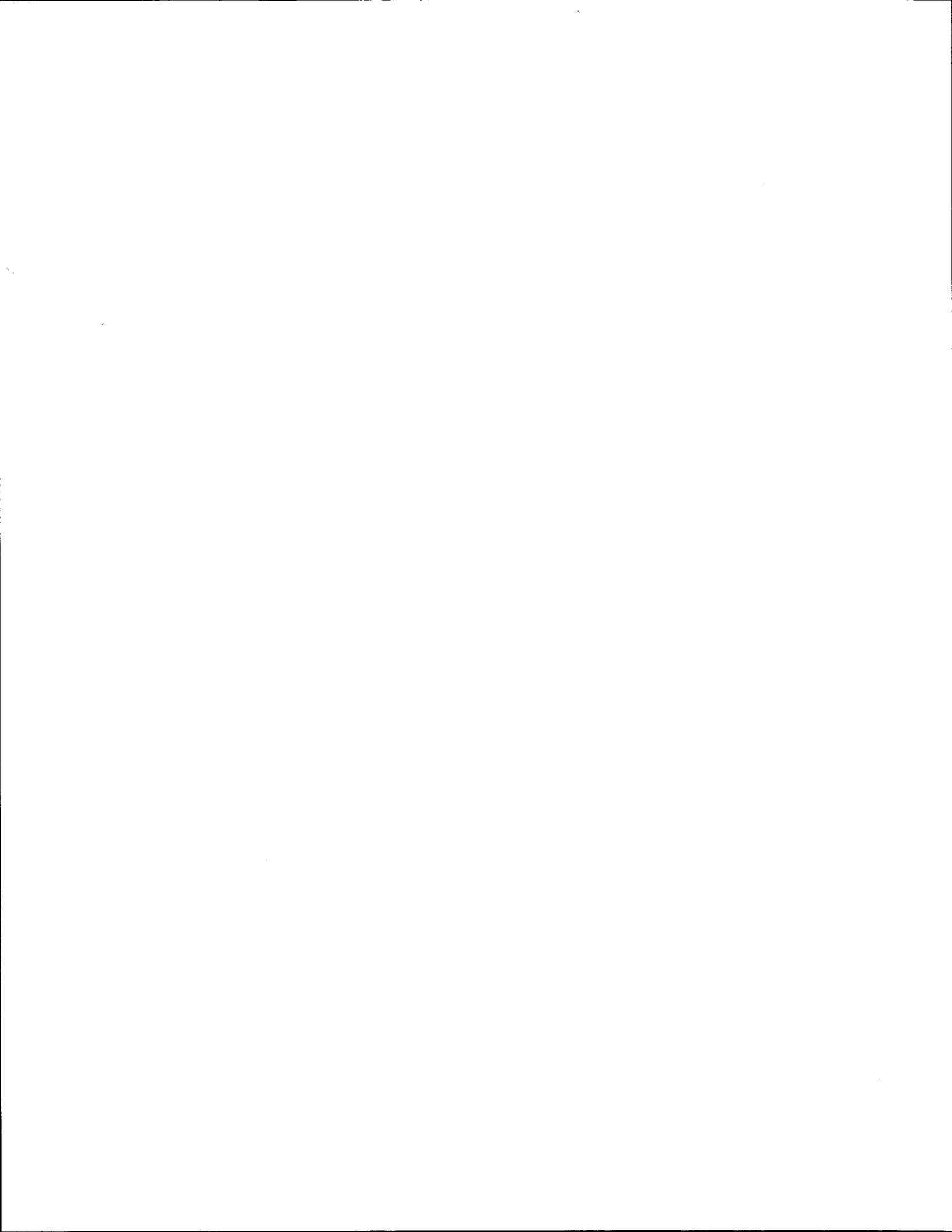


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ELECTRONIC LIEN AND TITLING

by

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DISCLAIMER

The contents of this report reflect the views of the author who is 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 Texas Department of Transportation (TxDOT). This report does not constitute a standard, specification, or regulation, nor is it intended to be used for the purpose of soliciting bids for the construction or implementation of the system(s) described.

It is the policy of Texas Transportation Institute (TTI) and Texas A&M University to not endorse any specific manufacturer, trademarks, or products. However, it is necessary in the report to identify specific organizations that have experience in the development and implementation of electronic lien and titling systems (ELT). It should therefore be noted that the mention of specific organizations in the report does not constitute endorsement of such organizations by TTI or Texas A&M University.

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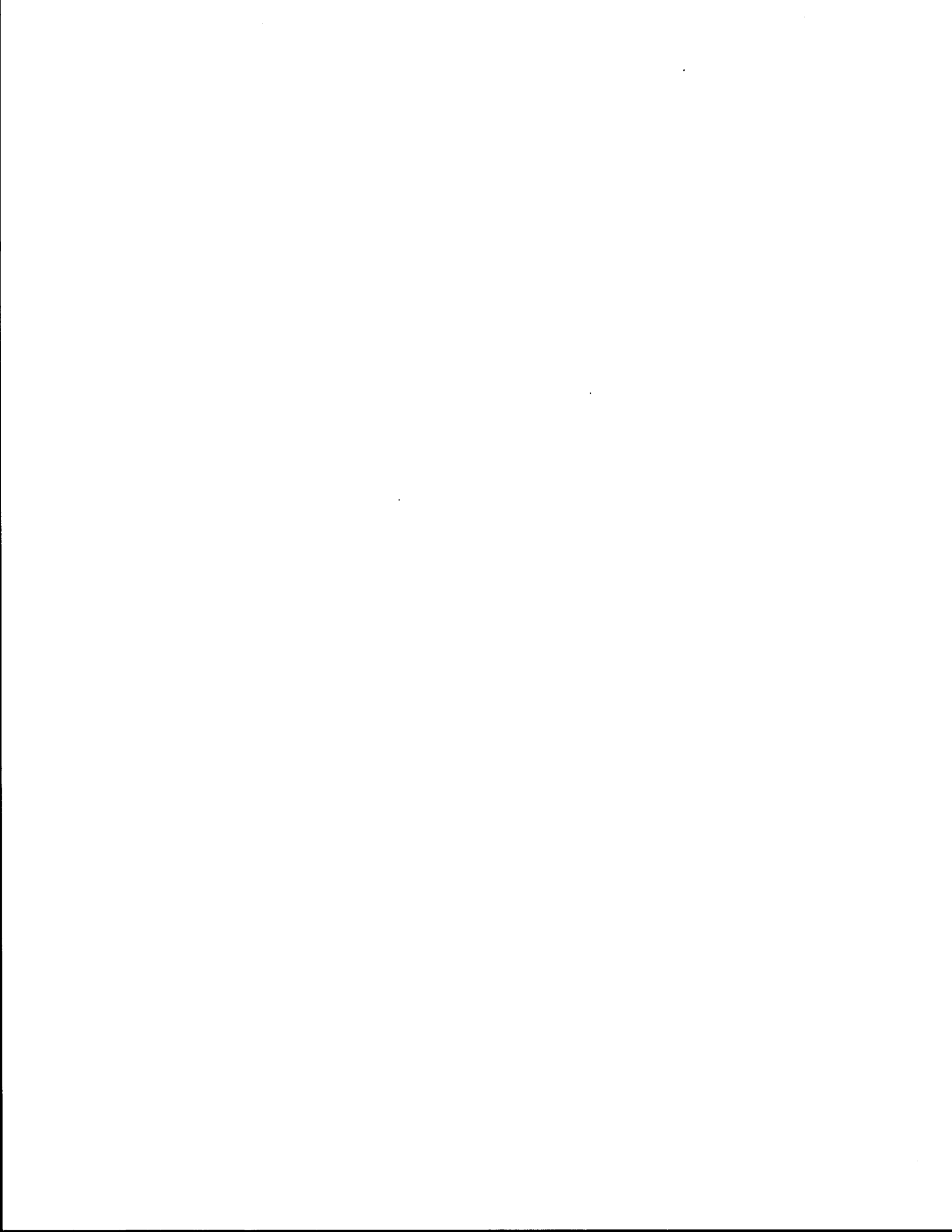
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SUMMARY

Specific improvements in the methods used by TxDOT, such as the Registration and Title System, have sped up issuance of titles in Texas by transferring the information electronically from workstations in county tax offices to TxDOT computers in Austin. However, the end result is the issuance of a title that must be printed on document paper and distributed to lienholders via mail. After liens are cleared, many owners do not receive their titles from the lienholder in a timely manner or misplace the title before it is presented to the tax office for issuance of a clear title. This often results in additional paperwork being filed and processed to verify status and/or create a duplicate. Electronic transfer of the title information to and from lienholders would simplify operations and reduce processing time while saving money.

This research identified the current users of electronic lien and titling systems throughout the United States and evaluated the applicability of the methods used for inclusion in a Texas Electronic Lien and Titling (ELT) system. Organizations involved in providing support for the development of ELT system as well as the support of potential users was investigated and summarized. Recommendations regard an initial implementation and a longer range solution are included.



I. INTRODUCTION

1.1 BACKGROUND

As part of the effort to be responsive to the needs of its customers, the Vehicle Titles and Registration (VTR) Division of the Texas Department of Transportation (TxDOT) is continually investigating advances in technology and their applicability to the processing of vehicle title records. Implementation of the Registration and Title System (RTS) decreased the average amount of time for a motor vehicle title to be issued from weeks to days. Titles to replace those issued by other states and titles for unencumbered vehicles (those with no lien) are routinely processed in less than a week.

However, as impressive as that result is, a large number of titles being issued can require weeks to arrive at their final destination. These are titles to vehicles that have been financed and for which the title must make its way to the office of the financial institution. The application for these titles typically originates at a car dealer's showroom and the total time involved includes any delays that occur as a result of loan initiation, delivery to the county tax office, and the normal processing of the title request.

Titles for motor vehicles that have a lien attached to them are also different from titles to unencumbered vehicles in that the original (negotiable) title is not in the possession of the person who has possession of the vehicle (owner).¹ Rather, the owner can only obtain a clear, unencumbered title upon surrendering the copy originally sent to the financial institution. Of course this title must show that the lien has been paid off before a new title is issued. However, in the current system there is no requirement that the lending institution notify VTR when the lien has been satisfied.² This lack of communication between the financial organization and TxDOT is a potential source of disruption to the orderly processing of title requests. When the title that shows that the lien has been satisfied is misplaced prior to the owner applying for a clear title, obtaining a clear title (required for resale) can be a frustrating experience for the owner. If the financial institution has merged, changed names, or gone out of business this can be a time-consuming process. The implementation of a system that electronically transfers automobile lien and titling information (ELT) would address both the timeliness and accuracy of the information maintained in the TxDOT data bases.

The current processing model is illustrated in Figure 1.

¹Throughout this text an individual owner of an automobile, that has been purchased at a retail dealer, will be used to illustrate concepts or procedures. This is done for convenience and does not imply that this is the only situation to which the illustration is applicable. Purchases by organizations, leases, fleet purchases, and vehicles obtained at wholesale auctions could also be covered by the systems described.

²Where it is unstated to the contrary, it can be assumed that processes and procedures being discussed are those in place in the state of Texas. A wide variety of procedures are in place throughout the United States and if differences are important to the discussion at hand, these will be mentioned.

TEXAS'S CURRENT SYSTEM

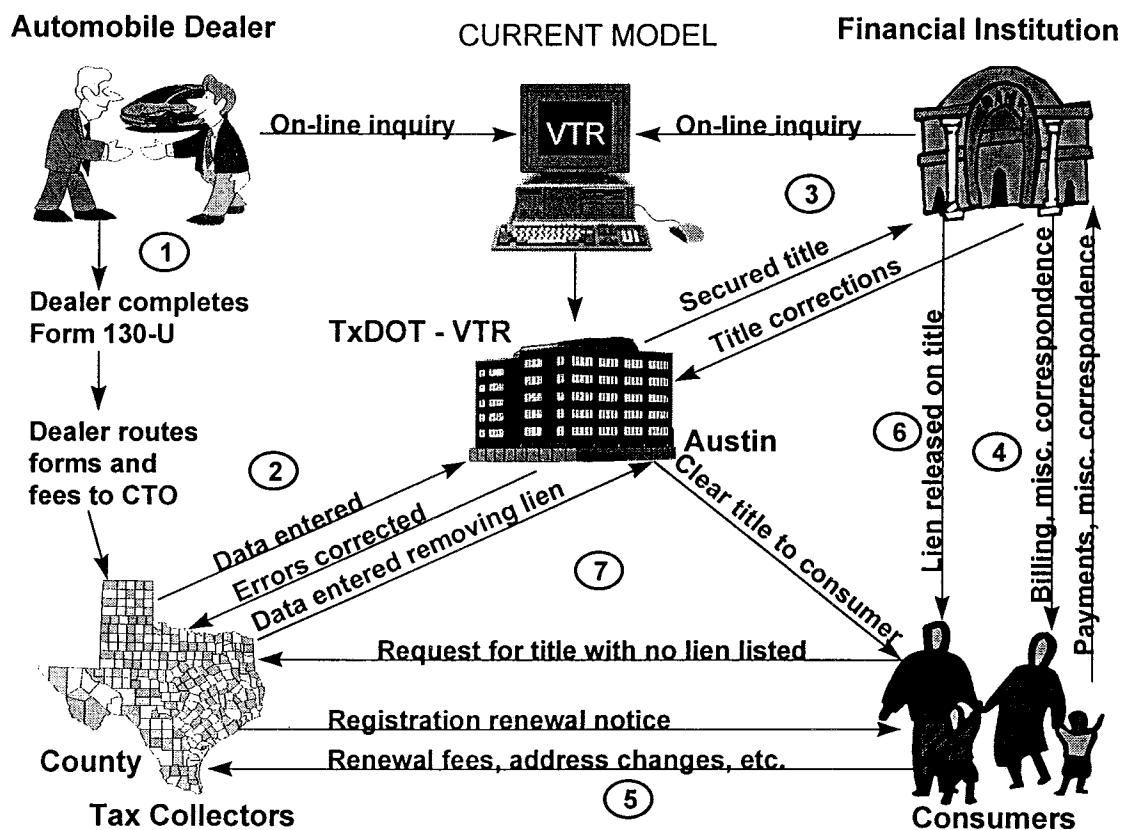


Figure 1. Current Model for Processing Automobile Titles

In the current system, the processing of a title for an automobile, that has a lien, includes the activities shown in Figure 1 and numbered as activities 1 through 7. The process illustrated here starts when an automobile is purchased ①. When the financing has been arranged, the dealer completes the necessary paperwork and submits the request for issuance of a title to VTR through the county tax collector ②. The county tax office, VTR, and the financial institution exchange information until all needed corrections are made and a correct original title is in the possession of the financial institution ③. Over the life of the loan, statements and payments are exchanged between the owner of the vehicle and the financial institution ④. Additionally, there are communications between the owner of the vehicle and VTR through the county tax office ⑤. When the loan is paid off the financial institution signs the original copy of the title and mails this title to the owner ⑥. Finally, the original title signed by the financial institution is presented to the county tax office and VTR is notified that a lien no longer exists. A clear title is issued and sent to the owner ⑦. As illustrated at the top of Figure 1, both the dealers and the financial institutions currently have an *inquiry only* capability with respect to information about current titles.

In recent years, a number of states have initiated efforts to address the issue of paper titles being held by financial institutions. The electronic processing of automobile lien transactions was first proposed in California in 1986 (1). At the request of several lienholders, a process to capture, store, and transfer lien owner records electronically was researched and in 1989 a California branch of General Motors Acceptance Corporation (GMAC) became the initial participant. This system has grown. Today there are over 120 separate financial organizations that process automobile title lien information electronically with the Department of Motor Vehicles in Sacramento. An important point here is that these financial institutions are *not necessarily* located in California. In fact, the physical location of the Volvo and Mercedes-Benz offices that initiate and process the electronic transactions is in Texas. Thus, an important part of any new initiative, *experience*, is readily available in Texas.

The number of states engaged in ELT has grown (albeit slowly) since California's initiative. Currently seven states are at some stage of implementing or operating an ELT system. The states with ELT programs are shown in Table 1 along with the number of financial institutions currently able to conduct electronic business with the licensing agency.

Table 1. States with ELT Systems.

State	Number of Financial Institutions Submitting Transactions	Year ELT System Went On-Line
California	>120	1989
Florida	In pilot testing	1998
Idaho	<10	1995
Massachusetts	1	1996
Pennsylvania	Building the plane	1998
Virginia	6	1996
Washington	<20	1992

As Table 1 indicates, the ELT systems are a relatively new application of our ability to transmit large quantities of data electronically. Further, for those states that have preceded Texas into this arena, the implementation (adding of new users) has been slow. On the other hand, the option of utilizing an electronic system is not necessarily an attractive alternative to all holders of automobile liens. Estimates from those involved indicate that the effort and costs involved might not be offset by the gains if less than 25-50 liens are processed a month.

