City of Mercer Island
Information and Geographic Services Strategic Plan

2018 Strategic Operations Plan for 2019/20

Updated: 9/17/2018
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SECTION 1.0 ABOUT THIS PLAN

1.1 Executive Summary

Services at the City of Mercer Island have been evolving with technology for a long time. From decentralized IT, separate networks, and a handful of business systems to a place where technology permeates almost every City service, workflow, department, and position. Geospatial and technology professionals have been combined into a single and formal department. Enterprise network and server infrastructure is in place. Employees have mobile and remote access. Cloud and mobile technologies continue to grow. Almost all departments utilize line of business and productivity applications. Technology governance is in place. There are more opportunities to improve and in the context of fast paced technology advancements, financial uncertainties, customer demand, and organizational changes it is as important as ever to be strategic about where the City focuses its technology resources and energy.

There are many new technologies on the horizon and in the marketplace right now. Significant developments are becoming available in drones, artificial intelligence / machine learning (Siri, Alexa, Cortana, etc.), business intelligence / data analytics, global/national/local open data sets, smart cities (meters, lighting, transportation, facilities, etc.), wearables, and virtual reality / augmented reality. In addition, the City already has an extensive technology portfolio with existing investments critical to City service delivery that must be maintained and improved.

The process for generating investment proposals begins with the City Tech Council and GIS Think Tank. These two steering committees are comprised of representatives from all departments and focus independently on these two functional areas within IGS. Departments bring proposals which are reviewed, costed, and prioritized. Investments have been defined for the 2019/20 biennium to maintain or improve existing City workflows, systems, and processes. Some of these were developed from the Forward Looking Organization process such as the Human Resources tools. These investments are outlined in following sections.

Opportunities for innovation in City service delivery are many. Improving online services and focusing on user experience, utilizing new technologies to improve EOC operations, increasing the use of geospatial technology, modernizing the way the City takes payments, increasing community engagement and access to information through whatever channel/medium customers desire, and improving internal administrative and personnel workflows are some examples. A digital citizen workshop was held for the first time with members of the public to influence how City staff think about service delivery. Key management personnel have been exposed to the world of GIS and the incredible things that can be done with this technology. Some departments have new leadership which is an opportunity for change and innovation.

Challenges to success are also many. The City has projected deficits requiring a levy lid lift. Elected and executive leadership are demanding that processes and workflows be scrutinized for improvement opportunities. The public appetite to be innovative or improve services seems limited to what can be derived from existing staff and resources. City FTE positions are dedicated to existing service delivery and have little to no time built in to spend on process re-design, innovation, and special projects without impacting services. Some departments and staff are experiencing change fatigue which is especially concerning considering that the pace of technology change does not appear to be slowing. Technology skill sets are diverse City-wide. Recent college graduates are coming in with coding skills, geospatial skills, and little knowledge of the world before pervasive technology while others have spent most of their careers either not using technology at all or only having to use one or two systems. While the City has added three FTE’s to IGS in the last 11 years the complexity and quantity of technology continues to outpace capacity. This increases contract staff, professional services, pushes deadlines, and
departments moving technology forward independent of enterprise strategy. Training and professional development could use more investment and support.

IGS is better positioned than ever before to help departments achieve their technology goals from a skills and experience perspective but the challenges and opportunities ultimately must balance. Burnout and competition in this region for talent are constant concerns. Time and funding are limited. IGS will continue to prioritize public safety operations (Police/Fire/Public Works) and focus on leveraging existing investments in enterprise/major business applications, server/network infrastructure availability and security, helpdesk services, and project management. IGS will also continue to communicate risks with City leadership and the City Tech Council / GIS Think Tank.

Information and Geographic Services is committed to customer service and we invite feedback at any time on the services we provide. We would particularly like to thank the City Tech Council and GIS Think Tank representatives. These folks developed and prioritized our investments for the 2019/20 biennium and continue to provide invaluable guidance and feedback to our operations.

1.2 Purpose

The purpose of the Information and Geographic Services (IGS) Strategic Operations Plan is to serve as a mechanism to document the investments and goals of the coming biennium. The process will ideally align the organizational requirements for technology and geo-spatial services with resources available to support and implement such requirements. The City of Mercer Island is a full service City and requires sophisticated systems to support business operations. In the best interest of the public and, with limited financial and human resources, this strategic operation plan will assist in ensuring that business driven investments are prioritized and executed through both a strategic and operational lens.

