



**City
Budget
Office**

Bureau of Technology Services

Analysis by Jessica Eden

DIRECTIONS TO DEVELOP

Tableau Server Multi-Bureau Platform

\$161,229 ongoing, 1.00 FTE

Direction Language

There is an increased need across the City of Portland for data collection and data driven analyses to facilitate improved decision making based on accurate and shared information. This decision package would provide the ability to take the currently disparate use of Tableau and implement it as a Multi-Bureau platform. A shared platform will allow us to better serve the growing and diverse population of Portland.

CBO Analysis

Tableau is a data visualization application that has broad adoption in the private and public sectors. Over 20 Oregon public agencies currently use Tableau Server (as opposed to another product, or Tableau Desktop). Tableau offers four distinct products: Tableau Desktop, Tableau Prep, Tableau Online, and Tableau Server. Depending upon the business needs, one product may be more appropriate than another.

Currently, eleven City bureaus rely on Tableau as a decision-making and information sharing tool, most of which have licensing that fall under Tableau Desktop. Tableau Desktop allows users to create data visualization dashboards; however, if users want to share the dashboard they are required to upload the dashboard to Tableau Public. Once a dashboard has been uploaded to Tableau Public, it is viewable to the public unless "hidden". Uploading a dashboard to Tableau Public generates a link, and anyone with a link to the dashboard can see it (even if it is hidden) and download the source data. There is no option for securing this information or limit who is viewing the dashboard. Tableau Public is appropriate for information intended for public consumption, not necessarily for internal facing management decisions.

Right now, the City has multiple platforms that are bureau specific, but they cannot share data. Tableau Server is a shared environment that comes with additional, high value functionality including, but not limited to: the ability to control permissions for who accesses dashboards, cross bureau data sharing and collaboration, Tableau Prep¹, live data connections, and user

¹ Tableau Prep is a data curation tool

subscriptions.

The directive to develop, as written, proposes that the City transition from using Tableau Desktop to Tableau Server. The Direction to Develop prepared by BTS estimates that implementation will cost \$100,000. BTS will use EBS project reserves to fund the implementation effort. Further, the Direction to Develop states that BTS would require 1.0 FTE (\$135,229) to manage the Tableau Server (\$26,000²). The position would ensure that infrastructure security protocols are in place and would provide ongoing support, including procurement, licensing true up, provision of SAP reports to utilize as data sources across the City, act as a liaison with Tableau to address and resolve application issues. This position would be supported with interagency revenues.

Management of Tableau Server will *not* include data management governance (this remains the responsibility and requirement of the participating bureaus), or Tableau training. BTS would include the purchase, installation and ongoing maintenance for two servers (one development and one production), and BTS will track Tableau licenses and spend year over year to ensure proper utilization of licenses to maximize City investment. It is important to note that there is a City employee within BTS that already functions as the primary point of contact, manages the purchasing process and renewal schedule for Tableau licenses. Thus, that specific body of work is being performed with existing resources. However, BTS notes that this is not a sustainable or complete solution for the long term. The requested position would be responsible for managing vendor negotiations, licensing, auditing, as well as application support as described above. This is a more comprehensive scope of work than the work currently done by BTS Stores & Order Management which only includes the coordinated purchase of Tableau licenses. Regarding the implementation, Tableau supports customers who engage with an on-premise solution with Tableau Blueprint which walks the customer through the set-up of necessary infrastructure.

Recently, the Portland Police Bureau purchased and implemented Tableau Server. They were able to complete the work on their own and reports from the technical lead indicate that there is a minimal amount of work associated with the server maintenance (a few hours per month). This represents a much lower level of support than what is being proposed by BTS. Additionally, it would be helpful to talk with other jurisdictions who have on-premise solutions and learn what the associated workload looks like. Initial discussions with Multnomah County indicated that they added two (2) Tableau support FTE after their first year of using the tool³.