1.2 OBJECTIVES AND SCOPE OF STUDY

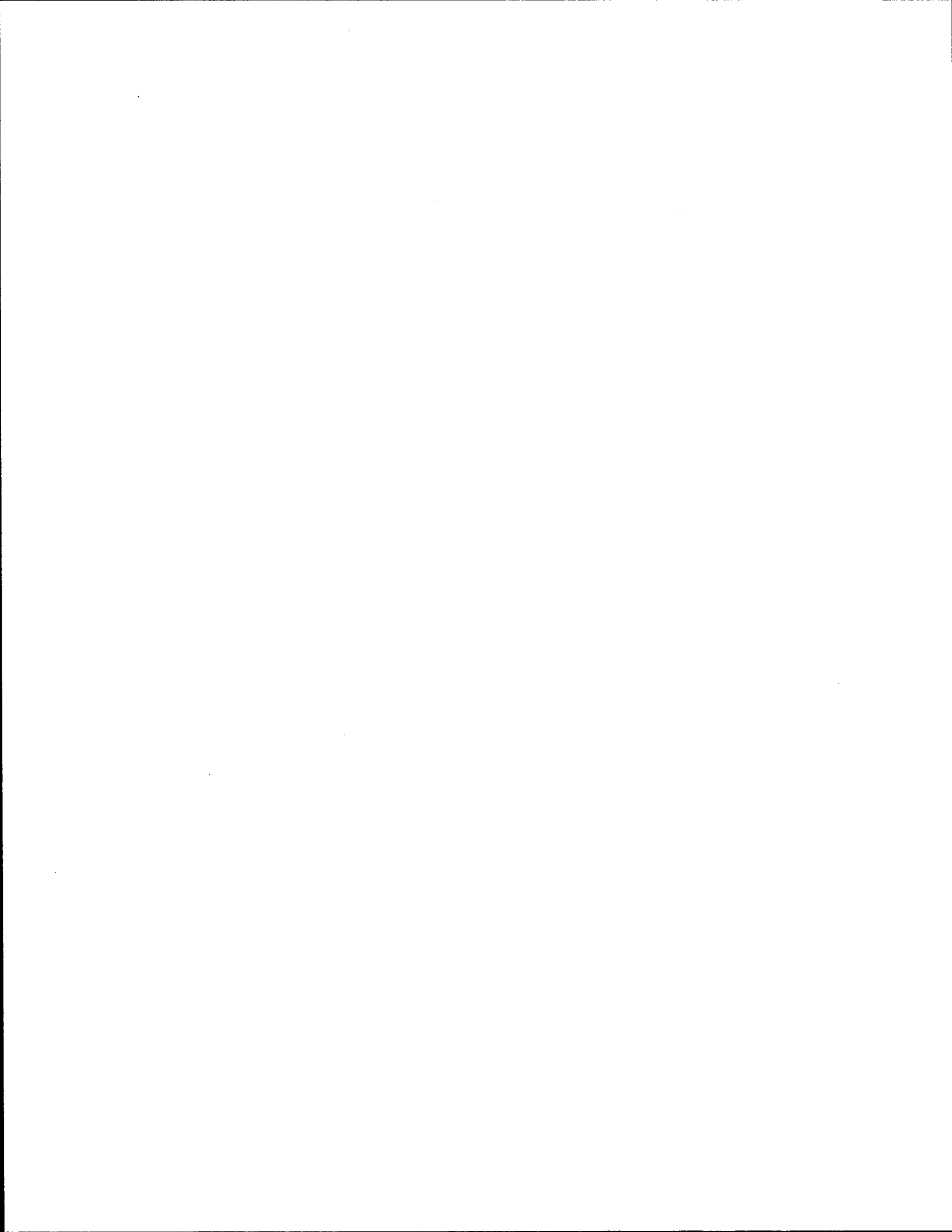
The objectives of this study are as follows:

- Identify the current users of electronic lien and titling systems, including the methodologies used, equipment needs, and issues involved in implementing an ELT system.
- Evaluate the approaches identified and investigate the significant differences.
- Recommend an approach that could be used by the state of Texas in the event that the electronic processing of lien information is implemented.

II. STUDY APPROACH

The approach taken in this study was to identify the people responsible for the implementation of the ELT systems in the states shown in Table 1 and to solicit documentation regarding their systems. From these starting points contacts were made with individuals, private corporations, and associations who had significant involvement in the implementation process. Agencies that indicated they had expertise in ELT systems were sought out and conversations, visits, and correspondence were exchanged to gain an understanding of the effort and processes involved. A list containing the names and addresses of contacts in each of the participating states, as well as contacts at other significant organizations, is included as Appendix A. Additionally, the Virginia Department of Motor Vehicles has an informative Internet site (www.dvm.state.va.us under "Business Opportunities") that discusses their ELT program.

During the course of this investigation, a number of organizations that have assisted in the implementation of ELT systems visited Texas and made presentations regarding their experience and expertise. It should be noted here that the number of organizations with expertise in the specific area of automating automobile lien transactions is very limited. A discussion of some specific organizations that have indicated a willingness to provide assistance in an effort to implement an ELT system in Texas is included in Section 3.4 - Supporting Organizations.



III. STUDY RESULTS

3.1 OVERVIEW

An ELT application allows the lienholder to electronically update the lien information maintained on the state's data base of motor vehicle information. This process, that is sometimes referred to as a "paperless" title system, is in reality a "paper delayed" title system. For, in the end, a paper title for the motor vehicle is still produced, it is just delayed until the lien is paid off. This delay can significantly reduce the number of titles printed since the original title, currently sent to the lienholder, would not be produced.

An ELT system processes a number of different "transaction types" that have been agreed to by the lienholder and the registration agency. While the systems currently in use have some variation, typical transactions used by electronic lienholders are: 1) release their interest to the registered owner; 2) change to a new lienholder (either electronic or non-electronic); 3) transfer interest to another branch within the same company; 4) request a hard copy; 5) transfer interest to a dealer or insurance company as legal owner. Additionally, the initial transaction to the lienholder establishes the electronic title (e-title). Some states allow corrections to be made in names and addresses and some have transactions for confirming that messages have been received.

There are many individual data items in these transactions that are common across states, however, each state has designed a record layout that meets its own needs. Thus, while California has transactions that are 532 characters in length and includes the number of axles on the vehicle (See Appendix B), Idaho's system uses shorter records does not contain this item.³

The procedure allows the exchange of information necessary to process titles electronically while, at the same time, keeps the lending institutions from having direct access to the state files. Rather, the updating is done by processing "batches" of transactions. The batches of transactions are passed through a third location, called an "electronic mailbox" to which both parties to the transactions have access. The registration agency accesses the mailbox either once or several times a day and processes the transactions left there by all of the participating lending institutions.

An alternative to the mailbox solution was proposed, tested, and abandoned by Massachusetts. System access was "real-time," meaning that updates could be made on-line to a copy of the state's data base. Due to the enormous costs involved, there is no support for this type of a system in any of the other jurisdictions currently using ELT systems. While it is undoubtedly necessary for a brokerage house to have up to the minute access to the status of the stock market, there is little, if any reason, that such current information is needed regarding title liens.

³A number of the appendices contain examples from various states that are currently engaged in ELT processing. While illustrations of different concepts or procedures may have been collected from several states, a single example is usually sufficient and the most informative sample is presented.

3.2 LEGAL ISSUES

There are two areas of legal concern when implementing an ELT system, legislative and contractual. The legislative issues center around the requirement that most states have requiring a certificate of title for motor vehicles. In Texas, there has been a requirement for a certificate of title for motor vehicles since 1939. Implementation of an ELT system would require review and revision of the statutes that govern motor vehicle certificates, the language that prescribes how liens are to be released, and the documents (such as the *Motor Vehicle Title Manual*) that describe these procedures.

To illustrate these issues, the following examples are taken from the Texas Motor Vehicles Title Manual.

“The only method by which all liens may be released is by use of a release of lien form which contains all the information called for on the Division of Motor Vehicle Title and registration prescribed release of lien, Form D12-266.” (Section 3, II, emphasis present)

“All release of lien forms must be signed by the lienholder.” (Section 3, II, emphasis added)

And from Vernon’s Civil Statutes:

....If a lien is disclosed on the application, the department shall:

- (1) issue the certificate of title in duplicate;
- (2) mark one certificate of title “original” and send it by first class mail to the first lienholder as disclosed on the application; (Title 7, Subtitle A. Chapter 501, paragraph 501.027)

“The term “Certificate of Title” means a *written* instrument ... (Amendments by Acts 1995, 74th Leg., ch 540, paragraph 2, emphasis added)

Obviously substantial changes would be needed to allow both electronic titles in place of the paper titles while a lien exists, as well as changes that would allow the issuance of a paper title without a physical signature, once a lien had been released electronically. These issues have been addressed by the other states by a variety of methods. For most states that have an operational ELT system, permanent changes have been made to the statutes governing vehicle titling to allow for electronic titles until the lien is paid off, at which time the requirement for a paper title is reimposed. Pennsylvania has passed legislation that gives “temporary authority” to the Department of Motor Vehicles to proceed with electronic titles during their testing of the system, with further action needed to make those legislative changes permanent. One state proceeded with the pilot testing before the needed legislation was enacted by running parallel tests that had both printed titles and electronic titles. An example of the changes made by the state of Florida is included as Appendix C. Additional comments regarding legislative concerns and other examples of wording for proposed changes can be found in *Electronic Lien and Title - Implementation Guide* (2).

In addition to the legislative changes, there are contracts (or letters of agreement) between the licensing agency and each of the participating lienholders. These contracts spell out the procedures, terms and conditions and payment information. A typical agreement from the state of Idaho is included as Appendix D.

3.3 HARDWARE

Talking about the hardware necessary to implement an ELT system is perhaps the easiest aspect of a discussion. From the view point of VTR it is unlikely that any major changes would be necessary. The software required can be written to run on either PC based systems or mainframes. Communications can be accomplished through either dial-up modem facilities or through dedicated lines via the Internet. If a new dedicated PC with the fastest modem on the market were purchased, solely for the initiation of this application, the cost would be less than \$2,000.

It is also unlikely that hardware costs would be an issue for any financial institution considering implementing of ELT system. As mentioned earlier, there is a lower threshold that makes the investment in ELT capabilities a viable alternative for organizations that process automobile liens. Any organization that processes sufficient liens to make ELT worthwhile would likely already have the computer facilities in place. This was certainly true of those lienholders contacted during this investigation.

3.4 SOFTWARE

There are three separate areas of software development in an ELT system: 1) software to process transactions at the licensing agency, 2) software to process transactions at the lienholder's site and 3) communications software necessary to exchange the transaction information. Each participant in an ELT environment is required to have the software necessary to interface with its own computer system. This software must be able to accept inputs from terminal operators, extract information from the data bases that contain the lien/title information, and format the necessary information into the agreed upon transactions. For the most part, the registration agency establishes the format and content of the transactions and requires the lending agency(s) to conform to its prescribed layout.

Because it was recognized early on in the ELT developmental life-cycle that it would be beneficial to have some coordination across the states when ELT systems were implemented, the American Association of Motor Vehicle Administrators (AAMVA) became involved in the standardization of electronic lien information. In response to requests from its membership, AAMVAnet Inc. (a subsidiary of AAMVA) developed what they refer to as a set of "standards" for the electronic transmission of data. In a number of the states, the DMV (or equivalent) has chosen to conform to these standards. The standards include such things as uniform codes for referring to different transaction types and standard placement of fields within a transaction record. It should be noted here, and will be discussed in more detail later, that complying with the AAMVAnet standards *does not* require having AAMVAnet involved in any phase of implementing

an ELT system.

3.4.1 Transaction Software

The options available to VTR for the development of the software necessary to extract the information to build the transaction records are (obviously) to do the programming with in-house staff or to contract with an outside agency. Unlike the software package offered by FDI Consulting (see discussion later), that lienholders can purchase to interface with their systems, there are no commercially available systems that VTR could purchase "off the shelf" to create the needed transactions. This should not be surprising since there is little consistency across states as to processing flow, file formats, or required data.

There are several factors that make it desirable for VTR to choose the in-house path. First, it is likely that the development of an ELT system will be an evolutionary process. Basic transactions would be implemented first and others added as needed. In-house staff who are familiar with the programming could make these additions without the "learning curve" necessitated if the same developmental team from an outside agency is not available. Second, as with any computer system, there will be maintenance issues. An in-house staff would be more responsive to these needs. Finally, and perhaps most importantly, as with manual systems, there will be the need to interact with counterparts at the lienholder facilities. There will be the need to research processing anomalies and to recommend alternative solutions. As with other computer systems, these tasks are more efficiently handled by staff familiar with the system.

In the current ELT environment the lienholders have a little more choice with respect to the development of their software. Several of the larger financial institutions have attempted to develop their own software, but the vast majority of lienholders who are actively using ELT systems have contracted with one organization to fill this need. As mentioned above, FDI Consulting, Inc., of Sacramento, California, has developed both software and services that assists the lienholders in processing ELT transactions. FDI offers its customers software that will allow the lending institution the ability to accept electronic transactions in formats prescribed by the individual state and that can comply with the AAMVAnet standards. Further, if desired, the lienholder can contract with FDI to actually do the title processing and provide the lienholder with perfected titles. Many of the financial institutions have contracted with FDI to provide this service because all of the corrections and communications necessary to perfect the titles are handled by FDI personnel.⁴

3.4.2 Communications Software

With one exception the current ELT systems use AAMVAnet's service in providing the

⁴It is not the intent of the author to indorse FDI, Consulting, Inc. Several other organizations such as AAMVAnet Inc., PDP Group Inc., and Vintek, Inc. are also developing abilities similar to FDI. However, as of the time this report was prepared, none of these other organizations had developed any software that lending institutions (or VTR) could use in an ELT system to process transactions. As noted in the main body of this report and reiterated here, the method and means by which financial institutions process their "side" of the transactions should be of no concern to the licensing agency as long as the transactions conform to the agencies procedures.

“mail box” component of the ELT system. This service includes connection to the Advantis data transmission facilities, an IBM communications network. A notable exception is the state of Pennsylvania, which has chosen to use Vintek, Inc. as the third party intermediary in the data transmission. However, even at this early stage of development of the Pennsylvania system, it appears that this requirement may add a substantial cost to the users of the system.

Transactions could be sent over the Internet, however, the consensus of opinion is that the Advantis network offers somewhat more reliability and security at the present time. As noted by the developers at the Idaho Department of Transportation (IDT), ELT systems should be developed as to not enslave the application to any specific means of communication. The software that is used with the AAMVAnet services is called Expedite and is available for a nominal fee. This software and the charging mechanism used by the State of Idaho for transaction transmission is described in Appendix E.

3.4.3 Data Security

The security of the data seemed to be at the heart of an ELT initiative. Indeed this investigation began by looking at the most up-to-date methods of encrypting information and had an almost paranoid attitude about securing the information. However, without minimizing the importance of taking adequate precautions to protect the information being transmitted, the reality of what is used is much less sophisticated than state-of-the-art, while at the same time deemed sufficient by the participants in the existing ELT systems.

None of the current ELT participants encodes/encrypts the transmitted data. Procedural and password considerations serve as the security measures. The procedural aspects of the systems are things such as the fact that the licensing agency assigns a separate identification code for the transactions from each lending institution (that can obviously be changed as needed) and there is a specific schedule when transactions can be left and picked up. Also, if integrated into the initial design, each request for action from the lending institution (such as the release of the lien) can be transmitted back to the source as a notification of completion. Thus, the receipt of a bogus return signals a problem.

In addition to the procedural security, there are also two layers of user ID and password security necessary to activate any part of the system. There is the local security associated with gaining access to the software that creates transactions in the necessary format and with the necessary identification codes. Additionally, there are identification and password security associated with access to the mailbox and the Advantis network. While other methods of encryption were investigated (3,4) discussions with the people responsible for the ELT systems in other states indicates that sufficient security is provided by the methods discussed.

3.5 EXPENSES

As mentioned earlier, costs for the physical hardware for implementing an ELT system should be minimal for any participant. The personal computers, modems, and telephone lines will normally already be in place. The other costs involved are those associated with the development

of the system, the "rental" of the mailboxes, and the costs to transmit the transactions.

The developmental costs are the most difficult to estimate. Developers in other states have estimated costs from \$30,000 to \$150,000 depending on whether the value of indirect labor and overhead components is included. One state was fortunate enough to find a lienholder that believed that the ELT would benefit its operations so much that about one-third of the costs of getting the system to the pilot stage was contributed by the financial organizations.

The mailboxes are established by AAMVAnet and the cost to set up these accounts is \$180 with a \$40 per month maintenance fee. Expedite/Base, the software necessary to send and receive mail, is free of charge; however, Expedite/Manager, required to manage the assignment of passwords and user identification codes, costs \$189.

The potential transmission costs can be estimated from the current costs in Idaho where there is a distinction between prime (8am - 8pm eastern) and non-prime (8pm - 8am) rates. They have implemented a system they describe as: "We pay for what we send, You pay for what you send." This system recognizes that the records sent by IDT are larger (400-500 characters) than those sent by the lienholders (180-280 characters). There is a batch fee of \$0.29/\$0.145 (prime/non-prime) and a fee per 1000 characters of \$0.068/\$0.034. Since the bank records are around 250 characters, sending 100 transactions would cost approximately \$1.99 $\{ \$0.29 + [(25,000/1000) \cdot .068] \}$ during prime time. The records from the ITD to the lending institution would be about double that. In addition to the fees for transmitting the data, there is a fee for connecting to the Advantis network of \$0.026/\$0.013 per 1000 characters. Thus, if Texas had 500 character records and sent 10,000 of these records per month to 50 lienholders on a once/day basis during normal working hours, the cost would be approximately \$760.00, or 7.6¢/ transaction.

