WESTMINSTER

2015-2016 CAPITAL IMPROVEMENT PROGRAM (CIP) PROJECT/TECHNOLOGY PROJECT SUBMITTAL

PROJECT NAME:	**Mobile Technologies/Applications**

DEPARTMENT:	Information Technology	DIVISION:	

PROJECT CONTACT PERSON(S):	David Puntenney

PROPOSED FIRST YEAR OF FUNDING:	$95,000

NUMBER OF FUNDING YEARS ANTICIPATED TO COMPLETE PROJECT:	Two (2)

PROPOSED FUNDING SOURCE(S):	GF, PS, W, WW

IS THIS A NEW PROJECT? (yes/no)	☒ Yes; ☐ No	If this is an existing project, please provide the JDE job(s)/project number(s):
IF THIS PROJECT HAS PRIOR FUNDING, HOW MUCH HAS BEEN APPROPRIATED TO DATE? (i.e., not included in 5-Year CIP in out years but actually appropriated with an adopted budget; if this is an ongoing project, use the Revised JA Budget Amt from JDE as of 1/1/14)		How much money remains available for expenditure of what has been budgeted to date? (i.e., what's the available balance net of encumbrances?) (as of date: / /2014)
IF THIS PROJECT IS AN EXISTING PROJECT, IN WHAT YEAR DID IT FIRST GET FUNDING?		

SHORT PROJECT DESCRIPTION/SCOPE FOR <u>BUDGET DOCUMENT</u>: Please provide a brief (four to six sentence) summary of the project's major scope elements. This information will be utilized in proposed and adopted budget documents.

In 2014, IT Staff conducted a comprehensive, City-wide study to gauge interest and evaluate opportunities for mobile technologies. In meetings with Division Mangers from all departments, IT staff identified an initial 67 internal and external (customer) facing mobile applications that have the potential to enhance services, improve operational efficiencies and productivity, and reduce cost. IT prepared a full documented strategic plan outlining goals, current state of mobile technology in the City, network infrastructure to support mobile, skills inventory, support requirements, development methodologies, hardware and security. This strategy identified the need for 1 FTE Software Engineer, 1 FTE Technical Support Specialist for support, as well as $95,000 per year for 2015 and 2016 to jump start and fast track the mobile strategic plan.

LONG PROJECT DESCRIPTION/SCOPE FOR <u>INTERNAL USE</u>: Please provide a more detailed description of the project, along with any important background or contextual details for internal discussion/review with CMO and other departments. If this is an ongoing project, please insert here or attach separately a list of proposed sub-projects and associated costs that you are proposing for each year for which funds are requested. If this is a technology project, please contact IT and complete the "Technology Projects" section towards the end of this form.

See attached 12 page mobile strategic plan for a long project description with detailed background.

LOCATION: (Please provide a map when applicable.)

NEED/JUSTIFICATION/BENEFITS OF THE PROJECT: List project objectives, benefits, and how the City will measure success. Include return on investment information where appropriate and an analysis of project risks.

See attached.

ESTIMATED TOTAL PROJECT COST	TOTAL PROJECT REQUEST PER YEAR	
DESIGN/ PRE-DESIGN/ ENGINEERING/ ARCHITECT	2015	95,000
LAND/ROW ACQUISITION	2016	95,000

INSPECTION		2017	
CONSTRUCTION		2018	
FURNITURE/ FIXTURES/ EQUIPMENT (Mobile hardware)	90,000	2019	
TAP FEES		**TOTAL NEW FUNDING**	<mark>190,000</mark>
OTHER: (describe) Mobile software procurement, contract services for programming, development tools, training.	100,000		
CONTINGENCY			
TOTAL	$190,000		

LIFE CYCLE COST ANALYSIS (LCA)

"Lifecycle cost" means the cost of owning and operating infrastructure, equipment, etc. over its expected lifetime, including the costs that it will incur within that time (maintenance, energy, water, etc.). When two or more products' lifecycle costs are compared, the full cost of each product over its lifetime is considered.

