Alternative Care Facilities, Esri, and Qlik: Creating a COP during COVID19

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The Problem, the Solution, the Tracking

- **The Problem:**
  - With the initial outbreak of COVID, hospitals and medical facilities were quickly overwhelmed in caring for the influx of COVID patients, as well as those patients with other health conditions.
- **The Solution:**
  - Needed a **simple** solution for a **complex** problem
  - US Army Corps of Engineers (USACE) started collaborating with local, state, and other federal partners to convert existing buildings into Alternative Care Facilities (ACFs) that could provide needed space to care for COVID and non-COVID patients.
    - Arena to Healthcare: stadiums, convention centers, gyms
    - Hotel to Healthcare: hotels, dormitories
- **Tracking the Solution:**
  - Initial tracking of potential sites for Alternative Care Facilities (ACFs) was handled through an Excel Spreadsheet
    - As the number of sites needing inspection increased, the ability for the spreadsheet to be accurately maintained decreased.

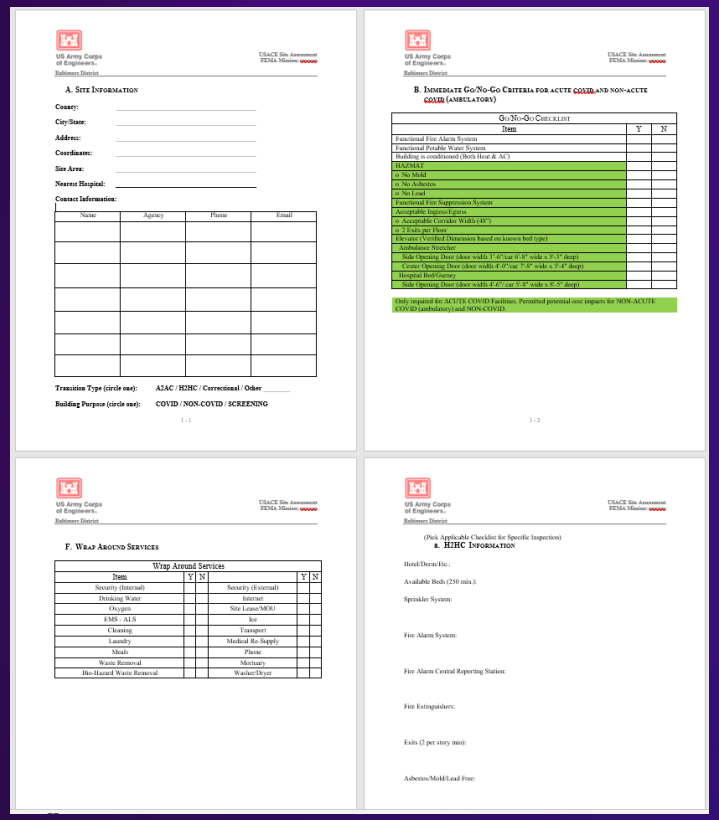
Tracking the Solution, Geographically

- **A Geographic Solution**
  - As more and more potential ACFs were identified and in need of inspection, the spreadsheet quickly became unwieldy, out-of-date, and inaccurate
    - USACE Geospatial Professionals immediately recognized a geographic question needed a geographic answer

- **Utilizing existing Corps' technology - the Esri suite of geospatial tools**
  - **Survey123**
    - One of Esri's mobile field data collection applications
    - Form-centric
    - Allows for easy collection of the data by field personnel, as well as offering the ability for geospatial professionals to consume and manage that data easily for the enterprise
  - **Portal for ArcGIS**
    - Allows for ease of data sharing and organization
    - Users can create a multitude of web, desktop, and mobile applications

Early Stages, Paper to Survey123

- **Paper forms were developed independently at many USACE districts**
  - Needed to standardize form across USACE
  - Forms were being translated to excel then sent upwards for reporting
- **First "version" of Survey123 form developed and deployed in less than a day**
  - Fast moving mission with everchanging requirements required updates and changes nightly



US Army Corps of Engineers, Baltimore District

USACE Site Assessment
FEMA Mission: xxxxxx

A. Site Information

County:
City/State:
Address:
Coordinates:
Site Area:
Nearest Hospital:
Contact Information:

Name	Agency	Phone	Email

Transition Type (circle one): A2AC / H2HC / Correctional / Other

Building Purpose (circle one): COVID / NON-COVID / SCREENING

1 - 1

B. Immediate Go/No-Go Criteria for acute COVID and non-acute COVID (ambulatory)

Go/No-Go Checklist

Item	Y	N
Functional Fire Alarm System		
Functional Potable Water System		
Building is conditioned (Both Heat & AC)		
HAZMAT		
o No Mold		
o No Asbestos		
o No Lead		
Functional Fire Suppression System		
Acceptable Ingress/Egress		
o Acceptable Corridor Width (48")		
o 2 Exits per Floor		
Elevator (Verified Dimension based on known bed type)		
Ambulance Stretcher		
Side Opening Door (door width 3'-6"/car 6'-8" wide x 5'-3" deep)		
Center Opening Door (door width 4'-0"/car 7'-8" wide x 5'-4" deep)		
Hospital Bed/Gurney		
Side Opening Door (door width 4'-0"/car 5'-8" wide x 8'-3" deep)		

Only required for ACUTE COVID Facilities. Permitted potential cost impacts for NON-ACUTE COVID (ambulatory) and NON-COVID.

1 - 2

F. Wrap Around Services

Wrap Around Services

Item	Y	N		Y	N
Security (Internal)			Security (External)		
Drinking Water			Internet		
Oxygen			Site Lease/MOU		
EMS - ALS			Ice		
Cleaning			Transport		
Laundry			Medical Re-Supply		
Meals			Phone		
Waste Removal			Mortuary		
Bio-Hazard Waste Removal			Washer/Dryer		

(Pick Applicable Checklist for Specific Inspection)

a. H2HC Information

Hotel/Dorm/Etc.:

Available Beds (250 min.):

Sprinkler System:

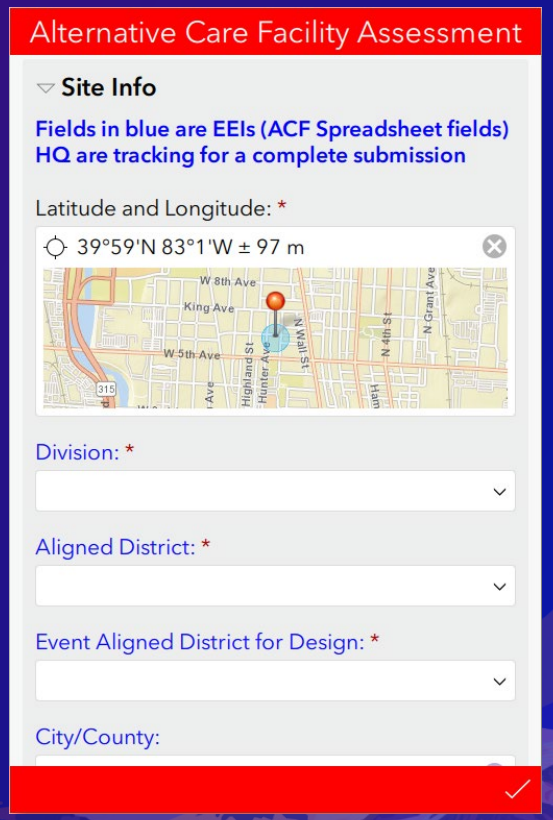
Fire Alarm System:

Fire Alarm Central Reporting Station:

Fire Extinguishers:

Exits (2 per story min):

Asbestos/Mold/Lead Free:



Alternative Care Facility Assessment

Site Info

Fields in blue are EEIs (ACF Spreadsheet fields) HQ are tracking for a complete submission

Latitude and Longitude: *

39°59'N 83°1'W ± 97 m

Division: *

Aligned District: *

Event Aligned District for Design: *

City/County:

The Process

- **Facility Assessment Team collect data in field. Optionally someone back in the office would start the site with some of the basic information already filled out.**
- **Lead back at District Office would verify and fill in any additional info**
- **Division lead would then verify the data and ask any questions if needed**
- **Complete data rolled up into various Portal products at HQ**
  - Divisions/Districts also rolled up their own facilities filtering on just the facilities within AOI

- **As a facility site evolved edits would take place at district level.**
  - Edits captured in real time

- **Process drove the need for multiple concurrent versions of the form depending on use**
  - Forms were tailored to the specific uses, only displaying fields needed
  - All forms pointed to same feature service (no duplicated data)

