ORANGES Evaluation
Final Report
Appendices

For the US DOT sponsored Evaluation of the ORANGES Electronic Payment Systems Field Operational Test

US DOT/Volpe National
Transportation Systems Center

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Foreword

This document is the US DOT evaluation final report for the ORANGES field operational test, which was conducted from August 2003 through July 2004.

Appendix A
Test Plans

Quantitative Goals

This set of evaluation goals involves numerical measures and initial test hypotheses. In assessing any changes observed, it will be important to consider the limited scale of the system test configuration. Many of the quantitative goals and measures involve potential changes in payment behavior (e.g., using a new payment method, willingness to make prepayments). Such changes in behavior might increase with a more comprehensive test configuration scale or a complete deployment, in particular if the system were in place longer.

Tables A-1 and A-2 summarize the intended before and after data collection, as detailed in the remainder of this section.

Quantitative Goal 1 – Gather Clearinghouse Performance Measures

The clearinghouse operator will provide measures that characterize the clearinghouse operational performance (e.g., processing time required for transaction batches, communications error rates) as well as identify the specific measures. There is no test hypothesis for this goal. During after testing, the evaluators will complete a statistical assessment.

Table A-1: Summary of Before Data Collection

Quantitative Goals	Facility Type			
	Clearinghouse	Buses	Garages	Toll Lanes
Goal 1 – Clearinghouse Performance Measures				
Goal 2 – Acceptance Test Results				
Goal 3 – Demonstrate Performance for New Transponders				
Goal 4 – Transaction Times		✔	✔	
Goal 5 – Prepaid Revenue Share		✔	✔	
Goal 6 – Automated Equipment Uptime		✔		✔
Goal 7 – Joint Account Use				
Goal 8 – Current Pass Distribution and Permit Billing Costs		✔	✔	
Goal 9 – Current Processing Cost per Cash Transaction		✔	✔	✔

Table A-2: Summary of After Data Collection

Quantitative Goals	Facility Type			
	Clearinghouse	Buses	Garages	Toll Lanes
Goal 1 – Clearinghouse Performance Measures	✔			
Goal 2 – Acceptance Test Results	✔	✔	✔	✔
Goal 3 – Demonstrate Performance for New Transponders				✔
Goal 4 – Transaction Times		✔	✔	
Goal 5 – Prepaid Revenue Share		✔	✔	
Goal 6 – Automated Equipment Uptime		✔		✔
Goal 7 – Joint Account Use	✔			
Goal 8 – Current Pass Distribution and Permit Billing Costs				
Goal 9 – Current Processing Cost per Cash Transaction				

Quantitative Goal 2 – Gather System Acceptance Test Results

The program manager will provide results from acceptance testing completed before the system is brought into revenue service. There is no specific measure or test hypothesis, but the acceptance testing results will provide an important baseline for the operational characteristics of the system.

Quantitative Goal 3 – Demonstrate Reliable Performance for Smart Card Accepting Transponders

The EFKON smart card accepting transponder is unproven in North America, and uses an infrared interface (also unproven in North America). The goal is to demonstrate reliable equipment operation during the operational test that does not adversely impact customer reaction to the ORANGES card.

Measure

- Difference between the numbers of monthly transactions for smart card accepting and conventional transponders.

Test Hypothesis

- Using a smart card accepting transponder instead of a conventional transponder will not reduce the number of transponder-based transactions.

If there were significant operational problems with the smart card accepting transponder or the interface, customers might divert some transactions to cash. The EFKON equipment is established in Europe and Asia, but this must be established for the FOT.

Modes Involved

- Toll

Types of Data Comparisons

- Test and control

  The test will measure the average number of monthly transponder transactions by smart card transponder users. The control test will measure the average number of monthly transponder transactions by conventional transponder users. These monthly totals will be examined throughout the operational test period for any reductions in use over time. Reductions for the smart card accepting transponders that reflect similar reductions in use of conventional transponders would still support the test hypothesis.

Data Needed

- Average number of monthly transactions for a group of smart card accepting transponders and a comparable group of conventional transponders.

Data Collection Methods

The clearinghouse will provide the number of toll transactions for smart card transponders. The existing E-Pass ETC system must provide the number of transactions completed by selected conventional transponders. Transponders of both types must have comparable travel patterns (e.g., commuters who average two toll transactions per weekday).

Quantitative Goal 4 – Reduce Transaction Times

Reducing average transaction times is important for all three modes and could translate directly into reduced queuing and bus dwell times. This quantitative goal does not apply to tolls, since the percentage paying by transponder or smart card will not noticeably increase within the high volume of daily plaza transactions.

Measure

- Average payment transaction duration, for each mode and type of equipment.

Test Hypothesis

- Prepaid payment transactions will be quicker than cash payment, so the average duration will decrease if the % prepaid increases.

Modes Involved

- Parking garages
- Transit

Types of Data Comparisons

- Before and after

Data Needed

- For each equipped parking garage exit or bus
- Average transaction duration

Data Collection Methods

The basic approach for each equipped device will be to measure throughput with continuous demand. Average transaction time is the inverse of throughput.

The transit method will use the LYNX Automatic Passenger Counters (APC) vehicles. APC counts passengers that board and alight at each stop, and bus dwell time. Dwell time divided by the number boarding will provide the average transaction time for that stop. LYNX will identify any stops where alighting volume governs dwell time (i.e., which would cause high average transaction times).

For parking garages, transaction records for the cashier station plus those for the validators from the clearinghouse will provide the total. If the Parking Bureau cannot identify periods of continuous demand without field observation, it may be easiest for their staff to visually count the transactions.

Quantitative Goal 5 – Increase Prepaid Revenue Share

The agencies wish to (1) reduce cash handling costs and (2) increase the "float" investment revenue earned from holding prepaid revenue. However, changes in cash handling costs and float revenue are not expected due to the limited scale of the test configuration. Prepaid revenue share was selected as a surrogate quantitative goal that may be measurable for equipped facilities. It is necessary to determine whether some of the ORANGES card usage is displaced from other prepaid payment methods rather than from cash. This goal does not apply to tolls, since the percentage paying by transponder will not noticeably increase within the high volume of daily plaza transactions.

Measure

- % of transactions that use a prepaid revenue payment method

Test Hypothesis

- % prepaid transactions will increase for equipment accepting the ORANGES card.

Modes Involved

- Parking
- Transit

Types of Data Comparisons

- Before and after.

Data Needed

- For each payment device equipped for smart card acceptance:
  - % transactions paid with cash
  - % transactions paid with the ORANGES card
  - % transactions paid with other non-cash methods

Data Collection Methods

Each agency will gather data from its revenue systems. These systems include the transaction data from parking garages, the revenue systems at LYNX garages and clearinghouse data.

Quantitative Goal 6 – Increase Automated Payment Equipment Uptime

Cash accepting equipment can suffer more downtime as the cash volume increases. This applies more to automated devices than to attended locations. By displacing cash use, the ORANGES card should reduce downtime. This would reduce maintenance costs and revenue loss (i.e., at unattended devices where revenue cannot be collected while the device is down).

Measure

- % operating hours with cash processing available (coins for toll machines; coins and bills for fareboxes)

Test Hypothesis

- The frequency and severity of planned and unplanned maintenance for unattended devices relates to the cash processed. Cash processing availability should increase as % prepaid increases.

Modes Involved

- Tolls – for automatic coin machines
- Transit – for fareboxes

Types of Data Comparisons

- Before and after

Data Needed

- For each equipped and control device
  - Daily cash revenue
  - % of operating hours each day with cash processing available

"Daily cash revenue" and the data collected for Goal 6 (i.e., % paid by cash, ORANGES card and other non-cash methods) will be used to take into account any differences in the level of cash acceptance between the before and after – and test and control – availability data.

Data Collection Methods

Data will be gathered by agencies from maintenance records.

LYNX maintenance tracks each incident and whether the cash processing is taken out of revenue service. They will provide the average number of failures per month and the duration out of revenue service.

OOCEA data may be more limited. Coin machines are maintained under a fixed price contract and the actual maintenance may not be available. The ETC system data indicates when each lane was out of service, but this may not indicate whether an outage is due to a coin machine failure.

If needed due to variations in repair frequency and severity, before and after data collection should be completed in the same season.

Quantitative Goal 7 – Cardholders Use the Joint Account

Agencies were interested in the degree to which ORANGES cards would be used to travel between modes and store high prepayments. This quantitative goal measures how and where cards are used (i.e., rather than the effects of the card use, with other quantitative goals).

Measures

- Cumulative probability distributions for transaction frequency, over the cardholders population, segregated between payment and revaluing transactions as well as by mode
- Cumulative probability distributions for transaction value, over the transactions population, segregated between payment and revaluing transactions as well as by mode
- Average stored value balance, for each card, segregated on the basis of card use frequency

- Percentage breakdown of the cardholder population, between cards used for one mode, for mode pairs or for all three modes.

Test Hypothesis

- Most cardholders will maintain a prepaid balance and use the card regularly. Some may use the card alternately for transit and tolls, some for downtown parking and toll payment. Use for transit and parking is not expected to be common for this operational test because the selected transit routes do not serve park and ride facilities.

Modes Involved

- Parking
- Tolls
- Transit.

Types of Data Comparisons

- Test only

  These measures involve the specifics for card use, so there are no before or control tests.

Data Needed

- Individual transaction values and dates, by cardholder, for each payment and revaluing device
- The stored value balance after each transaction

Data Collection Methods

The clearinghouse will gather the data from their transaction and balance databases.

Quantitative Goal 8 – Characterize Current Pass Distribution and Permit Billing Costs

LYNX uses prepaid fares extensively, issuing paper and magnetic stripe passes distributed through 81 sales outlets and by mail order. For the FOT, LYNX passes will be renewed directly on the smart card using revaluing locations at three of the existing sales outlets. Sales locations will need fewer paper passes, which should provide savings.

The ORANGES card can also replace the monthly "proximity" permit for garage parking. Permit holders are billed monthly. Although not provided in the FOT test configuration, the system could in the future potentially be modified so that a permit on the card could be automatically renewed and billed to a pre-registered credit card.

However, any reduction in passes distributed will be limited during the test (and permits will still be billed using conventional methods). Characterizing current costs for pass distribution and permit billing will indicate potential cost savings if bigger reductions were achieved through full-scale deployment.

This does not apply for tolls, which already use a transponder and autoload.

Measure

- Costs for distributing (e.g., procurement, inventory, delivery and commissions) conventional weekly and monthly passes.
- Costs for monthly billing of garage permits.

Test Hypothesis

- None. The limited test scale is not expected to have much impact on these costs.

Modes Involved

- Transit
- Parking garages

Types of Data Comparisons

- Before only

Data Needed

- Number of weekly and monthly passes distributed per month.
- Number of garage "proximity" permits billed per month.
- Monthly cost for distributing passes. Detail the specific cost categories included.
- Monthly cost for billing garage permits. Detail the specific cost categories included.

Data Collection Methods

LYNX will provide monthly costs for distributing passes to sales outlets. City Parking will provide monthly costs for billing garage permits. This will include the types of costs to assist in interpreting the findings.

Quantitative Goal 9 – Characterize Current Processing Cost per Cash Transaction

ORANGES cards should decrease cash processing costs for transit, parking and tolls. However, many types of cash processing savings may not be achieved until card use is widespread. The limited use of smart cards in the test may not achieve a cost savings in this area.

Characterizing current cash processing costs will indicate potential cost savings if bigger reductions were achieved through future full-scale deployment.

Measure

- Costs for processing cash, for each mode.

Test Hypothesis

- None. The limited test scale is not expected to have much impact on these costs.

Modes Involved

- Transit
- Tolls
- Parking garages

Types of Data Comparisons

- Before only

Data Needed

- Monthly costs for processing cash, by mode.
- Dollar value of cash processed monthly, by mode.

Data Collection Methods

Each agency will provide the monthly cost for cash processing. This will include the types of costs to assist in interpreting the findings.

Statistical Analysis

For each goal requiring before data collection, the test plan reiterates the selected measure and (where applicable) the test hypothesis, followed by a discussion by mode about the data collected and the analysis. The data collection discussion identifies the type of data, method of collection, time periods and facilities.

The data collected for most of the measures is only a sample, so statistical analysis can be performed. This is important because unforeseen circumstances can cause the variations in data. For example, the duration for a set of boarding transactions varies due to factors such as how long people take to pay with cash or whether the driver is asked for directions. The estimates for pass distribution, permit billing and cash processing costs are not samples and thus will not require statistical analysis.

First, the average and standard deviation will be calculated. Using the standard deviation (a measure of how widely dispersed the sample observations may be) and the sample size, a statistical inference statement will be developed. This was of the form, "With a 95% level

of confidence, the overall population average for this sample is expected to lie within the following range around the sample average".

This expected range is known as the confidence interval, and can be expressed as a precision percentage. For example, a range from 75 to 125 around an average of 100 can be expressed as +/- 25% precision. The statistical relationship for the precision percentage (for the 95% confidence level) can be expressed with the following formula:

- $P = ((1.96*\sigma)/\sqrt{N})/X$

  Where:
  P = Precision percentage
  X = Average
  σ = Standard Deviation
  N = Sample Size

Qualitative Goals

The qualitative goals use discussion groups – focusing on the perceptions of various user categories. Discussion groups are exploratory, so test hypotheses were not developed. Hypotheses may be identified based on before data, depending on the views expressed.

Qualitative Goals 10 to 13 – Understand Perceptions of System Users (By User Category)

Measure

- Evolution of user perceptions expressed in discussion groups.

Modes Involved

- Parking
- Tolls
- Transit

Types of Data Comparisons

- Before and after

  Discussion group participants should be users of the test system.

Data Needed

- Customers
  - General benefits
  - Ease of use
  - Convenience of revaluing

- Operations and maintenance staff
  - General benefits
  - Reduced payment disputes
  - Reduced transfer abuse
  - Ease of customer use
  - Maintenance
  - Training
- Planning and management staff
  - General benefits
  - More comprehensive data collection
- Partners
  - General institutional issues
  - Inter-partner collaboration issues

Appendix B
Discussion Group Pre-Screening Questions and Before vs. After Discussion Group Response Comparison

LYNX Cardholder Recruitment Screening Questionnaire (includes discussion group pre-screening questions)

Q6. Are you … Male ..☐ Female ..☐

Q7. What is your age? 18-24..☐ 25-34..☐ 35-44..☐ 45-54..☐ 55-64..☐ 65 and over..☐

Q8:.Are you a student at .. UCF ..☐ Valencia ..☐ High School..☐ Other..☐ Not a student..☐

*Q9. **IF YOU ARE CURRENTLY A STUDENT**: When do you expect to graduate? Month _ Year __*

Q10. Do you travel on LYNX buses on a regular basis? Yes ..☐ No..☐

IF YES TO Q10, PLEASE ANSWER Q11 – Q13. IF NO, PLEASE SKIP TO Q14.

Q11. In a typical week do you ride on …Link 13..☐ Link 15..☐ Other Links only..☐

*Q12. **IF LINK 13 OR 15 CHECKED IN Q11:** In a typical week, how many **one**-way trips do you take on Link 13 or 15? (WRITE IN NUMBER) _____*

Q13. How do you usually pay your LYNX fare? 30-day pass..☐ 7-day pass..☐ Pay per trip..☐

Q14. Do you travel through the SR 408 Holland East toll plaza? Yes ..☐ No..☐

IF YES TO Q14, PLEASE ANSWER Q15 – Q16. IF NO TO Q14, PLEASE SKIP TO Q17.

Q15. Do you have E-PASS? Yes ..☐ No..☐

Q16. In a typical week, on how many days per week do you travel through the SR408 Holland East toll plaza? _____

Q17. Do you park in the City of Orlando Central Blvd, Library, or Market parking garages? Yes ..☐ No..☐

IF YES TO Q17, PLEASE ANSWER Q18 – Q19. IF NO, SKIP TO Q20a

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Q18. In a typical week, how many days per week do you park at the City of Orlando Central Blvd., Library, or Market parking garages? _____

Q19. How do you typically pay for parking at these garages? Monthly pass .☐ Cash.☐ Check .☐

Q20a. Do you own a car? Yes ..☐ No..☐

Q20b: License plate number: _____

Q21. Are an Advantage Pass holder? Yes ..☐ No..☐ If Yes, please show your pass to the interviewer. _____

Before vs. After Discussion Group Response Comparison
Cardholders Group

What do you think of transportation conditions in Central Florida these days?

Before Responses	After Responses
Messy	Rough
Disorganized	Difficult
Takes too long to get anywhere	Frustrating at times
No direct routes (bus and roads)	Hectic
No/not enough bus service	Improving
Expensive	
Too congested	
Need more bus shelters	

Do you think traffic is getting better or worse?

Before Responses	After Responses
Things are getting worse	Traffic getting worse
	Conditions getting better in terms of accessibility (bus)
	Bus lines (routes) are better.
	Expressway is expanding to handle more traffic.

Any ideas for how mobility within the region can be improved?

Before Responses	After Responses
Need light rail, commuter rail	Improve frequency of bus service
Need better bus routes, more bus service	Improve bus routes (coverage and directness)
Need park and ride lots (safe) and express bus service	Add commuter rail service (DeLand – attractions)
Need more options and a better system for getting around (multi-layered, balanced system)	Synchronize traffic lights
Need high-speed tolls	Add light rail (Daytona – Orlando - Tampa)
Need HOV lanes	
Need to add capacity (widen roads, add rail)	
Add alternatives routes (beltway, bypasses)	
Increase speeds on highways (correct design limitations)	

Any changes in conditions since we last met?

After session only –
Unsolicited responses came specific to experience with ORANGES card as follow:
Bus service better, the ORANGES card makes boarding faster and more convenient.
Paying in advance is faster and more convenient (this comment was repeated for tolls, parking, transit).
The experience with the ORANGES card got better over time on LYNX as drivers got more familiar with the card.
Drivers needed to be better prepared earlier.
LYNX should have used the card on all routes. All drivers would have understood the card and its purpose.
LYNX had some problems with card readers, customer would swipe card and reader would not read or would read as no balance.
Parking garages did not accept the cards after 8PM, they should have.

How many of you have ever used the toll roads?

Before Responses	After Responses
8 out of 11 (72.7%)	4 out of 6 (66.6%)

How many of you have ever used transit?

Before Responses	After Responses
8 out of 11 (72.7%)	4 out of 6 (66.6%)

How many of you have ever used one of the downtown parking garages?

Before Responses	After Responses
3 out of 11 (27.3%)	2 out of 6 (33.3%)

Questions concerning use of alternative travel modes:

Before Question and Response

Would you be likely to use transit, the toll roads and parking garages more frequently if you did not have to worry about having a way to pay the fare or toll? Why or why not?

Yes, common payment equals greater probability to use (try) another mode.

Speeding transaction (reducing transaction time) means greater convenience, increased use

Do you think you would be more or less likely to use a method of transportation other than your usual if the form of payment was not a factor? For example, if you typically drive the toll roads and park downtown, would you be any more likely to consider trying transit occasionally? How many would? Why? Why not?

Yes, group would be more apt to use (try) other modes.

After Question and Response

Who has used one of these modes for the first time since we last met? Which new mode did you use?

One cardholder responded that they use the buses and tolls more now than they did.

Since we last met, has your usual commuting behavior (using transit or the toll roads or the City parking garages) changed? If so, how and why? What influenced your change?

One cardholder responded that they use the bus system more often, more extensively (they now have tried new routes) than they did before.

Another cardholder responded that the ORANGES card served as a reminder and thus the cardholder was more likely to park in one of the garages instead of other options downtown.

One cardholder responded that their commute is more convenient now with the card than before.

Have you used other travel options since we last met? If so, which and why? For example, if you typically drive the toll roads and park downtown, did you use transit? What influenced you to do so?

One cardholder responded that they use the buses and tolls more now than they did.

Questions concerning common payment:

Before Questions and Responses

Would you be likely to use transit, the toll roads and parking garages more frequently if you did not have to worry about having a way to pay the fare or toll? Why or why not?

Yes, common payment equals greater probability to use (try) another mode.

Speeding transaction (reducing transaction time) means greater convenience, increased use

How about if people had a way to pay for tolls, parking, transit services and potentially many other products and services with a single card? Would this seem more convenient to you? Why? Why not?

Yes, it is desirable to be able to use one card for multiple transportation modes and commercial uses too.

Increased convenience.

After Questions and Responses

Since we last met have you changed the way you pay for tolls, parking, or transit? If so, what is different? How has the change impacted you?

Toll user said that change no longer is stashed all over the car and with the ORANGES card her use of the tollway is more frequent than previously.

A similar response came from a parking garage user, now he does not even think about whether he money to pay for the garage, he just drives in.

Another similar response from a transit user, the ORANGES card lets her ride whenever she needs to without worrying about having the right fare.

Questions concerning common payment today and in the future.

Before Session Response

Do you think it makes good sense to connect the different components of our regional transportation system in ways such as through a common form of payment? How so? Why? Why not?

Yes, it is wise to connect the regional transportation system with a common payment card. Makes the modes work together better. More convenient to users.

Does this make sense today? Why? Why not?

Yes. For reasons cited above.

Does it make sense for the future? Why? Why not?

Yes. For reasons cited above.

After Response

What do you think about connecting the different components of our regional transportation system (transit, tolls and parking) through a common form of payment? What affect if any has this had on you? Why?

The cardholders agreed that a common payment method made a lot of sense and made their travel experiences more convenient.

It is a good idea and should be expanded to include other uses such as ATM, benefits payments, etc.

What do you think about using a common form of payment for transportation services today? Explain

The cardholders agreed that the ORANGES card made sense to them as a form of payment today.

One cardholder thought that the ORANGES card makes more sense today to him than at the beginning of the test.

What do you think about using a common form of payment for transportation services in the future? Explain

The cardholders agreed that the ORANGES card made sense for the future and felt that the use of the card should be expanded. Other uses mentioned were: internet access, ATM, benefits payments, gas, credit cards, use to buy stamps, phone card, copies, and to serve as virtual coinage.

[This discussion was lively. The two main concepts were to expand the card as a means of transfer of payments for government services and support and to be used as an e-purse for small purchases.]

Questions and responses concerning the need for smartcards:

Before Questions and Responses

In general, what do you think about the idea of smart cards? (List them)
Yes, it is a good idea.

How about convenience? How would this smart card make your life more convenient? (List them)
Yes. The smartcard concept is a good idea. It would make life more convenient.
Speeds transactions
Funds are more secure, no need to carry cash.
Make replenishing (revaluing) card easy and convenient.

After Questions and Responses

In general, what do you think about the idea of the multipurpose smartcard for transportation, the ORANGES card? (List them)
The only and overriding response was – convenience. The card provided convenience to part of the traveling experience.

Did using the ORANGES card impact you? How so?
The card made one cardholder popular with bus drivers because they could ask him questions and get information about the card.
Another cardholder went from a sometimes toll user with lots of coins to a hooked toll user without the worry of having enough coins.
Another cardholder went from a carpooler to a driver who used the garages.
Access to and egress from the garages was made simpler and more convenient.

Questions and Responses concerning revaluation and replacement of the card:

Before Questions and Responses

How about the convenience of revaluing the card? What options would be most convenient for you? Using cash, credit, debit? Would you like to be able to do this over the internet? Over the phone? At retail locations?

Allow online replenishment
Use 3rd party locations to replenish cards (7-11, grocery stores, etc.)
Tie card to bank accounts so they are replenished automatically
By phone
Tie card to credit card to automatically replenish card.

Would you be interested in being able to get the value in your account restored on a new card if it is lost or stolen?

Yes.

After Questions and Responses

How did you add value to the card? What do you think about the revaluating process you used? What suggestions do you have for revaluing the card?

The transit users had to go to the downtown bus garage to add value to their cards. This is not very convenient but is not much more inconvenient than using a regular bus pass.
Parking users could add value at the garage.
Toll users could add value at the OOCEA center or at certain toll plazas in the toll lane. (adding value in the toll lane was not popular with OOCEA workers or other motorists)

Suggestions for adding value to the card include:
Expand the number of places where the card can be revalued.
Cardholders would like to see an auto-replenish feature like with EPASS.
They would also like to see the option of adding value online.

Did you lose or have your ORANGES card stolen? How did you get the value replaced on your card? What suggestions do you have for replacing the value on lost or stolen cards?

1 of 6 cardholders lost their card. They had to have LYNX replace the card and LYNX was able to check the balance on the card and replace the balance on the new card.
The cardholders suggested a central number to call to report lost/stolen cards.
Another cardholder suggested that the process not be an automated call-in system.

What do you think if you had to pay a nominal fee or deposit (say $5) when the card is issued or replaced? How many of you would find this acceptable? Why? Why not?

Before Session
Card should be free initially, nominal fee if replaced
Card should be free initially and user allowed 1 free replacement every year or so.

After Session
6 of 6 cardholders agreed that the first card issued should be free and cardholders pay for replacement cards. They thought a nominal fee of up to $10 was acceptable.

Questions and Responses concerning incentives:

Before Questions and Responses
What about incentives? If the card could provide you with incentives such as price breaks depending on how much you use it, would that be viewed positively or negatively? Why? How so?
Yes, positively of course.
More use, more incentive (discount)

What types of incentives would interest you? (List them)
More use, more incentive (discount)
Price breaks
Use card to pay bills.
Use card as library card.

A smart card can be used to provide incentives such as: (1) getting a % bonus when you add value to the card account; (2) getting a reduced price if you use the card more frequently or (3) a reduced price for paying with the card compared to paying in other ways. What other incentives would you find of value? Let's list and rank these.
Percentage discounts
Rebate back onto card, credits for more use
Longevity discounts (as longtime cardholder)
Longevity discounts (for not losing card)

After Questions and Responses

A smart card can be used to provide incentives such as: (1) getting a % bonus when you add value to the card account; (2) getting a reduced price if you use the card more frequently or (3) a reduced price for paying with the card compared to paying in other ways. What other incentives would you find of value? Let's list and rank these.
Suggestions for incentives include:
A card sale, buy x months of value and get y months free.
Tie incentive to level of use. The more you use the card, the greater the incentive.
Offer discounts for use of the card at community resources such as at the History Center or the Art Museum.
Arrange for the card to be used to get discounts with retailers.
Create a points reward program like frequent flier programs.
Offer occasional free use days as an incentive to get and use the card.

