, 33 are divisions of a larger parent organization. For example, Brownsville Urban System is a department of the City of Brownsville. Researchers documented where purchase and fuel card expenditure reports reflect the expenditures of the parent organization as a whole rather than transit division expenditures only.

Use of Purchase Cards

The following section addresses the use of purchase cards by Texas transit providers.

State Purchase Card Eligibility Requirement

A public transportation provider that is a member of the State of Texas Cooperative Purchasing Program is eligible to obtain a state purchase card. Researchers reviewed the Texas Comptroller of Public Accounts' listing of over 1,800 currently active members of the State of Texas Cooperative Purchasing Program to identify which of the 65 urban and rural public transportation providers and 141 TxDOT-funded client-based transportation agencies are members. Appendix H identifies transit providers that are currently active members.

Forty-six of the 65 urban and rural public transportation providers (or 71 percent) are current State of Texas Cooperative Purchasing Program members and are eligible for a state purchase card (see Table 71). Researchers assumed that a parent organization provides the benefits of State of Texas Cooperative Purchasing Program membership to the transit division. Of the 141 TxDOT-funded client-based transit providers, 33 (or 23 percent) are current members of the State of Texas Cooperative Purchasing Program.

Table 71. State of Texas Cooperative Purchasing Program Membership.

Transit Provider Classification	*Number of Transit Providers*	*Texas Cooperative Purchasing Member*	*Percent of Membership by Classification*
Combined	8	5	63%
Major Urban	4	4	100%
Large Urban	5	4	80%
Limited Eligibility Providers	4	4	100%
Small Urban	13	10	77%
Rural	31	19	61%
Total	**65**	**46**	**71%**
Client-Based	**141**	**33**	**23%**

Purchase CardHolders

Researchers worked with the Texas Procurement and Support Services Division for the Texas Comptroller of Public Accounts to identify state purchase cardholders. TPASS provides oversight of the state purchase programs. Through this joint effort, researchers were able to identify current state purchase cardholders among the 65 urban and rural transit providers and 141 TxDOT-funded client-based providers. To determine which transit providers hold private-company (non-state) purchase cards, researchers first filtered the list of transit providers for those that are not current state purchase cardholders. Researchers contacted the remaining transit providers to determine if each holds a private-company (non-state) purchase card.

Researchers found that although 46 (or 71 percent) of the 65 urban and rural transit providers are State of Texas Cooperative Purchasing Program members and eligible for a state purchase card, only 16 (or 25 percent) are current state purchase cardholders (see Table 72). Researchers also found that five additional urban and rural transit providers hold a private (non-state) program purchase card. The one transit provider classification that has 100 percent participation in a purchase card program is major urban transit providers. The major urban transit providers are Houston METRO, Dallas DART, San Antonio VIA Metropolitan Transit, and Austin Capital Metropolitan Transportation Authority. Researchers found that of the 141 TxDOT-funded client-based providers, 13 (or 9 percent) are current Texas purchase cardholders (see Table 72). Appendix I is a detailed listing of transit provider purchase cardholders.

Table 72. Number of Texas Transit Providers That Are Holders of Purchase Cards.

Transit Provider Classification	*Number of Transit Providers*	*State Purchase Cardholder*	*Private-Company (Non-State) Purchase Cardholder*
Combined	8	0	1
Major Urban	4	3	1
Large Urban	5	2	0
Limited Eligibility Providers	4	3	0
Small Urban	13	3	1
Rural	31	5	2
Total	**65**	**16**	**5**
Client-Based	**141**	**13**	*No inquiry made*

Purchase Card Expenditures and Commodities Purchased

Through collaboration with TPASS, researchers determined expenditure levels and commodities purchased for state-issued purchase cards. TPASS provided the list of transit providers that are current state purchase cardholders to the purchase card vendor and requested information about expenditures and commodities purchased for each of the transit providers listed. With this assistance, researchers identified expenditure amounts, commodity types for purchases, and rebates received for state purchase cards. Researchers directly contacted transit providers that are holders of private-company (non-state) purchase cards to obtain information about expenditure levels, commodities purchased, and rebates received.

State Purchase Card Expenditures

TPASS requested that the purchase card vendor provide expenditure reports for each of the transit providers that is a current state purchase cardholder. The vendor provided total annual and monthly expenditures for fiscal 2008 by merchant category code for 23 agencies. Merchant category code is a classification assigned to merchants based on their predominant business activity. Table 73 provides a summary of total purchase card expenditures by transit provider. The information in Table 73 identifies those transit providers that are divisions of the larger parent agency. For these agencies, expenditures represent the purchases for the entire agency and not transit provider expenditures only.

Table 73. State of Texas Purchase Card Expenditures.
(Fiscal 2008—Sample of Agencies)

Transit Provider	*Transit Provider Classification*	*2008 Purchase Card Expenditures*	*No. of Transactions*	*Average Expenditure per Transaction*
Houston METRO	Major Large Urban	$31,529,433	19,281	$1,635
Dallas DART	Major Large Urban	$5,076,909	17,789	$285
San Antonio VIA	Major Large Urban	$364,241	2,210	$165
Fort Worth The T	Large Urban	$571,720	22	$25,987
Denton County DCTA	Large Urban	$75,454	425	$178
Midland-Odessa Urban Transit District (EZ Rider)	Small Urban	$24,605	203	$121
Transit providers that operate transit as a division of a larger parent agency:				
Longview, City of	Small Urban	$2,104,489	17,700	$119
Texarkana, City of	Small Urban	$1,655,822	6,631	$250
East Texas Council of Governments	Rural	$1,931,619	1,858	$1,040
Heart of Texas Council of Governments	Rural	$60,604	348	$174
Alamo Area Council of Governments	Rural	$3,176	35	$91
Arlington, City of	Limited Eligibility Providers	$4,081,193	20,275	$201
Southwest Key Program, Inc.	Client-Based	$4,921,531	12,086	$407
San Antonio Housing Authority	Client-Based	$1,345,020	6,365	$211
Mission Road Development Center	Client-Based	$581,399	3,710	$157
Lutheran Social Services	Client-Based	$532,532	7,129	$75
Harris County	Client-Based	$528,523	3,369	$157
City of Burleson/Senior Activity	Client-Based	$481,408	1,652	$291
Hockley County Senior Citizens Association	Client-Based	$262,697	2,296	$114
Tarrant County/American Red Cross	Client-Based	$190,950	1,597	$120
Andrews Center Smith County	Client-Based	$119,288	1,299	$92
Bienvivir Senior Health Services	Client-Based	$53,403	273	$196
Goliad County	Client-Based	$32,621	168	$194

The average fiscal 2008 expenditures for entities providing transit services confirms that purchase cards are used for making micro-purchases (purchases under $3,000). The exception is in the case of Fort Worth Transportation Authority with an average transaction expenditure of $25,987. Researchers contacted The T, and the director of accounting said The T's main goal for implementing purchase cards is to take advantage of the awarded rebates rather than reduce small expenditure administration costs. The T purchases large expenditure items using purchase cards. State vendor expenditure reports for 2008 show The T purchased items in two merchant code categories: utilities (electric, gas, sanitary, water) and government services. The T's director of accounting told researchers the purchase card was used to purchase ticket vending machines in 2009. Rebates and administrative implications are addressed in a later section of this chapter.

Researchers further analyzed purchase card expenditures by category to determine if transactions by major urban transit providers are applicable to smaller transit providers. Because Houston METRO has the largest number of transactions, researchers analyzed the range of items purchased and size of purchases. METRO's total purchase card expenditures of $31,529,433 in 2008 represent 19,281 transactions. Researchers summarized expenditures by merchant categories. These categories provide a better understanding of the types of purchases made.

Table 74 summarizes the 2008 METRO purchase card expenditures by expenditure category. METRO uses the purchase card for a wide variety of purchases including office supplies, commercial and computer equipment, education and training, automotive parts, and membership fees.

Although the METRO average purchase card transaction in 2008 was relatively small at $1,635 per transaction, researchers found purchase cards are also used by METRO for some large purchases (over $3,000). These large purchase items include categories such as telecommunications equipment and petroleum products. Large purchases using the purchase card receive larger rebates based on a percent of total expenditure.

Table 74. METRO—Purchase Card Expenditures by Merchant Category. (Fiscal 2008)

Merchant Category	*Total Expenditure by Major Category*	*Sub-Category*
Computer $8	36,236	Computer—programming, repair, software
Education and Training	$17,693	Education
Equipment $	136,374	Equipment—commercial
		Furniture
Maintenance $6	,036,771	Parts
		Repair—appliances, misc.
		Auto and truck dealers
		Auto—service, repair, towing, tires
Marketing $	190,832	Direct marketing
Miscellaneous $2	,064,333	Nondurable goods
		Specialty retail
		Misc. merchandise
		Misc. auto, trailers, motorcycle
		Electronics and appliances
		Misc. food
		Durable goods
		Labs
Petroleum	$598,753	Petroleum and petroleum products
Services $	18,994,339	Transportation services not elsewhere classified
		Government services not elsewhere classified
		Publishing, reproduction, photography
		Professional services
		Janitorial
		General contractor (electrical, plumbing, A/C, roofing, siding, concrete, etc.)
		Landscaping
		Medical
		Other services
		Cleaning, specialty
		Extermination
		Veterinary services
		Freight
Subscriptions and Memberships	$22,479	Organization and membership fees
Supplies $	1,731,175	Industrial supplies
		Stationary, office supply
		Chemical and allied products
Telecommunication	$624,012	Telecommunication equipment and services
Travel $	276,437	Airlines, hotels, car rentals, tolls, commuter rail, travel agency
		Taxicab/Limousine
		Bus lines
Total $	31,529,433	

Fuel Card Users

To determine transit providers that currently hold State of Texas fuel cards, researchers provided the listing of the 65 urban and rural transit providers and the 141 TxDOT-funded client-based transit providers to the CCG, the state entity responsible for administering the state fuel card program. Researchers asked CCG to identify fuel cardholders. Although all PSAs are eligible to obtain a state fuel card, only seven transit providers use state fuel cards—two are rural providers and five are TxDOT-funded client-based providers (see Appendix J).

To identify transit providers that hold private-company (non-state) fuel cards, researchers contacted urban and rural transit providers to confirm what other types of fuel cards are used. In addition, researchers asked transit providers how fuel is purchased.

Researchers found that all of the four major large urban and five large urban transit providers buy bulk fuel, store in fuel tanks on transit property, and dispense fuel to transit vehicles on site. Four of the nine also use fuel cards for vanpool programs. Fort Worth The T, Denton County Transportation Authority, Houston METRO, and Austin Capital Metro use fuel cards for the vanpool program. DART, San Antonio VIA, Corpus Christi The B, El Paso Sun Metro, and Lubbock Citibus do not use fuel cards at this time.

Small urban, rural, and limited eligibility providers transit providers purchase fuel several ways, including on-site fuel tanks, fuel cards, city/county fueling agreements, local fuel station agreements, and contractor provided fuel. For example, Longview Transit has a diesel fuel tank and also contracts with Harrison County to use the county's private company fuel card for gasoline purchases. CityLink in Abilene decided to purchase gasoline vehicles for demand response services. Because CityLink has two 10,000 gallon underground diesel tanks and did not want to dedicate a diesel tank for the smaller amount of gasoline, CityLink decided to use a private-company-issued fuel card. The fuel card provides ease of fueling at service stations throughout the city and reasonable pricing. Capital Area Rural Transportation System (CARTS) has an on-site propane fuel tank for propane-fueled vehicles and uses two private-company fuel cards to operate diesel- and gasoline-fueled vehicles.

Table 75 summarizes the ways small urban, rural, and limited eligibility transit providers procure fuel for transit vehicles. Appendix J provides detailed information regarding means of fuel purchase for each transit provider.

Table 75. Means of Fuel Purchase by Transit Providers.

Transit Provider Type	*Number of Transit Provider Respondents*	*State Fuel Cards*	*Private-Company (Non-State) Fuel Cards*	*Fuel Tank(s)*	*Separate City and/or County Agreements*	*Local Fuel Station Agreements*	*Contractor Provided Fuel*
Combined	7 of 8	0	4	2	3	2	2
Major Large Urban	4 of 4	0	2	4	0	0	0
Large Urban	5 of 5	0	2	5	0	0	0
Limited Eligibility Providers	2 of 4	0	0	1	0	0	1
Small Urban	13 of 13	0	4	13	2	2	0
Rural	29 of 31	3	16	5	8	7	4
Total		**3**	**26**	**22**	**12**	**11**	**7**

Note: Any single provider may use more than one means of fueling.

Small Urban Transit Provider Fuel Purchase

Researchers found that all 13 of the small urban transit providers have fuel tanks and purchase fuel in bulk. Seven of the 13 also have alternative means of purchasing fuel ("off-site" fueling) in the form of fuel cards, city/county agreements, or local fuel station agreements. Small urban transit providers use these off-site fuel purchase arrangements for a variety of reasons including convenience of location, access to diesel fuel, access to backup fueling, and access to discounted fuel. Four of the 13 small urban transit providers use fuel cards (see Appendix J).

Combination Transit Provider Fueling

Researchers found that transit providers that operate a combination urban and rural service use on-site fuel tanks when:

- operating urban service,
- providing service to the immediate service area,
- providing alternative fuels, and
- operating fixed-route service.

Two of the combination urban and rural transit providers, HCTD and BTD own on-site fuel tanks to operate urban fixed-route service. HCTD operates urban transit service in Killeen and Temple and also operates rural service over a nine county, 8,321 square mile service area. HCTD has an on-site diesel fuel tank to provide fuel to operate its fixed-route urban service in Killeen, it uses an on-site propane fuel tank and local fuel station agreements to provide diesel fuel to operate its fixed-route urban service in Temple, and it uses local fuel station agreements throughout the rural service area to operate rural demand response service. BTD has an on-site diesel fuel tank in Bryan to operate the urban College Station-Bryan fixed-route service and uses a private-company-issued fuel card for rural demand response service.

Other combination urban and rural transit providers have local fueling arrangements to use city and county fuel tanks to operate service. McAllen Express service is a department of the City of McAllen, and the city provides fuel at the city's fueling station to operate transit service. The City of Victoria and the City of Cuero provide access to city-owned fueling stations for the Golden Crescent Regional Planning Commission (GCRPC). Concho Valley Transit District has agreements with local municipalities and counties throughout its service area to provide fuel at the city/county fueling stations.

Four of the combination urban and rural transit providers use fuel cards. Collin County Committee on Aging and Gulf Coast Center use fuel cards as the only source of fueling. BTD uses fuel cards throughout the rural service area. GCRPC uses fuel cards only for backup purposes. Appendix J provides a detailed summary of means of fueling for combination urban and rural transit providers.

Rural Transit Provider Fueling

As the majority of rural transit providers operate over a large service area (average of 5,930 square miles and median of 4,051 square miles), fuel cards and other off-site fueling means are used by the majority of rural providers. Only five rural transit providers use on-site fuel tanks to operate service: CARTS, City of Cleburne, Colorado Valley Transit (CVT) District, Fort Bend County (FBC), and the Town of South Padre Island. Researchers found that rural providers use on-site fuel tanks for similar reasons to the combination urban and rural transit providers: providing service in a compact service area, operating alternative fuels, and operating fixed-route service. As stated previously, CARTS has an on-site fuel tank to fuel propane vehicles. The City of Cleburne and FBC have fuel tanks to serve relatively small service areas of 710 and 747 square miles, respectively. CVT uses a fuel tank only to serve the area around the city of Columbus. The Town of South Padre Island has a diesel fuel tank and a gasoline fuel tank to operate transit in a service area of two square miles.

The majority of rural transit providers (19 of 29 respondents) use fuel cards for operating at least a portion of service. Rural transit providers contacted indicate the larger and more remote the service territory, the more practical fuel cards become. Seven of the 19 respondents use fuel cards as the only source of fuel, and an additional transit provider that contracts all service stated the contractors use fuel cards as the only source of fuel. The remaining rural transit provider respondents use a variety of fueling means to provide fuel throughout the service area. Appendix J provides fueling detail by rural transit provider.

Fuel Expenditure Levels

To understand the impact of fuel purchases on transit provider overall budgets, researchers calculated the percent of fuel to total expenditures using data provided in Chapter 5. Fuel and lubricant expenditures totaled $107 million in 2007 and represented an average 9 percent of transit provider annual operating expenditures (see Table 76). Note that fuel is a larger percent of the total operating expenditure the smaller the transit provider.

Table 76. Comparison of Fuel to Total Operating Expenditures. (Fiscal 2007 by Transit Provider Classification)

Transit Provider Classification	*Total Fuel Expenditures*	*Total Operating Expenditures*	*Percent of Fuel to Total*
Major Large Urban	$77,094,586	$976,992,414	8%
Large Urban	$12,745,199	$138,160,900	9%
Limited Eligibility Providers	$255,204	$3,974,898	6%
Small Urban	$7,127,981	$62,098,732	11%
Rural	$6,826,971	$62,007,242	11%
Client-Based	$3,390,615	$14,741,805	23%
Total Operating Expenditures	**$107,440,556**	**$1,257,975,991**	**9%**

State Fuel Card Expenditure Levels

In response to a request from researchers for this project, CCG asked the state fuel card vendor to provide expenditure reports for each of the transit providers that are current state fuel cardholders. The vendor provided transaction reports for six transit providers—three rural transit providers and three TxDOT-funded client-based transit providers. All but one of these transit providers are divisions of a larger parent organization; therefore, expenditures represent the expenditures for the entire agency, not transit-related expenditures only. Table 77 provides a summary of fuel card expenditures by transit provider.

Table 77. State Fuel Card Expenditures. (Calendar Year 2007)

Transit Provider	*Transit Provider Classification*	*Total Gallons*	*Total Customer Amount*	*Average 2007 Customer Rate*
The Transit System, Inc.	Rural	27,656	$86,549	$3.13*
Transit providers that are divisions of a larger parent agency:				
Alamo Area Council of Governments	Rural	2,216	$5,664	$2.56
Fort Bend County	Rural	1,014	$2,744	$2.71
Southwest Key Program	Client-Based	6,649	$16,714	$2.51
Rio Grande State Center	Client-Based	47,381	$119,341	$2.52
Austin State School	Client-Based	2,822	$7,136	$2.53

**The Transit System, Inc. staff stated that the $3.13 average 2007 rate, although high, is accurate and may be a result of the larger portion of fuel purchased during summer high-rate months.*

Private-Company (Non-State) Fuel Card Expenditure Levels

To better understand private-company-issued (non-state) fuel card expenditure levels, researchers contacted a sample of the following urban and rural transit providers and received information for varying fiscal years:

- Central Texas Rural Transit District (CTRTD) uses a private-company fuel card and reported spending $551,659 in 2008 and an estimated $426,158 in 2009. Fuel card expenditures represent approximately 13 percent of the CTRTD operating budget.
- Longview Transit fuel card use is limited to gasoline purchases, as the majority of vehicles are fueled by an on-site diesel fuel tank. Longview Transit reported gasoline fuel card expenditures of $39,152 in 2008, using a private-company fuel card issued through Harrison County.
- Gulf Coast Center uses a private-company fuel card as the only means of fueling vehicles and spent approximately $150,000 in 2007 (or 10 percent of the operating budget).
- Community Council of Southwest Texas uses two private-company fuel cards to fuel vehicles and spent approximately $320,000 in 2007.

ADMINISTRATIVE AND FINANCIAL IMPLICATIONS OF PURCHASE CARD AND FUEL CARD USE

The purpose of this section is to discuss the administrative and financial implications of the use of purchase and fuel cards.

Purchase Card: Stated Reasons for Adopting

The Advancing Government Accountability (AGA) Corporate Partner Advisory Group conducted a nationwide survey on uses, policies, and best practices for state purchase cards in 2006. AGA Report No. 7, entitled *The State Purchase Card: Uses, Policies and Best Practices* (*60*), summarizes the survey results for 33 state respondents, of which 29 had purchase card programs. This report found that the most important factor influencing implementation of a purchase card program was the anticipated cost savings. Ninety-seven percent of the respondents cited cost savings as "very important" or "somewhat important." The report states that the purchase card "reduces paperwork associated with small item acquisitions and provides a convenient and efficient means of processing small item purchases."

In addition, the AGA state purchase card report (*60*) states that 67 percent of the respondents reported that enhanced capability to audit transactions was viewed as "very important" or "somewhat important." Just over half of the respondents indicated that purchase card rebates offered were "very important" or "somewhat important" factors for implementation. Just over 75 percent indicated that the benefit of facilitation of government discounts from vendors was "very," "somewhat," or of "medium" importance. Other factors for implementing the purchase card program identified include:

- reduces paperwork to issue purchase orders,
- expedites payment to vendors,
- expands vendor options beyond those willing to accept field purchase orders, and
- interfaces with an e-commerce procurement system.

More than half of the 33 states responding to the survey indicated that substantial savings resulted from enhanced efficiencies in processing procurement transactions through use of the purchase card.

The Texas state purchase card vendor listed the following key features and benefits of the purchase card (*61*):

- potential to earn rebate dollars on all of the day-to-day purchases,
- ability to combine low-dollar expenses into one payment,
- opportunity to reduce the costs of processing and tracking low-dollar purchases,
- ability to automate transaction posting to cost centers or general ledger accounts, and
- ability to improve vendor reporting across the organization.

Texas transit providers participating in this study reported varying reasons for implementing a purchase card program:

- San Antonio VIA reviewed several purchase card programs to determine the appropriate program for VIA. VIA listed the advantages of the state purchase card as providing end-user control of small purchases, reducing check processing costs, and reducing small-dollar purchase orders.
- The T in Fort Worth implemented purchase cards to obtain rebates. The T pays utility bills and purchases higher-dollar ticket vending machines to maximize rebate awards.
- Austin Capital Metro reported savings achieved in small-dollar purchases now handled through the purchase card. Capital Metro estimates that the average purchase order costs $90 to process, and it primarily uses the purchase card for purchases under $3,000 for a total of $1,024,000 in 2007 and $1,090,000 in 2008. The types of expenditures on purchase cards include communication/marketing department supplies, subscriptions, printing, building maintenance supplies, and travel-related expenditures. Capital Metro does not currently receive rebates. It reports one concern about the ability to allocate purchase card expenses at a level of detail suitable for FTA reporting requirements, and it is upgrading the accounting system, which will enable more efficient allocation of purchases.
- The City of Waco, Waco Transit reported implementing a purchase card program for ease of purchasing small-dollar items. Waco Transit limits purchase card expenditures to a $3,000 limit per transaction, a $6,000 limit per day, and a $24,000 limit per month. Waco Transit receives a rebate for purchases.

Purchase Card: Cost Savings Associated with Reduction in Administration

The following provides a comparison of the traditional purchasing process and the process using a purchase card. Information is also provided to document cost savings using purchase cards

based on a reduction in administration expenses. Findings from the national survey reported in the AGA State Purchase Card Report are discussed first, followed by a discussion of the research findings for public transportation in Texas.

Purchasing Process

Traditional purchasing usually involves an employee to requisition the goods, a manager to approve the purchase, a central procurement department, a central receiving department, and accounts payable. Figure 5 illustrates the steps in the traditional procurement process; the steps are applicable for small as well as larger dollar value purchases.

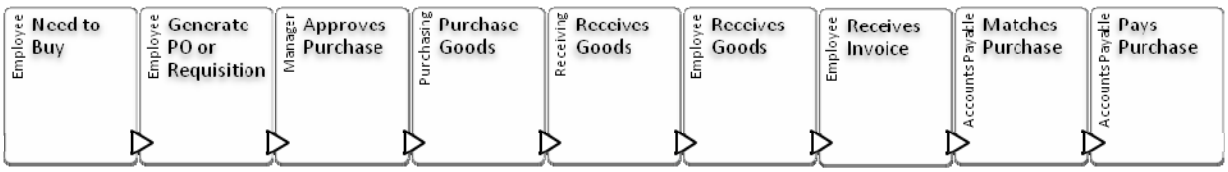


Figure 5. Traditional Purchasing Process.

The steps in the traditional purchasing process are described as follows:

1. Employee identifies a need and researches the specifications for the goods. The employee may be responsible for seeking competitive price proposals.
2. Employee creates a requisition to procure goods from a supplier.
3. Manager reviews and approves the requisition; depending on approval/spending limits set by the organization, the requisition is routed to an approver and then forwarded to the purchasing department.
4. Purchasing department creates a purchase order. In most government organizations, there is a budget encumbrance process that occurs during this step. Procurements over a minimum amount require a publicly advertised solicitation of competitive price proposals or bids.
5. Supplier fills the requirements for the purchase order.
6. Goods are received at central receiving. Organizational audit controls define whether receipts need to occur centrally or at the desktop. Centrally means the organization has a central receiving dock where deliveries and records of receipted goods are systematically tracked. At the desktop means deliveries and recording of receipted goods occur at the desk of the requisitioning employee.
7. Good are received by the employee.
8. Supplier invoice is received. The supplier invoice is received either on paper or electronically. The invoice is matched to the receiving documents and corresponding purchase order.
9. Supplier is paid. Invoices that are successfully matched are approved for payment, and a check or other form of payment is sent to the supplier on the next payment cycle. In government organizations, this is where the budget encumbrance is relieved.

The purchasing process using the state purchase card requires fewer steps. The state purchase card vendor streamlines the purchasing process by reducing several steps. Administrative processes that are eliminated include employee generation of the purchase order or requisition, purchasing department purchase of goods, central receipt of goods, and receipt of a paper invoice. Approval of the purchase and the accounts payable steps can also be expedited with automated internal controls. Figure 6 shows the steps in the traditional procurement process that are eliminated or substantially expedited using a purchase card.

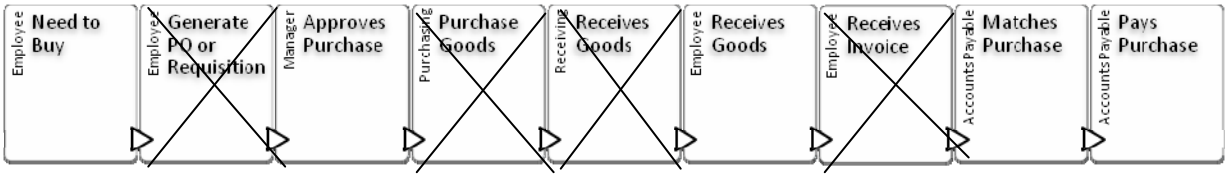


Figure 6. Purchasing Process Using Purchase Card.

