Data sources:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item** | **Notes** | **Link** | **System** | **Type** |
| Sub-Regional Mutual Aid Coordinator Duties | Includes links to resources on last page | [Copy of Subregional Mutual Aid Coordinator Duties](https://docs.google.com/document/d/1Nk9iKkoNJC18uNMgdXSgbMzjwWnBbFL8-qmH51AYUOk/edit?usp=drive_link) | Google Drive | Guidelines |
| PMEFs | Need to check with National map options | [CR Critical Products List](https://docs.google.com/document/d/1b3rFZ3gs_nLdl1QY2mdTWW0on0AnRksNTkzP0hhu9U4/edit?usp=sharing) | Google Drive | Guidelines |
| Service Level Standards |  | [Service Level Standards and Reduced Service Operations Final Version 4092025 SIGNED](https://docs.google.com/document/d/1-ITRti2RKbgaqdvGhon2Wy3gfDQJ7NSsbOYdNlpQnUY/edit?tab=t.0) | Google Drive | Guidelines |
| Service Back up and Mutual Aid Directive | Used to make CR Critical Products List | [national weather service central region supplement 02-2004](https://www.weather.gov/media/directives/010_pdfs/pd01022001c022004curr.pdf) | pdf | Guidelines |
| CR Shift Designator | May be close, but not the same as other regions | [CR Shift Designator Master Legend](https://docs.google.com/spreadsheets/d/1iIbLatIK9qBiLMgek65loXsuRXpEj2bL7zsiAZYkwPs/edit?pli=1&gid=0#gid=0) | Google Drive | Guidelines |
| Central Region Schedules |  | [CR Schedules](https://drive.google.com/drive/folders/1VUm8wBu-IDZVBknc6RQ8SbL2VfShuTI4?usp=drive_link) | Google Drive | Input |
| CR Staffing Spreadsheet |  | [Copy of CR Future Stats](https://docs.google.com/spreadsheets/d/1tnYQrne3xrEULkR9DhmOCVRxazjly-yjxW6dkMmOiCg/edit?usp=sharing) | Google Drive | Input |
| AWIPS Backup | Check to see if this matches up -> flag for human Use as a factor in recommending schedules (however can be false positives often, backup may start ingesting just in case) | <https://script.google.com/a/macros/noaa.gov/s/AKfycbw9oX1HbN0DAOVdC3s9e97Jmu-L-tq46rfuGstb3VLTwCyeFjfKWm-z_k5JXW3pzF8/exec> | noaa.gov link | Input |
| Current Reduced Service Operations |  | [Reduced Service Operations Document](https://drive.google.com/drive/folders/159gJDRgDlcBo98h2AxgWtMbYl1Qii_zc?usp=sharing) | Google Drive | Input |
| TDY | Captures temporary assignments and changes in office status - when TDY confirmed, need to update schedule, change status of office (Mutual Aid Option Status) - scripts imbedded currently, creates a document every time someone is approved to populate the travel approval form | <https://docs.google.com/spreadsheets/d/1GF5n2JYvtogWcGaQ9M__wsCNESRwQ9ErELUIiNdod5s/edit?gid=1301725691#gid=1301725691> | Google Drive | Input - Can be refactored |
| TDY Planner |  | [TDY Planner](https://docs.google.com/spreadsheets/d/1fCaiCLkV1pXDYqSUX7-G1biPAa5NiGZ8dt8yUaLa664/edit?usp=sharing) | Google Drive | Input - Can be refactored |
| Inital Schedule Format | In the future, have the outputted schedule align with the office's preferred format. Start with this to prove out the process. | [Copy of DLH 2025\_Schedules](https://docs.google.com/spreadsheets/d/1pEeyYCYZkbIJPyiCd8UgsAd4hrBLuOTEnk9cRElmDB8/edit?usp=sharing) | Google Drive | Output |
| CR IAP |  | [2025 Mutual Aid IAP](https://docs.google.com/spreadsheets/d/199yTzh3rwbVBWKARTgZoPVi5s_AMcSL6bB2e7lfycbI/edit?usp=sharing) | Google Drive | Output - can be refactored |
| Mutual Aid Options Status | Copy of operational sheet | [Copy of Mutual Aid options coordination sheet](https://docs.google.com/spreadsheets/d/1SQ-aAPi4ooV_vMglWnYxF2aczPOiAMIterO_xN7YkQo/edit?usp=sharing) | Google Drive | Output - can be refactored |
| NWS Connect |  |  | System | Output - connection in the future with incorporating the National Operational Readiness Dashboard |
| One Page Report for each WFO - status, upcoming status, and changes (TDY, balloon launches, etc.) |  | [Does not exist in standard format, example of content: Goodland TDY Summary](https://docs.google.com/document/d/17qcbv1PJlP33gUARaioQvF1I9n2QpJtHC_fP-02q4pI/edit?pli=1&tab=t.0) | Example in Google Drive | Output - make this nice- connection in the future |
| National Operational Readiness Dashboard |  | [https://experience.arcgis.com/experience/e4247d98487a4cc3acea50be4cf1b73a/page/WFO Instructions Operational Readiness Dashboard Form](https://docs.google.com/document/d/1yYxQVlNuRoJAPz8urXrdW5TG4Ye-8STBF50IFhEsTm0/edit?tab=t.0) | Link/Google Drive | Output - populate this map |
| Reduced Service Operations | Filled out if staffing goes below levels outlined in the Service Level Standards. Agreement between buddy offices to regularly provide mutual aid. | [Reduced Service Operations - Draft Template](https://docs.google.com/document/d/1k2V42-D3PG5zJ1aowh3TesL9Bqwo5KKvuTK7RcNZJXQ/edit?tab=t.0) | Google Drive | Output - Required |
| Southeast Reduced Service Operations | Example of one filled out | [Copy of Southeast Reduced Service Operations](https://docs.google.com/document/d/1aFjqDNcJqxikSs-8IV9rLpV-D1P9QT5sYht-T_JTMeA/edit?usp=sharing) | Google Drive | Ouput - Example |
| NWS Rolling Operational Realities Document | Meant to be sunset with the National Operational Readiness Dashboard | [Rolling NWS Operational Reality](https://docs.google.com/document/d/12fMSoNZPB6v-Za1ZAFz0tUZ3mR0SgoxxdU8_uGA_Ksg/edit?tab=t.o6l50wa906m) | Google Drive |  |

