

# Duluth Airport Master Plan

## Runway 3/21 Technical Advisory Committee (TAC) Meeting #3

June 21, 2021



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# Meeting Agenda

- Welcome and introductions
- Existing Runway 3/21 overview
- Recommendations for the future Runway 3/21
- Preferred Runway 3/21 Alternative
- Implementation of Runway 3/21 extension – What's next and timeline
- Master Plan next steps

# Runway 3/21 - Overview

# Existing Runway 3/21

5,719' x 150'

Non-Precision  
Instrument Runway  
(1-mile minimums)

Air Carrier and General  
Aviation runway



# Goals and Objectives of Runway 3/21

# Runway 3/21 - Stakeholder feedback

- Runway length:
  - 148<sup>th</sup> Fighter Wing:
    - 7,000 feet as an emergency runway
    - 8,000 feet for a secondary use runway.
    - Arresting gear is needed on the departure end.
    - Runway and connecting taxiway network must meet UFC Class B standards
  - Commercial Air Service:
    - 7,800 feet for current fleet
  - General Aviation
    - 7,900 feet for critical aircraft
  - Training and R&D Flights
    - Operations would benefit from a longer runway

# Runway 3/21 - Stakeholder feedback

- Instrument approaches:
  - Stakeholders indicated that improved instrument approaches would add value to Runway 3/21.
  - Types of approaches
    - The 148th currently cannot utilize GPS approaches but may be able to in the future.
    - The 148<sup>th</sup>'s weather minimums for training are 1-mile visibility
  - Approach lighting to one or both ends would add value

# Runway 3/21 - Stakeholder feedback

- Environmental and Land Use:
  - Environmental and land use impacts of alternatives should be considered and minimized.
  - The JAZB proposed airport zoning ordinance should be considered when developing the alternatives.
    - Proposed zoning ordinance plans for 1-mile visibility minimums
  - Impacts of improvements to Runway 3/21 may have on aircraft parking and building areas should be considered in the alternatives

# Runway 3/21 Alternatives

# Initial Alternatives

Runway Dimension	Runway 3 Approach Minimums	Runway 21 Approach Minimums	Wetland Impacts	Cost Estimate
5,719' x 150'	1-Mile	1-Mile	-	\$0
	1-Mile	1-Mile	-	\$23 Million
8,000' x 150'	1-Mile	1-Mile	34.2 Acres	\$72 Million
	1-Mile	$\frac{3}{4}$ - Mile	34.2 Acres	\$75 Million
	1-Mile	$\frac{1}{2}$ - Mile	38.1 Acres	\$77.5 Million
7,000' x 150'	1-Mile	1-Mile	9.3 Acres	\$55 Million
	1-Mile	$\frac{3}{4}$ - Mile	9.3 Acres	\$58 Million
	1-Mile	$\frac{1}{2}$ - Mile	13.2 Acres	\$60.5 Million

