

2020

INFORMATION TECHNOLOGY & COMMUNICATIONS



ANNUAL REPORT FY 2019-2020

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Greetings,

Welcome to Information Technology Services' 2019-2020 Annual Report. It is next to impossible to capture the breadth and depth of ITS and Communications relationship to the activities, initiatives and services of the City of Pearl. Instead, what I want to do in this annual report is describe a collection of accomplishments from over the year and convey an informative sample. The theme for this annual report is Service, and you will see that represented on nearly every page. I hope that you will be able to see the remarkable progress we are making in transforming our department from implementers of technology to partners in the delivery of technology services that are aligned with the needs of those we serve.

During this fiscal year, we made important progress in advancing and completing the major initiatives of our long-range plan. This includes continued investment in infrastructure upgrades by implementing a state-of-the-art network delivering higher bandwidth for our city employees, and enhanced resiliency along with a greater level of security for everyone.

Interconnecting all of the City of Pearl's locations was a glimmer of a possibility just a few years ago. This past year, we continued our march toward interconnecting not only all city campuses, but also extension locations and remote Fire Stations. We directly connected Central Fire Station, Fire Station 2, City Auto Maintenance, and Parks & Rec. When complete, the city intranet will connect every campus including our farthest remote locations eliminating redundant efforts and reducing costs.

The core network backbone at the Network Operations Center located in the Public Safety Complex was upgraded to 40 GB per second. This has been accomplished by upgrading the Dell SAN core processing and hybrid storage array as well as installing new fiber channel Brocade ICX switches. In the very near future, this will serve the City well as we embark on extending more services that will consume this bandwidth.

Working closely with Alcatel-Lucent Technologies, the entire digital phone system was migrated to a modern, easy-to-use Voice over IP Platform, hosted in our own data center. With this capability, we now have a single platform to host legacy and soft phone telephone service, group and individual chat rooms, as well as hosting our very own video conferencing service. This replaced aging infrastructure and resulted in net aggregate single year cost savings of \$128,000. Our next focus for this new application is converting meeting rooms to full video conference functionality as well as integrating our 911 call center, thereby improving ease of use and communication distribution.

We deployed a Citrix ecosystem hosting many of our applications, thereby simplifying the burden of individually locating and managing these applications by the user. By hosting this environment, it has allowed us to deploy on-demand work-from-home services during the Covid-19 pandemic. This has facilitated several of our more susceptible employees to work from the safe environment of their home, while maintaining their high level of work productivity. Furthermore, the Public Works Department front line supervisors gained the ability to work remotely from their truck, allowing them the ability to remain in the field directly participating

Information Technology & Communications Letter from the Director

with their teams. This has afforded the Mayor and the City Clerk the opportunity to work off-site staying actively involved with city business and employees regardless of their actual location.

Lastly, you will see information regarding our helpdesk support throughout this report. If you read nothing else, read the stories about this. The fundamental principles of privileging the user experience and his/her convenience as an overriding value permeates throughout. I often hear people talk about responding to our users, and talk about the significance of information technology for their department. ITS together with other city departments did much more than talk: we did it. We showed, together, an ability to lead, to listen, to act, to deliver, to see uncertainty as an opportunity to learn, to experiment and adjust according to results, and to take on organizational change with optimism.

In conclusion, I want to wrap up noting a few things you will not see in the annual report. You will not see how ITS is involved every time you view a webpage, read an email, make or change a calendar appointment, have an antivirus update, get a paycheck, record your time, answer your desk phone or start a video conference call, create a PO, balance an account, pay bills, take an accident report, answer a 911 call, or dispatch an officer to a domestic violence call. You will not see a recounting of attacks the firewalls block, hourly backups of local systems or nightly backups to Veeam and the Disaster Recovery site, files read or written, etc. In other words, you will not see reported here all the other stuff that must happen every minute of every hour of every day of every month of every year that allows this wonderful City to serve its citizens and their needs.

