

# Hvassahraun Airport

## - Assessment of Risk -

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# Definition of a Megaproject on an Icelandic Scale – What constitutes a Megaproject?

- » Anything beyond about 100 billion ISK (700 million dollars)
- » No aviation infrastructure falls into this category except perhaps the Leifur Eriksón Air Terminal at Keflavík Airport over an extended period of time
- » Iceland has never built a full-fledged international airport
  - › Reykjavik and Keflavik Airports were built by UK and US during WW II
  - › Egilsstaðir Airport was opened in 1993 as a regional airport and alternate to Keflavik with a 2000 m runway and parking area for 4 aircraft. Domestic terminal building was expanded to accommodate one domestic and one international flight at a time
  - › Total updated project cost on the order of 3-4 billion ISK
- » Total first class rebuild of Runways and Electrical Works of Reykjavik Airport in 2002 cost less than 5 billion ISK updated on the basis of building cost index

# Multiple Construction Projects at Keflavik Airport



# Egilsstaðir International Airport



# 2001 – Main Runway Reconstruction at BIRK





# Reconstruction Completed in 2002



# Large Aircraft at Reykjavik Airport



Boeing 757-200

Boeing C-17



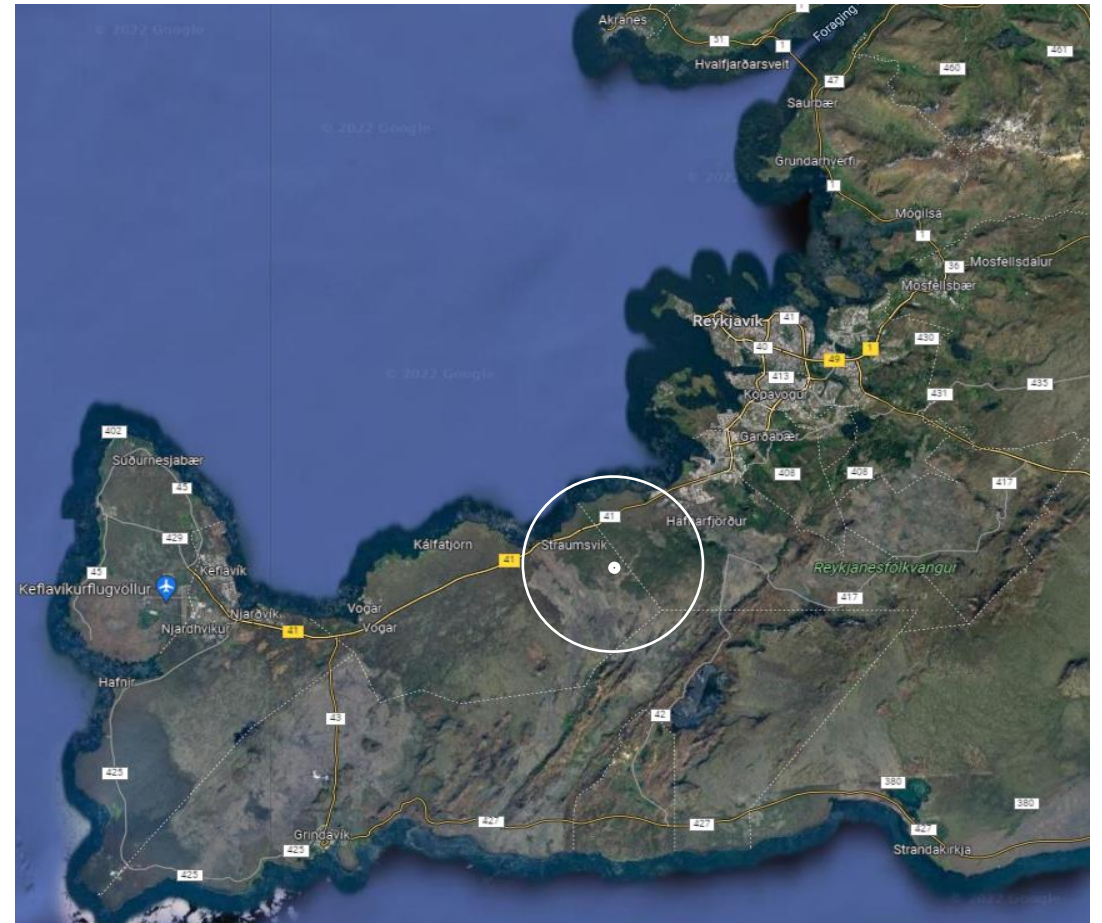
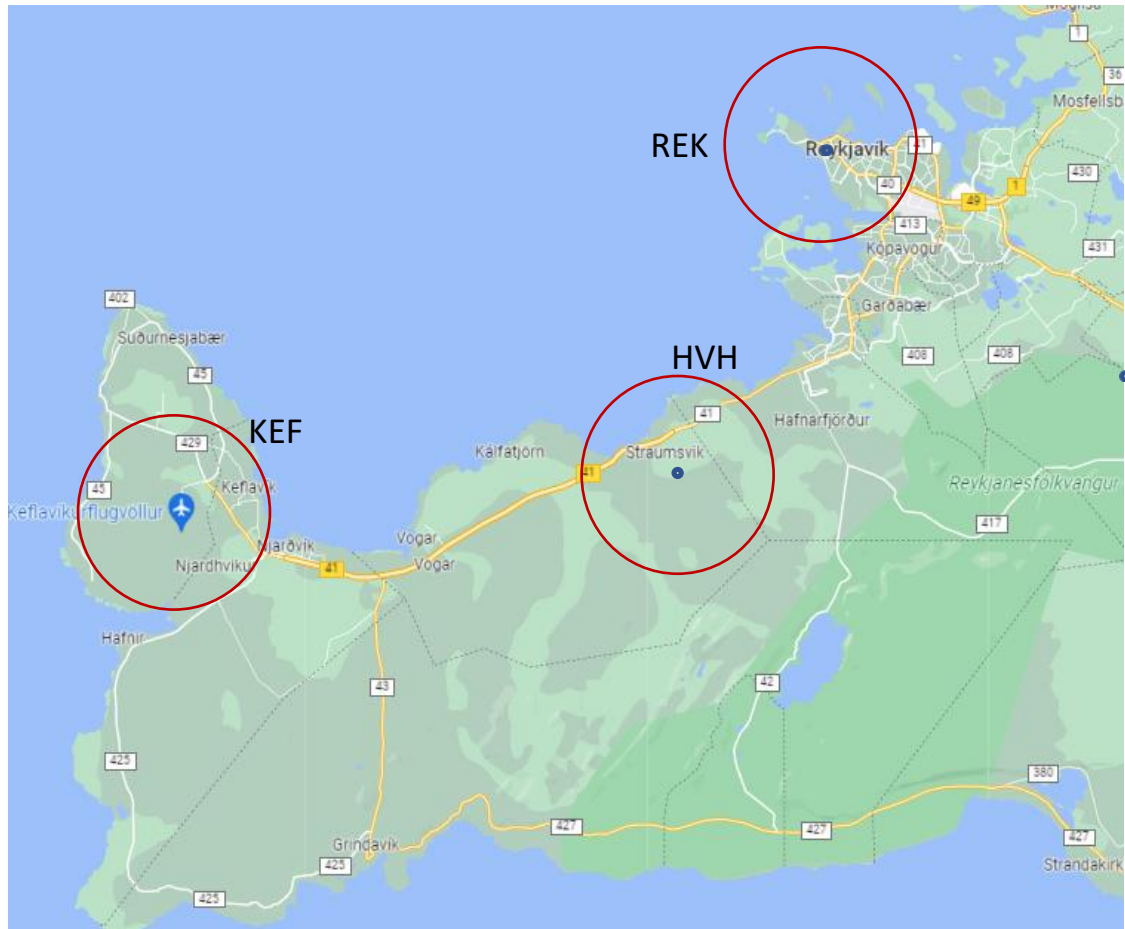