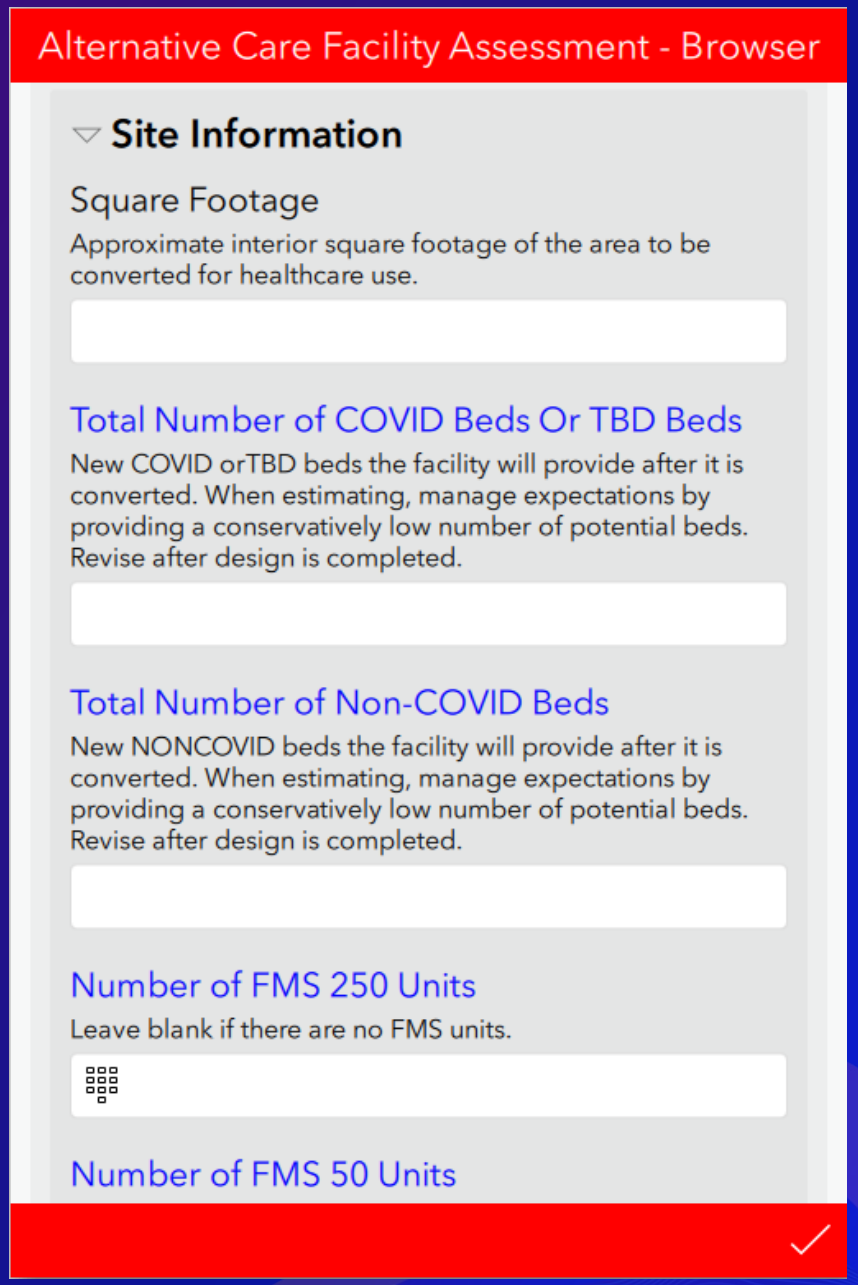
The Form

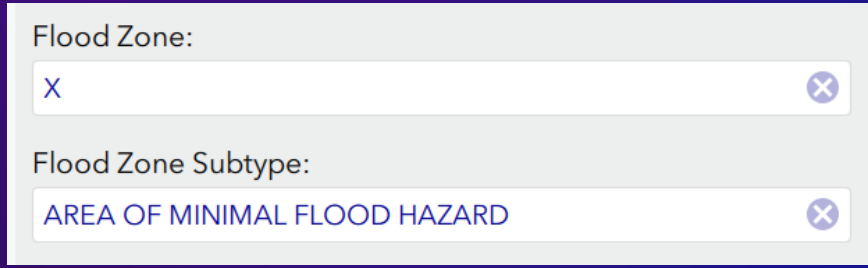
- **Multiple people editing the same record to complete submission**
- **Final version 230 rows in xlsForm**
  - Created the need to highlight required fields without using the required = yes setting
- **Used multiple methods to promote data consistency and quality**