Questions and Responses concerning concerns and comfort level with smartcards:

Before Questions and Responses

Any worries about smart cards? What are some of your concerns?
What happens if I lose the card?
What risks or liabilities are there if I lose the card?
Will my funds be protected?
Someone might steal my card.
What happens if the power or computer system fails?
Can I still use the card?

Is trust an issue for you? Why? Why not? How so?
Trust is somewhat an issue.

What are you afraid might happen to you if you are using a smart card?
Big brother effect.
Who is and why might someone be watching?
Do not want names/addresses to be sold to marketing databases.
Will someone be checking to see if I am speeding?
Will cardholders have fraud prevention?
Am I liable for fares when I need to swipe the card multiple times before it registers? (LYNX)
What is the extent of our liability on lost or stolen cards?

How comfortable are you with using a smart card for this pilot test? Tell me on a 1-10 scale, 1 very uncomfortable…10 very comfortable.
Average score = 7.6

Explain why you are/are not comfortable. What are your concerns? What are you hopeful of? (List reasons)
Personal information at risk.
Potential for fraud.
Security of access to ones account.

After Questions and Responses

During the test, did you have any concerns about using the ORANGES card? If so, what were they?
A few of the cardholders expressed some concern about using the card at first. There was a concern that it might not work right and how would they pay for the bus, parking, tolls.
One cardholder said he needed to show a letter from LYNX to drivers unfamiliar with the card.

What are your concerns now about using the ORANGES card?
All stated they were concerned that the card will go away after the test period, they have come to appreciate the convenience of the card.
Reliability of the technology was a concern for the transit users.
Making sure personnel (bus operators) are well trained on the card was a concern of transit users.
Parking garage users suggested concerns over the reader technology, a proximity reader would work better and be more convenient.

How comfortable are you now with using the ORANGES card? Tell me on a 1-10 scale, 1 very uncomfortable…10 very comfortable.
Average score = 9.3

Questions and Responses concerning information, access and reporting:

Before Questions and Responses	After Questions and Responses
How about being able to know your account balance and where and when you were charged? Group wants to be able to access date, time, location, amount for all transactions.	*During the test, did you find the information reported to you concerning your ORANGES card account to be correct and accurate? Did you find any discrepancies? If so, what did you experience?* One cardholder had inaccurate statements. One had an error in card readings (stating insufficient funds).
Would you want to get reports showing your usage? Yes, the group wants to see the current charge and account balance with every transaction. Group wants to see up to date transaction and balance history online.	*During the test, did you feel that your card information was safe and secure? Did you feel you're your personal information was safe and secure? Would you like to explain your experiences?* All agreed that they were sure both their card and their personal information were safe. One cardholder suggested introducing a PIN.
If so, what kind of information would you want to see? See response to question above.	*Did you regularly get reports showing your usage, your account balance and where and when you were charged? How often? What information did you get?* Many of the cardholders said they did not get regular statements. It was mentioned that access to statements via the internet was not easy due to password problems. Statements were not always complete or consistent with actual use. A toll user stated that statements were sent via email indicating their balance was low.
	What other kind of information would you want to see? Cardholders stated that they want to see the date, time, location and amount for charges. One cardholder noted that this information was available when they accessed their accounts.
How often would you want to get this information? Monthly? Weekly? Daily? Whenever you asked for it? Receive monthly statements. Be able to access real-time online information of transactions and balance. Be able to access real-time balance information and latest transactions by phone.	*How often would you want to get this information? Monthly? Weekly? Daily? Whenever you asked for it?* Cardholders desire reports monthly with option to run ad hoc queries.
Would you like to be able to look it up on the web or by phone anytime? Yes, both. See above.	*Would you like to be able to look it up on the web or by phone anytime?* 5 of 6 cardholders want internet access to statements and 2 of 6 would like statements mailed to them.

Questions and Responses concerning the value of developing smartcard applications:

Before Questions and responses	After Questions and Responses
Do you agree with the need to explore this type of smart card use? Why? Why not? Yes, 100%. "This is a good thing to pursue."	*Do you agree with the need to explore this type of smart card use? Why? Why not?* Yes – all. This technology provides better convenience to user and cost savings. Also provides a higher level of security since balances can be replaced.
Do you think it is appropriate for our transportation agencies to be making an investment of effort into smart card uses? Why? Why not? How so? Yes, very much so. Glad to see these agencies solving tomorrow's problems today. This test is a way to do more, to improve transportation.	*Do you think it is appropriate for our transportation agencies to be making an investment of effort into smart card uses? Why? Why not? How so?* Yes – all. This is a good effort because it does not require handling coins, is easier for cash processing, more efficient and speedy per transaction, agencies should be able to use the float from cash balances, faster boarding times on transit.
How do you see smart cards being used locally in the next 5, 10, 15 years? Use smart cards for many other things: Newsstands, Vending machines, Cab service, Library, to pay bills, for general commerce. Use card for public and private parking, at the airport (parking), for rental cars, rail and intercity rail services, at hospitals (parking and medical fees), valet parking, expand use to other areas, regions, cities.	*How do you see smart cards being used locally in the next 5, 10, 15 years?* Cardholders thought in the future the use of smartcards would be expanded to include government payments and services, benefits transfer payments, and to include other government functions and services. Use as a library card. Use as a way to make smaller purchases everywhere.
Do you think this pilot test takes away our transportation agencies' ability to focus on current problems? Why? Why not? How so? No, this is one way to help fix some of our transportation problems.	*Do you think this pilot test takes away our transportation agencies' ability to focus on current problems? Why? Why not? How so?* No, the cardholders strongly stated that these types of programs help the agencies focus on the future. The cardholders stated they would be unhappy if the agencies were not looking into ways to make things better.
Do you think our transportation agencies should not be involved in this test? Why? Why not? No, the group strongly felt that this test was a good use of time and effort.	*Do you think our transportation agencies should not be involved in this test? Why? Why not?* No – all agree. Need to get this type of information to make things better in the future. This type of effort makes systems more efficient. Getting feedback from consumers is good and should be used to make things better.
Are there reasons for our transportation agencies to participate in this smart card pilot test? What are they? Speed transactions, Greater convenience, Improved accessibility (no need to have exact change or money for that matter). This prepares Central Florida for the future. Glad to see three agencies coordinating. Testing the smartcard makes sense, it will help improve the transportation system. The test (the agencies working together) will make better use of our resources. Opportunity to improve service and performance (faster, more convenient).	*Are there reasons for our transportation agencies to participate in this smart card pilot test? What are they?* Yes, same reasons stated above.

After participating in the ORANGES project, what comments or suggestions do you have for our transportation agencies?

After session only - Cardholders made the following suggestions: smartcard applications should be made nationwide so one can use one card to travel all over the US. More emphasis on making the card compatible with other systems, services, markets.

Planning and Management Staff

How many of you have ever used the toll roads?

Before Session	After Session
8 out of 8 (100%)	5 of 5 (100%)

How many of you have ever used transit?

Before Session	After Session
7 out of 8 (87.5%)	1 of 5 (20%)

How many of you have ever used one of the downtown parking garages?

Before Session	After Session
7 out of 8 (87.5%)	2 of 5 (40%)

Since the ORANGES project, have any of you tried another mode? Which?

After session only - 1 of the 5 have tried another mode, transit to parking.

What are current transportation issues that are important to you?

Before Session	After Session
Speed	Maintaining speed is important. True for all modes.
Congestions	Speed through toll plazas and in/out of garages and
Time	boarding buses.
Convenience	Safety is another important issue for all.
Safety	Providing convenience of service to customers is
Accessibility	important to all.
Efficiency	Controlling costs is an important issue for the
	OOCEA.
	Providing accessible and available services is
	important to LYNX.

How well do you think our current transportation investments match transportation needs? What are your comments and concerns?

Before Session
System is adequate for now.
Level of service continues to degrade
We need to keep up with demand (travel demand)
System is congested, not speedy.
Transit network is not efficient
Transit network is not convenient
We need to continue to add infrastructure (all modes)
Parking supply seems to be good.

After Session
Current investments tend to support roads more than other modes but the majority of the travel is on roadways so the match is close.
More investment into transit is needed to make transit available and convenient for a larger share of the population.
It was felt that transportation investments today moderately meet needs today – more investment into all modes is required to keep up with demand.

If we need to find ways to improve mobility, what ideas do you have?

Before Session
Need to make investments in infrastructure
Need a rail system (light and commuter)
Need circumferential roadway (beltway)
Need feeder and express bus service
Need to improve transit service frequency

After Session
Need to provide more/better service via other options (modes).
Need to add funding at appropriate levels to provide for capital and operating costs.
Need to add and enforce HOV lanes.
Need to adopt better growth management to check sprawl.
Need to increase throughput on all modes.

Questions and Responses concerning the value of developing smartcard applications:

Before Questions and Responses	After Questions and Responses
Do you think it makes good sense to connect the different components of our regional transportation system in ways such as through a common form of payment? How so? Why? Why not? Yes Common payment lowers overhead costs Common payment adds convenience for customer and operations	*Do you think it makes sense to connect the different components of our regional transportation system through a common form of payment such as ORANGES? Why? Why not?* Yes, it makes sense to have the option for common fare payment but we need to retain existing payment options too. There is no downside to having a common form of payment.
Does this make sense today? Why? Why not? Maybe, not sure yet.	*Does this make sense today? Why? Why not?* The group felt that a common payment such as the ORANGES card did not make sense today based on the size of the market and the limited extent to which there is crossover between transit and the OOCEA and parking. They felt there to be a better synergy between tolls and parking than with transit. It would make sense to operate a common payment system with the three agencies to distribute the cost of the smartcard infrastructure. Currently the group felt that the cost of the infrastructure is too high compared to the size of the market. Revaluation of cards as processed today is too expensive.
Does it make sense for the future? Why? Why not? Yes, it makes sense in the future. There will likely be more modes to coordinate. It will help coordinate and integrate operations and services. There are good economic synergies.	*Does it make sense for the future? Why? Why not?* In the future a common payment such as ORANGES would make sense if there was rail service and if the overall market was larger and there were commercial/retail applications added to the market and the infrastructure supporting the card were better integrated.

Questions and Responses concerning providing customer convenience:

Before Questions and Responses

Is there value in providing customer convenience? How so? What kinds of convenience does the smart card provide to our customers? (List)

Yes.
Speed.
No cash, reduced cash, no need for exact change.
No credit card/debit card payments.
Provides record of transactions.
Provides electronic audit trail, accounting.
Provides security, guard against fraud.

After Questions and Responses

What, if any, kinds of convenience did you find the ORANGES card provided to our customers? For the expressway? For parking? For transit? (List)

The ORANGES card offered customers point-of-sale advantages and fast throughput on the tollway. The same was true for transit and parking.
The discount provided was a big advantage.
The need NOT to carry cash was an advantage.
The fact that the card could be used across modes was an advantage.
Being able to value multiple months onto the card was an advantage.

Questions and Responses concerning relevance of test to agencies:

Before Questions and Responses

What, if any, value do you see the agencies might gain from using smart cards? Explain. (List)
Record of transaction, Agencies can better know customer needs (track behavior, demand), Provides information for predictive understanding of travel demand, Saves money in cash processing, saves operations and maintenance costs Increased cash flow, Allows agencies to design, build, operate services to better meet demand.

What efforts do you see that we may need to focus interagency coordination on? (List)
Before session only - Agencies ARE coordinating (on this project).
Common goals, Economic issues vs. impacts of integration, Common customer orientation.

What are areas of concern for you about the smartcard project? What do you see as concerns for the agency? (List)
Is the project too limited?
Is it a benefit to the customer in its limited scope?
Need extensive revaluation network.
Will the customer see the benefits?

How do you see the smart card project potentially affecting your agency? (List)
Changes to SOP. Changes in investments, capital and operating programming. Changes in resources available. Changes in inventory requirements. Changes in cash handling. Changes in planning for long term service and network improvements (better information). Improved transaction times, faster service.

What do you see as concerns for employees? (List)
Customer service is an issue, who does the customer call?
Job security (reduced cash collection)
What if the test does not work, what is the fallout?
What if others do not do their part (bus drivers not in loop)?

How do you see the smart card project potentially affecting you? (List)
Will never get life back (project has changed duties, expectations).
Shift from single agency perspective to more of a regional multi-agency perspective.
The service (project) needs to keep running, needs attention.
Increased responsibility.

After Questions and Responses

What, if any, value have you seen the agencies gain from the ORANGES card? Explain. For the expressway? For parking? For Transit? (List)
A good working relationship was established between the agencies by persons at multiple levels in their respective agencies. Lessons were learned especially regarding e-payment options. Agencies are able to track travel patterns of users which is helpful for assessing/planning services and helping individual customers when problems arise. (this seems of more interest to OOCEA and LYNX where their customers tend to be mobile)

*What do you see as concerns for **your agency**? Expressway? Parking? Transit? (List)*
Staff time would be consumed by the test. Reporting issues would be problematic (accuracy and work load to manage reports). Staff turnover would leave gaps in knowledge about test and systems. System integrity (is it working) and data reliability (are we getting the right information) were thought to be areas of concern. Would the technology work was a concern.

*What do you see as concerns for **agency employees**? Expressway? Parking? Transit? (List)*
Staff requirements would be too great and distract from regular duties. Fear of customer confusion and the problems that would derive there from. What will happen with the technology was a concern. Would it work? How do we wrap up the test and all the various ends that must be handled to close out the project, right the books and settle the customer accounts.

*How do you see ORANGES affecting **you**? Expressway? Parking? Transit? (List)*
Most thought this to be a positive experience.
It was good to see work at the cutting edge.
It was good to be able to see the whole picture of the project and the impacts on the organization.
One staff reported that they got lots more data than they needed, once they worked out the relevant data, the information they received was very useful.

Questions and Responses concerning trust issues:

Before Questions and Responses	After questions and Responses
What do you see as potential trust issues for customers? (List) Will they have faith in the system (system integrity, trustworthiness)? Will the system work? Is someone watching them (Big Brother)?	*What did you see as potential trust issues for **customers**? Expressway? Parking? Transit? (List)* Important customer issues were believed to include: Trust in the system (that it worked). Trust that their money and personal information were both safe. Trust in the third party agency that was providing the service.
What do you see as potential trust issues for you as an employee? (List) Do we know fair share comes back to each agency (clearinghouse)? How do we make sure impacts do not adversely affecting regular work? Do I get stuck with someone else's problem (applies to agency and employee)? Can I trust that other employees (in own and in other agencies) will do fair share? There is an additional requirement or burden on existing resources (human, capital, financial)	*What did you see as potential trust issues for you as **employees**? Expressway? Parking? Transit? (List)* Data integrity was a concern for employees. Questions such as was the system capturing the right information? Report reliability was another concern. Was the system reporting the right information? Early on, there were questions concerning the motives of other agencies and the private partners, can we trust these folks?
What do you see as potential trust issues for your agency? (List) Same as above.	*What did you see as potential trust issues for your **agency**? Expressway? Parking? Transit? (List)* Risking agency credibility was the primary concern of the group (all agencies). The risks were high in that agency credibility could be tarnished in terms of customers, staff and the federal partners.
We listed trust issues for customers, what do you see as the comfort level of customers with using smart cards? [1-10 scale] (List) 1 = no trust, 10 = full trust. LYNX 5 out of 10. OOCEA 5 out of 10 Parking 7 out of 10 Overall score = 5.7	*What did you see as the comfort level of **customers** with using smart cards? [1-10 scale] Expressway? Parking? Transit? (List)* OOCEA - customer comfort was thought to be 5/10 overall and 7/10 for those who used the card. LYNX – customer comfort was thought to be 7/10. Parking – customer comfort was thought to be 7/10. Overall score = 7.0

Questions and responses concerning equipment reliability:

Before Questions and Responses

What about reliability and dependability of the smart card equipment? What concerns do you see? (List)

LYNX – likely to be problems because the equipment is on a moving, vibrating vehicle. Card readers and connections are likely to fail or be tampered with and will require constant attention.
OOCEA – expects high equipment reliability.
Parking – expects high equipment reliability.
Other system concerns: Uploading data may be a problem. Lots of training required (LYNX – many and variable operators, supervisors, maintenance staff). Units need to be programmed daily (LYNX – another requirement for the driver). Disappearing unit ID cards (LYNX). More folks need to be trained in each agency.

What ideas do you have to minimize some of the concerns you mentioned? (List)

Training, education. Drivers need to buy into concept. Full deployment would be better. Operating in dual modes, causes confusion, more work, limited benefits to all. Change standard operating procedures. Careful transition from current limited dual mode test to standard full deployment.

What problems and opportunities do you see for reliability, maintenance, operational and quality control issues? (List)

Will the equipment/system be reliable? Are there adequate reboot options (how fast can we bring system up when it crashes)? Can we trust there is system integrity? How do we know there is reliability and integrity in the system? Are we prepared for, can we handle this if it is a success?

What suggestions do you have for addressing reliability, maintenance, operational and quality control issues? (List)

Need to develop procedures to maintain equipment/system reliability. Need to establish redundancy and system reboot procedures. Need to establish system integrity checks, audits. Need to plan for full deployment.

After Questions and Responses

What did you see in terms of reliability and dependability of the smart card equipment? What concerns do you have? Expressway? Parking? Transit? (List)

After the initial shake out, the reliability of the equipment was very good. Staffing was a bigger problem (mostly with LYNX) in that many and varied hands would be involved in the process from one day to the next. Training was a problem. The reader was too sensitive in the garages. Cardholders had to hold the card perfectly still from their car window to get the reader to work. A proximity type reader would be much better. Problems with system components seemed to be higher than expected for the OOCEA.

What suggestions do you have for mitigating or minimizing some of the concerns you mentioned? Expressway? Parking? Transit? (List)

A full deployment would be better. More and better training would help (includes training more people as well as more training per person). Staffing up for the test or a better strategy for accommodating test and existing work loads beforehand was needed. More fully run system acceptance testing upfront before going live rather than bringing pieces up over time. Make sure the system works completely before going live.

Questions and Responses concerning planning, management issues:

Before Questions and Responses

What problems and opportunities do you see for planning, management and market research? (List)
Marketing, Cross promotion, Coordinated market research, Common database, Common data manipulation tools, Need to create common regional goals and objectives beyond agency goals and objectives. Need to create framework for coordinated policy and program planning.

What suggestions do you have for addressing planning, management and market research? (List)
Need access to data. Need to have a way to do "blind" data inquiries. Need to develop an interagency marketing plan

After Questions and responses

What about planning, management and market research? What problems did you encounter? What opportunities do you see? Expressway? Parking? Transit? (List)
The test universe was too small for good market research or planning analysis (LYNX).
OOCEA did not encounter any problems. Parking found it difficult to get people's interest in the card. The group thought the market may not be ready in Central Florida for this type of application. In general the travel market may not be big enough yet. OOCEA suggested the possibility to tie into niche markets such as rental cars/tourists in Central Florida. They group all felt that the test was hard on staff because of limited resources. Too few persons were trained. Many staff needed to be able to run multiple processes. In many cases staffs were not adequately prepared for the test. This is recognized as a problem with a limited scale test configuration.

Questions and Responses concerning information, record keeping and accuracy:

Before Questions and Responses

What about reporting, informational, record keeping and data needs? What opportunities and concerns do you see? (List)
Concern over data integrity, are uploads working? Concern over availability of system support. Opportunity to use electronic footprints (audit trail) of customers to market, deliver better services.

What suggestions do you have for addressing reporting, informational and data needs? (List)
Want to maintain and access (scrutinize) big transaction database (all agencies all modes). Use information for better planning analyses (individual and combined modes). Better know the travel demands of the customer. Great opportunities for agencies to partner and develop multimodal transportation options.

After Questions and responses

What about reporting, informational, record keeping and data needs? What problems did you encounter? What opportunities do you see? Expressway? Parking? Transit? (List)
Getting deposit slips from vendors was a problem for LYNX. OOCEA had no real major issues.
Generally the online data was considered to be good. It was laborious to keep track of all the data and reports that needed to be reconciled (Parking). It was generally a lot of effort expended to track a small share of the overall revenues collected (true for all agencies).

Questions and Responses concerning incentives:

Before Questions and Responses

What about providing discounts and incentives to customers? What problems and opportunities do you see? (List)

Great chance to partner and offer incentives to encourage positive travel behavior. How do we make sure there is consistency across agencies (equity and fairness, avoid confusion)? Opportunities to provide comprehensive incentives (all modes, all agencies).

What suggestions do you have for addressing discounts and incentives for customers? (List)

Need to coordinate and orchestrate common goals and incentive with policies and programs

See also responses above.

After Questions and responses

What about providing discounts and incentives to customers? What problems did you encounter? What opportunities do you see? Expressway? Parking? Transit? (List)

Getting the discount approved at first was a problem for LYNX due to tight budgets.

It was mentioned that the discounts give a false sense of customer acceptance and approval.

The group thought demand would have been greater and the test better if LYNX was able to implement the card system-wide. The group suggested use-based incentives be targeted. The reward those who use the card.

Questions and Responses concerning need to examine smartcards:

Before Questions and Responses	After Questions and Responses
Do you agree with the need to explore this type of smart card use? Why? Why not? (List) Yes, 7 out of 7 (Blanche left earlier)	*Do you agree with the need to explore smart card use such as with the ORANGES project? Why? Why not? Expressway? Parking? Transit? (List)* Yes – all agree that this test was useful and needed. The agencies, the industry needs to find out about customer interest in applications that may have impact on mobility in the future. The test was effective in identifying system requirements and requirements for maintenance and reliability. The test was useful to identify internal acceptance of this type of operation. It was helpful in identifying usage and gauging potential usage of the system.
Are there reasons for our transportation agencies to participate in this smart card pilot test? What are they? (List) Yes, 7 out of 7 agreed. Need to explore options and opportunities to provide better mobility. Helps to improve regional transportation. Provides a convenient alternative way to pay (for customer and agency). To learn about new technology applications.	
Do you think it is appropriate for our transportation agencies to be making an investment of effort into smart card uses? Why? Why not? How so? (List) Yes, 7 out of 7	*Do you think it is appropriate for our transportation agencies to be making an investment of effort into smart card uses? Why? Why not? How so? Expressway? Parking? Transit? (List)* Yes, but not now based on the experience with this test. The group felt that there were good lessons learned for future applications. They felt that the market in Central Florida has not yet reached the critical mass to make this type of system cost-effective. They suggested a better implementation plan would be needed if done again.
Do you think this pilot test takes away from our transportation agencies ability to focus on current problems? Why? Why not? How so? (List) In the short term, yes. In the long term, no.	*Do you think the ORANGES project takes away from our transportation agencies ability to focus on current problems? Why? Why not? How so? Expressway? Parking? Transit? (List)* No, the test took time but did not take away focus from other agency responsibilities (LYNX). OOCEA felt that the test proved a slight distraction. The card was viewed originally as a way to improve agency costs. Parking felt the test was a slight distraction and added to staff work loads.
Do you think our transportation agencies should not be involved in this test? Why? Why not? (List) No, 7 out of 7 agreed that the agencies should be doing this test.	*Do you think our transportation agencies should not be involved in this test? Why? Why not? Expressway? Parking? Transit? (List)* No – all agreed that the test was a good thing to be involved in. There was lots to learn and it was the correct thing for this group to be doing.
Are there any other opportunities, issues or concerns you have that we have not covered? What are they? (List) Learned to trust other agencies. Learned more about other agencies. Built relationships. We can work well together.	

After participating in the ORANGES project, what comments or suggestions do you have for our transportation agencies? Expressway? Parking? Transit? (List)

Keep and open mind about future applications. Agencies need to make decisions on technology with an open mind to potential impacts on other agencies in the region. They suggested that in the future each agency should be looking at the others for partnering opportunities.

Operations and Maintenance Staff

How many of you have ever used the toll roads?

Before Session	After Session
10 out of 12 (83.3%)	3 of 5 (60%)

How many of you have ever used transit?

Before Session	After Session
3 out of 12 (25%)	0 of 5 (0%)

How many of you have ever used one of the downtown parking garages?

Before Session	After Session
7 out of 12 (58.3%)	3 of 5 (60%)

Since the ORANGES project, have any of you tried another mode? Which?

None – 0 out of 5

What are current transportation issues that are important to you?

Before Session	After Session
The customer.	Construction delays are a problem.
Operational reliability.	Bus service needs to operate at higher frequencies.
Equipment must work.	Road signage is poor.
Safety and cleanliness.	Incidents cause too many delays in traffic.

How well do you think our current transportation investments match transportation needs? What are your comments and concerns?

Before Session	After Session
Existing transportation system is not working very well.	Funding is inadequate for our transportation system and to make the needed improvements.
Transponders (OOCEA) [usage of] equate to less wait times on the toll ways.	We need to phase construction projects so we do not tie up traffic over such long periods.
Road Ranger program is a big success and good program. (Motorist Assistance).	We are not building capacity fast enough for demand.
The public does not know who to call for transportation information.	It seems like we are trying to be a big city on a mom and pop budget.
The public does not know who is in charge of transportation in Central Florida.	We need dedicated funding sources for transportation (operating & capital, transit & roads)

If we need to find ways to improve mobility, what ideas do you have?

Before Session	After Session
Need more, better funding. Dedicated transportation funding is key. Need to keep system moving. Need more services and alternatives (rail, park/ride services, express/HOV lanes, feeders) Need higher frequency bus service. Need to develop transit lanes.	We need dedicated funding. We need to develop alternate travel routes to support our primary network. We need to develop a light rail system.

