

# Value of FAA Traffic Flow Management in Accommodating High Demand in Complex Airspace

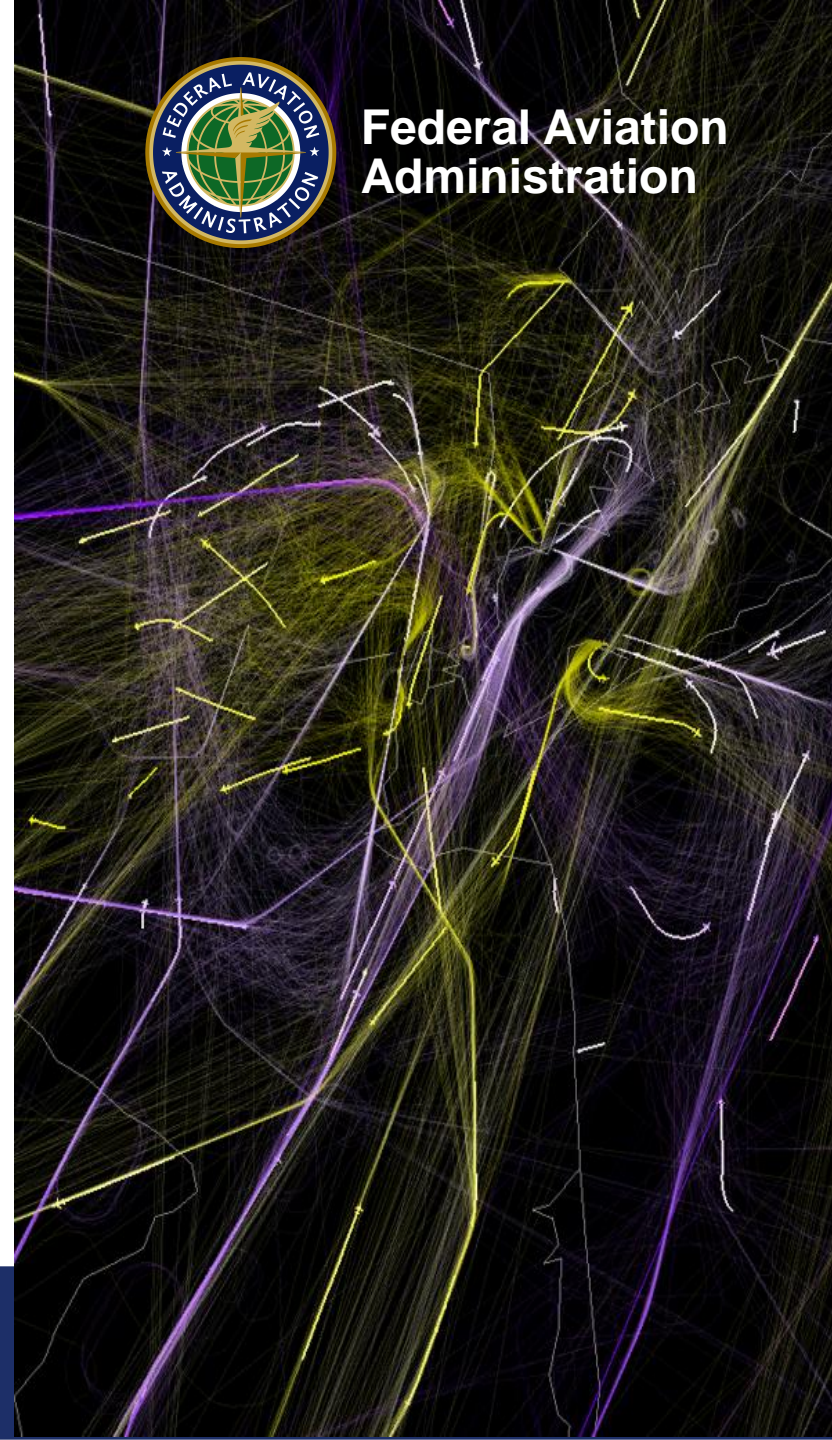
Presented to: Global Challenges to Improve Air Navigation Performance Workshop, Asilomar Conference Grounds, Pacific Grove, CA

By: Leo Prusak, Manager of Tactical Operations Northeast U.S., Air Traffic Control System Command Center, FAA

Date: February 11, 2015



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# Agenda

- Operational perspective and constraints
- Understanding weather impacts
- Testing new tactics
- Metrics and outcomes
- Developing successful strategies



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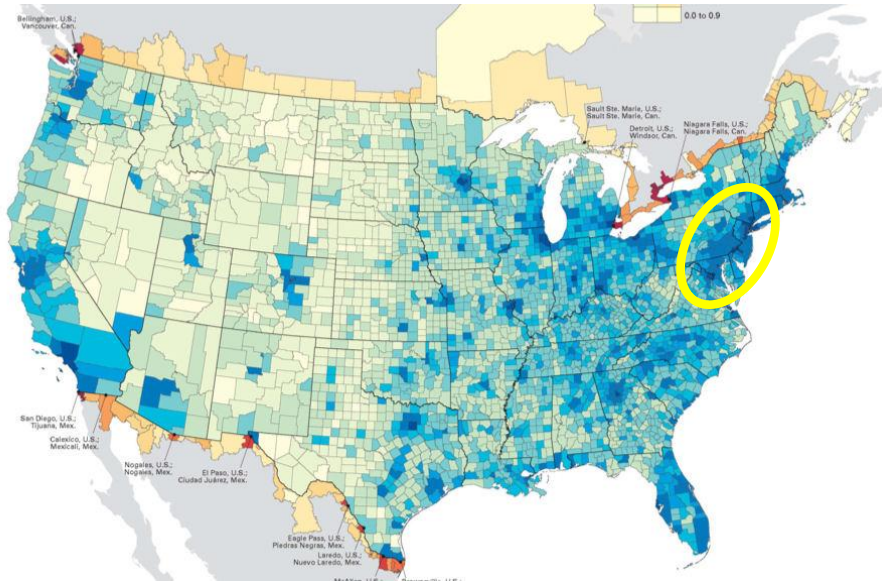
Complex air traffic operations in the northeast U.S. often result in delay, disruption, and a frustrating travel experience.

There are no simple answers.

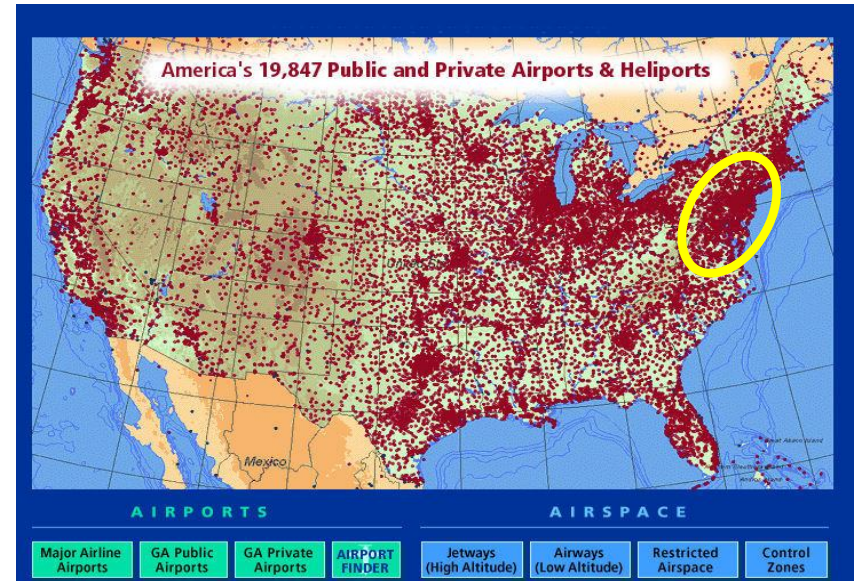




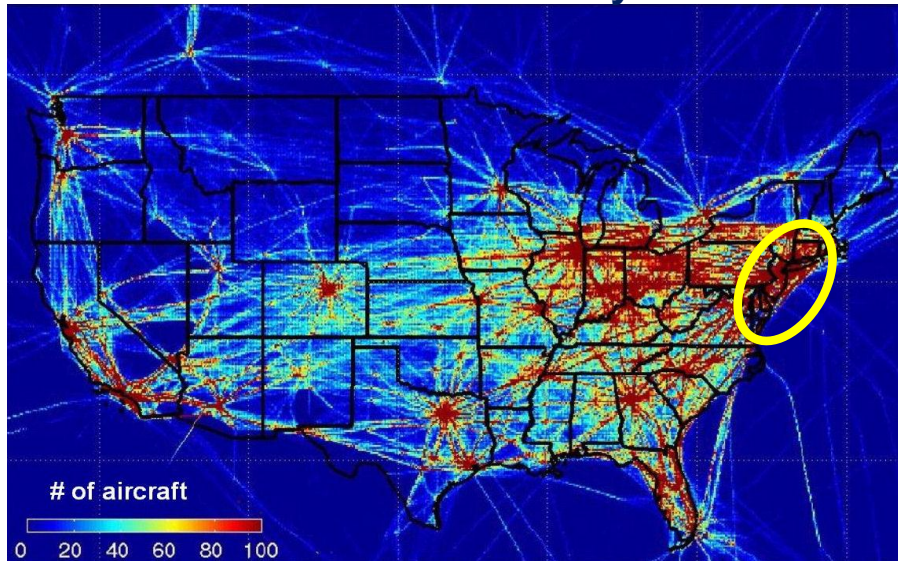
# U.S Population Density



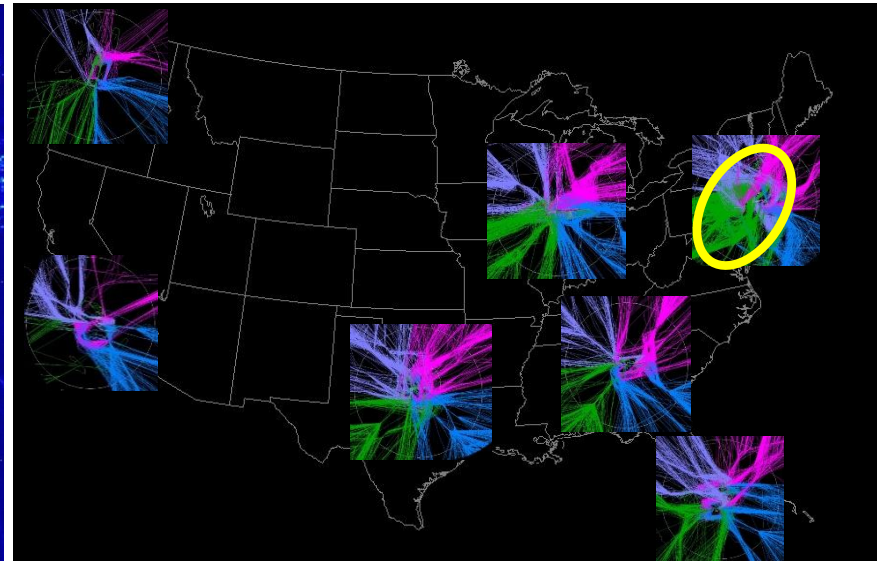
# Airport Density



# Air Traffic Density



# Airspace Density



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825 feet

CSX and commuter Rail

Newark Airport Runways

New York Harbor, Port Newark

New Jersey Turnpike

Google earth

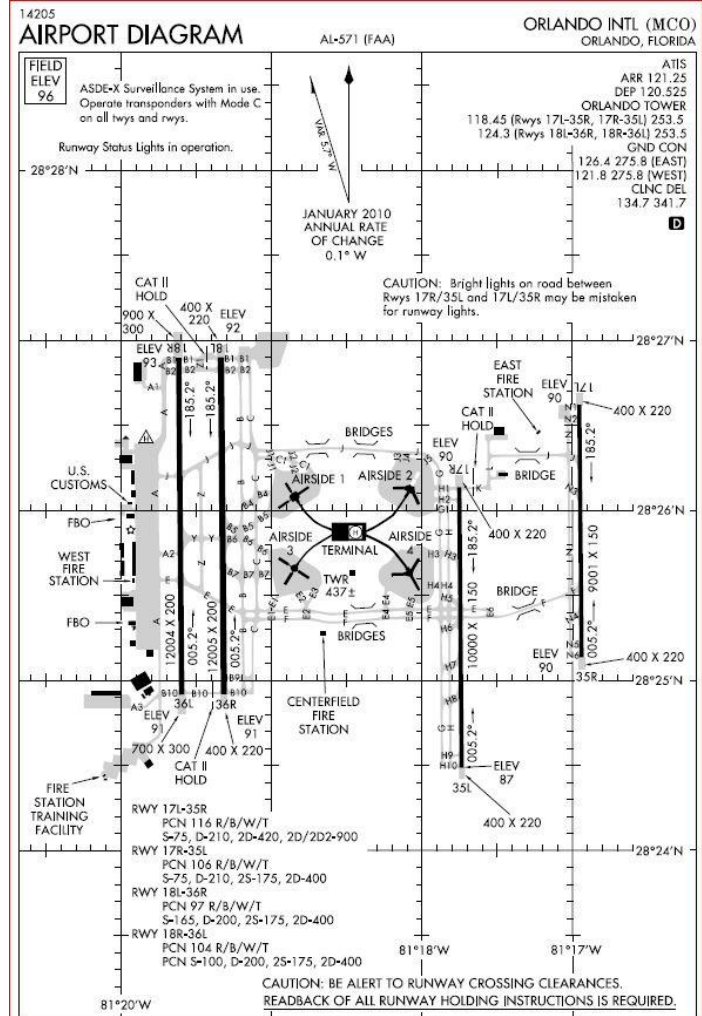
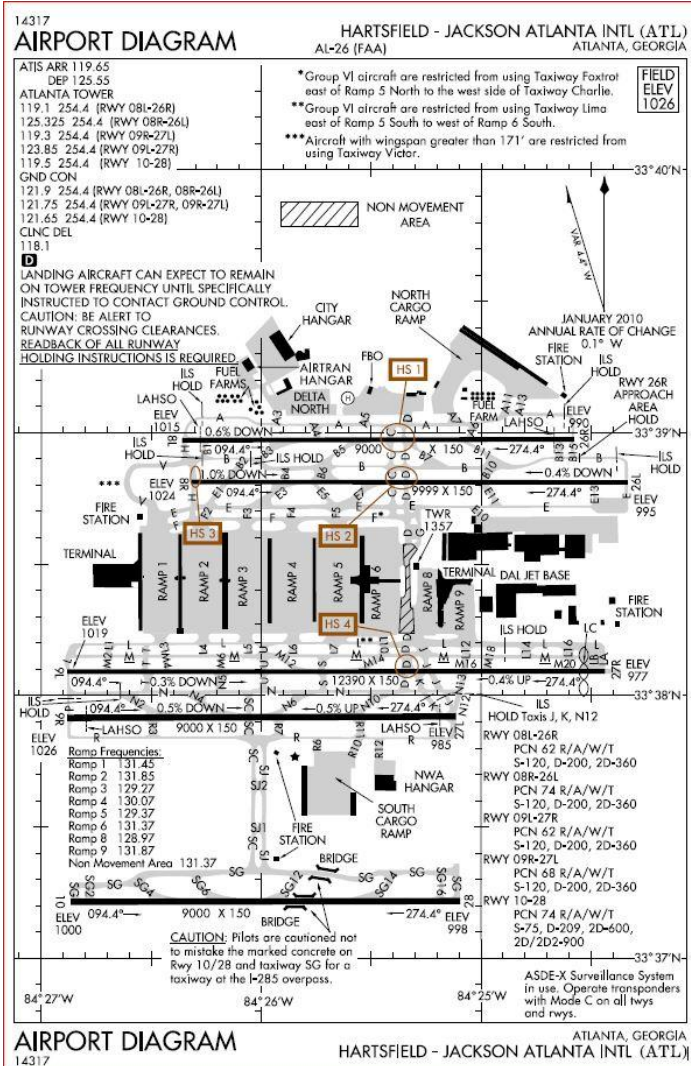
Imagery Date: 6/17/2010 40°41'37.63" N 74°09'16.58" W elev 7 ft eye alt 20255 ft



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# Modern Airport Designs



ATL and MCO

Modern airport designs have multiple parallel runways which are generally more efficient.

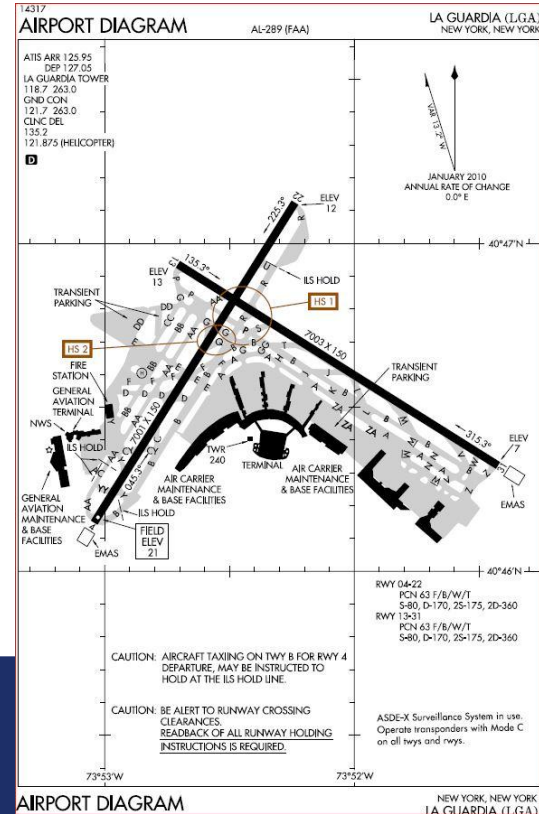
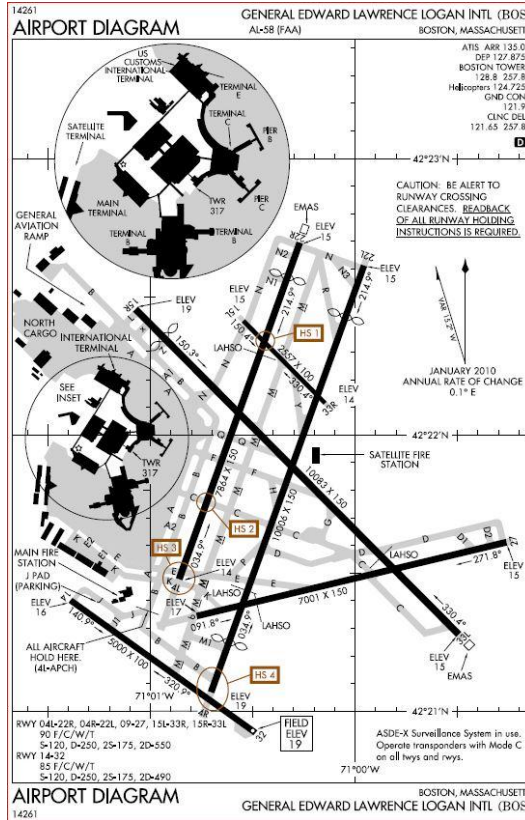
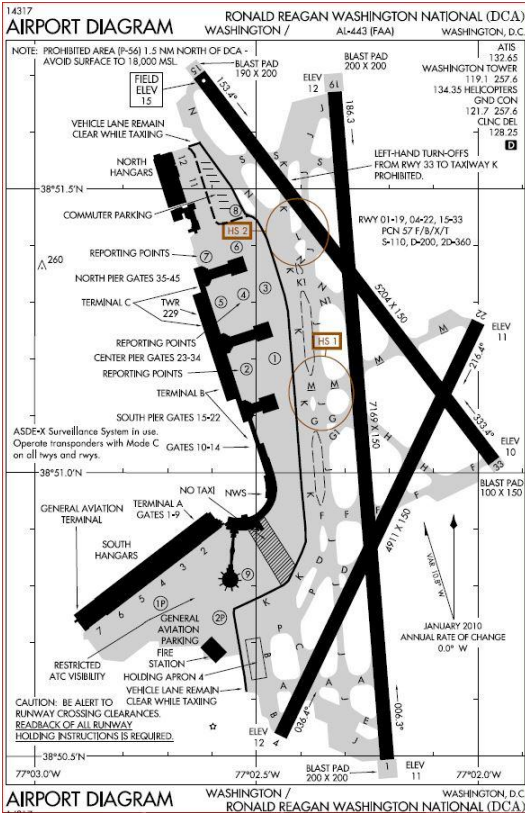


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# Older Airport Designs

DCA, BOS, and LGA

Older airports are generally located in urban-coastal areas, have intersecting runways, and small land areas.



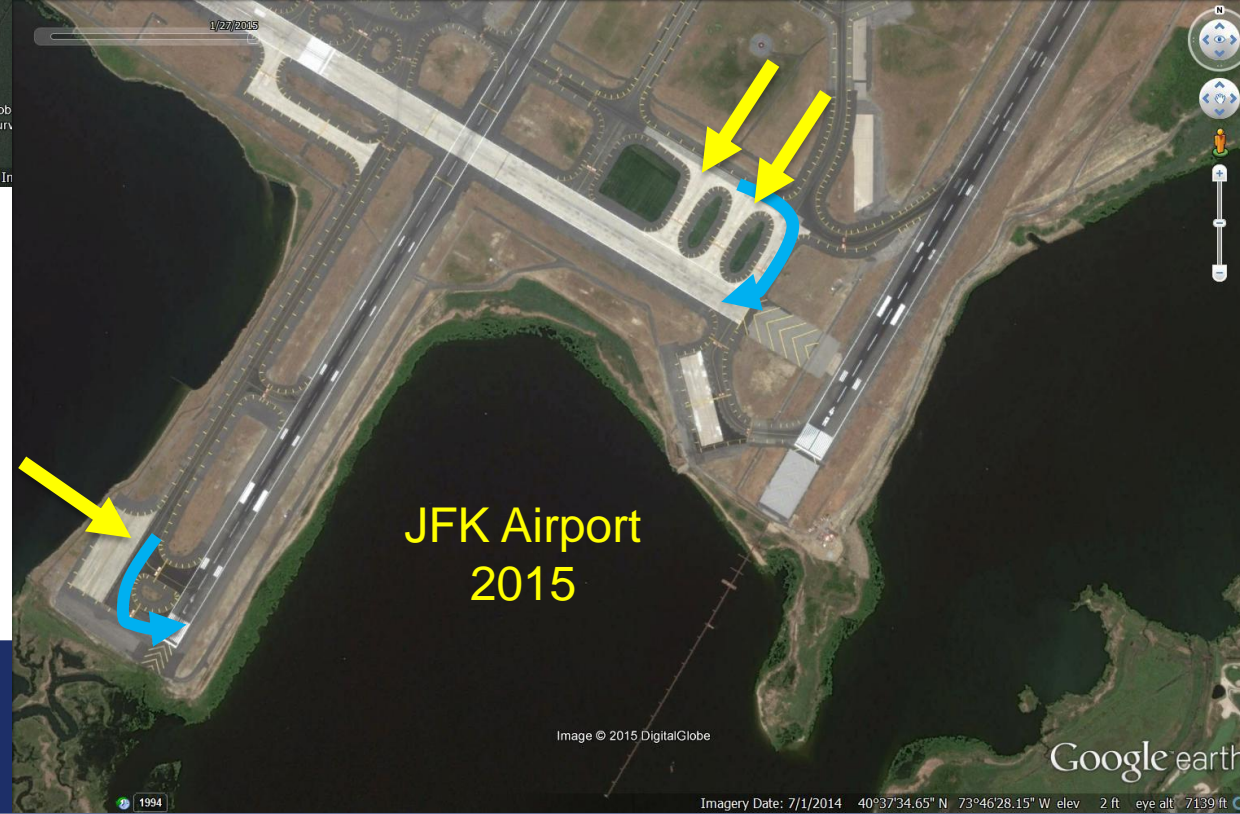




JFK Airport  
2009



Image © 2015 DigitalGlobe  
Image U.S. Geological Survey



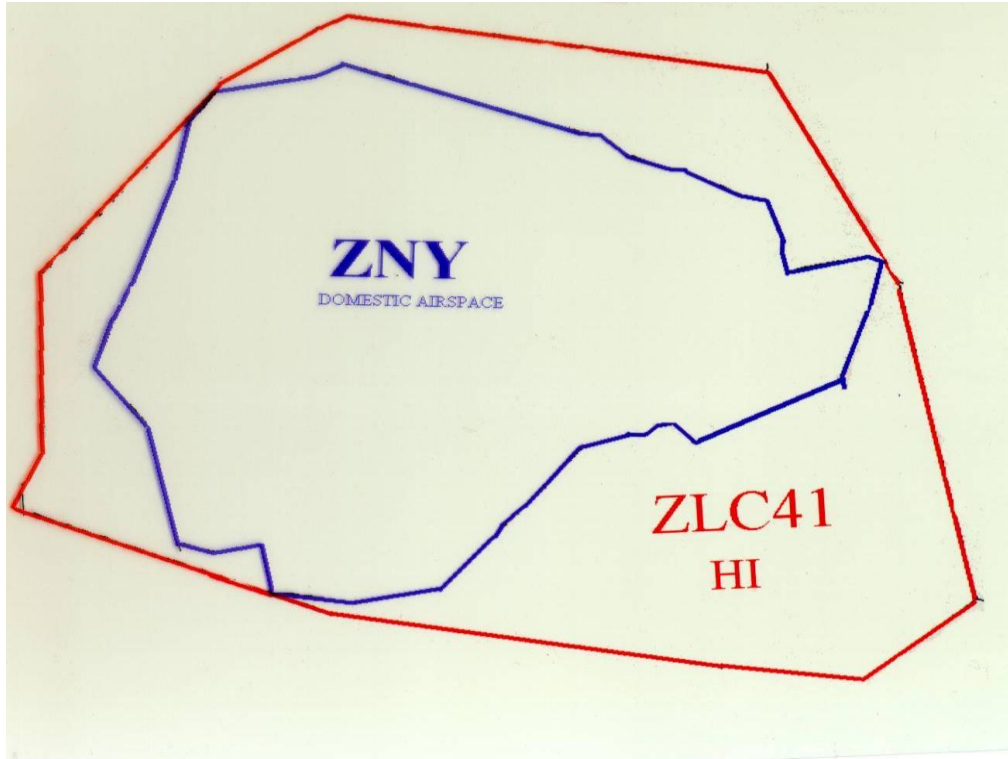
JFK Airport  
2015

Image © 2015 DigitalGlobe

Google earth

Imagery Date: 7/1/2014 40°37'34.65" N 73°46'28.15" W elev 2 ft eye alt 7139 ft

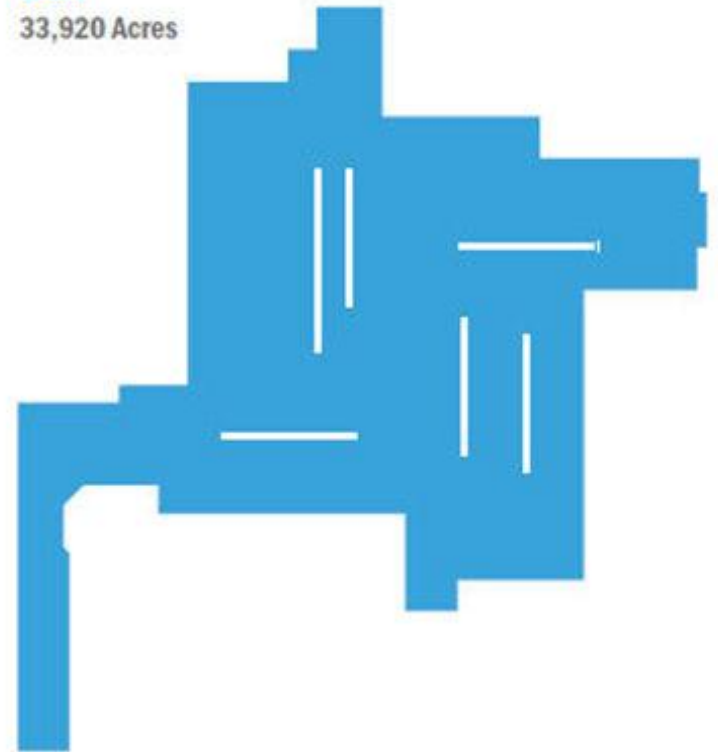
# Some perspective



LGA  
680 Acres



DEN  
33,920 Acres



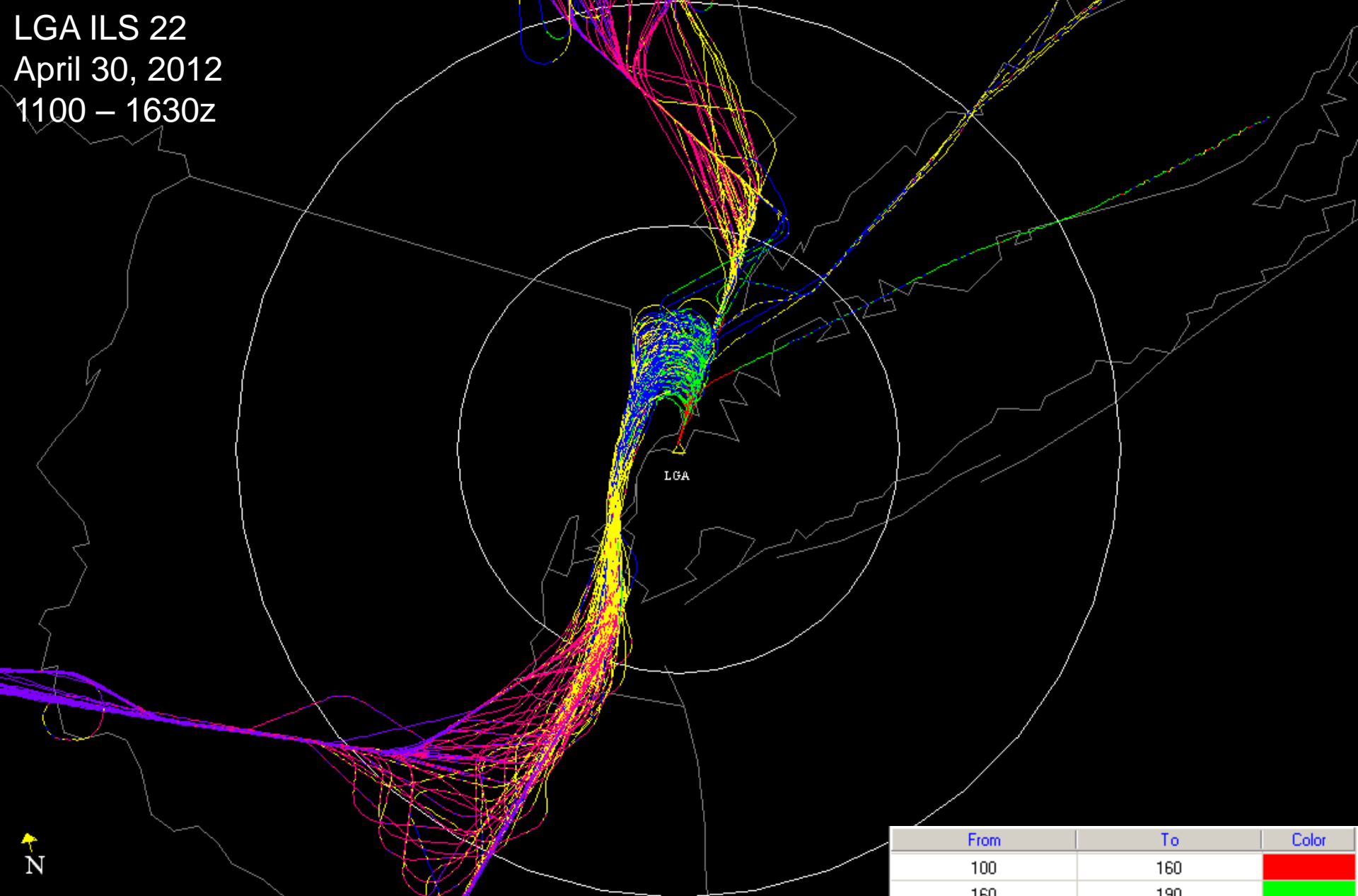
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LGA ILS 22  
April 30, 2012  
1100 - 1630z

