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Improving Customer Service at LPA Offices
Final Report: Volume I

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16. Abstract

The purpose of this study was to gather data related to reasons for incomplete transactions that occur at LPA offices in order to provide recommendations to mitigate them. The research problem being investigated is to determine reasons for incomplete transactions. In order to assess incomplete transactions that occur at LPAs, the research team completed semi-structured interviews with LPA managers at the 14 selected LPAs. Additionally, site visits were completed for the 9 LPAs that had the highest and lowest ranking for incomplete transactions; during the site visits, LPA employees tallied the types and reasons for incomplete transactions, and LPA customers were surveyed by members of the research team as they exited the LPA. The primary findings of the study indicate that the main contributors to incomplete transactions include: (1) credit card system malfunctioning, (2) long wait times for the Help Desk, (3) inconsistent information provided between the Help Desk and the customer service phone line (i.e. the Call Center), (4) improperly notarized documents that do not meet DOT-specific requirements, (5) lack of user friendliness of the NCDMV website, (6) peak customer rush at deadlines for vehicle registration renewals, and (7) issues related to STARS, the outdated computer system currently used by the NCDOT. Recommendations based on these findings are also discussed in the report.

17. Key Words *License plate agency/agencies, LPA(s), DMV, NC, North Carolina, incomplete transactions, wait times, customer service, reasons, causes.* *As a minimum, list a few keywords selected from Transportation Research Thesaurus available for download at:* http://www.infodesigns.com/files.html	18. Distribution Statement … ...		
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Acknowledgements

Table of Contents

Table of Figures

Executive Summary

Improving customer service across all license plate agencies (LPA) in North Carolina has long been a goal of the NC Division of Motor Vehicles (NCDMV). In 2013, the NCDMV commissioned an ITRE-led study to gather data from LPAs and point out areas of improvement, especially as it relates to customer wait times and number of incomplete transactions. The project entitled "A Study of the Usage of LPAs by the North Carolina Division of Motor Vehicles: Final Report - Phases I & II" (Martin et al., 2013, 2014) identified incomplete transactions as the main cause of customer dissatisfaction, with 28.5% of transactions not able to be completed in one visit. Although the studies by Martin et al. (2013, 2014) found incomplete transactions to be relatively common, the study did not pinpoint why incomplete transactions occur, making it difficult to devise solutions to the problem. As a result, the current ITRE-led study, was commissioned by the NCDOT to identify ways to address the issue of incomplete transactions and improve customer service. In addition, a website survey and usability study were also conducted in this project by NC A&T University and that is described in Volume II of this report. The primary objective of this study was to identify the predominant reasons for incomplete transactions, as well as ways to mitigate these obstacles.

In Phase II of "A Study of the Usage of LPAs by NCDMV," a list of LPAs ranked by wait times and the number of incomplete transactions across the state was provided. This data was used to select 14 LPAs of focus for the current study; the ones chosen either ranked high or low on the number of incomplete transactions and/or wait times. The best- and worst-performing LPAs in regards to wait times and incomplete transactions were selected in order for a performance-based comparison to be conducted; two LPAs were also selected due to their location near military bases since the 2014 study corroborated that LPA offices serving military populations have unique challenges. The 14 LPAs that participated in the study include the following: (1) Winston-Salem, (2) Edgecombe (Tarboro), (3) Robbins, (4) Lexington, (5) Mount Airy, (6) Jacksonville (M), (7) Holly Park, (8) Yancey (Burnsville), (9) Watauga (Boone), (10) Henderson, (11) Rockingham, (12) Havelock (M), (13) Waynesville, (14) Whiteville. After the LPAs were identified, the research team interviewed the managers of all 14 LPAs in order to obtain in-depth information regarding incomplete transactions and wait times.

Following completion of the LPA manager interviews, nine of the LPAs were chosen for on-site data collection based on their rankings of incomplete transactions, as well as military locale. The nine locations included the following: (1) Winston-Salem, (2) Tarboro, (3) Robbins, (4) Boone, (5) Henderson, (6) Rockingham, (7) Havelock, (8) Waynesville and (9) Whiteville. On-site data collection involved the administration of a brief customer questionnaire as well as employee checklists. During the collection of customer surveys, member(s) of the research team waited by the LPA entrance and informally interviewed customers anonymously about their visit, asking both closed and open-ended questions. Specifically, the interviews focused on whether the customer completed their transaction and if not, customers were asked about reasons for the incomplete transaction, guided by a checklist held by the researcher (refer to Appendix C for the customer questionnaire). Also as a part of data collection, LPA employees were each given a checklist (see Appendix D) where they would tally the type of incomplete transactions that occurred on a selected day, as well as reasons for the incomplete transactions.

The LPA manager interviews, employee checklists and customer questionnaires were thematically categorized and analyzed through an iterative process of open coding followed by closed coding. Following this process, the data sources were analyzed for commonalities as well as inconsistencies regarding the reasons for incomplete transactions. The main contributors to incomplete transactions include the following: (1) credit card system malfunctioning, (2) long wait times for the Help Desk, (3) inconsistent information provided between the Help Desk and the customer service phone line (i.e. the Call Center), (4) improperly notarized documents that do not meet DOT-specific requirements, (5) lack of user friendliness of the NCDMV website, (6) peak customer rush at deadlines for vehicle registration renewals, and (7) issues related to STARS, the outdated computer system currently used by the NCDOT. Recommendations based on these findings are also discussed in the report.

1. Introduction

One of the goals of the NC Division of Motor Vehicles (NCDMV) in the past few years has been to improve customer service across the 123 License Plate Agency (LPA) offices in the state. This research project is the continuation of a prior research project entitled "A Study of the Usage of LPAs by the North Carolina Division of Motor Vehicles: Final Report - Phases I & II" (Martin et al., 2013, 2014) in which incomplete transactions were identified as a main cause of customer dissatisfaction. The study found incomplete transactions to be the most significant detrimental factor to customer service. Incomplete transactions were found to be relatively common, with 28.5% of all transactions resulting in an incomplete transaction. This means that almost a third of the customers visiting the offices need to make at least an additional trip to complete their original transaction. The incomplete transactions were found to occur relatively consistently around the same time and day each week and across all LPA offices. The 2013-14 study found that on average, after waiting in line each transaction took an average of 1.57 minutes to complete. Another note of concern is that preliminary evidence suggest that LPA offices with a large military customer base may have greater issues in regard to incomplete transactions than non-military serving LPAs. Therefore, the overall conclusion of the report was that incomplete transactions may be one of the largest barriers to improving customer satisfaction in LPA offices across North Carolina. However, the lack of empirical data on incomplete transactions due to the absence of studies on this issue highlights the need for a project to extensively study incomplete transactions and gather related data for a solution.

In order to study the problem of incomplete transactions across North Carolina at license plate agencies (LPAs), collecting field data, completing mixed-methods data analysis, and proposing solutions, including the usage of a recently developed website by an LPA contractor (www.transfermyauto.com), are all included in this study. The purpose of the current research is to identify predominant reasons for incomplete transactions in order to find solutions to reduce the number of incomplete transactions. In order to accomplish this, the research team completed four phases of research: (1) LPA manager interviews, (2) on-site data collection - employee checklists and customer questionnaires, (3) online surveys, and (4) a website usability study.

2. Literature Review

A study of the extant literature reveals a dearth of research that is specifically focused on customer service, including on NC license plate agencies (LPAs). Nonetheless, this existing literature does provide a firm foundation for the present study. First, the current shift from the in-person service sector to automation has to be viewed within its historical context. Collier (1983) outlined historical economic changes, with the goods-producing sector declining with a subsequent increase in the service sector in the 1950s. In addition, the service sector is shifting to automation and internet-based services (Collier, 1983). Accompanying the shift to electronic services is a change in the type of skills demanded from potential employees as well as an increased demand for higher-level skills, necessitating periodic training; these electronic services are also becoming more capital-intensive and could therefore be related to a decline in the total number of jobs available (Collier, 1983). Collier also wrote that expectations of customer service will increase as services become more automated.

Karwan and Markland (2006) present a challenge for governmental operations: there is pressure to provide better and more numerous services at a reduced cost, in the face of budget cuts. Using a service planning design framework, Karwan and Markland argue that success is achieved by implementing service operations concepts in tandem with information technology in governmental operations. Definitions of successful operations can also depend on concepts used to define success: Karwan and Markland also noted that governmental organizations focus more on effectiveness and equity, and less on efficiency, while profit-driven organizations focus more on efficiency and less on the other two dimensions (p. 349). Regarding how public organizations consist of front and back services, Karwan and Markland explained that "*service design in these agencies would then require a separate accounting of the front and back offices and then an integrated look at how these could be simultaneously improved via enhancements to technology*" (p. 352). Karwan and Markland conducted their research by implementing an in-depth literature review of service operations in governmental operations and then doing a case study on the South Carolina DMV. In another study focusing on streamlining information technology to improve customer service, Muthaiyah and Kerschberg (2008) completed a study to improve online governmental services, and recommended streamlining ontologies within electronic services in order to facilitate the ease with which definitions of data are shared across localities.

Due to the findings of Karwan and Markland's research, several recommendations were made: (1) implement personnel training, (2) address problems with data integrity and simplify the architecture of the computer system, as well as anticipating potential future issues, (3) automate services whenever possible, (4) outsource IT services to third parties, (5) improve signs and hire greeters, (6) install self-service computers in high traffic offices, (7) include longer hours of operation for high activity offices, (8) allow particular transactions to be handled by other organizations in the chain of service, including unaffiliated third parties, (9) outsource DMV call services to the Department of Corrections, and (10) ongoing surveys measuring perceptions of customer service. Karwan and Markland recommended moving simple transactions online and/or to self-service stations to free up the DMV professionals to deal with more complex transactions, which necessitates greater skills and ongoing training. One downside to this automation of services is related to equity concerns, e.g. the potential loss of jobs. Karwan and Markland wrote that most prior studies on customer service have focused on profit-driven organizations, rather than public ones; in line with this knowledge, the authors wrote of the need for additional case studies focusing on operations within the public sector. The next question is – what factors influence citizens' use of electronic governmental services?

An emerging trend in the public sector has been to offer services to the citizenry using the Internet. However, whether or not citizens make use of electronic governmental services (e.g. websites where vehicle-related transactions can be completed) depends upon their ability and willingness to adopt those (Carter & Bélanger, 2005). Through the lens of Diffusion of Innovation Theory, the Technology Acceptance Model, and web trust models, Carter and Bélanger explored factors influencing whether an individual adopts electronic government services, and found that trustworthiness (1-trust of the internet and 2- trust in the government), compatibility (regular use of the internet), and perceptions regarding the ease of use of the electronic service were significantly related to the likelihood of using electronic government services, although perceived advantage to using the service was not significant. These findings on the perceived ease of use of electronic government platforms led Carter and Bélanger to

recommend online tutorials showing how to use the website, the improvement of help- and search-features on the websites, and completing surveys regarding the website. Regarding the finding relating to compatibility, Carter and Bélanger recommended to design a website where the required forms align with paper-based ones. Finally, Carter and Bélanger recommended the reliable and efficient provision of services, together with clear and noticeable privacy statements posted to the website, in order to improve perceptions of trustworthiness. In light of these factors influencing whether online services are utilized, a 2011 study completed by the Idaho Transportation Department explored this question using customer service surveys.

Turning to practice-based literature on the subject, in 2011, the Idaho Transportation Department provided funds for the completion of a telephone survey that was disseminated statewide to 1,616 residents (Kane & Foltz, 2011). Among other things, the survey assessed individuals' perceptions of DMV services, communication, and direct customer service (Kane & Foltz, 2011). Participants provided open-ended responses suggesting ways to improve services for driver licensing at the DMV, which included expanding hours of operation, hiring more staff, better promoting online services, and providing better information (Kane & Foltz, 2011). It was also found that many residents who did not use online services were unaware that they existed, and many of these residents indicated that if they were aware of online services, they would use them rather than attempting to complete the transactions in person; however, it was also found that increased awareness of online services is not necessarily related to their increased use (Kane & Foltz, 2011). Regarding the use of online services, the vast majority of residents (68%) reported using the website to renew their vehicle registration; following this, the most common services completed online included requesting driver license records (9%), ordering personalized license plates (8%), requesting a check of driver license records (6%), and renewing a driver license (5%) (Kane & Foltz, 2011). Furthermore, online services were generally rated favorably by survey respondents (Kane & Foltz, 2011). Kane and Foltz recommended that communications be in a variety of mediums, including online, over email, etc., which will engage a greater number of people. It was also recommended to complete surveys regularly, every 2-3 years, to gauge changes in customer satisfaction (Kane & Foltz, 2011). Although the organizational structure for these services in Idaho differs from that of North Carolina, this study provided many useful insights that can be applied to the current study; in particular, the 2011 survey disseminated to Idaho residents can help to guide construction of the survey to be used to assess perceptions of customer service in North Carolina LPAs.

In recent years, NCDMV has undertaken several significant projects in an attempt to understand and improve its customer service and integrate the use of technology in its operations towards the same goal. For example, over the last few years, NCDOT and NCDMV have commissioned studies, such as one completed by Gesellschaft für Konsumforschung (GfK), which is the largest market research organization in Germany, and the fourth largest in the world. Relevant research in this area include the GfK Report on Customer Service Evaluation (January 24, 2014), Turcotte et. al (2012) on the performance of LPA offices and NCDOT (2012) report on categorizing best practices for DMVs. Going further back, the benchmarking reports from CEM Benchmarking (2005, 2006a, 2006b) provided best practices for the NCDMV website, administration and vehicle renewal notices; these studies are further evidence of research undertaken with these objectives in mind. Collectively, these studies contain a significant amount of information about the current status of customer service at NC DMV LPA offices, as well as applicable benchmarks for improvement.

A significant addition to the studies above was completed by ITRE (Martin et. al, 2013, 2014, Parts I and II) which was focused entirely on LPA offices across North Carolina. Among others, this report studied the complete regulatory and operational environment across all LPA offices in North Carolina, which were then benchmarked against a national survey conducted of all DMVs in the USA. Several recommendations were made, including the contractual obligations of the LPA contractors, many of which were implemented by the NC Legislature in 2015. A salient observation in this study pertained to the unexpectedly high frequency and prevalence of incomplete transactions and its impact on customer dissatisfaction.

