

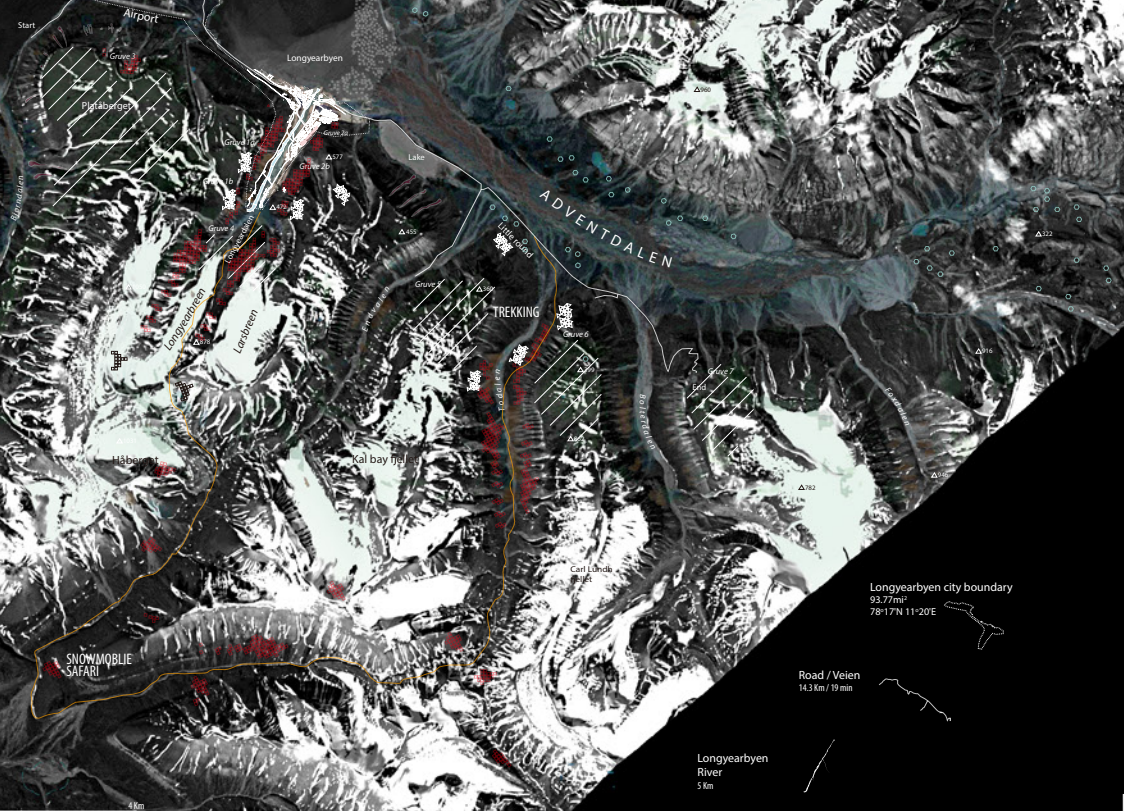
ISFJORDEN

15°20' E 15°40' E 16°20' E

ADVENTDFJORDEN

CRUISE  
BERGEN 2022 Km  
TROMSØ 958 Km  
AROUND SPIRITSBERG

TOURISM  
OSLO 2042 Km  
TROMSØ 958 Km



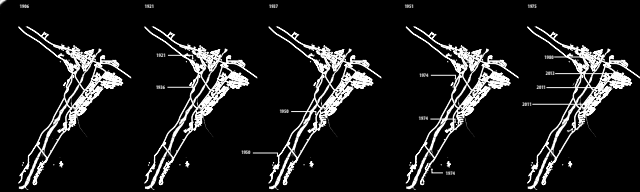
SNOWMOBILE SAFARI

Longyearbyen city boundary  
92.77mi<sup>2</sup>  
78°17'N 11°20'E

Road / Veien  
14.3 Km / 19 min

Longyearbyen River  
5 Km

Longyearbyen Historical Development



### Scientific research

Road - side slushs  
subsequent erosion

### Mining

Mine 7, main power generator in Longyearbyen

### Tourism

Cruse Snowmobile Canoe Trekking Ski Northernlights kayaking Camping

### Slush Risks

Road - side slushs  
subsequent erosion

### River bank erosion

Seasonal river bank erosion  
subsequent erosion

### Avalanche Types

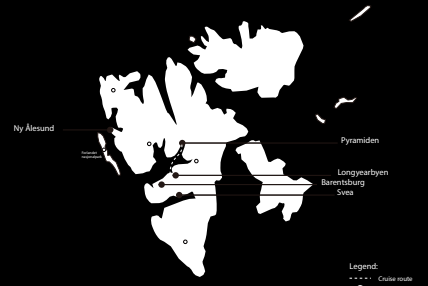
Sub-avalanches Loose snow  
Concave fall avalanches Icefall flow  
Concave fall / slab and loose snow avalanches

### Geological Patterns

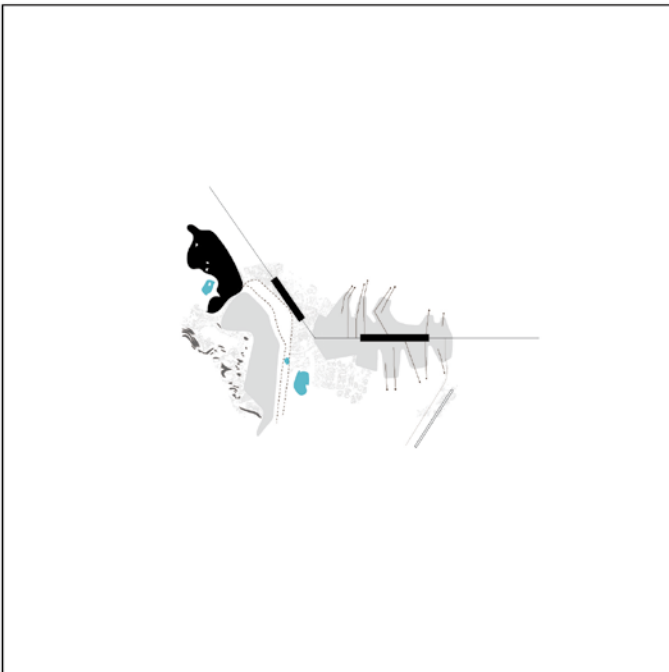
- broken down by processes of weathering and erosion
- river deposits, recent
- a landform along a body of water
- Marina, Beach material
- Talus cones
- subsequent erosion
- relatively flat terrain
- higher significantly above the surrounding area
- Mountain Plateaus
- soft, consolidated ice up to 70 metres, in height, 600 m in diameter
- Flings
- glacially formed accumulation of unconsolidated glacial debris
- Terminal moraine
- range from 5-50 m in diameter
- ice-wedged polygons
- cone-shaped deposit of sediment eroded and built up by streams
- Alluvial fans

### Svalbard Archipelago

3,919 km (2,435 mi)



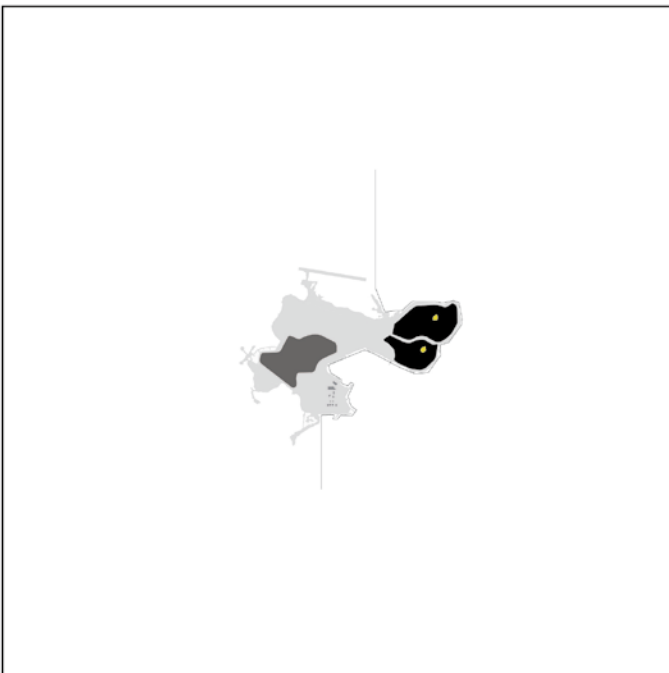
Legend:  
- - - - - Cellular roads  
● Civil Town  
● National Park



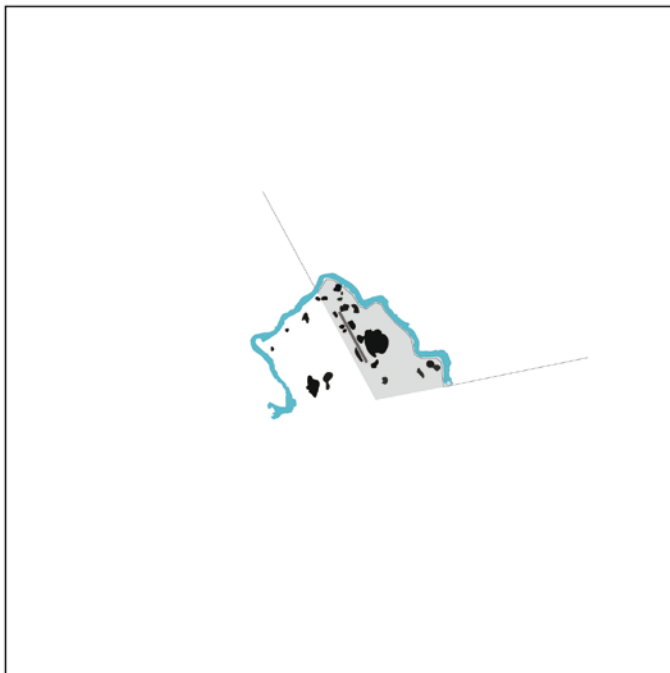
**KIRUNA**  
Sweden, White / Ghilardi + Hellsten Arkitekt AS  
Relocation



