SMART CITY FLOOD INTELLIGENCE

TEXAS FLOOD EMERGENCY WARNING SYSTEMS

Denise Manchester

VP of Sales

2026

Introduction Letter

Dear

Texas Public-Sector and Emergency Management Leader

Dear Texas Public-Sector and Emergency Management Leader,

My name is Denise Manchester, and I serve as VP of Sales for Corvalent's Smart Cities and Special Projects initiatives.

Flood events rarely respect jurisdictional boundaries. Conditions developing in rural watersheds, tributaries, creeks, and upstream drainage areas can quickly affect downstream roads, neighborhoods, public facilities, critical infrastructure, and densely populated urban communities. For government agencies, the central challenge is not simply collecting more data. It is transforming distributed information into early, reliable, and coordinated action.

Through the Texas Department of Information Resources Flood Early Warning Systems contract, the D.H. Collective ecosystem brings together the complementary capabilities of D.H. Collective, Projexel, Corvalent, BLCCS, and specialized implementation partners. This integrated approach connects sensing, field deployment, telemetry, analytics, visualization, alerting, technical services, and program support through a coordinated Flood Emergency Warning System.

Our objective is to help communities move from fragmented flood monitoring toward a connected flood-intelligence environment, one that provides earlier visibility into developing conditions, improves situational awareness, supports coordinated emergency response, and presents decision-makers with a unified single pane of glass.

We would welcome the opportunity to meet with your emergency management, public works, transportation, stormwater, information technology, and public-safety teams to identify priority watersheds and develop an implementation roadmap aligned with your community's operational requirements.

Sincerely,

Denise Manchester

VP of Sales

CORVALENT

Understanding the Texas Flood Emergency Warning Opportunity

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Flood risk is a regional and interconnected challenge. Rainfall and water-level changes may first occur in sparsely populated upstream locations before affecting downstream communities, transportation corridors, low-water crossings, drainage systems, schools, hospitals, public buildings, utilities, and emergency-response routes. When rural and urban monitoring systems operate independently, agencies may receive incomplete or delayed information about how an event is developing across the watershed.

An effective Flood Emergency Warning System should therefore connect upstream rainfall, creek, river, reservoir, drainage, and low-water-crossing data with downstream urban monitoring and emergency operations. Instead of viewing each sensor as an isolated device, public agencies need a common operational picture showing current conditions, historical trends, thresholds, asset health, geographic relationships, and potential downstream consequences.

The active Texas DIR contract DIR-CPO-6230 establishes a procurement path for Flood Early Warning Systems products and related services. The contract identifies Corvalent and BLCCS among the offered brands and encompasses hardware, SaaS, installation, implementation, monitoring, engineering, business and data analysis, reporting, software configuration, support, and testing.

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Integrated Ecosystem Partners (D.H. Collective, Projexel, Corvalent, BLCCS & Specialists)

DIR-CPO-6230
Active Texas DIR Procurement Contract Vehicle

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Single Pane of Glass for Flood Intelligence

SOURCES: Texas Department of Information Resources: DIR-CPO-6230; Deloitte Smart Cities & Urban Transformation; McKinsey & Company: Smarter Cities Are Resilient Cities.

CORVALENT

About Corvalent and the CorGrid Platform

Corvalent is an American technology company with 32 years of experience and an international presence, specializing in the development and integration of advanced IoT, AIoT (Artificial Intelligence of Things), and Edge Computing solutions.

Our key differentiator is our ability to combine industrial-grade hardware, edge intelligence, communications, software, analytics, and technical services into integrated Technology-as-a-Service ecosystems designed to address complex challenges involving automation, distributed asset monitoring, operational visibility, and real-time data management.

CorGrid is Corvalent's modular, scalable, and data-driven IoT platform. It functions as the central intelligence layer of our Smart Solutions, connecting sensors, gateways, assets, systems, users, and operational workflows within a unified environment. For Flood Emergency Warning Systems, CorGrid can provide a unified view of rainfall intensity, accumulated precipitation, creek and river levels, rate of rise, reservoir conditions, low-water crossings, drainage assets, field equipment, device connectivity, battery health, and communications status.

CorGrid supports flexible SaaS, TaaS, on-premises, and hybrid architectures. Its agnostic design allows it to integrate with existing sensors, telemetry platforms, GIS environments, third-party systems, communication networks, emergency-management tools, and legacy infrastructure, reducing the need to replace investments that remain operationally valuable.

Corvalent headquarters: engineering and technology development facility

How the Smart IoT Solution Strengthens Flood Preparedness

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INTEGRATED RURAL UPSTREAM AND URBAN DOWNSTREAM MONITORING

Rain gauges, weather stations, creek-level sensors, reservoir instrumentation, and watershed monitoring devices are correlated with downstream urban channels, stormwater systems, low-water crossings, roads, bridges, and critical facilities, creating a connected watershed perspective rather than isolated monitoring points.