LCA has already been performed on certain project scope elements?	☐ Yes; ☒ No
The project's design/pre-design/engineering/architect budget includes funds to conduct LCA?	☐ Yes; ☒ No

PROJECT SCOPE ELEMENTS FOR LCA: Please list project scope elements where LCA has already been performed or will be performed, along with summary information on potential alternatives. If LCA has already been performed, please summarize findings. If no LCA is proposed, please explain why.

LCA will be based on software applications purchased and developed to meet specific requirements of departments.

OPERATIONS AND MAINTENANCE

Estimate the citywide first-year and on-going cost impacts below.

- Break out by division/department the anticipated first year and ongoing operating cost impacts.
- Include ongoing costs impacts both inside and outside of your department, such as energy, water, custodians, landscape maintenance/ mowing/ flowerbeds, street sweeping, snow removal, etc.
- Include future computer hardware replacement costs, such as monitors, printers, scanners, etc.
- Include only _**incremental cost increases/decreases**_ (e.g., if you are widening a road, note below the incremental cost increase to maintain the new part of the road and associated right of way/median improvements; if a project will reduce current operating costs, please list those reductions).
- Please include any clarifying comments about your assumptions in the section Additional Comments.

ESTIMATED **FIRST YEAR** OPERATING COSTS		ESTIMATED **ANNUAL** OPERATING COSTS	
Department/Division:	Estimated Costs:	Department/Division:	Estimated Costs:
	N/A	TBD (Hardware Replacement fund)	30,000
		IT (Software Maintenance – est.)	10,000
TOTAL FUNDING	<mark>$ 0</mark>	**TOTAL FUNDING**	<mark>$40,000</mark>

NOTE: The amounts in the Total columns will automatically calculate if you right-click on the yellow-shaded <mark>_"$0"_</mark> _and click on !Update Field._

ADDITIONAL COMMENTS ON OPERATIONS AND MAINTENANCE CONSIDERATIONS: Please provide any additional clarifying comments or considerations about estimated operations and maintenance costs, overall assumptions, etc.

TECHNOLOGY PROJECTS

If this is a technology project, complete the section below. A technology project is one that will require the IT Department's assistance (hardware, software, network connectivity, system integration, security/firewall issues, etc.). Please contact IT to discuss the project and provide IT with a copy of this form when you submit to CMO.

ADDITIONAL HARDWARE PURCHASES NEEDED? List all hardware (e.g., servers, monitors, desktops, laptops, tablets, handhelds, printers, scanners, network connections, etc.) that is anticipated associated with the project. All attempts to anticipate the hardware needs for the first two years of this project implementation should be made.

Mobile hardware technology – Estimated $90,000

PROJECT TEAM: Identify the key participants from the departments utilizing the technology who will be involved in the implementation of the project. Clearly state each participant's role (including project managers) and estimate how long the project is anticipated to take to implement.

Varies and will be determined based on application within project

IMPLEMENTATION AND ONGOING STAFF REQUIREMENTS: Indicate the staff within the departments utilizing the technology and in IT that will be required to implement and support this technology on an ongoing basis. Indicate if those staff allocations will impact core services or require additional FTEs in the respective departments or IT.

1 FTE Software Engineer, 1 FTE Technical Support Specialist

ONGOING MAINTENANCE & UPGRADES:

What are the annual maintenance costs (including anticipated annual cost escalator)? Estimated $10,000

How often are upgrades to the software anticipated? TBD

Are there additional costs for each software upgrade? If yes, how much is estimated per upgrade (this should include implementation costs for each upgrade in addition to any software costs)? TBD

How often are upgrades to the hardware anticipated? Three years

TRAINING: Describe the additional training that will be required for technical or user staff during and following implementation of this project.