**HEIMAËY ISLAND**  
Iceland, Lava-Cooling Operations  
Defence



**DIIVIK DIAMOND MINE**  
Canada, Huge water retention dikes were constructed to safeguard mining facilities and accommodations.  
Reinforcement



**NEWTOK**  
Alaska, Coastal Erosion  
Abandon



**Tomorrow is not promised**

Abstraction

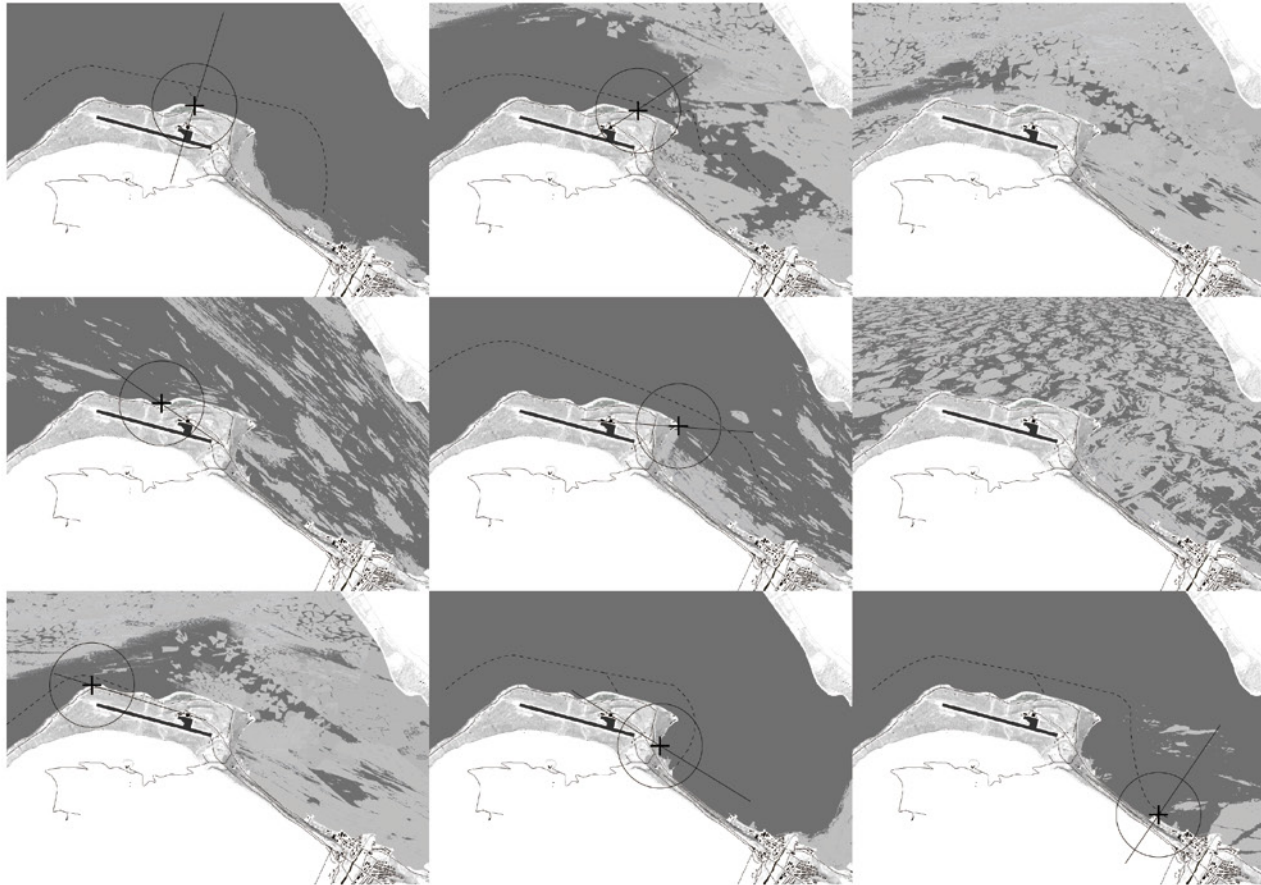
*vulnerable House and roads*

78°13'N 15°33'E

Month	Activity	% of total	Determination of Existing ADPM
January	3000	2,58%	Peak month activity = 16,000 Average day activity = 516.129 (16,000 / 31 days)
Febuary	6000	5.17%	
March	12,000	10.34%	
April	12,000	10.34%	<b>Determination of Forecast ADPM</b> Forecast annual activity = 20,800  Forecast peak month activity = 27,580 (20,800 x 13.79%)  Forecast average day activity = 671 (20,800 / 31 days)
May	14,980	12.91%	
June	12,000	10.34%	
July	12,000	10.34%	
August	16,000	13.79%	
September	10000	8.62%	
October	8000	6.89%	
November	6000	5.17%	
December	4000	3.44%	
Anual total	115.980	100%	

