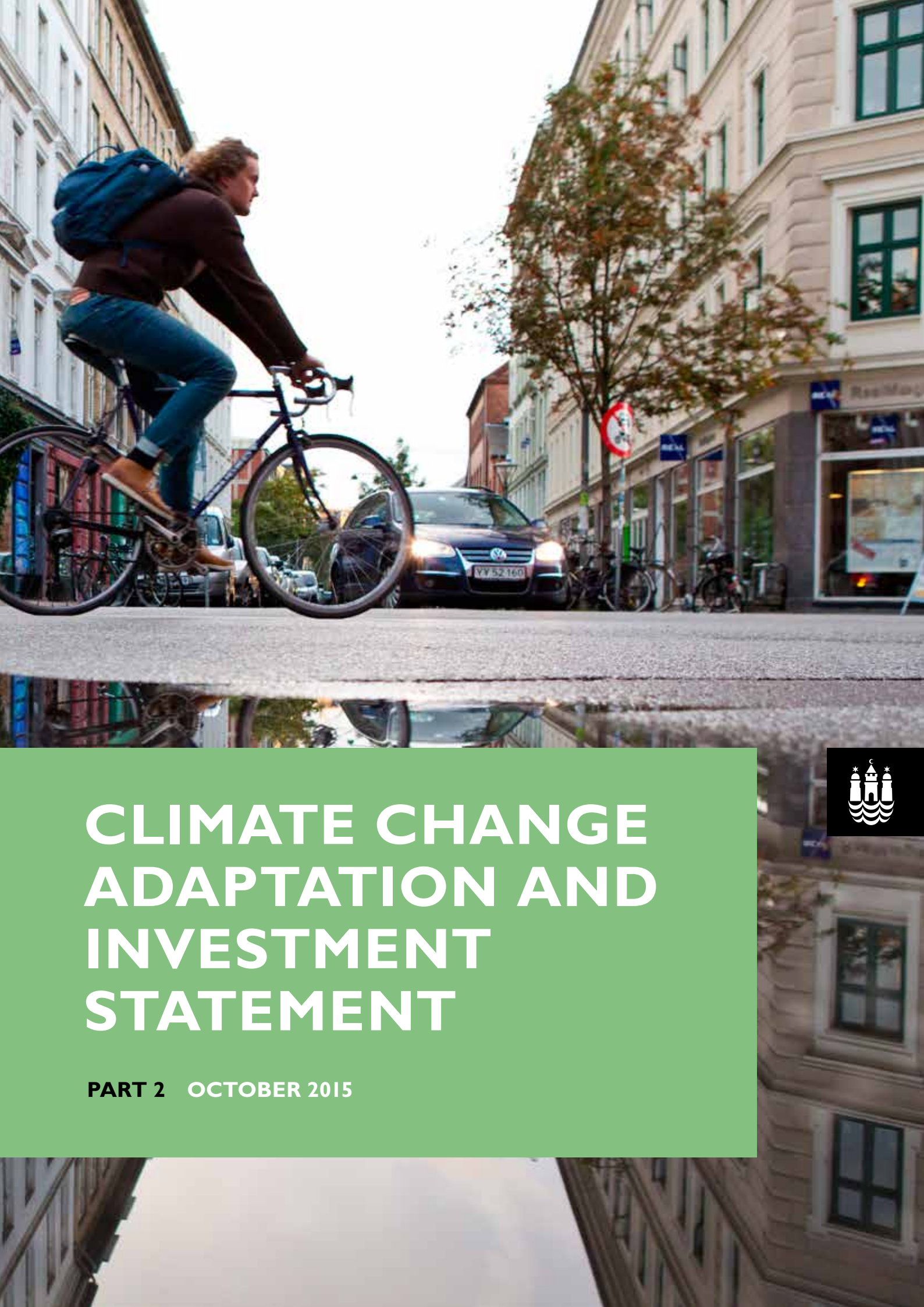


CLIMATE CHANGE ADAPTATION AND INVESTMENT STATEMENT

PART 2 **OCTOBER 2015**

CONTENTS
PART 2

CHAPTER 3

NEEDS, SOLUTION AND EFFECT

The cloudburst management solutions are divided into seven water catchment areas, each of which has its own hydraulic relationship. Because of the topography, with radical working of the surface in the seven water catchment areas, there are good prospects of managing the water on the surface and conveying it to lakes, parks and the harbour.

