

Performance Assessment and Financial Review of the Innovation and Technology Department

RIVERSIDE, CALIFORNIA



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1. Introduction and Executive Summary

The Matrix Consulting Group was retained by the City of Riverside to assess the operational and management processes of the Innovation and Technology (IT) Department. This study was designed to provide an understanding of the Department's organizational structure, functions, the efficiency and effectiveness of the overall processes and operations, as well as compliance with financial regulations. At this concluding point of the study, the project team has assembled this report, which summarizes our findings, conclusions, and recommendations.

1 Project Background and Overview

The City of Riverside initiated a process in 2015 through which it will study three different City Departments each year to ensure that those departments are operating in a manner that is operationally and financially efficient and compliant with state and federal regulations. The Innovation and Technology (IT) Department is one of the departments that is being assessed in this manner.

Until 2016, the City of Riverside's Technology Services were provided by ACS / Xerox via a multi-year contract. ACS / Xerox would provide contracted staff to the City of Riverside for support and maintenance of their technological systems. However, in 2016, the City decided that due to the complex nature of its operations, it was critical to develop an in-house IT Department. Therefore, the City absorbed the structure of ACS / Xerox services, including many of the contracted staff and created the Innovation and Technology Department.

Through the course of this analysis, the project team was asked to evaluate the following operational areas:

- Organizational Structure (consolidation, succession planning, staffing levels, etc.)
- Project Management
- Business Continuity / Disaster Recovery
- Network – Security Internal Controls
- Client Services
- Innovation – Resource Allocation
- Compliance with applicable State and Federal IT Guidelines
- Effectiveness and Management of IT Systems
- Interdepartmental Communication and Collaboration
- Benchmarks, Best Practices, and Performance Indicators

In addition to the performance assessment for the previously mentioned areas, the team was tasked with conducting a financial expenditure review related to the use of overtime

and compliance of non-personnel expenditures with contracts and service level agreements.

This report provides specific recommendations to improve processes and ensure that services are being provided efficiently and effectively. By conducting this study, the City of Riverside and the IT Department is committed to a process of continuous improvement.

2 Project Methodology

The performance assessment began in December 2019. In this study, the project team utilized a wide variety of data collection and analytical techniques. The scope of work was accomplished through the completion of the following activities:

- **Conducted Interviews with City Staff:** The project team met with representatives from applicable IT Divisions and Department Director to gain an understanding of the current staffing levels, organizational structure, levels of service, and operational practices.
- **Developed a Descriptive Profile:** Based upon interviews with staff and data collection efforts, a profile was developed outlining the current staffing levels, and the organizational structure of each division. This document was utilized as a “base” point of comparison for further analysis. This profile is attached to this report as an appendix.
- **Collected and Reviewed Workload Data:** Based on the areas of analysis, the project team developed and distributed a data collection list. Workload was provided for applicable divisions and subsequent analysis was conducted.
- **Identified Key Strengths and Opportunities for Improvement:** Utilizing the workload information as well as staff interviews, the project team evaluated current key strengths and identified further areas for improvement as it related to strategic planning, administrative policies and procedures, and staff training.
- **Checked Contracts and Service Level Agreements for Compliance:** The project team evaluated a sample of IT contracts against purchasing practices to ensure compliance with applicable City and statutory / regulatory requirements.
- **Conducted Further Analysis of Issues:** Based on initial findings, the project team evaluated additional data, analyzed issues, and operational practices. The analysis resulted in recommendations that would streamline the services provided by the IT Department and help the City of Riverside meet its strategic goals.

The objective of the study was to examine the core services provided by the IT Department and determine opportunities for improvement. Recommendations were made through the current and future financial outlook of the City based on the impacts of Covid-19 during the first half of 2020.

3 Key Strengths

IT is a wide encompassing department that includes a wide variety of functional and operational areas. Each of these areas have their own operational strengths that should be used as a foundation to improve operations moving forward. The following strengths should be highlighted within the current operational and organizational approach of IT:

- Providing centralized IT services and administrative services.
- The ability to constantly adapt to different technological needs within the City.
- The creation of an Innovation Division to ensure that there is a dedicated focus on utilizing data collected to help progress the city's strategic initiatives.
- Development of policies and procedures related to IT procurement and cybersecurity.
- Appropriate span of control between line level staff and managers.
- Allocation of IT costs among internal city funds and departments through a Cost Allocation Plan.
- Centralized webmaster to manage the content of the City's website.
- A robust Citywide GIS operation.
- Implementation and support of a citywide ERP System and platform to enable online payment collection.

These are just a few of the strengths of the department, with the most important strength being in relation to the Department's ability to continuously adapt to the new environment. Through the course of this study, the Department was continuously evaluating and evolving and making changes, including closing out old cases, as well as setting the City up to work in the COVID-19 environment. This ability of the department to adapt, is important, as we look in the next section for potential opportunities for improvement for the department.

4 Summary of Recommendations

Based on the project team's assessment and analysis, there are a variety of recommendations for each topic covered in this assessment that are discussed in detail throughout this report. The following table consolidates the recommendations in the order they are presented in the report and by functional topic, as well as the priority and timeframe for each recommendation.

#	Recommendation	Time Frame	Priority
ORGANIZATIONAL STRUCTURE			
1	All IT-related purchases and contracts should be consolidated and managed by IT Administration staff for processing.	2023	High
2	IT leadership should work with Human Resources to develop and implement a succession plan for key positions. The succession plan should include the identification of key positions (Cyber Information Security Officer, Division Managers, Public Safety and Public Utilities Line Level staff) critical for business continuity and operations, as well as those who are eligible to participate in the program.	2022	Medium
3	The IT Division is able to provide all of its services with current staffing levels; however, the Division should fill all of its five (5) vacant positions – including the frozen positions to meet existing workload needs.	ASAP	High
4	IT Management should encourage staff within the Innovation Division, as well as project managers, to start tracking their time on project management to help continuously evaluate staffing levels.	2022	Medium
5	IT Leadership should identify positions within the Department that either fully or partially are dedicated to non-general fund departments and meet with those departments and Finance to fund those positions either wholly or partially through those other funds.	ASAP	High
6	IT Management should meet with Finance and discuss the possibility of transitioning IT out of the general fund into an internal service fund (ISF) to enable IT to have greater transparency, flexibility, and ownership of its expenses and revenues.	2022	High
7	Finance and IT should consider the creation of an IT Replacement ISF to annually charge city funds and departments to have a fund through which replacement of IT infrastructure and equipment could be funded.	2022	High
PROJECT MANAGEMENT			
8	All staff intended to be utilized as project managers should receive certification in project management; however, at a minimum, the department's existing certified project managers should train other staff in the department regarding project management techniques.	2023	Medium
9	The department should establish a policy requiring the assignment of a project manager based upon the scope of the project and whether it needs a certified project manager.	2022	High
10	A thorough review of the existing project portfolio should be conducted regarding the necessity of the project, the clear scope of the project, and the ability to fund the project.	ASAP	High
11	A standardized methodology should be developed for project prioritization.	2022	Medium
BUSINESS CONTINUITY AND DISASTER RECOVERY			
12	A formalized Continuity of Business (CoB) Plan should be developed by the Deputy Director of IT (over Innovations).	2022	High
13	The steps taken during COVID-19 should be documented as part of the CoB to allow for adaptation into a more general yet formalized document.	2022	Medium
14	The Innovations Division staff should work with the different department representatives to ensure that the plan documents all key internal and external business operations.	2022	High
15	The department should conduct bi-annual (every six months) sample exercises and drills with different departments to practice in the case of any operations being interrupted. The results of these exercises should be documented.	2023	Medium
16	A formalized Disaster Recovery (DR) Plan should be developed by the Deputy Director of IT (over Innovations).	2023	High

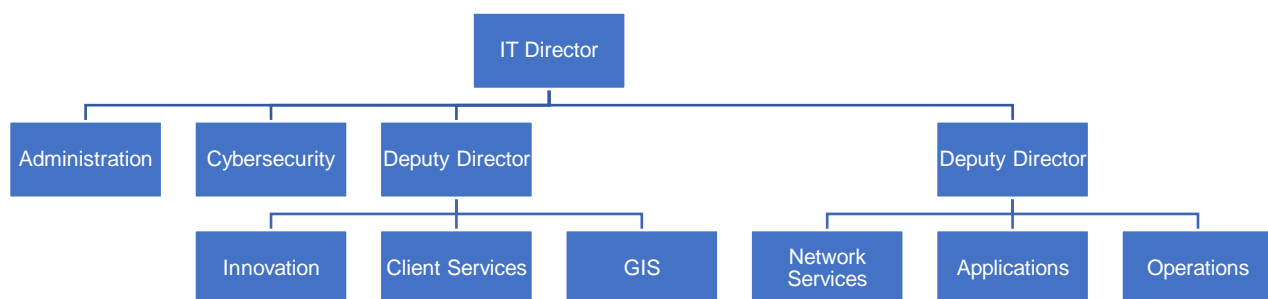
#	Recommendation	Time Frame	Priority
17	The Innovations Division staff should work with the different department representatives to ensure that the DR plan documents potential areas of weaknesses in the event of a disaster and how to mitigate the risks associated with those weaknesses.	2023	High
18	The department should conduct bi-annual (every six month) sample exercises and drills with different departments to practice in the case of any operations being interrupted. The results of these exercises should be documented.	2024	Medium
19	The department should conduct quarterly testing of backup and restore processes and procedures associated with file systems conducted documents, spreadsheets, images, and transactional databases to ensure that all staff are trained appropriately.	2024	High
NETWORK – SECURITY INTERNAL CONTROLS			
20	As part of the July 2020 review of the Technology Use and Security Policy (TUSP), IT leadership should ensure that all aspects of the current policy and standard operating procedures are still relevant and develop a sub-policy or update it especially in light of current remote work environments (COVID-19).	ASAP	High
21	An annual audit should be conducted to ensure that all active city employees have signed the acknowledgment and receipt of TUSP. This annual audit should be managed by Human Resources as the form should be part of the personnel file for the employee.	Ongoing	High
22	Cyber security training for all city employees should be formalized. A simpler and shorter training should be provided as part of the new hire orientation process and then two training sessions should be provided annually for all city employees regarding the TUSP as well as some sample drills and exercises.	2022	Medium
23	The disconnection of email accounts associated with employees should be automated to minimize continued risk associated with access to the City's network.	ASAP	High
24	The City should create a Computer Security Incident Response Team (CSIRT) led by the Cyber Information Security Officer (CISO) and comprised of representatives from all IT Divisions and representative(s) from the City Manager's office to develop strategic responses to any security threats.	2022	High
25	The CSIRT should meet at least once a quarter and outside of business continuity and disaster recovery conduct sample exercises and drills every 6 months.	2022	Medium
CLIENT SERVICES			
26	As part of new hire orientation or transferring of positions, employees new to a Department should be made aware of their specific contact within the IT Client Services Division.	ASAP	Medium
27	IT Client Services should resolve 70% of its tickets in one (1) or less day, which can be achieved, once the Division is fully staffed as it has been budgeted.	2022	Medium
INNOVATION			
28	The Deputy Director of IT over Innovations should reevaluate the four positions in Innovation and ensure that they are assigned to appropriate roles and responsibilities to help advance the City's strategic needs.	2022	High
29	The Innovations Team should work with City Administration and key stakeholders in the community to define areas in which technology can be used innovatively to develop a rapid and agile response.	2022	Medium
MANAGEMENT SYSTEMS			

