



CITY OF MILL VALLEY IT UPGRADE PROJECT PLAN
June 7, 2021

Any specific vendor or solution listed in this IT Upgrade Project Plan is preliminary and for planning/budgeting purposes only and does not imply the City will contract with them or purchase equipment or services from them. Any specific vendor or solution referenced in the plan is for discussion purposes only, and the City reserves the right to select any vendor or solution that provides comparable features or services. Recommendations and priorities may be re-assessed as needed during the implementation of the IT Upgrade Project Plan.

1 **1. IT Management**
2

3 **Issue:** The City’s IT infrastructure has experienced years of deferred maintenance as
4 critical upgrades and repairs to the City’s IT assets have been delayed and backlogged.
5 The cause of our current environment is the lack of knowledgeable and experienced IT
6 staff assigned to coordinate and address the issues, along with a lack of funding for
7 needed infrastructure upgrades.
8

9 The City has a vast and diverse fleet of IT assets that every City employee relies upon to
10 conduct their work. However, for many years there has been no centralized IT Manager
11 to maintain the City’s hardware and software programs, subscriptions,
12 telecommunications system, and to coordinate the City-wide IT budget and replacement
13 strategy. The City needs a knowledgeable and experienced point person to coordinate the
14 proposed infrastructure upgrade projects detailed in this IT Upgrade Project Plan, and
15 then to coordinate and maintain City IT systems moving forward.
16

17 **Urgency/Risk:** Failing to allocate funding for staff resources will lead to an ongoing
18 decrease in productivity as City employees continue to use ill-fitting, low-functioning,
19 outdated and unsupported systems, which lack consistency in versions and licensing. This
20 results in additional problems for staff and, due to a deficit of IT support, they either
21 remain unresolved or can lead to detrimental consequences. The City will continue to
22 experience technology failures and lost time if systems cannot be updated and maintained
23 properly. The City will also not have a knowledgeable and experienced point person to
24 advise on the upgrades detailed in this IT Upgrade Project Plan, leading to projects not
25 being implemented, or implemented by staff who lack the IT experience and knowledge
26 to properly coordinate the project.
27

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28 **Proposed Solutions:** The ITAC proposes the following solutions:
29

30 **1.1. IT Management Support: Continue Contract with Marin IT (Short-Term)**

31 Extend Marin IT's contract for an additional 12 months of part-time services at 24 hours
32 a week, or 3 full work days, with pricing based on 20 hours per week.
33

34 Marin IT would be responsible for identifying organizational requirements and
35 synchronizing with stakeholders, identifying appropriate, compatible and cost-effective
36 technology solutions, as well as providing a single point of contact for the coordination of
37 projects, facilitation of solutions, resolution of issues, and delivery of support and
38 strategic services. Marin IT staff would have the primary responsibility of moving
39 forward the items for immediate implementation detailed in this IT Upgrade Project Plan,
40 with the continued assistance of the ITAC.
41

42 **1.2. IT Management Hybrid: Contracted/Shared (Potential Long Term)**

43 The City has also discussed a potential shared services agreement with the Southern
44 Marin Fire District (the District) at a point in the future. The District has recently hired an
45 Information Technology Coordinator. The primary responsibilities for this person is to
46 manage District hardware, software programs and subscriptions, telecommunications,
47 and manage budget and strategy for District needs. Fire Chief Tubbs has indicated that
48 after a period of training, orientation and focusing on addressing immediate District
49 needs, he foresees an opportunity to engage in a shared services agreement with the City.
50 This proposed arrangement should be revisited in approximately 6-8 months to assess
51 feasibility, fit, and potential implementation.
52

53 **Recommendation:** Staff recommends extending the current agreement with Marin IT as
54 described above. This will address the need for a knowledgeable and experienced point
55 person, who is familiar with the City IT systems, to coordinate the initial upgrades
56 detailed in this IT Upgrade Project Plan. It will address the critical need for staff support
57 now, and will give the District time to onboard their staff and allow the City and District
58 to further assess the shared service option at a future date. Marin IT staff would need
59 minimal orientation time since they have worked with the City under their current
60 agreement and already are very familiar with City IT infrastructure.
61

62

63

64 **2. Phone System**

65

66 **2.1. Replace or Upgrade Existing Phone System**

67

68 **Issue:** The City installed its Cisco phone system circa 2013. For the past few years the
69 system has no longer been supported by the manufacturer, and there is no current
70 SmartNet contract in place with Cisco to extend the life of the system. SmartNet is
71 Cisco's technical support, hardware replacement, and operating system software updates
72 program.
73

74

75 Along with the end-of-life issues, Staff is dependent on Marin IT to make any changes
related to the City's main line call handling and errors can be made between the request

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76 and the changes applied. This makes updating voice messages, changing hours of service,
77 number of rings, etc. very challenging to do quickly.