# Stakeholder Feedback (Oct. 2019 TAC Mtg)

## Rank the importance of each goal



# Stakeholder Feedback (Oct. 2019 TAC Mtg)

## Instructions:

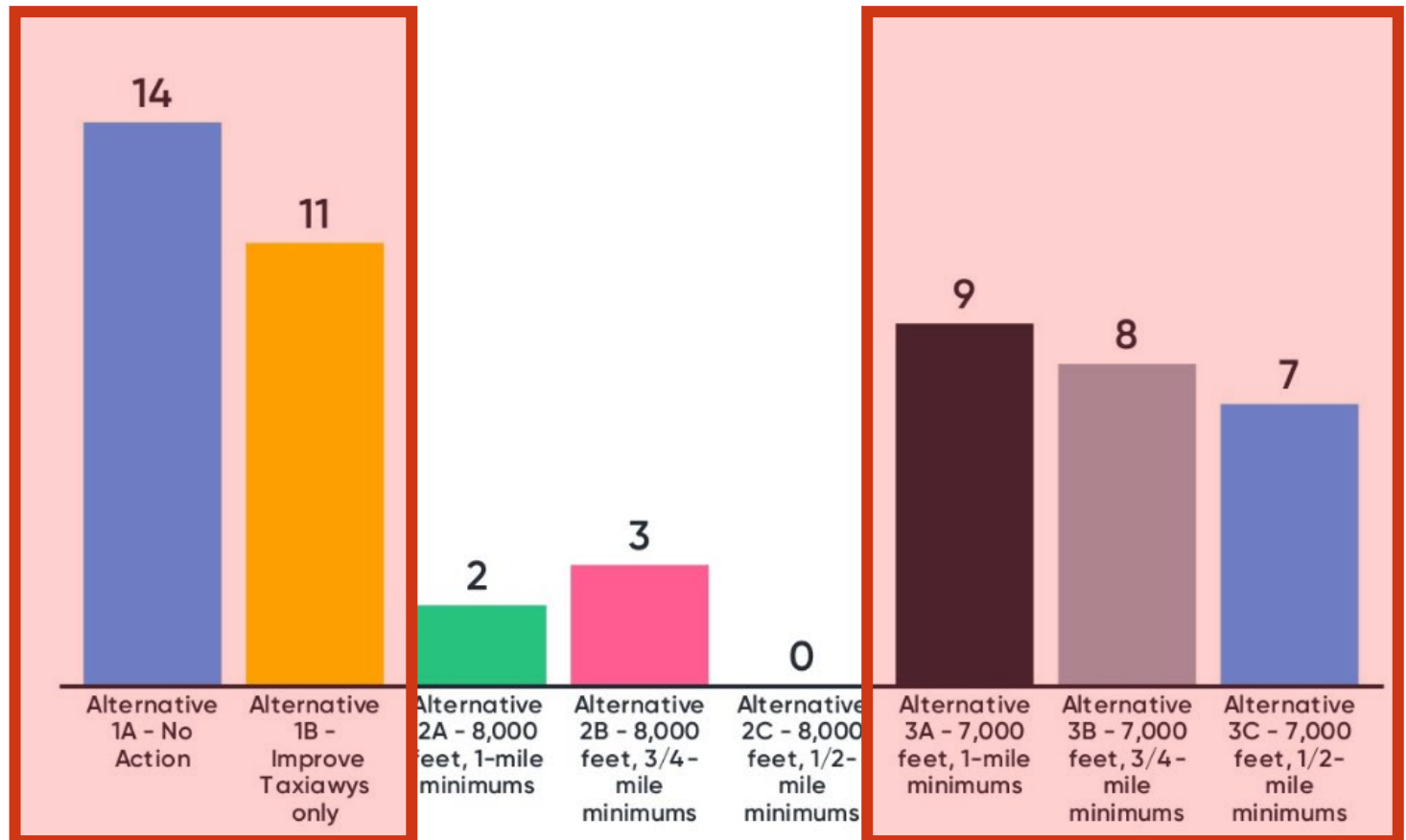
- Use stickers to show how you feel each alternative does not meet (red sticker), somewhat meets (yellow sticker) or meets (green sticker) each of the stated goals.

Stakeholder Goals		Existing Length Alternatives		8,000-Foot Runway Alternatives			7,000-Foot Runway Alternatives		
		1A: No Action	1B: Improve Taxiway Network	2A: No change to instrument approach capability	2B: Approaches to one end improved to 3/4 mile	2C: Approaches to one end improved to 1/2 mile	3A: No change to instrument approach capability	3B: Approaches to one end improved to 3/4 mile	3C: Approaches to one end improved to 1/2 mile
Improve Taxiways	Meet taxiway design standards								
Improve Usability	<b>Military:</b> 7,000 feet for 148th emergency use 8,000 feet for 148th secondary runway								
	<b>Civilian:</b> 7,800 feet for full commercial service aircraft 7,900 feet for full GA aircraft								
	Improve instrument approach weather minimums								
Protect Natural Resources	Minimize impacts to wetlands and other natural resources								
Land Use Compatibility	Minimize noise impacts to sensitive land uses	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
	Minimize zoning impacts to the surrounding communities								

**Note:** Although stakeholders have identified the stated goals, eligibility to use various funding sources to meet each goal will be determined later in the process.

