

COUNTY OF



ALLEGHENY

RICH FITZGERALD
COUNTY EXECUTIVE

2019 Municipal Primary Experience Report

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Overview

Of the 952,750 registered voters eligible to vote for the nomination of candidates in Allegheny County, 157,264 (16.5%), cast their vote at the past May 21, 2019 Municipal Primary. By political party affiliation, (21.4%) registered Democratic voters and 38,463 (14.84%) registered Republican voters cast ballots.

A total of 4,455 absentee ballots were issued and 184 provisional ballots were cast. Of the provisional ballots, 8 were fully counted, 42 partially counted and 134 were not counted. The majority of those not counted were due to the fact that the provisional voter was not a registered voter or was not registered in the political party in which the provisional ballot was cast.

Over 163,000 “emergency” paper ballots were supplied to this County’s 1,322 polling places in the event that at least one-half of the voting machines in a precinct were non-functional. 32 emergency ballots were used in 6 voting districts. In 2 districts, the district election boards had difficulty in printing a “zero tape”.

1,150 candidates appeared on the ballot and there were over 2,000 individual nominations possible for Democratic and Republican State, County, City, Magisterial and School District offices as well as local municipal offices such as Mayor, Tax Collector, Member of Council, Commissioner and Supervisor. Over 300 distinct ballot configurations were created. 36 legal challenges to candidate nominating petitions were held in the Allegheny County Court of Common Pleas over a two-day period. 300 write-in candidates were nominated to local offices.

Accessibility

All 1,322 polling places in this County have now been classified as “accessible” pursuant to the standards promulgated by the Secretary of the Commonwealth of Pennsylvania.

Logic and Accuracy Testing

Extensive automated and manual Logic and Accuracy Testing (L&A) was performed. Automated L&A was performed on all 4,301 iVotronic voting machines deployed on Primary Election Day. Manual L&A was also performed for each of the approximately 300 different ballot configurations. Those parties and organizations permitted by Pennsylvania law to be present during this process were duly notified.

A “test deck” comprised of over 27,000 ballots, containing different vote totals for each candidate, was used to verify that the 7 ES&S Model 650 high-speed ballot counters would accurately count the absentee, provisional and emergency optical scan paper ballots to be used at the Primary. This test was conducted prior to the Primary as well as before final certification of the election results. In both tests, the ballot scanners produced an accurate count. The required public notice of the pre-primary test was given.

Firmware Verification

Allegheny County employed the services of “GRP Consulting Group, LLC” to verify that the software resident on the iVotronic voting devices contain the “trusted build” version certified by the Pennsylvania Department of State. As has been the case since 2008 that this process has been employed, no instance of uncertified software has been detected. Copies of the reports prepared for the May 21, 2019 Municipal Primary are attached below.

Network Security

Also following past practice, an independent third-party review was conducted both prior to and after the past Primary to assure that our election network was isolated and not connected to any external network. A copy of the report produced by “Solutions 4 Networks” is attached below.

Parallel Testing

Since the November 2006 Election, Allegheny County has employed a Certified Public Accounting firm to ensure that the functionality of the iVotronic voting machine devices have not been compromised. The parallel testing performed at the May 21, 2019 Municipal Primary demonstrated that the randomly-selected voting devices recorded and counted all votes completely and correctly. A copy of the report issued by Baker Tilly is attached below.

GRP Consulting Group, LLC

4915 Twin Lakes Rd

Suite 15

Boulder, Colorado 80301

tel: 303/249-0445



GRP Consulting Group, LLC

ALLEGHENY COUNTY PRE-MAY 21, 2019

MUNICIPAL PRIMARY ELECTION

ES&S iVOTRONICS

FIRMWARE VERIFICATION STUDY

EXECUTIVE SUMMARY

Developed for:

ALLEGHENY COUNTY

DIVISION OF ELECTIONS

STATE OF PENNSYLVANIA

Document Number GCG-AC-iVo-FRPT-000241

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1. INTRODUCTION: ALLEGHENY COUNTY ES&S iVOTRONICS FIRMWARE VERIFICATION STUDY

The Allegheny County, Pennsylvania Division of Elections requested GRP Consulting Group to audit and verify the firmware source code on twenty (20) ES&S iVotronic DRE voting machines before conducting the May 21, 2019 Municipal Primary Election. The devices to be audited were randomly selected from the County's 4700 devices. The purpose was to verify that the samples have in residence on the U1 designated Electronic Erasable Programmable Read Only Memory (EEPROM) chip, the firmware version 9.1.4.1, and all applied firmware versions are accurate and true to the State of Pennsylvania's Trusted Build, as held in escrow by the Secretary of State's Office in Harrisburg. The study was accomplished by applying the *'Allegheny County iVotronic Firmware Verification Protocol'* and was performed on location at the Allegheny County Division of Elections warehouse, located at 901 Pennsylvania Ave., Pittsburgh, Pennsylvania. GRP Consulting Group and Allegheny County staff performed this firmware audit on February 11, 2019.

It is the finding of GRP Consulting Group that the firmware verification audit applied to the resident code on the sample population was found to be unaltered versions of the 9.1.4.1 firmware.

1.1 Approach

1.1.1 Study's Focus

The focus of the exercise was:

1. Implementation of a fair and statically correct random selection process.
2. Deploy the verification protocol, known as the *'Allegheny County iVotronic Firmware Verification Protocol'*, to verify on twenty (20) randomly chosen ES&S iVotronics DRE voting devices that they hold in residence on the U1 designated EEPROM chip, the exact, true and unaltered version of the 9.1.4.1 certified firmware source code, as held in escrow at the Secretary of State's office.

1.1.2 Study's Concentration

The GRP Consulting Group analyst was tasked to independently apply a repeatable and validated verification protocol to verify that the ES&S firmware version 9.1.4.1 that resides in escrow by the Secretary of State's office and is resident on the Allegheny County iVotronic Direct-Recording Entry (DRE) – touch screen voting devices – are exact, true and unaltered versions of the certified firmware source code.

1.1.3 Study's Phases

GRP Consulting Group organized the project primary phases, each incorporating the flexibility to accommodate additional requirements, as they may have become known. The general strategy employed was comprised of the following aspects:

1. Setup, configure and control the verification environment and the parameters associated with each verification cycle;
2. Apply the SHA256 algorithm to verify that before the May 21, 2019 Municipal Primary Election, the 9.1.4.1 firmware on the iVotronic DREs is the true and certified version of the firmware and has not been altered;
3. Execute twenty (20) verification cycles;
4. Conduct reviews and analyses of all verification results and anomalies obtained during the twenty (20) verification execution cycles;
5. Advise the County on possible root cause(s) of any and all anomalies; and
6. Prepare and deliver a report of the verification activities, the results of all verification executions, and conclusions and recommendations in Executive Summary and Final Report formats.

2. FINDINGS

GRP Consulting Group was engaged by the Allegheny Division of Elections on site at 901 Pennsylvania Ave., Pittsburgh, PA on February 11, 2019. The purpose of the engagement was to apply the 'Allegheny County iVotronic Firmware Verification Protocol' to verify the ES&S iVotronic firmware version 9.1.4.1 is resident on the Allegheny County iVotronic population.

On February 11, 2019, the GRP Consulting Group analyst completed the verification process of the firmware on twenty (20) Allegheny County iVotronics chosen at random from the population of approximately 4700 machines. It is the findings of GRP Consulting Group that the firmware version 9.1.4.1 residing on the twenty (20) randomly chosen machines, do represent the population, and furthermore, that the firmware version as resident on the U1 designated Electronic Erasable Programmable Read Only Memory (EEPROM) chip is an exact, true, and unaltered version of the NVLAP federally-certified trusted build as held in archive at SysTest Labs and in escrow by the Pennsylvania Secretary of State in Harrisburg, PA.

County of Allegheny

Pre/**Post**-Election Air Gap Analysis of the Tabulation Network

23 May 2019

Research and Recommendations Provided by:



a network infrastructure company

Prepared by:
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Overview

The County of Allegheny has engaged solutions4networks to perform a network air gap analysis of their elections tabulation network located in Pittsburgh, PA. An **air gap, air wall or air gapping** is a network security measure employed on one or more computers to ensure that a secure computer network is physically isolated from unsecured networks, such as the public Internet or an unsecured local area network. solutions4networks has been tasked to verify the tabulation network is a stand-alone, isolated network and to assess the networks' vulnerability to external access and/or tampering. In addition to the network, solutions4network has been asked to assess and document the general physical security of the warehouse building.

A pre-election onsite visit was made by Frank Calderone of solutions4networks on May 20, 2019. The purpose of this document is to report the results of the assessment, identify security concerns and to make recommendations for the remediation of these concerns. A post-election onsite visit was made by Frank Calderone of solutions4networks on May 23, 2019. This report covers both the pre-election assessment and the **post-election review**. Post-election review updates will be noted in **red**.

This air gap analysis was performed for the election that occurred on May 21, 2019.

Site Contacts

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Robin Gigliotti
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412-350-6647

901 Pennsylvania Avenue
Pittsburgh, PA 15233

General Physical Security/Building Access

Physical Security/Building Access - No Issues Found

There are several suites within the warehouse. There are two signs at the main entrance to the warehouse that identify there is space within the building belonging to Allegheny County. Both are related to the Allegheny County Transportation Office which is in Suite 5. The building phone at the main entrance did not have any entries to dial for the County of Allegheny.

Building Main Entrance:



The Elections Tabulation is in Suite 6, there is no exterior monitoring at the entrance of Suite 6, to gain entrance one must have a key or card access to the steel door or contact someone within the warehouse.



Suite 6 Door Locks:



05/20/2019 - solutions4networks engineer, Frank Calderone, was met at the street entrance of 901 Pennsylvania Ave., Suite 6, by Robin Gigliotti after sending a text to her mobile phone. Before entrance was allowed proof of identification was requested and was provided via a valid Pennsylvania driver's license.

05/23/2019 - solutions4networks engineer, Frank Calderone, was met at the street entrance of 901 Pennsylvania Ave., Suite 6, by Robin Gigliotti after sending a text to her mobile phone. Before entrance was allowed proof of identification was requested and was provided via a valid Pennsylvania driver's license.

The first door in the warehouse required a security code, but it was a physical, non-electronic lock:



Entrance into the Computer Room requires a code or a physical key and is monitored by a security camera:





Entrance to the tabulation room required an electronic badge or key:



Security Camera in Tabulation Room:



There are several signs posted in the tabulation room stating 'No Cell Phones Permitted':

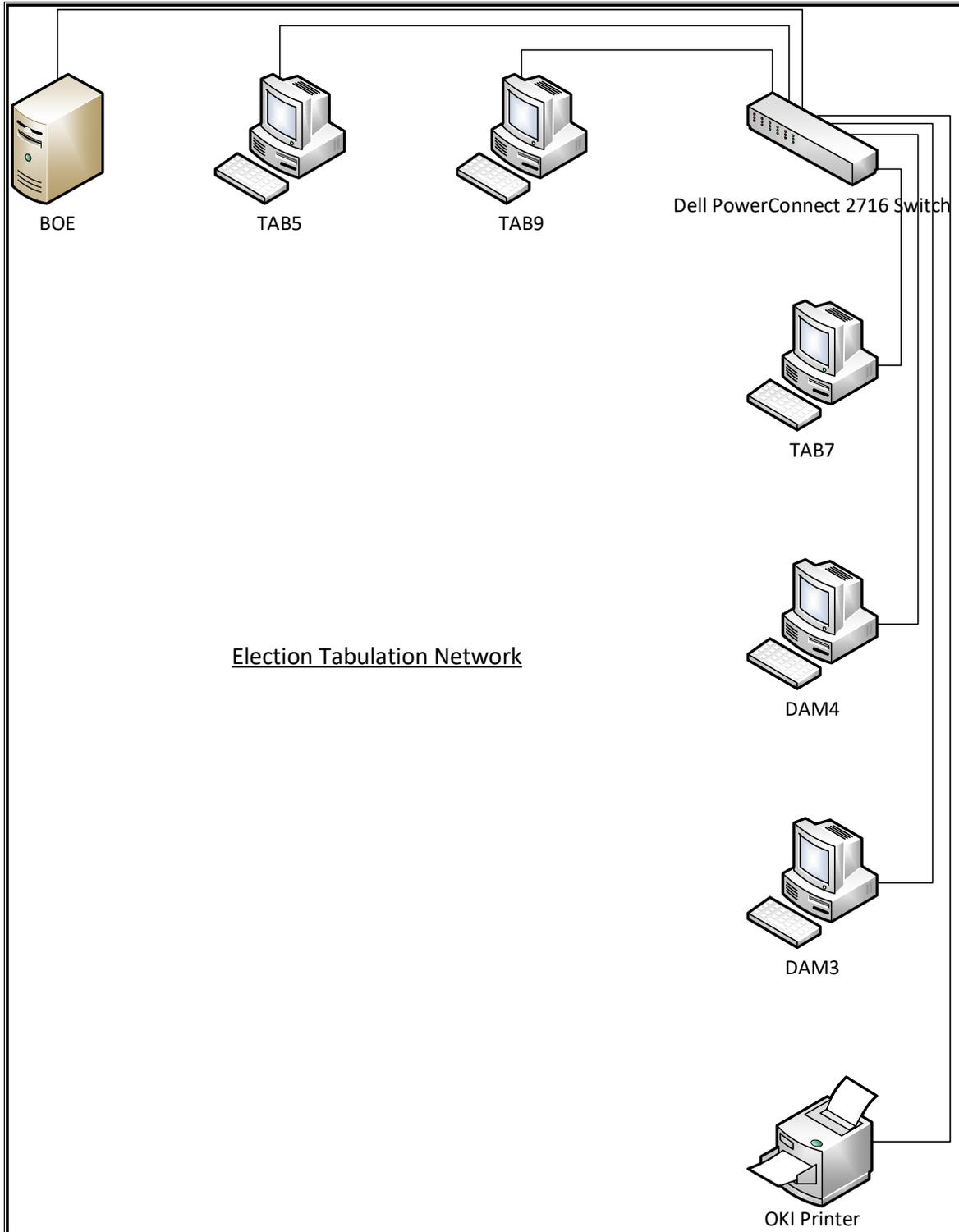


Physical Post-Election Review: All items indicated above remained the same.

Election Tabulations Network

Network Overview

The solutions4networks engineer created the following network drawing based off the observed finding from the onsite physical inspections performed during the air gap analysis.





The Election Tabulation Network consisted of the following devices:

- 1 Dell PowerConnect 2716 Ethernet Switch
- 1 Windows Server
- 5 Client PC's
 - Two DAM (Dial Access Modem) Servers
 - 3 Windows XP Clients
- 1 Printer

Network Overview - Logical

All the devices had an address from RFC1918 private network 192.168.1.0/24. The Windows Server with address 192.168.1.20 provided DHCP, DNS and WINS services. A default gateway of 192.168.1.1 was configured, but no such device was found on the network. All devices on the network could ping each other so the network was fully self-contained and each node was accessible to one another.

Post-Election Review: All items indicated above remained the same.



Network Overview – Physical

Dell Server PE-SC1420	Dell Optiplex 790	Dell Optiplex 790	Dell Optiplex 790	Dell Optiplex 790	Dell Optiplex 790	Okidata Printer B6300
BOE.elections.local	TAB5.elections.local	TAB9.elections.local	TAB7.elections.local	DAM4.elections.local	DAM3.elections.local	
provides DHCP, WINS, DNS Services	DHCP enabled	DHCP enabled	DHCP enabled	static	DHCP enabled/	DHCP Reserved
Win2003 SP1	Win XP Pro ver 2002 SP3	Win XP Pro ver 2002 SP3	Win XP Pro ver 2002 SP3	WinXP SP3	WinXP SP3	
Dell Server PESC1420						
intel Xeon CPU 3.20 GHZ	Intel core i5-2400 CPU 3.1 GHz	Intel core i5-2400 CPU 3.1 GHz	Intel core i5-2400 CPU 3.1 GHz	Intel Xeon 5110@1.60GHz		
3.19 GHz 2.00 GB RAM	3.09 GHZ, 3.16 GB Ram	3.09 GHZ, 3.16 GB Ram	3.09 GHZ, 3.16 GB Ram	1.60 GHz, 2.00 GB Ram		
2GB Ram	4 GB Ram	4 GB Ram	4 GB Ram	4 GB Ram	4 GB Ram	
IP: 192.168.1.20 (static)	IP: 192.168.1.10	IP: 192.168.1.12	IP: 192.168.1.40	IP: 192.168.1.101	IP: 192.168.1.41	IP: 192.168.1.50
netmask: 255.255.255.0	netmask: 255.255.255.0	netmask: 255.255.255.0	netmask: 255.255.255.0	netmask: 255.255.255.0	netmask: 255.255.255.0	netmask: 255.255.255.0
gateway: 192.168.1.1	gateway: 192.168.1.1 (doesn't exist)	gateway: 192.168.1.1 (doesn't exist)	gateway: 192.168.1.1 (doesn't exist)	none	gateway: 192.168.1.1 (doesn't exist)	
DNS: 192.168.1.20	DHCP Server: 192.168.1.20	DHCP Server: 192.168.1.20	DHCP Server: 192.168.1.20		DHCP Server: 192.168.1.20	
WINS: 192.168.1.20	DNS Server: 192.168.1.20	DNS Server: 192.168.1.20	DNS Server: 192.168.1.20	DNS Server: 192.168.1.20	DNS Server: 192.168.1.20	
	Wins Server: 192.168.1.20	Wins Server: 192.168.1.20	Wins Server: 192.168.1.20			
wired keyboard	wired keyboard	wired keyboard	wired keyboard	wired keyboard	wired keyboard	
wired mouse	wired mouse	wired mouse	wired mouse	wired mouse	wired mouse	
#USB Ports 4 #USB Ports Open 3	#USB Ports 10 #USB Port Open 7	#USB Port 10 #USB Ports Open 8	#USB Ports 10 #USB Ports Open 8	#USB Ports 10 #USB Ports Open 6	#USB Ports 10 #USB Ports Open 6	
Intel Pro 1000 MT LAN connection	Gigabit LAN connection	Gigabit LAN connection	Gigabit LAN connection	Gigabit LAN connection	Gigabit LAN connection	

Post-Election Review: All items indicated above remained the same.

BOE.elections.local

BOE Desktop



BOE Front



BOE Rear



Information Collected from BOE CLI:

```
C:\Documents and Settings\Administrator>hostname
```

BOE

*****Display of the IPv4 information in detail of the device*****

```
C:\Documents and Settings\Administrator>ipconfig /all
```

Windows IP Configuration

Host Name : BOE

Primary Dns Suffix : elections.local



Node Type : Hybrid
IP Routing Enabled. : No
WINS Proxy Enabled. : No
DNS Suffix Search List. : elections.local

Ethernet adapter Server LAN NIC:

Connection-specific DNS Suffix . :
Description : Intel(R) PRO/1000 MT Network Connection
Physical Address. : 00-14-22-60-3F-94
DHCP Enabled. : No
IP Address. : **192.168.1.20**
Subnet Mask : 255.255.255.0
Default Gateway : **192.168.1.1**
DNS Servers : **192.168.1.20**
Primary WINS Server : 192.168.1.20

*****Discover at the link-layer the MAC address associated with the IP address and whether they both match correctly with associated devices. (they do) *****

C:\Documents and Settings\Administrator>arp -a

Interface: 192.168.1.20 --- 0x10003

Internet Address	Physical Address	Type
192.168.1.12	18-03-73-15-97-68	dynamic
192.168.1.40	18-03-73-1b-cf-e2	dynamic



A display of the routing table on the device to determine if there are any routes to the Internet (there are not).

C:\Documents and Settings\Administrator>netstat -rn

IPv4 Route Table

=====

Interface List

0x1 MS TCP Loopback interface

0x10003 ...00 14 22 60 3f 94 Intel(R) PRO/1000 MT Network Connection

=====

=====

Active Routes:

Network Destination	Netmask	Gateway	Interface	Metric
0.0.0.0	0.0.0.0	192.168.1.1	192.168.1.20	10
127.0.0.0	255.0.0.0	127.0.0.1	127.0.0.1	1
192.168.1.0	255.255.255.0	192.168.1.20	192.168.1.20	10
192.168.1.20	255.255.255.255	127.0.0.1	127.0.0.1	10
192.168.1.255	255.255.255.255	192.168.1.20	192.168.1.20	10
224.0.0.0	240.0.0.0	192.168.1.20	192.168.1.20	10
255.255.255.255	255.255.255.255	192.168.1.20	192.168.1.20	1

Default Gateway: 192.168.1.1

=====

Persistent Routes:

None



*****A display of state of the ports on the device to determine if there are any unknown devices connected or any ports that are of a concern that are open. (there do not seem to be)*****

C:\Documents and Settings\Administrator>netstat -an

Active Connections

Proto	Local Address	Foreign Address	State
TCP	0.0.0.0:25	0.0.0.0:0	LISTENING
TCP	0.0.0.0:42	0.0.0.0:0	LISTENING
TCP	0.0.0.0:53	0.0.0.0:0	LISTENING
TCP	0.0.0.0:80	0.0.0.0:0	LISTENING
TCP	0.0.0.0:88	0.0.0.0:0	LISTENING
TCP	0.0.0.0:135	0.0.0.0:0	LISTENING
TCP	0.0.0.0:389	0.0.0.0:0	LISTENING
TCP	0.0.0.0:445	0.0.0.0:0	LISTENING
TCP	0.0.0.0:464	0.0.0.0:0	LISTENING
TCP	0.0.0.0:593	0.0.0.0:0	LISTENING
TCP	0.0.0.0:636	0.0.0.0:0	LISTENING
TCP	0.0.0.0:691	0.0.0.0:0	LISTENING
TCP	0.0.0.0:1026	0.0.0.0:0	LISTENING
TCP	0.0.0.0:1027	0.0.0.0:0	LISTENING
TCP	0.0.0.0:1068	0.0.0.0:0	LISTENING
TCP	0.0.0.0:1074	0.0.0.0:0	LISTENING
TCP	0.0.0.0:1076	0.0.0.0:0	LISTENING
TCP	0.0.0.0:1077	0.0.0.0:0	LISTENING
TCP	0.0.0.0:1078	0.0.0.0:0	LISTENING



TCP	0.0.0.0:1081	0.0.0.0:0	LISTENING
TCP	0.0.0.0:1097	0.0.0.0:0	LISTENING
TCP	0.0.0.0:1103	0.0.0.0:0	LISTENING
TCP	0.0.0.0:1155	0.0.0.0:0	LISTENING
TCP	0.0.0.0:1164	0.0.0.0:0	LISTENING
TCP	0.0.0.0:1167	0.0.0.0:0	LISTENING
TCP	0.0.0.0:2160	0.0.0.0:0	LISTENING
TCP	0.0.0.0:2161	0.0.0.0:0	LISTENING
TCP	0.0.0.0:2260	0.0.0.0:0	LISTENING
TCP	0.0.0.0:3052	0.0.0.0:0	LISTENING
TCP	0.0.0.0:3268	0.0.0.0:0	LISTENING
TCP	0.0.0.0:3269	0.0.0.0:0	LISTENING
TCP	0.0.0.0:3389	0.0.0.0:0	LISTENING
TCP	0.0.0.0:6001	0.0.0.0:0	LISTENING
TCP	0.0.0.0:6002	0.0.0.0:0	LISTENING
TCP	0.0.0.0:6004	0.0.0.0:0	LISTENING
TCP	0.0.0.0:6358	0.0.0.0:0	LISTENING
TCP	0.0.0.0:6548	0.0.0.0:0	LISTENING
TCP	0.0.0.0:8081	0.0.0.0:0	LISTENING
TCP	0.0.0.0:10000	0.0.0.0:0	LISTENING
TCP	0.0.0.0:34571	0.0.0.0:0	LISTENING
TCP	0.0.0.0:34572	0.0.0.0:0	LISTENING
TCP	0.0.0.0:34573	0.0.0.0:0	LISTENING
TCP	127.0.0.1:389	127.0.0.1:38368	ESTABLISHED
TCP	127.0.0.1:1090	127.0.0.1:389	CLOSE_WAIT



TCP	127.0.0.1:1111	127.0.0.1:389	CLOSE_WAIT
TCP	127.0.0.1:1160	127.0.0.1:389	CLOSE_WAIT
TCP	127.0.0.1:38087	127.0.0.1:389	CLOSE_WAIT
TCP	127.0.0.1:38368	127.0.0.1:389	ESTABLISHED
TCP	192.168.1.20:135	192.168.1.20:1175	ESTABLISHED
TCP	192.168.1.20:135	192.168.1.20:38894	ESTABLISHED
TCP	192.168.1.20:135	192.168.1.20:38896	ESTABLISHED
TCP	192.168.1.20:139	0.0.0.0	LISTENING
TCP	192.168.1.20:389	192.168.1.20:38337	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38339	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38344	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38345	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38346	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38347	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38348	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38349	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38351	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38352	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38353	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38354	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38355	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38358	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38360	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38362	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38363	ESTABLISHED



TCP	192.168.1.20:389	192.168.1.20:38813	ESTABLISHED
TCP	192.168.1.20:389	192.168.1.20:38893	ESTABLISHED
TCP	192.168.1.20:691	192.168.1.20:1110	ESTABLISHED
TCP	192.168.1.20:691	192.168.1.20:1165	ESTABLISHED
TCP	192.168.1.20:691	192.168.1.20:38090	ESTABLISHED
TCP	192.168.1.20:1026	192.168.1.20:1106	ESTABLISHED
TCP	192.168.1.20:1026	192.168.1.20:1220	ESTABLISHED
TCP	192.168.1.20:1026	192.168.1.20:1360	ESTABLISHED
TCP	192.168.1.20:1026	192.168.1.20:30347	ESTABLISHED
TCP	192.168.1.20:1026	192.168.1.20:38843	ESTABLISHED
TCP	192.168.1.20:1026	192.168.1.20:38885	ESTABLISHED
TCP	192.168.1.20:1026	192.168.1.20:38897	ESTABLISHED
TCP	192.168.1.20:1092	192.168.1.20:389	CLOSE_WAIT
TCP	192.168.1.20:1106	192.168.1.20:1026	ESTABLISHED
TCP	192.168.1.20:1110	192.168.1.20:691	ESTABLISHED
TCP	192.168.1.20:1114	192.168.1.20:389	CLOSE_WAIT
TCP	192.168.1.20:1141	192.168.1.20:389	CLOSE_WAIT
TCP	192.168.1.20:1143	192.168.1.20:389	CLOSE_WAIT
TCP	192.168.1.20:1144	192.168.1.20:3268	CLOSE_WAIT
TCP	192.168.1.20:1161	192.168.1.20:389	CLOSE_WAIT
TCP	192.168.1.20:1165	192.168.1.20:691	ESTABLISHED
TCP	192.168.1.20:1175	192.168.1.20:135	ESTABLISHED
TCP	192.168.1.20:1220	192.168.1.20:1026	ESTABLISHED
TCP	192.168.1.20:1360	192.168.1.20:1026	ESTABLISHED
TCP	192.168.1.20:3268	192.168.1.20:38338	ESTABLISHED