78

79 **Urgency/Risk:** While the system is currently functioning, if there is a system failure,
80 Marin IT will have limited ability to restore functionality, resulting in a significant delay
81 to the City. Patches and updates are no longer offered for the system, which affects
82 interoperability with other systems, such as Microsoft Exchange. Furthermore, any
83 security vulnerabilities that are discovered in an older version of the CallManager
84 software will go unaddressed. Marin IT has informed the City that the system
85 components are beyond the end of their lifespans, and no longer supported by Cisco
86 Systems.

87

88 The risk of failure increases every year and the outcome of that failure could be
89 significant to the City, especially for Recreation and Library, which receive high call
90 volumes and depend greatly on having phone lines open and available to the public. The
91 City has been hit with a significant economic impact this year due to COVID and if the
92 phone system went down unexpectedly, this could result in additional loss in revenue
93 while a new system is procured and installed.

94

95 **Proposed Solutions:** The ITAC reviewed VoIP (Voice over Internet Protocol) solutions
96 from Cisco and Mitel, both on-premises and cloud-based, as well as purchase and lease
97 options.

98

99 **Cisco:** Marin IT recommends the Cisco Business Edition 6000 Phone System and has
100 received proposals for both purchase and lease options. According to Marin IT,
101 advantages to updating the current on-premises Cisco phone system would include local
102 control, seamless integration with the City's existing network, a lower total cost of
103 ownership, and savings and efficiencies gained by the City not needing to re-architect the
104 phone system, replace handsets or train staff in the use of a new system. Marin IT also
105 has shared that the Cisco system will integrate with Microsoft 365, offers secure video
106 conferencing and cross-platform video collaboration with WebEx.

107

108 Marin IT recommends the City replace the Cisco servers, switches and routers, install
109 new CallManager software and servers, purchase new licenses, and renew SmartNet
110 support. The lifespan for the proposed new system is 7-8 years for the routers/switches,
111 and the lifespan for the servers 5 years each. The SmartNet support program covers
112 hardware and software updates, which extends the life of the system as long as the City is
113 a subscriber.

114

115 **Mitel:** Staff has also researched Mitel's MiCloud Connect cloud-based solution. Mitel is
116 a telecommunications company focusing almost entirely on VoIP products. The benefits
117 associated with off-premises systems include a decentralized phone server architecture
118 that can improve business continuity in the event of a disaster, redundancy, and allow for
119 ongoing software upgrades, enhancements, and system maintenance without requiring
120 significant interruption in service.

121

122 In 2017, the District replaced its legacy system with a VOIP system. The vendor selected
123 was Shoretel, which later became Mitel. The District continues to use this system and has

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124 been very pleased with its performance, functionality, ease of maintenance and control
125 over internal changes to the system.

126

127 **Recommendation:** The ITAC recommends moving forward with the Cisco leased on-
128 premise solution.

129

130

131

132 **3. Hardware**

133

134 **3.1. Replace Windows XP/7 Workstations**

135

136 **Issue:** Replacing older and outdated workstations (desktop and laptops) is overdue since
137 Windows XP and Windows 7 are no longer supported and the City has a variety of
138 workstation models and hardware of varying vintages with inconsistent levels of
139 processing power, which makes it difficult, if not impossible, to support contemporary
140 software programs.

141

142 **Urgency/Risk:** Outdated operating systems eventually reach the end of support and no
143 longer receive security patches or other updates. Besides presenting a higher security risk
144 because of remaining unpatched vulnerabilities, older systems may not support new
145 software.