National Research Cost Savings

The AGA State Purchase Card Report included survey responses regarding not only processing cost savings but also administrative, management, and training savings. The survey documented in the AGA State Purchase Card Report asked respondents to indicate the degree to which use of purchase cards contributes to cost savings or enhanced revenues (resulting from differing cash management practices such as petty cash requirements and float opportunities). The majority of respondents to the AGA survey "attributed some or substantial savings to purchase card use" for all of the functions in the purchasing process with the exception of employee training (see Table 78) (*60*).

Table 78. Sources of Cost Savings Associated with Use of Purchase Card.

Source	*Substantial Savings*	*Some Savings*	*No Savings*	*Savings Loss*
Processing of purchase authorization	21.7%	60.9%	17.4%	0.0%
Processing of procurement transactions	52.4%	42.9%	4.8%	0.0%
Administrative oversight and monitoring (including dispute resolution)	13.6%	68.2%	18.2%	0.0%
Processing of bill payment and post-procurement audit activities	27.3%	68.2%	4.5%	0.0%
Employee training	9.1%	18.2%	72.7%	0.0%
Cash management	13.6%	50.0%	36.4%	0.0%

Source: AGA State Purchase Card Report (60).

Texas Transit Provider Cost Savings

According to the Texas state purchase card vendor, the cost of traditional purchasing processes range from $50.00 to $150.00 per transaction. Capital Metro estimated a processing cost of $90.00 per transaction. Researchers estimated a cost savings of $90.00 per average transaction by a transit provider. Table 79 shows the estimated transaction savings for each state purchase cardholder. Transaction savings for The T are relatively low due to the smaller number of (higher dollar value) transactions.

Table 79. Texas Transit Provider Cost Savings for Use of Purchase Card. (Assuming $90.00 per Transaction)

Transit Provider	*Transit Provider Classification*	*No. of Transactions*	*Estimated Savings (Assuming $90 per Transaction Average)*
Houston METRO	Major Large Urban	19,281	$1,735,290
Dallas DART	Major Large Urban	17,789	$1,601,010
San Antonio VIA	Major Large Urban	2,210	$198,900
Fort Worth The T	Large Urban	22	$1,980
Denton County DCTA	Large Urban	425	$38,250
Midland-Odessa EZ Rider	Small Urban	203	$18,270
Transit providers that are divisions of a larger parent agency:			
Longview, City of	Small Urban	17,700	$1,593,000
Texarkana, City of	Small Urban	6,631	$596,790
Alamo Area Council of Governments	Rural	35	$3,150
East Texas Council of Governments	Rural	1,858	$167,220
Heart of Texas Council of Governments	Rural	348	$31,320
Arlington, City Of	Limited Eligibility Providers	20,275	$1,824,750
Andrews Center Smith County	Client-Based	1,299	$116,910
Bienvivir Senior Health Services	Client-Based	273	$24,570
City Of Burleson/Senior Activity	Client-Based	1,652	$148,680
Goliad County	Client-Based	168	$15,120
Hockley County Senior Citizens Association	Client-Based	2,296	$206,640
Lutheran Social Services	Client-Based	7,129	$641,610
Mission Road Development Center	Client-Based	3,710	$333,900
Harris County	Client-Based	3,369	$303,210
San Antonio Housing Authority	Client-Based	6,365	$572,850
Southwest Key Program, Inc.	Client-Based	12,086	$1,087,740
Tarrant County/American Red Cross	Client-Based	1,597	$143,730

Purchase Card Rebates

The state purchase card contract has a rebate feature that pays rebates based on a percent of total dollar expenditures. TPASS requested the state purchase card vendor to provide rebate reports for each of the transit providers with a current purchase card for fiscal 2008 (September 1, 2007, through August 31, 2009). The state purchase card vendor provided summary rebate reports for 23 agencies. Table 80 documents rebates representing approximately 1 percent of total expenditures. Seventeen of the 23 agency rebates are to agencies that operate transit as a division

of a larger public agency. Therefore, rebates represent approximately 1 percent of expenditures for the entire agency, not transit-related expenditures only.

Table 80. Transit Provider State of Texas Purchase Card Rebates. (Fiscal 2008 for 23 Agencies)

Transit Provider	*Transit Provider Classification*	*Fiscal 2008 Rebate*
Houston METRO	Major Large Urban	$228,471
Dallas DART	Major Large Urban	$53,132
San Antonio VIA	Major Large Urban	$3,731
Fort Worth The T	Large Urban	$6,003
Denton County DCTA	Large Urban	$792
Midland-Odessa EZ Rider	Small Urban	$258
Agencies that operate transit as a sub-part of the larger agency:		
Longview, City of	Small Urban	$22,096
Texarkana, City of	Small Urban	$17,389
East Texas Council of Governments	Rural	$20,281
Heart of Texas Council of Governments	Rural	$636
Alamo Area Council of Governments	Rural	$33
Arlington, City Of	Limited Eligibility Provider	$42,759
Southwest Key Program, Inc.	Client-Based	$51,464
San Antonio Housing Authority	Client-Based	$14,105
Mission Road Development Center	Client-Based	$6,105
Lutheran Social Services	Client-Based	$5,592
City of Burleson/Senior Activity	Client-Based	$4,595
Hockley County Senior Citizens Association	Client-Based	$2,758
Tarrant County/American Red Cross	Client-Based	$1,858
Andrews Center Smith County	Client-Based	$1,252
Bienvivir Senior Health Services	Client-Based	$561
Goliad County	TxDOT-Funded	$342
Harris County	TxDOT-Funded	$243

Utility Payments Using a Purchase Card

Several transit providers contacted for this research indicated interest in the possibility of paying utility bills through purchase cards to maximize rebates. Researchers have included information regarding utility expenditures using purchase cards as a result of this interest. Chapter 5 expenditure reports show that utility expenditures of $24 million by Texas transit providers represent approximately 2 percent of the annual operating budgets in 2007. Paying utilities on the purchase card has the advantage of generating rebates as well as the advantage of consolidating several utility bills into a single purchase card transaction, thus reducing

administrative costs (*62*). Many utility companies accept purchase cards for utility bill payments; however, card acceptance may be subject to conditions such as payment of a fee or a maximum transaction amount. The director of accounting for The T in Fort Worth stated that one of the electricity vendors does not accept the purchase card. The following steps to determine if a utility vendor will accept a purchase card are suggested:

1. Contact the vendor of choice from the list of vendors that accept utility payments by purchase card (see The State of Texas Utility Payments Analysis [*63*]) and determine if the utility currently accepts a purchase card for the type of utility bill.
2. Determine if there are any additional fees for payments using a purchase card.
3. Identify the methods that are available to make payment to each utility vendor.
4. Identify if the utility vendor has a maximum transaction amount for a single transaction or a maximum quantity of transactions within a given time period.
5. Contact the purchase card vendor to help create a payment solution (*62).*

Fuel Cards: What Transit Providers Say about Advantages and Disadvantages

Texas transit providers report the major advantage in using a fuel card in general (both state- and private-company-issued fuel cards) is convenience of location in fueling and availability throughout a large service area and/or rural areas.

Major Urban Transit Providers: Advantage of Fuel Card

Fort Worth The T, Denton County DCTA, and Austin Capital Metro stated that the fuel card for the vanpool program provides a means of covering the large service area and provides administrative advantages in expenditure controls and detailed reports. The T also receives a five-cent savings per gallon on the retail price.

Small Urban Transit Providers: Advantages/Disadvantages of Fuel Card

The general manager of CityLink Transit in Abilene said that the convenience of proximity to gasoline fuel providers for the small amount of gasoline vehicles is deemed to be "tremendously efficient." Of the 50-vehicle fleet, only six vehicles have gasoline engines. Other advantages cited are user accountability, no divisional cost allocation, and good vendor customer service. Disadvantages cited are no integrated discounts/rebates and "upkeep" of vehicle/user profiles.

Rural Transit Providers: Advantages of Fuel Card

CTRTD uses a private-company fuel card as its source of fueling. CTRTD estimates fuel card expenditures of $426,158 with an approximate rebate of $2,000 in 2009. CTRTD lists the advantages of improved fuel availability throughout the 11-county service area, ability to require multiple charge accounts at fixed prices, cost efficiency as operators go to best price locations rather than only locations with fuel agreements, monitoring of purchases, and monitoring fuel efficiency.

The director of transit at the Community Council of Southwest Texas (CCSWT) said CCSWT is moving to the state fuel card due to the "10 to 15 cent per gallon cheaper fuel." The director of transportation for West Texas Opportunities (WTO) said WTO is moving from one private-company fuel card to another private-company fuel card for better fueling station coverage.

Combined Transit Providers: Alternative to Fuel Card

Concho Valley Transit District has interlocal agreements with cities and counties across its service area to purchase fuel at the bulk price the local government receives. Concho Valley Transit District does not use fuel cards based on past experience. In previous initiatives to use fuel cards, the district found the fuel card program was difficult to manage and price advantages were not as good as the city/county arrangement. Researchers believe examining interlocal agreements may be worthwhile in future studies to determine if transit providers can set up interlocal agreements to take advantage of lower cost bulk fuel rates.

State Fuel Card Offerings

Researchers documented the benefits of a state fuel card.

CCG Stated Benefits of Fuel Card

The State of Texas fuel card provides a means for purchase of federal tax-exempt fuel and related automotive goods and services. The CCG lists several advantages including net-out or rebate of federal taxes, discounts on fuel, rebates of 1 percent on all transactions, coverage of fuel payments under a single invoice, payment of maintenance on the same card, acceptance of cards across the state, tailoring of retail fuel cards to meet the needs of agencies, and purchasing of bulk fuel under the contract. Web-based reporting is provided with details regarding authorized, posted, and declined transactions. Other advantages cited include:

- customized purchasing limits;
- restricted transaction to locations, hours of the day, days of the week;
- authorized groups, sub-groups, or individual employees for specific purchases;
- access to real-time transaction data;
- access to information to resolve a declined fuel card;
- ability to view and download transaction detail to analyze each driver's spending behaviors;
- ability to track purchasing exceptions for each cardholder;
- ability to block and unblock cards instantly;
- ability to change purchasing authorization and spending limits in real time; and
- options to authorize one-time and emergency purchases.

State Fuel Card: Fuel Discount and Rebate Impact

State fuel card transactions are invoiced based on the daily Oil Price Information Service (OPIS) net average price at closing plus an "adder" for diesel and unleaded 87 Octane based on location within the state. Table 81 presents an example of how the fuel card OPIS pricing plus negotiated

adder fuel transaction cost works. In the example, the OPIS rack price is $2.1872 and the adder price for the area is $0.3542. The billable price is $2.5414. The retail price is $2.6441. This is a difference of $0.1027 between the retail price and the state fuel card billable price. If the transit provider purchased 17 gallons of fuel, a savings of $1.74 would be realized (*64*).

Table 81. Example of State Fuel Card Transaction Pricing.

	State Fuel Card	*Retail*	*Difference (Savings)*
Gallons	17	17	
Daily Rack (OPIS)	$2.1872		
Adder (based on location)	$0.3542		
Price per Gallon	$2.5414	$2.6441	$0.1027
Transaction Cost	$43.21	$44.95	$1.74

CCG requested that the state fuel card vendor provide discount and rebate reports for each of the transit providers that are current state fuel cardholders. The vendor provided transaction reports for six agencies for calendar year 2007. Table 82 provides a summary of total fuel card quantity purchased, retail price, customer price, and rebate received by each agency. Five of the six agency reports are for agencies that operate transit as a division of a larger agency. Therefore, expenditures represent the expenditures for the entire agency, not transit-related expenditures only.

Table 82. Retail and Customer Fuel Card Rate Comparison/Rebate Received. (Calendar Year 2007)

Transit Provider	*Transit Provider Class*	*Total Gallons*	*Total Retail Amount*	*Retail Rate*	*Total Customer Amount*	*Cust. Rate*	*Rebate (1%)*	*Customer vs. Retail Difference*	*Rate Diff.*
The Transit System, Inc.	Rural	27,656	$91,268	$3.30	$86,549	$3.13	$857	($4,719)	($0.17)
Alamo Area Council of Governments	Rural	2,216	$6,062	$2.74	$5,664	$2.56	$56	($398)	($0.18)
Southwest Key Program, Inc.	Client-Based	6,650	$17,808	$2.68	$16,714	$2.51	$166	($1,094)	($0.16)
Rio Grande State Center	Client-Based	47,381	$126,863	$2.68	$119,341	$2.52	$1,192	($7,522)	($0.16)
Austin State School	Client-Based	2,822	$7,652	$2.71	$7,136	$2.53	$71	($516)	($0.18)
Fort Bend County	Client-Based	1,014	$2,961	$2.92	$2,744	$2.71	$17	($217)	($0.21)
Alamo Area Council of Governments	Rural	2,216	$6,062	$2.74	$5,664	$2.56	$56	($398)	($0.18)
Southwest Key Program, Inc.	Client-Based	6,650	$17,808	$2.68	$16,714	$2.51	$166	($1,094)	($0.16)
Rio Grande State Center	Client-Based	47,381	$126,863	$2.68	$119,341	$2.52	$1,192	($7,522)	($0.16)

During calendar year 2007, the transit providers using the state-issued fuel card received a $0.16 to $0.21 per gallon savings over retail prices.

The average rural transit provider operates approximately 700,000 vehicle miles of service annually. At an average fuel economy of 10 miles per gallon, total gallons consumed on average per rural transit provider are approximately 70,000 gallons annually. If the average per gallon

savings is a conservative $0.10 using a fuel card, the average rural transit provider could save $7,000 annually.

PREVENTING MISUSE AND FRAUD

Federal GAO reports indicate purchase cards have brought substantial cost reduction to the procurement process. However, the GAO also stated in a March 2008 report that "if not properly managed and controlled, use of the purchase card results in fraud, waste, and abuse" (*55*). The GAO conducted a performance audit from September 2006 through February 2008 of federal agencies, finding that:

- An estimated 41 percent of transactions were not properly authorized, or there was no evidence that the goods and services were received by an independent party.
- An estimated 48 percent of purchases exceeding the micro-purchase threshold did not have proper authorization or independent receipt and acceptance.
- Agencies could not provide evidence showing possession of 458 of 1,058 items. The missing items were valued over $1.8 million.

The GAO stated that "weak internal controls over proper authorization and independent receipt of purchase card acquisitions expose the government to fraudulent, improper, and abusive purchase card activity and loss of assets."

The Congressional Research Service (CRS) 2008 Report for Congress, entitled "Misuse of Government Purchase Cards," identifies the following purchase card program weaknesses:

- Ineffective transaction review and approval processes—one of the primary safeguards against improper use is the review and approval of cardholder transactions by someone other than the cardholder.
- Inconsistent program monitoring—program administrators failed to monitor and evaluate the effectiveness of purchase card controls.
- Lack of separation of duties—key procurement functions are handled by different individuals.
- Inadequate training—training helps to ensure compliance with applicable regulations and reduces improper card use.
- Excessive number of cards issued and high credit limits—too many cards and high credit limits raise the risk of abuse as use becomes difficult to oversee.

The AGA State Purchase Card Report highlighted three primary actions to promote appropriate use of the purchase card (*60)*:

- Ensure training is done before a card is issued, and reinforce the training periodically.
- Institute a policy that deals with consequences if the card is used inappropriately.
- Use available data and software tools to monitor credit card purchases.

The AGA report also emphasizes monitoring for split transactions. Split transactions occur when an "expensive purchase is broken into several smaller components in order to circumvent the maximum dollar amount per transaction limits."

The Texas Comptroller of Public Accounts developed the *Program Administrator Guide: Best Practices and Operations for the State of Texas Charge Card Program (58).* This guide provides sections on topics including pre-implementation planning, new cardholder application process, maintenance and enforcement, fraud, and employee abuse. The appendices also include useful information providing contact information, suggested policies and cardholder forms, merchant category code listing, examples of charge card training programs, rules, and regulations. Merchant category codes can be coded into the State of Texas purchase cards, blocking impermissible purchases. Velocity limits can control spending per transaction, spending over a period of time, number of transactions, or credit limits. Hierarchy and internal controls are emphasized in the State of Texas charge card program guide (*58*).

Austin Capital Metro has purchase card policies and procedures. Purchase cards are issued to designated full-time employees after completing the application form, attending a formal purchase card training session, and signing a purchase cardholder agreement. Periodic audits are performed to ensure proper policies and procedures are being followed by the purchase cardholders and respective departments. The Internal Audit department has also conducted an audit to evaluate the efficiency and effectiveness of the purchase card systems and controls.

Fuel cards for use in the vanpool program at Capital Metro are assigned to the vehicle and controlled through the vehicle maintenance department. Capital Metro has the ability to set a weekly gallon limit depending on the estimated mileage for the vanpool. Also, the cards are limited to fuel purchases only. Capital Metro has used a fuel card in the vanpool program for approximately 10 years.

CTRTD has policies and procedures for the use of its fuel card program. The fuel cards are limited to approved staff. Employee names are submitted to the fuel card vendor, and a password is established for each. Employees are removed upon termination from CTRTD. Each vehicle is assigned a fuel card. When making purchases, drivers must enter the driver identification number, the mileage on the vehicle, and the issued password. The system automatically recognizes the vehicle number. Statements that list each vehicle separately with all charges for the month are provided at the end of the month. Detailed billing information includes date, time, location of purchase, vehicle, mileage, driver, gallons, and price. Drivers are required to submit receipts weekly. Receipts must have the vehicle number, mileage, and driver name. Accounting staff match these receipts to the monthly statements. All missing information is researched and reconciled monthly.

At CityLink in Abilene, all vehicle servicers and mechanics are trained on fuel card use. CityLink provides a reference card detailing fuel card instructions to ensure and maintain consistency. Vehicle servicers and mechanics are identified as active users in the fuel card vendor database. An access code, which is entered when fueling the vehicle, is assigned to each user. The maintenance administrator monitors the fuel card usage reports for possible operational abuse. The office manager monitors the fuel card reports for administrative abuse.

SUMMARY

Use of Purchase and Fuel Cards by Transit Providers

The first objective for this chapter was to document how purchase and fuel cards are used by transit providers in Texas.

Purchase Cards

Researchers found that 16 (or 25 percent) of the 65 urban and rural transit providers are current State of Texas purchase cardholders and an additional five are holders of private-company (non-state) program purchase cards. The average purchase card transaction cost is less than $3,000, indicating that purchase cards are mainly used for small-dollar purchase items. However, The T, by policy, uses purchase cards for large expenditures rather than small-cost items to take advantage of the rebate awards. Houston METRO uses purchase cards for a majority of small-cost items to take advantage of the transaction cost savings, but the agency also allows for some large-cost purchases to take advantage of rebates.

Fuel Cards

Major and large urban transit providers do not use fuel cards in providing bus service. Major and large urban transit providers fuel vehicles using on-site fuel tanks. Four of the major urban transit providers *do* use fuel cards in the vanpool program for flexibility provided to drivers across a large service area.

The majority of small urban transit providers fuel by on-site fuel tanks, city/county fueling agreements, and local fuel station agreements. On-site fuel tanks provide the advantages of servicing the vehicles efficiently on site and benefiting from bulk fuel purchasing. City and county fueling agreements are thought by transit providers to also benefit from bulk fuel purchasing.

Researchers found that the majority of fuel cards are used by rural transit providers. Rural transit providers operating demand response services use fuel cards to efficiently cover large service areas. The average rural transit provider service territory covers 6,460 square miles; fuel cards are found to be an essential means of operating services in these large service areas.

Dollar Savings Using Purchase and Fuel Cards

The second objective of this research was to determine if purchase cards and fuel cards provide dollar savings and increased efficiency in administrative procedures for transit providers in Texas.

Purchase Card

The findings of this research conclude that transit providers using purchase cards eliminate several steps of the traditional purchasing process and thus save administrative costs. According

to the State of Texas purchase card vendor, savings per transaction are estimated to be $50 to $150. Capital Metro estimates savings per transaction at $90. At $90 savings per transaction, METRO and DART may save over $1.5 million annually.

Transit providers that report a smaller number of transactions, such as Midland-Odessa EZ Rider and Denton County DCTA, are estimated to average between 200 and 400 purchase card transactions annually. These agencies achieve estimated savings of $18,000 to $38,000 per year using the purchase card. The higher the number of transactions, the more dollar savings the purchase card provides. Researchers recommend that smaller transit providers first estimate the number of purchase card transactions to compare the savings potential to the required effort to ensure administrative and management controls for the program.

Further financial benefits may be gained as a result of rebates received. Rebates are directly related to the total purchase card expenditures. Rebates are calculated as a percent of total purchase expenditures. The majority of transit providers limit purchase card use to small-cost items, which limits the total expenditure amounts and therefore rebates. Transit providers that allow some larger-cost items to be procured by purchase cards benefit from rebates on a greater scale.

Fuel Card

Researchers also found savings in the adoption of the State of Texas fuel card program by most rural transit providers. Researchers found that the majority of rural transit providers do not have a fuel tank on site and therefore do not have the advantage of buying fuel at bulk rates. Further, fuel tanks are not a practical means of covering large service areas; therefore, rural transit providers use fuel cards as a means to provide service more efficiently. In 2007, a savings of over $0.17 per gallon was realized using the State of Texas fuel card program for one rural transit provider studied. The average rural transit provider uses an estimated 70,000+ gallons of fuel. A conservative savings of $0.10 per gallon would result in a $7,000 annual savings to an average rural transit provider. Additional financial benefits may be gained as a result of the 1 percent rebate offered.

Interest in Using Purchase and Fuel Cards

The third and last objective was to provide transit providers that have an interest in using purchase cards or fuel cards with information to make an informed decision to implement or not implement purchase and fuel cards.

In implementing a purchase card program, factors to consider include:

- number of transactions and cost savings with reduced paperwork associated with small-item transactions,
- convenience and efficiency in processing small-item purchases,
- enhanced audit capability of transactions,
- purchase card rebates offered and maximization of rebates received,
- expedited payment to vendors,

- expanded vendor options beyond those willing to accept field purchase orders,
- interface with an e-commerce procurement system,
- combined low-dollar expenses into one payment solution,
- automation of transaction posting to cost centers or general ledger accounts, and
- improved vendor reporting across the organization.

In implementing a fuel card program, factors to consider include:

- net-out or rebate of federal taxes,
- discounts on fuel,
- rebates on all transactions,
- coverage of fuel payments under a single invoice,
- payment of maintenance on the same card,
- acceptance of card across the state,
- tailoring of fuel cards to meet the needs of agencies, and
- customization of purchasing limits.

The types of management tools that are possible using the fuel card program include the following:

- restrict transaction to locations, hours of the day, days of the week;
- authorize groups, sub-groups, or individual employees for specific purchases;
- access real-time transaction data and decline resolution information;
- view and download transaction detail to analyze drivers' spending behaviors;
- track purchasing exceptions for each cardholder;
- block and unblock cards instantly;
- change purchasing authorization and spending limits in real time; and
- authorize one-time and emergency purchases.

Proper controls to avoid risk of waste, fraud, and abuse that would offset savings from the purchase and fuel card programs are recommended to include:

- provide effective transaction review and approval processes,
- ensure consistency in program monitoring,
- separate duties,
- limit number of cards issued and credit amounts,
- ensure training is done before a card is issued and reinforce the training periodically,
- institute a policy that deals with consequences if the card is used inappropriately, and
- use available data and software tools to monitor credit card purchases.

Purchase and fuel cards can be an effective means of streamlining transaction processes, improving efficiency, and providing savings to transit providers. The same transaction cost may be incurred for a micro-purchase as a larger procurement. However, transit providers with very few transactions may not find that purchase cards provide an added benefit. Researchers recommend first to evaluate whether implementing a purchase card and fuel card program is to

the transit provider's advantage considering the unique administrative and operating environment. Questions to ask are the following: How many transactions does the transit provider generate and what is the average dollar amount? Does the purchase card interface with the accounting system to provide detailed cost allocations for both small and large transactions? How efficiently can the vehicles be fueled by using fuel cards? In addition, transit providers introducing purchase or fuel cards will want to implement in a manner that ensures that the most is derived from the investment; therefore, they should develop proper controls to avoid waste, fraud, and abuse.

Researchers also found that interlocal agreements with state, county, or city governments can provide transit providers an opportunity to take advantage of lower-cost bulk fuel rates available through other public agencies.

This research of Texas transit provider use of purchase and fuel cards indicates further interest in understanding the benefits of implementing a purchase and/or fuel card program. Researchers hope that in sharing these research results, transit providers can make better informed decisions regarding implementation of both the purchase and fuel card programs.

CHAPTER 10: GREEN PURCHASING CASE STUDY

The results from the survey to document current practices in cooperative and green purchasing by transit providers in Texas were documented in Chapter 8 of this report. This chapter provides a case-specific analysis of green purchasing because 76 percent of survey respondents indicated an interest in information on green products, as well as resources that could assist with planning and implementing green purchasing programs. Overall, the survey clearly reflects the growing importance of environmentally friendly products for transit organizations. However, based on the survey results as well as an assessment of individual transit programs, few transit organizations have established a green purchasing procurement process, plan, or program.

As previously noted, the term green purchasing includes the acquisition of recycled content products, environmentally preferable products and services, bio-based products, energy- and water-efficient products, alternate fuel vehicles, products using renewable energy, and alternatives to hazardous or toxic chemicals. Of all the green purchasing products, alternative fuel vehicles (AFV) have garnered much of the attention and have been extensively studied. Of specific interest to transit providers in Texas, the March 2007 TTI research paper entitled *Alternative Fuel Vehicles at Small Urban and Rural Public Transportation Systems in Texas* examined AFV usage and found that transit providers identify AFV fleet requirements, procurement and maintenance issues, and operations as barriers to coordination and operational efficiency. The green purchasing examples presented in this chapter were selected in part so that organizations can avoid some of the pitfalls experienced by some organizations when making AFV purchases.

CASE STUDY PURPOSE

The case study was developed with two objectives in mind. The first objective was to document green purchasing requirements and trends in Texas as well as outside of the state. The second objective was to provide information on how to implement and manage a green purchasing program to transit providers that have an interest in pursuing green procurement.

