O'Hare Modernization Program (OMP)

O'Hare Runway Operations

Presented to: ONCC Daytime Noise Committee

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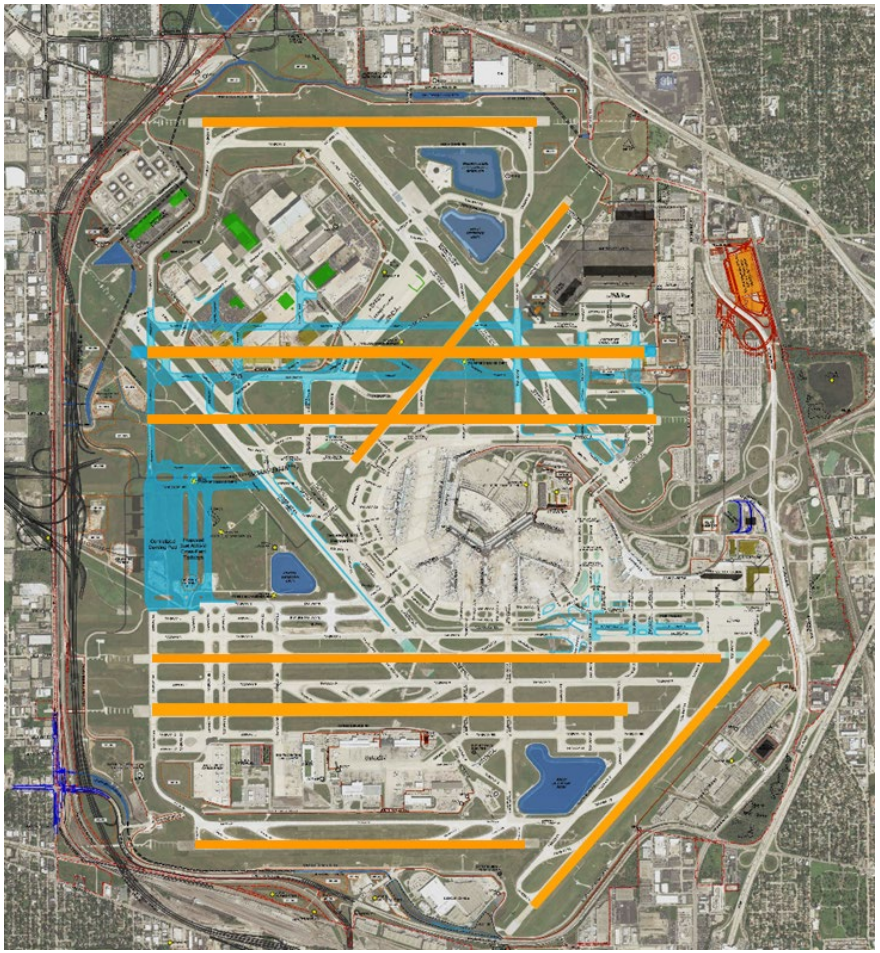
Date: May 12, 2022

Overview

- **Airport Layout**
- **Wind Patterns**
- **ORD Configurations – East/West flow**
- **Decision Factors and Variables**
- **Timing and Execution**

Runway Layout at ORD

- **Historic wind direction**
- **Parallel runways**
- **Crosswind runways**



Wind Patterns

- **Historically winds favor an east/west traffic flow approx. 94% of the time.**
  - East 37% and West 57%
- **The remaining 6% are conditions where some form of north/south flow could exist.**
  - North 2% and South 4%
- **In 2021 the conditions triggered the approx. configuration breakdown of:**
  - East: 42% West: 58% North: <1% South: 1%