TBD

WESTMINSTER
COLORADO

Information Technology Department
Mobile Computing Strategic Plan
March 2014

Prepared by:

David Puntenney

Information Technology Director

Introduction:

The explosive growth of mobile hardware and applications capable of enhancing service delivery, productivity, and efficiency is providing significant opportunities for organizations. A recent CIO survey of IT Directors and CIOs show that 67 percent believe mobility will impact their business as much or more than the internet did in the 1990s. The next generation of citizens, business owners, and employees will expect to have mobile applications at hand to help them in their daily activities. Navigating a course toward creating and executing a coherent mobile strategy is a challenge for many organizations due to the fragmentation and chaos in the mobile marketplace, where new hardware and mobile operating systems are coming out all the time. Westminster, not unlike other organizations, has made some progress in deploying mobile applications within the organization, but has done so in a tactical fashion supporting lower level departmental goals and strategies. It is an appropriate time for Westminster to design and build an enterprise strategy and infrastructure for developing and managing mobile apps over the long-term. Without a well-defined and executed plan, Westminster faces risk of missing opportunities and executing only tactical and non-cohesive mobile application development approaches which will result in more costly, less integrated, and less sustainable solutions.

In 2014, Information Technology staff conducted meetings with management throughout all City departments to create a city-wide mobile application needs inventory. The results of this process have helped the Information Technology Department identify tools, resources and strategies that will be required to achieve a sustainable mobile technology environment. With the City Manager's Office and City Council support for the recommendations made within, I am confident that the City can accomplish a successful mobile strategy and achieve the goals identified in this plan.

Goals:

Westminster has opportunity to achieve several City Council goals as well as specific department objectives through the execution of a sustainable and well executed mobile strategy. The high level goals of this plan include:

1. Directly support the City Council goal of "Financially Sustainable City Government Providing Exceptional Services" and objective of "Prepare for the next generation of leaders, managers, and employees"
2. Directly support the City Council goal of "Financially Sustainable City Government Providing Exceptional Services" and objective of "Invest in tools, training and technology to increase organization productivity and efficiency"
3. Directly support the City Council goal of "Beautiful and Environmentally Sensitive City" and objective of "have energy efficient, environmentally sensitive City operations"
4. Provide tangible benefits to a broad community of external and internal users in order to achieve the best ROI.
5. Create a cohesive and comprehensive City-wide enterprise plan establishing foundational mobile strategies that provide sustainable value with an effective governance and support model.

Prospective Audience for Mobile

During interviews with departments across the City, IT staff identified the prospective audience for current and future mobile applications. It is important to recognize that the City does not have the ability to establish hardware or operating system standards for external users, and therefore must be prepared to develop and make available applications that work with the broadest array of screen sizes, operating systems, and devices. This approach is similar to what the City accomplished with the 2013 conversion of the City's web site to a responsive design format for mobile use.

<u>External Mobile Application Users</u>

- Business owners
- Citizens
- Visitors
- Utility, facilities, services and recreation customers

- Contractors and vendors
Internal Mobile Application Users

- Employees
- Volunteers

Current State of Mobile in Westminster

Westminster has taken some meaningful steps toward leveraging mobile technology to enhance services and operational efficiencies. While that progress has achieved some of the goals identified above, they were accomplished by way of tactical plan in isolation and in support of departmental strategies without a comprehensive and sustainable City-wide strategy to address long term support and integration. The City currently has 83 iPads and 12 semi-ruggedized tablets deployed to support the applications listed below. Below is a listing of the current mobile applications for both internal and external users in Westminster:

- City Web Site – in 2013, the City's web site was converted to responsive design, enabling internal and external users with cross platform access to web site information and applications from mobile devices.
- Building Inspections - an IOS only internal mobile app from Accela used for accessing and updating building inspection information.
- Manhole Inspection - allows creation of work orders and completion of manhole inspections. This internal mobile app was purchased from a third party vendor.
- ArcGIS Mobile – allows for viewing of internally created City Geographic Information System maps from the web. This is a cross-platform compatible application, used by internal users only. Future goals include adding map editing capabilities for this app.
- Sanitary Sewer Televising Software – allows for viewing of sanitary sewer conditions used by internal users only.
- Accela Work Crew - a vendor provided app to allow for creating and editing work orders/service requests in the field. This application is for internal users only. The City is delaying implementation until the vendor updates the app functionality.
- Accela Mobile Office – provides internal users with functionality similar to that available on the full version of Accela. This app is designed for windows mobile devices, and will be used by internal users only. App deployment is delayed until mobile hardware acquisition is completed.
- Leak Detection – this windows mobile device app will be used to detect leaks on water lines. This application will be for internal use only. App deployment is delayed until mobile hardware acquisition is completed.
- Teloger - this windows based mobile app will enable internal users to download and process fire hydrant pressures when connected to devices on hydrants. App deployment is delayed until mobile hardware acquisition is completed.
- Westminster Library in Touch – This iOS app provides internal and external users the ability to connect to the City library catalogs. The app was developed by a third party.
- OverDrive Media Console – this third party iOS app provides external users with access to some of the library's e-materials collection (ebooks, e-audiobooks, downloadable music, etc.). For internal and external customer use.
- Adobe Digital Editions - this third party app provides cross platform external users with access to some of the library's e-materials collection (ebooks, e-audiobooks, downloadable music, etc.). For internal and external customer use.
- Augmented reality app – used for children's story hour and learning the alphabet. This third party app is available for internal and external users, and will be available in the near future.
- Colar app – this app allows users to print color and see drawings in animated 3D worlds for children's story and play hours at the library. This third party application is designed for iOS and Android platforms and will be available for internal and external users in the near future.
- Access Westminster – used by internal and external users from any mobile device to report pot holes, code infractions, and more. Developed and hosted by third party vendor.

- Telestaff – used by mobile internal fire department users to gain access to the staff scheduling system. This application was developed by the vendor.
- Apple app store applications including iTap, RD Client, iAnnotate, OfficeHD2, RainBird, and several others.
- Intergraph - Police mobile applications (Ileads)

Network Infrastructure to Support Enterprise Mobile Applications

The City currently has 75 access points deployed within 30 City facilities. The wireless network infrastructure is currently being managed via Cisco wireless LAN controllers with a combination of B, G, and N technologies that are offered in various facilities.

Information Technology is currently updating the wireless infrastructure to expand the number of access points in every City facility, and to provide complete Wi-Fi campus coverage at the City's water and wastewater treatment plants to provide improved mobile access.   Wireless access points installed during this project include those capable of supporting the upcoming 802.11 ac standards, providing future wireless speeds of reaching 1 Gigabit per second.   This state of the art advanced wireless network infrastructure will provide employees using enterprise mobile applications with high reliability and speed.

The City will contract with cellular providers as needed for those mobile applications requiring real time connectivity while away from City facilities and City owned network.

Needs Assessment/Inventory

During the first quarter of 2014, IT staff conducted interviews with management groups from all departments to gauge interest and need for mobile applications. The results of that survey, included as Attachment A, summarizes mobile application needs and benefits as identified by departments/divisions including Fire, HR, BO&M, Risk Management, Fleet, Finance, Community Development, Parks, Recreation and Libraries, Public Works and Utilities, Information Technology and City Attorney's Office.   The list of 65 applications identified during this survey will likely grow as departments realize the benefits mobile technology can bring to their operation and how such technology can provide direct and indirect service enhancements for the community.

Mobile Technology Support Requirements

Westminster Information Technology Department staff consists of 25.3 full time permanent staff responsible for centralized management and support of City technologies and infrastructure.   The team has been successful in gaining new skills as required to assess, select, deploy and support new technologies.   Over the past several years, staff has been acquiring the skills needed to successfully support mobile hardware and development of web framework mobile applications (HTML5).   However, an inventory of current skills and support time available to manage all components of a comprehensive mobile plan are insufficient to guarantee a successful program. The foundation of any successful plan requires that the tools, training and staff resources are sufficient to meet the needs and objectives. In order to meet the objectives of this plan and realize the operational efficiencies and service enhancements mobile technology can provide, the City should make an investment to address the Information Technology Department cross divisional service level increases.