All the projects in the water catchment area are a coherent solution. However, it is not possible to implement all the projects at once. The combined solution is therefore sub-divided into cloudburst branches, which respond to a particular need for cloudburst management in part of the catchment area. Cloudburst branches consist of a number of sub-projects making up part of the combined solution for the catchment area. When they are implemented, the effect, protection of properties, can be continuously documented.

All in all, the cloudburst branches provide an opportunity to prioritise which projects are to be implemented when, and to document the effect of the solutions. As well as reducing the risk of flooding, the cloudburst branches describe the opportunities for synergies with other projects. Great, medium or low potential for urban space improvements is indicated in the project descriptions.

The more specific identification and formulation of urban space improvements are to be stated in more detail in years to come. This is to be done based on a description of the districts of Copenhagen, and how cloudburst management can give the districts of Copenhagen a boost. This is described in more detail in the third and last part of the climate change adaptation and investment statement.

THE CLOUDBURST BRANCHES

When large volumes of torrential rain fall on Copenhagen, all parts of the city are affected when the water flows across the surface of the city regardless of boundaries between neighbourhoods and municipal borders. The many cloudburst management projects, and in particular the relationships between the projects, are based on the natural runoff of the water on the city's surfaces.

To measure the effectiveness of the cloudburst management projects, the surfaces have to be looked at in the hydraulic context of which they form part. In this context, the cloudburst branches are the smallest hydraulic unit in which a cloudburst management project can be viewed, as the cloudburst management projects take account of the internal hydraulic dependence of the cloudburst management projects. Altogether there are 60 cloudburst branches divided between seven water catchment areas.

WHAT IS A CLOUDBURST BRANCH?

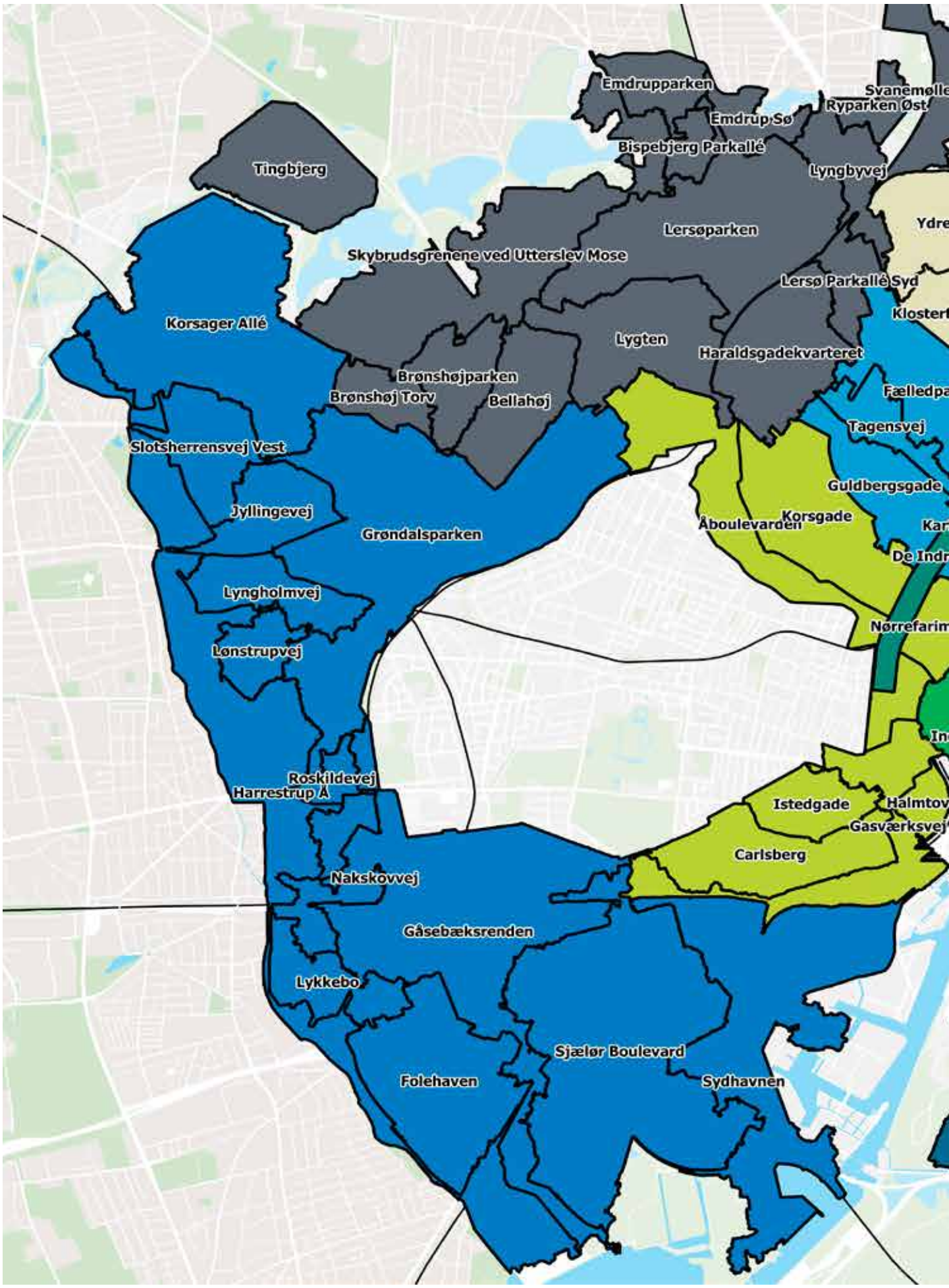
A cloudburst branch is a collection of projects that ensure that the water is removed from a given catchment area based on hydraulic calculations of how the water flows through the city. The cloudburst branches are thus to be regarded as continuous hydraulic solutions. It is therefore not possible to change the capacity of one cloudburst management project or discharge or hold back water without also adapting the rest of the projects in the cloudburst branch concerned. The consequence of reducing the volume of water that a particular retention space can retain will be finding another place on the cloudburst branch that can hold back the same volume of water in order to compensate.

