



NEW YORK CITY TAXI & LIMOUSINE COMMISSION

# City of New York Taxi and Limousine Commission (TLC) Driver Focus Group Report

*Version 1.1*

January 7, 2005



# Table of Contents

---

---

<b>1</b>	<b><u>SUMMARY</u></b> .....	<b>1</b>
1.1	<u>Overall Themes of Driver Reaction</u> .....	1
1.2	<u>Credit/Debit Card Acceptance</u> .....	1
1.3	<u>Passenger information monitors (PIMs)</u> .....	2
1.4	<u>Text Messaging</u> .....	2
1.5	<u>Automatic Vehicle Location (AVL) Tracking and Electronic Trip Sheets</u> .....	2
1.6	<u>Overall Findings &amp; Implications</u> .....	2
<b>2</b>	<b><u>PURPOSE</u></b> .....	<b>3</b>
<b>3</b>	<b><u>METHODOLOGY</u></b> .....	<b>4</b>
<b>4</b>	<b><u>OVERALL THEMES OF DRIVER ACCEPTANCE</u></b> .....	<b>5</b>
<b>5</b>	<b><u>CREDIT AND DEBIT CARD ACCEPTANCE</u></b> .....	<b>6</b>
5.1	<u>Overall Reaction</u> .....	6
5.2	<u>Key Driver Concerns</u> .....	7
5.2.1	<u>Costs for Credit/Debit Card Processing</u> .....	7
5.2.2	<u>Ensuring Payment at the End of the Trip</u> .....	7
5.3	<u>Driver Acceptance</u> .....	8
5.3.1	<u>Pre-Authorization of Credit/Debit Cards</u> .....	8
5.3.2	<u>Minimum Transaction Size</u> .....	9
5.3.3	<u>Surcharges</u> .....	9
5.4	<u>Processing Credit/Debit Card Transactions</u> .....	10
5.4.1	<u>Swiping</u> .....	10
5.4.2	<u>Adding Tips and Tolls</u> .....	10
5.4.3	<u>Signature and PIN</u> .....	11
5.4.4	<u>Speed of Transactions</u> .....	11
5.4.5	<u>Reimbursement Procedure</u> .....	11
5.4.6	<u>Disputed Charges</u> .....	11
5.5	<u>Effect on Taxicab Ridership</u> .....	12
5.6	<u>Effect on Tips</u> .....	12
<b>6</b>	<b><u>PASSENGER INFORMATION MONITOR (PIM)</u></b> .....	<b>12</b>
6.1	<u>Overall Reaction</u> .....	12
6.2	<u>In-Taxi TVs</u> .....	13
6.3	<u>Cost and Revenue Considerations</u> .....	13
<b>7</b>	<b><u>TEXT MESSAGING</u></b> .....	<b>14</b>
7.1	<u>Overall Reaction</u> .....	14
7.2	<u>Current Handling of Lost Property</u> .....	15

7.3	<a href="#">Returning Lost Property with Text Messaging</a>	16
7.4	<a href="#">Traffic Information</a>	16
7.5	<a href="#">Information About Where Taxicabs Are Needed</a>	17
7.6	<a href="#">Type of Device</a>	18
<b>8</b>	<b><a href="#">VEHICLE LOCATION TRACKING AND ELECTRONIC TRIP SHEETS</a></b>	<b>18</b>
8.1	<a href="#">Overall Reaction</a>	18
8.2	<a href="#">Trip Sheet Functionality</a>	19
8.3	<a href="#">Benefits of Electronic Trip Sheets</a>	20
8.4	<a href="#">Need for Printed Trip Sheet Reports</a>	20
8.5	<a href="#">Privacy and Threat to Driver Independence</a>	21
8.6	<a href="#">Other Uses for AVL Information</a>	22
<b>9</b>	<b><a href="#">IMPLICATIONS</a></b>	<b>22</b>
9.1	<a href="#">Overall Findings</a>	22
9.1.1	<a href="#">Credit/Debit Card Acceptance</a>	23
9.1.2	<a href="#">Passenger Information Monitors</a>	24
9.1.3	<a href="#">Text messaging</a>	24
9.1.4	<a href="#">Automatic vehicle location (AVL) tracking and electronic trip sheets</a>	24
<b>10</b>	<b><a href="#">APPENDIX A - FOCUS GROUP DISCUSSION GUIDE</a></b>	<b>26</b>
10.1	<a href="#">Introduction (10 minutes)</a>	26
10.2	<a href="#">Overview of New Technologies (3-5 MINUTES)</a>	26
10.3	<a href="#">Text Messaging (20 MINUTES)</a>	26
10.4	<a href="#">Location Tracking and Trip Sheets (10 MINUTES)</a>	28
10.5	<a href="#">Credit / Debit Card Acceptance - Groups w/ Credit Card Meter (30 minutes)</a>	29
10.6	<a href="#">Credit / Debit Card Acceptance - Groups w/o Credit Card Meter (30 MINUTES)</a>	32
10.7	<a href="#">Passenger Information Monitor (10 MINUTES)</a>	36
10.8	<a href="#">Wrap-Up (10 MINUTES)</a>	36

## **1 SUMMARY**

Six Focus Groups with New York City medallion taxicab drivers were held in late November and early December 2004 to gain an in-depth understanding of drivers' needs, perspectives and likely reactions to TLC's technology enhancements. The research was designed in particular to identify and understand base requirements that when incorporated into the Request for Proposal (RFP) process is likely to significantly improve the overall success of the project.

Key findings from the driver Focus Groups are:

### **1.1 Overall Themes of Driver Reaction**

Drivers are primarily concerned with making money. Changes that are likely to enhance their income or reduce their operating expenses are generally embraced. Many drivers feel that text messaging, electronic trip sheet reporting and the Passenger Information Monitor (PIM) have the potential to benefit them financially and are thus viewed favorably. Conversely, changes that may increase operating costs or reduce revenue potential are generally resisted. Equipment and maintenance costs and possible nonpayment of fares are major obstacles to acceptance of credit/debit cards.

Drivers approach the service enhancements with a hard-earned realism. Most are skeptical that any of the enhancements will generate more trips or higher tips for them personally.

Although primarily concerned with how the enhancements will directly affect them, drivers are also quick to recognize and appreciate changes that enhance service for passengers. Thus, provided that their concerns are addressed, drivers are ready to embrace credit/debit card acceptance and PIMs.

Longer-serving drivers see themselves as independent professionals. Some of the enhancements, like text messaging and automated vehicle location tracking, in their view, fail to recognize their professionalism and expertise and may compromise their independence. As a result, the overall cast of the owner-driver Focus Groups was somewhat more negative than the Focus Groups with lease drivers.

All drivers appreciated the opportunity to have input into the TLC's planning process, although they expect the initiatives will go forward regardless of what they say.

### **1.2 Credit/Debit Card Acceptance**

Overall reaction to credit/debit card acceptance is quite positive provided that financial impacts (such as equipment/operating costs, processing fees and potential non-payment of credit/debit card charges) are addressed. If these financial impacts are not mitigated, overall reaction to the concept of credit and debit card acceptance becomes negative.

Generally, drivers do not expect increased tips or increased taxicab ridership from credit and debit card acceptance.

### **1.3 Passenger information monitors (PIMs)**

Drivers' concerns about the PIM concept involve cost, vandalism, annoyance to passengers and being summonsed by TLC for nonworking devices.

If these issues are addressed, most drivers are either neutral or positive to the PIMs. Furthermore, if these issues are addressed and PIM advertising generates income for them, most drivers are strongly in favor of the idea.

### **1.4 Text Messaging**

Overall reaction to text messaging is very positive. Drivers immediately see how text messaging can help them return lost property, avoid traffic congestion and find their next fare. They view text messaging as valuable, helpful and high-tech.

Most drivers value the opportunity to receive traffic information through the text messaging device, provided that it is up-to-date and accurate. Many owner-drivers, on the other hand, feel they have sufficient information based on their own expertise and traffic reports on the radio.

### **1.5 Automatic Vehicle Location (AVL) Tracking and Electronic Trip Sheets**

Reaction to AVL and electronic trip sheets varies. Some drivers are positive, some are conditionally positive and some are negative.

Drivers express the concern that the electronic trip sheet concept lacks the full functionality of paper trip sheets. Drivers feel that the electronic trip sheet concept does not offer the following features and they are conditionally positive on this topic provided they are included in some fashion:

- Drivers use paper trip sheets to indicate when passengers change their destination and when passengers specify a route that may not be the most direct. These trip sheet notations are valuable in case of passenger complaints about the route.
- Trip sheets are used by the police and TLC inspectors during car stops to verify proper off-duty light usage.
- Drivers use trip sheets to remind themselves if they forget the destination.
- In the absence of these additional features, some drivers would continue filling out paper trip sheets even with installation of the electronic trip sheet capability.

### **1.6 Overall Findings & Implications**

The most important finding from the driver Focus Group discussions is that driver acceptance of the service enhancements hinges largely on the cost and revenue implications for them personally. Drivers will tend to resist enhancements that reduce their income.