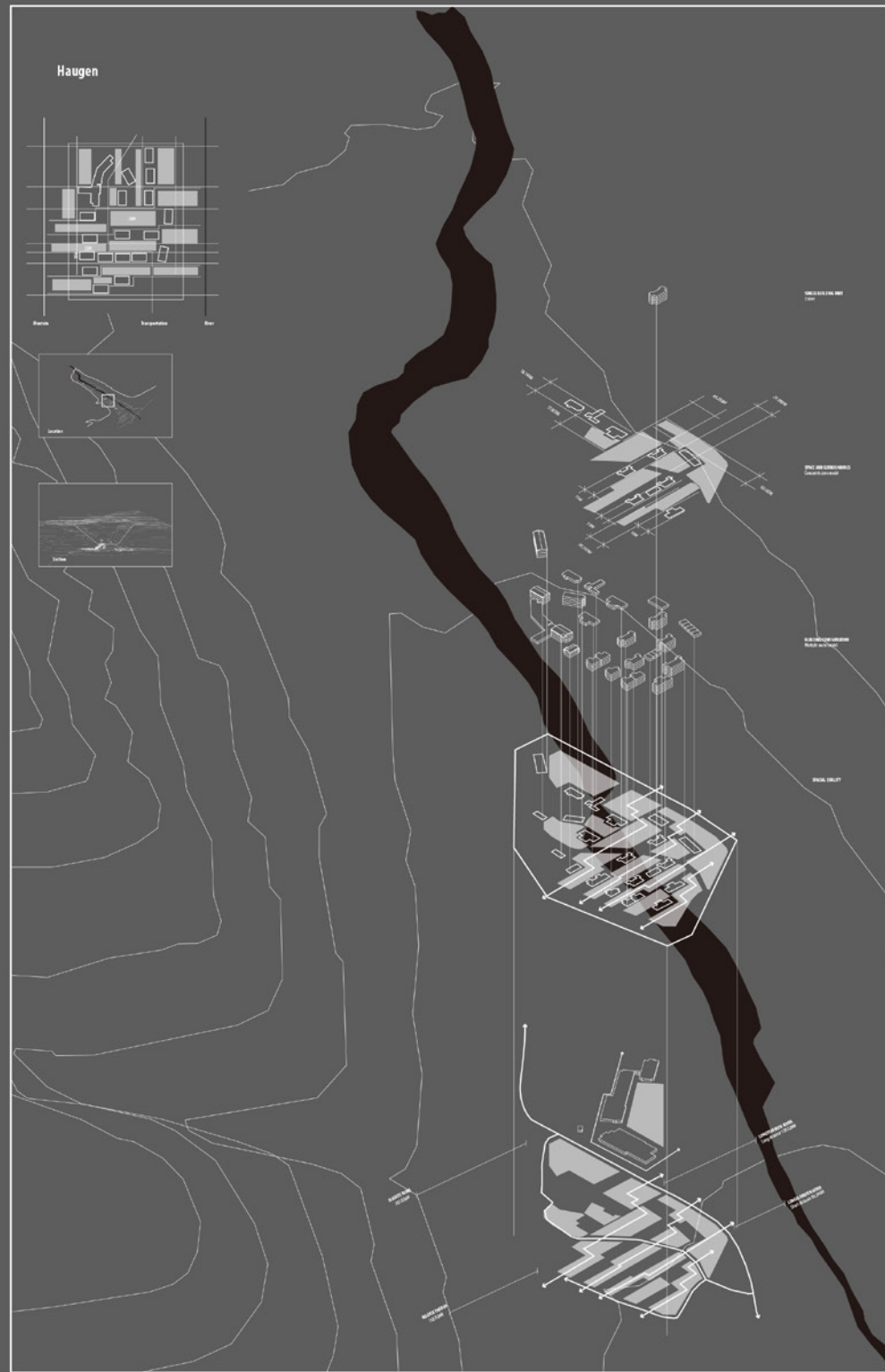
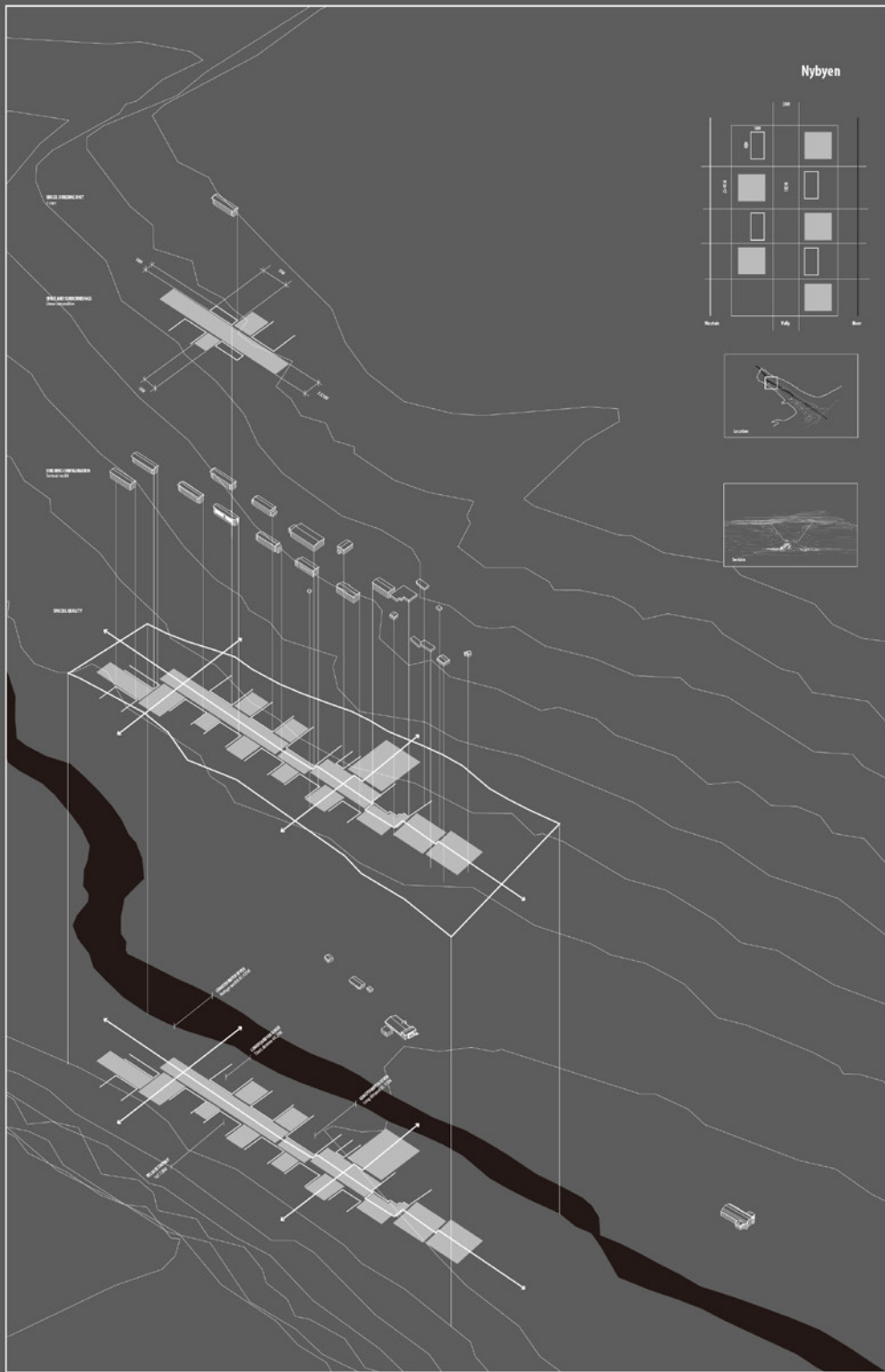
**Terminal capacity calculation**

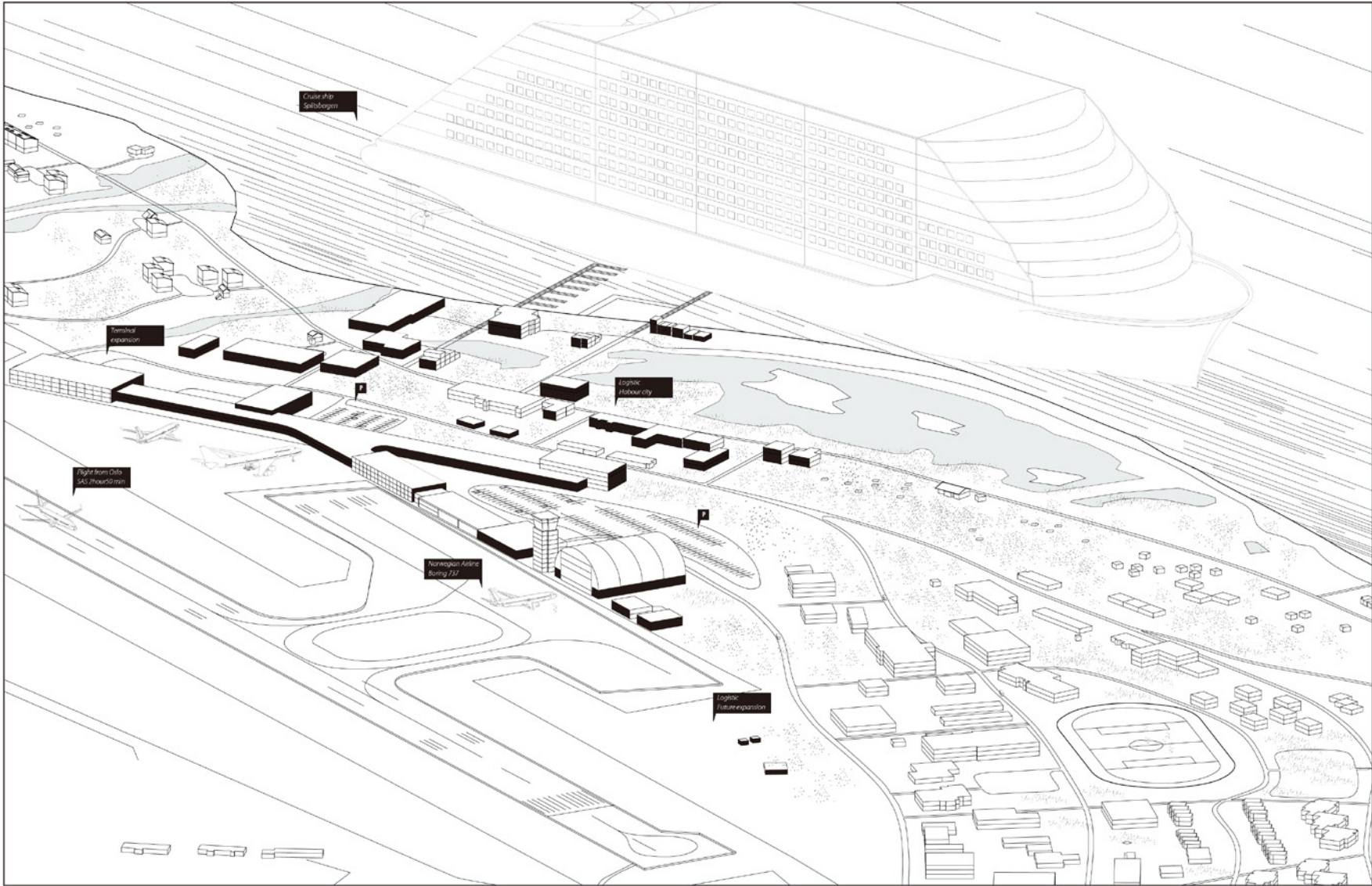
Annual activity can be used to determine order-of-magnitude facility requirements



#### ICE BREAK PATTERNS AND HABOUR SITUATIONS

In the winter time, the isfjord will frozen from the inner side of the longrearbyen vally. different ice frozen and break situations, configuration and formation shows the ideal location for future habour, ensuring all year round cruising activities.





