

To: Elections Commission  
From: Commissioner Jerdonek

Date: October 15, 2021

Subject: Notes re: San Francisco Paperless Blockchain Voting Project

I recently learned that San Francisco is funding a blockchain voting project. The blockchain voting in this project is a form of internet voting and doesn't use a paper ballot. The purpose of this document is to collect together the available information and history I found on the project and to list some questions I have about it. The questions are listed first after some higher-level background. The more detailed information is after.

Here are some key points of background—

1. California doesn't allow internet voting.
2. The Elections Commission passed a [resolution opposing internet voting](#) on April 19, 2017.
3. The money for the blockchain voting project was allocated under the Open Source Voting project, but the Open Source Voting project money was supposed to be for a paper-ballot voting system. For example, the Commission's [November 18, 2015 resolution](#) called for an open source voting system that uses paper ballots and that can be certified.
4. The City's remaining money for the paper-ballot voting system was taken away, yet money was left behind or added for the paperless blockchain voting project.

Some questions I have—

1. Has the blockchain voting application already been developed? The April 15, 2021 COIT budget document discussed below says \$120K was allocated for the project for FY 2021-22 to "pilot test" the system. Money for testing the system suggests that the application has already been developed.
2. If the application has already been developed, who developed it? If it hasn't been developed yet, who is developing it or who will be developing it?
3. Who paid or will be paying for the development of the project—San Francisco or someone else? How much did it cost or will it cost to develop?
4. The April 15, 2021 budget document suggests that some of the \$250K previously budgeted might have been spent on the blockchain project. How much money was previously spent on the project, and what was that money spent on?
5. Why is blockchain being pursued instead of other approaches that can improve accessibility, like approaches that improve ways of voting that are legal under California law? For example, is there any kind of City study or report saying why blockchain was chosen? In the case of open-source voting, there have been many reports, recommendations, and resolutions by various parts of City government over more than ten years.

6. Why is the project under the Department of Emergency Management when the project was listed under the Department of Technology each time it was presented to the Elections Commission and San Francisco's Committee on Information Technology (COIT)? Does the project have any public oversight? Who is the point person for the project?

### **August 13, 2021 VAAC Meeting**

I found the project mentioned on the [agenda of the August 13, 2021 meeting](#) of San Francisco's Voting Accessibility Advisory Committee (VAAC), which is organized by the Department of Elections. This is the first time I saw the project being described as a blockchain voting project. The agenda says—

#### **III. Project to develop method for people to digitally sign and return Vote-By-Mail Ballots**

- A. City funding development of methods for voters to use blockchain to digitally sign and return vote-by-mail ballots
- B. VAAC members encouraged to provide input on scope of work

The list of all VAAC agendas can be found here: <https://sfelections.sfgov.org/vaac-meeting-agendas-and-minutes>

Here is a link to a video of the meeting where the agenda item starts (1 hour, 11 minutes in): <https://youtu.be/a5z9dw9kLUM?t=4256>

For convenience, I made a transcript of the video of the agenda item so you don't need to watch the video. The timestamp in the video is indicated in brackets:

[Transcript start]

**John Arntz:** [1:10:57] So then the next-to-last item on the agenda is to provide some information on the project the City is undertaking to provide people with a method to digitally sign and return their vote-by-mail ballots to the Department. City funding was allocated to the development of an application for people to use blockchain to digitally sign and return vote-by-mail envelopes. The money originally was for developing an open-source voting system in San Francisco, but most of that money was actually moved to other uses during the beginning of the COVID-19 response the City undertook. But there was some money that was left behind so that we could look into developing this application.

[1:11:49] Now the Department of Emergency Management is actually the group that's developing the application, so they must have some other uses in mind. But we've been kind of waiting on a point in the process where the VAAC members could participate and provide input on the development of the application. And so I did get some information from the Department of Emergency Management this

week that they actually now want the names and contact information of people who want to be involved in developing this application.

[1:12:23] So what this application would do for people let's say who have mobility challenges, so instead of trying to—having to sign their envelope, people could receive their ballot, let's say the accessible vote-by-mail ballot that we provide now. You know, instead of having to print that ballot out and sign an envelope, this application would remove the need for creating a paper ballot. It would also remove the need for someone to sign an envelope to get that ballot back to us so we could count it. This would involve blockchain. It's all in the very beginning parts of development. I can't give you more specifics than that.

[1:12:59] But what I can say is if anyone is interested in giving input and feedback to the City while they consider how to design and develop this application, send me your information and I'll forward that to the Department of Emergency Management. So Fred, I know that you're very much interested in this, and so you're already on the list, don't worry about that. And then Deborah [Kaplan], this is something that Nicole [Bohn] was involved in a couple of years ago before COVID hit, so your office [SF Mayor's Office on Disability] is also going to be involved in this as well.

[1:13:28] But everyone else and your groups, too, for people in your organizations or if you know people that would be interested or, you know, have experience in blockchain or voting, whatever. If you're interested in getting your names to the Department of Emergency Management to provide input on the development of this application, send me that information, and I'll forward it on. That way we get something started and make it more formal, so. Fiona wants to be involved I see on chat. So let me know, and we'll just go from there. And as things move forward in time, I'll provide updates to VAAC as well, so that people are aware of what's going on. Are there any comments or questions about that? ...