50 batches/day • 20 days • \$0.29/batch	\$	290.00
5,000,000 characters @ \$0.068/1000 (transmission)		340.00
5,000,000 characters @ \$0.026/1000 (access)		130.00

3.6 SAVINGS

Cost savings are again difficult to estimate. Certainly there are savings associated with not having to print original titles until the lien is cleared. However, even in California (the only state where volume figures were available) the total number of transactions processed between 1989 and December of 1995 was under 650,000 with 250,000 electronic titles being held. This is undoubtedly attributable to the length of time it has taken for ELT processing to become accepted and integrated into lienholders' businesses.

In California, the greatest cost reductions are seen by the lienholders, automobile dealers, and vehicle owners. California waves the fees normally associated with processing transactions if the transactions are done electronically. The normal fee of \$9.00 for the typical paper transactions of transferring titles, correcting titles, or releasing liens is waved for the e-title customers. Users of the California ELT system also report that fewer staff people are needed to electronic process titles (5).

3.7 SUPPORTING ORGANIZATIONS

The author contacted a number of organizations that have expertise or interest in ELT applications. All of these organizations expressed a willingness to be involved with an ELT implementation effort in Texas and should be considered as additional resources for such a project. Contacts for each organization are listed in Appendix A while a brief discussion of each organization follows.

In a some what worn out, but very applicable cliché, building an ELT system is not rocket science. However, it is also not as easy as falling off a log. There are pitfalls and roads that have been traversed by others that need not be taken by those who follow. The knowledge base provided by the following organizations is significant and should be taken advantage of in any implementation process.

3.7.1 AAMVAnet, Inc.

AAMVAnet has expertise in several areas applicable to the implementation of an ELT system in Texas. This is the primary interface organization as far as the actual transmission and “mail-boxing” of the transactions. Virtually all of the states use AAMVAnet’s connections with the Advantis communications network, with a number of the states making its use mandatory. Their arrangements allow a state to “rent” one mailbox with multiple user ID(s) for the participating lienholders. This is a very economical approach and allows for adequate levels of security.

AAMVAnet also has a good deal of experience in the actual implementation strategies for ELT systems. They have run pilot studies for several states and their implementation guide is a very valuable tool for any organization (2). Consideration should be given to utilizing their expertise on a **consulting basis**. Unfortunately, as of this writing, AAMVAnet has not indicated that they are available on a strictly consulting basis, rather they have bundled their services with their “Standards” (described below) that the author would not recommend implementing.

From the beginning of this investigation the author was confronted with the term “AAMVAnet Standard” and endeavored to understand what was meant by that phrase. The philosophy behind the idea was that it would be beneficial to have consistency with respect to the information contained in, and formatting of, records dealing with vehicle titles and lien information. On the surface this seems like a noble idea. However, the reality is that each state has its own way of doing business and while there are undoubtedly some consistencies in the data required to perfect a title, each state is likely to have additional separate requirements. This is not to say that AAMVAnet procedures do not take this into consideration. They obviously do not require each state to have the same data, but the author’s opinion, that the AAMVAnet Standards add a layer of processing that is totally unnecessary, is shared by a number of the states that have chosen not to implement them.

First it should be pointed out that AAMVAnet **does not** provide any of the transaction software outlined earlier in this document. In the simplest terms, the “standards” refer to a number of computer subroutines (they would say COBOL call statements, but the effect is the same) that

basically “group and switch” the data. Put another way, you give them the data, they give it back in a different format. This process is totally unnecessary if the actual application that is calling the subroutines is written to put the data out in the final format to begin with. Added processing normally equates to added costs and because there are solutions available that do, in fact, create transactions that conform to the coding standards suggested (e.g., call a lien release a type “x” transaction), without the added layer of AAMVAnet calls, the law of parsimony would suggest avoiding the extra processing.

3.7.2 FDI Consulting, Inc.

FDI has been in the business of assisting in the implementation of ELT systems since 1991 (5). They are currently the primary provider of software to assist lienholders in the processing of electronic titles. Their customers include virtually all of the organizations that file titles electronically with the states of California, Washington, and Idaho as well as giants like Chase Manhattan and Seafirst, a subsidiary of Bank America, (6).

FDI customizes the software for each of its clients. This customization can, if the client wishes, conform to the AAMVAnet Standards. Further, FDI offers various levels of service from simply providing the transaction building software to actually acting as a service bureau for the perfecting of the titles, thus saving the lienholder the expense of additional personnel. The software can be purchased by the lienholder or leased on a monthly basis.

While FDI works closely with the state licensing agencies, none of the services are paid for by the state. Rather, it is the lienholders that are the source of revenue for FDI.

3.7.3 PDP Group, Inc.

The PDP Group processes all titles financed through the General Motors Acceptance Corporation (GMAC). Titles are sent to their facility in Maryland, perfected, and then returned to a number of regional locations throughout the United States for storage. Thus, a tremendous amount of manual processing and paper storage could be eliminated if GMAC were to be an “e-title” organization. GMAC/PDP represents a substantial “client” in Texas where 15,000 GMAC titles are processed a month.

While PDP has a history of involvement in assisting financial institutions in conducting business, a new initiative is to provide e-title services similar to the “paper” services they provide to GMAC. If PDP is to be successful in developing this line of business they will need to provide products and services similar to those pioneered by FDI. Undoubtedly, PDP could be a substantial player by bringing GMAC into the e-title arena.

3.7.4 Texas Automobile Dealers Association

The Texas Automobile Dealers Association (TADA) is the largest association of car dealers in the United States with over 2200 members. Revenues generated by the sale of automobiles represent the single largest input to the general revenue funds for the state of Texas (7). The

involvement and support of TADA would add a valuable perspective to the development and successful implementation of an ELT system in Texas. Communications and meetings with members of the executive staff of TADA in Austin have indicated that this organization will support an ELT initiative. It is strongly suggested that considerable thought be given to an ELT system design that includes car dealers as a potential point-of-entry for titling and lien information. This type of design would make maximum use of some of the benefits of electronic processing, specifically speed and data input close to the source.

3.7.5 Vintek, Inc.

Vintek is a firm that produces software applications in the field of automobile financing. They have systems that detect double financing of autos, verify and translate VIN information, and software that determines vehicle value bases on weekly auction sales. As mentioned earlier, Vintek is also providing an alternative to the Advantis solution for the transmission and "mail boxing" of ELT transactions for the state of Pennsylvania. All lienholders who wish to participate in the Pennsylvania ELT system will be required to send their transactions through Vintek.

Vintek currently does not have software to assist the lienholders with the formation of the transactions that Pennsylvania will require, but Larry Highbloom, president of Vintek, indicated that development of such software is a line of business he plans to pursue (8). It is unclear as of this writing whether Vintek is a viable alternative to the Advantis service provided by AAMVAnet since the figures from Pennsylvania indicate that fees for the transmission of transactions through Vintek could be as high as \$1.00 per transaction (9).



IV. IMPLEMENTATION RECOMMENDATIONS

Implementation of an ELT system in Texas should follow two primary rules: 1) follow the lead and learn from the experiences of the other states that are already in the ELT business, and 2) envision how the system could operate if it went beyond those systems in place. These guidelines are illustrated with a two-phase approach.

4.1 PHASE ONE

In phase one VTR would establish a development team comprised of participants from VTR and one or more "business partners." The business partners would be representatives from lending institutions who would assist in the development of the operational boundaries of the system. As mentioned earlier, there are a number of lienholders in Texas that have experience in using the ELT systems in California and several of those organizations have already indicated a willingness to be involved in assisting VTR in the development of an ELT system in Texas. Specifically, Mercedes-Benz Credit Corporation and American Airlines FECU have been contacted and either these or other sites that have experience with ELT would serve well as pilot facilities. In addition to representatives from the lienholder community, representatives from the other organizations discussed earlier could offer valuable insights.

Needs dictate that the development of the transaction types and data elements must be a joint effort between the lienholders and VTR. This discussion should include a decision as to whether the formatting and coding standards suggested by AAMVAnet are to be followed. However, once there is agreement on **what** is to be in the transactions, their need not be any VTR involvement or mandates in **how** individual lenders go about producing those records. As illustrated in Figure 2, the individual lienholders should be given the flexibility to decide whether they are going to use a service bureau, software provider, or program their own transaction processors in-house. Some of the potential pilot sites already have the programs in place to produce transactions for other states and, for them, simple modifications to conform to the requirement of VTR are all that is likely to be needed.

The initial data processing step for VTR would be to design a method (an additional single character should be sufficient) that flags that the lienholder is an electronic title holder. This indicator would trigger a new process such as illustrated in Figure 2 that extracts, formats, and sorts the e-title information for delivery to the mailbox. This process would include checks for valid entries in tables of authorized "e-title" lienholders and would trigger normal paper title processing for non-participants. The steps involved in several typical transactions are illustrated in diagrams included in Appendix F (1).

A system check-out should be performed to insure the transaction processing is correct as each new participant is brought on-line. An example of a structured testing protocol utilized by ITD is included as Appendix G.

TEXAS ELT MODEL
Phase 1

Servicer: Software front end and complete title administration
Software Provider: Software front end to handle ELT with the lender handling title administration
Direct Lender Interfaces: In-house software development with the lender handling title administration

ELT Lien Holders

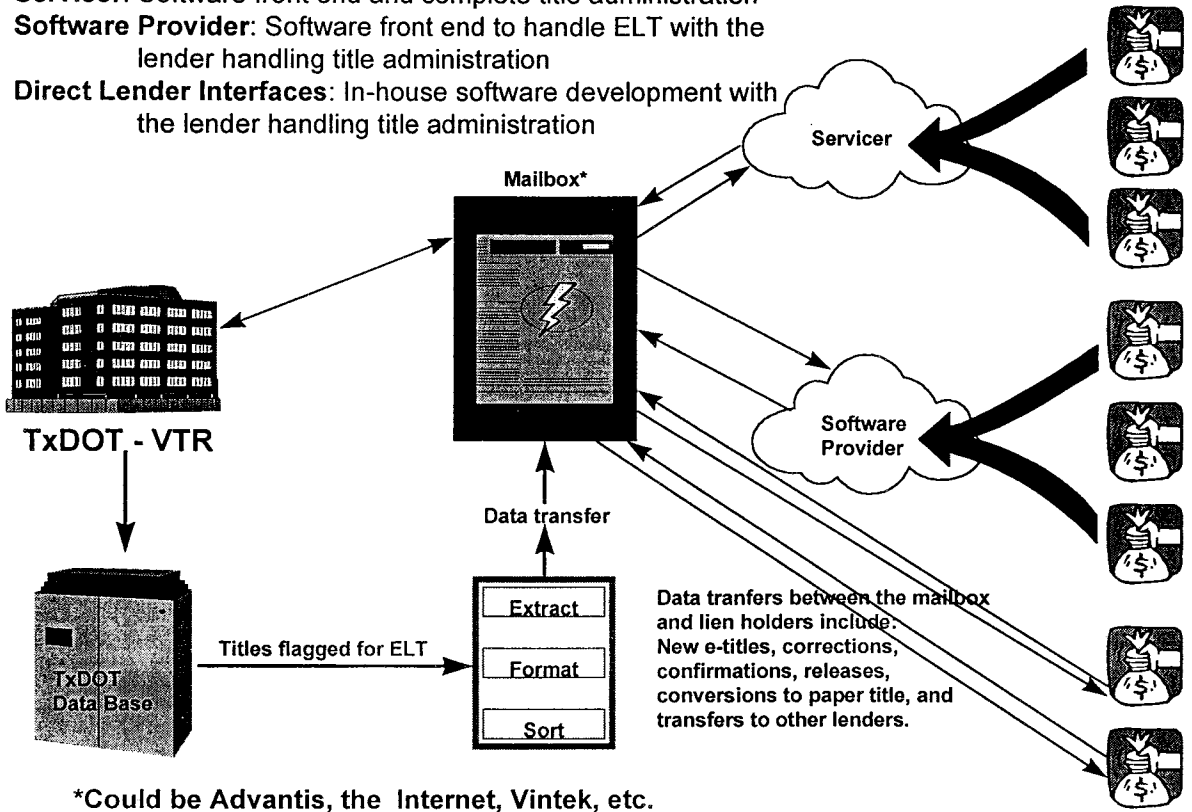


Figure 2. Mailbox Connections

In phase one, only the transactions that effect the exchange of information between the lienholder and VTR would be implemented. The documents currently delivered to the county tax offices would remain the same and all processing up to entering the information in to the VTR data bases would continue. The changes would be in the communications between the lienholders and VTR in the manner in which information is exchanged and updated. Figure 3 illustrates the changes in processing that would be produced by phase one.

While processes ①, ②, ④, and ⑤ illustrated earlier remain the same, there will be substantial changes in ③, ⑥, and ⑦. The exchange of information between VTR and the lienholder could be accomplished almost exclusively by electronic means. Correction transactions, transfers, and releases of titles would be routed through the mailbox. The vehicle owner would not receive a negotiable title until the release transaction was sent from the lienholder. Additionally, the owner would be freed from a visit to the county tax office to exchange the original title with a lien indicated for a clear title.

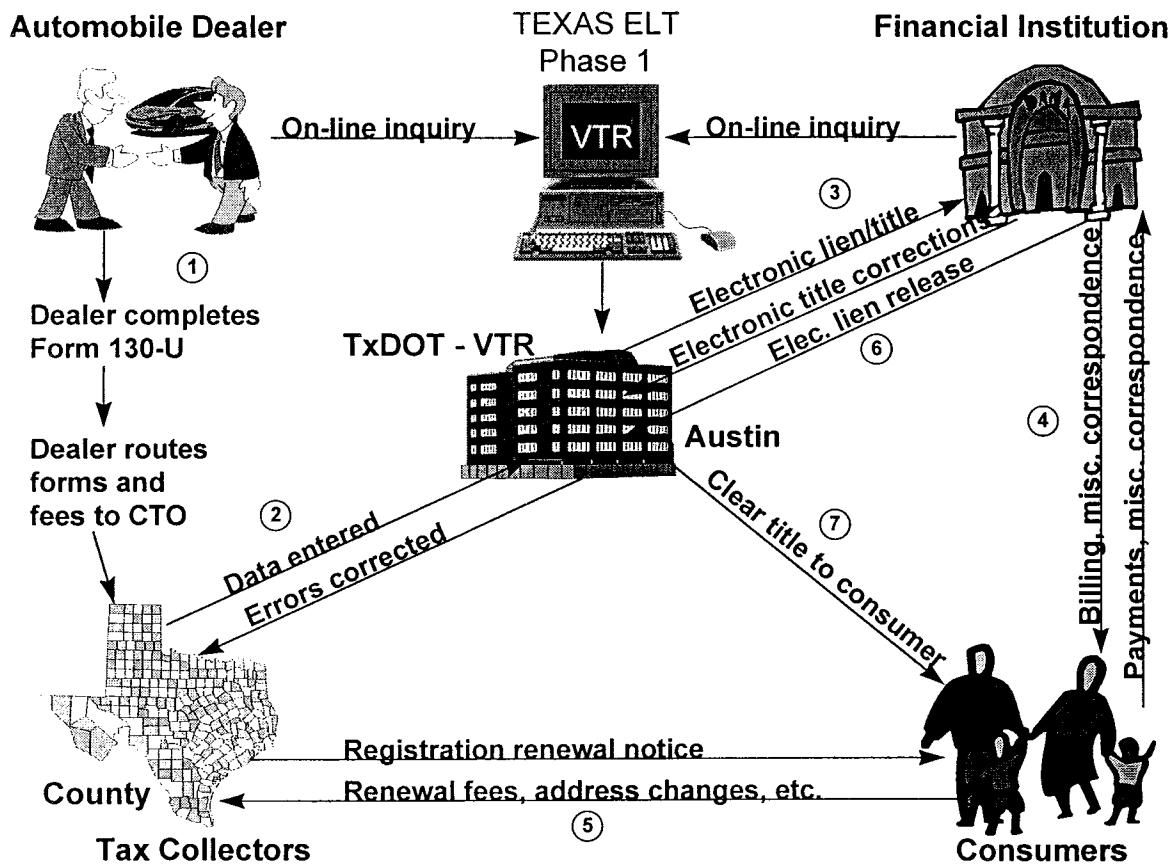


Figure 3. Texas ELT Phase One

4.2 PHASE TWO

The development of an ELT system as described here can best be accomplished by following the example of a state like Idaho. They have designed a flexible system that does not restrict communications protocols or lienholder options, and one that includes straightforward, easily understood documentation and testing procedures. Additionally, Idaho was the one state that attempted to include an element that this author thinks should be the eventual goal of an information processing system such as this, entry of the data as close to the source as possible. This means developing a system where the lien information is entered at the dealers' showroom. Idaho did not receive the necessary legislative changes because of a misunderstanding about the operational parameters of such a system.

By visualizing a system where all of the necessary data entry is performed at the point of sale, a desired objective stated in the original TxDOT project statement could be met:

“Long-term usage could potentially result in decentralizing the examination and issuance of titles. Title applications could be processed immediately at the point of customer services and secure, electronic titles distributed to all parties without delays. Potentially, customers could receive titles printed at the customer service point at the time of transfer.”