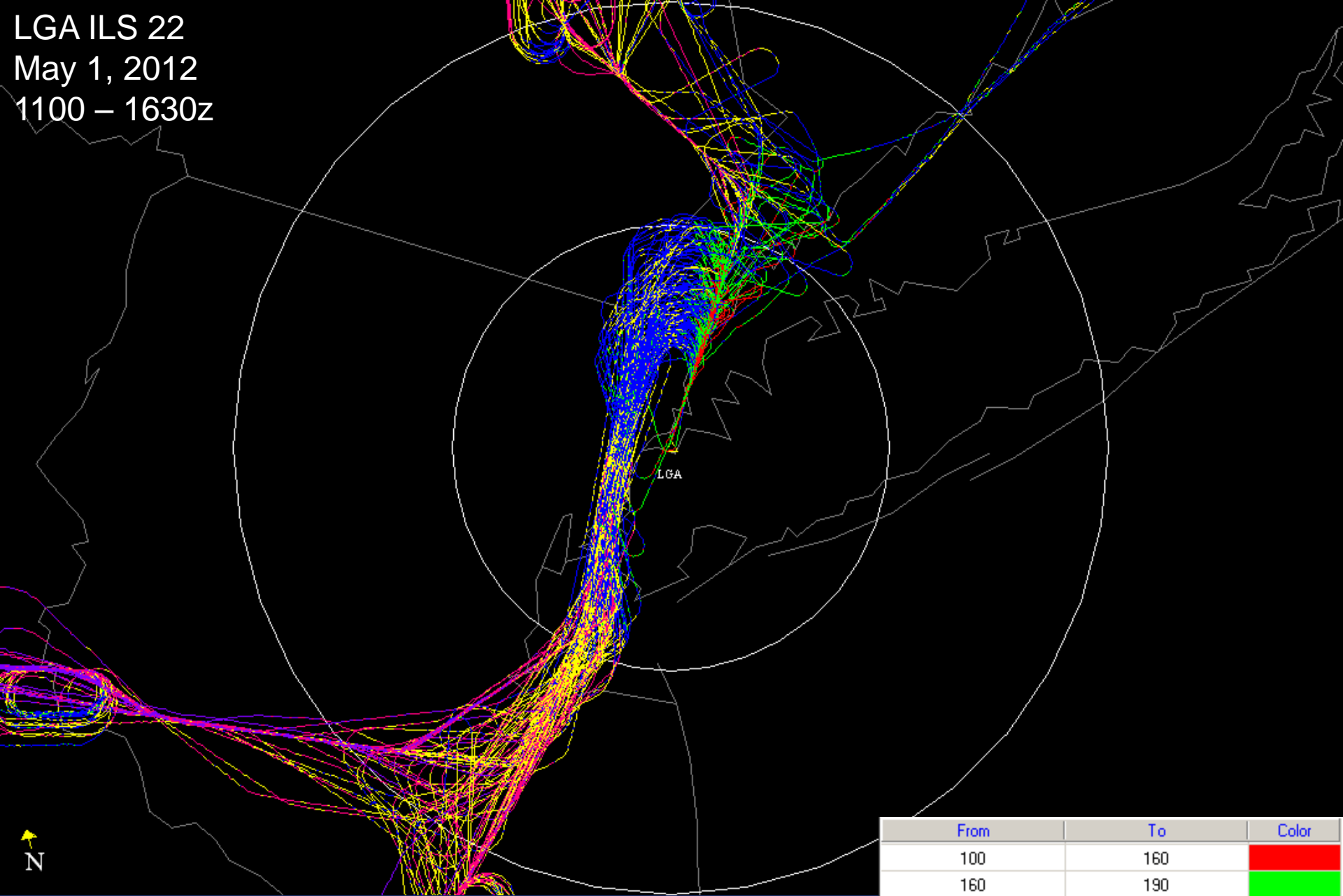


From	To	Color
100	160	Red
160	190	Green
190	230	Blue
230	270	Yellow
270	320	Magenta
320	450	Purple





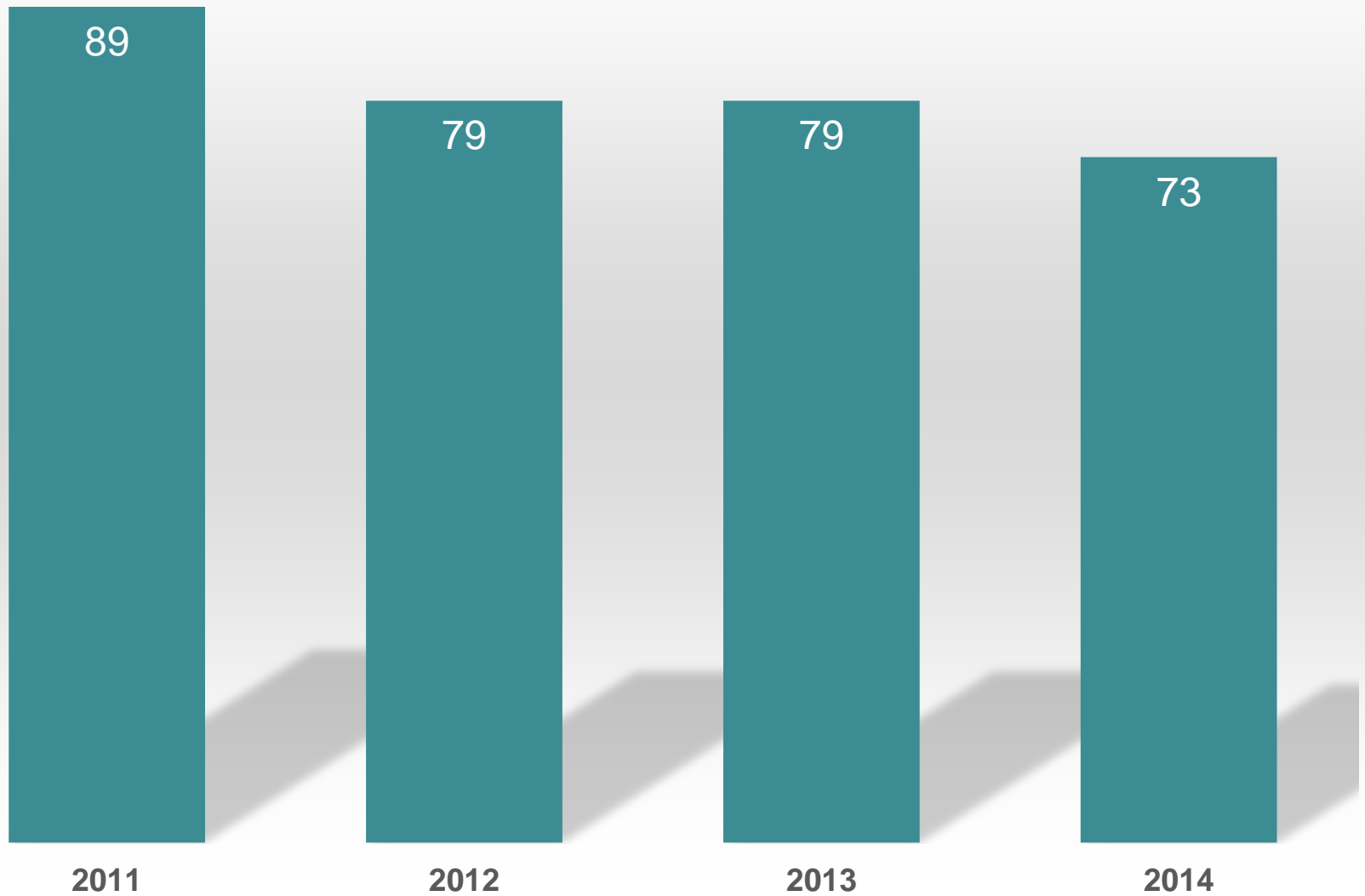
LGA ILS 22  
May 1, 2012  
1100 - 1630z



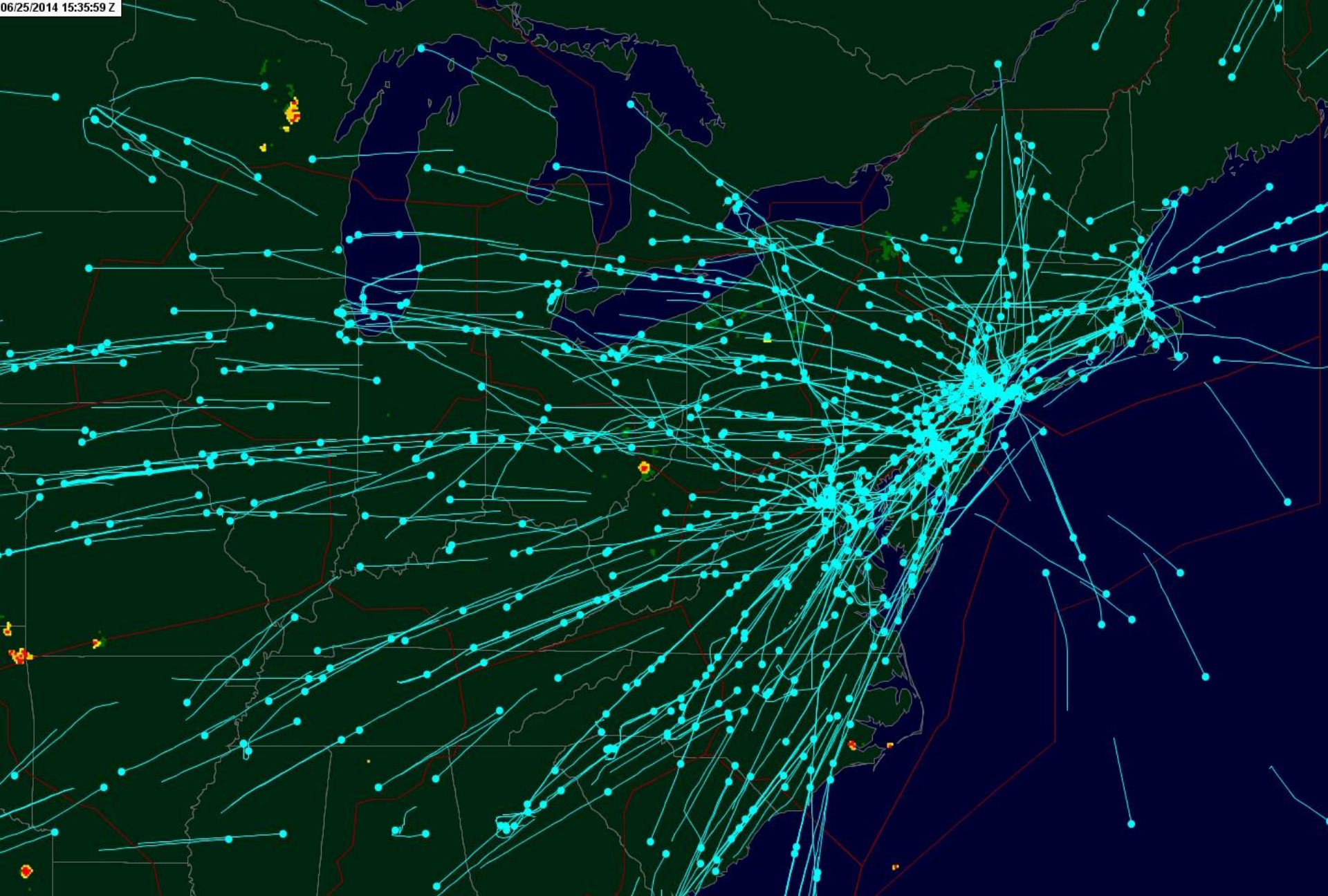
From	To	Color
100	160	Red
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270	320	Magenta
320	450	Purple



# Severe Weather Events in the Northeast U.S.

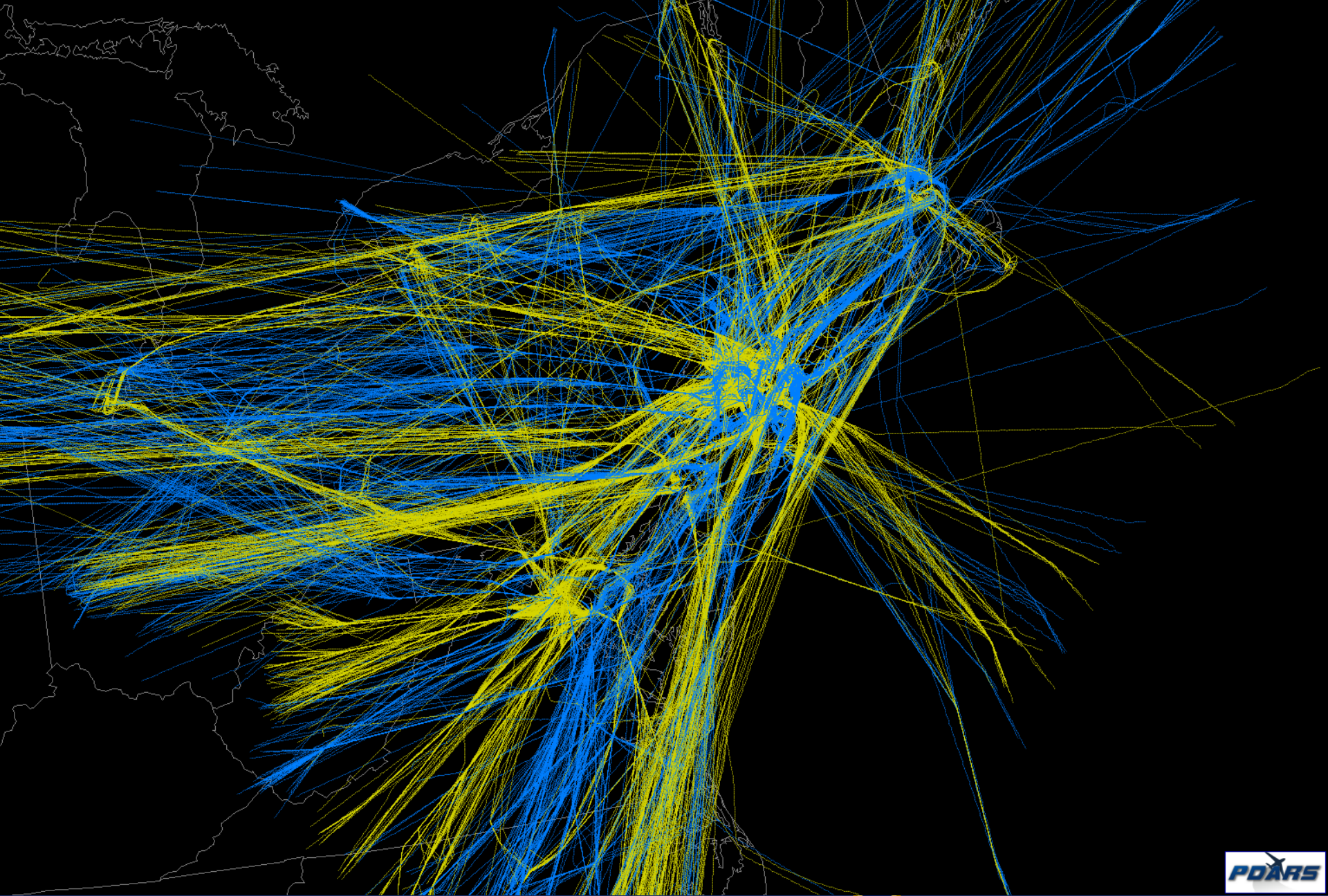


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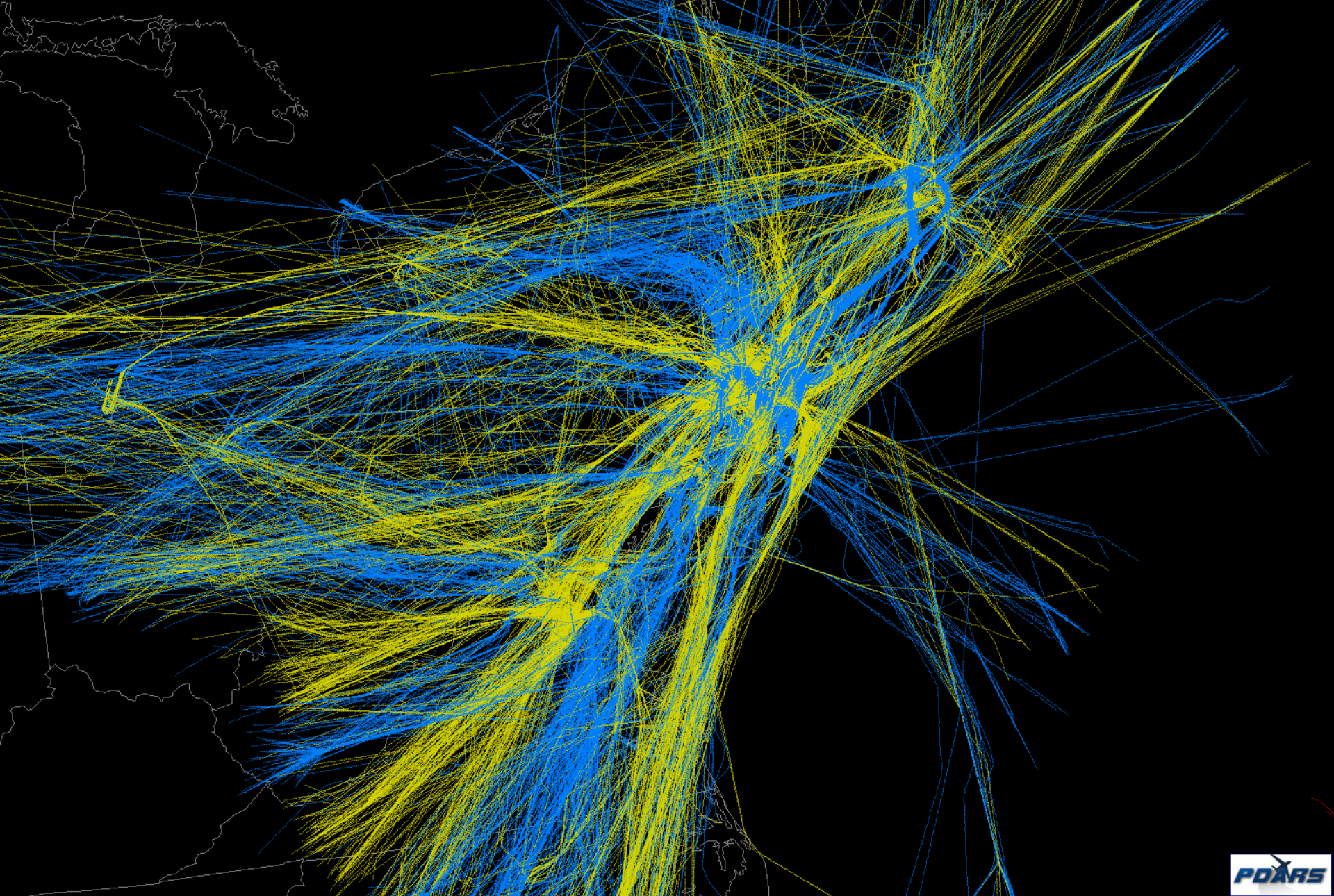
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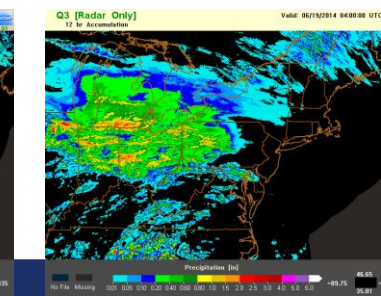
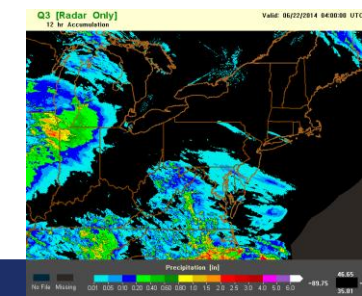
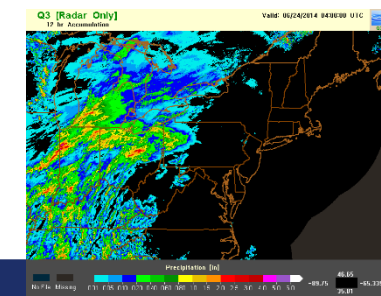
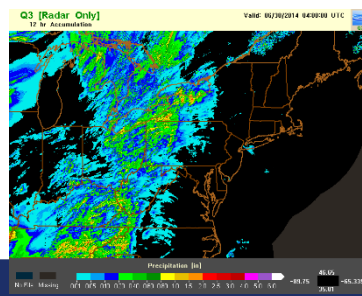
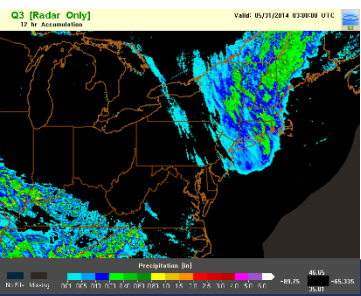
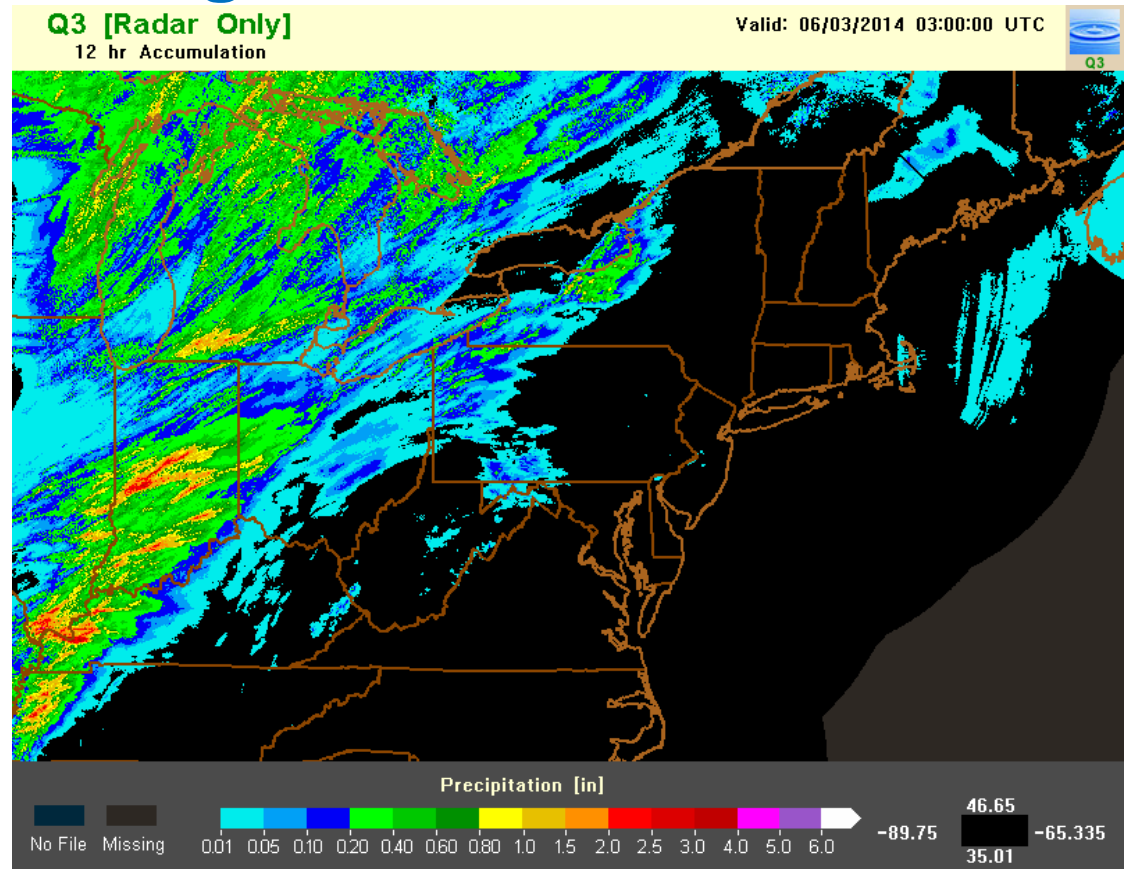


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# SWAP Impact Categorization

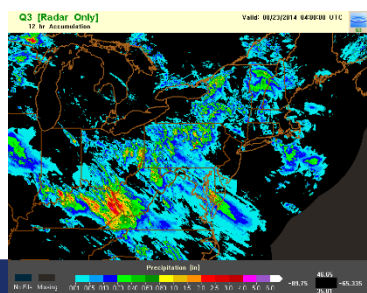
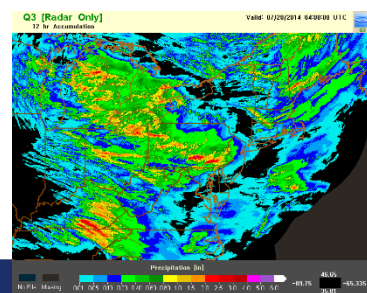
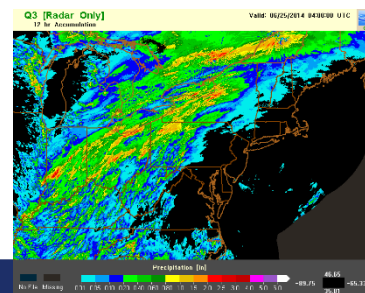
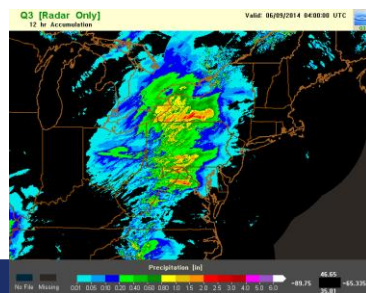
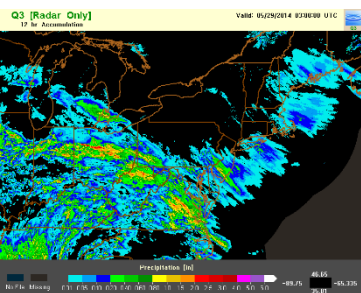
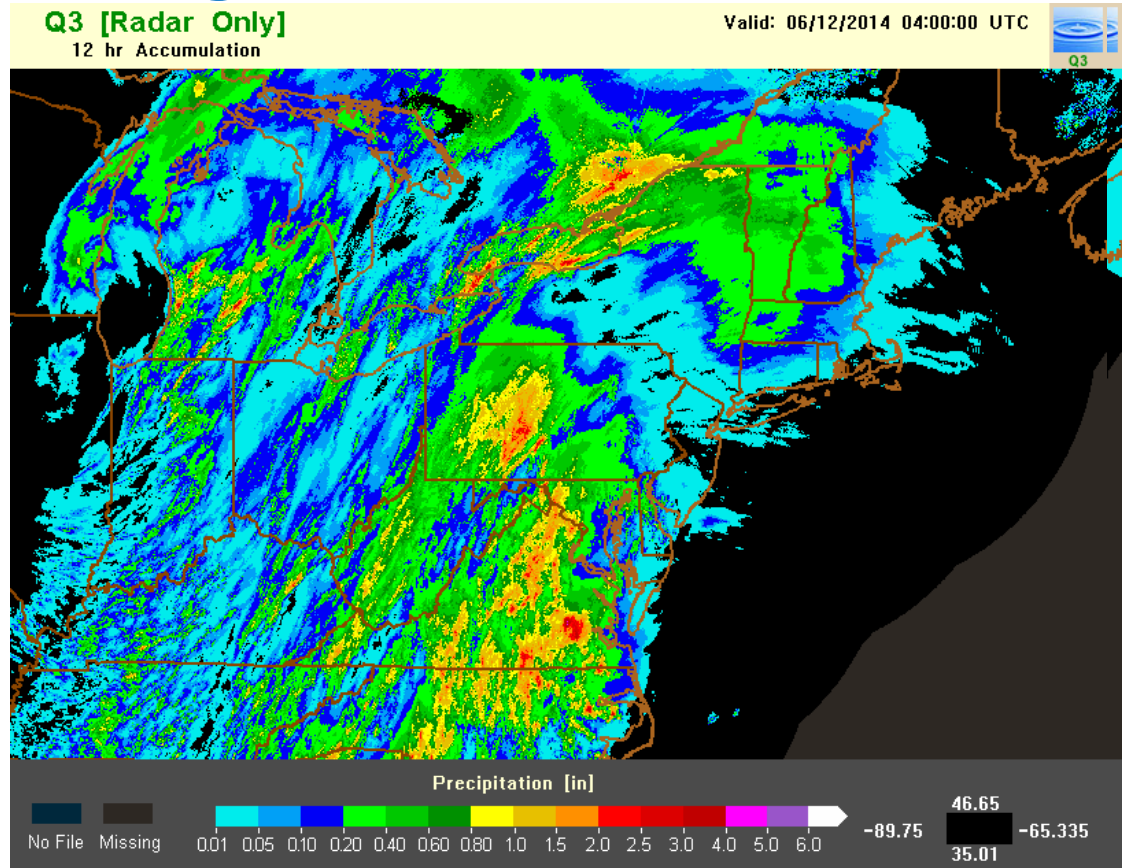
## Level 1



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# SWAP Impact Categorization

## Level 2

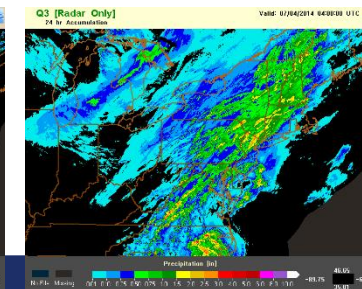
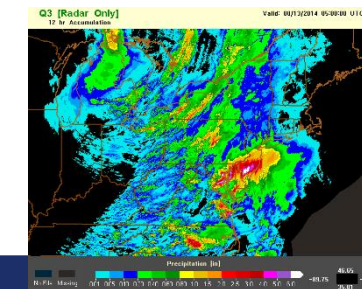
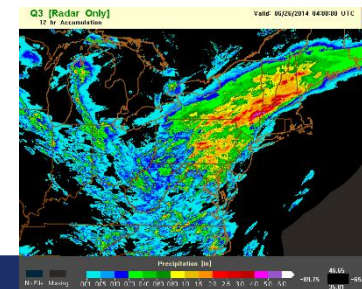
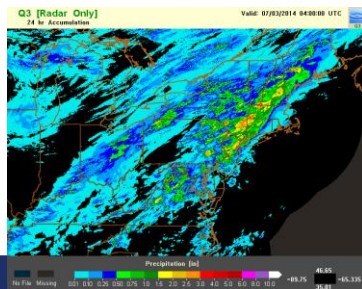
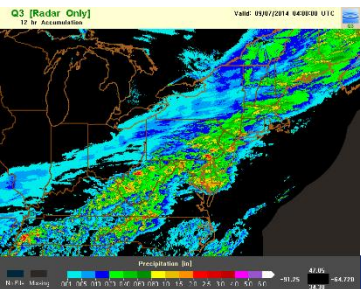
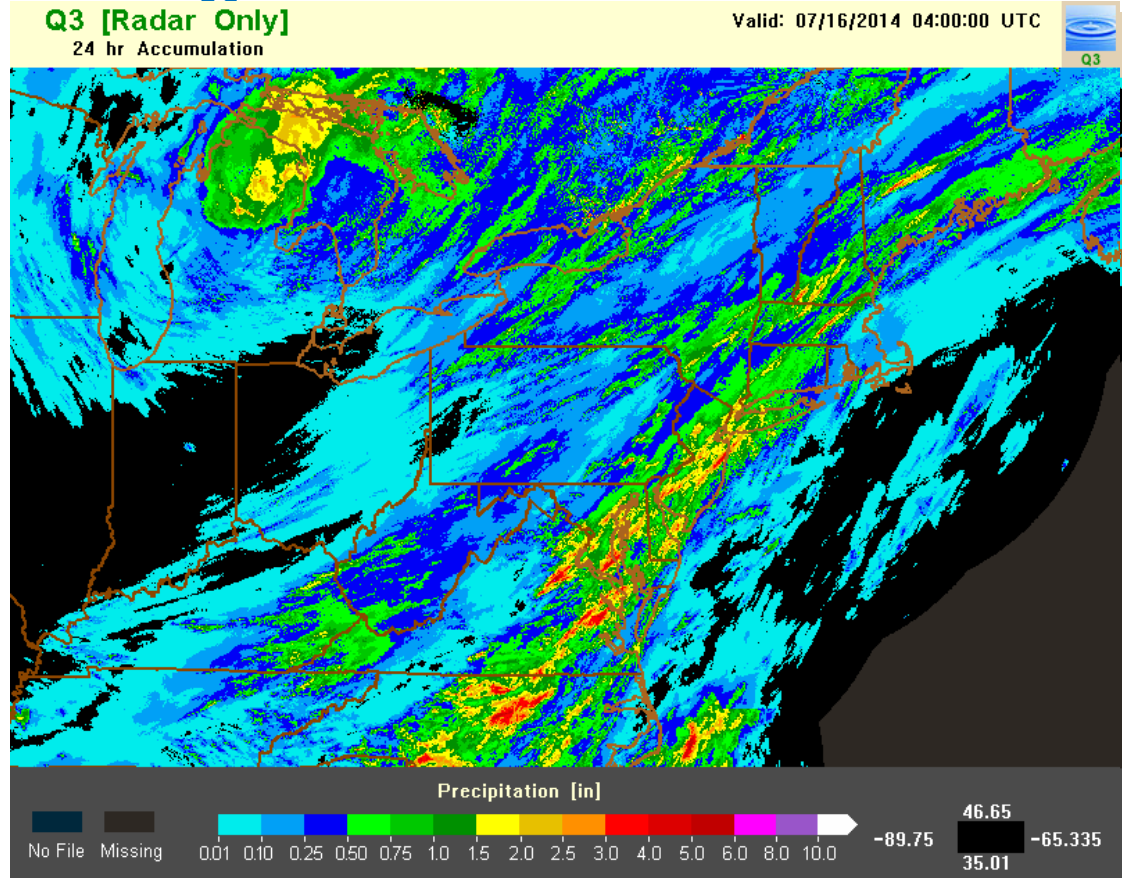


