SYNOPTICFEED

3.1

Decision-support for NJ emergency management

Turns official NWS alerts into NJ-localized impact triage and EOC-ready operational briefs that export into existing workflows.

Prepared for the NJ AI Innovation Challenge

The Problem: Information Overload

- NWS issues dozens of alerts across NJ zones → duty officers must manually cross-reference each one
- No automated mapping to local jurisdictions, critical facilities, or vulnerable populations
- Shift-change briefings require 30-60+ minutes to compile manually
- Cognitive overload during high-tempo weather events increases error risk

$29.4B

Hurricane Sandy damage in NJ alone. One of many billion-dollar weather disasters impacting NJ.

Target Users & Current Workflow

County and municipal emergency management in New Jersey

Emergency Operations Center (EOC) officers and Emergency Management Coordinators have 3 key stages in their current workflow:

STAGE 1

Monitoring

Continuous scan of National Weather Service (NWS) alerts, forecasts, and model outputs

STAGE 2

Escalation Decision

Triage ranked list helps decide which alerts warrant immediate action

STAGE 3

Shift-Change

One-page brief for handoff, exportable to WebEOC or PDF

Key Insight: Duty officers need NJ-localized context, not just raw NWS data. SynopticFeed bridges the gap between national alerts and local operational decisions.

Solution Outputs

Decision artifacts that export into existing workflows

Ranked Priority List

"Where to focus now" with hazard type, severity, timing, exposed assets, and confidence levels

- Hazard type & severity
- Timing & duration
- Exposed assets & populations
- Confidence score with citations

One-Page Impact Brief

Situation summary, official triggers, top priorities, expected impacts, recommended actions

- Situation summary
- Triggers & thresholds
- Priority impacts by area
- Recommended actions

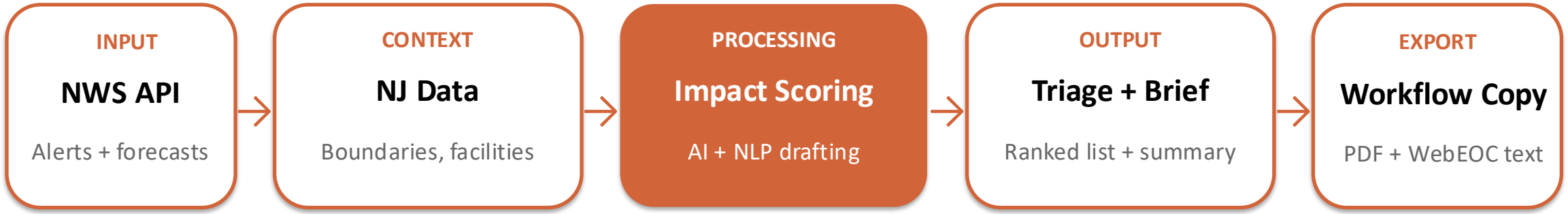
Export/Copy Pack

PDF and formatted text ready for pasting into WebEOC-style workflows

- PDF for print/archive
- Formatted text for WebEOC
- Email-ready summary
- Audit trail & timestamps

How It Works

From official data to actionable decision artifacts



AI Technologies:

Data-Driven Insights

Impact scoring + prioritization based on NJ-specific context layers

NLP / Generative AI

Brief drafting with human-in-the-loop review before export

Learning + Adaptation

Future: Operator feedback improves scoring models over time

Official NWS trigger ▸ Trusted Source

Cited sources ▸ Traceable Outputs

Human-in-the-loop ▸ Operator Review

NJ Data Sources

All public, official datasets — no proprietary or classified sources

OFFICIAL TRIGGER

NWS API

- Active alerts
- Zone forecasts
- Hazard polygons

api.weather.gov

NJ CONTEXT LAYERS

Municipal Boundaries

NJGIN Open Data

Critical Facilities

NJ OEM / HSIP

Flood Hazard Zones

FEMA NFHL

Population Data

US Census / ACS

Transportation

NJ DOT / NJGIN

Historical Events

NOAA Storm Events DB

Acute Care • Child Care • Long-Term Care • NJ Municipal Boundaries • NJ DEP (Flood Data)

Measurable Impact & Impact Goals

46%

of EMS provider fatalities (2013-2017) related to motor vehicle incidents

~29/yr

ambulance crashes per year in NJ involving injury

How SynopticFeed will help

Time Savings

Reduce shift-change briefing prep from 30-60 min to under 5 min

Coverage

100% of active NWS alerts mapped to NJ jurisdictions automatically

Validation

2-5 NJ county OEM interviews to validate workflow fit and usability

NJ experiences frequent billion-dollar weather disasters. Better decision-support enables faster, more targeted response without increasing unnecessary exposure.