**Fred Nisen:** [1:14:30] I have one minor question. I guess they're married to blockchain?

**Arntz:** Right now, that's—that's what I understand is that—blockchain will be a part of this application—yes.

**Nisen:** Interesting. All right.

**Arntz:** But beyond that, Fred, I can't really give you any information because I don't really—I don't have any.

**Nisen:** No. Thank you.

**Liz:** [1:15:25] How secure do you think it will be if we're talking about internet security or whatever?

**Arntz:** [1:15:35] Well, that's going to be the question, and that's what's going to draw the attention. Uh, so it's going to have to be secure. But, at the same time, you know, for many such applications people are fearful to even consider the initial development of something because of concerns about the internet and potential hacking and all that. But I think, I think as a tool for people with disabilities, I think this would be a wonderful tool to have.

[1:16:06] I think despite the concerns about security, I think it makes a lot of sense for the City to at least consider what it can do as far as options for developing, because that's a challenge people have. One, not everyone's got a printer at home. You know, people let's say with a sight disability, they may not have a printer at home, so they have to print a ballot, but they don't – how would they print it out? That was an issue we've been trying to resolve for a few years now. And also, if people with a mobility challenge, you know, signing an envelope.

[1:16:38] So if we can remove those obstacles from the voting process, I think that makes it worthwhile to consider any sort of security issues that might be inherent with transmitting ballots and the envelope information, essentially, so we'll see. There are fears, there are questions. But I think it's worthwhile to take a look to see what can be done to resolve those issues.

**Victoria:** [1:17:09] Would this be something that blind people could use who kind of had trouble figuring out, like, where to sign on the envelope?

**Arntz:** That's one of the primary reasons for doing this, exactly.

**Victoria:** Then I'll be interested.

[Transcript end]

### **April 15, 2021 COIT Budget Item**

It appears that San Francisco's Committee on Information Technology (COIT) approved \$120K for the blockchain voting project for FY 2021-22 at its April 15, 2021 meeting. The meeting is listed here: <https://sf.gov/meeting/april-15-2021-committee-information-technology-meeting>

In COIT's [budget spreadsheet](#), the project is listed under the Department of Technology rather than the Department of Emergency Management. Also, the description doesn't mention blockchain but does mention developing a way "to securely vote without paper." Here is a copy of the description of the item in the budget spreadsheet:

There are two projects under development for Open Source Voting:

1. Risk Limited Audit System
2. Identity Management for Disability Resident Voting

Background:

Remaining funding in the Open Source Project Initiatives have been focus in two areas: (1) tool to conduct a risk limited audit of voter ballots to check for anomalies or voter fraud, and (2) enable 90,000 disable residents to verify their identity in order to vote without needing assistance.

1. Open Source Risk Limiting Audit – An initial risk limiting audit software system was developed by CCSF and Univ of CA-Berkley with open source tools. The tool was tested during the 2019 election and proved to be useful in testing sample sets of ballots for problems. The Elections Department requested the completion of the system which would require developing the user interface to allow Elections staff to operate the application after an election without the help of a programmer.

2. Remote Vote by Mail Identity and Access Management – Identify and pilot technologies and open source tools that would enable remote vote by mail. Project approach: Explore solutions that will:

- Identity: signature/identity, transmitting the ballot
- Security: Develop a way to securely vote without paper

Engineering includes:

1. verifying identity
2. creating an account to store identity
3. providing access to the ballot through a verified account
4. signing the ballot
5. transmitting the ballot

Some considerations that we need to consider are:

1. support for disability constraints (low vision, limited mobility, etc)
2. mobile enabled to support limited use of computers
3. privacy first - we want to ensure that the individual knows how their identity is used to get ahead of any concerns about us “tracking” them

Expenditure for FY 19/20 work on both project was budgeted at \$250,000. The remaining project funding would pilot test the disability access and will expend \$120,000.

## Earlier References to the Project

Descriptions of the project over time evolved from not mentioning blockchain or paperless voting at all (February 2020), to mentioning it as a possibility (July 2020), to making it about paperless voting (April 2021, above), and finally to making blockchain voting the focus (August 2021 VAAC meeting).

February 19, 2020: At the [February 19, 2020 Elections Commission meeting](#), Department of Technology Director Linda Gerull provided a document called, "[Open Source Voting COIT Budget Request](#)." The document didn't mention blockchain or that it was about voting without using a paper ballot. Here is the project description from that document:

### **Project 3: In-home Voting for Residents with Disabilities**

...

- Design and engineer the integration between Identity and Access Management and in-home vote by mail using accessibility software tools
- Research software or hardware identity management tools to determine the most viable solution that will support the maximum number of residents

July 15, 2020: At the [July 15, 2020 Elections Commission meeting](#), Department of Technology Director Linda Gerull provided an [Open Source Voting Status Report](#). The report listed "Remote Vote by Mail Identity and Access Management" as an initiative. Blockchain was mentioned, but only as one of several items under "Potential tech" under Engineering.