

Internal Audit Report on Recreation & Parks Active Net Registration System

County of Henrico



*Proud of our progress;
Excited about our future*

**Internal Audit Report #249
March 31, 2015**

HENRICO COUNTY INTERNAL AUDIT
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Internal Audit Report on Recreation and Parks Active Net Registration System



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March 31, 2015

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Audit Summary

- Scheduled Audit
- Conclusions on Audit Objectives
- Exception Oriented
- 6 Reportable Issues and 4 Other Observations
- Management Action Plans have been developed to address all risks identified



Contents

- Introduction and Background
- Scope, Internal Controls, and Methodology
- Conclusions on Audit Objectives
- Issues and Management Action Plans
- Closing and Report Distribution



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Introduction

- IT Auditor III, Sharon Thornton, performed audit work
- Used professional auditing standards
- Examined controls & tested for selective compliance
- All exceptions given to Agency
- Reported control design issues & significant test exceptions
- Work for same Government we audit



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Background: Active Net

- Active Net was implemented in March/April, 2013
- Active Net is a hosted third-party web application
 - Manages registration and payments for recreation service offerings
 - Produces class rosters and other management reports
- Shelter and Program Registration modules are currently available online and in-person
- Facility Reservations, Membership Packages, Sports and Field and Point of Sales modules are available in-person only

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Background: Overview of General Responsibilities

Third-Party Application Supplier:

- Hosts the application and data in their data center
- Provides credit card processing services
- Manages general computer controls for the application and data
 - physical security
 - application and database security
 - computer operations (job monitoring, backups/disaster recovery, etc.)
 - hardware maintenance
 - application software updates
- Responds to/resolve technical issues
- Manages compliance with relevant industry practices (general computer control standards and Payment Card Industry (PCI) requirements) and provide periodic results of related audits
- Provides software maintenance services for all licensed software listed in contract

Recreation and Parks:

- Collects offline receipts (cash, check, debit card, and credit card)
- Manages and monitor the supplier relationship (compliance with contract terms, etc.)
- Administers access to the application
- Ensures appropriate user training
- Manages related hardware at the County's facilities
- Develops and administers all relevant internal policies/procedures on use of the application and management reporting

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Background: Registration Payment Options

- Cash (Walk-in only)
- Check or Money Order (Payable to Henrico County)
- Credit Cards: American Express, Discover, MasterCard & VISA (Walk-in and online only)**
- Debit Card (Pin-based walk-in only)

**NOTE: Third-party application supplier processes credit card transactions:

- retains fees and service charges
- remits net payments to County weekly

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Background: Transactions May 2014

Transaction Type	Transactions	Dollar Amount
Cash & Journal Entries	180	\$22,469
Check	183	\$34,341
Gift Card	0	\$0
Memo (Debit Cards)	233	\$4,988
Credit Card	561	\$34,366
Totals	1157	\$96,164
From Account	17	\$1,089
Journal Entries	3	65
Grand Total	1177	\$97,318

Source: Active Net Cash Receipts Report

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Background:
Transactions and Dollars
November 2013 – October 2014
 (1st Year Fully Operational)

Transactions	Dollars
12,809	\$1,049,458

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Background:
2014 Participant Service Charges and Fees

Offline Transactions	Service Charges	Refund Fees
Cash and Checks	1.5%	
Credit Cards	3.75%	\$0.10

All offline service charges will be paid for by the customer (County) and will be deducted from remittance totals or invoiced as appropriate.

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Background: 2014 Participant Service Charges and Fees

Online Transactions Service Charges	Online Transactions Transaction Fee
\$0.01 - \$149.99 (6.5% + \$1.00)	Up to \$3.00 paid by participant
\$150.00 - \$499.99 (3.5% + \$1.00)	
\$500.00 + (2.5% + \$10.50)	

* The first \$3.00 of the total calculated fee is paid by the participant and the balance is paid by the customer (County)

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Audit Scope

In-Scope:

- Recreation and Parks
- Active Net Registration System



Out-Scope:

- All other agencies and departments (including Schools)
- All other County application systems and databases

Note that this audit did not include an assessment of compliance with Payment Card Industry (PCI) Data Security Standards. A separate PCI assessment has been scheduled with a third-party specialist.