PROCUREMENT ISSUES

The Texas Government Code, Title 10, General Government, Subtitle D, State Purchasing and General Services, Chapter 2155, Purchasing: General Rules and Procedures gives authority to the Texas Comptroller of Public Accounts to administer and provide guidance to state purchasing programs. In recent years, a specific direction of the Texas Government Code gives preference to recycled, remanufactured, or environmentally sensitive products as long as the product meets state specifications regarding quantity and quality (*21*). The code also encourages state agencies to use recycled products and products that may be recycled or reused or that are environmentally sensitive when developing new procedures and specifications.

Each fiscal year, the Texas Building and Procurement Commission and the Recycling Market Development Board (RMDB) by rule may identify recycled, remanufactured, or environmentally sensitive commodities or services. The RMDB has recommended that the Texas Comptroller of Public Accounts designate by TBPC rule the following as "1st Choice" products:

- re-refined oils and lubricants;
- recycled-content toilet paper, toilet seat covers, and paper towels;
- recycled-content printing, computer and copier paper, and business envelopes; and
- recycled/reused computer equipment of other manufacturers.

The 1st Choice products essentially become the default items for purchase by state agencies because these products are given preference over virgin (non-recycled) counterparts. A state agency may choose to buy non-recycled material counterparts of designated products; however, a written justification letter must be submitted (*21*).

As evidence of the growing emphasis on green purchasing-related requirements, state agencies are also required to submit an annual recycle report to TBPC. The report requires agencies to identify the amount spent on recycled, remanufactured, and environmentally sensitive commodities and services by type of commodity and service. Table 83 is a summary of reported state expenditures on recycled, remanufactured, and environmentally sensitive products published by the Texas Comptroller of Public Accounts (*21*). The totals are broken out by the RMDB member agencies with a summary total of all other agencies.

Table 83. State Recycle Report Expenditures.
(Fiscal 2007)

Agency	***Recycled Products***	***Remanufactured Products***	***Environmentally Sensitive Products***	***Total***
Texas Building and Procurement Commission	$55,384	$4,101	$47,905	$107,389
Texas Commission on Environmental Quality	$295,590	$55,851	$688,491	$1,039,932
Texas Department of Transportation	$42,048,586	$3,022,628	$173,793,809	$218,865,024
Total RMDB Agencies	$42,399,560	$3,082,580	$174,530,206	$220,012,345
Total All Other Agencies	$40,794,713	$4,255,112	$41,781,134	$86,830,959
Grand Total	$83,194,273	$7,337,692	$216,311,340	$306,843,304

Source: Texas Building and Procurement Commission

Recycled Motor Oil and Lubricants

Texas Government Code Title 10, Subtitle D also requires all state agency employees who purchase motor oil and other automotive lubricants for state-owned vehicles to give preference to

motor oils and lubricants that contain at least 25 percent recycled oil if the cost to the state and the quality are comparable to those of new oil and lubricants. Table 84 provides an overview of and 1st Choice recycled motor oils and lubricants products published by the Texas Comptroller of Public Accounts (*21*). The totals are broken out by the RMDB member agencies with a summary total of all other agencies.

Table 84. 1st Choice Motor Oil and Lubricants. (Fiscal 2007)

Agency	*1st Choice*	*Virgin*	*Total*	*Product % 1st Choice*
Texas Building and Procurement Commission	$0	$0	$0	0%
Texas Commission on Environmental Quality	$864	$0	$864	100%
Texas Department of Transportation	$678,814	$0	$678,814	100%
Total RMDB Agencies	$679,678	$0	$679,678	100%
Total All Other Agencies	$408,170	$0	$408,170	100%
Grand Total	$1,087,848	$0	$1,087,848	100%

Green purchasing requirements are becoming the norm in procurement policies within Texas, and the literature review and state-of-the practice reviews in Chapters 3 and 4 document federal as well as current trends in other states. The results from the survey that document current practices in cooperative and green purchasing by transit providers in Texas also align with this overall trend. Fifty-six percent of respondents to the survey selected local, state, or federal regulations/incentives as being "significant" or "very significant" in causing the organization to adopt green approaches.

GREEN PURCHASING IN TEXAS

Implementing a green purchasing program can be a challenge to organizations, yet the survey to document current practices in cooperative and green purchasing by transit providers in Texas documented that over 80 percent of responding organizations were "committed" or "very committed" to green purchasing. Respondents indicated that administrators and general managers have the most significant involvement in green purchasing practices, with 63 percent reporting "significant" or "very significant" involvement. These results suggest that green purchasing initiatives are often introduced as a top-down requirement. The results indicate that a combination of top-level support with adequate procurement staff training and/or information provided by transit agencies is needed to implement a successful green purchasing program.

ORGANIZATION-WIDE GREEN PURCHASING: KING COUNTY WASHINGTON

In Washington State, the King County Environmental Purchasing Program assists County agencies in implementation of King County Executive Policy CON-7-1-2, which requires agencies to use recycled and other environmentally preferable products wherever practicable.

The program assembles information about these products and makes it available to specific agency users who can evaluate them and develop applications in King County projects.

The King County Environmental Purchasing Policy reflects a long-term commitment to the purchase of environmentally preferable products. In 1989, the county adopted its original recycled product procurement policy, and the policy was updated in 1995 and again in 2003, to require all agencies of county government to revise their purchasing practices to reduce their impact on human health and the environment whenever practicable. For King County, environmentally preferable procurement considers multiple attributes, such as toxicity, durability, recyclability, and conservation of resources, while still fulfilling the basic requirements of price, performance, and availability.

Implementation

The Procurement and Contract Services Section of the King County Finance and Business Operations Division administers the Environmental Purchasing Program to help county agencies increase their purchase of environmentally preferable products. As documented in their 2008 annual report, the program:

- communicates environmental purchasing policy requirements to county agencies;
- researches and communicates information about price, performance, availability, and potential benefits of environmentally preferable products;
- provides technical assistance to facilitate evaluation and adoption of environmentally preferable products and applications by county agencies;
- assists buyers and user agencies in the development of specifications and contracts;
- documents policy implementation, including purchases and product evaluation results;
- publishes an annual report as required by policy;
- produces e-mail environmental purchasing bulletins and maintains program Web site; and
- provides technical assistance, including policy development and implementation strategies, to other jurisdictions, businesses, and nonprofit agencies.

Challenges

The King County Environmental Purchasing Program has identified a number of factors that challenge efforts to increase green purchasing including:

- Users are often not familiar with the use of many environmentally preferable products and are uncertain of the ways in which they might be effectively specified and applied in place of familiar products.
- Developers of environmentally preferable products are often in the early stages of identifying the needs of potential customers and establishing the production, marketing, and distribution capacity to meet them.
- The use of environmentally preferable products must be effective and fiscally responsible.

- The lack of consensus-based standards for many product categories requires specification writers to define their own criteria for environmental preferability, and specifications must balance many attributes, such as consumption of water, energy and other natural resources, toxicity, recyclability, and recycled content.
- "Greenwashing" or false claims of environmental preferability complicate consensus on terminology.
- Collecting data on environmentally preferable purchases through existing accounting information systems can be time consuming and expensive.

Purchase Reporting

In 2008, King County purchased $54 million worth of environmentally preferable products and reported a savings of $837,000. Table 85 documents the vehicular-related environmentally preferable product purchases in 2008; this segment represents 83 percent of program spending (*65*). The remaining sectors are office products and operations and maintenance. The Environmental Purchasing Program produces an annual report for the King County Council that documents the progress of county agencies in the implementation of the environmental purchasing policy. The annual report provides details on the specific programs as well as purchases made.

Table 85. Vehicular-Related Environmentally Preferable Product Purchases—King County, Washington.
(Fiscal 2008)

Vehicular-Related	*Per*	*Units*	*Purchase $*
Motor Oil	Gallon	106,299	$544,476
Antifreeze	Gallon	26,675	$96,953
Bio-Based Lubricants	Gallon	1,925	$23,921
Ultra-Low Sulfur Diesel	Gallon	12,260,137	$38,887,491
Biodiesel (B100)	Gallon	912,868	$2,815,293
Flexible Fuel Vehicles	Each	149	$2,709,103
Hybrid Vehicles	Each	21	$474,434
Plug-in Hybrid Electric Vehicle	Each	4	$48,000
Hybrid Trucks	Each	1	n/a
Tire Retreading	n/a	n/a	$248,081
			Total: $45,847,752

PROGRAMMATIC GREEN PURCHASING RESOURCE: U.S. ENVIRONMENTAL PROTECTION AGENCY

The federal government's buying power puts it in the unique position to stimulate market demand for green products and services. At the federal level, much of the current procurement requirements for green purchasing have grown out of the buy-recycled program, a part of the U.S. Environmental Protection Agency's Comprehensive Procurement Guidelines (CPG). To encourage the use of materials recovered through recycling, Congress directed government agencies to increase their purchases of recycled-content products. Section 6002 of the Resource Conservation and Recovery Act (RCRA) requires the EPA to designate products that can be made with recovered materials and to recommend practices for buying these products. Once a product is designated, procuring agencies are required to purchase it with the highest recovered material content level practicable. More recently, Executive Order 13423, signed on January 24, 2007, directs agencies to implement sustainable acquisition, including the purchase of recycled content products.

Green Purchasing Plans

Under Executive Order 13243, agencies are required to develop and implement comprehensive green purchasing plans for purchasing green products and services, including the EPA-designated recycled-content products. A green purchasing plan (GPP) is an agency's strategy for maximizing its purchases of green products and services, including EPA-designated items. The plans are developed to ensure that green products and services are purchased to the maximum extent practicable, consistent with federal procurement law.

Several statutes address elements of the Federal Green Purchasing Program, and the U.S. Office of Management and Budget (OMB) and the U.S. Office of the Federal Environmental Executive (OFEE) require agencies to develop a comprehensive GPP to address acquisition of products and services. Many federal agencies are currently in the process of developing their GPP, and some have been completed. For example, the U.S. Department of Defense's GPP provides an agency-wide strategy for implementing an effective program that can enhance and sustain mission readiness through cost-effective acquisition that achieves compliance. DOD's GPP is focused not only on the procurement function but also on the roles and responsibilities that are necessary.

Requirements

Under RCRA section 6002 (a), the requirement to purchase an EPA-designated product containing recovered materials applies to procuring agencies that spend more than $10,000 a year on that item. Procuring agencies include all federal agencies, and any state or local agency or government contractor that uses appropriated federal funds. For example, if a county agency spends more than $10,000 a year on an EPA-designated item, and part of that money is from appropriated federal funds, then the agency must purchase that item made from recovered materials. The requirement to purchase EPA-designated products applies regardless of the acquisition mechanism used. The requirement also applies to the purchase of services in which the EPA-designated products could be supplied or used.

Currently, the CPG designates items in the following eight product categories: paper and paper products, vehicular products, construction products, transportation products, park and recreation products, landscaping products, non-paper office products, and miscellaneous products. The EPA maintains the Environmentally Preferable Purchasing program to assist federal agencies and others to buy green-related products. This EPA program is geared to help federal purchasers, but it also plays a significant role in providing resources to businesses, state and local public agencies, and consumers (*66*). The tools and resources the EPA provides include:

- methods to find and evaluate information about green products and services;
- requirements for federal green buying;
- methodology to calculate the costs and benefits of purchasing choices; and
- processes to manage green purchasing.

A number of general environmentally preferable purchasing tools have been developed by the EPA and other federal agencies to assist federal purchasers with putting environmentally preferable purchasing into practice. To help measure the benefits of environmentally preferable purchasing, EPA has published a guidebook entitled *Promoting Green Purchasing: Tools and Resources to Quantify the Benefits of Environmentally Preferable Purchasing.* The guidebook identifies a series of tools and resources that can be used to help develop quantitative estimates of the benefits of green purchasing choices.

REQUIREMENTS FOR GREEN PROCUREMENT MANAGEMENT

Minimal guidance exists for transit organizations to implement a green purchasing program. Much of the groundwork on developing such procurement programs has been with federal agencies, and a few good examples exist at the state and local levels—such as the King County, Washington program. A specific objective of this component of the research effort was to identify a process that transit providers can use to develop an effective green purchasing program. To this end, the following section—using federal and local agency procedures, documentation, and experiences—provides an outline to implement a green purchasing program.

Green Purchasing Program Development

Policy

- Establish policy for a green procurement program that is appropriate for the nature of the organization's purchasing activities.

Planning: Preference Program and Procedures

- Establish and document a process to identify opportunities to procure green products and services in the normal course of business. Maintain a list of such opportunities, and update the list regularly to reflect changes in the mission and availability of green products and services relevant to the mission.
- Develop and maintain a list of green procurement opportunities at a level within the organization where initial purchasing requirements are defined.

- Establish and document a process for setting, maintaining, and annually reviewing and updating objectives and targets for green procurement program performance that are appropriate for the nature and quantity of purchases made by the organization.
- Implement and operate the green procurement program in a manner that meets or exceeds the requirements of all relevant laws and regulations.
- Document the objectives, targets, and actions necessary to achieve them in a plan for improving green procurement performance.

Implementation and Operation

- Define and document roles and responsibilities and establish accountability for green procurement program implementation and operation.
  - Ensure each individual is aware of his/her responsibilities under the green procurement program.
  - Ensure each individual has received training to fulfill such responsibilities competently.
  - Ensure accountability for implementation by including green procurement responsibilities in job descriptions and performance standards of key personnel (e.g., facility managers, IT managers, vehicle fleet managers, contracting officials).
  - If appropriate, create a green procurement team or assign a manager(s) to review proposed procurements and acquisitions for inclusion of green procurement requirements.
- Implement training.
  - Tailor the green procurement program awareness training program to the nature and quantity of purchases made by the organization.
  - Include initial and refresher training for all personnel involved in the procurement process from requirements generation to contracting, credit card, or other purchase actions.
- Implement internal and external communication programs.
  - Educate the organization's personnel as well as contractors about complying with the requirements of the green purchasing programs.
  - Use the following tools, and others, as appropriate:
    - messages on electronic broadcasts;
    - articles in agency/organization newsletters and newspapers;
    - Web sites to provide information and notices on green procurement of products and services, waste prevention, and recycling; and
    - publications and speeches.
- Define green procurement program documentation requirements. For example, document the following:
  - consideration of environmental and energy aspects of a planned acquisition or procurement (e.g., products that will be supplied or used in the performance of the work, such as janitorial products and restroom paper products);
  - initial and follow-up training for each individual with responsibilities under the green procurement program;

    - justification for not purchasing green products and services (e.g., price, performance, or availability);
    - certifications, estimations, and verifications;
    - performance data and metrics;
    - required reports and records; and
    - other records needed for a successful program.
- Implement operational controls.
    - Establish procedures to ensure green procurement program requirements are addressed in all procurement actions and at each appropriate stage of the procurement process.
    - Establish procedures and approval authorities for justifications not to purchase green products.
    - Establish automatic substitution procedures where appropriate and feasible.

Checking and Corrective Action

- Establish a process for evaluation and reporting of green procurement program performance, if a corrective action program does not already exist in other management systems.
- Measure performance based on:
    - objectives and targets established at the organization level where initial purchasing requirements are defined; and
    - higher-level organizational objectives and targets.
- Use established data tracking and audit systems to measure performance consistent with accepted metrics and reporting requirements.
- Develop other measurement tools as necessary to meet local mission and management goals.
- Incorporate green procurement program requirements into self-assessments, compliance inspection protocols, management system audit protocols, and contract audit protocols.
- Evaluate the effectiveness of audit procedures, including implementation of corrective actions.

Management Review

- Establish procedures for routine (at least annual) senior management review of the effectiveness of the green procurement program in each relevant organization.
- Implement comprehensive review by management of the green procurement program to ensure its continued suitability and effectiveness in meeting green procurement requirements, and to ensure continual improvement in green procurement performance.

SUMMARY

Throughout the U.S., green purchasing requirements are becoming embedded in procurement policies. Public agencies across Texas are experiencing similar requirements. The survey to document current practices in cooperative and green purchasing by transit providers in Texas documented that transit providers are a part of this transformation. However, little guidance exists on how organizations can effectively meet the challenges of implementing green purchasing and the associated procurement requirements. Thirty of the 40 respondents (75 percent) to the survey about cooperative and green purchasing by transit providers in Texas said the agency would be interested in a service providing information on green products. Transit providers were also asked to determine topics of interest regarding future demonstration projects on cooperative purchasing, and 70 percent of responders were interested in knowing more on the advantages and disadvantages of green purchasing programs. The case study example provided in this chapter is a first step resource for green purchasing information for transit providers. A suggested outline of implementing a green procurement program is provided. The researchers believe these resources can be used to further the development of an implementation program or demonstration projects on this topic.

CHAPTER 11: VEHICLE MAINTENANCE CASE STUDY

Transit providers commit considerable resources into maintenance of transit vehicles, including expenditures for salaries, wages, and related fringe benefits; services; fuel and lubricants; tires and tubes; and parts, supplies, and other materials. For this reason, vehicle maintenance was included for case study analysis.

The approach for the case study was to group transit providers into two parties: agencies that use cooperative purchasing programs and agencies that do not use cooperative purchasing programs. Specifically, researchers developed two separate questionnaires focused on vehicle maintenance. The different questionnaires allowed both transit agency types to provide detailed data on their purchasing habits, costs, and item procurements. Also, the case study questionnaires requested specific information on cost structures. The questionnaires were administered via telephone to each selected agency to identify the economic implications of either participating or not participating in a cooperative purchasing program. Later this information was utilized to discern similarities, differences, and potential cost savings through Pareto analysis. Pareto analysis is a formal technique utilized by decision makers to identify those limited number of items that produce major effects. Appendices K and L summarize the detailed data and questions asked for both transit agency types using cooperative purchasing programs and those not using cooperative purchasing programs.

All relevant transit agency comments resulting from the questionnaires were included in order to maintain the integrity of the case study. The next two sections cover the case study results for transit agencies using cooperative purchasing programs and those not using cooperative purchasing programs.

TRANSIT PROVIDERS USING COOPERATIVE PURCHASING

Table 86 lists the four transit providers identified as utilizing cooperative purchasing programs. Case study results for each agency are highlighted below and followed by identified opportunities and challenges.

Table 86. Transit Providers Utilizing Cooperative Purchasing Programs.

Transit Provider	*Classification*
Concho Valley Transit District	Combination (Urban and Rural)
Midland-Odessa EZ Rider	Small Urban
Community Council of Southwest Texas, Inc.	Rural
Lubbock Citibus	Large Urban

Concho Valley Transit District

On September 9, 2009, a telephone interview was conducted with Mr. Rob Stephens, the director of Concho Valley Transit District. This transit provider is classified as a combination type and provides services to small urban, rural, and TxDOT-funded client-based users. This agency has

15 small transit vehicles, eight 28 foot buses, one service truck, and three staff vehicles and contracts with a third party to provide preventive maintenance.

The top annual cost items the agency purchases, excluding fuel and vehicles, are personnel cost, preventive maintenance service, and vehicle insurance. Included in personnel cost are the salaries and wages of the employees with an approximate annual cost of $1,200,000. This agency spends $500,000 and $90,000 on maintenance and vehicle insurance, respectively. The agency uses the TML cooperative purchasing program for vehicle insurance and HGACBuy for vehicle purchases.

Currently, this agency does not utilize automated vehicle location, electronic payment system, and vehicle management information systems. Table 87 highlights Concho Valley Transit District generally purchased items in frequency of purchase and annual costs.

Table 87. Estimated Costs for Items Purchased by Concho Valley Transit District.

Items	*Annual Cost*	*Monthly*	*Once Every 2 to 4 Months*	*Annually*	*More than Annually*
Vehicles	$250,000			X	
Vehicle Parts	$50,000		X		
Office Supplies/Equipment	$25,000	X			
Communication Equipment	$250,000				Once every 5 years
Automated Scheduling and Routing Software	$150,000				Once every 5 years
Mobile Data Terminal/Computers	$100,000				Once every 5 years
Maintenance Services	$500,000			X	

The top items purchased without using a cooperative purchasing program are office supplies, vehicle parts, computers, and marketing items. Office supplies are purchased through retail stores, vehicle parts through dealerships, computers through the Internet, and marketing items through mail-order catalogs. The reasons the agency does not purchase these items from cooperative purchasing programs is its lack of awareness of such programs and lack of information about the benefits these programs provide. Moreover, the transit district has established relationships with local retail stores and prefers to purchase some items such as office supplies from local vendors.

Concho Valley Transit District ideally would prefer a cooperative purchasing program that offers moderate flexibility, moderate discount, moderate turnaround, moderate inventory, and non-elevated administration costs. In addition, the agency expects to save on administration time and item cost when using a cooperative purchasing program. The estimated cost saving percent the agency expects from cooperatives is 20 percent for items purchased. Currently, the agency is a member of two cooperative purchasing programs—TML and HGACBuy—and found out about these programs through word of mouth from the local vehicle dealership. The dealership

mentioned the benefits of a cooperative purchasing program to the agency and encouraged and invited the agency to join.

The opportunities for utilizing cooperative purchasing programs for this agency are increasing its awareness of cooperatives and offering information about goods and services cooperatives provide. Additionally, Concho Valley Transit District may have opportunities to reduce its annual maintenance costs through a cooperative that offers parts (e.g., tires, lubricants, filters, brake components) at significantly reduced prices. The challenge for cooperative purchasing programs to be successful for Concho Valley Transit District is the established long-time relationships this agency has with its local dealers and vendors.

Midland-Odessa Urban Transit District (EZ Rider)

On September 18, 2009, a telephone interview was conducted with Mr. Robert Clay Crane, who is the maintenance administrative assistant of Midland-Odessa EZ Rider. This transit provider provides services to small urban areas. The provider has sixteen 30 foot buses, eight small cut-away buses, three minivans, two 18-passenger vans, one service truck, and three Ford sedans.

The top annual cost items that the transit provider purchases, excluding fuel and vehicles, are vehicle insurance, shop supplies (e.g., brake cleaner, nuts, bolts, screw, wire), and medical/dental services with annual cost of $58,000, $125,000, and $276,000, respectively. EZ Rider uses the TML cooperative purchasing program for vehicle insurance and Lawson Products for shop supplies.

Currently, EZ Rider utilizes automated scheduling and routing software, automated vehicle location, and electronic payment system. The only system that EZ Rider does not utilize is vehicle management information systems. Table 88 highlights EZ Rider's generally purchased items, frequency of purchase, and annual costs.

Table 88. Estimated Costs for Items Purchased by Midland-Odessa EZ Rider.

Items	*Annual Cost*	*Weekly*	*Semi-Annually*	*More than Annually*
Vehicles	$1,300,000			X
Vehicle Parts	$125,000	X		
Office Supplies/Equipment	$16,000	X		
Automated Scheduling and Routing Software	$110,000			X
Mobile Data Terminal/Computers	$70,000			X
Automated Vehicle Location	$110,000			X
Electric Payment Service	$270,000			X
Maintenance Services	$20,000		X	

The top items EZ Rider purchases without using cooperative purchasing are vehicle parts, lubricants, IT services, and medical/dental insurance for employees. Vehicle parts are purchased through retail stores and dealerships, lubricants through retail stores, IT services and medical/dental through other resources. The reason this transit provider does not purchase these items from cooperative purchasing programs is the programs are not readily available in short

distance from the EZ Rider facility. In addition, potential long lead time from a cooperative purchasing program diminishes the interest of EZ Rider. When their vehicles break down, the transit provider gets the vehicle parts from local vendors and repairs the vehicle immediately. The staff believes purchasing vehicle parts from cooperative purchasing programs will have long lead time and may cause additional idle time for down vehicles.

EZ Rider prefers an ideal cooperative purchasing program to have moderate flexibility, moderate discount, moderate turnaround, moderate inventory, and moderate administration cost. Currently, this transit provider is a member of two cooperative purchasing programs: TML and Lawson Products. They found out about these programs through a salesperson and a representative from TML and Lawson Products. Even though EZ Rider is using the cooperative purchasing program, this transit provider cannot identify the cost savings from the program. The reason is that EZ Rider does not track and compare the price of items. Moreover, this provider prefers purchasing high-quality items regardless of the cost. The estimated cost savings percent the provider expects from cooperatives is 5 percent.

The opportunities for utilizing cooperative purchasing programs for EZ Rider is to reduce its annual vehicle parts cost (e.g., tires, lubricants, filters, brake components). The challenge for cooperative purchasing programs to be successful is reducing lead times to attract the EZ Rider to utilize the program.

Community Council of Southwest Texas

On September 10, 2009, a telephone conversation was conducted with the transit director for Community Council of Southwest Texas, Ms. Sarah Hidalgo-Cook. CCSWT is a rural transit agency covering eight counties in southwest Texas. Currently, the provider has 42 vehicles in the fleet with five to seven vehicles in repair at any given time. The fleet consists of Type II (12–15 passenger) vans and Type III (15–18 passenger) vans. All of the vehicles use diesel or gasoline fuel. Maintenance on the fleet vehicles is performed in house and through local vendors.

The top cost items are vehicle insurance, parts and tires, and vehicle maintenance with annual costs of $160,000, $80,000, and $90,000, respectively. The top preventive or regular maintenance purchased items are tires, brake components, air conditioning parts, and lubricants with annual costs of $30,000, $10,000, $18,000, and $10,000, respectively. Software and hardware systems such as automated vehicle location, geographical information systems, electronic payment systems, vehicle management information systems, and mobile data terminals are not currently utilized by CCSWT. Table 89 highlights the generally purchased items in frequency of purchase and annual costs.

Table 89. Estimated Costs for Items Purchased by CCSWT.

Item	*Annual Cost*	*Weekly*	*Monthly*	*Annually*	*More than Annually*
Vehicles	$165,000			X	
Vehicle Parts	$80,000	X			
Vehicle Maintenance	$90,000	X			
Office Supplies/Equipment	$15,000		X		
Communications/Computers	$22,000/ $4,000			X	
Automated Scheduling and Routing Software	$4,000				X

CCSWT vehicles are purchased through the State of Texas Cooperative Purchasing Program. Items purchased without a cooperative purchasing program are vehicle insurance through broker bids. Parts and tires are purchased through retail and dealers; vehicle maintenance is purchased through dealers and local vendors; and air conditioning and repair parts are purchased through retail.