ORD Configurations

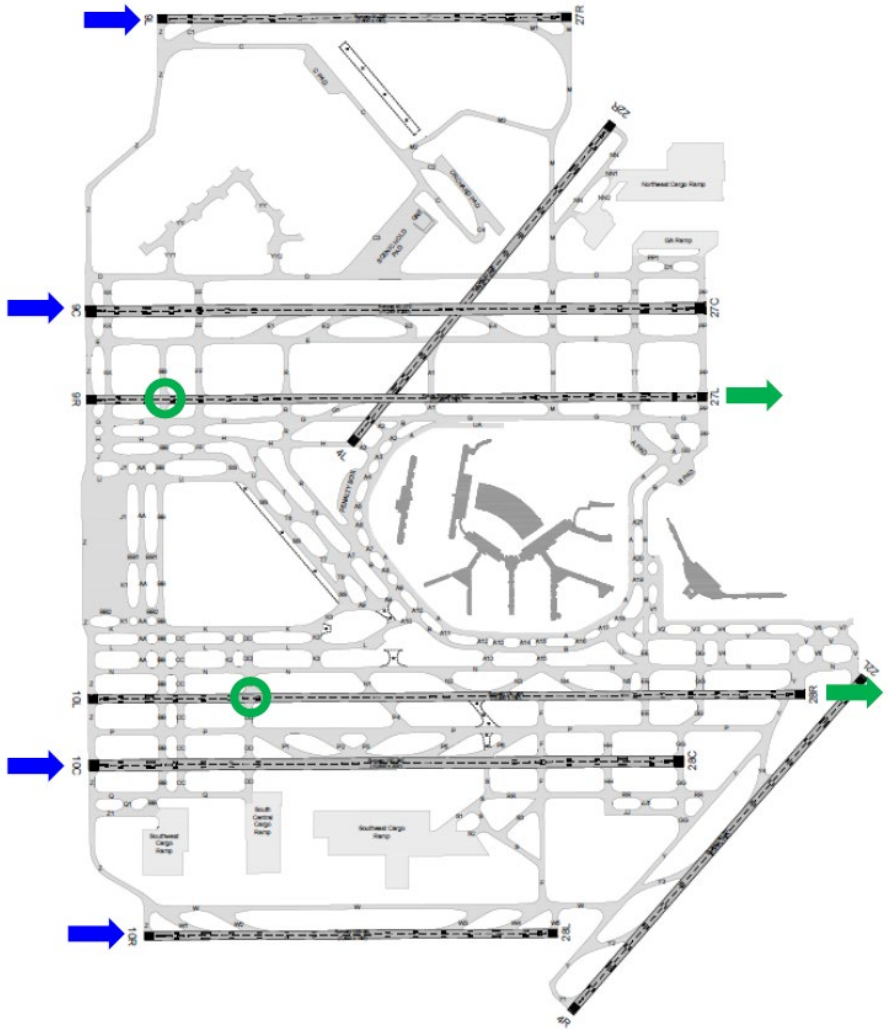
East Flow

Landing: 3 runways ONLY

Departing: 9R & 10L

- **Intersection departures**
  - 9R@BB = 9,870’
  - 10L@DD = 10,093’
- **Arrivals cross behind departures**
- **Multiple arrival runway combinations**
  1. 9L, 10C, 10R*
  2. 9C, 10C, 10R*
  3. 9L, 9C, 10C
  4. 9L, 9C, 10R