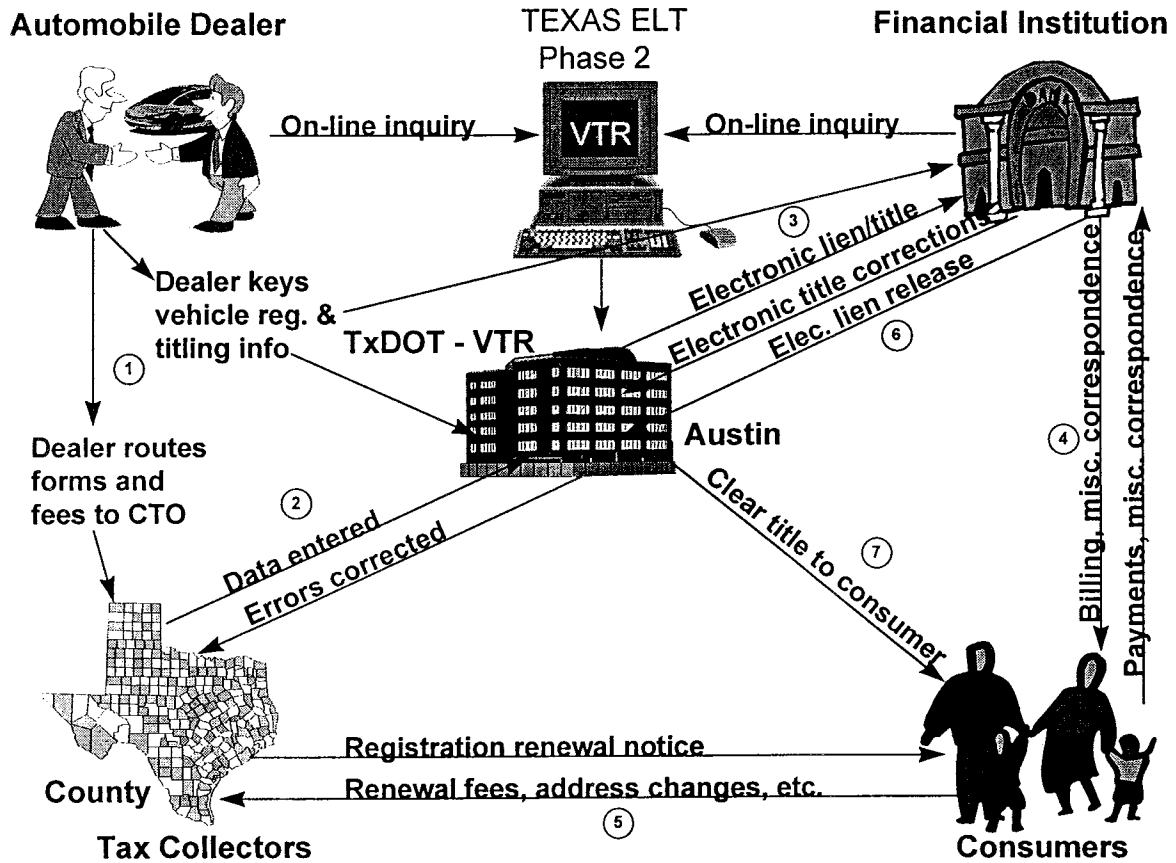
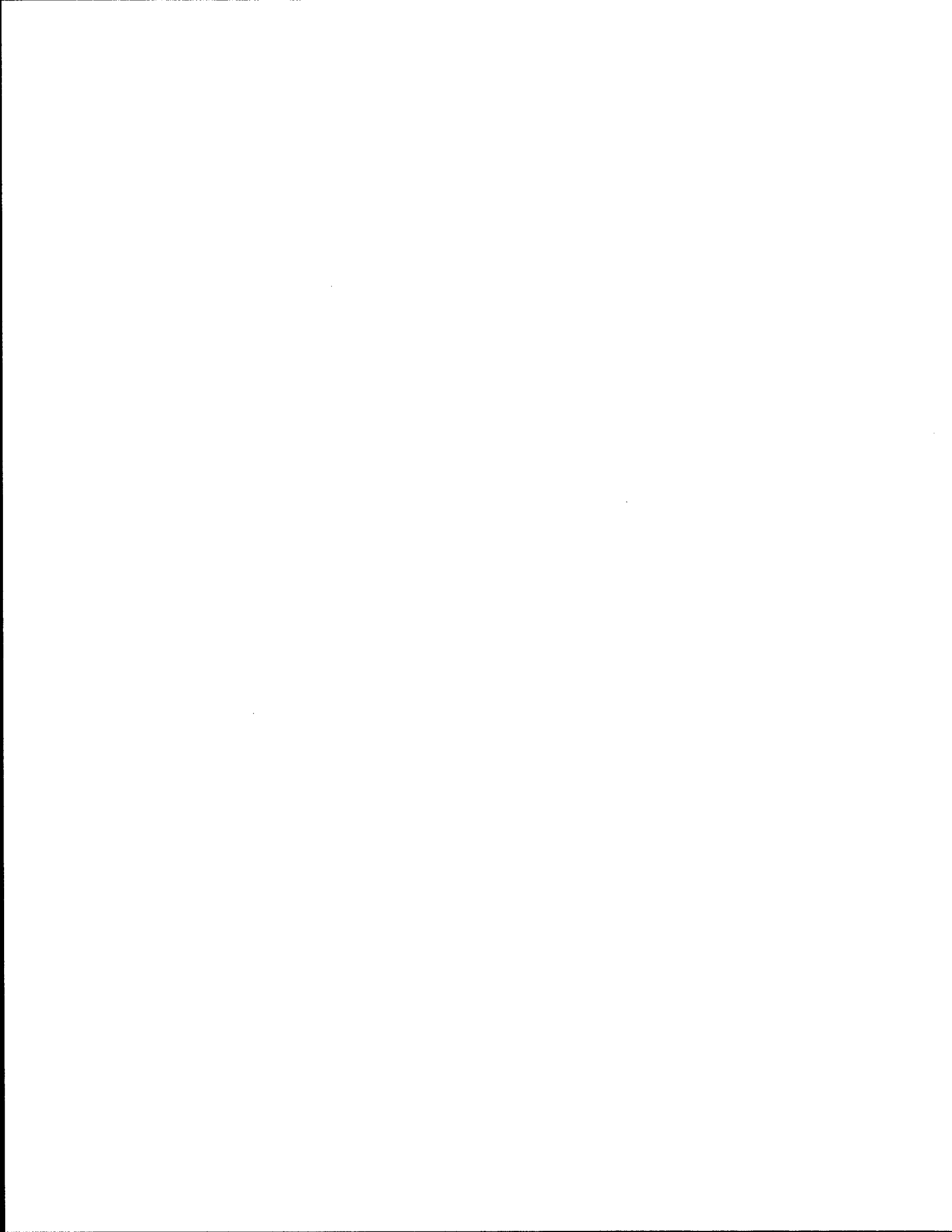


Figure 4. Texas ELT Phase Two

From the stand point of having the necessary data, there is no reason that the lien and titling information could not be entered at the automobile dealers' showroom. By the time the application for title is presented to the county tax office all of the information regarding the lien is known. Phase two, illustrated in Figure 4, would take advantage of this by allowing for entry of lien information (and if taken to the logical conclusion, vehicle registration) at the dealership. The author recognizes that this represents a radical shift in the current method of doing business and would have to withstand some significant political scrutiny, but from a systems viewpoint the logic and almost certain gains in lower rates of transcription errors and decreases in data entry time, make this an alternative worth investigating.

In Phase two, activities ② - ⑦ remain unchanged. The key difference is that the initial information that is currently routed through the county tax offices could go directly to the locations that need the data, VTR and the lienholders. If it is desirable for forms and certain fees to continue to go through the tax offices, this could be built into the system. However, this design could represent an opportunity to out-source a portion of the workload associated with registering vehicles and, as such, part of the fees charged to accomplish this task might flow with the work.

Again, it is recognized that the second phase suggested here is a radical departure from current business practices, however, in an environment where the use of telecommunication capabilities will likely do nothing but increase, it is worthwhile to keep these alternatives in mind during the initial design of an ELT system. This type of longer term solution would bring the car dealers into a more active roll in an ELT system and would return to them more accurate and timely information.

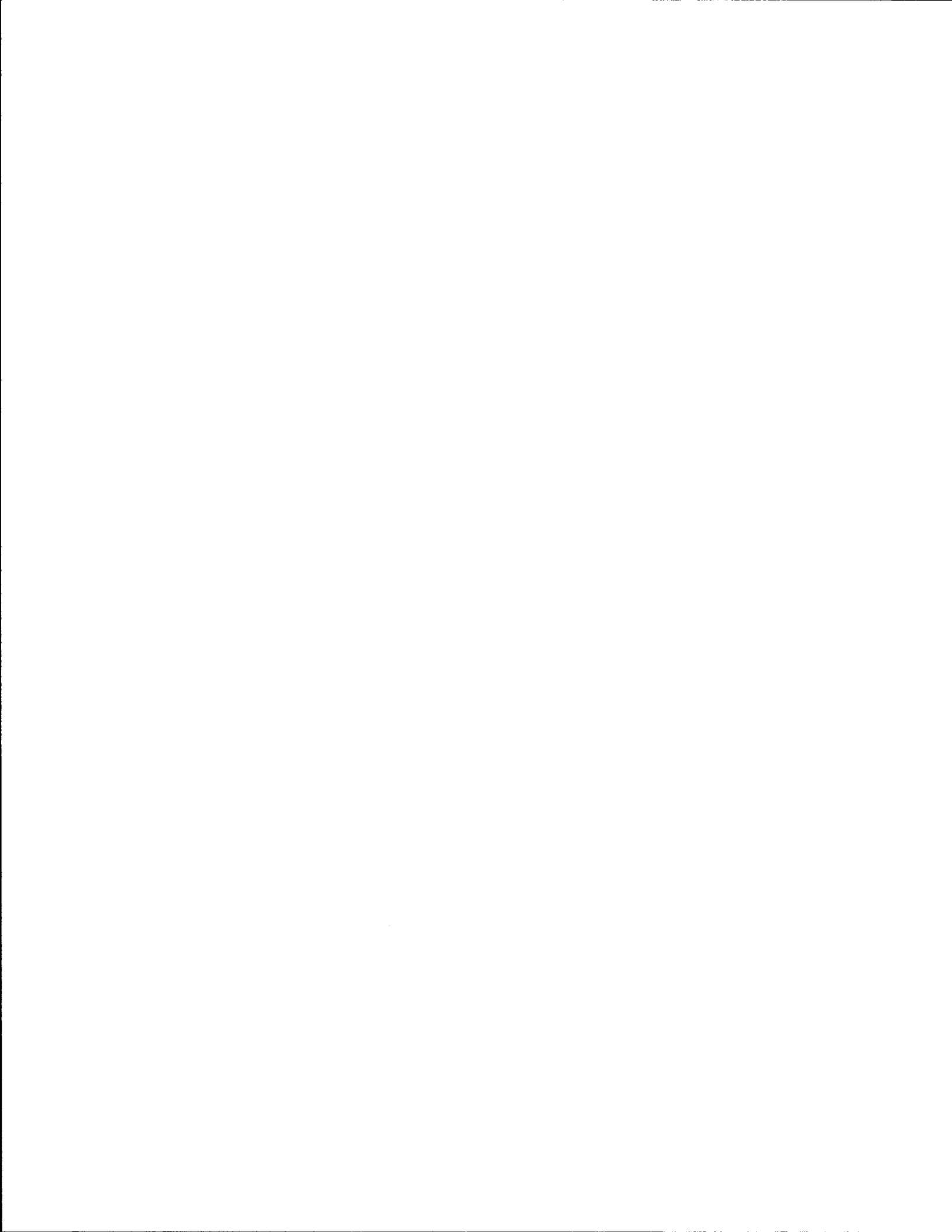


V. CONCLUSIONS

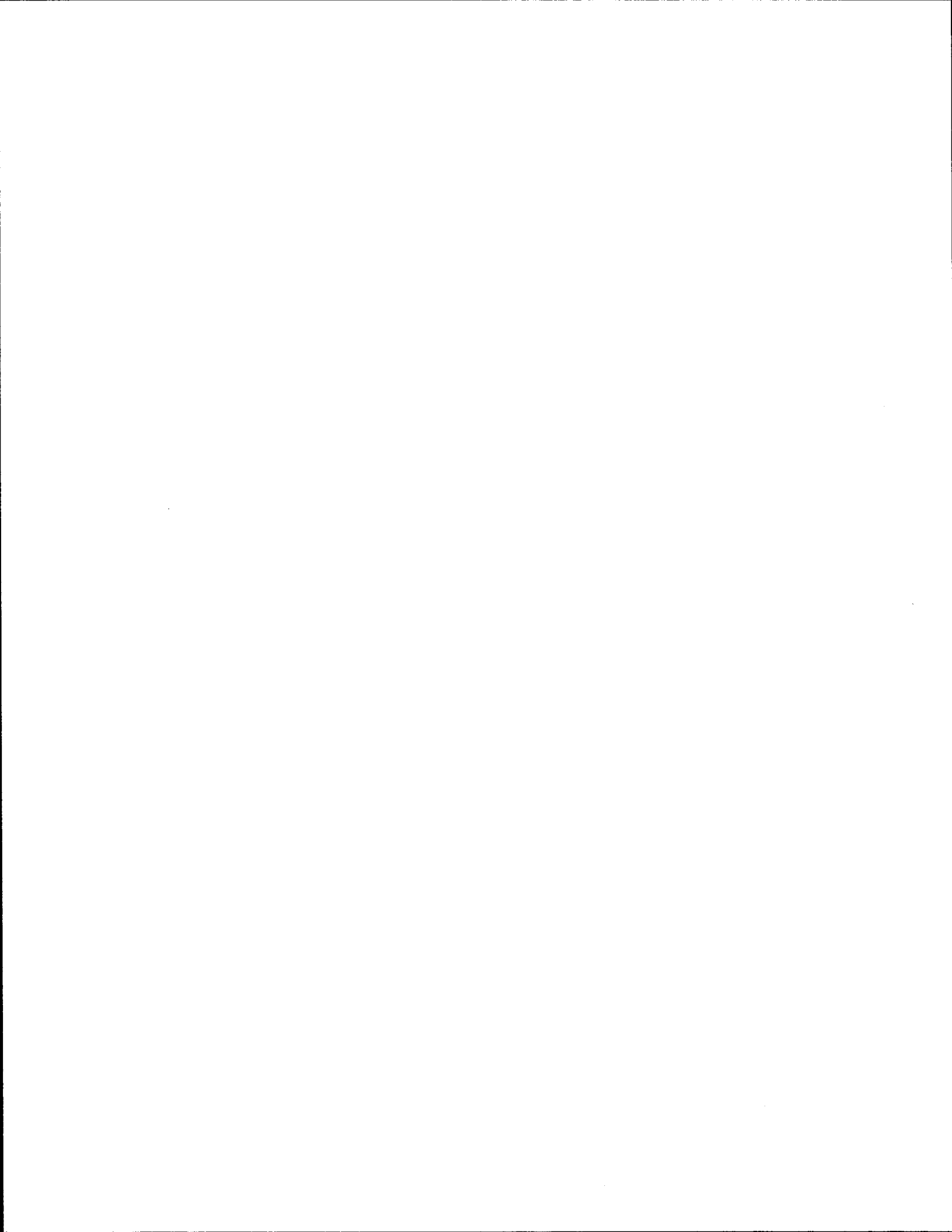
It cannot be said that the development of an Electronic Titling and Lien System is a forgone conclusion in Texas. That decision is still to be made. However, there is sufficient support from the vehicle sellers and the lending institutions to seemingly assure the success of such a project. The experiences in other states suggest that it can take a significant amount of time (3 - 5 years) for e-title processing to comprise a significant amount of the titles processed. The length of time for ELT processing to reach maturity can, in part, be attributed to the relative newness of the application and the caution with which new lenders are brought onto such a system.

It should be obvious that it will be a very long time before any electronic titling system completely replaces the current manual processing of title liens. Until it is mandated that electronic means will be the only method used, there will always be establishments that process too few liens per month to justify the expense or expertise necessary. However, for the large financial institutions that are literally waiting in the wings for such a system in Texas, the development of ELT capabilities in Texas will add significant value to the services delivered by VTR by:

- Improving the quality/accuracy of data by reducing manual interventions;
- Reducing the processing time necessary;
- Providing automatic updates of TxDOT files;
- Ensuring data security and integrity;
- Supporting an open computing environment that allows customer choice; and
- Allowing for detection of fraud by immediate notification of lien release.