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# SWAP Impact Categorization

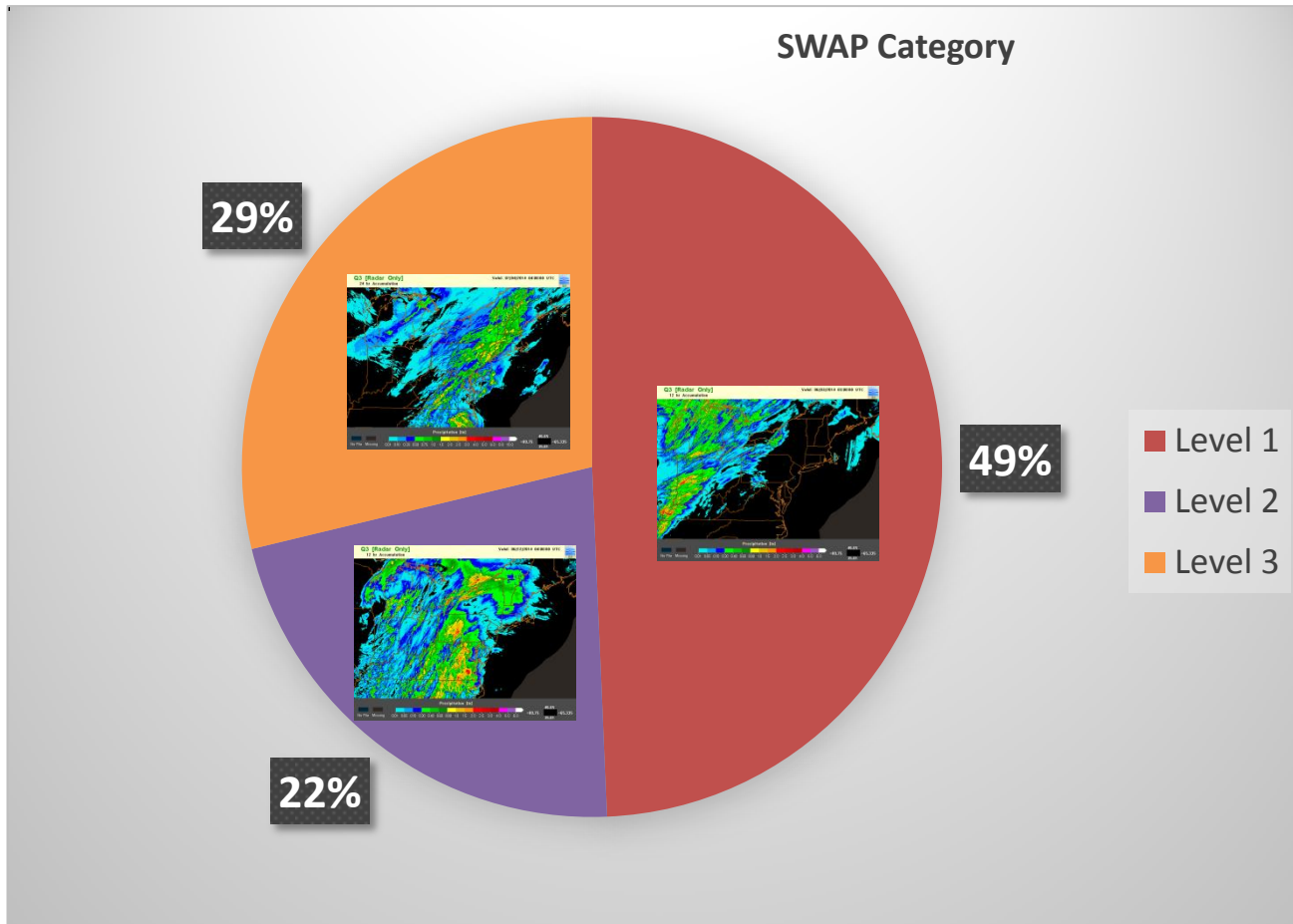
## Level 3



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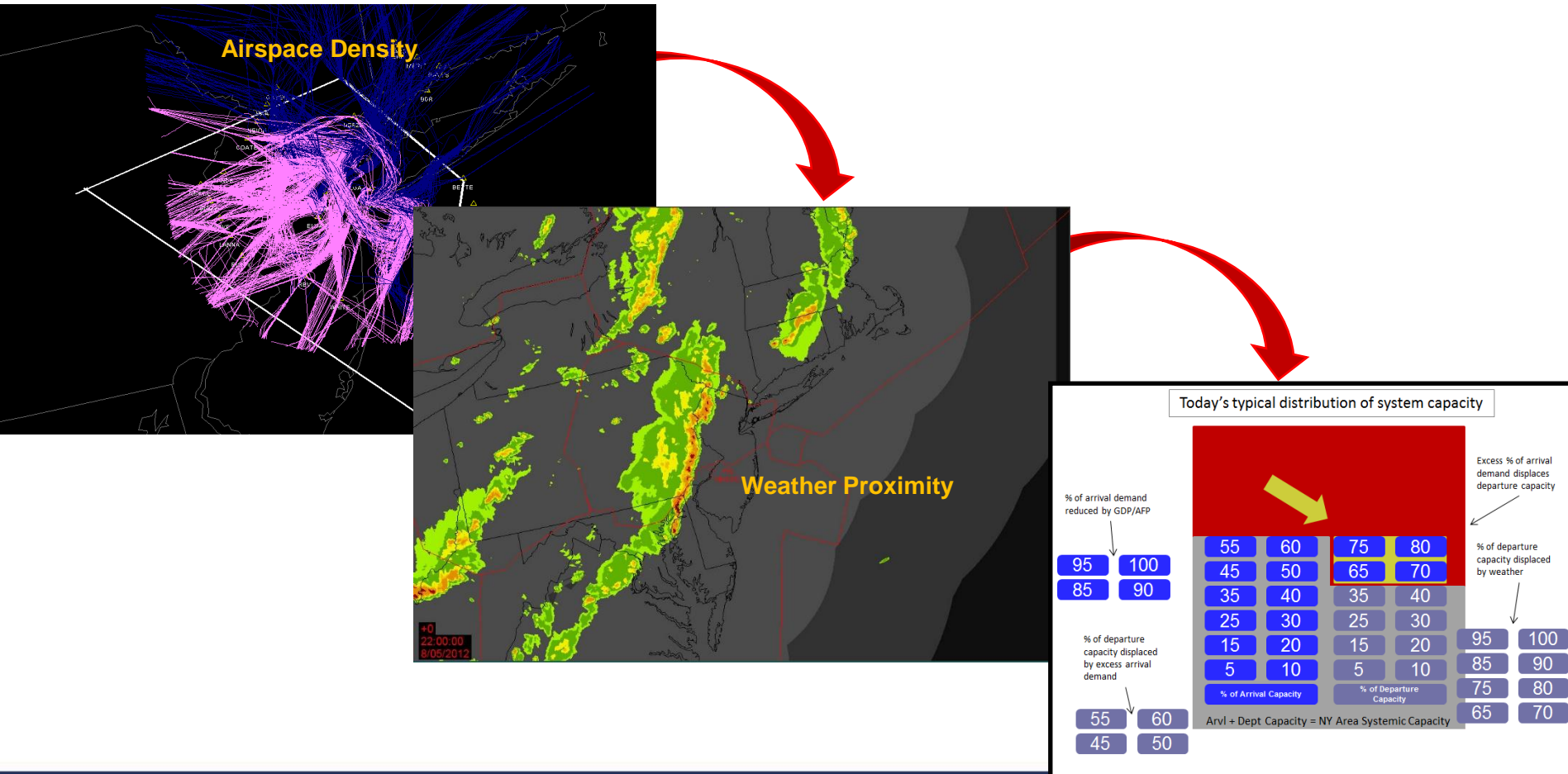


# Weather impact distribution



# Why are level 3 SWAP days so bad?

Because they have unavoidable delay and unrecoverable reductions in capacity due to airspace density, weather proximity, and capacity distribution choices.



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# Agenda

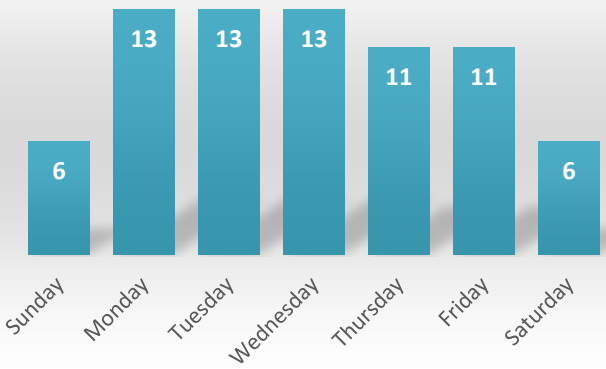
- Operational perspective and constraints
- Understanding weather impacts
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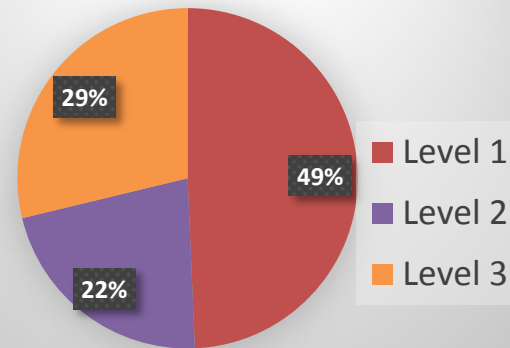


# Variable Plans and Scaled SWAP Actions

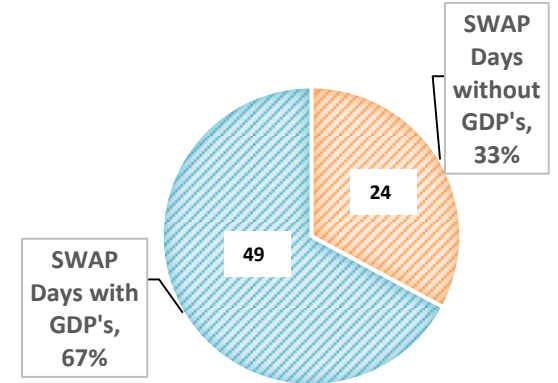
Distribution of SWAP Days



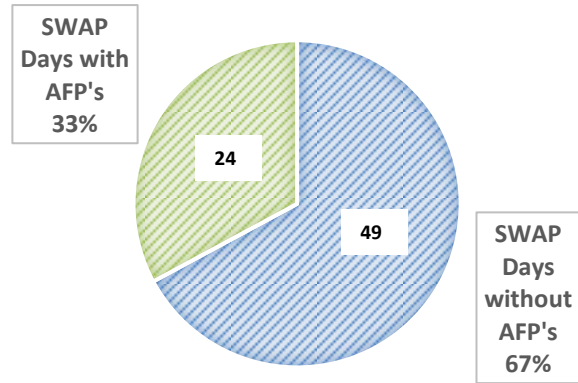
SWAP Category



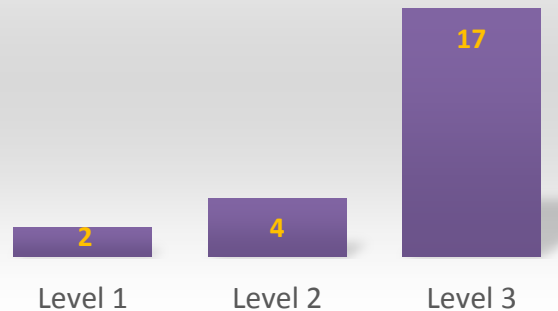
GDP'S - SWAP



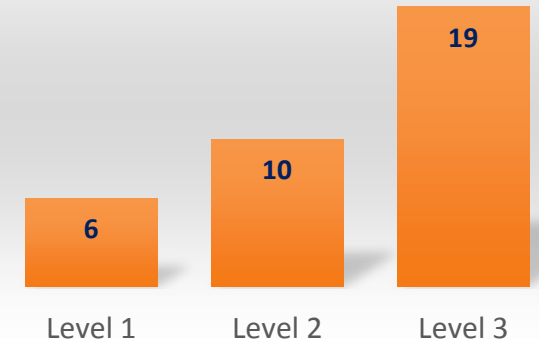
AFP'S - SWAP



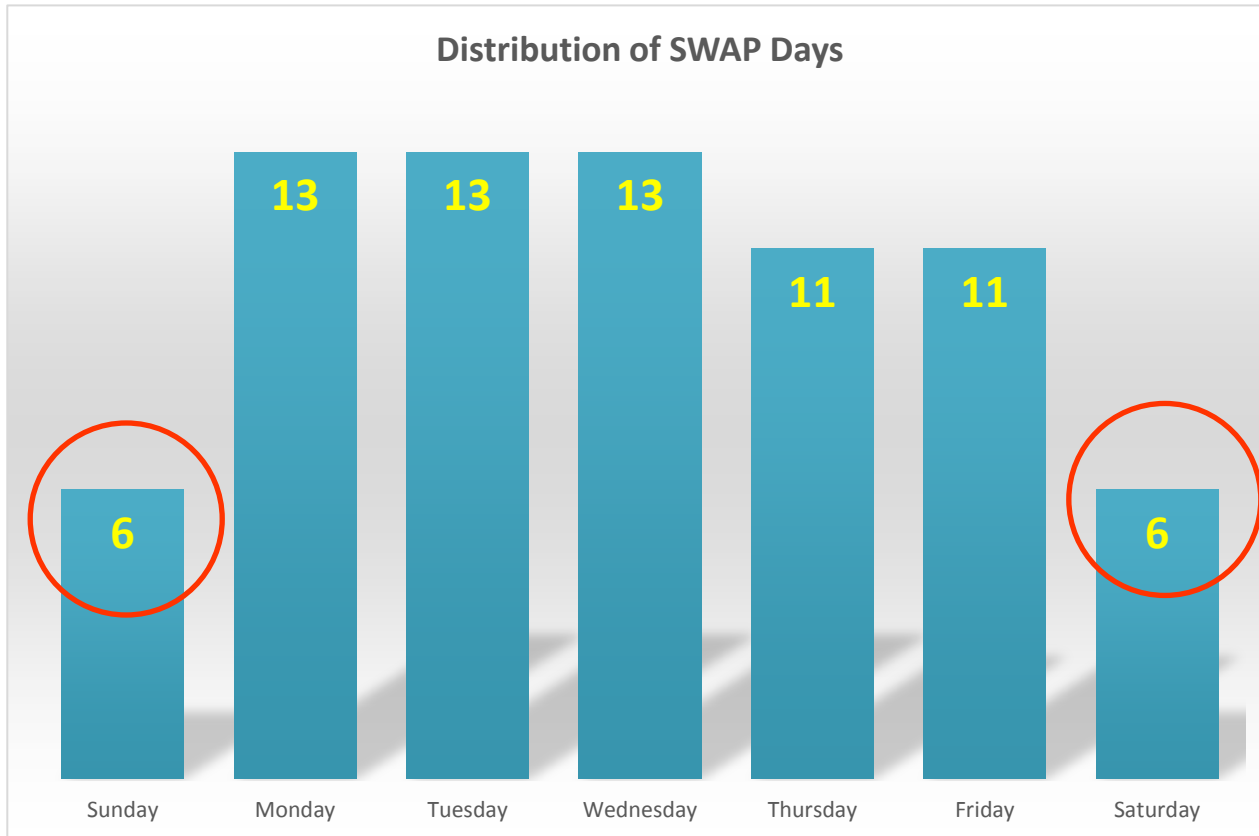
Days with Both AFP's and GDP's by WX Category

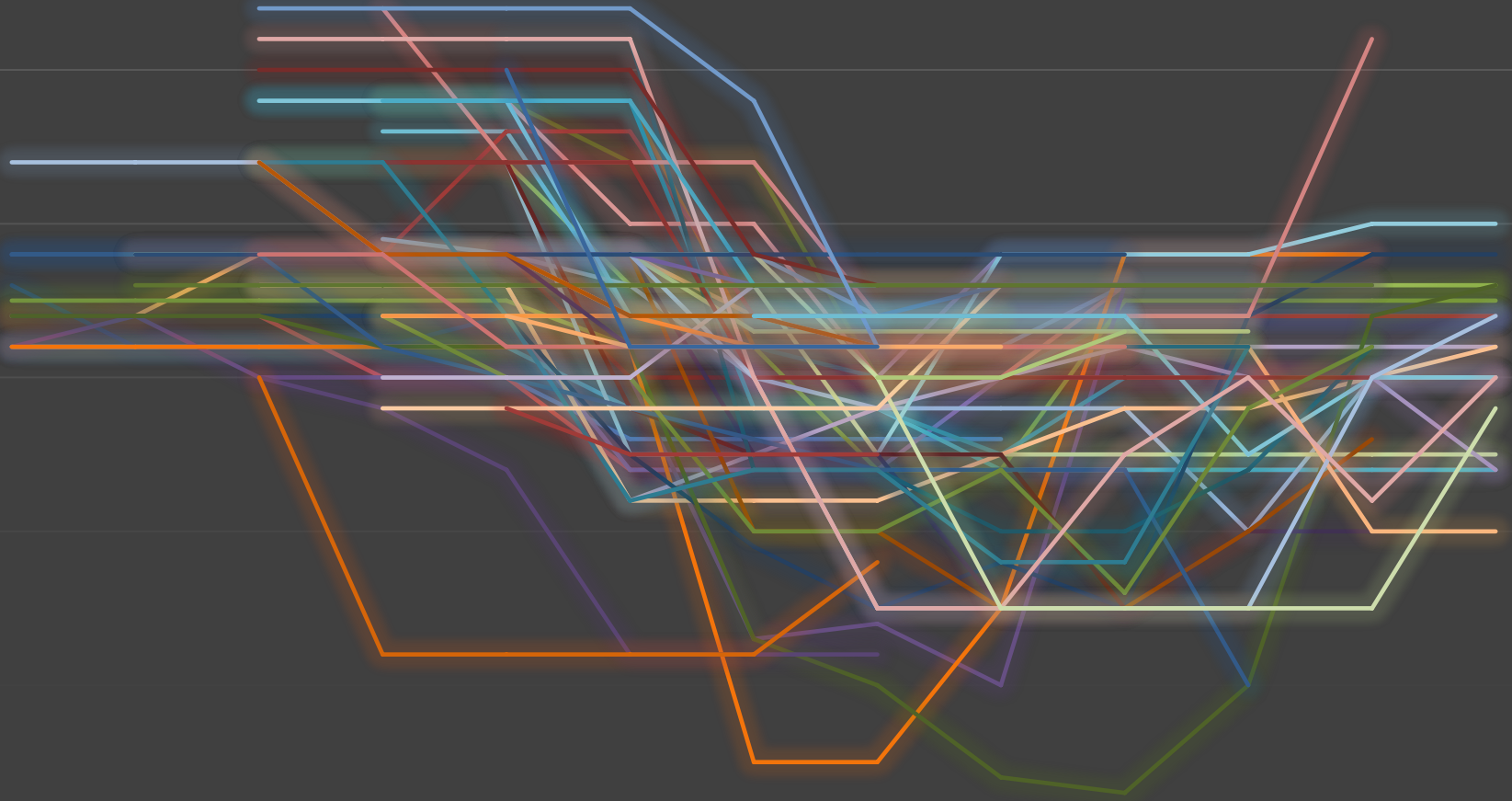


Usage of CTR's by WX Category



# ZNY implements SWAP less on weekends

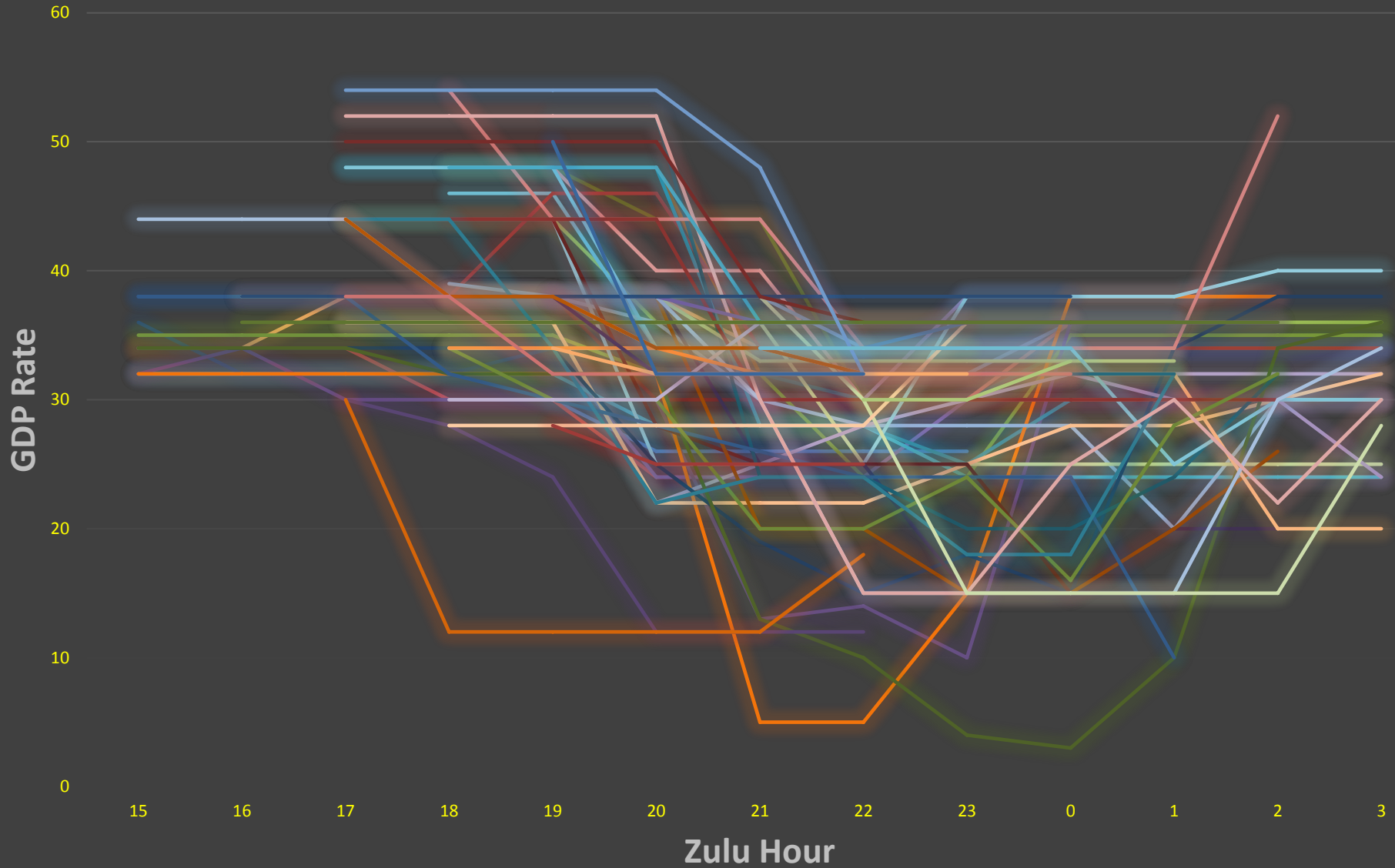




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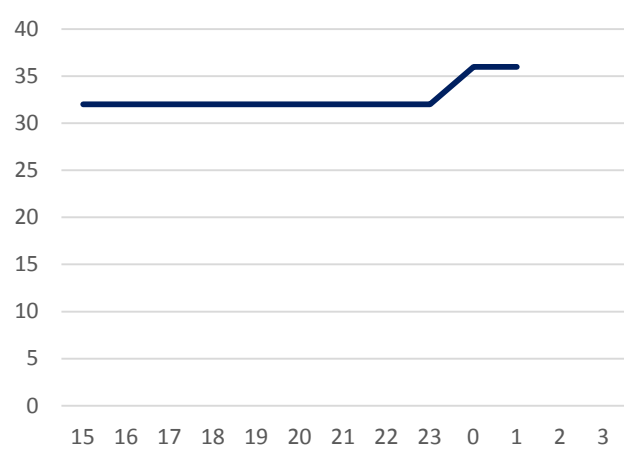
# 74 NY Airport GDP's on SWAP Days 2014



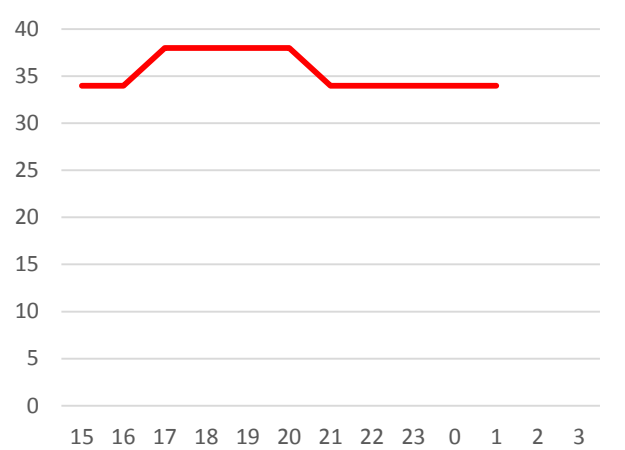
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# LGA GDP's on Level 2 SWAP Days

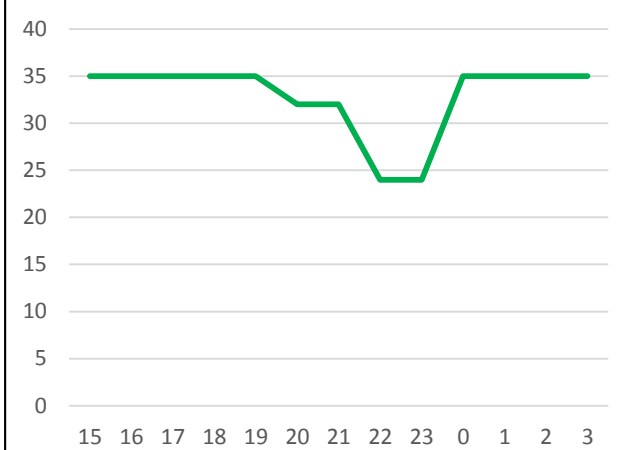
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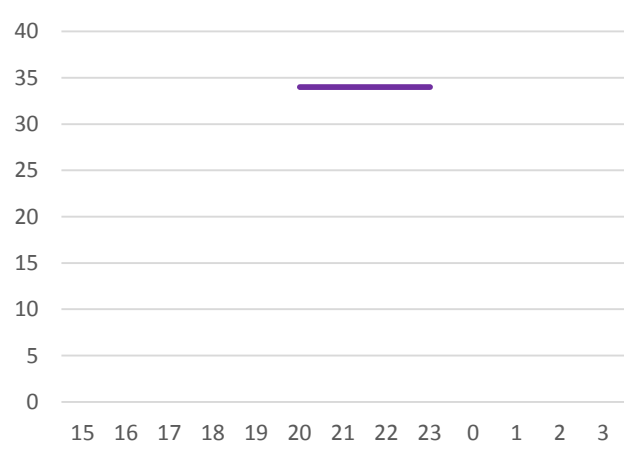
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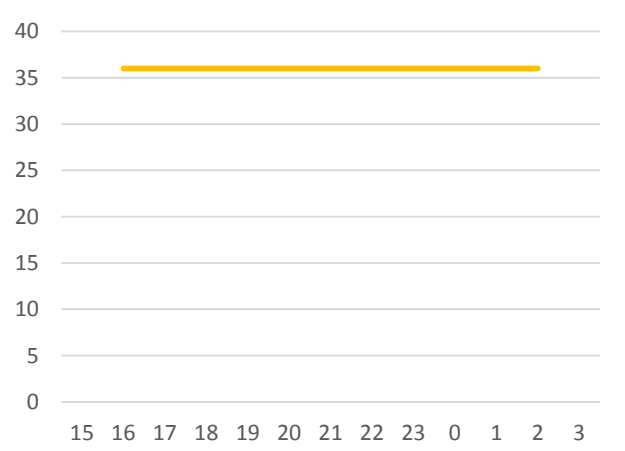
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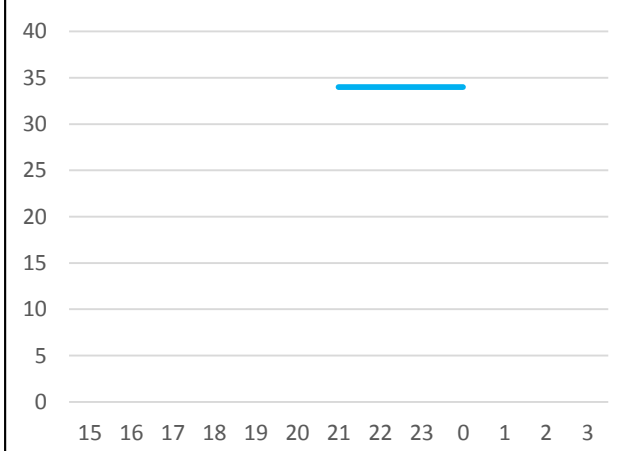
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8/22/2014