*preferred combinations, tactically decided based on traffic



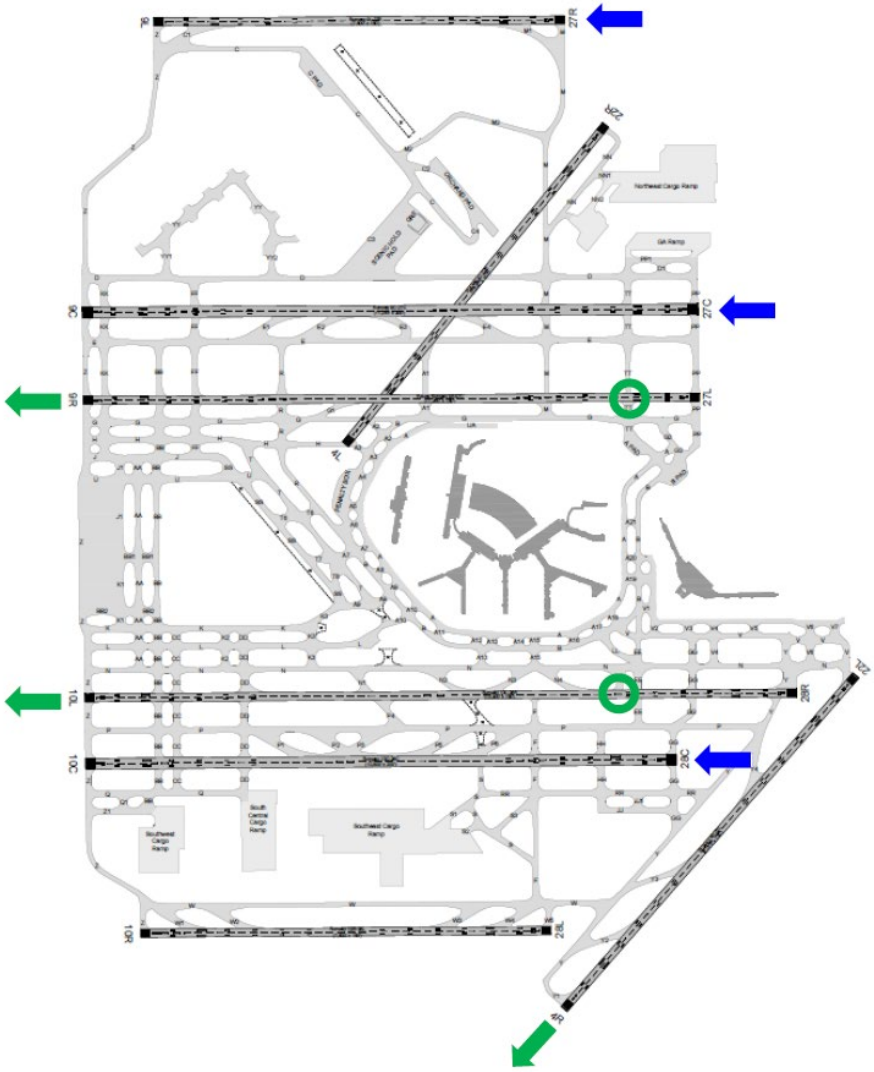
ORD Configurations

West Flow

Landing: 27R, 27C, 28C

Departing: 22L, 27L, 28R

- **Intersection departures**
  - 27L@TT = 9,961’
  - 28R@N5 = 9,784’
- **Arrivals cross behind departures**