Questions and Responses concerning the value of developing smartcard applications:

Before Questions and Responses	After Questions and Responses
Do you think it makes good sense to connect the different components of our regional transportation system in ways such as through a common form of payment? How so? Why? Why not? Common payment is a good thing, no down side.	*Do you think it makes sense to connect the different components of our regional transportation system through a common form of payment such as ORANGES? Why? Why not?* A common fare payment system makes sense. It makes more sense for the tools and parking than for transit. The smartcard system worked well on the buses(LYNX).
Does this make sense today? Why? Why not? Yes for tolls and parking. Not sure about application to transit today.	*Does this make sense today? Why? Why not?* It makes sense to implement a common payment system for tolls and parking today but transit does not need to be part of the overall system. A smartcard system makes sense for transit but it does not need to be tied to tolls and parking today. Adding value to cards in the toll lanes took a long time and caused delays at the toll plaza. There were too few places to add value to cards for transit cardholders. A better system to add value needs to be in place if operating today.
Does it make sense for the future? Why? Why not? Yes, with rail and park and ride network, then multipurpose smartcards make sense for all modes in future.	*Does it make sense for the future? Why? Why not?* A common payment system would work better and make more sense in the future. We would need to add more opportunities to add value to cards, not in toll lanes. Better marketing of the smartcard would be needed if implemented in the future. Not enough people new about the card. If implemented in the future, we need to do a better testing and shake out effort to make sure the entire system works smoothly before implementation. If implemented on transit, it needs to be implemented on all routes and all buses. All bus drivers, supervisors and maintenance personnel need training if implemented on transit.

Questions and Responses concerning providing customer convenience:

Before Questions and Responses

Is there value in providing customer convenience? How so? What kinds of convenience does the smart card provide to our customers? (List)

Yes. No cash, reduced cash.
No credit card/debit card payments.
Speeds transactions for agency and user.
Easier/more convenient payment for agency and user.

After Questions and Responses

What, if any, kinds of convenience did you find the ORANGES card provided to our customers? For the expressway? For parking? For transit? (List)

Free parking…card readers were very sensitive and drivers often had trouble getting their card to read so parking attendants would open the gate and let the car in and the driver would not be charged at the end of the day (the driver had to hold the card just so for the reader to register, this was difficult to do conveniently from the driver seat, a proximity reader is recommended for the garages). It was a convenience to customers not to have to have money to pay for services (all modes). OOCEA – the acceptable minimum balance on the card was much lower than for EPASS so customers did not have to maintain as large a balance. The smartcard afforded the LYNX cardholders faster boarding and eliminated the need to have exact fare. Customers did not need to carry cash.

Questions and Responses concerning relevance of test to agencies:

Before Questions and Responses

What, if any, value do you see the agencies might gain from using smart cards? Explain. (List)

Saves money in cash processing. Reduces liability. Provides a constant cash flow. Labor savings.

What efforts do you see that we may need to focus interagency coordination on? (List)

Interagency communication and coordination. Cross promotions/marketing. Increased, bigger pool of funds. Coordinated funds accounting

What do you see as positives and negatives for your agency? (List)

Risks, what happens with power loss? How do we know system will work, work reliably? Upon what basis do we decide to move ahead with full deployment? How will we increase participation?

How do you see the smart card project potentially affecting your agency?

Will speed transactions. Will speed boardings.
Adding value (revaluation of card) in toll lanes (receipt lanes) will slow traffic. Adding value (revaluation of card) in cashier lanes will slow traffic in garages. Will speed traffic in cash lanes. Recharging (revaluing cards) is a concern.

What do you see as positives and negatives for employees? (List)

For bus operators, this is one more thing they now have to do. Drivers will need to log in/out with cards and need to track cards. No moving parts, means not much to fix. Not good for mechanics. More work right now (during test). Need a better

After Questions and Responses

What, if any, value have you seen the agencies gain from the ORANGES card? Explain.

Parking – we gained experience with working with e-payment types of systems. We learned that system and component compatibility is essential (applies to both internal and external (financial) systems). OOCEA – Gained experience with the system and system requirements (hard and soft sides). LYNX – less cash to handle is a significant advantage and it allows more discounting options.

*What are areas of concern for you about ORANGES? What do you see as concerns for **your agency**?*

Parking – loss of revenue through "free parking". It cost more to process transactions within existing staffing. Bank clearinghouse functions did not work. With better integration things would work better. OOCEA – there were no spare readers, this was a concern. Traffic delays were worse when cardholders revalued in the toll lane. LYNX – tracking access card for each bus was a risk and a concern (especially with driver shift changes). Making sure everything would work was a major concern throughout.

*What do you see as concerns for **agency employees**?*

Parking – customer service issues were a concern for employees when things did not work, this was hard on employees. The extra time and effort required away from regular duties was a concern. OOCEA – at first there were

way to download data from vehicles (risk of data loss and damage to handheld unit). We will need to integrate with existing (multiple) systems, lots of work to do this.

What are positives and negatives for you personally as an employee about the smart card project? (List)
Generally the test and concept is a positive thing. Means more (duplicative) work right now (must operate in dual modes). Participants in new application.

How do you see the smart card project potentially affecting you? (List)
Work environment becomes more cashless. Wider applicability of payment means more convenience. Faster transaction times are good, providing better services. Helps keep current with technology.

lots of complaints because customers thought that ORANGES would require too much additional work. The need to account for all the cards was a concern. The lack of financial reporting from the clearinghouse was a problem for Accounting. LYNX- Needed to pull supervisors into the fold from the start so that more people understood how this would work and could intervene when problems came up. The driver extraboard was not typically trained and this was a problem. In general, a better SOP was needed for the system and interface with existing organizational functions. LYNX should have implemented test on entire bus system, the limited scale test configuration was a problem.

*How do you see ORANGES affecting **you**?*
Parking – the test introduced too many uncertainties for staff. There were questions about who to trust when discrepancies were found. There was a problem with pinpointing errors. We needed to dedicate personnel to oversee and mange the test. OOCEA – there was more work involved in confirming revenue for the small amount of revenue that was generated through ORANGES cards. This was a problem of operating dual systems. LYNX – There was a lot of work required for a loss of revenue (the thought was that both the test cost money in staff effort and in cardholder fares because cardholders would show their card to ride all routes and drivers would let them). We needed better set-up and training. We needed more folks trained and ready to oversee the project. Too few knew how ORANGES worked/interfaced the organization.

Questions and Responses concerning trust issues:

Before Questions and Responses	After Questions and Responses
What do you see as potential trust issues for customers? (List) How will customers know we are providing correct information? Need to be forthright with customers. Customers, employees need to know the technology will work. Need to know the technology is reliable. Need to know that money is safe, secure.	*What did you see as potential trust issues for **customers**? Expressway? Parking? Transit? (List)* Parking – reliability was a concern, will it really work? Liability was a risk, how much will they really be charged? Loss of faith in the system each time the cardholder had a problem was a concern. Did cardholders worry about the security of their money and their personnel information? OOCEA – none. LYNX – same as for parking (above). If card does not work, how does the customer then pay? The customer would be at the mercy of the driver to let them ride if the card did not work and the cardholder did not have any money. What if money was not loaded on to the card? Cardholders did not all understand how the card worked and did not know that the cardholder needed to load value to the card – the card was not a free ride.
What do you see as potential trust issues for you as an employee? (List) Employee's life will be better or worse depending on whether technology works and is reliable. No moving parts, fewer repairs, less need for repair/mechanical skills.	*What did you see as potential trust issues for you as **employees**? Expressway? Parking? Transit? (List)* Parking – the reliability of the system was the big risk for employees. They were unsure how well it would work and what problems would be encountered and how to deal with the problems. OOCEA – There was a concern about dealing with variances at the end of the day. The SOP for toll lanes and for ORANGES requires extra work and there was a risk of not being able to account for variances in revenue collected. LYNX – the reliability of the card and card reader were concerns. On the bus, there was not enough information when a card did not work – just an error message. Was the card bad? Was the reader bad? Was it that there were insufficient funds on the card?
What do you see as potential trust issues for your agency? (List) Will the technology work? If not, agencies at risk. Is the clearinghouse credible and trustworthy? How much will technology cost the agencies if it works and if it does not work?	*What did you see as potential trust issues for your **agency**? Expressway? Parking? Transit? (List)* The clearinghouse was a concern, are we in fact getting our fair share of the revenue generated? (applied to all agencies)
We listed trust issues for customers, what do you see as the comfort level of customers with using smart cards? [1-10 scale] Overall score = 9	*What did you see as the comfort level of **customers** with using smart cards? [1-10 scale]* Once the customer got used to using the card they generally loved it. (applied to all agencies) Overall score = 9

Questions and responses concerning equipment reliability:

Before Questions and Responses	After Questions and Responses
What about reliability and dependability of the smart card equipment? What opportunities and concerns do you see? (List) LYNX - conflict due to limitation of test (few routes, few buses, not enough employees know about test) OOCEA – equipment/system issues, problems with startup but things work well now. City - equipment/system issues, problems with startup but things work well now.	*What about reliability, maintenance, operational and quality control issues? What problems did you encounter? What opportunities do you see?* Parking – lots of cards seemed to be damaged or not working. Some cards were not initialized. The card reader would go down and took a while to replace. Needed troubleshooting guides for personnel. Readers were too sensitive for the garage application, a proximity card would work better. OOCEA – no problems were encountered with equipment. Needed to replace one system access card. LYNX – staff requested and got a SOP guide. Maintenance was good. When cards did not read as valid, the problem went to the cardholder to investigate. Opportunities and suggestions (all) – Keep the applications/systems simple. Transponders should all be the same. Need a new name, not ORANGES. Expand the use (retail uses) and deployment (all toll plazas, all parking and all bus routes). More interaction needed between agency personnel through the test to compare notes on problems and management issues.
What ideas do you have to minimize some of the concerns you mentioned? (List) Common response is to minimize problems through better system integration.	*What suggestions do you have for mitigating or minimizing some of the concerns you mentioned?* In addition to the suggestions above: Better and more communication internally for the agencies and externally with staffs at other agencies. Simplify the applications. Focus on convenience for customers and the uses (staffs). Tie the personal card accounts to cardholder bank or credit accounts for auto replenishment of card value. Allow internet access for cardholders to their accounts. Develop preventive maintenance services and service agreements. Develop troubleshooting guides.

Questions and Responses concerning incentives:

Before Questions and Responses

What about providing discounts and incentives to customers? What problems and opportunities do you see? (List)
LYNX - requires exact fare.
City – incentives must be based on, approved by (limited by) policy makers (City Council).
OOCEA – there are many opportunities to combine policy and commercial incentives for the customer.

What suggestions do you have for addressing discounts and incentives for customers? (List)
See responses to question above.

After Questions and Responses

Not included in follow-up session for this group.

Questions and Responses concerning information, record keeping and accuracy:

Before Questions and Responses

What about reporting, informational, record keeping and data needs? What opportunities and concerns do you see? (List)
Need to date the transaction not the reporting date (system now stamps record based on the date of the report rather than the date of the transactions). How will LYNX count riders if payment is not through the farebox? Need to be able to see customer accounts, transactions to provide better customer support.

What suggestions do you have for addressing reporting, informational and data needs? (List)
See responses to question above.

After Questions and Responses

Not included in follow-up session for this group.

Questions and Responses concerning need to examine smartcards:

Before Questions and Responses

Do you agree with the need to explore this type of smart card use? Why? Why not? Expressway? Parking? Transit? (List)
There was general agreement that there is need and it is a good idea to pursue smart card use.

Are there reasons for our transportation agencies to participate in this smart card pilot test? What are they? (List)
Yes, to improve services for the customer and for each agency. To improve ability of agencies to provide mobility.

Do you think it is appropriate for our transportation agencies to be making an investment of effort into smart card uses? Why? Why not? How so? (List)
Yes, the group thought it appropriate for the transportation agencies to spend time and effort on developing smart card payment systems.

Do you think this pilot test takes away from our transportation agencies ability to focus on current problems? Why? Why not? How so? (List)
No, group felt that the project focuses and forces the agencies to coordinate and to address current and future problems today. This effort requires the agencies to focus more attention on details.

Do you think our transportation agencies should not be involved in this test? Why? Why not? (List)
Yes, the agencies should be involved in this test. Be ready for the future.

Are there any other opportunities, issues or concerns you have that we have not covered? What are they? (List)
A test of this type requires a long lead time. Full deployment will be better. Need better training and communication with employees concerning the test and the equipment.

After Questions and Responses

Do you agree with the need to explore smart card use such as with the ORANGES project? Why? Why not? Expressway? Parking? Transit? (List)
Yes, we need to move to cashless options. A one card for multiple uses is convenient.

Do you think it is appropriate for our transportation agencies to be making an investment of effort into smart card uses? Why? Why not? How so? Expressway? Parking? Transit? (List)
Yes, this type of effort helps move us into the future.
We need to invest in hard and soft aspects of smartcards (people, training, equipment/public information).
We need to find other opportunities to expand the use of the smartcard and thus expand its marketability (make it cost-effective).

Do you think the ORANGES project takes away from our transportation agencies ability to focus on current problems? Why? Why not? How so? Expressway? Parking? Transit? (List)
No – it helps agencies focus on problems that are out there today and will be tomorrow.
The test did take away employee time from regular duties.
The test helps the agencies prioritize.

Do you think our transportation agencies should not be involved in this test? Why? Why not? Expressway? Parking? Transit? (List)
No – we need to be focused on where technology is going and what needs to be done with (how it will impact) transportation.

After participating in the ORANGES project, what comments or suggestions do you have for our transportation agencies? Expressway? Parking? Transit? (List)

Working with other agencies was a delight (parking and OOCEA). (Inter face with LYNX was good at staff level but the need to link transit with parking and tolls at this point is not clear).

Keep a user-friendly approach for agency personnel and for the customer. (do not make things too complicated)

We need to be on the same track, need consistency with hardware, software (system needs to be well integrated with hard and soft aspects of all relevant systems internally and externally).

Appendix C
Minutes from Evaluation Team Meetings and Conference Calls
Phase I

Meeting #1
June 20, 2001

Participants:

• Sean Ricketson	Federal Transit Administration (FTA)
• Ann Joslin	Central Florida Regional Transportation Authority (Lynx)
• Patti Bryant	Central Florida Regional Transportation Authority (Lynx)
• Jorge Figueredo	Orange-Osceola County Expressway Authority (OOCEA)
• Pamela Hodgins	City of Orlando Parking Bureau
• Terry Davis	Touch Technology International (TTI)
• Janet Mendenhall	Touch Technology International (TTI)
• Bob McQueen	Post Buckley Schuh and Jernigan (PBS&J)
• Rena Barta	Post Buckley Schuh and Jernigan (PBS&J)
• Don Erwin	Post Buckley Schuh and Jernigan (PBS&J)
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Doug Parker	Multisystems

Overview of U.S. DOT Field Operational Test (FOT) Evaluations – Sean Ricketson

- The U.S. DOT Evaluation is a separate project from the FTA perspective – although intended to complement the ORANGES EPS Field Operational Test (FOT), the evaluation is separately funded and has an independent set of goals, deliverables and schedule. The overall purpose of the federal evaluation process is to document the outcome and benefits of the FOT, primarily for the benefit of a national audience. It is not intended to serve as a "report card" on the project.
- The importance of establishing strong communication links between the FOT project team and the U.S. DOT Evaluation team was emphasized. Sean stressed the desire for good relationships on the project with good cooperation, and that project participants should feel free to contact him at any time about any concerns or sensitive issues. Sean Ricketson phone (202) 366-6678.

ORANGES FOT Program Overview and Status – Don Erwin (see attached)

- This presentation provided an overview of the current plans and status. It was largely excerpted from presentations made during the Kickoff Meeting for the ORANGES FOT effort held on April 3, 2001 – copies of all the presentations from this kickoff meeting were provided to the Volpe evaluation team.
- The following summarizes some of the points raised in discussion:

OOCEA

- Transponders that accept a smart card might be experimented with during the FOT, but would not be part of the initial phase of the project. The use of "Touch and Go" smart card readers in selected toll lanes (i.e., by customers without transponders) is being considered, but will likely also only be experimenting with in the FOT. "Touch and Go" operation would likely not be allowed in any transponder-only lanes.
- There is some concern that more extensive deployment of laneside smart card readers – before transponders that accept a smart card are available – could potentially interfere with increasing transponder market penetration (current penetration is about 65%). Pricing mechanisms are currently under consideration to help drive further increases in market penetration for transponders: (1) an off-peak discount for transponder users; and (2) an exemption for transponder users from a cash toll increase.
- The core of the OOCEA linkage with the FOT EPS will be the development of a joint transportation account through the TTI Card Touch clearinghouse (i.e., where the customer can reload a single account that can then be used to pay for transit, tolls and parking). There might also be a "pooled loyalty program". This would involve collaboration between TTI and Transcore – the OOCEA E-Pass systems integrator and (through Amtech) transponder/reader vendor; the details of this integration have not yet been established. OOCEA expects that the interoperability linkages recently developed between E-Pass and the FDOT statewide SunPass program will not require that any linkage between the SunPass and Card Touch systems.

Lynx

- New fareboxes are being procured with integrated smart card readers (the cost of the fareboxes is being applied as a local match in the FOT). Even though the fareboxes on all Lynx buses will be equipped for smart card acceptance, the FOT test configuration (e.g., the selection of customers for smart card issuance, buses to be probed for smart card transactions) will only involve a selected route.
- The eventual full deployment of smart cards throughout Lynx operations might lead to changes in fare policy/structure and/or the elimination of some conventional

paper fare media. However, the initial limited scale test configuration will require that smart cards simply complement the current fare policy, structure and media (i.e., these must remain unchanged, for use throughout the remainder of the system).

- Revaluing locations have not been determined yet, but initially the only equipped locations would be the downtown transit center, other feasible locations convenient to the test group customers – and potentially kiosks at some social service agencies.

City

- The extent of smart card acceptance for City parking facilities has not yet been established. In general, the following elements are being considered:
  - Extending OOCEA E-Pass systems to support parking payment at selected off-street garages/lots (i.e., integrating transponder and, potentially, Touch and Go smart card readers). Current off-street systems use equipment from Amano Cincinnati and McGann software – in some cases a proximity card system is in use.
  - About 3,000 on-street meters have accepted a reloadable smart card for many years. This is a contact smart card system, with the revaluing facility located at the central Parking Bureau office. It is not yet established whether this parking meter stored value will be part of the ORANGES system, through either (1) use of a dual interface smart card and/or (2) linkage with the Card Touch joint transportation account.

Schedule

- The initial FOT schedule involves:
  - *Pilot I:* A test-bed system will be developed during the initial 11 months (from April 2001). This would test integrated operation for a limited set of the actual systems and equipment in an office environment, to create a prototype of the revenue service pilot. To accomplish this will require the development of all necessary hardware and software interfaces. The design and operational concept need to be developed and finalized as part of this effort.
  - *Pilot II:* The limited scale FOT test configuration will be completed, brought into revenue service and fully tested between months 11 - 20. It is likely inevitable that some further development/calibration of the hardware and software interfaces will be needed during this period, due to unanticipated conditions only revealed once the equipment is installed in revenue service.
  - ***The ORANGES team is to provide a more detailed schedule to the evaluation team.*** The initial schedule suggests – since the ORANGES effort was

initiated in April 2001 – that Pilot I would be completed by February 2002 and that Pilot II would be completed by December 2002.

General

- PBS&J asked whether there are any implications of using public funding for a project that may later involve private participation. Sean responded that as long as the agencies benefit and the purpose of the project has been served, he didn't think that presented any problem to the government.

National Evaluation Project Overview and Status – Leisa Moniz and Doug Parker (see attached)

- This presentation addressed:
  - An overview of the National Evaluation framework and process, including:
    - *Deliverables/schedule for Phase I of the evaluation:* The Phase I evaluation effort is scheduled for completion by January 2002. An adjustment may be required to align with the scheduled completion of the ORANGES Pilot I stage by February 2002.
    - *Evaluation team coordination mechanisms:* Don Erwin and Doug Parker (cc. Leisa Moniz) are to be the primary points of contact to coordinate evaluation activities for the FOT and U.S. DOT Evaluation efforts, respectively. Leisa Moniz will serve as the Program Manager and technical lead for the U.S. DOT evaluation team.
  - The near-term collaborative work process needed to develop a consensus on the goals and measures to be used in the evaluation. In essence, the consensus needs to be based on the combination of: (1) which goals are of high priority for ORANGES participants; (2) which goals have expected benefits – and a corresponding measure – that are understood; and (3) which goals have measures involving a feasible and reasonable data collection effort.
  - The latter point is important, considering the finite resources available for the U.S. DOT Evaluation. *Feasible and reasonable data collection* will likely correspond to measures for which either: (1) quantitative data can be provided by the operating agencies (or derived from data that can be provided); or (2) qualitative data can be gathered from focus groups whose participation can be arranged by the operating agencies. The limits on available data collection resources essentially mean that certain goals/measures considered desirable by the FOT team might need to be deemed not feasible and reasonable by the Volpe evaluation team.

- The FOT team provided documentation from an initial set of "Active Partnership Management" interviews – conducted by Dr. Kan Chen, a member of the PBS&J team – with Lynx, OOCEA, the City Parking Bureau and TTI. These interviews will provide the Volpe evaluation team with initial insight into the goals and priorities, as perceived by the ORANGES participants at the outset of the effort.

Next Steps

- A sequence of one or more conference calls will be used to conduct the collaborative effort to develop consensus on evaluation goals, measures and data collection.
- ***The Volpe evaluation team will develop an initial "strawman" set of potential goals prior to the initial conference call and distribute via email.***
- ***Conference call is scheduled for July 11, 2001 at 10:00A.M.***

Meeting #2
July 11, 2001

Participants:

• Sean Ricketson	Federal Transit Administration (FTA)
• Ann Joslin	Central Florida Regional Transportation Authority (Lynx)
• Patti Bryant	Central Florida Regional Transportation Authority (Lynx)
• Jorge Figueredo	Orange-Osceola County Expressway Authority (OOCEA)
• Sam Vennaro	City of Orlando Parking Bureau
• Janet Mendenhall	Touch Technology International (TTI)
• Rena Barta	Post Buckley Schuh and Jernigan (PBS&J)
• Don Erwin	Post Buckley Schuh and Jernigan (PBS&J)
• Carl Ahlert	Post Buckley Schuh and Jernigan (PBS&J)
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Doug Parker	Multisystems

Review Minutes from Meeting #1: Kickoff (June 20, 2001)

- Sean Ricketson requested that the minutes reflect the potential for OOCEA to equip a plaza lane with smart card readers in and/or smart card accepting transponders on a trial basis. This is covered in the current version of the minutes (first bullet, under the heading "OOCEA"), so no revisions are needed.
- Jorge Figueredo agreed that both types of smart card use may be considered. Smart card readers might reduce cash use by certain "niche" customers – specifically, card users who are unlikely to get a transponder (e.g., visitor, rare toll user). The role for the smart card accepting transponder was less clear, as the clearinghouse account balance could be debited with a transponder or with a smart card acting through a transponder. One benefit would be that a balance stored on the card (i.e., for offline use with transit or parking) could be immediately updated as part of a toll transaction. Another issue is that Transcore, (which is OOCEA's systems integrator) has confirmed that Amtech does not expect to have a smart card accepting device available in the timeframe of the FOT without receiving additional funds to support development. The option of using the Mark IV Smart Fusion product is not under consideration due to the potential for communications interference.

- The completion schedules indicated in the minutes for the *Pilot I* and *Pilot II* stages should be changed to reflect the current schedule – the schedule in the project kickoff presentation of April 2001 is still the current one.
- The action item from the previous minutes about the revised ORANGES schedule was also discussed. A revised schedule is being developed. Sean Ricketson agreed with the ORANGES team that the revised schedule should be finalized before being circulated at FTA – since any revision may lead to questions about the reasons for the changes. ***July 20, 2001 was set as the target date for the ORANGES team to complete the finalized schedule to FTA.***

Draft Evaluation Goals and Measures

- The draft version of the goals and measures worksheet discussed during this meeting is attached.
- The FOT design process is still underway and the evaluation goals and measures may therefore need to periodically evolve. There will be conference call meetings between the FOT and USDOT teams roughly monthly, and the potential need to adapt the goals and measures will be monitored on an ongoing basis. The purpose of establishing a set of goals and measures at this early stage is to allow baseline data collection to begin. There is some risk that later changes to the evaluation goals and measures could in fact negate the usefulness of some early baseline data collection effort.
- There are inherent challenges in trying to extrapolate full deployment benefits from the observed effects of limited scale FOT test configuration on the measures. For example, the limited scale of the pilot (i.e., perhaps a select number of LYNX routes) – as well as the potentially limited number of revaluing locations and the time lag for public awareness – may unrealistically limit ridership changes observed during the FOT. The evaluation team will also use feedback from riders about suggested enhancements.
- A similar issue was raised about cost reduction benefits (i.e., that the limited scale and duration of the FOT could limit the cost reductions that could be achieved through the FOT relative to what could eventually be achieved through a comprehensive rollout). In this case, the intended approach is to focus more on the collection of baseline data about current costs in areas that could see improvement – as the basis for judging potential benefits for full deployment.
- Gathering comparison data (e.g., on costs) from other transportation agencies was discussed. This is not within the current scope of the USDOT evaluation effort – nor is this called for under the TEA-21 Evaluation Guidelines. If this were pursued, it would be a substantial effort – the data is not readily available from some agencies and will need to be reconciled when it is available since each agency often collects data on a

different basis from another. One fundamental purpose of federal support for FOT evaluations is to collect benefit/cost/performance data for use by others throughout the nation. This effort is the first EPS FOT and as such has limited potential to leverage data from previous implementations. Another EPS FOT with a USDOT evaluation is being initiated for Delaware and there should be opportunities for these two FOTs to coordinate and provide evaluation data to each other, as it becomes available.