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Internal Controls


Objectives

- Reliability and integrity of information
- Compliance with policies, procedures, laws and regulations
- Safeguarding of assets
- Effectiveness and efficiency of operations



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Internal Controls Cont'd

General Limitations of any Controls

- Errors and irregularities may go undetected
- Inherent limitations in any control structure
- Limitations include:
 - resource constraints,
 - legislative restrictions, etc.
- Projection to future subject to risk of change in effectiveness
- Compliance may deteriorate



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Audit Methodology

1. Evaluated internal control systems through completion of questionnaires
2. Performed walkthroughs to obtain an understanding of the system processes
3. Evaluated regulations, policies & procedures and sample tested for compliance



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Conclusions on Audit Objectives

Objective	Conclusion
A. Review supplier contracts and amendment for relevant language to protect County.	■
B. Evaluate security access controls to protect the County network and customer data in the third-party hosted environment.	▲ Issues 1, 2, 3, 7, 10
C. Evaluate controls in system upgrade processes.	▲ Issue 4
D. Evaluate system incident handling controls (e.g. tracking, correction, and approval).	■
E. Evaluate problem management and escalation procedures to ensure adequate and timely solutions to problems should they occur.	▲ Issues 5, 6
F. Evaluate that adequate training has been provided to end users to carry out their job functions.	▲ Issues 8, 9
G. Evaluate the accuracy / sufficiency of system reporting.	■



Sufficient



Needs Improvement

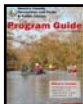


Insufficient – Needs Immediate Attention

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Issues

1. Institute Criminal Background Check on Employees that Handle Monetary Transactions
2. Implement Procedures to Verify that Credit Card Swipe Devices Show No Signs of Tampering
3. Perform an Active Net User Access Review Semi-Annually
4. Retain Evidence of Testing New Releases
5. Develop Escalation Procedures for Problem Resolution and Hold Supplier to Service Levels
6. Discuss Adding Open and Close Dates on Supplier's Problem Tickets

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Other Observations

7. Complete User Procedures and Instructions Related to Active Net
8. Annually Review Reports Evaluating the Supplier's Controls and Compliance
9. Reinforce Proper Credit/Debit Card Handling Procedures Periodically
10. Develop Procedures for Use of Active Net by Other Agencies




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Issue 1




Institute Criminal Background Checks on Employees that Handle Monetary Transactions

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Issue 1



Condition

In Recreation and Parks, Office Assistants and Temporary employees handle monetary transactions (which may also include credit card transactions) and they have related system access capabilities. However, all of these individuals are not subject to criminal background checks during the hiring process although the department has previously reached out to Human Resources regarding this matter.

There is a mitigating control in place whereby the County has a Crime and Employee Dishonesty insurance policy that covers all employees in General Government, Schools, and Economic Development Authority (EDA).

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Issue 1

Effect

There is no preventative control in place to provide assurance that employees in these select positions who handle monetary transactions don't have a history of committing fraud or other criminal activities.



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Issue 1

Cause

Office Assistants III and below are generally not required to have criminal background checks per the County's Code unless they meet the criteria established for "hourly safety-sensitive positions". While there was communication between Recreation and Parks and Human Resources about providing background checks for these positions, there was not enough communication to conclude that the positions met the criteria related to handling of County funds.

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Issue 1

Criteria

Section 2-50 of the Code of Henrico notes that defining hourly safety-sensitive positions for the purpose of performing criminal background checks should consider whether the prospective employee would "be permitted to handle cash, have the ability to effect transfer of funds of the county or others, or otherwise be accountable for funds of the county or others."




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Issue 1


Recommendation

Recreation and Parks management should consider working with the Human Resources Director to include criminal background checks in the hiring requirements for any potential employee who could handle monetary or credit card transactions including future Office Assistant and temporary positions.



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Issue 1


Management Action Plan

Management will work with HR to include criminal background checks in the hiring requirements for any potential employee who handles money, including temporary positions.

By Whom: Director of Recreation and Parks
When: 5/30/2015


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Issue 2

Implement Procedures to Verify that Credit Card Swipe Devices Show No Signs of Tampering



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Issue 2

Condition

Procedures have been developed but not implemented to periodically verify that credit card swipe devices have no signs of tampering.