The Focus Groups identify driver reactions to the enhancements at the concept level, the frame of reference that they use to evaluate the enhancements and their expectations of how each change will affect them. It remains to be seen how the changes actually affect drivers, how they perceive the impacts and how they respond, behaviorally, as a result. As such, driver reaction should be monitored as the enhancements are developed and tested.

Another central finding is that the success of many of the technology enhancements will depend on the quality of the implementation. For example, most drivers are enthusiastic about text messages regarding traffic conditions and where taxicabs are needed. The true value of this information, however, will depend on the quality and timeliness of the information. Sufficient time and attention should be allotted for this process to develop a mature product that meets the drivers' needs while protecting the needs of passengers, the TLC and the relationships with the service provider.

## **2 PURPOSE**

In March 2004, the Taxi and Limousine Commission (TLC) adopted a series of technological enhancements to be installed in New York City medallion taxicabs by November 2005. With the assistance of CTGi, Inc., TLC is currently drafting a Request for Proposal (RFP) to be issued to potential vendors who will supply equipment and services to taxicab owners to implement the enhancement program and meet TLC requirements. The RFP will include equipment and service specifications and evaluation criteria for a pilot implementation of the new technologies.

Taxicab passengers and drivers are the two groups most directly and immediately affected by these initiatives. The success of project implementation is dependent, in large part, on passenger and driver acceptance and satisfaction with the new technologies. Acceptance and satisfaction are dependent, in turn, on understanding and meeting the needs and taking into account the likely reaction of these groups to each of the technology enhancements.

Focus Groups were held with taxicab passengers and drivers to gain an in-depth understanding of each group's needs, perspectives and likely reactions to the new technologies, and in particular, to identify and understand base requirements that are likely to significantly improve the overall success of the project. Focus Groups are structured group processes used to obtain detailed information about a particular topic. Focus Groups are particularly useful for exploring attitudes and feelings and to draw out precise issues that may be unknown to the researcher.

The objectives of the driver Focus Groups were to:

- Gain specific highly qualified feedback, ideas, and recommendations and draw out valid concerns regarding usability, practicality, implementation, cost, support, and ongoing issues that must be assessed in selecting specific technologies and processes.
- Gather input for formulation of pilot assessment criteria.
- Identify topics and provide question wording and response categories for quantitative in-cab passenger surveys.

This report summarizes the results of the driver Focus Groups. A separate report summarizes results from the passenger Focus Groups.

### 3 METHODOLOGY

Six driver Focus Groups were held on November 29 and 30 and December 1, 2004. The sessions were held at 11:30 a.m. and 2:00 p.m. at TLC's facility in Woodside, Queens. Drivers were recruited at the taxicab holding lots at Kennedy and LaGuardia airports.

Participants were segmented based on whether they own a medallion, lease by the week or by the shift; whether they own or lease the vehicle; and whether they have experience with credit card meters currently in some taxicabs, on the expectation that these factors may influence reaction to the service enhancements. The six groups were segmented as follows, the number of drivers in each appears in brackets []

- Group A – Use credit card meters [11]
- Group B – Lease on weekly basis and do not own the vehicle (non-DOV lessees) [8]
- Groups C and F – Owner-drivers (own both medallion and vehicle) [12 and 9]
- Group D – Lease by the shift [13]
- Group E – Lease on weekly basis and own the vehicle (DOV lessees) [6]

Focus Group discussions covered drivers' reaction to the four technological enhancements: credit/debit card acceptance, passenger information monitors, location tracking and electronic trip sheets, and text messaging. The discussion guide used for the driver Focus Groups is in Appendix A. It includes the concept statements used for each service enhancement. (A slightly modified guide was used for Group A, adapted to focus on their experience with credit card meters.)

Discussions were captured on audio tape and reviewed in detail for the preparation of this report. Following the structure of the discussions, findings are presented for each of the four service enhancements.

Enhancements were discussed at the concept level without use of sample screens or other visual or physical stimuli. The Focus Group discussions were designed primarily to provide insights into driver perceptions of the enhancements, to define driver needs and to serve as a guide for RFP development and a basis for developing evaluation criteria for vendor proposals and the pilot testing. As such, the discussions were exploratory in nature. Because of the exploratory nature of this research, driver reaction to the enhancements should be tested.

Bruce Schaller, Principal of Schaller Consulting, moderated the Focus Groups. Mr. Schaller is an experienced Focus Group moderator with extensive experience on taxicab and other transportation issues in New York and other major U.S. cities. He has moderated Focus Groups on taxicab, for-hire vehicle and transit issues in New York, Chicago, Los Angeles, San Diego, the Washington DC area and other U.S. cities.

#### **4 OVERALL THEMES OF DRIVER ACCEPTANCE**

Several themes were evident through the course of discussion at the Focus Group meetings. These themes encapsulate the basic driver concerns and perspectives that color their reaction to each new technology service improvement.

First and foremost, drivers are primarily concerned with making money. Other research has shown that “making money” is the primary reason to drive a cab. Thus, they view the enhancements in basic benefit/cost terms. Anything that helps drivers make money, such as text messaging, tends to be looked on favorably. Conversely, anything that would detract from their earnings or increase their expenses tends to be strongly resisted. The question, “Who will pay?” ran through many of the Focus Group discussions, particularly among owner-drivers who expect to be forced to buy new equipment.

Second, while drivers welcome changes that they expect will benefit them and their passengers, drivers approach the enhancements with a hard-earned realism. With some notable exceptions (particularly among the early adopters who have credit card meters and are relatively visionary about the potential of new technologies to improve the industry), drivers are doubtful that any of the enhancements will generate higher tips or increased taxicab trip volume.

Related to this, some drivers view TLC plans in light of previous experiences in which they have had to deal with the costs and problems caused by even good ideas like E-ZPass. Some drivers view TLC as “not seeing our side,” as one driver said. “Whatever TLC is doing, they’re not doing it for us. They’re doing it to work against us.”

Third, although primarily concerned with how the enhancements will directly affect them, drivers are also quick to recognize and appreciate changes that enhance service for passengers. Their initial reaction to credit/debit card acceptance is positive because they see it as a benefit for passengers and the wave of the future. They embrace the potential for text messaging to help them quickly return lost property to passengers. They are also sensitive to passenger feelings and needs, for example, in discussing passengers’ aversion to a driver handling their credit or debit card. Drivers want to provide good service and minimize problems or conflicts with passengers.

Fourth, some drivers – generally the longer-serving drivers and owner-drivers – feel that some of the enhancements fail to recognize their professionalism, expertise and independence. As experienced drivers, they know where the fares tend to be found and where the heavy traffic is. Thus, they feel that they do not need text messages on where taxicabs are needed or where traffic is tied up. They also expressed that electronic trip sheets represent an intrusion on their privacy and compromise their independence.

Finally, all drivers appreciate the opportunity to express their opinions and have input into TLC’s planning. Driver attendance was very high, (75%, or 59 of the 79 drivers recruited attended) and the drivers were highly engaged in all the Focus Groups. They stayed on topic throughout the discussions and devoted considerable effort to understanding each new technology and to clearly expressing their opinion. Nevertheless, drivers fully expect that

the TLC will implement the service enhancements regardless of their input. They appear resigned to this outcome.

## **5 CREDIT AND DEBIT CARD ACCEPTANCE**

### **5.1 Overall Reaction**

Drivers' initial reaction to the concept of credit and debit card acceptance in taxicabs is generally quite positive. To varying degrees, drivers see credit/debit card acceptance as, generally, a "good idea;" part of the technological future ("Technology is here – that's the future," commented one participant); and as potentially attracting business from black cars and car services.

Drivers in Group A, which was composed of drivers who currently have credit card taximeters in their taxicabs, and a few other drivers who have experience with credit card meters, are positive about their experience with payment of fares by credit card.

However, when the discussion moved past the overall concept, drivers became very concerned about two aspects of the program: (1) the costs to them for credit and debit card equipment and processing, and (2) the possibility of not being paid at the end of longer, higher priced trips. After discussion of these issues, the drivers' reaction to the overall concept becomes more mixed and, in some cases, fairly negative. They support the concept strongly, but only if these issues are satisfactorily addressed.

Notably, drivers with credit card meters avoid taking credit cards for most fares under \$10 or \$20 by telling passengers that the equipment is not working or is only for longer trips. These drivers are also less subject to passengers not paying, primarily because passengers have cash as they were not counting on getting a credit card cab. Some drivers ensure payment for out of town trips by negotiating the fare in advance and then charging the card at the start of the trip.

Drivers are particularly wary of being the target of scams and abuses once credit and debit card acceptance is mandated. They anticipate that passengers will intentionally use inactive or stolen cards that they know will not be validated as a ruse to get away without paying the fare.

The underlying theme of drivers' reaction to the concept is that while credit/debit card acceptance is a good idea, as with previous good ideas mandated by TLC, drivers will be left to deal with the costs and the problems of the program. One driver expressed the feeling that TLC should not give the driver nightmares while trying to make the passengers happy.