While the above clearly highlights the need for more academic research on customer service at DMVs across the nation, little such actual research has been done. This is despite the fact that Service Operations Management is a well-developed field (see for example Fitzsimmons and Fitzsimmons (2010)) with hundreds of papers and several academic journals devoted to it. The most salient reference in service operations management that was focused on DMV offices is Karwan and Markland (2006) who base their study on South Carolina's DMV offices. Therefore, it is also hoped that once completed, this research will substantially add to the body of knowledge on customer service at DMV offices across North Carolina as well as the country and how best to make improvements, including utilizing technology towards that end.

3. Precursor to Current Study: Phases I & II of "A Study of the Usage of LPAs by NCDMV"

In the previous phase of the current study entitled "A Study of the Usage of LPAs by the North Carolina Division of Motor Vehicles: Final Report - Phases I & II" (Martin et al., 2018), the focus of the study was to measure the extent of wait times in LPAs across NC as well as other factors impacting wait times, such as incomplete transactions.

After analyzing the data, Martin et al. (2018) were able to conclude the following: (1) Customer interaction times are under three minutes and do not vary significantly across the privately owned and operated LPA offices in the state; (2) Longer term contracts were associated with higher wait times. Specifically, LPAs with permanent contracts were found to have the longest wait times and limited-term contracts had shorter wait times; (3) Privately owned LPA offices (permanent and term-limited contracts) had higher wait times despite the fact that customer interaction times do not vary significantly; (4) Besides customer interaction and wait times, DMV offices have another significant contribution to customer dissatisfaction, a high percentage of incomplete transactions; (5) Compensation rates were highly correlated with the actual time taken to perform the different transactions.

In particular, Martin et al. (2018) found that mid-afternoon had the highest wait time (3.2 minutes) with early morning having the second highest (2.9 minutes). In regards to the days of the week, Martin et al found that the total time spent by customers tend to become progressively worse from Wednesday to Friday, with Friday having the longest times. Furthermore, Martin et al found that the time spent by the customers becomes even more severe when Friday lands on the 15th (3.4 minutes). Martin et al. also found that the larger the LPA office, the longer the average wait time tends to be.

Another relevant finding in the Martin et al. (2018) study is that out of 17,367 state-wide transactions, 4,947 of them were found to be incomplete[1]. Implying, there is a 28.5% state-wide incomplete rate. Based off of Martin et al.'s incomplete rate and that the average incomplete transaction takes 1.57 minutes, it is estimated that the LPA operators spends over five persons-years annually in NC on incomplete transactions. In addition, Martin et al. compared state-run LPA offices to private offices and found that the state-run offices tended to have more incompletes (31.1% incomplete rate). As the research took place during a legislative change referred to as "Tax & Tag," where vehicle property taxes are required to be paid before vehicle registration can be completed, this could help to explain why the rate of incomplete transactions was found to be higher in prior phases of the study. Through anecdotal accounts, a few reasons for incomplete transactions included: inadequate funds, missing/improperly filled documents, and lack of proper ID (Martin et al., 2018). Because the study was not able to systematically identify direct causes of incomplete transactions, the current study fills this gap by collecting data from a variety of data sources.

Another essential source used in this study is Martin et al. (2018), which studied the service operation of NCDMV and compared it to peer-state DMVs. Martin et al. also found that LPAs perform 192 different types of transactions that relate to vehicle registration and titling. Out of this number, 12 types resulted for over 95% of all customer interactions: (1) Document/fee collection, (2) Duplicate registration, (3) Highway use tax, (4) Issue plate/sticker, (5) North Carolina certificate of title, (6) Out of state certificate of title, (7) Issue handicap placard, (8) Replace plate/sticker, (9) Renew plate sticker, (10) Turn in plate, (11) Transfer plate, (12) Vehicle property tax (Martin et al., 2018).

Carter and Bélanger (2005) found that the use of online government services is dependent on the customer's ability and willingness to use them. Carter and Bélanger administered a nationwide survey about vehicle titling and registration services, and concluded that Texas and Minnesota DMVs are among the best in using their resources to maximize the number of transactional services provided and that assessment of customer satisfaction does not receive as much attention as needed. Other sources used include Hermann and Flecker (2013) and Jensen and Stonecash (2004), which shows that the privatization of public services on service quality and its impact on efficiency has not yet been established.

Two other sources used in this study include Rhee and Rha (2009) and Rha and Rhee (2007) which studied service quality of public agencies. In these two studies, the researchers identified four qualities of public service, which included: outcome quality, process quality, relationship quality, and design quality (Rhee and Rha, 2009). Outcome quality has not been clearly identified, yet is generally perceived as what a customer is left with after the service has been delivered (Rhee and Rha, 2009). Process quality has two aspects: technical and functional quality. Technical quality is defined as the customer's perception of the service and functional quality is about how the service is delivered to the customer (Rhee and Rha, 2009). The third quality, relationship quality refers to the correspondence between those involved in the delivery of the service (Rhee and Rha, 2009). Lastly, design quality "*refers to how well a public policy or service is developed at policymaking or service design stages*" (Rhee and Rha, 2009). The four qualities suggest that customer satisfaction for public service differs based on the customer. In particular, final customers give priority to outcome and process qualities and intermediary customers give their priority to relationship and

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[1] For the purposes of the Martin et al. (2018) study as well as the current one, a transaction is defined as being "incomplete" if, after incurring the wait time and the service time at a given LPA office, a customer is unable to complete the transaction that they intended.

design qualities (Rhee and Rha, 2009). Using the four qualities the researchers then proceeded to proposed a service delivery chain that shows that government tend to commission their service to non-governmental agencies (intermediary customers), which deals with citizens (final customers). Lastly, the source Dahlström et al (2016) identified that half of the public sector is outsourced.

The Martin (2018) study had two main recommendations. The first was to change the operating hours and amount of staff available during busier time periods. This recommendation applies to both government-run and privately run LPAs. The second recommendation was that resources/staff should be proportional to customer volume. This recommendation applies to private run LPAs, since it was found that they tend to not increase the resources available during busier time periods.

The findings of this past study has had an impact on the 2016–2017 legislative session. Specifically, after concluding that indefinite contacts have led to poorer customer service, the NCDMV has eliminated indefinite contracts, effectively placing all privately operated LPA contractors on limited term contracts. The second impact of this study is that vehicle titling/registration is now outsourced completely to private LPA contractors. The last major impact of the past study is that an across-the-board uniform increase in transaction payment has been implemented as compensation to LPA contractors.

4. LPA Sampling and Selection

In 2014, Phase II of "A Study of the Usage of LPAs by NCDMV" was completed. As a part of this research, data was compiled on LPAs (license plate agencies) regarding the length of their wait times as well as the number of incomplete transactions. As the aim of the current study is to alleviate the number of incomplete transactions across the state of North Carolina, 14 LPAs were selected for further study, based upon the length of their wait times as well as the number of incomplete transactions. The reason for selecting LPAs with the highest and lowest number of incomplete transactions as well as the highest and lowest wait times is to better understand why these occur, and to find ways to improve customer service at LPAs by minimizing wait times and percentages of incomplete transactions. Focusing on the worst performing as well as the best-performing LPAs regarding wait times as well as incomplete transactions allowed for a performance-based comparison. Two LPAs - Havelock and Jacksonville - were selected for the study due to their military locale, since these types of LPAs showed a high level of wait times during Phase II precursor to the current study. Another reason that military LPAs were of interest is that there could be specific reasons for the high number of incompletes and high wait times that are applicable only to the military clientele served by these LPAs. Three of the LPA locations- Winston-Salem, Robbins, and Edgecombe - were selected for their high/low rankings for both wait time and incomplete transactions. As shown in Table 1, the "Focus" column refers to whether the location was selected based on its ranking for incomplete transactions, wait times, or both. Tiers are also displayed - 5 means that it has a high customer volume, and 1 means that it is a low customer volume LPA. We intentionally selected LPAs with a range of customer volume. The methodologies used for each location is marked with an X.

Table 1. *Overview of LPAs selected for the study based on high and low wait times and incomplete transactions, as well as military locale.*

LPA no.	LPA name/city	Focus	Manager Interviews	Online survey	Site visit (Customer surveys & Employee checklists)	Tier	Incomplete rank	Wait time rank
1	Winston-Salem	I & W	X	X	X	5	2	2
2	Edgecombe (Tarboro)	I & W	X	X	X	2	25	25
3	Robbins	I & W	X	X	X	1	5	26
4	Lexington	W	X	X		4	6	1
5	Mount Airy	W	X	X		3	13	4
6	Jacksonville (M)	W	X	X		5	20	6
7	Holly Park	W	X	X		5	19	8
8	Yancey (Burnsville)	W	X	X		1	18	27
9	Watauga (Boone)	I	X	X	X	2	1	16
10	Henderson	I	X	X	X	3	3	24
11	Rockingham	I	X	X	X	4	4	22
12	Havelock (M)	I	X	X	X	2	23	14
13	Waynesville	I	X	X	X	2	26	21
14	Whiteville	I	X	X	X	3	27	7

LPA locations were selected for the study based on their inclusion in a prior phase of this study, the highest and lowest ranking incomplete transactions and wait times. From this data, we identified 14 LPA locations to include in this study. Locations for site visits were selected based on ranking high or low on the number of incomplete transactions. Figure 1 displays the LPA locations of focus in the study geographically, indicating whether on-site data collection was collected in addition to manager interviews. As can be seen from the map, LPAs included in the study were well dispersed with regards to the geography and population distribution in North Carolina.
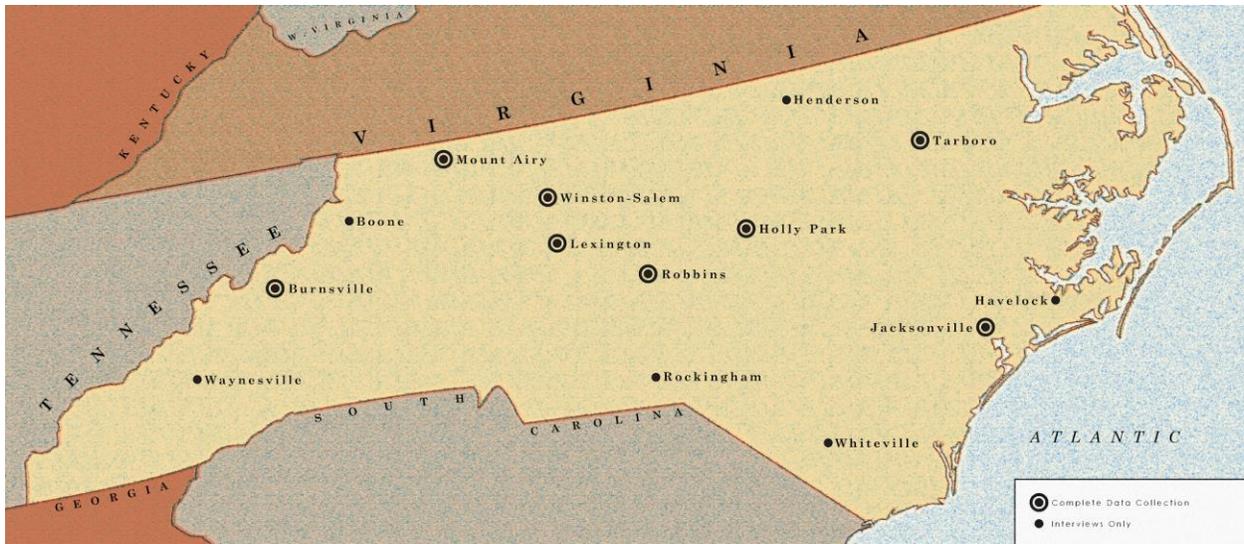
Figure 1. *Map of LPA locations of focus in the study.*

The plan for data collection consisted of interviews with LPA contractors as well as on-site data collection on incomplete transactions (including employee checklists and customer questionnaires); see Appendix B for a detailed summary of data collection across all three sources of data. These varied sources of data helped to facilitate the understanding of incomplete transactions and wait times at NC LPA offices.

5. Methodology

The research plan consisted of interviews with LPA managers at all 14 LPAs that were selected based on their ranking for wait times and incomplete transactions, as reflected in the prior phases of this study; see Appendix A for the LPA manager interview guide. Following the interviews with managers of LPAs, nine of the 14 LPAs were selected for further study on incomplete transactions based on their military locale as well as their high/low ranking on incomplete transactions in a prior phase of this study. During on-site data collection, 1-3 researchers (based on how busy the location is) spent a full work day at each location, completing questionnaires with LPA customers regarding their experience as they exited the LPA; see Appendix C for the customer questionnaires, which consisted of both closed- and open-ended questions. Also a part of on-site data collection at the nine selected LPAs, 1-4 employees (based on the location) completed checklists about incomplete transactions throughout the workday in order to triangulate the customer data collected by the research team; see Appendix D for the employee checklists. Therefore, this constitutes a comprehensive evaluation of the service provided by LPAs, combining the perspectives of LPA managers, customers and employees (end users).

5.1 Interviews with Managers of Contracting License Plate Agencies

Following the identification of the LPAs for study, semi-structured interviews were completed with LPA managers at the selected 14 locations in order to more fully understand the problem of incomplete transactions and were categorized thematically for comparison. See Table 2 for the number of responding LPAs and the number of responses per interview question. Text in brackets shows how the wording differed between high-performing and low-performing LPA locations. The interview questions focused

on issues related to incomplete transactions and wait times, as well as background information related to the LPA. See Appendix A for the interview guide, and Appendix B for the list of LPA manager interview participants.

Following the completion of interviews, audio recordings were transcribed and categorized for analysis. Interviews were categorized first by establishing emergent themes through an iterative process of open coding followed by closed coding until all possible categories are exhausted based on the responses.