Credit card swipe devices are attached to select County computers and encrypt credit card information for transport through the network. These devices are located at eleven of the Recreation and Parks locations.

During the audit, we tested the credit card swipe devices at 4 locations and found no signs of tampering.

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Issue 2

Effect

While the sampled swipe devices did not appear to have been altered at the time of our observations, there is no ongoing monitoring process to ensure that installed devices have not been modified by someone intending to intercept credit card information.

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Issue 2

Cause

Management was not aware of the need to verify the credit card swipe devices until there was a discussion with the supplier related to Payment Card Industry (PCI) Data Security Standards compliance.

Criteria

Active Network personnel advised that the credit card swipe devices should be verified for signs of tampering as an added precaution in connection with end-user responsibilities related to PCI compliance.

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Issue 2

Recommendation


Procedures should be implemented for periodic verification that credit card swipe devices show no signs of tampering.

These verification tests should be random and performed by knowledgeable individuals.

Furthermore, verification results should be documented indicating date and the credit card swipe devices verified.

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Issue 2


Management Action Plan

The Technology Support Specialist has developed procedures to be distributed to Center Supervisors. Center Supervisors will perform the checks monthly and document each time the checks are performed in a log provided by the Technology Support Specialist (TSS). TSS staff will review the log quarterly and perform a bi-annual check of the credit card swipe devices and document such on the log.

By Whom: Technology Support Specialist
When: 5/29/2015


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Issue 3

Perform an Active Net User Access Review Semi-Annually



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Issue 3

Condition

Recreation and Parks has not yet performed a review of Active Net user access even though the system had been fully functional for a year as of October 2014.

This system is web-based and does not require login to the County network. Therefore, it is critical to remove access to this system upon termination.

There were 2 users in a sample of 31 who still had access although they had transferred to another agency prior to the date of the user listing from which the sample was derived.

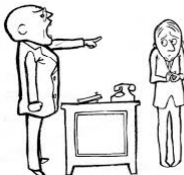
Furthermore, the access request forms used to identify the functions needed by users were not put into place until after the system had been implemented. Users from the prior reservation system were transitioned into Active Net based on duties in the old system rather than upon request forms relevant to Active Net.

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Issue 3

Effect

When user access reviews are not performed periodically; missed terminations, transfers, or changes in responsibilities may not be identified timely and individuals could access the web-based system with inappropriate privileges.



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Issue 3

Cause

The Technology Support Specialist (TSS) has been too busy supporting Recreation staff with the system to find time to perform the access review.

Criteria

ISACA's IT Governance Framework Cobit 4.1, DS5.4 User Account Management, includes performing regular management reviews of all accounts and related privileges.

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Issue 3

Recommendation

The TSS should initiate access reviews at least semi-annually for the online Active Net System. These reviews should include verification of all current user capabilities in the system by appropriate management.

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Management Action Plan

By Whom: Technology Support Specialist
When: 3/31/2015

Retain Evidence of Testing New Releases




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Issue 4

Condition

Although it was expressed that users tested most new system releases prior to installing the releases in production, no documentation of testing results was retained as support.

Additionally, there was a change in the supplier's assigned account representative during the year. Since that time, updates were no longer being placed on Recreations and Parks' test server to allow for testing prior to implementation.




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Issue 4


Effect

Testing the updates prior to implementation provides assurance that the system functions properly with no negative impacts. There is no such assurance when updates are not tested prior to implementation.



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Issue 4


Cause

Management was not aware they needed to retain evidence of testing and there was a change in the account representative.

Criteria

ISACA's IT Governance Framework Cobit 4.1 A.17.6 Testing of Changes states "Test changes independently in accordance with the defined test plan prior to migration to the operational environment. Ensure that the plan considers security and performance".


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Issue 4


Recommendation

1. TSS should work with the supplier's account representative to see if they will reinstate the practice of placing the updates on the Recreation and Parks' test server prior to implementation and allowing sufficient time to test.
2. Once reinstated, retain evidence of user testing of new releases such as a test plan, indicating testing steps to be performed and results of the tests ("pass" or "fail"). If any testing step failed, it should be noted and there should be an indication that it has been retested until the results show "pass".