# Stakeholder Feedback (Oct. 2019 TAC Mtg)

Which, if any, alternatives should not be considered further?



# Environmental and Land Use Considerations

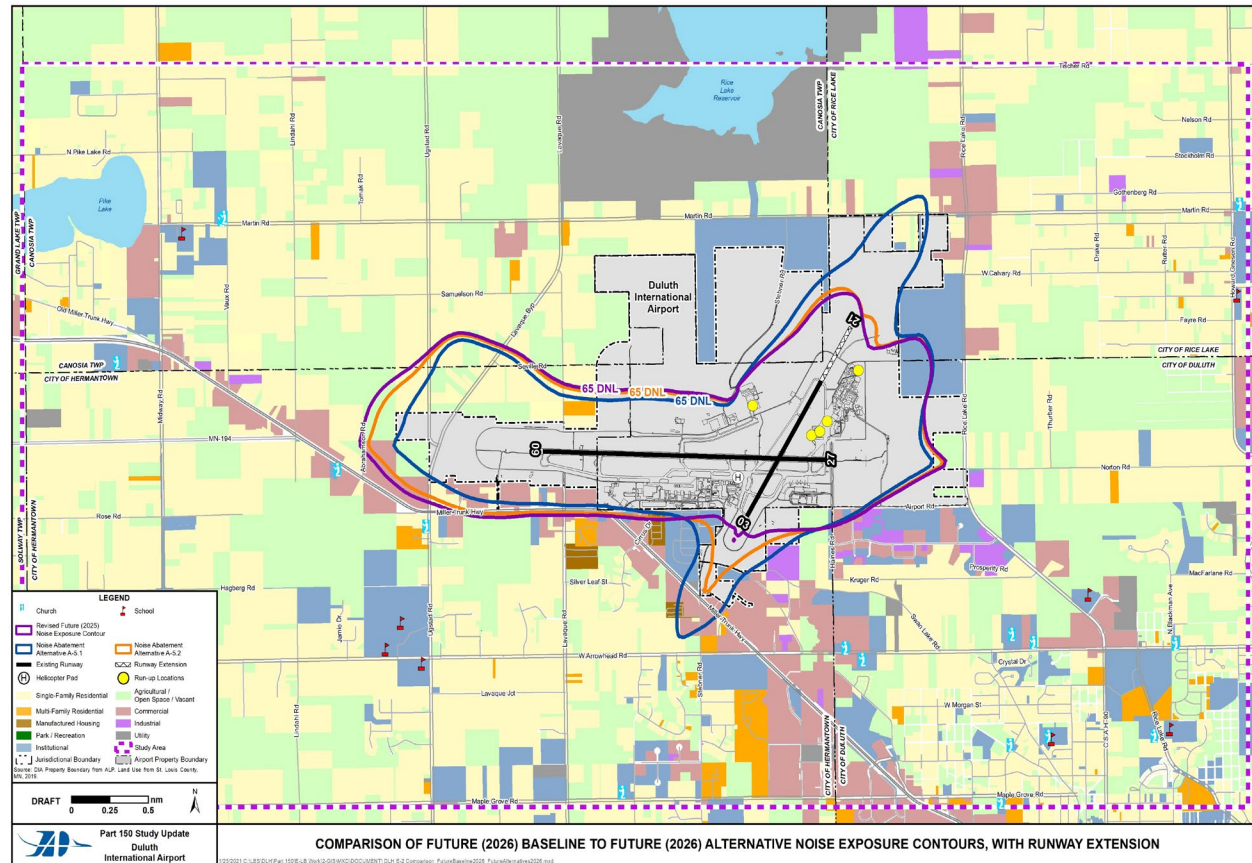
Part 150 Noise Study and Joint Airport Zoning Board (JAZB)

