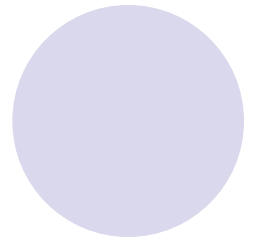
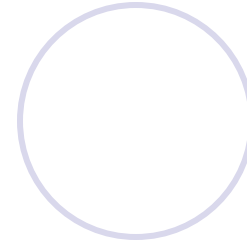
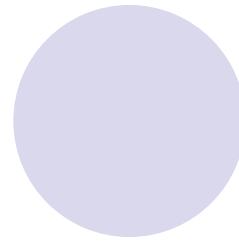
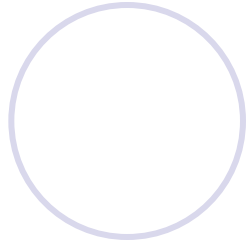
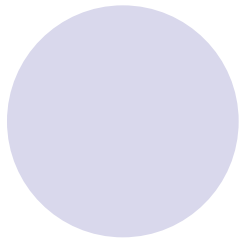


# **Automated Revenue Control Equipment Fraud Detection**



**Wisconsin Parking Association  
The Dells, Wisconsin  
November 4th, 2013**

**Larry Donoghue, P.E.  
Larry Donoghue Associates, Inc.  
Parking Consultants**



# **PRECAUTION TO ATTENDEES**

# CHANGES TO TECHNOLOGY

- **Switch to Automated Revenue Controls**
- **European Manufacturers Led the Way**
- **Ready Acceptance by European Parking Industry**
- **Canadian Parking Industry Soon Followed**
- **United States Finally Got on the Bandwagon**



# **PRIMARY REASONS FOR THE CHANGE**

- **Save Cashiering Labor Costs**
- **Speed Up Patron Exit Time**
- **Minimize Cashier Theft of Parking Revenues**

# RESULTS OF THE CHANGE

- **Good News**

- **Substantial Reduction in Cashier Labor Costs, but not 100% Reduction**
- **10% - 15% Increase in Gross Revenue**
- **Elimination of About 50% of the Opportunities for Employee Fraud**

- **Bad News**

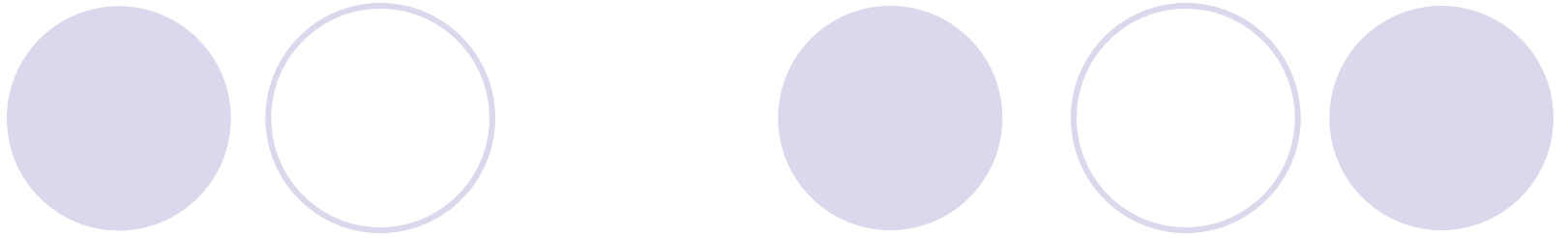
- **Collection, Counting and Maintenance Personnel Wages are Higher than Cashiers**
- **Substantial Increase in Opportunities for Fraud to be Committed by Patrons, and Third Parties**
- **There are 97 Ways of Fraud to be Committed by Patrons, Employees and Third Parties**



# **UNDERSTANDING FRAUD**

# **CIRCUMSTANCES ALLOWING FRAUD TO OCCUR**

- **Opportunity for Fraud**
- **Perceived Need for Money**
- **Perception of Low Risk of Detection**
- **Employee Feels Unappreciated**
- **Employee Has a Lax Conscience**