Drivers feel that credit/debit card acceptance should be made optional rather than be required. They feel that if one-quarter of the taxicabs accept credit/debit cards, passengers who want to use a non-cash payment method will have the opportunity to do so while drivers will not be forced to accept payments other than cash. Drivers want to decide for themselves whether credit/debit card acceptance is good for them rather than be forced to

accept it. They feel that the current situation, in which some but not all taxicabs accept credit cards, works better for them than a mandatory program.

## **5.2 Key Driver Concerns**

Drivers are more ready to accept credit and debit cards if there is no cost (or possibly a relatively small cost) to them and if the transaction is very fast so no time is wasted. Also critical to acceptance is assurance that they will be paid at the end of the trip, possibly through pre-authorization for long trips. These are the most critical issues to driver acceptance.

### **5.2.1 Costs for Credit/Debit Card Processing**

For lease drivers, the cost of credit and debit card acceptance takes the form of a fee charged for each transaction. Most drivers with credit card meters are charged a 5 percent fee on each transaction. Apparently, some or all are also charged an extra \$5 per week by the fleet or management company. The concept of a 5 percent fee was discussed in the other groups. For owner-drivers, the costs include the cost of purchasing the credit card equipment, monthly fees for air time and transactions fees.

Drivers repeatedly voice their concerns about costs. For many drivers, acceptance of credit/debit card concept hinges on cost containment. Owner-drivers in particular raise the cost issue throughout the discussion of credit and debit card usage. They view replacing their current meter with a credit card meter as “throwing away \$1,000.” Drivers who now have credit card meters say that “most drivers are only worried about 5 percent and \$5 per week fees”. These drivers feel that credit/debit card acceptance is a good idea only if there is no 5 percent fee. If a 5 percent fee is inevitable, then they feel that card acceptance is only a good idea for airport trips and other long trips.

The 5 percent fee currently charged to lease drivers for credit card transactions is viewed by drivers as excessive. Drivers are aware that transaction fees charged by the credit card company are much lower – one participant mentioned 1.8 percent. Drivers infer that owners are making a profit on the transactions. Brief discussion of a lower fee suggested that the size of the fee might significantly affect driver acceptance.

Some lease drivers expect that credit and debit card fees will come out of their pocket regardless of whether they are charged a fee directly. Some (but not all) feel that passengers would reduce their tips if there is a passenger surcharge on fares paid with credit or debit cards. Some lease drivers feel that owners will increase lease fees to cover the costs.

### **5.2.2 Ensuring Payment at the End of the Trip**

Drivers have a strong fear of not being paid at the end of the trip due to a passenger’s credit or debit card being rejected. Once credit/debit card acceptance is mandated in all taxicabs, drivers expect that passengers will plan to pay by non-cash means and not have sufficient cash with them to cover the fare for long trips. If the card is not accepted, drivers anticipate

being left without payment. (The financial impact for losing a fare of \$20, \$30 or more is quite substantial, given that they take home only their earnings in excess of lease fees and gasoline costs.)

Based on their experience with passengers who lack sufficient cash, drivers expect that when passengers' cards are rejected, some passengers will find a way to not pay the fare. Passengers may say they will get cash at an ATM machine or from home but then never return. Passengers may also blame the cab equipment and use that as an excuse not to pay: "The passenger [will] say that the credit card works, it's your machine that doesn't work in order to get rid of the fare. So then you become a loser."

Some drivers are concerned that they will become the target of scams from passengers with stolen or canceled credit cards.

A related concern is that rejection of a passenger's card at the end of the trip creates a confrontational and dangerous situation. For example, today if a passenger is trying to beat the fare they may choose to open the door at the end of the trip and run. Drivers in this case feel that they are then lucky that nothing happened to them. If on the other hand a passenger is trying to use a stolen credit card and the charge is rejected, drivers express concern that they are endangering their lives potentially if they confront the passenger with this issue. In the words of one driver:

Drivers expect that passengers who find a previous passenger's wallet in the cab may take the opportunity to use a credit card from the wallet. This is another example of how cards can be misused and how transactions can then become disputed by the cardholder. Drivers tend to expect that they would lose the fare in these instances.

Drivers who currently use credit card meters did not express nonpayment as being a problem for them. But drivers in the other groups feel that the current experience cannot be projected to a situation in which credit and debit card acceptance is mandated. Once mandated, passengers will plan to use non-cash payment methods. If their card does not work, they will not have the cash to pay the fare. In addition, some drivers expect that once mandated, they will become the target of scams as described above.

### **5.3 Driver Acceptance**

Focus Group participants suggested several ways to address these concerns and thus make credit/debit card acceptance a good idea. The primary suggestions are pre-authorizing cards for longer trips, establishing a minimum fare for card use, and establishing a surcharge on the fare for credit/debit card use.

#### **5.3.1 Pre-Authorization of Credit/Debit Cards**

For many drivers, the issue of nonpayment is focused on nonpayment for longer trips because of the higher financial impact. Many drivers, thus, see pre-authorization of cards for long trips as the answer to this issue.

Drivers envision that the card would be swiped at the start of the long trip. The amount charged to the card would be determined at that time for negotiated fares outside New York City, Nassau and Westchester. For other trips, the transaction would be kept open until the end of the trip. Drivers cite the payment process at gas stations as an analogous process.

Notably, some drivers say drivers would be more likely to take passengers to Brooklyn and the Bronx under a pre-authorization system. Their hesitancy in taking these passengers is due to worrying about nonpayment; thus, being assured of payment would remove the hesitancy.

Were pre-authorization to be permitted, there should be a sign in the cab to this effect. Without a sign, drivers anticipate that passengers will become upset when asked to swipe the card at the start of the trip.

### **5.3.2 Minimum Transaction Size**

Drivers with credit card meters currently have often established their own minimum since they have the option to tell the passengers that the credit card capability is not working if they encounter requests for a short trip using credit card for payment.

Many drivers expect that without a minimum there would be substantial use of non-cash payment for short trips, generally defined as under \$10 and, by some, as under \$20. Both those with and without credit card meters share this expectation.

Drivers want a minimum transaction size to avoid:

- Loss of time on short trips
- Blocking traffic
- Transaction processing fees

Drivers feel that while credit/debit cards makes sense for payment of fares over \$10 or \$20, passengers generally have cash and are comfortable using cash for smaller transactions.

### **5.3.3 Surcharges**

Drivers feel that credit/debit card acceptance is an additional service to customers that therefore should be paid for by customers, as the following comments illustrate:

“The service is not to please the drivers. It’s to please the passengers that didn’t have cash. So therefore, the passenger should pay the cost of it.”

“How come [if] I do... [a passenger] a service, I pay for it?”

Drivers believe that cash has proven itself as a successful medium of payment over many years. Drivers compare a surcharge on the fare to the fee charged for getting cash at another bank’s ATM machine, therefore implying that customers will pay for a service given the need or desire for it.

Owner-drivers are particularly strong advocates of a surcharge on fares paid with credit or debit cards. They feel that a surcharge is the only way that they could recover their costs for equipment and processing.

#### **5.4 Processing Credit/Debit Card Transactions**

Although most of the discussion time on credit and debit cards was spent on the larger issues of cost, being paid and minimum transaction sizes, the sessions generated valuable feedback on the mechanics of the credit and debit card process.

Discussion of who should swipe the card, adding tips and tolls, etc., can be distilled into a few basic system criteria for driver acceptance on these topics. Drivers want:

- Simplicity
- Maximized transaction speed
- Minimized costs, uncertainty and errors

While drivers voiced opinions about detailed aspects of the transaction process, any process that meets these core criteria is likely to be preferred over processes that do not meet them, or that meet them less well.

##### **5.4.1 Swiping**

Drivers tend to prefer to swipe the card themselves. If they swipe the card, they will have more control over the process and will make sure it is done correctly. Drivers are likely to go through the process more often than any given passenger and thus will be better able to swipe the card quickly and correctly. Drivers express skepticism that passengers who are inebriated or otherwise impaired will be able to handle tasks such as swiping.

Some drivers, however, see advantages in passengers swiping the card. They expect that passengers will be reluctant to give the card over to drivers and that passengers will be more comfortable swiping the card themselves.

Drivers with credit card meters (in which passengers do the swiping) report that this arrangement is satisfactory.

Drivers accept the concept of passengers swiping the card provided that drivers can see that the process is proceeding properly and that the card is verified. Some suggest that there be a screen in the front for the driver to monitor the process.

##### **5.4.2 Adding Tips and Tolls**

Drivers with credit card meters report that the current system, in which passengers add tips and tolls on the receipt, works well and are therefore satisfied with this system. However, when presented with the idea of passengers entering tips on the PIM, these drivers readily endorse the option of having the tolls automatically displayed on the PIM and have the

passenger interact with the PIM to add the tip. Other drivers without credit card meters also like the PIM approach.

Drivers like the idea of passengers being presented with alternative tip amounts on the PIM. They are experienced with certain foreign visitors who generally do not tip. Drivers also like having a computer add up fare, tip and toll; they say that passengers often get the total wrong.

Drivers like the idea of tolls being added automatically. They feel that it helps keeps the process simpler, more efficient, and less subject to argument by the passenger.