# Noise Impacts – Considered as part of ongoing Part 150 Study

- Noise impacts will depend on ultimate F-16 usage of Runway 3/21.
- Part 150 Study evaluated 2 alternatives
  - Alternative A-5.1 – **20% F-16 ops. on Rwy. 03/21** (0% night departures)
  - Alternative A-5.2 – **10% F-16 ops. on Rwy. 21 only** (0% night departures)

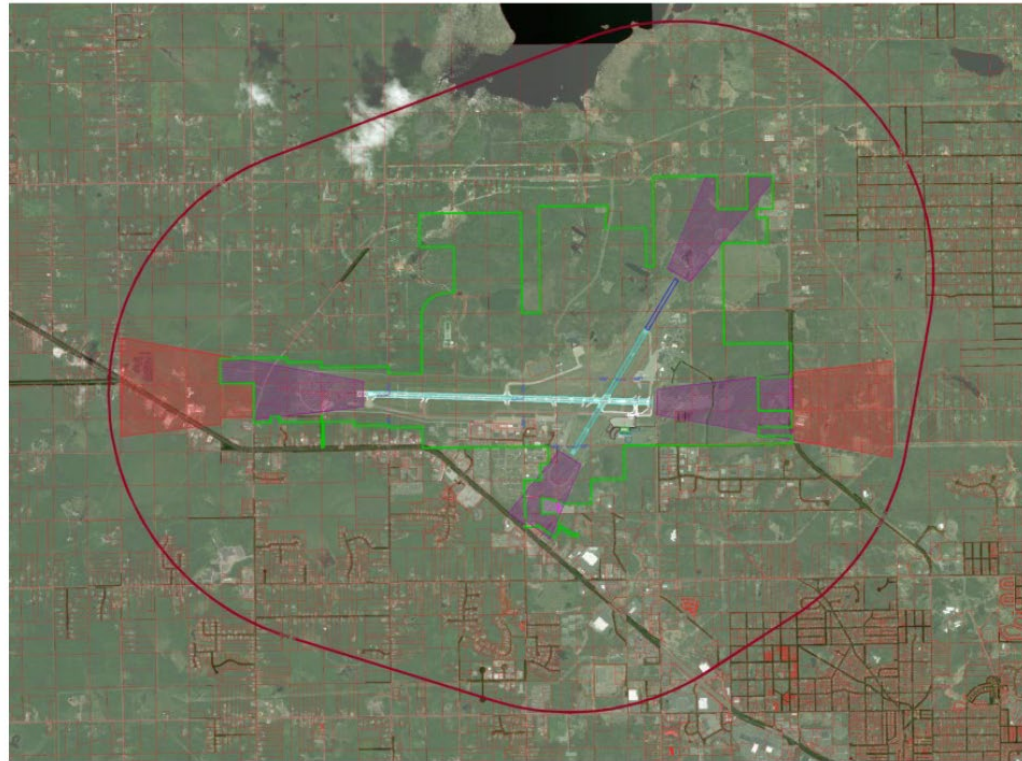
# Noise Impacts – Considered as part of ongoing Part 150 Study

- Future baseline (purple)
- Alt. A-5.1 (blue) – 20% F-16 ops. on Rwy. 03/21 (0% night departures)
- Alt. A-5.2 (orange) – 10% F-16 ops. on Rwy. 21 only (0% night departures)