TCP	192.168.1.20:3268	192.168.1.20:38340	ESTABLISHED
TCP	192.168.1.20:3268	192.168.1.20:38341	ESTABLISHED
TCP	192.168.1.20:3268	192.168.1.20:38357	ESTABLISHED
TCP	192.168.1.20:30347	192.168.1.20:1026	ESTABLISHED
TCP	192.168.1.20:38090	192.168.1.20:691	ESTABLISHED
TCP	192.168.1.20:38337	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38338	192.168.1.20:3268	ESTABLISHED
TCP	192.168.1.20:38339	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38340	192.168.1.20:3268	ESTABLISHED
TCP	192.168.1.20:38341	192.168.1.20:3268	ESTABLISHED
TCP	192.168.1.20:38344	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38345	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38346	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38347	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38348	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38349	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38351	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38352	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38353	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38354	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38355	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38356	192.168.1.20:389	CLOSE_WAIT
TCP	192.168.1.20:38357	192.168.1.20:3268	ESTABLISHED
TCP	192.168.1.20:38358	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38360	192.168.1.20:389	ESTABLISHED



TCP	192.168.1.20:38362	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38363	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38751	192.168.1.20:389	CLOSE_WAIT
TCP	192.168.1.20:38813	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38843	192.168.1.20:1026	ESTABLISHED
TCP	192.168.1.20:38884	192.168.1.20:135	TIME_WAIT
TCP	192.168.1.20:38885	192.168.1.20:1026	ESTABLISHED
TCP	192.168.1.20:38893	192.168.1.20:389	ESTABLISHED
TCP	192.168.1.20:38894	192.168.1.20:135	ESTABLISHED
TCP	192.168.1.20:38895	192.168.1.20:135	TIME_WAIT
TCP	192.168.1.20:38896	192.168.1.20:135	ESTABLISHED
TCP	192.168.1.20:38897	192.168.1.20:1026	ESTABLISHED
TCP	192.168.1.20:38898	192.168.1.20:34571	TIME_WAIT
TCP	192.168.1.20:51019	192.168.1.20:389	CLOSE_WAIT
TCP	192.168.1.20:51020	192.168.1.20:3268	CLOSE_WAIT
UDP	0.0.0.0:42	*.*	
UDP	0.0.0.0:135	*.*	
UDP	0.0.0.0:445	*.*	
UDP	0.0.0.0:500	*.*	
UDP	0.0.0.0:1035	*.*	
UDP	0.0.0.0:1065	*.*	
UDP	0.0.0.0:1073	*.*	
UDP	0.0.0.0:1082	*.*	
UDP	0.0.0.0:1098	*.*	
UDP	0.0.0.0:1104	*.*	



UDP 0.0.0.0:1168 *.*
UDP 0.0.0.0:1221 *.*
UDP 0.0.0.0:1434 *.*
UDP 0.0.0.0:2160 *.*
UDP 0.0.0.0:2161 *.*
UDP 0.0.0.0:3456 *.*
UDP 0.0.0.0:3457 *.*
UDP 0.0.0.0:4500 *.*
UDP 0.0.0.0:7846 *.*
UDP 0.0.0.0:38293 *.*
UDP 127.0.0.1:53 *.*
UDP 127.0.0.1:123 *.*
UDP 127.0.0.1:1064 *.*
UDP 127.0.0.1:1066 *.*
UDP 127.0.0.1:1083 *.*
UDP 127.0.0.1:1091 *.*
UDP 127.0.0.1:1101 *.*
UDP 127.0.0.1:1107 *.*
UDP 127.0.0.1:1154 *.*
UDP 127.0.0.1:1158 *.*
UDP 127.0.0.1:1169 *.*
UDP 127.0.0.1:1176 *.*
UDP 127.0.0.1:1185 *.*
UDP 127.0.0.1:1188 *.*
UDP 127.0.0.1:1193 *.*



UDP 127.0.0.1:1215 *.*
UDP 127.0.0.1:1337 *.*
UDP 127.0.0.1:1446 *.*
UDP 127.0.0.1:3456 *.*
UDP 127.0.0.1:3457 *.*
UDP 192.168.1.20:53 *.*
UDP 192.168.1.20:67 *.*
UDP 192.168.1.20:68 *.*
UDP 192.168.1.20:88 *.*
UDP 192.168.1.20:123 *.*
UDP 192.168.1.20:137 *.*
UDP 192.168.1.20:138 *.*
UDP 192.168.1.20:389 *.*
UDP 192.168.1.20:464 *.*
UDP 192.168.1.20:2535 *.*

*****Gives information on the device*****

C:\Documents and Settings\Administrator>systeminfo

Host Name: BOE
OS Name: Microsoft(R) Windows(R) Server 2003 for Small Business Server
OS Version: 5.2.3790 Service Pack 1 Build 3790
OS Manufacturer: Microsoft Corporation
OS Configuration: Primary Domain Controller
OS Build Type: Multiprocessor Free



Registered Owner: Allegheny County, PA

Registered Organization: Board of Elections

Product ID: 74995-OEM-4211904-03020

Original Install Date: 5/8/2006, 1:24:53 PM

*****As stated in the 'Recommendations' an air-gapped system should be powered down and unplugged when not in use.*****

System Up Time: 84 Days, 0 Hours, 47 Minutes, 28 Seconds

System Manufacturer: Dell Inc.

System Model: PowerEdge SC1420

System Type: X86-based PC

Processor(s): 2 Processor(s) Installed.

[01]: x86 Family 15 Model 4 Stepping 3 GenuineIntel ~

3192 Mhz

[02]: x86 Family 15 Model 4 Stepping 3 GenuineIntel ~

3192 Mhz

BIOS Version: DELL - 7

Windows Directory: C:\WINDOWS

System Directory: C:\WINDOWS\system32

Boot Device: \Device\HarddiskVolume2

System Locale: en-us;English (United States)

Input Locale: en-us;English (United States)

Time Zone: (GMT-05:00) Eastern Time (US & Canada)

Total Physical Memory: 2,046 MB

Available Physical Memory: 777 MB

Page File: Max Size: 3,435 MB

Page File: Available: 2,043 MB



Page File: In Use: 1,392 MB

Page File Location(s): C:\pagefile.sys

Domain: elections.local

Logon Server: \\BOE

Hotfix(s): 19 Hotfix(s) Installed.

[01]: File 1

[02]: File 1

[03]: File 1

[04]: File 1

[05]: File 1

[06]: File 1

[07]: File 1

[08]: File 1

[09]: File 1

[10]: Q147222

[11]: KB896358 - Update

[12]: KB896422 - Update

[13]: KB896424 - Update

[14]: KB896688 - Update

[15]: KB901214 - Update

[16]: KB902400 - Update

[17]: KB904706 - Update

[18]: KB908519 - Update

[19]: KB912919 - Update

Network Card(s): 1 NIC(s) Installed.



[01]: Intel(R) PRO/1000 MT Network Connection

Connection Name: Server LAN NIC

DHCP Enabled: No

IP address(es)

[01]: 192.168.1.20

*****This is a check of connectivity against itself*****

C:\Documents and Settings\Administrator>ping 192.168.1.20

Pinging 192.168.1.20 with 32 bytes of data:

Reply from 192.168.1.20: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.20:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

*****Test to see if device can reach the Internet*** (It cannot)**

C:\Documents and Settings\Administrator>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:



Request timed out.

Request timed out.

Request timed out.

Request timed out.

Ping statistics for 8.8.8.8:

Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

BOE Post Review:

Notable differences:

```
C:\Documents and Settings\Administrator>systeminfo
```

```
Host Name:                BOE
OS Name:                   Microsoft(R) Windows(R) Server 2003 for Small Busines
s Server
OS Version:                5.2.3790 Service Pack 1 Build 3790
OS Manufacturer:          Microsoft Corporation
OS Configuration:         Primary Domain Controller
OS Build Type:              Multiprocessor Free
Registered Owner:          Allegheny County, PA
Registered Organization:    Board of Elections
Product ID:                 74995-OEM-4211904-03020
Original Install Date:      5/8/2006, 1:24:53 PM
System Up Time:             87 Days, 0 Hours, 40 Minutes, 43 Seconds
System Manufacturer:        Dell Inc.
System Model:               PowerEdge SC1420
System Type:                X86-based PC
Processor(s):               2 Processor(s) Installed.
                           [01]: x86 Family 15 Model 4 Stepping 3 GenuineIntel ~
3192 Mhz
                           [02]: x86 Family 15 Model 4 Stepping 3 GenuineIntel ~
3192 Mhz
BIOS Version:               DELL - 7
Windows Directory:          C:\WINDOWS
System Directory:           C:\WINDOWS\system32
Boot Device:                \Device\HarddiskVolume2
System Locale:               en-us;English (United States)
Input Locale:               en-us;English (United States)
Time Zone:                  (GMT-05:00) Eastern Time (US & Canada)
Total Physical Memory:      2,046 MB
Available Physical Memory:  809 MB
Page File: Max Size:        3,435 MB
Page File: Available:       2,080 MB
Page File: In Use:          1,355 MB
```

TAB5 Desktop



TAB5 Front



TAB5 Rear



Information Collected from TAB5 CLI:

```
C:\Documents and Settings\administrator.ELECTIONS>hostname
```

TAB5

*****Display of the IPv4 information in detail of the device****

```
C:\Documents and Settings\administrator.ELECTIONS>ipconfig /all
```

Windows IP Configuration

Host Name : TAB5

Primary Dns Suffix : elections.local



Node Type : Hybrid
IP Routing Enabled. : No
WINS Proxy Enabled. : No
DNS Suffix Search List. : elections.local
elections.local

Ethernet adapter Local Area Connection:

Connection-specific DNS Suffix . : elections.local
Description : Intel(R) 82579LM Gigabit Network Connection
Physical Address. : 18-03-73-14-1C-2C
Dhcp Enabled. : Yes
Autoconfiguration Enabled : Yes
IP Address. : 192.168.1.10
Subnet Mask : 255.255.255.0
Default Gateway : 192.168.1.1
DHCP Server : 192.168.1.20
DNS Servers : 192.168.1.20
Primary WINS Server : 192.168.1.20
Lease Obtained. : Sunday, May 19, 2019 6:49:11 AM
Lease Expires : Monday, May 27, 2019 6:49:11 AM

*****Discover at the link-layer the MAC address associated with the IP address and whether they both match correctly with associated devices. (they do) *****

C:\Documents and Settings\administrator.ELECTIONS>arp -a



Interface: 192.168.1.10 --- 0x2

Internet Address	Physical Address	Type
192.168.1.20	00-14-22-60-3f-94	dynamic

*****A display of the routing table on the device to determine if there are any routes to the Internet (there are not).*****

C:\Documents and Settings\administrator.ELECTIONS>netstat -rn

Route Table

=====

Interface List

0x1 MS TCP Loopback interface

0x2 ...18 03 73 14 1c 2c Intel(R) 82579LM Gigabit Network Connection - Packet Scheduler Miniport

=====

Active Routes:

Network Destination	Netmask	Gateway	Interface	Metric
0.0.0.0	0.0.0.0	192.168.1.1	192.168.1.10	10
127.0.0.0	255.0.0.0	127.0.0.1	127.0.0.1	1
192.168.1.0	255.255.255.0	192.168.1.10	192.168.1.10	10
192.168.1.10	255.255.255.255	127.0.0.1	127.0.0.1	10
192.168.1.255	255.255.255.255	192.168.1.10	192.168.1.10	10
224.0.0.0	240.0.0.0	192.168.1.10	192.168.1.10	10
255.255.255.255	255.255.255.255	192.168.1.10	192.168.1.10	1

Default Gateway: 192.168.1.1

=====

Persistent Routes:



None

*****A display of state of the ports on the device to determine if there are any unknown devices connected or any ports that are of a concern that are open. (there do not seem to be)*****

C:\Documents and Settings\administrator.ELECTIONS>netstat -an

Active Connections

Proto	Local Address	Foreign Address	State
TCP	0.0.0.0:135	0.0.0.0:0	LISTENING
TCP	0.0.0.0:445	0.0.0.0:0	LISTENING
TCP	0.0.0.0:3306	0.0.0.0:0	LISTENING
TCP	127.0.0.1:1037	127.0.0.1:1038	ESTABLISHED
TCP	127.0.0.1:1038	127.0.0.1:1037	ESTABLISHED
TCP	127.0.0.1:1043	0.0.0.0:0	LISTENING
TCP	127.0.0.1:1044	0.0.0.0:0	LISTENING
TCP	192.168.1.10:139	0.0.0.0:0	LISTENING
TCP	192.168.1.10:3045	192.168.1.20:135	TIME_WAIT
TCP	192.168.1.10:3046	192.168.1.20:1026	TIME_WAIT
UDP	0.0.0.0:445	*.*	
UDP	0.0.0.0:500	*.*	
UDP	0.0.0.0:4500	*.*	
UDP	127.0.0.1:123	*.*	
UDP	127.0.0.1:1025	*.*	
UDP	127.0.0.1:1048	*.*	
UDP	127.0.0.1:1900	*.*	



UDP 192.168.1.10:123 *.*
UDP 192.168.1.10:137 *.*
UDP 192.168.1.10:138 *.*
UDP 192.168.1.10:1900 *.*

*****Gives information on the device*****

C:\Documents and Settings\administrator.ELECTIONS>systeminfo

Host Name: TAB5
OS Name: Microsoft Windows XP Professional
OS Version: 5.1.2600 Service Pack 3 Build 2600
OS Manufacturer: Microsoft Corporation
OS Configuration: Member Workstation
OS Build Type: Multiprocessor Free
Registered Owner: admin
Registered Organization:
Product ID: 76487-OEM-0060807-79698
Original Install Date: 8/2/2016, 6:04:17 PM

*****As stated in the 'Recommendations' an air-gapped system should be powered down and unplugged when not in use.*****

System Up Time: 9 Days, 2 Hours, 16 Minutes, 21 Seconds
System Manufacturer: Dell Inc.
System Model: OptiPlex 790
System type: X86-based PC
Processor(s): 1 Processor(s) Installed.

[01]: x86 Family 6 Model 42 Stepping 7 GenuineIntel ~



3092 Mhz

BIOS Version: DELL - 6222004

Windows Directory: C:\WINDOWS

System Directory: C:\WINDOWS\system32

Boot Device: \Device\HarddiskVolume1

System Locale: en-us;English (United States)

Input Locale: en-us;English (United States)

Time Zone: (GMT-05:00) Eastern Time (US & Canada)

Total Physical Memory: 3,241 MB

Available Physical Memory: 2,650 MB

Virtual Memory: Max Size: 2,048 MB

Virtual Memory: Available: 2,008 MB

Virtual Memory: In Use: 40 MB

Page File Location(s): C:\pagefile.sys

Domain: elections.local

Logon Server: \\BOE

Hotfix(s): 250 Hotfix(s) Installed.

[01]: File 1

[02]: File 1

[03]: File 1

[04]: File 1

[05]: File 1

[06]: File 1

[07]: File 1

[08]: File 1



[09]: File 1

[10]: File 1

[11]: File 1

[12]: File 1

[13]: File 1

[14]: File 1

[15]: File 1

[16]: File 1

[17]: File 1

[18]: File 1

[19]: File 1

[20]: File 1

[21]: File 1

[22]: File 1

[23]: File 1

[24]: File 1

[25]: File 1

[26]: File 1

[27]: File 1

[28]: File 1

[29]: File 1

[30]: File 1

[31]: File 1

[32]: File 1

[33]: File 1



[34]: File 1

[35]: File 1

[36]: File 1

[37]: File 1

[38]: File 1

[39]: File 1

[40]: File 1

[41]: File 1

[42]: File 1

[43]: File 1

[44]: File 1

[45]: File 1

[46]: File 1

[47]: File 1

[48]: File 1

[49]: File 1

[50]: File 1

[51]: File 1

[52]: File 1

[53]: File 1

[54]: File 1

[55]: File 1

[56]: File 1

[57]: File 1

[58]: File 1



[59]: File 1

[60]: File 1

[61]: File 1

[62]: File 1

[63]: File 1

[64]: File 1

[65]: File 1

[66]: File 1

[67]: File 1

[68]: File 1

[69]: File 1

[70]: File 1

[71]: File 1

[72]: File 1

[73]: File 1

[74]: File 1

[75]: File 1

[76]: File 1

[77]: File 1

[78]: File 1

[79]: File 1

[80]: File 1

[81]: File 1

[82]: File 1

[83]: File 1



[84]: File 1

[85]: File 1

[86]: File 1

[87]: File 1

[88]: File 1

[89]: File 1

[90]: File 1

[91]: File 1

[92]: File 1

[93]: File 1

[94]: File 1

[95]: File 1

[96]: File 1

[97]: File 1

[98]: File 1

[99]: File 1

[100]: File 1

[101]: File 1

[102]: File 1

[103]: File 1

[104]: File 1

[105]: File 1

[106]: File 1

[107]: File 1

[108]: File 1



- [109]: File 1
- [110]: File 1
- [111]: File 1
- [112]: File 1
- [113]: File 1
- [114]: File 1
- [115]: File 1
- [116]: File 1
- [117]: File 1
- [118]: File 1
- [119]: File 1
- [120]: File 1
- [121]: File 1
- [122]: Q147222
- [123]: KB2378111_WM9
- [124]: KB2803821-v2_WM9
- [125]: KB952069_WM9
- [126]: KB954155_WM9
- [127]: KB973540_WM9
- [128]: KB975558_WM8
- [129]: KB978695_WM9
- [130]: KB2564958 - Update
- [131]: KB936929 - Service Pack
- [132]: KB2115168 - Update
- [133]: KB2229593 - Update



- [134]: KB2296011 - Update
- [135]: KB2347290 - Update
- [136]: KB2387149 - Update
- [137]: KB2393802 - Update
- [138]: KB2419632 - Update
- [139]: KB2423089 - Update
- [140]: KB2443105 - Update
- [141]: KB2478960 - Update
- [142]: KB2478971 - Update
- [143]: KB2479943 - Update
- [144]: KB2481109 - Update
- [145]: KB2483185 - Update
- [146]: KB2485663 - Update
- [147]: KB2506212 - Update
- [148]: KB2507938 - Update
- [149]: KB2508429 - Update
- [150]: KB2509553 - Update
- [151]: KB2510581 - Update
- [152]: KB2535512 - Update
- [153]: KB2536276-v2 - Update
- [154]: KB2544893-v2 - Update
- [155]: KB2566454 - Update
- [156]: KB2570947 - Update
- [157]: KB2584146 - Update
- [158]: KB2585542 - Update



- [159]: KB2592799 - Update
- [160]: KB2598479 - Update
- [161]: KB2603381 - Update
- [162]: KB2619339 - Update
- [163]: KB2620712 - Update
- [164]: KB2631813 - Update
- [165]: KB2653956 - Update
- [166]: KB2655992 - Update
- [167]: KB2659262 - Update
- [168]: KB2661637 - Update
- [169]: KB2676562 - Update
- [170]: KB2686509 - Update
- [171]: KB2691442 - Update
- [172]: KB2698365 - Update
- [173]: KB2705219-v2 - Update
- [174]: KB2712808 - Update
- [175]: KB2719985 - Update
- [176]: KB2723135-v2 - Update
- [177]: KB2727528 - Update
- [178]: KB2757638 - Update
- [179]: KB2770660 - Update
- [180]: KB2780091 - Update
- [181]: KB2802968 - Update
- [182]: KB2807986 - Update
- [183]: KB2813345 - Update



- [184]: KB2820917 - Update
- [185]: KB2834886 - Update
- [186]: KB2847311 - Update
- [187]: KB2850869 - Update
- [188]: KB2859537 - Update
- [189]: KB2862152 - Update
- [190]: KB2862330 - Update
- [191]: KB2862335 - Update
- [192]: KB2864063 - Update
- [193]: KB2868038 - Update
- [194]: KB2868626 - Update
- [195]: KB2876217 - Update
- [196]: KB2876331 - Update
- [197]: KB2884256 - Update
- [198]: KB2892075 - Update
- [199]: KB2893294 - Update
- [200]: KB2898715 - Update
- [201]: KB2900986 - Update
- [202]: KB2904266 - Update
- [203]: KB2909212 - Update
- [204]: KB2914368 - Update
- [205]: KB2916036 - Update
- [206]: KB2922229 - Update
- [207]: KB2929961 - Update
- [208]: KB2930275 - Update



- [209]: KB2936068 - Update
- [210]: KB2964358 - Update
- [211]: KB923561 - Update
- [212]: KB942288-v3 - Update
- [213]: KB946648 - Update
- [214]: KB950762 - Update
- [215]: KB950974 - Update
- [216]: KB951376-v2 - Update
- [217]: KB952004 - Update
- [218]: KB95

NetWork Card(s): 1 NIC(s) Installed.

[01]: Intel(R) 82579LM Gigabit Network Connection

Connection Name: Local Area Connection

DHCP Enabled: Yes

DHCP Server: 192.168.1.20

IP address(es)

[01]: 192.168.1.10

*****Test to see if device can reach default gateway*** (It cannot)**

C:\Documents and Settings\administrator.ELECTIONS>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Request timed out.



Request timed out.

Request timed out.

Request timed out.

Ping statistics for 192.168.1.1:

Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

*****Test to see if device can reach the DHCP Server, this is BOE. It can*****

*****In most small networks this would also serve as the Default Gateway.*****

C:\Documents and Settings\administrator.ELECTIONS>ping 192.168.1.20

Pinging 192.168.1.20 with 32 bytes of data:

Reply from 192.168.1.20: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.20:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

*****Test to see if device can reach the Internet*** (It cannot)**

C:\Documents and Settings\administrator.ELECTIONS>ping 8.8.8.8



Pinging 8.8.8.8 with 32 bytes of data:

Request timed out.

Request timed out.

Request timed out.

Request timed out.

Ping statistics for 8.8.8.8:

Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

TAB5 Post Review:

Notable differences:

```
C:\Documents and Settings\administrator.ELECTIONS>systeminfo

Host Name:                TAB5
OS Name:                  Microsoft Windows XP Professional
OS Version:               5.1.2600 Service Pack 3 Build 2600
OS Manufacturer:         Microsoft Corporation
OS Configuration:        Member Workstation
OS Build Type:             Multiprocessor Free
Registered Owner:         admin
Registered Organization:
Product ID:                76487-OEM-0060807-79698
Original Install Date:    8/2/2016, 6:04:17 PM
System Up Time:           12 Days, 2 Hours, 8 Minutes, 31 Seconds
System Manufacturer:      Dell Inc.
System Model:              OptiPlex 790
System type:               X86-based PC
Processor(s):              1 Processor(s) Installed.
                           [01]: x86 Family 6 Model 42 Stepping 7 GenuineIntel ~
3092 Mhz
BIOS Version:              DELL   - 6222004
Windows Directory:        C:\WINDOWS
System Directory:         C:\WINDOWS\system32
Boot Device:               \Device\HarddiskVolumel
System Locale:              en-us;English (United States)
Input Locale:              en-us;English (United States)
Time Zone:                 (GMT-05:00) Eastern Time (US & Canada)
Total Physical Memory:    3,241 MB
Available Physical Memory: 2,647 MB
Virtual Memory: Max Size: 2,048 MB
Virtual Memory: Available: 2,008 MB
Virtual Memory: In Use:    40 MB
Page File Location(s):    C:\pagefile.sys
Domain:                    elections.local
Logon Server:              \\BOE
```

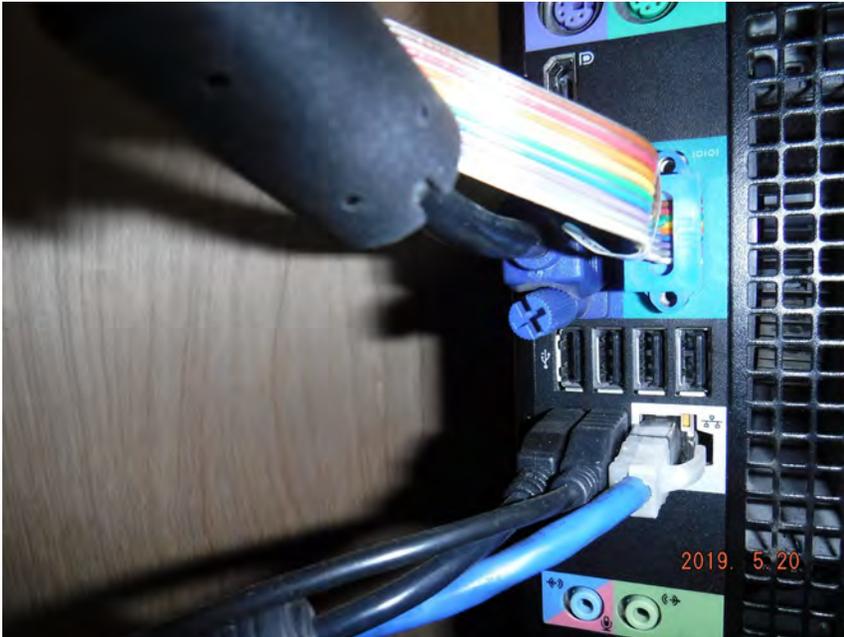
TAB9 Desktop



TAB9 Front



TAB9 Rear



Information Collected from TAB9 CLI:

```
C:\Documents and Settings\Administrator.ELECTIONS>hostname
```

TAB9

*****Display of the IPv4 information in detail of the device****

```
C:\Documents and Settings\Administrator.ELECTIONS>ipconfig /all
```

Windows IP Configuration

```
Host Name . . . . . : TAB9
Primary Dns Suffix . . . . . : elections.local
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
```



DNS Suffix Search List. : elections.local

elections.local

Ethernet adapter Local Area Connection:

Connection-specific DNS Suffix . : elections.local

Description : Intel(R) 82579LM Gigabit Network Connection

Physical Address. : 18-03-73-15-97-68

Dhcp Enabled. : Yes

Autoconfiguration Enabled : Yes

IP Address. : **192.168.1.12**

Subnet Mask : 255.255.255.0

Default Gateway : **192.168.1.1**

DHCP Server : **192.168.1.20**

DNS Servers : 192.168.1.20

Primary WINS Server : 192.168.1.20

Lease Obtained. : Sunday, May 19, 2019 6:45:36 AM

Lease Expires : Monday, May 27, 2019 6:45:36 AM

*****Discover at the link-layer the MAC address associated with the IP address and whether they both match correctly with associated devices. (they do) *****

C:\Documents and Settings\Administrator\ELECTIONS>arp -a

Interface: 192.168.1.12 --- 0x2

Internet Address	Physical Address	Type
192.168.1.20	00-14-22-60-3f-94	dynamic



A display of the routing table on the device to determine if there are any routes to the Internet (there are not).