Tableau is currently part of the BTS Standards Directory, which lists the standard technology software and applications approved by the City. However, it is listed as “unsupported”. As such, BTS will provide application support which means that all the support is billable and represents an unknown body of costs. For example, if any Citywide updates are installed on machines as part of lifecycle replacement, or if the regularly scheduled Microsoft patches that occur each Wednesday cause problems with Tableau, “fixing” the problem would be a billable charge paid by customer bureaus back to BTS.

BTS acknowledges numerous benefits of switching from the current mode of operating to Tableau Server; however, BTS also states there is a preference to delay the request until FY 2020-

² \$26,000 for implementation; \$16,000 per year in ongoing maintenance

³ Multnomah County has a somewhat different use model than CoP and should not be taken as a 1:1 comparison.

21 when BTS can undertake a more robust customer engagement process for new service offerings. In preparation of the FY 2019-20 budget, BTS did convene the customer stakeholder group and invited bureau finance staff to report their priorities for the upcoming year. While a shared B.I. platform was listed by a few bureaus, only one bureau identified Tableau as a priority⁴. This suggests that while Tableau use has grown organically throughout the City as the primary data visualization tool used by staff and some management, there may be a disconnect between the staff who use the tools and BTS liaisons. This inherently would lead to stakeholder engagement challenges for BTS. Additionally, the Tableau User Group was invited to present to the Technology Executive Steering Committee (TESC), whose members expressed concerns that Tableau does not meet ADA requirements and, based on that, called further investment in the tool into question. The TESC further recommended that Procurement Services be directed to issue a competitive solicitation process for a citywide data visualization tool, including a requirement for the tool to be ADA compliant.

Nonetheless, the renewal period for Tableau licenses is going to begin again at the end of April 2019. Right now, numerous bureaus are changing their licensing from Tableau Desktop to Tableau Online licenses while other bureaus are continuing with Tableau Desktop. BTS purchasing representatives aim to establish some standardization and a plan for how to move forward and deliver information to City users as a matter of daily business. This activity is somewhat divorced from the budget process as it is work that needs to be done on a different timeline. They have also voiced concern about how decisions in the short run may negatively impact how the City chooses to move forward in the future. For this reason, it would behoove the City to establish a long-term plan regarding Tableau.

Currently, the City has access to a business intelligence solution, Power BI; however, bureaus would still need to purchase user licenses for use of this solution. While Power BI licensing is less expensive than Tableau, Tableau offers higher quality data visualization functionality, and bureaus started using Tableau years ago and uptake of Tableau is increasing. Other jurisdictions in Washington and Oregon have done robust comparisons between Power BI and Tableau and CBO suggests that these studies be consulted in an effort to quickly identify what business needs are best met through each solution. Regarding equity and accessibility, Tableau can be used with screen readers and is actively engaging with the City to work through accessibility needs and is committed to improving the application to meet these needs.

An additional alternative to Tableau Server is Tableau Online (not currently proposed as part of this directive to develop). Tableau Online has the same functionality as Tableau Server but is hosted by Tableau in the Cloud, transferring significant responsibility from the City to Tableau⁵ and may cost participating bureaus significantly less⁶. However, this solution presents potential

⁴ Police cited Tableau as a priority; however, they were already moving forward with standing up a Tableau Server explicitly for the Police Bureau.

⁵ Tableau would be responsible for the underlying infrastructure, integrating networks, downloading drivers, and installing updates.

⁶ BTS would charge \$161,229 to “host” Tableau. Tableau charges slightly less for licenses associated with Tableau Server than licenses associated with Tableau Online. The savings for the same number and composition of licenses is approximately \$8,000.

issues with control and compliance⁷⁸. Additionally, Tableau Online would require more coordination around setting up projects and dashboards and indicates there may be a need for “lead administrators” that would be an employee of each participating user bureau.

The table below displays four scenarios that model total costs associated with how the City chooses to proceed⁹.