**HABOUR - TERMINAL, SUMMER TIME**  
HIGHLY INTERCHANGE



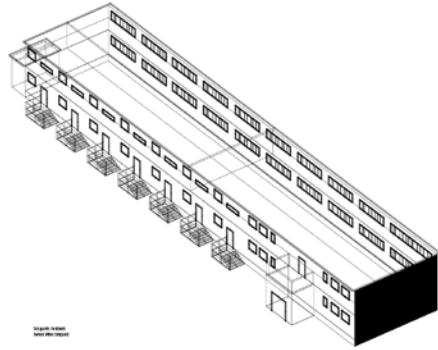
**TOS**

69°40'53"N 018°55'04"E

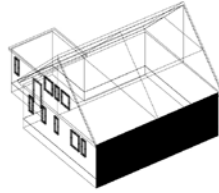
Passengers 2,009,146  
 Aircraft movements 42,444  
 Cargo (tonnes) 2,758  
 Runways/m 2,447

- Terminal areas
- Airport perimeter
- Reserve
- Parking
- Airport support services
- Aircraft maintenance
- Freight
- Non-aviation
- Landside development

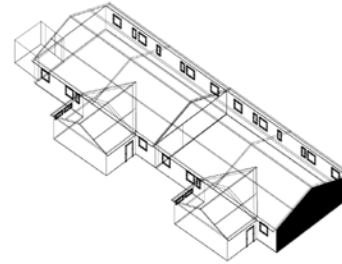




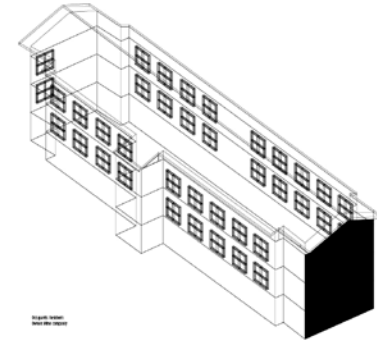
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100% 100%



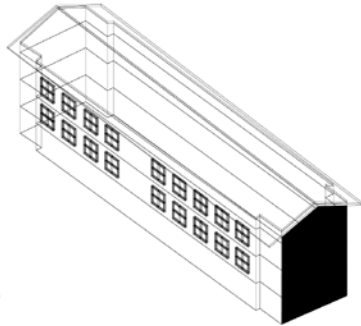
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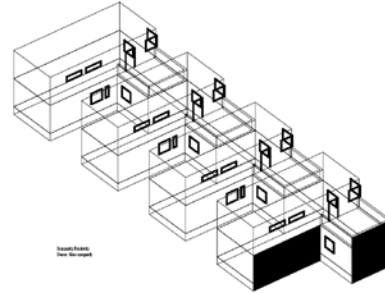
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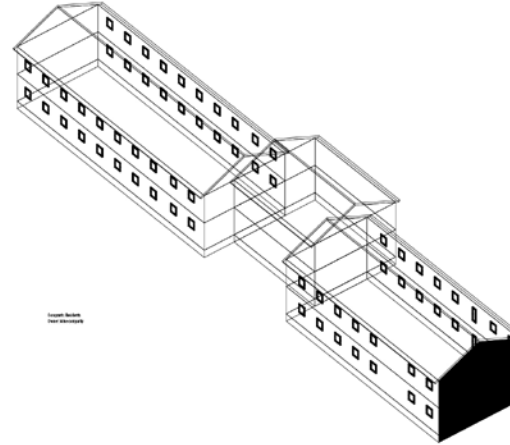
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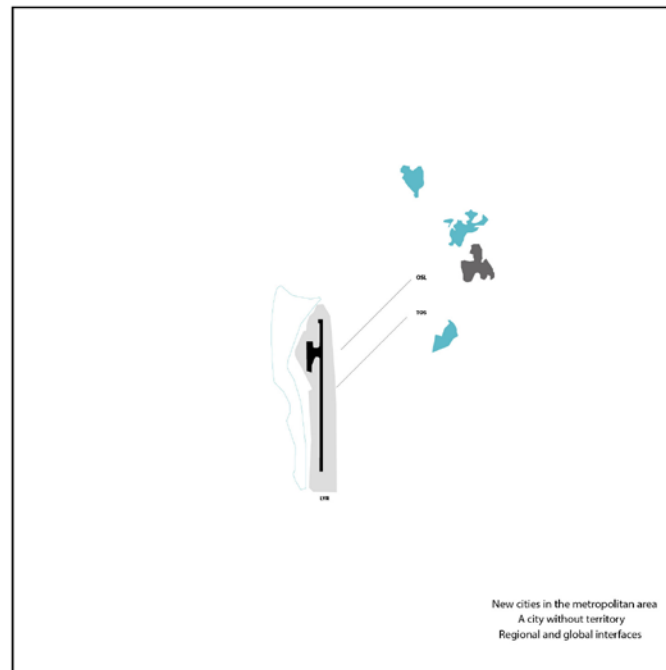
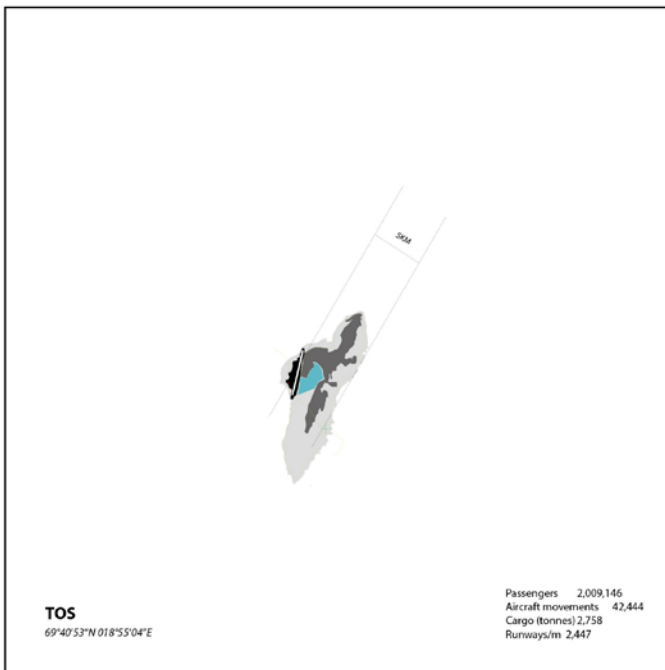
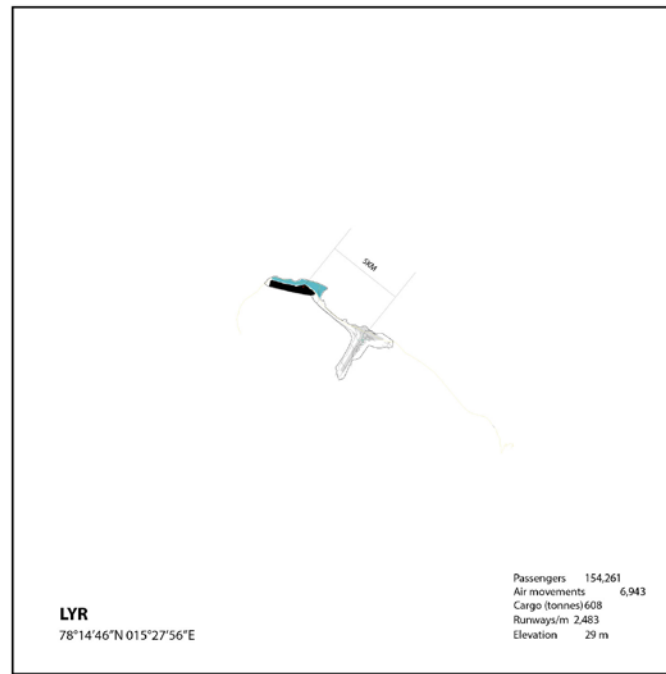
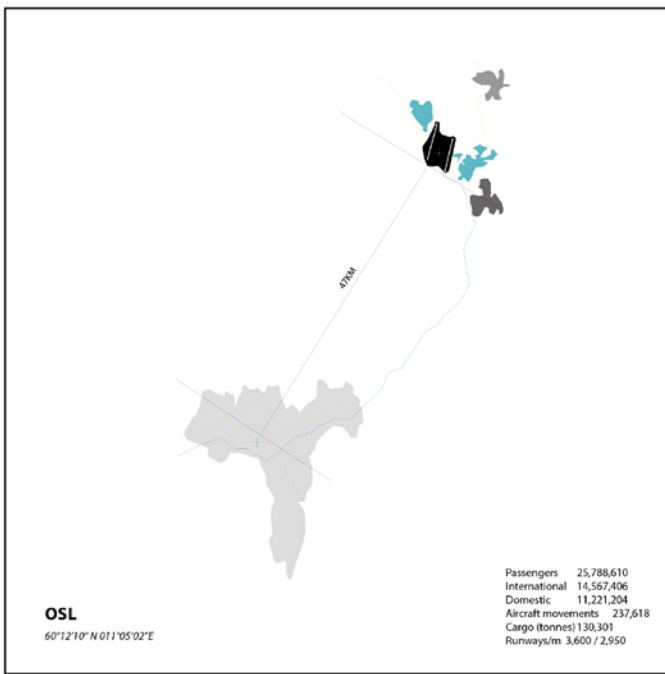


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100% 100%



100% 100%  
100% 100%

**INSIGHT OF BUILDINGS**  
REVEALS RESIDENTIAL HOUSING  
CRISIS





**ZRH**

Dispers non-operational area  
Low accessibility  
Island(Remote) terminal



**LGW**

Dispers non-operational area  
Airport cities around the Airfield



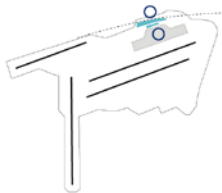
**OSL**

Terminal dominated by airfield  
Airport city confined by airfield  
Transit within terminal



**VIE**

Alternative development of runway  
Linear airport city  
Transit within terminal



