

# Exposure Notification Technology Solution - Presentation to ITAC



ARIZONA DEPARTMENT  
OF HEALTH SERVICES

## Agency Vision

Health and Wellness for all Arizonans

## Agency Mission

To promote, protect, and improve the health and wellness of individuals and communities in Arizona

## Exposure Notification Technology Solution

State of Arizona – Department of Health Services

Division of Preparedness

Date of ITAC – 12/16/2020

Presented By: Ken Komatsu, State Epidemiologist/Chief, Office of Infectious Diseases

# Project Team Introduction

- Sponsor: Jessica Rigler - Assistant Director, Preparedness
- Program/Project Lead: Kenneth Komatsu - State Epidemiologist/Chief
- ITS Oversight: Paula Mattingly - Assistant Director/Chief Information Officer
- ITS Liaison/Lead: Ravikumar Pitti - Enterprise Architect

# Project Introduction

## Problem Statement:

- Isolating COVID-19 patients, tracing their contacts and quarantining contacts help prevent spread of SARS-CoV-2.
- Contacts to cases may develop COVID-19 symptoms and begin spreading disease in 2-5 days and longer.
- The first 2 days before symptoms and first 2 days of symptoms are the most infectious
- Delays in tracing a contact delays their quarantine
- Contact tracing is less effective if patients cannot recall names and contact information of everyone in close contact for >15 minutes within 6 feet in the last 14 days
- Benefits of contact tracing are maximized, and the harm reduced, when quarantine is focused on individuals most likely to be infected.

# Project Introduction

## Solution Statement:

- Google and Apple developed an “exposure notification” application program interface (GAEN) where smartphones can anonymously detect the proximity of each other using low power Bluetooth technology.
- Google and Apple provide one entitlement to each state to use GAEN.
- Using GAEN for “digital contact tracing” can significantly contribute to reducing SARS-CoV-2 transmission (Abueg et al. 2020; Ferretti et al. 2020) and is generally faster than manual contact tracing (Kretzschmar et al. 2020).
- Privacy/anonymity in notifying contacts may ease patient concerns if unwilling to share information with manual tracers.
- Digital contact tracing can notify those whose identity is unknown to the case, and unreachable through manual contact tracing.
- The benefits of contact tracing are maximized, and the harm reduced, when quarantine is focused on individuals most likely to be infected.

# Project Introduction

## Benefits:

### Agency:

- ADHS is providing a free digital contact tracing app to all citizens of Arizona
- ADHS is providing patients an active role in preventing spread
- ADHS is providing a less invasive, less time consuming and anonymous way to notify contacts
- ADHS is increasing the ease and likelihood of patients anonymously sharing a positive test with those exposed
- ADHS is lessening the burden on state staff time to trace contacts and provide verification codes to patients
- ADHS is applying Arizona Management System (AMS) to enhance the efficacy of contact tracing

### State:

- Improves the public health system in Arizona (ADHS, all 15 county health departments and 22 tribal health departments) with contact tracing efforts, informing exposed individuals and offer improved coordination among local and tribal health departments.
- COVID Watch AZ app may help to significantly reduce disease transmission in Arizona, with 15% adoption, it could reduce infections by 8% and deaths by 6%, which may help with scarce hospital beds.
- COVID Watch App's risk assessment algorithm may help reduce the costs of quarantine and isolation.
- The Association of Public Health Laboratories national key server, enables notification of anyone using a GAEN enabled smartphone, such as an out-of-state visitor exposed in Arizona or an Arizonan exposed in another state (21) where a GAEN app is used.
- The COVID Watch App is currently being used at two state universities (UA, NAU) and the country of Bermuda.

# Proposed Solution

## ADHS proposes the purchase of WeHealth's COVID Watch App

### Why COVID Watch App and not others?

- A modifiable risk algorithm based on probability of infectiousness
- Sub-state Regions, e.g. University of Arizona (UA), Northern Arizona University (NAU), or a county or tribe
- Can customize region messaging or region risk algorithm
- Works with the Apple Google GAEN
- Successfully pilot tested on the UA Campus (Only data available on an GAEN app in the US)
  - 47% of cases using the app
  - 26% of cases notifying others (almost 610 notifications)
  - estimated 12% reduction in transmission rate

# Proposed Solution

## **ADHS proposes the purchase of WeHealth's COVID Watch App**

### **All GAEN apps**

- Available on the Apple App Store and Google Play Store
- Use a Key Server to manage last 14 day “potential exposures” using random IDs (no user access)
- Compatible with other apps using GAEN
- Connected to the Association of Public Health Laboratories (APHL) National Key Server to share keys across the US
- Uses a Verification Server to generate verification codes (confirm a positive COVID-19 test).
- Verification code is entered into the app to allow Key Server to notify exposed contacts
- Codes can be generated by case investigators, contact tracers, public health

### **AZ implementation differs from other to increase timeliness and reduce ADHS staff time**

- Providing verification codes when receiving results
- Using clinical laboratories, clinicians or other health professionals providing the test or the diagnosis to the patient
- At UA, Campus Health provides a secure portal for patients to get their results and a button to generate the verification code
- WeHealth will provide a sheet of codes for drive thru rapid point of care test sites
- WeHealth has been working with 3 commercial laboratories and a commonly used physician app automate the delivery of verification codes directly along with test results via text, email, etc.