#	Recommendation	Time Frame	Priority
30	The City should continue its practice of reviewing and updating IT policies and procedures every two years.	Ongoing	Low
31	The IT Department should utilize the Information Technology Infrastructure Library (ITIL) framework when developing and implementing the new work order system with a focus on tracking time related to requests as well as service level targets.	2023	Medium
32	The ITIL framework should be implemented across all IT Divisions and not just client services.	2023	Medium
33	The IT Department should develop an automatic process for tracking the applications installed and the number of licenses in use.	2023	Medium
34	The IT Department should work with City Management to establish the creation of an IT Steering Committee, which should meet quarterly and should be responsible for the creation of a 5-year strategic plan and annual needs assessment.	2022	High
35	The IT Steering Committee in conjunction with IT Leadership should create a formalized strategic plan to document the department's visions and goals as well as outline how the department can meet the City's needs.	2023	High
36	The IT Steering Committee in conjunction with IT Leadership should conduct an annual needs assessment that identifies specifically the IT software and hardware related needs throughout the City.	Ongoing	High
INTERDEPARTMENTAL COMMUNICATION			
37	An IT Software Request form should be created to allow Departments to identify the specific software being requested for purchase, its functionality, its proposed / estimated costs, its funding source, and expected level of support from IT.	2022	Medium
38	The current IT Acquisition policy should be modified as it relates to current exceptions (i.e., SCADA, 911, radios, etc.) to still require involvement from IT staff as those systems still have to be supported by IT staff.	2022	High
39	IT should consider developing a system in which it can keep on hand several items (i.e., phones, laptops, etc.) that are in demand by departments to minimize the processing of ad hoc requests.	2022	High
40	As part of the warehouse system, Departments should "check out" the requested assets and if an asset is no longer in use, it should be "returned" to IT as surplus or for use by other departments.	2022	High
41	IT should work with Finance department to determine if all IT-related assets can be transferred to IT and be included as part of the City's larger fixed asset program.	2022	Medium
42	There should be a dedicated IT position for all departments in the City, especially departments that are critical to the City's operations to ensure that there is consistent collaboration and communication between city departments and IT staff.	2023	High
43	The designated IT contact should be in the Client Services Division and should serve as the liaison between the department and other IT division staff as necessary.	2023	High
BENCHMARKS, BEST PRACTICES, AND KEY PERFORMANCE INDICATORS			
44	The Department should consider implementing the recommendations identified in this report as it relates to staffing, disaster recovery, security, and performance measures.	2022-2024	High
45	A more robust training program should be developed along with dedicated funding for that training program.	2022	Medium

#	Recommendation	Time Frame	Priority
46	A five-year strategic plan should be developed for IT and as part of that strategic plan a Citywide IT Steering Committee should be established to conduct a needs assessment and prioritize those needs based upon the City's strategic initiatives.	2022	High
47	The Department should consider implementing KPIs related to Client Services, Project Management, Network Services, and Operations, which includes number of help desk cases closed overall, number of cases closed within 1, 3, 5, or 10 day business days, number of new projects closed on time, system uptime, median age of infrastructure.	2023	Medium
48	The tracking of KPIs should be part of an internal tracking portal and should be adapted into the new ticketing system.	2023	Medium
49	Division supervisors and managers should encourage all staff to track metrics to allow for sufficient data for metric evaluation and collection.	2023	Medium
50	KPIs should be collected and reported on quarterly by the Principal Management Analyst to the Deputy Directors and IT Director.	2022	Medium

2. Organizational Structure Analysis

The Innovation and Technology Department is a key internal services department within the City of Riverside. The Department is organized into seven distinct divisions: Administration, Cybersecurity, Innovation, Network Services, Applications, Operations, Client Services, and Geographical Information Systems (GIS). The divisions are organized based upon their functional responsibilities, for example, the Applications division has staff related to the design, development, implementation, and support of a variety of citywide applications. The following organizational chart represents the Department's organizational structure based upon its key functional areas:

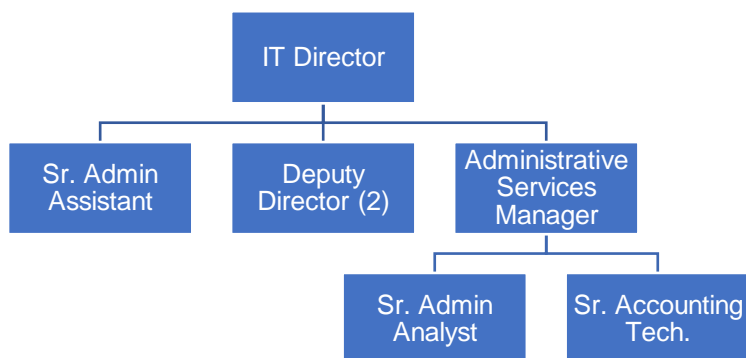


As the organizational structure indicates the IT Director is responsible for the administrative functions and Cybersecurity and the two Deputy Directors oversee three divisions related to the day-to-day operations of the Innovation and Technology Department.

This section of the report explores the potential consolidation of administrative functions, the effectiveness of current staffing levels, succession planning, and the source of funding for the IT Department.

1 Consolidation of Administrative Functions

One of the key areas of focus in this analysis has been in relation to the evaluation of internal administrative functions within the Department. The Administration Division consists of the Director, the Deputy Directors, and Administrative Support staff. The following organizational chart shows the current structure of the administration division.



All administrative activities – scheduling, coordination, budgeting, payroll, and purchasing, are performed in the Administration Division. The Senior Administrative Assistant is responsible for the coordination and scheduling of all meetings and trainings and also for answering the phones.

The Administrative Services Manager oversees the financial functions, which includes developing the budget, reviewing all contracts, reviewing all purchases, reconciling p-card and travel and accounts payables, and any financial reporting. All of these functions have been consolidated under the Administrative Services Manager. The Deputy Directors and Division Managers provide the information to the Administrative Services Manager, but the manager is responsible for the compilation of the budgetary and financial information.

While the functions within IT are consolidated at the administrative level, the majority of IT purchases and contracts are conducted on behalf of other departments. These purchasing requests and contracts are not always processed through IT, which can impact interdepartmental collaboration. It is recommended that any IT-related purchase should be consolidated through IT and managed by the IT Administration Division. This ensures that any purchases or new contracts are vetted by IT staff before being forwarded to Finance for processing by procurement staff.

Recommendation: All IT-related purchases and contracts should be consolidated and managed by IT Administration staff for processing.

2 Succession Planning Analysis

Succession planning is a key goal that proactive organizations have successfully implemented. Succession planning helps ensure that staff are readily training and available to step into their next role, in the event of staff absences or turnover. More importantly, succession planning equips staff to be the next generation of leaders in an organization.

Based upon interviews with Department Management, as well as line staff, the Department does not have any formalized succession management policies or practices in place. Staff are generally cross-trained within a division, but are not cross-trained

across divisions. Additionally, even within a division, if there are staff serving specialized departments or with specialized training (i.e. Public Safety, Utilities, etc.) those staff are not cross-trained with other staff in that division. Lastly, for many high-level positions, the only backups are the Director or the Deputy Directors rather than other managerial or supervisory staff within the department.

IT services are a core function of any jurisdiction, and loss of continuity in operations in IT can be extremely detrimental for a city. Furthermore, many of IT's current staff are close to retirement (next 1-5 years), which will dramatically impact the ability of the department to continue to provide services effectively. Last year, the Department's Application Manager passed away unexpectedly, resulting in a vacancy, which has still not been filled and is currently being backfilled between one of the Deputy Directors, and key supervisory staff within that division. Therefore, it is critical for IT in conjunction with the City's Human Resources Department to develop a succession plan program. Key elements of a succession plan should include:

- Categorizing key positions within the department that require succession. This should include all managerial positions – Director, Deputy Directors, Information Security Officer, Division Managers (including Administrative Services Managers), as well as line staff working on critical operations (i.e. Utilities, Public Safety, etc.).
- Identifying staff within the department that demonstrate the desire for additional responsibility or growth to provide them with the opportunity to train as backup for the key positions. The identification of staff with capacity to serve in backup roles can occur through workload analysis and the annual performance evaluation process. This approach allows for tailored mentoring for each employee.
- Understanding the requirements for each position that has a succession plan and incorporate the requirements/skills into the appropriate job description. Also, a checklist may be developed to ensure staff learn appropriate skill set before they are allowed to succeed the current staff member.
- Outlining and building employee competencies and skills required to be successful in fulfilling key roles. Identified staff members should first show they have grasped the key competencies for their current position before building skills for future positions.
- Instituting a leadership skills program for staff. Before an individual is promoted, they should have received basic leadership skills. Upon promotion, supervisory training should be provided to help the staff member excel in their supervisory role. This is critical for first time supervisors.
- Implementing a monitoring program and feedback loops for mentors and mentees to receive periodic and standardized progress reports.

- Promoting the succession planning efforts internally within the Department by incentivizing

As discussed, succession planning is critical for IT as it is core internal service within the city. Beyond ensuring continuity of operations, succession planning provides direction to staff in regards to mentoring, guiding, and developing other staff within the department. This type of focused mentoring increases employee engagement and can improve retention. It also provides insight to the department regarding the capabilities of staff within the organization to continue to grow and be contributing members.

Recommendations:

IT leadership should work with Human Resources to develop and implement a succession plan for key positions. The succession plan should include the identification of key positions (Cyber Information Security Officer, Division Managers, Public Safety and Public Utilities Line Level staff) critical for business continuity and operations, as well as those who are eligible to participate in the program.

3 Effectiveness of Staffing Levels

One of the key components of this analysis is to review the Department's current staffing levels. Over the past ten years, as the Department transitioned from contracted to in-house staffing there was a reduction in overall staffing levels. During FY19-20 the IT Department was authorized for approximately 59.25 positions. At the commencement of this study there were seven (7) vacant positions; however, through the course of this project, two (2) of those positions – Cyber Information Security Officer (CISO) and Sr. Administrative Analyst were filled. Therefore, at this point there are still five (5) vacant positions, with two (2) of those positions in “managed hiring”, meaning they are frozen until further notice.