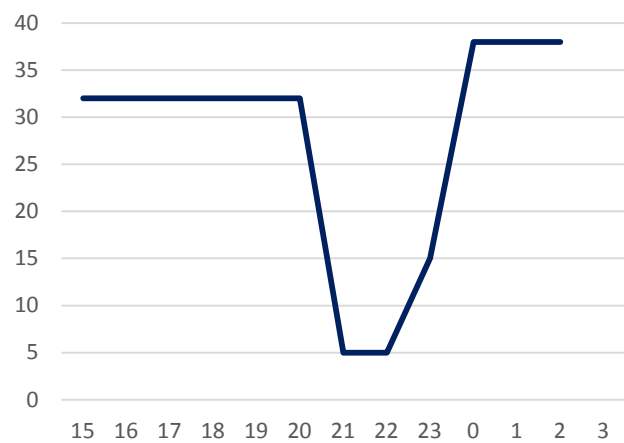
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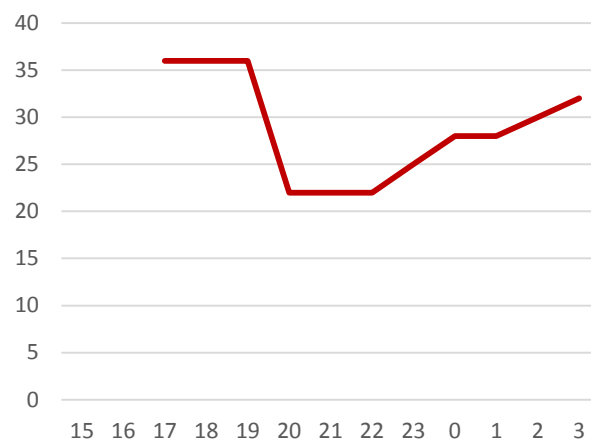
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# Selected LGA GDP's on Level 3 SWAP Days

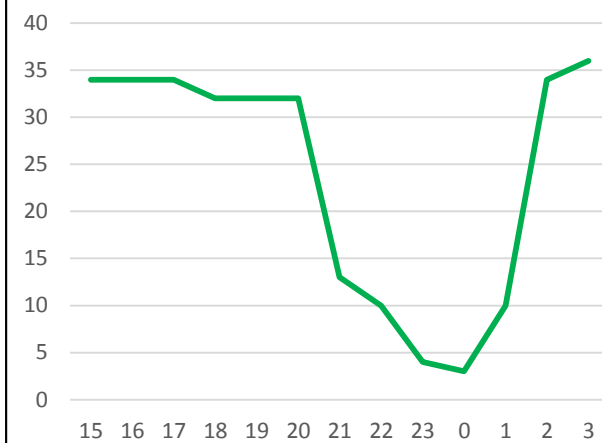
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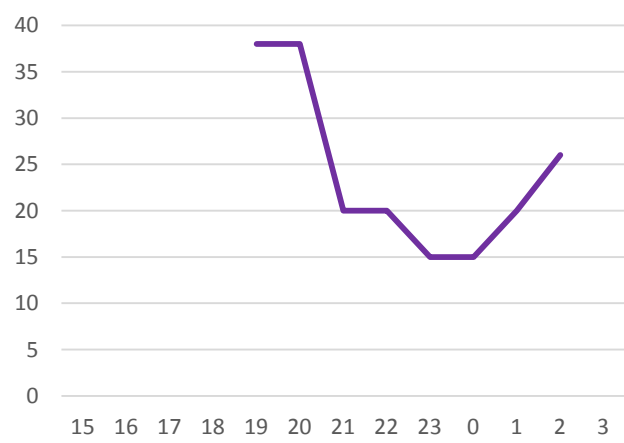
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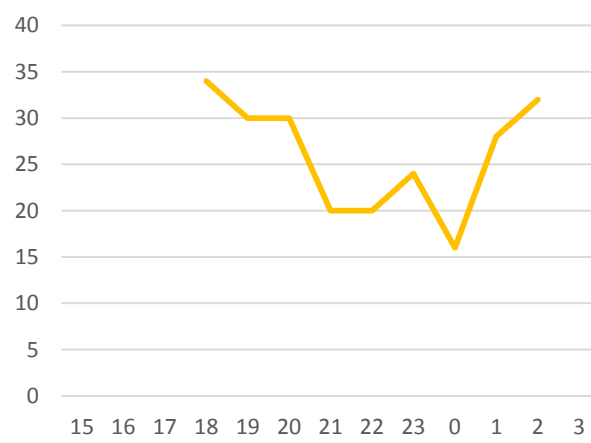
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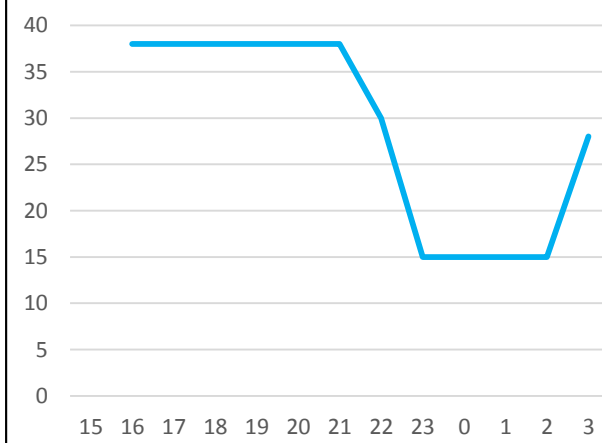
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7/14/2014



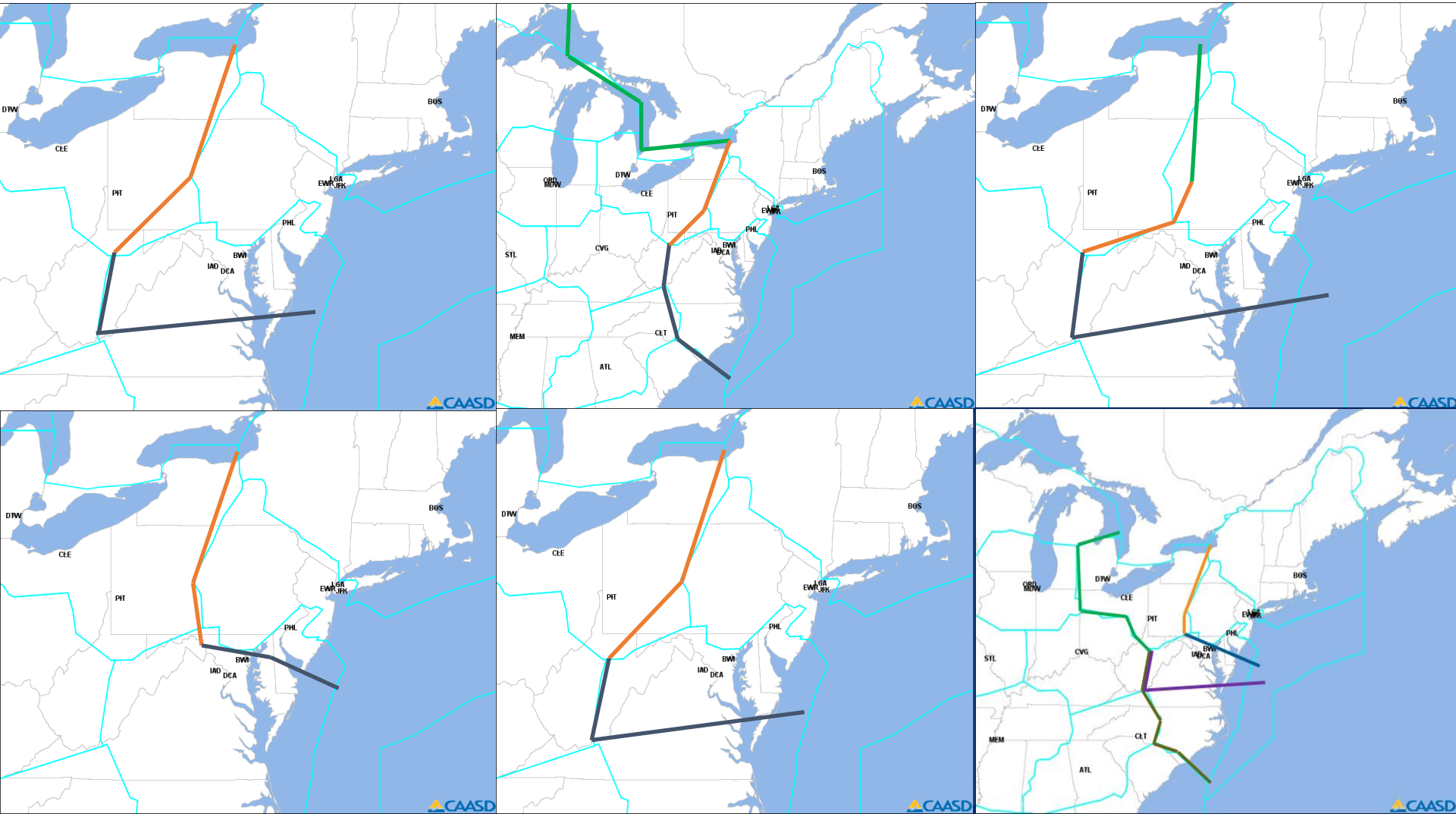
7/23/2014





# Variable AFP Usage

Source: MITRE CAASD



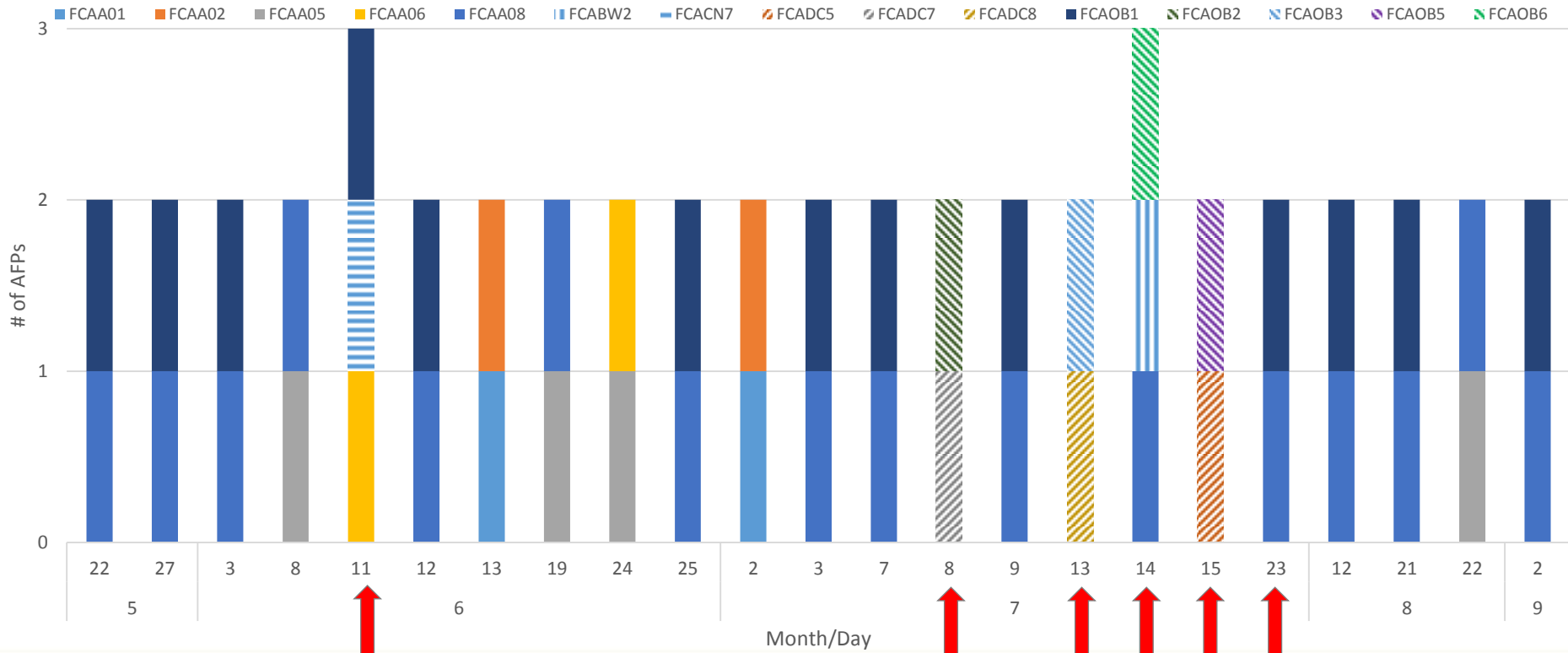
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# Alternative Northeast AFPs

## Different AFP combinations (Patterned Bars)

Source: MITRE CAASD

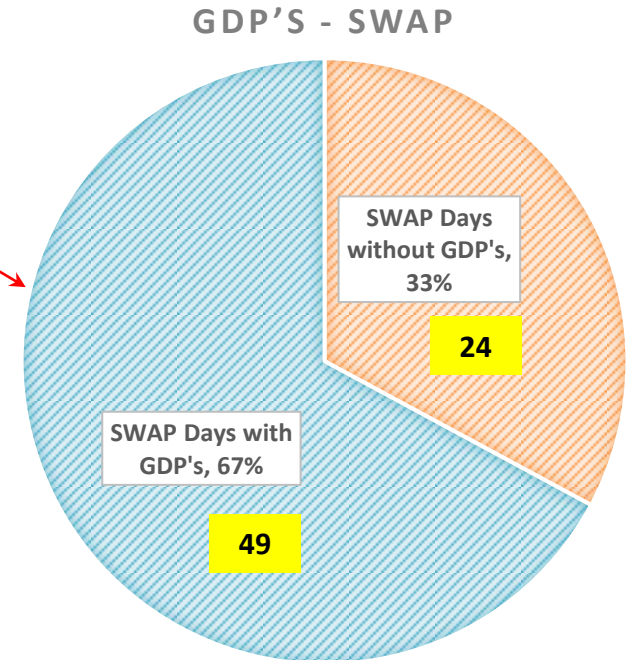
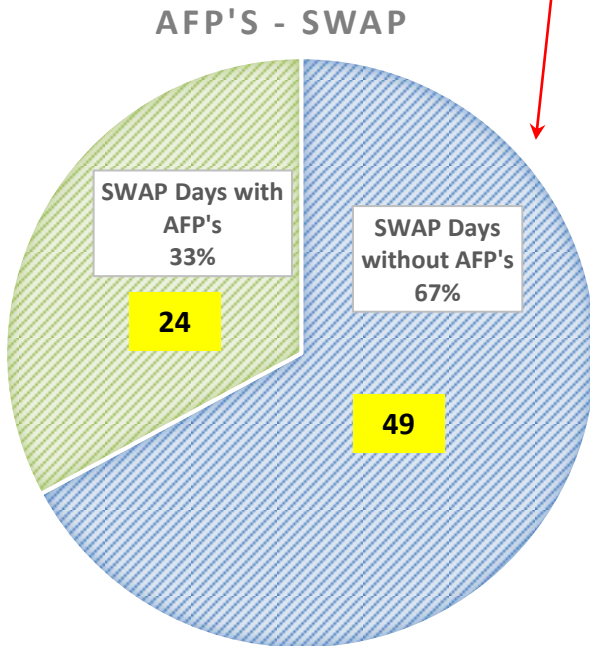
- June 11<sup>th</sup> – OB1, A06 & CN7 (Route Out)
- July 8<sup>th</sup> – OB2 & DC7
- July 13 – OB3 & DC8
- July 14<sup>th</sup> – BW2, OB6 & A08
- July 15<sup>th</sup> – OB5 & DC5/Low Rate GDPs
- July 23<sup>rd</sup> – OB1 & A08/Low Rate GDPs



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# GDP and AFP use during SWAP

We do not always respond the same way to SWAP, nor should we.

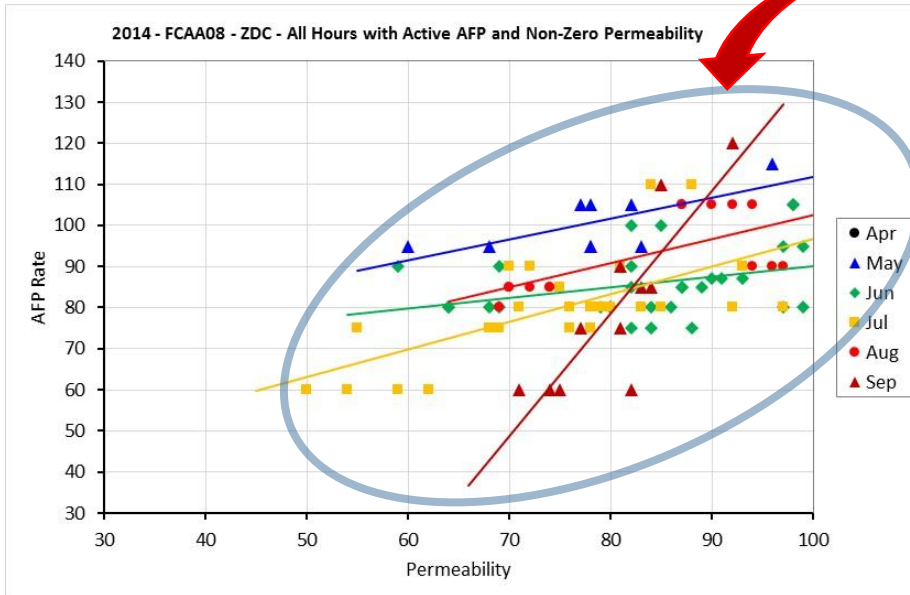




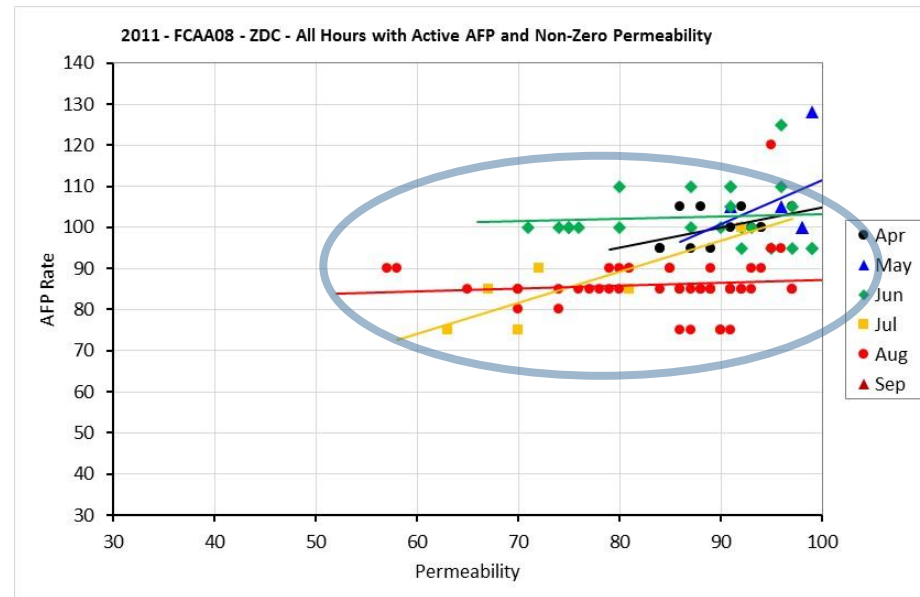
# ZDC Hourly Weather Permeability vs. AFP Rate

## 2011 & 2014 Monthly Trend Variability (A08)

Source: AvMet Applications

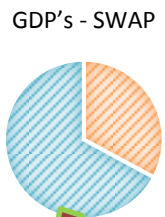
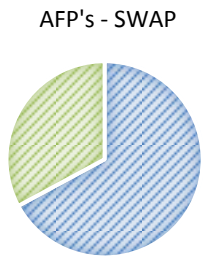
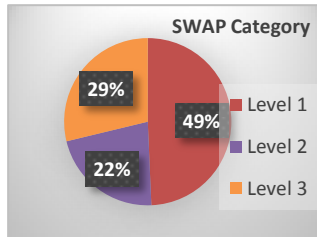


Wider array of AFP rates based on permeability in 2014

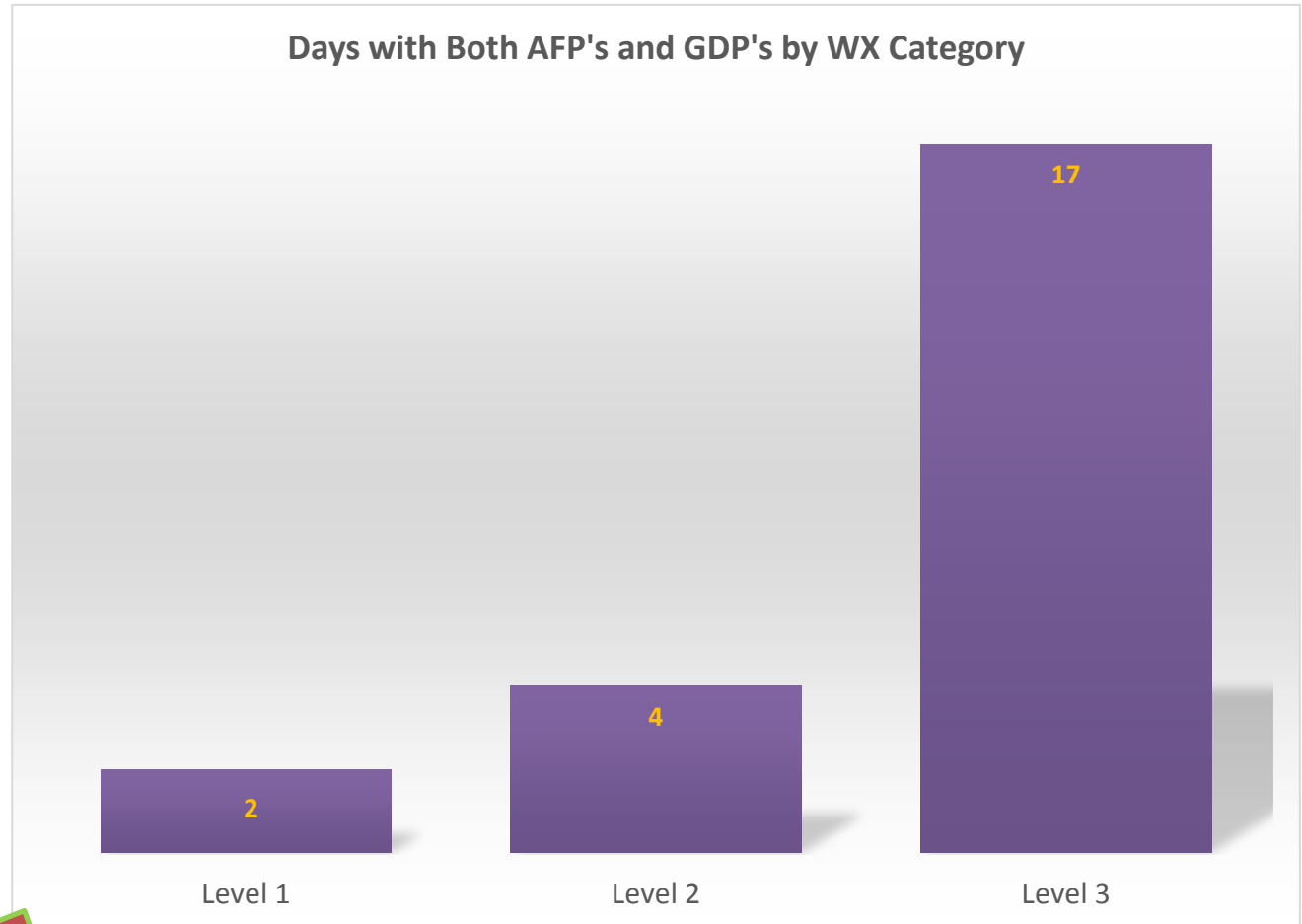


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# Plans and actions are based on weather intensity, location, and duration