APPENDIX A

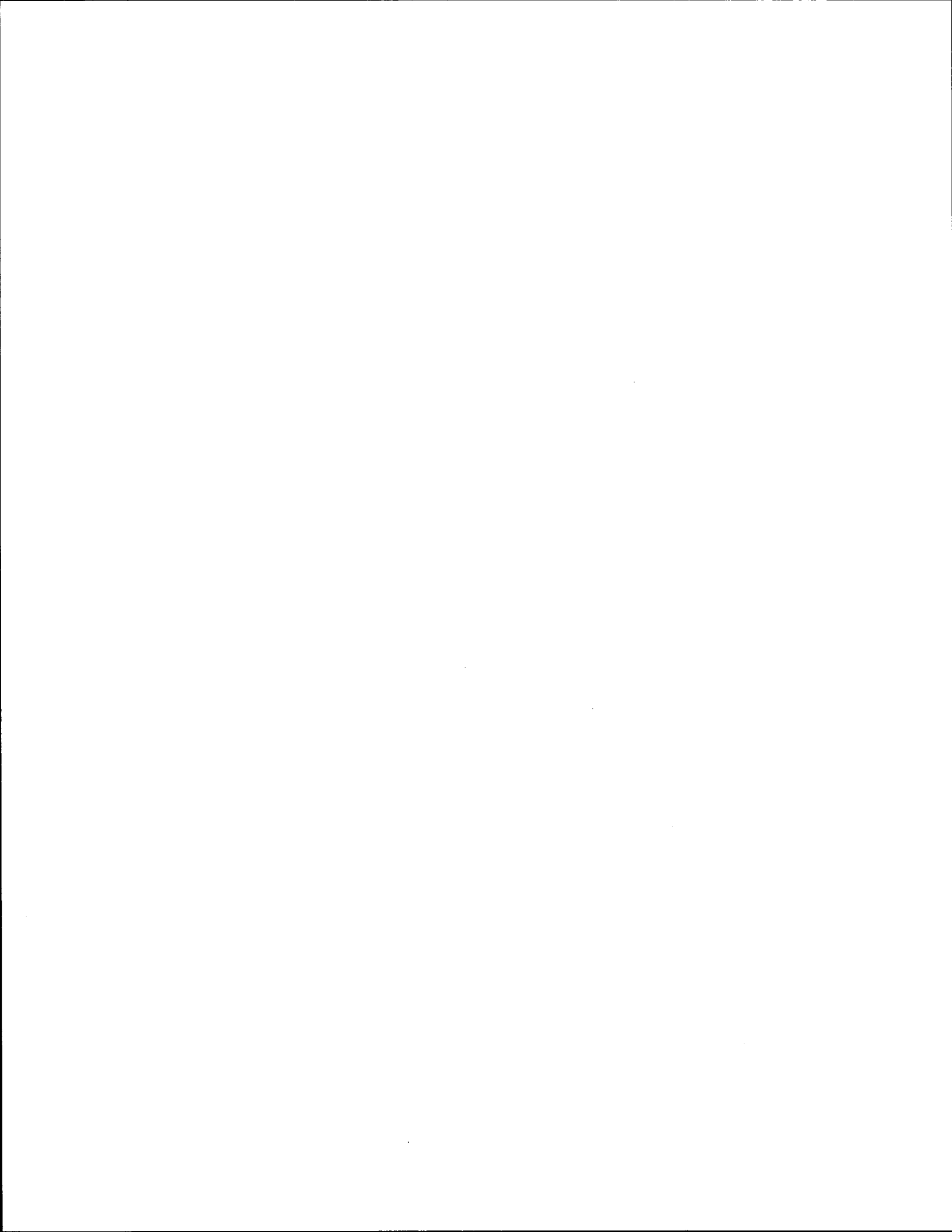


CONTACT LIST

Organization	Contact	Address	Phone
AAMVAnet, Inc.	Ms. Trish Greer Business Analyst	4301 Wilson Boulevard, Suite 400 Arlington, VA 22203	(703) 908 - 5770
American Airlines EFCU	Ms. Lori Hall Director of Phone Services	P.O. Box 619001 MD 2100 DFW Airport, TX 75261- 9001	(800) 533 - 0035 Ex 36196
California Department of Motor Vehicles	Ms. Marcella Dibble Administrative Manager Electronic Lien and Title Program	Mail Station E550 2415 First Avenue Sacramento, CA 95818	(916) 657 - 7721
FDI Consulting, Inc.	Mr. James Pierce Vice President Marketing	555 University Ave., Suite 230 Sacramento, CA 95825	(916) 921 - 4390 www.fdielt.com
Idaho Transportation Department	Mr. Mo Detmar or Mr. Ed Pemble	311 West State Street Boise, ID 83707	(208) 334 - 8771
Massachusetts Registry of Motor Vehicles	Ms Linda Kelly Deputy Registrar for Registration and Titles	P.O. Box 199100 Boston, MA 02119-9100	(617) 351 - 9056
Pennsylvania Bureau of Motor Vehicles	Mr. Tom Zamboni	1101 South Front St. Harrisburg, PA 17104	(717) 787 - 3977
PDP Group	Mr. Jim Pitcher President	Executive Plaza IV 11350 McCormick Road Hunt Valley, MD 21031	(410) 584 - 1500
Florida Department of Highway Safety	Mr. Gary Elmore	2900 Apalachee Parkway Tallahassee, FL 32399	(904) 414 - 7395
Mercedes-Benz Credit Corporation	Ms. Shirley Butler	Seven Village Circle, Suite 300 P.O. Box 685 Roanoke, TX 76262-0685	(800) 207 - 6888 Ex 5410
Texas Automobile Dealers Association	Mr. Bill Wolters Executive Vice President	1108 Lavaca P.O. Box 1028 Austin, TX 78767-1028	(512) 476- 2686

Vintek, Inc.	Mr. Larry Highbloom President	1811 Chestnut Street, Suite 200 Philadelphia, PA 19103	(215) 563 - 3320 www.vintek.com
Virginia Department of Motor Vehicles Licensing Services Division	Mr. Joe Owskiak	2300 West Broad St P.O. Box 27412 Richmond, VA 23269-0001	(804) 367 - 2977
Washington Department of Licensing Vehicle Services Division	Ms. Nancy Kelly Administrator for Title and Registration Services	P.O. Box 2957 Olympia, WA 98507-2957	(360) 902 - 375

APPENDIX B



STATE OF CALIFORNIA
DEPARTMENT OF MOTOR VEHICLES
DIVISION OF EDP

RECORD LAYOUT
PROGRAM ID : RN8716/RM1016/RC1595
REVISION DATE: 01/10/94 BY: JW
PAGE : 1 OF 3

RECORD NAME: : LIENHOLDER PAPERLESS TITLE C10 FORMAT (C10P)

RECORD LOCATION: MW.DMVA.RCLAYOUT(C10P)

FORMAT:

FR=FIXED REQUIRED VR=VRBL REQUIRED
FO=FIXED OPTIONAL VO=VRBL OPTIONAL
IS=INDEXED SEPARATOR
FI=FIELD IDENTIFIER

CLASS OF DATA:

A=ALPHA AN=ALPHA NUMERIC
S=SPACE SC=SPEC CHARACTERS
B=BINARY P=PACKED DECIMAL
Z=ZONED NUMERIC (DISPLAY)

REMARKS:

FORMAT OF OUTPUT RECORD FROM DEPARTMENT OF MOTOR VEHICLES TO LIEN-
HOLDERS OF PAPERLESS TITLE. LIENHOLDER WILL TRANSFER FORMAT BACK
TO DMV FOR INPUT RECORD.

FLD#	FIELD DESCRIPTION	NO. OF OCCUR	FOR- MAT	CLASS	MAX # BYTES
1	TRANSACTION CODE = C10	1	FR	AN	3
2	OFFICE ID	1	FR	AN	3
3	OFFICE WORK DATE (YYMMDD)	1	FR	Z	6
4	OFFICE TECHNICIAN	1	FR	AN	2
5	OFFICE SEQUENCE NUMBER	1	FR	Z	4
6	TYPE TRANSACTION CODE	1	FR	AN	3
7	TYPE LICENSE	1	FR	AN	2
8	LICENSE NUMBER	1	FR	AN	7
9	VEHICLE OR VESSEL ID# (VIN OR HIN)	1	VR	AN	30
10	VLF CLASS	1	FR	AN	2
11	EXPIRATION DATE (YYMMDD)	1	FR	Z	6
12	YEAR FIRST SOLD	1	FR	Z	2
13	YEAR MODEL	1	FR	Z	2
14	BODY OR HULL TYPE	1	FO	AN	1
15	BODY TYPE MODEL	1	VR	AN	12
16	MAKE OR BUILDER	1	VR	AN	12
17	AXLES	1	FO	Z	1
18	UNLADEN WEIGHT	1	FO	Z	5

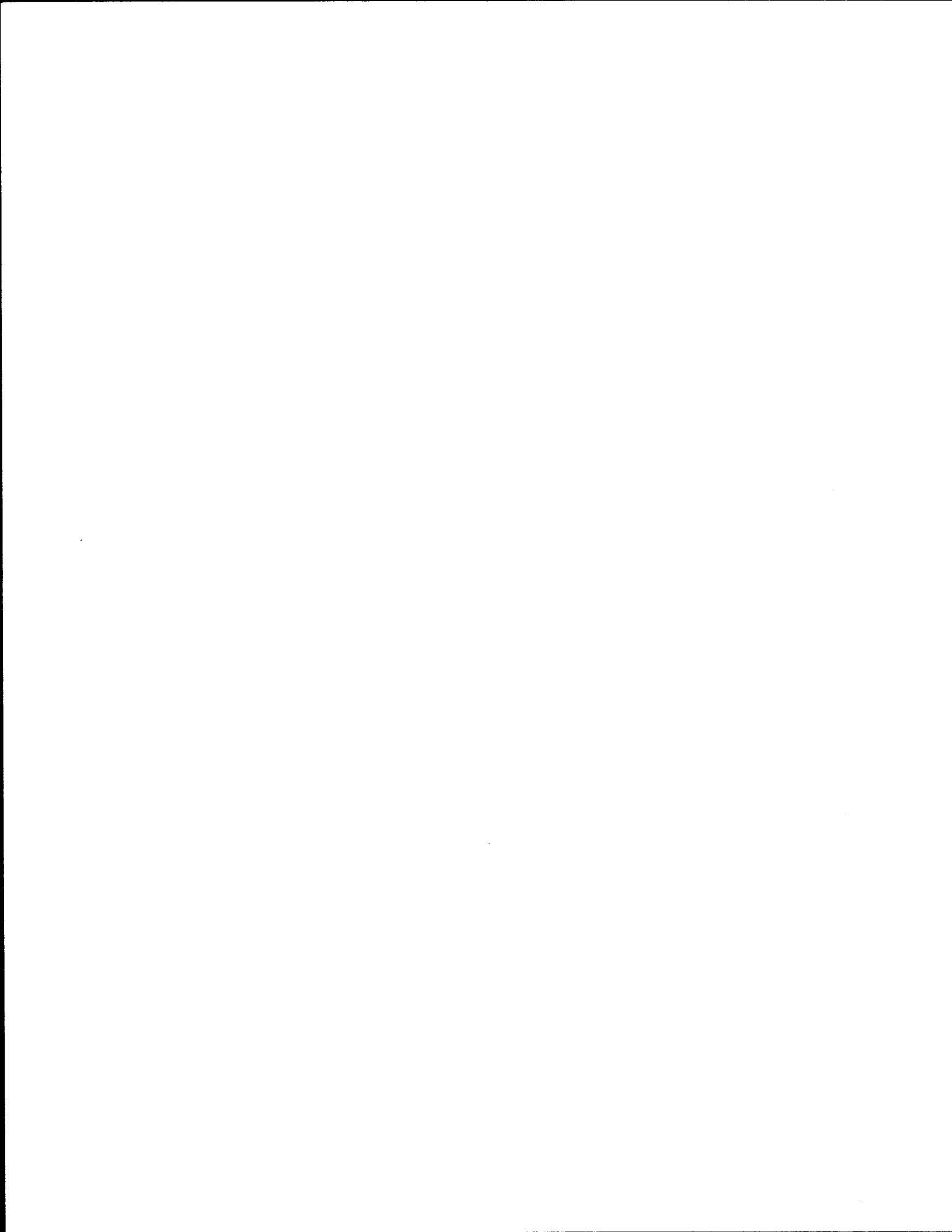
STATE OF CALIFORNIA
DEPARTMENT OF MOTOR VEHICLES
DIVISION OF EDP

RECORD LAYOUT
PROGRAM ID : RN8716/RM1016?RC1595
REVISION DATE: 01/10/94
PAGE : 2 OF 3

FLD#	FIELD DESCRIPTION	NO. OF OCCUR	FOR- MAT	CLASS	MAX # BYTES
19	MOTIVE POWER OR VESSEL FUEL CODE	1	FO	AN	1
20	HULL MATERIAL (VESSEL)	1	FO	AN	1
21	PROPULSION (VESSEL)	1	FO	AN	1
22	VESSEL LENGTH (FEET)	1	FO	Z	3
23	VESSEL LENGTH (INCHES)	1	FO	Z	2
24	ASTERISK YEAR OR VESSEL YEAR BUILT	1	FO	Z	2
25	VLF EXEMPTION CODE R - IND = INDIAN RESERVATION M - NRM = NON-RESIDENT MILITARY F - STV = SPECIAL TRANSPORTATION	1	FO	AN	1
26	PRIOR HISTORY CODE 1 = PRIOR JUNK (SALVAGED) 2 = PRIOR SALVAGE (SALVAGED) 3 = SALVAGE RETENTION 4 = PRIOR TAXI 5 = PRIOR POLICE 6 = ORIGINAL TAXI 7 = ORIGINAL POLICE 8 = REMANUFACTURED VEHICLE 9 = GREY MARKET A = WARRANTY RETURN	1	FO	AN	1
27	ENGINE NUMBER	1	VO	AN	30
28	ODOMETER READING	1	FO	Z	9
29	CURRENT ODOMETER DATE (CCYYMMDD)	1	FO	Z	8
30	PRIOR ODOMETER DATE (CCYYMMDD)	1	FO	Z	8
31	MILES OR KILOMETER INDICATOR (M OR K)	1	FO	AN	1
32	BRAND CODE A = ACTUAL, E = EXCEEDS LIMITS, N = NOT ACTUAL	1	FO	AN	1
33	EQUIPMENT NUMBER	1	VO	AN	10
34	REGISTERED OWNER FIRST LINE NAME	1	VR	AN	30
35	REG. OWNER 2ND LINE NAME OR ADDRESS	1	VR	AN	30
36	REG. OWNER 3RD LINE NAME OR ADDRESS	1	VO	AN	30
37	REG. OWNER 4TH LINE NAME OR ADDRESS	1	VO	AN	30