Service level increases to support this plan include:

Systems Management Division:

Mobile hardware evaluation, configuration, deployment and support (up to 200 new devices during the next 24 months)

Mobile device management (MDM) administration for City owned and personal devices

Mobile device security management

Enterprise application store setup and administration

Wi-Fi network upgrades and management

<u>Software Engineering Division:</u>

Application specifications and required document preparation

Project management for third party application development projects

Third party mobile applications evaluation and selection in collaboration with departments

Working with contract developers to integrate applications with back in databases

Cross-platform mobile application design and development

Manage synchronization and compatibility between operating systems revisions and apps

Maintenance, support, upgrades and enhancement to mobile applications

<u>I.T. Administration</u>:

Assist in selecting vendors for contracted mobile development projects

Contract review and negotiation

A small portion of the new and expanded level of services listed above can be accomplished through currently funded staff. However, based on the 2014 needs assessment, the City departments have initially identified 65 mobile applications that would benefit both internal and external audiences, along with the need for a projected 200 new mobile devices.   There is not a feasible offsetting service level reduction as current IT hardware and software services are considered critical to departments and any reduction to those services in order to allocate appropriate time for mobile support would have significant negative implications for City employees and customers. Conservatively, this strategic plan identifies the need for one FTE Software Engineer and one FTE IT Intern to address the new and expanded level of service.

The IT Intern would be assigned to the Systems Management Division to offload more routine technical support tasks in order to free hours of more experienced staff to provide mobile support. In 2016, the IT Department and City should assess if the Intern position should be reclassified to a permanent position beginning in 2017 based on then current mobile hardware support and administration needs.

The Software Engineering Division would experience an ongoing increase in the level of service provided as identified above. In order to meet those new and expanded service levels, a full time permanent Software Engineer position will be required.

Development Methodology

Prior to any development, the City will first evaluate available off the shelf third party solutions to determine if there are apps capable of meeting functional requirements.   After assessing availability, functionality, cost, security and business fit, the City may choose to execute a purchase and support agreement from the third party vendor, engage in contract development, or initiate an in-house development project.

The City will implement a flexible agile approach in development of mobile applications. The agile method to development incorporates these principles:

- Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
- Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

- Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
- Business people and developers must work together daily throughout the project.
- Build projects around motivated individuals.
- Give them the environment and support they need, and trust them to get the job done.
- The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.
- Working software is the primary measure of progress.
- Agile processes promote sustainable development.
- The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
- Continuous attention to technical excellence and good design enhances agility.
- Simplicity--the art of maximizing the amount of work not done--is essential.
- The best architectures, requirements, and designs emerge from self-organizing teams.
- At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

Considerations such as required device functionality, importance of security, offline capability, interoperability and multi-platform capabilities must be taken in account. There are three development approaches to be considered when planning for any new mobile application development initiative.

- Native apps are specific to a given mobile platform (iOS or Android) using the development tools and language for that respective platform. Native apps look and perform the best.

- HTML5 apps use standard web technologies—typically HTML5, JavaScript and CSS. This write-once-run-anywhere approach to mobile development creates cross-platform mobile applications that work on multiple devices. While developers can create sophisticated apps with HTML5 and JavaScript alone, some vital limitations remain at the time of this writing, specifically session management, secure offline storage, and access to native device functionality (camera, calendar, geolocation, etc.)

- Hybrid apps make it possible to embed HTML5 apps inside a thin native container, combining elements of native and HTML5 apps.

Native Development

Native apps provide the best usability, the best features, and the best overall mobile experience. They are also more expensive to develop and support. There are some capabilities available only in native apps:

- Multi touch - double taps, pinch-spread, and other compound user interface (UI) gestures

- Fast graphics API - the native platform provides the fastest graphics, which may prove beneficial if app requires a significant amount of data and require a fast refresh.

- Fluid animation - related to the fast graphics API is the ability to have fluid animation. This is especially important in highly interactive reporting, or intensely computational algorithms for transforming photos and sounds.

- Built-in components - The camera, address book, geolocation, and other features native to the device can be seamlessly integrated into mobile apps. Another important built-in component is encrypted storage.

- Ease of use - The native platform is what individuals are accustomed to.