	A	B	C	D	G	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	type	name	label	hint	required	appearanc	default	readonly	relevant	calculatior	choice_filte	repeat_cou	abel::languag	hint::languag	media::aud	media::imag	::accuracyTh	nd::esri:field	d::esri:fieldL	nd::esri:field	ly::esri:inpu
2	begin group	siteInfo	Site Info			compact															
3	note	requiredNote	<font																		
4	geopoint	latLong	Latitude and Longitude:		yes																
5	select_one di	division	<font		yes	minimal															
6	select_one di	district	<font color="blue">Aligned		yes	minimal															
7	select_one di	districtEventA	<font color="blue">Event		yes	minimal															
8	text	cityCounty	<font							pulldata("@javascript","fieldDataFunctions.js","returnFirstIntersectingFeature",${cityCountyURL},string(${latLong}),"NAME",pulldata("@property","token"),true)											
9	hidden	cityCountyUR	City/County URL				https://services.arcgis.com/P3ePLMYs2RVChkJx/arcgis/rest/services/USA_Counties/FeatureServer/0														
10	select_one st	stateLocation	<font		yes	autocomplete				pulldata("@javascript","fieldDataFunctions.js","returnFirstIntersectingFeature",${stateLocationURL},string(${latLong}),"ST_ABBREV",pulldata("@property","token"),true)											
11	hidden	stateLocation	State URL				https://services.arcgis.com/P3ePLMYs2RVChkJx/ArcGIS/rest/services/USA_States_analysis_trim/FeatureServer/0														
12	text	hqID	USACE HQ ID:	Assigned by																	
13	text	facid	Facility ID:	Assigned by																	
14	text	facname	<font color="blue">Facility	The common																	
15	text	streetAddress	<font color="blue">Street																		
16	select_one fa	factype	Facility Type:	Choose		minimal															
17	select_one pa	faccare	<font color="blue">COVID or			minimal															
18	select_one ac	acuteNonAcu	Acute or Non-Acute			minimal															
19	select_one ye	militarySite	Is this site located on a military	Only fill out																	
20	select_one fe	fema	<font color="blue">FEMA	FEMA		minimal															
21	text	siteArea	Site Area:																		
22	text	pocInfo	Facility POC Info:	FIRST NAME ONLY. DO NOT ENTER FULL NAMES. FULL NAMES CONSIDERED PII.																	
23	text	femaFloodZor	Flood Zone:							pulldata("@javascript","fieldDataFunctions.js","returnFloodZone",${femaURL},string(${latLong}),"FLD_ZONE",pulldata("",""),true)											
24	hidden	femaURL	FEMA URL				https://hazards.fema.gov/gis/nfhl/rest/services/public/NFHL/MapServer/28														
25	text	femaFloodZor	Flood Zone Subtype:							pulldata("@javascript","fieldDataFunctions.js","returnFloodZone",${femaURL},string(${latLong}),"ZONE_SUBTY",pulldata("",""),true)											
26	hidden	femaURL2	FEMA URL				https://hazards.fema.gov/gis/nfhl/rest/services/public/NFHL/MapServer/28														
27	text	siteDescriptio	Site Description:			multiline													5000		
28	text	ingressEgress	Ingress/Egress:			multiline													5000		
29	begin group	utilities	Utilities																		
30	text	sanitary	Sanitary:																		
31	text	electric	Electric:																		
32	text	gas	Gas:																		
33	text	water	Water:																		
34	text	fireHydrant	Fire Hydrant:																		
35	text	telecom	Tele/Comm:																		
36	text	wifi	Wi-Fi:																		
37	text	inPlaceSecuri	In-place Security:																		
38	text	utilNotes	Utility Notes			multiline													5000		
39	end group																				
40	text	siteNotes	Site Notes			multiline													5000		
41	end group																				
42	begin group	siteAssessme	Site Assessment			compact															
43	select_one as	assessType	H2HC or																		
44	text	h2hcHotelNar	Hotel/Dorm/Etc.:	Building					${assessType}='h2hc'												
45	integer	h2hcAvailBed	Available Beds (250 min.):						${assessType}='h2hc'												
46	text	h2hcBedNote	Available Beds Note:			multiline			${assessType}='h2hc'										5000		
47	select_one ye	h2hcSprinkler	Sprinkler System (Y/N):	Nonnegotiabl	yes				${assessType}='h2hc'												