**FRA**

Highly interchange  
Air/Rail Terminal  
Sky city



**AMS**

Distributed across territory  
Distributed over several site of the platform



**BCN**

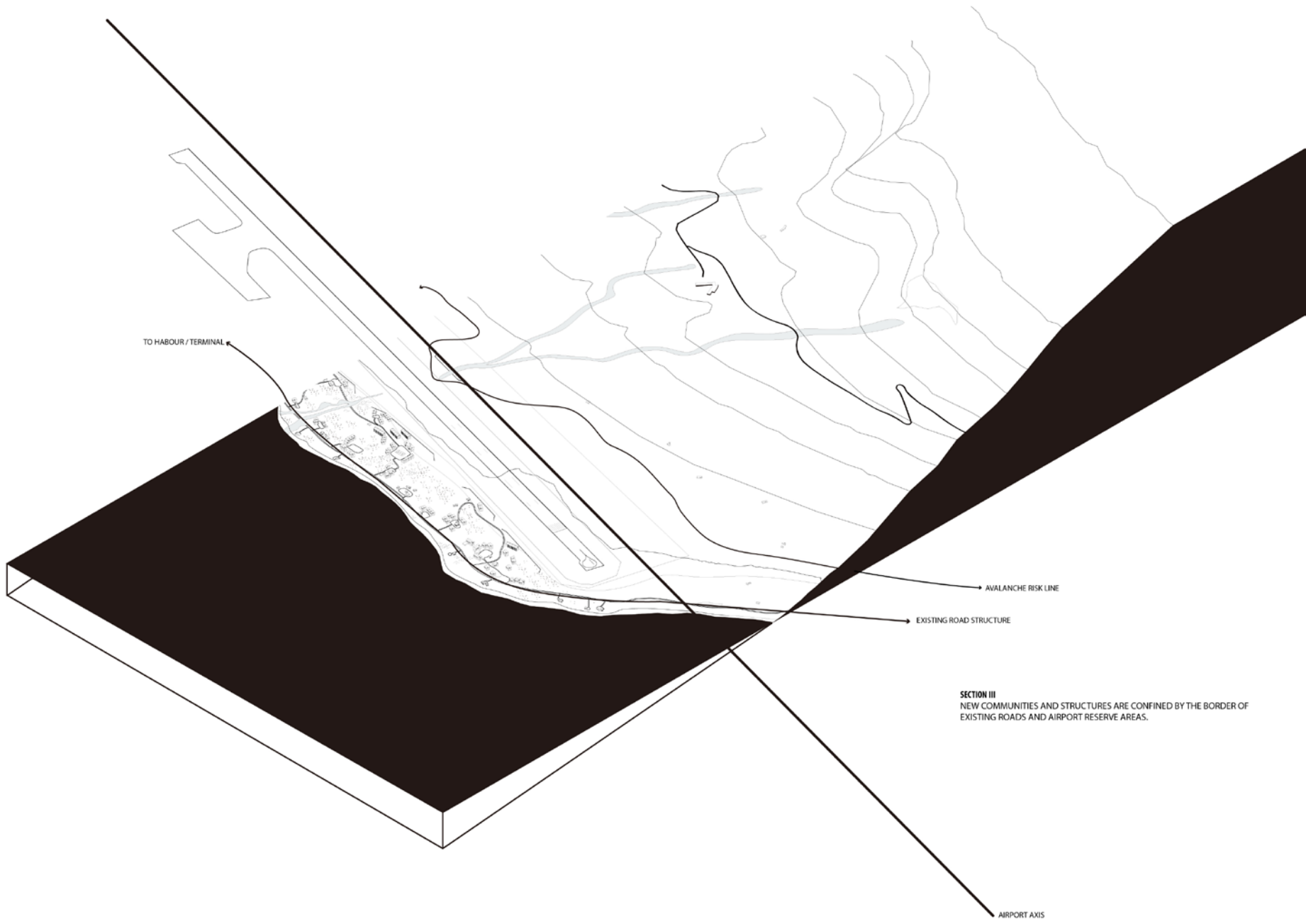
Compact Airport city  
Compact and concentrated



**ARN**

Designated logistic area  
Areas for airport-related logistic and business activities  
Being developed with collaboration