Native apps are usually developed using an integrated development environment (IDE). IDEs provide tools for building debugging, project management, version control, and other tools professional developers need.

These tools are required because native apps are more difficult to develop. Likewise, the level of experience required is higher than other development scenarios.

<u>HTML5 Development</u>

An HTML5 mobile app is basically a web page, or series of web pages, that are designed to work on a tiny screen. As such, HTML5 apps are device agnostic and can be opened with any modern mobile browser.

An important part of the "write-once-run-anywhere" HTML5 methodology is that distribution and support is much easier than for native apps. Applications are updated in one place and ready for all users at the same time. For a native app, there are longer development and testing cycles, after which the end user typically must log into a store and download a new version to get the latest fix.

Unfortunately, HTML5 cannot access native features on the device. Users do not have the familiarity of the native look and feel, or be able to use compound gestures they are familiar with. But strides are being made on all fronts, and more and more functionality is supported by browsers all the time. For a number of applications included in the Westminster needs inventory, HTML5 will be a suitable lower cost approach.

<u>Hybrid Development</u>

Hybrid development combines both the native and HTML5 worlds. Hybrid is a web app, primarily built using HTML5 and JavaScript, which is then wrapped inside a thin native container that provides access to native platform features.

For the most part, hybrid apps provide the best of both worlds. Existing web developers can create sophisticated mobile applications that don't sacrifice the native capabilities.

Hybrid apps may reside locally on the mobile device or on a server.

- o Local - HTML and JavaScript code is packaged inside the mobile application binary, in a manner similar to the structure of a native application.

- o Server – Alternatively, the full web application can be run from the server (with optional caching for better performance).

Mobile Device Hardware, Management and Security

Rapidly changing mobile hardware technology and the desire to use personal owned devices for access to enterprise mobile apps adds complexity in establishing a successful support model.   Failure to recognize and address the management and support of mobile hardware can increase costs, create security vulnerabilities, and lower the potential ROI for mobile applications.   To achieve an efficient and responsive support structure, the Information Technology Department will partner with departments to evaluate their mobile hardware needs and to assist with the selection of devices to meet both the needs of the department and the then current technical standards for performance, reliability, and application compatibility.   A comprehensive view of mobile device hardware, software and data security is essential as Westminster considers the mobile plans. Mobile security includes four basic elements:

- User authentication
- Application and memory isolation (to keep the organizational and personal components apart within a device, coupled with data encryption)
- Device visibility - (within the mobile device management system)
- Remote disabling of device and erasure of data

Mobile Device Management (MDM) is essentially a class of products and strategies for securely deploying mobile devices in volume. A MDM strategy ensures that the IT Department can maintain situational awareness of the entire mobile device fleet – where they are, if they are properly configured, if software and security patches are up to date. Additionally, a mobile device management tool helps to ensure that physical loss of a device does not become data or privacy loss.   The MDM solution provides functionality such as software provisioning, remote backup, remote wiping and locking of lost devices, GPS tracking, secure messaging services, encryption and more. The IT Department will implement Trend mobile device management software for managing city owned devices. A growing trend among organizations is to allow employees to bring your own device (BYOD) and enable those devices to access enterprise

mobile applications. Westminster currently provides employees with the BYOD option for Microsoft Exchange, but intends to expand this option to provide access to other mobile applications. However, in order to protect City networks and data, employees will need to review policy and agree to have their personal device registered in the City's mobile device management solution prior to accessing any mobile application other than Outlook Web access.   A new administrative memorandum is included as part of this plan.

Governance

The City of Westminster adopted a centralized computer development and support model in the mid-1980s. Westminster's model has been one of high collaboration between Information Technology and user departments in the evaluation and selection of software and hardware technologies in order to select the best solution to meet department goals and technology standards. The centralized technical support and oversight model has been key to helping the City benefit from economies of scale, preventing islands of information, avoiding the cost associated with unnecessary duplicate technical staff and skills throughout departments, standardizing on industry best practices, hardware and software, and much more.   The City's success in the centralized and collaborative approach to technology over the years has gained Westminster state and national recognition as being a leader in technology strategic planning, technology selection, deployment, and use of technology to improve operational efficiency and services.   The City has been recognized as one of the top ten digital cities in the nation for the past 11 out of 12 years.   Recent Westminster mobile initiatives have taken a more decentralized tactical approach without a higher level strategy and standards in processes or technology. Executing a more thoughtful organization-wide strategic centralized approach moving forward will provide long term benefits and a sustainable mobile technology environment in the future.   A mobile technology steering committee consisting of one division manager per department will be established in 2015 to assist the IT Department in mobile project prioritization.