The main reason CCSWT does not use cooperative purchasing for items other than vehicles is the lack of a program in the area, which means current programs are not able to procure parts when the need is immediate. When cooperatives have been used in the past, the lead times were long and caused additional idle time for down vehicles. The CCSWT is in the process of trying to create a regional cooperative through their resources. The agency learned about the State of Texas Cooperative Purchasing Program through research they conducted and several piggyback sessions they hosted. Ideally, CCSWT would like a cooperative purchasing program that is flexible, has short turnaround and low cost, offers expanded inventory and non-elevated administration costs. Utilizing such an ideal cooperative would take away man-hours currently used to determine sourcing and pricing and would make the purchasing process easier. CCSWT estimates savings between 10 to 15 percent on vehicles purchased through State of Texas Cooperative Purchasing Program.

CCSWT is interested in creating a regional cooperative. CCSWT stated that the criteria for success include short lead-times and 10 to 15 percent savings.

Lubbock Citibus

On September 15, 2009, a telephone conversation was conducted with director of maintenance for Citibus, Mr. Pat Peters. Citibus is classified as a large urban transit agency operating within the City of Lubbock. Currently, the agency has 94 revenue vehicles in the fleet, including 54 buses (35 foot bus), 36 vans (averaging 11 passengers), and four rubber-tire trolleys. Additionally, they have 14 support vehicles. Vehicle maintenance is performed in house and through local vendors. Citibus purchases the majority of the parts through a competitive bidding process.

Their top preventive or regular maintenance items purchased are air conditioning parts, tires, brakes, lubricants, and filters with annual costs of $99,000, $70,000, $57,000, $23,000, and

$23,000, respectively. Software and hardware systems such as automated vehicle location, geographical information systems, electronic payment systems, and vehicle management information systems are not currently utilized. Citibus is currently upgrading their automated scheduling and routing software and mobile data terminals. Table 90 highlights Citibus' generally purchased items in frequency of purchase and annual costs.

Table 90. Estimated Costs for Items Purchased by Lubbock Citibus.

Item	*Annual Cost*	*Monthly*	*Annually*	*More than Annually*
Vehicles	$2,100,000			X
Vehicle Parts	$525,000	X		
Vehicle Maintenance	$103,000	X		
Mobile Data Terminal/Computers	$150,000			X
Communication Equipment	$35,000		X	
Automated Scheduling and Routing Software	$59,000			X
Other Equipment, Goods, Services	$150,000			X

The majority of the communication equipment expense is a maintenance contract for all of the radios with additional expenses covering replacements parts (e.g., batteries, antennas). Additionally in the category of other equipment, good, and services, Citibus recently purchased a bus wash. Recently, Citibus purchased numerous vehicles through the HGACBuy for the first time. The City of Lubbock is a member of the HGACBuy Cooperative Purchasing Program.

Of the top items purchased by Citibus, air conditioning parts, tires, brakes, and filters are purchased through local dealerships while lubricants are purchased through a local wholesale distributor. If a cooperative purchasing program is available, Citibus is interested in participating in such a program. Ideally, Citibus would like a cooperative purchasing program that is flexible, has short and low turnaround, offers expanded inventory and non-elevated administration costs. The main feature of a cooperative program that Citibus expects is one that is extremely user friendly and offers significant cost savings. Citibus is not a member of multiple cooperatives and only this year has purchased vehicles through HGACBuy.

The challenges to cooperative purchasing programs to be successful for Citibus are the convenience to join a cooperative program and the immediate availability of various products needed.

TRANSIT PROVIDERS *NOT* USING COOPERATIVE PURCHASING

This section highlights those selected transit providers classified as not using cooperative purchasing programs. Researchers requested that transit providers provide further detailed data on their purchasing practices, costs, and item procurement. Table 91 lists the four agencies designated as not utilizing cooperative purchasing programs. Additionally each agency's opportunities and challenges for utilizing cooperative purchasing programs are documented.

Table 91. Transit Providers Not Utilizing Cooperative Purchasing Programs.

Transit Provider	*Classification*
City of Mesquite MTED	Limited Eligibility Provider
Senior Program for Aging Needs (SPAN)	Rural
Bowie Senior Citizens Project	Client-Based
The Friendship Center	Client-Based

City of Mesquite MTED

On September 14, 2009, a telephone conversation was conducted with the transportation manager for the City of Mesquite MTED transit program, Mr. Donald White. The City of Mesquite is limited eligibility transit agency serving mainly the City of Mesquite. Transit is provided only for the elderly and persons with disabilities (limited eligibility). Currently, the city has 17 vehicles in the transit fleet. The majority of vehicles are Type III cut-away 16 to 20 passenger vans. The fleet includes six different models, which the city would like to standardize. Maintenance on the transit vehicles is done in house.

Currently, the City of Mesquite does not utilize cooperative programs to purchase items but has plans to join HGACBuy later this year. The motivation is to save on administration time by making processing easier, less time consuming, and by having more control over their purchasing. Vehicles are the main item the city will purchase through a cooperative program. Recently the city purchased three vehicles for an estimated cost of $210,000, or about $70,000 per vehicle. Currently, the estimated savings for switching to cooperative purchasing is unknown, but the city does expect at least a 5 percent savings or more and the same quality service and available products.

Of the top items purchased by the city for the transit program, vehicles and preventive maintenance parts are purchased through dealerships while office supplies, small tools, and miscellaneous items are purchased through local retail and the Internet. Ideally, the city would like a cooperative purchasing program that is flexible, has short turnaround and low costs, and offers expanded inventory and non-elevated administration costs. The main features of a cooperative program the City of Mesquite would require is one that is extremely flexible and offers significant cost savings. The city is not a member of multiple cooperatives and has plans to join only HGACBuy. The City of Mesquite has an internal cooperative where the transit program piggybacks off the city to buy office supplies. The transportation manager expects to continue that practice even after joining HGACBuy. The only item the manager anticipates purchasing through the HGAC is vehicles.

The opportunity for utilizing cooperative purchasing programs for the City of Mesquite is a program that saves administration time (which is currently very time-consuming) and allows more control over the purchasing process. The challenges for the City of Mesquite are to identify programs that are flexible (less time consuming to process) and offer significant cost savings.

Denton County Senior Program for Aging Needs

On September 9, 2009, a telephone conversation was conducted with the transportation manager for SPAN, Mr. Nicholas Gray. SPAN is a rural transit provider. Currently, the agency has 27 vehicles in the fleet with 19 Type III buses (25–30 foot in length), four minivans, two Type II buses (20–24 foot in length), one rubber-tire trolley, and one 40-passenger bus.

SPAN is very interested in cooperatives and would use cooperative purchasing programs if available in the future. The agency's top cost items are diesel, gasoline, oil and lubricants, vehicles, and vehicle insurance or total insurance, with annual costs of $150,000 for diesel and gasoline. Annual expenditures on oil and lubricants are $5,000, vehicles are $100,000, and total insurance is $100,000. If these top cost items were available through cooperative purchasing programs, SPAN expects the items and services to be of good quality and meet at least the same quality they currently receive. The perception is that high quality items would be their priority over cost savings.

SPAN would like moderate flexibility, moderate discount, moderate turnaround, moderate inventory, and moderate administration costs in choosing products and vendors in an ideal cooperative purchasing program. The agency's top annual cost items that are most frequently purchased are fuel, oil, general supplies for vehicles (e.g., filters), office supplies, and communication equipment. Fuel and oil are bought from a local fuel company, and the remaining three items are purchased from retail.

SPAN is interested in cooperative purchasing programs with the goal of receiving good quality items and services. The procurement needs from cooperative purchasing programs are mainly diesel fuel, gasoline fuel, oil and lubricants, vehicles, and insurance. The agency would use cooperative purchasing programs if the quality of items and service provided were good.

There is a great opportunity for SPAN to learn more about and utilize cooperative purchasing programs because they are very interested in what features such programs offer and would be attractive enough for them become a member. The challenges to cooperative purchasing programs being successful for SPAN are the wariness of the quality of products offered through such programs and the requirement that programs must be flexible with cost savings and adequate lead times.

Bowie Senior Citizens Project

On September 9, 2009, a telephone conversation was conducted with the assistant director for Bowie Senior Citizens Project, Ms. Lynda Medley. Bowie Senior Citizens Project is a TxDOT-funded client-based transit provider operating in a rural area. Currently, the agency has three vehicles in the fleet, including two minivans and one regular van. Two of the vehicles are wheelchair accessible.

The Bowie Senior Citizens Project has used cooperative purchasing programs in the past and would use these programs if made available in the future. In 2000, they used a cooperative purchasing program to purchase the current vehicles. This agency is more of a nutrition program for seniors and therefore has very low annual expenses for vehicle maintenance. Tires are the only item purchased annually with expenditures of $800 per year. If tires are available through cooperative purchasing programs, the agency expects to receive savings of 20 percent. The agency also expects the items provided by cooperative purchasing to be higher than the quality they currently receive.

Bowie Senior Citizens Project would like moderate flexibility, moderate discount, moderate turnaround, moderate inventory, and moderate administration costs in choosing products and vendors in an ideal cooperative purchasing program. Their top annual cost items that are most frequently purchased are oil, gas, office supplies, tires, and cleaning supplies. Tires are bought from the Tire Company vendor, and the remaining three items are bought from retail.

Bowie Senior Citizens Project is a small agency, which does not purchase a wide variety of items. However, the opportunity to utilize a cooperative purchasing program is evident since they have utilized such programs in the past and remain interested in using in the future. The challenges for a cooperative program to be successful for a TxDOT-funded client-based transit provider may be how the cooperative can appeal to small agencies and offer them high-quality items with at least 20 percent cost savings.

The Friendship Center

On September 11, 2009, a telephone interview was conducted with Ms. Stacey Adamek, transportation manager of the Friendship Center. This agency is a TxDOT-funded client-based transit provider with a fleet of three Dodge Ram vans and eight Ford Eldorado E350s. The agency shows interest in using cooperative purchasing program if available.

The top five products that the Friendship Center needs from a cooperative purchasing program are vehicles, repair and maintenance service, office supplies, computers, and food. The annual expenditure for a vehicle is $65,000, and the annual expenditures for repair and maintenance service, office supplies, computers, and food are $50,000, $70,000, $10,000, and $200,000, respectively. This agency expects a 10 to 25 percent discount from utilizing a cooperative purchasing program on their top five items in exchange for joining a program.

Ideally the Friendship Center would prefer a cooperative purchasing program that offers moderate flexibility, moderate discount, moderate turnaround, moderate inventory, and moderate administration costs. From their total annual expenditures, the top five items that this agency most frequently purchases are repair and maintenance, fuel, food, office supplies, and kitchen supplies. The agency purchases repair and maintenance, fuel, and food from a retail store. On the other hand, the agency purchases office supplies and kitchen supplies from a mail order catalog. Clearly this transit agency standouts from the other agencies interviewed with special hospitality requirements for food and kitchen needs.

The opportunities for utilizing cooperative purchasing programs for the Friendship Center are any significant savings they could receive on food, office supplies, and vehicles. The challenge to a cooperative purchasing program is the need for a program to offer between 10 to 20 percent cost savings and if such a program offers food discounts.

Summary

This vehicle maintenance case study was conducted to differentiate the characteristics of transit agencies that made purchases with and without cooperative purchasing programs. The case study documented transit agencies that made purchases with cooperative purchasing programs. The cooperative purchasing programs used include TML for vehicle insurance, HGACBuy and State of Texas Cooperative Purchasing Program for vehicles, and Lawson Products for shop supplies. Agencies that made purchases without cooperative purchasing programs would participate in cooperative purchasing programs if benefits could be demonstrated. The next section of this chapter covers the Pareto analysis. The Pareto analysis of this case study was used to identify major item expenditures by transit agencies with and without cooperative purchasing programs.

PARETO ANALYSIS OF CASE STUDY

This specific case study research determined usage items for agencies that made purchases with and without cooperative purchasing programs. Pareto analyses were conducted to analyze case study results. A Pareto analysis is a statistical technique in decision making that is used for the selection of a limited number of tasks that produce significant overall effect. In this application, the Pareto principle (also known as the 80/20 rule) is the idea that a large majority of expenditures (80 percent) are generated by a few key items (20 percent). The Pareto charts illustrate the percentage of total expenditures by purchasing item and the cumulative effect.

The Pareto analysis was conducted based on the type of agency in the case study: agencies using and not using cooperative purchasing programs. The Pareto charts were created using the list of purchasing items that transit agencies provided from both questionnaires. Vehicles and fuel were excluded from the Pareto analyses. Vehicle purchases are large, occasional purchases, and the purchase of fuel is discussed previously in this report. The following figures illustrate the difference of items with and without cooperative purchasing programs.

Figure 7 shows the percentage of total expenditures of items excluding vehicles and fuels purchased by agencies using cooperative purchasing programs. The items that comprise 80 percent of expenditures for agencies using cooperative purchasing programs are vehicle maintenance, vehicle parts, and vehicle insurance. For clarification, vehicle parts include air conditioner parts, tires, brakes, and other vehicle parts. Shop supplies include lubricants and filters. The item category for advanced software/communication systems includes specialized equipment such as scheduling and routing software, mobile data terminal, and computers.

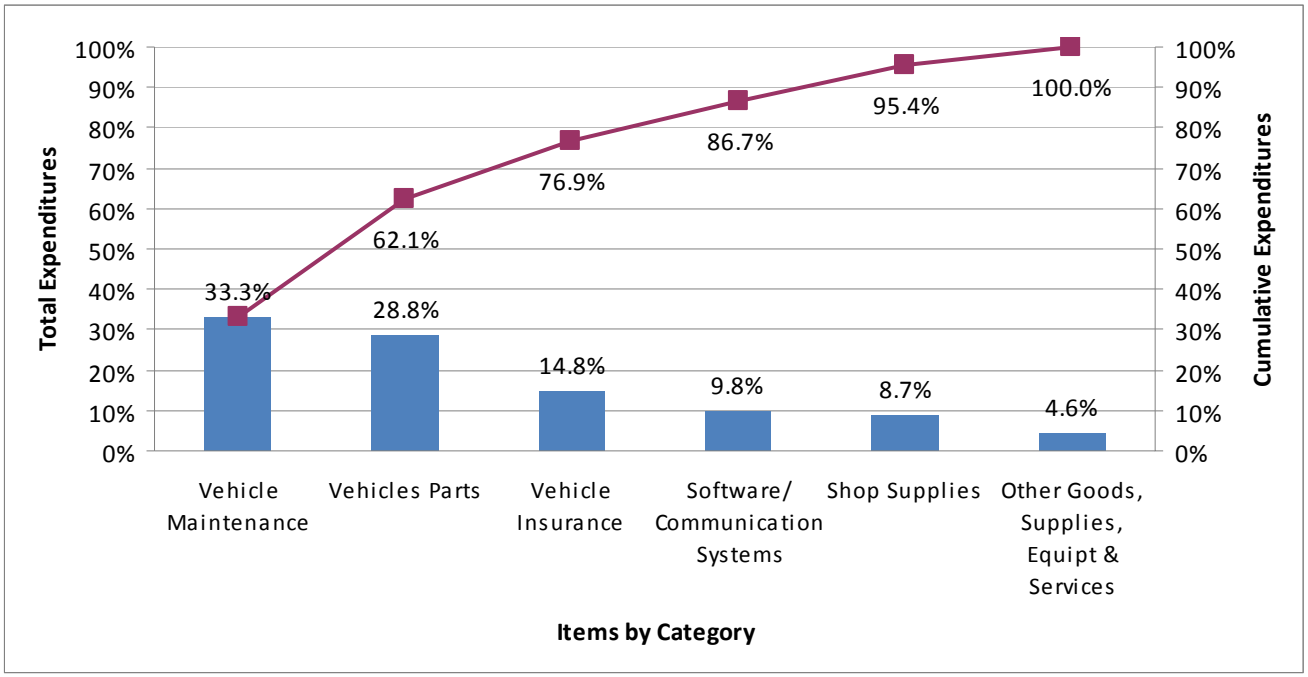


Figure 7. Percent of Expenditures Excluding Vehicles and Fuel by Item for Transit Agencies Utilizing Cooperative Purchasing.

Figure 8 shows the percentage of total expenditures of items excluding vehicles and fuels purchased by agencies not using cooperative purchasing programs. The items that comprise more than 80 percent of expenditures for agencies not using cooperative purchasing programs are vehicle insurance, office supplies, and vehicle maintenance. Among these items, vehicle insurance comprises the largest expenditure at 42 percent.

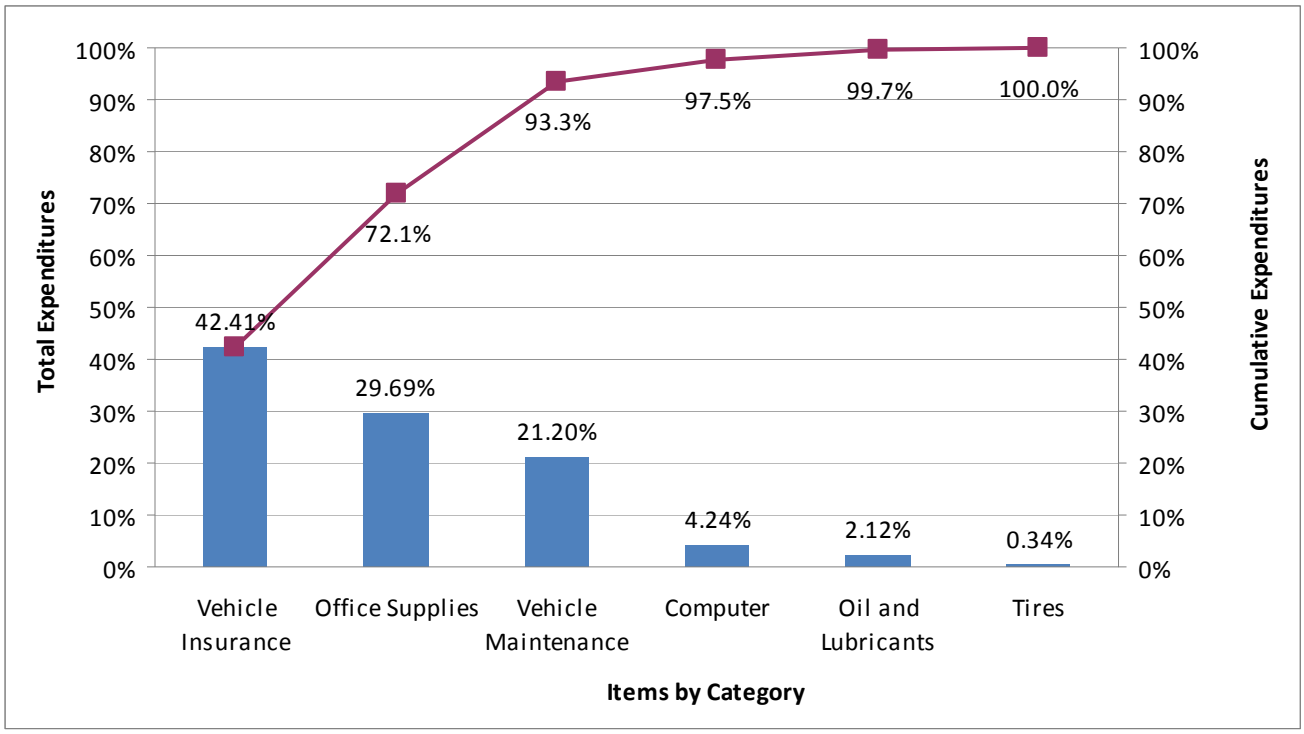


Figure 8. Percent of Expenditures Excluding Vehicles and Fuel by Item for Transit Agencies Not Utilizing Cooperative Purchasing.

SUMMARY

Table 92 provides the summary of purchasing options, other than cooperative purchasing programs, used by the selected agencies in this case study. Among the option of sources, the top three are retail, dealership, and the Internet. Twelve out of 16 items are purchased from retail. These are the main purchasing items that could be procured through available cooperative purchasing programs if provided. There are potential cost savings for transit agencies if procured through cooperative purchasing programs.

Table 92. Purchasing Options for Items Not Purchased through a Cooperative.

	Bought from				
Items	*Retail*	*Internet*	*Mail Order Catalog*	*Dealership*	*Other*
Air Conditioner	X			X	
Brakes				X	
Cleaning Supplies	X				
Communication Equipment	X				
Computer		X			
Filters	X			X	
Fuel	X				X
General Supplies	X				
Marketing Items			X		
Miscellaneous	X	X			
Office Supplies	X	X	X		
Oil and Lubricants	X				X
Small Tools	X	X			
Tires	X			X	
Vehicle Insurance					X
Vehicle Maintenance				X	
Vehicle/Preventive Maintenance Parts	X			X	X
Vehicles				X	

Table 93 highlights the summary of ranking of the items based on annual expenditures. Vehicles and vehicle insurance are the top ranked items, which can provide potential cost savings for transit agencies if procured through cooperative purchasing programs.

Table 93. Ranking of Annual Cost of Purchasing Items by Providers.

	Using Cooperative				*NOT Using Cooperative*			
Items	*Citibus*	*Community Council of Southwest Texas*	*Concho Valley Transit Agency*	*Midland-Odessa Urban Transit District*	*Bowie Senior Citizens Project*	*City of Mesquite MTED*	*SPAN*	*The Friendship Center*
Computer	3							4
Maintenance Service								3
Office Supplies/ Equipment								1
Oil and Lubricants							2	
Other Vehicle Parts	2	3						
Tires		4			1			
Vehicle Insurance		1	2	2			1	
Vehicle Maintenance	4	2	1					
Vehicles	1					1	1	2
Shop Supplies				1				

Comparison of the Top Three Purchasing Items

The top item purchased by the agencies using cooperative purchasing and not using cooperative purchasing is vehicles. Cooperative purchasing programs for transit vehicles can benefit all types of transit agencies. The State of Texas Cooperative Purchasing Program and HGACBuy provide cooperative purchasing for transit vehicles. In addition, several transit providers have participated in joint procurement or piggyback procurement of transit vehicles.

The comparison done in Table 94 shows that vehicle maintenance and vehicle insurance are among the top purchasing items for both types of agencies when vehicle and fuel costs are excluded. Other items are vehicle parts and office supplies. Vehicle maintenance for each type of agency may be performed in house or outsourced, depending on the individual agency. The approach to vehicle maintenance is made by each agency based on location, availability of mechanical/technician expertise, fleet size, fleet age, and variety of fleet vehicles.

Table 94. Top Three Purchasing Items. (ExcludingVehicles and Fuels)

Agencies Using Cooperative Purchasing	*Agencies Not Using Cooperative Purchasing*
Vehicle Maintenance	Vehicle Insurance
Vehicle Parts	Office Supplies
Vehicle Insurance	Vehicle Maintenance

The agencies can benefit from cooperatives by purchasing vehicle insurance, office supplies, vehicle parts, and possibly reduce vehicle maintenance costs. In addition, agencies can reduce administrative man-hours, time, and costs by using cooperative purchasing programs that actively process and purchase these items. Thus, agencies can use cooperatives not only for vehicle purchases but also for other items. For example, vehicle insurance for agencies using cooperative purchasing programs was 15 percent of total expenditures, while vehicle insurance for agencies not using cooperative purchasing programs was 42 percent of total expenditures.

A key finding is the need for more information about cooperative purchasing programs. Researchers recommend an initiative to highlight current programs, advantages, disadvantages, features, and products/services offered and expected benefits. Often transit agencies find out about cooperative purchasing programs through word-of-mouth, local relationships with dealers, conferences, or peers.

The features of a cooperative purchasing program that most agencies expect are flexibility (user friendly, easy processing, variety in products/services), cost savings (both price savings and administrative savings), and short lead times for parts purchases so that transit vehicles do not unnecessarily remain idle. Table 95 highlights the opportunities and challenges for cooperative purchasing programs. Transit agencies can have potential cost savings by seeking out cooperative purchasing programs that meet the challenges listed in Table 95. In order for the cooperative purchasing programs to be successful, they should address the transit agencies expectations (i.e., challenges listed in Table 95) and be aware of the opportunities to increase their benefits and expand their businesses.

Table 95. Highlighted Opportunities and Challenges for Cooperative Purchasing Programs.

Opportunities	***Challenges***
• Agencies are utilizing and there exists positive enthusiasm • Formally raise awareness of programs • Agencies can reduce vehicle parts cost for maintenance • Increase membership in cooperatives	• Expected direct cost savings between 10 to 20 percent • Savings include administrative processing time • Low turnaround time for product delivery • Flexibility

CHAPTER 12: FINDINGS AND CONCLUSIONS

Many different entities provide public transportation services in Texas. In 2007, a total of 213 entities received federal and/or state funds to provide public transportation. Included in that total, 77 local government agencies received funds for public transportation services in urban and rural areas in the state, and 136 human or social service agencies received funds for TxDOT-funded client-based transportation services.[1]

PURCHASING POWER AND ECONOMIC IMPACT

According to research documented in this report, the purchasing power of the 213 public transportation providers in Texas is more than $1.8 billion annually. Transit provider expenditures include more than $1.2 billion in operating expenses (2007) and almost $0.6 billion in capital expenses (average annual 2005–2007).

The estimated impact of expenditures for public transportation on the economy of Texas is based on the multiplier concept. The multiplier concept recognizes that when an expenditure is made, the initial direct outlay of money creates additional business activity and employment and generates household income and government revenue. The multiplier measures direct or initial spending, indirect spending, and induced effects.

The economic impact of public transportation on the economy of Texas is an estimated multiplier of 2.11. The $1.8 billion in annual expenditures generates more than $3.8 billion in direct, indirect, and induced economic impact in the state on an annual basis.

COOPERATIVE PURCHASING OPPORTUNITIES

There is an increasing interest in cooperative purchasing in the transit industry at the federal, state, and local levels. The FTA encourages transit agencies to procure goods and services jointly with other recipients to obtain better pricing through larger purchases. Grantees must follow the requirements of FTA Circular 4220.1F and are encouraged to reference the FTA *Best Practices Procurement Manual*.

Texas statutes allow local governments to contract with and between each other to provide governmental functions and services and to join together in contracting with others to provide goods and services. Local governments, including transit agencies, may also participate in state purchasing contracts established by the Texas Comptroller of Public Accounts. The Texas Comptroller of Public Accounts has published the *State of Texas Cooperative Purchasing Manual* to provide information about the State of Texas cooperative purchasing programs.

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[1] Eight transit providers in Texas serve a combination of small urban and rural areas—one agency provides transit service in two or more small urban or rural areas. The eight combination transit providers serve 20 small urban and rural areas. When combination providers are taken into account, there are 65 public transit providers in Texas. The number of TxDOT-funded client-based transit providers varies from year to year. In 2009, the total number of TxDOT-funded client-based transit providers was 141.