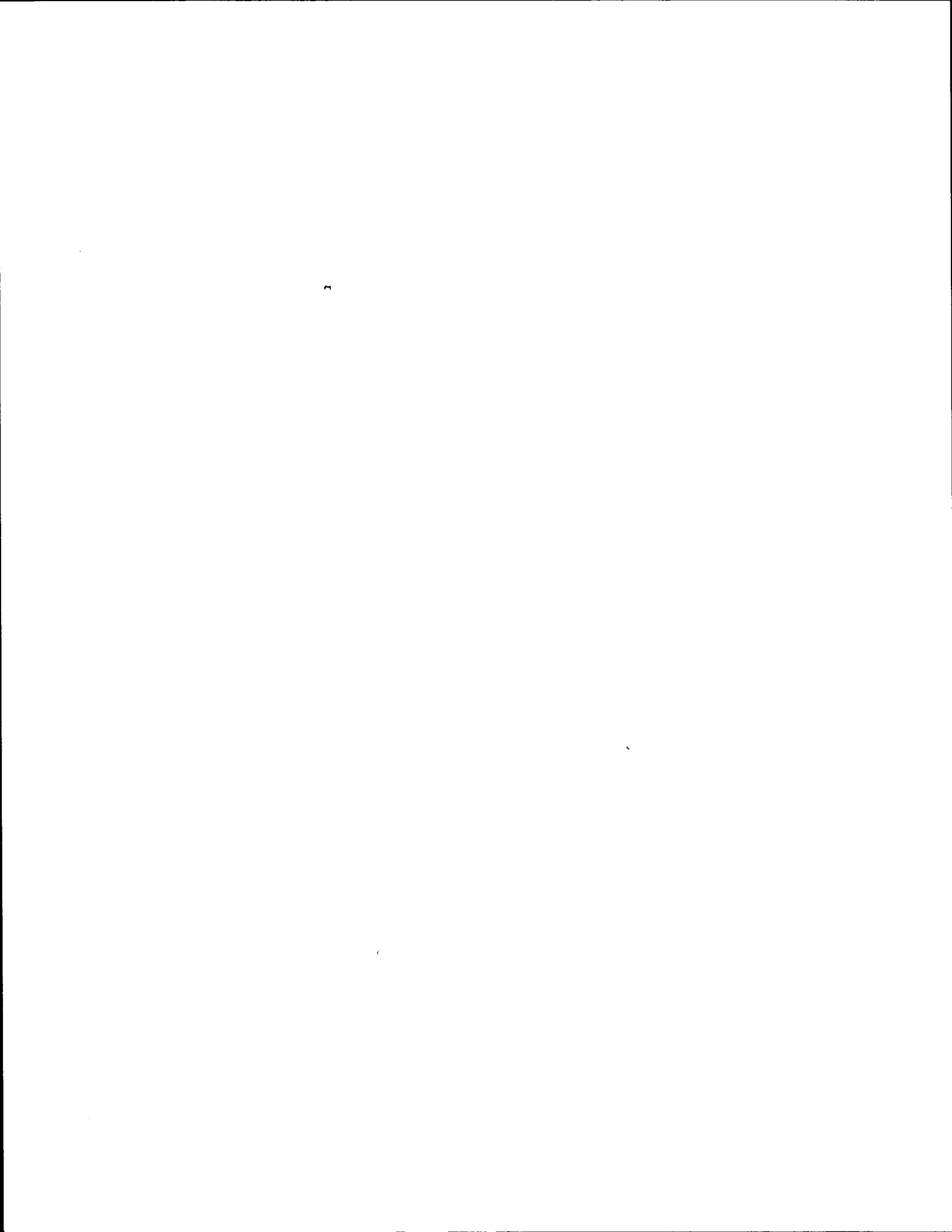


APPENDIX C

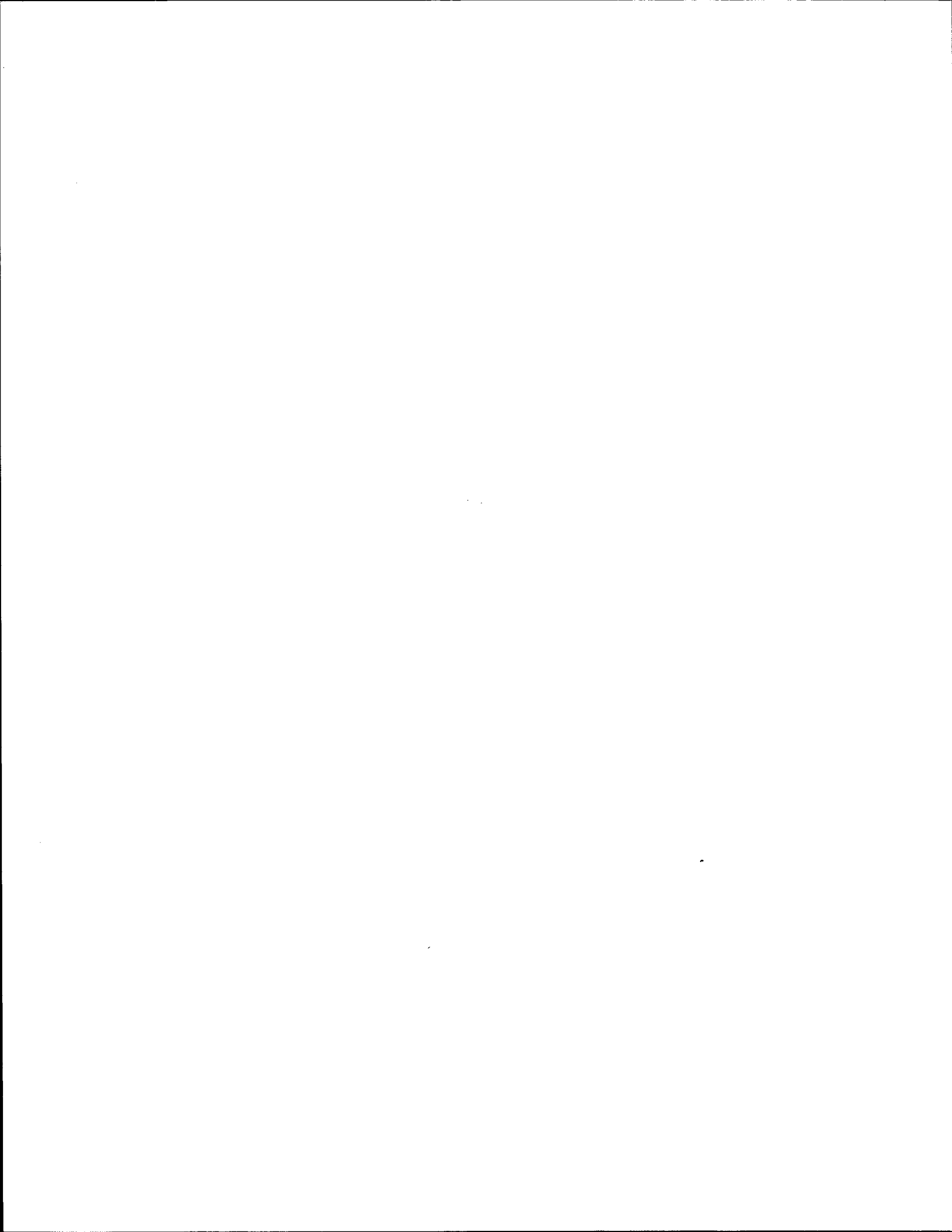


FLORIDA STATUTE AUTHORIZING THE USE OF ELECTRONIC MEANS TO RECORD
AND SATISFY LIENS.

Notwithstanding any requirement in this section or in s. 319.27 indicating that a lien on a motor vehicle or mobile home shall be noted on the face of the Florida certificate of title, if there are one or more liens or encumbrances on the motor vehicle or mobile home, the department may electronically transmit the lien to the first lienholder and notify the first lienholder of any additional liens. Subsequent lien satisfactions may be electronically transmitted to the department and shall include the name and address of the person or entity satisfying the lien. When electronic transmission of liens and lien satisfaction are used, the issuance of a certificate of title may be delayed until the last lien is satisfied and a clear certificate of title is issued to the owner of the vehicle.



APPENDIX D



AGREEMENT BETWEEN THE IDAHO TRANSPORTATION DEPARTMENT AND (NAME OF FINANCIAL INSTITUTION)

DATED This (current date).

THIS AGREEMENT is made and entered into by and between the Idaho Transportation Department, hereinafter called "ITD," 3311 West State Street, Boise, Idaho 83707, and (name and address of financial institution), hereinafter called "Financial Institution."

Section 1. PURPOSE OF AGREEMENT.

ITD is authorized, pursuant to Section 49-505, Idaho Code, to enter into agreements authorizing the creation of an electronic record of the Certificate of Title and lien of a vehicle.

ITD has designed and developed an electronic ownership record system reflecting vehicle ownership information without issuance of a paper title to either the financing lender or the registered owner of the vehicle. This system will create an electronic lien filing and hereinafter be called an "ELECTRONIC LIEN." Financial Institution will provide resources, as described later, for testing and operation of the ELECTRONIC LIEN System during the testing phase of the program.

ITD is charged with the responsibility for the titling of vehicles in this State, and for the performance of various other related functions with respect to such vehicles. Financial Institution is authorized to perform various banking and lending functions within this state with respect to providing loans and financing purchases of vehicles.

Section 2. GENERAL DESCRIPTION.

An ELECTRONIC LIEN filing creates an electronic ownership record reflecting vehicle information contained on the ITD database record which includes a description of the vehicle titled and owners and lienholders. The ELECTRONIC LIEN System is designed to eliminate the printing and issuance of a paper vehicle title to the lending institution while liens are in effect. Paper titles will be replaced with an electronic database record of title reflecting an ownership record and the institution's lien.

The ELECTRONIC LIEN System is designed to increase the efficiency for a lienholder and expedite services by providing a system that will accept output and input via automated media. The system will initially use telephone lines as the media.

The program will include Financial Institution and will have the following conditions and limitations:

- a. The ELECTRONIC LIEN System is designed to perform the following primary functions:
 - 1) process certain title records showing Financial Institution as lienholder or other specified party;
 - 2) generate paper title and mail to registered owner shown on ITD records when Financial Institution has released lien electronically;
 - 3) change lienholder information;
 - 4) permit paper title printing upon lienholder request.All other title transactions will be processed on the existing ITD Title System.
- b. Only vehicles titled in the state of Idaho will be processed on the system.

AGREEMENT

PAGE 2

Section 3. PROCESS DESCRIPTION.

The ELECTRONIC LIEN System will facilitate the following general functions:

A. Initial application for ELECTRONIC LIEN filing:

1. ITD will receive all original title documents in the same manner as in current paper filings.
2. When ITD is satisfied as to the ownership of the vehicle, ITD will notify the Financial Institution via AAMVANET mailbox that their lien has been perfected.
3. Financial Institution will be required to receive notification of electronic lien filing from AAMVANET mailbox.
4. Financial Institution will confirm receipt via AAMVANET mailbox.

B. Release of lien by Financial Institution

1. Financial Institution will notify ITD of lien release/satisfaction via AAMVANET mailbox, along with instructions as to where to mail the paper Certificate of Title, i.e. registered owner with new address, c/o licensed vehicle dealer, insurance company, or new lienholder, etc.
2. ITD will verify lien release with current ELECTRONIC LIEN filing, and if ITD is satisfied as to the authenticity of the lien release, ITD will issue a Certificate of Title to the registered owner, and mail the certificate as instructed by Financial Institution.

C. Release of lien by Financial Institution and refinance with another electronic lienholder.

1. Financial Institution will make notification of lien release/satisfaction via AAMVANET mailbox, along with instruction as to name of new electronic lienholder.
2. ITD will verify receipt of lien release with Financial Institution reestablish new electronic lien filing showing new lien, and make notification to new electronic lienholder via AAMVANET mailbox.

D. Financial Institution requests paper Certificate of Title.

1. Financial Institution will notify ITD of the need for a paper Certificate of Title via AAMVANET mailbox. Financial Institution shall include instructions as to where to mail the paper Certificate of Title, i.e. back to Financial Institution (repossession), to another state's Department of Motor Vehicles (customer has moved), etc.
2. ITD will issue a paper Certificate of Title, displaying Financial Institution's lien, and will mail the certificate as instructed by Financial Institution.

E. Financial Institution notification of error to ITD.

1. Financial Institution will notify ITD of an error on the title record via AAMVANET mailbox, and provide a message indicating the nature of the error detected.

AGREEMENT

PAGE 3

2. ITD will research the record. Depending on research findings, ITD may require additional documents.
3. ITD will confirm the correct record to the Financial Institution by sending another electronic message or issue a paper Certificate of Title as appropriate.

Section 4. STATEMENT OF WORK.

ITD will provide an ELECTRONIC LIEN system as generally set forth in the General Description provided in Section 2 and Process Description provided in Section 3. The precise nature of the System may vary from initial designs as the program develops.

ITD shall develop a Financial Institution master file by adding a lienholder code to the applicable vehicle record database showing Financial Institution as the prime lender on vehicle records. Using the ELECTRONIC LIEN process being developed, ITD will provide Financial Institution with information of changes processed to the vehicle database and Financial Institution's lienholder code during the reporting period.

Financial Institution shall provide the necessary hardware and software equipment to process data input and output in the record layout developed for the ELECTRONIC LIEN System.

Section 5. PAYMENTS.

Since the title issuance fee is collected upon initial application for title, no additional fee is due for electronic lien filing activity.

Any service provided by ITD to Financial Institution that is not specifically provided under this agreement is subject to additional fees in the amount usually charged by ITD for such service.

Section 6. TERMS AND CONDITIONS.

A. Limitation on Liability.

The parties agree that in no event shall the State of Idaho, ITD, or its employees, be liable to Financial Institution for any direct, indirect, or consequential damage which is the result of acts of God, strikes, lockouts, riots, acts of war, epidemics, power failures, equipment or software failures, nuclear accidents, or other disasters.

B. Use of a Service Bureau.

Should Financial Institution use a Service Bureau or Software Provider for the performance of this agreement, Financial Institution agrees to assume full responsibility and liability for the action of the Service Bureau or Software Provider pursuant to this agreement.

C. Limitation Upon Assignment.

AGREEMENT

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This agreement is not assignable by either party.

D. Nondiscrimination.

During the terms of this agreement, the parties hereto agree to comply with the following nondiscrimination requirement as well as applicable federal, state, and local laws and regulations governing equal employment opportunity:

No party shall, on the grounds of race, color, creed, religion, sex, marital status, national origin, age, sensory, mental or physical handicap, or political affiliation, discriminate against or deny employment as a participant or staff person in connection with any function related to this agreement or to be performed in connection therewith.

E. Termination.

This agreement may be terminated by either party upon giving thirty (30) days written notice to the other party; provided that, either party may terminate the agreement immediately for breach by the other party of any of its obligations under this agreement upon delivery of written notice to the other party. Notice of termination shall be by certified mail with return receipt requested.

F. Payment In the Event of Termination.

In the event this agreement is terminated by either party without fault on the part of the other party, each party shall be responsible for the actual cost they have incurred during their performance under this agreement and neither party shall be obligated to the other party for such cost; except that all fees owed by Financial Institution to ITD shall continue to be due and payable.

G. Ownership of Equipment and Software.

All equipment and software furnished by ITD or by Financial Institution shall remain the property of the furnishing party and the party shall retain full title and all right associated with ownership. The equipment shall not become fixtures. Neither party shall encumber, or permit an encumbrance upon, the other party's title to the equipment or software, or to the equipment or software itself, in any manner.

H. Disputes.

Venue of any lawsuit filed by any party against the other party arising in whole or in part out of this agreement shall be in the District Court for Ada County in Boise, Idaho.

Any controversy or claim in excess of Ten Thousand Dollars (\$10,000.00) directly arising from this agreement or breach thereof, shall be settled by arbitration in the City of Boise, Idaho in accordance with the laws of the State of Idaho, by a neutral arbitrator mutually agreed upon by the parties.

I. Independent Status of ITD.

ITD and ITD employees and agents shall perform all duties pursuant to this agreement as an independent agency from Financial Institution and not in any manner as officers, agents, employees, contractors, or subcontractors of Financial Institution. All references in this agreement to ITD shall include its agents and employees. Financial Institution shall not withhold or pay any taxes or insurance or deductions of any other kind in connection with reimbursement of ITD under this agreement.

J. Savings Clause.

It is the belief of all parties that all provisions of this agreement are lawful. If any section of this agreement should be found to be contrary to existing law, by court decision, the remainder of the agreement shall not be affected thereby, and the parties shall enter into immediate negotiations for the purpose of arriving at a mutually satisfactory replacement of such section. The provisions of the agreement shall be subject to any future enactments by the Legislature of the State of Idaho. In the event of conflicts between actions of or directions of the Legislature and provisions of this agreement during its term, the former shall prevail.

K. Term of the Agreement.

This agreement shall commence on May 6, 1996, and shall expire if either party terminates the contract as provided in Section 6.E.

Section 7. NOTICES.

All notices concerning this contract shall be sent to the parties at the addresses stated below:

ITD -Vehicle Services Manager, Department of Transportation, Post Office Box 7129, Boise, Idaho 83707-1129.

(Financial Institution contact, name, and address).

Section 8. DELIVERY.

All data shall be transferred electronically via the AAMVANET Communications Network. ITD and the Financial Institution shall each be responsible for their own mailbox and communication fees.

Section 9. NON-EXCLUSIVE.

This agreement is not exclusive between the parties. ITD may at its own discretion enter into agreements with other banking and lending institutions or financial institutions for the same or similar services as provided by this Agreement.

Section 10. ENTIRE AGREEMENT.

AGREEMENT

PAGE 6

This document, together with any attachments thereto, constitutes the entire Agreement between the parties. There is no other agreement, either oral or written, upon the subject. Commitments, warranties, representations, understandings, or agreements not contained in this Agreement or written amendment hereto shall not be binding on either party. Except as provided herein, no alteration of any of the terms or conditions, of this Agreement will be effective without written consent of both parties. However, this provision shall not prevent any other effective agreement between the parties which is not inconsistent with the provisions of this Agreement.

MOTOR VEHICLE ADMINISTRATOR
IDAHO TRANSPORTATION DEPARTMENT

DATE

TITLE:
(NAME OF FINANCIAL INSTITUTION)

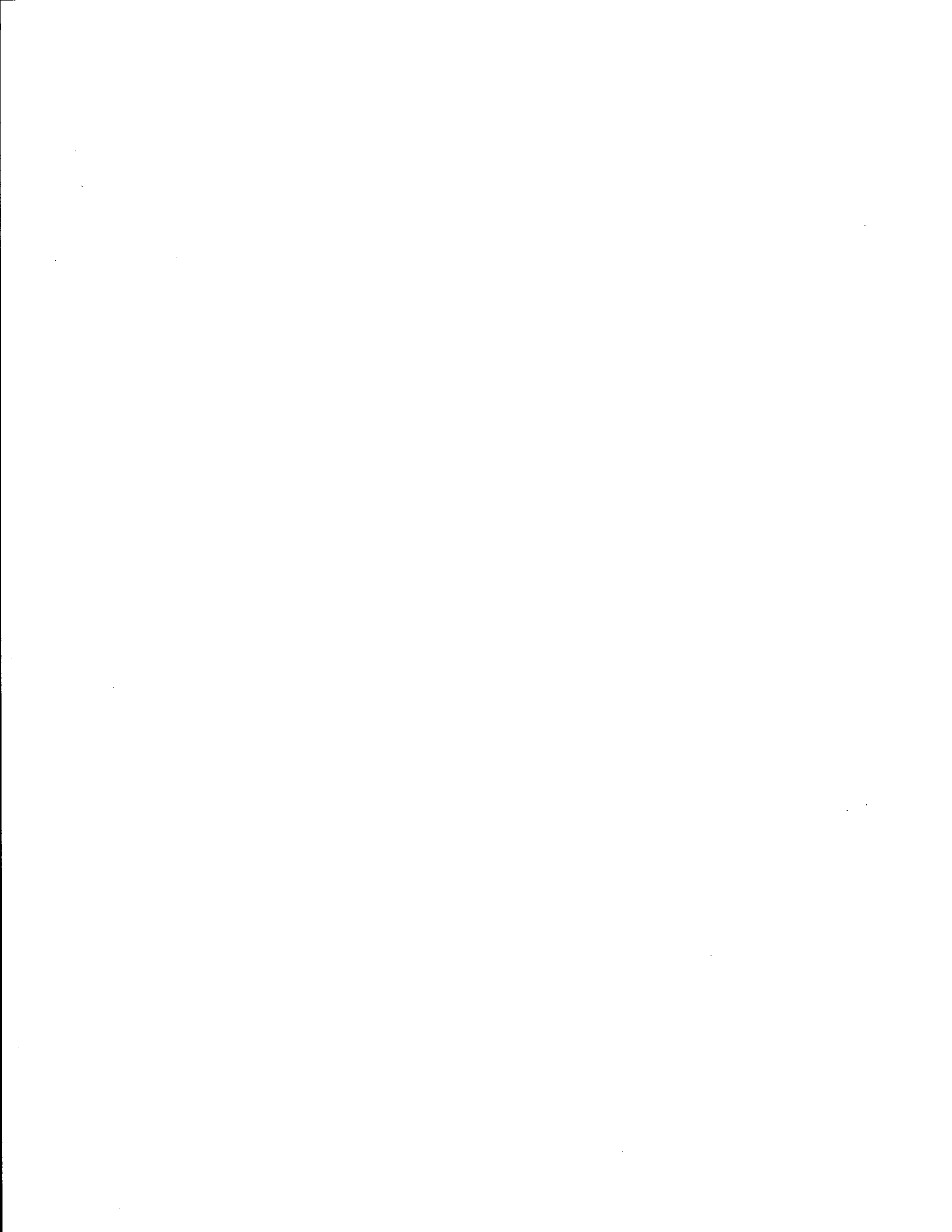
DATE

APPROVED AS TO FORM:

LEGAL COUNSEL

DATE

APPENDIX E



ELT System Communications

Overview

ITD spent some time deciding whether to send our ELT communications over Internet or AAMVANET. We settled on AAMVANET. However, we are designing the system so that the ELT application and the communications are not enslaved in any way to each other. For example, the application's records do not require any information from or about the communication — like mail headers or formatting for packeting. This will make it easy in the future to change communications if that becomes advantageous or necessary.