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Issue 4

Management Action Plan

Testing of relevant changes noted in release notes will be tested and documented. We have been in contact with the vendor and they are working on an update testing environment. Last year, due to complaints, they stopped the practice of updating the trainer a month in advance of the production update. This was due to customers losing the ability to update the data in the trainer instance during that time. Thus preventing training, testing, and trouble-shooting issues. We are being added to the list of potential "testers" to utilize this advanced testing environment.

By Whom: Technology Support Specialist
When: 12/31/2015

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Issue 5

Develop Escalation Procedures for Problem Resolution and Hold Supplier to Service Levels




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Issue 5



Condition


In a sample of problem tickets logged with the supplier, there was no evidence of issues being escalated by the County when the completion times exceeded the targets outlined in the contract, Exhibit 3 - Maintenance Exhibit.

In our sample test of tickets, all 17 showed a customer impact of “medium.” We equated this to a Priority 3 standard completion target per the contract—3 day completion for all other issues (not meeting the higher priority levels for fatal and serious issues).

- 8 (47%) clearly exceeded the standard completion target of 3 business days. Four of these, however, indicated movement to development but not necessarily within 3 days.
- 5 (29.4%) could not be determined as there was not sufficient information in the ticket.
- 4 (23.5%) met the standard target days.


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Issue 5




Effect

The supplier is not always adhering to their projected issue resolution targets or supplying current status within that prescribed timeframe. This could result in system issues going unresolved for prolonged periods and the need for inefficient manual workarounds.



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Issue 5


Cause

Some of the tickets are transferred to the supplier development team which prolongs the solution and frequently results in future updates. However, Recreation and Parks appears to be satisfied with their responsiveness and has not escalated the tickets when prolonged.

Criteria

ISACA's IT Governance Framework, Cobit 4.1 DS10.2 Problem Tracking and Resolution includes "throughout the resolution process, problem management should obtain regular reports from change management on progress in resolving problems and errors".

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Issue 5

Recommendation

The TSS should work with the Active Network account representative to develop escalation procedures. The escalation procedures should be based on the priorities noted in Exhibit 3 Maintenance Agreement of the contract with Active Networks. The procedures should also note an escalation chain beginning with the Account Representative and moving up the chain of responsibility at Active Networks.

Once the procedures are in place, the TSS should escalate tickets that have not had any activity within the standard completion target time based on the priority set in the Maintenance Agreement.

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Issue 5

Management Action Plan

The Technology Support Specialist will work with the Active Network Account Manager to get detailed contact information for the person(s) involved in escalating tickets that are outside the target completion timeline and/or have no communication in a reasonable time.

Whom: Technology Support Specialist
When: 6/1/2015

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Issue 6

Discuss Adding Open and Close Dates on Supplier's Problem Tickets



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Issue 6


Condition

The supplier's Case Management portal is used for tracking system problems reported by clients. The individual case tickets were found not to have fields for “open date” and “close date.” The “open date” could be obtained from a separate system report, but the “close date” was not recorded anywhere visible to the client user.

Effect

Not having closing dates available precludes effective tracking and analysis of adherence to contracted service level provisions. Not having open and close dates on the individual tickets results in not readily knowing the time the ticket has been open.

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Issue 6

Cause

This is due to the design of the supplier’s Case Management portal.

Criteria

ISACA’s IT Governance Framework, Cobit 4.1 DS.10.3 Problem Closure states “Put in place a procedure to close problem records either after confirmation of successful elimination of the known error or after agreement with the business on how to alternatively handle the problem.”

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Issue 6

Recommendation

The TSS should consider addressing the addition of the case ticket “open date” and “close date” or a dated communication that indicates date of closure during the next renewal of the Maintenance Agreement with Active Networks.

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Issue 6

Management Action Plan

The Technology Support Specialist is working with Active Network Account Manager to assess feasibility of getting this added to vendor hosted case management system.

By Whom: Technology Support Specialist
When: 12/31/2015

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Other Observations

The following slides include observations noted during our audit which were not considered critical in reaching our conclusions on our audit objectives.