Drivers want to see what the passenger is doing during the whole payment process. They want to make sure the process is proceeding correctly. Some also fear that tips would be lower if passengers key in the tip out of sight of the driver.

### **5.4.3 Signature and PIN**

As with tips, drivers like the idea of passengers signing on the PIM. Everything would then be in the computer – so no lost receipts.

### **5.4.4 Speed of Transactions**

Transaction processing time is a key element of transaction costs. One driver put the matter succinctly, “Loss of time mean[s] loss of money.” Drivers want card processing to be quick and simple. To drivers, a slow process not only means lost income but also the possibility of being issued a traffic ticket for blocking traffic.

### **5.4.5 Reimbursement Procedure**

Among those with credit card meters, owner-drivers are reimbursed for credit card transactions through direct deposit to their bank within 1-3 business days. Lease drivers have the sum of credit card payments deducted from their next lease payment. Both groups find these methods satisfactory.

When presented with the same reimbursement arrangement concept and methods, drivers in the other groups also found them satisfactory. Some drivers were pleasantly surprised to learn that they still get paid even if they lose the receipt (except possibly in the case of a disputed transaction).

Some owner-drivers mentioned that they will need to establish bank accounts for reimbursement purposes.

### **5.4.6 Disputed Charges**

Drivers appear to expect that they will not receive payment from credit card companies for stolen cards that were processed and then disputed by customers. When this issue was being discussed, the moderator described the process of disputed transactions and the protection afforded merchants who present a receipt with a signature that resembles the

card holder's signature. This explanation allayed drivers' concern with stolen or invalid cards.

### **5.5 Effect on Taxicab Ridership**

Drivers with credit card meters and some owner-drivers feel that credit/debit card acceptance will help build taxicab ridership and will attract customers who now use black cars or perhaps car services.

Most drivers who participated in the discussions, however, do not expect more business from credit/debit card acceptance. Even when one or two drivers in the same group argue for this proposition, others are not persuaded. Whether this service results in additional higher priced or longer taxicab trips, in particular, cannot be anticipated. Drivers view longer trip fares to be like winning the Lotto or like fishing – sometimes you catch one, sometimes you do not.

### **5.6 Effect on Tips**

There is a division of opinion about tip amounts. Most drivers with credit card meters report that they receive better tips as a result of the convenience and availability of funds provided by credit card acceptance. Only one driver with a credit card meter said that cash customers actually tip better.

Drivers without experience with credit card meters expect that tips will not be affected by having credit/debit card capability. These drivers tend to view tips as a combination of responsiveness to the service provided and a matter of fate – some people tip and some do not. Some felt that passengers may simply sign the receipt without even adding a tip.

## **6 PASSENGER INFORMATION MONITOR (PIM)**

### **6.1 Overall Reaction**

Drivers express several major concerns about PIMs. The concerns involve cost, vandalism, annoyance to passengers and being summonsed by TLC for nonworking devices. Also, many drivers are aware of the In-Taxi TV pilot and are concerned over the idea being abruptly discontinued after an initial investment which is a scenario not unlike the idea of putting a PIM in the taxicab. If these issues are addressed, most drivers are either neutral or positive about the PIMs. If these issues are addressed and PIM advertising generates income for them, most drivers are strongly in favor of the idea.

Drivers fear that PIMs will be subject to vandalism, particularly by children. They report that parents do not control their kids in the back seat. Drivers expect that the PIMs will not stand the abuse. "The kids when they come up will open the window, up and down, up and down, up and down. Now if they have a little TV in the backseat, forget about it."

Drivers are concerned that they will be issued summonses if the PIM is not working due to vandalism or other reason. They recite places that the TLC conducts systematic checks, such as Penn Station. Drivers ask that the TLC issue notices to correct, due in 48 hours to 10 days, rather than summonses for non-working PIMs.

Another concern is that passengers will be annoyed with PIMs, just as drivers believe they were annoyed with in-taxi TVs. Drivers want passengers or drivers to have the ability to turn off the PIM audio.

A final concern is that passengers will think drivers are taking an indirect route when, in fact, this is not the case due to one-way streets or the logic of driving in Manhattan. For example, one driver noted for trips going south from the Penn Station taxicab line on Eighth Avenue it makes more sense to go west to Ninth Avenue than to go east to Seventh Avenue, due to traffic congestion. On the PIM map, this may appear to be a more roundabout route.

## **6.2 In-Taxi TVs**

Most drivers are aware of the previous pilot project for in-taxi TVs. Some Focus Group participants had in-taxi TVs in their taxicabs and spoke from personal experience while others had simply heard about the in-taxi TVs from other drivers. In either case, perceptions of this experience color their reaction to the PIM concept.

Most drivers appear to view the in-taxi TV pilot program as a failure. Drivers believe that passengers did not like the TVs, that they were often vandalized and that the TLC took them out as a result of these problems. Drivers are puzzled at the idea that the TLC would mandate PIMs after canceling the in-taxi TV program.

Drivers with direct experience of the in-taxi TVs report that while initially impressed with having a TV in the cab, after a while passengers did not like the advertising and generally wanted to be left alone. A driver commented, “They want to make a call, they want to mind their own business”...another said, “Outside [the taxicab] is a crazy, urban jungle. When you get in there...you need peace”.

Some drivers who had the TVs complained about the brightness of the screen and hearing the same advertisements repeatedly and at very predictable times. One driver recalled: “I remember...every time my meter was [showing] \$5.30, it would squeak for Geico Insurance. I hate that squeak, ‘eee,’ brakes, you know, and then by Geico Insurance and stuff like that.”

Some drivers commented that having a map on the PIM is likely to have greater appeal to passengers than the content on the in-taxi TVs.

## **6.3 Cost and Revenue Considerations**

Drivers are concerned about how much the PIM will cost them. When it is suggested that advertising on the PIM will pay the cost of the PIM, they are neutral or positive about the concept. When it is suggested that the PIM would generate revenue for them, the drivers

then become positive toward the concept provided that the earlier stated concerns are addressed.

As a point of reference, drivers were asked whether they have rooftop advertising or are interested in having it. Drivers who have rooftop ads on their cars like it for the revenue it brings, said to be \$70 to \$100 per month. Drivers without rooftop ads cite several reasons not to have the displays. These include the revenue not being sufficient; problems with repairs and being out of service; and wind noise while traveling at high speeds or while sleeping in the cab (e.g., in the airport holding lot). Some drivers resist rooftop advertising because it labels them as driving a “garage car.”

Significant numbers of drivers would be interested in rooftop ads if the revenue were higher. One driver commented that \$300 a month would be a fair amount.

## **7 TEXT MESSAGING**

### **7.1 Overall Reaction**

Overall reaction to text messaging is very positive. When read the concept statement, drivers immediately saw how text messaging can help them return lost property, avoid traffic congestion and find their next fare. They view text messaging as valuable, helpful and high-tech.

Drivers in the Focus Groups asked two major questions about text messaging.

First, owner-drivers repeatedly asked, “Who will pay?” They expect that text messaging equipment will “cost thousands” of dollars and that they will have to pay the costs. While this concern was expressed primarily by owner-drivers, some lease drivers also raised the issue. One driver imagined that drivers will pay one way or the other, perhaps through summonses written to drivers for non-working or missing equipment.

Second, when introducing the text messaging concept, one immediate concern was the TLC rule against talking on cell phones while the cab is in motion. Although drivers may not always comply with it, drivers appear highly aware of this rule. Text messaging raises the issue of drivers being able to pay attention to the messages, similar to the distractions of using a cell phone. If the TLC does not want them to divert their attention from driving while using a cell phone then how is text messaging any different.

Some drivers reaction was that text messaging will be a “headache” and “aggravating.” Some drivers (particularly owner-drivers) feel that the current system for returning lost property works well and that they do not need traffic information or information on where taxicabs are needed. These drivers see text messaging as potentially being a “hassle” and a channel for additional demands (and probably summonses) from the TLC rather than solving a problem or improving cab service.

## 7.2 Current Handling of Lost Property

Discussion of using text messaging to return lost property elicited the various ways that lost property is currently handled.

When drivers find property in their cab, they may choose to do any of the following:

- Turn in the property at a designated police precinct
- Turn in the property to their fleet or broker
- Personally deliver the property to the passenger who lost it, or drop it off at the person's residence, or
- Mail it to the passenger (most applicable to passengers who have left town)

Drivers who have found a lost item generally prefer to try and make arrangements to deliver it to the passenger due to the potential of earning a reward for the return of the passengers' property.

Drivers report that passengers call 3-1-1 (the city's non-emergency assistance number) to report lost property. The 3-1-1 operator or the TLC then calls the medallion owner for that taxicab, who may be a fleet, broker or owner-driver. Owner-drivers are generally called at home, although some have given TLC their cell phone number. When called directly, the driver may be put on a 3-way call with the TLC or the 3-1-1 operator together with the passenger.

Drivers find lost cell phones more than any other type of property. Drivers usually return a cell phone directly to the passenger. Some drivers call a frequently called number in the phone's call history and ask that person to get in touch with the phone's owner. More often, drivers simply leave the phone on and wait until the passenger calls the phone, and then arrange to deliver the phone back to the customer.