I want to thank God for his divine forgiveness, and prospering our small department. I certainly could not have reported any of what we have accomplished without some fantastic, dedicated employees. And finally, I would like to thank our Mayor and Board of Alderman, as well as each Department Head who put their trust in us each and every day. It is an honor to continue to serve you.

Sincerely,



Frank Hutton
Director
Information Technology & Communications

Information Technology Services

Mission Statement

Mission

In support of the City's Strategic Plan, the ITS mission is to provide, through personal engagement, outstanding technology infrastructure, services and solutions that empower staff to provide exceptional services, enrich the employee experience, and effectively manage and protect institutional data.

Specific goals in support of this mission are:

- Recognition as providers of exceptional service
- Knowledge creation and sharing through research and innovation
- Robust, reliable, and secure technology systems and infrastructure
- Successful collaboration with City departments to accomplish their specific objectives and departmental goals
- Respected and professional staff who exemplify leadership qualities
- Professional and effective communication with the City departments and their staff
- Enabling of decision-making, operational efficiencies, and discovery through effective use of information

Vision Statement

ITS will strive to provide and protect an environment that features information technology services and solutions that are innovative, readily available, and utilized to provide exceptional support to departments and staff in their endeavors to uphold the City of Pearl's mission.

Specific statements in support of this vision are:

- Essential projects for technology stability and security are prioritized. This work includes ensuring service availability and service stability.
- Avoidance of unplanned outages, rapid response to systems outages, support for standard software applications, business continuity projects, and maintenance of IT assets.
- Regulatory, vendor, and security upgrades and implementations of operating system and software version updates.

Information Technology Services

Mission Statement

Values

1. We value customer engagement, collaboration, shared governance, innovation, teamwork, accountability, diversity, inclusivity, accessibility, and integrity.
2. We value the people of the ITS department who show initiative, grow interpersonal relationships, pursue excellence, and deliver in terms of IT infrastructure, services, and solutions.
3. We value our relationships with our elected officials, department leaders, and staff of the City of Pearl - our customers, partners, and colleagues - and thus honor a service culture above all else.
4. We value the trust placed in us by City leadership, the Board of Alderman, and the community, to be efficient and effective in the use of all resources.
5. We value the security of the technology resources and information entrusted to our care, and will be vigilant in maintaining the integrity of these critical items.

SPECIFIC ITS STRATEGY STATEMENTS:

- Support city departmental initiatives through a robust and dynamic technology infrastructure and related services
- Provide consultation, technologies, and services to facilitate employee success and retention.
- Invest purposefully in the expansion and improvement of the technology infrastructure to enhance City operations and the successful achievement of the goals set forth in the strategic plan.
- Strengthen compliance and information security through initiatives supporting the fulfillment of legal directives, operational regulations, and audit requirements and providing a safe, secure technology environment.
- Foster an effective ITS staff organization through collaboration and development opportunities and through strategic response to changing IT environments and requirements.

The Information Technology Systems & Communications Department is publishing its first annual report for budgeting purposes and to inform all stakeholders in Pearl (residents, businesses, city staff and elected officials) about the accomplishments and day to day operations of the ITS & Communications Department. The following divisional accomplishments, in combination with our long-term infrastructure and technology plan, empower the ITS & Communications Department to better serve the City of Pearl Mississippi and it's governing authority.