Survey123 – Field Data Collection

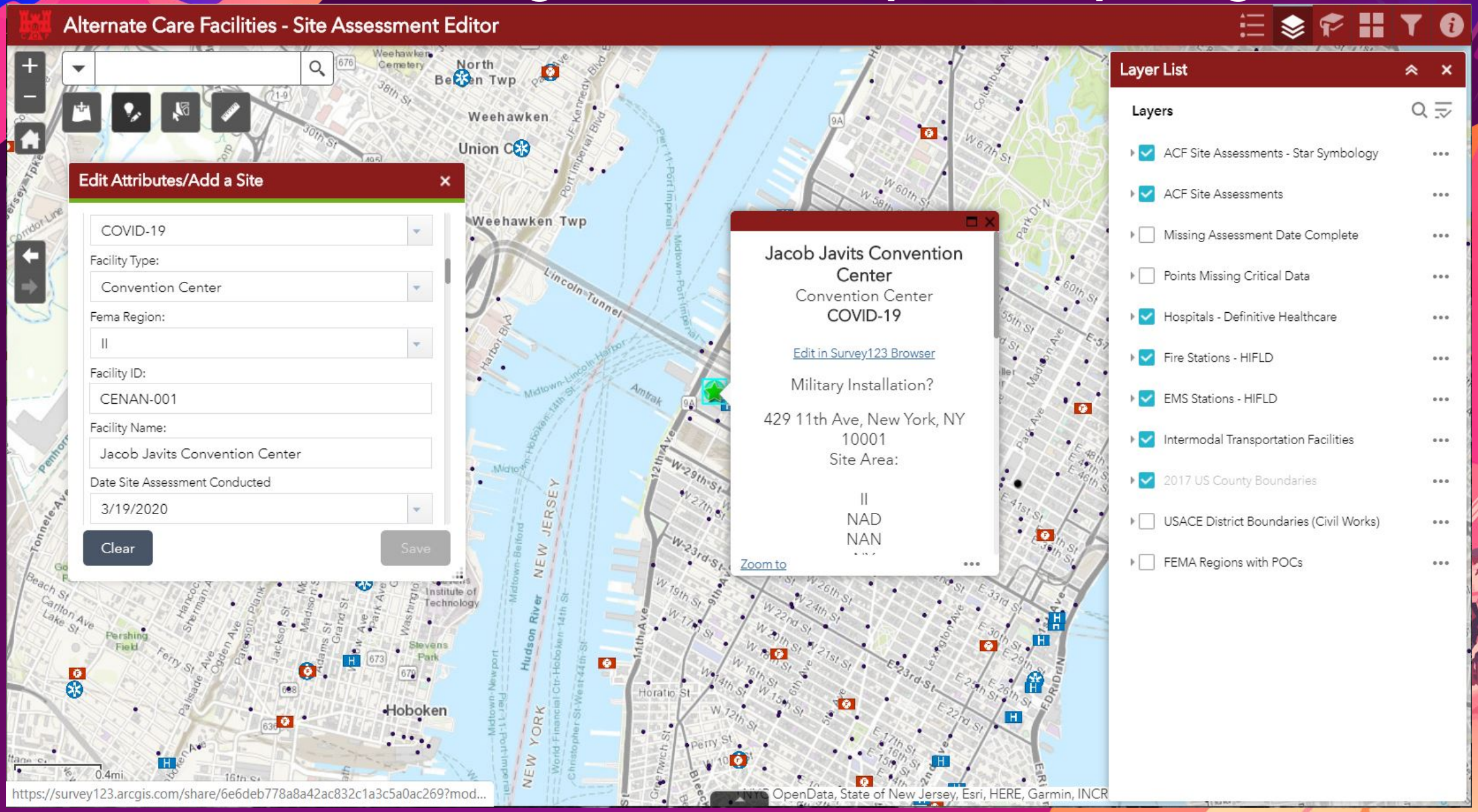
- **Entered the data dictionary definitions as hints within the form**
- **Used font formatting to indicate “required” fields for a complete submission**
  - Division:
- **Used pulldata and javascript to auto populate fields that are location based**
  - pulldata("@javascript","fieldDataFunctions.js","returnFloodZone",${femaURL},string(${latLong}),"FLD_ZONE",pulldata("",""),true)