Table 2. *The number of LPAs that responded, as well as the number of total responses given, by question.*

No.	Question Text	No. of LPAs that responded	No. of responses
1	Are there any specific actions that have been taken or are being taken by your LPA to reduce/maintain low wait times? If so, what are they?	14	45
2	What are the most significant issues contributing to the [high/low number of] incomplete transactions in your office?	14	202
3	Are there any specific actions that have been taken or are being taken to [reduce the number of incomplete transactions/maintain low percentages of incomplete transactions]? If so, what are they?	14	31
4	Do you have any data documenting reasons for incomplete transactions? If you do, could you share that with us?	1	1
5	What effect do you think the Tax and Tag program has had on the number of incomplete transactions and if there were any problems created by it, what were they?	13	24
6	What other issues related to customer service do you find relevant and would like to see addressed?	11	18
7	On average, what percentage of all transactions would you estimate to be incomplete?	13	13
8	Anything else?	8	14
9	How long have you been employed at this office?	4	4
10	What are your busiest times?	12	34
11	Please provide feedback on the DMV website and whether customers use it.	7	23
12	How did people react to the change in vehicle registration renewal deadlines?	7	20
13	Military-specific information	2	11

5.2 On-site Data Collection (Employee Checklists & Customer Questionnaires)

In this stage of the research project, LPAs selected for part two of this research were visited by 1-3 members of the research team on an agreed upon date between 11/01/2017 and 2/27/2018 for several hours up to a full work day. The researchers stood near the LPAs main door and surveyed and/or interviewed customers briefly (several seconds to five minutes, depending on the individual) after leaving the LPA service counter. The goal was to identify customers who either had incomplete transactions or who had visited the LPA multiple times to complete a single transaction, and then be able to ask those individuals about why they had to make multiple trips. Customers with completed transactions were asked generally about customer service feedback in order to triangulate data from the NC A&T University-administered online survey that focused on LPA customer service more broadly. As a part of this research, LPA employees were asked to assist and validate the data collected by researchers on the same day by tallying the types of transactions that were incomplete, as well as reasons that transactions on the given day were not able to be completed in one trip. Since the amount of time spent at each LPA varied based on weather conditions, different days of the week visited, etc., the numbers are not necessarily comparable across locations.

Customers were questioned about incomplete transactions as they were exiting the LPA. There were one or two survey administrators deployed per location, depending upon the volume of transactions at the LPA. As customers left, they were asked if their transaction was completed. If it was not, they were asked why, guided by a checklist held by the researcher (refer to Appendix C for the customer questionnaire). If they were willing, they were asked to provide additional information on the incomplete transaction as well as their customer service experience (2-4 questions). Likewise, if the transaction was completed, the customer was asked if they had several minutes to provide information about their experience in terms of customer service (2-4 questions). The number of customers included in the data depended on the volume of customers who entered the LPAs during the period of data collection. Each LPA office was visited for a single day, and a researcher was physically present to collect the data pertaining to incomplete transactions.

LPA employees were given a checklist to record data on incomplete transactions that they encountered during the selected day of data collection (see Group B Employee Checklist). To prepare the employees for this process prior to data collection, a brief meeting was held instructing employees how to use the checklist provided to tally the number of incomplete transactions. During data analysis, the employee checklists were tallied, with open-ended responses categorized using an iterative process of open followed by closed coding. The number of incomplete transactions during this phase of the study was compared to the number of incomplete transactions obtained as a part of prior phases of this study. Table 3 depicts closed questions asked of customers, and Table 4 shows the open-ended questions that were asked during on-site data collection. See Appendix C for the customer questionnaire questions, and Appendix D for the employee checklist form. Following data entry, data analysis was completed by tallying the responses for closed questions, and completing an iterative coding process for open-ended responses.

Table 3. *Closed questions asked of customers during on-site data collection.*

No.	Question	Response Type
1	Were you able to complete your transaction today?	Multiple Choice
2	What type of transaction(s) did you come in for today?	Multiple Choice
3	If you were able to complete your transaction, how many times did you have to visit an office in order to complete this transaction?	Open-ended
4	If you were not able to complete the transaction, why was this the case?	Both

Table 4. *Open-ended questions asked of customers during on-site data collection.*

No.	Question	Group
1	How could you have been better prepared for today's visit?	Incompletes
2	How did you know what to bring today?	Completes
3	What helped to ensure that your transaction went smoothly?	Completes
4	Do you have any suggestions for improvement?	Both
5	Anything else?	Both

6. Findings

This section will outline findings of the research that arose from each of the three main data sources: (a) LPA manager interviews, (2) LPA employee checklists, and (3) LPA customer questionnaires.

6.1 LPA Manager Interviews

6.1.1 Prevalence of Incomplete Transactions

Thirteen LPA managers provided responses regarding the prevalence of incomplete transactions. See Table 5 for a breakdown of the responses.

Table 5. *The percentage of total transactions that are estimated to be incomplete in a given day, as estimated by LPA managers; organized by 9-increment percentage brackets (n=13 total responses).*

Estimated Percentage of Incompletes	No. Responses	Locations
1-9%	3 (23%)	Havelock, Henderson, Tarboro
10-19%	5 (38%)	Jacksonville, Mount Airy, Robbins, Whiteville, Yancey
20-29%	1 (8%)	Boone
30-39%	3 (23%)	Rockingham, Waynesville, Winston-Salem
40-49%	1 (8%)	Lexington

6.1.2 Reasons for Incomplete Transactions

All 14 LPA managers provided reasons for incomplete transactions (n= 199), with responses shown in Table 6. In contrast to the earlier study, issues pertaining to proper functionality of the credit card system surfaced as a primary concern from the manager perspective. An explanation for this discrepancy lies in the fact that at the time of the previous study, credit card payments were being introduced across LPA offices; hence, nascent implementation problems did not surface during that time as they did during the observational period of the current study. Note that uncategorized responses are included in the table, but not discussed below. Figure 2 depicts the same data in a bar graph format for easier comparison between categories.

- **Credit card system malfunctioning** - The most commonly mentioned factors contributing to incomplete transactions relate to the credit card system malfunctioning (n= 54). Thirty-six responses pertained to the credit card system going down, and 8 responses related to customer's frustration over having to go to the ATM to get cash when the system is down. The other responses associated with the credit card system were problems with the internet being down (n= 3), the system block that comes up when the system goes down (n= 2), the speculation that the issues have gotten significantly worse after a recent system update (n= 2), and when customers are charged twice after they pay in cash and the credit card transaction they thought had failed actually goes through (n= 2).

- **Title work-related issues** - Issues related to title work and notarizations was the second most frequently mentioned category by LPA managers (n= 35). Fifteen responses were about improper alterations on paperwork that the DMV is not able to accept, and 10 responses referred to notarizations being performed incorrectly. Other responses included poor notary training (n= 4), electronic titles taking time to clear the system (n=3), and customers who came with out-of-state title work (n= 2).

- **Inspection-related issues** – Inspection-related problems were mentioned in 27 responses. Nineteen of these responses were about completed vehicle inspections not showing up in the system. The unmet requirement to complete a vehicle inspection was also mentioned (n= 7).

- **Improper/Incomplete paperwork** – Twenty-two responses pertained to incomplete/improperly filled out paperwork; out of this number, ten were related to improperly filled out title work, six related to customers lacking required paperwork, and six responses related to inspection paperwork.

- **Insurance lapses/FS-1 forms** - There were 16 responses related to insurance issues. Nine of these pertained to customers that need to submit an FS-1 (i.e. a form for proof of insurance following a lapse in coverage and a monetary penalty), and the other responses related to customers not having insurance (n= 4), and specific issues relating to individual insurance companies (n= 2).

- **Money-related** – Fee-related issues, such as not having enough money to pay fees associated with specific transactions, were mentioned in 15 responses. Out of this number, seven mentioned late fees/interest, four specified that they did not have enough money to pay for a transaction, and four mentioned issues related to tax collection.

- **Party not present** – Eight responses pertained to a required party not being present; out of this number, three specified that it related to title work.

- **Help Desk or staff-related issues** - Inconveniences associated with the Customer Service Help Desk were also commonly mentioned (n= 7). Help Desk wait times were mentioned in 4 responses and the Help Desk being understaffed was mentioned in two responses. All other responses for each category are listed in the table below.

- **Customer-related issues** – Issues related to the customers themselves were mentioned in six responses; out of this number, three specified an out-of-state customer being unfamiliar with North Carolina requirements and missing a required document. Also mentioned in three responses is that LPA customers sometimes do not notify the DMV/LPA of their address change.

- **Other/uncategorized** – Two sub-categories of "other" included feedback specific to military LPAs, including problems pertaining to required paperwork that provide proof of military service, like Leave and Earnings Statements (LES), as mentioned in four responses, and errors with dealer work (3 responses).

Table 6. *Issues contributing to incomplete transactions and wait times, as reported by LPA managers (n=199).*

Categories	No.	%	Subcategories	Uncategorized responses
Credit card system malfunctioning	54	27.1%	(a) credit card system down (36); (b) need cash/ATM fee (8); (c) internet down (3); (d) software update (2); (e) charged twice (2); (f) system block (2)	(a) there are a lot of issues with STARS and INOVAH
Title work-related issues	35	17.6%	(a) alterations (15); (b) notary incorrect (10); (c) poor notary training (4); (d) electronic titles (ELTs) have to clear and it takes time (3); (e) out-of-state (2)	(a) lien holders not knowledgeable
Inspection-related issues	27	13.6%	(a) inspections not showing up (19); (b) inspection not completed (7)	(a) inspection stations not doing procedures properly
Improper/incomplete paperwork	22	11.1%	(a) titlework-related (10); (b) customers lack required paperwork (6); (c) inspection-related (6)	n/a
Insurance lapses/FS1	15	7.5%	(a) need FS-1 (9); (b) no Insurance (4); (c) Insurance company-specific (2)	n/a
Money-related	15	7.5%	(a) late fee/interest (7); (b) not enough money (4); (c) issues related to tax collection (4)	(a) most people don't have jobs
Party not present	8	4.0%	(a) required party not present (5); (b) related to title work (3)	n/a
Help Desk or staff-related issues	7	3.5%	(a) Help Desk wait times (4); (b) not enough staff (2)	(a) a lot of customers require a phone call
Customer-related issues	6	3.0%	(a) out-of-state person unfamiliar with NC requirements missing a required document (3); (b) customer did not notify the DMV about their address change (3)	n/a
Other/uncategorized	10	5.0%	(a) LES/military-related issues (4); (b) errors with dealer work (3)	(a) a matter of correct information out to your branches; (b) license isn't valid; (c) having customers [come from] New Bern
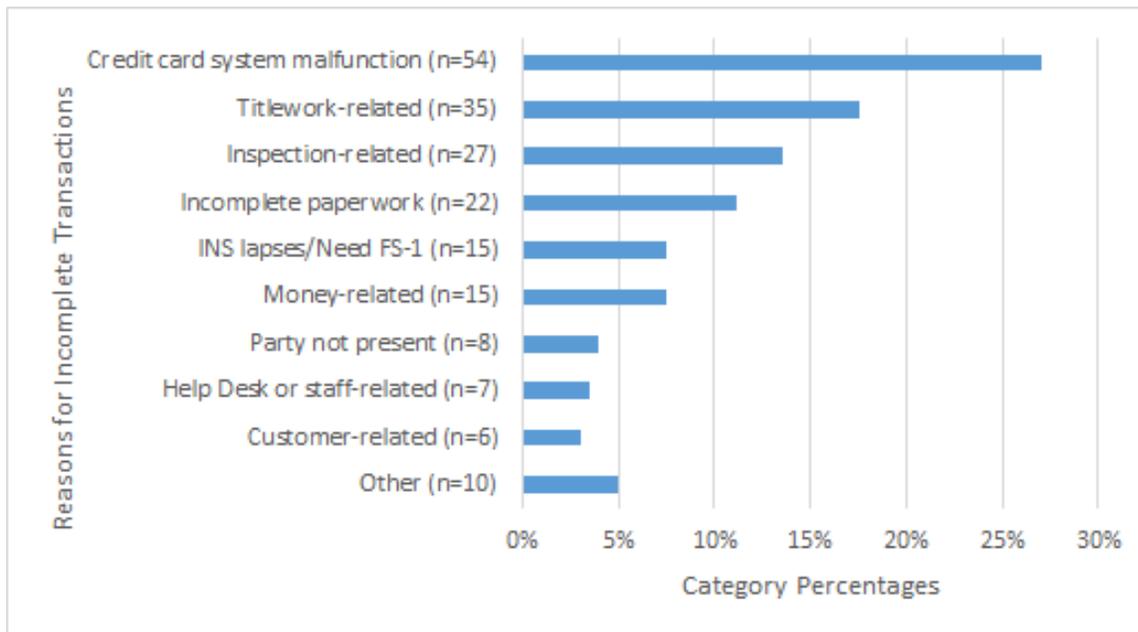
Figure 2. *Reasons for incomplete transactions as reported by LPA managers (n=199).*

6.1.3 Issues that LPA Managers would like to see addressed

Out of the 14 LPAs, 11 LPA managers provided 18 responses regarding opportunities to reduce incomplete transactions and/or wait times. The most common response was that Help Desk wait times are too long (n= 6), followed by inconsistent information provided by the Help Desk (n= 4), and renewal stickers being lost in the mail (n= 2). Other responses are listed in the table below (n= 6). Descriptions of each coding category, as well as example quotes that represent each category, are listed in Table 7.

Table 7. *Issues that LPA managers would like to see addressed (n=18).*

Categories	No.	Category description	Example quote
Help Desk wait times	6 (33%)	This category represents long wait times on the help desk and how it creates a lot of issues with wait times in the LPA offices.	"*Trying to get any kind of tax support from Raleigh... calling the help desk and being on hold for 40 minutes, to get an answer.*"
Help desk inconsistent information	4 (22%)	This category refers to the inconsistent information given by the help desk employees and how customers would be unable to complete their transactions due to being given the wrong information.	"*Yeah… sometimes you can call the help desk and get one answer and a day or two later call and get a different answer. That's a little frustrating.*"

Stickers lost	2 (11%)	The stickers that are sent to customers from Raleigh have been frequently lost in the mail; the LPA does not get paid for replacing them.	"*We see a lot of stickers lost in the mail.*"
Other	6 (33%)	This category includes all responses that do not fit into the established coding scheme.	(a) Notary training; (b) Out of area calls; (c) Address inconsistencies; (d) Better equipment; (e) Inform people on property tax; (f) Why is the system DOS based

6.1.4 Additional Feedback provided by LPA Managers

Out of the 8 LPAs, managers provided 14 responses regarding any other comments they had that were not directly in responses to the other questions above. Problems with notary training had the most responses (n= 4), followed by issues with incorrect property tax (n= 2), specific types of vehicles have problems showing up in the system (n= 2), LPA offices having frequent phone calls that they are not always able to pick up (n= 2), the requirements to buy signs to help organize the office (n= 2), and online transactions beginning to take business from the LPA offices (n= 2). Example quotes that represent each category are listed in Table 8.