02

A SINGLE PANE OF GLASS FOR FLOOD INTELLIGENCE

CorGrid consolidates telemetry from multiple sensor brands, communication technologies, departments, and jurisdictions into a unified operational environment covering current conditions, sensor locations, active warnings, trends, device status, and geographic risk areas.

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AUTOMATED THRESHOLDS, ESCALATIONS & RESPONSE WORKFLOWS

Configurable rules continuously evaluate rainfall, water levels, rates of change, and equipment status, triggering advisory, watch, warning, and critical alerts directed to the right personnel based on location, severity, and jurisdiction.

04

LOW-WATER CROSSING, ROAD & CRITICAL-INFRASTRUCTURE PROTECTION

Water-level sensors, cameras, warning beacons, and gate status connect to CorGrid to trigger alerts, update dashboards, create incident tickets, and activate compatible warning equipment for roads, bridges, drainage structures, and pump stations.

05

PREDICTIVE ASSET MAINTENANCE & SYSTEM READINESS

Continuous monitoring of sensor connectivity, battery level, signal strength, telemetry gaps, and device health helps maintenance teams act before a degraded sensor becomes unavailable, prioritizing field visits by risk and importance.

06

HISTORICAL ANALYSIS & CONTINUOUS IMPROVEMENT

Historical rainfall, water-level, alert, incident, and response information supports post-event analysis, infrastructure planning, grant applications, after-action reviews, and future system expansion.

Technology Stack and Architecture

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Water-Level and Flow Monitoring:
Radar, ultrasonic, pressure, and other hydrological sensors continuously measure water levels in creeks, rivers, channels, reservoirs, drainage structures, and low-water crossings, with rate-of-rise analysis beyond a simple high-water threshold.

Rainfall and Weather Monitoring:
Rain gauges and compact weather stations provide localized precipitation and atmospheric information, combined with water-level measurements to understand evolving watershed conditions.

Edge Computing and Local Automation:
Industrial edge devices collect and normalize field data, perform local calculations, preserve information during intermittent communications, and execute critical rules close to the monitored location.

Multi-Network Telemetry:
Cellular, radio, LoRaWAN, satellite, Ethernet, Wi-Fi, and other communication technologies are selected according to coverage, bandwidth, power, terrain, and resilience requirements.

GIS Mapping and Geospatial Intelligence:
Sensors, watersheds, roads, bridges, facilities, drainage assets, and risk areas are represented geographically, showing not only what is happening but where and which downstream locations may be affected.

Artificial Intelligence and Advanced Analytics:
Analytics identify abnormal patterns, correlate rainfall with water-level response, estimate propagation between locations, and prioritize alerts, augmenting rather than replacing the judgment of hydrologists and emergency managers.

Integrated Public Warning and Operational Communications:
CorGrid supports integration with approved notification, dispatch, incident-management, signage, beacon, messaging, and public-information systems, from field detection to coordinated communication.

Cybersecurity and Data Governance:
Role-based access, secure device communication, auditability, data ownership, integration governance, and system monitoring are essential components of a public-sector IoT environment.

TECHNOLOGIES: LoRaWAN, Cellular, Satellite, Radar/Ultrasonic Sensors, GIS, Edge Computing, AI/ML Analytics, Multi-Network Telemetry

Tangible Outcomes for Texas Communities

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Operational Efficiency

A unified platform reduces fragmented monitoring and gives emergency management, public works, transportation, and public-safety teams a consistent view of developing conditions.

Earlier Flood Awareness

Upstream monitoring can provide additional context and potential lead time before downstream roads, neighborhoods, and critical infrastructure are affected.

Predictive Maintenance

Continuous device-health monitoring helps identify weak batteries, communication failures, and degraded sensors before severe-weather events.

Infrastructure Management

Flood information connects to roads, bridges, drainage systems, utilities, public buildings, schools, hospitals, and emergency facilities.

Resource Optimization

Geographic risk information helps agencies prioritize field inspections, barricades, road closures, equipment deployment, and emergency personnel.

Sustainability & Resilience

Historical and real-time data supports informed infrastructure investments, watershed planning, and long-term community resilience.

Safety & Compliance

Automated alerts, auditable event histories, and structured escalation processes support consistent emergency procedures and accountable decision-making.

Interagency Coordination

Shared dashboards and standardized information enable multiple departments and jurisdictions to collaborate from the same operational picture.

Scalable Smart-City Foundation

The same CorGrid environment can later incorporate additional Smart City capabilities, including public safety, environmental monitoring, and mobility.