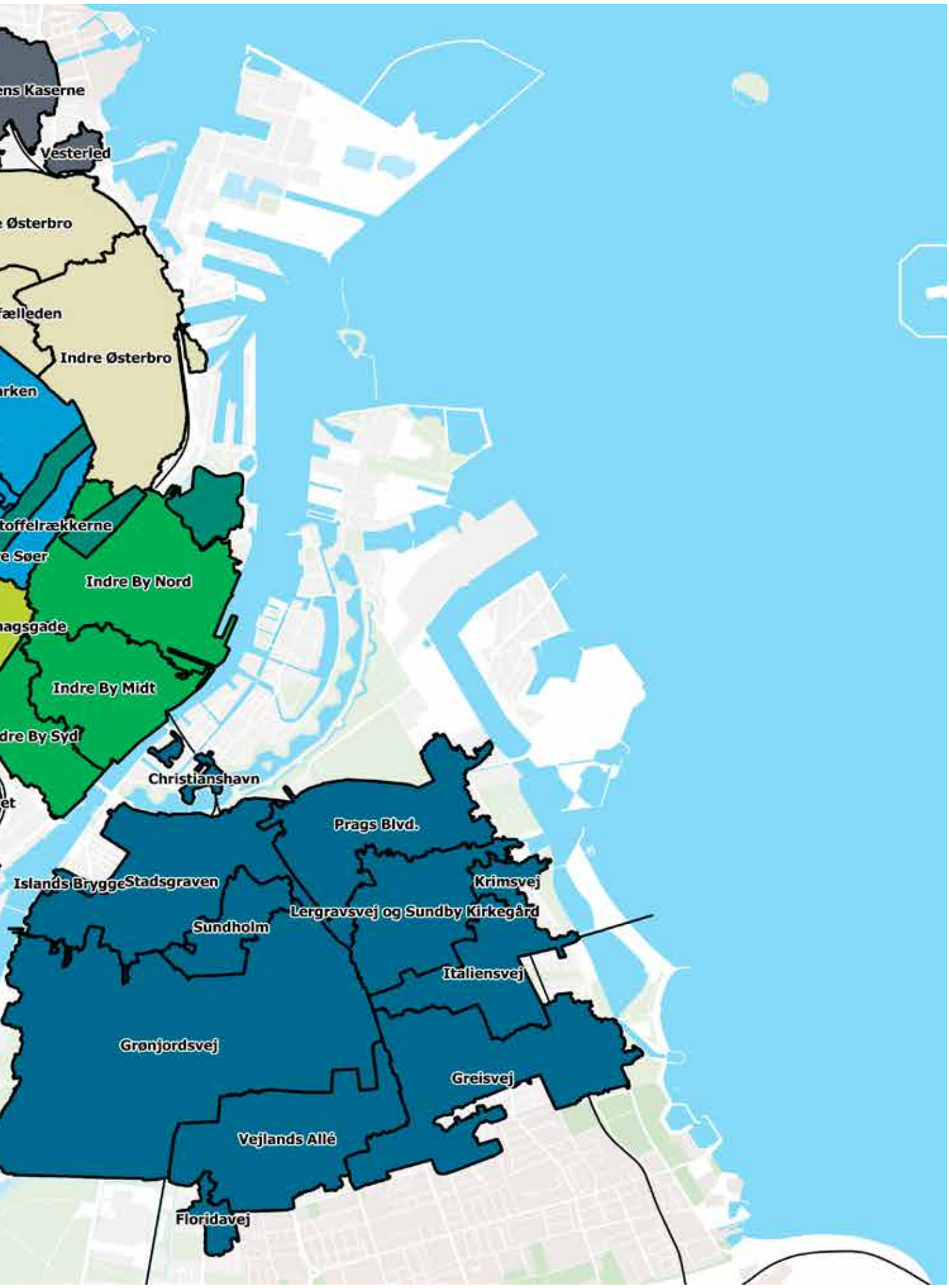
THE EFFECT OF THE CLOUDBURST MANAGEMENT PROJECTS

A cloudburst branch acting as a continuous hydraulic solution means that the effect of the individual cloudburst management project cannot be viewed independently of the other projects in the cloudburst branch. For example, the full effect of a retention space will not be achieved until the cloudburst roads that supply the retention spaces with stormwater are established.

All the cloudburst management projects are included in one or more cloudburst branches. The cloudburst branch can therefore also be read as a summary of cloudburst management plans. The cloudburst branches are presented on the following pages, broken down according to the seven catchment areas in which they are located.

Cloudburst, Amagerbrogade


Emdrupparken
Svanemølle
Ryparken Øst
Emdrup Sø
Bispebjerg Parkallé
Lyngbyvej
Tingbjerg
Ydre
Lersøparken
Skybrudsgrenene ved Utterslev Mose
Lersø Parkallé Syd
Klostert
Korsager Allé
Lygten
Haraldsgadekvarteret
Brønshøjparken
Brønshøj Torv
Bellahøj
Fælledpa
Tagensvej
Slotsherrensvej Vest
Guldbergsgade
Jyllingevej
Åboulevarden
Korsgade
Grøndalsparken