- An effort is being made to select measures that are applicable for many transit agencies. For example, the evaluation can measure transaction times for various payment types (applicable at many agencies in addition to LYNX) rather than the changes in processing time for the specific volumes and mix of transaction types observed at LYNX or OOCEA (applicable only at LYNX).
- Unexpected benefits could emerge during the FOT evaluation. Structured discussions with feedback groups of various types (e.g., customers, employees and stakeholders) will be used to help identify and understand their impact. The USDOT evaluation will need to rely on the agencies to identify and recruit participants for these feedback groups – and provide participation incentives.
- There is a potentially valuable role for feedback discussions with various employee categories throughout the evaluation. Employee support for and attitudes about EPS introduction can have a critical impact – employee collaboration can be essential for effective system operations and for presenting the system favorably to the public. Employee discussion groups could generate important insights into their attitudes, perceptions and concerns – and the evolution of these as the FOT progresses. From a federal perspective, Sean Ricketson encouraged such exploration as of considerable potential value to agencies nationwide. However, this is a potentially sensitive issue for employee relations, which each agency will need to decide about individually.
- Recruiting cardholders for the feedback group will require either: (1) offering the opportunity to participate when they are issued the card; or (2) getting contact information at the time the card is issued so that some can be approached later about participation. If card use patterns will be tracked – for all cardholders or only for those providing feedback – participants would need to opt-in. Janet Mendenhall noted that all stored value account activity can be reported by the clearinghouse software (e.g., number and value of payment and revaluing transactions, balance variability). This suggests that card use could be tracked based on the card/account number without necessarily connecting to the cardholder's identity. Without gathering various demographic data, the value of linking card activity to the cardholder would seem to be limited in any case.

- There were several instances where an analogous goal/measure – to one already in the draft list – was identified for use with another agency (e.g., transaction time, employee feedback and data collection enhancements do not only apply to transit).
- Baseline measurement will not apply where it involves bus fareboxes, since the current fareboxes are being replaced as part of the FOT implementation. In such cases, test vs. control data collection could be used (e.g., comparing new farebox maintenance costs on routes with smart card users vs. routes without).
- Agency representatives considered all of the draft measures feasible – at least on a preliminary basis; in several cases they will follow up with others at their agencies to confirm feasibility and/or the most reasonable data collection approach.
  - LYNX can provide monthly reports – by route – that cover ridership and the percentage breakdown by fare payment method.
  - Payment transaction timing can be undertaken by ride check personnel, either on-board or through observing footage from the onboard video cameras.
  - OOCEA pays Transcore on a monthly lump sum basis for maintaining the current toll equipment, so OOCEA will work with them to gather maintenance cost data.

Next Steps

- ***USDOT team will distribute the following by July 13, 2001:***
  - ***The minutes of this meeting***
  - ***Revised version of minutes for June 20, 2001 meeting***
  - ***Revised version of "Prioritization of Draft Goals and Measures – Worksheet".***
- ***The participants in this meeting – and any other FOT participants, as available – will fill in the worksheet with their priority input (i.e., allocation of 10 points) and return to the USDOT team by July 23, 2001.*** There will be no aggregation of the priority input to form "scores" for each candidate goal/measure – the priority input will simply assist the USDOT in selecting goals/measures. It will not be an issue if more participants submit priority input from one agency than another.
- ***The USDOT team will distribute the proposed list of evaluation goals and measures by July 27, 2001.***
- ***The next conference call is tentatively scheduled for August 7, 2001.*** This call will focus on establishing consensus on the evaluation goals and measures, as well as on identifying the baseline data collection methods and contact people.

- ***The next on-site USDOT evaluation meeting is expected for late August or early September.*** The primary purposes will be to (1) present the "Evaluation Strategy and Plan" deliverable and (2) facilitate on-site meetings with various agency staff to refine data collection methods for the evaluation test plans.

Meeting #3
August 7, 2001

Participants:

• Sean Ricketson	Federal Transit Administration (FTA)
• Ann Joslin	Central Florida Regional Transportation Authority (Lynx)
• Pamela Hodgens	City of Orlando Parking Bureau
• Terry Davis	Touch Technology International (TTI)
• Janet Mendenhall	Touch Technology International (TTI)
• Rena Barta	Post Buckley Schuh and Jernigan (PBS&J)
• Don Erwin	Post Buckley Schuh and Jernigan (PBS&J)
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Doug Parker	Multisystems

Review Minutes from Meeting #2: Developing Draft Evaluation Goals and Measures (July 11, 2001)

- No revisions were suggested.

Evaluation Goals and Measures Consensus

- Priority input was received from LYNX, City Parking and PBS&J. TTI indicated that they thought we had already received their priority input by email – they have now sent it again and the TTI input has been incorporated as well.
- The attachment to the agenda showed the same set of goals/measures from the priority input worksheet, with those for which any priority input had been received shown in bold. (Although the original version distributed with the agenda – and discussed during the meeting – did not incorporate the input subsequently received from TTI, the TTI input does not change the set of goals highlighted.) The following three goals had not received any priority to date:
  - Increase transit ridership
  - Increase transponder market penetration
  - Reduce data collection costs
- PBS&J indicated that they expect OOCEA would place some priority on the transponder market penetration goal.

- There was consensus that the evaluation should pursue addressing each of the goals/measures that received some priority from the FOT partners, pending exploration of whether the associated data collection is reasonable and feasible.
- The ridership and data collection cost goals/measures did not appear to have any priority with the FOT partners, so the question of whether these should be included in the evaluation goals/measures was discussed:
  - There was consensus that the ridership goal/measure should be dropped from further consideration – the partners feel that there is little potential for any meaningful ridership impact given the limited scale test configuration.
  - It emerged that the only agency with data collection costs that the EPS might reduce was LYNX, since they currently use manual traffic checkers. However, LYNX is already eliminating these manual checkers for 2002, having implementing their APC system. Thus, there was also consensus that the data collection cost goal/measure should be dropped.
- There was consensus that the "maintenance costs" and "equipment uptime" goals/measures are essentially duplicative – and that only the "equipment uptime" goal/measure should be retained, being the most reasonable and feasible to collect and more comparable with similar data from other agencies.
- There was consensus that the qualitative goal/measure employing employee feedback should pursue the use of two distinct employee groups:
  - Operations employees (e.g., bus operators, toll/parking booth attendants, maintainers) on equipment-related issues (e.g., customer ease of use, reduction in disputes, maintenance)
  - Planning/management employees on issues related to performance monitoring/management (e.g., increased value of more comprehensive data)
- Based on the above adjustments, the finalized version of the evaluation goals/measures list is attached. This list is only "finalized" in the sense that it is an agreed basis for moving forward with developing test plans and assessing details for baseline data collection. As the project evolves, the need to further adapt this list might emerge. Also, it is possible that issues related to reasonable and feasible data collection could emerge that warrant reassessment of the list.

Test Plans and Baseline Data Collection

- Don Erwin again expressed the interest of the ORANGES partners in gathering any data available from other agencies against which the ORANGES results can be

compared – referred to as "benchmarking" data. While not an explicit requirement of the Phase I evaluation study, it is worthwhile to undertake some targeted outreach to agencies that might be able to provide comparable data for the evaluation goals/measures. To this end, there will be an attempt to forward the evaluation goals/measures to APTA, IBTTA and IPI – with the request that they invite their membership to provide any relevant data. Sean Ricketson noted that USDOT is considering initiating focused research in this area during 2002. Leisa Moniz also noted that the Delaware FOT Evaluation effort is developing goals/measures as well – it appears that some of the Delaware goals/measures will be similar to those for Orlando, which may allow these FOTs to benchmark each other to some extent.

- Preliminary data collection issues were discussed for each of the evaluation goals/measures:
  - *Parking revenue:* Available from the City – separately for meters, booths and kiosks.
  - *New Transponders Associated with Joint Account:* OOCEA can provide data on new transponder issuance (by its nature, this measure will not require any baseline data collection).
  - *Transaction Times by Payment Type:*
    - The general approach for transit and tolls will be to gather information on overall payment transactions throughput (i.e., X persons board a bus or pass through a toll lane in Y seconds) coupled with the percentages using each payment type. For LYNX, APC equipped buses can provide throughput data, while the fareboxes data can provide corresponding data for the mix of payment types. For the toll roads, the toll system can provide both types of data – in addition, Don mentioned recent throughput studies by UCF for which he will check the relevance. However, LYNX baseline data collection will not be relevant since the data would only be for the current fareboxes – which are being replaced. For toll roads, this measure will only be relevant if the FOT decides to equip some lanes for direct smart card use.
    - For parking, this data would be relevant for whichever payment environments (i.e., meters, kiosks and booths) incorporate smart card acceptance during the FOT. However, there is no automatic data collection on throughput available so some direct observation would need to be arranged.
  - *Pass/Permit Distribution Costs:* The toll roads should not have any current distribution costs that would be reduced through the FOT. However, costs associated with distributing transit paper fare media and parking permits might be reduced. Costs can

be gathered but it will be important to keep track of what cost categories are included in each case – so that the after data collection can use the same categories.

- *% Equipment Availability:* For each agency, the maintenance department tracks the frequency and duration of equipment outages. Again, baseline data collection is not relevant in the case of LYNX since the current fareboxes will be replaced.
- *Joint Account Usage Measures:* TTI indicates that they can provide data for each of the measures in the list – in fact they expect that once the system is designed they might be able to suggest additional useful measures. However, by its nature this goal/measure is not relevant for before data collection.
- *Customer and Employee Feedback Groups:* The customers selected to participate in these groups should be those that will be using smart cards or the joint account during the FOT. Similarly, the employees selected should be those dealing with smart card equipped facilities. Since these decisions have not yet been made, the selection of participants will need to be deferred.
- *Partnership Feedback Groups:* Since there are already various institutional/partnering discussion being undertaken as part of the FOT implementation effort, the FOT team may wish to avoid adding in an additional discussion group – that might be perceived as duplicative. The list identifies the type of interagency institutional information we would like to gather for the evaluation – and the FOT team will determine whether they would prefer to develop that information through their core partnership building mechanisms or set up an additional set of meetings dedicated to the evaluation.

Next Steps

- ***USDOT team will distribute the following by August 10, 2001:***
  - ***The minutes of this meeting***
  - ***Finalized version of the working "Evaluation Goals and Measures" list.***
- ***USDOT team will follow up with Ann Joslin, Pam Hodgens and Don Erwin to advance the preparations for baseline data collection – each will seek to identify specific agency contacts and mechanisms for the desired data collection.***
- ***USDOT team will request assistance from APTA, IBTTA and IPI – to solicit any input on benchmarking data that is available from other agencies.***
- ***USDOT team plans to submit the draft for Deliverable 1 – "Evaluation Strategy and Plan" by September 7, 2001.***

- ***The next on-site USDOT evaluation meeting is scheduled for September 20, 2001, 11 a.m. – 2 p.m. (location in Orlando TBD).*** The primary purposes will be to (1) present the "Evaluation Strategy and Plan" deliverable and (2) facilitate on-site meetings with various agency staff (from September 19-21, 2001) to refine data collection methods for the evaluation test plans.

Meeting #4
October 18, 2001

Participants:

• Sean Ricketson	Federal Transit Administration (FTA)
• Doug Jamison	Central Florida Regional Transportation Authority (Lynx)
• Ann Joslin	Central Florida Regional Transportation Authority (Lynx)
• Sam Vennaro	City of Orlando Parking Bureau
• Jorge Figueredo	Osceola Orange County Expressway Authority
• Janet Mendenhall	Touch Technology International (TTI)
• Rena Barta	Post Buckley Schuh and Jernigan (PBS&J)
• Don Erwin	Post Buckley Schuh and Jernigan (PBS&J)
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Doug Parker	Multisystems

Review Minutes from Meeting #3: Discuss Draft Evaluation Goals and Measures Consensus (August 7, 2001)

- No revisions were suggested.

ORANGES Design Status

- Alternative approaches are being evaluated for the Lynx farebox procurement. There has been some delay in the ORANGES design effort due to the need for these decisions. (Although the farebox procurement is funded separately from the operational test, this farebox funding is part of the operational test local match – and the operational test funding is being used for integration of the new fareboxes into the overall electronic payment system.)
    - The main issue affecting ORANGES is the available smart card interface options.
        - Lynx is considering a sole source procurement for GFI Odyssey fareboxes with integrated smart card readers.

- The GFI Odyssey farebox is currently available in fully integrated form with only a Sony card reader. The difficulty with Sony cards is that there is no dual interface card available. If a dual interface card cannot be used:
  - Contact interface devices might not be part of the ORANGES system.
  - A separate contact card might be used, with back-office integration allowing multiple card types to access the ORANGES account.
- GFI indicates that they are scheduled to support the Cubic Tri-Reader by February 2002 (i.e., for Washington DC buses). GFI must modify the farebox software to integrate the Tri-Reader with the Odyssey. Using a Tri-Reader theoretically means that any dual interface card could be selected – as long as it uses a 14443 Type A, 14443 Type B or GO-Card (i.e., Cubic proprietary) contactless interface. Of course, with whatever specific card is selected, software modifications would be needed to allow the Tri-Reader and the farebox to communicate with the card software (e.g., communications protocol, command sets, security codes). The initial DC implementation will only support the Cubic SmarTrip card.
- GFI has indicated that they expect to develop the interface for an unspecified Type B card by the end of 2002.

- Lynx is not expecting to decide which specific buses/routes will be equipped for smart card acceptance until the more fundamental farebox-related decisions are made.

- There are also several current design issues related to integrating legacy systems with the new clearinghouse.
  - Assuming that new garage software is procured together with the fareboxes, there is the opportunity to arrange for integrating this software with the ORANGES clearinghouse as part of the implementation. Otherwise, the legacy garage software would need to be integrated with the clearinghouse.

- The ORANGES team is currently working with the E-PASS systems integrator (TransCore) to help determine the type of integration between the ORANGES clearinghouse and the E-PASS system that is feasible/desirable. It now seems less likely that the E-PASS transponder account will be linked with the ORANGES stored value account. Instead, certain toll lanes may be equipped with smart card readers and alternatives are being considered for linking these readers with the ORANGES clearinghouse:
  - Smart card readers might bypass the E-PASS system and communicate directly with the clearinghouse.
  - Smart card readers might be integrated with the E-PASS system, which would submit the transactions to the clearinghouse for reimbursement using periodic file transfers.
- The main issue with the MacKay meters – as noted previously – is that they are currently set up to accept only a particular type of contact smart card. Also, an interface may need to be developed with the central software used for managing these parking meters.
- As with the farebox issues, the date when the issues will be resolved is not clear.

Finalizing the Evaluation Strategy and Plan (Task 1 Deliverable)

- The Volpe team presented a brief overview of the draft deliverable for Task 1 – the Evaluation Strategy and Plan. Although some written comments have already been received, no further comments on the document were provided during the call.
- It was agreed that the document, after addressing comments received up to Nov 2/01, will be considered finalized – but only as an interim deliverable. A foreword will be added to make clear that the content (e.g., ORANGES design, goals/measures, etc.) would be updated for the final report if circumstances have subsequently evolved. Sean noted that this interim version would be the first to be reviewed by others at US DOT.

Next Steps

- Task 2 (Develop Test Plans) is now underway. This will involve some followup with agency representatives to identify specific contacts for data collection issues. Sean and Don requested that they be kept informed about such agency contacts.
- The next conference call discussion was scheduled for Nov 19/01, beginning at 1:00 p.m.
- Ann Joslin noted that she is departing from Lynx, with Doug Jamison taking over as the Lynx project manager for this effort.

Meeting #5
November 19, 2001

Participants:

• Sean Ricketson	Federal Transit Administration (FTA)
• Doug Jamison	Central Florida Regional Transportation Authority (Lynx)
• Sam Vennaro	City of Orlando Parking Bureau
• David Wynne	Osceola Orange County Expressway Authority
• Janet Mendenhall	Touch Technology International (TTI)
• Don Erwin	Post Buckley Schuh and Jernigan (PBS&J)
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Doug Parker	Multisystems

Review Minutes from Meeting #4: Design Status Update and Evaluation Strategy and Plan Deliverable (September 18, 2001)

- No revisions were suggested.

ORANGES Design Status

- Contract development between LYNX and both PBS&J and TTI has now been substantially completed. Efforts continue on developing partnership agreements.
- Current plans are to begin implementing the Pilot I level of implementation in February 2002. Pilot I will involve a "laboratory" implementation (i.e., integrating central software with actual units of the various types of field equipment). The Pilot I system will be used as a platform to help address integration issues – related to integrating the software with the field equipment and with the legacy payment systems at each agency – before initiating the limited scale revenue service test configuration (i.e., in Pilot II).
- The new LYNX fareboxes will not yet be available in February 2002 for immediate use in Pilot I, and will be added later. Although negotiations are still underway, LYNX is currently expecting to purchase GFI Odyssey fareboxes (with the Cubic Tri-Reader smart card reader peripheral). This decision may be made by LYNX at a January 2002 meeting, but it is not yet known how quickly a farebox can be made available for use with the Pilot I system.

US DOT Input on Task 1 Deliverable

- Mitretek has on ongoing contract with US DOT to provide cross-cutting feedback – to promote consistencies and synergy throughout the ITS program. As part of this role, Mitretek provided input after reviewing the draft Task 1 deliverable. This input from the overall ITS program of US DOT was discussed with the stakeholders to reach consensus on any appropriate changes in the document (i.e., when it is eventually amended for incorporation into the evaluation Phase I final report). In particular, it was important to agree on any appropriate evolution of the goals and measures that were previously established by consensus – since these goals and measures form the foundation for the current Test Plans task.
- The first attachment – entitled, "Comments on Oranges Evaluation Strategy and Plan" – provides both the original Mitretek comments as well as commentary based on the conclusions of the stakeholders group in this meeting. The second attachment highlights the agreed changes to the goals and measures summary tables (i.e., extracted from the Task 1 deliverable).

Next Steps

- The current Test Plans task of the evaluation effort cannot be completed until the revenue collection locations are decided (i.e., the locations at which the Pilot II test configuration will establish smart card acceptance). These decisions are expected at some point during the Pilot I implementation level, although the specific timing has not yet been defined.
- The next conference call discussion was scheduled for December 18/01, beginning at 11:00 a.m.

Meeting #6
December 19, 2001

Participants:

• Sean Ricketson	Federal Transit Administration (FTA)
• Jill Maeder	Central Florida Regional Transportation Authority (Lynx)
• Pam Corben	City of Orlando Parking Bureau
• David Wynne	Osceola Orange County Expressway Authority
• Janet Mendenhall	Touch Technology International (TTI)
• Don Erwin	Post Buckley Schuh and Jernigan (PBS&J)
• Tom Delaney	PBS&J
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Doug Parker	Multisystems

Introductions

Jill Maeder was sitting in for Doug Jamison of LYNX.

Tom Delaney recently joined PBS&J from Leapfrog Systems.

Review Minutes from Meeting #5: US DOT Input on Goals and Measures (November 19, 2001)

- No revisions were suggested.

ORANGES Design Status

- GFI farebox support is currently only available for Sony readers and the Cubic Tri-Reader. Although a dual interface card was preferred, the agencies expect to use Sony contactless-only cards – dual interface Sony cards are not available. Using the Cubic Tri-Reader was also considered, but GFI/Cubic development work to date – on Tri-Reader integration with the farebox – only supports the use of Cubic cards (i.e., Cubic single purse dual interface cards are not available). Additional GFI/Cubic development is needed before their farebox combination will support a Type A or B card – the card types that offer single purse dual interface. GFI fareboxes are not expected to support a contactless reader that works with a dual interface card (e.g., Tri-Reader, other Type A or Type B reader) until at least 2003.

- Both MacKay and Schlumberger have indicated that they cannot support contactless readers in their meter and kiosk devices – without substantial development costs that the project cannot support. So, the trial will be with fareboxes, toll lanes and parking lanes.
- OOCEA is pursuing a potential opportunity to use smart card accepting transponders instead of laneside readers for the toll lanes. Two ETC vendors from outside North America have expressed interest in implementing a no-cost demonstration system. OOCEA is currently involved in discussions with these vendors – although not named, one uses 5.9 GHz technology and the other infrared. The key factor is that both are offering smart card accepting transponders that have already been deployed in Europe or Asia. Of course, this implies that the transponders would accept the Sony contactless cards. If this approach is adopted, smart card accepting transponders might also be used for parking lanes – although stand-alone readers might still be used if the vendor would not include this in the no-cost demonstration system.

Progress on Task 2 – Developing Test Plans

- The evaluation team requested stakeholder feedback on the previously distributed partial draft of the test plans document. In addition to any other feedback, it is expected that preparatory discussions and on-site meetings will be needed with agency technical staff to complete the data collection section for each test plan. The evaluation team will complete the data analysis section of each test plan based on the completed data collection information.
- There was general agreement that specific smart card reader installation locations will likely not become established until around February – and that detailed discussions with agency staff to finalize the data collection should be left until after that information is available.

Next Steps

- The next conference call discussion was scheduled for January 28/02, beginning at 9:00 a.m.

Meeting #7
January 28, 2002

Participants:

• Sean Ricketson	Federal Transit Administration (FTA)
• Doug Jamison	Central Florida Regional Transportation Authority (Lynx)
• Pam Corben	City of Orlando Parking Bureau
• David Wynne	Osceola Orange County Expressway Authority
• Janet Mendenhall	Touch Technology International (TTI)
• Don Erwin	Post Buckley Schuh and Jernigan (PBS&J)
• Tom Delaney	PBS&J
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Doug Parker	Multisystems

Review Minutes from Meeting #6: Developing Test Plans (December 19, 2001)

No revisions were suggested.

ORANGES Design Status

- Lynx had previously decided to use Sony contactless readers integrated into the GFI Odyssey fareboxes. There has been a recent decision for Lynx buses to pursue stand-alone smart card readers using the ISO 14443 Type A (i.e., Mifare) interface, rather than readers integrated into fareboxes. Lynx is still buying new Odyssey fareboxes, so the option will remain to add a smart card reader to them at a later time. Three main factors in this decision are:
  - OOCEA is finalizing arrangements with EFKON for a limited scale test configuration of their toll system that uses infrared smart card accepting transponders. This also avoids the need to undertake systems integration involving the current Transcore toll system. The smart card accepting transponders available from EFKON use a Mifare contactless interface. Support for the Sony contactless interface would have required additional EFKON development.
  - Using the Mifare contactless interface makes dual interface cards available (e.g., from Gemplus). The Sony card offered no dual interface option. Having a contact interface will allow the ORANGES project to once again pursue smart card acceptance for parking meters and kiosks. However, issues related to the locations of

the parking lots equipped with kiosks make their inclusion in the trial unlikely. It is also expected that the contact interface could create additional revaluing opportunities.

  - Stand-alone smart card readers using the Mifare interface are available from multiple vendors.

- Current ORANGES test configuration plans involve:
  - An initial Pilot I "showroom" system is expected to be ready for demonstration at the ITSA EPS Workshop scheduled for March 14-15 in Orlando.
  - By June or July, it is expected that the "showroom" system, with enhanced functionality and interfaces, will be ready for setup of the full field test configuration to begin.
  - The first full field test configuration is not expected to be ready for revenue service until fall 2002.

Progress on Task 2 – Developing Test Plans

The schedule for the rest of the Phase I evaluation, with the next step being to complete Task 2 (Test Plans), must be based on the final implementation schedule. Field locations for smart card acceptance must be determined (i.e., which buses, meters and toll lanes will be equipped) before test plans can be completed. These decisions might be available within about a month. The timing for the full field test configuration will determine when to undertake before data collection (i.e., before data collection should be completed as close as is practical before the implementation).

Next Steps

The next conference call discussion was scheduled for February 26/02, beginning at 10:00 a.m.

Meeting #8
February 26, 2002

Participants:

• Sean Ricketson	Federal Transit Administration (FTA)
• Doug Jamison	Central Florida Regional Transportation Authority (Lynx)
• Sam Vennaro	City of Orlando Parking Bureau
• David Wynne	Osceola Orange County Expressway Authority
• Janet Mendenhall	Touch Technology International (TTI)
• Tom Delaney	PBS&J
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Doug Parker	Multisystems

Review Minutes from Meeting #7 (January 28, 2002)

No revisions were suggested.

ORANGES Design Status

There was a recent meeting with Ascom regarding their potential supply of smart card validators for on-board Lynx buses and in parking garage booths. Ascom has tentatively agreed to provide this equipment at no cost in exchange for a teaming agreement that would provide marketing opportunities to Ascom in conjunction with project publicity. This agreement is not finalized at this time. Similar opportunities are being offered to potential equipment vendors for other aspects of the project (e.g., EFKON for toll lanes, Gemplus for dual interface smart cards and Mackay for parking meters).

Ascom would only provide validators and the software to support their integration with both the clearinghouse and the existing Lynx system for revenue reporting. This TTI integration would include the custom programming of the validators, with Ascom providing a Software Development Kit.

- Bus validators would be mounted beside, and be completely separate from, the new fareboxes.
    - There would be no driver interface, so the validator will only be able to determine the fare based on information from the card. This implies that the validator would charge no fare if there is a valid pass stored on the card, otherwise charging the full or transfer fare (depending on the details of the previous trip record stored on the

card). A cardholder could not request that a smart card configured for adult fares also pay the fare for an accompanying child. Or, if a card carries a pass and stored value, the cardholder could not request that the stored value pay the fare for an accompanying person. The validators have a communications port that would allow Lynx to consider adding a driver interface at a later time if this ever seems desirable.

- The clearinghouse system will support automatic balance revaluing from a credit card when the central system balance drops below a set threshold, since this feature is currently available for conventional E-Pass transponders. However, it has not yet been determined whether the Ascom validators have enough memory to allow the balance updates to be transferred to the cards through a validator. There would need to be enough memory for all pending balance updates to be stored in the validator. When a balance update to a card would be completed somewhere in the system, the pending update could not be immediately deleted from all the other devices in the system. First, the completed update transaction would need to be transferred to the central system and then subsequently transferred out from the central system to all the devices. One option would be to limit the set of card updates stored in a bus validator to those cardholders that request bus update capability at card issuance.
- Data collection from the validators would involve either:
  - An infrared probe device used when the bus returns to the garage (i.e., analogous to farebox probing operations)
  - A Wireless LAN that would complete data transfer with the validator as it enters the garage.

- Validators for parking garage booths would be mounted at both the entry and exit lanes. The card would be used with the entry validator to store the entry date/time stamp on the card. When the card would later be used at the exit, the entry date/time stamp would be used to determine the amount to deduct from stored value.

The expected arrangements with EFKON for the smart card accepting transponders and infrared readers remain unchanged, but are still being finalized.

The same applies for arrangements with Mackay for parking meters that can accept the ORANGES card. The back-office parking meters software will need to be integrated by TTI. A new back-office system is currently being procured and arrangements will be made as part of this procurement for it to be integrated with both the parking meter smart card readers and the TTI clearinghouse.