Table 8. *Additional open-ended feedback given by LPA managers (n=14).*

Categories	No.	Category description	Example Quote
Training-related	4 (29%)	This category refers to the fact that notary training has caused issues with incomplete transactions due to customers coming in with documents that are notarized incorrectly	"*Say the notaries for instance, there is a training we have to go through. It should be standardized from one to another, but there some that say they don't deal with titles so if you have one don't do it.*"
Must adjust tax amount	2 (14%)	This category represents the initial error with the amount of property tax a customer needs to pay and how LPAs have to call the tax offices in order to fix it	"*They have to get the tax office to adjust the amount [of property tax]. Then they have to come back and pay the property tax.*"
Difficulties with locating specific types of vehicles in the system, particularly for out-of-state customers	2 (14%)	This category represents how LPAs were having a hard time with specific types of vehicles and how they show up in their system	"*So if we do a trailer for the first time, most time we cannot issue, we can't let them pay their property tax, its throwing an outrageous value for the trailer.*"

	2 (14%)	LPAs receive frequent phone calls that they are not always able to pick up.	"*If I don't answer [the phone] and they leave a message, I'll call them back. So we try to answer every phone call. But if we have a customer we can't*."
Phone calls	2 (14%)	LPAs receive frequent phone calls that they are not always able to pick up.	"*If I don't answer [the phone] and they leave a message, I'll call them back. So we try to answer every phone call. But if we have a customer we can't*."
Required to buy signs	2 (14%)	LPAs were required to purchase signs that guide customers to which line they are supposed to be in.	"*Yes, we had to buy [signs] and that was probably $400*."
Online transactions	2 (14%)	A lot of customers are beginning to go online to perform transactions which is taking away from the amount that the LPA receives.	"*The [number of transactions] are getting lower. They [customers] are doing it [transactions] online*."

6.1.5 Feedback on the DMV Website

Out of the 14 LPAs, 7 LPA managers provided 23 responses pertaining to the DMV website. Six responses stated that customers use the website to help them with what they need to bring into the DMV. Other statements about the website include that customers frequently call the LPA office to help them navigate the website (n= 4), that the website is positively impacting customers (n= 3), that the website is negatively impacting customers (n= 3), that customers do not use the website to help them know what to bring to the LPA office (n= 2), and that there are issues with pirated websites that scams customers (n= 2). Other responses are listed in the table below (n= 3). Example quotes that represent each category are listed in Table 9.

Table 9. Feedback from LPA managers regarding the DMV website (n=23). <u>Note</u>: LRP stands for "limited registration plates," which are issued if vehicle property tax payment is delayed.

Categories	No.	Description	Example quote
People use the website	6 (26.1%)	This category refers to the fact that a lot of customers do use the website.	"*They look up what they need online*."
People call the office for help with the website (2/4- LRPs)	4 (17.4%)	This category refers to the confusion pertaining to the differences between vehicle registration renewals and LRPs and how the website is not very clear.	"*What we get phone calls about is that people say that there needs to be a stronger clarification between renewing a tag and paying that LRP… paying that limited registration tax bill*."
Positive (website)	3 (13%)	This category refers to the positive reaction towards the DMV website both among the customers and the LPA employees.	"*We do have a lot of people who come in from out of state and they have everything need because they've gone to the website*."

Negative (website)	3 (13%)	This category refers to the negative reaction towards the DMV website both among the customers and the LPA employees.	"*You should never look online. But they do and it's there for that purpose but I just feel like it's easier for us if we get to explain it to them.*"
People don't use the website	2 (8.7%)	This category refers to the fact that a lot of customers do not use the website.	"*I don't think that people use the website.*"
Misleading DMV websites	2 (8.7%)	This category represents the issue pertaining to the amount of misleading DMV websites online that have been tricking customers.	"*We've had some scares on that [wrong websites for the DMV]. The biggest one is DMV.org, and they're not DMV. Their information is not correct.*"
Other	3 (13%)	This category includes all responses that do not fit into the established coding scheme.	(a) Late fee needs to be in bold letters across the top of the website; (b) Mention on the website where the seller needs to be notarized and where the buyer needs to be notarized; (c) Out of state not realizing that if the vehicle hasn't been paid for they need the lien holder's name and address

6.1.6 Peak Days and Times at LPAs

Out of the 14 LPAs, 12 LPA managers provided 34 responses regarding their busiest times (Table 10). Fridays (n= 12) and Mondays (n= 9) were the most common responses, followed by the end of the month (n= 5) & the first of the month (n= 2). The six other responses are as follows: (a) 15th; (b) Thursdays; (c) First thing in the morning; (d) Last 2 hours of the day; (e) March; (f) ASU students impact it based on schedule.

Table 10. *The busiest times at LPAs, as reported by LPA managers (n=34 total responses).*

Busiest times as reported	No. responses
Fridays	12 (35.3%)
Mondays	9 (26.5%)
End of the month	5 (14.7%)
First of the month	2 (5.9%)
Other	6 (17.6%)

6.1.7 Actions taken by LPAs to address incomplete transactions

Out of the 14 LPAs, all managers provided 31 responses regarding the actions they take to reduce incomplete transactions. Providing customers with a list of requirements in written form (n= 12) as well

as informing them with what they need verbally (n= 8) were the most common responses, followed by performing all tasks possible to make sure that all transactions can be completed if possible (n= 3). Other responses are listed in the table below (n= 8). Example quotes that represent each category are listed in Table 11.

Table 11. *Actions that have been taken by LPA managers and staff to address incomplete transactions, with the number of responses shown (n=31 total responses).*

Categories	No.	Description	Example quote
Written Requirements	12 (38.7%)	This category implies that after an incomplete transaction occurs, staff would write down what items are necessary for the customer to complete the transaction so that it can occur correctly next time.	"*I'll make notes on their title. Write out what forms they need if somebody can't come.*"
Verbal Requirements	8 (25.8%)	This category implies that after an incomplete transaction occurs, staff would verbally inform the customer about what items they need so that it can occur correctly next time.	"*We try to explain it to them as simple as we can, depending on what they need. If they need inspection papers, you know that's just something we tell them that they need.*"
Effort	3 (9.7%)	This category represents that the staff does what they can to speed up transactions	"*We try to do all that we can to get that process done.*"
Other	8 (25.8%)	This category includes all responses that do not fit into the established coding scheme	(a) Simplify Instructions; (b) Calling to fix so customer doesn't have to leave; (c) Printing documents; (d) Ask people beforehand if they have what is needed; (e) Use smartphone to pull up information; (f) Fax machine; (g) Made a document; (h) Show them what they need in person

6.1.8 Actions taken by LPAs to reduce wait times

In phases 1 and 2 of this research, it was found that wait times fluctuate throughout the day, with afternoons and early mornings the busiest (Martin et al., 2018). Additionally, Martin et al. found Wednesday through Friday to have higher wait times, with Friday showing highest recorded wait times, as well as the 15th of the month; not surprisingly, larger offices also tended to experience longer wait times than did smaller offices. To assess improvements made since the prior phases of this study, LPA managers were asked about actions taken to reduce wait times.

Out of the 14 LPAs, all LPA managers provided 45 responses regarding the actions they take to reduce wait times. Making sure that enough staff is present to conduct business (n=8) as well as delegating tasks so that the office runs as efficiently as possible (n= 7) were the most common responses, followed by performing actions that make the wait times more tolerable (n= 6), organizing the structure of the office so that business is most efficient (6), working as quickly as possible and minimizing distractions (n= 6), guiding customers to the necessary lines in order to avoid confusion (n= 4), and having office renovations done to maximize the efficiency of the office and assist as many customers as possible (n= 2). Other responses are listed in the table below (n= 3). Example quotes that represent each category are listed in Table 12.

Table 12. *Actions taken by LPAs to reduce wait times (n=42 total responses).*

Categories	No.	Description	Example quote
Enough staff	8 (19%)	This category represents efforts made to maintain the appropriate amount of staff.	"*Staffing is totally in response to when [it gets busy] … I've got 7 people here Monday and Friday and I can be out there too if it's really heavy.*"
Delegate tasks	7 (16.7%)	This category refers to delegating priorities among staff to increase efficiency.	"*Yes, we have a designated line just for renewals at the drive through which is only cash or check. It goes really fast.*"
Actions to make wait times more bearable	6 (14.3%)	This category refers to actions taken by the LPA office to make waiting more enjoyable by adding things such as a TV or offering snacks.	"*We're going to put it [the TV] here just so that if we are full, it kind of gives people something to look at. So they're not talking and complaining to each other.*"
Office organization	6 (14.3%)	The setup of the LPA was organized so that the customer knew where to get each type of work done.	"*Normally, what we do is have one title line and three renewal lines.*"
Speed	6 (14.3%)	This category represents maximizing speed by minimizing distractions and focusing on completing necessary tasks as efficiently as possible.	"*Try to cut down on talk time… Whoever is fastest needs to be on the title line on [busy] days.*"
Guiding customers	4 (9.5%)	This category refers to verbal assistance to customers, especially relating to the correct line to wait in.	"*When we get busy, we will announce that this is the title line; if you don't have a title, then get in the other line.*"
Office renovations	2 (4.8%)	The LPA office had plans to or made renovations to make their office bigger or better organized so that they could efficiently take more people at once.	"*[We] got a bigger lobby [and] more counter space.*"
Other	3 (7.1%)	This category includes all responses that do not fit into the established coding scheme	(a) Training; (b) Prioritization; (c) Working with the county

6.1.9 Tax & Tag

Three years ago, the "Tax and Tag" program was implemented statewide as mandated by the legislature. This required citizens to pay vehicle property tax as the same time that registration renewals are paid. There was some confusion when this program was initiated. Out of the 14 LPAs, 13 LPA managers provided 20 responses regarding effects of the Tax and Tag program. There were 10 responses stating that there has been a positive change since the implementation of the Tax and Tag program. The issues that were brought up about the changes included address inconsistencies in the system which would lead to an inaccurate property tax (n= 4). Other responses are listed in the table below (n= 6). Example quotes and descriptions that represent each category are listed in Table 13.

Table 13. *LPA Managers' feedback regarding the Tax & Tag program which included a change in the deadlines of vehicle registration renewals, eliminating the prior 15-day grace period (n=20).*

Categories	No.	Description	Example quote
Good	10 (50%)	Since the Tax and Tag program has been implemented, a positive change has been shown in LPA offices.	"*It's benefitted us big time. Collection rates are in the high 90 percent range. It used to be, we used to be way down. I don't have the document with me, but I would say we were in the low 70 range.*"
Address inconsistencies	4 (20%)	The address in the system would be slightly off from the address of the customer, assigning them to a city with and incorrect higher tax.	"*Sometimes you can spell 'road' out and it changes it. Then if you switch around highway in the address and not put it in the spot that it's in it will change it. I mean just little stuff like that I don't understand how it picks up and why it has to be so particular.*"
Other	6 (30%)	This category includes all responses that do not fit into the established coding scheme	(a) Creates problems that Raleigh has to fix; (b) Used to contribute to late fees; (c) No support from Raleigh; (d) Near their tax office; (e) Help desk having an issues pertaining to the tax and tag office; (f) County has the hardest part of the issues

At the time of the prior study, the "Tag & Tag" program was in its introductory phase of implementation. As a result, implementation issues and malfunctions pertaining to this program surfaced as a significant contributor to the number of incomplete transactions. It is encouraging to note that after two years most of the initial implementation problems have been resolved.

6.1.10 Customer reactions to the change in registration renewal deadline

The legislature mandated that in 2018 a $15 late fee be assessed on registration renewals that were late, after the last day of the month. Prior citizens could renew registration through the 15th of the following month with no penalty. LPA customers provided 19 responses about the reactions associated with the change in vehicle registration renewal deadline. Seven responses pertained to the negative comments and confusion about fees that customers had (n= 7). Other effects that the change in deadline had included making the office busier on the last day of the month (n= 3), customers not knowing that there has been a

change in deadline (n= 3), customers becoming angry about having a fee (n= 2), the vehicle registration renewal cards that informed the customers about the change in deadline not being properly read (n= 2); and customers having issues with the vehicle registration renewal deadline and stating that they were not given a notice (n= 2). As explained by one LPA customer, "The only issue we have now is "what do you mean you have to charge me a 15-dollar late fee?" Other responses are listed in the table below (n= 19). Example quotes that represent each category are listed in Table 14.

Table 14. *Customer responses regarding the change in registration renewal deadline date, as provided by LPA managers (n=19).*

Categories	No.	Description	Example quote
Comments relating to fees	7 (36.8%)	There was negative responses about the excess fees or customers did not know about them after the vehicle registration renewal date change.	"*I think they have just come to understand that North Carolina is going to charge them extra fees. I think the hardest part is that they just had the 30% increase to all fees, then the add interest and a late fee.*"
Busier	3 (15.8%)	This category represents that because of the change in vehicle registration renewal deadline the LPA office experienced busier days on the last day of the deadline.	"*So these past two months we have not got out of here till… I bet you 7/7:30 [on the last day].*"
Some customers did not know about the change	3 (15.8%)	This category represents the confusion that occurred with customers because of the change in vehicle registration renewal deadline and how they did not have the knowledge of the change.	"*Well I'm hoping [the penalty for not paying on time] will go away since they should have, the confusion should have ended in August. It still seems to linger.*"
Some customers were angry they had a fee	2 (10.5%)	This category refers to the negative feelings from customers due to the fact that they now had a fee because of the change in vehicle registration renewal deadline.	"*They are not happy. We try to explain the best we can. Some of them still aren't nice, but you also have some that learn from it and won't do it again.*"
Customers don't read everything on the renewal cards	2 (10.5%)	The vehicle registration renewal cards were not thoroughly read by customers which ended up leading to further confusion regarding the change in deadline.	"*They don't read everything on the renewal card, they just take it for granted.*"
Issues with change in renewal deadlines	2 (10.5%)	There are multiple different issues that are occurring because of the change in vehicle registration renewal deadlines.	"*A lot of people are coming in and most of them are not happy because they're like 'I haven't been given a notice'*" [regarding the change in renewal deadlines]
Other	0	This category includes all	n/a

6.1.11 LPAs Located Near Military Bases

Two LPA managers provided 11 responses regarding the differences they have in their LPAs due to being near military bases. The most common difference is the effect of the boom and bust cycle of deployments and how it creates peak busy times. Military customers are also more informed about what they need to bring to complete their transactions as opposed to regular citizens (n= 2). Other responses are listed in the table below (n= 5). Example quotes and descriptions that represent each category are listed in Table 15.