Sometimes passengers want the driver to return the property immediately. When this involves driving a substantial distance, passengers typically offer to pay the meter fare. Drivers often negotiate with the passengers when making these arrangements. For example, drivers recount instances in which passengers wanted an immediate return of property but changed their mind after being asked to pay the meter fare, in one case after interrupting the driver's Sunday dinner with his family. Drivers in those cases returned the property at their convenience a day or two later. Citing these examples, drivers feel that they work out a suitable situation with the passenger.

Drivers' experience with returning property to a police precinct is less positive due to the time-consuming, inconvenient and even degrading nature of the process. Drivers have been told to go to a different precinct, sometimes based on where the driver was when he found the item rather than where the passenger may have lost the item. Drivers report waiting from 1 to 4 hours for a police officer to become available and to catalogue the property. Drivers mentioned being questioned on whether the money in a wallet being returned is all the money that was in the wallet. There is limited parking at the precinct stations and upon emerging from the station house some drivers found a parking ticket on their taxicab. Thus,

drivers feel that returning property to the police precinct costs them both time and money whereas returning property directly to passengers is quicker and usually yields a tip.

### **7.3 Returning Lost Property with Text Messaging**

While many drivers feel that the current system for returning lost property works well – at least when returning property directly to passengers – most also welcome text messaging as an improvement on current procedures. Drivers readily appreciate the value of receiving rapid notification that items were left in their cab. They see the new system as facilitating their ability to deliver property to passengers, which is “better for us but [also] better for the passenger.”

Drivers envision messages about lost property being displayed on a device as quickly as possible. The device should have a light or indicator that activates when a lost property message is received to communicate the importance of the message. Drivers would read the message the next time they are stopped at a red light or have time to pull out of traffic. If a passenger is in the cab, drivers would ask the passenger to check for the lost property. If no passenger is in the cab, drivers would pull over and check for the item themselves.

Most drivers feel that they should respond “yes or no” to a query about whether they have the lost item. Reply buttons on the device would be the ideal way to respond. Some drivers prefer to reply only if the answer is “yes;” replying “no” would be a waste of their time. Most drivers in the Focus Groups, however, see value in sending a “no” response as well as indicated by a drivers comment: “If you don’t answer you leave them in limbo, you know, he doesn’t know what to think.” Some drivers also suggest having the capability of sending additional information by text or voice.

Once they answer “yes,” drivers want to be provided with contact information for the passenger. This might be a phone number or an address. Drivers will then make arrangements to deliver the item, just as they do now. A few drivers also suggest there be a place to drop the property, “a certain specific place [where] we can go and drop it off, one, two, three, and the process is fast.” A drop-off location would be useful in cases where the driver cannot deliver the item personally.

Many drivers feel that when the text messaging system is implemented, passengers should be required to pay the metered fare for deliveries of lost property that involve a substantial drive. Most passengers already offer to do so, but not all. Drivers are foregoing fares in order to deliver the lost property and may have to incur costs and time to return it to the passenger.

### **7.4 Traffic Information**

Most drivers view traffic information delivered through text messaging as being potentially quite valuable. Traffic congestion is a constant barrier to making money and any help in avoiding traffic problems is helpful to both drivers and their passengers.

While potentially valuable, many drivers ask about the source and timeliness of the information. Will traffic information coming through text messaging be the same as what they already hear on the radio? Will it be more up to date? Some drivers feel that the information will be redundant and thus not worthwhile to receive. Others feel that “everything you can get is helpful.”

Another concern is whether traffic information will be delayed by being routed through TLC. TLC providing traffic information seems odd to some drivers since they expect the information must be coming from some other source. “Why can’t we get it that way from where TLC is going to get it? Why do they have to get it and send it to us?” Some are also surprised that “TLC has time for that?” in delivering traffic information to them.

Respondents almost universally report listening to traffic reports “on the ones, the fives and the eights.” Drivers are divided on whether these reports are up to date. Some drivers say the radio provides up to date and reliable information. Others say the information is old and “too late” although they may still listen to it.

The Focus Groups with owner-drivers tended to be more negative about text messaging than the lease driver groups. Owner-drivers are thinking about paying for the text messaging device and evaluate its value in that context. Some feel the information from text messaging will be no better than what they currently hear on the radio. Many also have a network of friends who provide very pertinent and real-time information that they can rely on. Many owner-drivers also feel that “you should know” where the traffic will be bad based on experience and knowledge of the city. They feel no need for supplemental sources.

When they hear about delays, drivers may either act on the information themselves, or ask the passenger what he or she wants to do. They appear to want to ask the passenger before making any major diversions. Thus, with text messaging they expect to ask passengers what route to take, given the traffic problem. “If it is their choice, they’re not going to have any problem with that. If it’s your choice, you be in trouble.” Drivers are particularly leery of out of town visitors, who do not understand Manhattan traffic and think “the taxi driver is out to rip them off.” New Yorkers understand that New York City is “a [high] traffic place” and understand being delayed by congestion.

## **7.5 Information About Where Taxicabs Are Needed**

Another potential function for text messaging is to convey information about where taxicabs are needed in Manhattan, the airports and elsewhere in the five boroughs. Drivers generally welcome the idea of receiving information about where taxicabs are needed since the information could help them make money. Although some veteran drivers feel that a savvy driver knows where taxicabs are needed, most drivers feel that additional information would be useful. As with text messages about congestion, owner-drivers tend to be negative toward the value of taxicab demand information, while lease drivers tend to be positive.

Drivers are divided on whether taxicab demand information should cover the entire city or only the area around their current location. Some want citywide information so they can make their own decision based on their proximity to that area. Others fear that the demand for taxicabs will be overwhelmed by drivers flocking to that location, defeating the benefit to drivers of helping them hook up with a fare.

Currently, drivers can call a Port Authority phone number to find out how many taxicabs are in the airport taxicab hold. Some drivers view this as reliable, useful information. Others say the reports are out of date; the lot is said to be half-full and when they arrive they find it full of taxicabs.

### **7.6 Type of Device**

After completing the detailed discussion of the types of information that might be communicated through text messages, drivers were offered descriptions of the various types of devices that could potentially be used for text messaging: a small screen; printouts using the taximeter printer; and audio messages.

Drivers generally favored a small screen rather than using the meter or an audio device. The screen offers the opportunity for them to view the message when they have time. They felt that audio may be distracting and some passengers may object to it. Using the taximeter printer was not preferred because drivers thought that it will waste printer paper and may interfere with operation of the meter during a trip. Drivers also recognized that passengers may tend to be suspicious of anything drivers do with the meter once it is engaged.

As discussed earlier, the screen should have a silent priority light indicating when a message about lost property is displayed. The device should have “yes” and “no” keys for responding to messages about lost property. Drivers suggest that the device be placed near the meter since they are always looking at the meter.

## **8 VEHICLE LOCATION TRACKING AND ELECTRONIC TRIP SHEETS**

### **8.1 Overall Reaction**

The concept of Automated Vehicle Location (AVL) was introduced to driver Focus Group participants in conjunction with the electronic trip sheet concept since the primary use of location information from a driver’s standpoint is for the trip sheet.

Driver reaction to this concept varies from positive to quiet negative. Three overall reactions can be identified from the discussions.

First, an unqualified positive reaction comes from drivers who feel that electronic trip sheets are a “good idea” that will save them from the “headache” of having to fill out the current manual trip sheets.

Second, a qualified positive reaction comes from drivers who like the idea but see the electronic trip sheet as failing to include important functionality that is currently provided by paper trip sheets completed manually. These drivers are not against the idea of electronic trip sheets and AVL but feel that the concept should be modified to address its deficiencies relative to the current system. Underscoring the importance of this information to them, some drivers say they would continue to fill out paper trip sheets even after implementation of electronic trip sheets.

The third group, primarily composed of owner-drivers, feels that AVL and electronic trip sheets are unnecessary and threaten their independence. This group is quite negative about the concept.

## 8.2 Trip Sheet Functionality

Drivers are currently required under TLC rules to record detailed information about each trip: start and end location, start and end time, number of passengers and the fare. Although the trip sheet requirement is sometimes ignored and trip sheets are often incomplete and/or illegible, drivers in the Focus Groups identify valuable functionality that trip sheets provide. These include:

1. **Reminder of the trip destination.** Most basically, drivers sometimes forget where they are going. The average shift serves about 30 trips, so it is perhaps not surprising that drivers find the written notation of the passenger's destination useful in case they forget where the current passenger asked to go. Drivers can simply look down to remind themselves of the destination.
2. **Documentation of drivers' choice of route.** TLC rules require that drivers take the most direct route to the destination unless otherwise directed by the passenger. Drivers feel that passengers may complain about their chosen route, either in the taxicab or via a complaint to the TLC. There are several circumstances in which the trip sheet can help drivers defend themselves against this type of complaint. One situation is where passengers change their mind during the trip about where they want to go. Drivers then scratch out the original destination and write in the new destination. This record keeping, while messy, can justify a roundabout route to the final destination, given the original destination.