The locations for card revaluing have not yet been finalized. At minimum, there will be the Autoload capability and attended locations at selected Lynx, OOCEA and Parking Bureau facilities. In addition, there may be "on-demand" credit card revaluing features (e.g., phone

or Internet access) and various additional attended revaluing locations operated by third parties (e.g., retailers). The latter will be important for providing convenient revaluing opportunities near the selected parking meters and Lynx routes. For example, Lynx will consider extending its current arrangements with current retail pass vendors.

The number of smart cards is currently expected at 150-500. This number still needs to be finalized, for considerations such as:

- The specific Lynx test route
- The number of equipped toll lanes, parking meters and parking garages
- The numbers of cardholders that will use multiple modes
- The number of cards needed to replace lost, stolen or damaged cards during the trial.

The current expected schedule:

- Pilot I to be completed for August 2002. This will provide the first fully integrated system configuration for demonstration. All interfaces between field equipment, the TTI clearinghouse and any other systems will be in place but the equipment will not yet be installed in the field.
- Pilot II to be completed for November 2002. This will provide the installed system for revenue service.

At the March 2002 EPS workshop, the following ORANGES demonstrations are intended:

- TTI will have a version of the CardTouch clearinghouse software running, together with surrogate devices for payment and attended revaluing, so that they can demonstrate typical data transfer and transaction processing operations.
- Ascom, EFKON and perhaps Mackay will have their field equipment on display. Although the equipment will likely be enabled for completing smart card transactions, it will not be integrated with the TTI system.
- The smart cards in use will not necessarily be the actual Gemplus dual interface smart cards expected to used for the full field test configuration, and the different vendor displays will not necessarily use the same smart card.

Progress on Task 2 – Developing Test Plans

Based on the current development schedule, before testing is targeted for around September 2002. The next step in the evaluation work program is to complete Task 2 (Test Plans). Comments on the previously issued partial draft of the Test Plans document are requested by March 22, 2002. Field locations for smart card acceptance must be determined by the agencies (i.e., which buses, meters and toll lanes will be equipped) before the Test

Plans deliverable can be completed. Once the field locations are determined, an additional activity required to complete the Test Plans deliverable is a set of on-site interviews with the various agency staff that will perform the data collection, to finalize the required logistics.

Next Steps

The next conference call discussion was scheduled for March 26/02, beginning at 10:00 a.m.

Meeting #9
March 28, 2002

Participants:

• Doug Jamison	Central Florida Regional Transportation Authority (Lynx)
• Sam Vennaro	City of Orlando Parking Bureau
• David Wynne	Orlando Orange County Expressway Authority
• Janet Mendenhall	Touch Technology International (TTI)
• Tom Delaney	PBS&J
• Don Erwin	PBS&J
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Doug Parker	Multisystems

Review Minutes from Meeting #8 (February 26, 2002)

No revisions were suggested.

ORANGES Design and Implementation Status

ORANGES was demonstrated to industry and local agency representatives at the ITSA EPS workshop held in Orlando on Mar 14-15, 2002. This was coupled with a demonstration to agency's Board and Citizens Advisory Committee representatives on Mar 13, 2002. The design and implementation team reports that these demonstrations had the desired effect, of helping to shift the focus of attendees from ORANGES as a concept and future initiative to ORANGES as a reality and imminent implementation.

Timelines for Completing the Phase I Evaluation

Based on the current development schedule, agency data collection for the before testing is targeted for around July/August 2002. To support this, the following timeline is planned:

- PBS&J indicates that they have developed comments on the previously issued partial draft of the Test Plans document, which they will provide by April 12/02.
- The smart card recipients and field locations for smart card acceptance (i.e., which buses, meters and toll lanes will be equipped) must be determined by the agencies before the Test Plans deliverable can be completed. These details will be established and made available to the evaluation team by the end of April 2002.

- Once the field locations are established, an additional activity required to complete the Test Plans deliverable is a set of on-site planning sessions in May 2002 with the various agency staff that will perform the data collection, to finalize the required logistics.
- The Test Plans document will be completed by the end of June 2002 and the before data collection will be executed in July/August 2002.

Next Steps

The next conference call discussion was scheduled for May 1/02, beginning at 10:00 a.m.

Meeting #10
May 1, 2002

Participants:

• Doug Jamison	Central Florida Regional Transportation Authority (Lynx)
• Sam Vennaro	City of Orlando Parking Bureau
• David Wynne	Orlando Orange County Expressway Authority
• Janet Mendenhall	Touch Technology International (TTI)
• Tom Delaney	PBS&J
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Doug Parker	Multisystems
• Randy Farwell	Multisystems

Review Minutes from Meeting #9 (March 28, 2002)

No revisions were suggested.

ORANGES Design and Implementation Status

The agreement with EFKON for the use of their smart card accepting transponders has not been finalized. The agreement with Ascom for the use of their stand-alone smart card validators is nearly finalized.

Timelines for Completing the Phase I Evaluation

Based on the current development schedule, agency data collection for the before testing is targeted for around July/August 2002. To support this, the following timeline is planned:

- The smart card recipients and field locations for smart card acceptance (i.e., which buses, meters and toll lanes will be equipped) must be determined by the agencies before the Test Plans deliverable can be completed. These details will be established and made available to the evaluation team by the end of April 2002. See the section below for preliminary details discussed during this meeting.
- All comments on the partial test plans document will be provided by May 10, 2002. See the section below for discussion about comments provided so far.
- Once the field locations are established, an additional activity required to complete the Test Plans deliverable is a set of on-site planning sessions in May/June 2002 with the

various agency staff that will perform the data collection, to finalize the required logistics.

- The Test Plans document will be completed by the end of June 2002 and the before data collection will be executed in July/August 2002.

Preliminary Details on Smart Card Acceptance Locations

The agencies are currently planning to issue about 100-500 smart cards.

Lynx is planning to equip Link 101 and the Laser bus service, both focused on the UCF campus.

OOCEA intends to equip the Holland East plaza as well as perhaps the Dean plaza.

City parking is considering equipping the Central Blvd and Market St garages as well as parking meters on Pine, Rosalind and Orange (all near City Hall).

Discussion about Initial Comments on Partial Test Plans Document

The parking meters intended for accepting the ORANGES smart card already accept the current contact parking-only smart card. Goal 1 (Increase parking revenue) would be more relevant for introducing smart cards to cash-only meters. For this reason, the usefulness of retaining this goal is in question.

Due to the limited scale of the test configuration, the implementation team is concerned that some goals/measures may show little effect in measurements of the overall population. There was particular discussion about the usefulness of retaining Goal 2 (Increase transponder market penetration) and Goal 4 (Increase prepaid revenue share).

Next Steps

The evaluation team will have a followup discussion with FTA representatives about issues surrounding the potential reduction in the number of evaluation measures due to the limited scale of the test configuration, and about possible alternatives to this course of action.

The next conference call discussion was scheduled for May 29, 2002, beginning at 10:00 a.m. However, this conference call has been subsequently postponed as a result of a request from FTA for the implementation partners to propose by June 14, 2002 their recommendations for updating the evaluation goals/measures.

Meeting #11
June 12, 2002

Participants:

• Doug Jamison	Central Florida Regional Transportation Authority (Lynx)
• Bob McQueen	PBS&J
• Carl Ahlert	PBS&J
• Tom Delaney	PBS&J
• Sean Ricketson	US DOT, Federal Transit Administration
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Doug Parker	Multisystems

Review of Project Status

The US DOT team presented a brief presentation (attached), the initial purpose of which was to review a timeline of key events in the evaluation process, beginning from the start of this effort in June 2001, and the current status.

Intended Scope of the Test Configuration

The intended scope of the test configuration was confirmed as still being the same as described in the minutes from the May 1, 2002 conference call. However, the evaluation team will provide input on the suggested scale of the test configuration (in particular regarding the number of smart card/smart card accepting transponder accounts to be active during the demonstration), at the request of the implementation team.

Finalizing the Quantitative Goals, Measures, Test Hypotheses and Data Collection Methods

The US DOT project team provided a briefing that captured the goals, measures and test hypotheses developed by the ORANGES partners in late 2001. The intent of the briefing was to provide a baseline for further discussion to refine and finalize the goals and measures, as well as a subsequent discussion of data collection methods, in the context of the written input submitted by the evaluation team on June 10, 2002 (attached).

Quantitative Goal 1: Increase Parking Revenue

Change in test hypothesis

	Transit	Parking	Tolls
Measures	•	• Revenue	•

	Transit	Parking	Tolls
Test Hypotheses	•	• Having a card avoids parking being deterred when the customer does not have small value coins, leading to an expected revenue increase (only applies to parking meters)	•
Data Collection Methods	•	• Parking Bureau can provide this data	•
Test Type	•	• Before and After	•

Quantitative Goal 2: Demonstrate Reliable Performance for Smart Card Transponders (formerly: Increase Transponder Market Penetration)

Significant change

	Transit	Parking	Tolls
Measures	•	•	• Difference between # of monthly transactions for smart card accepting transponders vs. conventional transponders
Test Hypotheses	•	•	• Using a smart card accepting transponder instead of a conventional transponder will not reduce the number of transponder-based transactions completed (i.e., there will be no difficulties with the smart card accepting approach that divert transactions to cash)
Data Collection Methods	•	•	• Average # of monthly transactions for conventional transponders will be gathered from the existing Transcore toll system • Average # of monthly transactions for smart card accepting transponders will be gathered from the TTI system.
Test Type	•	•	• After (Control vs. Test)

Quantitative Goal 3: Reduce Transaction Times

Not changed

	Transit	Parking	Tolls
Measures	• Average throughput	• Average throughput	•
Test Hypotheses	• More smart cards transactions will mean fewer cash transactions, leading to an improvement in throughput	• More smart cards transactions will mean fewer cash transactions, leading to an improvement in throughput (improving throughput is of value for garages, but not for	•

	Transit	Parking	Tolls
		meters).	
Data Collection Methods	• When a bus is APC equipped, the door open time and number of boardings can be gathered for various stops and used to calculate the throughput	• At the parking garages, the time to process a given number of exit payment transactions will be observed to calculate throughput	
Test Type	• After (Control vs. Test)	• Before and After	

Quantitative Goal 4: Increase Prepaid Revenue Share

Not changed

	Transit	Parking	Tolls
Measures	• % cash transactions (i.e., overall % prepaid is the complement) • % smart card transactions	• % cash transactions (i.e., overall % prepaid is the complement) • % smart card transactions	
Test Hypotheses	• Smart card use will increase the overall % of prepaid transactions	• Smart card use will increase the overall % of prepaid transactions	
Data Collection Methods	• Gather from the LYNX revenue system	• Gather from the Parking Bureau revenue systems for the garages and meters	
Test Type	• After (Control vs. Test)	• Before and After	

Quantitative Goal 5: Reduce Pass/Permit Distribution Costs

Changed significantly

	Transit	Parking	Tolls
Measures	• Current per pass distribution cost	• Current per permit distribution cost (only relevant if auto-load will be implement to avoid monthly billing costs on the current proximity cards)	
Test Hypotheses	• No test hypothesis; as the limited scale of the test is not expected to have an appreciable impact	• No test hypothesis; as the limited scale of the test is not expected to have an appreciable impact	

	Transit	Parking	Tolls
Data Collection Methods	• LYNX to gather the monthly costs in specified categories and the overall number of passes distributed at that cost	• Parking Bureau to gather the monthly costs in specified categories and the overall number of permits billed at that cost	•
Test Type	• Before only	• Before only	•

Quantitative Goal 6: Increase Automated Payment Equipment Uptime

Refinement

	Transit	Parking	Tolls
Measures	• % time coin or bill processing available for fareboxes	• % time coin processing available for meters (does not apply to garage booths)	• % time coin processing available for automatic coin acceptors in lanes
Test Hypotheses	• Reduced use of cash will increase the availability of automated cash acceptance equipment	• Reduced use of cash will increase the availability of automated cash acceptance equipment	• Reduced use of cash will increase the availability of automated cash acceptance equipment
Data Collection Methods	• Lynx will estimate based on maintenance reports	• Parking Bureau will estimate based on maintenance reports	• OOCEA will estimate based on maintenance reports
Test Type	• After (Control vs. Test)	• Before and After	• Before and After

Quantitative Goal 7: Cardholders Use the Joint Account

Not changed

Measures	• # of transactions, by mode and location • Average transaction value • Average reload value • Average balance
Test Hypotheses	• Cardholders will use the joint account
Data Collection Methods	• TTI will provide

Test Type	• After (Test only)

Additional Quantitative Goals and Measures Identified

The test plan will attempt to incorporate the following additional quantitative goals and measures:

- **Processing Cost per Cash Transaction:** In a similar manner to the updated formulation of Goal 5, the intent would only be to characterize this cost under the "before" conditions.
- **Clearinghouse Performance Measures:** The intent is for TTI to capture measures such as processing time and error rates that characterize clearinghouse performance.
- **System Acceptance Test Results:** The completed system will undergo acceptance testing prior to being brought into revenue service. The implementation team will provide a copy of the written test results to the evaluation team to demonstrate the capabilities provided by the system.

Discussion Groups for Qualitative Goals

Goal 8: Customers

All cardholders will be required to provide some basic personal information as part of the card/transponder issuance process. The intent is to use this information to pre-screen the pool of cardholders for selecting the before and after discussion group participants. It is expected that some type of financial incentive from the agencies will nonetheless be needed to secure this participation. The evaluation team will provide input on appropriate personal questions for screening purposes.

Goal 9: Operations/Maintenance Staff and Goal 10: Planning/Management Staff

The agencies will recruit and make available a mix of employees for before and after discussion groups in each of these categories. These should be employees that will actually be involved with smart card equipped facilities.

Goal 11: Inter-Partners (was: Inter-Agency)

The name for this goal has been changed to reflect the fact that the issues and perspectives of the private sector participants as well as those of the agencies are of interest. There will not be a separate discussion group for this goal. Rather, (1) the documentation from the partnering interviews by Kan Chen will continue to be provided (the next round of interviews are scheduled for July) and (2) evaluation conference calls will incorporate an explicit discussion of inter-participant issues.

Next Steps

The US DOT team will provide input by June 28, 2002 to the implementation team on the recommended scale of the test configuration.

Based on the conclusions reached in this meeting, the draft Task 2 deliverable (Test Plans) will be submitted for feedback by July 19, 2002.

Before data collection is targeted to begin in late August 2002.

Attached files:

- Project Status briefing – June 02.ppt
- Evaluation Test Revised Comments.doc

Meeting #12
September 3, 2002

Participants:

• Pam Corbin	Parking Bureau
• Doug Jamison	LYNX
• Sam Vennaro	Parking Bureau
• David Wynne	OOCEA
• Tom Delaney	PBS&J
• Sean Ricketson	US DOT, Federal Transit Administration
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Randy Farwell	Multisystems
• Doug Parker	Multisystems

Review Minutes from June 12, 2002 Meeting

No revisions were suggested.

Pilot I Design and Implementation Update

The current schedule calls for the implementation of Pilot I (the test bed) by November 2002 and for implementation of the Field Operational Test system by February 2003.

There is now some uncertainty about the role of parking meters in the operational test. The response to the implementation team from MacKay involved higher than expected required funding and the modified meters were not to be available until April 2003. Parking meter decisions cannot be concluded for at least a week, and the evaluation team is to be informed as soon as this matter has been finalized.

An issue has arisen related to the two LYNX routes intended for the operational test configuration. There is now the possibility that these two routes will be cut in December 2002 due to state and county funding issues. Alternate routes for the FOT are being considered.

The new LYNX fareboxes have now been installed and will be in revenue service for several months by the time the operational test begins. The test plans document will be adapted (i.e., the current test plans assume that before testing would have been infeasible due to a coincident cutover to new fareboxes) to include before testing.

Remaining Comments on the Draft Test Plans Document

No further comments were offered on the draft test plans document. Since comments have been received from all the organizations of the implementation team, we will proceed to finalize the test plans document by September 9, 2002. It is understood that the implementation team is welcome to offer further comments. The test plans are a "living document" that could require adjustment for a variety of reasons.

Follow-Through Discussions with Agency Representatives

The participating agencies designated the following individuals as the lead agency contacts for follow-through on the arrangements for before testing and the discussion groups:

- Pam Corbin, Parking
- Doug Jamison, LYNX
- David Wynne, OOCEA

A draft of the discussion group guidelines will be distributed by September 16, 2002, together with the specific cardholder enrollment questions requested.

This "work group" will have a conference call with the evaluation team September 25, 2002 from 10:00 a.m. to 12:00 p.m. This conference call will discuss specific plans for conducting the before testing and arranging the discussion groups. It will also discuss the preferred timing for on-site meetings (e.g., in October 2002) to finalize this planning.

The next conference call for the overall team is scheduled for October 8, 2002 from 10:00 a.m. to 11:00 a.m.

Meeting #13
September 25, 2002

Participants:

• Pam Corbin	Parking Bureau
• Doug Jamison	LYNX
• David Wynne	OOCEA
• Sean Ricketson	US DOT, Federal Transit Administration
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Randy Farwell	Multisystems
• Doug Parker	Multisystems

Before Data Collection Logistics

Goal 4 – Parking Meters Revenue

Meters

Covering the period November 2002 through January 2003, Pam Corbin will provide a spreadsheet indicating the total for each time revenue is collected from the meters, for each collection route that is expected to be equipped with some ORANGES meters. For each revenue collection route total, Pam will also provide the time period covered by the collection (i.e., the collection date/time and the prior collection date/time). Where possible this revenue total will indicate the amount collected for individual meters. If there are cases where the revenue cannot be attributed to individual meters, Pam will indicate the total number of meters and the number of ORANGES meters on the route.

Goal 5 – Transaction Times

Buses

Covering at least one week in each month between November 2002 through January 2003, Doug Jamison will provide a spreadsheet indicating the APC data for door open times, boarding count and alighting count at each stop on the routes to be equipped with ORANGES buses. Only the stops where the number of boarding passengers exceeds the number of alighting passengers will be retained (i.e., as stops where it is expected that the door open time will have been governed by the number of boarding passengers).

LYNX is constrained in the number of weeks per month they can cover because the required number of APC equipped buses from the LYNX fleets cannot be continuously assigned to the ORANGES routes. After the first week of such data collection, the number

of usable stop data will be compared with the overall goal of gathering a sample of at least 50 – to decide whether the time period for data collection should be increased.

Garages

The garage cashier system records the times at which payment transactions are completed, but this is not enough information to determine which sequences of transactions had no gaps between the vehicles. Pam Corbin will arrange for a person to observe the egress from each of the ORANGES garages to observe the number of transactions completed during 50 different time periods with continuous demand over the Nov-Jan period – and provide a spreadsheet with the results. Doug Parker will provide a suggested data collection form.

Goal 6 – Prepaid Revenue Share

Buses

Covering the period November 2002 through January 2003, Doug Jamison will provide a spreadsheet indicating the daily percentage split between the different payment methods for each of the ORANGES routes.

Meters

Covering the period November 2002 through January 2003, Pam Corbin will provide a spreadsheet indicating the daily percentage split between the different payment methods for each of the collection routes that could have some ORANGES meters (ideally broken down for each of the individual ORANGES meters).

Garages

Covering the period November 2002 through January 2003, Pam Corbin will provide a spreadsheet indicating the daily percentage split between the different payment methods for each of the ORANGES garages. Pam will determine whether the daily reconciliation for each cashier actually distinguishes between the two forms of accepted payment (cash and checks), as the before testing would otherwise not be useful.

Goal 7 – Automated Equipment Uptime

Buses

Covering the period November 2002 through January 2003, Doug Jamison will provide a spreadsheet indicating for each maintenance incident with the cash accepting equipment on each ORANGES bus, the dates and times when the equipment went in and out of service.

Meters

Covering the period November 2002 through January 2003, Pam Corbin will provide a spreadsheet indicating, for each maintenance incident with the cash accepting equipment on each ORANGES meter, the dates and times when the equipment went in and out of service.

Toll Lanes

Covering the period November 2002 through January 2003, David Wynne will provide a spreadsheet indicating, for each maintenance incident with the automatic coin accepting machines in the Holland East Plaza, the dates and times when the equipment went in and out of service.

Goal 9 – Current Pass Distribution and Permit Billing Costs

Buses

Covering the period November 2002 through January 2003, Doug Jamison will provide a spreadsheet indicating the total pass distribution cost, the cost categories included in that total and the total number of passes distributed.

Garages

Covering the period November 2002 through January 2003, Pam Corbin will provide a spreadsheet indicating the total permit billings cost, the cost categories included in that total and the total number of permit billings involved.

Goal 10 – Current Cash Processing Costs

Buses

Covering the period November 2002 through January 2003, Doug Jamison will provide a spreadsheet indicating the total cash processing cost, the cost categories included in that total, the total number of cash transactions and the total value of the cash processed. Cash transactions for both direct fare payment and the purchase of prepaid fare media should be included.

Meters

Covering the period November 2002 through January 2003, Pam Corbin will provide a spreadsheet indicating the total cash processing cost, the cost categories included in that total and the total value of the cash processed.

Garages

Covering the period November 2002 through January 2003, Pam Corbin will provide a spreadsheet indicating the total cash processing cost, the cost categories included in that total, the total number of cash transactions and the total value of the cash processed.

Toll Lanes

Covering the period November 2002 through January 2003, David Wynne will provide a spreadsheet indicating the total cash processing cost, the cost categories included in that total, the total number of cash transactions and the total value of the cash processed.

Discussion Groups Logistics

Cardholders

The anticipated process for recruiting cardholder participants (i.e., as outlined in the test plans document) was reviewed and everyone agreed to support that process. Cardholder enrollment is not expected to be complete until late in January 2003, so it is expected that the before discussion group for cardholders will not be able to occur until mid-late February 2003. OOCEA offered their boardroom as a location that would be available for an evening discussion group.

The importance of modest cardholder incentives in recruiting a sufficiently large and diverse group was discussed. The additional cost for this would need to be approved by the agencies. Sean Ricketson offered to provide discussion group guidelines that the evaluation has been developing (with a cover letter to the participating agencies), which include an explanation of the need for these incentives.

Employees

The two different employee discussion groups are expected to occur in late January or early February 2003. By this time, employees will have been briefed on the general nature of the ORANGES trial and it will be clear which employees will be users of the ORANGES trial equipment. Each group will include employees from each of the participating agencies. These discussion groups will likely also be held in the OOCEA boardroom.

Scheduling Onsite before Data Collection Visit for the Evaluation Team

November 21, 2002 (1:00-5:00 p.m.) was selected for an on-site meeting (at either PBS&J or LYNX offices) where the evaluation team will meet with the agency representatives involved in before data collection.

- The initial data collected by each agency will be reviewed so that any appropriate refinement for the remainder of the data collection period can be determined.
- The evaluation team will go to a parking garage with Parking Bureau representatives to undertake a "dry run" and finalize procedures for the required field data collection.

Meeting #14
October 2, 2002

Participants:

• Pam Corbin	Parking Bureau
• Doug Jamison	LYNX
• David Wynne	OOCEA
• Tom Delaney	PBS&J
• Don Erwin	PBS&J
• Sean Ricketson	US DOT, Federal Transit Administration
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Randy Farwell	Multisystems
• Doug Parker	Multisystems

Review Minutes from September 3, 2002 Meeting

No revisions were suggested.

Design and Implementation Update

Implementation for the field operational test is still scheduled for February 2003. Several recent possible changes in the scope of the field operational test configuration have emerged:

- LYNX is expected to determine in the next week or so whether Link 101 and/or the LASER links will be cut due to current funding issues with Orange County. If so, the implementation team intends to select alternative links to provide a similar level of overall ridership. The other complication with selecting alternative links is that these would also need to involve a similar number of stand-alone validators (to correspond to the agreement with Ascom) and a dedicated fleet.
- It should become clear in the next week or so whether meters will be included in the test configuration – at this point the implementation team suggests meters will likely not be included. The agencies have had difficulty agreeing on price and schedule with MacKay. If meters are not included, the intent is to equip an additional parking garage (Library).
- OOCEA is considering adding EFKON Touch'N'Go validators to selected lanes at the Holland East plaza. There is interest in exploring the potential for such validators to help displace cash use for the "transponder-resistant" market segment. A technical issue being explored before deciding is the ability for these validators to support card balance

updates to reflect revaluing transactions completed at the clearinghouse. This addition would not reduce the number of smart card accepting transponders issued.

Planning for Before Data Collection

The evaluation team briefly summarized the September 25, 2002 conference call focused on before data collection planning:

- The agencies will generally be collecting before data over the period November 2002 through January 2003.
- Discussion group guidelines have been provided to the agencies to assist them in providing the necessary logistical support, including a cover letter from FTA.
- An on-site coordination meeting is planned for November 21, 2002, to be attended by the full evaluation team
- Randy Farwell will provide on-site support and coordination as required for the before data collection agency effort, beginning during late October 2002.

The next conference call for the overall team is scheduled for October 23, 2002 from 10:00 a.m. to 11:00 a.m.

Meeting #15
October 23, 2002

Participants:

• Pam Corbin	Parking Bureau
• Doug Jamison	LYNX
• Tom Delaney	PBS&J
• Sean Ricketson	US DOT, Federal Transit Administration
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Doug Parker	Multisystems

Review Minutes from October 2, 2002 Meeting

No revisions were suggested.

Design and Implementation Update

Implementation for the field operational test is still scheduled for February 2003. Several recent changes in the scope of the field operational test configuration have emerged:

- LYBX has cut Link 101 and the LASER links due to funding issues with Orange County. The implementation team has selected Links 13 and 15 as alternatives. Link 13 connects the University of Central Florida (UCF) with the downtown area. Link 15 connects with another college on the east side and also passes through the downtown area. These links provide higher overall ridership than the 101/LASER links. A dedicated fleet of buses will be used, with the number of buses in service decreasing from 10 to 9.
- Parking meters will not be included in the test configuration, as the agencies could not reach agreement on price and schedule with MacKay. An additional parking garage (Library) will be equipped. The additional garage is used by Florida A&M Law School and the City Library.
- Although a few technical issues remain to be resolved, OOCEA will almost certainly add EFKON Touch'N'Go validators to the manual and coin machine lanes at the Holland East plaza. The updated design and implementation schedule is expected from EFKON by October 29, 2002. Touch'N'Go would be an addition and would not reduce the number of smart card accepting transponders to be issued.