Data Services:

- Experienced 99.7% uptime in the Network Operations Data Center while performing upgrades and maintenance tasks. We experienced 20 hours of downtime out of an operational total of 8,760 hours. A total of 10 of these hours were scheduled downtime for performance maintenance and network enhancement. This takes into account the network as an aggregate total, including all services and servers.
- Actively maintained, upgraded, and monitored three EXI hosts containing 44 virtual servers and their respective data stores in our VMware 6.5 environment responding to 27 alarms for service. These service alarms do not equate to downtime, but only advise the network administrator of potential issues or possible system outages if not corrected timely. These alarms include virtual memory space allocation, high CPU usage, or data store volume allotment for a specific cluster or VM.
- Completed two bi-annual disaster recovery tests in co-operation with our contract services partner, TechSource of MS, Inc. Each test evaluates the ability to recover required system files in order to restore the network to its normal operating state. Both tests performed within expected ranges and time frame.
- Installed a Netwrix Monitoring server delivering detailed information on data ownership, data usage, data volumes, identifying stale and duplicate files, helping improve the data management processes. This makes it easy to track changes to file servers by delivering insightful information about who changed what, and when and where each change was made, by providing before and after values. This exercises control over data access attempts by reporting on both successful and failed read attempts across multiple Windows-based file servers and shares alerting whenever there have been too many file modifications or failed access attempts in a short period of time so we can quickly respond to a ransomware attack or suspicious activity.
- Installed dual, redundant Citrix Application VDI servers. This is a complete solution that allows secure access to the information, apps, and other content that are relevant to any employee who might need remote or off-site access. Users can securely access their resources from anywhere, on any device allowing them to work only on the applications for which they are directly authorized. This technology was prepared and ready from day one when the Covid-19 pandemic started. This allowed us to quickly respond to our most risk adverse employees, giving them the ability to work from home without compromising the quality or quantity of work.

Information Systems Services:

- Replaced an older existing Brocade 6610 with two new Brocade ICX 7450 switches with 40-gigabit fiber connections including high availability failover to the Dell SAN Hybrid Compellent server stack. These managed Layer 3, POE switches carry a lifetime warranty for replacement and represent the core backbone in our data center to the server array as well as servicing the many other switch cabinets located throughout the city network environment.
- Replaced the older, end of life Barracuda X300 firewalls, with current, state-of-the-art Next Generation F380's from Barracuda, set to high availability failover. Testing performed after initial installation showed an average internet downtime of less than 13 seconds when one unit failed or went off-line. On average, it took less than 40 seconds to re-establish all VPN tunnels with other locations, as well as re-establish full and complete email delivery.
- Restructured BBI applications inside Active Directory to allow multiple users on a single computer by changing the environment variable, and setting proper paths. This allowed us to have one installation, but accessible by many users of the program on a single desktop. Security and file structure were greatly enhanced.
- Created a new Open Purchase Order and Account Balance database in conjunction with BBI for Department Heads and their authorized users.
- Created a new Work Order system in conjunction with BBI for the Building and Grounds Division, as well as Parks and Recreation.
- Deployed Ruckus vSZ-E WiFi controller (Virtual Smartzone Enterprise) along with 12 new WiFi access points throughout the connected campuses facilitating secure and guest wifi. The vSZ-E can support more than 1,000 Ruckus access points (APs) and tens of thousands of subscribers per instance.
- Completed new network installation at the City Auto Maintenance Shop. Installation included a complete re-wiring of all network cable upgraded to CAT-6 500 mhz, new wall mount rack cabinet, Barracuda next generation firewall F12, Brocade ICX 7150 Layer 3 POE switch, new Hikvision camera system and DVR, as well as an Audicodes for the alarm line, and one (1) outdoor Ruckus AP for WiFi. Four PCs were installed, running Windows 10 Pro with one being located in the service bay. The shop is now connected to the secure city intranet with access to all city resources.
- Completed new network installation at Fire Station Two. Installation included a complete re-wiring of all network cable upgraded to CAT-6 500 mhz, Barracuda next generation firewall F12, Brocade ICX 7150 Layer 3 POE switch, and one Ruckus AP for WiFi. A refurbished Radio Room PC was installed, running Windows 10 Pro and is now connected to the secure city intranet with access to all city resources.