The Texas Comptroller of Public Accounts performs a variety of purchasing operations and customer services including awards for all statewide term and open market contracts. Texas Procurement and Support Services is a program of the Texas Comptroller of Public Accounts' office. TPASS awards and manages hundreds of statewide contracts on behalf of more than 200 state agencies and 1,700 local government agencies. Among the programs sponsored by TPASS are the State of Texas purchase card and fuel card.

The Texas Legislature passed legislation in 1995 authorizing Texas public agencies to use purchase and fuel cards. The Texas Comptroller of Public Accounts was assigned authority to administer state purchasing programs including the purchase and fuel card programs.

HGACBuy is a government-to-government procurement service sponsored by the Houston-Galveston Area Council. As a unit of local government assisting other local governments, HGACBuy has established competitively priced contracts for goods and services, provides customer service, and is compliant with state statutes. All units of local government, including non-profits providing governmental services, are eligible to join HGACBuy.

As a part of the research for this project, transit providers in Texas participated in a survey to document current practices in cooperative and green purchasing. A large percent of survey respondents said they are unaware of the variety of cooperative purchasing and green purchasing opportunities available through state and regional programs. Transit providers responding to the survey were asked to indicate interest in a demonstration project or implementation project for one or more of several possible topics. Researchers used survey results to select case study research topics: purchase cards and fuel cards, green purchasing, and vehicle maintenance.

Purchase Cards

The Texas Comptroller of Public Accounts has contracted for State of Texas purchase card services to a private company (MasterCard™). The Texas entities eligible to use this contract are:

- state agencies,
- institutions of higher education, and
- participants in the State of Texas Cooperative Purchasing Program.

There are no card transaction or implementation fees and no minimum number of cards or minimum volume required to participate in the purchase card program. For Texas public transportation providers, membership in the State of Texas Cooperative Purchasing Program is the only prerequisite for participation in the purchase card program.

Researchers found that 46 urban and rural transit providers are members of the State of Texas Cooperative Purchasing Program and are eligible for a state purchase card; however, only 16 are current state purchase cardholders. Five additional urban and rural transit providers hold a private (non-state) program purchase card. Thirteen of the TxDOT-funded client-based providers are current Texas purchase cardholders.

Texas transit providers using a purchase card reported varying reasons for implementing a purchase card program:

- increase in end-user control of small purchases and reduction in check processing costs and small-dollar purchase orders,
- savings in administrative costs for small-dollar purchases, and
- maximization of rebate awards.

The average purchase card expenditures in 2008 by entities providing transit service confirm that purchase cards are used for making micro-purchases (purchases under $3,000). The exception is in the case of The T in Fort Worth, with an average transaction expenditure of $26,000. The T's main goal for implementing purchase cards is to take advantage of the awarded rebates rather than reduce small expenditure administration costs.

Researchers estimated a cost savings of $90 per average transaction by a transit provider that used a purchase card rather than processing a traditional purchase order. If a transit provider reduces 50 small purchase transactions by using a purchase card, the savings is $4,500.

The State of Texas purchase card contract has a rebate feature that pays rebates based on a percent of total dollar expenditures. Rebates represent approximately 1 percent of expenditures by purchase card. Average annual purchases of $150,000 by purchase card generate $1,500 in rebates.

Fuel Cards

The Texas Comptroller of Public Accounts contracts for retail fuel and related services cards that are valid statewide. The Texas Comptroller of Public Accounts delegated fuel card program oversight and administration to the State of Texas Council of Competitive Governments. Fuel and related services cards are available to public service agencies, institutions of higher education, and political subdivisions of the State of Texas. Transit providers fall under the category of public service agency. The state fuel card program offers a 1 percent rebate on fuel purchases.

Researchers found that three transit providers use the state fuel card and 26 use a private (non-state) fuel card. All three transit providers that use the state fuel card serve rural areas, and 13 of the 26 agencies that use a private fuel card are rural transit providers. Rural transit providers told researchers the larger and more remote the service territory, the more practical fuel cards become. Seven of the 19 respondents use fuel cards as the only source of fuel, and an additional transit provider that contracts all service stated that the contractors use fuel cards as the only source of fuel.

The State of Texas fuel card provides a means for purchase of federal tax-exempt fuel and related automotive goods and services. The CCG lists several advantages including net-out or rebate of federal taxes, discounts on fuel, rebates of 1 percent on all transactions, coverage of fuel payments under a single invoice, payment of maintenance on the same card, acceptance of

cards across the state, tailoring of retail fuel cards to meet the needs of agencies, and purchasing of bulk fuel under the contract.

Researchers confirmed the savings from fuel discounts and rebates that can be realized using the state fuel card. During calendar year 2007, the transit providers using the state-issued fuel card received a $0.16 to $0.21 per gallon savings over retail prices. The average rural transit provider operates approximately 700,000 vehicle miles of service annually. At an average fuel economy of 10 miles per gallon, total gallons consumed on average per rural transit provider are approximately 70,000 gallons annually. If the average per gallon saving is a conservative $0.10 using a fuel card, the average rural transit provider could save $7,000 annually.

Researchers also found that interlocal agreements with state, county, or city governments can provide transit providers an opportunity to take advantage of lower-cost bulk fuel rates available through other public agencies.

Green Purchasing

As a part of the research for this project, transit providers in Texas participated in a survey to document current practices in cooperative and green purchasing. Overall, the survey clearly reflects the growing importance of environmentally friendly products for transit organizations. However, based on the survey results, few transit organizations have established a green purchasing procurement process, plan, or program. Seventy-six percent of survey respondents indicated an interest in information on green products, as well as resources that could assist with planning and implementing green purchasing programs.

Vehicle Maintenance

Transit providers commit considerable resources into maintenance of transit vehicles, including expenditures for salaries, wages, and related fringe benefits; services; fuel and lubricants; tires and tubes; and parts, supplies, and other materials. For this reason, vehicle maintenance was included for case study analysis.

Transit providers can benefit from cooperatively purchasing vehicle insurance, office supplies, and vehicle parts, and possibly reduce vehicle maintenance costs. The features of a cooperative purchasing program that most agencies expect are flexibility (user friendly, easy processing, and product/service variety), cost savings (both price savings and administrative savings), and short lead times for parts purchases.

A key finding is the need for more information about cooperative purchasing programs. Often, transit agencies find out about cooperative purchasing programs through word of mouth, local relationships with dealers, conferences, or peers.

CURRENT PRACTICES IN COOPERATIVE PURCHASING

The survey on current practices in cooperative and green purchasing provides a good snapshot of the state of the practice among Texas transit providers. Nineteen of the 49 respondents to the

survey (39 percent) have not participated in cooperative purchasing. Although 30 of 49 respondents (61 percent) have participated in one or more cooperative purchasing programs, the majority (93 percent) of the transit providers used cooperative purchasing to procure transit vehicles. Other than vehicles, the item most often procured through cooperative purchasing is office supplies and equipment. Eight of the transit providers that responded to the survey reported acquiring office supplies and equipment through cooperative purchasing.

A large percent of survey respondents said they are unaware of the variety of cooperative purchasing and green purchasing opportunities available through state and regional programs.

DEMONSTRATION OR IMPLEMENTATION STRATEGIES

Cooperative purchasing has been demonstrated to save direct costs, generate rebates, and reduce administrative costs. Researchers recommend the following possible strategies to expand the opportunities for transit providers in Texas to use cooperative purchasing.

- Sponsor a webinar or seminar to present and explain the variety of cooperative purchasing programs currently available to transit providers. The focus of the webinar or seminar will be to introduce representatives for programs such as TPASS and HGACBuy and to share best practices. A part of the program will include presentation of federal and state regulations for cooperative purchasing. The target audience will be all classifications of transit providers.
- Sponsor a webinar or seminar to provide transit providers with information to make an informed decision to implement or not implement a state purchase card. The target audience will be small urban, rural, and combination transit providers. The material covered in the webinar or seminar will include proper controls to avoid risk of waste, fraud, and abuse.
- Sponsor a webinar or seminar to provide transit providers with information to make an informed decision to implement or not implement a state fuel card. The target audience will be rural and combination transit providers. The material covered in the webinar or seminar will include proper controls to avoid risk of waste, fraud, and abuse that would offset savings from a fuel card program.
- Evaluate the appropriate application of the state purchase card by transit providers for higher-cost items, including utility expenses, to maximize rebates.
- Partner with CGG to test the market for cost savings to purchase fuel for transit vehicles in bulk through cooperative purchasing.
- Establish a task force with HGACBuy and DIR to identify additional products that are specifically targeted to transit providers. An opportunity is to request that HGACBuy and DIR provide cooperative purchasing of information technology items for transit (software or hardware such as automated scheduling and routing software, mobile data terminals, automated vehicle location or geographic position systems, and electronic payment systems).
- Establish a task force with TPASS to identify additional products that are specifically targeted to transit providers. An opportunity is to request that TPASS introduce cooperative purchasing for items used in vehicle maintenance, including maintenance services and vehicle parts and supplies.

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APPENDIX A: TEXAS TRANSIT PROVIDERS AND CLASSIFICATION

Transit Provider (National Transit Database reference code)	*Classification**
Capital Metropolitan Transportation Authority (CMTA), Austin (6048)	Major Large Urban
Dallas Area Rapid Transit (DART), (6056)	Major Large Urban
Metropolitan Transit Authority of Harris County, Houston (METRO) (6008)	Major Large Urban
VIA Metropolitan Transit (VIA), San Antonio (6011)	Major Large Urban
Corpus Christi Regional Transportation Authority (The B) (6051)	Large Urban
Denton County Transportation Authority (DCTA) (6101)	Large Urban
Fort Worth Transportation Authority (The T) (6007)	Large Urban
Lower Rio Grande Valley Development Council (LRGVDC)—McAllen-Hidalgo County	Large Urban
Mass Transit Department—City of El Paso (Sun Metro) (6006)	Large Urban
City Transit Management Company, Inc. (Citibus), Lubbock (6010)	Large Urban
City of Grand Prairie Transportation Services Department (Grand Connection) (6068)	Limited Eligibility Provider
City of Mesquite (MTED) (6070)	Limited Eligibility Provider
Handitran Special Transit Division—City of Arlington (Handitran) (6041)	Limited Eligibility Provider
North East Transportation Service (North Richland Hills), Tarrant County	Limited Eligibility Provider
Abilene Transit System (CityLink) (6040)	Small Urban
Amarillo City Transit (ACT) (6001)	Small Urban
Beaumont Municipal Transit System (BMT) (6016)	Small Urban
Brazos Transit District (The District)—Bryan/College Station	Small Urban
The District—The Woodlands	Small Urban
City of Brownsville—Brownsville Urban System (BUS) (6014)	Small Urban
City of Wichita Falls—Wichita Falls Transit System	Small Urban
Concho Valley Transit District (CVTD), San Angelo (6102)	Small Urban
Gulf Coast Center—Texas City/La Marque	Small Urban
Golden Crescent Regional Planning Commission—Victoria Transit (6095)	Small Urban
Hill Country Transit District—Temple	Small Urban
Hill Country Transit District—Killeen (6091)	Small Urban
Island Transit (I T), Galveston (6015)	Small Urban
Laredo Transit Management, Inc. (El Metro) (6009)	Small Urban
Longview Transit (6081)	Small Urban
LRGVDC—Harlingen/San Benito	Small Urban
McKinney—Collin County Committee on Aging	Small Urban
Midland-Odessa Urban Transit District (EZ RIDER) (6097)	Small Urban
Port Arthur Transit (PAT) (6013)	Small Urban
Texarkana Urban Transit District—T Line	Small Urban
Texoma Area Paratransit System, Inc (TAPS) (6107)	Small Urban
Gulf Coast Center—Lake Jackson-Angleton	Small Urban
Tyler—Tyler Transit System	Small Urban
Waco Transit System, Inc. (WTS) (6012)	Small Urban
Alamo Area Council of Governments (San Antonio)	Rural
Ark-Tex Council of Governments (Texarkana)	Rural
Aspermont Small Business Development Center (Aspermont)	Rural
Bee Community Action Agency (Beeville)	Rural

Transit Provider (National Transit Database reference code)	*Classification**
Brazos Transit—The District	Rural
Capital Area Rural Transportation System (CARTS) (Austin)	Rural
Caprock Community Action Association (Crosbyton)	Rural
Central Texas Rural Transit District (Coleman)	Rural
Cleburne, City of (Cleburne)	Rural
Collin County Committee on Aging	Rural
Colorado Valley Transit (Columbus)	Rural
Community Action Council of South Texas (Rio Grande City)	Rural
Community Council of Southwest Texas (Uvalde)	Rural
Community Services, Inc. (Corsicana)	Rural
Concho Valley Council of Governments	Rural
Del Rio, City of (Del Rio)	Rural
East Texas Council of Governments (Kilgore)	Rural
El Paso, County of	Rural
Fort Bend County Public Transportation (Fort Bend Transit) (6103)	Rural
Golden Crescent Regional Planning Commission (Victoria)	Rural
Gulf Coast Center	Rural
Heart of Texas Council of Governments (Waco)	Rural
Hill Country Transit District (San Saba)	Rural
Kaufman Area Rural Transportation (KART)	Rural
Kleberg County Human Services (Kingsville)	Rural
Lower Rio Grande Valley Develop. Council	Rural
Panhandle Community Services (Amarillo)	Rural
Public Transit Services (Mineral Wells)	Rural
Rolling Plains Management Corp. (Crowell)	Rural
Rural Economic Assistance League, Inc. (REAL) (Alice)	Rural
Senior Center Resources and Public Transit Inc. (Greenville)	Rural
Services Program for Aging Needs (SPAN) (Denton)	Rural
South East Texas Regional Planning Comm. (Beaumont)	Rural
South Padre Island, Town of (South Padre Island)	Rural
South Plains Community Action Association (Levelland)	Rural
Texoma Area Paratransit System/TAPS (Sherman)	Rural
Transit System Inc., The (Glen Rose)	Rural
Webb County Community Action Agency (Laredo)	Rural
West Texas Opportunities, Inc. (Lamesa)	Rural
100 D.I.D. Memor Nurse and Rehab Center (Dumas)	Client-Based
Adult Day Activity and Health Center (Lubbock)	Client-Based
Air Force Village Foundation, Inc. (San Antonio)	Client-Based
Air Force Village II, Inc. (San Antonio)	Client-Based
Aliviane NO-AD, Inc. (IRWCRC) (El Paso)	Client-Based
Amarillo Multi. Center for the Aging (Amarillo)	Client-Based
American Red Cross HIV/AIDS Greater Houston Area Chapter (Houston)	Client-Based
Anderson County Sheltered Workshop (Palestine)	Client-Based
Andrews Central Smith County (Tyler)	Client-Based

Transit Provider (National Transit Database reference code)	*Classification**
Atlanta Memorial Hospital Foundation (Atlanta)	Client-Based
Austin Groups for the Elderly (AGE) (Austin)	Client-Based
Austin State School (Austin)	Client-Based
Austin Travis County MHMR Center (Austin)	Client-Based
Baptist Memorial Geriatric Center (San Angelo)	Client-Based
Bastrop County Emergency Food Pantry and Support Center, Inc (Bastrop)	Client-Based
Bethphage Mission South (San Angelo)	Client-Based
Bienvivir Senior Health Services (El Paso)	Client-Based
Big Bend Community Action Committee, Inc. (Marfa)	Client-Based
Big Bend Regional Medical Center (Alpine)	Client-Based
Blessed Sacrament Church Senior Center (San Antonio)	Client-Based
Booker Booster Club, Inc. dba Twin Oakes (Amarillo)	Client-Based
Border Area Nutrition Center (Laredo)	Client-Based
Bowie Senior Citizens Project, Inc. (Bowie)	Client-Based
Brenham State School (Brenham)	Client-Based
Buckner Villas (Austin)	Client-Based
Burke Foundation (Driftwood)	Client-Based
C.C. Young Memorial Home (Dallas)	Client-Based
Camp County Develop. Disabled Association (Pittsburg)	Client-Based
Camp Summit (Dallas)	Client-Based
Centro de Salud Familiar La Fe, Inc. (El Paso)	Client-Based
Cherokee County MR Association (Jacksonville)	Client-Based
Chillicothe Travelers, Inc. (Chillicothe)	Client-Based
Christian Retirement Center (Longview)	Client-Based
Christian Senior Services (San Antonio)	Client-Based
City of Balch Springs (Balch Springs)	Client-Based
City of Burleson/Senior Activity (Burleson)	Client-Based
TxDOT-Funded City of Desoto Senior Center (Desoto)	Client-Based
City of Marfa (Marfa)	Client-Based
City Of Port Isabel (Port Isabel)	Client-Based
City of Presido (Presido)	Client-Based
City of San Antonio Housing Authority E&D Program (San Antonio)	Client-Based
City of San Antonio Support Services for Elderly (San Antonio)	Client-Based
City of Wilmer (Wilmer)	Client-Based
Cliff Haven Adult Day Health, Inc. (Dallas)	Client-Based
Community Action Nacogdoches, Inc. (Nacogdoches)	Client-Based
Community and Senior Services of Midland, Inc. (Midland)	Client-Based
Concerned Citizens of Jack County (Jacksboro)	Client-Based
Coon Memorial Home (Dalhart)	Client-Based
Cornerstone Retirement Community (Texarkana)	Client-Based
Dallas County Department of Health (Dallas)	Client-Based
Dawson County Senior Citizens Center (Lamesa)	Client-Based
East Texas Open Door, Inc. (Marshall)	Client-Based
Eden Heights, Inc. (New Braunfels)	Client-Based

Transit Provider (National Transit Database reference code)	*Classification**
Eden Home for the Aged, Inc. (New Braunfels)	Client-Based
Edward Abraham Memorial Home (Amarillo)	Client-Based
Electra Service Corporation (Electra)	Client-Based
Elizabeth J. Bivins Home for the Aged (Amarillo)	Client-Based
Ella Austin Community Center/Senior Nutrition (San Antonio)	Client-Based
Evangelical Luth Good Sam Soc/dba Pks Good Sam Vge (Odessa)	Client-Based
Faith In Action (Round Rock)	Client-Based
Farwell Convalescent Center (Farwell)	Client-Based
Foard County Senior Citizens Corp. (Crowell)	Client-Based
Foundation for MHMR/Permian Basin (Midland)	Client-Based
TxDOT-Funded Fowler Christian Apartments (Dallas)	Client-Based
Golden Age Home (Lockhart)	Client-Based
Goodwill Industries of San Antonio (San Antonio)	Client-Based
Grace Presbyterian Village, Inc. (Dallas)	Client-Based
Greater Randolph Services Program, Inc. (Universal City) Clien	t-Based
Harris County Transportation (Houston)	Client-Based
Hays County Veterans Administration (San Marcos)	Client-Based
Health Horizons (Nacogdoches)	Client-Based
Hill Country MHMR at Llano (San Marcos)	Client-Based
Hockley County Senior Citizens Association (Levelland)	Client-Based
Inman Christian Center (San Antonio)	Client-Based
Institute of Cognitive Development Inc. (San Angelo)	Client-Based
James L. West Presby. Special Care Center (Fort Worth)	Client-Based
Jim Hogg County (Jim Hogg)	Client-Based
Kirby Senior Center (San Antonio)	Client-Based
L.U.L.A.C. Project Amistad (El Paso)	Client-Based
Lubbock Independent School District (Lubbock)	Client-Based
Lutheran Community Services/El Paso (El Paso)	Client-Based
Marian Moss Enterprises, Inc. (Lubbock)	Client-Based
Martin County Senior Center (Stanton)	Client-Based
Mary Lee Foundation (Austin)	Client-Based
Menard County (Menard County)	Client-Based
MHMR Services for Concho Valley (San Angelo)	Client-Based
Middle Rio Grande Development Foundation (Carrizo Springs)	Client-Based
Mission Road Development Center (San Antonio)	Client-Based
Montgomery County Committee on Aging dba The Friendship Center (Conroe)	Client-Based
Nacogdoches Handicapped Housing (Nacogdoches)	Client-Based
Navarro County Association for Retarded Citizens (Corsicana)	Client-Based
Nazareth Hall Nursing Center (El Paso)	Client-Based
Pecos Senior Center (Pecos)	Client-Based
Plano Community Homes Sponsor (Plano)	Client-Based
Prairie Acres Nursing Home (Friona)	Client-Based
Presa Community Service Center (San Antonio)	Client-Based
Rankin Senior Citizens Services, Inc. (Rankin)	Client-Based

Transit Provider (National Transit Database reference code)	*Classification**
Rio Concho Manor (San Angelo)	Client-Based
Rio Concho West (San Angelo)	Client-Based
Riverside Healthcare, Inc.dba. Normandy Terrace (San Antonio)	Client-Based
Sabine Valley Center (Longview)	Client-Based
Sabine Valley Center (Marshall)	Client-Based
Salvation Army William Booth Apartments. (Tyler)	Client-Based
San Antonio AIDS Foundation (San Antonio)	Client-Based
San Antonio Lighthouse (San Antonio)	Client-Based
San Juan de Los Lagos Church (San Antonio)	Client-Based
Sears Memorial Methodist Center (Abilene)	Client-Based
Senior Adult Services (Addisson)	Client-Based
Senior Center Resources and Public Transit Inc. (Greenville)	Client-Based
Senior Citizen Project of Chambers County (Anahuac)	Client-Based
Seven Acres Jewish Geriatric Center (Houston)	Client-Based
Shackelford County Community Resource Center (Albany)	Client-Based
Southwest Key Program, Inc. (Brownsville)	Client-Based
Special Health Resources of East Texas (Longview)	Client-Based
St. Anthony Senior Center (Elmendorf)	Client-Based
St. Gregory the Great Parish (San Antonio)	Client-Based
St. Vincent De Paul Catholic Church (San Antonio)	Client-Based
Starr County Rural Transportation (Starr)	Client-Based
Sterling County (Sterling County)	Client-Based
Sunshine House Inc. (El Paso)	Client-Based
Tarrant County/American Red Cross (Fort Worth)	Client-Based
Terrell County Senior Citizens Transportation Program (Sanderson)	Client-Based
Texarkana Resources for the Disabled (Texarkana)	Client-Based
Texarkana Special Education Center, Inc. (Texarkana)	Client-Based
Thomason Health Service Foundation (El Paso)	Client-Based
Town of Van Horn (El Paso)	Client-Based
Trinity Terrace Retirement Center (Fort Worth)	Client-Based
United Cerebral Palsy (Dallas)	Client-Based
Walker County Senior Center (Huntsville)	Client-Based
Ward County Grandfalls Senior Citizens (Grandfalls)	Client-Based
Ward County Senior Citizens Center (Monahans)	Client-Based
Warm Springs Rehabilitation Foundation (San Antonio)	Client-Based
West Texas Christian Foundation (San Angelo)	Client-Based
White Acres Good Samaritan (El Paso)	Client-Based
Young County Senior Citizens Association (Graham)	Client-Based
Young County Senior Cub Center (Olney)	Client-Based
Zapata County (Zapata)	Client-Based

**Client-based refers to TxDOT-funded client-based agencies*

APPENDIX B: TRANSIT PROVIDERS BY TXDOT DISTRICT

	District	*Transit Provider*	*Classification**
1	Paris	Texoma Area Paratransit System, Inc (TAPS) (6107)	Small Urban
		Texoma Area Paratransit System/TAPS (Sherman)	Rural
		Senior Center Resources and Public Transit Inc. (Greenville)	Client-based
2	Fort Worth	Fort Worth Transportation Authority (The T) (6007)	Large Urban
		Cleburne, City of (Cleburne)	Rural
		Public Transit Services (Mineral Wells)	Rural
		Transit System Inc., The (Glen Rose)	Rural
		City of Burleson/Senior Activity (Burleson)	Client-based
		Concerned Citizens of Jack County (Jacksboro)	Client-based
		James L. West Presby. Spec Care Center (Fort Worth)	Client-based
		Tarrant County/American Red Cross (Fort Worth)	Client-based
		Trinity Terrace Retirement Center (Fort Worth)	Client-based
		Handitran Special Transit Division—City of Arlington (Handitran) (6041)	Limited Eligibility Provider
		North East Transportation Service (North Richland Hills)	Limited Eligibility Provider
3	Wichita Falls	City of Wichita Falls—Wichita Falls Transit System	Small Urban
		Bowie Senior Citizens Project, Inc. (Bowie)	Client-based
		Electra Service Corporation (Electra)	Client-based
		Young County Senior Cub Center (Olney)	Client-based
		Young County Senior Citizens Association (Graham)	Client-based
4	Amarillo Am	arillo City Transit (ACT) (6001)	Small Urban
		Panhandle Community Services (Amarillo)	Rural
		100 D.I.D. Memor Nurse and Rehab Center (Dumas)	Client-based
		Amarillo Multi. Center for the Aging (Amarillo)	Client-based
		Booker Booster Club, Inc. dba Twin Oakes (Amarillo)	Client-based
		Coon Memorial Home (Dalhart)	Client-based
		Edward Abraham Memorial Home (Amarillo)	Client-based
		Elizabeth J. Bivins Home for the Aged (Amarillo)	Client-based
5	Lubbock	City Transit Management Company, Inc. (Citibus) (6010)	Large Urban
		Caprock Community Action Association (Crosbyton)	Rural
		South Plains Community Action Association (Levelland)	Rural
		Adult Day Activity and Health Center (Lubbock)	Client-based
		Dawson County Senior Citizens Center (Lamesa)	Client-based
		Farwell Convalescent Center (Farwell)	Client-based
		Hockley County Senior Citizens Association (Levelland)	Client-based
		Lubbock Independent School District (Lubbock)	Client-based
		Marian Moss Enterprises, Inc. (Lubbock)	Client-based
		Prairie Acres Nursing Home (Friona)	Client-based
6	Odessa	Midland-Odessa Urban Transit District (EZ RIDER) (6097)	Small Urban
		West Texas Opportunities, Inc. (Lamesa)	Rural
		Community and Senior Services of Midland, Inc. (Midland)	Client-based
		Evangelical Luth Good Sam Soc/dba Pks Good Sam Vge (Odessa)	Client-based