# LEAKY BUCKET



# DISPOSITION TO FRAUD

- **Top 20 Percent of the Population Won't Commit Fraud Regardless of the Circumstances**
- **Bottom 20 Percent of The Population Won't Take A Job Unless There Is An Opportunity To Commit Fraud by Stealing Cash or Merchandise**
- **The Remaining 60 Percent of The Population Will Commit Fraud Or Will Not Commit Fraud Depending Upon The Circumstances and Perceived Need**
- **Trust Your Employees, But Don't Tempt Them**
- **Remove Those Opportunities**
- **Keep Honest People Honest**

# TYPES OF REVENUE LOSSES

- **Patron Fraud**
- **Internal Fraud**
  - Employee Stealing in Collection Process
  - Employee Stealing In Coin Counting Process
  - Employee Stealing In Servicing the Revenue Control Equipment
  - Employee Stealing In Maintaining the Revenue Control Equipment
  - Supervisor or Manager Stealing
- **External Theft**
  - Homeless Persons
  - Vandals
  - Professional Theft Rings
- **Internal/External Fraud**
  - Knowingly Collusion between Patrons and Parking Employees
  - Unknowingly Collusion between Patrons and Parking Employees
- **External Fraud**
  - Patron A Knowingly and Patron B Knowingly Collude
  - Patron A Unknowingly and Patron B Knowingly Collude

# **RANGES OF INTERNAL AND EXTERNAL REVENUE LOSSES**

## **● RANGE OF INTERNAL REVENUE LOSSES**

- 5% - 10% of Annual Revenue on Low Side**
- 20% - 25% of Annual Revenue in Average Cases**
- Up to 50% of Annual Revenue in Worst Cases**

## **● RANGE OF EXTERNAL REVENUE LOSSES**

- \$5,000 To \$10,000 in a Single Attack on the Low Side**
- \$20,000 To \$30,000 in a Single Attack on Average**
- Up to \$290,000 in a Single Attack on the High Side**

# **MOST COMMON TYPES OF AUTOMATED CONTROLS**

- **Pay on Foot**
- **Pay and Display**
- **Pay by Space**
- **Ticket In/Ticket and Credit Card Out (TICO)**
- **Credit Card In/Credit Card Out (CICO)**
- **Key Cards**
- **Prox Cards**
- **Transponders**

# **NINE CRITICAL FACTORS FOR AUTOMATED REVENUE CONTROL OPERATIONS**

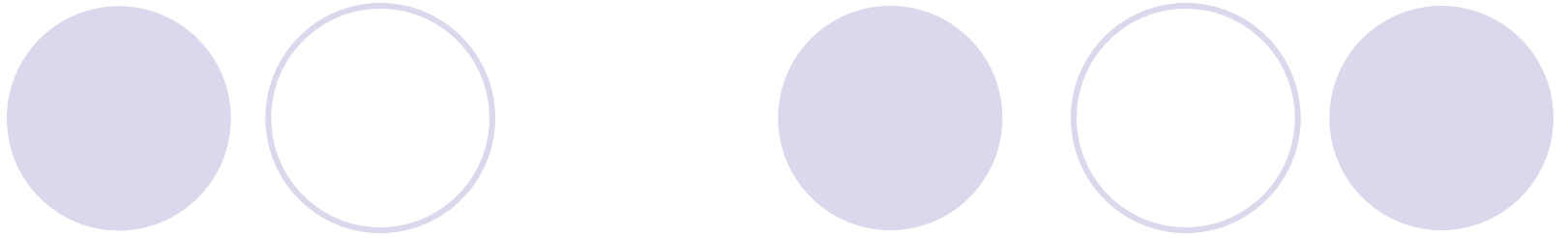
- **Equipment**
- **Collection and Servicing Procedures**
- **Counting Procedures**
- **Maintenance Procedures**
- **Key Control**
- **Cash Safes Inventory Control**
- **Integrity of Collection and Servicing  
Equipment Including Transport Vehicles**
- **Security Procedures**
- **Supervisory Procedures**
- **Accounting and Auditing Procedures**