# Proposed Solution

## Procurement

- WeHealth Implementation and Support Contract

The software/app was selected through a committee under direction by the Governor. The committee consisted of university representatives, technologists and researchers who vetted available apps in May 2020. Requirements are:

- use the GAEN API to detect proximity exposure
- works on both IOS and Android,
- allow for regionalization,
- allow for risk algorithm,
- work with laboratories to implement verification codes,
- provide opt-in metrics to improve evaluation,
- maintain anonymity of the user, and
- provide levels of risk exposure for user.

Since that time, several states/universities have launched exposure notification apps.

### **Alternative 1.**

COVID Green developed in Ireland has been deployed by four US states. This app does not have the regionalization (needed for a university or tribal nation), nor a risk algorithm to tailor for regional increases, nor support for laboratory integration that would be necessary for a statewide rollout in Arizona.

# Proposed Solution

## Procurement - Cont'd

### Alternative 2.

Apple Google also released EN Express, which enables the GAEN via the iOS on iPhones and required mini app download for Android phones. Colorado (CO) has successfully launched this EN Express which is free, but requires the state public health agency to staff a call line for users to request a verification code. The one or two day delay in lab reporting to the state also delayed the patient's ability to notify others and few notifications were made. Just two weeks ago, CO began sending text messages with verification codes to phone numbers of positive tests with better success, though still at least with a one day delay and with some complaints. This solution works but would require considerable time and effort from ADHS to stand up a call line, process labs each day, look for missing phone numbers, support for app changes and still does not have the flexibility of a risk algorithm, regionalization for a tribe or university, and a centralized app for information, links to assistance, possible exposures, or opting in to share additional anonymous metrics, nor does it provide the verification code at the time of receiving the test result, thus limiting spread while the most infectious. We also believe users will be less likely to notify others if they must wait for the code. The immediate availability of the verification code appeared to help make the UA pilot successful once they implemented the test portal where one could retrieve a verification code at the time they received their positive test result.

### Alternative 3.

Only the Covid Watch incorporated the Google Apple Exposure Notification API, allowed incorporation of a risk algorithm, allowed regionalization, will work with ADHS to implement verification codes by clinical laboratories, provide opt-in metrics while maintaining anonymity, provide risk levels to show potential exposures, and provided support for ongoing changes to the app. Additionally, UA conducted a successful pilot of COVID Watch which showed significant impact on the campus providing evidence that this app worked on the UA Campus to help control their increase.

# Proposed Solution

## Technology

- Google Cloud Platform
- Public Health internal dashboard to customize and administer the app as well as evaluate its use
- EN app for the State of Arizona on both iOS and Android platforms
- Key Server to anonymously notify contacts using an GAEN App
- The Verification Server to provide verification codes to persons with positive tests
- Lab integrations to provide verification code when a positive SARS-CoV-2 diagnostic test result is given