District		*Transit Provider*	*Classification**
		Foundation for MHMR/Permian Basin (Midland)	Client-based
		Martin County Senior Center (Stanton)	Client-based
		Pecos Senior Center (Pecos)	Client-based
		Rankin Senior Citizens Services, Inc. (Rankin)	Client-based
		Terrell County Senior Citizens Transportation Program (Sanderson) C	lient-based
		Ward County Grandfalls Senior Citizens (Grandfalls)	Client-based
		Ward County Senior Citizens Center (Monahans)	Client-based
7	San Angelo	Concho Valley Transit District (CVTD) (6102)	Small Urban
		Concho Valley Council of Governments	Rural
		Baptist Memorial Geriatric Center (San Angelo)	Client-based
		Bethphage Mission South (San Angelo)	Client-based
		Institute of Cognitive Development Inc. (San Angelo)	Client-based
		Menard County (Menard County)	Client-based
		MHMR Services for Concho Valley (San Angelo)	Client-based
		Rio Concho Manor (San Angelo)	Client-based
		Rio Concho West (San Angelo)	Client-based
		Sterling County (Sterling County)	Client-based
		West Texas Christian Foundation San Angelo	Client-based
8	Abilene	Abilene Transit System (CityLink) (6040)	Small Urban
		Aspermont Small Business Development Center (Aspermont)	Rural
		Sears Memorial Methodist Center (Abilene)	Client-based
		Shackelford County Community Resource Center (Albany)	Client-based
9	Waco	Waco Transit System, Inc. (WTS) (6012)	Small Urban
		Hill Country Transit District (The Hop) Killeen (6091)	Small Urban
		HCTD—Temple	Small Urban
		Heart of Texas Council of Governments (Waco)	Rural
10	Tyler	Longview Transit (6081)	Small Urban
		Tyler—Tyler Transit System	Small Urban
		East Texas Council of Governments (Kilgore)	Rural
		Anderson County Sheltered Workshop (Palestine)	Client-based
		Andrews Central Smith County (Tyler)	Client-based
		Cherokee County MR Association (Jacksonville)	Client-based
		Christian Retirement Center (Longview)	Client-based
		Sabine Valley Center (Longview)	Client-based
		Salvation Army William Booth Apartments (Tyler)	Client-based
		Special Health Resources of East Texas (Longview)	Client-based
11	Lufkin Co	mmunity Action Nacogdoches, Inc. (Nacogdoches) Clie	nt-based
		Health Horizons (Nacogdoches) Clien	t-based
		Nacogdoches Handicapped Housing (Nacogdoches)	Client-based
12	Houston	Metropolitan Transit Authority of Harris County, Texas (Metro) (6008)	Major Urban
		Island Transit (I T) (6015)	Small Urban
		The Gulf Coast Center—Lake Jackson-Angleton	Small Urban
		BTD—The Woodlands	Large Urban

District		*Transit Provider*	*Classification**
		GCC—Texas City/La Marque	Small Urban
		Fort Bend County Public Transportation (Fort Bend Transit) (6103)	Rural
		Gulf Coast Center	Rural
		American Red Cross HIV/AIDS Gtr Hou Area Chpt (Houston)	Client-based
		Harris County Transportation (Houston)	Client-based
		Montgomery County Com. on Aging dba The Friendship Center (Conroe) Client-base	d
		Seven Acres Jewish Geriatric Center (Houston)	Client-based
13	Yoakum	Golden Crescent Regional Planning Commission (VICTORIA TRANSIT) (6095)	Small Urban
		Colorado Valley Transit (Columbus)	Rural
		Golden Crescent Regional Planning Commission (Victoria)	Rural
14	Austin	Capital Metropolitan Transportation Authority (CMTA) (6048)	Major Urban
		Capital Area Rural Transportation System (CARTS) (Austin)	Rural
		Austin Groups for the Elderly (AGE) (Austin)	Client-based
		Austin State School (Austin)	Client-based
		Austin Travis County MHMR Center (Austin)	Client-based
		Bastrop County Emergency Food Pantry and Support Center Inc (Bastrop) Clien	t-based
		Buckner Villas (Austin)	Client-based
		Burke Foundation (Driftwood)	Client-based
		Golden Age Home (Lockhart)	Client-based
		Hays County Veterans Administration (San Marcos)	Client-based
		Hill Country MHMR at Llano (San Marcos)	Client-based
		Mary Lee Foundation (Austin)	Client-based
		Faith In Action (Round Rock)	Client-based
15	San Antonio	VIA Metropolitan Transit (VIA) (6011)	Major Urban
		Alamo Area Council of Governments (San Antonio)	Rural
		Community Council of Southwest Texas (Uvalde)	Rural
		Air Force Village Foundation, Inc. (San Antonio)	Client-based
		Air Force Village II, Inc. (San Antonio)	Client-based
		Blessed Sacrament Church Senior Center (San Antonio)	Client-based
		Christian Senior Services (San Antonio)	Client-based
		City of San Antonio Housing Authority E&D Prog (San Antonio)	Client-based
		City of San Antonio Support Services for Elderly (San Antonio)	Client-based
		Eden Home for the Aged, Inc. (New Braunfels)	Client-based
		Eden Heights, Inc. (New Braunfels)	Client-based
		Ella Austin Community Center/Sr. Nutrition (San Antonio)	Client-based
		Goodwill Industries of San Antonio (San Antonio)	Client-based
		Greater Randolph Services Program Inc. (Universal City)	Client-based
		Inman Christian Center (San Antonio)	Client-based
		Kirby Senior Center (San Antonio)	Client-based
		Mission Road Develop. Center (San Antonio)	Client-based
		Presa Community Service Center (San Antonio)	Client-based
		Riverside Healthcare, Inc.dba. Normandy Terrace (San Antonio)	Client-based

District		*Transit Provider*	*Classification**
		San Antonio AIDS Foundation (San Antonio)	Client-based
		San Antonio Lighthouse (San Antonio)	Client-based
		San Juan de Los Lagos Church (San Antonio)	Client-based
		St. Anthony Senior Center (Elmendorf)	Client-based
		St. Gregory the Great Parish (San Antonio)	Client-based
		St. Vincent De Paul Catholic Church (San Antonio)	Client-based
		Warm Springs Rehabilitation Foundation (San Antonio)	Client-based
16	Corpus Christi	Corpus Christi Regional Transportation Authority (The B) (6051)	Large Urban
		Bee Community Action Agency (Beeville)	Rural
		Kleberg County Human Services (Kingsville)	Rural
		Rural Economic Assistance League, Inc. (REAL) (Alice)	Rural
17	Bryan	Brazos Transit District (The District) Bryan / College Station	Small Urban
		Brazos Transit—The District	Rural
		Brenham State School (Brenham)	Client-based
		Walker County Senior Center (Huntsville)	Client-based
18	Dallas	Dallas Area Rapid Transit (DART) (6056)	Major Urban
		Denton County Transportation Authority (DCTA) (6101)	Large Urban
		McKinney—Collin County Committee on Aging	Small Urban
		Collin County Committee on Aging	Rural
		Community Services, Inc. (Corsicana)	Rural
		Kaufman Area Rural Transportation (KART)	Rural
		Services Program for Aging Needs (SPAN) (Denton)	Rural
		Camp Summit (Dallas)	Client-based
		C.C. Young Memorial Home (Dallas)	Client-based
		City of Balch Springs (Balch Springs)	Client-based
		City of Desoto Senior Center (Desoto)	Client-based
		City of Wilmer (Wilmer)	Client-based
		Cliff Haven Adult Day Health, Inc. (Dallas)	Client-based
		Dallas County Department of Health (Dallas)	Client-based
		Fowler Christian Apartments (Dallas)	Client-based
		Grace Presbyterian Village, Inc. (Dallas)	Client-based
		Navarro County Association for Retarded Citizens (Corsicana)	Client-based
		Plano Community Homes Sponsor (Plano)	Client-based
		Senior Adult Services (Addisson)	Client-based
		United Cerebral Palsy (Dallas)	Client-based
		City of Grand Prairie Transportation Services Department (Grand Connection) (6068)	Limited Eligibility Provider
		City of Mesquite (MTED) (6070)	Limited Eligibility Provider
19	Texarkana	Texarkana Urban Transit District—T Line	Small Urban
		Ark-Tex Council of Governments (Texarkana)	Rural
		Atlanta Memorial Hospital Foundation (Atlanta)	Client-based
		Camp County Develop. Disabled Association (Pittsburg)	Client-based
		Cornerstone Retirement Community (Texarkana)	Client-based
		East Texas Open Door, Inc. (Marshall)	Client-based

District		*Transit Provider*	*Classification**
		Sabine Valley Center (Marshall)	Client-based
		Texarkana Resources for the Disabled (Texarkana)	Client-based
		Texarkana Special Education Center, Inc. (Texarkana)	Client-based
20	Beaumont	Port Arthur Transit (PAT) (6013)	Small Urban
		Beaumont Municipal Transit System (BMT) (6016)	Small Urban
		South East Texas Regional Planning Comm. (Beaumont)	Rural
		Senior Citizen Project of Chambers County (Anahuac)	Client-based
21	Pharr	LRGVDC—McAllen-Hidalgo County	Large Urban
		City of Brownsville—Brownsville Urban System (BUS) (6014)	Small Urban
		LRGVDC—Harlingen/San Benito	Small Urban
		Community Act. Council of South Texas (Rio Grande City)	Rural
		Lower Rio Grande Valley Develop. Council	Rural
		South Padre Island, Town of (South Padre Island)	Rural
		Jim Hogg County (Jim Hogg)	Client-based
		City Of Port Isabel (Port Isabel)	Client-based
		Starr County Rural Transportation (Starr)	Client-based
		Southwest Key Program, Inc. (Brownsville)	Client-based
		Zapata County (Zapata)	Client-based
22	Laredo	Laredo Transit Management, Inc. (El Metro) (6009)	Small Urban
		Del Rio, City of (Del Rio)	Rural
		Webb County Community Action Agency (Laredo)	Rural
		Border Area Nutrition Center (Laredo)	Client-based
		Middle Rio Grande Development Foundation (Carrizo Springs)	Client-based
23	Brownwood	Central Texas Rural Transit District (Coleman)	Rural
		Hill Country Transit District (San Saba)	Rural
24	El Paso	Mass Transit Department—City of El Paso (Sun Metro) (6006)	Large Urban
		El Paso, County of	Rural
		Aliviane NO-AD, Inc. (IRWCRC) (El Paso)	Client-based
		Bienvivir Senior Health Services (El Paso)	Client-based
		Big Bend Community Action Committee, Inc. (Marfa)	Client-based
		Big Bend Regional Medical Center (Alpine)	Client-based
		Centro de Salud Familiar La Fe, Inc. (El Paso)	Client-based
		City of Marfa (Marfa)	Client-based
		City of Presido (Presido)	Client-based
		L.U.L.A.C. Project Amistad (El Paso)	Client-based
		Lutheran Community Services/El Paso (El Paso)	Client-based
		Nazareth Hall Nursing Center (El Paso)	Client-based
		Sunshine House Inc. (El Paso)	Client-based
		Thomason Health Service Foundation (El Paso)	Client-based
		Town of Van Horn (El Paso)	Client-based
		White Acres Good Samaritan (El Paso)	Client-based
25	Childress	Rolling Plains Management Corp. (Crowell)	Rural
		Chillicothe Travelers, Inc. (Chillicothe)	Client-based

**Client-based refers to TxDOT-funded client-based agencies*

APPENDIX C: LEONTIEF INVERSE MATRIX

The table shows the basic framework of traditional input-output tables.

Table C. Framework of a Traditional Input-Output Table.

			Intermediate Demands Sectors 1, 2,……, n	**Final Demands Sectors 1, 2, ……, n**	**Total Output**
Intermediate Inputs	**Sectors**	**1, 2, .. N**	xij Yi		Xi
Primary Inputs			Vj		
Total Inputs			Xj		

where x_{ij} represents the share of industry i's output used as intermediate input by industry j, Y_{ij} represents the share of industry i's output that is allocated to final demand, and X_i is the sum of the intermediate demand (x_{ij}) and final demand (Y_i) the value of total production of industry i. X_i can be written as:

$$X_i = \sum_{j=0}^{n} x_{ij} + Y_i; \quad i = 1,..., n. \tag{1}$$

Leontief coefficients consider only intermediate demand. The coefficients are the foundation of any input-output model. They convert an industry's intermediate output, which represents the total inputs available in the economy into shares. The shares then represent the total input particular industries purchase and use in their production processes. Leontief coefficients correspond to the movement of products between different industries. The Leontief coefficients can be presented as follows:

$$a_{ij} = \frac{x_{ij}}{X_j} \tag{2}$$

Leontief coefficients provide insight into the input structure of a specific industry and are a useful way to organize economic effects.

The Leontief coefficient can also be written as follows:

$$x_{ij} = a_{ij} X_j \tag{3}$$

Equation 1 can be written as:

$$X_i = \sum_{j=0}^{n} a_{ij} X_j + Y_i \quad (4)$$

In matrix form, equation 4 is:

$$X=AX+Y \quad (5)$$

Rearranging equation 5 in terms of final demand, we get:

$$\begin{array}{lllllll}
Y_1 & = & (1-a_{11})X_1 & - & a_{12}X_2 & - \ .\ . \ - & a_{1n}X_n \\
Y_2 & = & -\ a_{21}X_1 & + & (1-a_{22})X_2 & - \ .\ . \ - & a_{2n}X_n \\
.\ . & & .\ . & & .\ . & .\ . & .\ . \\
.\ . & & .\ . & & .\ . & .\ . & .\ . \\
Y_n & = & -\ a_{n1}X_1 & - & a_{n2}X_2 & - \ .\ . \ + & (1-a_{nn})X_n
\end{array}$$

In a matrix format, we have:

$$X = (I - A)X \quad (6)$$

Equation 6 can also be written as follows:

$$X = (I - A)^{-1}Y \quad (7)$$

Where $(I-A)^{-1}$ is the Leontief inverse or total requirements matrix.

APPENDIX D: TEXAS RURAL TRANSIT AGENCY AMERICAN REHABILITATION AND RECOVERY ACT 2009

MO 111716 February 26, 2009; MO 111920 August 27, 2009; MO 112115 January 28, 2010

Rural Transit Operator	*Fleet*	*Facilities*	*Other Capital*	*Total ARRA Award*
Alamo Area Council of Governments	$1,120,000		$590,000	$ 1,710,000
ArkTex Council of Governments	$960,000	$450,000	$375,000	$1,785,000
Aspermont Small Business Development Center	$372,000		$154,658	$ 526,658
Bee Community Action Agency	$512,500		$95,465	$ 607,965
Brazos Transit District	$2,263,000	$2,300,000		$4,563,000
Capital Area Rural Transportation System	$2,540,000	$1,440,444		$3,980,444
Caprock Community Action Association	$513,000		$275,000	$ 788,000
Central Texas Rural Transit District	$1,625,000		$600,000	$ 2,225,000
Cleburne, City of	$447,000	$200,000		$647,000
Collin County Committee on Aging	$360,000			$360,000
Colorado Valley Transit	$279,000	$398,000	$255,000	$932,000
Community Action Council of South Texas	$453,000		$85,500	$ 538,500
Community Council of Southwest Texas	$391,000	$20,000	$20,000	$431,000
Community Services, Inc.	$377,025			$377,025
Concho Valley Rural Transit District	$210,000	$1,286,000		$1,496,000
Del Rio, City of	$146,000		$133,700	$ 279,700
East Texas Council of Governments	$1,320,000	$602,000	$292,000	$2,214,000
El Paso County	$320,000			$320,000
Fort Bend County Rural Transit District	$280,000	$342,000		$622,000
Golden Crescent Regional Planning Commission	$490,000		$167,500	$ 657,500
Gulf Coast Center	$898,000			$898,000
Heart of Texas Council of Governments	$1,113,500		$395,569	$ 1,509,069
Hill Country Transit District	$154,000	$1,767,000		$1,921,000
Kaufman Area Rural Transportation	$318,000		$294,000	$ 612,000
Kleberg County Human Services	$139,000	$275,000		$414,000
Lower Rio Grande Valley Development Council	$558,000		$70,000	$ 628,000
Panhandle Community Services	$598,000		$609,387	$ 1,207,387
Public Transit Services	$704,000	$100,431	$40,500	$844,931
Rolling Plains Management Corporation	$350,000		$75,000	$ 425,000
Rural Economic Assistance League	$256,000		$83,000	$ 339,000
Senior Center Resources and Public Transit, Inc.	$26,525		$330,825	$ 357,350
South East Texas Regional Planning Commission	$746,512		$411,000	$ 1,157,512
South Padre Island, Town of	$140,000			$140,000
South Plains Community Action Association, Inc.	$412,500	$512,000	$528,000	$1,452,500
SPAN, Inc.	$420,000		$108,500	$ 528,500
Texoma Area Paratransit System	$787,117	$400,000	$112,000	$1,299,117
The Transit System, Inc.	$266,000		$53,910	$ 319,910
Webb County Community Action Agency	$355,000		$212,000	$ 567,000
West Texas Opportunities, Inc	$2,003,224	$ 1,065,000	$250,000	$3,318,224
Totals	**$25,223,903**	**$11,157,875**	**$6,617,514**	**$42,999,292**

APPENDIX E: TEXAS URBAN TRANSIT AGENCY ARRA 2009 FUNDING

As of March 31, 2010

	American Rehabilitation and Recovery Act		
5307 Funded Agencies (NTD Code)	***ARRA Amount****	***Source***	***Comments*** *Dates indicate the date of FTA approval*
LARGE URBAN AGENCIES			
Austin— Capital Metropolitan Transportation Authority (CMTA) (6048)	$18.6M and $7.5M	FTA	Tuesday, July 21, 2009: Approved $18.6M FY09 of the requested $26.1M: • MetroBus $16 M—approx. 200 bus fleet replacement • MetroAccess $2.6M—operations • MetroRail—$5.6M—rail sidings/station enhancements • Metro Trails $1.9M—sidewalk and bike facilities Friday, March 5, 2010: Approved $7.5M to be used for seven buses; operating assistance and pedestrian access walkways.
Corpus Christi Regional Transportation Authority (6051)	$6.3M	FTA	Thursday, July 09, 2009: $6.3M to purchase six replacement buses, fare boxes, and ADP bus stop improvements.
Dallas Area Rapid Transit (DART) (6056)	$61.5M and $78.4M	FTA	Thursday, May 21, 2009: Received $61.5M grant to fund: • Irving Light Rail Section 1&2 $37M • Orange Line Light Rail vehicles and enhancements $24 M • Fixed guideway modernization $0.30 M Thursday, August 13, 2009: Received $78.4 M to fund NW/SE Light Rail Transit.
Denton County Transportation Authority (DCTA) (6101)	$4,140,000	FTA	Friday, July 31, 2009: $4.1M to purchase five 40 foot buses and 20 electronic fareboxes, onboard surveillance equipment, and scheduling software, and to construct 35 passenger shelters and a park-and-ride lot.
El Paso— Mass Transit Department— City of El Paso (Sun Metro) (6006)	$15.1M	FTA	Thursday, August 20, 2009: $15.1M to construct the Glory Road and Westside transit terminals, perform mid-life rebuild of 25 buses, and purchase 200 accessible bus shelters. Funds will also be used to purchase computer hardware and software and 25 automated vehicle locator systems.
Fort Worth Transportation Authority (The T) (6007)	$20,148,975	FTA	Thursday, July 09, 2009: $20M will be used to purchase eight replacement-expanded buses and to modify the maintenance facility to accommodate the new buses. The funds will also allow for new parking facilities and preventive maintenance, and upgrades to the Trinity Railway Express at the Intermodal Transit Center.

5307 Funded Agencies (NTD Code)	*American Rehabilitation and Recovery Act*		
	ARRA Amount*	***Source***	***Comments*** *Dates indicate the date of FTA approval*
Houston—Metropolitan Transit Authority of Harris County, Texas (Metro) (6008)	$89,555,577	FTA	Thursday, July 09, 2009: $2.3M to purchase and install signal, communication, and other improvement systems for Houston's Main Street light-rail-car line and $87.2M for major renovation to Houston's transportation systems. This includes 19 light rail cars for expansion purposes to be used on the Main Street Line and purchasing and installing 40 bus passenger shelters. High occupancy toll lanes will be installed in the Houston area along with new pavement and signage toll equipment. A new gate traffic control system will also be replaced to improve safety along the METRO.
San Antonio—VIA Metropolitan Transit (VIA) (6011)	$30,234,756 and $5M and $1M	FTA / Bexar MPO	Wednesday, July 24, 2009: $30.2M to fund: • auto-notification system $700K • fare collection equip $9M • downtown stop amenities $500K • 24 hybrid electric buses (replacement) $14.1 M • one electric bus & charge equip $2.2M • four CNG buses & equip $3.7M Monday, September 21, 2009: $5M (TIGGER Grant). VIA Metropolitan Transit will use the funds to replace conventional diesel transit buses with 35 foot composite body electric transit buses. The project includes quick-charging stations at this terminal layover in route to recharge bus batteries. Grid sourced electrical energy used to recharge the bus batteries will be augmented with solar energy collected with panels procured and installed under this project. March, 5, 2010: Approved $1M for a bus and a park-and-ride lot.

STATE-FUNDED URBAN AGENCIES

Abilene Transit System (CityLink)	$2.1M	FTA	Wednesday, June 10, 2009: $2.1M grant will fund the replacement of nine 29 foot paratransit buses, twenty-one 40 foot and five 35 foot fixed-route buses, and new transit technology, including communications equipment, vehicle locator equipment, passenger counters, stop annunciators, and security cameras.
Amarillo City Transit (ACT)	$3.6M	FTA	Thursday, July 09, 2009: $3.6M will be used for preventive maintenance and for the non-fixed route American's with Disabilities Act (ADA) Para transit Service.

5307 Funded Agencies (NTD Code)	American Rehabilitation and Recovery Act		
	ARRA Amount*	Source**	Comments *Dates indicate the date of FTA approval*
Arlington— Handitran Special Transit Division—City of Arlington	$600,000	FTA	Thursday, July 09, 2009: $600,000 to purchase two replacement buses, buy ADP software, and perform preventive maintenance.
College Station/Bryan— Brazos Transit District (The District)	$2,793,817	FTA	Thursday, August 13, 2009: $2.8M to construct the Bryan Transit and Parking Facility.
Beaumont Municipal Transit System (BMT)	$2.4M	FTA	Thursday, July 09, 2009: $2.4M to purchase eight replacement buses, upgrade mobile fare collection equipment, support vehicles, and passenger shelters. The funds will also renovate the Beaumont Municipal Transit's administrative building for the first time in decades including a new telephone system.
Brownsville—Brownsville Urban System (BUS)—City of Brownsville	$3.6M	FTA	Wednesday, June 10, 2009: $3.6M funds in this grant will be used for the construction of an Intermodal Transit Terminal in the central business district of downtown Brownsville. The facility is within walking distance of the Gateway International Bridge. The facility will improve and expand local, regional, and international transportation services to and from Brownsville and will aid in the revitalization of the central business district. The facility will serve as the administrative and operating facilities of the Brownsville transit system, BUS. It will also serve as a transfer point for rural and intercity operators and taxicabs and will contain retail and restaurant spaces.
Galveston—Island Transit (IT)	$1,575,182	FTA / HGAC	Wednesday, July 24, 2009: $1.6M for: • regional maintenance facility $1M • three replacement vehicles $575K
Grand Prairie Transportation Services Department (Grand Connection)	$192,000	FTA	Thursday, July 09, 2009: $192,000 will be used to purchase ADP software and radios for the city.
Harlingen— Lower Rio Grande Valley Dev. Council— Harlingen/San Benito	$2M	FTA	Thursday, July 09, 2009: $2M to purchase seven expansion buses. The funds will also be used for vehicle storage facilities and equipment.
Killeen— Hill Country Transit District (The Hop)	$3.5M	FTA	Wednesday, June 10, 2009: $3.5M funds in this grant will be used to purchase 42 replacement motor buses and two replacement trolley buses, and to perform preventive maintenance.

5307 Funded Agencies (NTD Code)	*American Rehabilitation and Recovery Act*		
	ARRA Amount*	***Source***	***Comments*** *Dates indicate the date of FTA approval*
Laredo Transit Management, Inc. (El Metro)	$4.8M	FTA	Wednesday, June 10, 2009: The $4.8M grant provides federal funds to purchase fourteen 35 foot replacement buses and one maintenance vehicle.
Lake Jackson/Angleton—The Gulf Coast Center	$371,160 and requested $1,386,542	FTA and H-GAC	Wednesday, September 09, 2009: $371,160 to construct 11 bus passenger shelters, concrete pads, sidewalks, ramps, and kiosks. Requested $1.4M: • UTMB Victory Lakes-League City P&R 525 spaces
Longview Transit	$1.3M	FTA	Thursday, June 25, 2009: This $1.3M grant will fund the purchase of two buses, computer hardware and software, and mobile fare collection equipment. The grant will also be used to purchase the currently leased administrative/maintenance facility. This facility is located in a prime area where it can be developed into an intermodal facility.
Lubbock— City Transit Management Company, Inc. (Citibus)	$3.9M	FTA	Wednesday, May 20, 2009: This $3.9M grant provides federal funds for Citibus to purchase three new hybrid electric buses and nine paratransit vans. These funds will also be used for a bus parking lot with added security features, 10 bus shelters and preventive maintenance.
McAllen Express—Lower Rio Grande Valley Dev. Council	$4.8M	FTA	Thursday, July 09, 2009: $2.4M dollars will be used to buy seven 34-ft buses to expand the fleet. An additional $2.4M will be used to purchase a total of 10 buses, a tow truck, a bus washer, and bus shelters. The remaining funds will be used for facility upgrades and transit enhancements.
McKinney—Collin County Committee on Aging	$1M	FTA	Thursday, July 09, 2009: $1M to purchase ADP software and hardware, security equipment, and preventative maintenance.
Mesquite— City of Mesquite (MTED)	$322,500	FTA	Wednesday, June 10, 2009: $322,500 funds will be used to expand Mesquite's fleet with three new buses and to perform preventive maintenance on others.
Midland-Odessa Urban Transit District (EZ RIDER)	$3.9M	FTA	Wednesday, May 20, 2009: $3.9M funds will be used to purchase 12 buses, support vehicles and equipment, fare collection equipment, route signage, bus shelters, and communications equipment, and to perform preventive maintenance.
North Richland Hills—North East Transportation Service	$0 Transit	NCTCOG	Note: No transit ARRA funds—received enhancement monies for North Richland Hills Multi-Use Trail and Landscaping.