Considering that the department only has 54.25 positions filled, those positions support a city over 2,500 employees. According to Gartner, the typical standard is approximately 3 IT staff per 100 employees or IT staff should represent 3% of the total workforce. This number varies slightly from year to year as IT needs and priorities evolve but 3% is a generally accepted average across multiple years. Based upon the City's filled positions, the current ratio is approximately 2.2 IT staff per 100 employees. If the City were to meet the established standard of 3 IT staff per 100 employees, the City would need to increase IT staffing to approximately 73.75 FTE, or increase staffing by 19.5 or by 36%. This would be a substantial increase in staffing and should only be considered based upon a significant change in service level.

In addition to reviewing staffing from a ratio perspective, the project team also reviewed the Department's timecard information for the past several years. This information was only collected for line-level staff, as all managerial and administrative staff do not track

their time on activities. The following table shows by division, the total number of annual hours by staff:

Division	FY18 Hours	FY19 Hours	FY20 YTD¹ Hours
Applications	26,485.25	23,624.20	22,618.36
Client Services	17,338.00	19,788.75	17,439.55
GIS	2,892.50	3,029.75	2,743.64
Network	5,441.30	5,708.90	5,397.76
Operations	13,184.75	13,371.00	13,138.09
Project	3,657.75	1,980.10	2,193.00
Security	2,334.30	1,703.30	1,042.36
TOTAL HOURS	71,333.85	69,206.00	64,572.76

As the table indicates the hours spent on each of these activities declined each year, and the decline in hours spent per activity has to do with the vacancies in the department, as the timecard reflects the actual time spent by staff on those activities. It is important to note that currently none of the project management staff have their time coded under project, as those staff do not track their time, the project time noted in the table above is in relation to all other divisions and as such from future calculations has been excluded.

The annual workload hours were divided by the Department's available hours to calculate the estimated staffing requirements. The project team calculated the Department's available or productive hours based upon the review of the City's labor agreements as well as standardized assumptions regarding meetings, breaks (lunches), and training hours. The following table shows the assumptions utilized for the calculation of the productive hours:

Category	Amount (Hrs)
Base Full Time Hours	2,080
Holidays (11 days a year)	88
Vacation (10 days a year)	80
Sick (12 days a year)	96
Breaks / Meetings / Training ²	168.82
<i>Subtotal of Hours to Be Excluded</i>	<i>432.82</i>
Annual Productive Hours	1,674.18

Based upon the analysis conducted, IT staff have approximately 1,674 hours available in a year to spend on projects and activities. The 1,674 hours equates to approximately 79% productivity rate. The project team divided the annual hours by the 1,674 hours to calculate the approximate number of full-time equivalent (FTE) staff needed to perform the activities within each division. The following table shows this calculation, along with the inclusion of a 3 year average of the FTE:

Division	FY18 FTE	FY19 FTE	FY20 YTD³ FTE	3 year average
Applications	16.08	14.34	13.73	14.72

¹ FY20 YTD reflects data collected through the end of May 2020.

² The Breaks / Meetings / Training hours assumes 30 minutes of break for 5 days a week for 45 working weeks, 1 hour of meetings per week for 45 working weeks, as well as an average of 11.63 of training hours per year as coded on staff's timecards.

³ FY20 YTD reflects data collected through the end of May 2020.

Division	FY18 FTE	FY19 FTE	FY20 YTD³ FTE	3 year average
Client Services	10.53	12.01	10.59	11.04
GIS	1.76	1.84	1.67	1.75
Network	3.30	3.47	3.28	3.35
Operations	8.00	8.12	7.98	8.03
Security	1.42	1.03	0.63	1.03
TOTAL FTE	41.09	40.81	37.87	39.92

The number of line level FTE required to perform all of the activities varies from a low of 39.20 in FY20 to a high of 43.31 in FY18. The largest proportion of staff are required for Applications and Client Services, followed by Operations. The 3 year average calculation indicates that the department needs approximately 41.5 line level FTE to perform all of the functions. The project team compared the 3 year average noted above to the Department's current authorized and filled positions by division, as shown in the following table:

Division	3 year average	Current Authorized	Current Filled
Applications	14.72	17	15
Client Services	11.04	11	9
GIS	1.75	2.5	2.5
Network	3.35	4	4
Operations	8.03	8	8
Security	1.03	1	1
TOTAL FTE	39.92	43.50	39.50

Based upon the timecard information, the Department's current filled line level staff of 39.50 is about 0.5 FTE short of meeting the 3 year average requirement. The department seems to be sufficiently staffed to meet Applications, Operations, and Security needs. However, the department does seem to be slightly overstaffed as it relates to GIS and Network support, and under-staffed as it relates to Client Services. However, it is important to note that for GIS and Network divisions, some of the staff time might have been captured under project management and research requirements, and as such they might be sufficiently staffed. Therefore, based upon the timecard analysis, it seems that at a minimum the Department should focus on filling the vacant positions for Client Services to ensure that it can continue to provide its core services.

The timecard data also revealed the necessity for the project managers to track their time, especially the Innovation Division as they are working on specialized projects for the City. This will better help department and division management determine if there is an appropriate allocation of resources for those activities.

Finally, the project team also conducted a comparative analysis of Riverside's IT staffing levels to four large jurisdictions – Anaheim, Bakersfield, Chula Vista, and Santa Ana. The following table compares the total IT authorized staffing levels by jurisdiction to Riverside, as well as the total number of authorized citywide positions, and the resulting ratio of IT staff to citywide FTE:

Category	Riverside	Anaheim	Bakersfield	Chula Vista	Santa Ana
Total Authorized IT Staff	59.25	22	48	15	24

Category	Riverside	Anaheim	Bakersfield	Chula Vista	Santa Ana
Total Citywide FTE ⁴	2,459	1,927	1,634	1,039	1,154
IT Staff to Citywide FTE Ratio	2.4%	1.1%	2.9%	1.4%	2.1%

Based upon the comparative analysis conducted, the City's IT Department ratio is on par with Santa Ana and less than Bakersfield. The overall average for the comparable jurisdictions is approximately 1.9%. Therefore, Riverside based upon the comparable analysis seems to be more appropriately staffed and able to meet the needs of its departments.

Overall, the department's current staffing ratio of 2.2 IT staff per 100 city employees is below Gartner's recommended level of 3 IT staff per 100 employees. However, the department is able to meet and provide the core IT services with this staff. It is recommended that at a minimum the department fill all of its current vacancies, including within the Applications Division to help ensure that it can continue to provide its high level of service. As the report recommends, the Department should also work on collecting and tracking additional performance metrics to help evaluate staffing levels on an ongoing basis.

Recommendations:

The IT Division is able to provide all of its services with current staffing levels; however, the Division should fill all of its five (5) vacant positions – including the frozen positions to meet existing workload needs.

IT Management should encourage staff within the Innovation Division, as well as project managers, to start tracking their time on project management to help continuously evaluate staffing levels.

4 Financial Evaluation

The Innovation and Technology Department is currently funded out of the general fund. As the department primarily services other city departments and functions its costs are allocated to city funds and departments as part of the city's Cost Allocation Plan. The Cost Allocation Plan is a report prepared by the City to distribute the city's general fund administrative costs (i.e. City Manager, Finance, Human Resources, IT, etc.) to all users of those services (i.e. other Funds and Departments within the City).

The project team reviewed the current Cost Allocation Plan for FY 19-20 and it allocates Innovation and Technology costs based upon the following three functions and metrics:

- 1. General Citywide Support:** This function represents general IT support provided to city departments as it relates to networks, operations, and development and implementation of citywide applications. The metric for allocation is budgeted

⁴ IT FTE were excluded from the calculation.

expenditures per fund and department, which means that departments with larger budgets such as Police, Fire, Utilities, etc. receive higher support than other departments such as Museum or Library.

2. **Client Service and Cybersecurity Support:** This represents the support provided by IT as it relates to processing help desk requests on behalf of City departments as well as ensuring the city's cyber safety. The metric for allocation for this function is number of full-time equivalents per fund and department, which means that departments with larger staff such as Police and Fire receive higher support than Engineering and Museum.
3. **Software Maintenance – Citywide Support:** This function represents the support as it relates to the costs for procurement, management, and replacement of software systems that benefit the entire city such as records management software, copier and printing contracts, etc. Similar to the Client Services and Cybersecurity Support function, these costs are also allocated to funds and departments based upon the number of full-time equivalents (FTE) per fund and department.

As the points demonstrate that all three functions spread more cost to the larger departments (financially and operationally).

The Cost Allocation Plan spreads IT costs (personnel and non-personnel) to all general and non-general fund sources; however, the City is typically only able to recover the costs associated with IT from non-general fund sources. Additionally, as part of the cost allocation process, the Department also identifies specific software and contracts associated with other funds and departments, and the cost is charged directly to those departments.

While there are certain positions within the IT department that are dedicated to specific non-general fund departments, those positions are still funded out of the general fund. Many jurisdictions will typically consider funding those positions either fully or partially out of the non-general fund departments or services to which they are dedicated. This type of practice not only relieves the burden on the general fund for supporting those positions, but it also more accurately accounts for the supports and services provided to those funds and departments. It also enables that as there is the need for additional resources, the funds and departments that can pay for their own services can pay for those services directly, and general fund monies can be used for all other personnel.

Therefore, IT Leadership should identify the positions within each operational area that directly provides services to non-general fund entities and identify the percentage of time spent by those positions on those activities. IT Management should then meet with those funds and Finance and discuss the possibility of having those other funds fund the positions either wholly or partially.

Additionally, currently the IT Department is within the general fund and several jurisdictions have transitioned IT into an Internal Service Fund (ISF). An ISF is a term for a fund that is outside of the general fund and is fully self-sufficient and funded by chargebacks to other city funds and departments (including the general fund) based upon services provided. Services such as Fleet Maintenance, Workers Compensation, and Risk Management are traditionally considered ISFs. However, due to the specific nature of IT services, it has also been considered a fund in which chargebacks can occur to all funds and departments. The IT department should consider working with the City's Finance Department to explore the possibility of transitioning IT into an ISF. The transition to an ISF will provide IT with greater control over its budget and the ability to more accurately charge other funds and departments for the services that they receive as all departments will have to pay their fair share.

Lastly, all of the current funding obligations and sources for IT are in relation to its operating expenditures. The department does not have a set mechanism for funding any capital expenses related to replacement of IT infrastructure and equipment. Similar to an IT Services ISF, an IT Replacement ISF should be established. This would be similar to a Fleet Maintenance ISF and Fleet Replacement ISF. The development of this ISF will enable IT to annually charge departments for the replacement of equipment, infrastructure, and software and build up a reserve, which then can be used to purchase equipment and infrastructure as necessary.

It is important to note that while this financial component was not a key focus of this performance assessment, we believe that it is critical to the success of the department that a more secure funding source and methodology be developed for IT to continue to provide its services in the most efficient and cost effective manner.

Recommendations:

IT Leadership should identify positions within the Department that either fully or partially are dedicated to non-general fund departments and meet with those departments and Finance to fund those positions either wholly or partially through those other funds.