# Project Responsibilities

## Agency

1. Contract Oversight
2. Project Management
3. Program SMEs

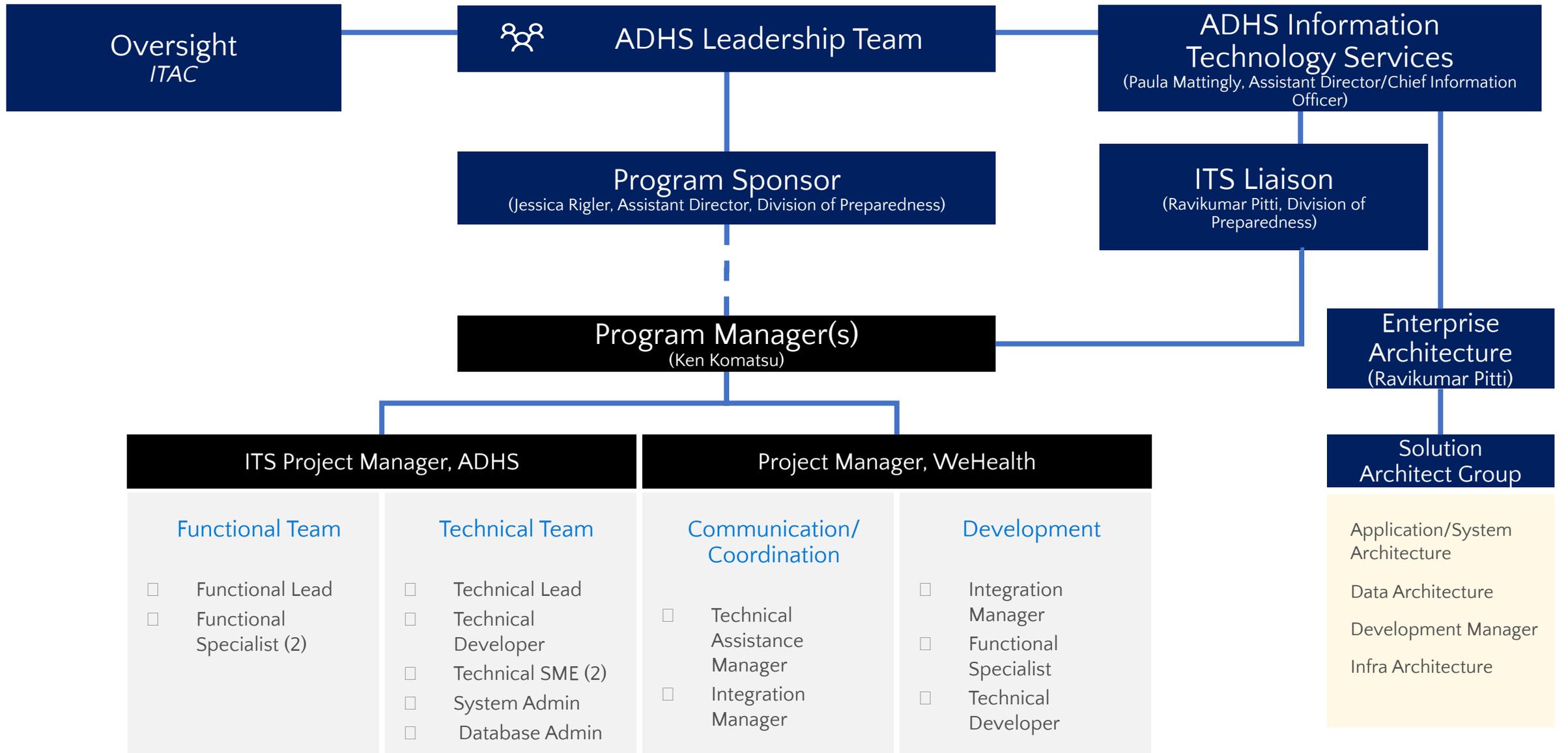
## Shared

1. Project Scope and Planning
2. Project Monitoring

## Vendor/Contractor

1. Maintain internal dashboard for public health to administer the app
2. Maintain mirror of APHL server
3. Maintain app on Apple, Google stores
4. Upgrade app with GAEN upgrades and Apple or Android OS upgrades as needed
5. Work with commercial laboratories to implement verification code provisioning
6. Provide up to 10 regions to allow customization for these regions
7. Change app messaging or risk algorithms as ADHS or CDC guidance changes
8. Maintain help desk website for users
9. Provide metrics on app downloads, use, verification codes entered, opt in user metrics and feedback

# Program Structure



Oversight  
ITAC



ADHS Leadership Team

ADHS Information Technology Services  
(Paula Mattingly, Assistant Director/Chief Information Officer)

Program Sponsor  
(Jessica Rigler, Assistant Director, Division of Preparedness)

ITS Liaison  
(Ravikumar Pitti, Division of Preparedness)

Program Manager(s)  
(Ken Komatsu)

Enterprise Architecture  
(Ravikumar Pitti)

ITS Project Manager, ADHS

Project Manager, WeHealth

Solution Architect Group

Functional Team

- Functional Lead
- Functional Specialist (2)

Technical Team

- Technical Lead
- Technical Developer
- Technical SME (2)
- System Admin
- Database Admin