Research, Benchmarks and Innovation Potential

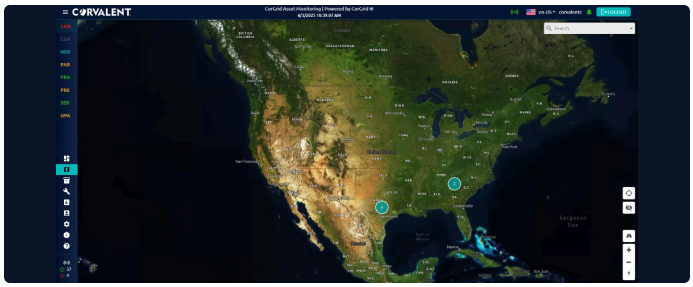
This initiative aligns with broader smart-city and resilience strategies. Deloitte describes modern urban transformation as a convergence of sustainability, infrastructure, digital modernization, artificial intelligence, cybersecurity, and advanced connectivity, with cities investing in real-time monitoring and advanced warning capabilities to reduce the effects of extreme weather.

McKinsey similarly emphasizes that cities should develop a clear understanding of climate risk, incorporate those risks into planning, and implement early-warning systems, highlighting the role of technology and data in preventive action, emergency response, infrastructure reliability, and long-term resilience.

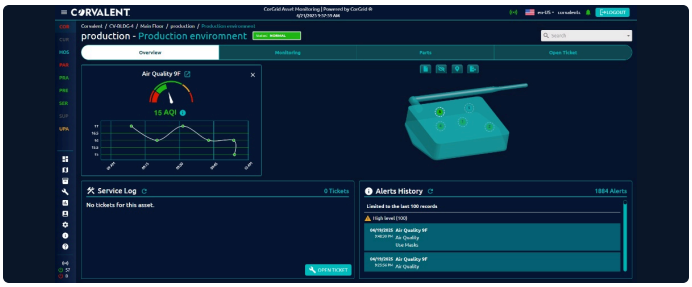
The convergence of watershed monitoring, industrial IoT, edge computing, geospatial intelligence, real-time analytics, and coordinated emergency management creates an important opportunity for Texas communities to modernize their flood-preparedness capabilities, establishing a scalable flood-intelligence foundation that connects rural upstream conditions with downstream urban consequences.

APPLICABLE INSIGHT: *Communities can begin with a Discovery & Technical Alignment Workshop focused on priority watersheds and flood-prone corridors, validating an initial proof of concept before expanding across the full jurisdiction.*

SOURCES: Texas DIR: DIR-CPO-6230; The D.H. Collective: Texas FEWS Contract; Deloitte: Smart Cities & Urban Transformation; Deloitte Insights: Five Approaches for Climate-Resilient Cities; McKinsey: Smarter Cities Are Resilient Cities; McKinsey: Ensuring Adaptation and Resilience to Climate Change; NOAA / Natural Hazards Review: Economic Value of Flood Forecasts and Early Warning Systems.



CorGrid® asset monitoring map view across multiple regions



CorGrid® real-time flood-intelligence dashboard

Suggested Implementation Roadmap

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We recommend a phased approach that allows validation of results, investment management, and continuous learning before expanding across an entire jurisdiction or watershed region.

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PHASE 1: DISCOVERY & TECHNICAL ALIGNMENT WORKSHOP

Representatives from emergency management, public works, stormwater, transportation, IT, GIS, public safety, engineering, and procurement identify priority watersheds, flood-prone corridors, low-water crossings, and critical facilities; review existing sensors, telemetry, GIS, and communications infrastructure.

02

PHASE 2: THRESHOLDS, KPIs & PROOF OF CONCEPT DESIGN

Definition of operational thresholds, users, notification paths, and escalation procedures; establishment of measurable KPIs including warning lead time, data availability, alert latency, acknowledgment time, and network readiness.

03

PHASE 3: PILOT PROOF OF CONCEPT

Design and deployment of an initial proof of concept connecting selected upstream and downstream monitoring locations, validating CorGrid configuration, integrations, alerting, and dashboards under real conditions.

04

PHASE 4: PHASED ROADMAP & PROCUREMENT UNDER DIR-CPO-6230

Development of a phased implementation roadmap and procurement strategy under the applicable Texas DIR contract, scaling the validated model across additional watersheds, corridors, and jurisdictions.

Innovation Potential and Next Steps

Rather than implementing another isolated monitoring system, agencies can establish a scalable flood-intelligence foundation that connects rural upstream conditions with downstream urban consequences. The immediate objective is earlier awareness and better operational coordination.

The long-term opportunity is a resilient Smart City environment where flood data becomes part of a wider system for infrastructure management, public safety, transportation, utilities, and community protection. Corvalent, alongside the D.H. Collective ecosystem, is ready to build this journey in partnership with your community.

What would be the best date and time to meet with your emergency management, public works, and information technology teams to begin a Discovery & Technical Alignment Workshop?

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