1.3 Stakeholders and Contributors

Julie Underwood – City Manager

City Tech Council – IT Governance
Ali Spietz – Assistant to City Manager
Andrea Larson – Development Services Administrative Assistant
Brian Hartvigson – ROW/Storm Operations Manager
Derek Franklin – Youth and Family Services Administrative & Professional Services Manager
Jeff Magnan – Police Administrative Services Commander
Lajuan Tuttle – Finance Accounting Services Manager
Merrill Thomas-Schadt – Parks and Recreation Facilities Coordinator
Mike Mandella – Deputy Fire Chief
Suzanne Philen – Thrift Store Business Coordinator
Alfredo Moreno – Sr. Systems Administrator
Mike Kaser – Information Services Director

GIS Think Tank – GIS Governance
Evan Maxim – Interim Development Services Director
Patrick Yamashita – City Engineer
David Jokinen – Police Operations Commander
Alaine Sommargren – Parks and Natural Resources Manager
Paul West – Parks Superintendent
Rona Lin – Water Engineer
Jason Kintner – Public Works Director
Brian McDaniel – Utilities Operations Manager
Brian Hartvigson – ROW/Storm Operations Manager
Herschel Rostov – Fire Marshal
Leah Llamas – GIS Coordinator
Mike Kaser – Information Services Director
1.4 Planning Period and Update Frequency

This plan should be updated no less than once every biennium preferably in the months prior to budget development for the coming biennium.

SECTION 2.0 VISION

2.1 Council Priorities

In January 2017 the City Council appointed Julie Underwood as the new City Manager. As City Manager Julie has implemented a new process to identify Council goals and priorities. These goals and priorities were first set at the Council’s 2017 planning session for 2017/18 and were updated in 2018 for years 2018/19. These goals are as follows:

Goal 1. Prepare for Light Rail and Improve On- and Off-Island Mobility
Goal 2. Maintain Quality of Life and Essential Services and Infrastructure by Addressing the City’s Financial Challenges
Goal 3. Deepen the City’s Commitment to Sustainability and Livability
Goal 4. Preserve, Promote, and Enhance Mercer Island’s Focus on Arts and Culture
Goal 5. Enhance City and Community Emergency Preparedness and Planning
Goal 6. Update Outdated City Codes, Policies, and Practices
Goal 7. Create Policies that Support an Accessible and Healthy Business Ecosystem

Investment proposals that correlate to these Council Priorities will be highlighted. It is not always possible or necessary to drive all technology investment from the Council’s goals and priorities particularly when the goal is not related to technology. The Council’s priorities will be used to guide investment proposals when appropriate.

2.2 City Manager Priorities for Technology

The 2019/20 biennial budget will be the first budget guided by the City’s new City Manager. Several key considerations have already been influential in developing the investment proposals for this update. The City Council has chosen to place a levy lid lift on the November 2018 ballot to address operational budget challenges. Additionally, Julie has been clear that City staff need to incorporate more analysis of customer experience into technology investments and implementations. Below are three key concepts Julie has asked the City Technology Council to consider as they build future workplans:

- Reliable connectivity and access available to all staff and residents.
- Work environment, processes, communication, and services built based on user/citizen/customer centered design.
- Workforce that is responsive and adaptive to new concepts, innovation, and changing environment

2.3 Key Strategies

These key strategies aim to achieve the vision laid out by the Council and City Manager as well as the vision and mission of the Information and Geographic Services Department.

- Disaster Recovery / Business Continuity

  Background – Mercer Island and City services are prone to risks such as natural and human caused disasters, cybersecurity incidents, and unforeseeable issues that can significantly impact City service delivery. The ability for the City to maintain communications with the Public and operation of critical City services during and after a disaster is a critical focus for IGS.

  Strategy Statement: Continually improve and further automate disaster recovery and business continuity capabilities during and after disasters that reduces impact to City service delivery particularly focused on City communications and Police, Fire, and Public Works operations.
• **Apps**

**Background** - There are three categories of software applications; Enterprise, Line of Business, and Productivity. Enterprise applications are in use by all City departments and users, Line of Business applications are created to support specific industries and business workflows, and Productivity applications assist individual users with general business activities. Since the introduction of the smart phone and modern web (2007 and beyond) the software industry has been transforming significantly. The “app store” for simple, user friendly, highly specific apps has exploded. Information and Geographic Services aims to enable City staff to take advantage of useful and productive apps by streamlining the approval process for purchasing and installing both web based and smart phone / tablet applications used for Productivity. A simple checklist will be created for departments to utilize in determining whether to move forward with a new app. Enterprise and Line of Business applications will continue to undergo a careful and rigorous process due to the authoritative nature of the records created, security requirements, and criticality to business operations of the City.

