

Empowering the Public in the Next Pandemic

*Connecting the Public with Critical Local
Information*

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The Need for Local Information During a Pandemic

Unlike disasters that affect a particular region, such as hurricanes or earthquakes, an influenza pandemic would cause people across the country and around the world to face the same emergency situation at the same time. The widespread nature of this disaster could mean little or no aid from outside organizations and governments, which may already be stretched thin from supporting their local communities. Thus, it is critical that people be empowered to care for themselves and their families, potentially for an extended period of time. Empowered people create resilient communities, and resilient communities can fight back during a pandemic. An essential component for empowering people is providing them with the information they need to protect themselves and their families from the virus, and to better cope with the changes in daily life.

When we sat in our office and began brainstorming the different types of information that the public would need during a pandemic, we focused on general information, such as how to prepare for a pandemic or care for someone who is sick at home. We envisioned bringing all of the most pertinent information together and creating a centralized information source that people would be able to turn to as their trusted guide during a pandemic. However, once we stepped outside of our office, away from the pandemic jargon and stack of information that we had started to compile, we were surprised to find that our ideas about the informational needs of the public were different from those that the public actually expressed. In fact, we were completely overlooking one of the public's most crucial needs of all.

To gain a better understanding of what the public would want in a centralized information source, we guided volunteers at a commuter train station and bus stop through pandemic scenarios, describing aspects of the pandemic such as school closings, restrictions on public gatherings, overwhelmed hospitals, tap water that is not potable, and a push for the public to get prepared. In the process of describing these situations, we asked them at several points what questions they would have. While many of the questions were expected, such as those relating to preparation and home care, there was an entire range of questions that a centralized source of general information would not be able to address.

As people began to visualize the scenarios we presented and the difficulties they would be facing, their interest in obtaining **local** information quickly became apparent. More specifically, they demonstrated a need for two different types of local information: **official local information**, such as timely public health announcements and updates on services such as electricity and water, and more **grassroots information**, such as who would be interested in coordinating child care when schools closed. While these types of information cannot be answered ahead of time, we can design systems that quickly connect people with the answers to the people who need them.

Official Local Information

Imagine that the pandemic has already lasted nearly two months, and your focus has been primarily on protecting your family. You have followed experts' urgent recommendations for getting prepared, and you are practically an expert yourself on what a pandemic is, how the flu is transmitted, and measures you can take to keep from catching and spreading the virus. You have downloaded information about home care, and you are ready to pull it off your shelf if you should need it at any point. Life has changed considerably since the pandemic broke out, but it has not stopped. You are running low on bottled water, and need to know what stores have it in stock. You have heard a rumor from your neighbor that the tap water is not safe to drink, and you are wondering if you should boil it. Although you know that this information is out there somewhere, you do not have the time to constantly watch the news, waiting for the announcer to cycle through the news for the numerous surrounding towns and cities. Even if you turn to the Internet or the phone for this information, you may not have the time to get the information from each company or organization individually. You could spend all your free time in your day, which is already limited, getting information from grocery stores, gas stations, hospitals, water companies, electricity companies, and so on. And then you may wake up the next morning and all of the updates may have changed. How do you keep yourself and your family safe but avoid this immensely frustrating and time-consuming process?

Now imagine that you are a grocery store manager, and you are in charge of getting timely local information out to the public. During a pandemic, you will want to make announcements to the public, perhaps about what you currently have in stock, shipments that are set to come in, or places where it may be safer to pick up food. However, your announcements will compete for the public's attention with those from the local government, health departments, and other local businesses. You may know that your information is important to the public; people may be constantly checking your website and calling your store for updated information, yet the information you release may get buried among the constant stream of information going out to the public. In addition, the process of disseminating information to the public may become increasingly lengthy and chaotic, with the sudden need for local information in such high demand, and the media trying their best to serve as an adequate bridge between local information providers and the public, while dealing with a reduced workforce themselves. Will your information get out fast enough? Will people even see it?

There is a clear need for a system of communication between information providers and the public that is simple and consistent during a pandemic or other emergency situation. Technological developments are constantly making the lives of people simpler and more flexible; people can have all their most important news from a variety of sources automatically compiled, they can do their banking online, they can even order movies without leaving their home. Yet, if a pandemic broke out tomorrow, there would be no simple way for people to access the information that may greatly improve their ability to cope, or even save their lives.