Table 15. *Military-specific information from interviews (n=11 responses from two military locations).*

Categories	No.	Description	Example quote
Boom & Bust cycle	4 (36.4%)	This category refers to the fluctuation that occurs when big unit deployments leave and come back and the spikes in business that it creates.	"*Big unit deployments… They shrink the business for a little while, then when the units are coming back, they are being replaced by the one going out. It gets busy, you got those transition periods where unit deployments are rolling. When everyone was sent to Afghanistan, there was 15,000 people that left in a week.*"
Military customers	2 (18.2%)	This category represents the fact the military customers are more informed about what they need to complete their transactions than regular customers.	"*I think we have less trouble with the military than we do with the general public. They talk among themselves, they know a lot before they come in here.*"
Other	5 (45.5%)	This category includes all responses that do not fit into the established coding scheme.	(a) Most transactions received by military LPAs are pertaining to the military; (b) Military payday creates longer wait times; (c) 70% of the Jacksonville LPAs transactions are military related; (d) Difficulties with cross-state transactions (differences in requirements); (e) LPAs are unable to do certain functions based on the fact that they are military

6.2 LPA Employee Checklists

6.2.1 The Number of Incomplete Transactions

Table 16 displays the number of incomplete transactions, as recorded by LPA employees during on-site data collection.

Table 16. *The number of incomplete transactions, as recorded by LPA employees on a selected day of data collection in 2017.*

Location	No. Incomplete Transactions
Boone	8
Havelock	16
Henderson	14
Robbins	7
Rockingham	7
Tarboro	16
Waynesville	8
Whiteville	8
Winston-Salem	8

6.2.2 Reasons for Incomplete Transactions

Figure 3 depicts the reasons for incomplete transactions as reported by employees. As shown below, the most common reason was lacking proper paperwork (n= 40). Inspections were the second most common for incompletes (n= 33). The third most reported reason were insufficient funds (n= 23) and the lack of proof of insurance (n= 19) was the fourth. Not having the required parties present, lien release, and tax related adjustments were reported to be equal as reason for incomplete (n= 5). Lastly, toll stops were the least reported reason for incompletes (n= 2). Any response outside of the previous eight reasons were tallied into the other category (n= 6), and include the following: (a) indemnity bond, (b) had a stolen stop in the system, (c) insurance penalty, (d) "*waiting for new vehicle to be entered in system - transferred plates*," (e) "*thought she had to register but has 30 day tags from dealer*," and (f) "*too close to the expiration date to order handicapped plate*."
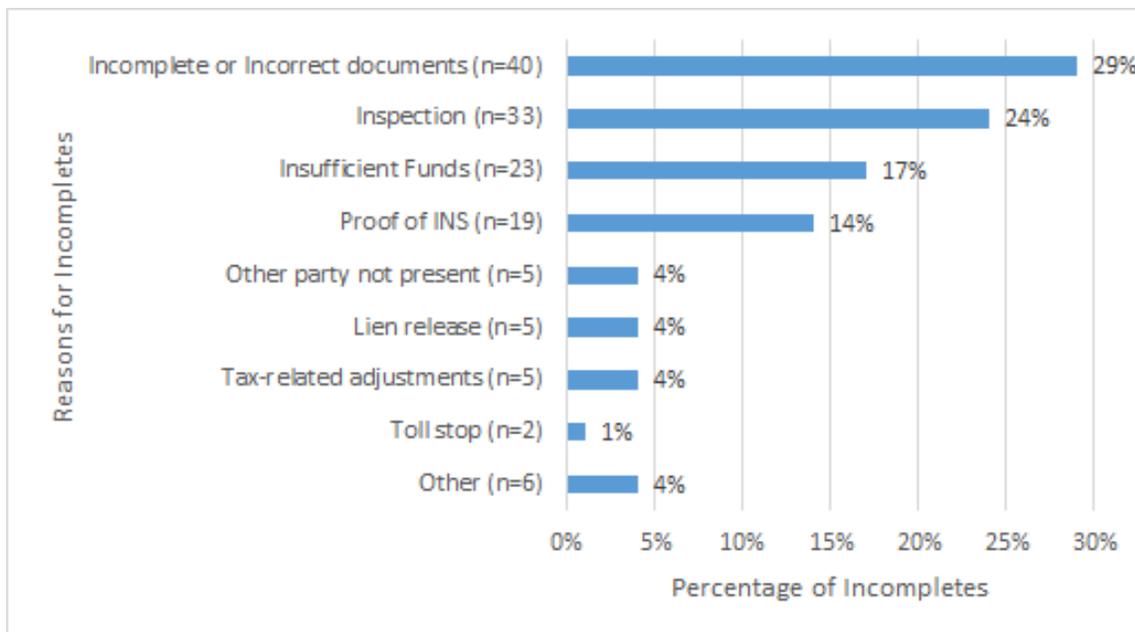
Figure 3. *Reasons for incomplete transactions provided by LPA employees (n=138).*

6.2.3 Transaction Types

Figure 4 below shows the results for the data collection regarding the types of transactions recorded by LPA employees as being incomplete. As shown below, a large percentage of transactions are vehicle registration renewals. Out of the 117 reported incomplete transactions, vehicle registration renewals accounted for 50 of them (43%). Other transactions accounted for the remaining 67 (57%).
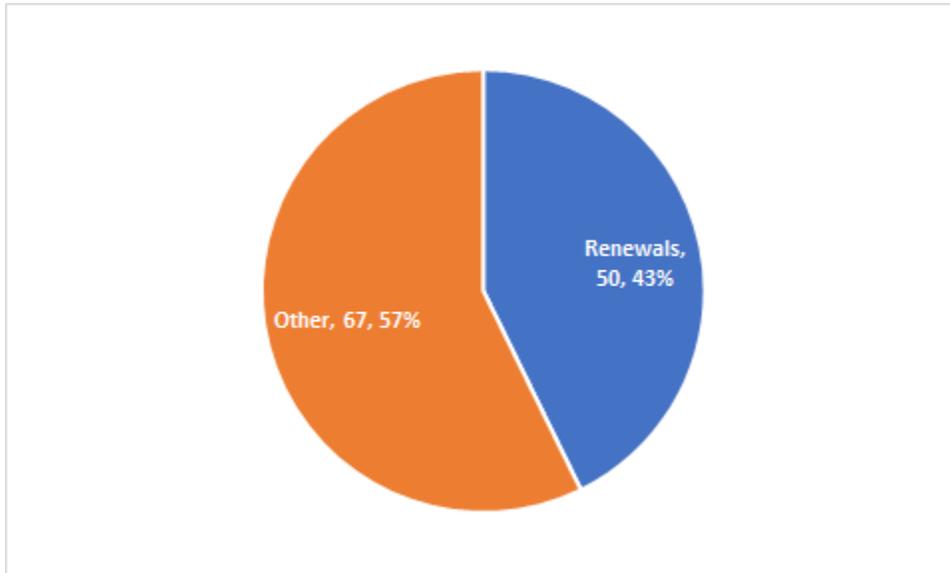
Figure 4. *Incomplete Transaction Types, as recorded by LPA employees during a selected day of data collection in 2018 (n=117).*

6.3 LPA Customer Questionnaires

6.3.1 Percentage of Incomplete Transactions

Table 17 depicts the percentage of incomplete transactions by LPA location as reflected in customer survey data. It should be noted that the amount of time spent at each LPA varied between 4 and 8 hours, so these numbers are not necessarily comparable. For example, on-site data collection was completed in Boone during a winter storm, which may be reflected in the higher percentage of incomplete transactions (e.g. tax offices or dealerships may have been closed).

Table 17. *The percentage of incomplete transactions at each LPA location, as provided by customers.*

LPA	No. incompletes	Total transactions	Percentage incomplete
Havelock	6	71	8.5%
Robbins	4	44	9.1%
Henderson	11	86	12.8%
Winston-Salem	11	86	12.8%
Rockingham	14	93	15.1%
Tarboro	17	99	17.2%
Waynesville	12	67	17.9%
Whiteville	17	86	19.8%
Boone	10	33	30.3%

Figure 5 depicts the results for the question "Were you able to complete your transaction today?". As shown below, a large majority of LPA customers (85%) were able to successfully complete their transactions (n= 556), in comparison to those that were not able to complete their transaction in one visit (n= 83). A third response of partially, was also received (n= 11). Any time a customer was only able to complete a part of their transaction, it was classified as partially.
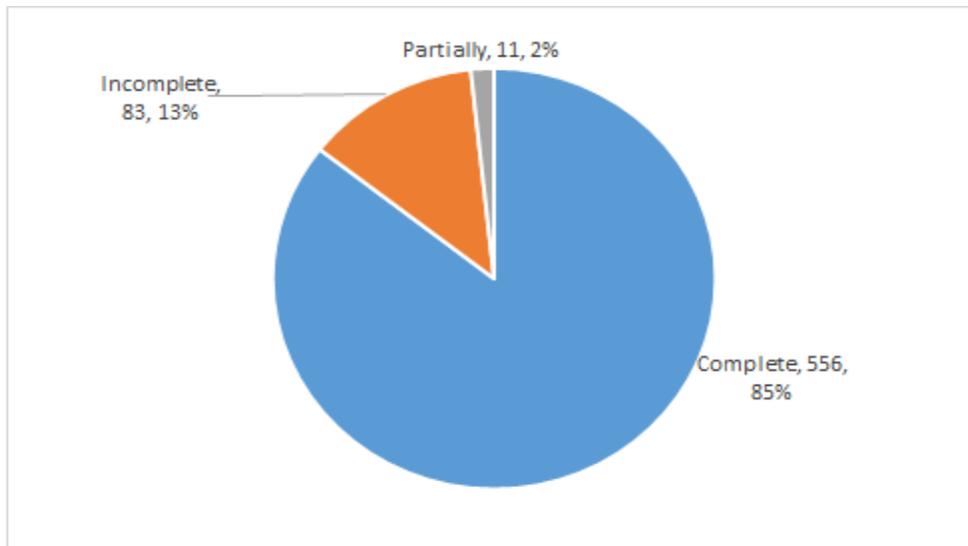
Figure 5. *Sample count of incomplete transactions, as recorded by LPA customers on a selected day of data collection in 2018 (n=650).*

6.3.2 Reasons for Incomplete Transactions

Customer data related to reasons for incomplete transactions yielded 103 responses (Table 18). The most common reason was needing to complete a vehicle inspection (n= 33), followed by lacking proof of insurance (n= 20). The third most mentioned reason was needing a title or title notary (n= 16). Insufficient funds were the fourth most common reason (n= 11), and lacking signatures or people present was the fifth (n= 7). Lastly, not having a valid North Carolina driver's license (n= 1) was the least common reason for incomplete transactions. Any response that was outside of these previous six reasons was tallied into the other category, and include the following:

Table 18. *Reasons for incomplete transactions as reflected in customer survey data (n=103).*

Category	No.	Percentage of total
Need to complete a vehicle inspection	33	32%
Did not have proof of insurance	20	19%
Need a title or title notary	16	16%
Could not pay vehicle taxes or other fee	11	11%
Other party not present/need signature or transfer	7	7%
Did not have a valid NC driver license	1	1%
Other	15	15%
Total	103	100%

Figure 6 depicts reasons for incompletes as recorded in customer surveys. As shown below, the most common reason was needing a vehicle inspection (n= 33). Not having proof of insurance (n= 20) was the next most common reason for incompletes. The third most popular reason was needing a title or title notary (n= 16). Insufficient funds, was the fourth most common reason (n= 11), and lacking signatures or people present was the fifth (n= 7). Lastly, not having a valid North Carolina driver's license (n= 1) was the least common reason for incomplete transactions. Any response that was outside of these previous six reasons was tallied into the other category.
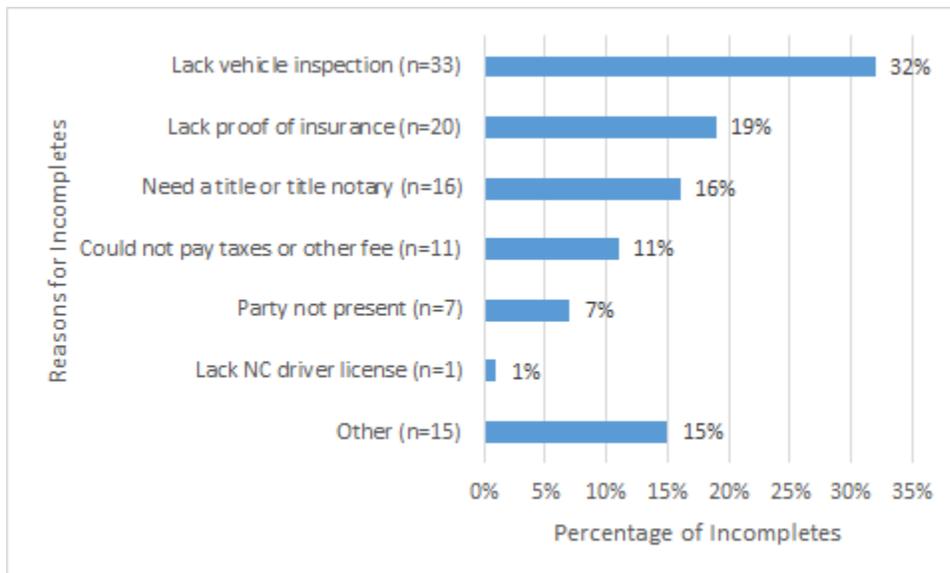
Figure 6. *Reasons for incomplete transactions at LPA offices, as recorded by LPA customers on a selected day of data collection in 2018 (n= 103).*

6.3.3 Transaction Types

LPA customers provided 648 responses regarding the type of transactions for which they came (Table 19). Vehicle registration renewal (n= 413) was by far the most common response, followed by getting a

new license plate and turning in their old one (n= 82). The third most mentioned response was title work (n= 69). Temporary tags were next (n= 30), and obtaining a handicap placard was fifth (n= 17). Other responses included paying vehicle tax (n= 6), Lien work (n= 4), and penalties (n= 3). Any response that was outside of these previous eight, was tallied into the other category. The percentage of the total responses is also displayed.