**AIRPORT CITY PATTERNS**



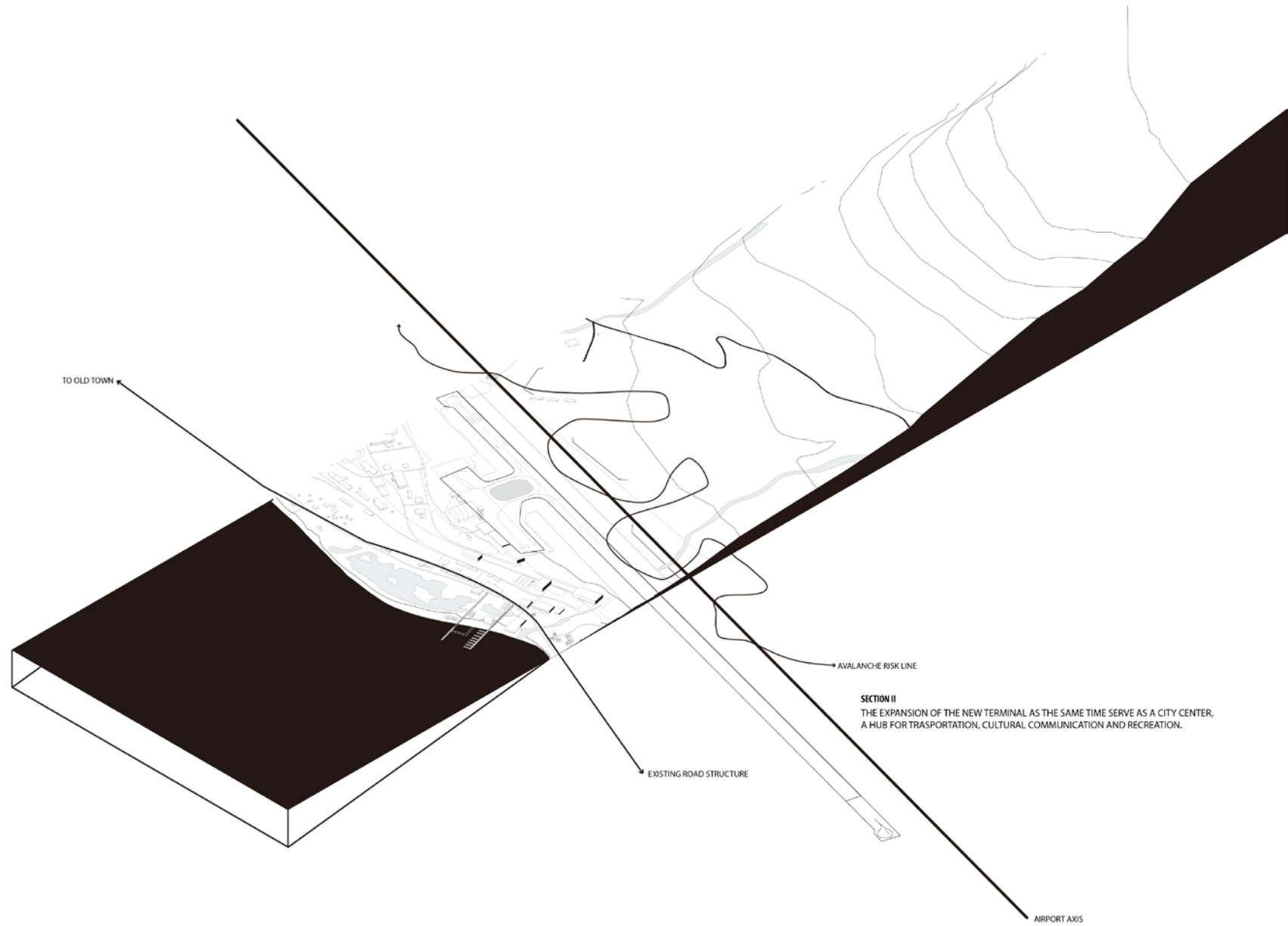
TO HARBOUR / TERMINAL

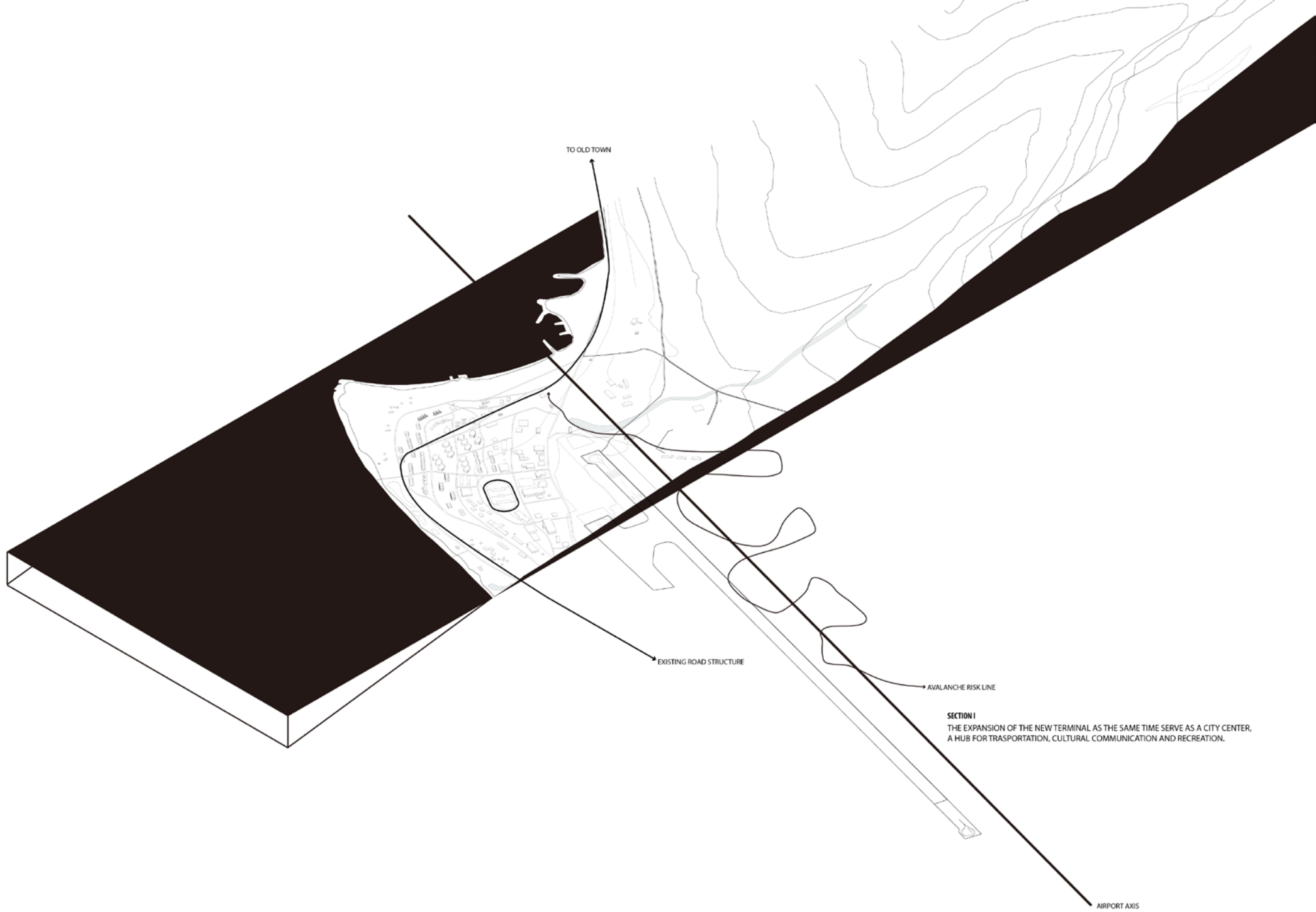
AVALANCHE RISK LINE

EXISTING ROAD STRUCTURE

**SECTION III**  
NEW COMMUNITIES AND STRUCTURES ARE CONFINED BY THE BORDER OF EXISTING ROADS AND AIRPORT RESERVE AREAS.

AIRPORT AXIS





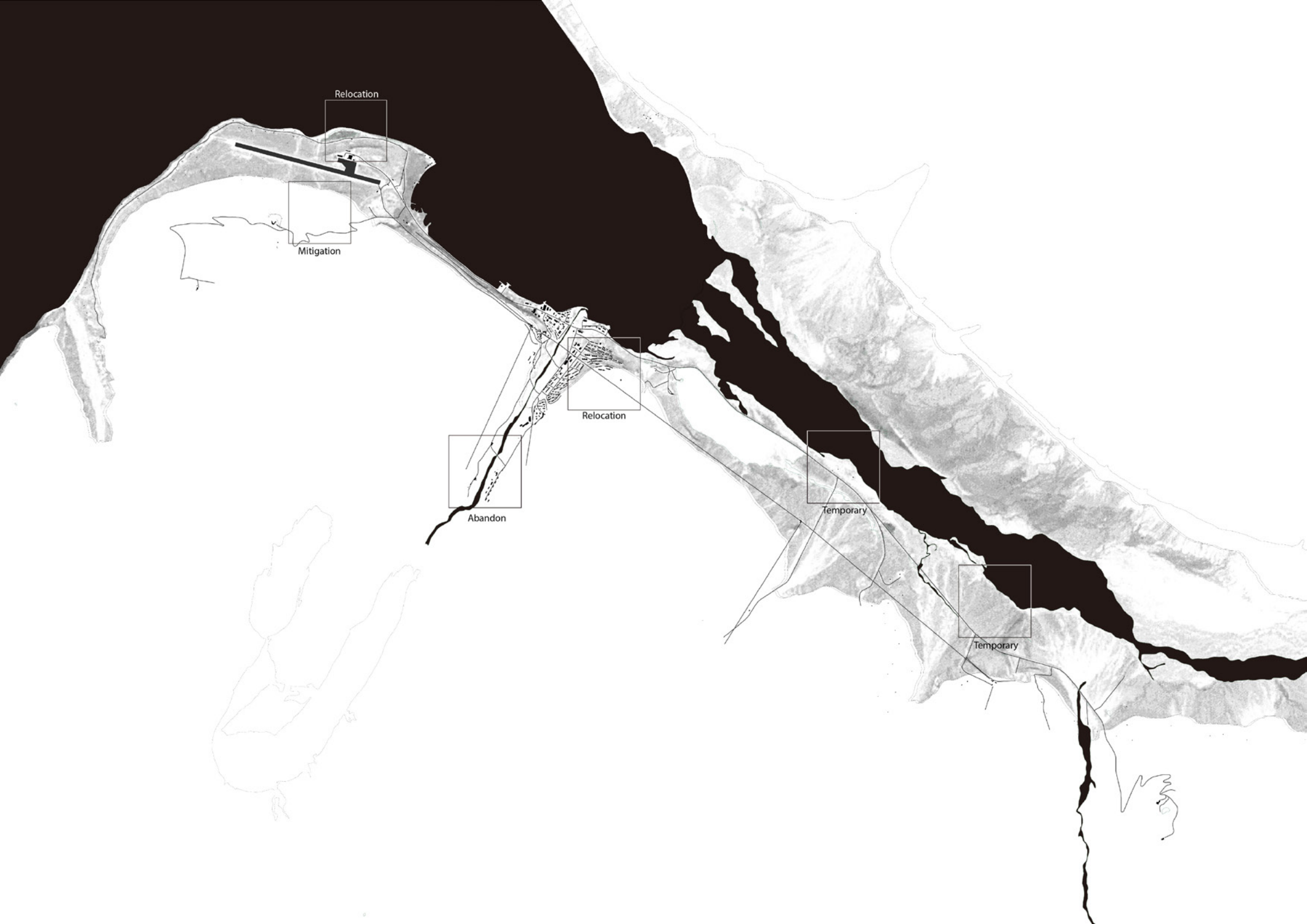
TO OLD TOWN

EXISTING ROAD STRUCTURE

AVALANCHE RISK LINE

**SECTION I**  
THE EXPANSION OF THE NEW TERMINAL AS THE SAME TIME SERVE AS A CITY CENTER,  
A HUB FOR TRASPORTATION, CULTURAL COMMUNICATION AND RECREATION.