# How did Hvassahraun Airport become Player on this Scene?

- » Culmination of Decades of Search for a Suitable Replacement of Reykjavik Airport (BIRK)
- » New Airport to assume the Role of Reykjavik Airport as:
  - › Hub Airport for Domestic Air Services
  - › Alternate Airport for Keflavik
  - › International Flights of all types
  - › Flight Training Facility - Flight Schools
  - › Ambulance Flights – Domestic/International
  - › Search and Rescue Center – Coast Guard
  - › Civil Helicopter Operations
  - › Civil Defense Emergency Air Lift
- » Two International Airports Serving the Capital Area is an Irrevocable Requirement
- » Hvassahraun is the sole Surviving Candidate for Replacing BIRK

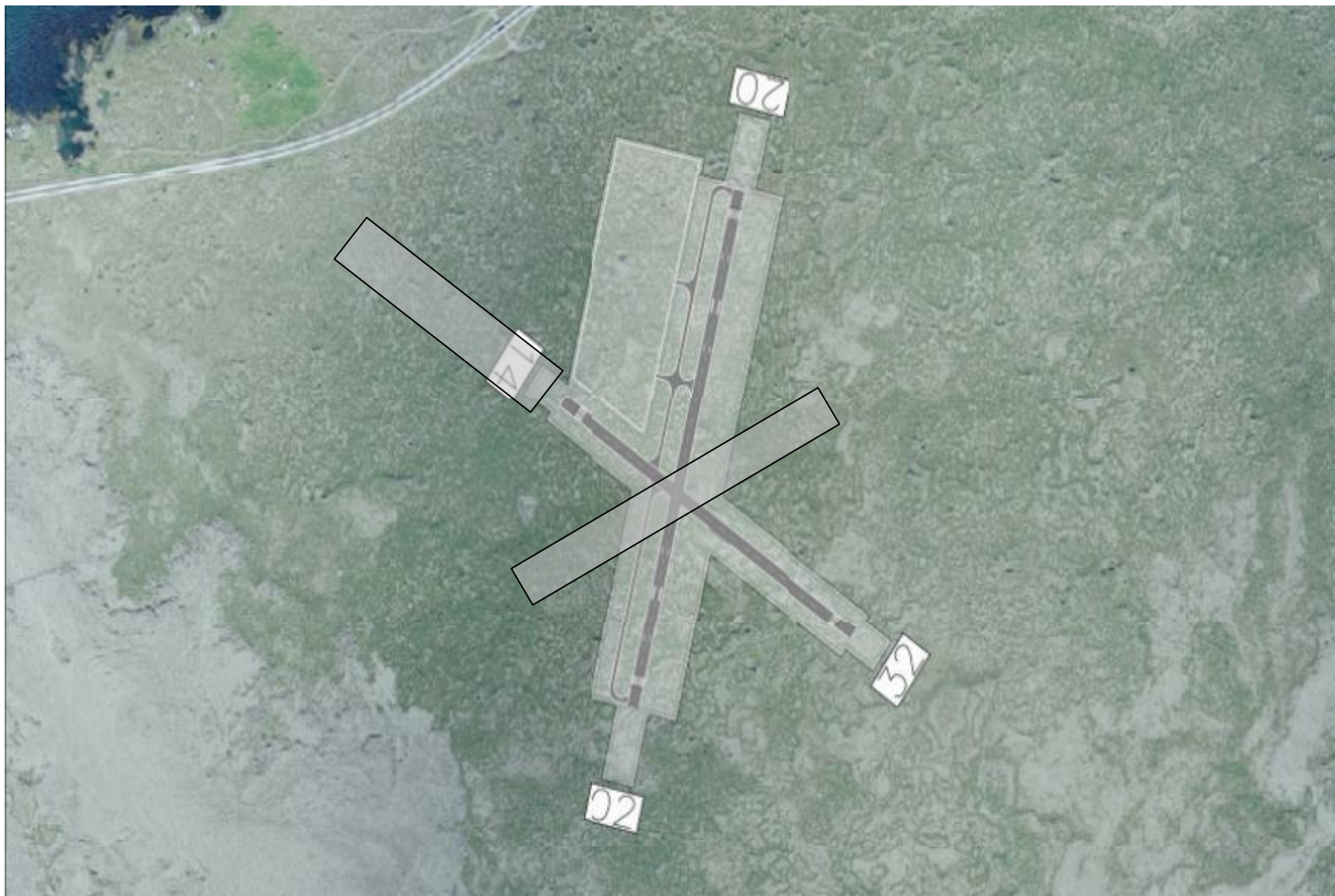
# Hvassahraun Site



# Hvassahraun Airport Proposed in 2015



# Hvassahraun Airport with Extensions



# Hvassahraun Proposed as New International Hub

- » Proposed as Replacement for KEF as Gateway to Iceland
- » Cost of Construction was estimated at over 300 billion ISK (2 billion US dollars)
- » Investments at Keflavik Airport amounting to 160 billion ISK would be written off
- » Proposal has recently been rejected by Icelandair
- » Proposal by Icelandair to retain BIRK for up to two decades
  - › Decision by Sweden in 2008 retaining Bromma Airport in Stockholm until 2038

# Early Concept Rendering of HVA Airport Terminal



# Special Risks involved in New Airport Projects

- » Environmental conditions favorable and/or within limits
  - › Weather Conditions (wind, visibility, cloud-base, turbulence, precipitation, temperature, humidity)
  - › Physical Obstacles in the Area
  - › Access to the Site
  - › Detrimental effects on the Neighborhood
  - › Exposure of persons on the ground to Physical Danger
  - › Detrimental effects on Nature
  - › Noise
- » Natural Hazards
  - › Earthquakes
  - › Volcanic Eruptions
  - › Storms (Hurricane Force)
  - › Flooding



# Financial Risks

- » Underestimated Costs of Construction and Systems Implementation