Information Providers

To begin developing a system that would make it simple for local officials and businesses to disseminate critical local information to the public, we first needed to gain a better understanding of the types of information that they would anticipate needing to get out during a pandemic, and their current methods for doing this. Thus, we talked with two Public Information Officers (PIOs), representing Santa Clara County and the Santa Clara County Public Health Department, as well as representatives from San Jose Water Company, to discuss this process. From these conversations, we gained several insights that have driven our design process for a centralized information system.

We cannot be sure how often official information will need to be updated, and thus there must be inherent flexibility in the system that allows officials and businesses to update information swiftly and easily. According to the PIO for the Santa Clara County Public Health Department, it is hard to predict exactly how often information will need to be updated during a pandemic. First, it may depend on the type of information. For example, some of the information that the public health department will disseminate to the public may stay fairly consistent, such as information on home care. For other types of information, it may remain critical to keep the public updated on a more frequent basis. These include the latest health officer orders, such as the closing of schools or public events, and the current medical care information, such as the triage criteria to be admitted to a hospital or alternative care site. It is especially important for this information to be disseminated rapidly, so that the public is aware of the most current steps that they can be taking to keep themselves and their families healthy. The stage of the pandemic may also influence the frequency with which information needs to be disseminated. A community may face multiple waves of the pandemic, with the informational needs of the public evolving over time. From the perspective of San Jose Water Company, which may be dealing with a reduced workforce and interrupted supply chains during a pandemic, issues may arise such as small water leaks or problems with water treatment, which will be critical to get out to the public quickly. A delay could lead to people turning on their tap and drinking unclean water. There also may be a need to tell people where they can go to pick up bags of clean water. People will need a reliable source of information that they can turn to for all these crucial updates.

The geographic area that official local information impacts may be highly specific, and vary greatly. The system that we develop for the dissemination of local information must be flexible enough so that it can reach out to the specific region that the information affects. For example, while the PIO of the Santa Clara County Public Health Department anticipates that much of the information will go out to people on a regional level, she has also started thinking ahead to the process of guiding people on where to go for vaccines, once one is developed. This information may need to go out to the public city by city, directing each population to individual places. San Jose Water Company will also need a flexible system, as the problems that it will potentially face may impact the public on a regional or highly local level. Water shortages, for instance, may necessitate widespread restrictions on certain uses of water, such as for landscaping. Other information regarding updates about power outages, which could affect water treatment,

and small leaks, may affect more specific areas of variable sizes. The public will need to know exactly what problems they are facing so that they can take the necessary measures, such as boiling their water. Thus, it is important for this information system to include a feature that allows people to enter information such as their zip code, so that they can receive the updates that are most pertinent to them. They may even need to enter their address, as there may be a problem affecting an area that does not neatly match up with boundaries that divide zip codes. For example, one of the main determinants of San Jose Water Company's zones is elevation, not zip code.

A centralized source of local information may be a more convenient method for information providers to access the latest updates from local officials and other businesses. From just the conversations we had with local PIOs and San Jose Water Company, we began to see how interconnected the different segments of a community are, and how they must be able to communicate with each other as well as with the public. For example, if the local power company is experiencing problems, this may lead to problems for the water company, since many of the processes at the water company are dependent upon electricity. The power and water companies must therefore communicate so that they disseminate a consistent message to the public. The water company and the public health department may also have to coordinate their messages to the public. For instance, there may be problems with the supply chains that deliver the chemicals that make water safe for drinking. It would be critical for both sources of information to provide a consistent message to the public, so that people can take the right steps to stay healthy, such as boiling their water. A centralized source of local information may make it more convenient for information providers to access each other's latest updates and coordinate their information. Instead of having to communicate with other officials and businesses individually, this one source for information may give them the information they need more rapidly.