IT Management should meet with Finance and discuss the possibility of transitioning IT out of the general fund into an internal service fund (ISF) to enable IT to have greater transparency, flexibility, and ownership of its expenses and revenues.

Finance and IT should consider the creation of an IT Replacement ISF to annually charge city funds and departments to have a fund through which replacement of IT infrastructure and equipment could be funded.

3. Project Management

Effective project management is critical to the success of an IT organization. Often, those tasked with the implementation of new or the upgrade of existing technologies are eager to get work started and fail to see the value in developing a documented, detailed project plan. This leads to delays, scope creep, cost overruns, and potential project failures.

The project team evaluated the city's project portfolio as it relates to the number of completed projects, active projects and projects on hold. The City currently has an active listing of 41 projects, 46 projects that have been put on-hold (these can fluctuate between being on hold or active) and has completed 103 projects over the last three fiscal years. The following table shows some statistics as it relates to projects by fiscal year:

Category	FY18	FY19	FY20 YTD ⁵
% of Projects Closed on Time	34%	46%	45%
Average # of Days to Complete a Project	384	318	421
Max # of Days to Complete a Project	2,040	607	1,373
Average # of Days Between Request Date and Estimated Start	14	32	6
Average # of Days Between Estimated Start and Actual Start	130	137	184
# of Different Project Managers	15	8	13
Avg # of Projects per Project Manager	4	2.25	1.9

As these metrics indicate in some instances there have been improvements such as increased effectiveness in closing projects on time and reducing the number of days between request and estimated start date as well as the average number of projects per project manager. However, in other cases, things seem to have worsened between FY19 and FY20 such as the average number of days to complete a project, or the average number of days between the estimated start date and actual start date.

Based upon the data presented there is significant room for improvement. In the evaluation of active projects, the department currently has 61% of those projects on schedule. Refining this statistic further, when looking at prioritized projects, the department currently has 73% of its projects on schedule. This indicates that while projects may start on schedule in many instances, at some point due to minimal staffing and multitude of projects to manage certain projects slip behind schedule.

In looking at the active list of 41 projects those are spread over 12 positions so an average of 3.4 projects per person. However, four (4) of the 12 are division supervisors and two (2) of the 12 are deputy directors for the department. This indicates that nearly half of the projects are being managed by staff that have full-time job descriptions not related to project management, which can help explain delays in timelines as these staff are managing staff, their day-to-day activities as well as a full project management workload. There are only two (2) project managers with the proper training and certifications in the department. Some services requested or internal initiatives may technically meet the definition of a project, however, the level of effort needed may not justify the assignment

⁵ FY20 YTD reflects data collected through the end of May 2020.

of a dedicated, certificated project manager. The City should establish and document a set of criteria to help city staff determine when a given request cannot move forward without a certified project manager assigned. Typically, criteria used would include the estimated number of staff hours required, the number of teams or the level of cooperation/coordination between teams, required, the estimated duration of the project, additional parameters unique to the City, or some combination of the above.

Ideally, all division supervisors and leads should receive professional external training as it relates to project management, for expeditious purposes, at a minimum, the current certified project managers should provide training to existing staff on additional project management capability. The City may also want to consider contracting project managers to work under the guidance and direction of the City's Project Management Office.

A thorough, systematic review of the current project portfolio is recommended. This review should be used to determine three primary qualifying criteria. Failing to meet any one of the criteria would indicate that the project should be canceled. The following points provide information regarding the qualifying criteria:

1. **Project Necessity:** Owing to the time that some projects have been on the waiting list, a determination should be made with the department requesting the work as to if it is still needed. Those that fail this basic question should be canceled.
2. **Project Definition:** The project must be properly defined with a specific set of requirements to be addressed and that the proposed solution; largely meets those requirements. This too will require conversations with the project team and stakeholders from the department. The City should conduct a gap analysis of the requirements against the functionality of the proposed solution. Those projects that do not meet a predetermined score are in high risk of failure and likely should not be pursued.
3. **Project Funding:** Every project should have defined funding source, whether it is the general fund or enterprise funds. If there is no funding source then the project should not be pursued.

As part of this review, the City should perform an analysis of the level of effort required by a project manager to bring the project to successful completion, on time, and within budget. This will be essential in determining the staffing needs for project management.

In addition to determining which projects to continue listings as active, of those active projects there should be a system for prioritization. While the city currently does prioritize projects, there should be a systematic approach, an option for ranking projects could be as follows:

- **Priority 1:** Mandated by local ordinance, state statute, or Federal Law with a mandated due date.

- **Priority 2:** Mandated by local ordinance, state statute, or Federal Law with no mandated due date.
- **Priority 3:** Mission critical with a due date based on the financial, operational, or social impact to the City.
- **Priority 4:** Mission critical with no due date based on the financial, operational, or social impact to the City.
- **Priority 5:** All other types of projects

A strong project management program will also provide senior management with data that will help in the allocation, utilization, and projection of technical, human, and financial resources.

Recommendations:

All staff intended to be utilized as project managers should receive certification in project management; however, at a minimum, the department's existing certified project managers should train other staff in the department regarding project management techniques.

The department should establish a policy requiring the assignment of a project manager based upon the scope of the project and whether it needs a certified project manager.

A thorough review of the existing project portfolio should be conducted regarding the necessity of the project, the clear scope of the project, and the ability to fund the project.

A standardized methodology should be developed for project prioritization.

4. Business Continuity and Disaster Recovery

It is critical for the success of any organization that there are plans in place to ensure that the business continues even in the case of an emergency or a disaster. In light of current circumstances (i.e. COVID-19) this has become even more critical, as it outlines how many times there can be interruptions in a business beyond natural disasters. A Continuity of Business Plan (CoB) and Disaster Recovery Plan (DR) are documents that are critical to providing essential services to the organization in the wake of a disaster. The following subsections discuss each of these plans.

1 Continuity of Business (CoB) Plan

The CoB relates to digital services provided by the IT department and sets the standards for the following:

- Recovery Time Objectives – the length of time it takes for services to be restored
- Recovery Point Objectives – the state in which the system will be restored

These two items are critical components of a CoB Plan. The City is currently in the midst of developing a formalized CoB as part of the efforts under the Innovation Division and the Deputy Director of IT. A CoB Plan will guide the City in prioritizing their work to ensure the most critical systems are restored first.

Due to other priorities within the department and lack of sufficient staffing resources, the IT Department has been unable to complete the formalized Continuity of Business Operations plans. However, in the last few months due to the drastic change in operations as a result of COVID-19 forcing many city employees to work remotely, the IT Department has had to adapt quickly and efficiently in order to ensure there was no slowdown in existing operations. Therefore, while staff were able to adapt to the new environment, this moment can be used as a real-time learning exercise to formalize many of the steps taken to ensure that there is a formalized CoB plan.

Additionally, a CoB Plan requires involvement not just from IT, but all city departments as IT has to ensure that any services provided to internal city departments (i.e. payroll, purchasing, accounts payable, etc.) can continue as well as any external services (i.e. police, fire, utilities, etc.).

The Innovation Division should continue to manage the creation of the CoB plan, with the Deputy Director managing the effort in concert with the Business Systems Support Manager. This position should work in concert with the different departments' Business Process Analyst positions and identify critical points of failure in business operations to better prepare the department to handle any future crises and disasters.

Once a formalized plan has been developed, the Department should lead mock drills and exercises for city departments every six months to practice in the event of a break in city

operations. This type of practice will require commitment from other city departments and support from city management. At the conclusion of the exercise, a debriefing should be held to outline any key issues or challenges as a result of the exercise and any opportunities for improvement should be documented and added to the CoB Plan.

Recommendations:

A formalized Continuity of Business (CoB) Plan should be developed by the Deputy Director of IT (over Innovations).

The steps taken during COVID-19 should be documented as part of the CoB to allow for adaptation into a more general yet formalized document.

The Innovations Division staff should work with the different department representatives to ensure that the plan documents all key internal and external business operations.

The department should conduct bi-annual (every six months) sample exercises and drills with different departments to practice in the case of any operations being interrupted. The results of these exercises should be documented.

2 Disaster Recovery (DR) Plan

The Disaster Recovery (DR) Plan works in conjunction with the Continuity of Business Operations Plan and focuses on the physical environments needed for the City's IT systems to operate (Hot, warm, and cold backup data centers) and how the IT department will transition to the appropriate location. The purpose of this plan is to provide guidance in the event of a catastrophic loss of a facility such as buildings containing data centers or mission critical communications infrastructure.

Unlike a Continuity of Business Plan, the City has not undertaken any efforts to develop a formalized disaster recovery plan. The Deputy Director over Innovations should be the leader of this effort as well and work with staff in his department as well as other city departments to identify the weak points within the system. The plan can document these weak points and provide crucial guidance as to how any potential risks to those weaknesses can be mitigated as well as who in the city will be responsible for managing the response to the disaster.

Similar to the CoB Plan, once the disaster recovery plan has been formalized the department should conduct bi-annual (every 6 months) mock disasters and tabletop exercises of the plans that include IT and representatives from the departments. These exercises will serve to familiarize and train staff on what, when and how they will react in the event of a real emergency as well as help to identify weaknesses or gaps in the plans. These exercises can be conducted concurrently with business continuity exercises or can be staggered depending upon the nature and type of exercises.

In support of these exercises and to demonstrate operational capability, the City should perform quarterly testing of their backup and restore processes and procedures to ensure all staff are properly trained and understand the processes and procedures to backup and recovery data from both in-house and secure off-site facility data backup locations, These exercises should include backup and recovery of both files systems containing unstructured data such as documents, spreadsheets, images, etc. as well as structured data contained in a variety of transactional databases.

The exercises similar to the development of the plan should be managed and led by the Innovation Division in IT.

Recommendations:

A formalized Disaster Recovery (DR) Plan should be developed by the Deputy Director of IT (over Innovations).

The Innovations Division staff should work with the different department representatives to ensure that the DR plan documents potential areas of weaknesses in the event of a disaster and how to mitigate the risks associated with those weaknesses.

The department should conduct bi-annual (every six month) sample exercises and drills with different departments to practice in the case of any operations being interrupted. The results of these exercises should be documented.

The department should conduct quarterly testing of backup and restore processes and procedures associated with file systems conducted documents, spreadsheets, images, and transactional databases to ensure that all staff are trained appropriately.

5. Network – Security Internal Controls

Cyber security is an ever changing and evolving landscape. In this age of increased reliance on technology it is imperative that the City not only establish policies in relation to security, but regularly review and update those policies. The City has a Technology Use and Security Policy (TUSP), which was created in 2003 and last revised in 2018. According to the City's administrative manual, the policy is up for review in July 2020.