Differentiation

WHAT WE ARE

Decision Artifact Generator

- Turns NWS alerts into NJ-localized impact triage
- Creates one-page EOC-ready operational briefs
- Exports to existing workflows (WebEOC, PDF)
- Human-in-the-loop review before action

WHAT WE'RE NOT

Not replacing WebEOC

Incident management stays where it is

Not replacing Everbridge

Public alerting is a separate function

Not replacing ArcGIS

Full GIS analysis is beyond our scope

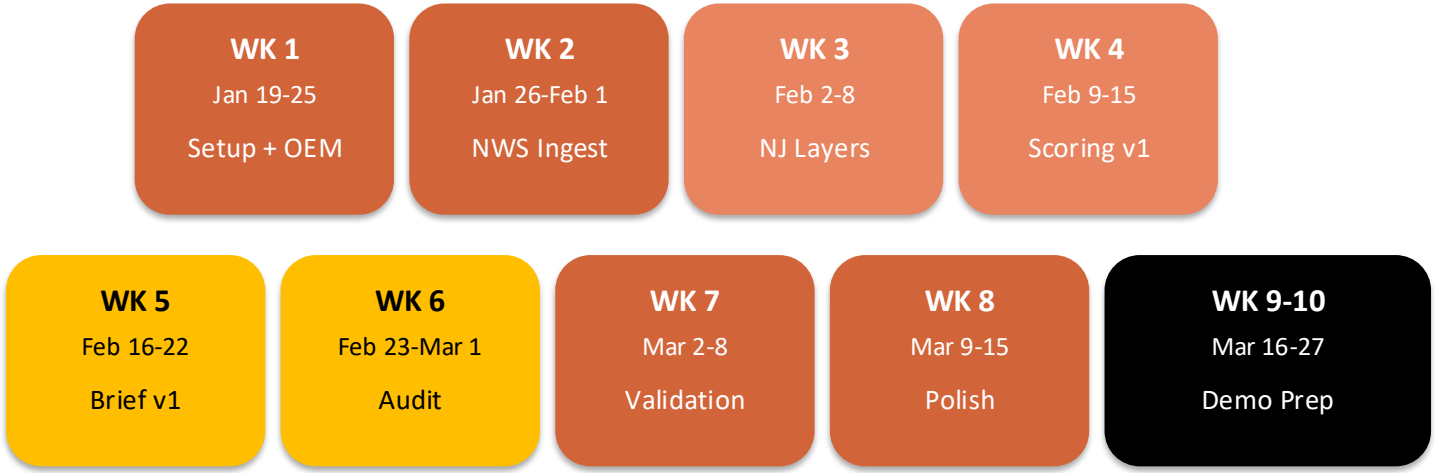
Not replacing NWS

We consume NWS data, not create forecasts

We generate decision artifacts that operators can export/copy into their existing tools and workflows.
We are not replacing Human input or current Mission-Critical Platforms.

MVP Plan to Demo Day

Target: March 27th, 2026 → 10 Week Sprint



Data Foundation

- NWS API integration
- NJ municipal mapping

Core Product

- Impact scoring + triage
- Brief generator + export

Security & Audit

- Access control + logs
- Traceability layer

Demo Ready

- OEM interviews (2-5)
- Polish + demo script

Demo Day Deliverable: Working prototype with NWS → Triage → Brief → Export workflow for NJ counties

Team, Budget, and Ask

Team:

Akbar Pathan

Founder/Lead

AI/ML decision layer + product

Omar Abdelmotaleb

Technical Lead

Platform/infra/devops

Muhammad Elfayoumi

Data Pipeline Manager

Data ingestion + validation

edda

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