146

147 **Solution:**

148

149 **3.1.1 - Year 1 - Replace 70 Workstations running Win 7 or older, with less than 4** 150 **GB RAM**

151 The ITAC conducted a comprehensive City-wide workstation inventory and identified 70
152 workstations running older software with low memory, to be replaced with new
153 workstations from Dell, running Windows 10 Professional. The lifespan estimate for a
154 workstation is 3-4 years. Marin IT recommends replacing the end of life workstations
155 prior to, or in conjunction with upgrading to Microsoft 365.

156

157 **3.1.2 - Year 2 - Replace 35 Workstations running Windows 10, with 8 GB RAM or** 158 **less, below i5 processors**

159 The ITAC also identified 35 workstations for replacement in year 2 of the plan, those
160 running Windows 10 Professional, but running lower memory and older generations of
161 processors.

162

163 **3.1.3 - Year 3 - Replace 29 Workstations remaining in inventory**

164 The ITAC also identified 29 workstations that will be at the end of their lifespans and up
165 for replacement in year 3 of the plan.

166

167 **Recommendation:** The ITAC explored purchasing versus leasing options for replacing
168 City workstations and recommends the lease option. The lease option will keep City
169 equipment up-to-date and give the City predictable annual expenses for our equipment
170 replacement program. The leases recommended provide a buyout option, which would

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171 allow the City to buy the equipment at the lease's end for its fair-market value or a \$1 per
172 unit buyout.

173

174 **3.2. Address Wi-Fi and Networking Performance Issues**

175

176 **Issue:** The ITAC identified Wi-Fi/bandwidth improvements as a high priority, especially
177 for City Hall, the Community Center, the Police Department, and the SASM Waste
178 Water Treatment Plant. Not included in the upgrade project are the Library and Fire
179 Department as their needs are currently being met. Slow network speeds impact the
180 productivity of any staff using offsite or cloud applications, including but not limited to
181 email, ERP applications, GIS, Tiburon RMS, CAD, EJUS, WebEx, Zoom, and Voice
182 over IP telephones.

183

184 **Urgency/Risk:** Slow networking speeds and sluggish, inconsistent, or unreliable Wi-Fi
185 coverage impacts productivity. Camera systems and other mobile technologies are
186 designed to primarily, if not exclusively, transfer data via Wi-Fi. Inconsistent wireless
187 connectivity could prevent timely data transfers and require time-consuming work-
188 arounds.

189

190 **Solution:** To address slow Wi-Fi and internet performance, Marin IT conducted Wi-Fi
191 studies in late 2020 and early 2021. Marin IT prepared a proposal to improve Wi-Fi in
192 these locations and recommends installing and upgrading 21 internal, 5 external, and 1
193 micro-multipurpose MIDAS-compliant access points. Marin IT recommends increasing
194 the bandwidth at all sites to at least 20 mbps, with City Hall and the Police Department
195 up to 100 mbps, which is the Community Center's current bandwidth allocation.

196

197 **Recommendation:** Conduct the recommended upgrades per the Marin IT
198 recommendations.

199

200

201 **4. Software & Servers**

202

203 **4.1. Update MS Office and Replace Microsoft Exchange Server 2010**

204

205 **Issue/Urgency/Risk:** City employees are using old versions of MS Office and the
206 Microsoft Exchange Server requires replacement. The City's Exchange Server is the
207 2010 version, and currently running Windows 2008R2, both of which are at their
208 respective end of life, and no longer supported with performance or security updates by
209 Microsoft. Moving to Microsoft 365 will effectively retire this server and remove the
210 cybersecurity risk it represents.

211

212 **Solution:** Marin IT recommends upgrading to Microsoft 365 Standard with Advanced
213 Threat Protection.

214

215 Microsoft Standard 365 includes:

216

- 217 • Outlook, Word, Excel, PowerPoint, OneNote, (plus Access and Publisher for PC
218 only).
- Email will support up to a 50 GB mailbox.

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- 219 • A hub for teamwork with Microsoft Teams.
- 220 • 1 TB of OneDrive cloud storage per user.
- 221 • Use one license to cover fully installed Office apps on five mobile devices, five
- 222 tablets, and five PCs or Macs per user.

223

224 Microsoft Advanced Threat Protection scans attachments and links in a cloud-based
225 “sandbox” safe from the City’s networks for Exchange Online, OneDrive and Microsoft
226 Teams across multiple platforms as well as providing anti-phishing protection and threat
227 reporting.