Result



**July 23, 2014**

**Low rate ground delay program**

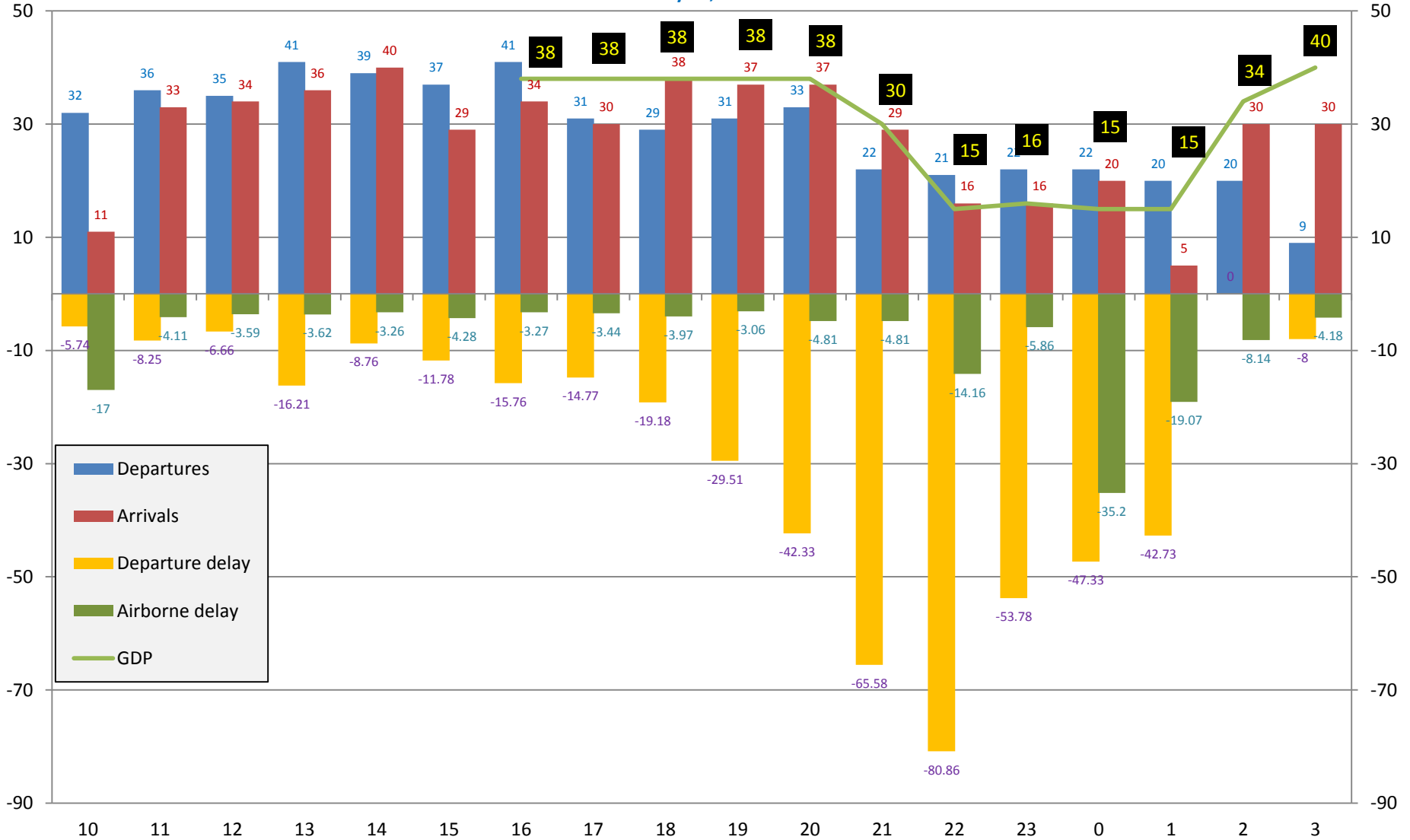


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# LGA

July 23, 2014

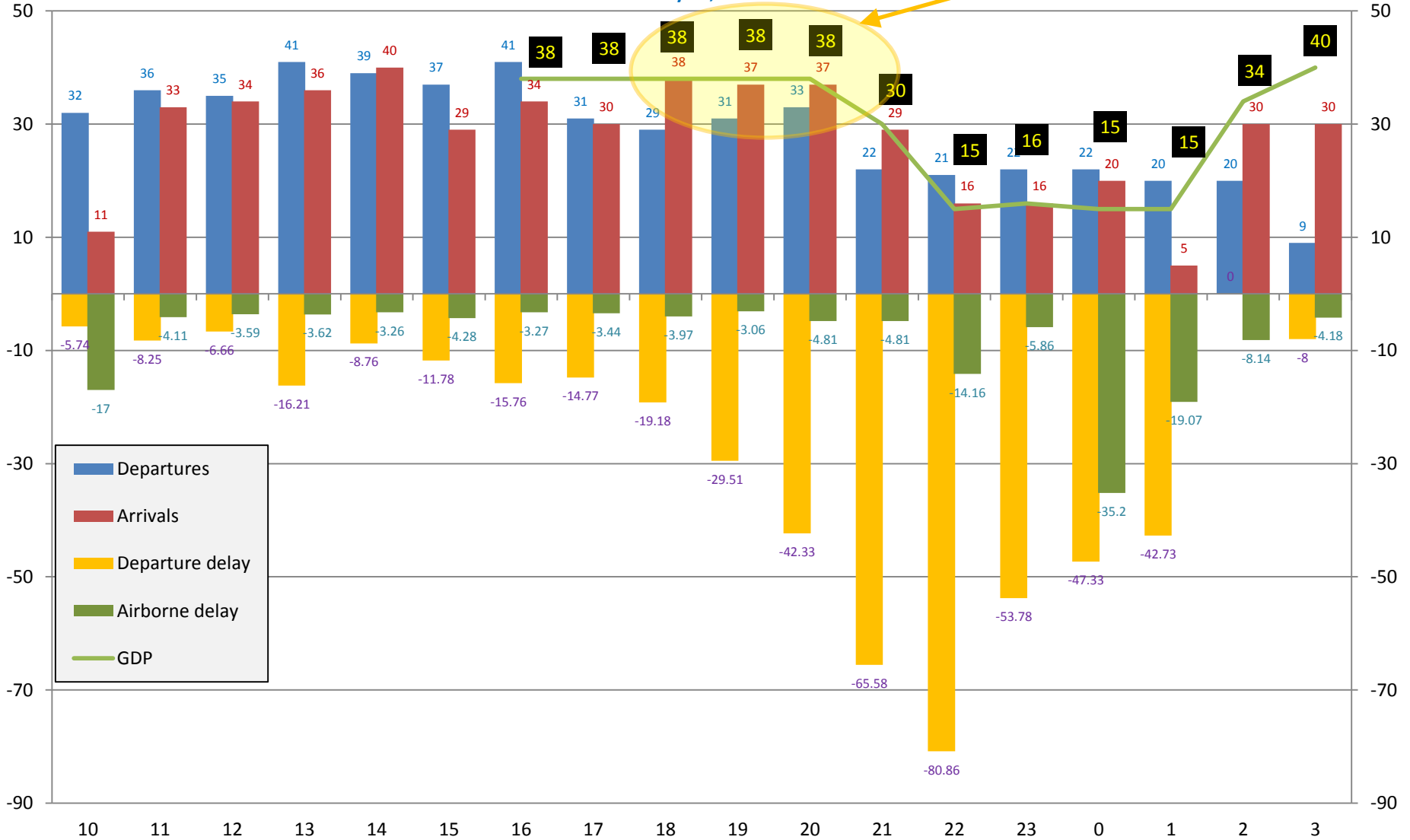


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# LGA

July 23, 2014

Keep AAR's and actual arrivals high as the weather approaches

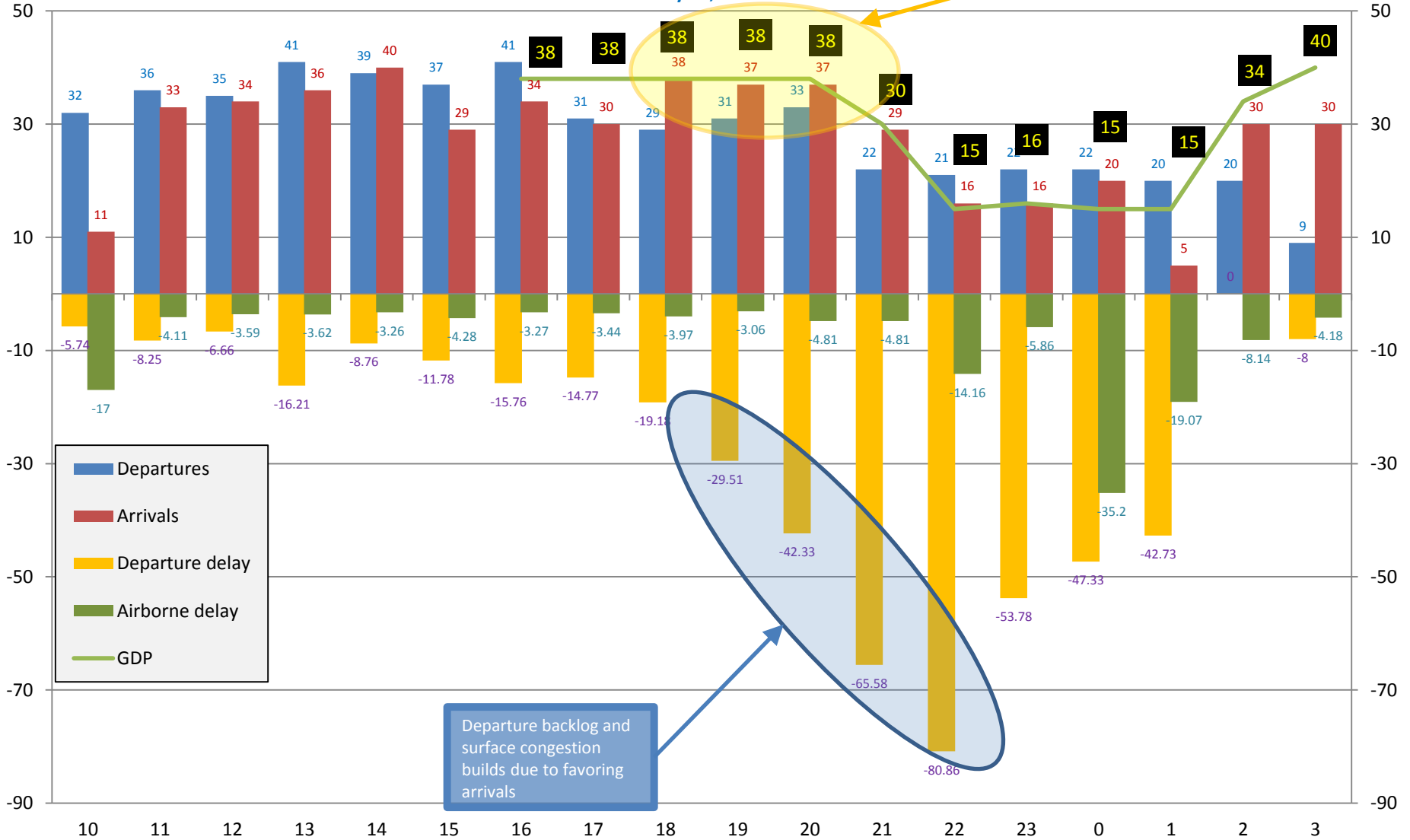


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# LGA

July 23, 2014

Keep AAR's and actual arrivals high as the weather approaches



Departure backlog and surface congestion builds due to favoring arrivals



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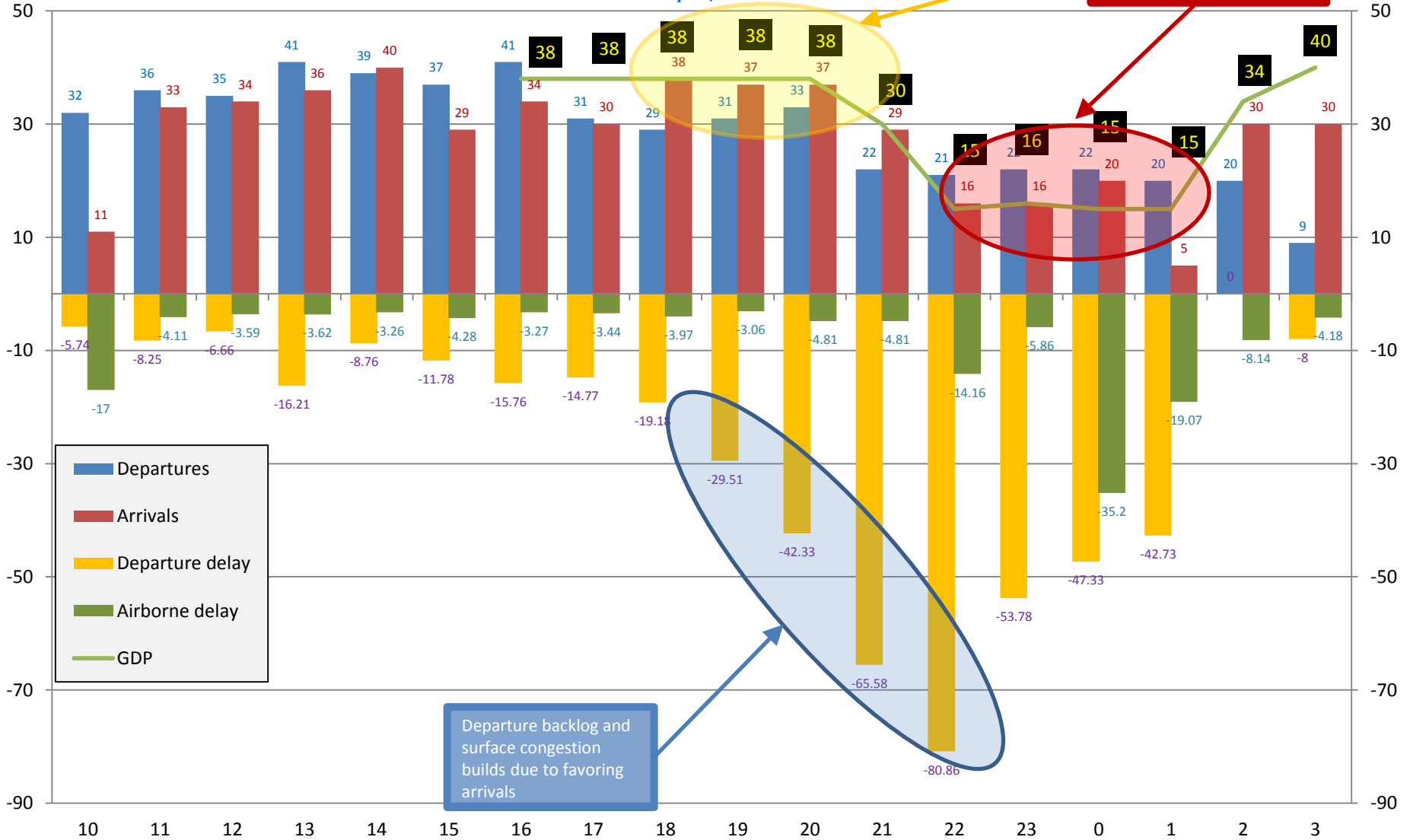


# LGA

July 23, 2014

Keep AAR's and actual arrivals high as the weather approaches

Reduce GDP rate to acknowledge capacity loss



Departure backlog and surface congestion builds due to favoring arrivals



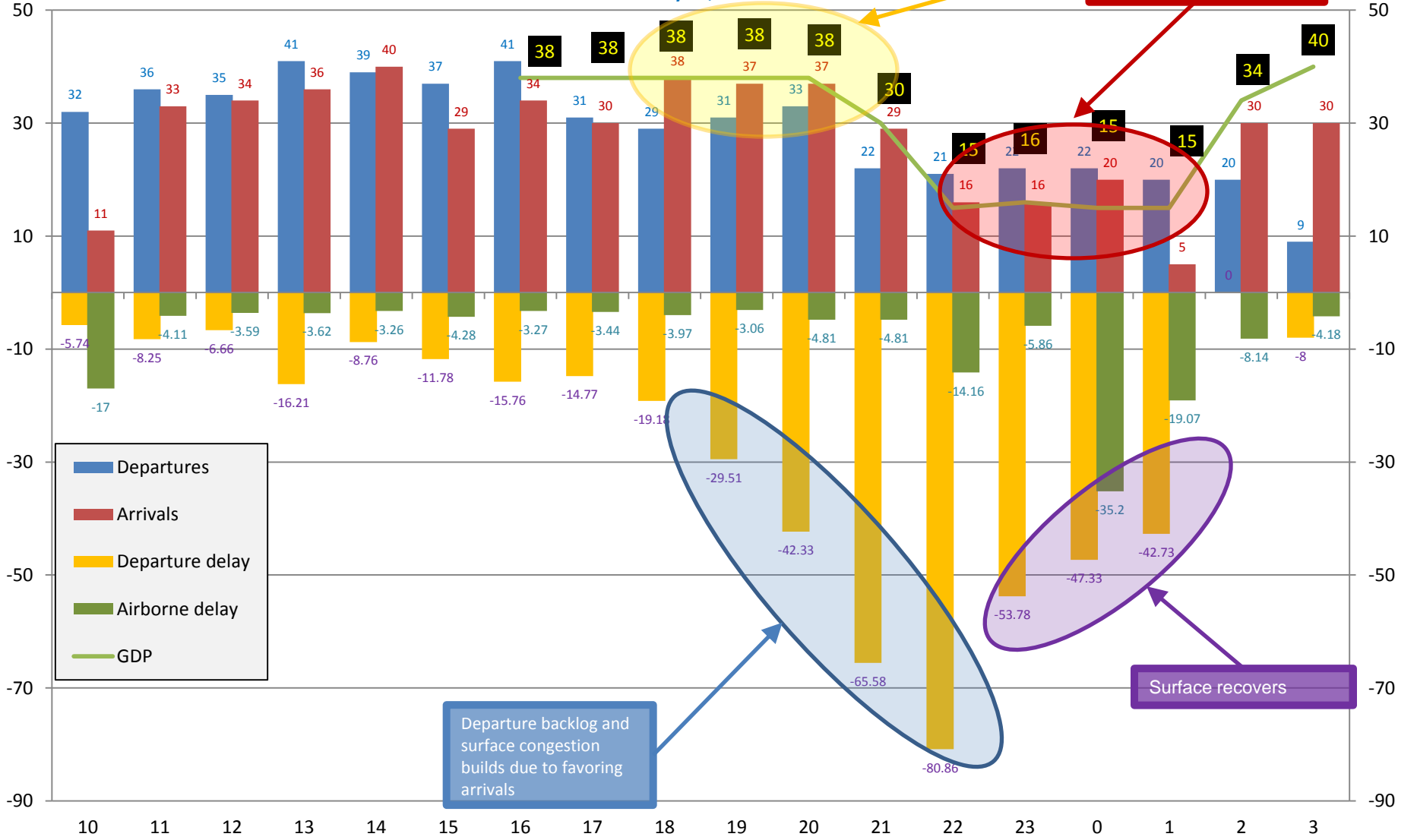
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# LGA

July 23, 2014

Keep AAR's and actual arrivals high as the weather approaches

Reduce GDP rate to acknowledge capacity loss



- Departures
- Arrivals
- Departure delay
- Airborne delay
- GDP

Departure backlog and surface congestion builds due to favoring arrivals

Surface recovers



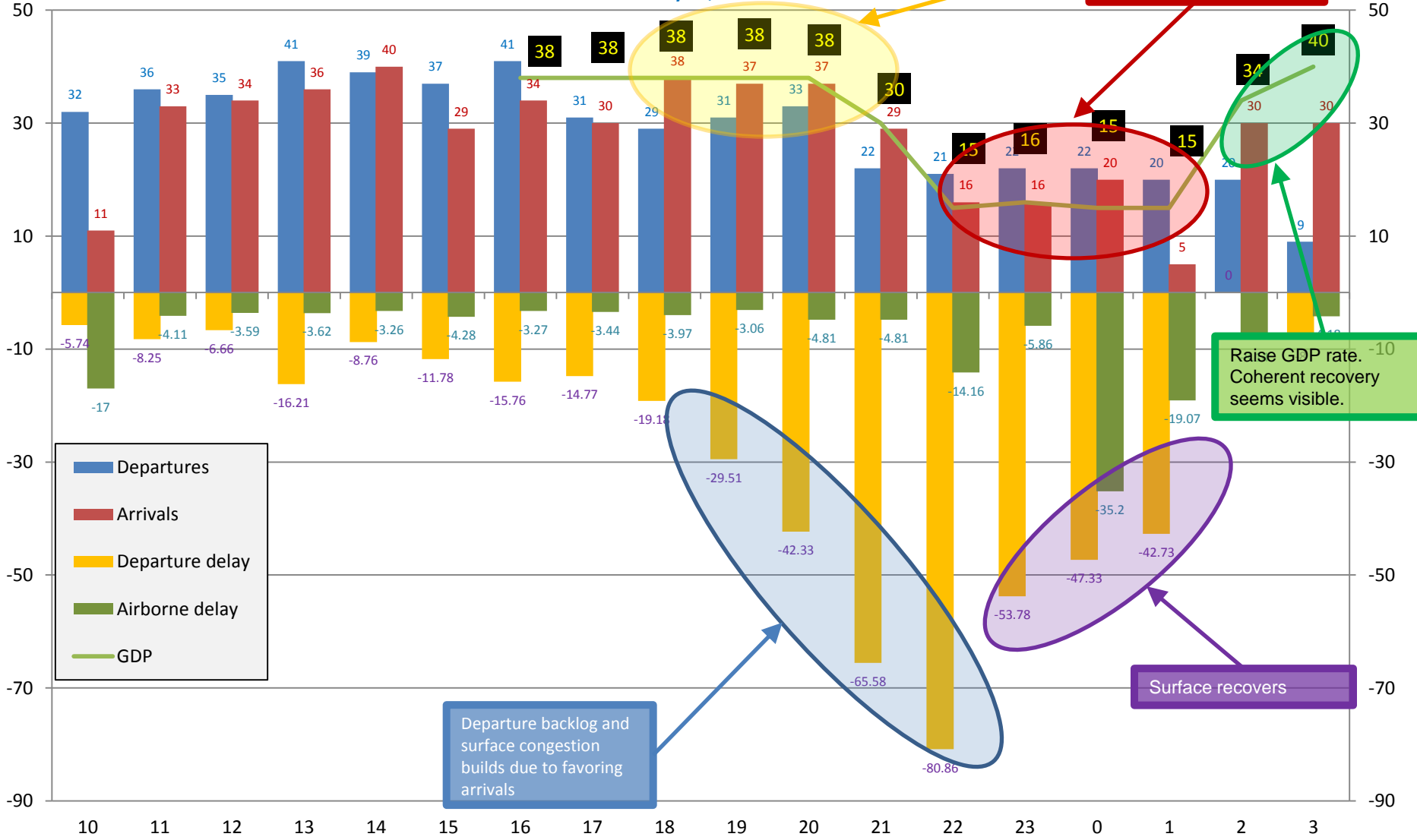
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# LGA

July 23, 2014

Keep AAR's and actual arrivals high as the weather approaches

Reduce GDP rate to acknowledge capacity loss



- Departures
- Arrivals
- Departure delay
- Airborne delay
- GDP

Departure backlog and surface congestion builds due to favoring arrivals

Surface recovers

Raise GDP rate. -10  
Coherent recovery seems visible.

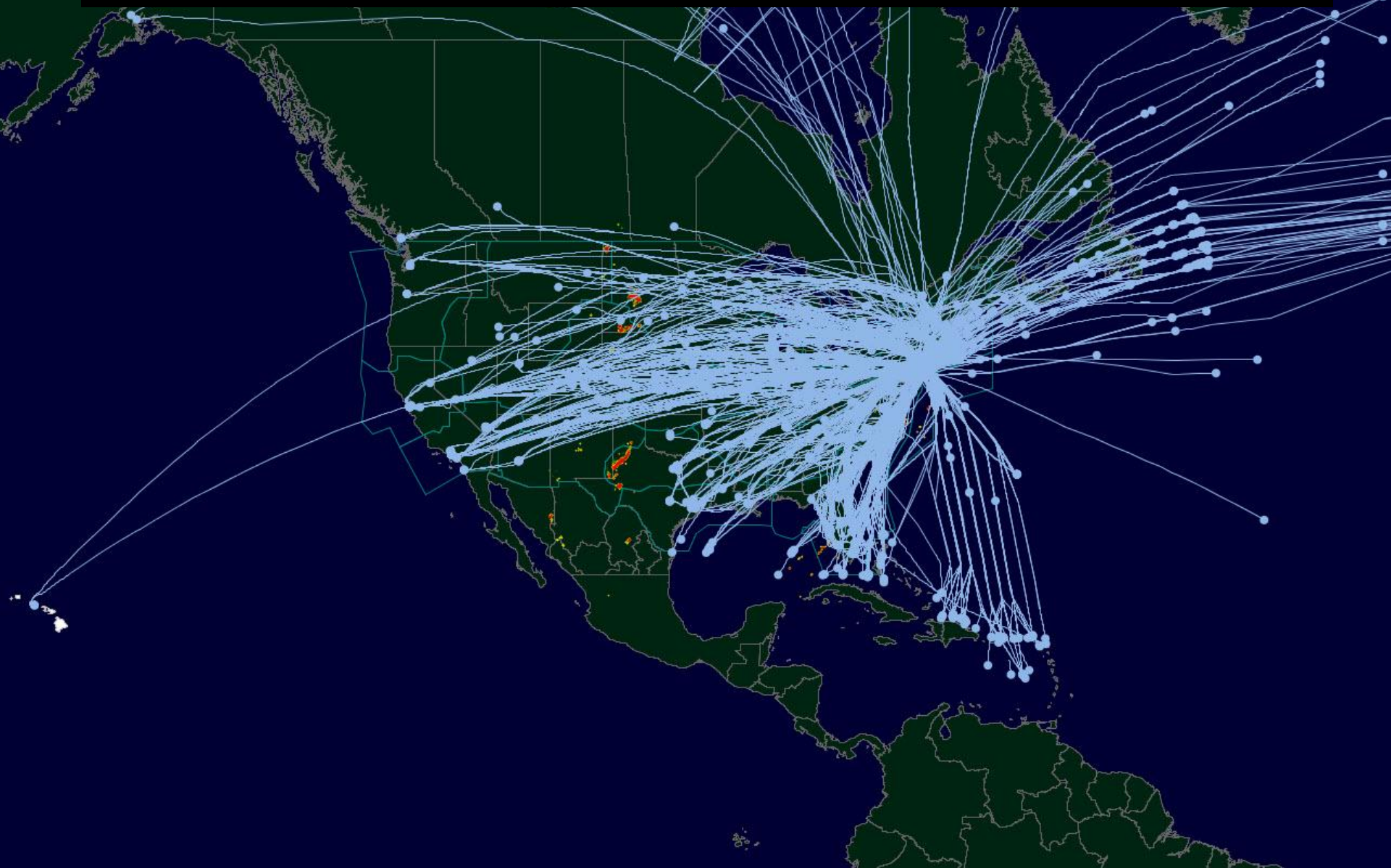


# Common Tactical Reroutes Defined

- Currently they are not published and generally occur within 200NM of a destination airport
- Most often require inter and intra-facility coordination, approval, and transfer of aircraft.
- They are used as a result of a weather blockage to a normal route.

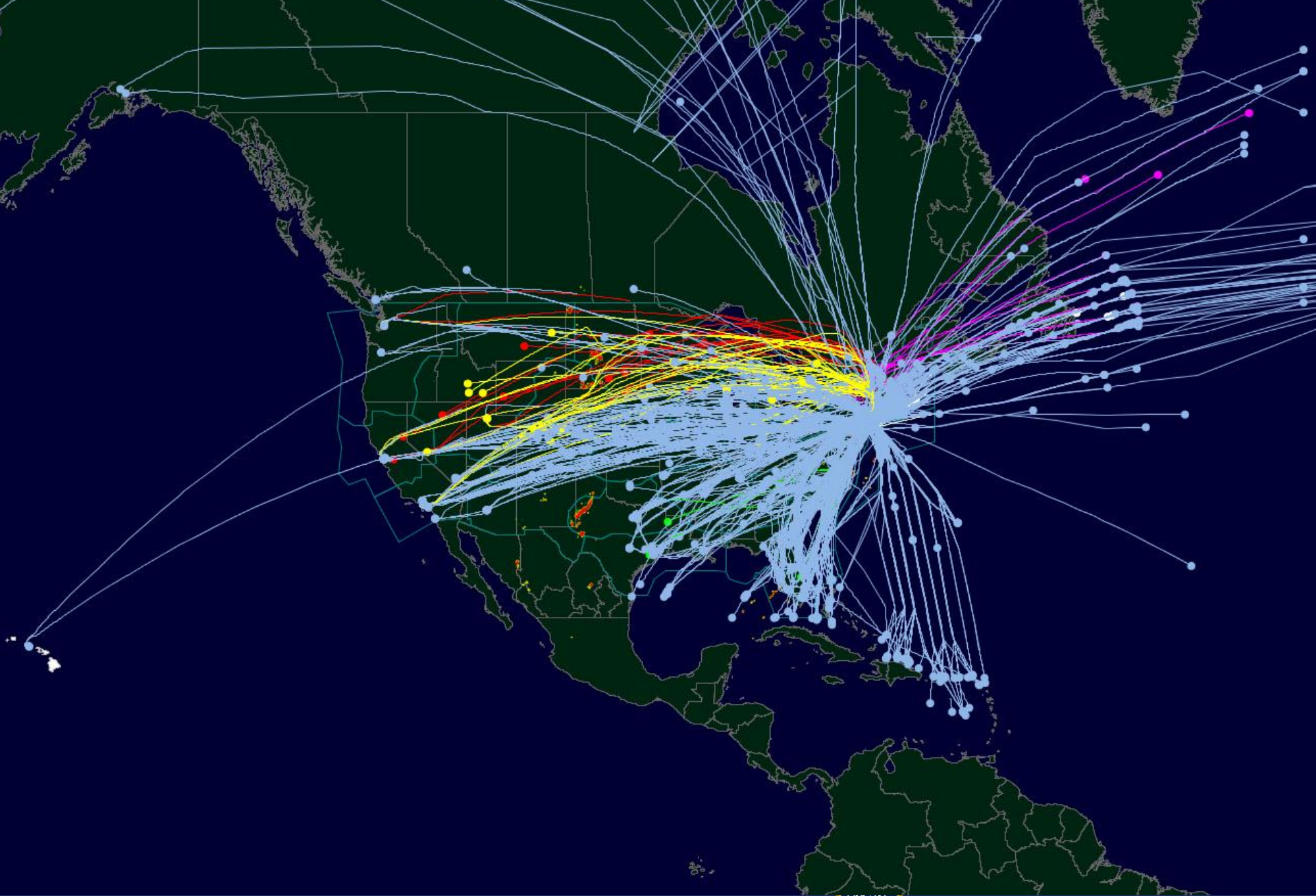


# JFK, LGA, and EWR Departures for one day



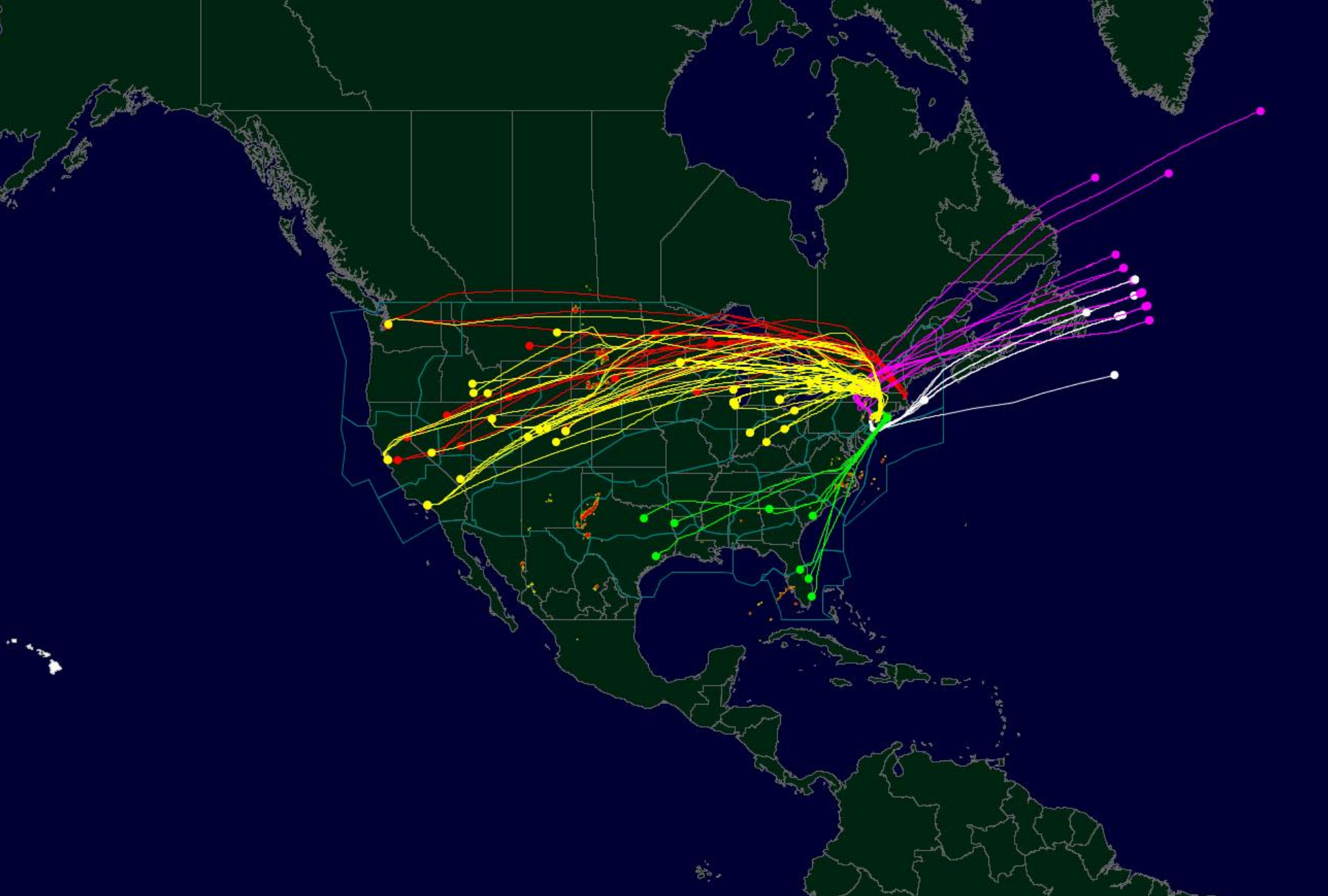
Federal Aviation  
Administration



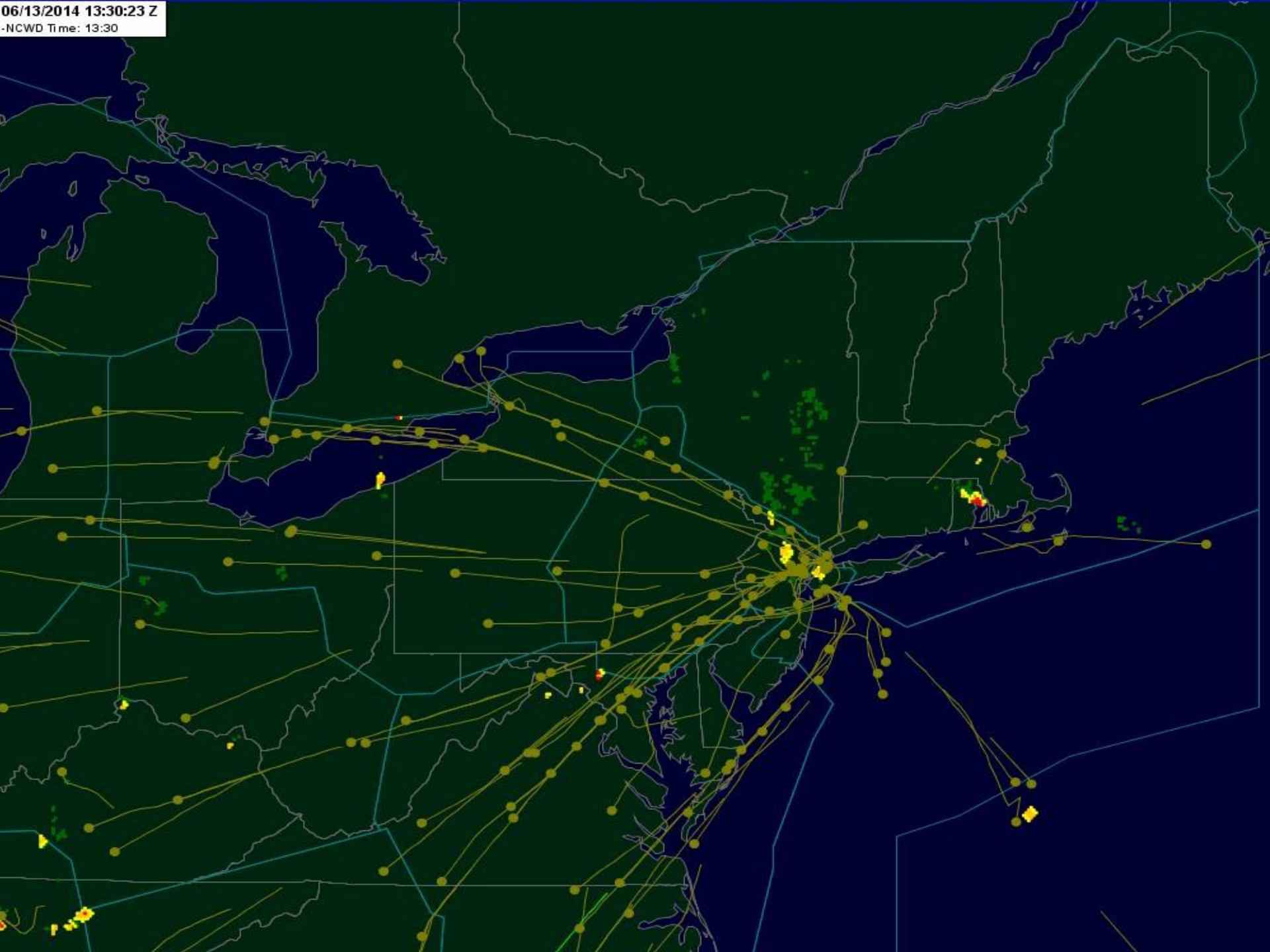


Federal Aviation  
Administration



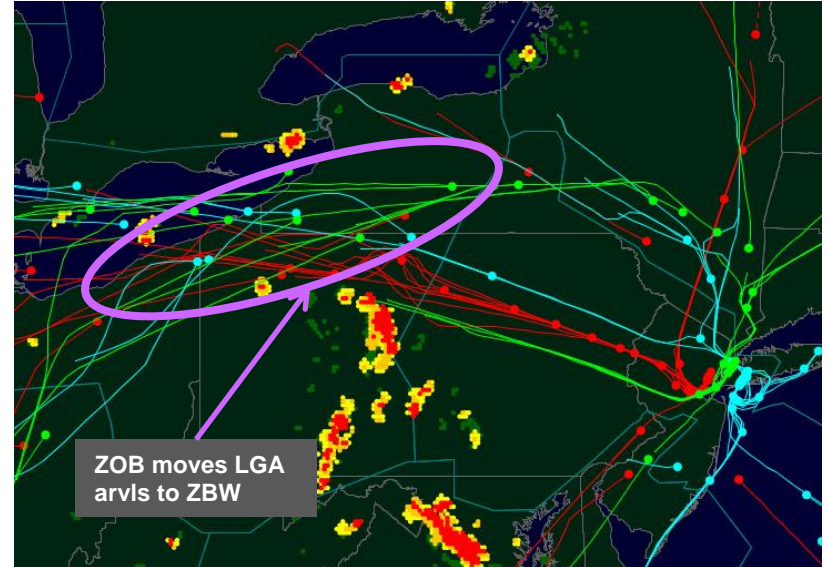
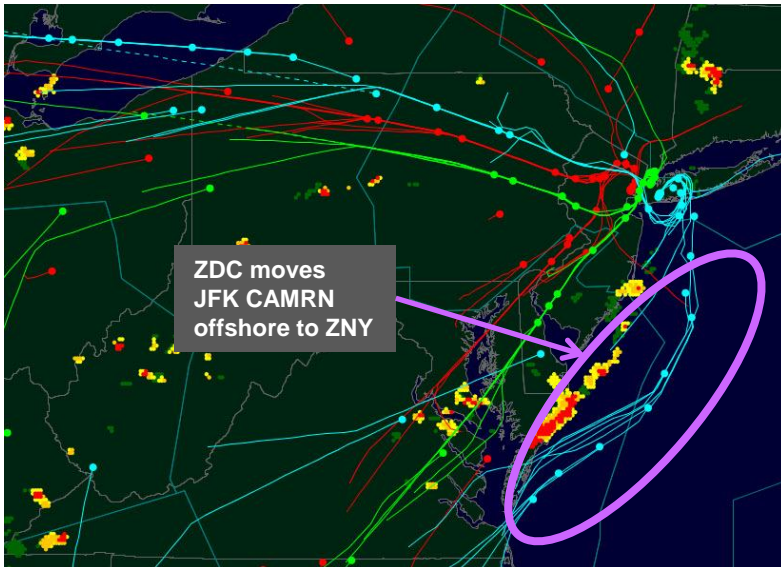
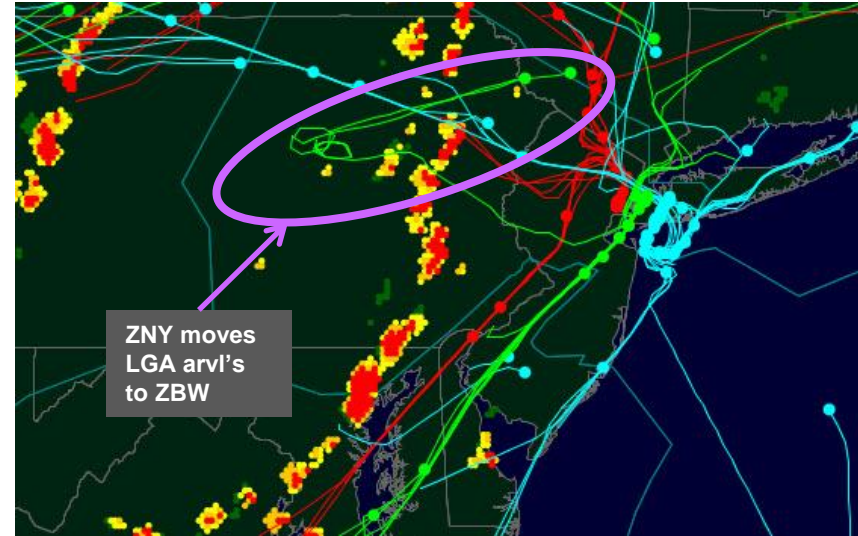
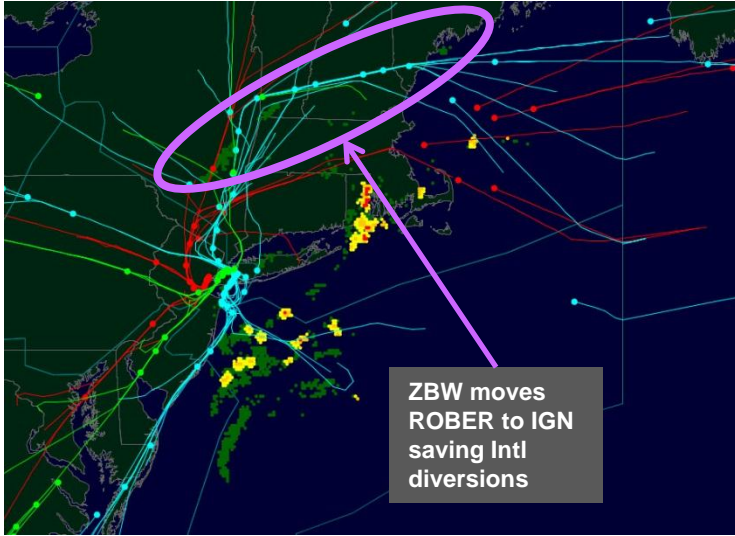