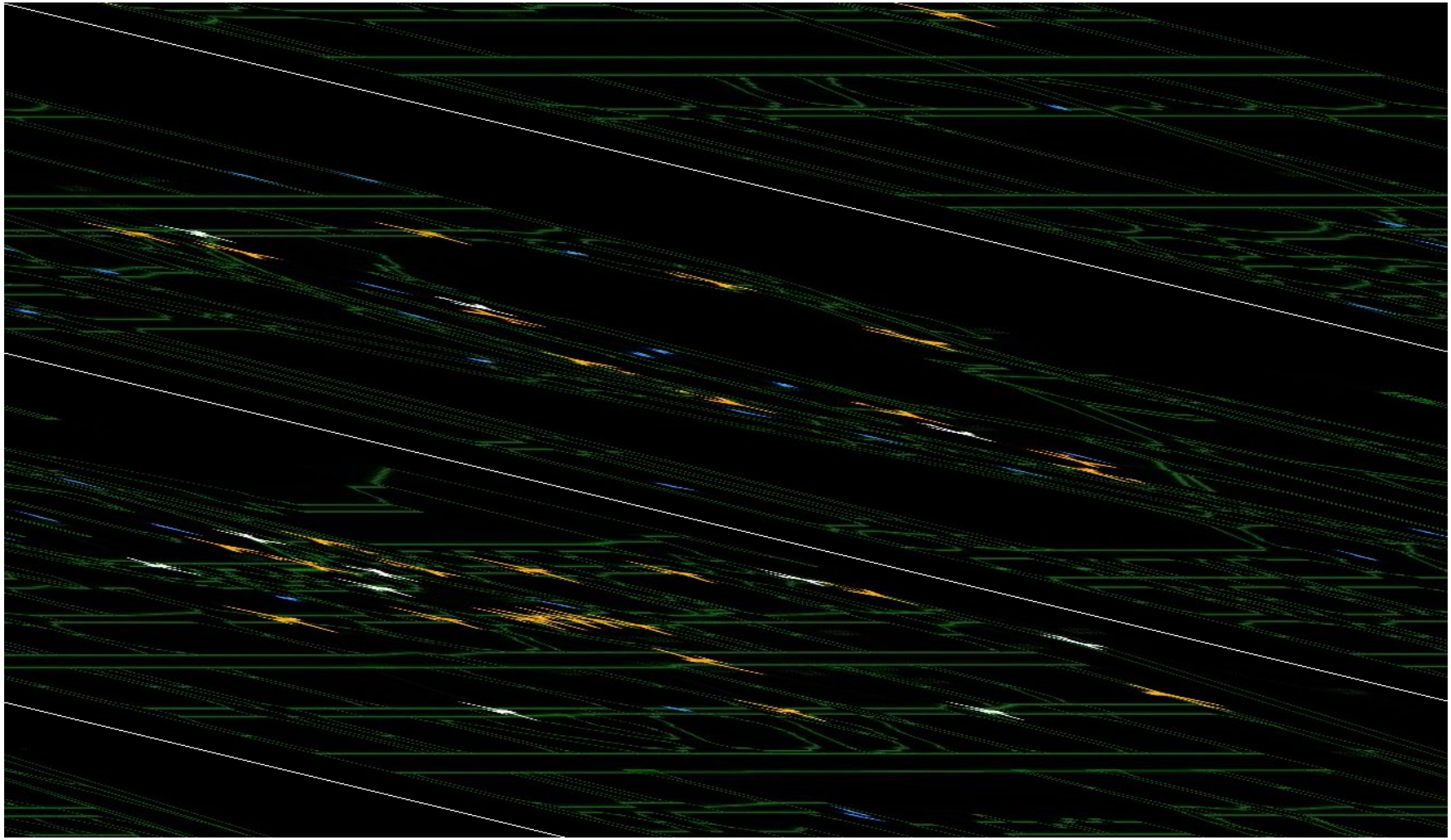
Decision Factors and Variables

- **Configuration decisions factor in various variables, including but not limited to:**
  - Weather forecast
    - Wind forecast (direction/speed/gusts)
    - Convective activity encroaching on terminal area
    - Variable weather components affecting wind/terminal:
      - i.e. Thunderstorm outflow, lake breeze, etc.
  - Operational triggers
    - Arrival/departure demand
    - Runway “Refusals” and “Go-Arounds”
    - Surface conditions
      - i.e. breaking action, LAHSO, etc.

Decision Factors and Variables

- **Configuration changes factor in numerous interdependent variables**
  - Weather forecast/actual conditions
    - Timing of wind shift
    - Confidence in forecast
    - Demand at time of wind shift
  - Surface Impacts
    - Restage traffic already taxied out
    - Manage terminal surface and core congestion
    - Adjust/re-establish taxi and ramp flows
    - Adjust fix balancing measures for new configuration