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- Installed access controlled door system on all exterior doors in the Community Center
- Installed new sound system in the Gold room of the Community Center.
- Completed the roll out of the new Move-MS, known as E-CRASH, for accident reporting by our Police Department. E-CRASH is an electronic crash form and electronic transmission procedure developed at the Center for Advanced Public Safety (CAPS). E-CRASH is a module in the CAPS suite of applications that exist in the MOVE integrated frame-work. MOVE stores data, such as driver's license information and GPS coordinates, as objects that can be populated into any of the applications within MOVE. Electronic submission eliminates the need to mail paper crash forms. Electronic data is immediately available in the database, also eliminating the need for personnel to type the data from hand-written forms. Electronic transfer of the data is almost instantaneous and is ready for insurance purposes as early as the next day.
- Completed the rebuild and refresh of all computer workstations inside the city's 911 Dispatch call center. Each work station was updated to the latest in computer design and hardware built for a rugged environment that is expected to function year-round with very little or no downtime.
- Upgraded City Clerk's Office, Public Works, Community Development, Pearl Parks & Rec, with new Lenovo M700 series windows 10 Pro computers. Updated the Board of Alderman with new Surface Pro Go laptops. Surface Pros were given to all PD Investigators and command staff, as well as Public Works front line supervisors.
- Completed the re-programming of all mobile radios inside all police cars and fire trucks, as well as every portable radio. Total programmed was 208.
- Provided primary help desk support for all city employees and workstations. Total amount of tickets created during this FY were 888 with an average of 74 per month. On average, 28 open support tickets carry over to the following month.
- Responded to 54 requests from police officers for repairs to their Watchguard in-car cameras or Bodycam system. In most cases, body cameras were repaired or replaced, or video transmission radios located in the vehicle were replaced.
- Responded to 86 support requests from employees of the police department pertaining specifically to the PTS System. These requests varied by users and included, but not limited to the following:
 - User not able to sign into the system.
 - Unable to book an arrestee.
 - Import a call in order to file a report.
 - Look up an address
 - Enter an emergency call in the system.

As of this report, PTS support is currently working to resolve five support requests.

Telecommunications Services:

- Completed the migration consolidation from the 18-year-old, digital Toshiba Strata telephone system, including four Toshiba systems located at each fire station, as well as the systems located at the Golf Course, Parks and Rec building, Public Works Shop, and the City Auto Maintenance shop into one Alcatel-Lucent Technologies OXO-connect Voice over IP phone server located in the Network Operations Center (NOC). OXO Connect is a new generation of robust, connected and converged communication platforms. Ready for the cloud, this scalable system allows us to communicate using our own hosted video conferencing system, file sharing, single or group chat capabilities, as well as Outlook integration. Calls can be placed or answered on either a legacy desk phone, computer, or cell phone.
- Migration of 244 digital and analog phone lines from three separate legacy phone carriers to Cspire Voice Networks. All numbers are authenticated by Cspire and transferred via SIP trunk to the Alcatel-Lucent OXO-connect VoIP server for city-wide telephone service. This service migration resulted in a **cost savings of over \$37,000 per year.**
- Provided day-to-day management of the city's voice and data communications infrastructure to provide departments with high-quality, reliable communications. This includes maintaining 128 legacy desk phones, 104 cell phones, 18 data cards, 216 Motorola radios, and one Motorola Dispatch Console distribution gateway.
- Managed the dedicated fiber circuits responsible for all emergency related dispatch traffic, as well as the NCIC connection, through our state co-located switch to MJIC. This includes direct supervision of all PSAP functions along with evidence recording and collection.
- Installed and configured the ALE Rainbow application, which is a cloud-based UC service (UCaaS), that makes additional collaboration services available to city employees, through our OXO-Connect VoIP phone system. As an overlay solution, Rainbow brings rich feature capabilities, like contact management, presence, chat, audio/video call, screen and file sharing. Rainbow takes a hybrid cloud approach, integrating on-site with our Alcatel-Lucent OXO Connect and cloud based system, by utilizing our WebRTC gateway service connected to the North America Data Center for Alcatel-Lucent. The ALE Rainbow application runs on desktops, laptops, cellular devices, and can be accessed on the internet through any web browser.