ITD strongly urges the banks to avoid enslaving anything to the communication side when they create their systems.

AAMVANET

AAMVANet is a block of time purchased from IBM's Advantis communication network. The time is owned by AAMVA (Association of American Motor Vehicle Administrators). Our communication costs will be paid to AAMVA. Banks will purchase the mailbox software — Expedite/Base and Expedite/Manager — from AAMVA.

Costs

The AAMVA contact person for costs and connectivity questions is Karen Massey at (703) 908-8293.

Expedite/Base and Expedite/Manager Software

Expedite/Base is available at no charge. Expedite/Manager for Windows or DOS costs \$189; for OS/2 it costs \$249. You need this software to send and receive mail. AAMVA has other versions for the mainframe and minicomputers.

ACCOUNT SETUP AND MAINTENANCE

It costs \$180 to set up an AAMVANET account and \$40 per month to maintain it.

Transmission

Transmission costs can be paid in different ways. The manner we intend to use is We Pay For What We Send, You Pay For What You Send. ITD sends 400-500 characters per record. Banks send 180-280 characters per record.

For the character traffic:

For...	Prime Time (8am to 8pm EST)	Non-prime (8pm to 8am EST)
Each message (batch)	.29	.145
Traffic (per 1000 characters)	.068	.034

ELT System Communications 2

For the phone call:

Information Exchange	Per 1000 during prime time (8am to 8pm EST)	Per 1000 non-prime (8pm to 8am EST)
Local Dial Access	.026	.013
800 Dial Surcharge	.044	.044

Local dial access may or may not be available in your area.

Sending/Receiving

Transmission basics

We will not be using EDI. EDI is an Advantis communication method. While it has a few slick features, it is too proprietary, enslaving the application to the communication method. The records must build in information about the communication, which is not good.

We will use the basic Send and Receive commands instead.

Accounts

ITD's Account is IDMV and Userid is IDMVELT.

Sending

Put all of your records in a file and use the Send command. Use the following options:

- *Class - Use Class ELT.
- *Truncate - Include the truncate option to reduce the number of characters you are sending. This may not be a big deal for PC-based users.
- *Delimit - Make absolutely sure that you use Delimit(c). This tells when a record ends, and it works for both PC and mainframe. Without it, your truncating will start another record at the end of the first, and so on.

Ack

Ack (which stands for Acknowledgment, by the way) is OPTIONAL. It causes a little extra transmission cost, but when first starting out and during times of trouble it will tell you how your mail is progressing. There are different levels of Ack; take your pick.

Example of a mainframe Send from bank to ITD (PC's should be different only for the fileid):

```
SEND FILEID(DVS01D.OUTBOUND.ELT) DELIMIT(C) TRUNCATE(Y)  
CLASS(ELT) ACCOUNT(IDMV) USERID(IDMVVELT);
```

Receiving

Just receive in messages with an ELT for Class. They all get appended to the same file. For a bank, this should be one message file per state per day.

Example of a mainframe Receive:

```
RECEIVE FILEID(DVS01D.INBOUND.ELT) CLASS(ELT) ACCOUNT(IDMV)  
USERID(IDMVVELT);
```

Confirmation

The system is being redesigned to provide confirmations in the future. For now, use the following three-step method.

First, determining that something is wrong

You can check your communication return codes to catch an error immediately. If you do not, the other party will be able to tell you something is wrong by checking the transaction and file numbering.

Second, determining exactly what went wrong

Expedite gives you error codes. These are important codes to have around if a transmission problem occurs. You probably should keep a log of these codes or use the audit trail ability for AAMVANET (see the Expedite/Base documentation).

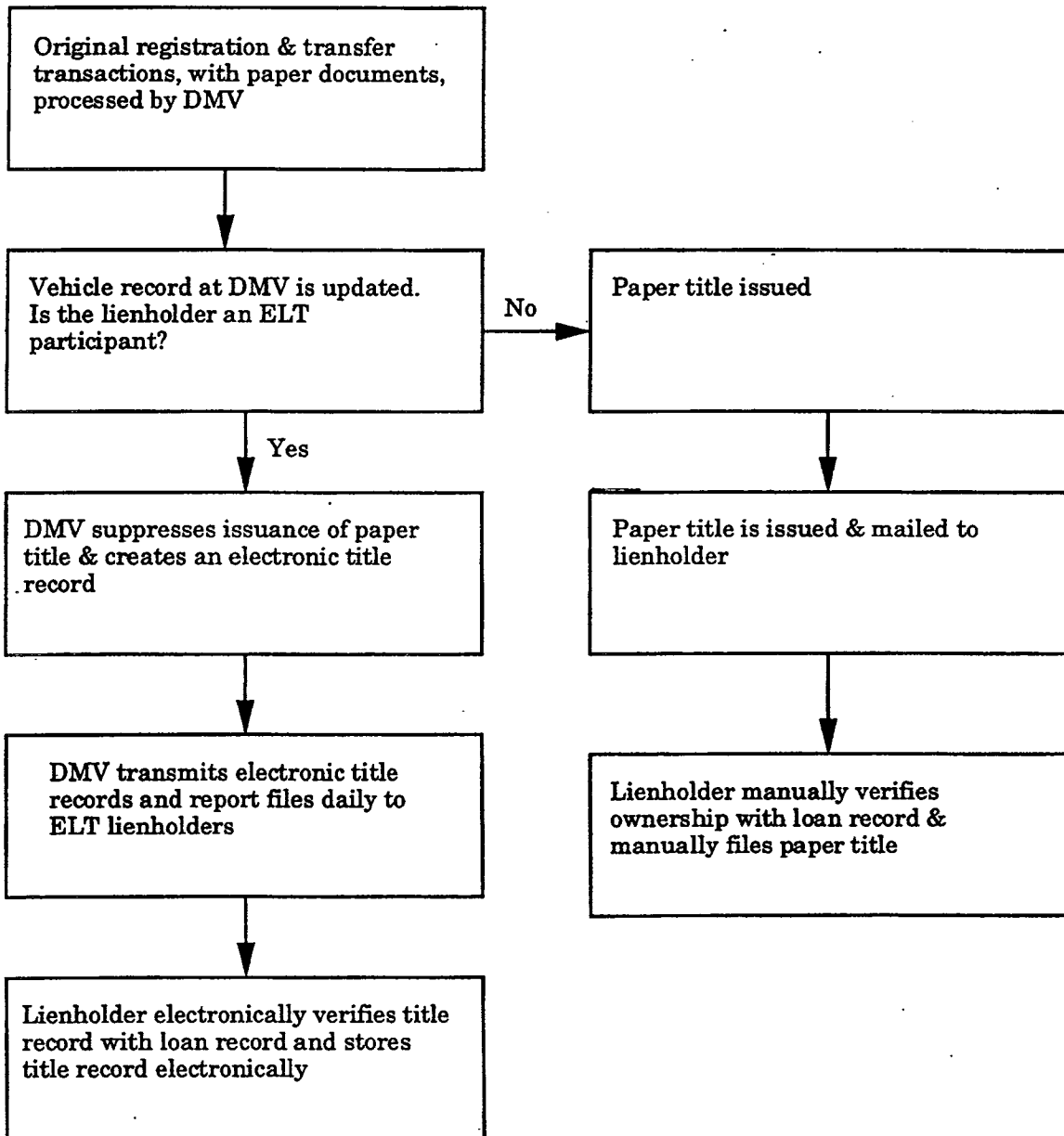
Third, be able to recreate a file

If a problem happened days ago and you just found out about it, you need to be able to resend the missing file transaction. The transaction log is important for this. Keep the transaction log permanently if possible, for both incoming and outgoing records.

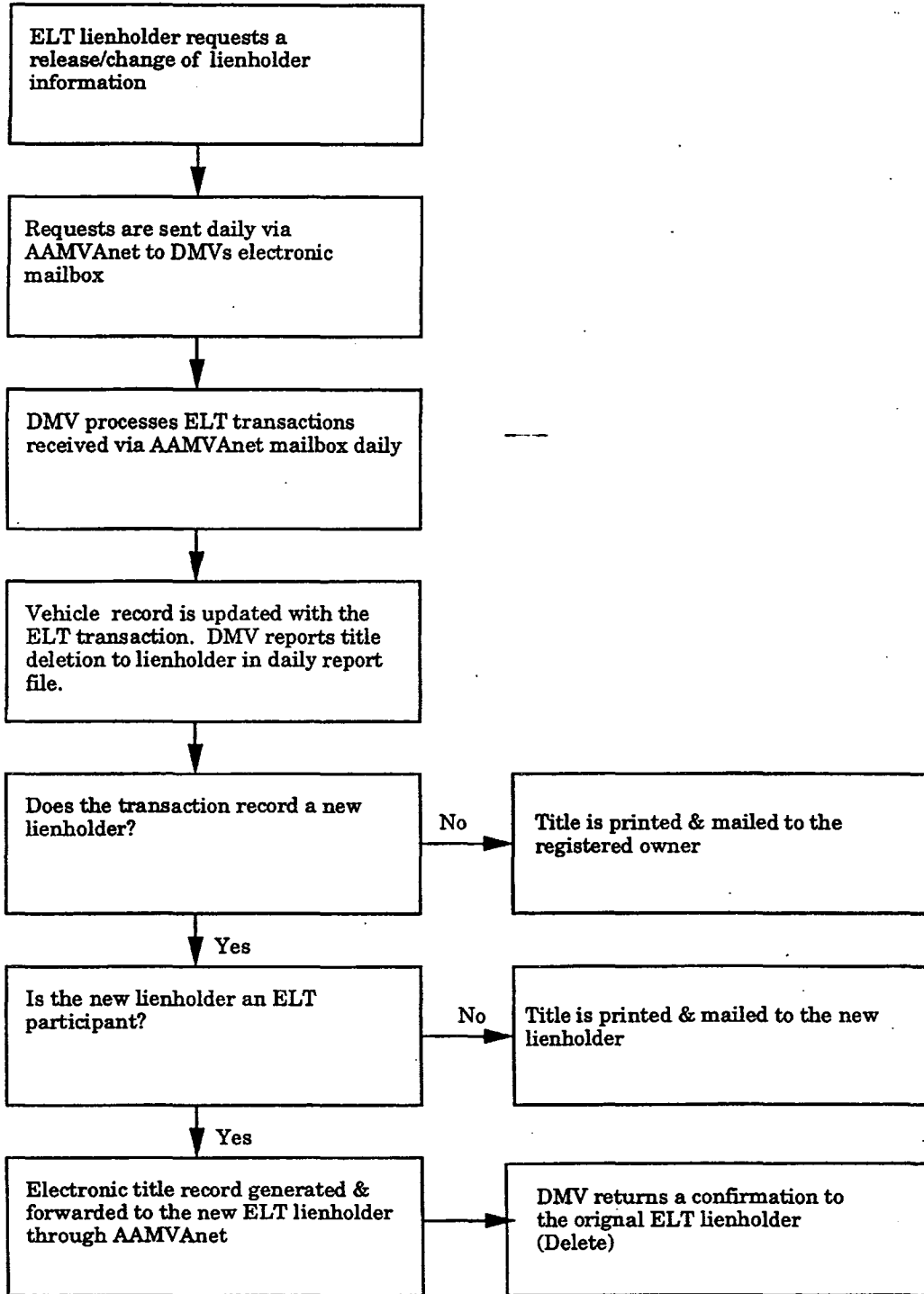


APPENDIX F

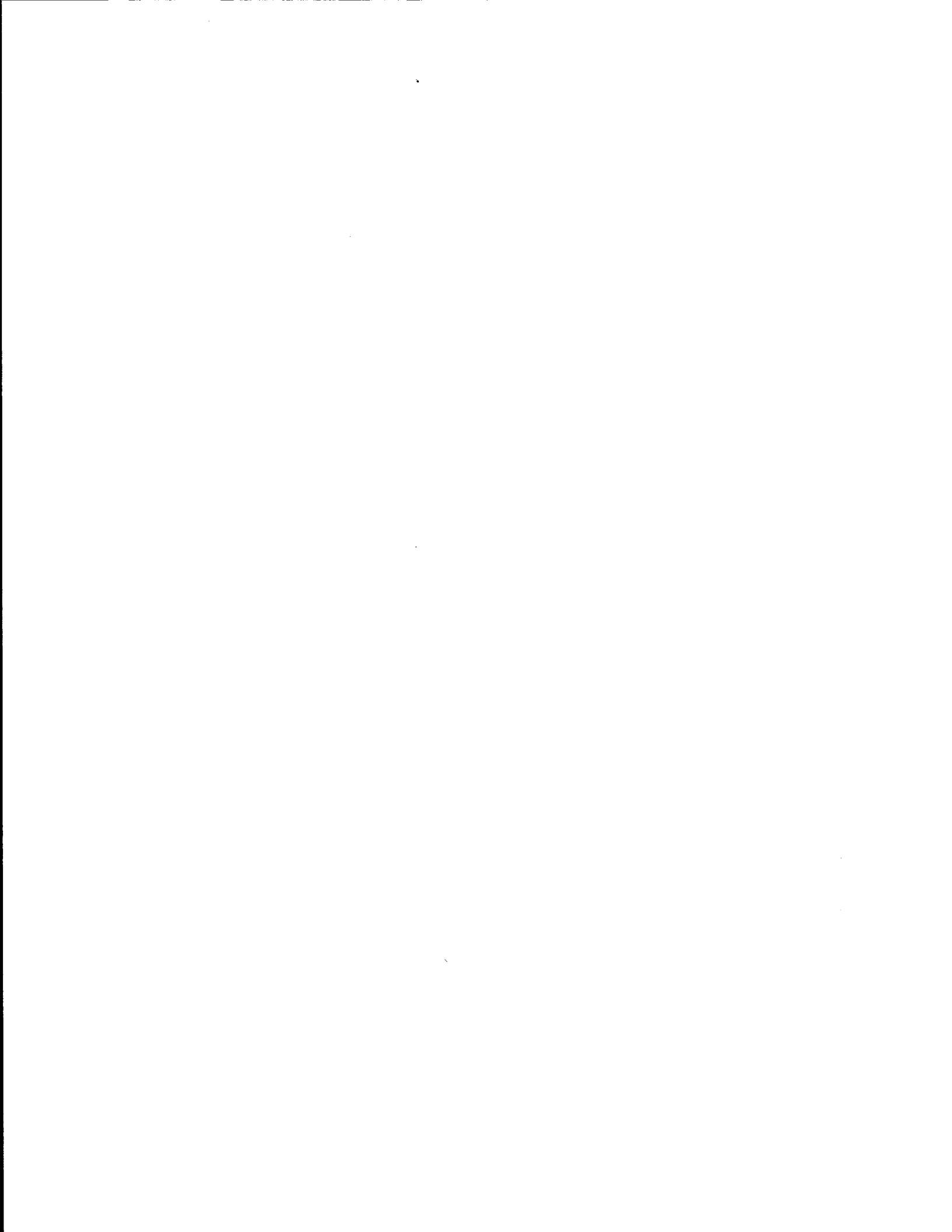
Establishment of an E-Title



Update Transaction Flow



APPENDIX G



ELT Structured Test

Intro to lending institutions

Once you have contracted with Idaho to use the electronic titles system, you will design and build your side of the application. At some point you will be ready to test. This document discusses the steps you and ITD will take to test.

Of course, you might have contracted out your side of the system to a private ELT developer. If so, that company will likely conduct the testing for you.

Contact

Once you get your AAMVANET mailbox and Expedite up and running, we can send informal messages — "How are you, I am fine" types that simply prove that we can make contact. For practice, we can use the mail to handle questions and discuss the system.