Federal Aviation  
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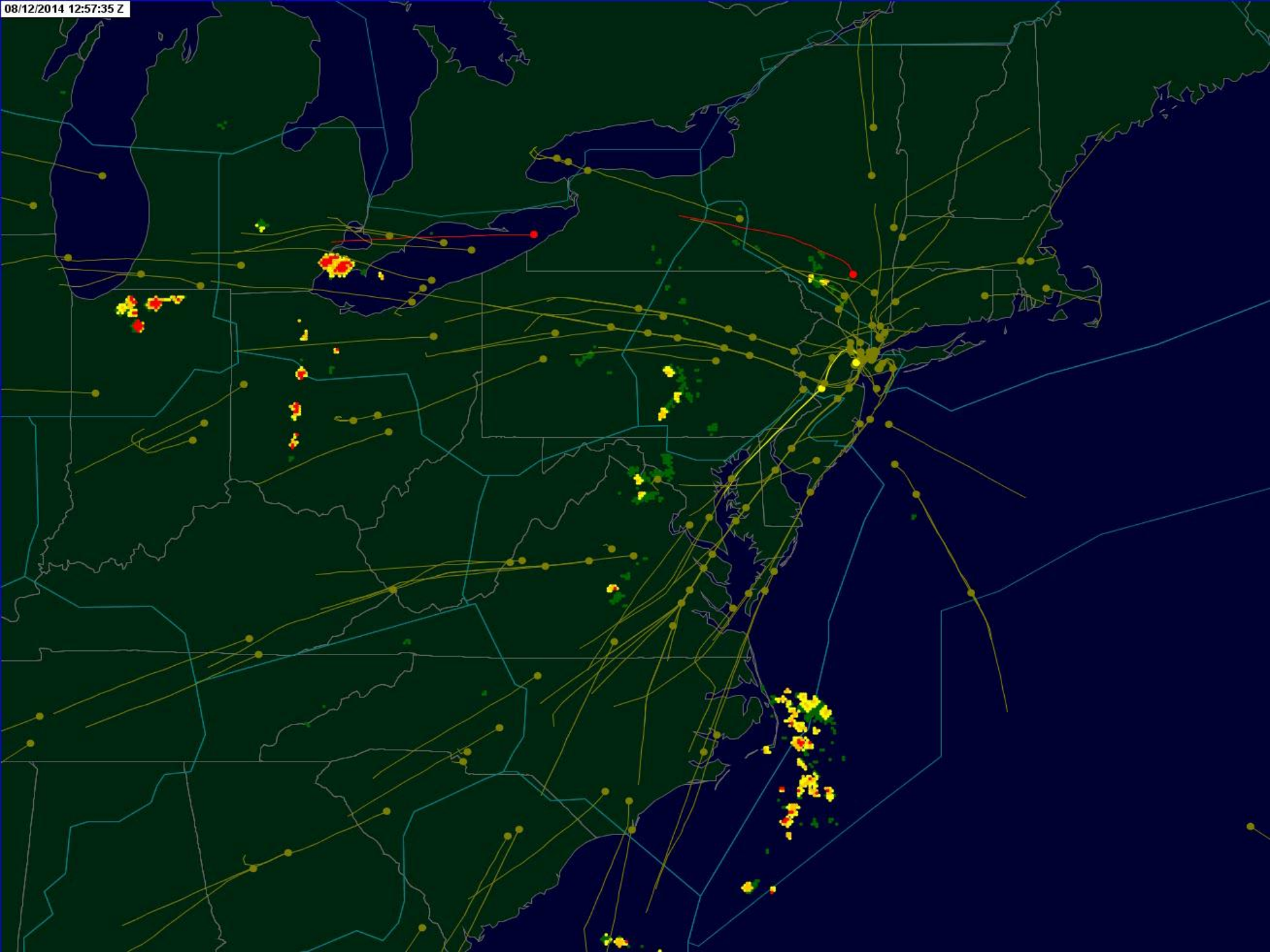


# Common Tactical Reroutes

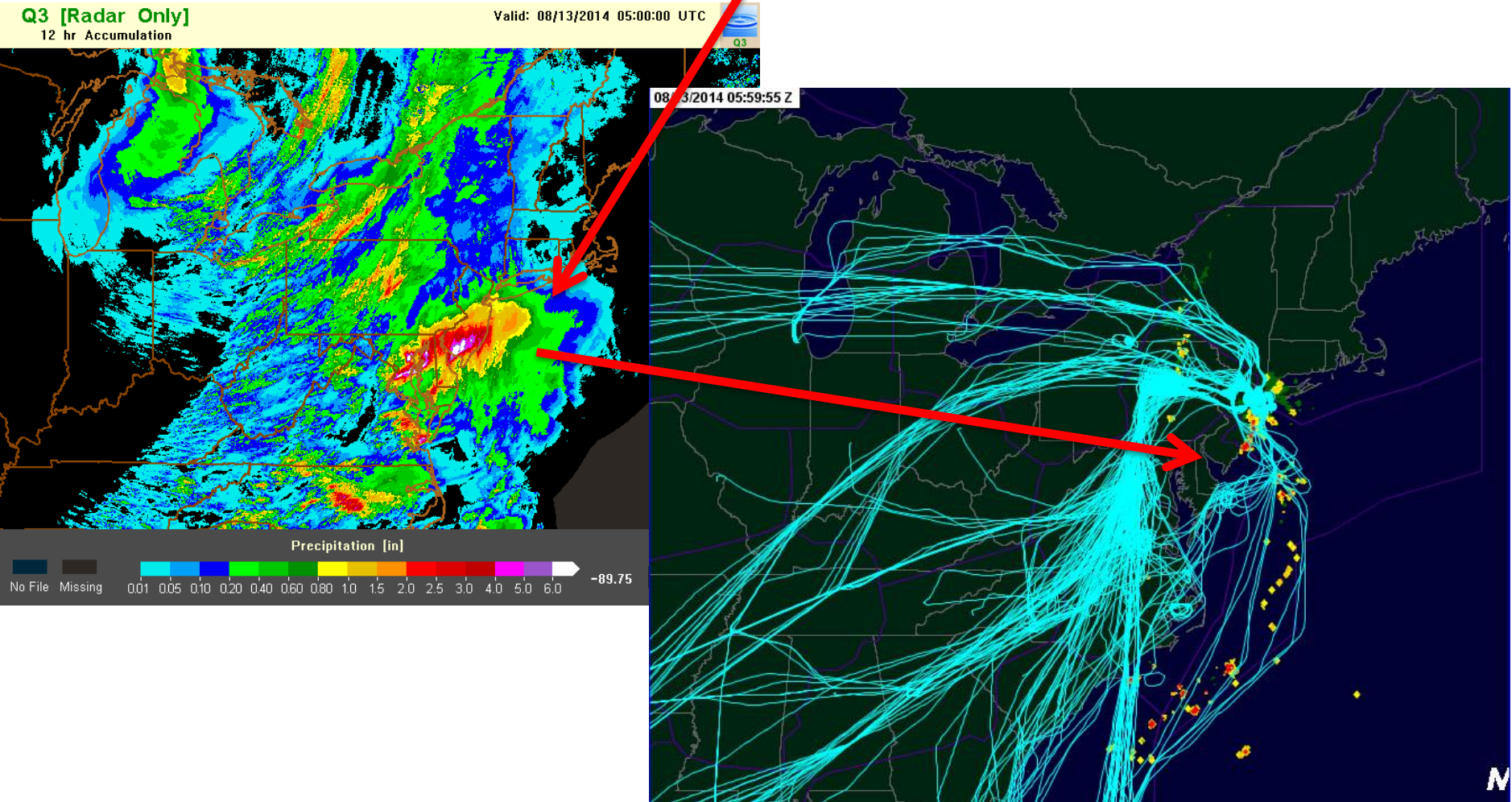




08/12/2014 12:57:35 Z



# Weather impact and reroutes should sync

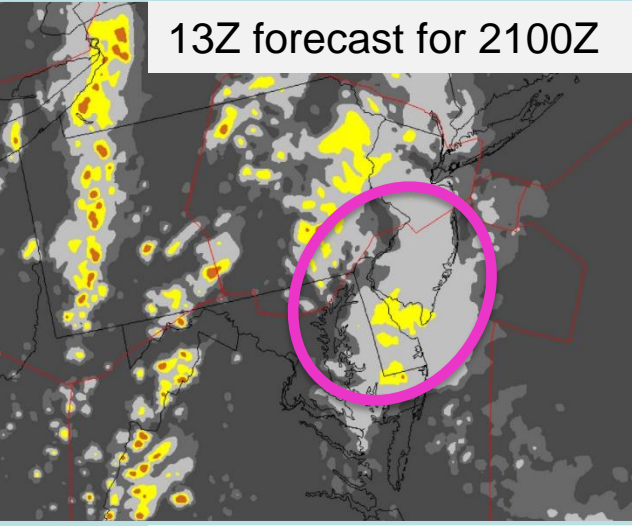


Federal Aviation Administration

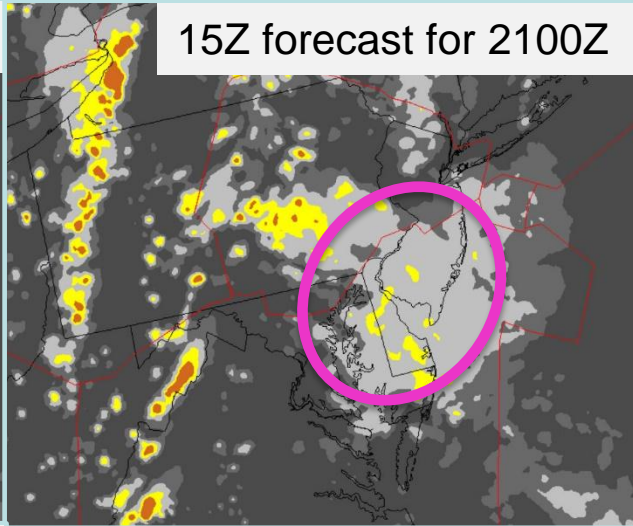


# ...and what about the forecast. Should we have known?

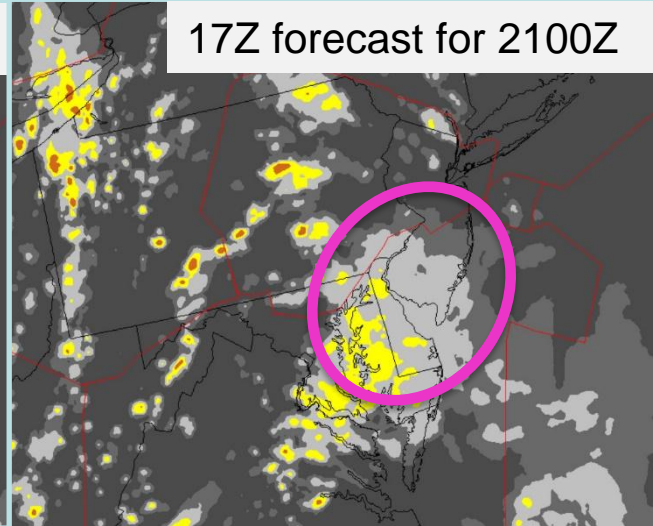
13Z forecast for 2100Z



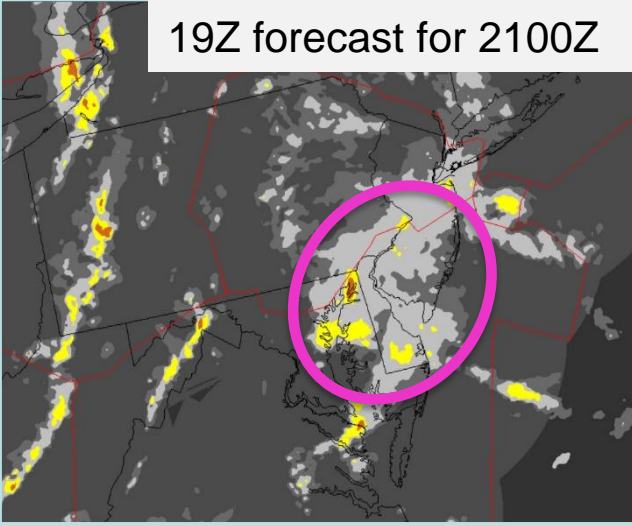
15Z forecast for 2100Z



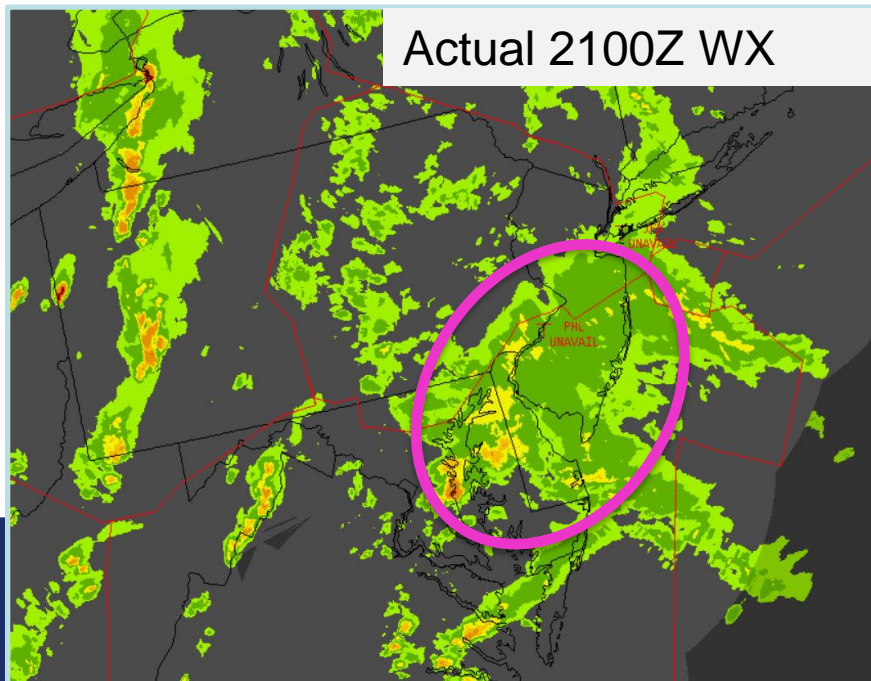
17Z forecast for 2100Z



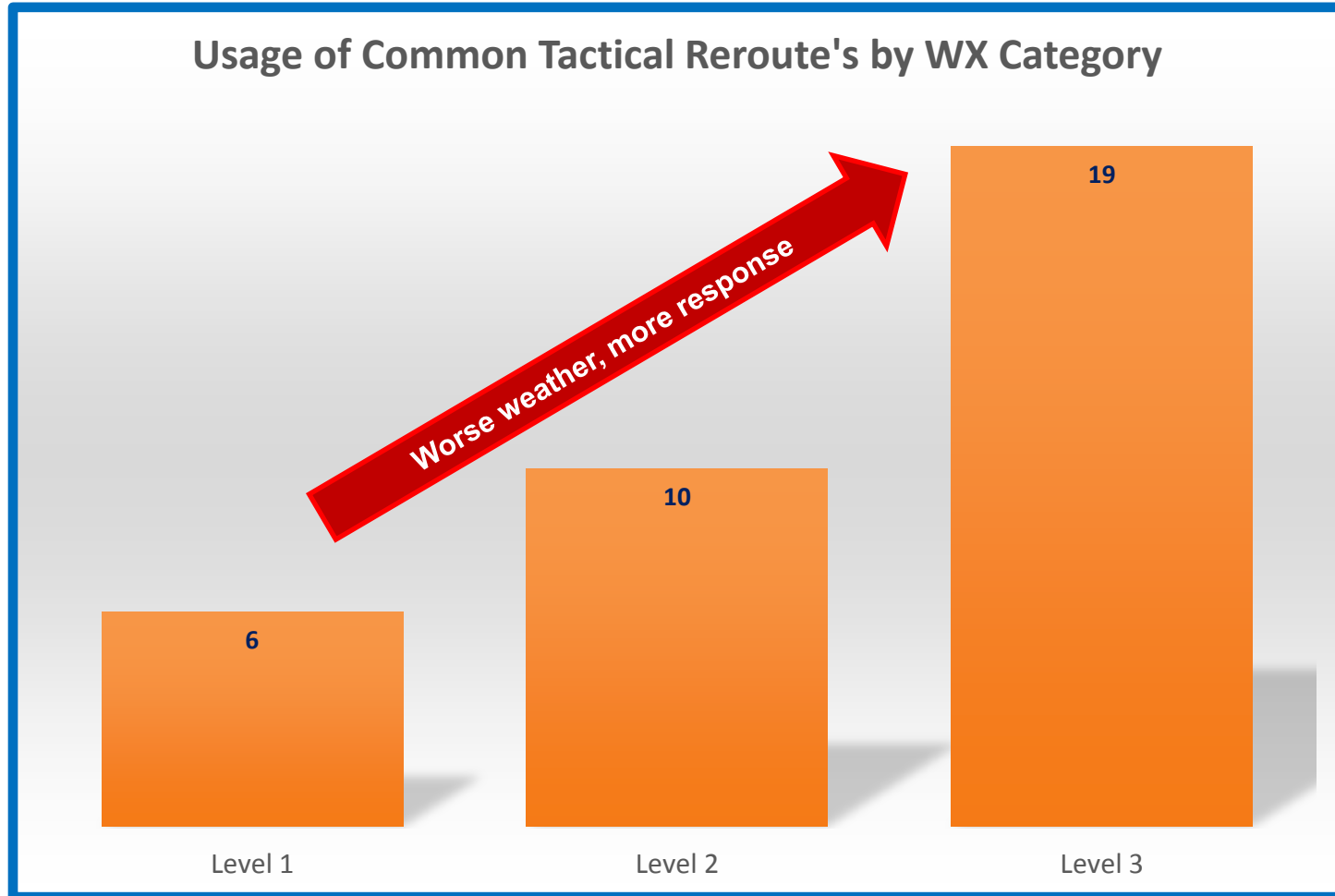
19Z forecast for 2100Z



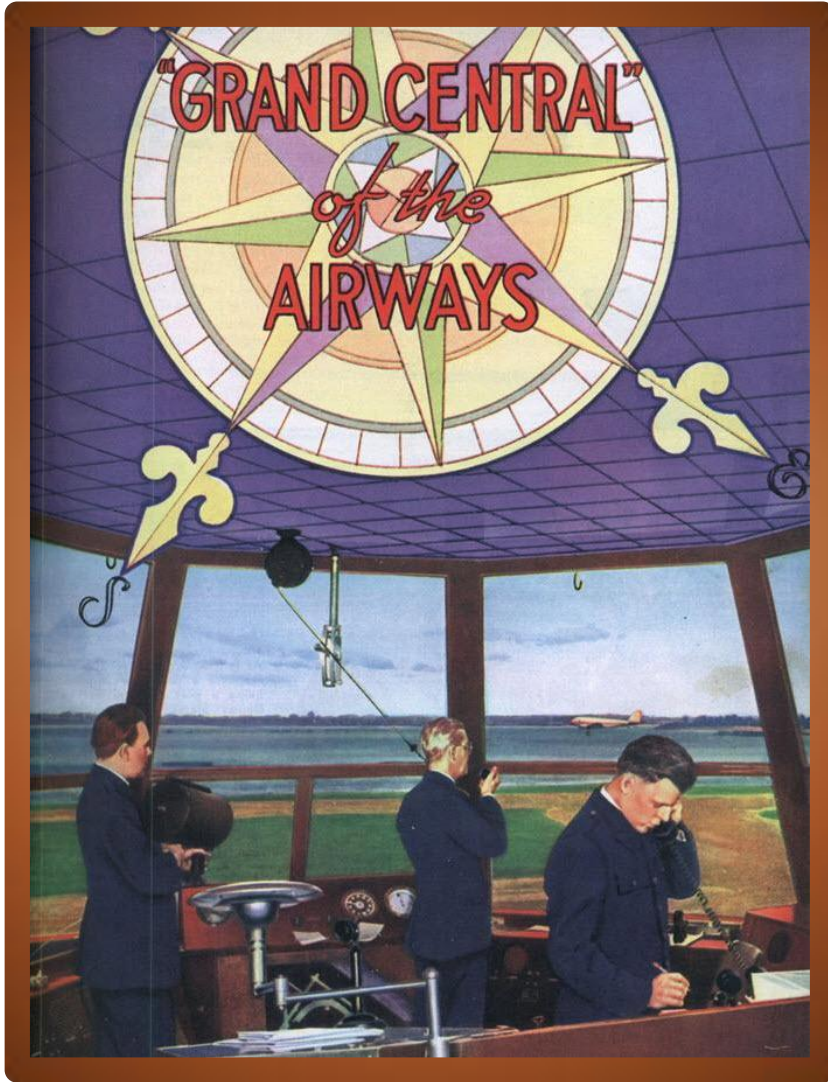
Actual 2100Z WX



# Aggressively mitigating system impacts based on weather category





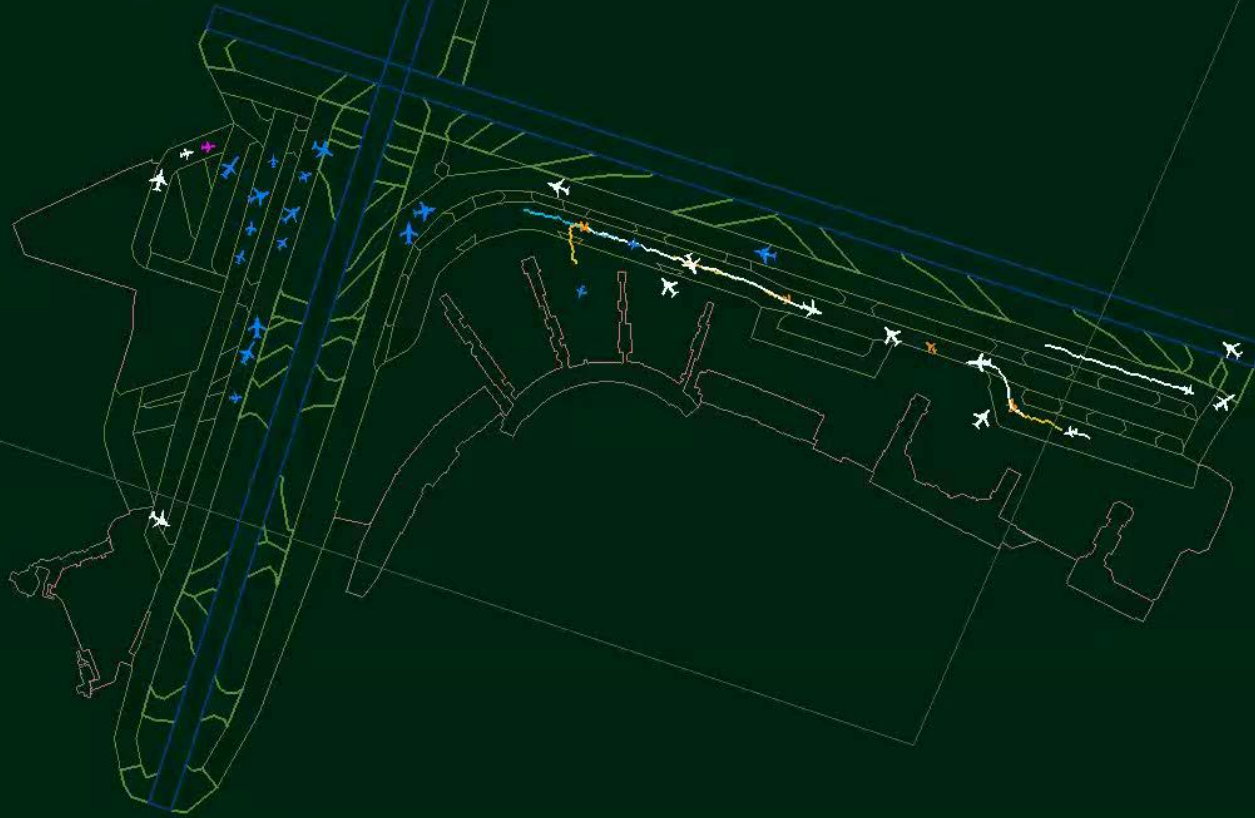


## Successful Surface Tactics



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# Target of opportunity



# Agenda

- Operational perspective and constraints
- Understanding weather impacts
- Testing new tactics
- **Metrics and outcomes**
- Developing successful strategies



# Context of data

- This is a comparison of 9 specific AERO and OPSNET delay metrics.
- The intent is to identify metrics that move as a result our operational decisions and collaboration.
- The review involves only SWAP days between April 1 – September 15 for the years 2011-2014.
- Selected “trendlines” are charted for relevance.