Table 19. *Types of transactions completed, as provided by LPA customers (n=648).*

Category	No.	Percentage of total
Vehicle registration	413	63.7%
New license plate/plate return	82	12.7%
Title Transfer, New or Duplicate	69	10.7%
Temporary tags	30	4.6%
Obtain a handicap placard	17	2.6%
Pay vehicle tax	6	0.9%
Lien recordings, renewals and releases	4	0.6%
Penalties	3	0.5%
Other	24	3.7%
Total	648	100%

Figure 7 depicts the results for the question "*What type of transaction(s) did you come in for today*?" in a bar graph. As shown below, a large majority of the customers came in for vehicle registrations (n= 413), followed by obtaining a new or returning their old license plate (n= 82). Title work was the third most common transaction type (n= 69). Temporary tags were the fourth most common reason (n= 30), and obtaining a handicap placard was fifth (n= 17). Other responses included paying vehicle tax (n= 6), Lien work (n= 4), and penalties (n= 3). Any response that was outside of these previous eight was tallied into the other category.
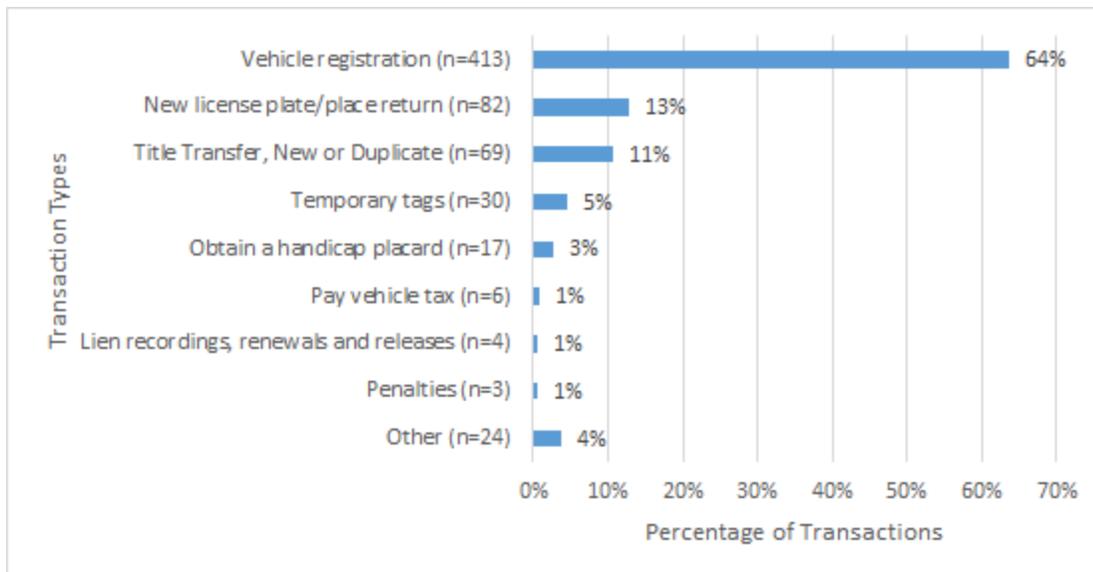
Figure 7. *Transaction types as recorded by LPA customers on a selected day of data collection in 2018 (n= 648).*

6.3.4 Customer Suggestions for Improvement

When asked about suggestions to make LPA offices better, customers provided 171 responses (

Table *20*). The most dominant response was that customers would like to see more windows open and staff hired in order to make the line move faster (n= 54). The next common responses were customers wanting improvements with the LPA building (n= 27), wanting more signs to direct them to correct line (n= 26), and wanting to see a better inspection system (n= 7). The other suggestions included cheaper prices (n= 7), staggering deadlines so that there are not peaks on the same day (n= 5), having nicer staff (n= 5), being more organized with the phone system (n= 5), having more options involving email and mail-in (n= 2), having a better DMV mailer (n= 2), and managing the bad scent at a particular office (n= 2).

Uncategorized/other responses include the following, verbatim from customer surveys:
(1) seller needs to sign correctly, (2) better communication between all parties, (3) allow notary fee [to be charged using the] credit card system, (4) insurance office could have given the form, (5) bond was done incorrectly, (6) [mandate an] automatic insurance switch, (7) in Raleigh, there are too many different rules for different tags, (8) everything should be permanent [so we] do not have to come back to the DMV, (9) have step dad with him, (10) [have completed] paperwork ready, (11) upgrade computers and phones, (12) longer hours (e.g. 8-6), (13) [we should be able to] take a number and sit down, (14) make parking better, (15) we need one [LPA] in all counties because not all counties have one (e.g. Warren County).

Table 20. *Suggestions provided by customers regarding ways to improve LPA offices (n=171).*

Categories	No.	Category Description	Example Quote
More windows/ staff/faster	54 (32%)	This category represents the suggestion of adding more windows and staff so that the LPA is faster and more efficient.	"*The LPA should have more staff and shorter wait times.*"
Building-related	27 (16%)	This category refers to suggestions that pertained to the LPA office building.	"*The LPA should be bigger.*"
Signs/lines	26 (15%)	This category refers to suggestions about how the office should have more signs to direct customers to the correct line.	"*There should be a sign telling you [which line to enter].*"
Inspection-related	8 (5%)	This category includes inspections that have yet to be completed as well as completed inspections that did not show up in the LPA computer system.	"*On the renewal it should say to complete your inspection.*"
Cheaper	8 (5%)	This category refers to the suggestions made to change the prices at the LPA office to make them cheaper.	"*They should lower the cost.*"
Snacks, Beverages or Entertainment	6 (4%)	Providing entertainment or food was a suggestion to make waiting at the LPA more bearable.	"*They should give candy/mint as leaving.*"
Stagger deadlines	5 (3%)	The category refers to the suggestion to stagger deadlines over a period of time so that one time of the month is not excessively crowded.	"*DMV should stagger [deadlines] when people have to renew.*"
Nicer staff	5 (3%)	This category represents the suggestion to have the LPA staff be more amicable towards customers.	"*Staff should be patient with customers.*"
Phone-related	5 (3%)	This category refers to the suggestions about how the LPA staff should handle their phones.	"*It would be nice to be able to call and get quote over phone before coming.*"
Training	2 (1%)	This category refers to suggestions about how the LPA staff should undergo more training.	"*The clerks need more training.*"
Put information online	2 (1%)	This category references how customers want to see more information put on the DMV website.	"*They should have a checklist for people and put it online.*"
Email or mail-in options	2 (1%)	This category refers to the suggestion from customers to have more options for email and mailing in when it comes to LPA business.	"*We should be able to email stuff because faxing is antiquated.*"
Criticism of mailer	2 (1%)	This category includes suggestions pertaining to DMV mailers.	"*It was hard to understand the mailer, it gives too many options and is not straightforward.*"
Improve ease of process	2 (1%)	This category represents feedback relating to improving the ease of completing transactions.	"*Make it easier to add someone to my title*"
Manage bad smell (location-specific)	2 (1%)	This category represents the customers' dislike of the smell at a particular LPA location due to a nearby chicken slaughter and processing facility.	"*Put an air freshener at the door.*"
Other	15 (9%)	This category includes all responses that do not fit into the established coding scheme.	See table description

6.3.5 Other Feedback provided by LPA Customers

For any other comments that customers would like to submit, there were 38 responses that included suggestions for improvement (Table 21). The most common response was that the LPA was too busy and needed more staff to deal with the business they receive (n= 15). Following this was issues about the paperwork (n= 5), wanting there to be more information available online (n= 3), desire to stagger the deadlines so that there isn't peak traffic all on one day (n= 2), wanting cheaper prices at the LPA (n= 2), issues about the computer being down which slows business (n= 2), receiving bad customer service (n= 1), and wishing there were longer hours available to go to the LPA (n= 1). Uncategorized responses are listed in the table as well.

Table 21. *Suggestions for improvement made by customers (n=38).*

Categories	No.	Category Description	Example Quote
Busy/long lines/need more staff	15 (40%)	This category represents the problems at the LPA with slow service and how customers want there to be more staff to deal with this issue.	"*Wait time in Raleigh is up to 20 or 30 minutes.*"
Paperwork-related	5 (13%)	This category refers to how customers would like to see more assistance with the paperwork that they're supposed to bring into the LPA.	"*It would be nice if we could have a copy of our FS1 emailed to us.*"
Need more information	3 (8%)	This category refers how to customers would like to receive more information about what they are supposed to bring into the LPA.	"*If more information was available of what to bring to the DMV it would be helpful, like having a phone app.*"
Stagger deadlines	2 (5%)	The category refers to how customers want the LPA to stagger deadlines over a period of time so that one time of the month is not excessively crowded.	"*We are still getting used to these new deadlines.*"
Cost too much	2 (5%)	This category refers to the fact that customers want the prices at the LPA to be lowered.	"*The current prices cost too much.*"
Computer down	2 (5%)	This category refers to complaints about when the computer at the LPA goes down, slowing business.	"*The computer was down, so only two windows were running.*"
Bad customer service	1 (3%)	This category represents general negative comments about the LPA.	"*The clerks are angry there.*"
Longer hours	1 (3%)	This category represents that customers would like the LPA to stay open longer and to cover more hours of business.	"*Stay open longer.*"
Other feedback for improvement	7 (18%)	This category includes all responses that do not fit into the established coding scheme.	(a) Auto doors; (b) Had to pay $25 for vehicle registration; it was lost in the mail; (c) $540 of unpaid tolls; should be able to pay right here at the DMV; (d) Insurance company did not know how to fill out FS1; (e) Tuesday and Wednesday have shorter lines; Monday

6.3.6 Positive LPA Experiences

There were 598 responses received from customers when asked about what made their transaction run smoothly (Table 22). Having fast and efficient service was the most common response (n= 180), with clerks being knowledgeable and helpful following after (n= 148). The other responses included clerks being friendly (n= 114), customers being prepared prior to the visit (n= 3), general comments about how customer service was positive (n= 59), the location being convenient (n= 10), having the proper money beforehand (n= 4), and having the proper paperwork prior to the LPA visit (n= 3). Other responses are listed in the table as well.

Table 22. *Positive experiences at LPAs as described by customers (n=598 total responses).*

Categories	No.	Description	Example Quote
Fast service	180 (20.7%)	This category represents that efficiency and a fast transaction ensured that the customers' visit went smoothly.	"*The service was fast and efficient.*"
Clerks knowledgeable/helpful	148 (17.1%)	This category refers to how the clerks at the LPA office were able to create a smooth transaction based on their knowledge and willingness to assist customers.	"*The clerks are knowledgeable.*"
Clerks friendly	114 (13.1%)	This category refers to how the clerks at the LPA office were able to create a smooth transaction based on their amicability.	"*The clerks were very pleasant.*"
Customer prepared	73 (8.4%)	This category refers to the fact that when customers were prepared prior to their LPA visit, their transaction went smoothly.	"*I was prepared.*"
General comments regarding customer service	59 (6.8%)	General positive comments were made about the LPA and how a smooth transaction was made.	
Convenience/location	10 (1.2%)	This category represents how the location of the LPA made the transaction more convenient for customers.	"*The location was convenient.*"
Money-related	4 (0.5%)	Having money related issues figured out prior to coming to the LPA office provided an easy experience for customers.	"*I had the right change.*"

Paperwork	3 (0.3%)	This category refers to the customer having the proper paperwork, which made it so that their transaction went smoothly.	"*I brought the proper paperwork.*"
Other	7 (0.8%)	This category includes all responses that do not fit into the established coding scheme.	(a) Got everything done; (b) Computer system up to date; (c) I came in with a good attitude; (d) Got LES; (e) Staff passed customer to other staff who can help faster; (f) Dealer drop-off is nice; (g) Signs up [are helpful]

Figure 8 depicts the results for the question "What helped to ensure that your transaction went smoothly?" As shown, the most common responses were fast service (n= 180) and clerks being knowledgeable and helpful (n= 148). These are followed by the clerks being friendly (n= 114), the customer being prepared (n= 73), general positive comments about the customer service (n= 59), the convenience of the location (n= 10), having the proper amount of money (n= 4), and having the right paperwork (n= 3). As depicted in the table, there were 6 responses for "other".
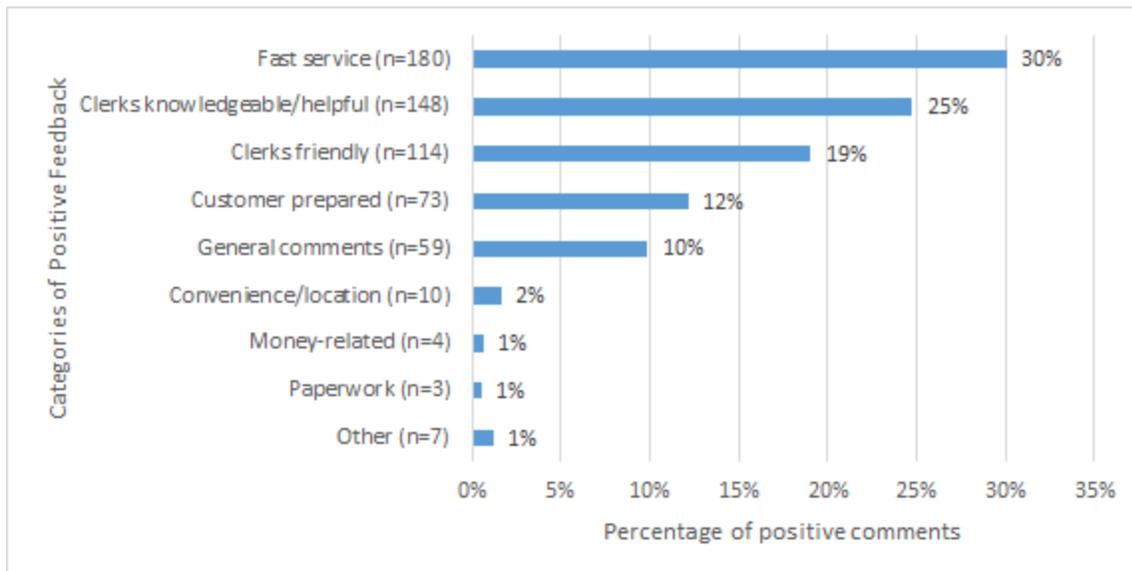
Figure 8. *Positive feedback on LPA experiences, as reported by LPA customers on a selected day of data collection in 2018 (n=598).*

For any other comments that customers would like to submit, there were 150 responses regarding positive feedback (Table 23). Ninety-five of these responses were positive feedback pertaining to LPAs. The most common positive response was general statements saying that the LPA was well run (n= 49). The next frequent responses were positive statements about the clerks (n= 24), saying that that particular location was better than one they had been to in the past (n= 10), and how fast and efficient the LPA ran (n= 7). Other responses are listed in the table below.