ITD's Account is IDMV and Userid is IDMVELT. When you send non-record messages, use TEXT for the Class.

Record exchange

Initial LC records

When you are ready to try records, we will send a file containing a small number of LC test transactions. These records are laid out below (see the ELT System Specifications document for exact details on each field). Due to length the records are split into a number of manageable segments, with the key VIN at the front of each

TranDate	SentBy	LienEIN	TranNo	TranCode	Error	VIN	Title
19950623	ID	123456789	00000001	LC		ELTTTEST001	A0001
19950623	ID	123456789	00000002	LC		ELTTTEST002	A0002
19950623	ID	123456789	00000003	LC		ELTTTEST003	A0003
19950623	ID	123456789	00000004	LC		ELTTTEST004	A0004
19950623	ID	123456789	00000005	LC		ELTTTEST005	A0005
19950623	ID	123456789	00000006	LC		ELTTTEST006	A0006
19950623	ID	123456789	00000007	LC		ELTTTEST007	A0007
19950623	ID	123456789	00000008	LC		ELTTTEST008	A0008
19950623	ID	123456789	00000009	LC		ELTTTEST009	A0009
19950623	ID	123456789	00000010	LC		ELTTTEST010	A0010

Year	Make	Body	Model	Desc	Weight	Length	Width
1951	INTL	T	TK	CLASSIC	000001	01	01
1988	SUBA	2D	XTC	CLASSIC	000002	02	02
1994	MAZD	2D	RX7	CLASSIC	000003	03	03
1977	PLYM	4D	VOL		000000	03	03
1990	FORD	4D	TAU		000000		
1995	FORD	2D	PIN		999999	99	99
1935	STU	4D	HAW		000000		
1960	CREE	LB	TL	LOWBOY	003000	25	10
1980	CURT	FB	TL		008000	30	12
1993	DODG	PK	TK		000000		

OdoReading	OdoStatus	OdoDate	Hpower	Hull	Propulsion
00000001	A	19910601			
00000002	N	19910602			
00000003	E	19910603			
00000000	R				
00000000	X				
09999999	A				
00000000	E				
00000000	D				
00000000	D				
00000000	X				

OwnerNo	OwnerName1	Conj1	OwnerName2
516669339	TESTELT, RECORD 1 NAME 1	OR	TESTELT, RECORD 1 NAME 2
	TESTELT, RECORD 2 NAME 1	OR	TESTELT, RECORD 2 NAME 2
	TESTELT, RECORD 3 NAME 1	OR	TESTELT, RECORD 3 NAME 2
	TESTELT, RECORD 4 NAME 1	OR	TESTELT, RECORD 4 NAME 2
	TESTELT, RECORD 5 NAME 1	OR	TESTELT, RECORD 5 NAME 2
	TESTELT, RECORD 6 NAME 1	OR	TESTELT, RECORD 6 NAME 2
	TESTELT, RECORD 7 NAME 1	OR	TESTELT, RECORD 7 NAME 2
	TESTELT, RECORD 8 NAME 1	OR	TESTELT, RECORD 8 NAME 2
	TESTELT, RECORD 9 NAME 1	OR	TESTELT, RECORD 9 NAME 2
	TESTELT, RECORD 10 NAME 1		

Conj2	OwnerName3	More...	OwnerAddress
AND	TESTELT, RECORD 1 NAME 3	ETC	TESTELT, RECORD 1 ADDRESS
AND	TESTELT, RECORD 2 NAME 3	ETC	TESTELT, RECORD 2 ADDRESS
AND	TESTELT, RECORD 3 NAME 3	ETC	TESTELT, RECORD 3 ADDRESS
AND	TESTELT, RECORD 4 NAME 3	ETC	TESTELT, RECORD 4 ADDRESS
AND	TESTELT, RECORD 5 NAME 3	ETC	TESTELT, RECORD 5 ADDRESS
AND	TESTELT, RECORD 6 NAME 3	ETC	TESTELT, RECORD 6 ADDRESS
AND	TESTELT, RECORD 7 NAME 3	ETC	TESTELT, RECORD 7 ADDRESS
AND	TESTELT, RECORD 8 NAME 3	ETC	TESTELT, RECORD 8 ADDRESS
AND	TESTELT, RECORD 9 NAME 3	ETC	TESTELT, RECORD 9 ADDRESS
			TESTELT, RECORD 10 ADDRESS

OwnerCity	OwnerState	OwnerZip5	OwnerZip4
CITYVILLE	ID	00001	0001
CITYVILLE	ID	00002	0002
CITYVILLE	ID	00003	0003
CITYVILLE	ID	00003	0003
CITYVILLE	ID	00005	0005
CITYVILLE	ID	00006	0006
CITYVILLE	ID	00007	0007
CITYVILLE	ID	00008	0008
CITYVILLE	ID	00008	0008
CITYVILLE	ID	00010	

Lien1Name	Lien1Address	Lien1CSZ
TEST LIENHOLDER BANK	TEST LIENHOLDER BANK ADDRESS	CITYTOWN, ID 83704
TEST LIENHOLDER BANK	TEST LIENHOLDER BANK ADDRESS	CITYTOWN, ID 83704
TEST LIENHOLDER BANK	TEST LIENHOLDER BANK ADDRESS	CITYTOWN, ID 83704
TEST LIENHOLDER BANK	TEST LIENHOLDER BANK ADDRESS	CITYTOWN, ID 83704
TEST LIENHOLDER BANK	TEST LIENHOLDER BANK ADDRESS	CITYTOWN, ID 83704
TEST LIENHOLDER BANK	TEST LIENHOLDER BANK ADDRESS	CITYTOWN, ID 83704
TEST LIENHOLDER BANK	TEST LIENHOLDER BANK ADDRESS	CITYTOWN, ID 83704
TEST LIENHOLDER BANK	TEST LIENHOLDER BANK ADDRESS	CITYTOWN, ID 83704
TEST LIENHOLDER BANK	TEST LIENHOLDER BANK ADDRESS	CITYTOWN, ID 83704
TEST LIENHOLDER BANK	TEST LIENHOLDER BANK ADDRESS	CITYTOWN, ID 83704

Lien2Name	DateRecord	DatePrint
SECOND LIENHOLDER BANK	19950601	19950623
SECOND LIENHOLDER BANK	19950602	19950623
SECOND LIENHOLDER BANK	19950603	19950623
	19950604	19950623
	19950605	19950623
	19950606	19950623
	19950607	19950623
	19950608	19950623
	19950609	19950623
	19950610	19950623

TitleType	PrevState	PrevBrand	SpecialInfo
RT	CA	03	A BOGUS RECORD
RT	IL	06	A BOGUS RECORD
RT	CA	09	A BOGUS RECORD
RT	AZ	12	A BOGUS RECORD
RT	WI	15	A BOGUS RECORD
RT			A BOGUS RECORD
RT			A BOGUS RECORD
RT			A BOGUS RECORD
RT			A BOGUS RECORD
RT			A BOGUS RECORD

Transaction exchange

Once you feel confident, put those test records above in original shape, and we'll try an exchange. It goes like this:

First send — you

Build the following transactions and send them in a file with Class TEST1.

ELTTEST001

The owner of ELTTEST001 has paid off his loan, and now you want to release that lien. Send us an LO transaction.

ELTTEST002

ELTTEST002 is being transferred to the second lienholder on the title, Second Lienholder Bank. Second Lienholder Bank is not an electronic partner with Idaho, so you give us no client number. There will be no lienholder number 2 on the title. Second Lienholder Bank's full name and address is:

SECOND LIENHOLDER BANK
NORTHWEST BRANCH —
123 NEW ROAD
TOWNSBURG, ID 93711

Send us an LI transaction.

ELTTEST003

You need this title turned into a paper title. It can be sent to the lienholder address given on the title. Send us an LG transaction.

ELTTEST004

You are pretty sure the title number should be 9889, not A0004. Tell us this with an LE transaction.

Second send — ITD

We will send you an LM transaction with the corrected title number for ELTTEST004.

Third send — you

ELTTEST005

The owner has paid off this loan, so you want to release it. However, the owner wants it sent to his son's house:

PATSON JENKINS
879 EARL ST
VILLESBURG, ID 90002-0899

Send us an LO transaction.

ELTTEST006

You are transferring this title to Saskan Credit Union. Being an electronic participant, they want you to put their EIN number (987654321) on the transaction. There is no second lienholder. The address information is:

SASKAN CREDIT UNION
8119 GARLON AVE
BURGSVILLE, ID 83338

Send us an LI transaction.

ELTTEST007

You want this title turned to paper. But instead of having it mailed to the address on the title, you want it sent to a branch:

NORTHWEST TEST BANK
SOUTH BRANCH
48576 ROUT ST
BURGSTOWNSHIRE, ID 83337

Send us an LG transaction.

ELTTEST008

The VIN is probably wrong. It should be ELTTEST911. Send an LE transaction explaining this.

ELTTEST009

The zip code is definitely wrong. You need to tell us so. Send an LE transaction stating that the zip should be 00009-0009.

Second send — ITD

We will send you an LM transaction with the corrected title number for ELTTEST008, and one for ELTTEST009 fixing the zip.

Error handling (optional)

Once the kinks are worked out above, clear your database except for the original test records we sent. Send us invalid requests:

An LI for ELTTEST001 that has the wrong VIN or title.

An LO for ELTTEST002 that has the wrong lienholder EIN number.

An LO for ELTTEST003 with a completely blank transaction header except for lienholder EIN.

An LE for ELTTEST004 with a blank comment.

An LG for ELTTEST005 with a Y in Use Mailing Address, but with no mailing information.

An LI for ELTTEST006 with no city/state/zip for the first lienholder.

We will generate ER transactions that you can use to test at your site.

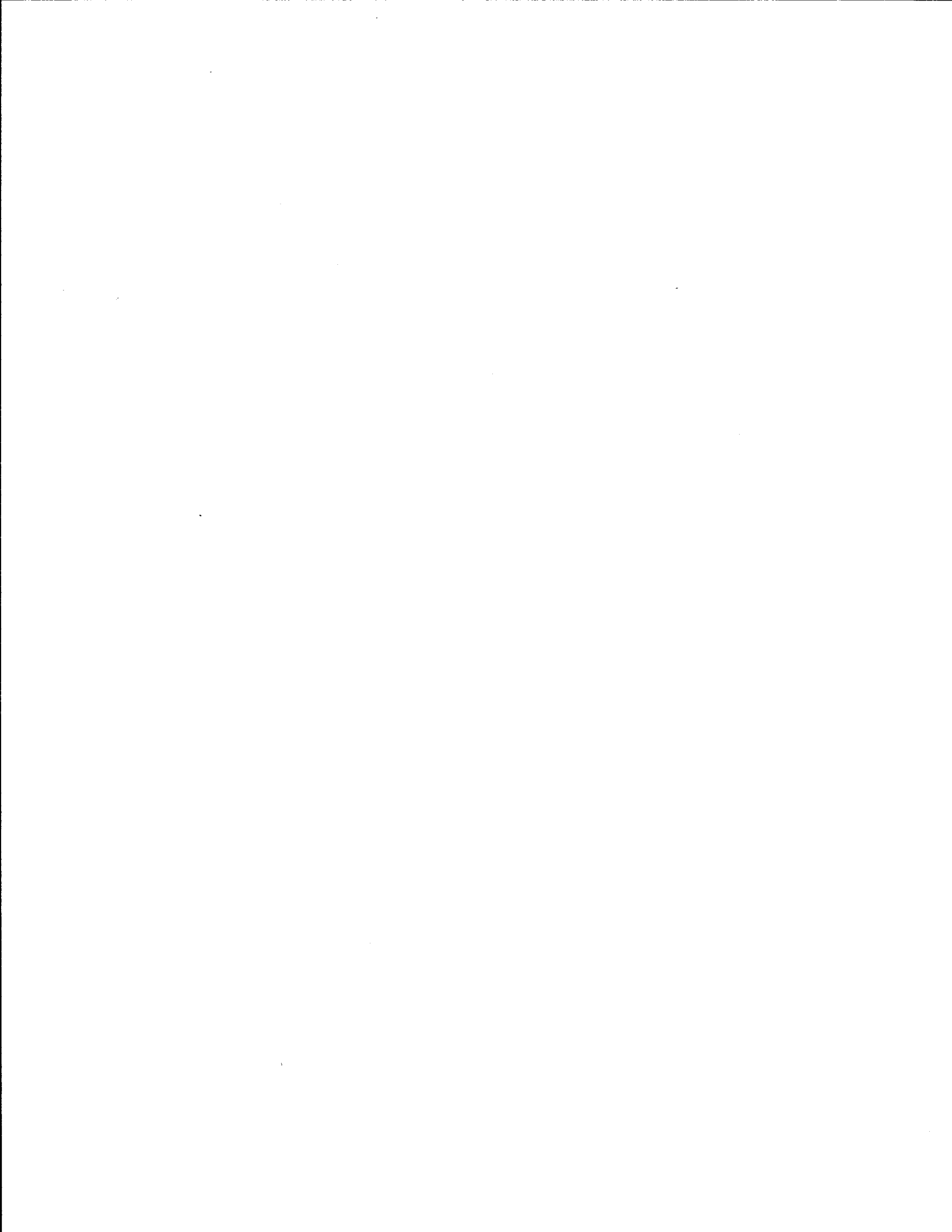
Limited exchange

At this point we can start sending real e-titles. But for the first week we will create only a few select e-titles each day and carefully oversee them. Once we are both satisfied, we can enter into full e-title exchange.



REFERENCES

1. *Electronic Lien and Title DVM Information and Procedures*, California Department of Motor Vehicles, Sacramento, CA, 1997.
2. *Electronic Lien and Title Implementation Guide*, AAMVAnet, Inc., Arlington, VA, 1997.
3. Stallings, W. *Protect Your Privacy: A Guide for PGP Users*, Prentice Hall, Upper Saddle River, NJ, 1995.
4. White, G. B., Fisch, E. A., & Pooch, U. W. *Computer Systems and Network Security*, CRC Press, Boca Raton, New York, London, Tokyo, 1996.
5. Anderson, M., *FDI Drives on via Electronic Pink Slips*, The Business Journal, Sacramento, CA, Vol 11, (52), 1995.
6. Marjanovic, S., *Chase, Seafirst Buy FDI's Paperless Auto Title System*, American Banker, March 21, 1995.
7. Brown, F., Vice President of the Texas Automobile Dealers Association, College Station, Texas *Personal Communications*, 1997.
8. Highbloom, L., President, Vintek, Inc., Philadelphia, PA, *Personal Communications*, 1997.
9. Zamboni, T., *Minutes from the meeting of the Electronic Lien Task Force, State of Pennsylvania*, March 20, 1997.



Addendum to the Electronic Lien and Titling Report of October 1997

The original report submitted to the Texas Department of Transportation contained some erroneous financial assumptions regarding charging mechanisms in the State of Pennsylvania. Since these assumptions reflect specifically on one organization, the author thinks it necessary and appropriate to modify the conclusions stated or implied. Distribution of the original report should include this addendum in its entirety.

Paragraphs 3.4.2 and 3.7.5 contain references to the fact that Pennsylvania uses Vintek in an Electronic Lien and Titling (ELT) implementation strategy that differs from the method used in the other participating states. The methodology requires all participating financial institutions to use Vintek as the conduit through which the electronic transactions flow on their way to the Pennsylvania Bureau of Motor Vehicles.⁵ Pennsylvania also imposed the restriction that the cost of this "conduit service" be passed on to the financial institutions.⁶

Vintek is now also in the business of providing ELT software and services to the end-user financial institutions, much like [if not identical to] those described in 3.7.2 for FDI Consulting, Inc and 3.7.3 for PDP Group, Inc. As stated in paragraph 3.7.5 of the original report, conversations with Larry Highbloom, president of Vintek, indicated that providing appropriate software and services was a future line of business. Thus, it seemed that the discussions regarding \$1.00 per transaction from the meeting notes (3/20/97) of the Pennsylvania ELT task force regarding Vintek charges would have to be for current services (conduit charges) rather than planned services (lien processing). This assumption was in error.

The agreement between Vintek and the State of Pennsylvania makes it possible for Vintek to "bundle" the transmission charges with processing charges for ELT customers who use Vintek to process their transactions. When, and if, a customer uses both services, then the statement at the end of paragraph 3.7.5 "fees for the transmission of transactions through Vintek could be up to \$1.00 per transaction" is true. The appropriate figure for just using the required conduit service is \$0.10 per transaction. There is no requirement that financial institutions use Vintek to process their transactions. However, any other organization wishing to provide "transaction processing services" to the financial industry in the State of Pennsylvania would have to pay Vintek the \$0.10 per transaction fee to access the data.

⁵ Although other states also require the use of a single transmission conduit (e.g. Advantis - AAMVANET Communications Network), in those situations there is no possibility of "bundled transaction processing" being provided.

⁶ While this strategy saves the state the cost of transaction transmission, it is perhaps a poor method of encouraging participation. This strategy is not recommended. A long-range goal of an ELT system is to encourage as wide a base of participation as possible, to eventually (in say 10-15 years) make an "electronic only" system. Forcing the financial institutions to bear the total responsibility of this portion of the operating cost seems to ignore the fact that there are costs savings to be realized on both ends of the transactions. It is in the long-term best interest of the Vehicle Titles and Registration Division to implement a strategy consistent with the goal of maximizing participation.