**Strategy Statement:** Enable City staff to utilize the modern availability of productivity “apps” in smart phone / tablet app stores as well as web-based Software as a Service apps.

• **Software as a Service (SaaS)**

**Background** – Since the widespread adoption of the personal computer (PC) software has been largely developed using a client/server model. A centralized software application usually coupled with a database (commonly referred to as “the server”) would be setup and maintained by IT. A corresponding “client” would be installed on PC’s that would connect to the server so data could be entered, managed, and reported on. Over the last decade a newer model has begun to mature. Software as a Service or SaaS provided over the Internet. Software companies develop and maintain all the infrastructure and simply provide a website for users to interact with their software. This new model has pros and cons just like the server/client model it is replacing. To be clear, true Software as a Service is not simply a dedicated server for the City in someone else’s datacenter in which the City simply pays other people to manage the same infrastructure it would otherwise have done in the server/client model. True SaaS applications are centralized, multi-customer, streamlined, resilient, standardized applications that experience frequent yet minor feature enhancements and bug fixes. True SaaS eliminates the major upgrade projects every year or so that introduce huge changes on users with developed muscle memory on previous versions and require significant IT resources. True SaaS is designed with regional, national, and even international disaster recovery capabilities to the point that downtime and data loss is virtually eliminated. Information and Geographic Services will continue to evaluate every Enterprise and Line of Business upgrade/refresh/replacement for opportunities to transition to Software as a Service. IGS will be looking for mature and true SaaS options not just “hosted” environments, or vendors who use the “cloud” as a marketing term. The City has plenty of evidence of the cons of the “cloud” and SaaS that will be considered as well. Software vendors have all seen the potential for profit increase in the “subscription” model where large one time capital
expenditures are replaced with ongoing monthly per user fees. While the capital expenditure goes away, the subscription typically introduces a significantly higher operational expenditure. The total cost of ownership which includes analyzing “soft” costs, disaster recovery and business continuity capability, impacts to users and IT resources, etc. plays a significant role in deciding whether to pursue Software as a Service. The City may have to make hard choices where hard costs are concerned.

**Strategy Statement:** To reduce dramatic and disruptive change in favor of more frequent and easier to learn feature enhancements for end users, to take advantage of disaster recovery and business continuity capabilities, and to reduce IT resources spent on infrastructure management, IGS will look for SaaS opportunities in Enterprise and Line of Business applications.

- **Internet of Things (IoT)**

  **Background** - The Internet needs no explanation in terms of what it is and what it has done to transform everything around us. Connecting networks and the servers/computers/laptops/smartphones/tablets on those networks has reached across the globe. This ability to connect to the Internet has been extended to almost anything and everything. Refrigerators, automobiles, water meters, cameras, street lights, weather sensors, water quality monitors, toys, doorbells, pets, and more. There are very real applications for IoT devices in public service delivery. The City’s water utility is planning on taking advantage of “smart meters” as an example. The City’s street sweeper has been outfitted with a network connected GPS device that can detect when the sweeper is down so that the City can automatically map where the sweeper has been. There are many predictions and concepts regarding what the “Smart City” of the future will look like. A “Smart City” takes advantage of devices, networks, and data analytics to improve service delivery to its citizens. Cities like Bellevue and Seattle have formal Smart City strategies and resources assigned to implement them. While Mercer Island is a small city we are part of a larger region, particularly as it relates to traffic, water systems, and other critical services. Information and Geographic Services will work with departments to support their analysis of opportunities to take advantage of the Internet of Things. This will require a careful strategic and tactical review of networks the City owns and operates or can lease or subscribe to. It will also require learning from others, research and development efforts, and outsourcing. These technologies are coming into focus and the City needs to begin work on what areas to focus our limited resources on.