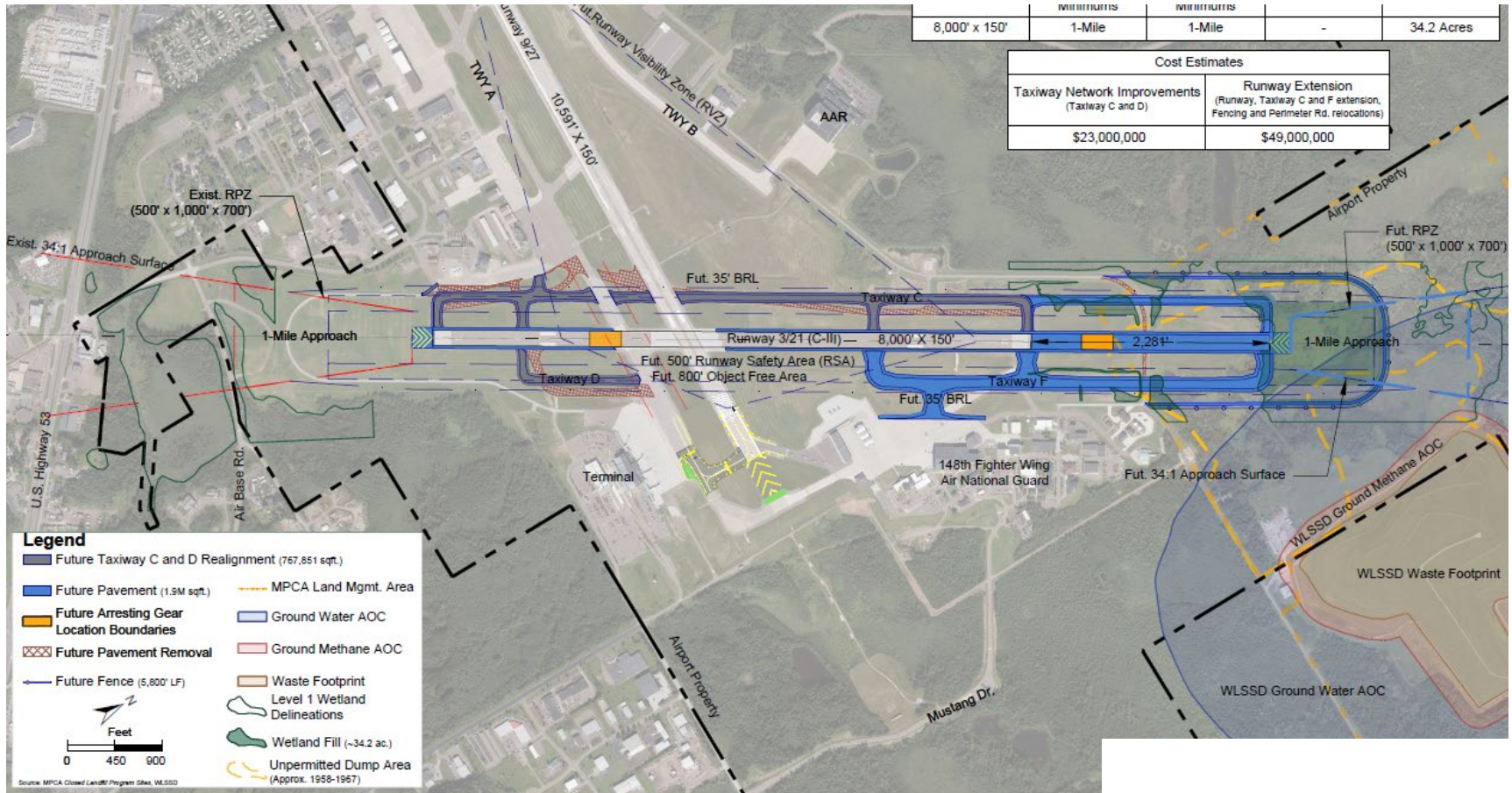
# Joint Airport Zoning Board

- JAZB submitted draft zoning ordinance to MnDOT
- JAZB custom zoning ordinance protects people and property for a 8,000' Runway with 1-mile approaches



# Selected Alternative and Next Steps

# Alternative 2A – 8,000' with 1-mile Approaches



**Taxiway Network to be finalized with the Taxiway TAC**

# Stakeholder Feedback

## Instructions:

- Use stickers to show how you feel each alternative does not meet (red sticker), somewhat meets (yellow sticker) or meets (green sticker) each of the stated goals.