5307 Funded Agencies (NTD Code)	*American Rehabilitation and Recovery Act*		
	ARRA Amount*	***Source***	***Comments*** *Dates indicate the date of FTA approval*
Port Arthur Transit (PAT)	$1.1M and $1.2M	FTA	Friday, July 17, 2009: $1.1M funds will be used to purchase a bus, two vans, and communications equipment, and to perform maintenance facility improvements. March 5, 2010: Approved $1.2M to construct a bus support facility.
San Angelo—Concho Valley Transit District (CVTD)	$1.6M	FTA	Thursday, July 09, 2009: $1.6M for the Concho Valley Transit Terminal.
Sherman/Denison—Texoma Area Paratransit System, Inc (TAPS)	$1M	FTA	Friday, June 19, 2009: $1M funds will be used to replace six 25 foot buses and to purchase shop equipment.
Temple— Hill Country Transit District—The HOP	$1.2M	FTA	Wednesday, June 10, 2009: The $1.2M funds in this grant will be used to replace four buses and one trolley bus, expand the fleet with three new additional buses, and to perform preventive maintenance on others.
Texarkana Urban Transit District—T Line	$1.1M	FTA	Thursday, July 09, 2009: $1.1M will be used to build a transfer station and city offices.
Texas City/ LaMarque— Gulf Coast Center	$2.4M	FTA	Thursday, August 20, 2009: $2.4M for the construction of the Victory Lakes park-and-ride lot.
The Woodlands	$1.7M	FTA	Wednesday, September 09, 2009: $1.7M to construct a bus maintenance facility to accommodate 30 vehicles, a water taxi maintenance facility to accommodate six water taxis, and a washing station.
Tyler— Tyler Transit System	$968,600 and $776,031	FTA	Friday, July 31, 2009: Received $968,600 of the requested $1.7M to purchase five buses, 24 bus shelters and 40 trash receptacles. • Pending: Transit depot parking lot, site and sidewalk improvements March 5, 2010: Approved $776,031 will be used for bus, shelters, bus parking renovations, and to improve the Tyler Transit Depot.
Victoria—Golden Crescent Regional Planning Commission (Victoria Transit)	$775,000	FTA	Thursday, July 09, 2009: $775,000 to purchase eight bus replacements and one van replacement.
Waco Transit System, Inc. (WTS)	$3.0M	FTA	Thursday, August 20, 2009: $3.0M for the purchase of a bus, support equipment, computer software, and preventive maintenance.
Wichita Falls—Wichita Falls Transit System	$1.8M	FTA	Thursday, July 09, 2009: $1.8M to purchase four 35 foot buses, safety equipment, and upgrades for fare collections.

5307 Funded Agencies (NTD Code)	*American Rehabilitation and Recovery Act*		
	ARRA Amount*	***Source***	***Comments*** *Dates indicate the date of FTA approval*
LARGE URBAN METROPOLITAN ORGANIZATIONS			
HGAC— Fort Bend County	$2.7M	FTA	Thursday, August 20, 2009: $2.7M for the purchase of eight buses, construction of a park-and-ride lot, and miscellaneous equipment.
HGAC— Harris County Community and Economic Development Department	$922,000	FTA	Thursday, August 20, 2009: $922,000 to purchase shelters and fare collection equipment, as well as to pay for the capital costs of contracting and operating assistance.
NCTCOG—KART	$887,500	FTA	Thursday, July 09, 2009: $887,500 for vehicles, technology, and facility improvements.
NCTCOG—SPAN	$640,000	FTA	Thursday, July 09, 2009: $640,000 for vehicle, technology, and security acquisition.
NCTCOG—CleTrans	$380,000	FTA	Thursday, July 09, 2009: $380,000 for technology acquisition.
NCTCOG— Public Transit Services	$1,264,000	FTA	Thursday, July 09, 2009: $1.3M for vehicle, technology, and security acquisition.
NCTCOG—Dallas District	$1,101,100	FTA	Thursday, July 09, 2009: $1,101,100 for project administration and vehicle acquisition.
NCTCOG— Fort Worth District	$1,105,760	FTA	Thursday, July 09, 2009: $1,105,760 for project administration and vehicle acquisition.

APPENDIX F: SURVEY ON CURRENT PRACTICES IN COOPERATIVE AND GREEN PURCHASING

1. Research Study Participation

The purpose of this survey is to gain a better understanding of how individual organizations and purchasing officials consider, evaluate and utilize cooperative purchasing and environmentally-responsible/"green" purchasing. Participation in this survey is voluntary. You may skip questions or withdraw at any time during the survey. If you have questions regarding this research, you may contact Suzie Edrington, 713-686-2971, s-edrington@tamu.edu.

Please allow approximately 10 minutes to complete this survey. If you leave the survey before completion and want to come back, please make sure "cookies" are enabled on your computer (under "Tools" and "Internet Options" in your browser menu).

*** 1. If you agree to participate, please choose yes below.**

◯ Yes ◯ No

2. Contact Information

* 1. Contact Name:

2. Job Title:

* 3. Agency:

4. Phone Number:

* 5. E-mail Address:

3. Participation in Cooperative Purchasing

1. During approximately the past 3 years, has your organization participated in the following cooperative purchasing? Please check all that apply.

- [ ] H-GAC Buy (Houston-Galveston Area Council)
- [ ] State of Texas Cooperative Purchasing (TPAAS, TXMAS, TXSMARTBUY)
- [ ] Joint procurement with another agency (defined as: At the beginning of the initial procurement process, two or more organizations combine their requirements and solicit bids or offers for goods or services)
- [ ] "Piggyback" procurement as a lead agency or a "ride" agency (defined as: a lead agency did not purchase all items in original plan leaving excess quanitities; "rider" agency purchases on excess quantities)
- [ ] My organization has not participated in cooperative purchase programs in approximately the last 3 years
- [ ] Other cooperative purchasing utilized

List all other cooperative purchasing utilized:

4. Organizations Currently Participating in Cooperative Purchasing

1. What equipment, goods or services have you purchased through cooperative purchasing in the past 3 years? Please check all appropriate boxes for each line item.

	H-GAC Buy	State of Texas Cooperative Purchasing	Joint Procurement	"Piggyback"	Other Cooperative Purchasing	Not Purchased through Cooperative Purchasing
Vehicles	☐	☐	☐	☐	☐	☐
Parts	☐	☐	☐	☐	☐	☐
Fuel	☐	☐	☐	☐	☐	☐
Office supplies/equipment	☐	☐	☐	☐	☐	☐
Communication equipment (radios, cell phones, pagers)	☐	☐	☐	☐	☐	☐
Automated scheduling and routing software	☐	☐	☐	☐	☐	☐
Mobile data terminal/computers (MDT/MDC)	☐	☐	☐	☐	☐	☐
Automated vehicle location (AVL) or geographic information systems (GIS)	☐	☐	☐	☐	☐	☐
Electronic payment systems	☐	☐	☐	☐	☐	☐
Vehicle management information systems (VMIS)	☐	☐	☐	☐	☐	☐
Maintenance services	☐	☐	☐	☐	☐	☐
Other equipment, goods or services	☐	☐	☐	☐	☐	☐

Other equipment, goods or services (please specify)

2. What objectives were most important in your decision to use cooperative purchasing? Check up to 3 objectives. If appropriate, please identify what other objectives were most important.

- ☐ Save administrative costs
- ☐ Save staff time
- ☐ Lower purchase costs
- ☐ Flexibility of products and vendor choice
- ☐ Good contract terms and conditions
- ☐ Improve product/service quality
- ☐ Gain technical assistance from cooperative purchasing program staff
- ☐ Faster procurement turnaround time
- ☐ Other

Other (please specify)

3. To what extent was your organization able to successfully reach its objectives through the cooperative purchasing ? Please rate below.

	Not Successful	Somewhat Successful	Neutral	Successful	Very Successful	Not Applicable
H-GAC Buy	◯	◯	◯	◯	◯	◯
State of Texas Cooperative Purchasing	◯	◯	◯	◯	◯	◯
Joint Procurement	◯	◯	◯	◯	◯	◯
"Piggyback"	◯	◯	◯	◯	◯	◯
Other Cooperative Purchasing	◯	◯	◯	◯	◯	◯

Other cooperative purchasing (please specify)

4. Briefly provide any additonal comments regarding cooperative purchasing you would like to add (advantages, disadvantages, issues).

5. Check all the ways YOU are involved with specifying or purchasing decisions affecting your organization's transportation operations. Check ALL that apply:

- [ ] Identify the need for products, equipment, systems or services
- [ ] Prepare plans/budgets
- [ ] Research/recommend suppliers
- [ ] Prepare/administer request for proposals (RFP) or Invitation for bids (IFB)
- [ ] Meet with suppliers
- [ ] Evaluate products / suppliers
- [ ] Educate/inform others in the agency on what was learned
- [ ] Involved in the final selection of products/equipment/suppliers
- [ ] Approve the product/supplier recommendations of others
- [ ] No involvement in this process

Other (please specify)

5. Organizations Not Currently Participating in Cooperative Purchasing Program...

1. What factors most influenced the decision not to use cooperative purchasing programs? Check up to 3 factors

- ☐ Not aware of programs
- ☐ No administrative cost savings
- ☐ No price advantage
- ☐ No staff cost savings
- ☐ Needed products are not available in cooperative programs
- ☐ No improvement in quality of products/services
- ☐ No flexibility of products and vendor choice
- ☐ Procurement turnaround time is no better

Other factors not listed

2. How do you purchase consumable items?

	Through Local Government or Parent Agency	Retail	Wholesale	Other Purchasing Means	N/A
Parts	◯	◯	◯	◯	◯
Fuel	◯	◯	◯	◯	◯
Office supplies/equipment	◯	◯	◯	◯	◯
Other consumables	◯	◯	◯	◯	◯

Other Consumables or Other Purchasing Means (please specify)

3. Check the ways YOU are involved with specifying or purchasing decisions affecting your organization's transportation operations. Check ALL that apply:

- [ ] Identify the need for products, equipment, systems or services
- [ ] Prepare plans/budgets
- [ ] Research/recommend suppliers
- [ ] Prepare/administer request for proposals (RFP) or Invitation for bids (IFB)
- [ ] Meet with suppliers
- [ ] Evaluate products / suppliers
- [ ] Educate/inform others in the institution on what was learned
- [ ] Involved in the final selection of products/equipment/suppliers
- [ ] Approve the product/supplier recommendations of others
- [ ] No involvement in this process

Other (please specify)

6. Insurance

1. How do you purchase insurance (worker's compensation, liability, and property protection) for your transit agency?

- [ ] Direct purchase with an insurance company
- [ ] Texas Municipal League Intergovernmental Risk Pool
- [ ] My agency is covered as part of a larger government organization or company
- [ ] Other

Other (please specify)

2. How do you purchase employee health and medical insurance for your transit agency?

- [ ] Direct purchase with an insurance company
- [ ] My agency is covered as part of a larger government organization or company
- [ ] My agency does not provide health and medical insurance for our employees
- [ ] Other

Other (please specify)

7. Environmental and Green Purchasing

Green purchasing includes the acquisition of recycled content products, environmentally preferable products and services, bio-based products, energy-and-water-efficient products, alternative fuel vehicles, products using renewable energy, and alternatives to hazardous or toxic chemicals.

1. Compared to approximately 3 years ago, how has your organization's emphasis on the use of "green" purchasing changed?

- ◯ Much greater emphasis on "green" approaches
- ◯ Greater emphasis
- ◯ No real change
- ◯ Less emphasis
- ◯ Much less emphasis

2. How would you rate your organization's commitment to "green" purchasing.

- ◯ Very committed
- ◯ Committed
- ◯ Somewhat committed
- ◯ Not really committed

3. In the decision process for new products, equipment, systems and services, to what degree does your organization take into account the environmental/"green" considerations of the products/services?

- ◯ Very significant part of decisions
- ◯ Significant part of decisions
- ◯ Somewhat significant
- ◯ Not very significant

4. In addition to performance and price considerations -- how often does your organization also evaluate a supplier's ability to offer products, equipment, systems or services that have "green" advantages?

- ◯ Always
- ◯ Almost always
- ◯ Usually
- ◯ Sometimes
- ◯ Rarely/never

5. To what level of involvement does each of the following groups have in establishing or supporting "green" initiatives within your organization? Select one answer for each:

	No real involvement	Moderate involvement	Significant involvement	Very significant involvement
Administrators/General Manager	◯	◯	◯	◯
Operations Personnel	◯	◯	◯	◯
Local Community Members	◯	◯	◯	◯
Board Members	◯	◯	◯	◯
Others	◯	◯	◯	◯

Others (please specify)

6. How significant are local, state or federal regulations/incentives in causing your organization to adopt "green" approaches with your organization?

- ◯ Very significant
- ◯ Significant
- ◯ Somewhat significant
- ◯ Not significant

7. Please list any internal policies or guidelines that your agency has related to "green" procurement in the operation of public transit.

8. What types of fuel does your fleet utilize? Please include current fleet and fleet in the process of procuring. Check all that apply.

- ◯ Gasoline
- ◯ Diesel
- ◯ Propane
- ◯ CNG
- ◯ LNG
- ◯ Bio-diesel
- ◯ Electric/hybrid
- ◯ Other

Other (please specify)

8. Green Purchases - Consumable Goods

1. Within the last 3 years has your organization switched to any janitorial products/equipment that are more environmentally-friendly (cleaning supplies, aerosols, insecticides, etc.)?

- ◯ Yes
- ◯ No, but we have plans to do so
- ◯ No
- ◯ Do not know

2. Check all of the consumable products listed below that your organization will likely judge as "green" purchases in future procurements:

- ☐ Paper for copiers/printers
- ☐ Office supplies
- ☐ Fuel
- ☐ Vehicle care products (i.e. pesticides, cleaning products)
- ☐ Other products

Other (please specify)

3. Please list the environmental/green issues that were taken into consideration for your most recent green purchases (e.g., recycling of water; reduction of pollutants; etc.). Please be specific.

9. Further Interest / Comments

1. Would your organization be interested in participating in a demonstration project or implementation project to further investigate the advantages and disadvantage of cooperative purchasing? Please select all projects you may be interested in below:

- ☐ Travel services through the State Travel Management Program
- ☐ State purchasing card that permits rebates on qualified purchases
- ☐ Fuel cards for purchase of retail (non-bulk) fuel
- ☐ "Green" purchasing for items such as office supplies or vehicle care products
- ☐ Vehicle maintenance parts and supplies
- ☐ Intelligent transportation system products (software or hardware) such as automated scheduling and routing software, mobile data terminals, automated vehicle location or geographic information systems, electronic payment systems
- ☐ Vehicle management information systems
- ☐ Other

Other (please specify)

2. Would your organization be interested in a service that provided information on "green" and environmentally focused products?

- ◯ Yes, if at no cost
- ◯ Yes, if at minimal cost
- ◯ No
- ◯ Not sure at this time

3. Please provide any further comments you might have regarding cooperative purchasing and/or environmentally-responsible/"green" purchasing.

10. THANK YOU

APPENDIX G: RESPONDENTS TO THE SURVEY ON COOPERATIVE AND GREEN PURCHASING

Urban and Rural Transit Providers

Transit Provider Classification	*Transit Provider*	*Respondent (Y=Yes)*
Major Urban	Capital Metropolitan Transportation Authority	
Major Urban	Dallas Area Rapid Transit	Y
Major Urban	Metropolitan Transit Authority Harris County	
Major Urban	Via Metropolitan Transit	
Large Urban	Corpus Christi Regional Transportation Authority	
Large Urban	Denton County Transportation Authority	Y
Large Urban	El Paso Mass Transit Department, City Of El Paso	
Large Urban	Fort Worth Transportation Authority	
Large Urban	Lubbock, City Of	Y
Small Urban	Abilene, City Of	Y
Small Urban	Amarillo, City Of	
Small Urban	Beaumont, City Of	
Small Urban	Brownsville, City Of	Y
Small Urban	Galveston, City Of	Y
Small Urban	Laredo, City Of	
Small Urban	Longview, City Of	Y
Small Urban	Midland-Odessa Urban Transit	Y
Small Urban	Port Arthur, City Of	
Small Urban	Texarkana, City Of	
Small Urban	Tyler, City Of	Y
Small Urban	Waco, City Of	
Small Urban	Wichita Falls, City Of	
Limited Eligibility Provider	Arlington, City Of	
Limited Eligibility Provider	Grand Prairie, City Of	
Limited Eligibility Provider	Mesquite, City Of	Y
Limited Eligibility Provider	North Richland Hills, City Of	
Combination	Lower Rio Grande Valley Dev County	
Combination	Brazos Transit District	
Combination	Collin County Committee On Aging	
Combination	Concho Valley Transit District	Y
Combination	Golden Crescent Regional Plan	Y
Combination	Gulf Coast Center	Y
Combination	Hill Country Transit District	
Combination	Texoma Area Paratransit System	
Rural	Alamo Area Council Of Governments	Y
Rural	Ark-Tex Council Of Governments	

Transit Provider Classification	***Transit Provider***	***Respondent (Y=Yes)***
Rural	Aspermonte Small Business Development	
Rural	Bee Community Action Council	
Rural	Capital Area Rural Transit System	
Rural	Caprock Community Action Assn	
Rural	Central Texas Rural Transit District	Y
Rural	Cleburne, City Of	Y
Rural	Colorado Valley Transit	Y
Rural	Community Action Council Of South Texas	
Rural	Community Council Of Southwest Texas, Inc.	Y
Rural	Community Service Inc.	Y
Rural	Del Rio, City Of	Y
Rural	East Texas Council Of Governments	
Rural	El Paso County	
Rural	Fort Bend County	Y
Rural	Heart Of Texas Council Of Governments	Y
Rural	Kaufman Area Rural Transportation	Y
Rural	Kleburg County Human Services	
Rural	Panhandle Community Services	
Rural	Public Transit Services	
Rural	Rolling Plains Management Corp.	
Rural	Rural Economic Assistance League	
Rural	Senior Center Resources And Public Transit	Y
Rural	Senior Program For Aging Needs	Y
Rural	So Padre Island (Town), City Of	Y
Rural	South Plains Comm Action Association	
Rural	Southeast Texas Regional Planning Commission	Y
Rural	The Transit System, Inc.	
Rural	Webb County Community Action Agency	
Rural	West Texas Opportunities	
65	**27**	

TxDOT-Funded Agencies

Transit Agency	Respondent (Y=Yes)
100 D.I.D. Memorial Nursing and Rehab. Center (Dumas)	
Adult Day Activity and Health Center (Lubbock)	
Air Force Village Foundation, Inc.	
Air Force Village II	
Alamo Area Development Corporation	
Aliviane NO-AD, Inc. (IRWCRC)	
Amarillo Multi. Center for the Aging (Jam Werner Adult Day Care)	Y
American Red Cross HIV/AIDS Gtr Hou	Y
Amigos Del Valle, Inc	
Andrews Center Smith County	
Atlanta Memorial Hospital Foundation	
Austin Groups for the Elderly (AGE)	
Austin State School	
Austin Travis County MHMR Center	
Baptist Memorial Geriatric Center	
Bastrop County Emergency Food Pantry	
Bienvivir Senior Health Services	Y
Big Bend Community Action Agency	
Big Bend Community Action Committee, Inc	Y
Big Bend Regional Medical Center	
Bowie Senior Citizens Project, Inc.	Y
Buckner Villas	
Burke Foundation	
C.C. Young Memorial Home	
Camp County Develop. Disabled Association	
Camp Summit	
Central Texas Senior Ministry (CTSM)	Y
Centro de Salud Familiar La Fe, Inc.	
Cherokee County MR Association	Y
Christian Retirement Center	
Christian Senior Services	
Christian Village	
City of Balch Springs	
City of Burleson/Senior Activity	
City of Desoto Senior Center	
City of Marfa	
City Of Port Isabel	Y
City of Portland	
City of Presido	

Transit Agency	Respondent (Y=Yes)
City of San Antonio Support Services for Elderly	
Cliff Haven Adult Day Health, Inc	
Community Action Nacogdoches, Inc	
Community and Senior Services of Midland, Inc.	
Concerned Citizens of Jack County	
Cornerstone Retirement Community	
Dallas County Department of Health	
Dawson County Senior Citizens Center	
Divesicare Normandy Terrace	
Duval County	
East Texas Open Door, Inc.	
East Texas Workforce Board	
Easter Seals-Central Texas	
Eden Heights, Inc.	
Eden Home for the Aged, Inc.	
Edward Abraham Memorial Home	
Electra Service Corporation	Y
Elizabeth J. Bivins Home for the Aged	
Ella Austin Community Center	
Evangelical Lutheran Good Sam Soc	
Faith In Action Caregivers	
Faith in Action Caregiving	
Farwell Convalescent Center	
First United Methodist Church	
Fort Bend Senior Citizens, Inc	
Foundation for MHMR/Permian Basin (PBCC)	Y
Fowler Christian Apartments	
Golden Age Home	
Goliad County	
Gonzales Community Health Centers of South Central Texas, Inc.	
Goodwill Industries of San Antonio	Y
Grace Presbyterian Village, Inc.	Y
Greater Randolph Services Program Inc.	
Harlandale Presbyterian Church Nutrition Center	
Hays County Veterans Administration	
Hill Country MHMR at Llano	Y
Hockley County Senior Citizens Association	
Independence Manor II	
Inman Christian Center	Y
Jim Hogg County	
King's Manor Methodist Home, Inc.	

Transit Agency	Respondent (Y=Yes)
Kirby Senior Center	
Lubbock Independent School District	
Lutheran Social Services	
Marian Moss Enterprises, Inc.	
Martin County Senior Center	
Mary Lee Foundation	Y
Medical Center Nursing Home	
MHMR Services for Concho Valley	
Midtown Manor	
Mission Road Develop. Center	Y
Mosaic	
Navarro County Association for Retarded Citizens	
Nazareth Hall Nursing Center	
Office of Transit Services, Community Services Department of Harris County	Y
Panhandle Independent Living Center	
Pecos Senior Center	
Plano Community Homes Sponsor	
Prairie Acres Nursing Home	
Presa Community Service Center	
Rankin Senior Citizens Services, Inc.	Y
Rio Concho East	
Rio Concho Manor	
Rio Concho West	
Rio Grande State Center	
Sabine Valley Center	
Salvation Army William Booth Garden Apartments	
San Antonio AIDS Foundation	
San Antonio Housing Authority	
San Antonio Lighthouse	
San Juan de Los Lagos Church	
Senior Adult Services	
Senior Citizen Project of Chambers County	
Senior Citizens Services of Texarkana	
Seven Acres Jewish Geriatric Center	
Southwest Key Program, Inc.	
St. Gregory the Great Parish	
St. Vincent De Paul Catholic Church	
Starr County	
Sterling County	
Sunshine House, Inc.	
Tarrant County/American Red Cross	

Transit Agency	Respondent (Y=Yes)
Terrell County Senior Citizens Transportation Program	
Texarkana Resources for the Disabled	
Texarkana Special Education Center, Inc	
The Friendship Center	Y
Thomason Health Service Foundation	
Town of Van Horn	
Trinity Terrace Retirement Center	
Twin Oakes	
United Cerebral Palsy	
Ward County Grandfalls Senior Citizens	
Ward County Senior Citizens Center	Y
Warm Springs Resource Center	
West Texas Christian Foundation	
White Acres Good Samaritan	
Williamson Burnet County Opportunities	
Wilmer Senior Center	Y
Workforce Solutions	
Young County Senior Citizens Association	Y
Young County Senior Cub Center	
Zapata County	
Total TxDOT-Funded Providers Surveyed = 141	22

APPENDIX H: MEMBERS OF THE STATE OF TEXAS COOPERATIVE PURCHASING PROGRAM

I. Urban and Rural Transit Providers

Classification	*Transit Provider*	*Texas Cooperative Agency #*
Major Urban	Capital Metropolitan Transportation Authority	K2276
Major Urban	Dallas Area Rapid Transit	K2204
Major Urban	Metropolitan Transit Authority	K1018
Major Urban	Via Metropolitan Transit	K0152
Large Urban	Corpus Christi Regional Transportation Authority K	0001
Large Urban	Denton County Transportation Authority	K0037
Large Urban	El Paso Mass Transit Department, City of El Paso	
Large Urban	Fort Worth Transportation Authority	K2200
Large Urban	Lubbock, City Of	M0007
Combo Small Urban/Rural	Brazos Transit District	K0212
Combo Small Urban/Rural	Collin County Committee On Aging	
Combo Small Urban/Rural	Concho Valley Transit District	
Combo Small Urban/Rural	Golden Crescent Regional Plan	G2350
Combo Small Urban/Rural	Gulf Coast Center	R0006
Combo Small Urban/Rural	Hill Country Transit District	
Combo Large Urban/Small Urban/Rural	Lower Rio Grande Valley Dev Council	G1080
Combo Small Urban/Rural	Texoma Area Paratransit System	A7290
Limited Eligibility Provider	Arlington, City Of	M7200
Limited Eligibility Provider	Grand Prairie, City Of	M0574
Limited Eligibility Provider	Mesquite, City Of	M0571
Limited Eligibility Provider	North Richland Hills, City Of	M7205
Small Urban	Abilene, City Of	M2211
Small Urban	Amarillo, City Of	M1880
Small Urban	Beaumont, City Of	
Small Urban	Brownsville, City Of	M0310
Small Urban	Galveston, City Of	M0843
Small Urban	Laredo, City Of	M2400
Small Urban	Longview, City Of	M0923
Small Urban	Midland-Odessa Urban Transit	K0008
Small Urban	Port Arthur, City Of	
Small Urban	Texarkana, City Of	M0190
Small Urban	Tyler, City Of	M2120
Small Urban	Waco, City Of	M1612
Small Urban	Wichita Falls, City Of	
Rural	Alamo Area Council Of Governments	G0150