The media currently serves as the main source of dissemination of much of official local information, and could benefit from a centralized source of information. Among the officials and business representatives that we talked with, it is clear that the media serves as their major outlet to the public. From our conversations, we were introduced to the many different forms of media that are currently used to disseminate local information to the public: news releases, media advisories, press conferences, television reporters, radio reporters, and newspaper and posters for more static information. In addition, the PIOs that we spoke with directed us to their websites, and San Jose Water Company talked about using their website and phone line to communicate with their customers, and even delivering door hangers or talking to them directly for small problems. Thus, channels exist for information to be delivered to the public, but during a pandemic many of these channels may experience serious problems. How can we expect employees of San Jose Water Company to talk with people directly when this may put them at risk of catching or spreading the virus? Will the media be able to keep up with all the information that local officials and businesses will want to disseminate to the public, given the staffing shortages that they will be facing? There would be several benefits to having a centralized information source, where information providers could remotely input information, the media could access all the timeliest

information at once, and the public could receive in one place the local information relevant to them.

The great amount of official local information going out to the public may be of varying importance, and will need to be sorted and prioritized for the public to understand. In a separate project where we talked with people to gain a better understanding of why the public does not get prepared for emergency situations, one of our key insights was that people want critical information pre-digested for them. When there is a great amount of information, they quickly feel overwhelmed if everything is given to them at once, with no sense of organization or priority. During a pandemic, it may be hard for the public to sort out all the local information that they are bombarded with, and it may be hard to determine if there is a priority among all the different types of information. A centralized source for local information would be able to help organize the flood of information for the public, and could allow them to sort through it by priority, how recent it is, or other categories they find helpful.

Local information needs to not just inform people but empower them. People will need local information during a pandemic for practical purposes, such as knowing where it is safe to go, where they can get groceries, and whether their tap water is safe to drink. However, this information serves the much larger purpose of helping people to concretely understand what they can do to stay healthy, and cope with the changes they may experience in their daily lives. It is essential that individuals, families, and communities feel empowered throughout a pandemic, so that they stay connected and resilient. A centralized source of local information may be one of the best resources we can create ahead of time to make this happen.

Thus, with these insights in mind, we have designed a prototype for an **Internet-based, centralized source of local information** that would be simple for information providers to use and for the public to access. **Someone without Internet access could call the pandemic hotline, where a volunteer would be able to access this website, enter the caller's zip code or address, and use the local information to assist the caller.** It is clear that a centralized information system would need to be very flexible, in order to accommodate the different needs of all the information providers. There is great variability in the geographic scope that local information pertains to and how often information will need to be updated, and thus information providers must be able to update information rapidly and easily. The Internet would allow for rapid dissemination of information by directly connecting the information providers with the public. People may also be able to choose to receive email alerts, bringing the information that applies to them straight to their inbox.

Prototypes


The following two prototypes are for what the public would see:


Your Local Pandemic Alerts

[Get updates by email!](#) 9:15 PM, September 27, 2009 Showing information for:

Most Critical Pandemic Announcements

Government Health Local Services See all

 All CA public schools closed as of September 28.
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Posted 4 hours ago by [CAGovernor](#)

 27 confirmed cases of bird flu in SCC.
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To commy nis dolorem delisit ex et, sum in velis nim dip ex ea at prat, sumsandigna consequat utpat. Orem quat. [Read more](#)
Posted 9/24 by [SCCPHD](#)

Government Announcements

USA California Santa Clara County Palo Alto See all

[-All CA public schools closed as of September 28.](#) -[CAGovernor](#), 4 hours ago
[-Firefighter shortage declared.](#) -[CAFirefightersUnion](#), 11 hours ago
[-California Congress to take early recess.](#) -[CACongress](#), 9/26
[-Trials delayed for immediate future across CA.](#) -[CALegalAssn](#), 9/24

Health Announcements

Hospitals Red Cross Public Health See all

[-SCCPHD cancels SJ Octoberfest.](#) -[SCCPHD](#), 12 minutes ago
[-Bay Area public health departments launch hotline.](#) -[BAPHDs](#), 7 hours ago
[-Santa Clara County converts 6 hotels into Influenza Care Center.](#) -[SCCPHD](#), 9/27
[-27 confirmed cases of pandemic flu in SCC.](#) -[SCCPHD](#), 9/25

Local Services Announcements

Water Food Power Transport Police See all

[-Water main out on El Camino and University.](#) -[PAWaterCo](#), 2 hours ago
[-SJ police ask for pandemic volunteers.](#) -[SJPD](#), 9 hours ago
[-Rolling blackouts to start in SCC.](#) -[SCCPGandE](#), 9/26
[-CA Safeways offer online ordering system.](#) -[CASafewayInc.](#), 9/26
[-SFO, SJC quarantine international passengers.](#) -[FAA](#), 9/25