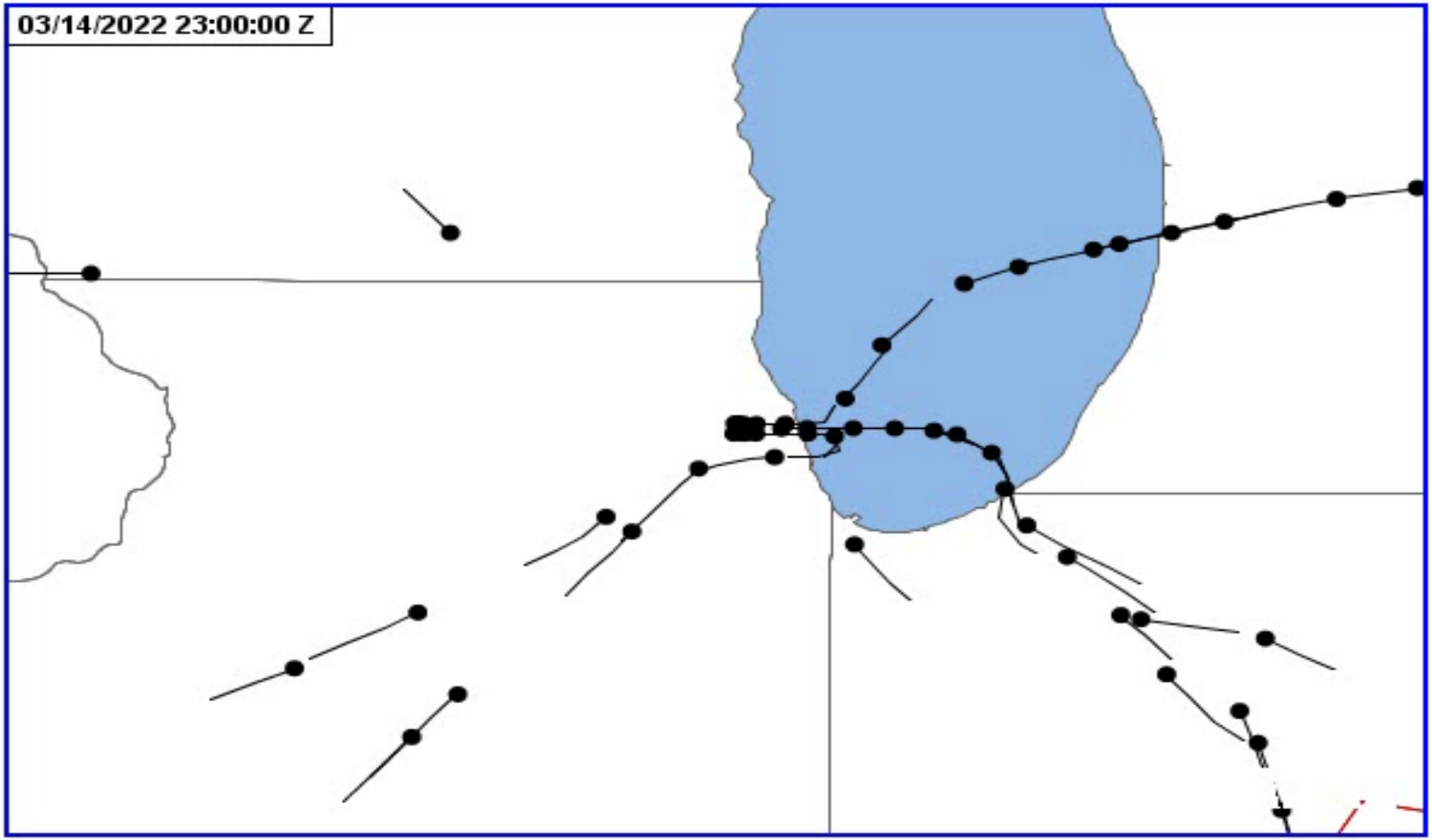
March 14, 2022 Surface



Decision Factors and Variables

- Airborne Constraints
  - Airborne inventory
  - Aircraft on final
  - Ability to execute airborne holding
    - En route traffic saturation
    - En route weather conditions
      - » i.e. icing, turbulence, convective activity, etc.
  - Diversion capacity