C:\Documents and Settings\Administrator.ELECTIONS>netstat -rn

Route Table

=====

Interface List

0x1 MS TCP Loopback interface

0x2 ...18 03 73 15 97 68 Intel(R) 82579LM Gigabit Network Connection - Packet Scheduler Miniport

=====

=====

Active Routes:

Network Destination	Netmask	Gateway	Interface	Metric
0.0.0.0	0.0.0.0	192.168.1.1	192.168.1.12	10
127.0.0.0	255.0.0.0	127.0.0.1	127.0.0.1	1
192.168.1.0	255.255.255.0	192.168.1.12	192.168.1.12	10
192.168.1.12	255.255.255.255	127.0.0.1	127.0.0.1	10
192.168.1.255	255.255.255.255	192.168.1.12	192.168.1.12	10
224.0.0.0	240.0.0.0	192.168.1.12	192.168.1.12	10
255.255.255.255	255.255.255.255	192.168.1.12	192.168.1.12	1

Default Gateway: 192.168.1.1

=====

Persistent Routes:

None



A display of state of the ports on the device to determine if there are any unknown devices connected or any ports that are of a concern that are open. (there do not seem to be)

C:\Documents and Settings\Administrator.ELECTIONS>netstat -an

Active Connections

Proto	Local Address	Foreign Address	State
TCP	0.0.0.0:135	0.0.0.0:0	LISTENING
TCP	0.0.0.0:445	0.0.0.0:0	LISTENING
TCP	0.0.0.0:3306	0.0.0.0:0	LISTENING
TCP	127.0.0.1:1037	127.0.0.1:1038	ESTABLISHED
TCP	127.0.0.1:1038	127.0.0.1:1037	ESTABLISHED
TCP	127.0.0.1:1043	0.0.0.0:0	LISTENING
TCP	127.0.0.1:1044	0.0.0.0:0	LISTENING
TCP	192.168.1.12:139	0.0.0.0:0	LISTENING
TCP	192.168.1.12:2214	192.168.1.20:445	TIME_WAIT
TCP	192.168.1.12:2217	192.168.1.20:135	TIME_WAIT
TCP	192.168.1.12:2218	192.168.1.20:1026	TIME_WAIT
UDP	0.0.0.0:445	*.*	
UDP	0.0.0.0:500	*.*	
UDP	0.0.0.0:4500	*.*	
UDP	127.0.0.1:123	*.*	
UDP	127.0.0.1:1025	*.*	
UDP	127.0.0.1:1048	*.*	
UDP	127.0.0.1:1900	*.*	
UDP	192.168.1.12:123	*.*	



UDP 192.168.1.12:137 *.*
UDP 192.168.1.12:138 *.*
UDP 192.168.1.12:1900 *.*

*****Gives information on the device*****

C:\Documents and Settings\Administrator\ELECTIONS>systeminfo

Host Name: TAB9
OS Name: Microsoft Windows XP Professional
OS Version: 5.1.2600 Service Pack 3 Build 2600
OS Manufacturer: Microsoft Corporation
OS Configuration: Member Workstation
OS Build Type: Multiprocessor Free
Registered Owner: admin
Registered Organization:
Product ID: 76487-OEM-0060807-79698
Original Install Date: 8/2/2016, 6:04:17 PM

*****As stated in the 'Recommendations' an air-gapped system should be powered down and unplugged when not in use.*****

System Up Time: 9 Days, 2 Hours, 19 Minutes, 18 Seconds
System Manufacturer: Dell Inc.
System Model: OptiPlex 790
System type: X86-based PC
Processor(s): 1 Processor(s) Installed.

[01]: x86 Family 6 Model 42 Stepping 7 GenuineIntel ~

3092 Mhz



BIOS Version: DELL - 6222004
Windows Directory: C:\WINDOWS
System Directory: C:\WINDOWS\system32
Boot Device: \Device\HarddiskVolume1
System Locale: en-us;English (United States)
Input Locale: en-us;English (United States)
Time Zone: (GMT-05:00) Eastern Time (US & Canada)
Total Physical Memory: 3,241 MB
Available Physical Memory: 2,736 MB
Virtual Memory: Max Size: 2,048 MB
Virtual Memory: Available: 2,008 MB
Virtual Memory: In Use: 40 MB
Page File Location(s): C:\pagefile.sys
Domain: elections.local
Logon Server: \\BOE
Hotfix(s): 250 Hotfix(s) Installed.

[01]: File 1

[02]: File 1

[03]: File 1

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- [118]: File 1
- [119]: File 1
- [120]: File 1
- [121]: File 1
- [122]: Q147222
- [123]: KB2378111_WM9
- [124]: KB2803821-v2_WM9
- [125]: KB952069_WM9
- [126]: KB954155_WM9
- [127]: KB973540_WM9
- [128]: KB975558_WM8
- [129]: KB978695_WM9
- [130]: KB2564958 - Update
- [131]: KB936929 - Service Pack
- [132]: KB2115168 - Update
- [133]: KB2229593 - Update
- [134]: KB2296011 - Update



- [135]: KB2347290 - Update
- [136]: KB2387149 - Update
- [137]: KB2393802 - Update
- [138]: KB2419632 - Update
- [139]: KB2423089 - Update
- [140]: KB2443105 - Update
- [141]: KB2478960 - Update
- [142]: KB2478971 - Update
- [143]: KB2479943 - Update
- [144]: KB2481109 - Update
- [145]: KB2483185 - Update
- [146]: KB2485663 - Update
- [147]: KB2506212 - Update
- [148]: KB2507938 - Update
- [149]: KB2508429 - Update
- [150]: KB2509553 - Update
- [151]: KB2510581 - Update
- [152]: KB2535512 - Update
- [153]: KB2536276-v2 - Update
- [154]: KB2544893-v2 - Update
- [155]: KB2566454 - Update
- [156]: KB2570947 - Update
- [157]: KB2584146 - Update
- [158]: KB2585542 - Update
- [159]: KB2592799 - Update



- [160]: KB2598479 - Update
- [161]: KB2603381 - Update
- [162]: KB2619339 - Update
- [163]: KB2620712 - Update
- [164]: KB2631813 - Update
- [165]: KB2653956 - Update
- [166]: KB2655992 - Update
- [167]: KB2659262 - Update
- [168]: KB2661637 - Update
- [169]: KB2676562 - Update
- [170]: KB2686509 - Update
- [171]: KB2691442 - Update
- [172]: KB2698365 - Update
- [173]: KB2705219-v2 - Update
- [174]: KB2712808 - Update
- [175]: KB2719985 - Update
- [176]: KB2723135-v2 - Update
- [177]: KB2727528 - Update
- [178]: KB2757638 - Update
- [179]: KB2770660 - Update
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- [182]: KB2807986 - Update
- [183]: KB2813345 - Update
- [184]: KB2820917 - Update



- [185]: KB2834886 - Update
- [186]: KB2847311 - Update
- [187]: KB2850869 - Update
- [188]: KB2859537 - Update
- [189]: KB2862152 - Update
- [190]: KB2862330 - Update
- [191]: KB2862335 - Update
- [192]: KB2864063 - Update
- [193]: KB2868038 - Update
- [194]: KB2868626 - Update
- [195]: KB2876217 - Update
- [196]: KB2876331 - Update
- [197]: KB2884256 - Update
- [198]: KB2892075 - Update
- [199]: KB2893294 - Update
- [200]: KB2898715 - Update
- [201]: KB2900986 - Update
- [202]: KB2904266 - Update
- [203]: KB2909212 - Update
- [204]: KB2914368 - Update
- [205]: KB2916036 - Update
- [206]: KB2922229 - Update
- [207]: KB2929961 - Update
- [208]: KB2930275 - Update
- [209]: KB2936068 - Update



- [210]: KB2964358 - Update
- [211]: KB923561 - Update
- [212]: KB942288-v3 - Update
- [213]: KB946648 - Update
- [214]: KB950762 - Update
- [215]: KB950974 - Update
- [216]: KB951376-v2 - Update
- [217]: KB952004 - Update
- [218]: KB95

NetWork Card(s): 1 NIC(s) Installed.

[01]: Intel(R) 82579LM Gigabit Network Connection

Connection Name: Local Area Connection

DHCP Enabled: Yes

DHCP Server: 192.168.1.20

IP address(es)

[01]: 192.168.1.12

*****Test to see if device can reach the Default Gateway*** (It cannot)**

C:\Documents and Settings\Administrator.ELECTIONS>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Request timed out.

Request timed out.

Request timed out.



Request timed out.

Ping statistics for 192.168.1.1:

Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

*****Test to see if device can reach the DHCP Server, this is BOE. It can*****

*****In most small networks this would also serve as the Default Gateway.*****

C:\Documents and Settings\Administrator.ELECTIONS>ping 192.168.1.20

Pinging 192.168.1.20 with 32 bytes of data:

Reply from 192.168.1.20: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.20:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

*****Test to see if device can reach the Internet*** (It cannot)**

C:\Documents and Settings\Administrator.ELECTIONS>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:



Request timed out.

Request timed out.

Request timed out.

Request timed out.

Ping statistics for 8.8.8.8:

Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

TAB9 Post Review:

Notable differences:

```
C:\Documents and Settings\Administrator.ELECTIONS>systeminfo

Host Name:                TAB9
OS Name:                  Microsoft Windows XP Professional
OS Version:               5.1.2600 Service Pack 3 Build 2600
OS Manufacturer:        Microsoft Corporation
OS Configuration:       Member Workstation
OS Build Type:            Multiprocessor Free
Registered Owner:        admin
Registered Organization:
Product ID:                76487-OEM-0060807-79698
Original Install Date:    8/2/2016, 6:04:17 PM
System Up Time:           12 Days, 2 Hours, 9 Minutes, 11 Seconds
System Manufacturer:     Dell Inc.
System Model:              OptiPlex 790
System type:              X86-based PC
Processor(s):             1 Processor(s) Installed.
                          [01]: x86 Family 6 Model 42 Stepping 7 GenuineIntel ~
                          3092 Mhz
BIOS Version:             DELL - 6222004
Windows Directory:       C:\WINDOWS
System Directory:        C:\WINDOWS\system32
Boot Device:              \Device\HarddiskVolume1
System Locale:            en-us;English (United States)
Input Locale:             en-us;English (United States)
Time Zone:                (GMT-05:00) Eastern Time (US & Canada)
Total Physical Memory:    3,241 MB
Available Physical Memory: 2,725 MB
Virtual Memory: Max Size: 2,048 MB
Virtual Memory: Available: 2,008 MB
Virtual Memory: In Use:   40 MB
Page File Location(s):   C:\pagefile.sys
Domain:                   elections.local
Logon Server:             \\BOE
```

TAB7.elections.local

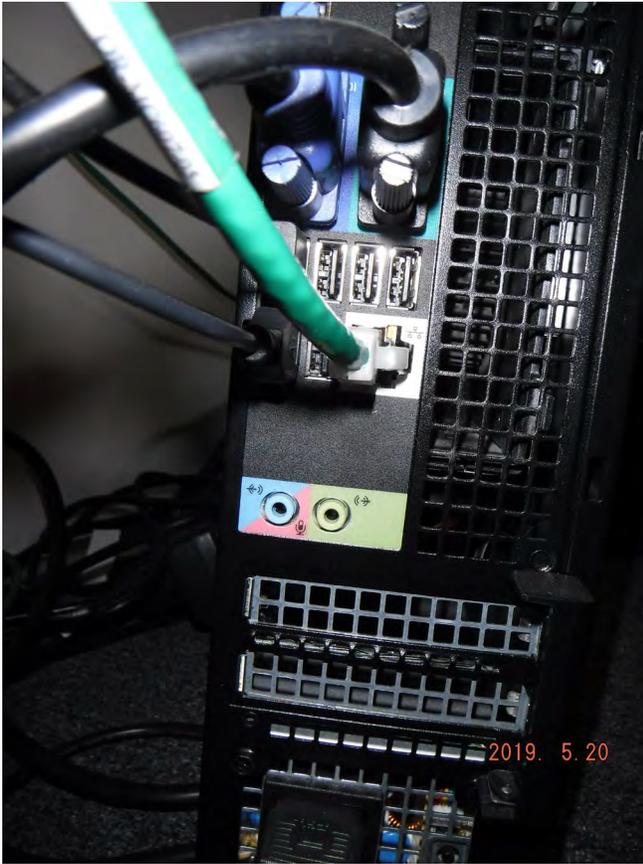
TAB7 Desktop



TAB7 Front



TAB7 Rear



Information Collected from TAB7 CLI:

```
C:\Documents and Settings\Administrator.ELECTIONS>hostname
```

TAB7

*****Display of the IPv4 information in detail of the device****

```
C:\Documents and Settings\Administrator.ELECTIONS>ipconfig /all
```

Windows IP Configuration

```
Host Name . . . . . : TAB7
Primary Dns Suffix . . . . . : elections.local
Node Type . . . . . : Hybrid
```



IP Routing Enabled. : No
WINS Proxy Enabled. : No
DNS Suffix Search List. : elections.local
elections.local

Ethernet adapter Local Area Connection:

Connection-specific DNS Suffix . : elections.local
Description : Intel(R) 82579LM Gigabit Network Connection
Physical Address. : 18-03-73-1B-CF-E2
Dhcp Enabled. : Yes
Autoconfiguration Enabled : Yes
IP Address. : **192.168.1.40**
Subnet Mask : 255.255.255.0
Default Gateway : **192.168.1.1**
DHCP Server : **192.168.1.20**
DNS Servers : 192.168.1.20
Primary WINS Server : 192.168.1.20
Lease Obtained. : Monday, May 20, 2019 7:47:14 AM
Lease Expires : Tuesday, May 28, 2019 7:47:14 AM

*****Discover at the link-layer the MAC address associated with the IP address and whether they both match correctly with associated devices. (they do) *****

C:\Documents and Settings\Administrator.ELECTIONS>arp -a

Interface: 192.168.1.40 --- 0x2



Internet Address	Physical Address	Type
192.168.1.20	00-14-22-60-3f-94	dynamic

A display of the routing table on the device to determine if there are any routes to the Internet (there are not).

C:\Documents and Settings\Administrator.ELECTIONS>netstat -rn

Route Table

=====

Interface List

0x1 MS TCP Loopback interface
 0x2 ...18 03 73 1b cf e2 Intel(R) 82579LM Gigabit Network Connection - Packet Scheduler Miniport

=====

=====

Active Routes:

Network	Destination	Netmask	Gateway	Interface	Metric
0.0.0.0	0.0.0.0	0.0.0.0	192.168.1.1	192.168.1.40	10
127.0.0.0	255.0.0.0	255.0.0.0	127.0.0.1	127.0.0.1	1
192.168.1.0	255.255.255.0	255.255.255.0	192.168.1.40	192.168.1.40	10
192.168.1.40	255.255.255.255	255.255.255.255	127.0.0.1	127.0.0.1	10
192.168.1.255	255.255.255.255	255.255.255.255	192.168.1.40	192.168.1.40	10
224.0.0.0	240.0.0.0	240.0.0.0	192.168.1.40	192.168.1.40	10
255.255.255.255	255.255.255.255	255.255.255.255	192.168.1.40	192.168.1.40	1

Default Gateway: 192.168.1.1

=====

Persistent Routes:

None



A display of state of the ports on the device to determine if there are any unknown devices connected or any ports that are of a concern that are open. (there do not seem to be)

C:\Documents and Settings\Administrator.ELECTIONS>netstat -an

Active Connections

Proto	Local Address	Foreign Address	State
TCP	0.0.0.0:135	0.0.0.0:0	LISTENING
TCP	0.0.0.0:445	0.0.0.0:0	LISTENING
TCP	0.0.0.0:3306	0.0.0.0:0	LISTENING
TCP	127.0.0.1:1047	0.0.0.0:0	LISTENING
TCP	127.0.0.1:1048	127.0.0.1:1049	ESTABLISHED
TCP	127.0.0.1:1049	127.0.0.1:1048	ESTABLISHED
TCP	127.0.0.1:1055	0.0.0.0:0	LISTENING
TCP	192.168.1.40:139	0.0.0.0:0	LISTENING
TCP	192.168.1.40:3517	192.168.1.20:135	TIME_WAIT
TCP	192.168.1.40:3518	192.168.1.20:1026	TIME_WAIT
UDP	0.0.0.0:445	*.*	
UDP	0.0.0.0:500	*.*	
UDP	0.0.0.0:4500	*.*	
UDP	127.0.0.1:123	*.*	
UDP	127.0.0.1:1025	*.*	
UDP	127.0.0.1:1041	*.*	
UDP	127.0.0.1:1900	*.*	
UDP	192.168.1.40:123	*.*	
UDP	192.168.1.40:137	*.*	



UDP 192.168.1.40:138 *.*

UDP 192.168.1.40:1900 *.*

*****Gives information on the device*****

C:\Documents and Settings\Administrator.ELECTIONS>systeminfo

Host Name: TAB7
OS Name: Microsoft Windows XP Professional
OS Version: 5.1.2600 Service Pack 3 Build 2600
OS Manufacturer: Microsoft Corporation
OS Configuration: Member Workstation
OS Build Type: Multiprocessor Free
Registered Owner: admin
Registered Organization:
Product ID: 76487-OEM-0060807-79698
Original Install Date: 8/2/2016, 6:04:17 PM

*****As stated in the 'Recommendations' an air-gapped system should be powered down and unplugged when not in use.*** (This seems to be the case for TAB7)**

System Up Time: 0 Days, 1 Hours, 20 Minutes, 46 Seconds

System Manufacturer: Dell Inc.
System Model: OptiPlex 790
System type: X86-based PC
Processor(s): 1 Processor(s) Installed.

[01]: x86 Family 6 Model 42 Stepping 7 GenuineIntel ~

3092 Mhz

BIOS Version: DELL - 6222004



Windows Directory: C:\WINDOWS
System Directory: C:\WINDOWS\system32
Boot Device: \Device\HarddiskVolume1
System Locale: en-us;English (United States)
Input Locale: en-us;English (United States)
Time Zone: (GMT-05:00) Eastern Time (US & Canada)
Total Physical Memory: 3,241 MB
Available Physical Memory: 2,856 MB
Virtual Memory: Max Size: 2,048 MB
Virtual Memory: Available: 2,008 MB
Virtual Memory: In Use: 40 MB
Page File Location(s): C:\pagefile.sys
Domain: elections.local
Logon Server: \\BOE
Hotfix(s): 250 Hotfix(s) Installed.
[01]: File 1
[02]: File 1
[03]: File 1
[04]: File 1
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- [119]: File 1
- [120]: File 1
- [121]: File 1
- [122]: Q147222
- [123]: KB2378111_WM9
- [124]: KB2803821-v2_WM9
- [125]: KB952069_WM9
- [126]: KB954155_WM9
- [127]: KB973540_WM9
- [128]: KB975558_WM8
- [129]: KB978695_WM9
- [130]: KB2564958 - Update
- [131]: KB936929 - Service Pack
- [132]: KB2115168 - Update
- [133]: KB2229593 - Update
- [134]: KB2296011 - Update
- [135]: KB2347290 - Update



- [136]: KB2387149 - Update
- [137]: KB2393802 - Update
- [138]: KB2419632 - Update
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- [140]: KB2443105 - Update
- [141]: KB2478960 - Update
- [142]: KB2478971 - Update
- [143]: KB2479943 - Update
- [144]: KB2481109 - Update
- [145]: KB2483185 - Update
- [146]: KB2485663 - Update
- [147]: KB2506212 - Update
- [148]: KB2507938 - Update
- [149]: KB2508429 - Update
- [150]: KB2509553 - Update
- [151]: KB2510581 - Update
- [152]: KB2535512 - Update
- [153]: KB2536276-v2 - Update
- [154]: KB2544893-v2 - Update
- [155]: KB2566454 - Update
- [156]: KB2570947 - Update
- [157]: KB2584146 - Update
- [158]: KB2585542 - Update
- [159]: KB2592799 - Update
- [160]: KB2598479 - Update



- [161]: KB2603381 - Update
- [162]: KB2619339 - Update
- [163]: KB2620712 - Update
- [164]: KB2631813 - Update
- [165]: KB2653956 - Update
- [166]: KB2655992 - Update
- [167]: KB2659262 - Update
- [168]: KB2661637 - Update
- [169]: KB2676562 - Update
- [170]: KB2686509 - Update
- [171]: KB2691442 - Update
- [172]: KB2698365 - Update
- [173]: KB2705219-v2 - Update
- [174]: KB2712808 - Update
- [175]: KB2719985 - Update
- [176]: KB2723135-v2 - Update
- [177]: KB2727528 - Update
- [178]: KB2757638 - Update
- [179]: KB2770660 - Update
- [180]: KB2780091 - Update
- [181]: KB2802968 - Update
- [182]: KB2807986 - Update
- [183]: KB2813345 - Update
- [184]: KB2820917 - Update
- [185]: KB2834886 - Update



- [186]: KB2847311 - Update
- [187]: KB2850869 - Update
- [188]: KB2859537 - Update
- [189]: KB2862152 - Update
- [190]: KB2862330 - Update
- [191]: KB2862335 - Update
- [192]: KB2864063 - Update
- [193]: KB2868038 - Update
- [194]: KB2868626 - Update
- [195]: KB2876217 - Update
- [196]: KB2876331 - Update
- [197]: KB2884256 - Update
- [198]: KB2892075 - Update
- [199]: KB2893294 - Update
- [200]: KB2898715 - Update
- [201]: KB2900986 - Update
- [202]: KB2904266 - Update
- [203]: KB2909212 - Update
- [204]: KB2914368 - Update
- [205]: KB2916036 - Update
- [206]: KB2922229 - Update
- [207]: KB2929961 - Update
- [208]: KB2930275 - Update
- [209]: KB2936068 - Update
- [210]: KB2964358 - Update



- [211]: KB923561 - Update
- [212]: KB942288-v3 - Update
- [213]: KB946648 - Update
- [214]: KB950762 - Update
- [215]: KB950974 - Update
- [216]: KB951376-v2 - Update
- [217]: KB952004 - Update
- [218]: KB95

NetWork Card(s): 1 NIC(s) Installed.

[01]: Intel(R) 82579LM Gigabit Network Connection

Connection Name: Local Area Connection

DHCP Enabled: Yes

DHCP Server: 192.168.1.20

IP address(es)

[01]: 192.168.1.40

*****Test to see if device can reach the Default Gateway*** (It cannot)**

C:\Documents and Settings\Administrator.ELECTIONS>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Request timed out.

Request timed out.

Request timed out.



Request timed out.

Ping statistics for 192.168.1.1:

Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

*****Test to see if device can reach the DHCP Server, this is BOE. It can*****

*****In most small networks this would also serve as the Default Gateway.*****

C:\Documents and Settings\Administrator.ELECTIONS>ping 192.168.1.20

Pinging 192.168.1.20 with 32 bytes of data:

Reply from 192.168.1.20: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.20:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

*****Test to see if device can reach the Internet*** (It cannot)**

C:\Documents and Settings\Administrator.ELECTIONS>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:

Request timed out.



Request timed out.

Request timed out.

Request timed out.

Ping statistics for 8.8.8.8:

Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

DAM4.elections.local

DAM4 Desktop



DAM4 Front



DAM4 Rear



Information Collected from DAM4 CLI:

```
C:\Documents and Settings\Administrator.ELECTIONS>hostname
```

DAM4

*****Display of the IPv4 information in detail of the device****

```
C:\Documents and Settings\Administrator.ELECTIONS>ipconfig /all
```

Windows IP Configuration

```
Host Name . . . . . : DAM4
Primary Dns Suffix . . . . . : elections.local
Node Type . . . . . : Broadcast
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : elections.local
```

Ethernet adapter Local Area Connection:

```
Connection-specific DNS Suffix . . :
Description . . . . . : Intel(R) 82579LM Gigabit Network Connection
Physical Address. . . . . : 18-03-73-2D-8F-CA
Dhcp Enabled. . . . . : No
IP Address. . . . . : 192.168.1.101
```



Subnet Mask : 255.255.255.0
 Default Gateway :
 DNS Servers : 192.168.1.20

*****Discover at the link-layer the MAC address associated with the IP address and whether they both match correctly with associated devices. (they do) *****

C:\Documents and Settings\Administrator.ELECTIONS>arp -a

Interface: 192.168.1.101 --- 0x2
 Internet Address Physical Address Type
 192.168.1.20 00-14-22-60-3f-94 dynamic

*****A display of the routing table on the device to determine if there are any routes to the Internet (there are not).*****

C:\Documents and Settings\Administrator.ELECTIONS>netstat -rn

Route Table

=====

Interface List

0x1 MS TCP Loopback interface
 0x2 ...18 03 73 2d 8f ca Intel(R) 82579LM Gigabit Network Connection - Packet Scheduler Miniport

=====

Active Routes:

Network	Destination	Netmask	Gateway	Interface	Metric
127.0.0.0	255.0.0.0	127.0.0.1	127.0.0.1	1	
192.168.1.0	255.255.255.0	192.168.1.101	192.168.1.101	10	
192.168.1.101	255.255.255.255	127.0.0.1	127.0.0.1	10	
192.168.1.255	255.255.255.255	192.168.1.101	192.168.1.101	10	
224.0.0.0	240.0.0.0	192.168.1.101	192.168.1.101	10	
255.255.255.255	255.255.255.255	192.168.1.101	192.168.1.101	1	

=====

Persistent Routes:

None

*****A display of state of the ports on the device to determine if there are any unknown devices connected or any ports that are of a concern that are open. (there do not seem to be)*****

C:\Documents and Settings\Administrator.ELECTIONS>netstat -an

Active Connections

Proto	Local Address	Foreign Address	State
TCP	0.0.0.0:135	0.0.0.0:	LISTENING



```
TCP 0.0.0.0:445      0.0.0.0:0      LISTENING
TCP 127.0.0.1:1032   127.0.0.1:1033 ESTABLISHED
TCP 127.0.0.1:1033   127.0.0.1:1032 ESTABLISHED
TCP 127.0.0.1:1042   0.0.0.0:0      LISTENING
TCP 127.0.0.1:1053   0.0.0.0:0      LISTENING
TCP 192.168.1.101:139 0.0.0.0:0      LISTENING
TCP 192.168.1.101:1107 192.168.1.20:135 TIME_WAIT
TCP 192.168.1.101:1108 192.168.1.20:1026 TIME_WAIT
UDP 0.0.0.0:445      *.*
UDP 0.0.0.0:500      *.*
UDP 0.0.0.0:4500     *.*
UDP 127.0.0.1:123    *.*
UDP 127.0.0.1:1025   *.*
UDP 127.0.0.1:1049   *.*
UDP 127.0.0.1:1900   *.*
UDP 192.168.1.101:123 *.*
UDP 192.168.1.101:137 *.*
UDP 192.168.1.101:138 *.*
UDP 192.168.1.101:1900 *.*
```

Gives information on the device

C:\Documents and Settings\Administrator\ELECTIONS>systeminfo

```
Host Name:          DAM4
OS Name:            Microsoft Windows XP Professional
OS Version:         5.1.2600 Service Pack 3 Build 2600
OS Manufacturer:   Microsoft Corporation
OS Configuration:  Member Workstation
OS Build Type:      Multiprocessor Free
Registered Owner:   admin
Registered Organization:
Product ID:          76487-OEM-0060807-79698
```

Original Install Date: 8/2/2016, 6:04:17 PM

As stated in the 'Recommendations' an air-gapped system should be powered down and unplugged when not in use. (This seems to be the case for DAM4)

System Up Time: 0 Days, 1 Hours, 25 Minutes, 17 Seconds

System Manufacturer: Dell Inc.

System Model: OptiPlex 790

System type: X86-based PC

Processor(s): 1 Processor(s) Installed.