  The cashier POS equipment in manual lanes will be equipped with a smart card revaluing peripheral, to allow these cashiers to act as attended POS locations for smart

card revaluing transactions. As part of these revaluing transactions, the smart card will be authenticated on-line by the ORANGES clearinghouse. Only cash revaluing payments will be supported; credit and debit card transactions would be too long for an operating toll lane.

All communications with the ORANGES clearinghouse, for the online authorization of revaluing transactions and the daily exchange of information from lane validators, will be direct to avoid the need for any integration with the existing OOCEA toll collection system.

The test plans document will be updated by November 8, 2002 to reflect the impact of these changes.

Planning for Before Data Collection

Discussion about planning for the before data collection (November 2002 through January 2003) included:

- An on-site coordination meeting will occur November 21, 2002 at LYNX headquarters from 1 pm to 5 pm, to be attended by the full evaluation team.
- Randy Farwell is currently providing on-site support and coordination to help agencies prepare the details for before data collection. He met with David Wynne of OOCEA on October 15, 2002. Additional meetings are scheduled – with Pam Corben of the Parking Bureau on October 24, 2002 and with Doug Jamison of LYNX on October 25, 2002.

The next conference call for the overall team is scheduled for November 12, 2002 from 10:00 a.m. to 11:00 a.m.

Meeting #16
November 12, 2002

Participants:

• Pam Corbin	Parking Bureau
• Doug Jamison	LYNX
• David Wynne	OOCEA
• Janet Mendenhall	TTI
• Tom Delaney	PBS&J
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Doug Parker	Multisystems

Review Minutes from October 23, 2002 Meeting

No revisions were suggested.

Design and Implementation Update

The scope of the implementation has not changed, but Janet Mendenhall discussed a schedule issue that TTI raised at the most recent management committee meeting. Due to current and unexpected staffing issues, TTI indicates it will not be able to deliver the test bed system in November as originally scheduled. The revised completion schedule will not be clear until TTI establishes an alternative staffing plan, which it expects to report next week. This delay will likely push the test bed system delivery into December, which is in turn expected to push acceptance testing into January and the full field test configuration into March.

If the field test configuration is not completed in February as originally planned, it was agreed that the completion of before data collection should extend beyond January. The timing of the before discussion groups would also be affected by a change in the beginning of the field test configuration.

Leisa Moniz indicated that US DOT is monitoring each Field Operational Test very closely. It is essential that LYNX – as the FTA grantee – identify this and any other important issue that may arise (including the cause, resolution and impact) in writing to Sean Ricketson (as well as Leisa Moniz and Doug Parker) as quickly as possible.

Some additional detail about the field test configuration was discussed:

- In addition to the purse revaluing at manual toll lanes, each agency will equip at least one of their agency-operated customer service facilities to serve as a revaluing location for

the common purse. The agencies will provide specific information on the number and locations of each agency's revaluing facilities.

- The Parking Bureau will not be offering automated renewal for monthly parking permits through the ORANGES system.

Initial Experience with Before Data Collection

Discussion about the initial experience with before data collection included:

- Randy Farwell is currently providing on-site support and coordination to help agencies execute the before data collection. He met with David Wynne of OOCEA on October 15, 2002, with Pam Corbin of the Parking Bureau on October 24, 2002 and with Doug Jamison of LYNX on October 25, 2002.
- Each agency indicates they have begun the before data collection effort.
- An on-site coordination meeting will occur November 21, 2002 at LYNX headquarters from 1 pm to 5 pm, to be attended by the full evaluation team. An agenda will be distributed in advance.

Discussion Groups Planning

There has been only limited discussion about the specific approach to discussion groups and the support that agencies can provide. Specifically, the issue about the agencies providing a financial incentive for cardholder participation remains unresolved further to the letter from Sean Ricketson highlighting the importance of such incentives.

The next conference call for the overall team is scheduled for December 3, 2002 from 10:00 a.m. to 11:00 a.m.

Meeting #17
November 21, 2002

Participants:

- Pam Corbin — Parking Bureau
- Sam Vennaro — Parking Bureau
- Doug Jamison — LYNX
- Terry Jordan — LYNX
- Blanche Sherman — LYNX
- Endya Wilkes — LYNX
- David Wynne — OOCEA
- Tom Delaney — PBS&J via phone
- Don Erwin — PBS&J
- Leisa Moniz — US DOT, Volpe National Transportation Systems Center
- Doug Parker — Multisystems

Pilot I Design and Implementation Update

Tom Delaney provided the following updates:

- The implementation team is still determining the impact of the TTI completion delays on the Pilot I (and subsequently Pilot II timing) implementation schedule. TTI has unexpectedly lost access to certain key resources, and the team is considered how best to replace these. One option is to secure additional support resources from other vendors. However, many of the key vendors (e.g., Ascom, EFKON) are already providing products and services for free or at reduced cost, which is expected to be a constraint. **As soon as this issue is resolved and the schedule impact identified, LYNX will notify Sean Ricketson in writing.**
- Technical issues associated with adding Touch'N'Go capability to the EFKON toll system are substantially resolved. One impact is that an EFKON security server needs to be added to the existing OOCEA network. This server will support online card validation during revaluing at attended toll lane cashier booths while avoiding the reliability limitations of a dial-up connection.
- **PBS&J will provide details for the agency operated locations where card revaluing will be offered.**

Initial Experience with Before Data Collection

Goal 4 – Transaction Times

Buses

Covering at least one week in each month between November 2002 through February 2003, Doug Jamison will provide a spreadsheet indicating the APC data for door open times, boarding count and alighting count at each stop on the routes to be equipped with ORANGES buses. LYNX is constrained in the number of weeks per month they can cover because the required number of APC equipped buses from the LYNX fleets cannot be continuously assigned to the ORANGES routes.

Terry Jordan, who handles APC data at LYNX, presented sample APC reports from earlier in 2002. He will filter this database to include only those stops with more boardings than alightings, as well as to exclude stops with unrealistic door open times (e.g., layovers). He will then export the filtered database to an Excel spreadsheet for analysis by the evaluation team. **The APC database for Links 13 and 15 for the week beginning November 18, 2002 will be filtered on this basis and provided to the evaluation team in early December.**

Garages

The garage cashier system records the number of transactions completed at each garage exit for each hour as well as the times at which individual payment transactions are completed. However, this is not enough information to determine which sequences of transactions had no gaps between exiting vehicles, the number of exit lanes open at various times during each hour, or the variability in transaction times.

Pam Corbin will arrange for agency staff to observe all exit lanes from each ORANGES garage over the December 2002 through February 2003 period, to observe the number of transactions completed during time periods with continuous demand – and provide an Excel spreadsheet with the results. Specifically, for each garage exit during one week per month, one hour of field data collection will be undertaken for an AM peak, off-peak and PM peak hour on each of Tuesday, Wednesday and Thursday. This data collection will be based on the following data collection approach:

Time Period	Number of Completed Exit Transactions	Was There Any Break in Continuous Exit Flow During this Time Period?
8:00-8:01	/	Yes
8:01-8:02		Yes
8:02-8:03	////	No
8:03-8:04	/////	No
8:04-8:05	//	Yes
Etc.		

In the above example, only the time periods 8:02-8:03 and 8:03-8:04 would be included as sample time periods for calculating throughput, since the other time periods either had no exit transactions or had breaks in the exit flow. In this case, those two time periods would represent samples with average transaction duration of 15 seconds and 12 seconds, respectively. By using time periods of only one-minute duration, the statistical analysis on the sample will assess the level of variability. This approach will also offer the option of using longer sample time periods (e.g., 2 minutes, 5 minutes) if these would seem to work better.

Once the initial week of data collection in December 2002 is completed, Parking will provide the associated spreadsheets to the evaluation team during January 2003 for initial analysis.

Goal 5 – Prepaid Revenue Share

Buses

Covering the period November 2002 through February 2003, Doug Jamison will provide an Excel spreadsheet indicating the daily percentage split between each of the different payment methods (i.e., cash, transfer and each type of pass) for each of the ORANGES routes. **The initial spreadsheet, covering data for November 2002, will be provided to the evaluation team during December 2002 for initial analysis.**

Blanche Sherman presented sample reports from their GFI revenue software. She explained that nearly all transaction types are registered by the new farebox and will thus be available

through these reports. Most pass transactions use a swipe card and are registered, although there are still a limited number of visually inspected passes (e.g., for employees) that rely on driver key presses for registration.

The percentage split for each day will be used as a sample measurement (excluding days such as holidays when the payment method breakdown may be atypical), so that a statistical assessment can be done on the overall set of daily samples from throughout the before data collection period.

The statistical analysis may suggest that it is appropriate to segment the data into weekday and weekend samples if the payment method breakdown varies significantly (e.g., if weekly and monthly pass use is lower on weekends). Also, LYNX is introducing a new fare structure at the beginning of January 2003, including various pricing changes, eliminating transfer charges and adding a day pass. This can be expected to alter the payment method breakdown and the statistical analysis will likely need to segment the daily samples into separate groups for before and after the fare change.

Garages

Covering the period November 2002 through February 2003, Pam Corbin will provide a spreadsheet indicating the daily percentage split between the different payment methods for each of the ORANGES garages. **The initial spreadsheet, covering data for November 2002, will be provided to the evaluation team during December 2002 for initial analysis.**

Goal 6 – Automated Equipment Uptime

Buses

Covering the period November 2002 through February 2003, Doug Jamison will provide an Excel spreadsheet indicating, for each ORANGES farebox, the dates and times for each instance where the cash accepting equipment went out of and then back into service. This is recorded automatically by the farebox. The spreadsheet will also indicate the times when each ORANGES farebox when into and out of service each day. This will allow the percentage availability for the farebox cash accepting equipment to be determined for each day and used in the statistical assessment. **The initial spreadsheet, covering data for November 2002, will be provided to the evaluation team during December 2002 for initial analysis.**

Toll Lanes

Covering the period November 2002 through February 2003, David Wynne will provide an Excel spreadsheet indicating, for each maintenance incident with the automatic coin accepting machines in the Holland East Plaza, the dates and times when the equipment went out of and then back into service. This will allow the percentage availability for the toll

lane automatic coin accepting equipment to be determined for each day and used in the statistical assessment. **The initial spreadsheet, covering data for November 2002, will be provided to the evaluation team during December 2002 for initial analysis.**

This data will only capture downtime incidents that were of sufficient duration and severity that a call to the maintenance contractor was needed. Brief incidents involving minor blockage (e.g., trash thrown into the coin basket), which the toll lane personnel are able to clear on their own, are relatively common. **David Wynne will investigate the feasibility of capturing the duration of these minor downtime incidents, which would increase the validity of the data.**

Goal 8 – Current Pass Distribution and Permit Billing Costs

Buses

Covering the period November 2002 through February 2003, Doug Jamison will provide an Excel spreadsheet indicating the total pass distribution cost, the cost categories included in that total and the total number of passes distributed. Blanche Sherman and Endya Wilkes presented initial information on the cost categories that could be included. The evaluation team clarified that the cost categories should be limited to characterizing current costs, as the evaluation is not attempting to estimate cost changes due to the ORANGES implementation. **The next iteration of cost category information will be provided to the evaluation team in January 2003 for feedback.**

Garages

Covering the period November 2002 through February 2003, Pam Corbin will provide an Excel spreadsheet indicating the total permit billing cost, the cost categories included in that total and the total number of permit billings involved. **Initial information on the cost categories to be included will be provided to the evaluation team in January 2003 for feedback.**

Goal 9 – Current Cash Processing Costs

Buses

Covering the period November 2002 through February 2003, Doug Jamison will provide an Excel spreadsheet indicating the total cash processing cost, the cost categories included in that total, the total number of cash transactions and the total value of the cash processed. Cash transactions for both direct fare payment and the purchase of prepaid fare media should be included. **Initial information on the cost categories to be included will be provided to the evaluation team in January 2003 for feedback.**

Garages

Covering the period November 2002 through February 2003, Pam Corbin will provide a spreadsheet indicating the total cash processing cost, the cost categories included in that total, the total number of cash transactions and the total value of the cash processed. **Initial information on the cost categories to be included will be provided to the evaluation team in January 2003 for feedback.**

Toll Lanes

Covering the period November 2002 through February 2003, David Wynne will provide a spreadsheet indicating the total cash processing cost, the cost categories included in that total, the total number of cash transactions and the total value of the cash processed. **Initial information on the cost categories to be included will be provided to the evaluation team in January 2003 for feedback.**

Discussion Groups Planning

The agencies plan to initiate an outreach effort in January 2003, which will invite residents to express interest in becoming a cardholder during the trial. The screening and recruitment process for selecting participants in the cardholder discussion group, as well as the general approach and timing for both cardholder and employee discussion groups, were reviewed (these had been previously discussed and agreed upon). **Don Erwin will coordinate with each agency to determine during December 2002 their decisions about providing a uniform monetary incentive to cardholder participants.**

Don Erwin will provide copies of the latest executive stakeholder interviews, as well as a selection of minutes from executive meetings covering key project events and decisions, in lieu of the evaluation team pursuing a separate executive level discussion group.

Meeting #18
December 12, 2002

Participants:

- Pam Corbin — Parking Bureau
- Doug Jamison — LYNX
- David Wynne — OOCEA
- Janet Mendenhall — TTI
- Tom Delaney — PBS&J
- Don Erwin — PBS&J
- Leisa Moniz — US DOT, Volpe National Transportation Systems Center
- Sean Ricketson — Federal Transit Administration
- Randy Farwell — Multisystems
- Doug Parker — Multisystems

Review Minutes from November 12, 2002 Meeting

No revisions were suggested.

Design and Implementation Update

TTI has not yet established the revised completion date for the implementation of Pilot I. It is anticipated that the field implementation (Pilot II) will need to be at least 6 weeks after Pilot I implementation. **As soon as this issue is resolved and the schedule impact identified, LYNX will notify Sean Ricketson in writing.**

The revaluing infrastructure details are being finalized. Agencies are expecting to offer revaluing at each customer service center and at each parking garage. Revaluing may also be available on the grounds of the University of Central Florida and Valencia Community College. **PBS&J will provide details for the agency operated locations where card revaluing will be offered.**

Discussion About the November 21, 2002 Onsite Meeting Of The Before Data Collection Working Group and the Initial Experience with Before Data Collection

The following information and action items were noted about the ongoing before data collection (for the period between November 2002 and at least February 2003):

Goal 4 – Transaction Times

Buses

The APC database for the week beginning November 18, 2002 will be filtered and provided to the evaluation team in late December 2002.

The APC database for the week beginning December 16, 2002 will be filtered and provided to the evaluation team in January 2003.

Garages

Once the week of data collection in December 2002 is completed, Parking will provide the associated spreadsheets to the evaluation team during January 2003.

Goal 5 – Prepaid Revenue Share

Buses

A spreadsheet covering data for November 2002 will be provided to the evaluation team during January 2003 for initial analysis.

Beginning in January 2003, the fare structure will include day passes. Although the farebox will only record the number of day pass transactions, the analysis will benefit from being able to differentiate between day pass purchase and subsequent day pass re-use transactions. Doug Jamison suggested that LYNX would provide additional information on the number of day passes sold on the route during the same time period as the farebox data. The number of day pass re-use transactions would be the total number of day pass transactions minus the number of day passes sold.

Garages

For each day throughout the before data collection period, beginning with November 2002, the Parking Bureau will provide – for each garage – the percentage split between transactions completed with cash/check at the cashier booth and prepaid transactions using a monthly permit.

A spreadsheet covering data for November 2002 will be provided to the evaluation team during January 2003 for initial analysis.

Goal 6 – Automated Equipment Uptime

Buses

A spreadsheet covering data for November 2002 will be provided to the evaluation team during January 2003.

Toll Lanes

A spreadsheet covering data for November 2002 will be provided to the evaluation team during January 2003.

David Wynne found out that Transcore is behind on entering maintenance logs data into the database that will be used for this report. He has asked them to expedite the entry for the data that begins with November 2002.

David Wynne also investigated the feasibility of toll plaza staff logging the duration of minor incidents that do not require a maintenance call. He found out that all plaza staff routine deal with these on an ongoing basis as they go about other duties, meaning that there is no way to log the specific times without considerable effort. The group concluded that these minor downtime incidents would not be captured.

Goal 8 – Current Pass Distribution and Permit Billing Costs

Buses

The next iteration of cost category information will be provided to the evaluation team in January 2003 for feedback.

Garages

Initial information on the cost categories to be included will be provided to the evaluation team in January 2003 for feedback.

Goal 9 – Current Cash Processing Costs

Buses

Initial information on the cost categories to be included will be provided to the evaluation team in January 2003 for feedback.

Garages

Initial information on the cost categories to be included will be provided to the evaluation team in January 2003 for feedback.

Toll Lanes

Initial information on the cost categories to be included will be provided to the evaluation team in January 2003 for feedback.

Discussion Groups Planning

Don Erwin will coordinate with each agency to determine during December 2002 their decisions about providing a uniform monetary incentive to cardholder participants in discussion groups.

Don Erwin will provide copies of the latest executive stakeholder interviews conducted by Kan Chen, as well as a selection of minutes from executive meetings covering key project events and decisions, in lieu of the evaluation team pursuing a separate executive level discussion group.

The next conference call for the overall team is scheduled for January 14, 2003 from 10:00 a.m. to 11:00 a.m.

Meeting #19
January 14, 2003

Participants:

• Pam Corbin	Parking Bureau
• Sam Vennaro	Parking Bureau
• David Wynne	OOCEA
• Janet Mendenhall	TTI
• Tom Delaney	PBS&J
• Rena Barta	PBS&J
• Leisa Moniz	US DOT, Volpe National Transportation Systems Center
• Sean Ricketson	Federal Transit Administration
• Randy Farwell	Multisystems
• Doug Parker	Multisystems

Review Minutes from December 12, 2002 Meeting

No revisions were suggested.

Design and Implementation Update

TTI has not yet established the revised completion date for the implementation of Pilot I. It is anticipated that the field implementation (Pilot II) will need to be at least 6 weeks after Pilot I implementation. **As soon as this issue is resolved and the schedule impact identified, LYNX will notify Sean Ricketson in writing.**

Cards will be initialized centrally and initially distributed to the cardholders by mail. Cardholders would use one of the revaluing points to add a balance or a LYNX pass to the card. Replacement cards will still be initialized centrally and then distributed either by mail or through one of the revaluing locations.

Tom Delaney provided the following information about the specific revaluing locations intended:

- The Parking Bureau will offer a total of 5 attended point of sale locations for card revaluing. Cash revaluing will be offered at one point of sale in each of the Market and Library Garage booths. At the Central Boulevard Garage, there will be three points of

sale (one in the booth and two in the office). Each point of sale at the Central Boulevard Garage will support cash, debit card and credit card revaluing).

- LYNX will offer a total of 5 attended point of sale locations for card revaluing. These will be at the LYNX downtown transfer center and administrative building, as well as on the campuses of the University of Central Florida (UCF) and Valencia Community College. A point of sale is also being considered for the Colonial Plaza Mall. These non-LYNX revaluing locations are all located near the Links that will be equipped for the trial.
- OOCEA will offer a total of 5 attended point of sale locations for card revaluing. These will be at the East and West Customer Service Centers as well as at the OOCEA administrative building. In addition, one attended cashier booth in each direction at the Holland East plaza will be equipped as a card revaluing point of sale.

Discussion about the Mastercard PayPass Trial

Mastercard plans to operate a PayPass trial in Orlando from roughly the end of January through June 2003, primarily involving merchants and cardholders in the southwest area of the region. PayPass will be a smart card version of the cardholder's conventional Mastercard, and will operate by using a contactless interface to quickly provide to the merchant device the credit card data that is also found on the magnetic stripe. Mastercard primarily sees this as an option to increase the efficiency and convenience of credit card transactions, in particular those where speed is important and/or where physically handing over the card to the merchant is inconvenient (e.g., at a fast food restaurant drive-through lane).

Mastercard discussed integration possibilities with the ORANGES consortium during the PayPass planning stage, but their primary interest was with parking. The Parking Bureau will be accepting PayPass at attended sales locations but not at the garage exit cashier booths (e.g., PayPass might be used to pay for a monthly parking permit). There does not appear to be any significant potential for the ORANGES trial and the PayPass trial to affect each other, since they will be used in different locations and will have different target user groups.

Discussion about the Initial Experience with Before Data Collection

The following information and action items were noted about the ongoing before data collection (for the period between November 2002 and at least February 2003):

Goal 4 – Transaction Times

Buses

LYNX has provided November APC data reports. The evaluation team has requested that these reports be reformatted using raw data for each stop occurrence rather than data that has been aggregated at the stop level. **The revised version of the November APC data reports as well as the December APC data reports will be provided to the evaluation team by late January 2003.**

Garages

The Parking Bureau has provided reports from the observations of December garage throughput. Based on the light and sporadic exit volumes, the evaluation team has requested that the observation method be revised to record the actual times (i.e., in HH:MM:SS format) when each exit transaction begins and ends, or alternatively the duration of each transaction in seconds. It was agreed that the duration of each transaction should be from when the vehicle comes to a stop at the booth until the vehicle begins to depart from the booth. **Once the week of data collection in January 2003 is completed, Parking will provide the associated spreadsheets to the evaluation team during February 2003.**

Goal 5 – Prepaid Revenue Share

Buses

A spreadsheet covering data for November 2002 will be provided to the evaluation team during January 2003 for initial analysis.

Garages

A spreadsheet covering data for November 2002 will be provided to the evaluation team during January 2003 for initial analysis.

Goal 6 – Automated Equipment Uptime

Buses

A spreadsheet covering data for November 2002 will be provided to the evaluation team during January 2003.

Toll Lanes

David Wynne recently provided a spreadsheet covering data for November 2002. **A spreadsheet covering data for December 2002 will be provided to the evaluation team during January 2003.**

Goal 8 – Current Pass Distribution and Permit Billing Costs

Buses

The next iteration of cost category information will be provided to the evaluation team in January 2003 for feedback.

Garages

Initial information on the cost categories to be included will be provided to the evaluation team in January 2003 for feedback.

Goal 9 – Current Cash Processing Costs

Buses

Initial information on the cost categories to be included will be provided to the evaluation team in January 2003 for feedback.

Garages

Initial information on the cost categories to be included will be provided to the evaluation team in January 2003 for feedback.

Toll Lanes

Initial information on the cost categories to be included will be provided to the evaluation team in January 2003 for feedback.

Discussion Groups Planning

Tom Delaney indicated that the agencies have agreed to provide a $50 incentive payment to cardholder discussion group participants. The intent will be to have cardholders indicate at enrollment whether they might be interested in participating, so that the "clustered recruitment" effort can focus on these individuals. Specific arrangements regarding the time, place and logistics for individual focus groups will be deferred until the timing is more clear (i.e., contingent on resolving the timing for the start of revenue service). **The**

evaluation team will draft a preliminary general script for each discussion group in February 2003.

Don Erwin will provide copies of the latest executive stakeholder interviews conducted by Kan Chen in January 2003, as well as a selection of minutes from executive meetings covering key project events and decisions, in lieu of the evaluation team pursuing a separate executive level discussion group.

The next conference call for the overall team is scheduled for February 4, 2003 from 10:00 a.m. to 11:00 a.m.

Meeting #20
February 4, 2003

Participants:

• Pam Corbin	Parking Bureau
• Sam Vennaro	Parking Bureau
• David Wynne	OOCEA
• Doug Jamison	LYNX
• Janet Mendenhall	TTI
• Tom Delaney	PBS&J
• Don Erwin	PBS&J
• Leisa Moniz	US DOT/Volpe National Transportation Systems Center
• Randy Farwell	Multisystems

Review Minutes from January 14, 2003 Meeting

No revisions were suggested.

Revised Test Plan document

Leisa Moniz, USDOT/Volpe indicated that a second revision to the Test Plan document occurred on January 20, 2003. Revision 2 includes: the additional information about the card issuance and revaluating infrastructure and a change in the Goal 8 discussion, which is based upon the Parking Bureau's decision to not support the automatic renewal of monthly parking permits through the ORANGES system.

The FTA program manager has approved the document revision and the document has been supplied to FHWA for posting on the FHWA/ITS Joint Program Office Electronic Document Library (EDL). The EDL document number is #13771. The link to the web-site is: http://www.its.dot.gov.

Design and Implementation Update

- Since our last conference call of January 14th, TTI has acquired additional staff resources and is working with the project partners to establish and identify the timeframe for Pilot 1. Janet Mendenhall indicated that the estimated timeframe for completion of the delivery and installation of Pilot 1 would begin no later than May 1, 2003. Pilot 2 will begin approximately 6 weeks after the conclusion of Pilot 1.