  **Strategy Statement:** To ensure the City and its services appropriately evolve with technology in a useful and/or cost effective way IGS will support City staff/departments on review and implementation of IoT devices and tools. IGS will work to learn about, research, and educate the City Tech Council on developments in this area regionally and in general. IGS will continue to improve the City’s network infrastructure and connectivity capabilities.
• **Geographic Information Systems (GIS)**

**Background** – Everything a City cares about happens at a location. Crime, Fire or EMS incident, a land use application, a pothole, a water or sewer main, watercourses, a recreation opportunity, town center design requirements, etc. The City is fortunate to have had a Council and City Managers who understand the power of GIS to support strategic decision making as well as everyday City operations. This technology is absolutely critical to successful public infrastructure management and city planning efforts and also has some of the most innovative tools and technologies emerging. IGS has been working with an internal steering committee known as the GIS Think Tank to educate and interact with City staff so that GIS is built or utilized as much as possible throughout the organization. The next frontier in this realm is data accuracy and the “z value” which combined with the x and y will allow the City to represent its data in three dimensions. The types of applications and use range from being able to visualize code changes, review proposed building designs, see underground without digging, and more. This will take years if not decades to achieve but needs to be built into all future data collection efforts.

**Strategy Statement:** IGS will work towards highly accurate data that is as close to survey grade as reasonably possible through future and ongoing data maintenance and collection activities, strategic data collection projects, and through City process requirements such as permitting. IGS will also begin to collect the z value of assets in addition to x and y value for location information.

• **Data Driven Decisions**

**Background** – Data is valuable and interesting. Data can be used to improve health outcomes by analyzing local, regional, and national emergency response to cardiac arrest. Data can be used to evaluate long range capital infrastructure needs. Data can form the historical record of a community plan. The tools and platforms to enable access, analysis, and visualization of data have become very exciting and truly empowering. This applies to both City staff, the public we serve, and regional, state, and national initiatives. The public appetite for access to data and the ability to easily understand it has grown exponentially in the age of the Internet. People want to consume information in a variety of channels (TV, Web, Radio, Social Media, Print) in real time all the time. Staff is looking for better ways to manage City services and infrastructure. City policy makers are looking for complex answers to difficult questions to manage the infrastructure, look and feel, growth, and fiscal elements of the City just to name a few. IGS and City departments are looking for ways to both share and consume data that is authoritative, based on objective and accurate sources, and capable of easily integrating with our systems and processes. Being able to share and consume data through web services, visualize and analyze this data, and develop apps, maps, and trends, that are accessible, interactive, and user friendly is a strategic initiative. The Environmental Sciences Research Institute (ESRI) has a platform whose goal is well aligned with this concept called
the ArcGIS Hub. It is a geo-enabled platform that takes advantage of many of the tools and capabilities ESRI has brought to market. The City is investing in communications tools that directly engage the public on major policy issues with data supporting the underlying policy options.

**Strategy Statement:** *IGS will support and develop new capabilities that enable the City of Mercer Island, including elected, executive, staff, and the public to connect to data and information through multiple channels and make data driven decisions.*

- **Staff Training, Process Improvement, and Professional Development**

  **Background** – The pace of technology change is challenging and exciting. The diversity in technical skills and job requirements is significant. Generational differences are significant, and changes are arriving quickly. Industries are adapting. The City invests in technology and must also invest in staff in order to successfully evolve services over time. IGS has built a comprehensive technology portfolio and will be working to develop training opportunities that include annual user conferences, regional user groups, vendor training opportunities to better leverage investments in technology and our workforce. This will primarily focus on our line of business applications where the direct impact of technology and City service delivery intersect the most. This will include a review of workgroups, major workflows, and modernity of existing technology and processes. By enabling departmental staff, the experts in their respective fields, to get more involved with their line of business application staff will have the opportunity to better understand what options are available, how to implement them, and where the biggest opportunities for improvement lie.

  **Strategy Statement:** *IGS will develop a training opportunity schedule, workflow/workgroup analysis, industry and vendor meetups, and assessment tool for departments to better train staff, provide opportunities to see how industry peers do business, and improve services and processes at the City of Mercer Island.*

**SECTION 3.0 CURRENT TECHNOLOGY ISSUES**

This section has two components. The first, 3.1 is the starting point for discussions each biennium during the process of updating this plan. The second, 3.2 lists the actual areas that are going to be invested in once initial meetings, discussions, research, and review have been completed.

### 3.1 Technology Issues for Review

The following issues were identified for review during the 2017/18 budget process and are detailed in this section.