The City's TUSP identifies this policy being applicable to not only city staff but any vendors or contractors utilizing phones, computers, voicemail, email, or any type of connectivity that is owned and operated by the City. The policy covers the following key areas:

- Acceptable Use of Technical Resources
- Unacceptable Use of Technical Resources
- City Monitoring
- Identification, Authentication, and Authorization
- Passwords Management
- Unattended Computers
- Software Management
- Viruses, Malware, and Spyware Prevention
- Software Downloads
- Removable Media and File Sharing
- Software Licensing and inventory
- City Access to information
- Remote Access
- Database and System Access
- Physical Protection
- Classifying, Storing, and Handling Sensitive Information
- Software Use and Copyrights
- Security
- Security Education
- E-mail Records and Storage
- Policy Violations

As the points demonstrate the policy is fairly comprehensive. In addition to all of this information, the policy also includes attachments for acknowledgment and receipt of the Technology Use and Security Policy (city employees and vendors), remote access agreement for authorized users only, and the standard operating procedures for vendor remote access.

IT management in conjunction with City management should review the current TUSP as it relates to current utilization of remote access to city materials especially during COVID-19. An annual audit should be conducted to ensure that all users within the city and any vendors have signed the TUSP acknowledgement form. This annual audit should be managed by the Human Resources Division, as the TUSP Acknowledgement form should

be part of the employee's personnel file. Any new employees within the City should sign this form and if an employee transfers within the City and their access changes then the form should be re-signed.

Regular training of employees on current threats is essential is an integral part of securing the environment. Any new employee hired within the City should not only receive a copy of the TUSP and the acknowledgement form, but as part of their orientation and IT training they should receive some basic tips on how to keep their information secure. Additionally, IT should provide up to two mandatory trainings a year (to stagger staff attendance) to provide more detailed information regarding passwords, remote access to IT files, and some sample drills and exercise on how to respond in the case of a security breach.

Additionally, the City should evaluate options for improving or automating the process of disabling the account of separated employees. The current process relies heavily on staff members logging in to the City's Active Directory environment to disable accounts. This reliance on manual intervention exposes the City to situations where an account remains active for a period after the employee has separated from the City. Automating the onboarding process should also be considered as a more efficient process for providing new employees the access needed in a timely manner.

The City should consider the creation of a formal Computer Security Incident Response Team (CSIRT) composed of representatives from each of the divisions within the IT department and led by the Cyber Information Security Officer (CISO) as well as a representative from the City Manager's office. This team should then be tasked with the creation of a comprehensive CSIRT Response Plan. The team should meet at least once a quarter.

Separate and independent of the Disaster Recovery and Continuity of Business exercises, tabletop exercises and mock security incidents should be held annually to train the CSIRT team on the security plan and to identify any potential weaknesses and gaps in their plans. These exercises should be done bi-annually (every 6 months).

Recommendations:

As part of the July 2020 review of the Technology Use and Security Policy (TUSP), IT leadership should ensure that all aspects of the current policy and standard operating procedures are still relevant and develop a sub-policy or update it especially in light of current remote work environments (COVID-19).

An annual audit should be conducted to ensure that all active city employees have signed the acknowledgment and receipt of TUSP. This annual audit should be managed by Human Resources as the form should be part of the personnel file for the employee.

Cyber security training for all city employees should be formalized. A simpler and shorter training should be provided as part of the new hire orientation

process and then two training sessions should be provided annually for all city employees regarding the TUSP as well as some sample drills and exercises.

The disconnection of email accounts associated with employees should be automated to minimize continued risk associated with access to the City's network.

The City should create a Computer Security Incident Response Team (CSIRT) led by the Cyber Information Security Officer (CISO) and comprised of representatives from all IT Divisions and representative(s) from the City Manager's office to develop strategic responses to any security threats.

The CSIRT should meet at least once a quarter and outside of business continuity and disaster recovery conduct sample exercises and drills every 6 months.

6. Client Services

The Client Services Division essentially serves as the first line of contact for all of the City Departments and Divisions and the IT department. The Division is responsible for answering all phone and help desk inquiries.

The Client Services Division is organized based upon location. Staff within the division are assigned to a specific facility, such as the Police Headquarters, City Hall, Fire, Library, etc. This ensures that there is a dedicated support position or person identified for each facility. Additionally, there is a backup for each position to guarantee continuous support to City staff and departments. Lastly, the Division has set up a rotation to allow staff to be available on-call outside of normal business hours (i.e. after hours and weekends).

The organizational structure of the division enables it to service all city facilities in the most efficient manner as there are dedicated staff. While generally through the process of requesting help desk tickets city staff become aware of the staff position or person dedicated to their department or division, this information is not always communicated to City staff. As part of new employee orientation or staff transition between City departments, the IT representative information should be provided to City staff to ensure that they are aware of the person they need to contact in regards to IT help and support.

As part of this analysis, the project team analyzed data from the City's current ticketing system for FY18, FY19, and FY20 YTD⁶ as it relates to processing tickets associated with Desktop support, specific departmental support, client services, printers, scanners, and general IT support. The following table shows some key statistics evaluated for the three fiscal years:

Category	FY18	FY19	FY20 YTD
% of Tickets Closed in 1 day or less	51%	54%	65%
% of Tickets Closed in 3 days or less	61%	65%	75%
Avg # of Days to Close Tickets	19.2 days	17.8 days	7.1 days
Avg Time to Close Ticket	1.07 hours	1.20 hours	1.08 hours

The workload evaluation indicates that there have been some improvements in efficiency and effectiveness of resolving client services tickets as the percentage of tickets being closed in one (1) day or less has increased from 51% in FY18 to approximately 65% in FY20. The standard for tickets closed within 24 hours is 70% of tickets; therefore, there is still some room for improvement for the City to meet that standard. However, when considering tickets closed in three (3) or less days, in FY20 the City is able to exceed 70% and close 75% of tickets in that time frame.

Additionally, the data indicates that the average number of days to close tickets has declined from 19 days or approximately 1 month to 7 days or 1.5 weeks. However, the

⁶ Ticket information was provided through the end of May 2020.

average time it takes to close tickets has remained relatively the same for the last several years.

Overall, Client Services is staffed by a Division Manager and 11 full-time budgeted positions, of which there are two (2) vacant positions. Therefore, currently, Client Services is operating with nine (9) full-time staff dedicated to meeting the City's help desk needs. In reviewing the workload information, it seems that the lag time in resolving tickets may be due to insufficient staffing. Once the department is able to fill the vacant positions, the division should easily be able to meet the 70% target and exceed that as it continues to resolve help desk needs in an effective and efficient manner.

It is important to note that while staff may be assigned to the help desk, depending upon their skillset and the facility to which they are assigned they may assist staff in other IT divisions as necessary. For example, the help desk position for RPU (Riverside Public Utilities) may work with their counterpart in Network Services and Operations if there are any issues with the Utilities' technological infrastructure to help resolve the issue in a timely manner. This ensures that there is a consistent contact position for the City department and that the primary person is aware of all of the technological issues and needs for that department.

Recommendations:

As part of new hire orientation or transferring of positions, employees new to a Department should be made aware of their specific contact within the IT Client Services Division.

IT Client Services should resolve 70% of its tickets in one (1) or less day, which can be achieved, once the Division is fully staffed as it has been budgeted.

7. Innovation

The term Bi-Modal IT describes the need for IT organizations to provide the operational reliability required by the City and the flexibility needed to rapidly provide innovative solutions to the business needs of the departments and community served. The IT Department in the City of Riverside is unique in that instead of it standing for Information Technology compared to other cities, it stands for Innovation and Technology. The change in name of the department stresses the importance that the organization equates with innovation and its connection with technology and the focus on bi-modal IT.

The Innovation Division in the IT Department consists of the Deputy Director and four staff positions – Project manager, Business Systems Support Manager, Principal Management Analyst, and IT Tech II. Unlike the other divisions, in which multiple staff serve in the same role, each of these positions has a unique role within the Department and within the City.

The Project Manager position is responsible for overseeing all the IT Department projects and helping to prioritize it based on the city's and department strategic directions. The Business Systems Support Manager serves in the capacity of reviewing the department's existing processes and contracts to ensure most effective use of resources. The Principal Management Analyst II is responsible for special projects within the Department. The current focus of his special projects is in relation to bringing the City's documents in compliance with System Administration Management (SAM). The IT Analyst II position supports the project manager with project management as well as data analytics within the department.

However, due to vacancies within the department, there were some operational deficiencies, which required reallocation of staff in the Innovation Division to help support the other divisions. This in turn has limited the availability of staff to work with City leadership and the community to identify unmet needs, foster innovation, and implement solutions to address those needs.

As part of this analysis, there are staffing recommendations to right-size the division, which will enable the Innovations division to return to their designated activities. The Deputy director overseeing the Innovations Division should reevaluate the job duties of the staff in innovations and ensure that it helps to meet the strategic direction of the City. The development of the IT Strategic Plan will help assist the Innovation Director in this reevaluation.

The Innovations Team should work with City Administration and the community to identify areas, challenges, and opportunities where technology can be brought to bear on a specific initiative using a rapid, agile, and responsive approach.

Recommendations:

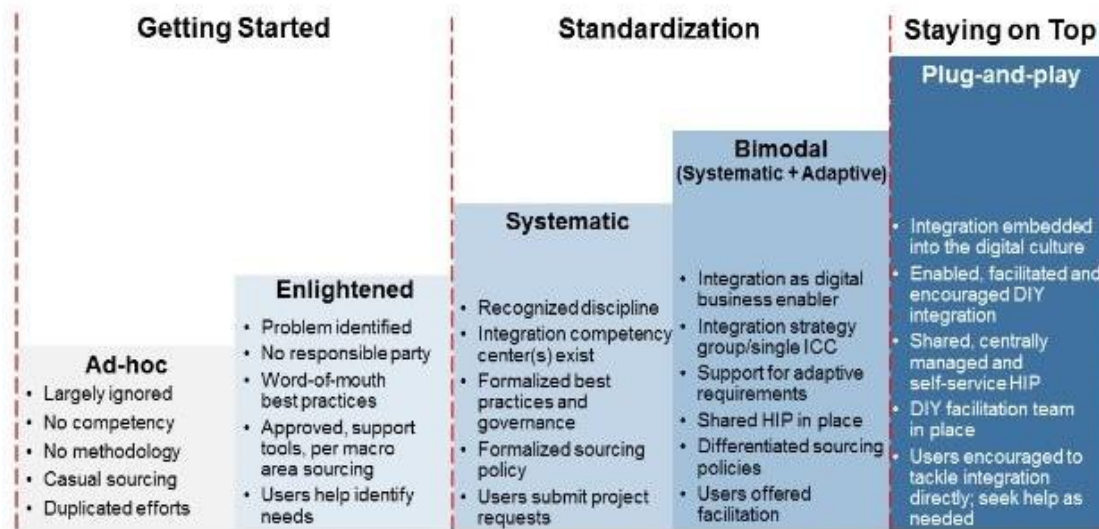
The Deputy Director of IT over Innovations should reevaluate the four positions in Innovation and ensure that they are assigned to appropriate roles and responsibilities to help advance the City's strategic needs.