Can't find what you're looking for? [Check out your community updates!](#)

Your Local Pandemic Alerts

[Get updates by email!](#)

9:15 PM, September 27, 2009

Showing information for:

94305

Most Critical Pandemic Announcements

Government Health Local Services See all



All CA public schools closed as of September 28.
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Posted 9/24 by [SCCPHD](#)

Government Announcements

USA California Santa Clara County Palo Alto See all

- [All CA public schools closed as of September 28.](#) -[CAGovernor](#), 4 hours ago
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- [Trials delayed for immediate future across CA.](#) -[CALegalAssn](#), 9/24

Health Announcements

Hospitals Red Cross Public Health See all

- [SCCPHD cancels SJ Oktoberfest.](#) -[SCCPHD](#), 12 minutes ago
- [Bay Area public health departments launch hotline.](#) -[BAPHDs](#), 7 hours ago
- [Santa Clara County converts 6 hotels into Influenza Care Centers.](#) -[SCCPHD](#), 9/27
- [27 confirmed cases of pandemic flu in SCC.](#) -[SCCPHD](#), 9/25



Santa Clara County converts 6 hotels into Influenza Care Centers
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Posted 9/27 by [SCCPHD](#)

Local Services Announcements

Water Food

- [Water main out on Elgin](#)
- [SJ police ask for pan](#)
- [Rolling blackouts to s](#)
- [CA Safeways offer online ordering system.](#) -[CASafewayInc](#), 9/26
- [SFO, SJC quarantine international passengers.](#) -[FAA](#), 9/25

Can't find what you're looking for? [Check out your community updates!](#)

The following prototypes are for what the local information providers would use:

Hello [CAGovernor](#)
Settings:
Jurisdiction: [California](#)
Importance: Medium to High

See My Postings

Online Announcement Form

5:02 PM, September 27, 2009

Title This is how your announcement will be listed.

Jurisdiction What region does this announcement apply to? (Default is your max jurisdiction)

Select Importance The more important announcements will be displayed more prominently.

Full Article Write your full announcement here.

Undo Indent Insert Bullets Insert Link

Edit Automatic Summary This summary will appear when people mouse over the headline. Enter a new summary, or let one be generated from the first two sentences of your article.

Upload photo Optional: upload a photo to accompany your announcement.

Hello [CAGovernor](#)

Settings:

Jurisdiction: [California](#)

Importance: Medium to High

Online Announcement Form

5:02 PM, September 27, 2009

Title

This is how your announcement will be listed.

All CA public schools closed as of September 28.

Jurisdiction

What region does this announcement apply to? (Default is your max jurisdiction)

California

Select Importance

The more important announcements will be displayed more prominently.

High

Full Article

Write in or paste your full announcement here.

Spell Check

Indent

Insert Bullets

Insert Link

As of tomorrow, all public schools across California, including K-12, community colleges, SCSU's, and UC's, will be closed to prevent further spread of the pandemic flu. It

Edit Automatic Summary

This summary will appear when people mouse over the headline. Enter a new summary, or let one be generated from the first two sentences of your article.

As of tomorrow, all public schools across California, including K-12, community colleges, SCSU's, and UC's, will be closed to prevent further spread of the pandemic flu. It

Upload photo

Optional: upload a photo to accompany your announcement.

Browse

Preview

Submit!

[See My Postings](#)

Prototypes with Design Features

Here, we point out some of the features of the prototypes.

Get Updates by Email
News items could be bundled and emailed once daily for users.

Typing in a Zip Code
automatically filters news to make it relevant to the user.

Most Critical Pandemic Announcements
This section presents only the most important messages, and it keeps these here with brief summaries as long as necessary.

Profile Names
are used by announcement posters to quickly identify the official behind the post.

Ability to Toggle between Sub-Topics
allow the user to see all announcements related to health, or just announcements from the Red Cross or the local health department.

Announcement Summaries
appear when users mouse over an announcement, so they can see the main points at a glance.