A. **Communications Infrastructure**
B. **Mobile Asset Data Collection**
C. **Patrol Vehicle Video/Audio Systems**
D. **Public Website Refresh**
E. **Permitting System Upgrade**
F. **Orthophotography**
G. **Business Licensing Software**
H. **Public Safety Radio Amplifier**
I. **City Facility Security Cameras**
A. Communications Infrastructure

The City of Mercer Island operates seven staffed facilities and over 30 ancillary facilities that support operations such as the City’s water and sanitary sewer utilities. Network communications is achieved through wired and wireless infrastructure, some owned and operated by the City and some by third parties such as Comcast, Verizon, CenturyLink, and King County. The City maintains two primary locations where server infrastructure is located to provide a primary site and disaster recovery site for City voice and data systems critical to its operations. Three unique opportunities for improving the City’s network communications infrastructure are available in 2019/20. King County is planning a significant sanitary sewer main replacement and Sound Transit continues to prepare light rail infrastructure. Both agencies appear to be willing to partner with the City during these projects to allow for the placement of conduit for City fiber optic cables. The City would be responsible for funding the portions of the projects related to the design and installation of conduit in the areas of planned construction. Additionally the City is currently negotiating a potential franchise agreement with Zayo communications. IGS has developed a list of City interests that align with Zayo infrastructure planning for purposes of negotiation.

B. Mobile Asset Data Collection

Most of the services the City provides to the community are spatial in nature, meaning they happen at specific locations. The City maintains a geographic information system (GIS) which replicates the physical world in sophisticated software systems. This allows for infrastructure planning and management. The City utilizes various ways to update its GIS with current and accurate data, one of which is through vehicle mounted cameras and associated equipment. This is known as mobile asset data collection. Specifically, the condition of the City’s road network, the trees in the right of way, and traffic control signs will be inventoried and processed for use by City staff.

C. Patrol Vehicle Video/Audio Systems

The Police Department maintains a fleet of patrol vehicles equipped with video and audio recording equipment for use during calls for service. The useful life of these systems is about five years. The current system was installed in 2014 and is due for replacement in 2019.

D. Public Website Refresh

The City’s website is one of the primary ways constituents can learn about, access, and interact with City services. As web technology changes the City must refresh and maintain a relevant and user friendly website. Additionally several new web based tools have recently been implemented. Creating a cohesive user experience for accessing City services is a primary outcome.

E. Permitting System Upgrade

The City is responsible for reviewing and approving land use and community development activity on Mercer Island. To manage this process the City utilizes a software system that manages the workflow for land use projects, building permits, inspections, and other related processes. From time to time the software vendor will release patches, minor updates, and major upgrades. Additionally new leadership is in place and permitting and plan review processes are ripe for taking a step back and looking at how technology can be used to facilitate these workflows.
F. Orthophotography

The City utilizes various ways to update its GIS with current and accurate data, one of which is through high resolution aerial photography. The City generally partners with regional agencies to reduce cost. This data is used to derive the current state of dozens of different physical characteristics of Mercer Island.

G. Business Licensing Software

Mercer Island City Code and State Law require that businesses obtain licenses for operation and pay taxes on revenue. The City currently uses a custom tool that the software vendor no longer supports to manage business licensing. The State of Washington has requirements for tracking this information that place a 2020 deadline on the City regarding reporting business license information. Making it simple to obtain a business license and complete financial requirements is a primary outcome of this effort.

H. Public Safety Radio Amplifier

Mercer Island Police and Fire partner regionally for radio communications infrastructure through an entity called PSERN. Radio equipment updates may be necessary to ensure compatibility with PSERN requirements.

I. City Facility Security Cameras

Both the Thrift Store and the Water Reservoir require security cameras related to operational security. Current systems require replacement and some enhancement to ensure proper coverage of these facilities. Events at City Hall in 2018 may prompt increasing the number of cameras utilized at City Hall and other facilities.

J. EOC Technology

The City Hall facility includes an emergency operations center (EOC) to facilitate emergency management of a wide variety of possible emergencies including wind storms, boil water events, earthquakes, bomb threats, active shooters, etc. The City has access to many valuable information sources to provide incident managers critical data for decision support. Currently there is no central way to access all of this information and some requires technical assistance from IT. The EOC would benefit greatly from ensuring that incident managers have a more simplified access to information.

K. Financial System Upgrade

Like most businesses the City utilizes a financial software system to manage its budget, general ledger, and financial reporting needs. From time to time the software vendor will release patches, minor updates, and major upgrades.

L. HR Software Solution

City departments have the need to recruit and process applicants for job openings, onboard successful candidates, monitor performance and process employment reviews, track timesheets, and manage other common human resource management tasks. Currently the City utilizes a combination of manual and paper based processes to accomplish these tasks. City staff believe a modern software system would greatly improve and streamline these processes.