  - › New and Unproven Systems Technology
  - › Unknown Physical Site Properties
- » Overestimated Market Appeal
  - › Mirabel Airport in Montreal (35 km from the City Center)
  - › Gander Airport in Newfoundland (Aircraft Technology)
- » Overestimated Revenue
  - › Aeronautical
  - › Commercial
- » Insecure and Delayed Financing
  - › Sale of Airport Land in Reykjavik is Difficult
  - › Up-front Financing
- » Poor Project Management

# Alternatives

## » Scenario 1

- › Hvassahraun is built as a total replacement of BIRK with all the Trimmings (50-60 Billion ISK)
- › Process Anticipated to take Two Decades
- › Continued Development of Keflavik as Main Gateway

## » Scenario 2

- › Hvassahraun is built as a Training and General Aviation Airport to be eventually developed into a BIRK replacement
- › At least two decades of Development Reaching this Goal
- › Functional and Financial Risk is spread out in Impact and Time
- › Financially and Operationally Impractical

## » Scenario 3

- › Reykjavik Airport is Improved in its Present Role with Extension of East/West Runway by about 800 meters into the Bay on a Land Fill
- › Project takes about Two Years and Costs about 10-15 Billion ISK
- › Functional And Financial Risks are Minimized Compared with other Scenarios

# Conclusions

- » Replacement of the now 80 year Plus Reykjavik Airport is a MegaProject by Icelandic Standards
  - › Not High on the list Compared in Terms of Infrastructure Funding
  - › Major Impact on the Aviation Sector which is Responsible for 10-15% of Iceland's GDP
  - › Impact on all Communities Distant from the Capital Area
  - › Essential for Public Services, Civil Defense, Security and Safety
  - › Education and Training of Future Pilots and Crew
- » The Decisions on the Way Forward Must not Fail as the Consequences of such Failures are Dire for Aviation and the Economy
- » The Risks Involved must be Carefully Explored, Analyzed and Assessed to Clarify the full Impact of Such Decisions