The Innovations Team should work with City Administration and key stakeholders in the community to define areas in which technology can be used innovatively to develop a rapid and agile response.

8. Management Systems

The management and effectiveness of IT systems has evolved within the city since the transition of services to in-house. As part of the benchmarking analysis, one of the methods to evaluate a city’s effective use of its management systems is to look at the IT maturity model published by Gartner:

Gartner Pervasive Integration Maturity Model



#GartnerSYM

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Based upon this maturity model, there are divisions within the department that are at different levels of maturity. For example, in areas such as change management the department is at the standardization phase, whereas in relation to applications and projects it is still closer to the getting started phase of the maturity model.

IT systems are critical to the success of an organization, and the effectiveness of the systems is directly tied to the department’s policies and procedures. The City has numerous policies, processes, and procedures in place governing the way the IT department operates. Many of these are several years old and others have not been updated to increase their relevance to the current environment. For example, the City’s Technology and Use Policy was created in 2003 but was last revised in 2018 with a goal to review it in 2020. All policies and procedures as it relates to IT should be reviewed and updated every 2 years. This will not only help to ensure compliance to these policies but also provide an opportunity to verify that they meet the current needs of the department and the City.

An effective framework for IT is the Information Technology Infrastructure Library (ITIL), which consists of a set of best practices related to IT. The ITIL Service Strategy⁷ consists of the following four key components:

1. **Service Portfolio Management** – this would require the department to ensure that it has a clear indication of all of the different services that it offers and how they align with the city’s strategic plan.
2. **Financial Management** – this would look at ensuring that internal cost allocation of IT services is appropriately allocated across departments and any direct services for fund and departments are accounted for in those budgets, including maintenance and service level agreement costs.
3. **Strategy Management** – this would be in relation to ensuring that current systems are able to meet the city’s existing practices, as well as utilizing the innovation division to determine potential future needs for IT in the city or to use IT to address future problems.
4. **Demand and Business Relationship Management** – this would be in relation to reviewing customer tickets and work order requests to determine if there are any patterns in the tickets to address underlying issues. As well as ensuring there are sufficient staff to support specific departments, such as dedicated staff support for public safety services.

Riverside’s IT department has each of these component and the City is in the process of implementing a new work order system for the Help Desk Team that is based on ITIL framework. This will help increase the capabilities and service delivery of the IT department. The same framework used for the help desk is applicable to every division within IT department that has responsibility for operational functions. The framework should include the following elements:

- **Time Tracking:** Staff should be required to record time to a specific work order/case or project. This will provide the Department’s management with data showing staff utilization and a more accurate projection of the workload of the department. Department management will then have empirical data to help manage staff performance and project staffing needs more accurately.
- **Service Level Targets:** These targets help departments understand when a given type of request can and should be serviced. Analysis of the type of cases created and a realistic timeframe for completion of specific request types must be performed. These service level targets become the basis of a set of Key Performance Indicators (KPIs) to quantify and document the efficiency and effectiveness of the department, as discussed in the KPI Chapter.

⁷ <https://www.cherwell.com/library/essential-guides/essential-guide-to-til-framework-and-processes/>

In addition to operating with the ITIL Framework there are other areas of improvement related to the effectiveness and management of IT systems within the City. These other areas include: Software Licensing, IT Steering Committee, Strategic Plan, and Technology Needs Assessment.

It is recommended that the City adopt an automated method for reviewing applications installed on end user systems and cataloging the number of licenses available along with the number of licenses in use. Scans of software installed should be performed at least quarterly. A manual process for tracking licenses is no longer viable given the ease with which software can be obtained and installed outside of any IT organization.

The City should consider the creation of an IT Steering Committee, which should comprise of representatives from all city departments and representatives from IT as it relates to network, operations, innovations, applications, and GIS. The purpose of the committee is to ensure the needs of the departments are recognized, that there is cooperation between the departments, and to provide the IT department with guidance on the projects and initiative are aligned with the goals and objectives of the City. The steering committee should meet once a quarter and can be used to develop the strategic plan and the needs assessment discussed further below. The creation and implementation of this committee will require support from City Management.

A formalized and documented five (5) year strategic plan should be created. This plan should incorporate input from the ITIL framework (metrics and statistics) and the Citywide IT Steering Committee. This plan needs to be reviewed and updated annually as the business needs and technology climate evolve. Involvement of City departments is crucial to ensure their needs are incorporated into the plan. Initiatives and projects identified in the strategic plan will be a driver in the development of the IT departments budget.

Lastly, as part of the strategic plan and in the annual updates, a technology needs assessment should be conducted. The needs assessment consists of a formal review of all new technology requests as well as requests for upgrades or enhancements to existing technology is needed. The culmination of the needs assessment is prioritization of city projects related to IT Infrastructure (hardware and software). Prior to implementation, a review of the requirements and the capabilities should be performed to ensure that it is able to meet the requested department's needs.

Recommendations:

The City should continue its practice of reviewing and updating IT policies and procedures every two years.

The IT Department should utilize the Information Technology Infrastructure Library (ITIL) framework when developing and implementing the new work order system with a focus on tracking time related to requests as well as service level targets.

The ITIL framework should be implemented across all IT Divisions and not just client services.

The IT Department should develop an automatic process for tracking the applications installed and the number of licenses in use.

The IT Department should work with City Management to establish the creation of an IT Steering Committee, which should meet quarterly and should be responsible for the creation of a 5-year strategic plan and annual needs assessment.

The IT Steering Committee in conjunction with IT Leadership should create a formalized strategic plan to document the department's visions and goals as well as outline how the department can meet the City's needs.

The IT Steering Committee in conjunction with IT Leadership should conduct an annual needs assessment that identifies specifically the IT software and hardware related needs throughout the City.

9. Interdepartmental Communication

The primary customers for IT are other internal City Departments, and as such it is critical for the success of the department's operations that there is consistent communication and collaboration between City departments and IT. The collaboration between IT and other departments is broken down into four major areas:

1. **Centralized IT Services:** IT services have always been centralized throughout the City, but while the City was contracting for IT services, many departments were responsible for developing and meeting their own IT needs.
2. **City Department IT Representative:** Each department has their own position that serves in the capacity as representative for communicating and expressing their IT needs.
3. **IT Staff Assignments to Departments:** There are dedicated staff support assigned within IT for each function to specific city departments.

These three areas are in the context in which the project team evaluated the effectiveness of communication and collaboration between IT and the other departments. The following subsections discuss the current state of practices for each of these areas and potential opportunities for improvement.

1 Centralized IT Services

As discussed in the introduction of this report that up until 2016, the City of Riverside contracted for IT services. The contract IT services were set up similar to the current department, meaning that there were staff available on-site to different city departments. These contracted services were in relation to troubleshooting basic needs – help desk, network services, operations, and GIS; and were less focused on providing strategic support and direction to City departments. Therefore, throughout the years of contracted support, the City developed a defacto decentralized approach to IT operations.

Even though IT has been fully insourced for several years, departments still operate in the same environment as if IT is still outsourced. Riverside developed a policy in October 2017 related to Technology selection and Acquisition. This policy and procedure was instituted as part of the Administrative Manual within the city and specifies that if a department is interested in purchasing any devices (desktops, laptops, mobile phones, etc.) or software, they will need to involve IT at the beginning of the process to ensure that the requested item(s) are compatible, efficient, and do not provide any internal redundancies.

While this policy and procedure has been established for several years (since 2017), there is a lack of enforcement of this policy. In many instances, IT staff and management

will find out after the purchase of equipment or software that these items have been purchased. In those examples, departments have purchased software systems and asked for IT's support in implementing those systems without any initial involvement or approval from the IT department.

It is imperative that a clearer workflow needs to be established and enforced by City management and department heads to ensure that the administrative policy is being followed. The policy identifies that there is an IT order request form on the City's intranet, which is primarily related to IT hardware or equipment. There should be a different type of form that is related to requests for new IT software licensing agreements, which requires departments to identify at minimum the following:

- Name of Software
- Purpose of Software – what missing functionality this software will help the department achieve
- Replacement of Existing Software – if this will replace an existing software
- Expected Price – any quotes received by the vendor(s)
- Services to be included – Is it just procurement and implementation will be City IT Staff? Or will vendor provide support for implementation (initial and on-going)?
- Funding Acquired – is there funding for this software already?

While a department may not be able to complete all of the fields noted above, it will provide IT management with a clearer idea regarding the type of software being requested and its functionality. If there is already existing software that the City has implemented that can supplant the department's functionality IT staff then can advise the department regarding alternative options to purchasing a whole new software system.

A sample of both the IT Hardware Request and IT Software Request forms should be part of the City's updated administrative manual to provide further guidance to new city staff in regards to the utilization of these forms.

It is important to note that the policy states that the following items are exempt from IT Department review: Industrial Control, Handheld and mobile radios, 911 Phone System, and Police Mobile phones. It is our recommendation that this section be reviewed with existing IT Leadership as well as Public Safety and Public Utilities departments to still require IT involvement, as IT will still need to provide support to these systems. Therefore, it will be important for IT to be involved in the procurement process of these systems.

The administrative policy outlines that the IT department has developed a list of standards and specifications for systems, with the order request form including a link to those standards. The list of standards and specifications should also include a list of the items that meet those standards and specifications to provide departments with a visual of the types of equipment or devices that they would be receiving upon the purchase request.

Currently, items are requested on an ad-hoc basis by departments, which means that IT may order one (1) cell phone or may order ten (10) cell phones depending upon the

number of request that come in to IT. It is recommended that a more standardized approach be developed. IT should maintain a minimum stock of items and as department requests are issued, IT should issue that item out to the specific department and update its existing asset and inventory list to reflect the removal of that item. Similarly, if a department is no longer utilizing an item, that item should be returned to IT. This will require that IT will be the financial owner of all IT hardware rather than the individual department. This will further enable IT to ensure that a more centralized approach to equipment purchases are managed.

In order for IT to implement the recommendation to stock hardware, it will need to work with Finance staff to determine the funding for purchasing those assets, and capitalizing them appropriate as part of the City's general fixed asset program. If this program is approved then departments will need to be informed that any devices must be obtained from IT rather than through external ordering websites. At that point, the policy and procedure should also be updated, including potentially developing two separate policies and procedures for hardware compared to software.

The implementation of these recommendations will help strengthen IT's ability to enforce departments to conform to the centralization of these services and minimize the IT shadow operations that are occurring within the city.

Recommendations:

An IT Software Request form should be created to allow Departments to identify the specific software being requested for purchase, its functionality, its proposed / estimated costs, its funding source, and expected level of support from IT.

The current IT Acquisition policy should be modified as it relates to current exceptions (i.e. SCADA, 911, radios, etc.) to still require involvement from IT staff as those systems still have to be supported by IT staff.