M. Parks Maintenance Asset Management

In 2017/18 the City procured and implemented an enterprise asset management system in Public Works to assist in the management of public infrastructure such as streets, right of way and utilities. In 2019 the City would like to incorporate its Parks and Open Space assets into the asset management system.

N. Evidence Management System
As part of investigating potential crimes the Police Department collects and processes evidence. In addition to physical evidence collected there is digital evidence such as photographs and documents. To effectively manage this digital evidence and comply with stringent evidence process requirements the current system needs to be modernized.

O. UAV/Drone Program

Unmanned aerial vehicles, commonly referred to as “drones”, provide new ways to perform tasks such as evaluating a landslide, reviewing construction sites, and reviewing traffic accidents. City staff would like to begin a small program to evaluate this technology and its use in emergency management, development services, and parks and recreation processes.

P. ArcGIS Hub

The City maintains several authoritative data sets which provide a firm foundation for public policies and initiatives in addition to supporting the strategic and operational decision making within the organization. ESRI, the vendor who supplies the City with geospatial/GIS software, has a new public engagement portal that will allow the City to make available its GIS data, apps, and analysis tools in new and exciting ways.

Q. Keycard Entry Systems

Managing access to facilities and employee only areas for security purposes can be accomplished by keycard entry systems. City Hall’s external access as well as employee only areas could be improved with keycard entry system technology.

3.2 Technology Issues Selected for Action

The following issues have been selected for further action in the planning process for the 2019-20 biennium.

A. Communications Infrastructure  
B. Mobile Asset Data Collection  
C. Patrol Vehicle Video/Audio Systems  
D. Public Website Refresh  
E. Permitting System Upgrade  
F. Orthophotography  
G. Business Licensing Software  
H. Public Safety Radio Amplifier  
I. City Facility Security Cameras  
J. EOC Technology  
K. Financial System Upgrade  
L. HR Solutions  
M. Parks Maintenance Asset Management  
N. Evidence Management  
O. Unmanned Aerial Vehicle / Drone Program  
P. ArcGIS Hub

Due to funding limitations the keycard entry systems project will not be moved forward in the CIP.

SECTION 4.0 INFORMATION AND GEOGRAPHIC SERVICES DEPARTMENT

4.1 IGS Mission and Core Values

Information Services (IS/IT) Mission
In support of the management and delivery of City services it is the mission of the Information Services (IS) division within IGS to procure, maintain, and support all information technology products, services, and infrastructure for the City of Mercer Island. In addition IS staff will consult, train, and assist City staff on all technology issues and initiatives.

Priority of Government

#2 The community will support effective, efficient and legal delivery of public services.

Specific Services

- Provide helpdesk services Monday thru Friday from 8:00am to 5:00pm excluding holidays.
- Provide contract and vendor management for all technology related services.
- Provide 24/7/365 network and server support for critical technology services.
- Procure, maintain, and support City enterprise and line of business applications.
- Manage information security processes, technologies, training, and incidents.
- Manage and implement technology equipment replacement program.
- Manage the implementation of technology projects.
- Provide training as requested or necessary
- Participate in regional collaborations that benefit City initiatives or services

Geographic Services (GIS) Mission

In support of the management and delivery of City services it is the mission of the Geographic Services division within IGS to build and maintain geographic information systems capable of storing and managing data related to the City’s infrastructure (streets, sewer, water, storm, etc.), assets, and properties (residential, commercial, and public). In addition, GIS staff will provide access to geographic information systems to City staff and the public through paper and web based maps, software applications, and mobile applications.

Priority of Government

#2 The community will support effective, efficient, and legal delivery of public services.

Specific Services

- Administer and maintain an enterprise geographic information system that includes:
  - A property and land use dataset, which includes zoning, plats, public easements, addresses, parcel boundaries, right of way, and publicly owned parks and lands.
  - A utilities dataset, which includes all public (and significant private) water, sewer, and storm drainage infrastructure.
  - A transportation dataset, which includes streets and traffic controls, pedestrian and bicycle facilities, and trails.
  - Regularly acquired aerial photography, planimetric data, and elevation models.
  - An environmental dataset, which includes information related to potential regulations and/or restrictions. Examples would include geologic or environmental hazards, protected species, and watercourses.
  - Providing, delivering and supporting mobile applications related to field collection/inspections?
  - Metadata and links to official source documentation where possible.