Discussion about establishing the Before Data Collection Requirements:

Goal 4 – Transaction Times

Buses

LYNX has provided November APC data reports. The evaluation team has requested that these reports be reformatted using raw data for each stop occurrence rather than data that has been aggregated at the stop level. The revised version of the November APC data reports as well as the December APC data reports will be provided to the evaluation team by late January 2003. **LYNX has provided revised APC data reports for the first two weeks in December. Evaluation team members on the call agreed that the format and data received meet the evaluation requirements. LYNX will submit data for the last two weeks of December and January by mid-February.**

Garages

The Parking Bureau has provided reports from the observations of December garage throughput. Based on the light and sporadic exit volumes, the evaluation team has requested that the observation method be revised to record the actual times (i.e., in HH:MM:SS format) when each exit transaction begins and ends, or alternatively the duration of each transaction in seconds. It was agreed that the duration of each transaction should be from when the vehicle comes to a stop at the booth until the vehicle begins to depart from the booth. Once the week of data collection in January 2003 is completed, Parking will provide the associated spreadsheets to the evaluation team during February 2003. **The Parking Bureau stated that the feasibility of videotaping the transaction times at the booth seems unlikely and cited the issue of camera placement as one challenge. The Parking Bureau will now submit spreadsheets to the evaluation team based on visual inspection. This information will be forwarded to the evaluation team the week of February 3rd.**

Goal 5 – Prepaid Revenue Share

Buses

A spreadsheet covering data for November 2002 will be provided to the evaluation team during January 2003 for initial analysis. **The evaluation team is still waiting for this information to be submitted.**

Garages

A spreadsheet covering data for November 2002 will be provided to the evaluation team during January 2003 for initial analysis. **The evaluation team is still waiting for this information to be submitted.**

Goal 6 – Automated Equipment Uptime

Buses

A spreadsheet covering data for November 2002 will be provided to the evaluation team during January 2003. **The evaluation team is still waiting for this information to be submitted.**

Toll Lanes

David Wynne recently provided a spreadsheet covering data for November 2002**.** A spreadsheet covering data for December 2002 will be provided to the evaluation team during January 2003. **The spreadsheet submitted by OOCEA meets the evaluation team requirements. OOCEA will now collect and submit January ACM downtime data to the evaluation team by mid-February.**

Goal 8 – Current Pass Distribution and Permit Billing Costs

Buses

The next iteration of cost category information will be provided to the evaluation team in January 2003 for feedback. **The evaluation team is still waiting for this information to be submitted.**

Garages

Initial information on the cost categories to be included will be provided to the evaluation team in January 2003 for feedback. **The evaluation team is still waiting for this information to be submitted.**

Goal 9 – Current Cash Processing Costs

Buses

Initial information on the cost categories to be included will be provided to the evaluation team in January 2003 for feedback. LYNX provided initial information to Randy Farwell at a meeting held at LYNX on January 30th**. LYNX is working to augment the initial**

spreadsheet with additional data and will submit to the evaluation team for review within the next week.

Garages

Initial information on the cost categories to be included will be provided to the evaluation team in January 2003 for feedback. **The evaluation team is still waiting for this information to be submitted.**

Toll Lanes

Initial information on the cost categories to be included will be provided to the evaluation team in January 2003 for feedback. **The evaluation team is still waiting for this information to be submitted.**

Discussion Groups Planning

Tom Delaney indicated that the agencies have agreed to provide a $50 incentive payment to cardholder discussion group participants. The intent will be to have cardholders indicate at enrollment whether they might be interested in participating, so that the "clustered recruitment" effort can focus on these individuals. Specific arrangements regarding the time, place and logistics for individual focus groups will be deferred until the timing is more clear (i.e., contingent on resolving the timing for the start of revenue service). The evaluation team will draft a preliminary general script for each discussion group in February 2003. **The evaluation team is in the process of finalizing the draft discussion group guidelines document. A draft of this document will be forwarded to the implementation team prior to the next call.**

Don Erwin will provide copies of the latest executive stakeholder interviews conducted by Kan Chen in January 2003, as well as a selection of minutes from executive meetings covering key project events and decisions, in lieu of the evaluation team pursuing a separate executive level discussion group.

The next conference call for the overall team is scheduled for Tuesday, March 4th from 10:00 a.m. to 11:00 a.m.

Meeting #21
March 4, 2003

Participants:

• Pam Corbin	Parking Bureau
• Sam Vennaro	Parking Bureau
• David Wynne	OOCEA
• Doug Jamison	LYNX
• Janet Mendenhall	TTI
• Tom Delaney	PBS&J
• Sean Ricketson	Federal Transit Administration
• Leisa Moniz	US DOT/Volpe National Transportation Systems Center
• Doug Parker	Multisystems
• Randy Farwell	Multisystems

Review Minutes from February 4, 2003 Meeting

No revisions were suggested.

Design and Implementation Update

Pilot I (model system) implementation is scheduled for May 2003, to include some feedback from a limited public demonstration in an office setting. To this end, TTI is scheduled to initially install the software in late April for the start of the acceptance testing. This testing will continue once the Pilot I system is in place. **The Implementation Team will provide the revised implementation schedule by March 21, 2003.**

Pilot II (full field test configuration) implementation is scheduled for July 2003. Installation will be completed early in July and the system will go into revenue service after about a week of additional acceptance testing. **The Implementation Team will provide written acceptance test results after acceptance tests are complete.**

The University of Central Florida (UCF) and Valencia Community College (VCC) are closed for 3 weeks in July, and the Implementation Team expects this might lead to some delay in the initial recruitment of LYNX cardholders. The Implementation Team has committed to maintaining the full field test configuration in place for six months from whenever the required 800-1200 active card accounts are achieved. To track this, TTI will generate a weekly report that tracks the number of active card accounts. **The Evaluation**

Team will provide the requested content for this weekly clearinghouse activity report, which can also serve to address the data collection needs of Goal 7.

Before Data Collection

The following table summarizes the status of the before data collection effort, and highlights current short-term action items for the Implementation Team. **Outstanding November, December and January data is overdue and must be provided to the Evaluation Team by March 21, 2003.**

Before Data Collection Status as of : Mar 4/03			
Evaluation Measure/Goal	**LYNX**	**OOCEA**	**City of Orlando**
#4, Transaction Times	APC data provided for Links 13 & 15 for weeks 12/02 & 12/09. Data for last 2 weeks of Dec provided. Data acceptable. **Jan, Feb and Mar data is pending.**		Provided manually collected transaction time data for each garage as follows: Library - 1/16, 2/18 CBG - 1/15, 2/20 Market - 1/16, 2/20. Data acceptable. **Mar data is pending**.
#5, Prepaid Revenue Share	LYNX provided a spreadsheet based on GFI farebox data showing cash and prepaid revenue for Links 13 & 15 for Nov, Dec, Jan. Data acceptable. **Feb and Mar data is pending.**		The City provided share of revenue summaries for each garage for period Nov through Dec. **City needs to provide revenue data by garage, month and revenue type for Nov, Dec, Jan, Feb, Mar.**
#6, Automated Equipment Uptime	LYNX needs to provide reports for GFI up/down time for Nov, Dec, Jan, Feb, Mar. **No data submitted.**	OOCEA provided ACM uptime reports for Nov, Dec, Jan. Data acceptable. **Feb and Mar data is pending.**	
#8, Current Pass Distribution or Permit Billing Costs	LYNX submitted draft cost per pass distribution for Nov & Dec in Jan/Feb. **LYNX needs to submit pass distribution cost data for Nov, Dec, Jan, Feb, Mar.**		The City provided unit cost of permit billing. **City needs to provide permit billing cost data by month for Nov, Dec, Jan, Feb, Mar, showing methodology and relevant cost centers.**
#9, Current Cash Processing Costs	LYNX submitted draft cost of cash processing for Nov & Dec in Jan/Feb. **LYNX needs to submit cash processing cost data for Nov, Dec, Jan, Feb, Mar.**	**OOCEA must reconcile cost basis and submit data for Evaluation Team to review for Nov, Dec, Jan, Feb, Mar.**	The City provided unit cost of cash processing. **City needs to provide cash processing cost data by month for Nov, Dec, Jan, Feb, Mar, showing methodology and relevant cost centers.**

Discussion Groups Planning

The Evaluation Team provided an overview of the "Discussion Groups Process" document, a draft of which was provided to the Implementation Team members on March 3, 2003. This document discusses selecting group participants, how the groups will be organized and conducted, and provides scripts for the facilitator of each group. The Evaluation Team will finalize this document based on feedback received by March 24, 2003, after which we will coordinate with the Implementation Team on the logistics of their arranging for these discussion groups. Based on the updated implementation schedule, it is expected that these group will be conducted in July 2003.

Don Erwin will provide copies of the latest executive stakeholder interviews conducted by Kan Chen in January 2003, as well as a selection of minutes from executive meetings covering key project events and decisions, in lieu of the evaluation team pursuing a separate executive level discussion group.

The next conference call for the overall team is scheduled for Tuesday, April 8, 2003 from 10:00 a.m. to 11:00 a.m.

Meeting #22
April 8, 2003

Participants:

• Pam Corbin	Parking Bureau
• David Wynne	OOCEA
• Doug Jamison	LYNX
• Janet Mendenhall	TTI
• Tom Delaney	PBS&J
• Leisa Moniz	US DOT/Volpe National Transportation Systems Center
• Sean Ricketson	Federal Transit Administration
• Randy Farwell	Multisystems

Review Minutes from March 4, 2003 Meeting

No revisions were suggested.

Pilot 1 & 2 Design and Implementation Update

- Tom Delaney, PBS&J indicated that the team is preparing for Pilot 1. A "public" demo of Pilot 1 will be ready during the May 14-16th timeframe and will be located at PBS&J offices in the Orlando area. The *CardTouch* system will be located at the OOCEA offices and will reside there through completion of the FOT.

  Tom indicated that the implementation team plans on some pre-FOT testing in the field. This will be done at the completion of Pilot 1 and prior to initiation of Pilot 2 being in revenue service. Tom also indicated that the FOT would run for a period of 12 months, through June 2004.

Before Data Collection Status

Leisa Moniz walked through the before data collection status matrix with the implementation partners. A summary of outstanding issues is provided in the updated report that is attached.

Cardholder Recruitment Status

Tom Delaney indicated that the team is developing recruitment flyers. OOCEA will hand out the flyers to current cash customers at the Holland East Toll Plaza. Customers will have the opportunity to enroll by calling a customer service number. LYNX has retained a local recruiting firm to assist them. Recruitment will be conducted on board LYNX buses involved in the FOT (Routes 13 & 15) as well as at bus stops. Interested parties may enroll by filling out the survey on the bus. City of Orlando, Parking Bureau will have the garage cashiers distribute flyers, or interested parties may call a City of Orlando number to enroll. Additionally, the ORANGES website will have a questionnaire available. Copies of the various recruitment materials will be sent to Doug Parker and Leisa Moniz.

Discussion Group Planning

Leisa Moniz indicated that comments and suggested revisions on the Discussion Group Process where submitted to the evaluation team from FHWA, FTA, LYNX and PBS&J. Comments were included in the revision dated March 24, 2003 and email to the Implementation team on March 28th by Doug Parker. Any further changes and/or comments should be sent ASAP to Doug Parker and Leisa Moniz.

Further planning and discussion on the format, logistics etc. regarding the discussion groups needs to occur prior to the mid-June, so that the Evaluation team can prepare accordingly.

Definition of "Active" Cardholder

A question was raised several weeks ago regarding a specific definition for "active" cardholder. Sean Ricketson, FTA indicated that an active cardholder would be a cardholder whose activity was detailed on three consecutive weeks of the Clearinghouse weekly activity reports. These reports will be supplied by TTI.

Doug Jamison indicated that agencies will/may follow-up with particular cardholders regarding lapses in activity, prior to categorizing them as "inactive". This will aid in meeting the "active cards in use" requirement stipulated by the FTA.

Next meeting will take place on Tuesday May 6th at 10:30 AM.

Meeting was adjourned.

Meeting #23
May 6, 2003

Participants:

• Sam Vennaro	Parking Bureau
• David Wynne	OOCEA
• Doug Jamison	LYNX
• Janet Mendenhall	TTI
• Tom Delaney	PBS&J
• Leisa Moniz	US DOT/Volpe National Transportation Systems Center
• Sean Ricketson	Federal Transit Administration
• Randy Farwell	Multisystems
• Doug Parker	Multisystems

Review Minutes from April 8, 2003 Meeting

A cardholder will first be considered "active" once the card has activity on a weekly clearinghouse activity report. An "active" would be transferred to "inactive" if no transactions appear on three consecutive weekly clearinghouse activity reports. An "inactive" card would be transferred to "active" once the card again has activity on a weekly clearinghouse activity report. "Blocked" cards would be tracked separately from the "inactive" category, with distinct "blocked" card categories including "lost", "stolen" and "cancelled" cards.

Pilot I and II Implementation Update

Pilot I (office system) is scheduled for launch May 14-16, 2003. Acceptance testing is now underway on the Pilot I system, and will continue after the Pilot I launch. Written test results are scheduled to be available no later than the first week of June, 2003, and will be provided to the evaluation team. Other activities that will occur between the Pilot I and II launches include equipment installation, field testing and training.

Pilot II (revenue system) is scheduled for launch July 1, 2003. The incorporation of smart card payment through EFKON transponders into the *CardTouch* system is now scheduled to be delayed until September 1, 2003 – as explained in the letter from TTI dated April 16, 2003. Sean Ricketson stressed that any further delays in the launch of this or any other component of the Pilot II system would be of great concern to the FTA.

Before Data Collection Status

Doug Jamison indicated that the remaining Lynx transaction times data will be provided in the next couple of weeks, and that the remaining Lynx farebox uptime data will be provided next week.

David Wynne indicated that the Automatic Coin Machine uptime data will be provided in the next week, but that it is still unclear if/when OOCEA management will decide they are willing to release operating costs data.

Parking has now provided all of the agreed before data.

Cardholder Recruitment and Discussion Group Planning Status

Tom Delaney indicated that the online recruitment effort for cardholders is starting today. Whether online or in writing, applicants need to reply to the screening questions and indicate whether they are willing to participate in the before and after cardholder discussion groups (Tom Delaney will send a sample of the printed enrollment questionnaire to the evaluation team). This effort will continue until the required number of cardholders is enrolled, which is expected to occur shortly before the Pilot II launch.

Once the cardholders have been enrolled, the implementation team will provide a spreadsheet to the evaluation team indicating, for each cardholder that expressed willingness to participate in the discussion groups, the answers to the screening questions. Based on this information, the evaluation team will cluster the cardholders into 3-5 groups based on the similarity in their responses.

The evaluation team will indicate that a certain number of cardholders from each cluster should be recruited for the discussion groups (e.g., 5 from Group A, 4 from Group B, and 6 from Group C). The implementation team will call cardholders from each group to recruit the required number of discussion group participants (the exact date, time and location of the before discussion group will need to be available for this recruitment effort). A target of 15 cardholders will be recruited, based on the expectation that 2-5 may not attend.

Assuming that the implementation team will not be able to provide data on the screening question responses of the cardholders until roughly July 1, 2003, it is expected that the before discussion groups will occur in early August 2003.

Weekly Clearinghouse Reports

The *CardTouch* system produces clearinghouse activity reports based on their transaction databases, using the Crystal Reports software. Janet Mendenhall will provide samples to the evaluation team of the weekly clearinghouse activity reports currently available from

the *CardTouch* system. The format of the weekly clearinghouse reports will be established by early June 2003.

The next conference call was scheduled for Thursday June 19, 2003, 10:00 a.m.

Meeting #24
June 20, 2003

Participants:

• Pam Corbin	Parking Bureau
• David Wynne	OOCEA
• Doug Jamison	LYNX
• Janet Mendenhall	TTI
• Tom Delaney	PBS&J
• Leisa Moniz	US DOT/Volpe National Transportation Systems Center
• Sean Ricketson	Federal Transit Administration
• Doug Parker	Multisystems

Review Minutes from May 6, 2003 Meeting

There were no comments.

Pilot II Implementation Update

Pilot I testing is "90%" completed. Acceptance testing results documentation is currently being completed and reviewed, and will be provided to the Evaluation Team once ready (roughly two weeks).

Equipment installation for Pilot II is underway:

Validators have been installed on LYNX buses.

The "touch and go" readers are currently being installed at the Holland East toll plaza (see previous minutes for discussion of the deferred installation of readers for smart card accepting transponders).

The parking garages validators have been shipped.

The eight parking validator units combine a smart card reader with additional readers for proximity cards and magnetic stripe cards, and are being integrated by McGann. Combining this equipment in a single unit is at the request of the Parking Bureau, but it was the first time McGann developed this product. The smart card reader is located far enough behind the external target that the read range/reliability is not considered sufficient. The readers are being accepted and set up for Pilot II in their current form, but McGann is attempting to source and integrate an alternative reader with stronger range. It is estimated that this upgrade might be completed about a month into Pilot II.

There has been a delay in receiving the dual interface smart cards from Gemplus, which will delay the intended July 1/03 launch of Pilot II. The card order was originally placed on March 25/03, with delivery promised in 6-8 weeks. There have been subsequent deferrals from Gemplus, and the most recent promised shipping date is July 8/03. After the cards are shipped from France, it is expected to take 5-7 days for the card to be received at TTI in Phoenix, then about 7 days to set up the cards. Then, they will be shipped from Phoenix to the agencies and the agencies will need 2-3 days to enroll the cards in their systems. At that point, the cards would be mailed out to the cardholders. Assuming the July 8/03 shipping date is achieved, it will thus be late July or more likely early August before the cards would be used in revenue service. The Implementation Team has been applying pressure to senior management at Gemplus USA, including reminders that this project is receiving considerable exposure and is being evaluated by the FTA.

Before Data Collection Status

LYNX recently determined that the remaining APC before data for February and March 2003 has problems (all boardings at zero). They will need about a week to determine whether the correct data can be recovered from the raw APC data. It seems more likely at this point that this data will be deemed unrecoverable or suspect. In this event, the plan is to gather supplementary before data from LYNX to replace February and March. April has already been provided, so LYNX would provide May and perhaps June data.

OOCEA has not been able to reach internal agreement on the basis for reporting cost data, and will not be releasing cost data at this time. If cost data becomes releasable later in the evaluation period, they will provide it then.

Cardholder Recruitment and Discussion Group Planning Status

To date, the agencies have recruited 600-700 of the intended 1000 cardholders. They expect that the full number of cardholders may not be achieved until classes at VCC and UCF resume in August. A spreadsheet will be provided to the Evaluation Team in the next week or so, with the responses to the pre-screening questions from cardholders that expressed willingness to participate in the discussion groups. Most people enrolling for the card have expressed interest in participating, suggesting that the incentive payment is a persuasive factor, although it is not known how many will be available on the specific date selected. The Evaluation Team will categorize these potential participants into "clusters" with similar characteristics and indicate a target number of participants for each group. At that point, the dates and locations for the discussion groups will be finalized. With this information, the agencies will make recruiting calls until the target number of participants from each group has been achieved.

Weekly Clearinghouse Reports

The weekly clearinghouse activity reports will use a week beginning day that is consistent with the rest of the reports being generated. The reports will be provided to the Evaluation Team each week via email, as an Excel spreadsheet attachment.

The next conference call was scheduled for Thursday July 17, 2003, 10:00 a.m.

Meeting #25
July 10, 2003

Participants:

- Sam Vennaro — Parking Bureau
- David Wynne — OOCEA
- Doug Jamison — LYNX
- Janet Mendenhall — TTI
- Tom Delaney — PBS&J
- Sean Ricketson — Federal Transit Administration
- Doug Parker — Multisystems

Review Minutes from June 20, 2003 Meeting

Tom Delaney indicated that he will be transmitting some comments on these minutes.

Pilot II Implementation Update

Doug Jamison indicated that Pilot II will be rolled out in three stages during July/August 2003 (with the card mailing date a result of the timing expected for the late card shipment from Gemplus). He sent a file with the following details:

Delivery 1

July 23, 2003 - Production System Installed

August 1, 2003 - Mail cards to participants

August 5, 2003 - Estimated card receipt by participants

Delivery 2

August 14, 2003 - System Upgrade

Enrollment Update (Transit pass autoload, toll account)

ADS Interface (Credit Card authorizations)

LYNX FoxPro extract (to GFI revenue system from the CardTouch system)

Delivery 3

August 28, 2003 - System Upgrade

Toll account processing

Autoload bus pass (30 day pass autoload via Credit Card)

System reporting (custom)

Web Services (statement)

ACH File Consolidation

All the card payment equipment has been installed, as of today. The two final components being installed today are:

Handheld devices that will be used in the LYNX bus garage to transfer transactions from (and updated data to) the onboard validators. These handheld devices will exchange data with the CardTouch system using a cradle installed in the bus garage.

Validators in the parking garages are wired to the devices that are just being installed to exchange data with the CardTouch system.

All Point of Sale equipment is expected to be installed by the end of July 2003.

Acceptance test results will be provided to the evaluation team as soon as the documentation is complete.

Before Data Collection Status

LYNX has resolved the data collection problem previously identified with the APC data for February and March 2003. They expect to provide this data to the evaluation time within about a week.

Cardholder Recruitment and Discussion Group Planning Status

The evaluation team has received from LYNX and OOCEA the spreadsheets providing demographic information about the cardholders they have recruited who expressed willingness to participate in the cardholder discussion group. Parking indicates that they had not yet provided a spreadsheet because they have so far only recruited about 100 cardholder participants. It was agreed that this should be enough to support the recruitment effort for discussion group participants, so Parking will send their spreadsheet to the evaluation team.

Once all three spreadsheets have been received, the evaluation team will provide the previously discussed clustering feedback. At that point, the dates for discussion groups will be finalized and the agencies will use the clustering feedback to complete the recruitment of discussion group participants.

Discussion groups will be held at OOCEA headquarters. Doug Jamison mentioned that LYNX cardholders who do not have access to a car will be able to arrive within a block of OOCEA headquarters on LYNX.

Weekly Clearinghouse Reports

There has been no change in the plans for activity reports to be provided to the evaluation team each week by email during the trial.

The next conference call was scheduled for Thursday August 14, 2003, 10:00 a.m.

Meeting #26
August 14, 2003

Participants:

- Pam Corbin — Parking Bureau
- Sam Vennaro — Parking Bureau
- David Wynne — OOCEA
- Janet Mendenhall — TTI
- Tom Delaney — PBS&J
- Sean Ricketson — Federal Transit Administration
- Leisa Moniz — Volpe Center
- Randy Farwell — TranSystems
- Doug Parker — TranSystems

Review Minutes from July 10, 2003 Meeting

No comments were indicated.

Pilot II Implementation Update

As of Monday, August 11, 2003, the ORANGES Pilot II system has been considered to be in live production mode. Just prior to that date, all of the various transactions entered during testing (i.e., using the "blank" pre-production cards provided by Gemplus and "enrolled" at TTI, prior to the production cards being available) were cleared. Also, 150 cards have been initialized and mailed to each agency. Begin around today, the agencies are enrolling the cardholders into their systems and mailing out the cards to the cardholders. Thus, cardholder transactions could begin to appear in the system next week.

All of the agency-operated revaluing locations are operational, with the UCF and VCC locations due to be operational by the end of this week.

As the final stage of acceptance testing, PBS&J will be using "live" cards and accounts with "live" funds to complete additional test transactions throughout the system. This "end to end" testing will be used to ensure that all of the transactions associated with these cards and accounts flow through the system properly to the TTI system. As soon as the acceptance tests are completed, the documentation will be provided to the evaluation team.

Most of the training was completed in late July. The remaining training, which will be completed in September (approx.) , is detailed system operations training to the staff at OOCEA.

Completion of Before Data Collection

Before data collection is now complete and the statistical analysis report is being prepared.

Cardholder Recruitment and Discussion Group Logistics

The employee and cardholder discussion groups have now been scheduled, for August 26 and August 28 at the OOCEA administration building. The agency representatives are currently completing cardholder recruitment for this discussion group, and will send the names of the participating cardholders and employees to Randy Farwell.

Randy will also be meeting with the agency representatives on August 20 at OOCEA to finalize the logistical details. David Wynne indicated that OOCEA should be able to help with providing the required supplies (e.g., flip chart, markers). We are also requesting that one of the agencies provide recording equipment.

It was agreed that the $50 stipend for cardholder participants will be provided as a mailed check after completion of the before discussion group.

Weekly Clearinghouse Reports

TTI will begin to provide weekly clearinghouse reports to the evaluation team as soon as cardholder transactions begin to appear (i.e., transactions from test cards will be filtered out).

The next conference call was scheduled for Wednesday September 10, 2003, 10:00 a.m.

Meeting #27
September 10, 2003

Participants:

• Pam Corbin	Parking Bureau
• Doug Jamison	LYNX
• David Wynne	OOCEA
• Janet Mendenhall	TTI
• Tom Delaney	PBS&J
• Sean Ricketson	Federal Transit Administration
• Leisa Moniz	Volpe Center
• Doug Parker	TranSystems

Review Minutes from August 14, 2003 Meeting

No comments were indicated.

Pilot II Update

Pilot II is now operational, with the exception of the delayed implementation (discussed in previous minutes) for the OOCEA smart card accepting transponders functionality.

Cardholders are now completing transactions with all three agencies. Janet Mendenhall indicated that she has just distributed a card activation report that summarizes the status on the number of cards that have been issued and how many are active (i.e., have been used at least once in the past three weeks). Review and comment on this report is requested. The cards listed as issued are those that have been enrolled by one of the agencies, on the basis that the agencies are mailing them to the cardholders within a few days of enrolling the card with the clearinghouse.

So far roughly 671 cards have been issued, with 19% active. The required number of active cardholders throughout the 12 month test is 1000. Some agencies have not yet completed their card mail outs, and some cards will not be issued until acceptance through the transponders is activated.

PBS&J is continuing with the revenue service phase of the acceptance testing. Several performance issues have been noted and are in the process of being resolved. These include:

Cards are not currently always hot-listed consistently across the equipment of all three agencies. When a card is hot-listed, the agency that takes the report informs the clearinghouse, which then downloads this information to all the field devices. So far,

they have tried hot-listing some of their test cards and have found that they could still be used with some equipment. The cause for this is currently under investigation.

Some issues have also been noted with behavior of the LYNX validators. Some of these issues are transparent to the cardholders (e.g., related to uploading transactions data with the collection device), while others affect cardholder functionality (e.g., collecting the fare from the stored value balance even though there is a valid pass).

Acceptance Test Documentation

This will be provided to the evaluation team once the testing is completed and the results documented.

Implementation Team Meeting Documentation

In past meetings, the implementation team had offered the documentation from meetings of the implementation team, in lieu of requiring senior management participation in additional meetings for the discussion groups. This documentation has not yet been provided, and Tom Delaney will check into what is available. For example, there have been Executive Committee presentations/meetings and another round of the stakeholder interviews conducted by Kan Chen.

Analysis of Before Data

This analysis and the associated deliverable are currently being completed by the evaluation team.

Discussion Groups Documentation

The three before discussion group sessions were conducted on August 26, 2003 and August 28, 2003. The documentation will be released as an appendix in an updated release of the "Discussion Groups Process" deliverable.