# **MONEY MAKING OPPORTUNITIES**

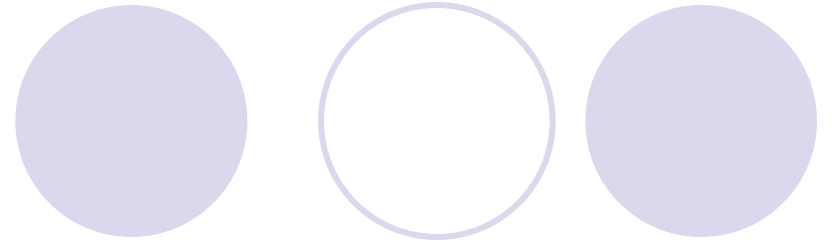
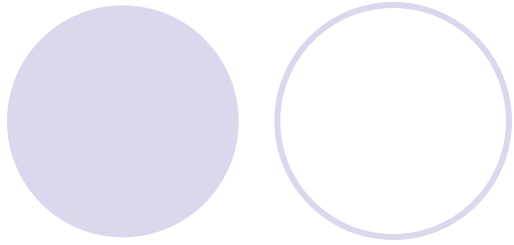


# **TYPICAL PROGRESSIVE GROWTH CURVE OF EMPLOYEE THEFT**



# **COST OF REVENUE CONTROL**





# **NEED FOR ADEQUATE AUDIT PROGRAMS**



# **DESCRIPTIONS OF HOW THE VARIOUS TYPES OF FRAUD ARE ACCOMPLISHED**



# **PAY ON FOOT FRAUD**

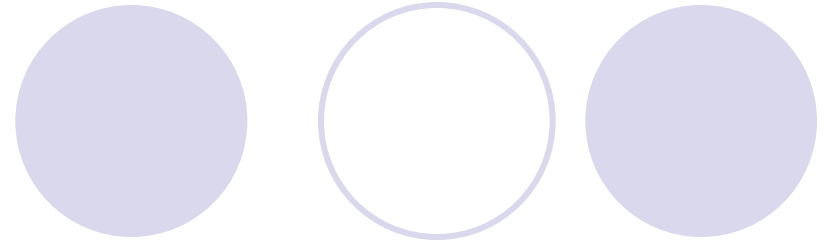
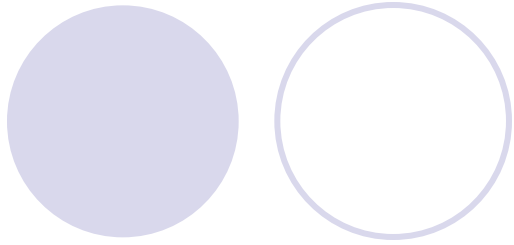
# Fraud Between Two Patrons

- **Fraudulent Action:**

- Patron A Pays Fee at Pay Station. He exits and drives in the Entry Lane
- Takes Ticket, pulls forward and covers the Reset Loop C. He then backs out.
- The ticket is passed on to his co-worker Patron B, who pays for one hour at the Pay Station and makes his exit.
- Patron B discards his ticket.

- **Defensive Action:**

- Purchase License Plate Recognition Equipment
- Have Loops with Directional Logic
- Install Loop D



**GRAPHIC**

# Patron A Defrauds Patron B

- **Fraudulent Action:**

- All Day Transient Patron A got off work at 5:00 p.m. He hung around the Pay Station.
- Transient B approached the Pay Station and obviously was not familiar with the payment procedure.
- Patron B, graciously offered to assist Patron B. “Give me your ticket and I’ll show you how to do it. It is a little complicated”. Patron A notes the ticket has only five hours on it.
- Patron A inserted his own nine hour ticket into the Pay Station. The fee was displayed. Patron B said, “That seems to be an awfully high fee”. Patron A agreed with him. Patron B inserted his credit card and left with the re-encoded ticket and credit card not knowing he had been defrauded.

- **Defensive Action:**

- Install CCTV Camera viewing the Pay Station with video and audio recording capability to detect this type of behavior.
- Use the intercom to alert Patron B types of Patrons that Patron A may be trying to defraud them and you will guide them through the procedures.