Annual Tableau Options Costs									
	License Types			Total Costs	Benefits				
	Creator	Explorer	Viewer		Shared Environment	Controlled Data Security	Efficiency Gains	User Support	
Proposed users (Taken from Tableau Enterprise Platform Business Case)	40	14	190						
Scenario A: Tableau Server									
Tableau Server Costs	\$ 33,600	\$ 5,880	\$ 27,360	\$ 66,840	X	X	X	X	
BTS proposed Costs for Server (fixed cost)				\$ 161,229					
Grand Total				\$ 228,069					
Scenario B: Tableau Online									
Tableau Online Costs	\$ 33,600	\$ 7,056	\$ 34,200	\$ 74,856	X	X	X		limited
Grand Total				\$ 74,856					
Scenario C: As-Is									
Most Recent Quote from Tableau for Renewal* (5/1/2019-4/30/2020)				\$ 65,440	no	no	no	no	no
Grand Total				\$ 65,440					
Scenario D: As-Is Hybrid									
Proposed Users (Translated from Tableau Renewal Quote by CBO Analyst)	66	29	100						
	\$ 55,440	\$ 14,616	\$ 18,000	\$ 88,056	X	X	X		limited
Grand Total				\$ 88,056					

Scenario A “Tableau Server” roughly models the costs associated with the directive to develop. Scenario A offers increased functionality, BTS support in terms of providing SAP reporting data sources for use across bureaus, ongoing application support including upgrades, and working directly with the vendor as needed, procurement and license true up. If this scenario is chosen, the application will be added to the BTS Standards Directory (fully supported) and this scenario models best practice in terms of setting up and providing a test and production server with full security. Scenario A is approximately 300% more expensive than Scenario B or D but is the only scenario to provide full support¹⁰.

Scenarios B “Tableau Online” and D “Hybrid” both model Tableau Online (not part of this directive to develop). Tableau Online could offer the same benefits as Tableau Server but transfer a significant amount of the basic application support burden from the City to the Vendor. Additionally, Tableau Online avoids the fixed cost of an on-premise server and bureaus could opt in if they choose to participate. This option would cost the City an additional (approximately) \$22,500 divided by bureaus who have existing licenses. As currently participating were privy to

⁷ Tableau Server (on premise) allows the City to conduct compliance audits and guarantees physical control of the content and data. While Tableau has robust security in place for online solutions, they may not have all the necessary security certificates the City needs- this is highly dependent on the data being stored.

⁸ Should the City want to explore the Tableau Online option, it would be critical to verify that it meets City security standards City Administrative Security Rules can be found here: <https://www.portlandoregon.gov/citycode/article/699923>. More thorough review would be necessary before moving forward with this action. CBO has confirmed with Tableau that single sign on is available through Tableau Online. PPB chose an on-premise solution due to the sensitive nature of the data they work with.

⁹ Tableau does not offer any completely fixed price license options, they only offer variable cost options. That means that as the number of licenses held by City bureaus increase, the cost will continue to increase as well. However, Tableau does offer something close that starts at \$175,000 annually plus the same \$840 per creator license per year.

¹⁰ Full support is different from infrastructure and application support in that there is more customer service

the discussion and proposal presented to the TESC, this analysis assumes that these bureaus are amendable to the increased cost. BTS notes that this option does not include the level of support outlined in Scenario A, including providing SAP reporting data sources for use across bureaus and providing a liaison from BTS to work with the vendor to coordinate upgrades, testing, security protocols, procurement, license true up, etc.

Given the persistent interest in enterprise wide BI solutions, it remains the goal of and incumbent upon BTS, as the City's Technology Bureau to work toward a solution that meets customer needs. CBO recommends that BTS continue to explore any of the above options that bureaus can fund within current resources and revisit estimates regarding workload for managing on premise solutions and consider using EBS reserves for any one-time necessary expenses that arise.