Current process:   
Diagram

AI-generated content may be incorrect.

**Business Case**: With limited staffing and large regions, it is becoming increasingly difficult to manage mutual aid needs to ensure continuous delivery of Primary Mission Essential Functions (PMEFs) in Weather Forecast Offices (WFOs) and River Forecasts Centers (RFCs). This project seeks to reduce the time required to manage mutual aid by automating draft schedules, plans, and documentation, predicting needs, and forecasting office risks. The primary desired outcome is a decreased level of effort to coordinate large-scale mutual aid.

**High Level Requirements (Phase 1)**:

* Have an interface to input and visually see base schedules and constraints (ex. Vacation, deployments) as well as be able to compare schedules between multiple offices
* Take a base schedule and draft alternative plans based on requests for Mutual Aid and the type of services that need to be covered, including a request to transfer services to another office for a specific period of time or a request to add a Subject Matter Expert (SME) to support an office for a specific event.
* Continuously check schedules, either inputted or created by the system, for compliance and propose adjustments based on known constraints.
* Allow a user to adjust a draft schedule and plan and for select users to approve the plans.
* Once approved, generate an Incident Action Plans (IAP) in the current template, display them on a map, and allow for custom templates to be designed.

**System Requirements**

* The system must interface with NWS Connect, both storing data within the system and publishing to the map interface.
* The system must be designed to be expanded into future phases that leverage increased AI capabilities.