Your Local Pandemic Alerts
Get updates by email 9:15 PM, September 27, 2009 Showing information for: 94305

Most Critical Pandemic Announcements
Government Health Local Services See all

- All CA public schools closed as of September 28.
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To commy nis dolorem delisit ex et, sum in velis nim dip ex ea at prat, sumpsandigna consequat utpat. Orem quat. [Read more](#)
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Hospitals Red Cross Public Health See all

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- Bay Area public health departments launch hotline. -BAPHDs, 7 hours ago
- Santa Clara County converts 6 hotels into Influenza Care Centers. -SCCPHD, 9/27
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Local Services Announcements
Water Food

- Water main out on El...
- S.J. police ask for pan...
- Rolling blackouts to s...
- CA Safeways offer online...
- SFO, SJC quarantine international passengers. -FAA, 9/25

Can't find what you're looking for? [Check out your community updates!](#)

Profile Name
Your profile name keeps your settings saved under it.

Jurisdiction
states who your announcements can affect, and thus who will see your announcement.

Importance
Is pre-assigned; all CAGovernor's announcements are probably more important than a grocer's, and so he only can choose Medium to Highest importance.

Jurisdiction Entry
is used if your announcement only applies to a subset of your total jurisdiction.

Hello [CAGovernor](#)
Settings:
Jurisdiction: [California](#)
Importance: Medium to High

Online Announcement Form

5:02 PM, September 27, 2009

Title This is how your announcement will be listed.
All CA public schools closed as of September 28.

Jurisdiction What region does this announcement apply to? (Default is your max jurisdiction)
California

Select Importance The more important announcements will be displayed more prominently.
High

Full Article Write in or paste your full announcement here.
Spell Check Indent Insert Bullets Insert Link
As of tomorrow, all public schools across California, including K-12, community colleges, SCSU's, and UC's, will be closed to prevent further spread of the pandemic flu. It

Edit Automatic Summary This summary will appear when people mouse over the headline. Enter a new summary, or let one be generated from the first two sentences of your article.
As of tomorrow, all public schools across California, including K-12, community colleges, SCSU's, and UC's, will be closed to prevent further spread of the pandemic flu. It

Upload photo Optional: upload a photo to accompany your announcement.
Browse

Preview Submit

Select Importance—higher importance announcements will have greater prominence on the local page.

Auto-Summary is generated from the first lines of your announcement. You can edit after writing your announcement to better summarize your announcement.

Preview lets you see how your entry would look on the local information page.

Moving Forward

In order to build a centralized source for the most timely and accurate local information, we will need the support of information providers from many different sectors of the community, such as government, law enforcement, public health, and essential services, such as food, water, power, and transportation. From our conversations so far, we see great potential benefits in designing a centralized system, and feel that it may be one of the best tools for keeping the public empowered and self-sufficient throughout a pandemic. We also think that this type of system may be useful for community organizations, such as **employers, schools, and faith-based organizations**, to reach out to their communities and disseminate the timeliest information.

The technology that underlies this system that we envision is not very complicated. It would be important, however, for a major Internet company to host it, to reliably accommodate the number of people that would use it as a primary guide to their local information. The general public and the information providers alike have convinced us of the importance of the public having the most timely and accurate local information during a pandemic, and thus we are inspired to develop a resource that will be able to reach as many people and be as dependable as possible.

Grassroots Information

It is critical for local officials and businesses to disseminate information to the public during a pandemic, but even this resource leaves some local questions unanswered. What local official can tell you which one of your friends is free to care for your children when schools are closed and you still need to go to work? Who will you coordinate with to help the elderly woman living alone down the street get prepared or learn how to properly wear a mask? How will you do this safely, without putting yourself or your family at risk?

Communities will need a way to stay connected during a pandemic, and we would like to begin looking at different technologies that may be able to best support this very local communication. However, before we can design a system that would allow communities to stay connected, we first need to better understand what the word "community" means to people. We wondered if it meant different things to different people, and wanted to get a better sense of its meaning. Is it determined geographically, such as your town or neighborhood? Is it your work, your school, or your house of worship? Is it your group of friends? Is it all of the above? Does it depend on where you live?

To gain a better sense of the meaning behind the word community, we sent out a short email survey, asking people to briefly describe their communities and to consider the following scenarios and related questions:

SCENARIO 1

A very deadly new flu virus broke out in Indonesia three weeks ago, and is now spreading rapidly throughout the United States after an airplane passenger carried it into the country. It is easily passed from person to person, and is causing many people to become critically ill and even die. A member of your household has caught it, and is in bed with a high fever, intense muscle aches and a severe cough. Because hospitals are so overwhelmed, you must care for her at home. No one is allowed to go outside your house until everyone in the household is well again, since you all have been exposed to the virus and could spread it to others without knowing it. However, you are beginning to run low on food.