text	femaFloodZor	Flood Zone:	pulldata("@javascript","fieldDataFunctions.js","returnFloodZone",${femaURL},string(${latLong}),"FLD_ZONE",pulldata("",""),true)
hidden	femaURL	FEMA URL	https://hazards.fema.gov/gis/nfhl/rest/services/public/NFHL/MapServer/28
text	femaFloodZor	Flood Zone Subtype:	pulldata("@javascript","fieldDataFunctions.js","returnFloodZone",${femaURL},string(${latLong}),"ZONE_SUBTY",pulldata("",""),true)
hidden	femaURL2	FEMA URL	https://hazards.fema.gov/gis/nfhl/rest/services/public/NFHL/MapServer/28

Portal for ArcGIS – Editing, QA/QC, and Upward Reporting



Reporting our Alternative Care Facility Metrics

- **Operations Dashboards were utilized to report the ACF mission up the chain of command**
  - These dashboards offered Division and District-specific values, as well as overall metrics looking at the ACF Mission as a whole

ACF - Completed Assessments, Sites Selected and Awards

Filter by Division: | Filter by District: | Filter by state | Filter By FEMA Region

MSC	FEMA REGION/STATE	COMPLETED ASSESSMENTS									TOTAL ASSESSMENTS COMPLETED	SITES SELECTED	CONTRACT AWARDED	PROJECTED BED CAPACITY	
		A2HC FACILITIES				H2HC FACILITIES				ACF TYPE TBD					
		COVID	NON-COVID	BOTH	COVID-TBD	COVID	NON-COVID	BOTH	COVID-TBD					COVID	NON-COVID
NAD	I (CT, ME, MA, NH, RI, VT) II (NJ, NY); III (DC, DE, MD, PA, VA, WV)	29	38	23	53	22	16	24	37	2	244	40	11	4,272	862
SAD	II (PR, VI)				5	64	19	0	12	0	160	6	2	474	
					25	19	38	0	17	0	128	6	2	519	
					9	30	8	6	1	5	145	15	9	6,226	
					3	75	8	0	4	0	116	3	2	235	
					2	23	18	25	3	3	156	3	2	42	100
					12	29	7	0	12	5	143	20	8	2,195	90
					0	1	18	1	0	0	47	3	1	51	0
					109	263	132	56	86	15	1,139	101	37	14,014	1,052

USACE ACF Rollup - Contract Status Dashboard

Filter by Division | Filter by District | Filter by State | Filter by FEMA Region | Filter by Contract Status