- Update and replace Fire Department Response Wall Map to each Fire Station
- Update and replace atlases stored in Police vehicles and Fire Apparatus
- Update and replace atlases and incident map in Emergency Operations Center
- Update and deliver annual Water Utility atlas to utility teams and engineers.
- Update and deliver annual Sewer Utility atlas to utility teams and engineers.
- Update and deliver annual Storm Utility atlas to utility teams and engineers.
- Produce requested maps and information to support services and decision making in all City departments.
- Provide atlases for use by the public and staff in DSG Customer Service.
- Provide web based access to GIS data to internal staff and the public.
- Maintain interfaces between the City’s enterprise geographic information system and departmental business systems such as permitting, maintenance management, utility billing, parks, public safety dispatching and addressing, etc.
- Provide training as requested or necessary
- Participate in regional collaborations that benefit City initiatives or services

**Information and Geographic Services Core Values**

- The IGS Team will align technology services and investments with City priorities.
- The IGS Team is committed to solving business and technical problems in a responsive and courteous manner.
- The IGS Team will empower city staff with technology tools and training to streamline service delivery and reduce costs.
- The IGS Team will proactively ensure the stability and reliability of core business systems and technology infrastructure.
- The IGS Team will pursue innovative opportunities and initiatives through regional partnerships, deployment of current technology, and practical research and development.

4.2 **IGS Org Chart**
4.3 IGS Budget

Funds

Computer Equipment Fund – 520

The Computer Equipment fund accounts for the cost of operating, maintaining and replacing all City owned computer related equipment, which are funded through internal user charges that are developed for each type of computer related equipment. A computer replacement reserve within the fund accumulates the resources needed to replace a computer when its useful life has been reached. In addition, IT operational costs including salaries and benefits which are allocated through IT rates are accounted for through this fund.

Technology & Equipment Fund – 345

The Technology & Equipment Fund accounts for revenues that can only be spent on the following types of general government capital projects and purchases: technology and new equipment, excluding fleet and computer replacements. An inter-fund transfer from the General Fund is the main revenue source for this fund. Other funds may contribute resources for specific projects when deemed appropriate.

Organizational Keys (OneSolution)

WG110T - Computer Equipment Replacements

This key is used for equipment replacements.

IS1100 – IGS Mapping

This key supports operating costs for GIS allocated out of the General Fund which include portions of two FTE’s and GIS software licensing and maintenance costs.

IS2100 – IGS Network Administration

This is the primary key used for the IT functions. It includes salaries and wages supported by IT rates, line items for small purchases related to IT support, City-wide telecom service charges, software/hardware support and maintenance agreement costs, and ISP costs.

IS3101 – GIS Analyst Water Fund

This key is the water utility’s portion of funding one GIS Analyst position. It also includes the water utility’s portion of GIS software costs.

IS3102 – GIS Analyst Sewer Fund

This key is the sewer utility’s portion of funding one GIS Analyst position. It also includes the sewer utility’s portion of GIS software costs.

IS3103 – GIS Analyst Storm Fund

This key is the storm utility’s portion of funding one GIS Analyst position. It also includes the storm utility’s portion of GIS software costs.

4.4 City Technology Infrastructure

Facilities
The City has seven primary facilities with approximately 185 full time staff and at times as many as 45 seasonal or contractual employees.

- City Hall
- Maintenance & Engineering
- Luther Burbank Park Administration Building
- Mercer Island Community and Events Center
- Fire Station 91
- Fire Station 92
- Mercer Island Thrift Store

In addition, the City has over 30 facilities with network or computer equipment related to City operations that include sewer pump stations, water pump stations, water reservoirs, parks maintenance facilities, and other structures.

**Server Infrastructure**

Currently the City operates over 40 servers in support of City operations. The majority of these servers are virtual servers running on a clustered VMWare configuration using Dell, EqualLogic, and PureStorage systems. Some servers are dedicated standalone physical servers. The City uses Microsoft Windows as its primary operating system for both Server and Client operating systems however there are a few deployments of Linux based operating systems. The City also uses Active Directory which is a Microsoft technology that allows the City to control access to servers, computers, laptops, applications, files, and other network resources. IGS is currently developing additional cloud infrastructure capabilities utilizing Amazon Web Services and Microsoft Azure.

**Network Infrastructure**

The City’s network is fairly complex so only a brief overview is provided here. To provide some context IGS monitors the City’s network and server infrastructure and there are over 1000 points of potential failure. There is a detailed network diagram available in IGS.

**Equipment**

The City currently is mostly standardized on HP networking equipment. There are a few non-HP devices deployed throughout the City’s network as well.