Table 23. *Other positive comments that customers made regarding their experiences at LPAs (n=95 total responses).*

Categories	No.	Description	Example Quote
General	49 (57.6%)	This category represents general positive feedback received by customers.	"*Everything was perfect. I've never had a problem with this place.*"
Clerks	24 (28.2%)	This category refers to positive comments made about the LPA clerks.	"*Their staff has gotten friendlier.*"
Other location	10 (11.8%)	This category refers to comments made about a particular LPA being better than another one that they have been to in the past.	"*It is much quicker here than New Bern.*"
Efficient/fast	7 (8.2%)	This category refers to the positive feedback received about the ability of the LPA to provide quick service.	"*It was fast and quick.*"
Other positive feedback	5 (5.9%)	This category includes all responses that do not fit into the established coding scheme.	(a) Good experience; (b) Lot of space; (c) Good parking; (d) Knowledgeable; (e) Name tags

6.3.7 Customer Knowledge and Preparation

When asked about how they knew what to bring to the LPA to complete their transaction, customers provided 334 responses (see
Table *24*). Having experience from past LPA visits was the most frequent response (n= 196), followed by from a DMV mailer (n= 64). The next common responses were that they were told by clerks (n= 27), they were told by a different party (n= 27), that they read it on the DMV website (n= 11), and that inspectors informed them (n= 3). Uncategorized responses are also listed (n=6). These findings show that despite a push to use the NC DMV website, customers do not report the website as a primary source of information. In light of the importance of having an easy to use, information-rich website, this constitutes a basis of our recommendation in the last section to improve the design of the NCDMV website with usability in mind.

Table 24. *How customers knew what to bring with them to the LPA to complete their transaction (n= 334 total responses).*

Categories	No.	Description	Example Quote
Experience	196 (58.7%)	This category represents that customers knew what to bring to their LPA visit due to prior experience visiting there.	"*I knew what to bring through experience.*"
DMV Mailer	64 (19.2%)	This category refers to DMV mailers informing customers what they need to be prepared to visit the LPA.	"*[I knew what to bring because of the] DMV mailer.*"
Clerks told them	27 (8.1%)	This category refers to LPA clerks informing customers what they need to be prepared to visit the LPA.	"*Clerks told me what to bring.*"
Told by another party	27 (8.1%)	This category represents customers being told by an outside party about what they need to bring to the LPA.	"*My insurance company told me what to bring.*"
DMV website	11 (3.3%)	The DMV website informed customers about what they needed before visiting the LPA.	"*I knew what to bring because of the DMV website.*
Inspectors told them	3 (0.9%)	This category refers to inspectors informing customers about what they need to be prepared to visit the LPA.	n/a
Other	6 (1.8)	This category includes all responses that do not fit into the established coding scheme.	(a) It was the time of the month; (b) Sold car; (c) 90-day inspection sign on the wall; (d) Form from doctor's office; (e) The process is simple; (f) I wanted to avoid late fees

Figure 9 depicts the results for the question "How did you know what to bring today?". As shown, the most common responses were general experience (n= 196) and the DMV mailer (n= 64). These are followed by being told by the clerks (n= 27), being told by another party (n= 27), and using the DMV website (n= 11). There were 6 responses for "other".
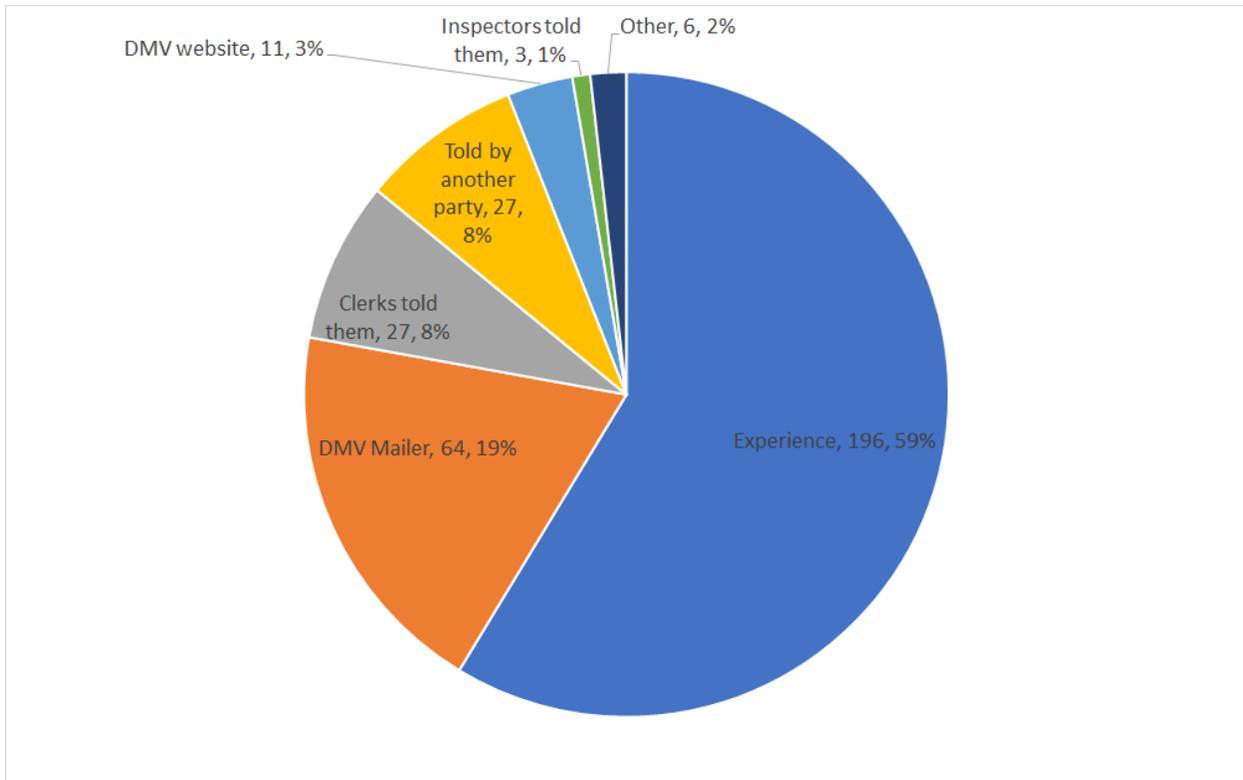
Figure 9. *How customers knew what to bring into the LPA office, as recorded by LPA customers on a selected day of data collection in 2018 (n=334).*

6.3.8 Number of Visits to Complete Transaction

Figure 10 depicts the results for the question "If you were able to complete your transaction, how many times did you have to visit an office in order to complete this transaction?" As shown below, a large majority (90%) was able to successfully complete their transaction in one visit (n= 481). The amount of customers that needed two or more visits was significantly lower (n= 54).
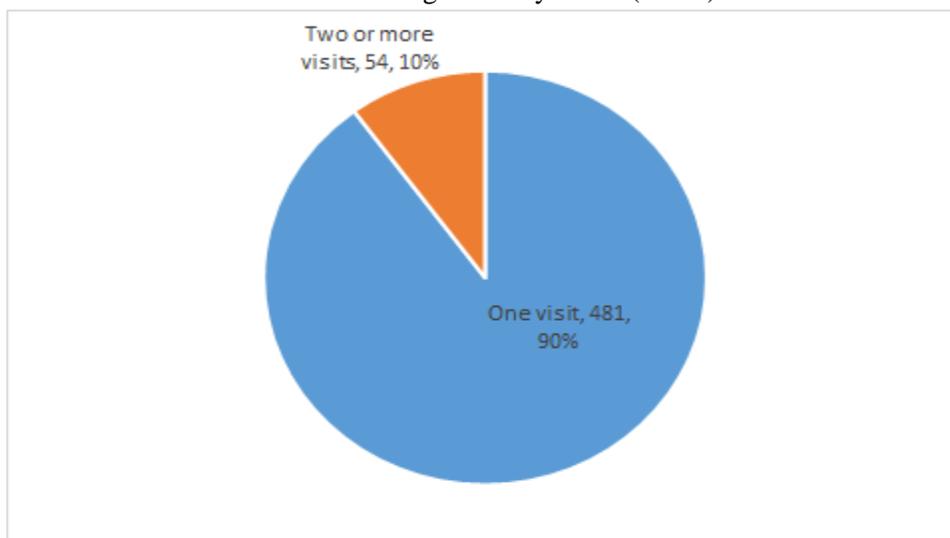

Figure 10. *Number of visits by customers to LPA offices to complete their transactions, as recorded by LPA customers on a selected day of data collection in 2018 (n= 535 customer responses).*

6.3.9 Better Preparation for LPA Visit

When asked about what they could have done to be better prepared for their LPA visit, 47 responses were recorded in total. A general answer stating that they should have been better prepared (n= 13) was the most common response, followed by getting an inspection (n= 12). The other responses included having their insurance form ready (n= 11), having more knowledge prior to their visit on what to bring (n= 5), and having more money with them (n= 3). Other responses (n=3) and example quotes that represent each category are listed in Table 25.

Table 25. *How customers could have been better prepared for their LPA visit (n=47 total responses).*

Categories	No.	Category Description	Example Quote
General	13 (27.7%)	This category represents the customer providing a general response stating that they should have been better prepared.	"*I should have been better prepared today.*"
Inspection	12 (25.5%)	This category refers to the customer not getting an inspection prior to their LPA visit.	"*Had truck inspected.*"
Insurance Form	11 (23.4%)	This category represents the customer not knowing about or completing the insurance form before coming to the LPA.	"*Called insurance company before coming in.*"
Knowledge	5 (10.6%)	The lack of knowledge about what to bring to complete a transaction created issues among customers.	"*I should have contacted customer service beforehand.*"
Money	3 (6.4%)	The category represents that a lack of money caused customers to not be prepared during their LPA visit.	"*I should have checked my bank account.*"
Other	3 (6.4%)	This category includes all responses that do not fit into the established coding scheme.	(a) Have stepdad with him; (b) Have title in my name; (c) Had more time

Figure 11 depicts the results for the question "How could you have been better prepared for your visit?". As shown, the most common responses were general preparation (n= 13) and getting an inspection (n= 12). These are followed by customers having the required insurance form (n= 11), acquiring more knowledge on what they needed to bring (n= 5), and having more money (n= 3). As depicted in the table, there were 3 responses for "other".
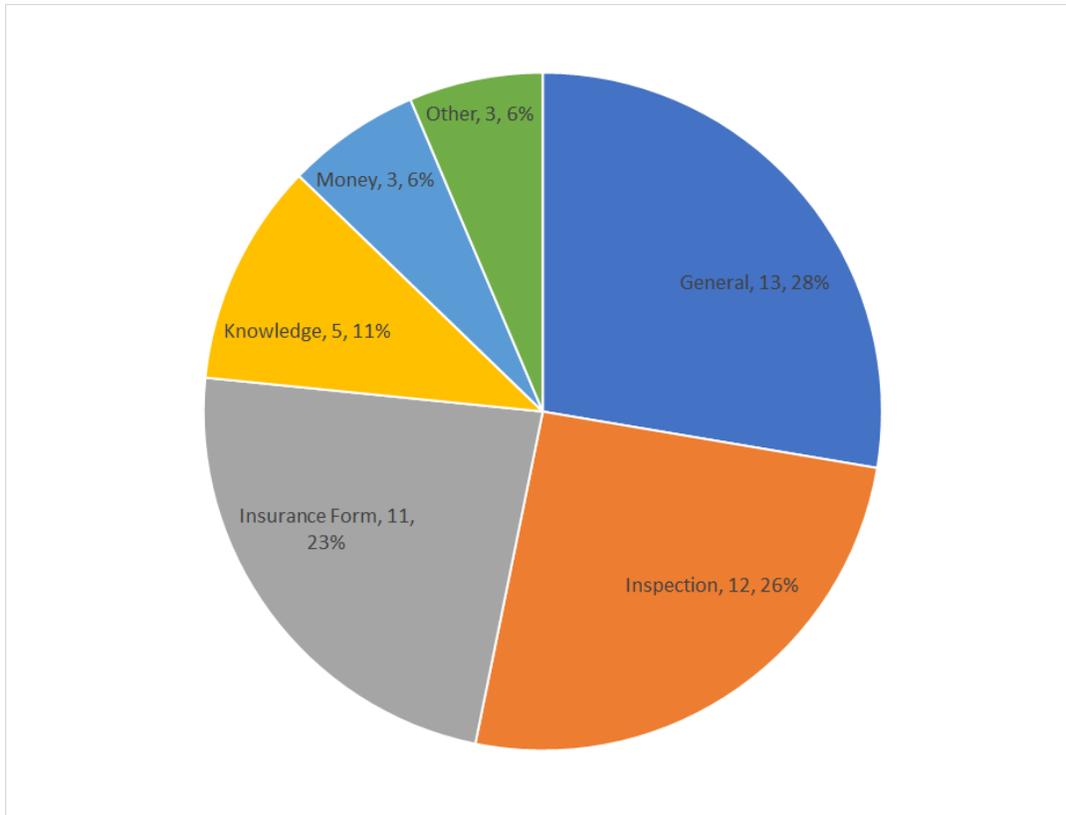
Figure 11. *Ways customers could have been more prepared for their LPA visit, as recorded by LPA customers on a selected day of data collection in 2018 (n=47).*

6.3.10 Miscellaneous Customer Comments

General responses provided by customers that did not fit under positive or negative feedback are depicted in Table 26 (n= 17). Four responses were given about the lines, and the other comments pertained to a new location (N= 3), tags (n= 2), and out-of-state customers (n= 2). Uncategorized responses are listed in the table as well.