Assessments Completed

1,139

Requested: 1,180

AWARDED

37

Number of Beds

COVID 14,014

NON-COVID 1,052

STATE EXECUTED

36

Number of Beds

COVID 8,866

NON-COVID 4,129

TENTATIVE

11

Number of Beds

COVID 2,105

NON-COVID 1,379

PENDING

0

Number of Beds

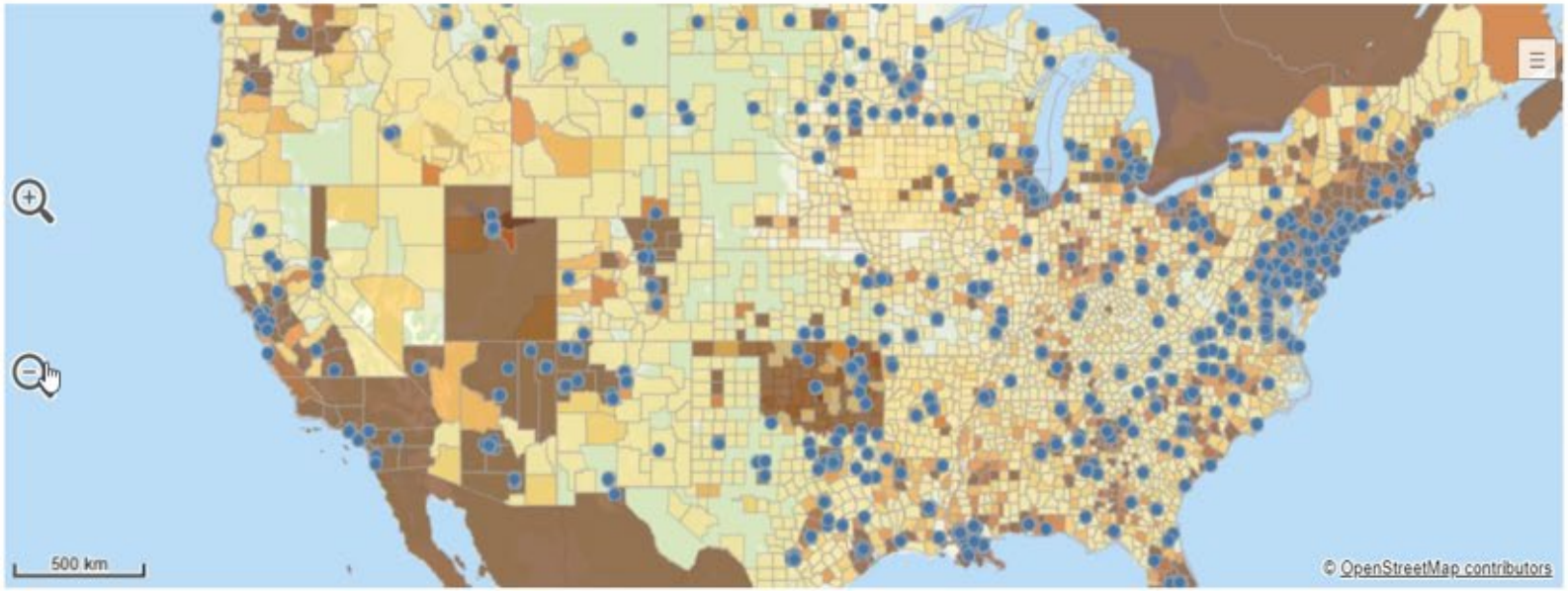
Completed | Awarded | Pending | Tentative | State Executed | All "Started" Contracts | All Completed Assessments | Map | Summaries | All Maps

Additional Reporting

Selections Insights

uCOP-Alternative Care Facilities Slide

GeoAnalytics Map



Facility Location

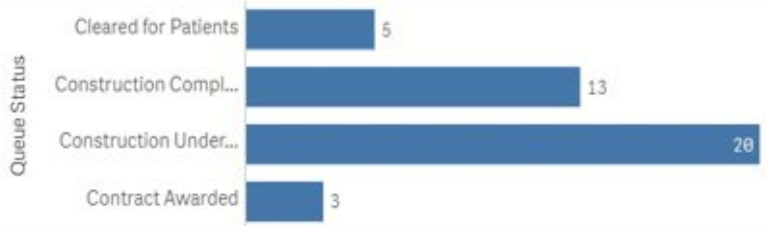
>200
Confirmed Cases
<1

Detailed Tables

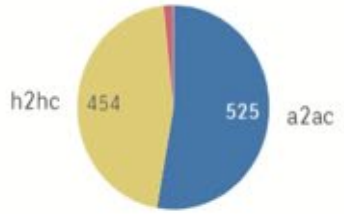
Total Contracts Awarded
27

Total Estimated Contract Amount
663.7M

Assessments Complete: 971



Hotel and Arena to Health Care Totals



Total Beds Available

division	A2HC COVID	A2HC NON-COVID	A2HC TBD	H2HC COVID	H2HC NON-COVID	H2HC TBD	ACF TYPE TBD	TOTAL COMPLETED ASSESSMENTS	SITES SELECTED	CONTRACT AWARDED	PROJECTED BED CAPACITY
Totals	**248**	**108**	**169**	**206**	**119**	**129**	**16**	**971**	**554**	**27**	**36413**
lrd	55	14	15	22	7	7	5	125	87	6	8398
mvd	23	4	26	8	38	17	0	114	90	2	188
nad	22	39	79	18	16	64	3	233	121	9	24824

USACE COVID19 GEOTF
GEOSPATIAL DATA MANAGEMENT
BUILDING STRONG! MAPPING STRONG!
DEATH TO SPREADSHEETS