Pearl Municipal Broadcasting & Public Information:

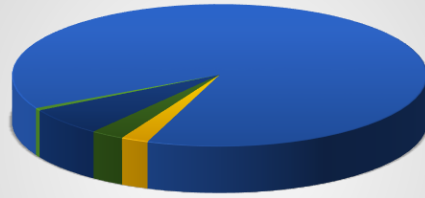
- The broadcast team put together another fantastic year even through the challenges we faced from the Covid-19 pandemic. During this fiscal year, the broadcast team produced and broadcast 22 City Board Meetings, with 4 of these being virtual meetings with the Alderman participating using the ALE Rainbow application. Additionally, we broadcast 13 football games, 12 football coach's shows, eight basketball and three volleyball games. We also launched a new city-specific public affairs show called "This Week in Pearl" and covered more than 40 ribbon cuttings of businesses for the Pearl Chamber of Commerce.

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- Special coverage was given throughout the year, broadcasting many City News Conferences, weather events like flash flooding and street closures, Pearl Restaurant Spotlights, and ending with broadcasting graduation ceremonies of all Pearl Public School District classes.
- The radio station was busy as well. Not only did it simulcast many of the TV broadcast events, 104.5 FM The Pirate carried several live radio remotes from local businesses. We were live from the Pearl Pool, Dunkin Doughnuts, City Limits Café, The Country Fisherman, Food Truck Thursday as well as many other events and businesses during the year.
- This year saw multiple platforms added to our online streaming offerings. We added our streaming app to Roku, the largest streaming device in the world with over 40 million subscribers. In addition, we added our app to Amazon Fire stick, and started streaming live events to YouTube concurrently with our Facebook live. PMBtv is currently streaming the live TV feed to our city website.
- Our social media platforms have exploded as the most popular way to quickly disseminate and receive information for our citizens in Pearl. The city Facebook page has seen a 300% increase in followers, going from 2,000 to over 8,000 in this past year with more than 2.5 million users reached. Twitter started from zero, and increased to 200 followers with 247,900 impressions.
- Published weekly e-newsletter through constant contact starting in August and has more than 1,400 subscribers.
- Produced three weekly radio programs, Defining moments with Larry Nix on Thursdays at 11 am; House of Rock with Dirty D and Mellissa K on Friday Nights from 4 to 7 pm, and The Underground with Ian Cranfield on Saturday nights from 6 to 9 pm. Defining Moments is a nationally syndicated program on American Family Radio. House of Rock won “Best DJ’s in Jackson area” in 2019 and is syndicated on Rock Rage Radio.
- Teaching has always been a focus, and this past year was no exception. During the fall semester, Hinds Broadcast classes were held 4 days a week with 1 class being a night class. Instructors used both TV and Radio studios exposing students to a hands-on learning environment. Class sizes averaged 10 to 15 students. These students played an intricate role in producing football games as well as other city events, including broadcasting the Christmas Parade and Concert, along with the Homecoming Parades.

ITS & Communications Support Numbers FY 2019-20



■ IT Purchase Requests
 ■ IT Support Tickets
 ■ New Employee Tickets
 ■ PD Video Requests
 ■ Work Orders