Table 26. *Other comments provided by customer surveys (n=17 total responses).*

Categories	No.	Category Description	Example Quote
Lines	4 (23.5%)	This category refers to suggestions about the lines at the LPA offices and how they could be made better.	"*Long lines make it easier to spread germs and get sick.*"
New location	3 (17.6%)	This category represents how customers would like there to be a new location for the LPA.	"*The new building is nice.*"
Tag-related	2 (11.8%)	This category refers to issues that customers had with tags and how they would like to see them changed.	"*One of the tags wasn't paid because of incorrect information in the system.*"
Out of state	2 (11.8%)	This category refers to issues with out of state customers.	"*I wanted a title [but I] wasn't from around here.*"
Other	6 (35.3%)	This category includes all responses that do not fit into the established coding scheme.	(a) It is confusing before getting used to the process; (b) I thought I had to register my car but the dealer already did; (c) The check engine light is problematic in passing inspection; (d) 10-day temporary registration is not long enough; (e) Attached: handicapped placard application; (f) I get accurate information on the phone when I call

7. Analysis of Findings & Discussion

Given the findings in the current study on the prevalence of incomplete transactions (15.9% average rate of incomplete transactions across customer survey data), it was found that the DMV has made substantial progress since the prior phases of the study, where 28.5% of transactions were recorded as incomplete. The higher percentage of incomplete transactions from phases 1 and 2 of this study could perhaps be attributed to the new Tax & Tag legislation which was being implemented at the time. Table 27 depicts a comparison of the three data sources regarding the number and/or percentages of incomplete transactions.

Note: LPA managers provided an estimate of the percentage of incomplete transactions, employees provided raw numbers of incomplete transactions (we do not have data on the total number of transactions to compare this with); customer surveys were the only comprehensive source of data on incomplete transactions, since data was collected on completed as well as incomplete transactions, so the numbers are not necessarily comparable.

Table 27. *Comparison of the number/percentage of incomplete transactions across all three data sources.*

No.	Location	Manager Estimate	Employee No. (Averaged)	Customer No.	Customer Total Transactions	Customer Percent Incomplete
1	Boone	25%	8.5	10	33	30.3%
2	Havelock	5%	16	6	71	8.5%
3	Henderson	5%	14	11	86	12.8%
4	Robbins	10%	9.5	4	44	9.1%
5	Rockingham	32.5%	20.5	14	93	15.1%
6	Tarboro	1%	16	17	99	17.2%
7	Waynesville	30%	8.5	12	67	17.9%
8	Whiteville	10%	11.5	17	86	19.8%
9	Winston-Salem	30%	10.5	11	86	12.8%
	Totals & Averages	17%	12.8	102	665	15.9%

As shown in

Table *28*, the most commonly mentioned reason for incomplete transactions related to either uncompleted vehicle safety inspections or completed inspections that did not show up in the computer system (n=93; mentioned by all 3 data sources). The second most common reason for incompletes was incomplete or improper paperwork (n=62; mentioned by LPA managers and employees). Insurance lapses/requiring an FS-1 form, as well as the credit card system malfunctioning, were the third most commonly mentioned reasons for customers being unable to complete their transactions in a single visit (n=54; mentioned by all 3 data sources). The fourth most commonly mentioned reason pertained to improperly prepared titles (n=51; mentioned by LPA managers and customers). Insufficient funds were the fifth most common reason (n=49; mentioned by all 3 sources of data). The remaining reasons for incomplete transactions are listed in the below table by data source.

Although credit cards were a nascent issue during phases 1 & 2 of this study when credit cards were being introduced at LPAs. Issues related to the credit card system malfunctioning were mentioned prominently in the current study across all three data sources (i.e. LPA customers, managers and employees).

Table 28. *Comparison of the reasons for incomplete transactions across all three data sources.*

	Category	Managers	Employees	Customers	Total	Category % of Total Responses	Rank
a	Credit card system malfunctioning	54	-	-	54	12.3%	3
b	Titlework-related	35	-	16	51	11.6%	4
c	Inspection-related	27	33	33	93	21.1%	1
d	Improper/Incomplete paperwork	22	40	-	62	14.1%	2
e	Insurance lapses/FS-1	15	19	20	54	12.3%	3
f	Insufficient funds	15	23	11	49	11.1%	5
g	Party not present	8	5	7	20	4.5%	6
h	Help Desk or staff-related	7	-	-	7	1.6%	7
i	Customer-related	6	-	-	6	1.4%	8
j	Lien release	-	5	-	5	1.1%	9
k	Tax-related adjustments	-	5	-	5	1.1%	9
l	Toll stop	-	2	-	2	0.5%	10
m	Uncategorized/Other	10	6	16	32	7.3%	n/a
	Total	199	138	103	440	100%	n/a

As reflected in

Table *29*, the most commonly mentioned suggestion for improvement across two data sources (LPA managers and customers) essentially related to increasing the staff capacity of the LPA; included in this category are opening more windows, hiring more staff, or completing transactions more quickly (n=69; mentioned by both). The second most prevalent suggestion was location-specific, related to improving the building (e.g. purchase a larger building) (n-27; mentioned only by LPA managers). Following this, the third most common suggestion, as provided by LPA managers only, was to provide better signage to direct customers to the proper lines (n=26). The fourth most common suggestion was to reduce fee amounts (n=10; mentioned by LPA managers and customers). The fifth most commonly mentioned suggestion for

improvement was related to improving the system for inspections (e.g. get rid of the delay that takes place in waiting for a completed vehicle inspection to show up in the computer system).

Table 29. *Comparison of suggestions for improvement provided by LPA managers and customers.*

No.	Category	Managers	Customers	Total	Rank
a	More windows/staff/faster	54	15	69	1
b	Building-related	27	-	27	2
c	Signs to direct lines	26	-	26	3
d	Inspection-related	8	-	8	5
e	Cheaper	8	2	10	4
f	Provide snacks, beverage or entertainment	6	-	6	7
g	Paperwork-related	-	5	5	8
h	Stagger deadlines	5	2	7	6
i	Nicer staff	5	-	5	8
j	Phone-related	5	-	5	8
k	Need more information	-	3	3	9
l	Computer system down	-	2	2	10
m	Improve staff training (general)	2	-	2	10
n	Put information online	2	-	2	10
o	Email or mail-in options	2	-	2	10
p	Criticism of DMV mailer	2	-	2	10
q	Improve ease of process	2	-	2	10
r	Manage bad smell (location-specific)	2	-	2	10
s	Other	15	9	24	n/a

As discussed earlier in the report, it was found that obtaining information from the DMV website was a relatively uncommon way for customers to get required information prior to their visit.

8. Conclusions & Recommendations

Following from the findings and analysis of gathered data, several conclusions and recommendations are provided.

- Far more positive comments were provided regarding LPA experiences than negative ones, which speaks to the efficacy and customer friendliness of the vast majority of LPA offices. LPAs are to be commended for significant reduction of incomplete transactions and good customer service in the offices visited in this study.

- Problems with the credit card system persists even as some said that it is getting better. Numerous managers cited the credit card system becoming inoperable at random and frequent instances resulting in customer frustration, incomplete transactions and longer wait times. In today's business environment, anything other than 100% reliability is less than acceptable. This issue should be remediated as quickly as possible.

- Long wait times may take place when an LPA employee calls the Help Desk. Often the LPA customer must also wait in the office for the solution to be determined. Hiring more staff to help with Help Desk inquiries and/or opening additional locations where Help Desk calls can be taken, may help to remediate this issue.

- Often inconsistent information is provided to LPA customers via the customer Call Center. Common inconsistent information that is provided could be documented and addressed through continuing education and improved communication from the DMV headquarters to customer Call Center and LPA Help Desk staff.

- The need to improve notary training was mentioned repeatedly; currently, notary training does not include DMV-specific requirements, as they differ from the notarization requirements in other settings (e.g. handwritten alterations are not accepted on motor vehicle titles, etc.). This issue can be addressed by a mandate that notary training to include DMV-specific requirements.

- Many customers can be better served if prior to visiting an LPA, the required information is online and easily understandable, including required paperwork and estimated fees. An improved NC DMV website should be user-friendly, with the objective of making it easier for customers to find relevant information, especially with regards to the appropriate documentation necessary to conduct their transactions.

- Regarding vehicle registration renewals, consideration can be given to stagger deadlines within the month, such that the peak of activity could be spread out across the month. This should also prove helpful to reduce wait times in LPA offices.

- LPA customers rarely reported using the NC DMV website in preparation for their LPA visits. Additionally, several comments provided by LPA managers suggested that the NC DMV website could be improved. In line with these findings, we recommend updating the NC DMV website to

be more user friendly and navigable, as well as working to direct traffic to the website. This recommendation will be expanded upon further in Volume II of the study.

- NCDMV and LPAs continues to be hampered somewhat by the outdated and underperforming legacy computer system STARS. Problems cited most often pertain to vehicle inspections and insurance lapses not being shown properly and on a timely basis. While certainly not all of the problems are IT related, it is suspected that many are. Every effort should be made to update and upgrade reporting software and IT systems related to vehicle inspections and insurance coverage by customers

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Appendices

Appendix A: License Plate Agency Manager Interview Guide

Interview Guide for Group A – LPA locations with the highest wait times:

1. What are the most significant issues contributing to [high/low] wait times in your office?
2. Are there specific actions that have been taken or are being taken by your LPA office to [reduce wait times/maintain low wait times]? If so, what are they?

Interview Guide for Group B – LPA locations with the highest number of incomplete transactions:

1. What are the most significant issues contributing to the [high/low number of] incomplete transactions in your office?
2. Are there specific actions that have been taken or are being taken to [reduce the number of incomplete transactions/maintain low percentages of incomplete transactions]? If so, what are they?
3. Do you have any data documenting reasons for incomplete transactions? If you do, could you share that with us?
4. Do you believe that the number of incomplete transactions have been reduced now that the Tax and Tag program is well underway?

Questions asked of all LPA locations (Groups A and B) at the end of the interview:

1. What other issues related to customer service do you find relevant and would like to see addressed?
2. On average, what percentage of all transactions would you estimate to be incomplete?
3. Anything else?

Appendix B: Record of Data Collection

Table 30. Overview of data collection.

	Location	Interview date	Manager Interview Participant(s)	Researcher(s)	On-site data collection (date)	No. employee checklists	No. customer surveys	Researcher(s)
1	Havelock (M)	8/3/2017	Anna Gibson	James	11/13/2017	2	72	Brittany & Chris
2	Holly Park/ North Raleigh	7/24/2017	Daniel D. Johnston	Brittany & James	-	-	-	-
3	Jacksonville (M)	9/18/2017	Ellie Wilber	Brittany	-	-	-	-
4	Waynesville	8/22/2017	Melissa Gladden	Brittany & James	1/19/2018	3	62	Brittany
5	Whiteville	9/13/2017	Pamela Merritt	Brittany & James	12/11/2017	4	86	Brittany
6	Henderson	7/25/2017	Amelia Winters	Brittany & James	2/27/2018	2	80	Brittany & Chris
7	Tarboro/ Edgecombe	7/26/2017	Lisa Warren, Brandy Edmondson	Brittany & James	11/1/2017	3	98	Brittany & James
8	Rockingham	8/17/2017	Tammy Bass	Brittany & James	11/2/2017	4	94	Brittany & James
9	Boone/Watauga	8/23/2017	Tamera Holshouser	Brittany & James	1/18/2018	2	33	Brittany
10	Winston-Salem	8/23/2017	Dawn C. Duggins	Brittany & James	1/24/2018	4	82	Brittany & Andrew
11	Robbins	8/17/2017	Jamie M. Garner	Brittany & James	11/7/2017	1	45	Brittany & Chris
12	Lexington	8/16/2017	Becky Klass	Brittany & James	-	-	-	-
13	Mount Airy	8/16/2017	Diane B. Smith	Brittany & James	-	-	-	-
14	Yancey/Burnsville	8/22/2017	Kimberly Woody	Brittany & James	-	-	-	-

Appendix C: Customer Questionnaire

1. **Were you able to complete your transaction today?**
   o Yes   o No   o Partially

2. **What type of transaction(s) did you come in for today? Please select all that apply.**
   o vehicle registration
   o pay vehicle tax
   o replace a lost/stolen license plate
   o replace a lost/stolen registration sticker
   o obtain a handicap placard
   o order specialized license plates
   o transfer/duplicate a title
   o lien recordings and renewals
   o turn in a license plate
   o request a duplicate registration card
   o other (please specify): _____

3. **If you were able to complete your transaction, how many times did you have to visit an office in order to complete this transaction? ___**

4. **If you were not able to complete your transaction, why was this the case?**
   o did not have proof of insurance
   o could not pay vehicle taxes
   o need to complete a vehicle inspection
   o could not pay other fee
   o did not have a valid NC driver license
   o did not have a title
   o there was a **registration service stop** on my account:
       o bad debt stop
       o bad credit warning
       o child support stop
       o correspondence stop – plate/vehicle stop
       o county tax stop
       o DWI customer stop
       o DWI registered owner stop
       o inspection stop
       o insurance stop
       o IRP/audit stop
       o stolen/stopped vehicle
       o unpaid tolls
   o other (please specify): _____

Prompt for individuals with incomplete transactions:
"Would you be willing to speak with me for 2-5 minutes regarding your incomplete transaction?"

1. What could have been done to better meet your needs?

2. How could you have been better prepared for today's visit?
3. How could your customer service experience have been improved?
4. Anything else?

"Would you be willing to speak with me for 2-5 minutes regarding your transaction?"

1. How did you know what to bring today for your visit?
2. What helped to ensure that your transaction went smoothly today?
3. What are some suggestions that you can make to improve your customer service experience?
4. Anything else?

Appendix D: Employee Checklist Form

1. **Transaction Type (Please tally):**
   Registration renewal
   All other transaction types

2. **Please tally the reasons for which transactions were not completed:**
   Incomplete/incorrect documents (e.g. no title/driver license)

   Insufficient funds
   Did not have proof of insurance
   Need to complete a vehicle inspection
   Registration service stops
   Other (please **list** any other reasons that did not fit the above categories):