Another circumstance is when the passenger directs the driver to take a certain route. Drivers note the route on the trip sheet, e.g., "RP QMT" for "request by passenger, Queens Midtown Tunnel." Then, if the passenger later says that the tunnel was not the direct route, or complains about paying the tunnel toll, the driver's trip sheet notation can be used in defense at the TLC hearing.

3. **Documentation to defend against City-issued summonses.** Drivers are also subject to being stopped by New York City police and TLC inspectors. Drivers report that police officers and TLC inspectors routinely check their trip sheets. The trip sheets are useful for a variety of situations during these car stops. For example, a driver going home or back to the garage at the end of his shift can turn on the

cab's off duty light and write "Off duty" on his trip sheet, and still take a fare headed in his direction. If questioned by a police officer or TLC inspector about picking up a passenger while off duty, or about stopping but then refusing a trip, the trip sheet is valuable in showing that the driver is acting within the rules. (Interestingly, one group of drivers was quite concerned about abuse of the off duty rules in the absence of paper trip sheets.)

In another example, a driver recounted being summonsed by the police for cruising on Vanderbilt Avenue just below the Grand Central Terminal (GCT) taxicab stand. The driver used the trip sheet in his hearing to show that a passenger (who had just exited) had taken him from 82 St. to GCT so that he was on Vanderbilt not to cruise but to drop off the passenger.

Drivers also use trip sheets to show that they were misidentified in a complaint. The trip sheet can show that they were elsewhere at the time and place of the incident, or, at least in theory, that they were not working at all.

Focus Group participants make several suggestions for incorporating paper trip sheet functionality into an electronic trip sheet. They suggest that there be the capability to key in the destination, at least as an option. Another suggestion is to let drivers record the conversation with the passenger regarding destination and routing.

### **8.3 Benefits of Electronic Trip Sheets**

Drivers who favor the electronic trip sheet concept identify several benefits. The benefit most often mentioned concerns credibility of the information. Although the current trip sheets can be used in TLC and DMV hearings, hearing officers often do not believe the trip sheet. Drivers see electronic trip sheets as being more credible in hearings than the paper trip sheets.

Other benefits mentioned are:

- Not needing to write and drive at the same time
- Not needing to pay an accountant to total up the year's income
- Not having to keep paper trip sheets
- Showing on an aggregate basis drivers' true earnings. This comment was made by a driver who feels that TLC overstates actual earnings

### **8.4 Need for Printed Trip Sheet Reports**

Another "function" of paper trip sheets is their physical storage requirements. Drivers express the need to obtain a printout of an electronic trip sheet as needed. Drivers do not appear to need a copy for every day use, presuming they still keep manual trip sheets for shift changes, but only when something about their shift has been questioned.

Asked where they would like to obtain a printout, drivers mention the fleet garage, the broker, TLC and the Internet. Drivers who return to a garage daily would find the garage the most convenient place to obtain a copy. Owner-drivers, who do not visit a central facility such as a garage, see TLC or possibly the Internet as logical places to obtain a copy when needed.

### **8.5 Privacy and Threat to Driver Independence**

Owner-drivers strenuously raise concerns about AVL and electronic trip sheets compromising their independence and invading their privacy. Owner-drivers view themselves as independent businessmen who are not under a boss' control. Although there are a few exceptions, most owner-drivers in the groups adamantly object to the AVL/electronic trip sheet concept for one or more privacy-related issues.

Some owner-drivers focused on sweeping "big brother" aspects of this concept. Sample comments regarding control and overall privacy concerns are:

"They're going to watch every move you're making. So I think it is not...fair."

"I don't like it either, because [it's] too much...You will make me feel like a slave...I want my freedom. That's why I chose that job."

"Why [do] they have to know what I'm doing, [and] when I am doing it?"

"They are stealing my privacy. They are stealing my freedom. When the country's based on freedom, so why can't we have freedom? First Amendment right is freedom, right? We should have freedom too."

For some of these drivers, "big brother" concerns would be addressed if TLC states the particular uses of the information (e.g., to investigate complaints and for statistical purposes). Other drivers remained strongly opposed. Even with privacy assurances, said one driver, "I'd quit this job right away."

Other owner-drivers expressed privacy-related issues regarding income tax reporting. These drivers point out that they are independent contractors with no paid vacation, sick leave, health insurance, etc. They view AVL/electronic trip sheets as providing the control normally provided by an employer but without any of the benefits normally associated with being employee. One advantage to being self-employed is that you report your own income.

Not all drivers are concerned with income reporting. Another driver in the same group commented that, "Personally I don't see anything wrong with it, because I don't have anything to hide. You know how much money I make, I have to pay my taxes. That's my opinion."

Both owner-drivers and some lease drivers are concerned about their privacy when they are not on duty:

“They’re going to know everything about what are you doing day and night”

“Why [does] TLC have to know exactly where am I going and what time, what am I doing... Maybe it’s a holiday, I go [somewhere] with my family. So I don’t work for two days. Why [does] the TLC have to track me down where exactly am I?”

Having the ability to turn off the AVL device when drivers are not on duty generally addresses this concern. A determination may need to be made whether federal, state or city law enforcement agencies will want to access the vehicle’s location for law enforcement purposes, even when turned “off.”

Other concerns were that the TLC could determine if the driver was speeding, or that the TLC would use the information to issue a summons for violating the 12-hour per shift rule, or that the TLC would use non-functioning equipment as a basis for issuing summonses.

## **8.6 Other Uses for AVL Information**

Other suggested uses for the location data supplied by an AVL system are:

- Driver navigation aid, in which the drivers could key in a destination and be provided with directions to reach it. This would be useful primarily for out of town trips or, at least, trips out of Manhattan.
- Police alerts. Some drivers feel that the trouble light does not generate much of a response, based on their experience when they accidentally activate the light. The suggestion is to send their location and call for help to the police, who could then respond to the location.
- Need for taxicabs at the airport. A suggested feature would be for drivers to query the system to find out how many taxicabs are waiting at the JFK taxicab holding lot. (This suggestion preceded the discussion of the PIM.)

## **9 IMPLICATIONS**

### **9.1 Overall Findings**

The most important finding from the driver Focus Group discussions is that driver acceptance of the service enhancements hinges largely on the cost and revenue implications for them personally. Drivers will tend to resist enhancements that reduce their income. To the extent that enhancements improve their money-making ability, or at least do not reduce it, drivers will accept the changes.

The Focus Groups identify driver reactions to the enhancements at the concept level, the frame of reference that they use to evaluate the enhancements and their expectations of how each change will affect them. It remains to be seen how the changes actually affect drivers, how they perceive the impacts and how they respond, behaviorally, as a result. As such, driver reaction should be monitored as the enhancements are developed and tested.

Another central finding is that the success of many of the technology enhancements will depend on the quality of the implementation. For example, most drivers are enthusiastic about text messages regarding traffic conditions and where taxicabs are needed. The true value of this information, however, will depend on the quality and timeliness of the information. Since this is a new area of endeavor, it will most likely take a trial and error process to develop and refine traffic and taxicab demand information to optimize its utility to drivers. Sufficient time and attention should be allotted for this process to develop a mature product that meets the drivers' needs while protecting passengers, TLC and the relationships with the service provider.

### **9.1.1 Credit/Debit Card Acceptance**

Financial arrangements for credit and debit card acceptance should minimize the costs to drivers. As the concept of a 5 percent fee on credit/debit card transactions met with resistance and was viewed by drivers as excessive, per-transaction processing fees percentages should be kept to a minimum. Revenue returns from other aspects of the technology enhancements should be used to offset credit/debit card costs as much as possible.

The card processing and communication equipment should be highly reliable.

The card processing time should be as fast as possible.

Passengers should swipe the card and add the tip, but drivers should have a way to reasonably monitor the process. A possibility would be for the PIM screen to be displayed on the driver's text messaging screen during the transaction.

For passengers who are inebriated or otherwise incapable of completing the transactions, drivers should have the means to assist passengers or to complete the process (aside from the PIN and signature).

Alternative methods for obtaining signatures for credit card transactions should be evaluated based on processing speed, ease of use and cost. These methods should include electronic signatures on the PIM or similar screen; signatures on a paper receipt; and no signature required, at least for relatively small transactions.

Pre-authorization for long trips, or possibly for out-of-city trips, should be considered based on the time required for pre-authorization, cost, convenience and driver and passenger acceptance.

Consideration should be given to making acceptance of credit and debit cards for relatively small fares (e.g., under \$10) optional for medallion owners and drivers. Passenger acceptance of a reasonable minimum for card usage should be tested.

In the introduction of the technology, drivers should be educated on the low risk to them of stolen cards and what they need to do to be sure of reimbursement in the event the transaction is disputed.

### **9.1.2 Passenger Information Monitors**

PIMs should be highly appealing to passengers and win a high degree of customer acceptance.

Passengers should be able to control the volume of the audio.

Financial arrangements for PIMs should maximize the advertising revenue flow while still making PIMs attractive and appealing to customers. The revenue flow should be used to minimize costs to taxicab owners or, ideally, generate revenue for them.