Communication/Coordination

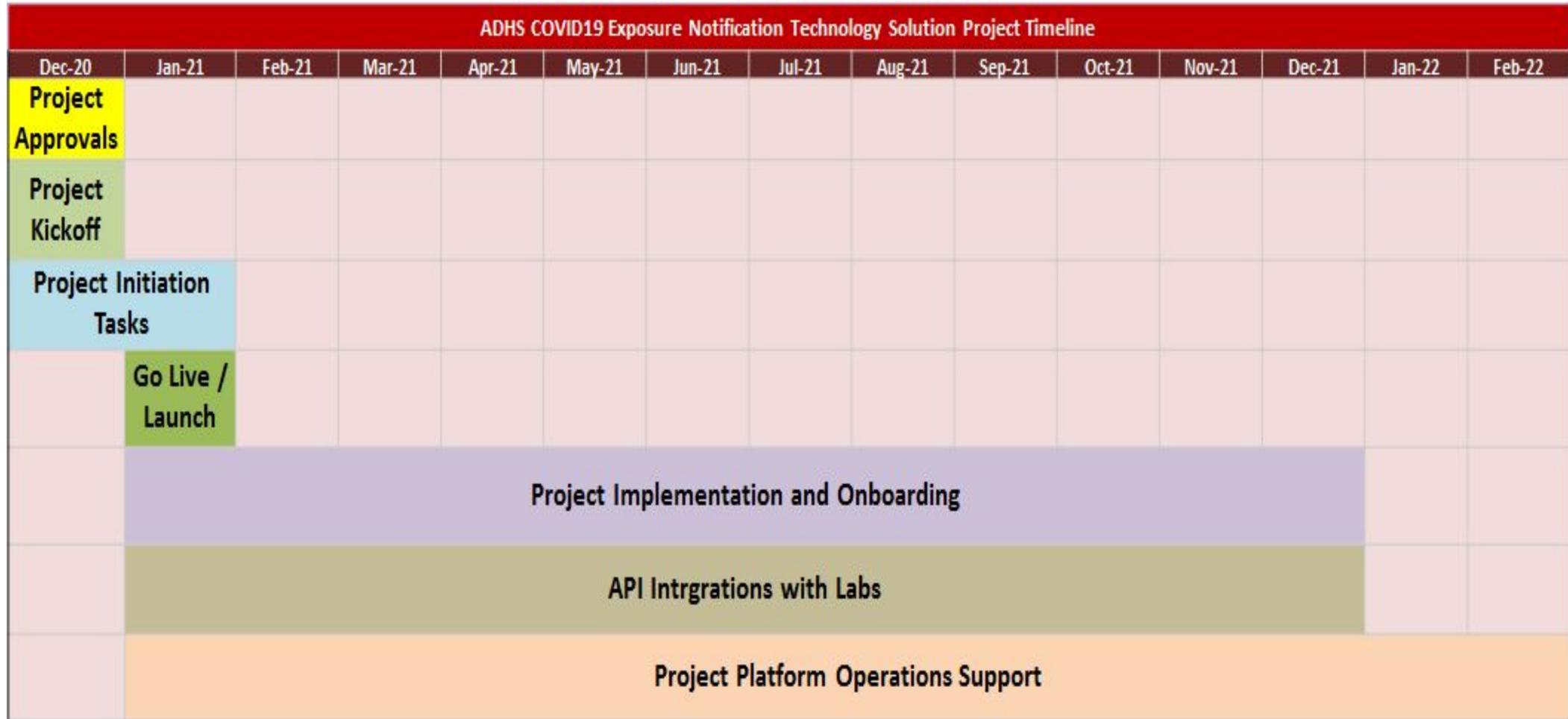
- Technical Assistance Manager
- Integration Manager

Development

- Integration Manager
- Functional Specialist
- Technical Developer

- Application/System Architecture
- Data Architecture
- Development Manager
- Infra Architecture

# Project Timeline



# Project Costs

Project Costs by Category	FY21	FY22	FY23	FY24	FY25	Total
Professional & Outside Services (Contractors)	\$13,000	\$3,000	\$3,000	\$0	\$0	\$19,000
Hardware	\$0	\$0	\$0	\$0	\$0	\$0
Software	\$0	\$0	\$0	\$0	\$0	\$0
Communications	\$0	\$0	\$0	\$0	\$0	\$0
Facilities	\$0	\$0	\$0	\$0	\$0	\$0
License & Maintenance Fees	\$1,498,680	\$857,940	\$857,940	\$0	\$0	\$3,214,560
Contingency	\$608,160	\$0	\$0	\$0	\$0	\$608,160
Total Development	\$2,119,840	\$0	\$0	\$0	\$0	\$2,119,840
Total Operational	\$0	\$860,940	\$860,940	\$0	\$0	\$1,721,880

# What Success Looks Like

- Greater than 15% adoption of the app
- Increased timely exposure notifications compared to manual contact tracing.
- Increased timely quarantine efficiencies of contacts to known cases.
- Increased exposure notifications of unknown contacts.
- Increased timely testing of contacts from app prompts (when and where)
- Increased timely isolation of subsequent contacts testing positive
- Reduction time spent contact tracing by public health staff
- Public participation in disease control efforts
- Reduction in transmission of SARS-CoV-2

# Requesting Approval For

Agency is requesting ITAC approval for:

Developing and expanding a framework of cooperation between the State of Arizona and WeHealth to launch and maintain exposure notifications and public health communication using the WeHealth Platform.

The WeHealth Exposure Notification (EN) platform is an evidence-based risk model built on top of the EN protocol and are leaders in the space. The end goal is to use the latest science to calibrate our pandemic response to optimize for the best outcomes, avoiding unnecessary hardship, while still slowing down the spread and to strategically focus on the highest risk and have the most impact.

# Q & A Session