March 14, 2022 Airborne



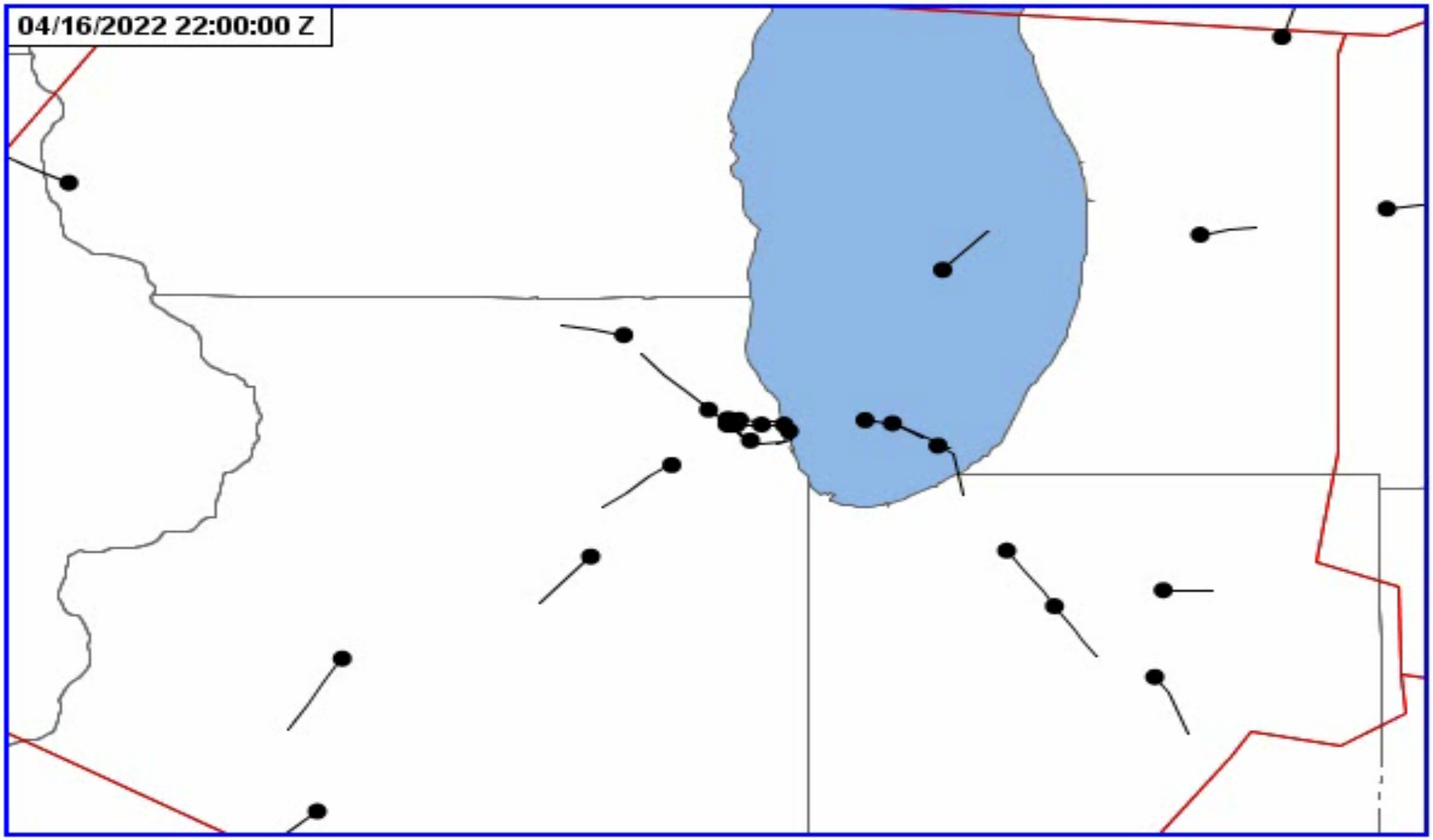
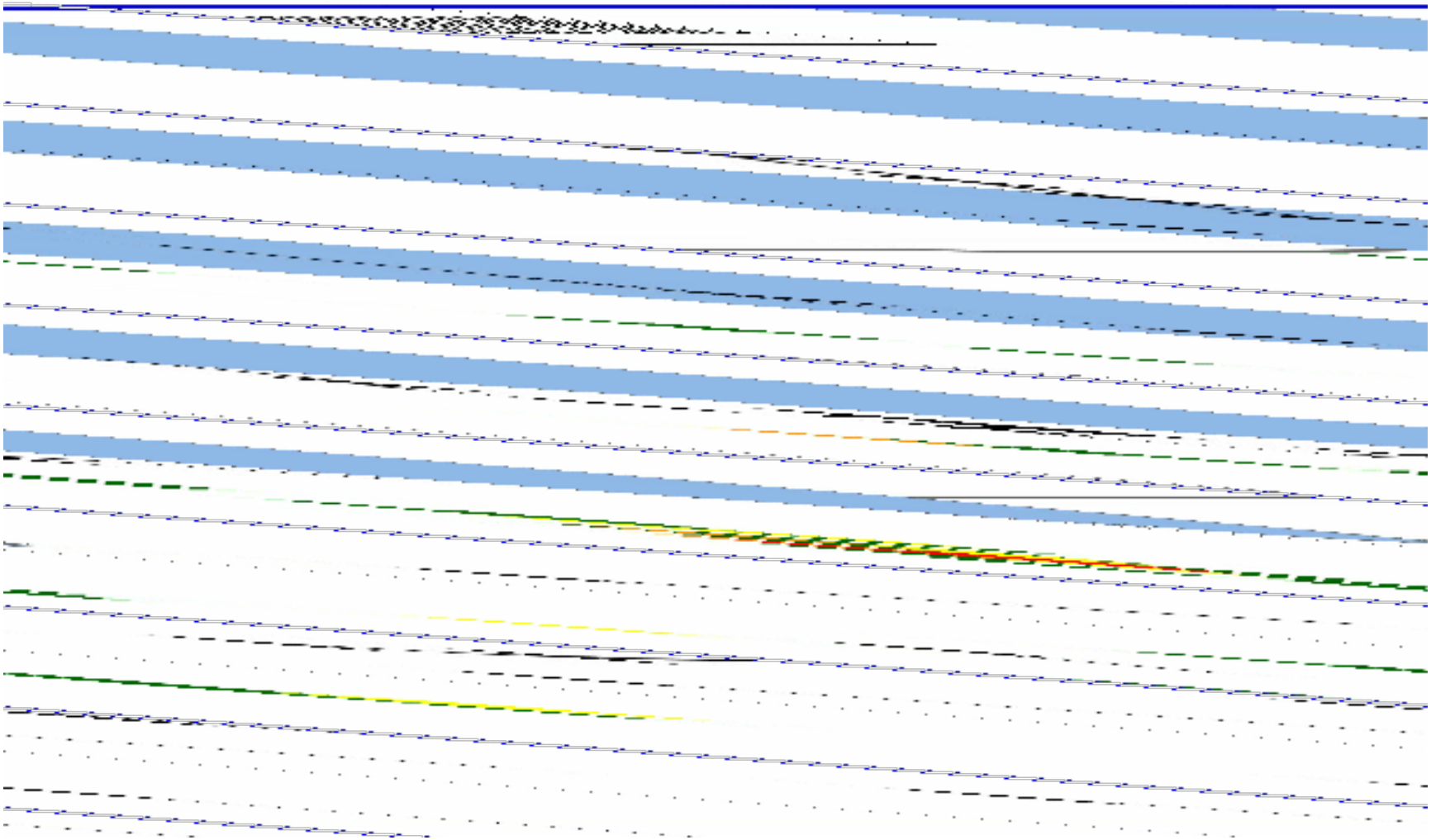
Timing

- **Ability to preplan for a configuration change is the primary driver of how long one may take.**
  - Forecast and in a low demand period it may take as little as 10 minutes.
  - With short-notice weather change and in a high demand period the configuration change and subsequent impacts to the system could last well over an hour.

Execution

- **A configuration change involves coordination with numerous entities responsible for the safety and integrity of the National Airspace System.**
  - KORD ATCT, Chicago TRACON, Chicago ARTCC, FAA ATCSCC
- **Other expertise included as needed:**
  - National Weather Service forecast units (CWSU, ATCSCC Forecasters, etc.)

Lake Breeze



Forecast Wind Change