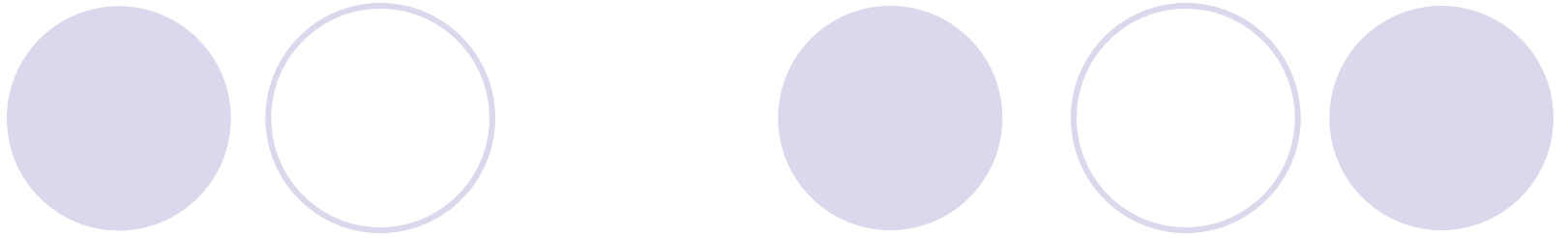
# Fish Bowl Ticket Fraud at Airport

- **Fraudulent Action:**

- Flight Crews were supposed to park in Employee Lot. They found a way to get discounted parking in the public parking garage.
- When going out on a multi-day trip, they parked, went to the Crew Lounge at the Airport and deposited their parking tickets in a Fish Bowl.
- On their return to the Airport, they went to the Crew Lounge and picked out a ticket with low parking time. For example, they were out three days and paid for only a couple of hours.

- **Defensive Action:**

- Have LPR Equipment



# **PAY AND DISPLAY FRAUD**



# Resale of Pay and Display Receipt

## ● Fraudulent Action:

- Patron A paid \$1.50 per hour for four hours time. When he returned to his vehicle, he had a \$60.00 over time citation.
- Patron A inspected the receipts on several nearby vehicles. One still had 20 minutes left on it. When Patron B returned to his vehicle, Patron A offered to pay Patron B \$3.00 for his parking receipt. Patron B readily accepted the offer.
- Patron A used Patron B's receipt to protest the Parking Citation. Patron A's \$60.00 fine was cancelled.

## ● Defensive Action:

- Have a Pay and Display Device that requires the Patron to key in the vehicle's plate number in alpha/numeric manner that is then printed on the receipt. That makes the receipt non-transferable.

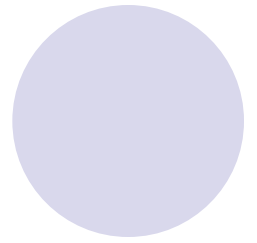
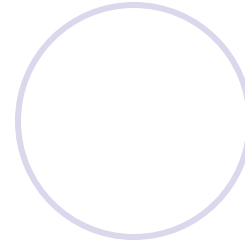
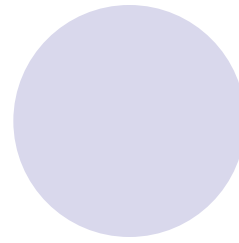
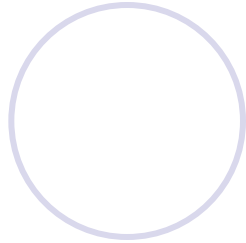
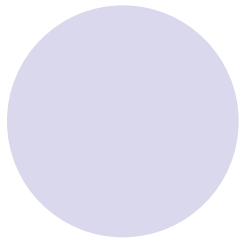
# THEFT OF COLLECTIONS TRUCK

- **Fraudulent Action:**

- This happened in a large midwestern city when the crew was out on a collection route. When the truck was stolen, it had several Coin Collection Canisters which were laden with coins. When the truck was recovered, the Coin Collection Canisters were gone.

- **Defensive Action:**

- Install a “Low Jack”. It is a form of a GPS that it makes it possible for Police to track the escape route and intercept the thieves.
- Install Secret Cut-Off Switch. Permits vehicle to start, but go only about one-half mile and the engine stops and can't be restarted. It also has a GPS feature.