228

229 **Recommendation:** Move to Microsoft 365 after workstations are upgraded to Windows
230 10, as the older machines may not support Microsoft 365.

231

232 4.2 Windows Servers

233

234 4.2.1 - Year 1 - Replace Three Windows Server 2003/2008r2 Servers w/ Virtual 235 Machines and Windows Server 2019

236

237 **Issue/Urgency/Risk:** Once the City has migrated to Microsoft 365, there will be several
238 end-of-life servers remaining that must be replaced with new servers running Windows
239 Server 2019. These servers no longer receive support services such as technical support,
240 software upgrades, bug fixes, security patches, or feature development. In the short-term,
241 there are three servers that are well beyond their end of life and must be replaced in the
242 short-term.

243

244 **Solution:** Rather than purchase three new physical servers, Marin IT proposes
245 consolidating two on-site servers into one virtual server hosted at Marin IT. Marin IT
246 proposes repurposing the Windows and VM licenses currently being used by Mill
247 Valley’s Exchange 2010 email server and buying one new Windows 2019 Standard
248 Server license to support a virtual machine version of the MVCH-BuildingPL server.

249

250 **Recommendation:** Replace the three Windows servers according to the Marin IT
251 recommendations.

252

253 4.2.2 - Year 2 - Replace Remaining Windows Servers Running 2012 R2

254

255 **Issue:** The City currently has thirteen servers running Windows 2012 R2, which will be
256 considered end-of-life by Microsoft in October of 2023.

257

258 **Solution:**

259 Marin IT recommends replacing 13 Windows 2012 servers by January 2023. Their
260 proposal assumes upgrading Exchange to MS 365, and moving Tyler and TrakIT to the
261 cloud which is recommended for disaster recovery/resilience.

262

263 **Recommendation:** Replace the thirteen Windows servers according to the Marin IT
264 recommendations.

265

266 4.3. New Website

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267

268 **Issue:** The City purchased its current website in 2015 from Civica, which was acquired
269 by Granicus shortly thereafter. The Civica platform was a developer-level tool with
270 several quirks, but the City had a central staff person with advanced skills to manage the
271 website and provide City-wide support. In 2018, the staff person left, and the City
272 determined not to replace them, leaving the remaining staff with an overly complex and
273 difficult website to manage without support. At the same time, Granicus phased out all
274 Civica software updates and maintenance, and provided minimal customer support.

275

276 **Urgency/Risk:** Granicus will be officially sunseting Civica as of January 1, 2022. After
277 this date, Granicus will no longer provide active support, custom programming
278 enhancements, or security patches. Civica is poorly suited for today's high cyber-threat
279 environment, so acquiring a new website is an important priority to harden our defenses
280 and combat cyber threats.

281

282 **Solution:** In late 2020 the ITAC formed a Website Subcommittee with representatives
283 from each City Department. Granicus submitted a proposal to transfer the website to their
284 new platform - govAccess. Before moving forward with Granicus, the Website
285 Subcommittee invited three other vendors (CivicPlus, OpenCities and ProudCity) to
286 share proposals for website solutions. Upon receiving a proposal and presentation from
287 each vendor and conducting a comparison of price, features, and customer support, the
288 Website Subcommittee unanimously determined that the strongest candidate to meet the
289 City's needs is CivicPlus.

290

291 Due to the short window to design and launch a new website, staff accelerated this
292 project and requested a budget adjustment for the upfront costs in February 2021. The
293 City Manager approved the budget adjustment of \$39,000. The new website development
294 is currently underway, with an anticipated launch in Fall 2021.

295

296 **Recommendation:** None. This project is in-progress.

297

298 5. Cyber Security

299

300 **Issue:** In July 2020, the City responded to the Grand Jury Report titled "Cyberattacks: A
301 Growing Threat to Marin Government," which offered sixteen recommendations for
302 improved cybersecurity practices. Of the recommendations, the City has implemented 6,
303 partially implemented 3 and not implemented 7.

304

305 **Urgency/Risk:** Cyberattacks against municipalities such as Mill Valley are becoming
306 more and more common and can cause significant financial losses and disruption in
307 service. Without proper security protocols, hackers can gain entry and exploit City IT
308 systems and may install ransomware, dupe unsuspecting employees with phishing emails,
309 and access personally identifiable information, causing a serious threat of identity theft
310 for residents and employees.