Weekly Clearinghouse Reports

Each week, TTI will send an email to the evaluation team providing the clearinghouse activity reports for that week. These reports are to include the transaction details, the modal summary and the card activation report. The reports will be accumulated and eventually used as part of the after data analysis. The first set of transaction detail and modal summary reports were provided for the week beginning August 18, 2003. The first card activation report was issued for the time period through to September 7, 2003.

The next conference call was scheduled for Wednesday October 22, 2003, 10:00 a.m.

Meeting #28
October 22, 2003

Participants:

• Pam Corbin	Parking Bureau
• David Wynne	OOCEA
• Tom Delaney	PBS&J
• Sean Ricketson	Federal Transit Administration
• Leisa Moniz	Volpe Center
• Doug Parker	TranSystems

Review Minutes from September 10, 2003 Meeting

No comments were indicated.

Pilot II Update

Pilot II is now operational, with the exception of the delayed implementation (discussed in previous minutes) for the Autoload and OOCEA smart card accepting transponders functionality. Implementation of this remaining functionality is now not expected to be completed until at least November (exact date to be determined).

An update to the software for the LYNX validators and collection devices was installed around September 23, 2003, which the implementation team indicates has addressed all the remaining performance issues for these devices. The implementation team indicates that the Autoload and transponder functionality are the only areas of the system remaining to be completed.

So far roughly 793 cards have been issued, with 144 (18%) active as of October 19, 2003. Approximately 80-100 cards will not be issued until acceptance through the transponders is activated.

The required number of active cardholders throughout the 12 month Field Operational Test is 1000. Given the functionality that remains to be implemented and the low number of active cardholders, the official start for the demonstration period remains to be determined.

The implementation team is following up with their recruitment/screening contractor to learn why so many cardholders have become inactive. LYNX use is particularly low. One possibility the implementation team will explore is that more cardholders are needed from the student bodies of the University of Central Florida and Valencia

Community College. These students are heavy users of the equipped LYNX routes, but these institutions were not in session at the time of the original recruitment.

Gemplus has informed the implementation team that the GemCombi dual interface smart cards are being discontinued and are no longer in production. The replacement dual interface card is to be based on the Java operating system and be backwards compatible with the current readers. However, these cards are not expected to be available until 2005. The original card inventory was 2100, so there are still additional cards that could be distributed.

Acceptance Test Documentation

Pilot I test results documentation was provided to the evaluation team on October 22, 2003, The Pilot II test results documentation is being completed and will be provided to the evaluation team within 2-3 weeks.

Implementation Team Meetings Documentation

Tom Delaney indicated that the presentations to the Executive Committee and the minutes of the Management Committee meetings will be provided to the evaluation team.

Evaluation Phase I Final Report

This analysis and the associated deliverable are currently being completed by the evaluation team.

Weekly Clearinghouse Reports

Each week, TTI will send an email to the evaluation team providing the clearinghouse activity reports for that week. These reports are to include the transaction details, the modal summary and the card activation report. The reports will be accumulated and eventually used as part of the after data analysis. The evaluation team has continued to receive these weekly reports since the week beginning August 18, 2003.

The next conference call was scheduled for Tuesday November 22, 2003, 10:00 a.m.

Minutes from Evaluation Team Meetings and Conference Calls
Phase II

Meeting #1
February 24, 2004

Participants:

• Pam Corbin	Parking Bureau
• Doug Jamison	LYNX
• David Wynne	OOCEA
• Janet Mendenhall	TTI
• Tom Delaney	PBS&J
• Sean Ricketson	Federal Transit Administration
• Steve Mortenson	Mitretek
• Meenakshy Vasudevan	Mitretek
• Leisa Moniz	Volpe Center
• Doug Parker	TranSystems

Review Minutes from January 27, 2004 Meeting

The question on why the number of active cards noted in the minutes does not match the number in the weekly card usage reports. First, the number in the minutes was only that reported at the time and is an approximation. The purpose of the weekly card usage reports is to ensure that there is an accurate and ongoing record. These reports take precedence in terms of accuracy over the general statements recorded in the minutes.

Technical/Operations Update

The Pilot II acceptance testing is currently nearing completion. Tom Delaney will provide information in the next week on when they expect to complete the 2-3 minor remaining tests and make the test results document available to the evaluation team. The recent focus of this testing was on functionality added to the system more recently (e.g., smart card accepting OOCEA transponders, Autoload capability of 30-day LYNX passes, web card usage histories), each of which have reportedly now passed their acceptance tests.

A particularly critical issue with the smart card accepting transponders has been to ensure that the E-Pass transponder transaction is always reversed so that patrons will

never be double-charged (all patrons with an ORANGES transponder will also have a mounted E-Pass transponder for use with non-equipped plazas).

Cardholder recruitment efforts continue, to try to increase and maintain the number of active cards. Now that testing for the smart card accepting transponders is complete, OOCEA expects to recruit 30-50 additional cardholders (i.e., that would also have smart card accepting transponders). Now that the testing for the Autoload capability for LYNX passes is complete, LYNX plans to approach the roughly 50% of those originally contacted that indicated interest in this feature about whether this might help them to want to use a card (or use a card they already have more often).

OOCEA has handed out over 45,000 flyers in the cash lanes of the equipped plaza. LYNX has placards on the equipped buses and is also handing out flyers on buses, at the downtown station and at local nearby colleges. The placards and flyers attempt to cause those who are most interested in using the card to contact the agency, by phone or by visiting the website to learn more and enroll.

Agencies have asked some cardholders (i.e., those not using their cards) to return or mail in their card, with only limited success since there was no deposit. The agencies also intend to approach by phone and email current cardholders that are not using their cards, to attempt to learn the reason why. This information might help the agencies adjust their recruitment approach to increase the likelihood of providing cards to people that will use them. They are also considering assessing the demographics of which cardholders are making more use of their cards, again for potential use in focusing future recruitment for additional cardholders.

Update on Evaluation Phase I Report

Some additional comments were received from the implementation team after the Phase I report was posted to the federal Electronic Document Library (EDL). The document will be updated to incorporate these comments. Although the updated document will be resubmitted, it is not known whether it will be reposted (since there is additional cost to the federal government for reposting).

Phase II After Data Collection Status and Overview

The initial focus of the Phase II evaluation will be on updating the after test plans, which were originally developed as part of Phase I. The draft updated test plans are to be developed by April 9, 2004 and finalized by the end of May 2004. The final evaluation plan is scheduled for completion by December 1, 2004, following which a briefing on the findings will be provided to the federal government in mid-December 2004.

The intent is to initiate a four-month period for collecting after data once the number of active cards reaches (and is maintained at) 800. The ideal time to conduct the after

discussion groups will be towards the end of that four month period. However, if the four month period has not been initiated by May-June 2004, this would affect the ability to complete the Phase II evaluation effort on time. In this event, it is possible that the federal government will opt to not undertake quantitative data collection and proceed to conduct only the discussion groups.

The next conference call was scheduled for Friday, April 2, 2004, 10:00 a.m.

Meeting #2
April 2, 2004

Participants:

• Pam Corbin	Parking Bureau
• Doug Jamison	LYNX
• David Wynne	OOCEA
• Tom Delaney	PBS&J
• Janet Mendenhall	TTI
• Sean Ricketson	Federal Transit Administration
• Steve Mortenson	Mitretek
• Meenakshy Vasudevan	Mitretek
• Leisa Moniz	Volpe Center
• Doug Parker	TranSystems

Review Minutes from February 24, 2004 Meeting

There were no comments.

Technical/Operations Update

OOCEA is now live with more than 15 transponders that accept the ORANGES card, and are seeking to increase this to about 30. They have found it relatively difficult to recruit participants so far, largely due to the fact that participants need their conventional transponder/account and a separate ORANGES transponder/account.

LYNX is hoping to see the usage of their cards increase now that the 30-day Autoload feature is available, given that this feature was not yet available when most of these cardholders were originally recruited. A letter has been sent to these cardholders to help make them aware, but no strong response has yet been detected. Revaluing attendants have also been asked to help make cardholders aware of this option – a sign near the revaluing location is being considered as well.

There had been an earlier issue regarding the bus validator collection date accuracy for transaction batches, but performance seems fine now.

A sporadic issue has appeared with the parking garage reader at the exit of one garage, which is occasionally returning an "invalid card" message. The implementation team is currently working to isolate and diagnose the cause.

As part of the ongoing effort to increase the number of active cards, the implementation team recently used email to survey inactive cardholders and attempt to gain feedback on reasons for the lack of use. A detailed analysis of the responses has not yet been completed, but three common responses were reported as (1) not enough equipped locations, (2) had the impression that the card was going to allow them free travel, and (3) have changed home, job or school location. Cardholders no longer intending to use their card were asked to return it, but only about 10 card returns have been received.

Another recent promotional effort has been the posting of placards on both sides of each bus on equipped Links 13 and 15, which highlight the fare discount available.

There was a positive item about the ORANGES initiative near the lead position on a local television news program recently. Unfortunately, the item reinforced the misconception that the agencies did not need to recruit any additional participants.

Phase II After Data Collection Plan Update

The after data collection test plans are still in the process of being updated.

Meenakshy Vasudevan asked whether the quantitative data collection was going to be cancelled due to the low number of active cards. The current position of FTA was repeated – that the implementation team is being provided a limited time to increase the number of active cards before the decisions are made on (1) whether to complete the after quantitative data collection and (2) when to undertake the after discussion groups.

The next conference call was scheduled for Thursday, May 6, 2004, 10:00 a.m.

Meeting #3
May 6, 2004

Participants:

• Doug Jamison	LYNX
• David Wynne	OOCEA
• Tom Delaney	PBS&J
• Bill Robertson	TTI
• Sean Ricketson	Federal Transit Administration
• Steve Mortenson	Mitretek
• Meenakshy Vasudevan	Mitretek
• Leisa Moniz	Volpe Center
• Doug Parker	TranSystems

Review Minutes from April 2, 2004 Meeting

There were no comments.

Technical/Operations Update

The system has continued in its operations and maintenance phase. The system has needed some maintenance, which is typical, with recent repairs including the parking agency-level revenue management system and some toll plaza tunnel equipment.

Cardholder recruitment efforts continue. The agencies have concluded that while ongoing recruitment of new cardholders should be sufficient for replacing cardholders that gradually drop out of the program (e.g., due to changes in home, work or school location), it is not expected that increasing the number of cardholders by several hundred (as would be needed to achieve the target of 800 active cards) will be feasible.

Phase II After Data Collection Plan Update

The Evaluation Team is currently completing the data collection plan. FTA will finalize the specifics of the after data collection program in the near future, considering the current implementation team assessment for the anticipated number of future cardholders.

The next conference call was scheduled for Tuesday, June 1, 2004, 10:00 a.m.

Meeting #4
June 7, 2004

Participants:

• Doug Jamison	LYNX
• David Wynne	OOCEA
• Pam Corbin	City of Orlando Parking
• Tom Delaney	PBS&J
• Janet Mendenhall	TTI
• Sean Ricketson	Federal Transit Administration
• Steve Mortenson	Mitretek
• Meenakshy Vasudevan	Mitretek
• Leisa Moniz	Volpe Center
• Doug Parker	TranSystems

Review Minutes from May 6, 2004 Meeting

There were no comments.

Technical/Operations Update

There have been no significant changes in ORANGES operations since the previous call.

The one-year demonstration period for the demonstration project concludes July 31, 2004.

After Quantitative Data Collection Planning

FTA has decided to initiate quantitative data collection for all of the measures discussed in the after data collection test plans, but to not undertake statistical analysis for measures judged more sensitive to the limited number of active cards (goals 4, 5 and 6).

Given the completion of the demonstration in July 2004, the after data collection period will be May-July 2004. The evaluation final presentation will occur in Washington, DC in December 2004, and agency participants are encouraged to attend.

Goal 1 – Clearinghouse Performance Measures: Janet Mendenhall will report within 2 weeks on suitable and feasible measures to report on the technical performance of the clearinghouse (e.g., throughput, reliability).

Goal 2 – Acceptance Test Results: The most recent test results documentation currently available to the evaluation team is "ORANGES Integration Case Test Procedures – Pilot I (Final)" dated May 14, 2003. Tom Delaney will provide any more recent test results documentation.

Goal 3 – Demonstrate Performance for New Transponders: David Wynne will gather data on the number of transactions completed by the Efkon transponders, and the number of transactions completed by the EPass transponders (at the Holland East Plaza only), for cases where the same vehicle was equipped with both throughout the after data collection period.

Goal 4 - Transaction Times: Doug Jamison will gather the APC data on dwell times and number of boardings at stops on the equipped routes. Data will only be available for May if APC-equipped vehicles were used on these routes. Pam Corbin will arrange for samples of cashier booth transaction times to be collected at each equipped garage – it will not be possible to gather this data for May.

Goal 5 – Prepaid Revenue Share: Doug Jamison and Pam Corbin will gather the prepaid revenue share data from their revenues systems.

Goal 6 – Automated Equipment Uptime: Doug Jamison will gather the farebox availability data, and David Wynne will gather the Automatic Coin Machine availability data.

Goal 7 – Joint Account Use: TTI will continue to provide the weekly transaction reports, which will be used as the basis for the statistical analysis.

Doug Parker will track the collection of this data over the upcoming 2 month period.

After Discussion Groups Planning

The after discussion groups should be completed in early August, while user experience with the ORANGES system is still fresh.

Randy Farwell of TranSystems will followup with David Wynne in the next week to discuss logistics for contacting/inviting participants and conducting the after discussion groups at OOCEA headquarters

The next conference call was scheduled for Wednesday, July 14, 2004, 10:00 a.m.

Meeting #5
July 14, 2004

Participants:

• Doug Jamison	LYNX
• David Wynne	OOCEA
• Pam Corbin	City of Orlando Parking
• Sean Ricketson	Federal Transit Administration
• Steve Mortenson	Mitretek
• Meenakshy Vasudevan	Mitretek
• Leisa Moniz	Volpe Center
• Doug Parker	TranSystems
• Randy Farwell	TranSystems

Review Minutes from June 7, 2004 Meeting

There were no comments.

Operations Update

The one-year demonstration period for the demonstration project concludes July 31, 2004. Letters have been sent to inform cardholders about the upcoming end of the demonstration, to reduce any confusion and to minimize the extent of stored value balance refunds.

TTI has reorganized and is now known as Transend, which will be represented in the project by Terry Davis and Donald Scott.

After Quantitative Data Collection

Goal 1 – Clearinghouse Performance Measures: PBS&J will be asked to followup with Donald Scott of Transend on identifying suitable and feasible measures to report on the technical performance of the clearinghouse (e.g., throughput, reliability).

Goal 2 – Acceptance Test Results: The most recent test results documentation currently available to the evaluation team is "ORANGES Integration Case Test Procedures – Pilot I (Final)" dated May 14, 2003. Tom Delaney will provide any more recent test results documentation.

The attached data collection status updated table summarizes the current status for Goals 3 through 6.

Goal 7 – Joint Account Use: TTI will continue to provide the weekly transaction reports, which will be used as the basis for the statistical analysis.

Doug Parker will continue to track the collection of this May-July data with the agencies.

After Discussion Groups

The after discussion groups were completed July 12-13, facilitated by Randy Farwell. Randy will prepare draft documentation on the discussion group findings.

The next conference call was scheduled for Tuesday, August 17, 2004, 10:00 a.m.

Meeting #6
August 17, 2004

Participants:

• Doug Jamison	LYNX
• Pam Corbin	City of Orlando Parking
• Sean Ricketson	Federal Transit Administration
• Steve Mortenson	Mitretek
• Meenakshy Vasudevan	Mitretek
• Tom Delaney	PBS&J
• Leisa Moniz	Volpe Center
• Doug Parker	TranSystems

Review Minutes from July 14, 2004 Meeting

There were no comments.

After Quantitative Data Collection

To achieve the required completion date for the evaluation effort, ORANGES participants must provide the May-July 2004 after data prior to September 10, 2004.

Goal 1 – Clearinghouse Performance Measures: PBS&J will ask Donald Scott of Transend to identify suitable and feasible measures to report on the technical performance of the clearinghouse (e.g., throughput, reliability). PBS&J will provide telephone contact information so Doug Parker can follow up with Donald Scott directly.

Goal 2 – Acceptance Test Results: The most recent test results documentation currently available to the evaluation team is "ORANGES Integration Case Test Procedures – Pilot I (Final)" dated May 14, 2003. Tom Delaney will provide the final test results documentation.

The attached data collection status updated table summarizes the current status for Goals 3 through 6.

Goal 7 – Joint Account Use: Transend will provide the remaining transaction reports required to complete this data through to the end of July 2004.

Doug Parker will continue to track the collection of this May-July data with the agencies.

After Discussion Groups

The after discussion groups were facilitated by Randy Farwell on July 12-13, who is preparing documentation on the discussion group findings.

The next conference call is scheduled for Tuesday, September 14, 2004, 11:00 a.m. This call will only be required if all after quantitative data collection has not yet been completed by that time. In case the call is not needed, the evaluation team would like to take this opportunity to thank all of the participants in the evaluation effort for their contributions throughout the effort. It was great working with you all!

Meeting #6
September 13, 2004

Participants:

• David Wynne	OOCEA
• Carol Bozarth	JAFA Technologies
• Ed Mulka	JAFA Technologies
• Sean Ricketson	Federal Transit Administration
• Leisa Moniz	Volpe Center
• Doug Parker	TranSystems

Further Information About OOCEA Smart Card Accepting Transponder Customers

Dave Wynne confirmed that there were no additional customers with OOCEA smart card accepting transponder beyond the 16 identified in the spreadsheet.

Dave Wynne will add the smart card ID and transponder ID for each of these customers into the spreadsheet. He will also flag which customers were OOCEA or PBS&J employees (i.e., who are expected to have had better information and motivation on how to use the transponders and smart cards correctly).

This information, and other additional information referred to below, must be provided to the evaluation team no later than September 21 in order for there to be enough time available to incorporate any new information into the evaluation.

Reasons for "Did Not Read" Entries in Transponders Report

Dave Wynne indicated that "did not read" was indicated in the spreadsheet for the ORANGES transaction whenever there was a conventional transponder transaction recorded without a corresponding transaction being processed by the ORANGES clearinghouse.

For this reason, there are two general categories of reasons that would underlie a "did not read": (1) the plaza equipment not being able to acquire the smart card ID from the smart card accepting transponder; and (2) the ORANGES clearinghouse not processing the transaction.

Reasons in the first category include: (1) transponder not working correctly; (2) transponder not mounted correctly; (3) smart card not working correctly; and (4) smart card not inserted (or at least not inserted properly).

Reasons in the second category include: (1) transaction not processed by the plaza system; (2) transaction not transferred to the clearinghouse; and (3) transaction not processed by the clearinghouse.

JAFA Technologies, which integrated the smart card accepting transponders into the existing plaza system, will review the plaza system data to identify "did not read" transactions for which the plaza equipment was able to acquire the smart card ID (and those for which there was successful communication with the transponder but no smart card ID was available). They will add this additional information to the spreadsheet.

Smart Cards Heat Damage

Three of the smart cards that had been used with transponders were discovered (once they were returned to OOCEA at the end of the trial) to have varying degrees of heat damage (i.e., warping or discoloration of the card body plastic). OOCEA indicates that the corresponding transponders were apparently not damaged as a result. OOCEA has no information on when in the course of the trial this damage occurred, or whether the damage was sufficient to prevent transactions from being successfully completed with these cards. Dave Wynne will indicate which of the customers in the spreadsheet were those using these cards.

Meeting #7
September 14, 2004

Participants:

• Doug Jamison	LYNX
• Sean Ricketson	Federal Transit Administration
• Meenakshy Vasudevan	Mitretek
• Leisa Moniz	Volpe Center
• David Wynne	OOCEA

Review Minutes from August 17, 2004 Meeting

There were no comments.

After Quantitative Data Collection

To achieve the required completion date for the evaluation effort, ORANGES participants must provide any remaining after data prior to COB September 21, 2004.

Goal 1 – Clearinghouse Performance Measures: After several email exchanges and a brief phone conversation among the evaluation team and Donald Scott of Transend The evaluation team has proposed four (4) suitable and feasible measures to report on the technical performance of the clearinghouse (e.g., throughput, reliability). A conference call with Transcend and the evaluation team has been scheduled for Wednesday, September 15th.

Goal 2 – Acceptance Test Results: Tom Delaney needs to provide the final test results documentation.

The attached data collection status updated table summarizes the current status for Goals 3 through 6.

Goal 7 – Joint Account Use: Transend has provided the remaining transaction reports required to complete this data through to the end of July 2004.

The next conference call will be scheduled for late November/early December to brief the implementation team on evaluation findings and upcoming DOT activities related to the evaluation (date TBD).

Meeting #7
September 15, 2004

Participants:

• Donald Scott	TranSend
• Terry Davis	TranSend
• Sean Ricketson	Federal Transit Administration
• Tom Delaney	PBS&J
• Leisa Moniz	US DOT/Volpe Center

Meeting Goals and Objectives

To discuss and resolve which of the four (4) proposed Performance Measures are feasible goals to gather quantitative data to incorporate into the Evaluation Final Report, to reach a consensus on the deadline for submitting information to the evaluation team, and discuss lessons learned.

Agenda Item #1: Resolve clearinghouse performance measures, data collection approach and deadline

Clearinghouse Performance Measures: The evaluation team has proposed four (4) suitable and feasible measures to report on the technical performance of the clearinghouse.

The four measures were defined as follows:

Throughput – the number of ORANGES transaction the clearinghouse can process per hour;

Accuracy – the % of transactions that are successfully processed; or the % of bank settlement instructions that are considered acceptable by the agencies;

Timeliness – what % of the time does the clearinghouse provide bank settlement instructions of reports within X number of hours of the agreed upon deadline;

Customer Service – average time to resolve a customer service issue about settlement instructions or reports.

After some discussion and clarification on the definition of the measures, the group began the data collection discussion and the following resolutions were agreed upon.

Throughput – TranSend indicated, as they had in a previous email that the ORANGEs clearinghouse system was never used to its processing capacity, therefore estimating an accurate way of determining the "real time" number of transactions processed per hour is not possible. They also suggested we refer to the official benchmark document for the system.

After some discussion on this issue, TranSend indicated that approximately 14,500 total transactions were processed for the field operational test. They also indicated that they would provide some detail on the characteristics/attributes of the system in terms of its capacity.

Accuracy – after some discussion regarding the transaction counters and Pilot 1 numbers. TranSend and the evaluation team agreed that TranSend would provide a number after they have an opportunity to remove the Pilot 1 numbers. Transend reported 1.21-missing/unprocessed transaction figure, but indicated that figure included Pilot 1 test transactions.

Timeliness – TranSend indicated that funds movement was performed bi-weekly and the decision to do so was a cost issue. Settlement was done daily.

Customer Service – much discussion took place regarding this measure and Transend and the evaluation team agreed that the proposed measure was not feasible to achieve within the data collection time constraint. It was suggested that we look at the ORANGEs customer service center logs and do some high level analysis on the types of calls received, the time it took to resolved the calls, etc. The ORANGEs customer service housed at OOCEA had 72 hours to resolve an initial inquiry. The contract was between TTI and Lynx. It was also proposed that the evaluation team look at the resolution process for fielding these calls. Since the log is not public information, Tom Delaney will speak with David Wynne to see if he can release copies of the logs to the evaluation team. The evaluation team assured Tom and Transend that we will not publish any part of the logs, but will only use them for analysis.

Agenda Item #2: Lessons Learned Discussion

Building relationships with agency partners

- When you turnover operations to an agency to run make sure they have more "front end" knowledge and have trained the necessary staff to support it technically. This becomes a staff resource issue and agencies, while interested in cost savings, need to have dedicated staff and experience to operate the system. Training is key.
- Agencies need to better articulate what they want upfront.

Systems Integration

- Plan and discuss design requirements early and don't rush the process. Needed more time for implementation.
- Device issues early on caused significant issues, including:
- Some devices chosen, which were selected for cost had no counters. Trying to track transaction issues at the device level became a significant problem. Torn transactions also became a problem.
- Agencies need to be understand the importance of the network and how it connects to their system, such as LAN connect ability (firewalls, dropped connections, IP address changes etc)
- Interface Control Documents (IDCs)
    - Card to reader
    - Reader to clearinghouse
    - Details how the interfaces worked, extremely important to develop detail upfront.
- Pilot 1 and the lab were very important. It uncovered gaps and the team was able to make adjustments.
- Multiple vendor/suppliers cause complex systems integration challenges. Again the IDC document is key. Each vendor prior to agreeing to participate should be able to commit to being flexible. All systems integration cannot be done at the back end. Efkon and McGann were not flexible. Ascom was an issue as well. Stay away from proprietary solutions. Also take into account, existing vendors/suppliers and whether or not you, as the Agency will have flexibility (contractually) to add complexity to your existing systems.

Establishing Procedures

- How much of your agency's operations do you want to include in a FOT test configuration, i.e. # of routes, plazas, etc.
- Lack of comprehensive change control process can drive up costs and impact schedule
- Need to track project history (from concept – implementation, after)
- Vendors dropping out/others coming in causes delays and new requirements

Collecting and transmitting transactions

- Need to acknowledge transfer of log files - handshake acknowledgement between systems and components
- Group transactions by device in field
- Don't reuse file names (lost transactions from Parking because of this issue)

Daily transaction processing

- Have two transaction counters (one for contact and contactless) and work out an algorithm and configuration issues first
- Updating POS terminal procedures were lacking:
  - Upload first and then reload firmware
- Make sure the internal clocks for the POS terminal is synchronized with the POS loads when they occurred.

ACTION ITEMS:

Transend, due by no later than Tuesday, September 21st:

- **Throughput measure** – provide detail on the characteristics/attributes of the system in terms of its capacity and functionality
- **Accuracy measure -** provide a number after they have an opportunity to remove the Pilot 1 numbers
- **Timeliness measure - ???**

Tom Delaney/OOCEA, due by no later than Tuesday, September 21st:

- Talk with David Wynne to make sure the logs can be used for analysis;
- Provide copies of the ORANGES Customer Service Center logs to the evaluation team and information pertaining to the requirements the Customer Service Center had to resolve inquires.