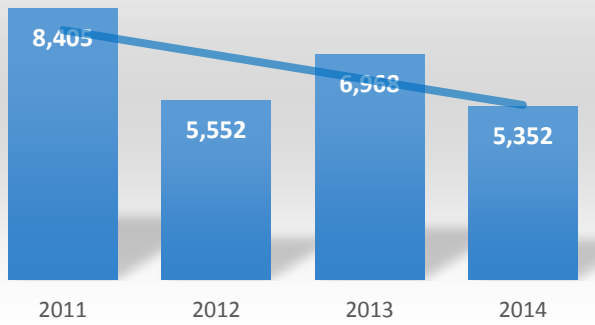




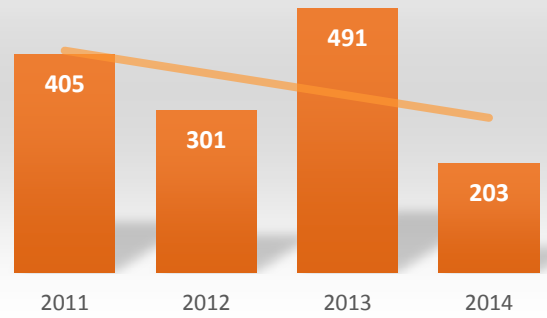
# LGA SWAP Metrics

## 2011-2014 (SWAP Days Only)

### Total Cancellations



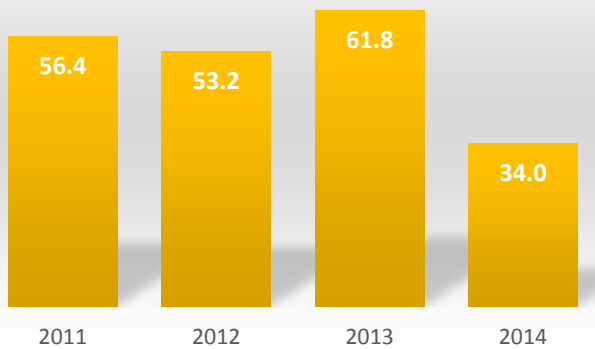
### Diversions



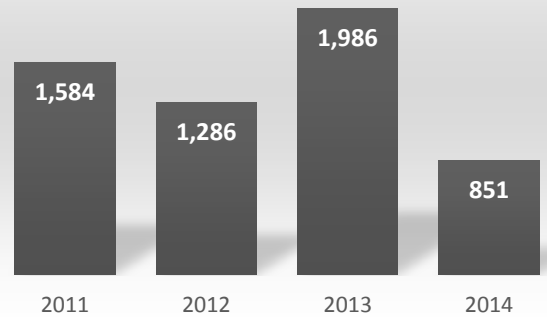
### GS Events



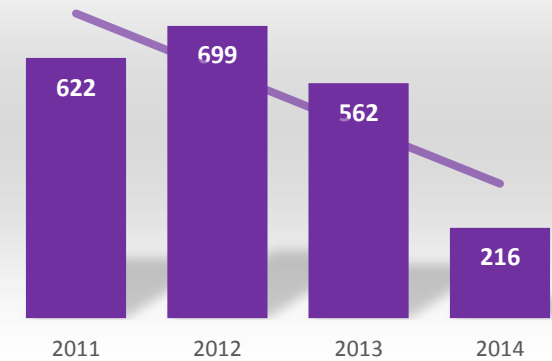
### GS Avg Mins



### Holding Events



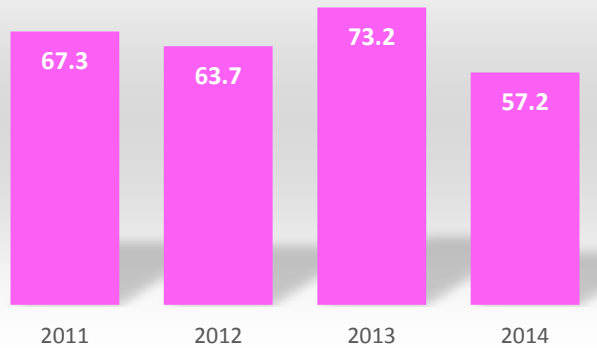
### Long Taxi-outs



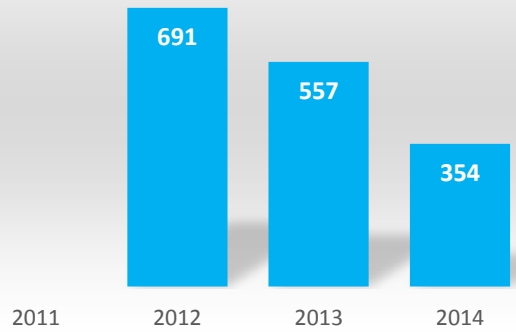
# LGA SWAP Metrics

## 2011-2014 (SWAP Days Only)

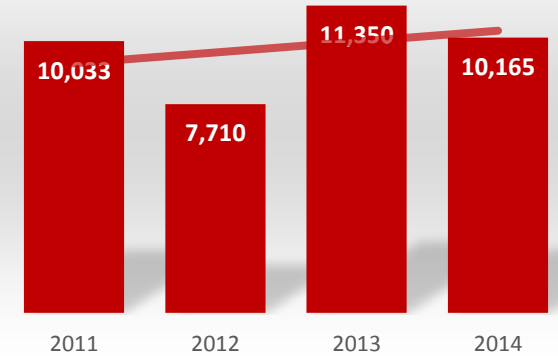
### Avg Delay Mins



### DOT-3 Taxi backs



### Delays



### Better Results:

- Average Delay Minutes
- Long Taxi-outs
- Cancellations
- Diversions
- Holding Events
- Average Ground Stop Minutes
- Ground Stop Events
- DOT-3 Taxi backs

### Same Results:

### Worse Results:

- Delays



# **A Deeper Dive into Operational Results and Weather Impact Categorization**



**Federal Aviation  
Administration**

# 2014 NY Area OPSNET and AERO Results

OPSNET	Facility	Ops	Delays	Ops per Delay	TMI to	Dep Occ at	Abrn Occ at	TMI From local	TMI from non-local	Total Occ at	Local Dep	Abrn to	Avg (Min)	Total (Min)
Level 1	EWR	43,877	2,321	19	1,961	360	0	138	204	702	498	73	62.3	144,659
Level 1	JFK	47,998	1,758	27	977	781	0	1,143	181	2,105	1,924	170	43.7	76,770
Level 1	LGA	41,133	4,395	9	2,661	1,734	0	1,580	372	3,686	3,314	258	46.1	202,705
Level 2	EWR	18,722	2,065	9	1,768	297	0	401	103	801	698	27	60.3	124,508
Level 2	JFK	20,662	1,753	12	1,244	509	0	875	99	1,483	1,384	130	58.0	101,673
Level 2	LGA	17,925	2,128	8	2,089	39	0	463	164	666	502	89	55.1	117,287
Level 3	EWR	22,251	3,449	6	3,326	123	0	1,483	173	1,779	1,606	442	86.2	297,334
Level 3	JFK	25,222	2,078	12	2,069	9	0	2,521	188	2,718	2,530	637	83.0	172,408
Level 3	LGA	19,732	3,642	5	3,299	343	0	1,253	250	1,846	1,596	504	71.8	261,463

AERO	Facility	Ops	Cnx	Ops Per Cnx	Div	Ops per Div	GS Events	Ops per GS	GS min	H Events	Ops Per H event	H Min	Long taxi	Ops Per long T	Taxi backs	Ops per TB	Completion
Level 1	EWR	43,877	1195	37	33	1,330	19	2,309	552	73	601	1,417	12	3,656	84	522	96.85
Level 1	JFK	47,998	423	113	28	1,714	43	1,116	1,907	170	282	3,146	46	1,043	146	329	99.06
Level 1	LGA	41,133	1278	32	31	1,327	11	3,739	317	258	159	5,355	25	1,645	131	314	96.78
Level 2	EWR	18,722	822	23	7	2,675	5	3,744	119	27	693	495	12	1,560	61	307	95.06
Level 2	JFK	20,662	292	71	13	1,589	4	5,166	83	130	159	2,144	55	376	77	268	98.45
Level 2	LGA	17,925	703	25	28	640	18	996	677	89	201	2,024	29	618	65	276	95.98
Level 3	EWR	22,251	2781	8	177	126	3	7,417	71	442	50	11,955	168	132	156	143	88.03
Level 3	JFK	25,222	1702	15	194	130	28	901	1,475	637	40	16,067	295	85	178	142	93.66
Level 3	LGA	19,732	3377	6	144	137	13	1,518	432	504	39	13,814	162	122	163	121	84.69

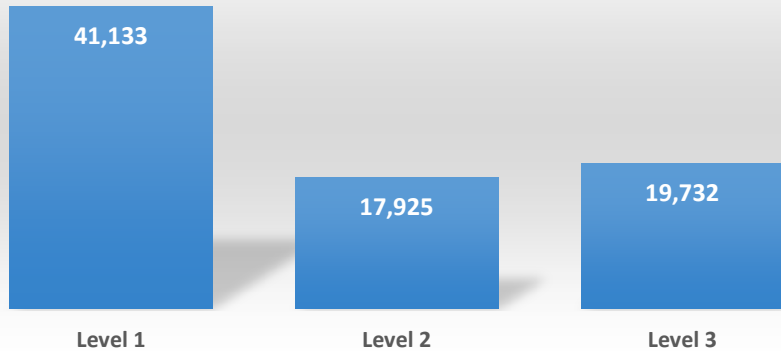




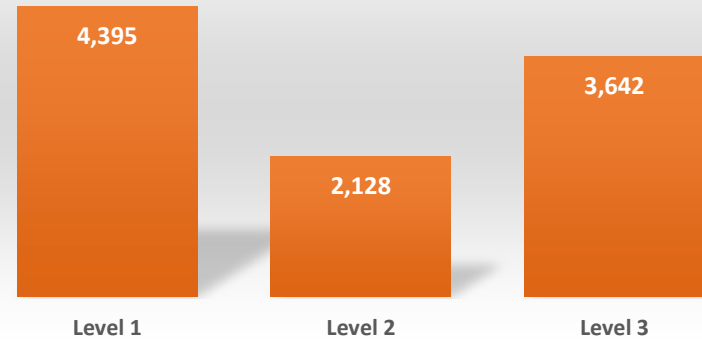
# LGA Results Compared to Weather Impact Category

## SWAP Days 2014

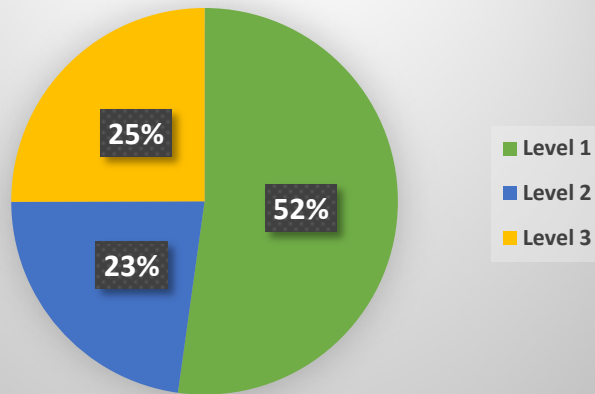
### 2014 LGA Operations on SWAP Days



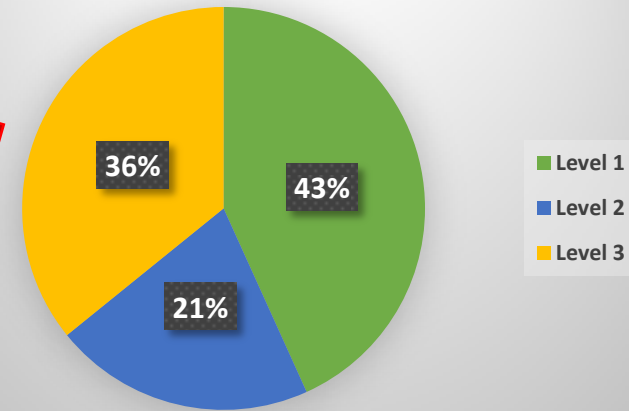
### Number of Aircraft Delayed



### Operations on SWAP Days



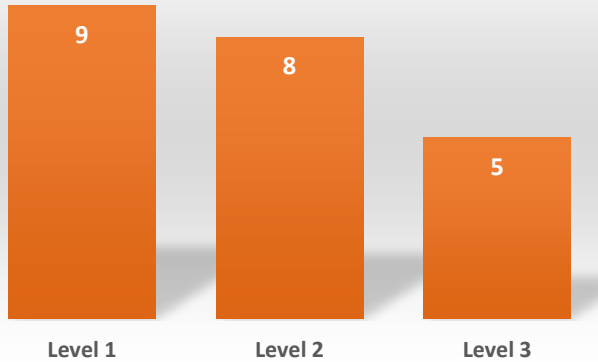
### # of Aircraft Delayed



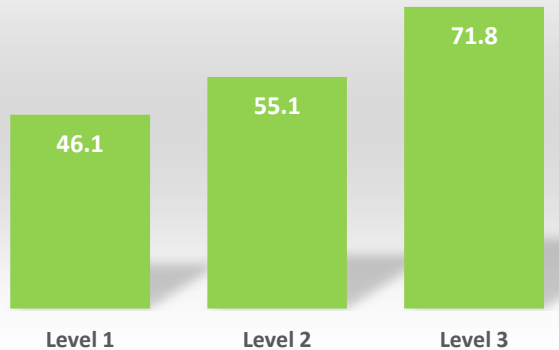
# LGA Comparisons and Results

## SWAP Days 2014

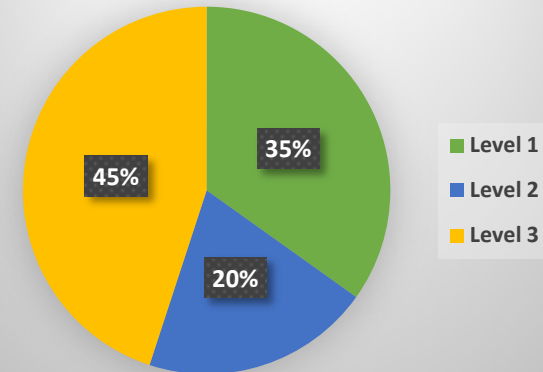
### LGA Operations per Delay



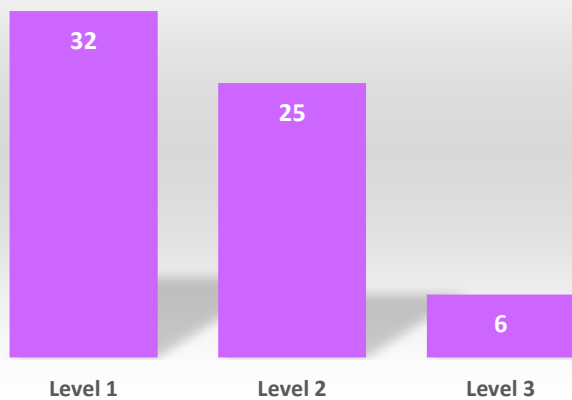
### Average Delay Minutes



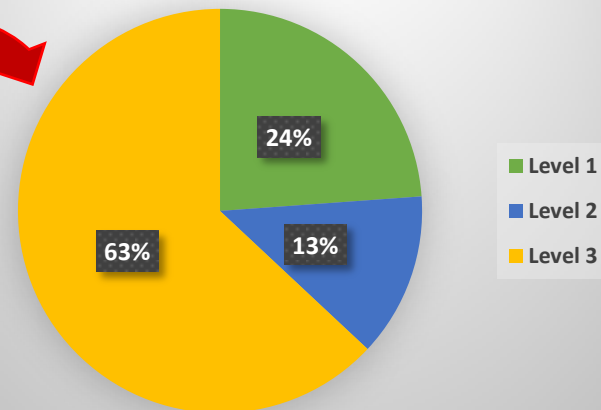
### Total Delay Minutes



### Ops Per Cnx



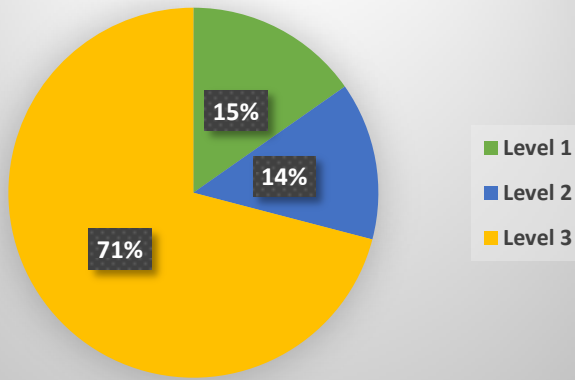
### Arvl & Dept Cancellations



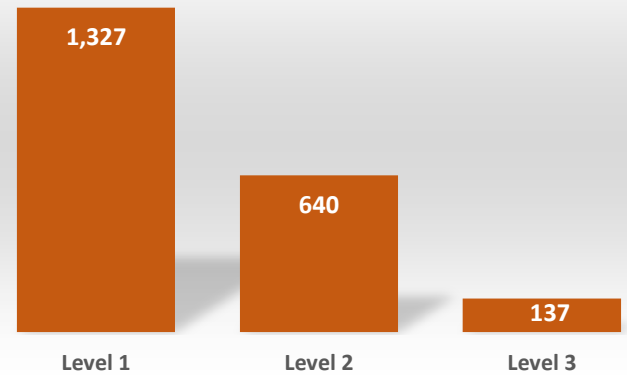
# LGA Comparisons and Results

## SWAP Days 2014

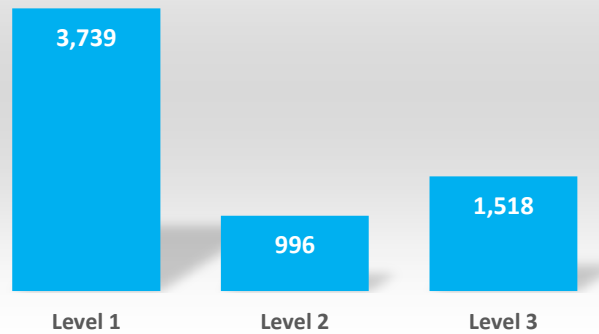
### Diversions



### Operations per Diversion



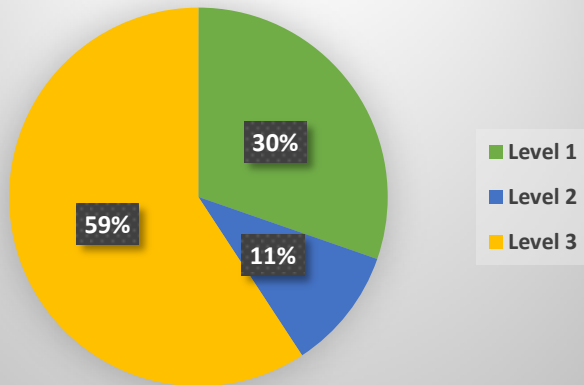
### Operations per Ground Stop



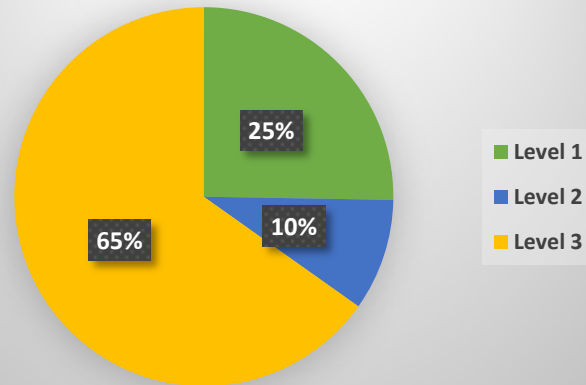
# LGA Comparisons and Results

## SWAP Days 2014

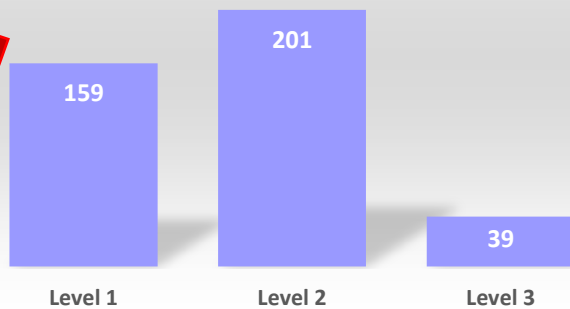
### # of Holding Events



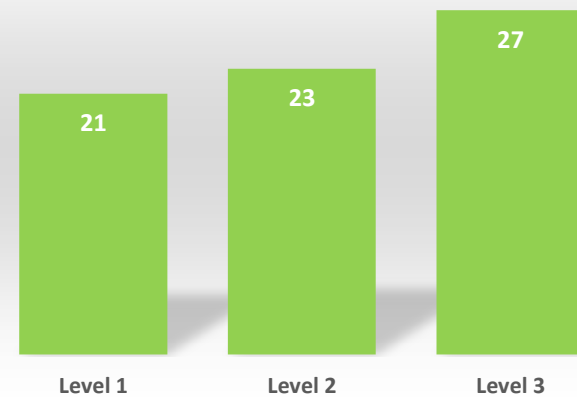
### Total Holding Minutes



### Operations Per Holding Event



### Average Holding Minutes

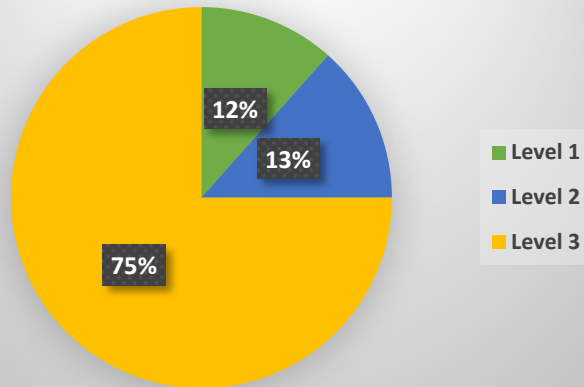




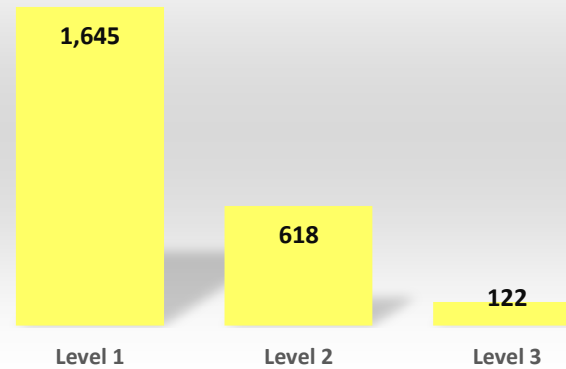
# LGA Comparisons and Results

## SWAP Days 2014

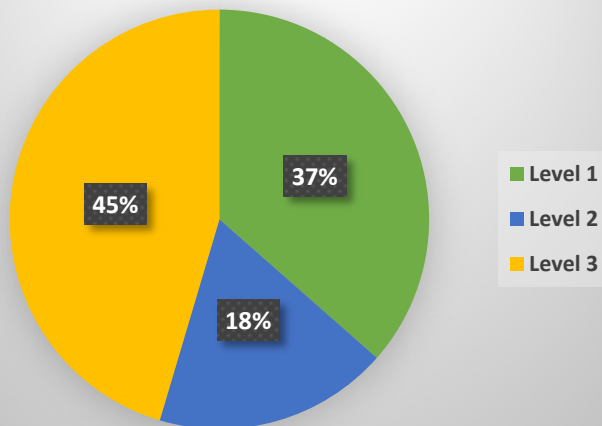
### Long Taxi-outs



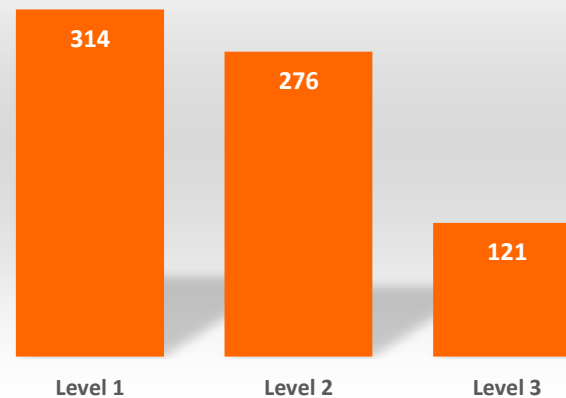
### Ops Per Long Taxi-out



### Dot-3 Taxi backs

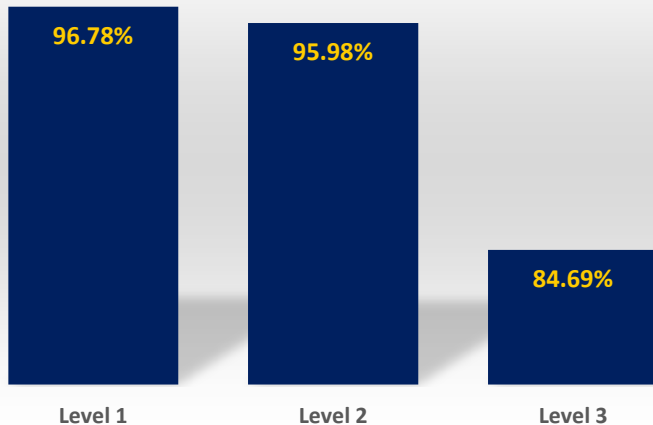


### Ops per DOT-3 Taxi back



# For LGA Airport, level 3 WX compared to level 1 WX means:

Aggregate Completion Rate



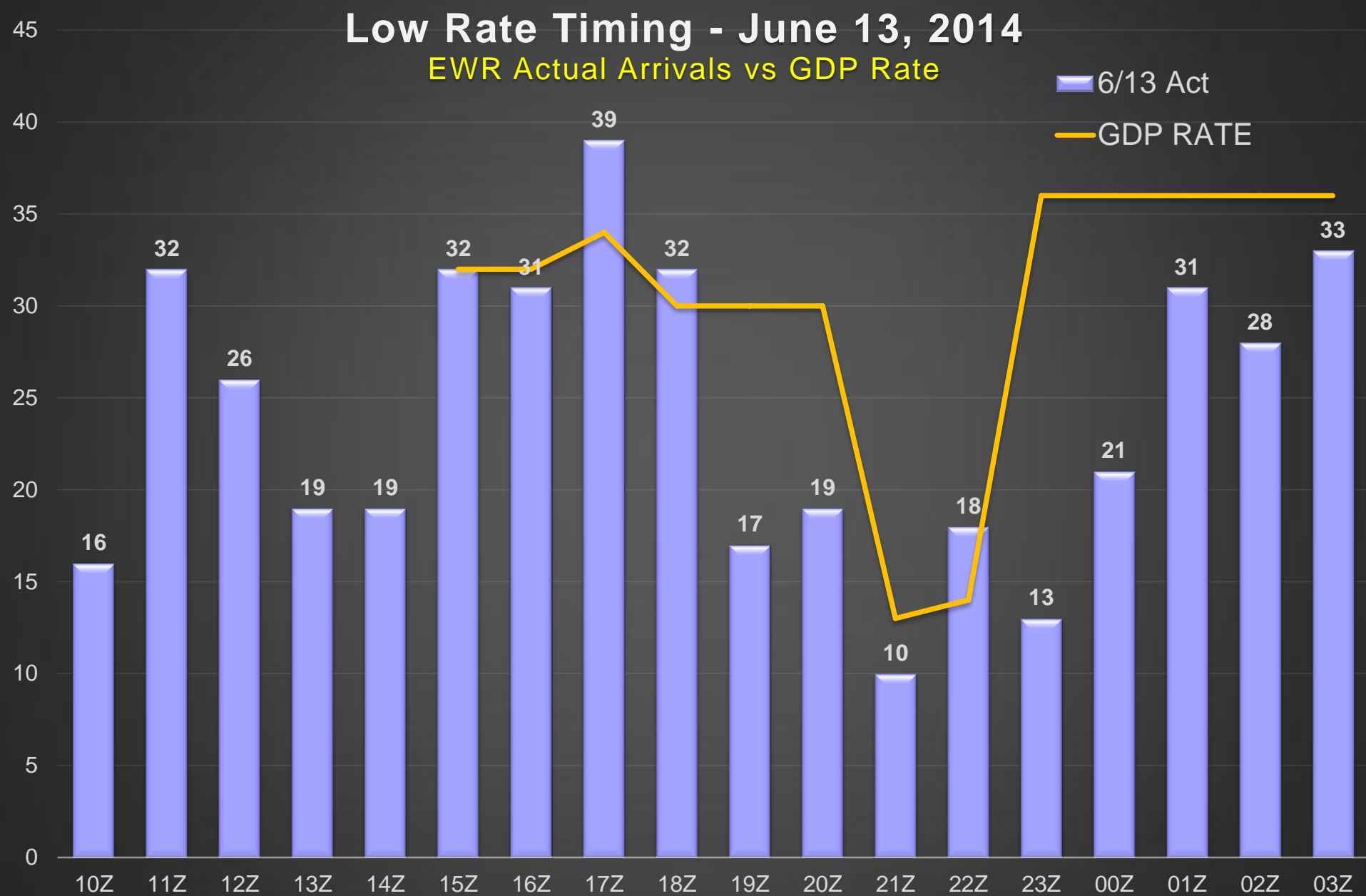
- A higher percentage of aircraft delayed.
- A higher % of total ***cancellations*** and a 6 times higher cancellation rate.
- A higher percentage of ***diversions*** and a 10 times higher diversion rate.
- Twice the rate of ***ground stops*** per operation.
- A 4 times higher ***holding*** rate and 25 percent higher holding minutes for those aircraft that hold.
- A high percentage of ***DOT-3 taxibacks***.



# Low Rate Timing - June 13, 2014

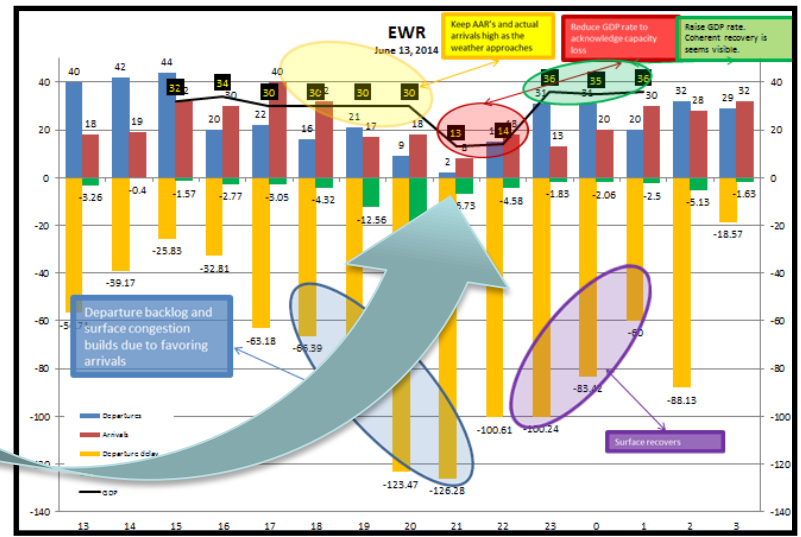
EWR Actual Arrivals vs GDP Rate

6/13 Act  
GDP RATE

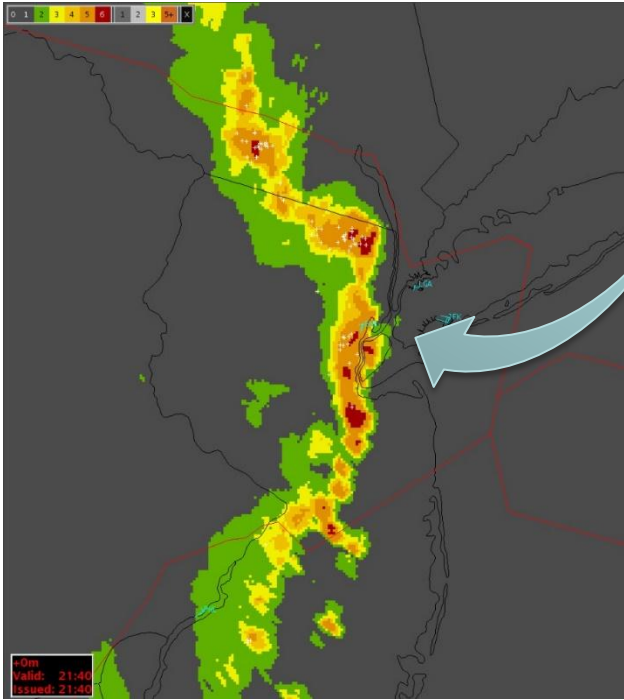


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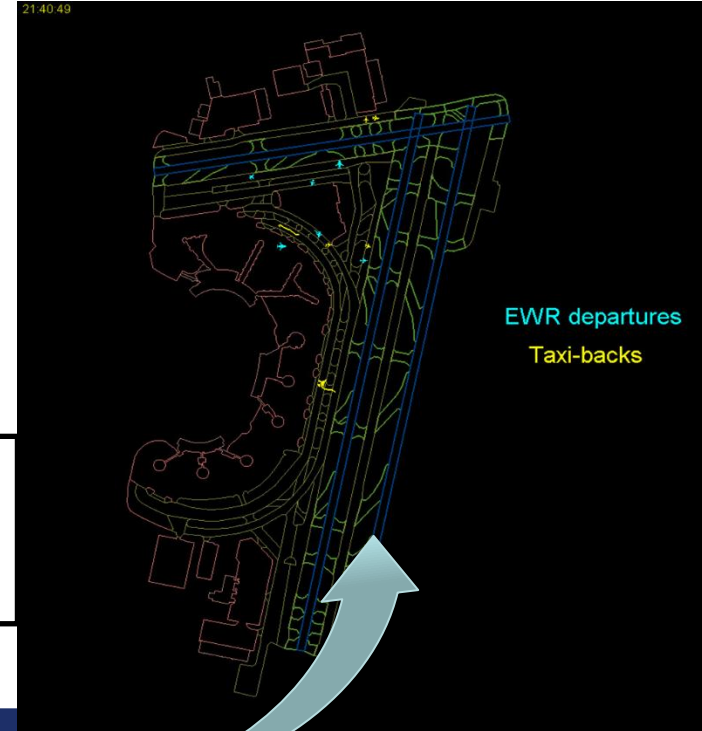
**2100Z:** EWR GDP rate drops to 13