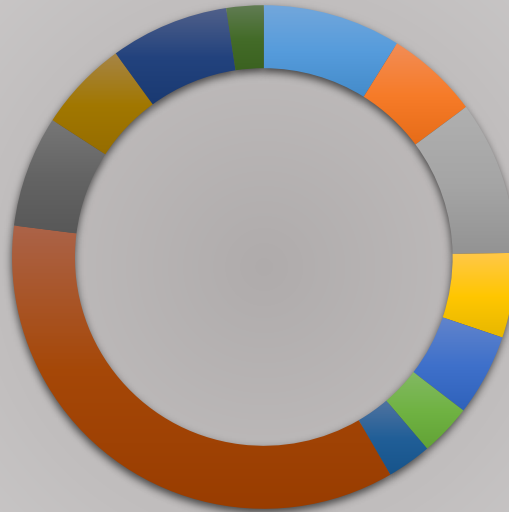
	Year to Date - IT Tickets					Year to Date - IT Tickets			
	Year	Month	TicketCount	Type%		Year	Month	TicketCount	Type%
Purchase Requests	2020	Jan	1	1.39	PD Video Reeqests	2020	Feb	3	2.86
	2020	Mar	2	2.86		2020	Mar	2	2.78
	2019	Dec	2	2.78		2020	Apr	4	3.26
	Total YTD IT Purchase Request:		5	0.56%		2020	May	5	4.53
IT Support	2020	Jan	71	90.28		2020	Jun	2	2.74
	2020	Feb	44	85.11		2019	Aug	2	2.58
	2020	Mar	58	75.71		2019	Sep	3	2.86
	2020	Apr	57	98.11		2019	Nov	1	1.32
	2020	May	64	89.23		2019	Dec	1	1.39
	2020	Jun	65	90.77		Total YTD PD Video Request:		23	2.59%
	2019	Jul	84	95	IT Work Orders	2020	Jan	5	6.94
	2019	Aug	75	90.79		2020	Feb	5	10.64
	2019	Sep	54	89.09		2020	Mar	9	12.86
	2019	Oct	80	94.81		2020	Apr	1	1.89
	2019	Nov	66	90.91		2020	May	7	10.77
	2019	Dec	67	84.72		2020	Jun	6	9.23
	Total YTD IT Support:		785	88.40%		2019	July	4	5
New Employees	2020	Jan	1	1.39		2019	Aug	2	2.63
	2020	Feb	2	4.26		2019	Sep	4	7.27
	2020	Mar	6	8.57		2019	Oct	3	3.9
	2019	Aug	4	5.26	2019	Nov	3	4.55	
	2019	Sep	1	1.82	2019	Dec	7	9.72	
	2019	Oct	1	1.3	Total YTD Work Order:		56	6.31%	
	2019	Nov	3	4.55	Total YTD Tickets: 888				
	2019	Dec	1	1.39					
	Total YTD New Employee:		19	2.14%					

ITS & Communications
Email Statistics
FY 2019-20

FY 2019-20 Email Statistics

Month	Rate Controlled	Blocked: Bad Recipient	Blocked: Spam	Blocked: Virus	Quarantined	Allowed: Tagged	Allowed	Total Received
Jul	0	0	5782	12	0	4	28910	34708
Aug	0	0	5612	18	0	8	28060	33698
Sep	0	0	4719	6	0	17	23595	28377
Oct	0	0	6235	56	0	11	31175	37477
Nov	0	0	3382	33	0	5	16910	20330
Dec	0	0	6692	29	0	6	33460	40197
Jan	0	0	5117	11	0	11	25585	30724
Feb	0	0	4837	19	0	9	24185	29050
Mar	0	0	8216	39	0	37	41080	49372
Apr	0	0	5394	12	0	17	26970	32393
May	0	0	4073	7	0	13	18930	23023
Jun	0	0	7422	40	0	28	35071	42561
Total	0	0	67481	282	0	166	333931	401910

FY 2019-20 Facebook Reach



■ July ■ August ■ Sept ■ October ■ November ■ December
■ January ■ February ■ March ■ April ■ May ■ June

FY 2019-20 Facebook Reach		
Month	No. Reached	No. of Posts
July	222,206	31
August	149,537	31
Sept	247,822	30
October	136,289	31
November	131,568	30
December	83,422	31
January	71,548	31
February	885,938	29
March	179,086	31
April	146,411	30
May	190,739	31
June	59,886	25
TOTALS:	2,504,452	361