IT should consider developing a system in which it can keep on hand several items (i.e. phones, laptops, etc.) that are in demand by departments to minimize the processing of ad hoc requests.

As part of the warehouse system, Departments should "check out" the requested assets and if an asset is no longer in use, it should be "returned" to IT as surplus or for use by other departments.

IT should work with Finance department to determine if all IT-related assets can be transferred to IT and be included as part of the City's larger fixed asset program.

2 City Department IT Representative

The City of Riverside is large and provides a variety of services, therefore, each department has their own representatives for administrative functions (Finance, Human Resources, and IT). Each department's IT representative is the Business Systems Analyst position. The primary purpose of this position is to review existing policies and procedures within the department and identify any potential opportunities for improvement.

The Business Systems Analyst is responsible for serving as the Department's project manager for any projects that are assigned to IT for implementation or support. They serve as the liaison between the Department head and IT staff. While this position serves as the defacto project manager on IT projects that are initiated by City Departments, this position is not always trained or certified in project management. This lack of training in project management limits the ability of the Business Systems Analyst to ensure that the project is not only being implemented effectively, but that it is able to meet the original needs of the department.

It is recommended that the Business Systems Analyst position specification should be reviewed and if that position is intended to serve in a project management capacity some level of informal or formalized project management training should be provided. This will ensure that the Business Systems Analysts' are able to more efficiently serve their departments, but to also provide greater oversight and support to IT staff to allow for more efficient project management and completion.

Recommendations:

The Business Systems Analyst positions throughout the City departments should receive training on project management to allow for more efficient collaboration between IT and their respective departments on projects.

3 IT Staff Assignments to Departments

Departments such as Police, Fire, and Utilities have dedicated staff assigned to them from client services; however, other departments such as Finance, Human Resources, City Manager's Office, etc. share the staff that are assigned to City Hall. It does seem appropriate that the larger departments have very specific needs and as such would require dedicated resources to support them. However, some of these other departments such as Finance and Human Resources while not large in nature or services are critical to the operations of the City and as such also require dedicated IT support rather than sharing these services among all of City Hall.

It is recommended that each department in the City should have at least a singular point of contact within IT, preferably a staff position in the Client Services Division. This position should be dedicated to providing support to their identified department(s) and being aware of all of the different types of services provided by that department. The current

designation of staff support based upon facilities while still appropriate may require the expansion of support at larger facilities to be beyond a single position.

As noted in the Client Services section, any new employee in the City or any staff transferring between departments should then be made aware of their specific IT contact for their respective department. This will enable city departments to ensure that their communication with IT is consistent and with a specific position in the department. If there is the need for involvement of IT staff from other divisions, the Client Services staff can serve as the introduction between the department and the other IT staff. This type of system also ensures that the Client Services liaison for the department is aware of any changes to the IT systems for their specific department.

Recommendations:

There should be a dedicated IT position for all departments in the City, especially departments that are critical to the City's operations to ensure that there is consistent collaboration and communication between city departments and IT staff.

The designated IT contact should be in the Client Services Division, and should serve as the liaison between the department and other IT division staff as necessary.

10. Benchmarks, Best Practices, and Performance Indicators

As part of the performance assessment and financial review of the Innovation and Technology Department, the project team conducted a diagnostic assessment of the Department against benchmarks and best practices based upon the project team's experience and industry trends. Additionally, one of the signs of a successful organization is to have key performance indicators (KPIs), which can be used to measure its ability to meet its established goals. The following subsections provide information regarding the best practices analysis as well as the KPIs developed by the project team.

1 Best Practices Assessment

The diagnostic assessment utilized a wide variety of data collection and analytical techniques to compare the Department's current services with measures of effective organizations based on industry standards. The measures utilized have been derived from the project team's collective experience and represent the following ways to identify improvement opportunities:

- Statements of "effective practices" based on the study team's experience in evaluating operations in other counties or "standards" of the services from other organizations.
- Other statements of "effective practices" or "performance targets" based upon consensus standards or performance goals derived from national or international professional service organizations.
- Identification of whether and how the Department meets these performance targets.

The assessment is presented in the matrix format with the performance target in the left hand column, whether the Department meets the target in the second column (x for yes and blank for does not meet), and notes in the far right column.

Performance Target	Meets Target	Notes
ADMINISTRATIVE		
Information technology has been administratively centralized to assure the effective fulfillment of the IT strategic plan and the efficient use of resources.	x	

Performance Target	Meets Target	Notes
The management of the planning, maintenance, and construction of the networking, data, and voice communications has been administratively centralized to capture economies of scale.	x	
The IT Department has developed and adopted service level agreements with their customers.		There are no formal service level agreements in place between IT and the individual city Departments.
A five-year strategic plan has been developed for information technology to assure the cost effective use of investments in technology, and is updated every other year.		There is no current IT strategic plan, as the service was contracted out, the Department is in the midst of developing a strategic plan in alignment with the City's strategic plans.
<p>At a minimum, the five-year technology plan addresses the subjects below.</p> <ul style="list-style-type: none"> • Individual departmental and city-wide technology needs; • Equitable resource allocation, anticipating growth and technology advances; • Funding for technology; • Cost-effective acquisition; • Professional development for technology users; • Technical support needs of users; • Infrastructure and network communication including community access issues; and • Information management & delivery 		The internal City department is less than five years old and a formalized IT plan has not been developed outlining all of the individual needs, as well as resource allocation.
Technology policies and procedures have been developed and are available on the City's intranet.	x	There are some policies and procedures, but are not posted on the city's intranet.
The IT Division conducts annual or bi-annual reviews of IT policies, procedures, and processes to ensure these meet the needs of the department and the City as well as to verify compliance.		There is no mechanism in place to formally update and review policies and procedures.
Technology standards have been developed for the desktop (hardware and software), server applications, database applications, utility and management applications, LAN/WAN devices, etc.	x	These standards have not been distributed to customer departments.
There is a methodology in place to internally allocate the costs associated with the IT division to City Departments.	x	

Performance Target	Meets Target	Notes
The internal charges associated with IT are updated every 3-5 years to evaluate their appropriateness.	x	The City last updated the methodology in 2017. The City should consider developing a standardized procedure to review every 3-5 years.
The IT Division annually conducts an assessment to identify technology needs.		There is no annual technology needs assessment conducted for departments.
The IT Division uses appropriate performance measures and interpretive benchmarks to evaluate its major programs and uses these in management decision-making	x	Appropriate performance measures and benchmarks need to be developed to evaluate the performance of the IT division internally. These performance measures should then be utilized to further decision-making efforts such as acquiring new modules, or implementing new process efficiencies through the utilization of technology.
The IT Division has clearly stated program goals and measurable objectives that can be achieved within budget for each major program.		Program goals and objectives should be identified on a program by program basis and be documented in the Riverside 2.1 Strategic Plan.
The IT Division, in concert with Human Resources, has established criteria in classification descriptions that include technology skills for staff as appropriate.		There needs to be a focus on development of updated job descriptions
IT has a webmaster to manage the content of the City's website.	x	
IT uses a content management system to publish content to the website.	x	
IT supports online transactions through its website such as the payment of utility bills, parks and recreation class scheduling and registration, etc.	x	
IT procures its primary systems (such as financial, payroll, personnel, property appraisal, etc.) from vendors; it does not develop its systems in-house.	x	There are still certain systems which have been developed in-house such as the internal project management system or HIVE.

Performance Target	Meets Target	Notes
DISASTER RECOVERY		
<p>Disaster recovery standards, procedures, and policies have been developed and installed including:</p> <ul style="list-style-type: none"> • Business impact analysis (risk assessment); • Mitigation strategies and safeguards; • Backups and off-site storage; • Business resumption; • Contingency plans for different types of disruption of information systems; • Organizational responsibilities for implementing the disaster recovery plan; • Procedures for reporting incidents and implementing the disaster recovery plan; and • Multiple site storage of back-up documents. 		<p>While there is an ongoing effort to develop a comprehensive plan, there are no disaster recovery standards, procedures, or policies in place.</p>
<p>IT and city employees are routinely provided ongoing training in disaster recovery and contingency planning policies and procedures.</p>		<p>Staff have not received training or participated in exercises specifically related to IT disaster recovery/continuity of business.</p>
<p>Contingency plans and policies are tested routinely and regularly updated.</p>		<p>There are no specific contingency policies or plans in place. A contingency plan / policy should be developed.</p>
<p>IT has clearly designated a manager in the division as the responsible for managing disaster recovery planning and installation</p>	x	<p>The Innovation Division is responsible for these activities.</p>
<p>Backup and recovery plans and policies and security plans and policies are tested routinely and regularly updated.</p>		<p>There are no policies or procedures in place requiring testing of backup and recovery plans on a routine basis – once a month, every 3 months, once year, etc. A policy and procedure should be developed outlining the steps and the frequency of the tests.</p>
STAFFING		
<p>The ratio of IT Division staff as a percentage of total City staff is at a minimum of 3%.</p>		<p>Budgeted / authorized positions to FTE is 2.4% of total FTE. This does not include vacant positions</p>
<p>The span of control for supervisors and managers approximates 7 to 10.</p>	x	

Performance Target	Meets Target	Notes
The number of organizational layers does not exceed three (the number of layers that one employee would have to report to reach the IT Manager).		There are four organizational layers as there are Principal IT Analysts that oversee the IT Analysts.
The level of IT Division expenditures as a percentage of the City's total operating budget is 1.5% to 3%.		The level of IT expenditures to citywide budget is 1.4%.
The training needs of IT staff has been evaluated and identified, and a training strategy has been developed.		There is no formalized training strategy in place
The annual hours of training of IT employees are sufficient. On average, employees receive not less than 24 hours of training per year and the training budget for IT approximately 2% of salaries and benefits costs.		There is no formalized training requirements or policies in place, and training costs are not typically reimbursed through the department's cost center.
An employee performance management system has been created that is linked to the IT Strategic plan, goals, objectives, and performance measures.		There is no formalized IT Strategic Plan as such there is no formalized accountability mechanism.
HELP DESK SUPPORT		
Desktop standards have been developed including desktop maintenance, desktop configuration/software sets, e-mail usage, virus protection programs and implementation, help desk systems and Internet filtering.	x	
Helpdesk tracking software is utilized to automate helpdesk tracking, build the knowledge base regarding customer needs, documents recurring problems, and identify training or documentation needs.	x	
70% of the help desk calls are responded and closed the same workday.		Approximately 65% of help desk tickets are resolved in 1 or less day. This is an improvement from 51% of tickets in FY2018.
Effective software licensing control procedures and software are in place to detect the presence of unlicensed software on personal computers, and to ensure compliance with licensing laws.		There are no such mechanisms in place to detect unlicensed use.
Software licensing is controlled in-house through IT.	x	
The IT Division has implemented a remote desktop management solution to allow remote desktop management for more efficient helpdesk support.	x	