- **Who would you ask for help?**
- **How would you get in touch with them?**

SCENARIO 2

Local officials are keeping you updated about events or public gatherings that have been closed, grocery stores are letting you know when shipments of food are coming in, and electricity and water companies are keeping you updated on problems you might be experiencing and what they are doing to fix them. However, you have no way of getting very local information, for example who could watch your kids if schools are closed and you still need to go to work, or information on people that are sick and supplies they need. You can't come together to meet with people to talk about these issues because people could easily spread the virus to each other.

- **Who would you want to solve these problems with?**
- **How would you want to communicate with them, given that you can't meet in person?**

Our goal was to put people in realistic scenarios that elicited the need for very local communication, so that we could gain a better understanding of who people would want to discuss very local issues with, and how they would want to communicate, in a time when it may not be safe for people to physically gather together. Although we now just have a very preliminary understanding of the idea of a community, it is clear that it means very different things to different people. Thus, any technology that we develop to meet the communication needs of a community must be flexible enough to incorporate the many meanings of the word.

Concept of a Community

From this simple survey, we have gained several insights that will be valuable for future projects focused more closely on keeping communities connected and resilient.

While many people do tend to think of their community as being within their town or city, only some would turn to their immediate neighbors for help. Although some

experts may envision neighborhood or city blocks needing to band together during a pandemic, many people's responses to our survey indicated that they would seek help and want to solve very local issues with people outside of this immediate vicinity. Some respondents did indeed want to communicate with their neighbors, such as one who replied that she lives in a neighborhood where people are used to coming to each others aid. However, another respondent from the same region explained that although she knew her neighbors across the busy street she lives on, she does not know the ones on either side of her. Many people were more inclined to turn to their family or close friends in the area.

People want to feel supported by their official, local organizations such as the Red Cross or local police department, and may turn to them directly for assistance and guidance. Some of the responses that we received indicated that it will be very important for people to feel supported by local organizations during a pandemic. They have come to trust these organizations that represent safety and integrity, and will look to them for help in getting involved in their communities. This raises the idea of gaining a better sense of the local organizations that different communities trust and want to work with, and more generally the need to emphasize the importance of self-reliance during a time when these organizations will be dealing with their own shortages of resources and people.

Younger people are connected to their school network. A trend that emerged from the responses of college-age respondents reflects the diversity of the meaning behind the word community. Several of these respondents mentioned communicating with people that they are connected to through school in some way, such as the local high school principal or families in town that they know from school. This idea helps us to understand more concretely why community resiliency plans that solely view communities as geographic divisions may fail to reach out to many people and empower communities that could be powerful in fighting back. For example, when colleges and local schools are closed during a pandemic, many students will be at home with more free time than normal. Creating a way for these students to communicate with each other may result in an empowered community of pandemic hotline volunteers or people who coordinate resources for their town.

Most people would use the Internet and phone to remotely communicate with their communities. Between email, instant messaging, telephones, and cell phones, it is not very difficult to stay remotely connected to others. However, it is important for us to be sure that we know the most widely-used technologies for remote communication, so that the technology we go forward with best supports the needs of the public.

Special Thanks

Joy Alexiou, Public Information Officer, Santa Clara County Public Health Department

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Dr. Martin Fenstersheib, Health Officer, Santa Clara County Public Health Department

Chip Heath, Professor of Organizational Behavior, Graduate School of Business, Stanford University

Lisa Koonin, Chief, Private and Public Partners Branch, Centers for Disease Control and Prevention

Marta Lugo, Advanced Practice Center Coordinator, Santa Clara County Public Health Department

Gwendolyn Mitchell, Director of Public Affairs, Santa Clara County

Dr. Jim Rooney, VP, Clinical Affairs, Gilead Sciences

John B. Tang, Community Projects Liaison, San Jose Water Company

Dorothy Teeter, Chief of Health Operations, Public Health – Seattle and King County

James Wollbrinck, Emergency Preparedness Superintendent, San Jose Water Company