311

312 "Hackers know that smaller municipalities can be easy targets because of inadequate
313 network protections and spotty adherence to best cybersecurity practices, and these

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314 criminals are expected to increase their assaults on them.” *Grand Jury Report:*
315 *Cyberattacks: A Growing Threat to Marin Government*

316

317 **Solutions:** The following solutions are suggested by Marin IT, and staff has indicated,
318 where appropriate, the solution corresponds to a Grand Jury suggestion:

319

320 **5.1 Knowbe4 Cybersecurity Awareness Online Training, Phish Alert button,** 321 **Reporting**

322 This recommendation corresponds to Grand Jury suggestion 1: “Employee training. The
323 Grand Jury recommends regular, mandatory employee training to educate and motivate
324 employees.”

325

326 KnowBe4 is the world’s largest integrated Security Awareness Training and Simulated
327 Phishing platform providing organizations with a campaign management tool to better
328 manage the urgent IT security problems of social engineering, spear-phishing, and
329 ransomware attacks and at the same time stay compliant with industry regulations like
330 PCI, HIPAA, SOX, FFIEC and GLBA.

331

332 **5.2. Password Complexity and Expiration**

333 This recommendation corresponds to Grand Jury suggestion 3: “Password and User
334 Account Management.”

335

336 Marin IT recommends the following:

- 337 • Changing password complexity to 12 characters, with a requirement to include
338 upper and lower case letters, numbers and special characters. This is the industry
339 standard.
- 340 • Expiration set to 42 days is the industry standard.
- 341 • Disallow passwords set to never expire.
- 342 • Set the password history to at least 3, preferably 6.
- 343 • Limit the number of password changes in 24 hours to one.

344

345 **5.3 Enable DUO Two Factor Authentication (Licenses) at MIDAS core.**

346 This recommendation also corresponds to Grand Jury suggestion 3: “Password and User
347 Account Management.” MIDAS has moved the City to a new Cisco Firepower firewall,
348 which supports Two Factor Authentication. Making the City cyber-safe requires more
349 than any one product or solution can provide, but multifactor authentication is the single
350 most effective way to mitigate against phishing attempts and ransomware attacks. Marin
351 IT recommends the City license DUO to activate the Two Factor Authentication
352 capabilities in the new Firepower firewall. Duo integrates with Microsoft 365, and should
353 be licensed for every user with access to email, financial applications, or the file system.

354

355 **5.4 Internal and External Vulnerability Scans**

356 Once the end of life workstations and servers have been replaced, and mail has been
357 moved to Microsoft 365 with Advanced Threat Protection, Marin IT believes it makes
358 sense to run Qualys internal and external scans to help identify less obvious
359 vulnerabilities and inform a prioritized remediation schedule.

360

361

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362 **5.5 BeyondTrust Web-based Jump Client**

363 Many remote workers are not assigned City laptops and use personal computers to
364 remotely access the City's network. Because home computers often lack consistently
365 updated antivirus, and do not benefit from the firewalls at the MIDAS core, this is not
366 considered a safe practice. The recommended approach is to provide a remote desktop
367 management tool, or "jump client" to allow the remote user to securely control their City
368 workstation remotely. BeyondTrust is a compromise solution to allow personal computers
369 to use the City network safely. City-owned machines are a better solution, to be
370 addressed in future IT master planning.

371

372 **5.6 Firewall Update**

373 The County is phasing out the one, central VPN server all of the agencies use because it
374 has reached end of life, and moving toward decentralized VPN using new Cisco
375 Firepower firewalls, which will require a secure certificate, and eventually move remote
376 staff over to a new, friendlier VPN URL. The solution includes a Cisco Advanced
377 Malware Protection (AMP) service, which is an app installed on every City-owned
378 device, leveraging functionality in the Firepower firewall.

379

380 **5.7 Transition URL to .gov**

381 Marin County Department of Information Services and Technology has recommended
382 that all Marin County public agencies transition to a ".gov" domain. The .gov domain is
383 reserved for official government organizations and it has enhanced cybersecurity
384 benefits. Domains are registered for a one-year period and can be renewed annually.

385

386 **Recommendation:** Staff recommends conducting the cybersecurity upgrades.