AIRPORT AXIS



Relocation

Mitigation

Relocation

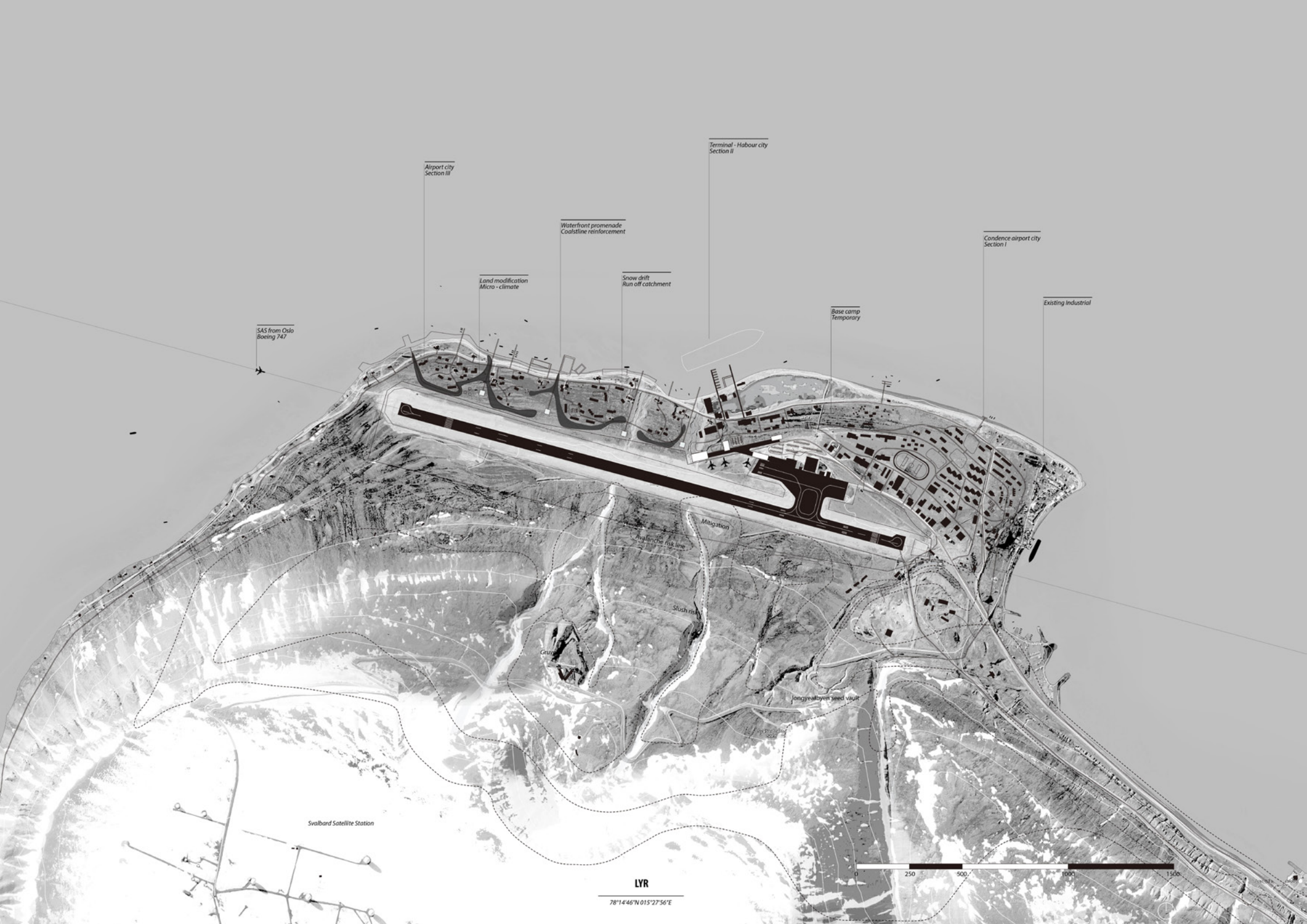
Abandon

Temporary

Temporary







SAS from Oslo  
Boeing 747

Airport city  
Section III

Terminal - Harbour city  
Section II

Waterfront promenade  
Coastline reinforcement

Condence airport city  
Section I

Land modification  
Micro-climate

Snow drift  
Run off catchment

Base camp  
Temporary

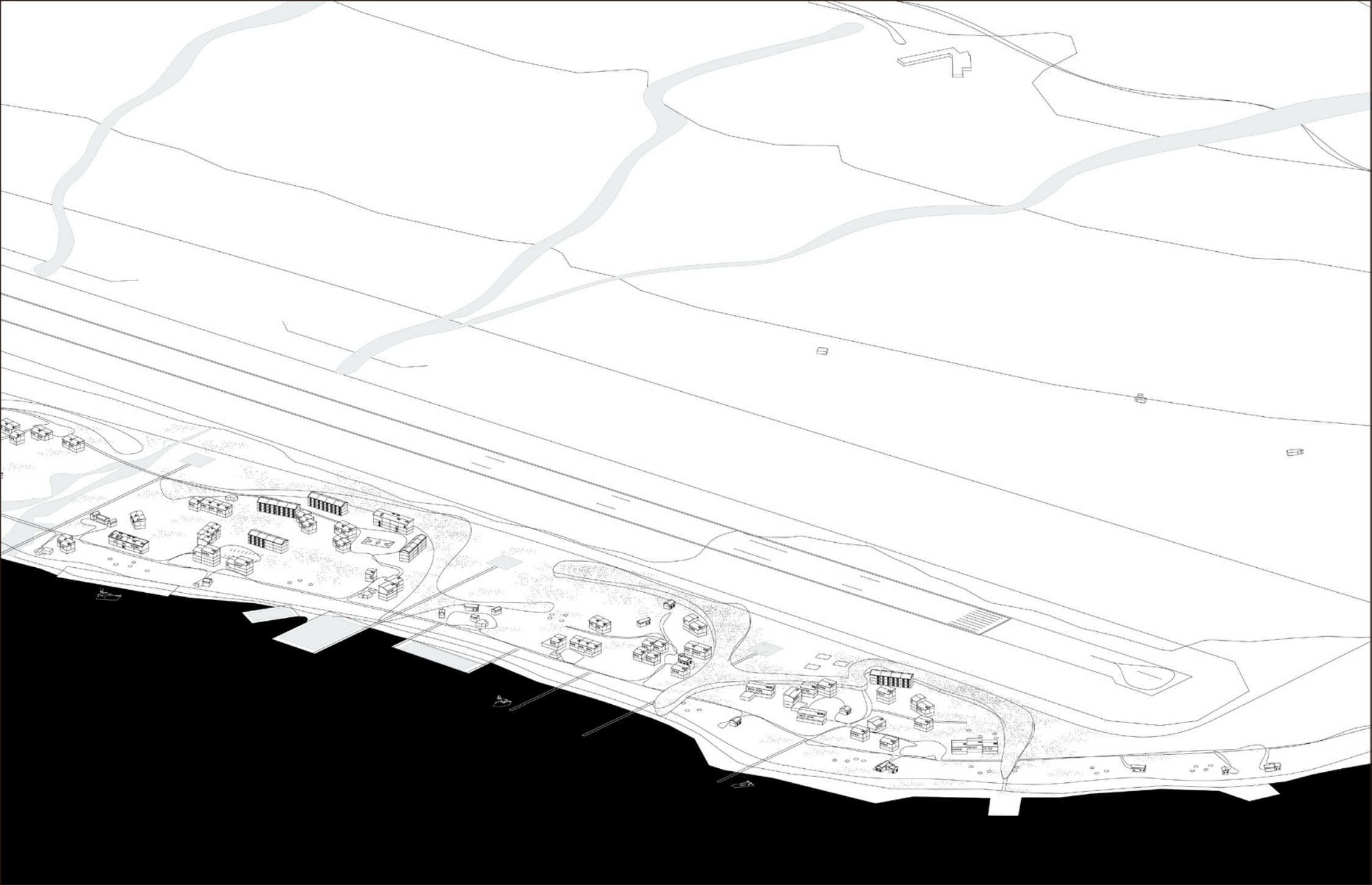
Existing Industrial

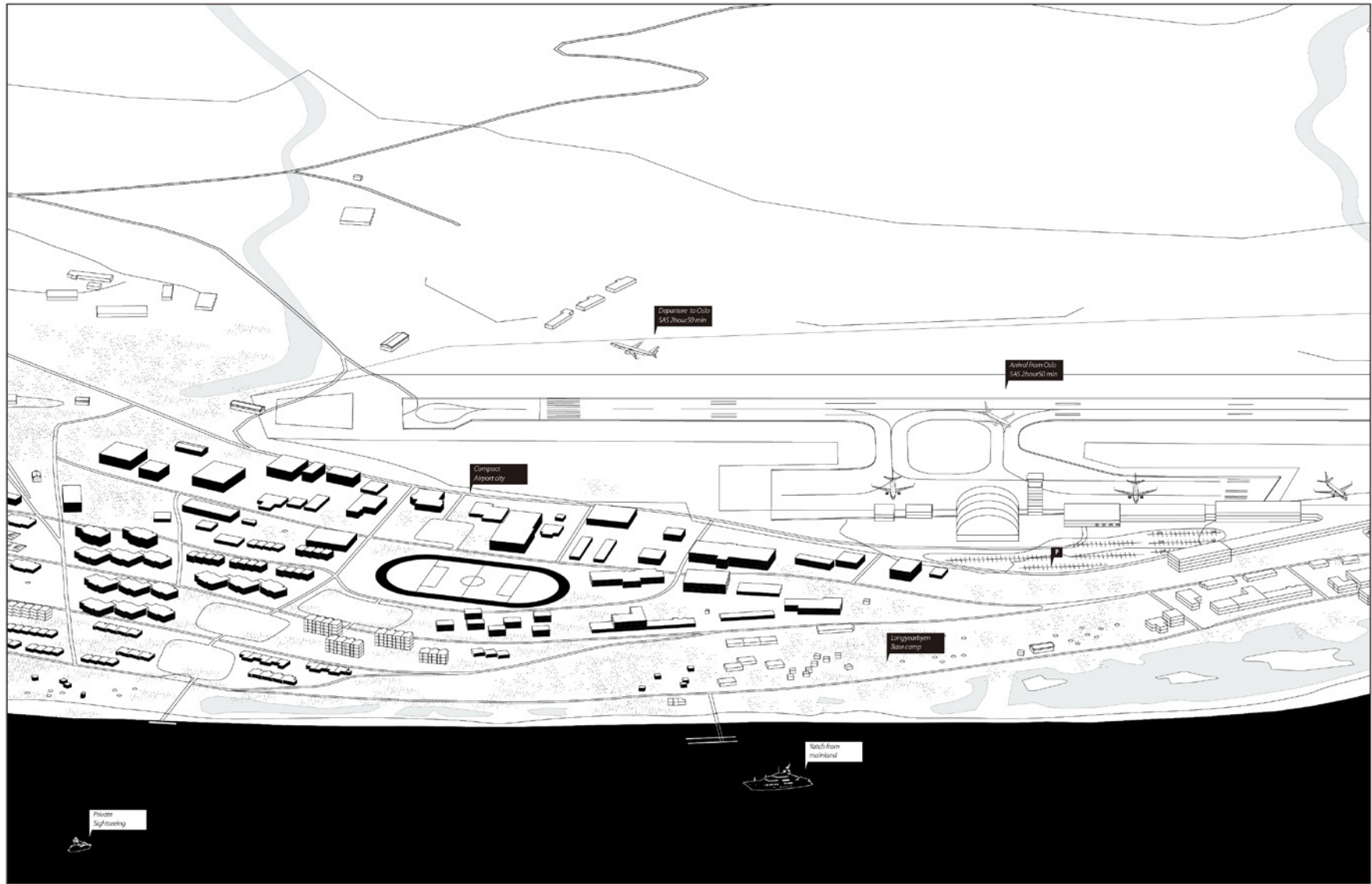
Svalbard Satellite Station

LYR

78°14'46"N 015°27'56"E







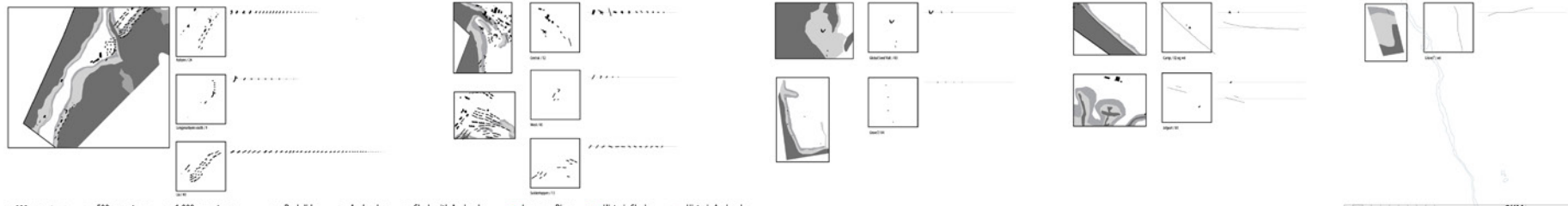
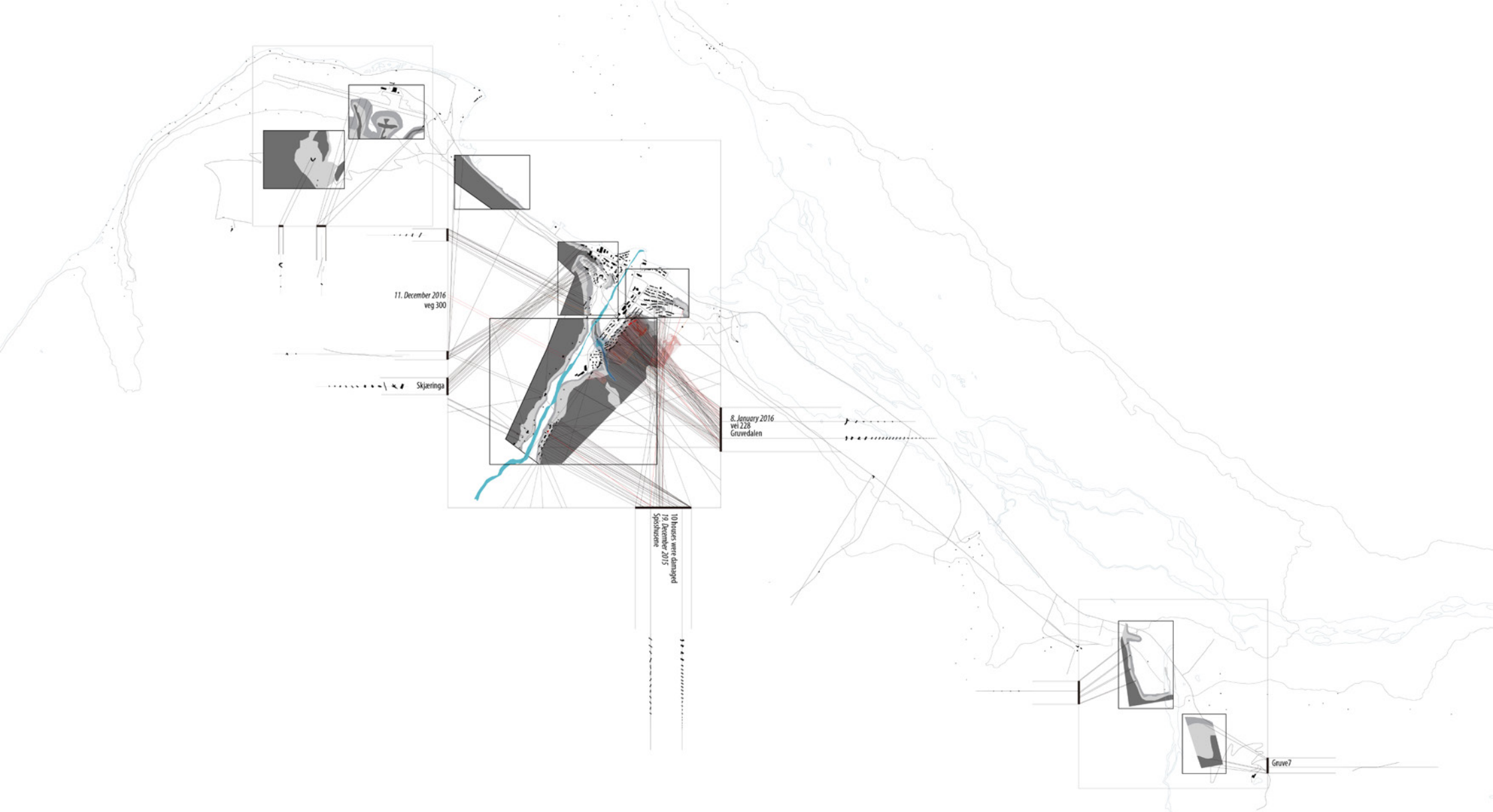


**OSL**

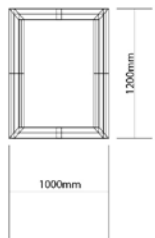
60°12'10" N 011°05'02" E

Passengers 25,788,610  
 International 14,567,406  
 Domestic 11,221,204  
 Aircraft movements 237,618  
 Cargo (tonnes) 130,301  
 Runways/m 3,600 / 2,950