[01]: x86 Family 6 Model 42 Stepping 7 GenuineIntel ~

3092 Mhz

BIOS Version: DELL - 6222004

Windows Directory: C:\WINDOWS

System Directory: C:\WINDOWS\system32

Boot Device: \Device\HarddiskVolume1



System Locale: en-us;English (United States)
Input Locale: en-us;English (United States)
Time Zone: (GMT-05:00) Eastern Time (US & Canada)
Total Physical Memory: 3,241 MB
Available Physical Memory: 2,881 MB
Virtual Memory: Max Size: 2,048 MB
Virtual Memory: Available: 2,008 MB
Virtual Memory: In Use: 40 MB
Page File Location(s): C:\pagefile.sys
Domain: elections.local
Logon Server: \\BOE
Hotfix(s): 248 Hotfix(s) Installed.

- [01]: File 1
- [02]: File 1
- [03]: File 1
- [04]: File 1
- [05]: File 1
- [06]: File 1
- [07]: File 1
- [08]: File 1
- [09]: File 1
- [10]: File 1
- [11]: File 1
- [12]: File 1
- [13]: File 1
- [14]: File 1
- [15]: File 1
- [16]: File 1
- [17]: File 1
- [18]: File 1
- [19]: File 1
- [20]: File 1
- [21]: File 1
- [22]: File 1
- [23]: File 1
- [24]: File 1
- [25]: File 1
- [26]: File 1
- [27]: File 1
- [28]: File 1
- [29]: File 1
- [30]: File 1
- [31]: File 1
- [32]: File 1
- [33]: File 1
- [34]: File 1
- [35]: File 1
- [36]: File 1



- [37]: File 1
- [38]: File 1
- [39]: File 1
- [40]: File 1
- [41]: File 1
- [42]: File 1
- [43]: File 1
- [44]: File 1
- [45]: File 1
- [46]: File 1
- [47]: File 1
- [48]: File 1
- [49]: File 1
- [50]: File 1
- [51]: File 1
- [52]: File 1
- [53]: File 1
- [54]: File 1
- [55]: File 1
- [56]: File 1
- [57]: File 1
- [58]: File 1
- [59]: File 1
- [60]: File 1
- [61]: File 1
- [62]: File 1
- [63]: File 1
- [64]: File 1
- [65]: File 1
- [66]: File 1
- [67]: File 1
- [68]: File 1
- [69]: File 1
- [70]: File 1
- [71]: File 1
- [72]: File 1
- [73]: File 1
- [74]: File 1
- [75]: File 1
- [76]: File 1
- [77]: File 1
- [78]: File 1
- [79]: File 1
- [80]: File 1
- [81]: File 1
- [82]: File 1
- [83]: File 1
- [84]: File 1



- [85]: File 1
- [86]: File 1
- [87]: File 1
- [88]: File 1
- [89]: File 1
- [90]: File 1
- [91]: File 1
- [92]: File 1
- [93]: File 1
- [94]: File 1
- [95]: File 1
- [96]: File 1
- [97]: File 1
- [98]: File 1
- [99]: File 1
- [100]: File 1
- [101]: File 1
- [102]: File 1
- [103]: File 1
- [104]: File 1
- [105]: File 1
- [106]: File 1
- [107]: File 1
- [108]: File 1
- [109]: File 1
- [110]: File 1
- [111]: File 1
- [112]: File 1
- [113]: File 1
- [114]: File 1
- [115]: File 1
- [116]: File 1
- [117]: File 1
- [118]: File 1
- [119]: File 1
- [120]: File 1
- [121]: Q147222
- [122]: KB2378111_WM9
- [123]: KB2803821-v2_WM9
- [124]: KB952069_WM9
- [125]: KB954155_WM9
- [126]: KB973540_WM9
- [127]: KB975558_WM8
- [128]: KB978695_WM9
- [129]: KB2564958 - Update
- [130]: KB936929 - Service Pack
- [131]: KB2115168 - Update
- [132]: KB2229593 - Update



- [133]: KB2296011 - Update
- [134]: KB2347290 - Update
- [135]: KB2387149 - Update
- [136]: KB2393802 - Update
- [137]: KB2419632 - Update
- [138]: KB2423089 - Update
- [139]: KB2443105 - Update
- [140]: KB2478960 - Update
- [141]: KB2478971 - Update
- [142]: KB2479943 - Update
- [143]: KB2481109 - Update
- [144]: KB2483185 - Update
- [145]: KB2485663 - Update
- [146]: KB2506212 - Update
- [147]: KB2507938 - Update
- [148]: KB2508429 - Update
- [149]: KB2509553 - Update
- [150]: KB2510581 - Update
- [151]: KB2535512 - Update
- [152]: KB2536276-v2 - Update
- [153]: KB2544893-v2 - Update
- [154]: KB2566454 - Update
- [155]: KB2570947 - Update
- [156]: KB2584146 - Update
- [157]: KB2585542 - Update
- [158]: KB2592799 - Update
- [159]: KB2598479 - Update
- [160]: KB2603381 - Update
- [161]: KB2619339 - Update
- [162]: KB2620712 - Update
- [163]: KB2631813 - Update
- [164]: KB2653956 - Update
- [165]: KB2655992 - Update
- [166]: KB2659262 - Update
- [167]: KB2661637 - Update
- [168]: KB2676562 - Update
- [169]: KB2686509 - Update
- [170]: KB2691442 - Update
- [171]: KB2698365 - Update
- [172]: KB2705219-v2 - Update
- [173]: KB2712808 - Update
- [174]: KB2719985 - Update
- [175]: KB2723135-v2 - Update
- [176]: KB2727528 - Update
- [177]: KB2757638 - Update
- [178]: KB2770660 - Update
- [179]: KB2780091 - Update
- [180]: KB2802968 - Update



- [181]: KB2807986 - Update
- [182]: KB2813345 - Update
- [183]: KB2820917 - Update
- [184]: KB2834886 - Update
- [185]: KB2847311 - Update
- [186]: KB2850869 - Update
- [187]: KB2859537 - Update
- [188]: KB2862152 - Update
- [189]: KB2862330 - Update
- [190]: KB2862335 - Update
- [191]: KB2864063 - Update
- [192]: KB2868038 - Update
- [193]: KB2868626 - Update
- [194]: KB2876217 - Update
- [195]: KB2876331 - Update
- [196]: KB2892075 - Update
- [197]: KB2893294 - Update
- [198]: KB2898715 - Update
- [199]: KB2900986 - Update
- [200]: KB2904266 - Update
- [201]: KB2909212 - Update
- [202]: KB2914368 - Update
- [203]: KB2916036 - Update
- [204]: KB2922229 - Update
- [205]: KB2929961 - Update
- [206]: KB2930275 - Update
- [207]: KB2936068 - Update
- [208]: KB2964358 - Update
- [209]: KB923561 - Update
- [210]: KB942288-v3 - Update
- [211]: KB946648 - Update
- [212]: KB950762 - Update
- [213]: KB950974 - Update
- [214]: KB951376-v2 - Update
- [215]: KB952004 - Update
- [216]: KB952954 - Update
- [217]: KB953356 - Update
- [

NetWork Card(s): 1 NIC(s) Installed.

- [01]: Intel(R) 82579LM Gigabit Network Connection
 - Connection Name: Local Area Connection
 - DHCP Enabled: No
 - IP address(es)
 - [01]: 192.168.1.101

*****Test to see if device can reach the Default Gateway*** (It cannot)**



C:\Documents and Settings\Administrator.ELECTIONS>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.1:

Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

*****Test to see if device can reach the DHCP Server, this is BOE. It can*****

*****In most small networks this would also serve as the Default Gateway.*****

C:\Documents and Settings\Administrator.ELECTIONS>ping 192.168.1.20

Pinging 192.168.1.20 with 32 bytes of data:

Reply from 192.168.1.20: bytes=32 time<1ms TTL=128
Reply from 192.168.1.20: bytes=32 time<1ms TTL=128
Reply from 192.168.1.20: bytes=32 time<1ms TTL=128
Reply from 192.168.1.20: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.20:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

*****Test to see if device can reach the Internet*** (It cannot)**

C:\Documents and Settings\Administrator.ELECTIONS>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:

Destination host unreachable.
Destination host unreachable.
Destination host unreachable.
Destination host unreachable.

Ping statistics for 8.8.8.8:

Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

DAM3.elections.local

DAM3 Desktop



DAM3 Front



DAM3 Rear



Information Collected from DAM3 CLI:

```
C:\Documents and Settings\Administrator.ELECTIONS>hostname
```

DAM3

*****Display of the IPv4 information in detail of the device****

```
C:\Documents and Settings\Administrator.ELECTIONS>ipconfig /all
```

Windows IP Configuration

```
Host Name . . . . . : DAM3
```



Primary Dns Suffix : elections.local
Node Type : Hybrid
IP Routing Enabled. : No
WINS Proxy Enabled. : No
DNS Suffix Search List. : elections.local
elections.local

Ethernet adapter Local Area Connection 2:

Connection-specific DNS Suffix . : elections.local
Description : Intel(R) 82579LM Gigabit Network Connection
Physical Address. : D4-BE-D9-A4-D1-C5
Dhcp Enabled. : Yes
Autoconfiguration Enabled : Yes
IP Address. : **192.168.1.41**
Subnet Mask : 255.255.255.0
Default Gateway : **192.168.1.1**
DHCP Server : **192.168.1.20**
DNS Servers : 192.168.1.20
Primary WINS Server : 192.168.1.20
Lease Obtained. : Monday, May 20, 2019 7:48:00 AM
Lease Expires : Tuesday, May 28, 2019 7:48:00 AM

*****Discover at the link-layer the MAC address associated with the IP address and whether they both match correctly with associated devices. (they do) *****

C:\Documents and Settings\Administrator.ELECTIONS>arp -a



Interface: 192.168.1.41 --- 0x2

Internet Address	Physical Address	Type
192.168.1.20	00-14-22-60-3f-94	dynamic

A display of the routing table on the device to determine if there are any routes to the Internet (there are not).

C:\Documents and Settings\Administrator.ELECTIONS>netstat -rn

Route Table

=====

Interface List

0x1 MS TCP Loopback interface

0x2 ...d4 be d9 a4 d1 c5 Intel(R) 82579LM Gigabit Network Connection - Packet Scheduler Miniport

=====

Active Routes:

Network Destination	Netmask	Gateway	Interface	Metric
0.0.0.0	0.0.0.0	192.168.1.1	192.168.1.41	10
127.0.0.0	255.0.0.0	127.0.0.1	127.0.0.1	1
192.168.1.0	255.255.255.0	192.168.1.41	192.168.1.41	10
192.168.1.41	255.255.255.255	127.0.0.1	127.0.0.1	10
192.168.1.255	255.255.255.255	192.168.1.41	192.168.1.41	10
224.0.0.0	240.0.0.0	192.168.1.41	192.168.1.41	10
255.255.255.255	255.255.255.255	192.168.1.41	192.168.1.41	1

Default Gateway: 192.168.1.1

=====



Persistent Routes:

None

*****A display of state of the ports on the device to determine if there are any unknown devices connected or any ports that are of a concern that are open. (there do not seem to be)*****

C:\Documents and Settings\Administrator.ELECTIONS>netstat -an

Active Connections

Proto	Local Address	Foreign Address	State
TCP	0.0.0.0:135	0.0.0.0:0	LISTENING
TCP	0.0.0.0:445	0.0.0.0:0	LISTENING
TCP	127.0.0.1:1040	127.0.0.1:1041	ESTABLISHED
TCP	127.0.0.1:1041	127.0.0.1:1040	ESTABLISHED
TCP	127.0.0.1:1053	0.0.0.0:0	LISTENING
TCP	127.0.0.1:1057	0.0.0.0:0	LISTENING
TCP	192.168.1.41:139	0.0.0.0:0	LISTENING
TCP	192.168.1.41:1111	192.168.1.20:135	TIME_WAIT
TCP	192.168.1.41:1115	192.168.1.20:135	TIME_WAIT
TCP	192.168.1.41:1116	192.168.1.20:1026	TIME_WAIT
UDP	0.0.0.0:445	*.*	
UDP	0.0.0.0:500	*.*	
UDP	0.0.0.0:1025	*.*	
UDP	0.0.0.0:1026	*.*	
UDP	0.0.0.0:4500	*.*	
UDP	127.0.0.1:123	*.*	



UDP 127.0.0.1:1027 *.*
UDP 127.0.0.1:1046 *.*
UDP 127.0.0.1:1900 *.*
UDP 192.168.1.41:123 *.*
UDP 192.168.1.41:137 *.*
UDP 192.168.1.41:138 *.*
UDP 192.168.1.41:1900 *.*

*****Gives information on the device*****

C:\Documents and Settings\Administrator\ELECTIONS>systeminfo

Host Name: DAM3
OS Name: Microsoft Windows XP Professional
OS Version: 5.1.2600 Service Pack 3 Build 2600
OS Manufacturer: Microsoft Corporation
OS Configuration: Member Workstation
OS Build Type: Multiprocessor Free
Registered Owner: ess
Registered Organization:
Product ID: 76487-OEM-0060807-79692
Original Install Date: 3/30/2016, 10:52:49 AM

*****As stated in the 'Recommendations' an air-gapped system should be powered down and unplugged when not in use.*** (This seems to be the case for DAM4)**

System Up Time: 0 Days, 1 Hours, 27 Minutes, 50 Seconds

System Manufacturer: Dell Inc.



System Model: OptiPlex 790

System type: X86-based PC

Processor(s): 1 Processor(s) Installed.

[01]: x86 Family 6 Model 42 Stepping 7 GenuineIntel ~
3092 Mhz

BIOS Version: DELL - 6222004

Windows Directory: C:\WINDOWS

System Directory: C:\WINDOWS\system32

Boot Device: \Device\HarddiskVolume1

System Locale: en-us;English (United States)

Input Locale: en-us;English (United States)

Time Zone: (GMT-05:00) Eastern Time (US & Canada)

Total Physical Memory: 3,241 MB

Available Physical Memory: 2,902 MB

Virtual Memory: Max Size: 2,048 MB

Virtual Memory: Available: 2,008 MB

Virtual Memory: In Use: 40 MB

Page File Location(s): C:\pagefile.sys

Domain: elections.local

Logon Server: \\BOE

Hotfix(s): 10 Hotfix(s) Installed.

[01]: File 1

[02]: File 1

[03]: File 1

[04]: File 1



[05]: Q147222

[06]: KB936929 - Service Pack

[07]: KB942288-v3 - Update

[08]: KB953356 - Update

[09]: KB954550-v5 - Update

[10]: KB835221WXP - Update

NetWork Card(s): 1 NIC(s) Installed.

[01]: Intel(R) 82579LM Gigabit Network Connection

Connection Name: Local Area Connection 2

DHCP Enabled: Yes

DHCP Server: 192.168.1.20

IP address(es)

[01]: 192.168.1.41

*****Test to see if device can reach the Default Gateway*** (It cannot)**

C:\Documents and Settings\Administrator.ELECTIONS>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Request timed out.

Request timed out.

Request timed out.

Request timed out.



Ping statistics for 192.168.1.1:

Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

*****Test to see if device can reach the DHCP Server, this is BOE. It can*****

*****In most small networks this would also serve as the Default Gateway.*****

C:\Documents and Settings\Administrator.ELECTIONS>ping 192.168.1.20

Pinging 192.168.1.20 with 32 bytes of data:

Reply from 192.168.1.20: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.20:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

*****Test to see if device can reach the Internet*** (It cannot)**

C:\Documents and Settings\Administrator.ELECTIONS>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:

Request timed out.



Request timed out.

Request timed out.

Request timed out.

Ping statistics for 8.8.8.8:

Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

External Connections on Client Devices

The only outside (external) connections found on the network were the dial-up modems on the 2 DAM servers which are part of the application and are outbound only. No other external connections were found on the network. Each server/workstation was tested and none of them had Internet access. The 7 Ethernet connections on the Dell 2716 switch were traced to valid devices. No other cables were connected to the Dell Switch and no loose cables were observed near the switch.

Modem Bank



Dell PowerConnect 2716



OKI B6300 Printer



No Wireless Adapters or Bluetooth Capability Found on Client Devices

Each PC was physically inspected for the presence of a wireless adapter or Bluetooth adapter and none were found.

The Windows “Device Manager” of each device was also inspected for the presence of any wireless devices.

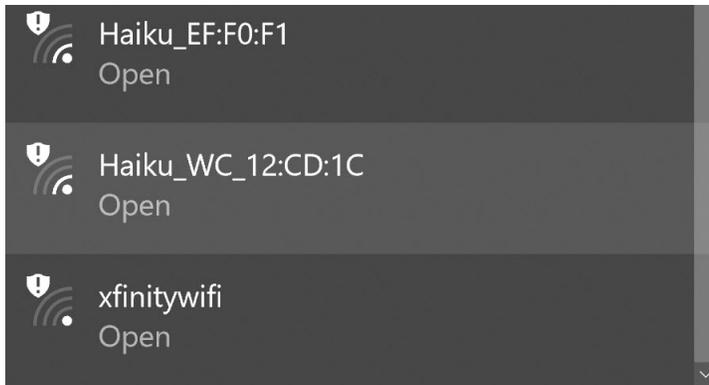
No Wireless Keyboards and Mice

The keyboards and mice all had physical wires connected to the computers.

Scan for the presence of Wireless Devices

A scan was performed from the solution4networks laptop for the presence of wireless APs or networks the following SSIDs were found.





Post-Election Review: All items indicated above remained the same.

Overall Network Air Gap Analysis

No major issues found. Minor areas of improvement recommended see below.

Recommendations for isolating a network for the purposes of an air gap

- 1) DO NOT connect your PC to the Internet.
 - a) This was proved during the air gap analysis and is being done. – PASSED
- 2) Keep cellphones away from your PCs. They have so many communications pathways that it can be almost impossible to keep anything securely from them.
 - a) There are signs prohibiting the use of cellphones in the tabulation network room. – PASSED
- 3) Secure the machine offsite or in a safeguarded room.
 - a) PASSED
- 4) Disable any removable or unused USB ports and other media slots such as CD drives (some IT managers use superglue and others use endpoint protection software) so that no external media can be attached to your computer to infect or exfiltrate any data there are also USB Port Blockers available.
 - a) There were open ports on all devices and this is a relatively simple and easy fix.
- 5) Turn the machine off when it is not in use (and unplug it from power).
 - a) This does not seem to be occurring on all systems on the Tabulation Network.
- 6) Install special TEMPEST-style radio frequency protection, to trap any errant RF monitoring from your most sensitive computers. (Faraday cages)
 - a) This would take some planning and work on the part of Allegheny County to implement but as seen during the analysis there are errant RF signals being seen.
- 7) Make sure all cables to the machine are properly shielded (don't cut corners on cables here).
 - a) During the physical inspection there were exposed cables to cameras and in the tabulation room these should be in conduits.
- 8) Encrypt your data.
 - a) When asked the county contact stated that no encryption was being performed on the tabulation network.

**County of Allegheny,
Commonwealth of Pennsylvania**

Parallel Test Report
Primary Election

May 21, 2019

County of Allegheny, Commonwealth of Pennsylvania

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May 21, 2019

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Mr. William McKain, County Manager
County of Allegheny, Commonwealth of Pennsylvania
Office of the County Manager
436 Grant Street
Room 119 Courthouse
Pittsburgh, PA 15219

To assist with your evaluation of County of Allegheny's electronic voting machines, we randomly selected an election day polling location, scripted votes for parallel testing, and tested the functionality of the Direct Recording Electronic equipment, ES&S iVotronic voting machines. The test was performed on May 21, 2019, the date of the general election. The scripting component included creating hypothetical ballots for parallel testing by mimicking voter behavior and voting patterns from data and statistics provided by County of Allegheny, Department of Elections, for Precinct 914, Pittsburgh, Ward 26 District 1. Our engagement was performed in accordance with the consulting standards prescribed by the American Institute of Certified Public Accountants.

The results of the work performed indicate that the three voting machines tested, accurately recorded and counted the results of 111 ballots cast for the selected polling location. Our results are supported by visual evidence that the electronic voting machine recorded and maintained the vote counts properly. At the beginning of the process, we verified that the zero tape did in fact contain zero vote counts for each candidate in each race. Testing was done under video surveillance, capturing votes as they were entered into each voting machine from the scripted ballots. At the end of the election process, we compared the vote totals in the script, the Master Personalized Electronic Ballot (PEB), the Final Results Tape, and Flash Cards from the machines tested and found them to be in agreement. There were no discrepancies between the number of ballots cast, ballots cast for a particular party, votes for a particular candidate, the number of under-votes, the number of canceled votes, and the audio ballot cast for the visually impaired.

Because of its special purpose, this report is not suited for any purpose other than to assist you in your evaluation and, as such, is intended only for your internal use.

Baker Tilly Virchow Krause, LLP

Pittsburgh, Pennsylvania
May 21, 2019

COUNTY OF ALLEGHENY, COMMONWEALTH OF PENNSYLVANIA
RECONCILIATION OF VOTE TOTALS IN SCRIPT TO FINAL RESULTS TAPE, FLASH CARDS AND MASTER PEB
MAY 21, 2019

PRECINCT: PITTSBURGH WARD 26 DISTRICT 1

	Voter Terminal Data per Script				Final Results Tape	Flash Card Data (from Precinct Report)				Master PEB Data	Differences
	V5179580	V5182888	V5171364	Total		V5179580	V5182888	V5171364	Total		
Public Count	62	0	0	62	62	62	0	0	62	62	0
	0	24	0	24	24	0	24	0	24	24	0
	0	0	25	25	25	0	0	25	25	25	0
	62	24	25	111	111	62	24	25	111	111	0
Judge of the Superior Court											
Beth Tarasi	46	18	19	83	83	46	18	19	83	83	0
Daniel D. McCaffery	41	13	14	68	68	41	13	14	68	68	0
Amanda Green-Hawkins	29	11	11	51	51	29	11	11	51	51	0
Write-in	0	0	0	0	0	0	0	0	0	0	0
Total Democratic	116	42	44	202	202	116	42	44	202	202	0
Rebecca Warren	2	3	3	8	8	2	3	3	8	8	0
Megan McCarthy King	3	2	2	7	7	3	2	2	7	7	0
Christylee Peck	3	1	1	5	5	3	1	1	5	5	0
Write-in	0	0	0	0	0	0	0	0	0	0	0
Total Republican	8	6	6	20	20	8	6	6	20	20	0
Judge of the Court of Common Pleas											
George Heym	18	6	8	32	32	18	6	8	32	32	0
Mary McGinley	13	6	5	24	24	13	6	5	24	24	0
Richard J. Joyce	12	3	5	20	20	12	3	5	20	20	0
Brian Samuel Malkin	15	6	4	25	25	15	6	4	25	25	0
Write-in	0	0	0	0	0	0	0	0	0	0	0
Total Democratic	58	21	22	101	101	58	21	22	101	101	0
Mary McGinley	4	3	3	10	10	4	3	3	10	10	0
Write-in	0	0	0	0	0	0	0	0	0	0	0
Total Republican	4	3	3	10	10	4	3	3	10	10	0
County Chief Executive											
Rich Fitzgerald	58	21	22	101	101	58	21	22	101	101	0
Write-in	0	0	0	0	0	0	0	0	0	0	0
Total Democratic	58	21	22	101	101	58	21	22	101	101	0
Matt Drozd	4	3	3	10	10	4	3	3	10	10	0
Write-in	0	0	0	0	0	0	0	0	0	0	0
Total Republican	4	3	3	10	10	4	3	3	10	10	0

COUNTY OF ALLEGHENY, COMMONWEALTH OF PENNSYLVANIA
RECONCILIATION OF VOTE TOTALS IN SCRIPT TO FINAL RESULTS TAPE, FLASH CARDS AND MASTER PEB
MAY 21, 2019

PRECINCT: PITTSBURGH WARD 26 DISTRICT 1

	Voter Terminal Data per Script				Final Results Tape	Flash Card Data (from Precinct Report)				Master PEB Data	Differences
	V5179580	V5182888	V5171364	Total		V5179580	V5182888	V5171364	Total		
County Controller											
Chelsa Wagner	58	21	22	101	101	58	21	22	101	101	0
Write-in	0	0	0	0	0	0	0	0	0	0	0
Total Democratic	58	21	22	101	101	58	21	22	101	101	0
Write-in: Alpha	2	2	1	5	5	2	2	1	5	5	0
Write-in: Bravo	1	0	0	1	1	1	0	0	1	1	0
Total Republican	3	2	1	6	6	3	2	1	6	6	0
District Attorney											
Turahn Jenkins	31	8	13	52	52	31	8	13	52	52	0
Stephen A. Zappala, Jr.	27	13	9	49	49	27	13	9	49	49	0
Write-in	0	0	0	0	0	0	0	0	0	0	0
Total Democratic	58	21	22	101	101	58	21	22	101	101	0
Write-in: Charlie	1	1	0	2	2	1	1	0	2	2	0
Write-in: Delta	2	1	1	4	4	2	1	1	4	4	0
Total Republican	3	2	1	6	6	3	2	1	6	6	0
County Treasurer											
John K. Weinstein	58	21	22	101	101	58	21	22	101	101	0
Write-in	0	0	0	0	0	0	0	0	0	0	0
Total Democratic	58	21	22	101	101	58	21	22	101	101	0
Write-in: Echo	2	2	0	4	4	2	2	0	4	4	0
Write-in: Foxtrot	1	0	1	2	2	1	0	1	2	2	0
Total Republican	3	2	1	6	6	3	2	1	6	6	0
Member of County Council At-Large											
Bethany Hallam	38	14	10	62	62	38	14	10	62	62	0
John P. DeFazio	20	7	12	39	39	20	7	12	39	39	0
Write-in	0	0	0	0	0	0	0	0	0	0	0
Total Democratic	58	21	22	101	101	58	21	22	101	101	0
Samuel DeMarco, III	4	3	3	10	10	4	3	3	10	10	0
Write-in	0	0	0	0	0	0	0	0	0	0	0
Total Republican	4	3	3	10	10	4	3	3	10	10	0

COUNTY OF ALLEGHENY, COMMONWEALTH OF PENNSYLVANIA
RECONCILIATION OF VOTE TOTALS IN SCRIPT TO FINAL RESULTS TAPE, FLASH CARDS AND MASTER PEB
MAY 21, 2019

PRECINCT: PITTSBURGH WARD 26 DISTRICT 1

	Voter Terminal Data per Script				Final Results Tape	Flash Card Data (from Precinct Report)				Master PEB Data	Differences
	V5179580	V5182888	V5171364	Total		V5179580	V5182888	V5171364	Total		
Member of County Council											
Denise Ranalli Russell	39	13	15	67	67	39	13	15	67	67	0
Olivia Bennett	19	8	7	34	34	19	8	7	34	34	0
Write-in	0	0	0	0	0	0	0	0	0	0	0
Total Democratic	58	21	22	101	101	58	21	22	101	101	0
Write-in: Golf	1	1	0	2	2	1	1	0	2	2	0
Write-in: Hotel	2	1	1	4	4	2	1	1	4	4	0
Total Republican	3	2	1	6	6	3	2	1	6	6	0
Controller											
Michael E. Lamb	58	21	22	101	101	58	21	22	101	101	0
Write-in	0	0	0	0	0	0	0	0	0	0	0
Total Democratic	58	21	22	101	101	58	21	22	101	101	0
Write-in: India	2	2	0	4	4	2	2	0	4	4	0
Write-in: Juliet	1	0	1	2	2	1	0	1	2	2	0
Total Republican	3	2	1	6	6	3	2	1	6	6	0
School Director											
Kevin L. Carter	58	21	22	101	101	58	21	22	101	101	0
Write-in	0	0	0	0	0	0	0	0	0	0	0
Total Democratic	58	21	22	101	101	58	21	22	101	101	0
Write-in: Kilo	2	1	1	4	4	2	1	1	4	4	0
Write-in: Lima	1	1	0	2	2	1	1	0	2	2	0
Total Republican	3	2	1	6	6	3	2	1	6	6	0

Exhibit A

The parallel testing work performed was as follows:

Control and Security Procedures

1. We randomly selected a precinct.
2. We selected three ES&S iVotronic voting machines with "tamper-evident" seals from the County of Allegheny warehouse. We test-voted on each of the ES&S iVotronic voting machines.
3. We created a script for parallel testing to mimic voter behavior and voting patterns for the polling location randomly selected.
4. We obtained and secured the Master Personalized Electronic Ballot (PEB) and two Supervisor PEBs. The Master PEB is used to open voting machines and to print the zero tape (a "zero-vote" count tape from the ES&S iVotronic voting machines) before electronic balloting starts, and the Supervisor PEB is used to activate an ES&S iVotronic voting machine for each voter. Each PEB was secured in a locked file in our office after election day to prevent access and tampering.
5. We set up parallel test equipment where all actions could be visibly recorded by video surveillance. One video camera was set up to document the votes cast on each of the ES&S iVotronic voting machines selected.
6. We conducted the parallel test in a low traffic area to avoid interruptions.