Stakeholder Goals		Existing Length Alternatives		8,000-Foot Runway Alternatives			7,000-Foot Runway Alternatives		
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Improve Taxiways	Meet taxiway design standards	[Red stickers]	[Green stickers]	[Green stickers]	[Green stickers]	[Green stickers]	[Green stickers]	[Green stickers]	[Green stickers]
Improve Usability	<b>Military:</b> 7,000 feet for 148th emergency use 8,000 feet for 148th secondary runway	[Red stickers]	[Red stickers]	[Green stickers]	[Green stickers]	[Green stickers]	[Green stickers]	[Green stickers]	[Green stickers]
	<b>Civilian:</b> 7,800 feet for full commercial service aircraft 7,900 feet for full GA aircraft	[Red stickers]	[Red stickers]	[Green stickers]	[Green stickers]	[Green stickers]	[Green stickers]	[Green stickers]	[Green stickers]
	Improve instrument approach weather minimums	[Red stickers]	[Red stickers]	[Green stickers]	[Green stickers]	[Green stickers]	[Green stickers]	[Green stickers]	[Green stickers]
Protect Natural Resources	Minimize impacts to wetlands and other natural resources	[Green stickers]	[Green stickers]	[Green stickers]	[Red stickers]	[Red stickers]	[Yellow stickers]	[Yellow stickers]	[Yellow stickers]
Land Use Compatibility	Minimize noise impacts to sensitive land uses	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
	Minimize zoning impacts to the surrounding communities	[Green stickers]	[Green stickers]	[Green stickers]	[Red stickers]	[Red stickers]	[Yellow stickers]	[Yellow stickers]	[Yellow stickers]

**Note:** Although stakeholders have identified the stated goals, eligibility to use various funding sources to meet each goal will be determined later in the process.

# Alternative 2A – 8,000' with 1-mile Approaches

- Meets both 148<sup>th</sup> and civilian aircraft needs
- Accommodates stakeholders needs for a secondary runway for training and R&D Flights
- Aligns with JAZB proposed custom zoning ordinance
- Wind analysis indicated that improved approach minimums would have minimal added benefit.
  - Wind largely favors Runway 9/27 when poor visibility and low ceilings exist

# Additional Planning Considerations

- UFC Class B taxiway (75' wide) access is needed to Runway 3/21.
- Segments of Taxiway C, D and/or F (taxiways connecting to Runway 3/21) need **to be improved prior to or as part of** the Runway 3/21 extension for it to meet standards and serve F-16 aircraft.

# Runway 3/21 Extension - Next steps

1. Identify funding source
  - FAA – Not justified for funding
  - Bonding
  - Air National Guard
  - Other
2. NEPA review
3. Wetland permitting
4. Design
  - FAA reimbursable agreements
5. Multi-year construction
  - Align with related taxiway projects



# Master Plan Next Steps

- Summer 2021
  - Finalize facility recommendations and alternatives
    - Taxiway and Building Area TAC Meeting June 28, 1pm
  - Implementation Plan/CIP
  - Draft Airport Layout Plan

# Thank You!

# Wind Analysis – Usability of Runway 9/27 with visibility less than 1-Mile

Month	10.5 Knot Crosswind	13 Knot Crosswind	16 Knot Crosswind	20 Knot Crosswind
	Ex. Aircraft Cessna 172	Ex. Aircraft Super King Air	Ex. Aircraft Airbus A319 and F-16	Ex. Aircraft A330/ Boing 777
January	87.12%	93.14%	98.75%	99.82%
February	87.69%	92.92%	96.86%	99.70%
March	98.20%	99.33%	99.90%	100.00%
April	87.31%	93.13%	97.92%	99.82%
May	98.43%	99.51%	99.98%	100.00%
June	98.92%	99.15%	99.57%	99.71%
July	97.40%	98.70%	99.19%	99.54%
August	98.81%	99.44%	99.96%	100.00%
September	99.27%	99.75%	100.00%	100.00%
October	91.17%	93.25%	95.40%	98.74%
November	88.10%	93.05%	97.11%	99.70%
December	95.21%	97.56%	99.25%	99.86%