Classification	*Transit Provider*	*Texas Cooperative Agency #*
Rural	Ark-Tex Council Of Governments	G0190
Rural	Aspermonte Small Business Development	
Rural	Bee Community Action Council	
Rural	Capital Area Rural Transit System	
Rural	Caprock Community Action Association	A0078
Rural	Central Texas Rural Transit District	K0421
Rural	Cleburne, City Of	M1261
Rural Co	lorado Valley Transit	
Rural	Community Action Council Of South Texas	
Rural	Community Council Of Southwest Texas, Inc.	A0083
Rural Com	munity Service Inc.	
Rural	Del Rio, City Of	M2330
Rural	East Texas Council Of Governments	G0920
Rural	El Paso County	C0710
Rural	Fort Bend County	C0790
Rural	Heart Of Texas Council Of Governments	G1610
Rural	Kaufman Area Rural Transportation	K2282
Rural	Kleburg County Human Services	
Rural Panhandle	Community Services	A0035
Rural Pub	lic Transit Services	
Rural	Rolling Plains Management Corp.	A0157
Rural	Rural Economic Assistance League	
Rural	Senior Center Resources and Public Transit	A7292
Rural	Senior Program For Aging Needs	
Rural	South Padre Island (Town), City Of	M0313
Rural	South Plains Comm Action Association	A1100
Rural	Southeast Texas Regional Planning Commission	
Rural	The Transit System, Inc.	K0009
Rural	Webb County Community Action Agency	
Rural West	Texas Opportunities	A0580

II. TxDOT-Funded Transit Providers

Transit Provider	*Texas Cooperative Agency #*
100 D.I.D. Memor Nurse and Rehab Center (Dumas)	
Adult Day Activity and Health Center (Lubbock)	
Air Force Village Foundation, Inc.	
Air Force Village II	
Alamo Area Development Corporation	
Aliviane NO-AD, Inc. (IRWCRC)	
Amarillo Multi. Center for the Aging (Jam Werner Adult Day Care)	
American Red Cross HIV/AIDS Gtr Hou	
Amigos Del Valle, Inc	
Andrews Center Smith County	R2120
Atlanta Memorial Hospital Foundation	
Austin Groups for the Elderly (AGE)	
Austin State School	
Austin Travis County MHMR Center	R2270
Baptist Memorial Geriatric Center	
Bastrop County Emergency Food Pantry	
Bienvivir Senior Health Services	A0086
Big Bend Community Action Agency	
Big Bend Community Action Committee, Inc	
Big Bend Regional Medical Center	
Bowie Senior Citizens Project, Inc.	
Buckner Villas	
Burke Foundation	R0030
C.C. Young Memorial Home	
Camp County Develop. Disabled Association	
Camp Summit	
Central Texas Senior Ministry (CTSM)	
Centro de Salud Familiar La Fe, Inc.	
Cherokee County MR Association	
Christian Retirement Center	
Christian Senior Services	
Christian Village	
City of Balch Springs	M7570
City of Burleson/Senior Activity	M1260
City of Desoto Senior Center	M0578
City of Marfa	
City Of Port Isabel	M1230
City of Portland	M2050
City of Presido	

Transit Provider	*Texas Cooperative Agency #*
City of San Antonio Support Services for Elderly	M0152
Cliff Haven Adult Day Health, Inc	
Community Action Nacogdoches, Inc	
Community and Senior Services of Midland, Inc.	
Concerned Citizens of Jack County	
Cornerstone Retirement Community	
Dallas County Department of Health	C0570
Dawson County Senior Citizens Center	C0580
Divesicare Normandy Terrace	
Duval County	
East Texas Open Door, Inc.	
East Texas Workforce Board	
Easter Seals-Central Texas	
Eden Heights, Inc.	
Eden Home for the Aged, Inc.	A7308
Edward Abraham Memorial Home	
Electra Service Corporation	
Elizabeth J. Bivins Home for the Aged	
Ella Austin Community Center	
Evangelical Luth Good Sam Soc	
Faith In Action Caregivers	
Farwell Convalescent Center	
First United Methodist Church	
Fort Bend Senior Citizens, Inc	
Foundation for MHMR/Permian Basin (PBCC)	
Fowler Christian Apartments	
Golden Age Home	
Goliad County	C0880
Gonzales Community Health Centers of South Central Texas, Inc.	
Goodwill Industries of San Antonio	
Grace Presbyterian Village, Inc.	
Greater Randolph Services. Program Inc.	
Harlandale Presbyterian Church Nutrition Center	
Hays County Veterans Administration	C1050
Hill Country MHMR at Llano	
Hockley County Senior Citizens Association	C0043
Independence Manor II	
Inman Christian Center	
Jim Hogg County	C0044
King's Manor Methodist Home, Inc.	
Kirby Senior Center	
Lubbock Independent School District	S1523

Transit Provider	*Texas Cooperative Agency #*
Lutheran Social Services A	1111
Marian Moss Enterprises, Inc.	
Martin County Senior Center	C0002
Mary Lee Foundation	
Medical Center Nursing Home	
MHMR Services for Concho Valley	
Midtown Manor	
Mission Road Develop. Center	A2405
Mosaic	
Navarro County Association for Retarded Citizens	
Nazareth Hall Nursing Center	
Office of Transit Services, Community Services Department of Harris County	C1010
Panhandle Independent Living Center	
Pecos Senior Center	
Plano Community Homes Sponsor	
Prairie Acres Nursing Home	
Presa Community Service Center	A7287
Rankin Senior Citizens Services, Inc.	
Rio Concho East	
Rio Concho Manor	
Rio Concho West	
Rio Grande State Center	
Sabine Valley Center/Tyler District	
Sabine Valley Center/Atlanta District	
Salvation Army William Booth Garden Apartments	
San Antonio AIDS Foundation	
San Antonio Housing Authority	K0156
San Antonio Lighthouse	A2222
San Juan de Los Lagos Church	
Senior Adult Services	
Senior Citizen Project of Chambers County	
Senior Citizens Services of Texarkana	
Seven Acres Jewish Geriatric Center	A0064
Southwest Key Program, Inc.	A2271
St. Gregory the Great Parish	
St. Vincent De Paul Catholic Church	
Starr County	C2551
Sterling County	C2160
Sunshine House, Inc.	
Tarrant County/American Red Cross	C2202
Terrell County Senior Citizens Transp Program	C2220
Texarkana Resources for the Disabled	

Transit Provider	*Texas Cooperative Agency #*
Texarkana Special Education Center, Inc	
The Friendship Center	
Thomason Health Service Foundation	
Town of Van Horn	
Trinity Terrace Retirement Center	
Twin Oakes	
United Cerebral Palsy	
Ward County Grandfalls Senior Citizens	
Ward County Senior Citizens Center	
Warm Springs Resource Center	
West Texas Christian Foundation	
White Acres Good Samaritan	
Williamson Burnet County Opportunities	
Wilmer Senior Center	
Workforce Solutions	K0012
Young County Senior Citizens Association	
Young County Senior Cub Center	
Zapata County	C2530
Total 141	**33**

APPENDIX I: URBAN AND RURAL TRANSIT PROVIDER PURCHASE CARD USERS

REQUEST FOR INFORMATION SUMMARY

Transit Provider	*Use of State Purchase Card?*	*Use of Non-State Purchase Cards?*
Major Urban Transit Providers		
Capital Metropolitan Transit Authority	No	**Yes**
Dallas Area Rapid Transit	**Yes**	No
Metropolitan Transit Authority	**Yes**	No
VIA Metropolitan Transit Authority	**Yes**	No
Large Urban Transit Providers		
Corpus Christi Transit Authority	No	
Denton County Transportation Authority	**Yes**	No
El Paso Mass Transit Department, City of El Paso No		
Forth Worth Transportation Authority	**Yes**	No
Lubbock, City of	No	No
Limited Eligibility Transit Providers		
Arlington, City of	**Yes**	No
Grand Prairie, City of	**Yes**	No
Mesquite, City of	No	
North Richland Hills, City of	**Yes**	No
Combination Small Urban and Rural Transit Providers		
Brazos Transit District	No	No
Collin County Committee on Aging	No	Yes
Concho Valley Transit District	No	
Golden Crescent Regional Planning Commission N	o	
Gulf Coast Center (Connect Transit)	No	No
Hill Country Transit District	No	No
Lower Rio Grande Valley Development Council No		
Texoma Area Paratransit Service	No	
Small Urban Transit Providers		
Abilene, City of	No	No Purchase Cards—do use retail credit cards
Amarillo, City of	No	
Beaumont, City of	No	No

Transit Provider	*Use of State Purchase Card?*	*Use of Non-State Purchase Cards?*
Brownsville, City of	No	
Galveston, City of	No	No
Laredo, City of	No	
Longview, City of	Yes at City only—indicated not used in the transit operation	No
Midland-Odessa Urban Transit	Yes	No
Port Arthur, City of	No	
Texarkana, City of	Yes	No
Tyler, City of	No	
Waco, City of	No	Yes—with transaction limitations
Wichita Falls, City of	No	No
Rural Transit Providers		
Alamo Area Council of Governments	Yes	No
Ark-Tex Council of Governments	No	No
Aspermont Small Business Development Center No		No
Bee County Community Action Agency	No	
Capital Area Rural Transit System	No	No
Caprock Community Action Association	No	
Central Texas Rural Transit District	No	Yes—limited to management
Cleburne, City of	No	No
Colorado Valley Transit	No	No
Community Action Council of South Texas	No	
Community Council of Southwest Texas	No	No
Community Services Incorporated No		
Del Rio, City of	No	No
East Texas Council of Governments	Yes	No
El Paso County	Service is 100% contracted	
Fort Bend County	Yes	No
Heart of Texas Council of Governments	Yes	No
Kaufman Area Rural Transportation	No	No
Kleburg County Human Services	No	
Panhandle Community Services, Inc.	No	Yes
Public Transit Services	No	
Rolling Plains Management Corporation	No	
Rural Economic Assistance League	No	No
Senior Center Resources and Public Transit	No	No
Senior Program for Aging Needs	No	
South Padre Island	No	No purchase cards—do use retail cards
South Plains Community Action Association No		No purchase cards—do use retail credit card
Southeast Texas Regional Planning Commission No		No
The Transit System, Inc.	No	No

Transit Provider	*Use of State Purchase Card?*	*Use of Non-State Purchase Cards?*
Webb Community Action Agency	No	No
West Texas Opportunities	No	No purchase cards—do use retail card
TxDOT-Funded Transit Providers		
Austin State School		
Bienvivir Senior Health Services	Yes	
City of Burleson/Senior Activity	Yes	
Goliad County	Yes	
Harris County Community Services Dept.	Yes	
Hill Country MHMR at Llano		
Hockley County Senior Citizens Association Yes		
Lutheran Social Services	Yes	
Mission Road Develop. Center	Yes	
Rio Grande State Center		
San Antonio Housing Authority	Yes	
Southwest Key Program, Inc.	Yes	
Tarrant County/American Red Cross	Yes	

APPENDIX J: FUEL PURCHASE FOR SMALL URBAN, LIMITED ELIGIBILITY, AND RURAL TRANSIT PROVIDERS

REQUEST FOR INFORMATION SUMMARY

Combined (Small Urban and Rural) Transit Providers

Transit Provider	*Comment*	*Fuel Tank*	*Fuel Cards*	*Separate City and/or County Agreements*	*Local Fuel Station*	*Contractor Provides Fuel*
Brazos Transit District	Operates two urban and one rural system Directly operates Bryan/College Station urban and majority county rural; sub-contracts Woodlands and portion of rural (contractor provides fuel)	Yes—Bryan only	Yes—private company fuel card	No No		Yes
Collin County Committee on Aging	Operates one urban and one rural system	No Yes—	private company	No No		No
Concho Valley Transit District	Operates one urban and one rural system	No No		Yes—agreements with local municipalities and counties	No No	
Golden Crescent Regional Planning Commission	Operates one urban and one rural—subcontracts for a portion of rural service (contractor provides fuel)	No Yes—	private company—only use when necessary	Yes—agreement with City of Victoria and City of Cuero	No Yes	
Gulf Coast Center (Connect Transit)	Operates two urban and one rural system	No Yes—	private company	No No		No
Hill Country Transit District	Operates two urban and one rural system—this information is for urban only	Yes—Urban System: Killeen—diesel tank Yes—Temple—propane tank			Yes—Temple—fuel diesel at local stations	No

Transit Provider	*Comment*	*Fuel Tank*	*Fuel Cards*	*Separate City and/or County Agreements*	*Local Fuel Station*	*Contractor Provides Fuel*
Hill Country Transit District	Operates two urban and one rural system—this information is for rural only	No	No No		Yes—for majority diesel-operated vehicles	No
Lower Rio Grande Valley Development Center	Operates two urban and one rural system—this information is for McAllen Express	No No		Yes—fuels at City of McAllen's fueling station	No No	
Lower Rio Grande Valley Development Center	Operates two urban and one rural system—this information service other than McAllen Express	*Did not respond to inquiry*				
Texoma Area Paratransit Service	Operates one urban and one rural system	*Did not respond to inquiry*				

Limited Eligibility Providers

Transit Provider	*Comment*	*Fuel Tank*	*Fuel Cards*	*Separate City and/or County Agreements*	*Local Fuel Station*	*Contractor Provides Fuel*
Arlington, City of (Handitran)	Urban Limited Eligibility Provider	Yes—division of the city—fuels at City of Arlington fuel tanks	No No		No	No
Grand Prairie, City of	*Did not respond to inquiry*					
Mesquite, City of	*Did not respond to inquiry*					
North East Transportation Services (NETS)	Urban Limited Eligibility Provider—Contracts all service to The T and Red Cross, who provide fuel					Yes

Small Urban Transit Providers

Transit Provider	*Comment*	*Fuel Tank*	*Fuel Cards*	*Separate City and/or County Agreements*	*Local Fuel Station*	*Contractor Provides Fuel*
Abilene, City of	Recently purchased gasoline-operated vehicles	Yes—two 10,000 gallon underground diesel tanks	Yes—private company	No—found too burdensome to transport vehicles back and forth	Yes—arrangement with local businesses for convenience of locations	No
Amarillo Transit Co.	Yes—	department of the city—fuels at City of Amarillo service center	No No		No	No
Beaumont, City of	Diesel (two 35' transit coaches, eight paratransit, one1-ton service truck)—33% of fuel >CNG (sixteen 35' transit)—49% of fuel >Gasoline (two sedans and one ¾ ton pick-up)—9% of fuel >Propane (one paratransit, one forklift, one sweeper /scrubber)—9% of fuel	Yes—diesel tanks and dispenser on site; and CNG fueling station	Yes—private company card for gasoline fueled vehicles	No Yes—l	ocal vendor to fuel propane fueled vehicles	No
Brownsville, City of	Yes		No	No	No	No
Galveston, City of (Island Transit)	Yes		No	Yes—agreement with City of Galveston	No No	
Laredo, City of	Yes		No	No	No	No
Longview, City of (COLT)	Yes—	diesel fuel tank	Yes—fuel card through Harrison County	See fuel cards—Harrison County agreement to provide fuel cards	No No	

Transit Provider	*Comment*	*Fuel Tank*	*Fuel Cards*	*Separate City and/or County Agreements*	*Local Fuel Station*	*Contractor Provides Fuel*
Midland-Odessa Urban Transit District	Yes—	diesel fuel tank onsite	Yes—for unleaded gasoline	No No		No
Port Arthur, City of	Yes—	diesel and propane fuel tank	No No		No	No
Texarkana, City of	Yes		No	No	No	No
Tyler, City of	Yes		No	No	No	No
Waco Transit System	Diesel—66% of fuel Gasoline—34% of fuel	Yes—diesel fuel tank—fuels buses and cut-aways	No Yes—a	greement with City of Waco to fuel unleaded gas—to fuel sedans and minivans	No	
Wichita Falls, City of	Yes—	department of the city—fuels at City of Wichita Falls fuel tanks	No No		No	

Rural Transit Providers

Transit Provider	*Comment*	*Fuel Tank*	*Fuel Cards*	*Separate City and/or County Agreements*	*Local Fuel Station*	*Contractor Provides Fuel*
Alamo Area Council of Governments	No		Yes—state fuel card	No No		No
Ark-Tex Rural Transit District	No		Yes—private company	Yes—agreements with Red River, Hopkins and Titus counties	No No	
Aspermont Small Business Development Center, Inc.	No		Yes—used only for long out-of-area trips	No Yes—c	harge account agreements with locally owned business in seven counties	No

Transit Provider	*Comment*	*Fuel Tank*	*Fuel Cards*	*Separate City and/or County Agreements*	*Local Fuel Station*	*Contractor Provides Fuel*
Bee Community Action Agency	No		Yes—private company fuel card for emergency only	Yes—agreement with county	No No	
Capital Area Rural Transit	Yes—	propane tanks only	Yes—private company	No No		No
Central Texas Rural Transit District	Provides service to 11 counties	No Yes—	private company	No No		No
City of Cleburne (CleTrans)	Yes—	department of the city—fuels at City of Cleburne's fuel tanks for diesel and gasoline	No No		Yes—local agreement for propane fuel (phasing out in next few weeks)	No
Colorado Valley Transit	Yes—	fuel tank in Columbus	Yes—private company	No No		No
Community Action Council of South Texas	*Did not respond to inquiry*					
Community Council of Southwest Texas	No		Yes—private company—moving to state fuel card in a few weeks (10 to 25 cents cheaper)	No No		No
Community Services Incorporated, Corsicana	No		Yes—private company fuel cards	No No		No
City of Del Rio	No		Yes—private company fuel card for out-of-town trips only	No Yes—	private arrangement with local business	No

Transit Provider	*Comment*	*Fuel Tank*	*Fuel Cards*	*Separate City and/or County Agreements*	*Local Fuel Station*	*Contractor Provides Fuel*
El Paso County	Contractor operates rural transit service and fuels vehicles El Paso County operates a hybrid liquefied natural gas (LNG) (primary) and compressed natural gas (CNG) (secondary) vehicle as a Texas Commission on Environmental Quality pilot project	No No		Yes—agreement to fuel one hybrid vehicle with LNG/CNG at City of El Paso, Sun Metro	No Yes	
East Texas Council of Governments	No		Yes—uses the state fuel card	No No		No
Fort Bend County	FBC both operates directly and contracts service	Yes (FBC is a division of the county—uses county fuel tanks)	No—not used in the transit operations—Fort Bend County uses the state fuel card for other county services	No—division of the county	No Yes—	contractor fuels at county tanks but also has a fuel card to fuel when county is closed or for convenience
Heart of Texas Council of Governments						Yes
Kaufman Area Rural Transit	No		Yes—private company	Yes—agreement with Kaufman County	No No	
Kleburg County Human Services	*Did not respond to inquiry*					

Transit Provider	*Comment*	*Fuel Tank*	*Fuel Cards*	*Separate City and/or County Agreements*	*Local Fuel Station*	*Contractor Provides Fuel*
Panhandle Community Services Inc.	No		Yes—private company	No No		No
Public Transit Services	*Did not respond to inquiry*					
Rolling Plains Management Corp.	No		Yes—private company	No Yes—	fuel locally and sent a monthly statement	No
Rural Economic Assist. League	No		Yes—private company	Yes—uses two county overhead tank sites	No	
Senior Center Resources and Public Transit	No		Yes—private company	Yes—City of Irving	No	
Senior Program for Aging Needs	*Did not respond to inquiry*					
South East Texas Regional Planning Commission	Sub-contracts service (vehicles operate on diesel, gas, and propane)	No—sub-contractors do not have their own tanks	No No		No	Yes—private company cards
South Padre Island	Yes—	one gas and one diesel tank	No No		No	
South Plains Community Action Association	No		No	No	Yes—agreements with local providers—pay by purchase order	

Transit Provider	*Comment*	*Fuel Tank*	*Fuel Cards*	*Separate City and/or County Agreements*	*Local Fuel Station*	*Contractor Provides Fuel*
The Transit System	No		Yes—state fuel card	Yes—agreement with city of Granbury for grant of $6,000 and ability to purchase additional fuel at bulk rate	No	
Webb Community Action Agency	No		Yes—private company fuel keys	Yes—county agreement	Yes—agreement with local Propane Energy Co. to fuel two propane vehicles	
West Texas Opportunities	No		Yes—private company	No Yes—	five small local vendors allow drivers to sign a ticket and bill once per month	

TxDOT-Funded Providers

Transit Provider	*Fuel Cards*
Andrews Center Smith County	Yes—State of Texas
Austin State School	Yes—State of Texas
Hill Country MHMR at Llano	Yes—State of Texas
Rio Grande State Center	Yes—State of Texas
Southwest Key Program, Inc.	Yes—State of Texas

Five of 141 TxDOT-funded client-based providers hold a State of Texas fuel card.
TxDOT-funded client-based providers were not surveyed for other types of fueling arrangements.

APPENDIX K: VEHICLE MAINTENANCE PHONE SURVEY QUESTIONNAIRE

CASE STUDY PHONE QUESTIONNAIRE

Date: _____

Agency Name: _____

Agency type: Please check the one that applies to your agency.

Large Urban _____
Small Urban _____
Rural _____
Client Based _____

Please answer the following questions.

For agencies making purchases through cooperative purchasing programs:

1. List the items you purchase and the cooperative purchasing program from which you purchase those items.
2. If vehicles and fuels are the main items purchased cooperatively, what are the others?
3. What preventive or regular maintenance items are purchased cooperatively (for example tires, lubricants, brake components, electrical components, AC, other wear items etc.)?
4. What are your total costs?
5. What are the cost and frequency of purchase of each item listed below?

Items Cost		Frequency of purchasing *
Vehicles		
Vehicle Parts		
Fuel		
Office Supplies/Equipment		
Communication Equipment		
Automated Scheduling and Routing Software		
Mobile Data Terminal/Computers		
Automated Vehicle Location or Geographical Information Systems		
Electronic Payment Systems		
Vehicle Management Information Systems (VMIS)		
Maintenance Services		
Other Equipment, Goods, Services		

*weekly—1, monthly—2, once in 2–4 months—3, semi-annually—4, annually—5

6. What items are most frequently bought without the cooperative purchasing programs?
7. Why don't you buy items like vehicle parts, fuel, automated scheduling and routing software, electronic payment systems, vehicle management information systems, maintenance services from any cooperative purchasing programs?

8. Where do you buy these items?
   Retail _____
   Internet _____
   Mail-order Catalog _____
   Dealership _____
   Other _____
9. Do you make purchases through multiple cooperative purchasing programs?
   If Yes, What are the reasons for using multiple cooperative purchasing programs?

For agencies NOT making purchases through cooperative purchasing programs:

1. Will you use cooperative programs in the future?
2. What products do you need cooperative purchasing programs to provide?
3. What is the turnaround time you prefer?
4. What is your expected percentage of discount rate compared to the market price?
5. What type of improvement are you looking for in the quality of products/services?
6. What type of flexibility (i.e., product and vendor choice) are you looking for in an ideal cooperative purchasing program?
7. What are the expected characteristics/features of a vendor?
8. What do you consider administrative cost savings?

APPENDIX L: DETAILED CASE STUDY PHONE QUESTIONNAIRES

COOPERATIVE CASE STUDY PHONE QUESTIONNAIRE

Date: _____
Agency Name: _____
Contact: _____

Agency type: Please check the one that applies to your agency.

Large Urban _____
Small Urban _____
Rural _____
Client-Based _____

List the type and the number of vehicles you have in your fleet.

Please answer the following questions.

1. List the top five annual cost items you purchase, excluding fuel and vehicles, and the cooperative purchasing program from which you purchase those items.

No.	Items	Is it purchased cooperatively? Y/N	Name of Cooperative	Total Annual Cost
1				
2				
3				
4				
5				

2. List the top five preventive or regular maintenance items purchased (for example tires, lubricants, brake components, electrical components, AC, other wear items, etc.).

No.	Items	Annual Cost
1		
2		
3		
4		
5		

3. What are the cost and frequency of purchase of each item listed below?

Items Annual	cost	Frequency of purchasing *
Vehicles		
Vehicle Parts		
Office Supplies/Equipment		
Communication Equipment		
Automated Scheduling and Routing Software		
Mobile Data Terminal/Computers		
Automated Vehicle Location or Geographical Information Systems		
Electronic Payment Systems		
Vehicle Management Information Systems (VMIS)		
Maintenance Services		
Other Equipment, Goods, Services		

*weekly—1, monthly—2, once every 2–4 months—3, semi-annually—4, annually—5, more than annually—6

4. From your total annual expenditures, list the top five items that are most frequently bought without the cooperative purchasing programs.

No.	Items	Bought from				
		Retail	Internet	Mail-order catalog	Dealership	Other
1						
2						
3						
4						
5						

4a. Why don't you buy the items in question 4 from any cooperative purchasing programs?

5. In your opinion what type of flexibility (i.e., product and vendor choice) are you gaining by using cooperative purchasing programs? Please select the appropriate category.

Categories			
1 2 3			4
Low flexibility	Moderate flexibility	Flexible	High flexibility
High discount	Moderate discount	Low discount	No discount
Long turnaround	Moderate turnaround	Short turnaround	Short turnaround
High inventory	Moderate inventory	Expanded inventory	Low inventory
Low administration cost	Moderate administration cost	Non-elevated administration cost	High administration cost

6. How did you find out about cooperative purchasing programs that you use?
7. Are you a member of multiple cooperative purchasing programs? How many?
8. What is the estimated percentage of cost savings, if any, you have experienced using cooperative purchasing programs?

NON-COOPERATIVE AGENCIES CASE STUDY PHONE QUESTIONNAIRE

Date: _____

Agency Name: _____

Contact: _____

Agency type: Please check the one that applies to your agency.

Large Urban _____
Small Urban _____
Rural _____
Client-Based _____

List the type and the number of vehicles you have in your fleet.

Please answer the following questions.

1. If made available, would you use cooperative purchasing programs in the future?
2. List the top five products you need the cooperative purchasing programs to provide.

No.	Products	Current Annual Expenditure
1		
2		
3		
4		
5		

2a. If the products listed in question 2 were offered through cooperative purchasing, what percent of savings would you expect the cooperative purchasing to furnish?

3. From the cooperative purchasing standpoint, what is your expectation of the quality of products/services?

4. In your opinion what type of flexibility (i.e., product and vendor choice) are you looking for in an ideal cooperative purchasing program? Please select the appropriate category.

Categories			
1 2 3			4
Low flexibility	Moderate flexibility	Flexible	High flexibility
High discount	Moderate discount	Low discount	No discount
Long turnaround	Moderate turnaround	Short turnaround	Short turnaround
High inventory	Moderate inventory	Expanded inventory	Low inventory
Low administration cost	Moderate administration cost	Non-elevated administration cost	High administration cost

5. From your total annual expenditures, list the top five items that are most frequently bought?

No.	Items	Bought from				
		Retail	Internet	Mail-order catalog	Dealership	Other
1						
2						
3						
4						
5						