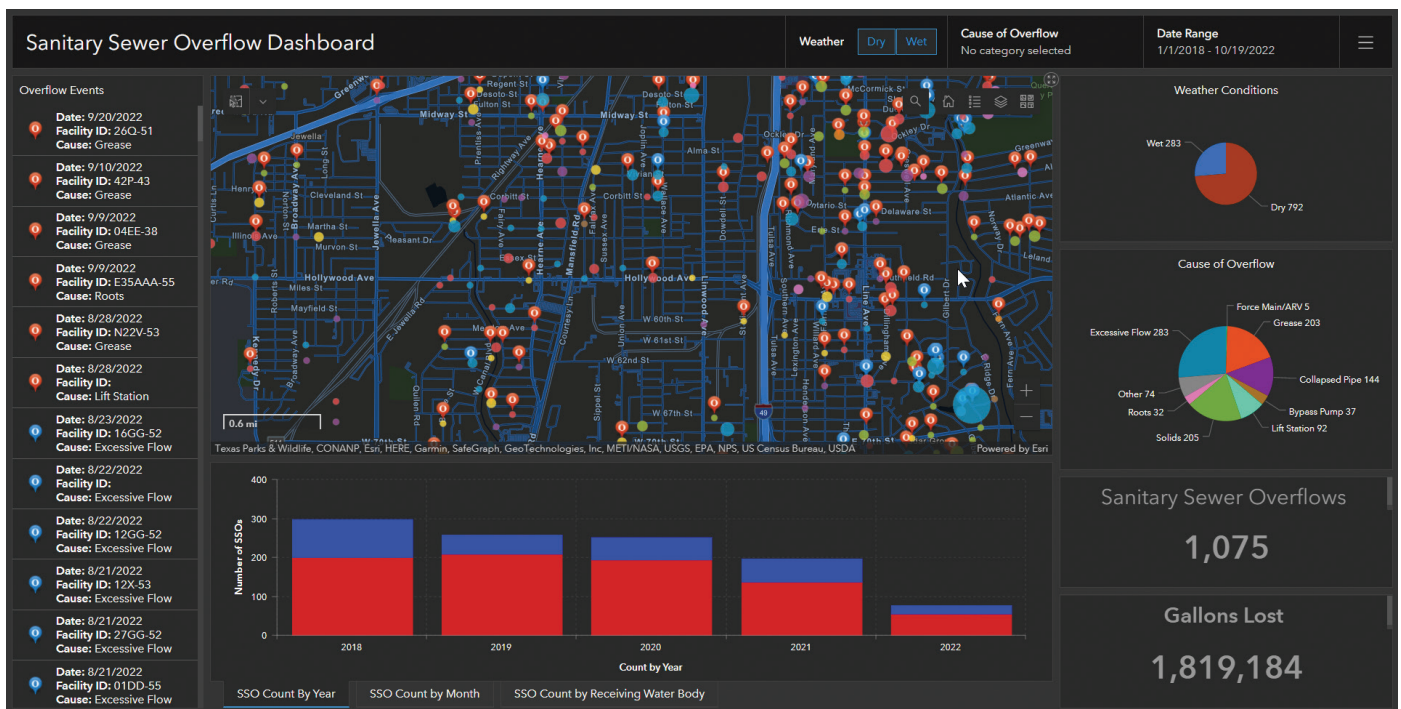# 1898 & Co. Applies Cutting Edge Engineering to Digital Infrastructure

MARC GOLDMAN

1898 & Co., part of Burns & McDonnell, that is celebrating its 125th anniversary of the firm's founding, is a global business and technology consultancy. 1898 & Co. is a blend of engineers and industry specialists who bring together business insights with leading technical capabilities. While Burns & McDonnell has been around for more than 100 years, 1898 & Co. has only been in existence for about four years. Brian Hiller, Director of Geospatial Technologies at 1898 & Co., says "Burns & McDonnell leadership recognized that our clients needed the consulting services that 1898 & Co. provides to help *manage* the physical infrastructure that we've been designing and constructing for many years." 1898 & Co. works around the world, supporting the critical infrastructure industries to help them implement a different *type* of infrastructure, that is, the *digital* infrastructure and digital assets such as Geographic Information Systems (GISs) and asset-management systems.

Burns & McDonnell has been an Esri business partner for more than 20 years and has used the ArcGIS platform internally to support engineering and construction activities. In addition, 1898 & Co., in particular, helps clients become highly effective GIS users on their own. "We help clients realize a greater return on their investments in software from partners like Esri," says Hiller. "Using geospatial mobile apps, web applications, integration with existing third-party systems like asset-management platforms or design tools, we help our clients solve the critical infrastructure sector's greatest challenges."

Equity in Infrastructure

1898 & Co. has been working with a large water and wastewater utility in the Midwest to help redesign its main replacement programs. "We help them use GIS to identify assets for replacement," Hiller explains. "There's a significant geographic component to the analysis—we're looking at where the pipes are and what's near them, along with many other factors to help calculate the risk of failure of each pipe in the system. The results of the analysis are presented in ArcGIS Dashboards to help communicate the results."

Social justice is a major factor in project planning. GIS layers of demographic information play a significant role in the analysis. "The city council for our client is very interested in making sure investments are being done equitably across their system," Hiller explains.

Telling the Tale of Two Hurricanes

Hurricane Laura made landfall in Cameron, La., on Aug. 27, 2020, the 10th-strongest hurricane on record to make landfall in the United States. Six weeks later, another major storm, Hurricane Delta, made landfall in nearly the same spot, concluding a record-breaking hurricane season in the United States. As part of the rebuild efforts from Hurricane Laura and other infrastructure investments, the gulf-coast utility performed storm-hardening activities—for example, they put up stronger poles—and when Delta came through, they saw fewer outages, and fewer poles down compared to previous hurricanes.

Realizing the benefits that storm-hardening activities could provide, the network managers wanted to present the case to executive leadership for continued investments in storm-hardening activities, and Hurricanes Laura and Delta hitting in the same area in the same year seemed like a unique opportunity to illustrate the benefits continued investments could make.

Hiller's team worked with staff from the utility and used Esri StoryMaps and ArcGIS Dashboards to create an interactive presentation that helped to convey the benefits of the storm-hardening activities. "We were able to use Esri's software to analyze the region's electric network on a circuit-by-circuit basis for different categories of damage," Hiller explains. "And then we could compare Hurricane Laura damages to Delta damages precisely and graphically. The results were clear, helping executives see the benefits of investing in the storm-hardening activities."

ArcGIS and other Esri tools greatly expand the data-analysis capabilities of the managers and operators of just about any infrastructure network, capturing efficiencies, investing wisely, avoiding outages and even addressing previously hard-to-measure social concerns such as equity across municipal infrastructure. Burns & McDonnell and 1898 & Co. have been helping clients apply this technology worldwide for decades.

To learn more about GIS in AEC, contact Marc Goldman at *mgoldman@esri.com*. **II**

Marc Goldman is Director of AEC Industry Solutions, a business developer and strategist at Esri, a student pilot, and geospatial industry expert on BIM, GIS and Digital Twins.