### **9.1.3 Text messaging**

Text messages should be displayed on a screen located near the taximeter. The screen should display current and previous messages so that drivers can view messages when they are stopped and can refer to previous messages. A light or some form of indicator should alert drivers when a message regarding lost property has arrived on the device. “Yes” and “no” buttons should be provided for drivers to reply to inquiries about lost property.

For found property, drivers should be given information to contact the passenger (if they so desire) or to deliver property to a specific location that provides parking and will process the lost property quickly. Drivers should also have an option, such as calling a 311 operator, to follow-up by phone in case of questions or to convey additional information.

The text message device should also display messages on traffic conditions and where taxicabs are needed. Information should be accurate and timely. Messages should probably be tailored to the current location of the cab. Specific content and the method and degree of tailoring of messages should be optimized through testing.

Drivers should have the option of turning off information on traffic conditions and where taxicabs are needed.

Financial arrangements for text messaging equipment should minimize the financial costs to owners and drivers.

### **9.1.4 Automatic vehicle location (AVL) tracking and electronic trip sheets**

An appropriate privacy policy for location and trip sheet information should be established and publicized.

Drivers should have the ability to turn off the AVL system when they are off duty.

Drivers should be able to obtain a printout of their trip sheets from their garage, broker, TLC and/or the Internet.

Methods to record and possibly capture destination information and requested routing information should be evaluated. One possible method is to have drivers keep an abbreviated trip sheet with destination and requested routing only. Another possibility is to have drivers enter this information into some type of device, but the method of entry must be quick, simple and accurate.

There should be an option for installation of a mapping device (navigation aid) for drivers to use that would show the route to a requested destination.

## **10 APPENDIX A - FOCUS GROUP DISCUSSION GUIDE**

### **10.1 Introduction (10 minutes)**

1. Purpose...to get drivers' input on how to implement several changes that will be introduced in taxicabs. Sponsored by TLC to make sure the new devices work well for both drivers and passengers. "You are the experts so want to consult with you."
2. Mechanics...audio taping...one at a time
3. For a productive group...relax and in a good mood, everyone participate, participate about equally, no right or wrong answers, talk to one another
4. Introductions...Name, how many years driving, who drive for (fleet, private owner, etc.) ... or how long owned medallion (owner-drivers).

### **10.2 Overview of New Technologies (3-5 MINUTES)**

1. We are going to talk about each of four changes that are going to be introduced into taxicabs in the next year or so. We'll talk about each one and get your reactions to them. They are:
  - a) Text messaging, this will enable TLC to communicate with you while you are in the cab.
  - b) Automatic vehicle location devices, such as GPS. These devices determine the vehicles location in the city. The location information will replace the trip sheets that you are required to keep.
  - c) Credit cards and debit cards. Some cabs already have this equipment but it will be mandatory for all cabs.
  - d) Passenger information monitors, mounted in the partition in the back seat area. These will have a map showing passengers where their trip started and the cab's current location, using the automatic vehicle location technology I described earlier. The monitors will also display other information, news, entertainment and advertising.

(REPEAT DESCRIPTION AS NECESSARY)

### **10.3 Text Messaging (20 MINUTES)**

1. Let's talk about text messaging. How many of you are familiar with text messaging on cell phones? (ASK THOSE FAMILIAR TO EXPLAIN TO ANYONE NOT FAMILIAR.)

I will read a description of how text messaging will work and then ask for your reaction.

The purpose of text messaging is to enable TLC to communicate with you while you are in the cab. Each cab will have a small device with a screen that will show text messages sent from TLC. TLC will be able to send you several types of messages. For example, if a passenger leaves property in your cab, TLC can send a message asking you to look for the lost property. TLC can also send you information that helps you make money. For example, TLC can send information about current traffic conditions, and about where cabs are needed, such as when a cruise ship comes in on the West Side.

What is your general reaction to text messaging? Do you think this is a good idea?

PROBE FOR:

- Uses and value
- Driver distraction
- Use of hot key reply
- Questions about details of implementation
- Volume/how often

2. What information would you want to receive through text messages?

PROBE FOR:

- Traffic
- Where cabs are needed
- Lost property
- Emergencies
- What else?

3. Now let's talk about how you would use this information, practically speaking. Suppose that you receive a message that a passenger left a wallet or cell phone in your cab. Assume that the passenger has a receipt and so they have your medallion number.

- Should there be a way for you to respond to this message?
  - What would work best?
  - How do you feel about pressing a single button like a hot key that may be 'yes', 'no', or 'don't know'?
- Where could you take the item?

PROBE FOR:

- Taking item to police precinct versus the customer

- What if another passenger is in the cab
  - What if shift/driver has changed
  - What if driver is now far from the drop-off location of the passenger with lost property
4. Now suppose that TLC could send you messages about traffic delays.
- Is this information valuable?
  - When would you want to receive the information?
  - What might you want to do with that information?
- PROBE FOR:
- Issues with taking non-direct route
  - Communicating with passenger/getting permission
  - Should passenger see information as well as driver?
5. Now suppose that you receive a message about cabs being needed in a certain part of Manhattan, or at LGA or JFK airports.
- Is this information valuable?
  - What might you want to do with that information?
- PROBE FOR:
- Whether change behavior/in what circumstances
6. How do you think text messaging should work?
- Should you receive messages at any time?
  - Would you be distracted?
  - Should messages be displayed only when the meter is disengaged?
  - Should you be required to respond to certain messages?
7. Is text the best way to receive these messages?
- Would voice or audio messages be better?
  - What are advantages and disadvantages of text versus voice/audio?

#### **10.4 Location Tracking and Trip Sheets (10 MINUTES)**

1. Next we'll talk about automatic vehicle location technology and electronic trip sheets. I will read a description of it and then ask for your reaction.

Automatic vehicle location devices, such as GPS, will be installed in every cab so

that the cab can determine its location. Information about the cab's location can be used in several ways. For example, the cab's location will be displayed on a map on the monitor that will be in the back of each cab.

Automatic vehicle location will be used to replace paper trip sheets. TLC will no longer require drivers to keep a paper trip sheet, as you do now.

This is how the electronic trip sheet will work. The vehicle location information will be sent wirelessly to a City computer, which will record where each taxi trip starts and ends. The computer will also automatically record the medallion number, start time and end time, distance and fare. Drivers will be required to key in the number of passengers on each trip using a keypad. At the start of the shift, drivers will use the keypad to input their driver hack number.

So for each trip, all the information now on the trip sheet will be sent wirelessly to the computer: start and end location, start and end time, number of passengers, medallion number and driver's hack number, distance and fare.

What is your general reaction to vehicle location technology to replace trip sheets? Do you think this is a good idea?

**PROBE FOR:**

- Advantages
- Disadvantages
- Questions about details of implementation
- Privacy concerns

(IF DRIVERS EXPRESS CONCERN ABOUT PRIVACY/IRS INCOME REPORTING, EXPLORE (a) IF IRS AUDITS TRIP SHEETS, AND (b) IF RISK OF AUDIT WOULD INCREASE ONCE TRIP SHEETS ARE ELECTRONIC.)

2. The vehicle location information could be used for other things as well. For example, TLC could determine where a lot of empty cabs are, and communicating this to you on the text messaging. The idea would be that you would want to avoid going to those areas.
  - What is your general reaction to this?
  - Do you have suggestions for other uses of vehicle location information that would be valuable to you?

**10.5 Credit / Debit Card Acceptance - Groups w/ Credit Card Meter (30 minutes)**

For groups without credit card meter already, go to section: **Credit / Debit Card Acceptance - Groups w/o Credit Card Meter**

FOR GROUPS WITH CREDIT CARD METER ALREADY:

1. Let's talk about credit cards and debit cards. Does everyone know what a credit card is? How about debit cards – they are things like ATM cards. You use them like credit cards to pay for purchases using your bank account.

Your cab already has credit card meters

- What is your experience with them?
- What are advantages of having them?
- What are disadvantages?

PROBE FOR:

- Types of situations used in
  - Length of trip/amount of fare
  - Routinely or only in particular circumstances (E.G., no cash, charge to business credit card, only for airport trips)
- Effect on tips
- How get reimbursed – mechanism; timing; from whom

2. What improvements would you like to see in the credit card meters?

PROBE FOR:

- How get money:
  - Deduct from next lease payment
  - Get cash regularly – how often?
  - Get cash daily from designated location
  - Automatically deposit in bank account
  - Fleet owner pays on regular basis based on receipts presented
- When begin process (e.g., during trip, near end, once meter is off)
- Swipe it yourself or passenger swipe
- Length of wait for processing
- Signature on paper receipt or device with screen
- Entering PIN for debit cards
- Adding tip and tolls
  - Minimum transaction size
  - Surcharge
  - Card verification failure

3. As you may know, TLC is going to require all cabs to have credit card and debit card payment capability starting the end of next year. I will read a description of how the new TLC rule will work.

Every cab will have equipment for credit card and debit card acceptance and processing. The equipment will include a swipe device, a way to enter tolls and tips, and a printer for the receipt. Some or all of this equipment could be part of the meter or part of the passenger information monitor. For example, the credit card receipt might be printed using the taximeter printer. The swipe device might be part of the meter or might be in the back seat area. Drivers might enter tips on the meter, or passengers might enter the tip themselves on a keypad in the back.