**Propsed solution:**   
AI Agent or workspace automation to load idiosyncratic forecasts to central hub​

1. AI Agent to identify potential mutual aid needs in hub​
2. AI Agent to pre-generate mutual aid requests from known business rules and optimization solver for review in custom UI​
3. UI to review/update/approval of coverage requests for rapid management of aid requests at a WFO and RCC level.

the proposed solution is just a placeholder and idea.

Curernt Process:

Diagram

AI-generated content may be incorrect.

Diagram

AI-generated content may be incorrect.

A picture containing diagram

AI-generated content may be incorrect.

Options to prioritize RPA to generate initial standard schedules would involve finding gaps based on the known constraints – this is a hard process because there are many constraints at different levels – for the office, for the individual staff members, for the union negotiating for the office.

One initial plan is to go from base schedule (a standardized monthly input of expected hours)

* put requirements on initial planning schedule including these common constraints:
* basic office needs (lead forecaster, etc)
* individual needs/roles/preferences (the staff member’s constraints)
* equity to distribute (constraints across the staff – can’t stick one person with the worst shifts!)
* negotiation of needs based on bargaining unit negotiation
* Controled by local unions, which leads to massive non-standardization
* Per Trevor Boucher - may need to start with a single office - they don't like/want to adopt without obvious benefit
* add scheduling preferences and accommodations of bargaining units

If this can be put in place – it’s a huge speed-up and reduction of manual effort in the initial phase – and an opportunity to standardize initial schedules to make later stages much much easier.  The plan is to get to a custom schedule document with identified gaps that can be the basis of initial documentation, notifications, and learning to iterate on a better, faster, more acceptable solution.

One note to remind for all of this – if we figure it out for a small set of offices, can win over the region, if we can win over one region, can win over multiple – much variation within and between regions leading to the need to build momentum and slowly expand scope.

**Core challenge:** Regional operational centers (ROCs) and Weather Forecast offices (WFOs) are pinched for staffing yet must staff to specific levels to cover forecasts across multiple shifts and across roles (e.g. always need a lead forecaster, need 2 people to raise a weather balloon, etc).  Needs can be elevated when severe weather events happen – and impact the ability of nearby areas to support (because they’re also impacted by the severe weather). Coordinating support is a manual effort involving completing a “Mutual Aid Request” and often involves discussion among WFOs and multiple phone calls.

This process is made extra challenging as staffing and planning are all done via idiosyncratic google-docs spreadsheets (documented differently at each WFO, although they’re starting to standardize a format).  There are some ad-hoc dashboards built around these spreadsheets – but most forms and documentation are done manually, as is the coordination to produce the requests.

This is an urgent need – as some WFOs are having to go dark for some shifts, or not take atmospheric measurements (raise weather balloons). Limited tools to support/mitigate this issue have been developed in the last 7 days, but are all ad-hoc.

**Goals:**

1. **RPA:** automate production of mutual aid requests (and streamline the sharing of staffing information to support mutual aid requests)
2. **Staffing Forecasting:** predict upcoming needs for mutual aid requests based on staffing, severe weather forecasts, and historical request likelihood
3. **Scoring:** generate operational risk scores for WFOs and ROCs based on previous request history to position resources (IT, Admin) to best support offices for long term planning

**Current Inputs**

Current plan for Phase 1: Automation of mutual aid requests:

* system will collect relevant inputs from WFO/ROC staffing systems (staff-per-shift needs, expected staffing with planned leave)
* upon request, system will draft mutual aid documentation for WFO, for ROC coordinator to review (GENAI structured output with description of planned request, and recommendation of WFOs that might support the request)
* add map to display staffing levels of nearby WFOs that might be able to support request (and/or a tool to streamline identification and selection of aid)
* One existing central system - NWS connect- has requirements about staffing support – this system could fit to become a part of NWS connect