# KEY CARD FRAUD

# SPECIAL EVENT FRAUD

- **Fraudulent Action:**

- **Garage Owner installed Pay-on-Foot devices. Garage handled Transients, Monthly Contract Patrons, and Special Events.**
- **Special Event Patrons were to pull a ticket and use the Pay Station for a flat fee prior to going to the event.**
- **Some Patrons didn't understand the procedure and ended up at an exit lane without a re-encoded ticket. This caused exit delays.**
- **A procedure was set up to take care of those Patrons. Attendants staffed the Exit Lanes. When an unpaid Patron reached the Exit, the Attendants would collect the cash, raise the Gate using the key card set up in an "over ride status". At the end of the night, the Attendants would turn in their receipts for audit and deposit.**

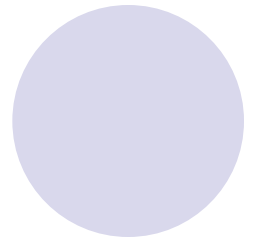
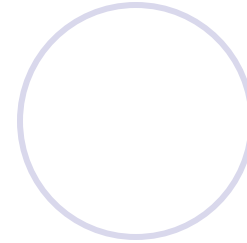
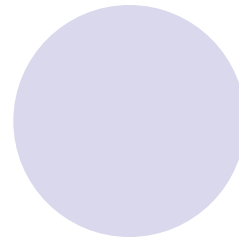
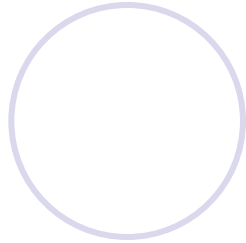
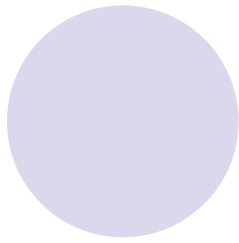
# **SPECIAL EVENT FRAUD**

**(continued)**

- **A surprise audit was made at the Facility. The Auditor asked about the control procedures. When he was told how the Attendants operated, he asked for a copy of the Key Card Activity Reports. The Manager was not aware of the availability of that Report. The Auditor also determined that the Key Card Numbers were not assigned to a specific Attendant. The Auditor ran Key Card Activity Report for that event. There were many more exits via the Key Cards than were reported.**

## **● Defensive Action:**

- **Key Cards were assigned to each Cashier, noting the Key Card numbers. Key Card activity reports for each Key Card were required to balance their transactions to the number of Key Card exits on the Key Card assigned to them. The number of missing transactions disappeared and revenues increased substantially.**



# **CREDIT CARD FRAUD**

# Credit Card In/Credit Card Out (CICO) Fraud at Exit Lane

- **Fraudulent Action:**
  - Patron A drove to the Exit Lane and parked at the Exit Control Device. His friend Patron B pulled up behind him until their bumpers touched. Patron A took his foot off the brakes, and Patron B pushed Patron A's vehicle through the Exit Lane in a tailgating fashion.
- **Defensive Action:**
  - Install CCTV cameras in each Exit Lane. Review the recording media at high speed until the fraudulent action is detected. Slow down the media to get the license plate number off the vehicle. When making inspection rounds, look for Patron B's license number. If it is located, put a notice on the vehicle stating, "The fraud was detected June 23, 2011 at 5:38 p.m. and the daily maximum fee of \$X.XX is due. If this parking fee is not paid within ten (10) calendar days, the vehicle will be booted the next time the vehicle parks in the facility."

# CREDIT CARD PAYMENT WHEN NO SIGNATURE IS REQUIRED

- **Fraudulent Action:**

- Some parking facilities do not require a Patron's signature on parking fees less than \$50.00 - \$75.00. Patron A took advantage of this by using a credit card for a transaction.
- When he got his monthly credit card bill, he called the Credit Card Company and denied he incurred the charge. The Credit Card Company cancelled the charge.
- Realistically, this can be done only once or twice with a single credit card. However, some people have multiple cards.

- **Defensive Action:**

- Have a CCTV Camera Recording Device that captures the rear license plate of the exiting cars along with a time of day that shows up on the image captured by the camera. A search of the Credit Card transactions for that date should be made to see what time the transaction took place. Then the CCTV recordings should be reviewed to determine what license plate number was used on the vehicle that made an exit at the time. The Patron should be informed that his license plate number (XXXXX) was captured on CCTV camera making an exit at the same time as the credit card transaction took place.