**2140Z:** TSTM over the field



**2140Z:** Minimal surface congestion

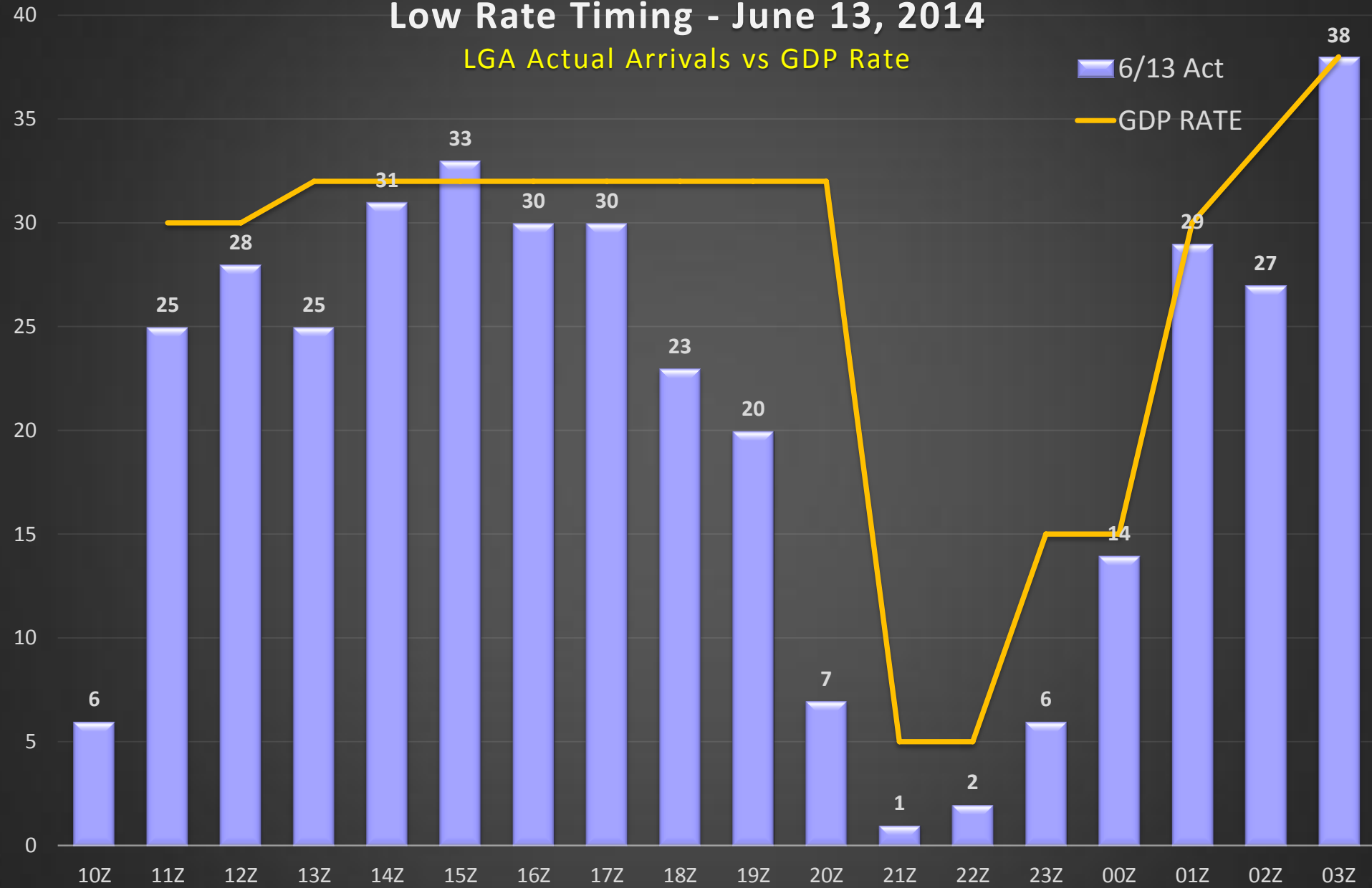


Federal Aviation Administration



# Low Rate Timing - June 13, 2014

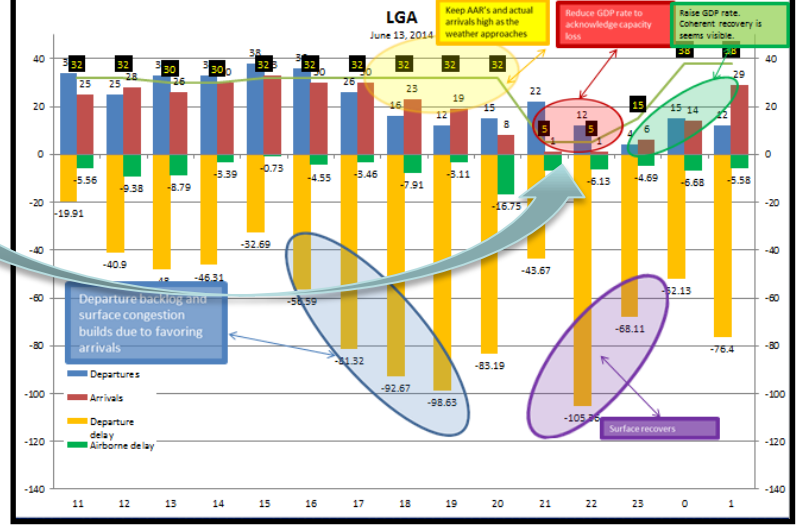
LGA Actual Arrivals vs GDP Rate



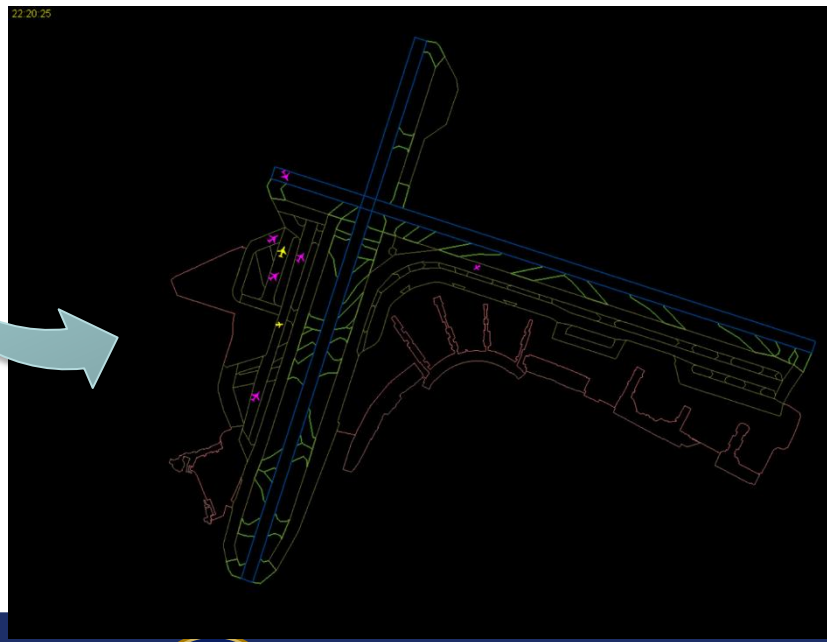
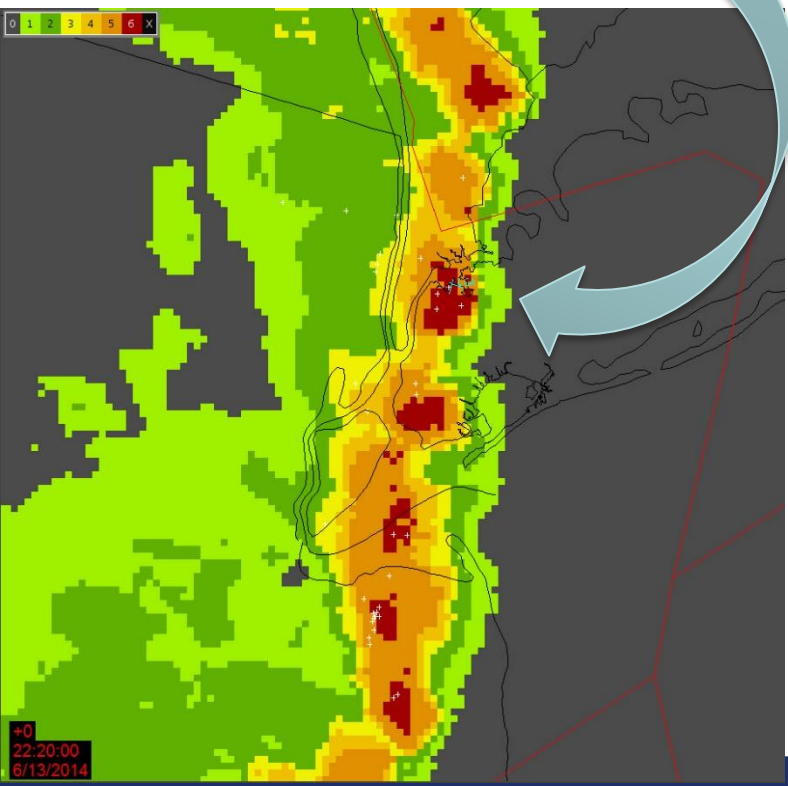
Federal Aviation  
Administration

**2100Z: LGA GDP rate drops to 5**

**2220Z: TSTM over LGA**



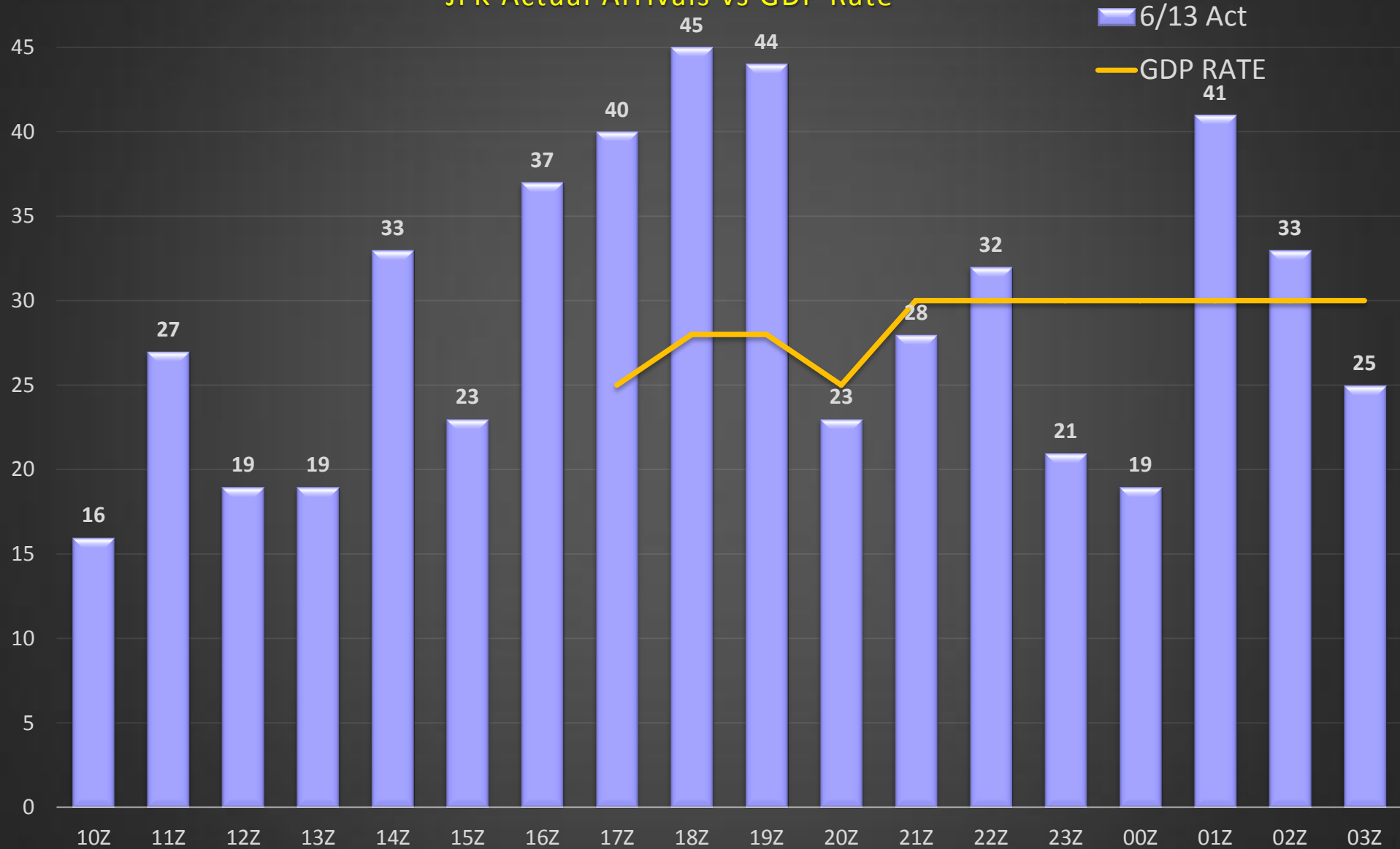
**2220Z: Minimal LGA surface congestion**



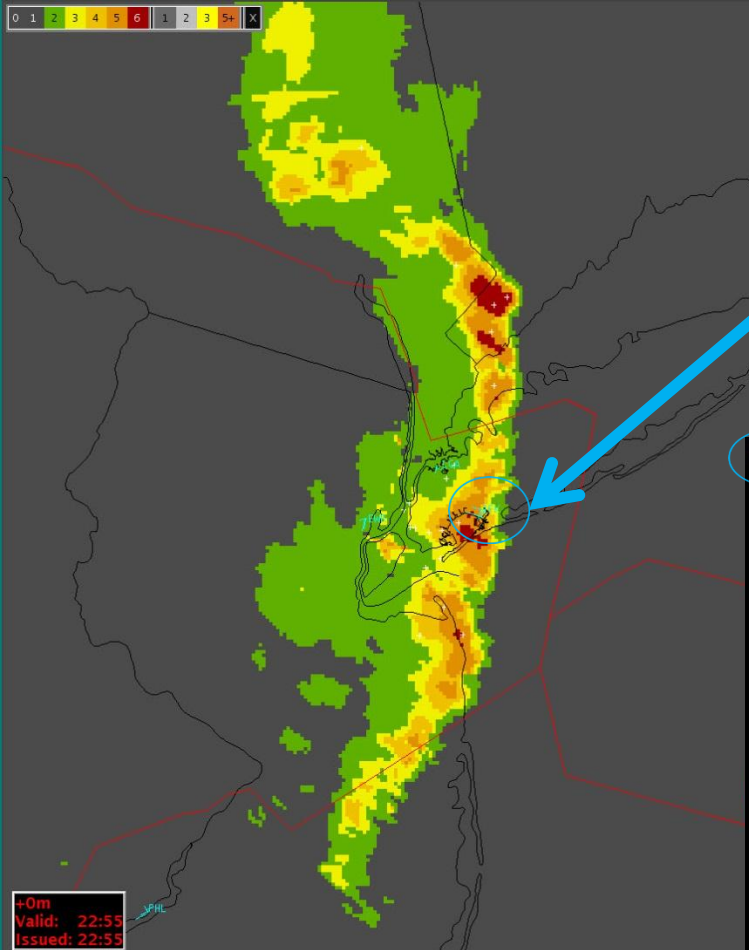
Federal Aviation Administration

# Rate Timing - June 13, 2014

## JFK Actual Arrivals vs GDP Rate



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JFK airport at 2255Z

22:55:05



JFK departures  
JFK arrivals  
Taxi-backs



Federal Aviation  
Administration

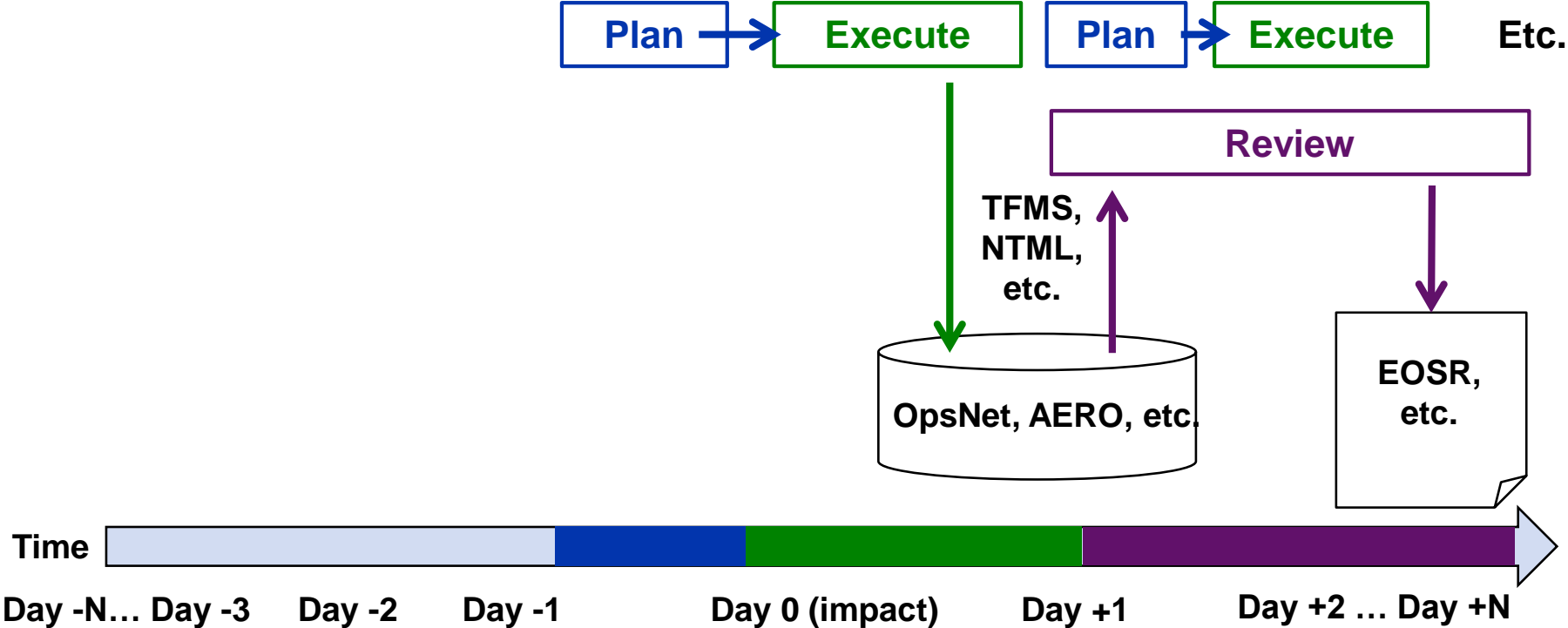


# Agenda

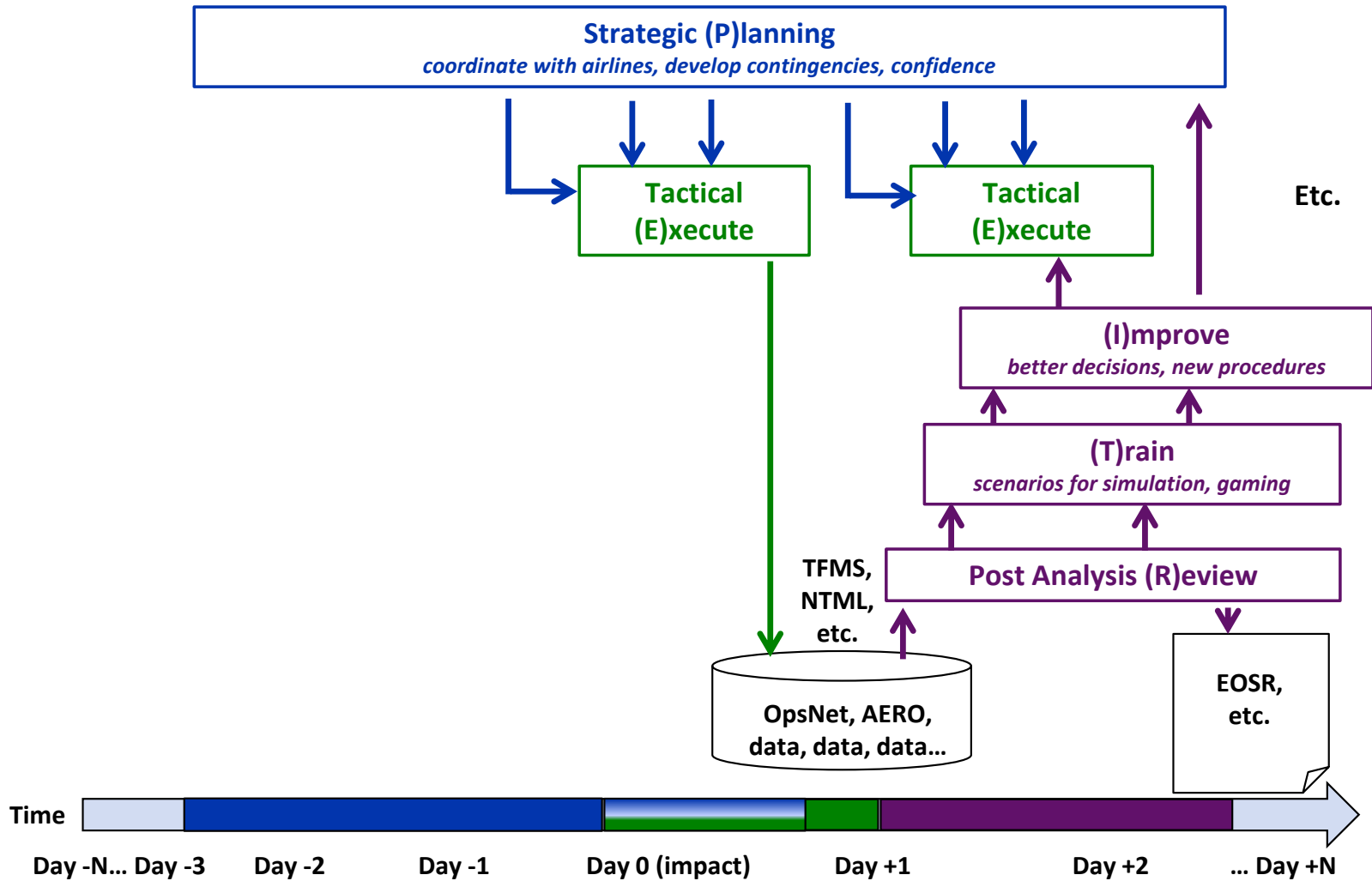
- Operational perspective and constraints
- Understanding weather impacts
- Testing new tactics
- Metrics and outcomes
- Developing successful strategies



# Current Shortfalls



# Transforming Traffic Management



## More than 100 current tools, programs, data, information, and intelligence

Strategic	Tactical		Post Analysis
CTOP	CTOP	CoSPA	ADEST
ADEST	ADEST	ITWS	ADC
ADC	ADC	RAPT	DRWP
CRCT	CRCT	AeroBahn	DSP
AFP	DRWP	ARMT	CDR'S
UDP	DSP	ASDE-X	FSM
RMT	CDR'S	IDRP	AFP
SAMS	FEA/FCA	SDSS	UDP
AIGCW	FSA	ERIDS	FSM
CCFP	FSM	ESIS	NTML
CoSPA	AFP	IDS	SET
ECFP	UDP	OIS	AeroBahn
ITWS	FSM	RACD	ARMT
LAMP	MA	ICR	CEDAR
WARP	NTML	NWS 4	IRIS
RRIA	RMT	NWS 6	PDARS
ICR	CRR	NWS 7	NWS 5
NWS 1	RRMT	NWS 8	Repeat
SREF	RVR	NWS 9	AERO
NCEP SREF Plumes	SAMS	NWS 11	CountOps
HRRR	SET	ADAPT	ASPM 14 tools
NWS 2	SPT	NAS Quest	OPSNET 8 tools
NWS 3	TSD	EON	ATADS 7 tools
NWS 4	ACM		TFMSC
NWS 5	EDC		ASQP 3 tools
NWS 9	TBFM		FSDS
NWS 10	TMA		TAF
NWS 11	CCFP		ATC Daily
SDAT	CIWS		TAER
WITI			SDAT
NAS Quest			NAS Quest
			All NAS
			WITI





# Current Traffic Management Tools

What is it?		Where is it located?					What skills are necessary and what type of data is it?							What does it serve?		
TFM Tool/Program		Type	TMU	ATCSCC	Control Room	Office	Constant vigilance	Heightens awareness	Need to interpret	Analysis	Pre-planning	Absolute	Uncertainty	Arrivals	Departures	Enroute
		TFMS														
* Airport Arrival Rate Tool	AAR/ADR	TFMS	TMU					Y			Y	Y		Y	Y	
Airport Demand Chart	ADC	TFMS	TMU	ATCSCC	Control Room				Y			Y		Y		
* Collaborative Routing Coordination Tool	CRCT	TFMS	TMU							Y						Y
Diversion Recovery Web Page	DRWP	TFMS	TMU	ATCSCC					Y			Y				
* Departure Spacing Program	DSP	TFMS	TMU				Y	Y					Y		Y	Y
Coded Departure Routes	CDR'S	TFMS	TMU	ATCSCC	Control Room			Y			Y	Y			Y	Y
Flow Evaluation Area/Flow Constraint Area	FEA/FCA	TFMS	TMU	ATCSCC	Control Room			Y			Y		Y			Y
Flight Schedule Analyzer	FSA	OIS	TMU	ATCSCC										Y		
Flight Schedule Monitor	FSM	TFMS	TMU	ATCSCC	Control Room	Office	Y	Y	Y	Y	Y		Y	Y		
Airspace Flow Program	AFP	TFMS	TMU	ATCSCC	Control Room	Office	Y	Y	Y	Y	Y		Y			Y
Unified Delay Program - (UDP/GDP)	UDP	TFMS	TMU	ATCSCC	Control Room		Y	Y	Y	Y	Y		Y	Y		Y
Integrated Program Modeling (IPM)	FSM	TFMS	TMU	ATCSCC				Y	Y	Y			Y	Y		Y
Monitor Alert	MA	TFMS	TMU	ATCSCC	Control Room	Office		Y	Y				Y			Y
National Traffic Management log	NTML	TFMS	TMU	ATCSCC		Office	Y				Y	Y		Y	Y	Y
Route Management Tool	RMT	OIS	TMU	ATCSCC		Office	Y					Y			Y	Y
Create ReRoute		TFMS	TMU	ATCSCC							Y	Y		Y	Y	Y
ReRoute Monitor	RRMT	TFMS	TMU	ATCSCC	Control Room		Y	Y	Y					Y	Y	Y
Runway Visual Range	RVR	OIS	TMU	ATCSCC	Control Room			Y	Y				Y	Y		
Special Use Airspace Management System	SAMS	TFMS	TMU	ATCSCC						Y	Y					Y
Spacing Efficiency Tool	SET	TFMS	TMU		Control Room				Y					Y		
Strategic Planning Telcon	SPT	TFMS	TMU	ATCSCC				Y			Y	Y				
Traffic Situation Display	TSD	TFMS	TMU	ATCSCC	Control Room	Office		Y	Y			Y		Y	Y	Y
		TBFM														
* Adjacent Center Metering	ACM	TBFM	TMU		Control Room		Y		Y				Y	Y		Y
Enhanced Departure Capability	EDC	TBFM	TMU				Y		Y				Y		Y	
Time Based Flow Mangement	TBFM	TBFM	TMU	ATCSCC			Y	Y	Y					Y		Y
Traffic Management Advisor	TMA	TBFM	TMU	ATCSCC	Control Room		Y		Y				Y	Y		Y
		Weather Products														
Aviation Impact Guidance for Convective Weather	AIGCW	Weather Products	TMU	ATCSCC	Control Room			Y	Y	Y	Y		Y			Y
Collaborative Convective Forecast Product	CCFP	Weather Products	TMU	ATCSCC	Control Room	Office		Y						Y	Y	Y
Corridor Integrated Weather System	CIWS	Weather Products	TMU	ATCSCC	Control Room	Office		Y	Y	Y			Y	Y	Y	Y
Consolidated Storm Prediction for Aviation	CoSPA	Weather Products	TMU	ATCSCC	Control Room			Y	Y	Y			Y	Y	Y	Y
Extended Convective Forecast Product	ECFP	Weather Products	TMU	ATCSCC	Control Room		Y	Y	Y		Y					Y
Integrated Terminal Weather System	ITWS	Weather Products	TMU		Control Room			Y	Y					Y	Y	
Localized Aviation MOS Product	LAMP	Weather Products	TMU	ATCSCC	Control Room			Y						Y	Y	Y
Route Availability Prediction Tool	RAPT	Weather Products	TMU	ATCSCC	Control Room			Y	Y	Y			Y		Y	Y
Weather and Radar Processor	WARP	Weather Products	TMU		Control Room			Y						Y	Y	Y
		Surface Mangement														
* AeroBahn	AeroBahn	Surface Mangement	TMU		Control Room			Y	Y					Y	Y	
* Airport Resource Management Tool	ARMT	Surface Mangement	TMU		Control Room		Y							Y	Y	
Airport Surface Detection Equipment	ASDE-X	Surface Mangement	TMU		Control Room			Y	Y					Y	Y	
Integrated Departure Route Planning	IDRP	Surface Mangement	TMU		Control Room		Y		Y						Y	
* Surface Decision Support System	SDSS	Surface Mangement	TMU		Control Room			Y							Y	Y
		Status Displays														
Enroute Information Display System	ERIDS	Status Displays	TMU		Control Room			Y				Y		Y	Y	Y
Enhanced Status Information System	ESIS	Status Displays	TMU		Control Room			Y				Y		Y	Y	Y
Information Display System	IDS	Status Displays	TMU		Control Room			Y				Y		Y	Y	Y
Operational Information System	OIS	Status Displays	TMU	ATCSCC	Control Room	Office		Y		Y		Y		Y	Y	Y
Radar ARTS Color Display	RACD	Status Displays	TMU		Control Room		Y									
		Analysis														
Comprehensive Electronic Data Analysis and Reporting	CEDAR	Analysis	TMU	ATCSCC	Control Room	Office				Y				Y	Y	Y
Reroute Impact Assessment	RRIA	Analysis	TMU	ATCSCC					Y					Y	Y	Y
Integrated Reporting Information System	IRIS	Analysis	TMU	ATCSCC		Office			Y							Y
Integrated Collaborative Rerouting	ICR	Analysis	TMU	ATCSCC					Y							Y
Performance Data Analysis and Reporting System	PDARS	Analysis	TMU	ATCSCC		Office			Y							
Spacing Over and Above Required	SOAR	Analysis	TMU			Office			Y					Y		



# Transforming Traffic Management

- **Focus on the organizational processes and operational procedures that drive efficiency.**
- **Job functions should be organized around a larger concept of strategic planning, tactical operations, and post analysis of operations.**
- **Designation of comprehensive planning teams whose sole responsibility is to ‘live in the future’.**
- **Consistent use and improvement of rapidly generated analytics.**
- **Incorporation of realistic simulation, gaming, and other training methods to inform decision making.**



# Turn a confusing array of data into operational intelligence and service outcomes

**Optimal, Strategic, and Tactical Management of Arrival and Departure Operations**



Presented to: Research, Technical, and Operational Stakeholders  
By: FAA System Operations, NE Tactical Operations Office, AJR-14  
Date: August, 2013

**New York Metro Compression Project**




Presented to: Research, Technical, and Operational Stakeholders  
By: FAA System Operations, NE Tactical Operations Office, AJR-14  
Date: November 5, 2013

**Severe Weather 2015 – People, Technology, and Process Opportunities**



Presented to: DCCO  
By: FAA System Operations, NE Tactical Operations Office  
Date: June, 2014

**Collaborative Decision Making**



New York Action Plan 2013

Presented to: Friends and Partners in Aviation Weather  
By: Leo Prusak, FAA Manager of Tactical Operations  
Date: October 23, 2013

**NY Metro Departure balancing**



Presented to: National Customer Forum  
By: FAA System Operations, NE Tactical Operations Office  
Date: June 11, 2014


**Transforming Traffic Management and Creating a Pathway for NextGen Integration**



A Process for Continuous Improvement in NAS Performance

Presented to: Johnnie Garza, Director, System Operations and AJR Team  
By: Leo Prusak, MTO NE  
Date: April 7, 2014


**Airspace Density and Distribution by Flight Direction**



A big picture look at air traffic operations and implications for weather impact and delay

Presented to:  
By: Leo Prusak, Manager of Tactical Operations  
Dan Bueno, Sr. Analyst, NE Tac Ops  
Date: 3/26/13


**Definition of Airspace for NYAP Level 3 Weather Events**



The New York Quad

Presented to: NY Terminal Director  
By: Leo Prusak, Manager of Tactical Operations  
Dan Bueno, Sr. Analyst, NE Tac Ops  
Date: 6/26/13


**New York Action Plan**



SWAP 2013

By: Leo Prusak, Manager of Tactical Operations  
Date: March 27, 2013

**Quantification of Benefits of Aviation Weather**



A discussion of benefits

Presented to: Friends and Partners in Aviation Weather  
By: Leo Prusak, FAA Manager of Tactical Operations  
Date: October 24, 2013

**Comparison and Perspective of Weather Delays in the NAS**



Presented to: DCCO  
By: FAA System Operations, NE Tactical Operations Office  
Date: June, 2014





# Conclusion

- **Improvements in planning, execution, operational review, and training, and the integration of lessons learned into NAS operations and technology are needed in order to ensure the success of NextGen in transforming the NAS to a more efficient system.**
- **Better defined strategic and tactical choices, and the means to apply it, can become the driver of operational improvements.**







Questions