Casting Votes

1. Ballots were scripted to ensure that "voter turnout" in the mock election closely approximated the projected voter turnout for the randomly selected polling location.
2. The video camera was focused on the ES&S iVotronic voting machine screen in a manner that votes could be seen as they were entered.
3. Actual voting was conducted as follows:
 - First team member: Called out each vote as marked on the ballot script.
 - Second team member: As each vote was called, entered the vote in the ES&S iVotronic voting machine.
 - Second team member: Called back the votes cast as they appeared on the summary screen(s) on the ES&S iVotronic voting machine.
 - First team member: As the second team member called back the votes, verified that the vote was cast as it was read, and made a notation on the script.

The terminals closed at 8:00 PM. The final results tape was printed and the flash card from each voting machine was removed. Video camera tapes were marked according to the applicable voting machine and the time votes were entered into the voting machine selected for testing.

Terminal V5171364->
S/N PS214855- (FMW 1.07)
Software Version 9.1.4.1
Created 02/01/06 8:50
Copyright ES&S, Inc. 1993-2005
All Rights Reserved
Diagnostic check completed: OK
iVotronic I

2019 Municipal Primary
PITTSBURGH WARD 26 DIST 1
POLLING LOCATION ZERO TAPE

Public Count Statistics

Total Ballots Cast: 0
Total Ballots Counted: 0

Number of Terminals Opened: 3

Individual Voter Terminal Data

S/N V5179580
Public Count: 0
Protective Count: 4781
OPENED 07:18:22 05/21/2019
NOT CLOSED

S/N V5182888
Public Count: 0
Protective Count: 5188
OPENED 07:22:21 05/21/2019
NOT CLOSED

S/N V5171364
Public Count: 0
Protective Count: 4274
OPENED 07:24:20 05/21/2019
NOT CLOSED

PRECINCT: PITTSBURGH WARD 26 DIST 1

Public Count: 0

Party Counts

Democratic 0
Republican 0

Ballot Style Counts

Dem - Ballot Style #914 0
Rep - Ballot Style #914 0

Dem - JUDGE OF THE SUPERIOR COURT
(Vote for 2) Total: 0

Dem-Beth Tarasi 0
Dem-Daniel D. McCaffery 0
Dem-Amanda Green-Hawkins 0

>Write-ins in above contest: 0
UnderVotes For Above contest: 0

Dem - JUDGE OF THE COURT OF COMMON PLEAS		
(Vote for 1)	Total:	0
Dem-George Heym		0
Dem-Mary McGinley		0
Dem-Richard J. Joyce		0
Dem-Brian Samuel Maikin		0
>Write-ins in above contest:		0
UnderVotes For Above contest:		0
Dem - COUNTY CHIEF EXECUTIVE		
(Vote for 1)	Total:	0
Dem-Rich Fitzgerald		0
>Write-ins in above contest:		0
UnderVotes For Above contest:		0
Dem - COUNTY CONTROLLER		
(Vote for 1)	Total:	0
Dem-Chelsa Wagner		0
>Write-ins in above contest:		0
UnderVotes For Above contest:		0
Dem - DISTRICT ATTORNEY		
(Vote for 1)	Total:	0
Dem-Turahh Jenkins		0
Dem-Stephen A. Zappala, Jr.		0
>Write-ins in above contest:		0
UnderVotes For Above contest:		0
Dem - COUNTY TREASURER		
(Vote for 1)	Total:	0
Dem-John K. Weinstein		0
>Write-ins in above contest:		0
UnderVotes For Above contest:		0
Dem - COUNTY COUNCIL AT-LARGE		
(Vote for 1)	Total:	0
Dem-Bethany Hallam		0
Dem-John P. DeFazio		0
>Write-ins in above contest:		0
UnderVotes For Above contest:		0
Dem - CNTCL13 Member of County Council 4		
(Vote for 1)	Total:	0
Dem-Denise Ranalli Russell		0
Dem-Olivia Bennett		0
>Write-ins in above contest:		0
UnderVotes For Above contest:		0
Dem - CTYWIDE CONTROLLER CITY OF PITTSBU		
(Vote for 1)	Total:	0
Dem-Michael E. Lamb		0
>Write-ins in above contest:		0
UnderVotes For Above contest:		0

Dem - PGHSCH8 School Director 4 Year Ter		
(Vote for 1)	Total:	0
Dem-Kevin L. Carter		0
>Write-ins in above contest:		0
UnderVotes For Above contest:		0
Rep - JUDGE OF THE SUPERIOR COURT		
(Vote for 2)	Total:	0
Rep-Rebecca Warren		0
Rep-Megan McCarthy King		0
Rep-Christylee Peck		0
>Write-ins in above contest:		0
UnderVotes For Above contest:		0
Rep - JUDGE OF THE COURT OF COMMON PLEAS		
(Vote for 1)	Total:	0
Rep-Mary McGinley		0
>Write-ins in above contest:		0
UnderVotes For Above contest:		0
Rep - COUNTY CHIEF EXECUTIVE		
(Vote for 1)	Total:	0
Rep-Matt Drozd		0
>Write-ins in above contest:		0
UnderVotes For Above contest:		0
Rep - COUNTY CONTROLLER		
(Vote for 1)	Total:	0
>Write-ins in above contest:		0
UnderVotes For Above contest:		0
Rep - DISTRICT ATTORNEY		
(Vote for 1)	Total:	0
>Write-ins in above contest:		0
UnderVotes For Above contest:		0
Rep - COUNTY TREASURER		
(Vote for 1)	Total:	0
>Write-ins in above contest:		0
UnderVotes For Above contest:		0
Rep - COUNTY COUNCIL AT-LARGE		
(Vote for 1)	Total:	0
Rep-Samuel DeMarco, III		0
>Write-ins in above contest:		0
UnderVotes For Above contest:		0

Rep - CNTCL13 Member of County Council 4
(Vote for 1) Total: 0

>Write-ins in above contest: 0
UnderVotes For Above contest: 0

CITYWIDE CONTROLLER CITY OF PITTSBU
(Vote for 1) Total: 0

>Write-ins in above contest: 0
UnderVotes For Above contest: 0

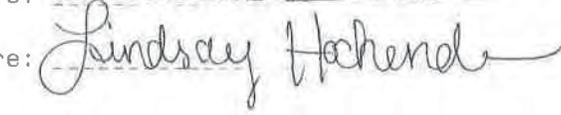
Rep - PGHSCH8 School Director 4 Year Ter
(Vote for 1) Total: 0

>Write-ins in above contest: 0
UnderVotes For Above contest: 0

Time/Date: 07:28:15 05/21/2019

Signature: 

Signature: 

Signature: 

Signature: _____

COUNTY OF ALLEGHENY, COMMONWEALTH OF PENNSYLVANIA
 ELECTION, TUESDAY, MAY 21, 2019
 SUMMARY OF SCRIPTS

DEMOCRATIC		Judge of the Superior Court (Vote for not more than Two)				Judge of the Court of Common Pleas (Vote for One)					County Chief (Vote for One)		County Controller (Vote for One)		District Attorney (Vote for One)		
Public Count #	Tarasi	McCaffery	Green-Hawkins	Write-In	Heym	McGinley	Joyce	Malkin	Write-In	Fitzgerald	Write-in	Wagner	Write-in	Jenkins	Zapalla	Write-in	
Machine 1 V5179580	58	46	41	29	0	18	13	12	15	0	58	0	58	0	31	27	0
Machine 2 V5182888	21	18	13	11	0	6	6	3	6	0	21	0	21	0	8	13	0
Machine 3 V5171364	22	19	14	11	0	8	5	5	4	0	22	0	22	0	13	9	0
Total	101	83	68	51	0	32	24	20	25	0	101	0	101	0	52	49	0
REPUBLICAN		Judge of the Superior Court (Vote for not more than Two)				Judge of the Court of (Vote for One)		County Chief (Vote for One)		County Controller (Vote for One)			District Attorney (Vote for One)				
Public Count #	Warren	King	Peck	Write-In	McGinley	Write-In	Drozd	Write-in	Alpha	Bravo	Write-in	Charlie	Delta	Write-in			
Machine 1 V5179580	4	2	3	3	0	4	0	4	0	2	1	0	1	2	0		
Machine 2 V5182888	3	3	2	1	0	3	0	3	0	2	0	0	1	1	0		
Machine 3 V5171364	3	3	2	1	0	3	0	3	0	1	0	0	0	1	0		
Total	10	8	7	5	0	10	0	10	0	5	1	0	2	4	0		

DEMOCRATIC		County Treasurer (Vote for One)		Member of County Council At-Large (Vote for One)			Member of County Council (Vote for One)			Controller (Vote for One)		School Director (Vote for One)	
	Public Count #	Weinstein	Write-in	Hallam	DeFazio	Write-in	Russell	Bennett	Write-in	Lamb	Write-in	Carter	Write-in
Machine 1 V5179580	58	58	0	38	20	0	39	19	0	58	0	58	0
Machine 2 V5182888	21	21	0	14	7	0	13	8	0	21	0	21	0
Machine 3 V5171364	22	22	0	10	12	0	15	7	0	22	0	22	0
Total	101	101	0	62	39	0	67	34	0	101	0	101	0

REPUBLICAN		County Treasurer (Vote for One)			Member of County Council At-Large (Vote for One)		Member of County Council (Vote for One)			Controller (Vote for One)			School Director (Vote for One)		
	Public Count #	Echo	Foxtrot	Write-in	DeMarco	Write-in	Golf	Hotel	Write-in	India	Juliet	Write-in	Kilo	Lima	Write-in
Machine 1 V5179580	4	2	1	0	4	0	1	2	0	2	1	0	2	1	0
Machine 2 V5182888	3	2	0	0	3	0	1	1	0	2	0	0	1	1	0
Machine 3 V5171364	3	0	1	0	3	0	0	1	0	0	1	0	1	0	0
Total	10	4	2	0	10	0	2	4	0	4	2	0	4	2	0

COUNTY OF ALLEGHENY, COMMONWEALTH OF PENNSYLVANIA
ELECTION, TUESDAY, MAY 21, 2019
VOTER SIMULATION PROJECT SCRIPT

Public Count #	Judge of the Superior Court (Vote for not more than Two)				Judge of the Court of Common Pleas (Vote for One)					County Chief Executive (Vote for One)		County Controller (Vote for One)		District Attorney (Vote for One)		
	Tarasi	McCaffery	Green-Hawkins	Write-In	Heym	McGinley	Joyce	Malkin	Write-In	Fitzgerald	Write-in	Wagner	Write-in	Jenkins	Zapalla	Write-in
1	1	1			1					1		1		1		
2	1	1					1			1		1		1		
3	1	1	1		1					1		1		1		
4	1	1					1			1		1			1	
5	1		1				1			1		1		1		
6	1	1						1		1		1		1		
7	1		1		1					1		1		1		
8	1	1					1			1		1		1		
9	1		1				1			1		1			1	
10	1		1					1		1		1		1		
11		1	1				1			1		1			1	
12	1	1						1		1		1		1		
13	1	1					1			1		1		1		
14	1	1					1			1		1		1		
15		1	1				1			1		1		1		
16	1	1						1		1		1		1		
17	1	1					1			1		1		1		
18	1	1						1		1		1			1	
19		1	1				1			1		1		1		
20	1	1						1		1		1		1		
21	1		1				1			1		1		1		
22	1	1						1		1		1		1		
23	1		1				1			1		1		1		
24	1	1						1		1		1		1		
25	1		1				1			1		1		1		
26	1		1					1		1		1		1		
27		1	1				1			1		1		1		
28	1		1					1		1		1		1		
29		1	1				1			1		1		1		
30		1	1					1		1		1		1		
31	1	1					1			1		1		1		
32	1	1					1			1		1		1		
33	1	1	1				1			1		1		1		
34	1	1						1		1		1		1		
35	1		1				1			1		1		1		
36	1	1						1		1		1		1		
37	1		1				1			1		1		1		
38	1	1						1		1		1		1		
39	1		1				1			1		1		1		
40	1		1					1		1		1		1		
41		1	1				1			1		1		1		
42	1	1						1		1		1		1		
43	1	1					1			1		1		1		
44	1	1						1		1		1		1		
45		1	1				1			1		1		1		
46	1	1						1		1		1		1		
47	1	1					1			1		1		1		
48	1	1					1			1		1		1		
49		1	1				1			1		1		1		
50	1	1						1		1		1		1		
51	1		1				1			1		1		1		
52	1	1						1		1		1		1		
53	1		1					1		1		1		1		
54	1	1						1		1		1		1		
55	1		1				1			1		1		1		
56	1		1					1		1		1		1		
57		1	1				1			1		1		1		
58	1	1						1		1		1		1		
Subtotal	46	41	29	0	18	13	12	15	0	58	0	58	0	31	27	0

Public Count #	County Treasurer (Vote for One)		Member of County Council At-Large (Vote for One)			Member of County Council (Vote for One)			Controller (Vote for One)		School Director (Vote for One)	
	Weinstein	Write-in	Hallam	DeFazio	Write-in	Russell	Bennett	Write-in	Lamb	Write-in	Carter	Write-in
1	1		1			1			1		1	
2	1		1			1			1		1	
3	1		1			1			1		1	
4	1		1	1		1	1		1		1	
5	1		1			1			1		1	
6	1		1	1		1	1		1		1	
7	1		1	1		1	1		1		1	
8	1		1			1			1		1	
9	1		1	1		1	1		1		1	
10	1		1			1			1		1	
11	1		1			1			1		1	
12	1		1	1		1	1		1		1	
13	1		1			1			1		1	
14	1		1	1		1	1		1		1	
15	1		1			1			1		1	
16	1		1			1	1		1		1	
17	1		1			1			1		1	
18	1		1	1		1	1		1		1	
19	1		1			1			1		1	
20	1		1	1		1	1		1		1	
21	1		1	1		1	1		1		1	
22	1		1			1	1		1		1	
23	1		1	1		1	1		1		1	
24	1		1			1			1		1	
25	1		1	1		1	1		1		1	
26	1		1			1			1		1	
27	1		1	1		1	1		1		1	
28	1		1			1			1		1	
29	1		1			1			1		1	
30	1		1			1	1		1		1	
31	1		1			1			1		1	
32	1		1	1		1	1		1		1	
33	1		1			1			1		1	
34	1		1			1	1		1		1	
35	1		1			1			1		1	
36	1		1	1		1	1		1		1	
37	1		1			1			1		1	
38	1		1	1		1	1		1		1	
39	1		1	1		1	1		1		1	
40	1		1			1	1		1		1	
41	1		1	1		1	1		1		1	
42	1		1			1	1		1		1	
43	1		1	1		1	1		1		1	
44	1		1			1			1		1	
45	1		1	1		1	1		1		1	
46	1		1			1			1		1	
47	1		1	1		1	1		1		1	
48	1		1	1		1	1		1		1	
49	1		1			1			1		1	
50	1		1			1	1		1		1	
51	1		1			1			1		1	
52	1		1	1		1	1		1		1	
53	1		1			1			1		1	
54	1		1	1		1	1		1		1	
55	1		1	1		1	1		1		1	
56	1		1			1	1		1		1	
57	1		1	1		1	1		1		1	
58	1		1			1	1		1		1	
Subtotal	58	0	38	20	0	39	19	0	58	0	58	0

Machine #V5179580
 REP

COUNTY OF ALLEGHENY, COMMONWEALTH OF PENNSYLVANIA
 ELECTION, TUESDAY, MAY 21, 2019
 VOTER SIMULATION PROJECT SCRIPT

Public Count #	Judge of the Superior Court (Vote for not more than Two)				Judge of the Court of Common Pleas (Vote for One)		County Chief Executive (Vote for One)		County Controller (Vote for One)			District Attorney (Vote for One)		
	Warren	King	Peck	Write-In	McGinley	Write-In	Drozd	Write-in	Alpha	Bravo	Write-in	Charlie	Delta	Write-in
59	1	1			1		1		1				1	
60		1	1		1		1			1		1		
61	1		1		1		1		1				1	
62		1	1		1		1							
Subtotal	2	3	3	0	4	0	4	0	2	1	0	1	2	0

Machine #V5179580
 REP

Public Count #	County Treasurer (Vote for One)			Member of County Council At-Large (Vote for One)		Member of County Council (Vote for One)			Controller (Vote for One)			School Director (Vote for One)		
	Echo	Foxtrot	Write-in	DeMarco	Write-in	Golf	Hotel	Write-in	India	Juliet	Write-in	Kilo	Lima	Write-in
59	1			1			1		1			1		
60	1			1		1			1				1	
61		1		1			1			1		1		
62				1										
Subtotal	2	1	0	4	0	1	2	0	2	1	0	2	1	0

Machine #V5182888
DEM

COUNTY OF ALLEGHENY, COMMONWEALTH OF PENNSYLVANIA
ELECTION, TUESDAY, MAY 21, 2019
VOTER SIMULATION PROJECT SCRIPT

Public Count #	Judge of the Superior Court (Vote for not more than Two)				Judge of the Court of Common Pleas (Vote for One)					County Chief Executive (Vote for One)		County Controller (Vote for One)		District Attorney (Vote for One)		
	Tarasi	McCaffery	Green-Hawkins	Write-In	Heym	McGinley	Joyce	Malkin	Write-In	Fitzgerald	Write-in	Wagner	Write-in	Jenkins	Zapalla	Write-in
1	1		1			1				1		1				1
2	1		1					1		1		1				1
3	1	1				1				1		1				1
4	1	1						1		1		1				1
5		1	1			1				1		1				1
6	1	1				1				1		1				1
7	1		1			1				1		1				1
8	1	1						1		1		1				1
9	1		1			1				1		1				1
10	1	1						1		1		1				1
11	1		1					1		1		1				1
12	1		1					1		1		1				1
13		1	1					1		1		1				1
14	1	1						1		1		1				1
15	1		1			1				1		1				1
16	1	1						1		1		1				1
17	1	1						1		1		1				1
18	1	1						1		1		1				1
19		1	1					1		1		1				1
20	1	1						1		1		1				1
21	1		1			1				1		1				1
Subtotal	18	13	11	0	6	6	3	6	0	21	0	21	0	8	13	0

Machine #V5182888

DEM

Public Count #	County Treasurer (Vote for One)		Member of County Council At-Large (Vote for One)			Member of County Council (Vote for One)			Controller (Vote for One)		School Director (Vote for One)	
	Weinstein	Write-in	Hallam	DeFazio	Write-in	Rusell	Bennett	Write-in	Lamb	Write-in	Carter	Write-in
1	1		1				1		1		1	
2	1		1			1			1		1	
3	1		1				1		1		1	
4	1			1		1			1		1	
5	1		1			1			1		1	
6	1		1			1			1		1	
7	1		1			1			1		1	
8	1			1			1		1		1	
9	1		1			1			1		1	
10	1			1		1			1		1	
11	1			1		1			1		1	
12	1		1				1		1		1	
13	1			1		1			1		1	
14	1		1				1		1		1	
15	1			1			1		1		1	
16	1		1			1			1		1	
17	1			1			1		1		1	
18	1		1			1			1		1	
19	1		1			1			1		1	
20	1		1			1			1		1	
21	1		1				1		1		1	
Subtotal	21	0	14	7	0	13	8	0	21	0	21	0

Machine #V5182888
 REP

COUNTY OF ALLEGHENY, COMMONWEALTH OF PENNSYLVANIA
 ELECTION, TUESDAY, MAY 21, 2019
 VOTER SIMULATION PROJECT SCRIPT

Public Count #	Judge of the Superior Court (Vote for not more than Two)				Judge of the Court of Common Pleas (Vote for One)		County Chief Executive (Vote for One)		County Controller (Vote for One)			District Attorney (Vote for One)		
	Warren	King	Peck	Write-In	McGinley	Write-In	Drozd	Write-in	Alpha	Bravo	Write-in	Charlie	Delta	Write-in
22	1	1			1		1		1			1		
23	1		1		1		1		1				1	
24	1	1			1		1							
Subtotal	3	2	1	0	3	0	3	0	2	0	0	1	1	0

Machine #V5182888
 REP

Public Count #	County Treasurer (Vote for One)			Member of County Council At-Large (Vote for One)		Member of County Council (Vote for One)			Controller (Vote for One)			School Director (Vote for One)		
	Echo	Foxtrot	Write-in	DeMarco	Write-in	Golf	Hotel	Write-in	India	Juliet	Write-in	Kilo	Lima	Write-in
22	1			1		1			1				1	
23	1			1			1		1			1		
24				1										
Subtotal	2	0	0	3	0	1	1	0	2	0	0	1	1	0

Machine #V5171364
DEM

COUNTY OF ALLEGHENY, COMMONWEALTH OF PENNSYLVANIA
ELECTION, TUESDAY, MAY 21, 2019
VOTER SIMULATION PROJECT SCRIPT

Public Count #	Judge of the Superior Court (Vote for not more than Two)				Judge of the Court of Common Pleas (Vote for One)					County Chief Executive (Vote for One)		County Controller (Vote for One)		District Attorney (Vote for One)		
	Tarasi	McCaffery	Green-Hawkins	Write-In	Heym	McGinley	Joyce	Malkin	Write-In	Fitzgerald	Write-in	Wagner	Write-in	Jenkins	Zapalla	Write-in
1	1	1					1			1		1		1		
2	1		1			1				1		1				1
3	1	1						1		1		1		1		
4	1		1		1					1		1		1		
5	1		1				1			1		1		1		
6		1	1			1				1		1		1		
7	1	1						1		1		1		1		
8	1		1			1				1		1		1		
9	1	1						1		1		1				1
10	1	1			1					1		1		1		
11	1	1			1					1		1		1		
12		1	1		1					1		1		1		
13	1	1					1			1		1		1		
14	1		1		1					1		1		1		
15	1	1					1			1		1				1
16	1		1			1				1		1				1
17	1	1						1		1		1		1		
18	1		1		1					1		1		1		
19	1		1				1			1		1		1		
20		1	1		1					1		1				1
21	1	1				1				1		1		1		
22	1	1			1					1		1		1		
Subtotal	19	14	11	0	8	5	5	4	0	22	0	22	0	13	9	0

Machine #V5171364
DEM

Public Count #	County Treasurer (Vote for One)		Member of County Council At-Large (Vote for One)			Member of County Council (Vote for One)			Controller (Vote for One)		School Director (Vote for One)	
	Weinstein	Write-in	Hallam	DeFazio	Write-in	Rusell	Bennett	Write-in	Lamb	Write-in	Carter	Write-in
1	1				1				1			1
2	1		1				1		1			1
3	1		1			1			1			1
4	1		1			1			1			1
5	1			1		1			1			1
6	1		1			1			1			1
7	1			1			1		1			1
8	1			1		1			1			1
9	1		1			1			1			1
10	1			1		1			1			1
11	1		1				1		1			1
12	1			1		1			1			1
13	1		1				1		1			1
14	1			1			1		1			1
15	1		1			1			1			1
16	1		1				1		1			1
17	1			1		1			1			1
18	1			1		1			1			1
19	1			1		1			1			1
20	1		1				1		1			1
21	1			1		1			1			1
22	1			1		1			1			1
Subtotal	22	0	10	12	0	15	7	0	22	0	22	0

Machine #V5171364
 REP

COUNTY OF ALLEGHENY, COMMONWEALTH OF PENNSYLVANIA
 ELECTION, TUESDAY, MAY 21, 2019
 VOTER SIMULATION PROJECT SCRIPT

Public Count #	Judge of the Superior Court (Vote for not more than Two)				Judge of the Court of Common Pleas (Vote for One)		County Chief Executive (Vote for One)		County Controller (Vote for One)			District Attorney (Vote for One)		
	Warren	King	Peck	Write-In	McGinley	Write-In	Drozd	Write-in	Alpha	Bravo	Write-in	Charlie	Delta	Write-in
23	1	1			1		1		1				1	
24	1	1			1		1							
25	1		1		1		1							
Subtotal	3	2	1	0	3	0	3	0	1	0	0	0	1	0

Machine #V5171364
 REP

Public Count #	County Treasurer (Vote for One)			Member of County Council At-Large (Vote for One)		Member of County Council (Vote for One)			Controller (Vote for One)			School Director (Vote for One)		
	Echo	Foxtrot	Write-in	DeMarco	Write-in	Golf	Hotel	Write-in	India	Juliet	Write-in	Kilo	Lima	Write-in
23		1		1			1			1			1	
24				1										
25				1										
Subtotal	0	1	0	3	0	0	1	0	0	1	0	1	0	0

Terminal S/N: V5171364->
PEB S/N PS214855- (FMW 1.07)
Software Version 9.1.4.1
Created 02/01/06 8:50
Copyright ES&S, Inc. 1993-2005
All Rights Reserved
Diagnostic check completed: OK
iVotronic I

2019 Municipal Primary
PITTSBURGH WARD 26 DIST 1
POLLING LOCATION RESULTS

Public Count Statistics

Total Ballots Cast: 111
Total Ballots Counted: 111

Number of Terminals Opened: 3

Individual Voter Terminal Data

S/N V5179580

Public Count: 62
Protective Count: 4843
OPENED 07:18:22 05/21/2019
CLOSED 20:01:38 05/21/2019
Terminal Ballots Counted: 62

S/N V5182888

Public Count: 24
Protective Count: 5212
OPENED 07:22:21 05/21/2019
CLOSED 20:06:54 05/21/2019
Terminal Ballots Counted: 24

S/N V5171364

Public Count: 25
Protective Count: 4299
OPENED 07:24:20 05/21/2019
CLOSED 20:10:17 05/21/2019
Terminal Ballots Counted: 25

PRECINCT: PITTSBURGH WARD 26 DIST 1

Public Count: 111

Party Counts

Democratic 101
Republican 10

Ballot Style Counts

Dem - Ballot Style #914 101
Rep - Ballot Style #914 10

Dem - JUDGE OF THE SUPERIOR COURT		
(Vote for 2)	Total:	202
Dem-Beth Tarasi		83
Dem-Daniel D. McCaffery		68
Dem-Amanda Green-Hawkins		51