**PAY BY SPACE**

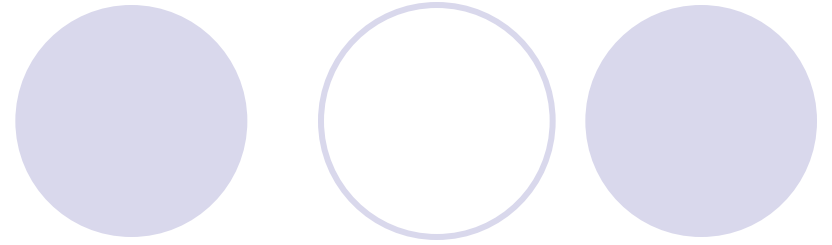
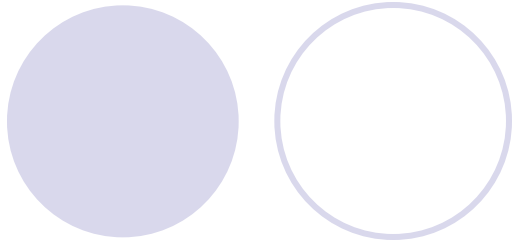
# COUNTERFEIT PAY BY SPACE FRAUD

## ● Fraudulent Action:

- Parking Patron parked at Pay by Space facility every work day.
- He scanned one of his receipts and used his computer to change dates for one week at a time.
- He got caught when, by mistake, he displayed a receipt for the following day's date.

## ● Defensive Action:

- Have the receipts printed with a silver stripe along one of the short sides of the receipts. (It is cheaper that way). A silver stripe will be printed as black by the computer's printer. A fraudulent receipt will be easy to detect.



# **TRANSPONDER AND PROX CARD FRAUD**

# **COLLUSIVE FRAUD BETWEEN HOSPITAL EMPLOYEE AND PATIENT**

- **Fraudulent Action:**

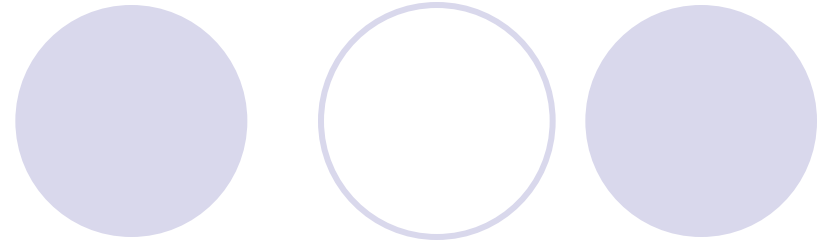
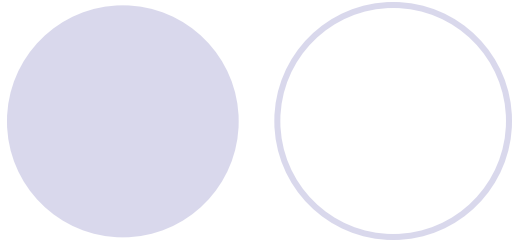
- **Employee A worked at the Hospital and had Prox Card.**
- **Employee A's neighbor entered the Hospital for major surgery which required a 21 day recovery period.**
- **When Patient A was discharged, Employee A went with his friend's wife to bring the car down to the front door pick-up spot.**
- **At the Garage Exit Lane, Employee A passed the Prox Card to the wife to make an exit through an unattended Exit Lane.**
- **After picking-up the husband, Employee A directed the wife to drive to an Entry Lane of the Garage.**
- **He then directed her to enter the Entry Lane using the Prox Card, drive forward until the Reset Loop C was covered by the car, and then back out.**
- **Now the Prox Card was in the proper mode so Employee A could have no trouble at quitting time.**

# **COLLUSIVE FRAUD BETWEEN HOSPITAL EMPLOYEE AND PATIENT**

**(continued)**

## **● Defensive Action:**

- Have a CCTV camera with recording capability displaying time and date of activity.**
- When the fraudulent activity at the Entry Lane is detected, note the time.**
- Check that time on the Prox Card Activity Record to identify the person assigned to that Prox Card.**
- The Employee should be warned and informed that another fraudulent action would result in dismissal.**



- **Trust Your Employees**
- **Don't Tempt Them**
- **Remove Those Opportunities**
- **Keep Honest People Honest**



**NPA 2011 Parking Conference  
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