Funding

It is too early in the planning process to project the exact cost of funding the mobile needs within the City for 2015 and 2016. Planning for the mobile initiatives in a CIP budget would be an ideal approach recognizing that it would be extremely difficult for departments to establish an accurate budget request amount for specific mobile projects without knowing all information such as specific number of devices, development approach, third party application options and pricing, etc.   This strategic plan recommends a capital improvement project budget in the amount of $95,000 per year for 2015 and 2016 dedicated specifically for up to 200 mobile devices, administration tools, training, professional services for application development, third party application purchases, and development tools for internal developed applications. Data services, if needed, would need to be budgeted by the departments. Beginning in the 2017 budget year, funding for new and replacement hardware should be consistent with the City's current PC purchase and replacement budget strategy.   Additionally, as noted in other sections of this plan, staff recommendations also include a 1.0 FTE Software Engineer and 1.0 IT Intern beginning in 2015.

Schedule

Once completed, the City will recognize immediate and ongoing benefits from the ideas and applications discussed during the needs assessment surveys with departments. However, it will be challenging to accomplish significant progress until funding and support staff is approved. Fortunately, IT staff has carved out sufficient time to lay a foundation for a successful and sustainable mobile approach by developing this mobile strategy, creating a bring your own device (BYOD) administrative policy, evaluating and selecting a mobile device management (MDM) solution, beginning Wi-Fi network design and testing for upgrade and expansion, reviewing mobile software development tools, and testing various Windows, Android and iOS mobile hardware devices. Additionally, staff has gained experience in supporting Apple iOS mobile devices for some applications. PW&U staff has identified some high priority projects, and has funding available to address mobile hardware and software needs for 2014. The IT Department will collaborate with PW&U to address some of their high priority needs beginning second quarter, 2014.

2014 Mobile Strategy Objectives

- Complete the City wide Wi-Fi network upgrade of all existing access points.

- In collaboration with PW&U staff and outside vendor, complete the testing and installation of wireless access points to provide coverage over the entire water and wastewater treatment facilities.
- Engage in contract services and in house development as appropriate to address high priority PW&U mobile projects.
- Fully implement mobile device management and enable employees to register personal devices to gain access to enterprise applications.
- Evaluate and create an enterprise application store to facilitate application update and deployments for 2015 and beyond.
- Complete evaluation and select mobile software development tools and begin training to enable the Software Engineering Division to generate cross-platform hybrid and native applications.
- Complete evaluation of mobile device hardware to address immediate needs as identified.

2015 Mobile Strategy Objectives

- Hire a 1.0 FTE Software Engineer to address level of service increases in the Software Engineering Division.
- Hire a 1.0 IT Intern to address level of service increases in the Systems Management Division.
- Create an Inter-departmental steering committee consisting of one division manager per department to help the organization establish mobile development priorities.
- Create a prioritized list consisting of the initial 65 mobile applications requested, create requirement documents, and develop plans for moving forward with simultaneous development projects.

Summary

As discussed in this plan, mobile technology provides significant opportunity to support and meet established City Council goals, enhance operational efficiencies, reduce cost, and improve services.   Mobile technologies and opportunities are advancing and changing so quickly that many organizations fail to take time to develop and support a strategic and sustainable plan for mobile technology, and instead continue to do projects in an isolated tactical fashion. Through execution of a strategic plan, the City of Westminster has the opportunity to advance mobile within the organization in a way that is sustainable, more efficiently managed, secure, highly integrated, and more responsive to the needs of the organization as a whole.