>Write-ins in above contest:		0
UnderVotes For Above contest:		0

Dem - JUDGE OF THE COURT OF COMMON PLEAS		
(Vote for 1)	Total:	101
Dem-George Heym		32
Dem-Mary McGinley		24
Dem-Richard J. Joyce		20
Dem-Brian Samuel Malkin		25

>Write-ins in above contest:		0
UnderVotes For Above contest:		0

Dem - COUNTY CHIEF EXECUTIVE		
(Vote for 1)	Total:	101
Dem-Rich Fitzgerald		101

>Write-ins in above contest:		0
UnderVotes For Above contest:		0

Dem - COUNTY CONTROLLER		
(Vote for 1)	Total:	101
Dem-Chelsa Wagner		101

>Write-ins in above contest:		0
UnderVotes For Above contest:		0

Dem - DISTRICT ATTORNEY		
(Vote for 1)	Total:	101
Dem-Turahn Jenkins		52
Dem-Stephen A. Zappala, Jr.		49

>Write-ins in above contest:		0
UnderVotes For Above contest:		0

Dem - COUNTY TREASURER		
(Vote for 1)	Total:	101
Dem-John K. Weinstein		101

>Write-ins in above contest:		0
UnderVotes For Above contest:		0

Dem - COUNTY COUNCIL AT-LARGE		
(Vote for 1)	Total:	101
Dem-Bethany Hallam		62
Dem-John P. DeFazio		39

>Write-ins in above contest:		0
UnderVotes For Above contest:		0

Dem - CNTCL13 Member of County Council 4
 (Vote for 1) Total: 101
 Dem-Denise Ranalli Russell 67
 Dem-Olivia Bennett 34

>Write-ins in above contest: 0
 UnderVotes For Above contest: 0

Dem - CTYWIDE CONTROLLER CITY OF PITTSBU
 (Vote for 1) Total: 101
 Dem-Michael E. Lamb 101

>Write-ins in above contest: 0
 UnderVotes For Above contest: 0

Dem - PGHSCH8 School Director 4 Year Ter
 (Vote for 1) Total: 101
 Dem-Kevin L. Carter 101

>Write-ins in above contest: 0
 UnderVotes For Above contest: 0

Rep - JUDGE OF THE SUPERIOR COURT
 (Vote for 2) Total: 20
 Rep-Rebecca Warren 8
 Rep-Megan McCarthy King 7
 Rep-Christylee Peck 5

>Write-ins in above contest: 0
 UnderVotes For Above contest: 0

Rep - JUDGE OF THE COURT OF COMMON PLEAS
 (Vote for 1) Total: 10
 Rep-Mary McGinley 10

>Write-ins in above contest: 0
 UnderVotes For Above contest: 0

Rep - COUNTY CHIEF EXECUTIVE
 (Vote for 1) Total: 10
 Rep-Matt Drozd 10

>Write-ins in above contest: 0
 UnderVotes For Above contest: 0

Rep - COUNTY CONTROLLER
 (Vote for 1) Total: 6

>BRAVO
 >ALPHA
 >ALPHA
 >ALPHA
 >ALPHA
 >ALPHA

>Write-ins in above contest: 6
 UnderVotes For Above contest: 4

Rep - DISTRICT ATTORNEY
(Vote for 1) Total: 6

>CHARLIE

>DELTA

>DELTA

>CHARLIE

>DELTA

>DELTA

>Write-ins in above contest: 6

UnderVotes For Above contest: 4

Rep - COUNTY TREASURER
(Vote for 1) Total: 6

>ECHO

>ECHO

>FOXTROT

>ECHO

>ECHO

>FOXTROT

>Write-ins in above contest: 6

UnderVotes For Above contest: 4

Rep - COUNTY COUNCIL AT-LARGE
(Vote for 1) Total: 10
Rep-Samuel DeMarco, III 10

>Write-ins in above contest: 0

UnderVotes For Above contest: 0

Rep - CNTCL13 Member of County Council 4
(Vote for 1) Total: 6

>GOLF

>HOTEL

>HOTEL

>GOLF

>HOTEL

>HOTEL

>Write-ins in above contest: 6

UnderVotes For Above contest: 4

Rep - CTYWIDE CONTROLLER CITY OF PITTSBU
(Vote for 1) Total: 6

>INDIA

>INDIA

>JULIET

>INDIA

>INDIA

>JULIET

>Write-ins in above contest: 6

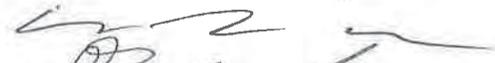
UnderVotes For Above contest: 4

Rep - PGHSCH8 School Director 4 Year Ter
(Vote for 1) Total: 6

>LIMA
>KILO
>KILO
>LIMA
>KILO
>KILO

>Write-ins in above contest: 6
UnderVotes For Above contest: 4

Time/Date: 20:14:51 05/21/2019

Signature: 
Signature: 
Signature: 
Signature:

EL30-1.txt

PRECINCT REPORT
RUN DATE:07/10/19 08:31 AM

STATISTICS

0914 PITTSBURGH WARD 26 DIST 1

	VOTES	PERCENT
REGISTERED VOTERS - TOTAL	575	
REGISTERED VOTERS - DEMOCRATIC	499	86.78
REGISTERED VOTERS - REPUBLICAN	28	4.87
BALLOTS CAST - TOTAL	111	
BALLOTS CAST - DEMOCRATIC	101	90.99
BALLOTS CAST - REPUBLICAN	10	9.01
VOTER TURNOUT - TOTAL		19.30
VOTER TURNOUT - DEMOCRATIC.		20.24
VOTER TURNOUT - REPUBLICAN.		35.71
PRECINCT REPORT		Democratic
RUN DATE:07/10/19 08:31 AM		

0914 PITTSBURGH WARD 26 DIST 1

	VOTES	PERCENT
Judge of the Superior Court		
Vote for 2		
Beth Tarasi.	83	41.09
Daniel D. McCaffery	68	33.66
Amanda Green-Hawkins.	51	25.25
WRITE-IN.	0	
Judge of the Court of Common Pleas		
Vote for 1		
George Heym.	32	31.68
Mary McGinley	24	23.76
Richard J. Joyce	20	19.80
Brian Samuel Malkin	25	24.75
WRITE-IN.	0	

VOTES PERCENT

Controller CITYWIDE		
Vote for 1		
Michael E. Lamb	101	100.00
WRITE-IN.	0	

School Director DISTRICT 8		
Vote for 1		
Kevin L. Carter	101	100.00
WRITE-IN.	0	

County Chief Executive

Vote for 1

Rich Fitzgerald	101	100.00
WRITE-IN.	0	

County Controller

Vote for 1

Chelsa Wagner	101	100.00
WRITE-IN.	0	

District Attorney

Vote for 1

Turahh Jenkins.	52	51.49
Stephen A. Zappala, Jr..	49	48.51
WRITE-IN.	0	

County Treasurer

Vote for 1

John K. Weinstein.	101	100.00
WRITE-IN.	0	

Member of County Council At-Large

Vote for 1

Bethany Hallam.	62	61.39
John P. DeFazio	39	38.61
WRITE-IN.	0	

Member of County Council DISTRICT 13

Vote for 1

Denise Ranalli Russell	67	66.34
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Olivia Bennett.	34	33.66
WRITE-IN.	0	

▲PRECINCT REPORT
 RUN DATE:07/10/19 08:31 AM

Republican

0914 PITTSBURGH WARD 26 DIST 1

VOTES PERCENT

Judge of the Superior Court

Vote for 2

Rebecca Warren.	8	40.00
Megan McCarthy King	7	35.00
Christylee Peck	5	25.00
WRITE-IN.	0	

Judge of the Court of Common Pleas

Vote for 1

Mary McGinley	10	100.00
WRITE-IN.	0	

County Chief Executive

Vote for 1

Matt Drozd	10	100.00
WRITE-IN.	0	

County Controller

Vote for 1

WRITE-IN.	6	100.00
-------------------	---	--------

District Attorney

Vote for 1

WRITE-IN.	6	100.00
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County Treasurer

Vote for 1

WRITE-IN. 6 100.00

Member of County Council At-Large

Vote for 1

Samuel DeMarco, III 10 100.00

WRITE-IN. 0

Member of County Council DISTRICT 13

Vote for 1

WRITE-IN. 6 100.00

Controller CITYWIDE

Vote for 1

WRITE-IN. 6 100.00

School Director DISTRICT 8

Vote for 1

WRITE-IN. 6 100.00

↑

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PREC REPORT-GROUP DETAIL
RUN DATE:07/10/19 09:03 AM

STATISTICS

0914 PITTSBURGH WARD 26 DIST 1

| | TOTAL VOTES | % | 5179580 | 5182888 | 5171364 |
|--|-------------|-------|---------|---------|---------|
| REGISTERED VOTERS - TOTAL | 575 | | | | |
| REGISTERED VOTERS - DEMOCRATIC | 499 | 86.78 | | | |
| REGISTERED VOTERS - REPUBLICAN | 28 | 4.87 | | | |
| BALLOTS CAST - TOTAL | 111 | | 62 | 24 | 25 |
| BALLOTS CAST - DEMOCRATIC | 101 | 90.99 | 58 | 21 | 22 |
| BALLOTS CAST - REPUBLICAN | 10 | 9.01 | 4 | 3 | 3 |
| VOTER TURNOUT - TOTAL | | 19.30 | | | |
| VOTER TURNOUT - DEMOCRATIC | | 20.24 | | | |
| VOTER TURNOUT - REPUBLICAN | | 35.71 | | | |

***** (Democratic) *****

Judge of the Superior Court

Vote for 2

| | | | | | |
|-------------------------------|----|-------|----|----|----|
| Beth Tarasi. | 83 | 41.09 | 46 | 18 | 19 |
| Daniel D. McCaffery | 68 | 33.66 | 41 | 13 | 14 |
| Amanda Green-Hawkins. | 51 | 25.25 | 29 | 11 | 11 |
| WRITE-IN. | 0 | | 0 | 0 | 0 |

Judge of the Court of Common Pleas

Vote for 1

| | | | | | |
|----------------------------|----|-------|----|---|---|
| George Heym. | 32 | 31.68 | 18 | 6 | 8 |
| Mary McGinley | 24 | 23.76 | 13 | 6 | 5 |
| Richard J. Joyce | 20 | 19.80 | 12 | 3 | 5 |

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| | | | | | |
|-------------------------------|----|-------|----|---|---|
| Brian Samuel Malkin | 25 | 24.75 | 15 | 6 | 4 |
| WRITE-IN. | 0 | | 0 | 0 | 0 |

County Chief Executive

Vote for 1

| | | | | | |
|---------------------------|-----|--------|----|----|----|
| Rich Fitzgerald | 101 | 100.00 | 58 | 21 | 22 |
| WRITE-IN. | 0 | | 0 | 0 | 0 |

County Controller

Vote for 1

| | | | | | |
|-------------------------|-----|--------|----|----|----|
| Chelsa Wagner | 101 | 100.00 | 58 | 21 | 22 |
| WRITE-IN. | 0 | | 0 | 0 | 0 |

District Attorney

Vote for 1

| | | | | | |
|----------------------------------|----|-------|----|----|----|
| Turahh Jenkins. | 52 | 51.49 | 31 | 8 | 13 |
| Stephen A. Zappala, Jr.. | 49 | 48.51 | 27 | 13 | 9 |
| WRITE-IN. | 0 | | 0 | 0 | 0 |

County Treasurer

Vote for 1

| | | | | | |
|----------------------------|-----|--------|----|----|----|
| John K. Weinstein. | 101 | 100.00 | 58 | 21 | 22 |
| WRITE-IN. | 0 | | 0 | 0 | 0 |

Member of County Council At-Large

Vote for 1

| | | | | | |
|---------------------------|----|-------|----|----|----|
| Bethany Hallam. | 62 | 61.39 | 38 | 14 | 10 |
| John P. DeFazio | 39 | 38.61 | 20 | 7 | 12 |
| WRITE-IN. | 0 | | 0 | 0 | 0 |

Member of County Council DISTRICT 13

Vote for 1

| | | | | | |
|----------------------------------|----|-------|----|----|----|
| Denise Ranalli Russell | 67 | 66.34 | 39 | 13 | 15 |
| Olivia Bennett. | 34 | 33.66 | 19 | 8 | 7 |
| WRITE-IN. | 0 | | 0 | 0 | 0 |

Controller CITYWIDE

Vote for 1

| | | | | | |
|---------------------------|-----|--------|----|----|----|
| Michael E. Lamb | 101 | 100.00 | 58 | 21 | 22 |
| WRITE-IN. | 0 | | 0 | 0 | 0 |

School Director DISTRICT 8

Vote for 1

| | | | | | |
|---------------------------|-----|--------|----|----|----|
| Kevin L. Carter | 101 | 100.00 | 58 | 21 | 22 |
| WRITE-IN. | 0 | | 0 | 0 | 0 |

***** (Republican) *****

Judge of the Superior Court

Vote for 2

| | | | | | |
|-------------------------------|---|-------|---|---|---|
| Rebecca Warren. | 8 | 40.00 | 2 | 3 | 3 |
| Megan McCarthy King | 7 | 35.00 | 3 | 2 | 2 |
| Christylee Peck | 5 | 25.00 | 3 | 1 | 1 |
| WRITE-IN. | 0 | | 0 | 0 | 0 |

Judge of the Court of Common Pleas

Vote for 1

| | | | | | |
|-------------------------|----|--------|---|---|---|
| Mary McGinley | 10 | 100.00 | 4 | 3 | 3 |
| WRITE-IN. | 0 | | 0 | 0 | 0 |

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County Chief Executive

Vote for 1

| | | | | | |
|----------------------|----|--------|---|---|---|
| Matt Drozd | 10 | 100.00 | 4 | 3 | 3 |
| WRITE-IN. | 0 | | 0 | 0 | 0 |

County Controller

Vote for 1

| | | | | | |
|-------------------|---|--------|---|---|---|
| WRITE-IN. | 6 | 100.00 | 3 | 2 | 1 |
|-------------------|---|--------|---|---|---|

District Attorney

Vote for 1

| | | | | | |
|-------------------|---|--------|---|---|---|
| WRITE-IN. | 6 | 100.00 | 3 | 2 | 1 |
|-------------------|---|--------|---|---|---|

County Treasurer

Vote for 1

| | | | | | |
|-------------------|---|--------|---|---|---|
| WRITE-IN. | 6 | 100.00 | 3 | 2 | 1 |
|-------------------|---|--------|---|---|---|

Member of County Council At-Large

Vote for 1

| | | | | | |
|-------------------------------|----|--------|---|---|---|
| Samuel DeMarco, III | 10 | 100.00 | 4 | 3 | 3 |
| WRITE-IN. | 0 | | 0 | 0 | 0 |

Member of County Council DISTRICT 13

Vote for 1

| | | | | | |
|-------------------|---|--------|---|---|---|
| WRITE-IN. | 6 | 100.00 | 3 | 2 | 1 |
|-------------------|---|--------|---|---|---|

Controller CITYWIDE

EL30A-1.txt

Vote for 1

WRITE-IN. 6 100.00 3 2 1

School Director DISTRICT 8

Vote for 1

WRITE-IN. 6 100.00 3 2 1

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BALLOT	MUNICIPALITY	WARD	DISTRICT	DEM REG	REP REG	TOTAL REG
1	ALEPPO	0	1	516	693	1366
2	ASPINWALL	0	1	479	283	892
3	ASPINWALL	0	2	291	193	596
4	ASPINWALL	0	3	454	284	870
5	AVALON	1	0	678	256	1123
6	AVALON	2	1	423	178	717
7	AVALON	2	2	266	145	469
8	AVALON	3	1	181	90	325
9	AVALON	3	2	282	155	506
10	AVALON	3	3	293	136	513
11	BALDWIN BR	0	1	373	157	594
12	BALDWIN BR	0	2	613	259	1004
13	BALDWIN BR	0	3	509	204	801
14	BALDWIN BR	0	4	447	222	762
15	BALDWIN BR	0	5	491	218	818
16	BALDWIN BR	0	6	425	242	765
17	BALDWIN BR	0	7	451	254	814
18	BALDWIN BR	0	8	393	213	711
19	BALDWIN BR	0	9	447	218	747
20	BALDWIN BR	0	10	659	206	1069
21	BALDWIN BR	0	11	739	241	1193
22	BALDWIN BR	0	12	407	139	622
23	BALDWIN BR	0	13	418	188	675
24	BALDWIN BR	0	14	344	178	592
25	BALDWIN BR	0	15	524	189	791
26	BALDWIN BR	0	16	554	227	888
27	BALDWIN BR	0	17	407	200	687
28	BALDWIN BR	0	18	570	243	925
29	BALDWIN TP	0	1	408	263	776
30	BALDWIN TP	0	2	427	190	717
31	BELL ACRES	0	1	430	529	1165
32	BELLEVUE	1	1	624	239	1039
33	BELLEVUE	1	2	617	225	993
34	BELLEVUE	2	1	696	241	1155
35	BELLEVUE	2	2	609	269	1054
36	BELLEVUE	3	1	572	265	1021
37	BELLEVUE	3	2	531	273	973
38	BEN AVON	0	1	276	135	482
39	BEN AVON	0	2	497	331	974
40	BEN AVON HT	0	1	123	166	326
41	BETHEL PARK	1	1	392	353	874
42	BETHEL PARK	1	2	436	280	823
43	BETHEL PARK	1	3	416	307	832
44	BETHEL PARK	2	1	300	364	731
45	BETHEL PARK	2	2	365	434	908
46	BETHEL PARK	2	3	511	452	1125

47	BETHEL PARK	3	1	330	362	791
48	BETHEL PARK	3	2	394	440	955
49	BETHEL PARK	3	3	437	496	1077
50	BETHEL PARK	4	1	587	541	1300
51	BETHEL PARK	4	2	408	301	793
52	BETHEL PARK	4	3	410	366	896
53	BETHEL PARK	5	1	287	224	612
54	BETHEL PARK	5	2	335	228	674
55	BETHEL PARK	5	3	678	570	1469
56	BETHEL PARK	6	1	555	581	1304
57	BETHEL PARK	6	2	447	374	966
58	BETHEL PARK	6	3	343	393	846
59	BETHEL PARK	7	1	490	520	1177
60	BETHEL PARK	7	2	500	486	1128
61	BETHEL PARK	7	3	346	305	771
62	BETHEL PARK	8	1	242	212	521
63	BETHEL PARK	8	2	313	185	553
64	BETHEL PARK	8	3	564	517	1244
65	BETHEL PARK	8	4	193	185	450
66	BETHEL PARK	9	1	237	275	575
67	BETHEL PARK	9	2	326	326	744
68	BETHEL PARK	9	3	520	687	1398
69	BLAWNOX	0	1	627	255	1072
70	BRACKENRIDGE	1	0	305	124	512
71	BRACKENRIDGE	2	0	446	224	791
72	BRACKENRIDGE	3	0	343	208	660
73	BRADDOCK	1	0	481	21	561
74	BRADDOCK	2	0	530	31	634
75	BRADDOCK	3	0	410	25	498
76	BRADDOCK HL	0	1	645	112	839
77	BRADDOCK HL	0	2	410	82	548
78	BRADFORDWOOD	0	1	360	504	1027
79	BRENTWOOD	0	1	288	197	550
80	BRENTWOOD	0	2	418	214	757
81	BRENTWOOD	0	3	330	153	581
82	BRENTWOOD	0	4	459	193	772
83	BRENTWOOD	0	5	439	166	739
84	BRENTWOOD	0	6	411	174	713
85	BRENTWOOD	0	7	415	224	775
86	BRENTWOOD	0	8	391	230	706
87	BRENTWOOD	0	9	343	167	592
88	BRENTWOOD	0	10	303	179	570
89	BRIDGEVILLE	0	1	437	281	825
90	BRIDGEVILLE	0	2	479	267	884
91	BRIDGEVILLE	0	3	429	325	863
92	BRIDGEVILLE	0	4	536	329	989
93	CARNEGIE	1	1	287	151	543
94	CARNEGIE	1	2	650	376	1239

95	CARNEGIE	1	3	527	231	866
96	CARNEGIE	1	4	260	65	397
97	CARNEGIE	2	1	376	178	679
98	CARNEGIE	2	2	313	145	527
99	CARNEGIE	2	3	282	142	485
100	CARNEGIE	2	4	563	235	969
101	CASL SHANNON	0	1	603	310	1118
102	CASL SHANNON	0	2	469	251	857
103	CASL SHANNON	0	3	454	255	841
104	CASL SHANNON	0	4	378	190	665
105	CASL SHANNON	0	5	392	164	650
106	CASL SHANNON	0	6	406	184	657
107	CASL SHANNON	0	7	444	207	757
108	CASL SHANNON	0	8	310	168	556
109	CHALFANT	0	1	375	149	589
110	CHESWICK	0	1	340	202	621
111	CHESWICK	0	2	350	230	648
112	CHURCHILL	0	1	440	202	705
113	CHURCHILL	0	2	442	186	728
114	CHURCHILL	0	3	379	214	674
115	CHURCHILL	0	4	359	240	687
116	CLAIRTON	1	1	280	57	392
117	CLAIRTON	1	2	290	69	408
118	CLAIRTON	1	3	220	78	344
119	CLAIRTON	2	1	127	3	139
120	CLAIRTON	2	2	282	14	329
121	CLAIRTON	2	3	375	36	465
122	CLAIRTON	3	1	321	87	458
123	CLAIRTON	3	2	306	57	396
124	CLAIRTON	3	3	314	44	429
125	CLAIRTON	4	1	357	21	405
126	CLAIRTON	4	2	322	35	395
127	CLAIRTON	4	3	280	96	434
128	COLLIER	0	1	548	523	1233
129	COLLIER	0	2	587	523	1279
130	COLLIER	0	3	676	427	1246
131	COLLIER	0	4	412	292	794
132	COLLIER	0	5	274	582	998
133	COLLIER	0	6	567	391	1139
134	CORAOPOLIS	1	1	320	81	466
135	CORAOPOLIS	1	2	315	133	527
136	CORAOPOLIS	2	0	561	172	832
137	CORAOPOLIS	3	1	343	175	600
138	CORAOPOLIS	3	2	330	191	606
139	CORAOPOLIS	4	1	261	126	458
140	CORAOPOLIS	4	2	325	138	541
141	CRAFTON	1	1	540	243	922
142	CRAFTON	1	2	359	161	626

143	CRAFTON	2	1	360	164	614
144	CRAFTON	2	2	504	179	821
145	CRAFTON	3	1	537	299	1012
146	CRAFTON	3	2	322	189	600
147	CRESCENT	1	0	526	450	1145
148	CRESCENT	2	0	310	264	680
149	DORMONT	0	1	444	198	746
150	DORMONT	0	2	298	168	548
151	DORMONT	0	3	579	210	960
152	DORMONT	0	4	406	179	675
153	DORMONT	0	5	627	258	1090
154	DORMONT	0	6	306	144	540
155	DORMONT	0	7	334	110	533
156	DORMONT	0	8	245	122	422
157	DORMONT	0	9	313	127	541
158	DORMONT	0	10	402	148	638
159	DRAVOSBURG	0	1	333	162	559
160	DRAVOSBURG	0	2	208	116	373
161	DRAVOSBURG	0	3	179	48	250
162	DUQUESNE	1	1	354	70	473
163	DUQUESNE	1	2	435	47	564
164	DUQUESNE	1	3	271	27	346
165	DUQUESNE	1	4	187	23	236
166	DUQUESNE	2	1	315	29	392
167	DUQUESNE	2	2	356	34	430
168	DUQUESNE	2	3	344	44	446
169	DUQUESNE	3	1	221	12	260
170	DUQUESNE	3	2	145	11	177
171	DUQUESNE	3	3	460	60	580
172	EAST DEER	1	0	185	85	313
173	EAST DEER	2	0	288	182	584
174	E MCKEESPORT	0	1	253	110	401
175	E MCKEESPORT	0	2	337	108	530
176	E MCKEESPORT	0	3	296	130	491
177	E PITTSBURGH	1	0	278	36	361
178	E PITTSBURGH	2	0	328	34	422
179	E PITTSBURGH	3	0	394	51	514
180	EDGEWOOD	0	1	736	154	1048
181	EDGEWOOD	0	2	641	190	965
182	EDGEWOOD	0	3	618	139	912
183	EDGEWORTH	0	1	231	354	714
184	EDGEWORTH	0	2	287	366	772
185	ELIZABETH BR	0	1	474	350	931
186	ELIZABETH TP	1	1	313	215	571
187	ELIZABETH TP	1	2	427	397	924
188	ELIZABETH TP	2	0	598	561	1271
189	ELIZABETH TP	3	0	689	518	1344
190	ELIZABETH TP	4	1	457	377	927

191	ELIZABETH TP	4	2	226	205	467
192	ELIZABETH TP	5	1	201	210	463
193	ELIZABETH TP	5	2	450	290	835
194	ELIZABETH TP	6	1	279	288	620
195	ELIZABETH TP	6	2	353	291	710
196	ELIZABETH TP	7	0	695	455	1274
197	EMSWORTH	0	1	409	271	796
198	EMSWORTH	0	2	500	297	962
199	ETNA	1	0	503	189	834
200	ETNA	2	0	435	156	719
201	ETNA	3	0	424	188	723
202	FAWN	0	1	242	236	551
203	FAWN	0	2	415	388	914
204	FINDLAY	0	1	571	608	1369
205	FINDLAY	0	2	800	726	1760
206	FINDLAY	0	3	559	486	1209
207	FOREST HILLS	0	1	380	179	636
208	FOREST HILLS	0	2	417	150	644
209	FOREST HILLS	0	3	381	195	653
210	FOREST HILLS	0	4	495	153	728
211	FOREST HILLS	0	5	429	187	712
212	FOREST HILLS	0	6	360	147	576
213	FOREST HILLS	0	7	526	137	780
214	FOREST HILLS	0	8	438	216	733
215	FORWARD	0	1	177	152	374
216	FORWARD	0	2	483	291	871
217	FORWARD	0	3	214	131	383
218	FORWARD	0	4	248	150	455
219	FOX CHAPEL	0	1	375	363	842
220	FOX CHAPEL	0	2	426	439	1027
221	FOX CHAPEL	0	3	299	350	757
222	FOX CHAPEL	0	4	534	500	1240
223	FOX CHAPEL	0	5	326	455	909
224	FRANKLIN PK	1	1	408	579	1193
225	FRANKLIN PK	1	2	446	625	1363
226	FRANKLIN PK	1	3	501	629	1356
227	FRANKLIN PK	2	1	401	475	1118
228	FRANKLIN PK	2	2	462	631	1304
229	FRANKLIN PK	2	3	501	639	1397
230	FRANKLIN PK	3	1	443	623	1285
231	FRANKLIN PK	3	2	289	371	799
232	FRANKLIN PK	3	3	449	616	1240
233	FRAZER	0	1	357	326	769
234	GLASSPORT	0	1	356	155	558
235	GLASSPORT	0	2	255	89	394
236	GLASSPORT	0	3	388	98	548
237	GLASSPORT	0	4	145	62	248
238	GLASSPORT	0	5	308	133	486