We will talk about each of these details. But first, I want to ask you if you think credit and debit card acceptance in cabs a good idea?

(GET OVERALL REACTION TO IDEA BEFORE GETTING INTO TECHNOLOGY AND PROCESSING ISSUES.)

- What are the benefits?
- What are issues/concerns/problems?
- What are your concerns or possible problems?

PROBE FOR:

- Who benefits – drivers or passengers
  - Privacy concerns
  - More revenue ops?
4. There are different ways that the credit/debit card equipment could be installed and different ways it could work. I have a short questionnaire I'd like you to fill out. For each aspect of the process, indicate whether what is written on the questionnaire is, for you:
- a) Ideal
  - b) Acceptable
  - c) Not acceptable for you personally

We'll talk about these once you've completed the questionnaire. Save the last question and we'll complete it together.

For the last question, imagine that you have just pushed the button to begin the card verification process. I'm going to write down letters starting with "A". Write down the letter that is on the flip chart that you feel is the ideal amount of time to wait for the credit/debit card to be processed. Then write down the letter that is on the flip chart when you've waited what you feel is the maximum acceptable amount of time to wait.

(BRIEFLY SIMULATE START OF TRANSACTION, THEN WRITE DOWN LETTERS ON FLIP CHART IN 2.5 SECOND INTERVALS TO SIMULATE THE TIME THAT CARD IS PROCESSING)

5. Which items on the questionnaire constitute the ideal for you?
  - What is not ideal but is acceptable?
  - What is not acceptable?
    - What makes them not acceptable?
    - Is there a way to make it acceptable?
6. What amount of training will you want on use of the credit card machines?
  - Length
  - By whom
7. What aspects of the equipment and the process are important to making credit/debit cards a good idea? What would turn it into a bad idea?

PROBE FOR:

  - Impact of surcharges/other fees to drivers
  - Reaction to using rooftop advertising to offset portion of costs
  - Impact of transaction time
  - 2-3 day lag in reimbursement

[WILL SOME LEASE DRIVERS BE RESPONSIBLE FOR “MERCHANT” ISSUES?

WILL LEASE DRIVERS BE AFFECTED BY CHARGE-BACKS? IF SO, WE NEED TO EXPLORE THAT IN THE DISCUSSIONS.

HOW WILL THIS SYSTEM WORK FOR OWNER-DRIVERS? WILL THEY BE MERCHANTS? WE NEED TO EXPLORE WITH OWNER-DRIVERS WHATEVER MERCHANT-SIDE/CHARGE-BACK TYPE ISSUES MAY AFFECT THEM.]

SKIP TO PASSENGER INFORMATION MONITOR

### **10.6 Credit / Debit Card Acceptance - Groups w/o Credit Card Meter (30 MINUTES)**

FOR GROUPS WITHOUT CREDIT CARD METER ALREADY:

1. Let’s talk about credit cards and debit cards. Does everyone know what a credit card is? How about debit cards – they are things like ATM cards. You use them like credit cards to pay for purchases using your bank account.

Some cabs already have credit card meters in their cabs.

- Are you aware of credit card meters that are now in some cabs? (SHOW OF HANDS)
  - What have you heard about them?
2. I will read a description of credit/debit card acceptance under the new TLC rule and then ask for your reaction.

Every cab will have equipment for credit card and debit card acceptance and processing. The equipment will include a swipe device, a way to enter tolls and tips, and a printer for the receipt. Some or all of this equipment could be part of the meter or part of the passenger information monitor. For example, the credit card receipt might be printed using the taximeter printer. The swipe device might be part of the meter or might be in the back seat area. Drivers might enter tips on the meter, or passengers might enter the tip themselves on a keypad in the back.

We will talk about each of these details. But first, I want to ask you if you think credit and debit card acceptance in cabs a good idea?

(GET OVERALL REACTION TO IDEA BEFORE GETTING INTO TECHNOLOGY AND PROCESSING ISSUES.)

- What are the benefits?
- What are issues/concerns/problems?
- What are your concerns or possible problems?

PROBE FOR:

- Who benefits – drivers or passengers
- Privacy concerns
- More revenue ops?

3. When do you think passengers:

- Will use credit or debit cards?
- Will not use credit/debit cards?

PROBE FOR:

- Length of trip/amount of fare
- Routinely or only in particular circumstances (e.g., no cash, charge to business credit card, only for airport trips)

4. Imagine that all cabs have credit/debit card payment capability. Ideally, how would you want paying by credit or debit card to work in the cab?

PROBE FOR:

- When begin process (e.g., during trip, near end, once meter is off)
  - Swipe it yourself or passenger swipe
  - Length of wait for processing
  - Signature on paper receipt or device with screen
  - Entering PIN for debit cards
  - Adding tip and tolls
  - Minimum transaction size
  - Surcharge
  - Card verification failure
5. Thinking about these types of persons and types of situations, would you expect that the amount of the tip would be the same for credit/debit card transactions than cash transactions, or be more or less?
- PROBE FOR:
- More/less/same
  - What is different about credit/debit transactions as compared with cash that would lead to higher/lower tips?
6. What is the best way for drivers to obtain the money for your credit/debit card trips?
- PROBE FOR:
- Deduct from next lease payment
  - Get cash regularly – how often?
  - Get cash daily from designated location
  - Automatically deposit in bank account
  - Fleet owner pays on regular basis based on receipts presented
  - **[HOW WILL OWNER-DRIVERS GET THEIR MONEY?]**
7. There are different ways that the credit/debit card equipment could be installed and different ways it could work. I have a short questionnaire I'd like you to fill out. For each aspect of the process, indicate whether what is written on the questionnaire is, for you:
- a) Ideal
  - b) Acceptable
  - c) Not acceptable for you personally.

We'll talk about these once you've completed the questionnaire. Save the last question and we'll complete it together.

For the last question, imagine that you have just pushed the button to begin the card verification process. I'm going to write down letters starting with "A." Write down the letter that is on the flip chart that you feel is the ideal amount of time to wait for the credit/debit card to be processed. Then write down the letter that is on the flip chart when you've waited what you feel is the maximum acceptable amount of time to wait.

(BRIEFLY SIMULATE START OF TRANSACTION, THEN WRITE DOWN LETTERS ON FLIP CHART IN 2.5 SECOND INTERVALS TO SIMULATE THE TIME THAT CARD IS PROCESSING)

8. Which items on the questionnaire constitute the ideal for you?
  - What is not ideal but is acceptable?
  - What is not acceptable?
    - What makes them not acceptable?
    - Is there a way to make it acceptable?
9. What amount of training will you want on use of the credit card machines?
  - Length
  - By whom
10. What aspects of the equipment and the process are important to making credit/debit cards a good idea? What would turn it into a bad idea?

PROBE FOR:

  - Impact of surcharges/other fees to drivers
  - Reaction to using rooftop advertising to offset portion of costs
  - Impact of transaction time
  - 2-3 day lag in reimbursement

**[WILL SOME LEASE DRIVERS BE RESPONSIBLE FOR "MERCHANT" ISSUES?**

**WILL LEASE DRIVERS BE AFFECTED BY CHARGE-BACKS? IF SO, WE NEED TO EXPLORE THAT IN THE DISCUSSIONS.**

**HOW WILL THIS SYSTEM WORK FOR OWNER-DRIVERS? WILL THEY BE MERCHANTS? WE NEED TO EXPLORE WITH OWNER-DRIVERS WHATEVER MERCHANT-SIDE/CHARGE-BACK TYPE ISSUES MAY AFFECT THEM.]**

### 10.7 Passenger Information Monitor (10 MINUTES)

1. Let's talk about the passenger information monitors. I will read a description of the passenger information monitors and then ask for your reaction.

Passenger information monitors are screens similar to laptop computer screens. They will be mounted in the partition and visible to passengers in the back seat. The passenger information monitors will have a map showing where the passenger's trip started and the cab's current location. They will also have the information that is currently on the TLC stickers about the taxi fare and the passenger bill of rights. Passenger information monitors may also have news, information, entertainment and advertising.

2. Are passenger information monitors a good idea?

- What are your issues or concerns?

**PROBE FOR:**

- Expected passenger reaction
- Impacts on drivers
- Tips
- Audio
- Advertising

### 10.8 Wrap-Up (10 MINUTES)

1. Turn over the questionnaire on passenger information monitors and draw a line down the middle of the page. On the left side of the page, list which of the new features in cabs that we've discussed is of most value to you personally. On the right side of the page, list any concerns or issues that you have with any of the features we've discussed.

(WHILE RESPONDENTS MAKE THEIR LISTS, CHECK FOR ADDITIONAL QUESTIONS FROM OBSERVERS)

- What did you list as being most valuable?
- What makes this valuable?
- What are your concerns or issues with any of these features?
- What would alleviate your concerns?

(ASK ADDITIONAL QUESTIONS FROM OBSERVERS)

(THANK RESPONDENTS AND CLOSE SESSION)