**City Facility Connectivity**

The City owns or leases fiber all seven primary facilities. The City leases fiber from King County to reach the Luther Burbank Park Administration Building and the Mercer Island Community and Events Center. Station 92 is served with fiber leased by Comcast. All other fiber is City owned and maintained. An ongoing initiative to create a fiber communication ring connecting City Hall, the Water Reservoir, Thrift Store, Station 91, MICEC, and LBP Admin Building is roughly 50% complete and awaits opportunities for cost effective improvement.

In 2006/2007 the City installed 72 strands of fiber to 40th and Island Crest Way and extended six of these strands to Fire Station 91 and the Mercer Island Thrift Store. In 2012 the City utilized six additional strands and installed to the City’s water reservoir facility.

There are 15 leased commercial circuits to sewer pump stations and three wireless deployments to the remaining stations. Initiatives in 2019/20 will likely change how SCADA networks are implemented.
Internet Connectivity

The City has a fiber connection to King County INET which provides primary connectivity to other governmental institutions as well as to the Internet. Comcast provides a secondary connection. Skyline Communications provides a tertiary satellite internet connection. These network connections provide access to our regional PSAP, intergovernmental networks, and the Internet. System are configured to failover automatically and continuing improvement to redundancy is a priority for IGS.

Computing Infrastructure

The City currently maintains over 400 computers, laptops, tablets, and other computing devices. The City has largely purchased Dell and HP products due to price competitiveness over the last 10 years.

Telephony Infrastructure

The City currently maintains over 300 telephone lines. These lines include regular extensions, automated menus, analog lines for alarms, and other telephony requirements. The City currently utilizes a ShoreTel Voice over IP (VOIP) system implemented in 2007.

Mobile Infrastructure

Most City employees carry smart phones that are either personally owned or owned by the City. These are used for both voice and email communications related to City business. In addition, the City provides the ability to remotely connect to the City's infrastructure using VPN services. Some users of VPN technology are telecommuters while some are constantly connected such as Police and Fire vehicles equipped with mobile data computers. There are a variety of wireless solutions deployed ranging from Wi-Fi in public facilities to wireless wan capabilities through mobile hotspot devices.

Software Application Portfolio

The City currently utilizes several enterprise and primary line of business applications in addition to hundreds of minor productivity apps. A comprehensive City Technology Portfolio is maintained by the City Tech Council.

Enterprise Business System Examples

- Office 365 (Exchange Email and Calendaring)
- OneSolution Finance
- ESRI ArcGIS
- Microsoft Active Directory
- Microsoft SQL Server

Line of Business Application System Examples

- Enhance Utility Billing
- Superion Trakit (Permitting and Land Use)
- Cityworks Enterprise Asset Management (Public Works)
- PerfectMind (Recreation and Facility Scheduling)
- Tyler Public Safety Applications (Police and Fire)
- ESO EMS Records Management
- Hyland Onbase and Legislative Management
Productivity App Examples

- Microsoft Office
- Adobe Acrobat
- LiquidPlanner

4.5 Policies and Procedures

IGS policies are integrated into the City’s employee handbook that includes policies and procedures intended for all City staff. Currently the following policies are authored and maintained by IGS:

- Technology Use Policy
- Information Security Policy
- Remote Access Policy Agreement
- Mobile Device Policy
- Electronic Messaging Policy

SECTION 5.0 PERFORMANCE MEASUREMENTS AND INDUSTRY COMPARISONS

5.1 Purpose of Measuring IGS Performance and Frequency

Setting standards for performance and comparing actual performance allows the City to make better decisions about how best to allocated scarce resources and make policy and investment decisions regarding technology services. It is also a mechanism which can highlight areas for focused improvement. IGS will review these performance measurements with the City Tech Council on a biennial basis.

5.2 Helpdesk Measurements

- Helpdesk requests opened vs. closed per month
- Time to First Response
- Resolution Time – Overall and by Technician
- Ticket Types by Category
- Customer Satisfaction Rating – Overall and by Technician
- Cost – Overall and by Department Last Five Years
- Ticket Count by Department
- Hours by Department
- Ticket Types Used by Department

5.3 Network / Server Infrastructure Measurements

- Uptime / Downtime – Overall and by Category
- Client / Server Response Time
- Cost – Overall and by Department Last Five Years

5.4 Projects

- Dashboard Summary All Projects
- Cost – Overall and by Department Last Five Years

5.5 Customer Satisfaction

- Annual Customer Satisfaction Survey
- Per Ticket Customer Satisfaction Survey