239	GLASSPORT	0	6	306	102	449
240	GLENFIELD	0	1	62	63	152
241	GREENTREE	0	1	418	263	779
242	GREENTREE	0	2	536	398	1079
243	GREENTREE	0	3	475	366	985
244	GREENTREE	0	4	468	281	870
245	HAMPTON	0	1	472	566	1219
246	HAMPTON	0	2	487	573	1238
247	HAMPTON	0	3	519	634	1339
248	HAMPTON	0	4	311	245	634
249	HAMPTON	0	5	318	280	703
250	HAMPTON	0	6	268	329	660
251	HAMPTON	0	7	464	704	1366
252	HAMPTON	0	8	395	420	953
253	HAMPTON	0	9	552	584	1291
254	HAMPTON	0	10	611	682	1528
255	HAMPTON	0	11	725	772	1704
256	HAMPTON	0	12	354	367	858
257	HAMPTON	0	13	341	318	770
258	HARMAR	0	1	636	561	1339
259	HARMAR	0	2	442	217	742
260	HARMAR	0	3	217	98	356
261	HARRISON	1	1	157	108	295
262	HARRISON	1	2	280	249	593
263	HARRISON	1	3	305	242	651
264	HARRISON	2	1	175	95	315
265	HARRISON	2	2	355	129	603
266	HARRISON	3	1	540	391	1034
267	HARRISON	3	2	319	217	622
268	HARRISON	4	1	340	252	683
269	HARRISON	4	2	312	196	582
270	HARRISON	5	1	325	118	530
271	HARRISON	5	2	406	297	819
272	HAYSVILLE	0	1	21	28	61
273	HEIDELBERG	0	1	526	239	894
274	HOMESTEAD	1	1	463	72	610
275	HOMESTEAD	1	2	330	19	388
276	HOMESTEAD	2	1	375	26	457
277	HOMESTEAD	2	2	279	14	313
278	HOMESTEAD	3	1	429	41	527
279	HOMESTEAD	3	2	285	16	336
280	INDIANA	0	1	407	438	992
281	INDIANA	0	2	369	366	877
282	INDIANA	0	3	562	452	1232
283	INDIANA	0	4	498	462	1136
284	INDIANA	0	5	426	374	930
285	INGRAM	0	1	483	206	810
286	INGRAM	0	2	407	160	653

287	INGRAM	0	3	562	262	934
288	JEFFERSON HL	0	1	726	701	1622
289	JEFFERSON HL	0	2	439	302	844
290	JEFFERSON HL	0	3	316	257	654
291	JEFFERSON HL	0	4	356	233	677
292	JEFFERSON HL	0	5	858	945	2072
293	JEFFERSON HL	0	6	437	422	952
294	JEFFERSON HL	0	7	161	159	373
295	JEFFERSON HL	0	8	568	476	1188
296	KENNEDY	0	1	1014	392	1536
297	KENNEDY	0	2	589	231	903
298	KENNEDY	0	3	685	259	1033
299	KENNEDY	0	4	329	78	432
300	KENNEDY	0	5	855	359	1352
301	KENNEDY	0	6	586	216	884
302	KENNEDY	0	7	366	138	544
303	KILBUCK	0	1	257	278	606
304	LEET	0	1	207	141	412
305	LEET	0	2	300	378	785
306	LEETSDALE	0	1	498	267	872
307	LIBERTY	0	1	520	297	932
308	LIBERTY	0	2	441	252	757
309	LINCOLN	0	1	357	272	695
310	MARSHALL	0	1	282	467	909
311	MARSHALL	0	2	313	606	1111
312	MARSHALL	0	3	267	420	836
313	MARSHALL	0	4	390	545	1138
314	MARSHALL	0	5	611	801	1741
315	MARSHALL	0	6	334	485	1007
316	MCCANDLESS	1	1	342	594	1132
317	MCCANDLESS	1	2	441	336	939
318	MCCANDLESS	1	3	502	542	1277
319	MCCANDLESS	2	1	596	604	1452
320	MCCANDLESS	2	2	327	444	890
321	MCCANDLESS	2	3	364	369	881
322	MCCANDLESS	3	1	429	402	965
323	MCCANDLESS	3	2	439	481	1088
324	MCCANDLESS	3	3	426	498	1079
325	MCCANDLESS	4	1	666	661	1531
326	MCCANDLESS	4	2	444	368	946
327	MCCANDLESS	4	3	264	379	731
328	MCCANDLESS	5	1	320	412	848
329	MCCANDLESS	5	2	557	584	1341
330	MCCANDLESS	5	3	445	364	957
331	MCCANDLESS	6	1	213	205	490
332	MCCANDLESS	6	2	457	451	1053
333	MCCANDLESS	6	3	741	849	1875
334	MCCANDLESS	7	1	648	724	1622

335	MCCANDLESS	7	2	409	429	983
336	MCCANDLESS	7	3	217	240	522
337	MCDONALD	0	5	94	84	209
338	MCKEESPORT	1	0	12	3	17
339	MCKEESPORT	2	0	212	21	266
340	MCKEESPORT	3	1	244	16	298
341	MCKEESPORT	3	2	103	3	121
342	MCKEESPORT	4	0	254	14	326
343	MCKEESPORT	5	0	418	63	545
344	MCKEESPORT	6	1	303	47	399
345	MCKEESPORT	6	2	255	26	334
346	MCKEESPORT	7	1	427	43	502
347	MCKEESPORT	7	2	275	9	300
348	MCKEESPORT	7	3	283	42	359
349	MCKEESPORT	7	4	400	33	486
350	MCKEESPORT	7	5	431	61	565
351	MCKEESPORT	7	6	372	64	487
352	MCKEESPORT	7	7	330	20	383
353	MCKEESPORT	8	1	203	53	302
354	MCKEESPORT	8	2	376	95	524
355	MCKEESPORT	8	3	458	68	586
356	MCKEESPORT	8	4	288	125	466
357	MCKEESPORT	8	5	439	40	564
358	MCKEESPORT	8	6	131	55	213
359	MCKEESPORT	9	1	322	90	469
360	MCKEESPORT	9	2	411	97	585
361	MCKEESPORT	9	3	323	71	444
362	MCKEESPORT	10	1	225	70	350
363	MCKEESPORT	10	2	217	69	332
364	MCKEESPORT	11	1	340	77	460
365	MCKEESPORT	11	2	275	91	412
366	MCKEESPORT	11	3	208	45	269
367	MCKEESPORT	12	1	217	66	317
368	MCKEESPORT	12	2	241	103	373
369	MCKEESPORT	12	3	377	140	558
370	MCKEES ROCKS	1	1	209	15	267
371	MCKEES ROCKS	1	2	451	66	580
372	MCKEES ROCKS	2	1	550	78	719
373	MCKEES ROCKS	2	2	456	89	646
374	MCKEES ROCKS	3	1	504	137	732
375	MCKEES ROCKS	3	2	446	71	604
376	MCKEES ROCKS	3	3	426	71	562
377	MILLVALE	0	1	367	103	574
378	MILLVALE	0	2	262	114	459
379	MILLVALE	0	3	306	88	471
380	MILLVALE	0	4	261	105	450
381	MILLVALE	0	5	380	107	554
382	MONROEVILLE	1	1	422	157	691

383	MONROEVILLE	1	2	318	251	652
384	MONROEVILLE	1	3	428	286	816
385	MONROEVILLE	1	4	591	181	914
386	MONROEVILLE	2	1	466	326	896
387	MONROEVILLE	2	2	503	359	991
388	MONROEVILLE	2	3	529	403	1092
389	MONROEVILLE	3	1	564	493	1208
390	MONROEVILLE	3	2	327	235	653
391	MONROEVILLE	3	3	519	341	992
392	MONROEVILLE	3	4	186	180	431
393	MONROEVILLE	4	1	350	242	688
394	MONROEVILLE	4	2	540	390	1091
395	MONROEVILLE	4	3	505	312	945
396	MONROEVILLE	5	1	343	183	604
397	MONROEVILLE	5	2	567	221	941
398	MONROEVILLE	5	3	479	307	914
399	MONROEVILLE	5	4	367	193	698
400	MONROEVILLE	6	1	483	248	819
401	MONROEVILLE	6	2	496	231	853
402	MONROEVILLE	6	3	652	279	1116
403	MONROEVILLE	6	4	231	85	358
404	MONROEVILLE	7	1	856	343	1363
405	MONROEVILLE	7	2	540	181	832
406	MONROEVILLE	7	3	359	190	625
407	MOON	0	1	716	530	1601
408	MOON	0	2	765	845	1872
409	MOON	0	3	778	487	1513
410	MOON	0	4	343	310	777
411	MOON	0	5	992	1091	2468
412	MOON	0	6	955	1011	2325
413	MOON	0	7	781	531	1586
414	MOON	0	8	517	361	997
415	MOON	0	9	817	888	2018
416	MOON	0	10	360	283	783
417	MOON	0	11	522	633	1343
418	MOON	0	12	477	428	1033
419	MOON	0	13	310	322	732
420	MT LEBANON	1	1	321	394	856
421	MT LEBANON	1	2	405	182	719
422	MT LEBANON	1	3	364	220	683
423	MT LEBANON	1	4	382	277	803
424	MT LEBANON	1	5	320	217	619
425	MT LEBANON	1	6	494	446	1096
426	MT LEBANON	1	7	458	219	797
427	MT LEBANON	2	1	480	359	990
428	MT LEBANON	2	2	321	210	617
429	MT LEBANON	2	3	378	244	737
430	MT LEBANON	2	4	289	195	560

431	MT LEBANON	2	5	306	207	594
432	MT LEBANON	2	6	296	186	559
433	MT LEBANON	2	7	332	222	654
434	MT LEBANON	2	8	514	378	1017
435	MT LEBANON	3	1	329	256	675
436	MT LEBANON	3	2	472	286	906
437	MT LEBANON	3	3	300	323	713
438	MT LEBANON	3	4	370	277	776
439	MT LEBANON	3	5	339	268	716
440	MT LEBANON	3	6	245	150	480
441	MT LEBANON	3	7	401	350	857
442	MT LEBANON	3	8	160	128	338
443	MT LEBANON	4	1	416	244	805
444	MT LEBANON	4	2	488	289	925
445	MT LEBANON	4	3	403	247	750
446	MT LEBANON	4	4	353	242	688
447	MT LEBANON	4	5	303	233	634
448	MT LEBANON	4	6	352	212	686
449	MT LEBANON	4	7	447	265	822
450	MT LEBANON	5	1	361	190	650
451	MT LEBANON	5	2	286	105	470
452	MT LEBANON	5	3	324	179	619
453	MT LEBANON	5	4	304	201	600
454	MT LEBANON	5	5	353	199	642
455	MT LEBANON	5	6	262	152	492
456	MT LEBANON	5	7	435	242	808
457	MT LEBANON	5	8	600	245	1033
458	MT OLIVER	0	1	534	81	747
459	MT OLIVER	0	2	570	80	767
460	MT OLIVER	0	3	353	62	505
461	MT OLIVER	0	4	252	35	347
462	MUNHALL	0	1	309	120	528
463	MUNHALL	0	2	363	64	505
464	MUNHALL	0	3	403	43	528
465	MUNHALL	0	4	314	64	436
466	MUNHALL	0	5	502	175	749
467	MUNHALL	0	6	466	152	703
468	MUNHALL	0	7	802	261	1169
469	MUNHALL	0	8	406	166	635
470	MUNHALL	0	9	485	133	703
471	MUNHALL	0	10	346	107	514
472	MUNHALL	0	11	594	272	949
473	MUNHALL	0	12	373	148	575
474	NEVILLE	1	0	162	84	279
475	NEVILLE	2	0	143	58	246
476	NEVILLE	3	0	161	72	264
477	N BRADDOCK	1	1	167	32	217
478	N BRADDOCK	1	2	407	61	547

479	N BRADDOCK	1	3	416	72	559
480	N BRADDOCK	2	1	361	40	450
481	N BRADDOCK	2	2	489	48	608
482	N BRADDOCK	3	1	372	21	441
483	N BRADDOCK	3	2	445	32	545
484	N FAYETTE	0	1	957	856	2086
485	N FAYETTE	0	2	1186	949	2565
486	N FAYETTE	0	3	1142	996	2506
487	N FAYETTE	0	4	535	380	1088
488	N FAYETTE	0	5	1094	1106	2586
489	N VERSAILLES	1	1	392	182	663
490	N VERSAILLES	1	2	394	190	655
491	N VERSAILLES	2	1	407	169	650
492	N VERSAILLES	2	2	140	43	204
493	N VERSAILLES	3	1	324	148	518
494	N VERSAILLES	3	2	366	180	613
495	N VERSAILLES	4	1	309	133	502
496	N VERSAILLES	4	2	242	125	405
497	N VERSAILLES	5	1	375	88	553
498	N VERSAILLES	5	2	267	92	410
499	N VERSAILLES	6	1	390	199	653
500	N VERSAILLES	6	2	327	158	550
501	N VERSAILLES	7	0	558	78	711
502	OAKDALE	0	1	322	187	593
503	OAKDALE	0	2	258	150	454
504	OAKMONT	0	1	423	328	882
505	OAKMONT	0	2	450	508	1077
506	OAKMONT	0	3	412	257	768
507	OAKMONT	0	4	444	341	900
508	OAKMONT	0	5	362	255	747
509	OAKMONT	0	6	592	416	1179
510	OHARA	1	1	518	410	1098
511	OHARA	1	2	345	219	665
512	OHARA	2	1	332	187	597
513	OHARA	2	2	453	363	940
514	OHARA	3	1	348	242	679
515	OHARA	3	2	328	191	601
516	OHARA	4	1	306	205	572
517	OHARA	4	2	466	204	784
518	OHARA	5	1	377	268	756
519	OHARA	5	2	456	276	874
520	OHIO	0	1	494	728	1439
521	OHIO	0	2	762	733	1705
522	OHIO	0	3	866	801	2008
523	GLEN OSBORNE	0	1	200	189	458
524	PENN HILLS	1	1	672	36	767
525	PENN HILLS	1	2	655	47	765
526	PENN HILLS	1	3	492	24	561

527	PENN HILLS	1	4	301	18	351
528	PENN HILLS	1	5	212	8	241
529	PENN HILLS	2	1	661	41	790
530	PENN HILLS	2	2	641	45	765
531	PENN HILLS	2	3	701	95	892
532	PENN HILLS	2	4	462	85	605
533	PENN HILLS	3	1	462	230	791
534	PENN HILLS	3	2	387	73	518
535	PENN HILLS	3	3	483	110	671
536	PENN HILLS	3	4	637	123	850
537	PENN HILLS	3	5	344	70	480
538	PENN HILLS	3	6	328	115	493
539	PENN HILLS	4	1	404	108	585
540	PENN HILLS	4	2	541	131	742
541	PENN HILLS	4	3	507	157	770
542	PENN HILLS	4	4	421	106	616
543	PENN HILLS	4	5	418	114	612
544	PENN HILLS	5	1	510	144	738
545	PENN HILLS	5	2	424	127	641
546	PENN HILLS	5	3	442	190	702
547	PENN HILLS	5	4	404	175	641
548	PENN HILLS	5	5	329	123	519
549	PENN HILLS	5	6	441	200	744
550	PENN HILLS	6	1	358	155	607
551	PENN HILLS	6	2	459	132	667
552	PENN HILLS	6	3	384	109	541
553	PENN HILLS	6	4	485	53	611
554	PENN HILLS	6	5	446	101	619
555	PENN HILLS	6	6	404	123	588
556	PENN HILLS	7	1	490	99	670
557	PENN HILLS	7	2	423	153	673
558	PENN HILLS	7	3	625	176	912
559	PENN HILLS	7	4	396	156	620
560	PENN HILLS	7	5	437	182	705
561	PENN HILLS	7	6	495	172	753
562	PENN HILLS	7	7	442	190	725
563	PENN HILLS	8	1	376	193	648
564	PENN HILLS	8	2	314	172	558
565	PENN HILLS	8	3	280	180	528
566	PENN HILLS	8	4	362	202	634
567	PENN HILLS	8	5	572	266	948
568	PENN HILLS	8	6	270	145	473
569	PENN HILLS	9	1	273	174	507
570	PENN HILLS	9	2	311	179	548
571	PENN HILLS	9	3	468	243	823
572	PENN HILLS	9	4	328	175	596
573	PENN HILLS	9	5	270	28	324
574	PINE	0	1	348	718	1309

575	PINE	0	2	492	1042	1860
576	PINE	0	3	177	216	449
577	PINE	0	4	423	661	1309
578	PINE	0	5	569	905	1827
579	PINE	0	6	179	391	689
580	PINE	0	7	517	696	1464
581	PINE	0	8	329	633	1135
582	PITCAIRN	0	1	633	212	980
583	PITCAIRN	0	2	338	108	521
584	PITCAIRN	0	3	412	182	665
585	PITTSBURGH	1	1	2202	850	4130
586	PITTSBURGH	1	2	527	72	704
587	PITTSBURGH	2	1	1172	535	2163
588	PITTSBURGH	2	2	593	342	1219
589	PITTSBURGH	3	1	266	7	293
590	PITTSBURGH	3	2	619	22	690
591	PITTSBURGH	3	3	324	13	371
592	PITTSBURGH	3	4	402	82	595
593	PITTSBURGH	3	5	388	30	484
594	PITTSBURGH	4	1	241	32	332
595	PITTSBURGH	4	2	592	80	823
596	PITTSBURGH	4	3	331	10	374
597	PITTSBURGH	4	4	205	13	251
598	PITTSBURGH	4	5	698	201	1205
599	PITTSBURGH	4	6	661	130	1009
600	PITTSBURGH	4	7	1814	585	3307
601	PITTSBURGH	4	8	2454	976	4722
602	PITTSBURGH	4	9	567	103	808
603	PITTSBURGH	4	10	409	70	637
604	PITTSBURGH	4	11	447	78	604
605	PITTSBURGH	4	12	466	78	720
606	PITTSBURGH	4	13	625	108	945
607	PITTSBURGH	4	14	1138	282	1795
608	PITTSBURGH	4	15	699	151	1090
609	PITTSBURGH	4	16	1017	251	1632
610	PITTSBURGH	4	17	526	59	695
611	PITTSBURGH	4	18	389	61	549
612	PITTSBURGH	4	19	209	37	321
613	PITTSBURGH	5	1	240	7	277
614	PITTSBURGH	5	2	340	12	376
615	PITTSBURGH	5	3	151	3	165
616	PITTSBURGH	5	4	272	9	306
617	PITTSBURGH	5	5	211	6	233
618	PITTSBURGH	5	6	492	29	589
619	PITTSBURGH	5	7	396	10	441
620	PITTSBURGH	5	8	390	17	459
621	PITTSBURGH	5	9	810	146	1173
622	PITTSBURGH	5	10	401	21	475

623	PITTSBURGH	5	11	345	9	403
624	PITTSBURGH	5	12	374	15	423
625	PITTSBURGH	5	13	252	11	281
626	PITTSBURGH	5	14	270	8	294
627	PITTSBURGH	5	15	238	8	274
628	PITTSBURGH	5	16	197	8	227
629	PITTSBURGH	5	17	214	12	256
630	PITTSBURGH	5	18	37	7	51
631	PITTSBURGH	6	1	709	143	1035
632	PITTSBURGH	6	2	468	75	662
633	PITTSBURGH	6	3	599	84	829
634	PITTSBURGH	6	4	450	64	598
635	PITTSBURGH	6	5	385	46	508
636	PITTSBURGH	7	1	461	73	698
637	PITTSBURGH	7	2	672	207	1108
638	PITTSBURGH	7	3	563	105	835
639	PITTSBURGH	7	4	740	167	1185
640	PITTSBURGH	7	5	495	127	809
641	PITTSBURGH	7	6	486	127	757
642	PITTSBURGH	7	7	561	111	812
643	PITTSBURGH	7	8	485	115	784
644	PITTSBURGH	7	9	550	128	863
645	PITTSBURGH	7	10	718	177	1111
646	PITTSBURGH	7	11	788	200	1262
647	PITTSBURGH	7	12	651	166	1071
648	PITTSBURGH	7	13	383	78	618
649	PITTSBURGH	7	14	304	89	497
650	PITTSBURGH	8	1	278	50	382
651	PITTSBURGH	8	2	477	65	646
652	PITTSBURGH	8	3	628	101	904
653	PITTSBURGH	8	4	536	108	810
654	PITTSBURGH	8	5	427	85	628
655	PITTSBURGH	8	6	311	56	452
656	PITTSBURGH	8	7	637	72	861
657	PITTSBURGH	8	8	528	75	699
658	PITTSBURGH	8	9	576	88	870
659	PITTSBURGH	8	10	545	64	718
660	PITTSBURGH	8	11	524	84	721
661	PITTSBURGH	8	12	504	45	667
662	PITTSBURGH	8	13	451	32	580
663	PITTSBURGH	9	1	419	75	606
664	PITTSBURGH	9	2	455	74	630
665	PITTSBURGH	9	3	465	72	646
666	PITTSBURGH	9	4	487	79	677
667	PITTSBURGH	9	5	537	75	721
668	PITTSBURGH	9	6	454	63	593
669	PITTSBURGH	9	7	353	41	476
670	PITTSBURGH	9	8	528	77	736

671	PITTSBURGH	9	9	482	72	679
672	PITTSBURGH	10	1	436	59	599
673	PITTSBURGH	10	2	482	62	652
674	PITTSBURGH	10	3	523	70	728
675	PITTSBURGH	10	4	443	43	543
676	PITTSBURGH	10	5	395	61	511
677	PITTSBURGH	10	6	379	67	509
678	PITTSBURGH	10	7	427	98	611
679	PITTSBURGH	10	8	438	97	597
680	PITTSBURGH	10	9	386	89	544
681	PITTSBURGH	10	10	488	68	618
682	PITTSBURGH	10	11	472	79	630
683	PITTSBURGH	10	12	499	29	578
684	PITTSBURGH	10	13	478	34	561
685	PITTSBURGH	10	14	473	50	566
686	PITTSBURGH	10	15	325	15	372
687	PITTSBURGH	10	16	315	22	368
688	PITTSBURGH	10	17	436	37	545
689	PITTSBURGH	10	18	469	23	571
690	PITTSBURGH	10	19	403	26	488
691	PITTSBURGH	11	1	483	59	651
692	PITTSBURGH	11	2	515	24	617
693	PITTSBURGH	11	3	423	21	490
694	PITTSBURGH	11	4	475	30	582
695	PITTSBURGH	11	5	486	37	606
696	PITTSBURGH	11	6	735	60	939
697	PITTSBURGH	11	7	501	94	694
698	PITTSBURGH	11	8	489	80	660
699	PITTSBURGH	11	9	520	55	662
700	PITTSBURGH	11	10	458	67	593
701	PITTSBURGH	11	11	532	70	718
702	PITTSBURGH	11	12	581	56	725
703	PITTSBURGH	11	13	556	51	707
704	PITTSBURGH	11	14	546	25	639
705	PITTSBURGH	11	15	247	9	289
706	PITTSBURGH	11	16	491	60	649
707	PITTSBURGH	11	17	617	40	747
708	PITTSBURGH	11	18	451	55	583
709	PITTSBURGH	12	1	189	24	259
710	PITTSBURGH	12	2	283	14	334
711	PITTSBURGH	12	3	156	6	184
712	PITTSBURGH	12	4	304	8	343
713	PITTSBURGH	12	5	147	7	182
714	PITTSBURGH	12	6	219	8	254
715	PITTSBURGH	12	7	287	13	342
716	PITTSBURGH	12	8	201	6	233
717	PITTSBURGH	12	9	323	6	349
718	PITTSBURGH	12	10	421	7	465

719	PITTSBURGH	12	11	435	13	491
720	PITTSBURGH	12	12	594	47	768
721	PITTSBURGH	12	13	367	15	420
722	PITTSBURGH	12	14	311	9	358
723	PITTSBURGH	12	15	509	16	574
724	PITTSBURGH	12	16	369	15	407
725	PITTSBURGH	13	1	266	7	309
726	PITTSBURGH	13	2	379	9	413
727	PITTSBURGH	13	3	296	11	338
728	PITTSBURGH	13	4	295	12	336
729	PITTSBURGH	13	5	312	12	362
730	PITTSBURGH	13	6	340	6	389
731	PITTSBURGH	13	7	367	18	430
732	PITTSBURGH	13	8	264	9	302
733	PITTSBURGH	13	9	264	11	311
734	PITTSBURGH	13	10	191	11	226
735	PITTSBURGH	13	11	390	9	456
736	PITTSBURGH	13	12	382	13	445
737	PITTSBURGH	13	13	262	9	304
738	PITTSBURGH	13	14	245	15	298
739	PITTSBURGH	13	15	290	15	333
740	PITTSBURGH	13	16	295	9	333
741	PITTSBURGH	13	17	773	36	930
742	PITTSBURGH	13	18	211	10	256
743	PITTSBURGH	13	19	445	10	487
744	PITTSBURGH	14	1	518	82	778
745	PITTSBURGH	14	2	1001	151	1621
746	PITTSBURGH	14	3	675	113	946
747	PITTSBURGH	14	4	579	63	759
748	PITTSBURGH	14	5	586	113	840
749	PITTSBURGH	14	6	475	117	741
750	PITTSBURGH	14	7	2530	360	4341
751	PITTSBURGH	14	8	552	90	811
752	PITTSBURGH	14	9	595	120	817
753	PITTSBURGH	14	10	520	90	721
754	PITTSBURGH	14	11	600	110	856
755	PITTSBURGH	14	12	629	61	843
756	PITTSBURGH	14	13	631	56	792
757	PITTSBURGH	14	14	663	105	892
758	PITTSBURGH	14	15	621	67	816
759	PITTSBURGH	14	16	390	78	534
760	PITTSBURGH	14	17	373	47	479
761	PITTSBURGH	14	18	612	92	807
762	PITTSBURGH	14	19	502	54	619
763	PITTSBURGH	14	20	494	70	679
764	PITTSBURGH	14	21	457	79	615
765	PITTSBURGH	14	22	560	76	753
766	PITTSBURGH	14	23	542	86	729