Performance Target	Meets Target	Notes
SECURITY		
<p>Effective security management and virus protection policies and procedures are in place that includes:</p> <ul style="list-style-type: none"> • Security policies; • Security management; • Information asset security; and • Technology protection and continuity. 		<p>A formalized and comprehensive security management and virus protection policy needs to be developed and implemented.</p>
<p>Security plans and policies are tested routinely and regularly updated.</p>		<p>There are no formalized security plans and policies. These should be created and then updated every 3-5 years.</p>
<p>The IT Division enforces password security including periodic changes to passwords.</p>		<p>There is an IT policy in place stating that employees should change individual passwords every 6 months.</p>
<p>The IT Division provides formal training to new employees and ongoing training on security policies, procedures, and evolving threats.</p>		<p>While the department does proactively email users if and when phishing emails are received or a significant threat is identified, there is not a formalized program to inform and educate users on security issues.</p>
APPLICATIONS		
<p>The City has acquired or developed “best-of-breed” applications that provide sophisticated automation capabilities improving operational productivity and management information.</p>	x	<p>There are multiple systems that perform similar functions, as systems have been purchased without consultation with IT.</p>
<p>IT Division provides support in the planning, procurement, implementation and establishment of a City-wide technology for converting paper to electronic records to protect the City’s information assets.</p>	x	

Performance Target	Meets Target	Notes
<p>The IT Division utilizes effective practices for designing, developing, and implementing an IT application project including:</p> <ul style="list-style-type: none"> • Designing, developing and acceptance testing the project appropriately according to specifications; • Establishing measurable objectives for the project; • Documenting critical development decisions and continuously reporting progress in the design, development, and implementation of the systems; • Establishing appropriate policies and procedures to manage and control changes for the developing project; • Developing an adequate information security system to detect and prevent inappropriate access; and • An on-line project tracking system. 		<p>There is no formalized process in place for designing, developing, and implementing an IT application project.</p>
<p>The IT Division uses effective practices to assure the quality of IT application projects including:</p> <ul style="list-style-type: none"> • The development of an effective quality assurance mechanism for each phase of development; and • Acceptance testing after each deliverable and before moving ahead with the next phase. 		<p>Typically, applications are tested for quality assurance during every phase of development, but there is no formalized process.</p>
<p>The IT Division has acquired and installed an Enterprise Resource Planning platform to integrate financial data, to standardize processes, and to maintain core reference and supporting information such as HR and asset data. The elements of the ERP include:</p> <ul style="list-style-type: none"> • Finance and Accounting • Human Resources (HR) • Purchasing / Procurement • Customer Relationship Management • Enterprise Asset Management • ECommerce 	<p>x</p>	
<p>The City has acquired or developed “best-of-breed” applications that provide sophisticated automation capabilities improving operational productivity and management information.</p>	<p>x</p>	<p>There are multiple systems that perform similar functions, as systems have been purchased without consultation with IT.</p>
<p>IT Division provides support in the planning, procurement, implementation and establishment of a City-wide technology for converting paper to electronic records to protect the City’s information assets.</p>	<p>x</p>	

Performance Target	Meets Target	Notes
<p>The IT Division utilizes effective practices for designing, developing, and implementing an IT application project including:</p> <ul style="list-style-type: none"> • Designing, developing and acceptance testing the project appropriately according to specifications; • Establishing measurable objectives for the project; • Documenting critical development decisions and continuously reporting progress in the design, development, and implementation of the systems; • Establishing appropriate policies and procedures to manage and control changes for the developing project; • Developing an adequate information security system to detect and prevent inappropriate access; and • An on-line project tracking system. 		<p>There is no formalized process in place for designing, developing, and implementing an IT application project.</p>
<p>The IT Division uses effective practices to assure the quality of IT application projects including:</p> <ul style="list-style-type: none"> • The development of an effective quality assurance mechanism for each phase of development; and • Acceptance testing after each deliverable and before moving ahead with the next phase. 		<p>Typically, applications are tested for quality assurance during every phase of development, but there is no formalized process.</p>
<p>The IT Division has acquired and installed an Enterprise Resource Planning platform to integrate financial data, to standardize processes, and to maintain core reference and supporting information such as HR and asset data. The elements of the ERP include:</p> <ul style="list-style-type: none"> • Finance and Accounting • Human Resources (HR) • Purchasing / Procurement • Customer Relationship Management • Enterprise Asset Management • ECommerce 	<p>x</p>	
GIS		
<p>Sufficient GIS layers have been developed to enable departments to effectively utilize GIS. These include such layers as parcels, street centerline, police beats, zoning, utilities, fire hydrants, etc.</p>	<p>x</p>	<p>The department is undergoing an upgrade to tis GIS layers.</p>
<p>The GIS user model adapted by the City empowers City staff with "hands-on" use of GIS technology by placing GIS software on their desktops.</p>	<p>x</p>	

Performance Target	Meets Target	Notes
City staff receives ongoing training in the use of GIS software for the purpose of fulfilling their professional duties.	x	There is no formalized training provided regarding the usage of GIS software. Questions and issues are dealt through the help desk.

As the table demonstrates, the Department is able to meet many benchmarking best practices such as:

- Centralization of IT Services
- Internal allocation of IT costs through a Citywide Cost Allocation Plan
- Webmaster for managing website content
- Development of Desktop Standards
- Software Licensing is controlled and managed through IT
- Online Payment Platform
- Implementation and support of a Citywide ERP system
- Appropriate GIS Support

These strengths indicate that the Department has the ability to adapt and continuously improve its operations to be able to provide the highest level of service. However, there is room for improvement as it relates to the following key areas:

- **Staffing Levels:** As the benchmark analysis indicates, the city's current budgeted / authorized positions reflect 2.4% of total City FTE. The minimum staffing standard is typically 3%. Additionally, the 2.4% is only reflective of authorized positions, with vacancies in the department, the ratio declines to 2.2% of total city FTE.
- **Training:** There is no formalized training strategy in place, staff are not even required to be certified. The department leadership is in the midst of reviewing IT job specifications to implement minimum requirements regarding professional certification. While there are internal resources available for training there is minimal funding and opportunity for external development.
- **Disaster Recovery:** While there is an effort to start some disaster recovery planning, routine exercise or trainings are not conducted and there are no formalized policies and procedures requiring testing of back and recovery plans.
- **Cybersecurity:** Similar to disaster recovery and due to the vacancy of the Cyber Information Security Officer (CISO), there has been no formalized focus on cyber security. There is no comprehensive security management and virus protection policy and there is no formalized mechanism for informing city departments regarding potential security threats.
- **Strategic Plan / Needs Assessment:** The department is in the midst of attempting to developing a formalized approach to strategic needs and alignment with the

City's overall strategic plan. There is also currently no Citywide IT steering committee to help prioritize and determine each department's needs.

- **Performance Measures:** The next section in this chapter will discuss this in-depth, but currently the department does not have a robust set of performance measures which can be used to not only measure the effectiveness of programs and services, but also determine if programs or activities should be altered.

Many of these areas were explored in-depth in this report and specific recommendations have been provided to address these areas. In some opportunities for improvement, the Department has begun to take efforts to improve, and the purpose of this evaluation is to provide information regarding additional steps that need to be taken to achieve the best practice.

Recommendations:

The Department should consider implementing the recommendations identified in this report as it relates to staffing, disaster recovery, security, and performance measures.

A more robust training program should be developed along with dedicated funding for that training program .

A five-year strategic plan should be developed for IT and as part of that strategic plan a Citywide IT Steering Committee should be established to conduct a needs assessment and prioritize those needs based upon the City's strategic initiatives.

2 Key Performance Indicators

As noted in the previous section, performance measures or key performance indicators (KPIs) are a significant opportunity for improvement for the City. The IT Department currently tracks minimal performance measures related to customer satisfaction.

IT departments are often an invisible organization and as long as operations are running smoothly most users are unaware of the complexity and level of effort needed to ensure a reliable, secure computing environment. Establishing, tracking, and regularly reporting Key Performance Indicators (KPIs) are one way IT organizations can demonstrate what it takes to do so. KPIs are highly specific to the organization. These may include, but should not be limited to, things such as:

- Number of help desk cases opened
- Number of help desk cases created via call center, email, or in-person.
- Number of help desk cases closed within:
 - 1 business day

- 3 business days
- 5 business days
- 10 business days
- Over 10 business days
- Number of cases converted to projects
- Average number of days for resolution
- Percentage of cases closed within service level targets
- Percentage of cases closed outside service level targets
- Average time utilization of staff member by project and / or support function

The previous KPIs, will help the department establish service level objectives and determine if current staffing levels are able to meet those objectives as it relates to client services.

In regards to determining optimal staffing for project management some metrics include the following:

- Number of new projects started
- Number of projects closed on time
- Number of projects completed within budget
- Percentage of project requirements satisfied by completed projects
- Project status information for open projects:
 - Percentage of projected budget against actual budget
 - Percentage of projected staff resources against actual staff resources
 - Ratio of initial project completion dates against actual projected completion dates
- Average project time utilization of staff member

These metrics are needed to determine optimal staffing levels for project managers as well as the efficiency of the project management program.

Metrics associated network services, operations, and security services, include the following:

- System uptime for internally hosted systems
- System uptime for externally hosted systems (Cloud / SAAS)
- Median age of end users computers / devices
- Median age of server infrastructure
- Median age of network infrastructure
- Appropriate security statistics:
 - Number of port scans blocked
 - Number of intrusion attempts blocked
 - Number of viruses identified and isolated
- Average time utilization of staff members by project and / or support function

These metrics enable the department to project current and future staffing needs related to operations and network services.

It is important to note that the metrics noted above are not meant to be a comprehensive listing of all possible KPIs, but rather provide a sample of the types of metrics that can be tracked by the department. As the department is in the midst of implementing a new ticketing system, it may want to consider updating the system to allow it to better capture these metrics.

Documenting these metrics and statistics in an internal portal will aid the department in communicating its successes, efficiencies, and effectiveness to department management as well as City management. It will be important for Department supervisors and managers to encourage line level staff to appropriately track information internally to enable the department to generate these reports.

The statistics should be collected on a quarterly basis, as that will ensure the IT Director and Deputy Directors are able to review and identify any trends in the collection of the information. The Principal Management Analyst position in the Innovation Division could be utilized to help track and report on this information to the Deputy Directors and IT Director.

Recommendations:

The Department should consider implementing KPIs related to Client Services, Project Management, Network Services, and Operations, which includes number of help desk cases closed overall, number of cases closed within 1, 3, 5, or 10 day business days, number of new projects closed on time, system uptime, median age of infrastructure.

The tracking of KPIs should be part of an internal tracking portal and should be adapted into the new ticketing system.

Division supervisors and managers should encourage all staff to track metrics to allow for sufficient data for metric evaluation and collection.

KPIs should be collected and reported on quarterly by the Principal Management Analyst to the Deputy Directors and IT Director .