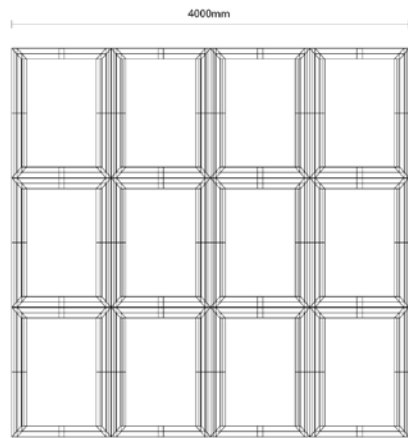
- Terminal areas
- Airport perimeter
- Reserve
- Parking
- Airport support services
- Aircraft maintenance
- Freight
- Non-aviation
- Landside development



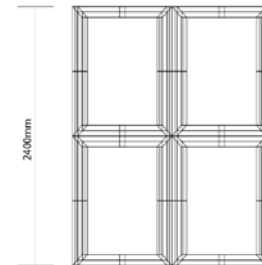
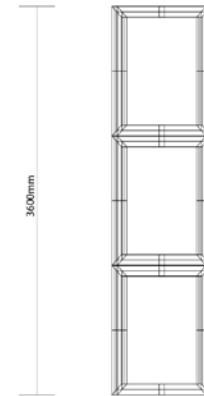
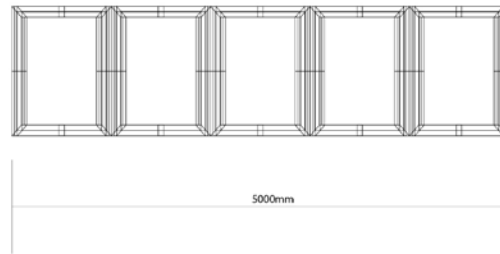
# Windows



= 1.2 m<sup>2</sup> window facade

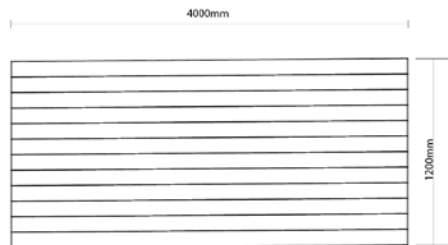
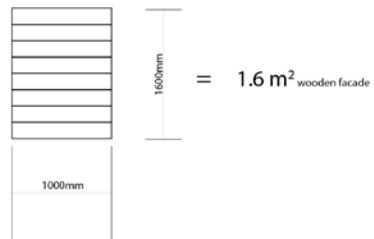


Material usage for 1.2m<sup>2</sup> of recycled window facade  
generic example of setup for calculation purpose.



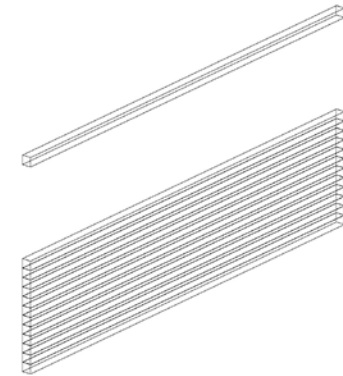
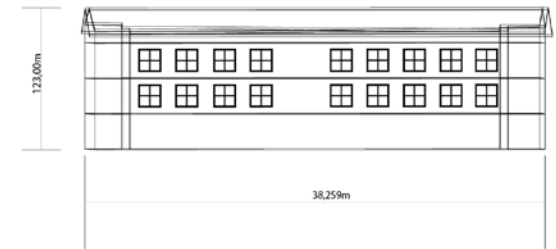
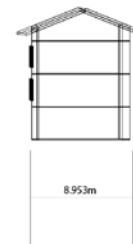
Different combination

## Wooden facade



## Built Component reuse

Material usage for 1.2m<sup>2</sup> of recycled wooden facade  
generic example of setup for calculation purpose.



Nybyen housing unit