

CONTENTS

<i>Introduction</i>	<i>ix</i>
<i>How to use this book</i>	<i>xvii</i>

PART 1: SITUATIONAL AWARENESS 1

Global dashboard keeps tabs on the virus	5
Johns Hopkins University	
Supporting state dashboards to better monitor cases and capacity	10
US Centers for Disease Control and Prevention	
It's in the wastewater: Sensing and mapping COVID-19	14
University of California San Diego	
A new tool for contact tracing	20
Esri	
GIS-based contact tracing initiative sets US precedent	24
Cities of Allentown, Bethlehem, York, and Wilkes-Barre, Pennsylvania	

PART 2: EQUITABLE RESOURCE ALLOCATION 31

Analyzing racial inequities during COVID-19	35
Esri	
Spatial approaches to determining accessibility	41
Esri	
GIS helps achieve equitable, speedy vaccine distribution	47
Esri	
Applying location intelligence to vaccine distribution	57
City of Bethlehem Health Bureau, Pennsylvania; Kansas Department of Health and Environment; and Lewis and Clark Public Health, Montana	

Dashboards mark progress of rapid vaccinations	63
Chilean National System for the Coordination of Territorial Information	
Using GIS to reach homebound residents for COVID-19 vaccination	68
Oregon Public Health Department	
PART 3: CAPACITY AND INFRASTRUCTURE	73
Models and maps explore COVID-19 surges and capacity	76
Penn Medicine's Predictive Healthcare Team	
Using maps and models to create surge hospital capacity	82
US Army Corps of Engineers	
Solving medical supply chain problems	89
Direct Relief	
PART 4: COMMUNICATION AND ENGAGEMENT	93
Communication hub sites share COVID-19 news, resources	96
Montgomery County, Pennsylvania; Maryland Department of Information Technology; University of South Florida; and Delaware County, Indiana	
Equitable community engagement during COVID-19	101
Esri	
GIS hub helps keep residents informed and safe	107
Cobb County, Georgia	
Location intelligence helps boost census response rates	113
US Census Bureau	

PART 5: RECOVERY AND RESILIENCE 121

Five spatial approaches to safely reopening 125

[Esri](#)

Evaluating readiness for relaxing stay-at-home measures 133

[Esri](#)

Assessing economic fallout with shared maps 140

[Montgomery, Bucks, Chester, and Delaware Counties, and
the city and county of Philadelphia, Pennsylvania](#)

Balancing response and recovery 144

[Esri](#)

How to reopen the workplace during COVID-19 148

[Esri](#)

COVID-19: OUR LESSONS LEARNED 155

NEXT STEPS 161

Conclusion 181

Contributors 185