Complete User Procedures and Instructions Related to Active Net

Active Net Registration System has been fully implemented in excess of one year but the user procedures and instructions have not yet been completed related to business processes affected by the system. Management had been in the process of updating procedures and instructions that incorporated the old system since July and initially expected to be finished by the end of calendar year 2014.

Management had created a "How To" manual related to center deposits which was used in business process training. The manual had been given to each person who processes deposits into Oracle from Active Net. The manual and various system training documents provide basic procedures related to the use of Active Net. However, they have not been consolidated into a complete guide including all relevant activities such as, but not limited to program enrollments, shelter reservations, and adding scholarships.

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Issue 7

Recommendation

We recommend the Controller expedite completing the updates to the procedures and instructions that have not yet been addressed as noted.

A complete set of business procedures should be available for employees' reference and use to facilitate knowledge transfer and training in the event of turnover.

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Issue 7

Management Action Plan

A consolidated guide for all activities and the relevant business processes will be developed for users performing business related functions in both ActiveNet and Oracle to facilitate consistent knowledge transfer and training in the event of turnover.

By Whom: Controller

When: 9/30/2015

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Issue 8

Annually Review Reports Evaluating the Supplier's Controls and Compliance

Reports on the third-party organization's information system controls (SSAE 16) and Payment Card Industry Data Security Standards (PCI DSS) compliance are available to management upon request per the contract.

However, there was no evidence that management had requested these reports to review that the services provided by Active Networks remained compliant and that general controls at the outsourced data center were operating effectively until questions related to PCI Compliance surfaced.

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Issue 8


Recommendation

Management should request the SSAE 16 and PCI DSS reports annually in order to review for compliance and any noted exceptions and determine any steps needed to further monitor supplier performance.

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Issue 8




Management Action Plan

The Technology Support Specialist will work with the Active Network Account Manager to get latest copies of the PCI SAQ and SSAE-16. Management will review the reports to determine that the services provided by Active Network remains compliant and, if there are any noted exceptions, determine any steps needed to further monitor supplier performance.

By Whom: Technology Support Specialist
 When: 6/1/2015


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Issue 9




Reinforce Proper Credit/Debit Card Handling Procedures Periodically

In a survey of 10 site supervisors at Recreation and Parks locations that handle credit/debit card transactions, only 5 (50%) responded that they trained or reminded staff not write down or copy credit/debit card numbers. Two (20%) responded that they had not provided reinforcement to staff outside of training and three (30%) did not respond to the survey.



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Issue 9


Recommendation

Management should coordinate with Finance to ensure a consistent County-wide approach to training and refreshing employees on proper card handling procedures.



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Issue 9

Management Action Plan

Management will coordinate with Finance to ensure a consistent county-wide approach to training and refreshing employees on proper card handling procedures.


By Whom: Controller

When: 6/1/2015

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Issue 10



Develop Procedures for Use of Active Net by Other Agencies

There are no documented procedures or guidelines in place regarding other agencies use of the Active Net Registration System for their events.

During our audit, we noted that two other areas had used the Active Net Registration System for events. These events included one which was free of charge and one which had registration costs and associated fees passed on to the registrants.


As awareness increases that the system is available for use outside of Recreation and Parks, demand for such may likely increase. Without documented procedures, there could be inconsistencies in the handling of such events.

Procedures

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Issue 10



Recommendation

Procedures should be developed by the Controller and approved by the Director that outline the process to obtain authorization to use the Active Net System which includes:

- the type of events and groups allowed
- the proper handling of the associated registration costs and fees



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Issue 10

Management Action Plan

Procedures will be developed to provide appropriate guidelines relative to authorization and use of the Active Net Registration System by other agencies.

By Whom: Controller
When: 5/30/2015

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Closing

- Appreciate Agency's cooperation
- Follow up on open Action Plans will be performed as completion dates are reached or after sufficient time has passed to ensure the actions are effective and on-going.

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Report Distribution

Audit Committee (Mr. Glover, Mrs. O'Bannon, County Manager)	Board of Supervisors, Non-Committee Members
Deputy County Manager for Community Operations	Director of Recreation and Parks
Internal Audit Staff	

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