767	PITTSBURGH	14	24	446	64	613
768	PITTSBURGH	14	25	683	144	1002
769	PITTSBURGH	14	26	444	95	642
770	PITTSBURGH	14	27	393	99	557
771	PITTSBURGH	14	28	376	118	554
772	PITTSBURGH	14	29	569	103	799
773	PITTSBURGH	14	30	516	86	701
774	PITTSBURGH	14	31	780	172	1150
775	PITTSBURGH	14	32	555	87	827
776	PITTSBURGH	14	33	550	137	848
777	PITTSBURGH	14	34	540	165	887
778	PITTSBURGH	14	35	481	73	647
779	PITTSBURGH	14	36	623	106	879
780	PITTSBURGH	14	37	430	113	690
781	PITTSBURGH	14	38	426	87	601
782	PITTSBURGH	14	39	432	86	631
783	PITTSBURGH	14	40	375	59	569
784	PITTSBURGH	14	41	60	7	79
785	PITTSBURGH	15	1	466	79	634
786	PITTSBURGH	15	2	508	113	760
787	PITTSBURGH	15	3	433	81	645
788	PITTSBURGH	15	4	457	96	668
789	PITTSBURGH	15	5	414	97	614
790	PITTSBURGH	15	6	372	84	547
791	PITTSBURGH	15	7	517	102	733
792	PITTSBURGH	15	8	428	85	629
793	PITTSBURGH	15	9	135	25	178
794	PITTSBURGH	15	10	444	99	645
795	PITTSBURGH	15	11	400	104	584
796	PITTSBURGH	15	12	361	56	495
797	PITTSBURGH	15	13	396	33	486
798	PITTSBURGH	15	14	260	26	314
799	PITTSBURGH	15	15	305	35	398
800	PITTSBURGH	15	16	464	36	555
801	PITTSBURGH	15	17	25	0	30
802	PITTSBURGH	15	18	448	49	572
803	PITTSBURGH	15	19	410	38	507
804	PITTSBURGH	16	1	546	182	916
805	PITTSBURGH	16	2	729	281	1284
806	PITTSBURGH	16	3	538	195	923
807	PITTSBURGH	16	4	301	60	431
808	PITTSBURGH	16	5	395	115	632
809	PITTSBURGH	16	6	330	85	489
810	PITTSBURGH	16	7	300	49	407
811	PITTSBURGH	16	8	153	9	192
812	PITTSBURGH	16	9	393	66	542
813	PITTSBURGH	16	10	296	52	405
814	PITTSBURGH	16	11	302	48	410

815	PITTSBURGH	17	1	114	40	187
816	PITTSBURGH	17	2	491	210	904
817	PITTSBURGH	17	3	401	139	667
818	PITTSBURGH	17	4	468	188	826
819	PITTSBURGH	17	5	354	141	599
820	PITTSBURGH	17	6	299	66	457
821	PITTSBURGH	17	7	267	73	412
822	PITTSBURGH	17	8	293	90	461
823	PITTSBURGH	18	1	416	95	570
824	PITTSBURGH	18	2	389	21	449
825	PITTSBURGH	18	3	345	10	382
826	PITTSBURGH	18	4	403	20	468
827	PITTSBURGH	18	5	628	186	976
828	PITTSBURGH	18	6	304	46	405
829	PITTSBURGH	18	7	293	77	454
830	PITTSBURGH	18	8	199	25	269
831	PITTSBURGH	18	9	527	80	726
832	PITTSBURGH	18	10	38	25	77
833	PITTSBURGH	18	11	414	61	567
834	PITTSBURGH	19	1	341	123	550
835	PITTSBURGH	19	2	409	185	720
836	PITTSBURGH	19	3	335	161	590
837	PITTSBURGH	19	4	252	124	441
838	PITTSBURGH	19	5	247	114	447
839	PITTSBURGH	19	6	309	132	532
840	PITTSBURGH	19	7	111	55	231
841	PITTSBURGH	19	8	341	153	603
842	PITTSBURGH	19	9	333	116	554
843	PITTSBURGH	19	10	460	117	724
844	PITTSBURGH	19	11	350	93	550
845	PITTSBURGH	19	12	297	94	438
846	PITTSBURGH	19	13	320	88	492
847	PITTSBURGH	19	14	376	96	574
848	PITTSBURGH	19	15	412	112	640
849	PITTSBURGH	19	16	431	64	593
850	PITTSBURGH	19	17	384	112	567
851	PITTSBURGH	19	18	346	51	488
852	PITTSBURGH	19	19	375	86	547
853	PITTSBURGH	19	20	342	100	518
854	PITTSBURGH	19	21	439	109	645
855	PITTSBURGH	19	22	372	99	548
856	PITTSBURGH	19	23	407	127	632
857	PITTSBURGH	19	24	328	94	490
858	PITTSBURGH	19	25	368	94	535
859	PITTSBURGH	19	26	315	86	477
860	PITTSBURGH	19	27	308	104	466
861	PITTSBURGH	19	28	424	145	655
862	PITTSBURGH	19	29	334	117	540

863	PITTSBURGH	19	30	372	98	533
864	PITTSBURGH	19	31	324	109	498
865	PITTSBURGH	19	32	343	97	530
866	PITTSBURGH	19	33	324	87	466
867	PITTSBURGH	19	34	346	112	524
868	PITTSBURGH	19	35	350	110	522
869	PITTSBURGH	19	36	461	126	664
870	PITTSBURGH	19	37	288	97	453
871	PITTSBURGH	19	38	371	93	541
872	PITTSBURGH	20	1	387	162	635
873	PITTSBURGH	20	2	133	55	235
874	PITTSBURGH	20	3	455	153	697
875	PITTSBURGH	20	4	47	12	70
876	PITTSBURGH	20	5	408	95	578
877	PITTSBURGH	20	6	401	73	561
878	PITTSBURGH	20	7	539	76	705
879	PITTSBURGH	20	8	533	102	732
880	PITTSBURGH	20	9	162	21	216
881	PITTSBURGH	20	10	501	71	658
882	PITTSBURGH	20	11	530	68	695
883	PITTSBURGH	20	12	728	102	962
884	PITTSBURGH	20	13	395	34	469
885	PITTSBURGH	20	14	653	146	900
886	PITTSBURGH	20	15	540	214	960
887	PITTSBURGH	20	16	410	172	665
888	PITTSBURGH	20	17	284	90	430
889	PITTSBURGH	20	18	325	138	520
890	PITTSBURGH	21	1	413	27	489
891	PITTSBURGH	21	2	399	26	474
892	PITTSBURGH	21	3	584	31	689
893	PITTSBURGH	21	4	510	54	649
894	PITTSBURGH	22	1	516	115	743
895	PITTSBURGH	22	2	500	106	706
896	PITTSBURGH	22	3	544	71	731
897	PITTSBURGH	22	4	571	118	876
898	PITTSBURGH	23	1	786	259	1292
899	PITTSBURGH	23	2	579	126	834
900	PITTSBURGH	23	3	299	67	431
901	PITTSBURGH	24	1	308	62	429
902	PITTSBURGH	24	2	311	62	437
903	PITTSBURGH	24	3	276	48	374
904	PITTSBURGH	24	4	383	135	624
905	PITTSBURGH	24	5	364	79	550
906	PITTSBURGH	24	6	397	83	553
907	PITTSBURGH	25	1	344	31	444
908	PITTSBURGH	25	2	339	38	444
909	PITTSBURGH	25	3	443	63	587
910	PITTSBURGH	25	4	305	17	367

911	PITTSBURGH	25	5	294	45	385
912	PITTSBURGH	25	6	336	18	404
913	PITTSBURGH	25	7	311	57	422
914	PITTSBURGH	26	1	503	28	579
915	PITTSBURGH	26	2	441	22	507
916	PITTSBURGH	26	3	353	43	454
917	PITTSBURGH	26	4	343	34	435
918	PITTSBURGH	26	5	452	29	543
919	PITTSBURGH	26	6	350	16	409
920	PITTSBURGH	26	7	279	20	329
921	PITTSBURGH	26	8	529	58	670
922	PITTSBURGH	26	9	261	46	353
923	PITTSBURGH	26	10	534	75	689
924	PITTSBURGH	26	11	574	66	737
925	PITTSBURGH	26	12	350	62	504
926	PITTSBURGH	26	13	419	94	583
927	PITTSBURGH	26	14	419	131	591
928	PITTSBURGH	26	15	322	114	506
929	PITTSBURGH	26	16	542	102	736
930	PITTSBURGH	26	17	141	43	208
931	PITTSBURGH	27	1	532	154	783
932	PITTSBURGH	27	2	444	145	678
933	PITTSBURGH	27	3	408	104	581
934	PITTSBURGH	27	4	510	138	760
935	PITTSBURGH	27	5	521	124	736
936	PITTSBURGH	27	6	558	111	786
937	PITTSBURGH	27	7	457	101	645
938	PITTSBURGH	27	8	442	88	610
939	PITTSBURGH	27	9	464	67	624
940	PITTSBURGH	27	10	505	63	645
941	PITTSBURGH	27	11	499	74	660
942	PITTSBURGH	27	12	411	63	561
943	PITTSBURGH	27	13	468	60	595
944	PITTSBURGH	28	1	416	174	691
945	PITTSBURGH	28	2	364	83	546
946	PITTSBURGH	28	3	537	216	884
947	PITTSBURGH	28	4	450	143	662
948	PITTSBURGH	28	5	462	140	696
949	PITTSBURGH	28	6	399	109	589
950	PITTSBURGH	28	7	520	80	710
951	PITTSBURGH	28	8	581	175	849
952	PITTSBURGH	28	9	492	80	631
953	PITTSBURGH	28	10	327	118	544
954	PITTSBURGH	28	11	116	10	141
955	PITTSBURGH	29	1	435	119	645
956	PITTSBURGH	29	2	375	102	560
957	PITTSBURGH	29	3	319	84	468
958	PITTSBURGH	29	4	348	111	549

959	PITTSBURGH	29	5	397	90	584
960	PITTSBURGH	29	6	401	136	615
961	PITTSBURGH	29	7	466	132	693
962	PITTSBURGH	29	8	351	95	551
963	PITTSBURGH	29	9	321	76	472
964	PITTSBURGH	29	10	386	101	546
965	PITTSBURGH	29	11	445	111	654
966	PITTSBURGH	29	12	379	109	583
967	PITTSBURGH	30	1	360	30	445
968	PITTSBURGH	30	2	345	23	428
969	PITTSBURGH	30	3	289	35	373
970	PITTSBURGH	30	4	462	61	614
971	PITTSBURGH	30	5	524	70	681
972	PITTSBURGH	31	1	151	46	228
973	PITTSBURGH	31	2	284	108	433
974	PITTSBURGH	31	3	343	149	560
975	PITTSBURGH	31	4	362	140	562
976	PITTSBURGH	31	5	458	167	708
977	PITTSBURGH	31	6	324	178	556
978	PITTSBURGH	31	7	115	15	142
979	PITTSBURGH	32	1	276	143	498
980	PITTSBURGH	32	2	394	151	646
981	PITTSBURGH	32	3	349	104	521
982	PITTSBURGH	32	4	247	71	363
983	PITTSBURGH	32	5	382	120	585
984	PITTSBURGH	32	6	393	153	617
985	PITTSBURGH	32	7	348	121	543
986	PITTSBURGH	32	8	411	177	668
987	PLEASANT HL	0	1	380	269	756
988	PLEASANT HL	0	2	271	207	554
989	PLEASANT HL	0	3	271	215	559
990	PLEASANT HL	0	4	298	172	550
991	PLEASANT HL	0	5	412	262	745
992	PLEASANT HL	0	6	444	406	960
993	PLEASANT HL	0	7	266	194	528
994	PLEASANT HL	0	8	238	238	534
995	PLEASANT HL	0	9	295	276	647
996	PLEASANT HL	0	10	230	213	507
997	PLUM	0	1	794	769	1787
998	PLUM	0	2	282	231	601
999	PLUM	0	3	417	477	971
1000	PLUM	0	4	401	346	827
1001	PLUM	0	5	466	306	885
1002	PLUM	0	6	575	530	1270
1003	PLUM	0	7	634	477	1260
1004	PLUM	0	8	274	236	582
1005	PLUM	0	9	562	446	1103
1006	PLUM	0	10	238	240	580

1007	PLUM	0	11	405	299	805
1008	PLUM	0	12	524	416	1071
1009	PLUM	0	13	246	246	561
1010	PLUM	0	14	366	282	757
1011	PLUM	0	15	376	276	803
1012	PLUM	0	16	273	252	588
1013	PLUM	0	17	382	226	710
1014	PLUM	0	18	396	320	822
1015	PLUM	0	19	865	828	1932
1016	PLUM	0	20	426	337	875
1017	PLUM	0	21	178	180	413
1018	PORT VUE	0	1	360	166	596
1019	PORT VUE	0	2	306	161	530
1020	PORT VUE	0	3	352	150	546
1021	PORT VUE	0	4	399	212	692
1022	RANKIN	1	0	315	20	376
1023	RANKIN	2	0	368	24	439
1024	RANKIN	3	0	557	31	665
1025	RESERVE	1	0	351	117	543
1026	RESERVE	2	0	329	154	571
1027	RESERVE	3	0	299	137	528
1028	RESERVE	4	0	491	255	863
1029	RICHLAND	0	1	399	521	1085
1030	RICHLAND	0	2	437	544	1156
1031	RICHLAND	0	3	441	564	1167
1032	RICHLAND	0	4	408	558	1153
1033	RICHLAND	0	5	335	517	1018
1034	RICHLAND	0	6	396	561	1090
1035	RICHLAND	0	7	424	518	1128
1036	RICHLAND	0	8	343	477	912
1037	ROBINSON	0	1	778	685	1647
1038	ROBINSON	0	2	555	344	1005
1039	ROBINSON	0	3	399	209	680
1040	ROBINSON	0	4	459	251	824
1041	ROBINSON	0	5	405	160	609
1042	ROBINSON	0	6	444	291	893
1043	ROBINSON	0	7	695	563	1384
1044	ROBINSON	0	8	808	589	1669
1045	ROBINSON	0	9	1227	913	2495
1046	ROSS	1	1	347	313	757
1047	ROSS	1	2	334	224	646
1048	ROSS	1	3	283	155	501
1049	ROSS	1	4	400	334	870
1050	ROSS	2	1	558	448	1217
1051	ROSS	2	2	438	410	954
1052	ROSS	2	3	349	281	729
1053	ROSS	3	1	323	252	670
1054	ROSS	3	2	321	261	696

1055	ROSS	3	3	280	183	558
1056	ROSS	3	4	356	265	713
1057	ROSS	4	1	419	337	880
1058	ROSS	4	2	428	324	871
1059	ROSS	4	3	312	316	716
1060	ROSS	4	4	310	294	711
1061	ROSS	5	1	253	285	612
1062	ROSS	5	2	209	142	414
1063	ROSS	5	3	411	312	803
1064	ROSS	5	4	387	282	755
1065	ROSS	6	1	304	141	516
1066	ROSS	6	2	552	279	979
1067	ROSS	6	3	358	226	682
1068	ROSS	6	4	353	170	593
1069	ROSS	7	1	302	222	612
1070	ROSS	7	2	296	175	554
1071	ROSS	7	3	435	206	721
1072	ROSS	7	4	327	191	615
1073	ROSS	8	1	841	553	1641
1074	ROSS	8	2	278	169	530
1075	ROSS	8	3	288	173	544
1076	ROSS	9	1	361	342	806
1077	ROSS	9	2	461	366	975
1078	ROSS	9	3	372	343	811
1079	ROSSLYN FARM	0	1	168	180	402
1080	SCOTT	1	1	346	139	577
1081	SCOTT	1	2	389	165	674
1082	SCOTT	2	1	284	138	492
1083	SCOTT	2	2	397	203	666
1084	SCOTT	3	1	285	172	524
1085	SCOTT	3	2	396	265	733
1086	SCOTT	4	1	410	275	777
1087	SCOTT	4	2	347	177	622
1088	SCOTT	5	1	353	167	589
1089	SCOTT	5	2	414	242	750
1090	SCOTT	6	1	356	198	676
1091	SCOTT	6	2	451	260	811
1092	SCOTT	7	1	468	316	916
1093	SCOTT	7	2	335	206	625
1094	SCOTT	8	1	270	172	507
1095	SCOTT	8	2	454	446	1008
1096	SCOTT	9	1	172	78	300
1097	SCOTT	9	2	187	85	327
1098	SEWICKLEY	1	0	455	374	1002
1099	SEWICKLEY	2	1	208	244	536
1100	SEWICKLEY	2	2	248	280	632
1101	SEWICKLEY	3	0	524	373	1077
1102	SEWICKLEY HT	0	1	200	453	790

1103	SEWICKLEY HL	0	1	199	256	545
1104	SHALER	1	1	283	154	491
1105	SHALER	1	2	286	154	513
1106	SHALER	1	3	316	190	601
1107	SHALER	1	4	342	170	594
1108	SHALER	1	5	370	189	661
1109	SHALER	2	1	526	400	1064
1110	SHALER	2	2	360	310	772
1111	SHALER	2	3	339	161	596
1112	SHALER	2	4	366	262	741
1113	SHALER	2	5	202	109	365
1114	SHALER	3	1	288	243	600
1115	SHALER	3	2	304	225	598
1116	SHALER	3	3	260	246	583
1117	SHALER	3	4	377	277	724
1118	SHALER	3	5	297	319	690
1119	SHALER	4	1	395	323	848
1120	SHALER	4	2	228	168	471
1121	SHALER	4	3	301	286	679
1122	SHALER	4	4	297	284	656
1123	SHALER	4	5	267	179	520
1124	SHALER	5	1	319	322	732
1125	SHALER	5	2	338	262	690
1126	SHALER	5	3	264	220	549
1127	SHALER	5	4	164	150	355
1128	SHALER	5	5	372	282	763
1129	SHALER	6	1	325	236	633
1130	SHALER	6	2	348	241	686
1131	SHALER	6	3	251	237	562
1132	SHALER	6	4	194	108	334
1133	SHALER	6	5	277	217	546
1134	SHALER	7	1	341	182	616
1135	SHALER	7	2	421	294	806
1136	SHALER	7	3	331	238	669
1137	SHALER	7	4	550	337	1022
1138	SHARPSBURG	0	1	431	92	607
1139	SHARPSBURG	0	2	593	130	862
1140	SHARPSBURG	0	3	539	197	866
1141	S FAYETTE	0	1	274	223	576
1142	S FAYETTE	0	2	456	484	1082
1143	S FAYETTE	0	3	703	640	1621
1144	S FAYETTE	0	4	410	346	871
1145	S FAYETTE	0	5	415	351	887
1146	S FAYETTE	0	6	570	509	1252
1147	S FAYETTE	0	7	317	246	638
1148	S FAYETTE	0	8	564	751	1541
1149	S FAYETTE	0	9	259	298	650
1150	S FAYETTE	0	10	370	280	767

1151	S FAYETTE	0	11	456	401	996
1152	S FAYETTE	0	12	261	209	553
1153	SOUTH PARK	0	1	323	335	733
1154	SOUTH PARK	0	2	379	280	756
1155	SOUTH PARK	0	3	305	223	622
1156	SOUTH PARK	0	4	278	152	490
1157	SOUTH PARK	0	5	413	258	755
1158	SOUTH PARK	0	6	424	333	876
1159	SOUTH PARK	0	7	612	379	1123
1160	SOUTH PARK	0	8	271	184	523
1161	SOUTH PARK	0	9	381	341	828
1162	SOUTH PARK	0	10	430	330	866
1163	SOUTH PARK	0	11	299	220	603
1164	SOUTH PARK	0	12	289	211	570
1165	SOUTH PARK	0	13	467	469	1074
1166	S VERSAILLES	0	1	91	98	215
1167	SPRINGDAL BR	0	1	379	218	702
1168	SPRINGDAL BR	0	2	313	231	607
1169	SPRINGDAL BR	0	3	312	162	550
1170	SPRINGDAL BR	0	4	248	150	449
1171	SPRINGDAL TP	0	1	659	404	1183
1172	STOWE	1	0	293	53	405
1173	STOWE	2	1	129	29	185
1174	STOWE	2	2	517	89	694
1175	STOWE	3	0	274	63	382
1176	STOWE	4	1	276	57	369
1177	STOWE	4	2	268	73	380
1178	STOWE	5	0	343	87	480
1179	STOWE	6	0	343	64	461
1180	STOWE	7	0	238	37	301
1181	STOWE	8	0	317	53	443
1182	STOWE	9	0	250	37	322
1183	SWISSVALE	0	1	743	99	962
1184	SWISSVALE	0	2	597	70	780
1185	SWISSVALE	0	3	529	71	687
1186	SWISSVALE	0	4	416	102	630
1187	SWISSVALE	0	5	567	96	765
1188	SWISSVALE	0	6	318	40	417
1189	SWISSVALE	0	7	498	84	669
1190	SWISSVALE	0	8	499	121	737
1191	SWISSVALE	0	9	542	62	682
1192	SWISSVALE	0	10	211	15	258
1193	SWISSVALE	0	11	512	96	702
1194	TARENTUM	1	1	389	176	696
1195	TARENTUM	1	2	264	144	489
1196	TARENTUM	2	0	311	140	541
1197	TARENTUM	3	1	149	93	302
1198	TARENTUM	3	2	321	182	592

1199	THORNBURG	0	1	207	177	440
1200	THORNBURG	0	2	316	189	599
1201	TRAFFORD	0	1	29	19	54
1202	TURTLE CREEK	1	1	536	217	860
1203	TURTLE CREEK	1	2	311	60	423
1204	TURTLE CREEK	2	1	519	103	720
1205	TURTLE CREEK	2	2	226	62	332
1206	TURTLE CREEK	3	1	439	87	610
1207	TURTLE CREEK	3	2	322	108	475
1208	UP ST CLAIR	1	1	279	337	714
1209	UP ST CLAIR	1	2	307	398	844
1210	UP ST CLAIR	1	3	392	520	1068
1211	UP ST CLAIR	1	4	322	392	842
1212	UP ST CLAIR	2	1	436	397	991
1213	UP ST CLAIR	2	2	228	389	733
1214	UP ST CLAIR	2	3	477	431	1064
1215	UP ST CLAIR	2	4	202	273	564
1216	UP ST CLAIR	3	1	441	460	1049
1217	UP ST CLAIR	3	2	358	412	870
1218	UP ST CLAIR	3	3	387	640	1192
1219	UP ST CLAIR	4	1	361	471	993
1220	UP ST CLAIR	4	2	275	388	783
1221	UP ST CLAIR	4	3	231	300	624
1222	UP ST CLAIR	4	4	301	659	1088
1223	UP ST CLAIR	5	1	488	635	1334
1224	UP ST CLAIR	5	2	314	420	833
1225	UP ST CLAIR	5	3	330	398	891
1226	VERONA	0	1	356	81	509
1227	VERONA	0	2	378	145	602
1228	VERONA	0	3	391	131	593
1229	VERSAILLES	0	1	349	147	564
1230	VERSAILLES	0	2	315	102	485
1231	WALL	0	1	204	71	331
1232	WEST DEER	0	1	575	616	1378
1233	WEST DEER	0	2	273	261	608
1234	WEST DEER	0	3	413	302	825
1235	WEST DEER	0	4	338	360	786
1236	WEST DEER	0	5	430	335	851
1237	WEST DEER	0	6	352	305	773
1238	WEST DEER	0	7	711	834	1762
1239	WEST DEER	0	8	619	651	1465
1240	W ELIZABETH	0	1	159	81	275
1241	W HOMESTEAD	0	1	373	67	516
1242	W HOMESTEAD	0	2	307	110	454
1243	W HOMESTEAD	0	3	332	145	523
1244	WEST MIFFLIN	0	1	477	146	726
1245	WEST MIFFLIN	0	2	388	51	494
1246	WEST MIFFLIN	0	3	332	97	484

1247	WEST MIFFLIN	0	4	388	14	478
1248	WEST MIFFLIN	0	5	608	195	873
1249	WEST MIFFLIN	0	6	201	76	324
1250	WEST MIFFLIN	0	7	509	164	746
1251	WEST MIFFLIN	0	8	449	78	578
1252	WEST MIFFLIN	0	9	549	165	788
1253	WEST MIFFLIN	0	10	321	135	524
1254	WEST MIFFLIN	0	11	472	217	790
1255	WEST MIFFLIN	0	12	654	244	1014
1256	WEST MIFFLIN	0	13	384	132	579
1257	WEST MIFFLIN	0	14	552	243	871
1258	WEST MIFFLIN	0	15	409	132	596
1259	WEST MIFFLIN	0	16	730	357	1222
1260	WEST MIFFLIN	0	17	347	167	575
1261	WEST MIFFLIN	0	18	526	190	802
1262	WEST MIFFLIN	0	19	383	200	647
1263	WEST MIFFLIN	0	20	331	99	471
1264	WEST MIFFLIN	0	21	393	184	661
1265	WEST VIEW	0	1	394	212	697
1266	WEST VIEW	0	2	432	225	779
1267	WEST VIEW	0	3	320	193	590
1268	WEST VIEW	0	4	313	201	599
1269	WEST VIEW	0	5	465	196	772
1270	WEST VIEW	0	6	392	206	704
1271	WEST VIEW	0	7	357	202	647
1272	WHITAKER	0	1	309	84	436
1273	WHITAKER	0	2	281	63	387
1274	WHITEHALL	0	1	290	187	534
1275	WHITEHALL	0	2	305	205	591
1276	WHITEHALL	0	3	335	251	670
1277	WHITEHALL	0	4	342	253	676
1278	WHITEHALL	0	5	389	221	695
1279	WHITEHALL	0	6	691	164	1090
1280	WHITEHALL	0	7	259	148	434
1281	WHITEHALL	0	8	410	308	803
1282	WHITEHALL	0	9	299	183	549
1283	WHITEHALL	0	10	324	210	607
1284	WHITEHALL	0	11	311	243	637
1285	WHITEHALL	0	12	290	213	560
1286	WHITEHALL	0	13	257	128	445
1287	WHITEHALL	0	14	297	233	597
1288	WHITEHALL	0	15	537	342	1004
1289	WHITEHALL	0	16	301	247	617
1290	WHITE OAK	0	1	409	250	752
1291	WHITE OAK	0	2	419	291	814
1292	WHITE OAK	0	3	482	310	889
1293	WHITE OAK	0	4	413	257	745
1294	WHITE OAK	0	5	455	281	812

1295	WHITE OAK	0	6	375	284	736
1296	WHITE OAK	0	7	558	401	1063
1297	WILKINS	1	1	437	221	790
1298	WILKINS	1	2	360	224	655
1299	WILKINS	1	3	482	231	821
1300	WILKINS	1	4	372	176	643
1301	WILKINS	1	5	314	103	480
1302	WILKINS	2	1	382	185	650
1303	WILKINS	2	2	608	201	934
1304	WILKINSBURG	1	1	912	32	1044
1305	WILKINSBURG	1	2	676	26	798
1306	WILKINSBURG	1	3	449	21	528
1307	WILKINSBURG	1	4	490	49	618
1308	WILKINSBURG	1	5	402	82	556
1309	WILKINSBURG	1	6	876	55	1050
1310	WILKINSBURG	2	1	661	78	877
1311	WILKINSBURG	2	2	785	125	1009
1312	WILKINSBURG	2	3	704	51	873
1313	WILKINSBURG	2	4	451	21	568
1314	WILKINSBURG	2	5	718	39	882
1315	WILKINSBURG	3	1	526	102	763
1316	WILKINSBURG	3	2	519	71	703
1317	WILKINSBURG	3	3	728	40	883
1318	WILKINSBURG	3	4	828	91	1101
1319	WILKINSBURG	3	5	915	49	1134
1320	WILKINSBURG	3	6	489	38	595
1321	WILMERDING	0	1	386	72	528
1322	WILMERDING	0	2	504	114	725
1323	CASTLE SHANNON	0	6	0	0	0
1324	PITTSBURGH	32	8	0	0	0
1325	PLEASANT HL	0	1	0	0	0
1326	S. VERSAILLES	0	1	0	0	0
1327	WHITE OAK	0	7	0	0	0
	Totals:			551801	263446	951955

BALLOT	MUNICIPALITY	WARD	DISTRICT	DEM REG	REP REG	TOTAL REG	RANDOM SAMPLE
914	PITTSBURGH	26	1	503	28	579	914