De Indr
Lyngholmvej
Nørrefarim
Lønstrupvej
Roskildevej
Harrestrup Å
Istedgade
Halmtov
Gasværksvej
Carlsberg
Nakskovvej
Gåsebæksrenden
Lykkebo
Sjælør Boulevard
Folehaven
Sydhavnen


ens Kaserne
Vesterled
Østerbro
fælleden
Indre Østerbro
arken
toffelrækkerne
e Søer
Indre By Nord
nagsgade
Indre By Midt
dre By Syd
et
Christianshavn
Prags Blvd.
Islands Brygge
Stadsgraven
Krimsvej
Lergravsvej og Sundby Kirkegård
Sundholm
Italiensvej
Grønjordsvej
Greisvej
Vejlands Allé
Floridavej

LIST OF STARTED PROJECTS

PROJECTS WHERE PROJECT PLANNING OR CONSTRUCTION HAS STARTED:

AM1D	Amagerbanen
AM21	Remiseparken
AM43	Amagerbrogade
BIR5.5+6.3+6.4	Fuglekvarteret Vest
BIR 11.1 & 11.2	Ryparken (Lyngbyvejen)
IB3	Gothersgade
IB4	Sankt Annæ Plads
IB7	Path at Nyboder School
KV4	Husumvænge
KV38	Folehaven
KV78	Scandiagade
NO16	De gamles by
NO21	De Indre Søer (The Inner Lakes)
OS1	Strandboulevarden
OS9	Østerbrogade
OS10	Carl Nielsens Allé
OS13	Sankt Kjelds Plads and Bryggevangen
OS15	Tåsinge Plads (part of project OS15)
VEL5	Enghave Park
VEL20	Rantzausgade
VEL42	Ørnevej-Glentevej-Nordre Fasanvej

The projects are marked with yellow project numbers in the cloudburst branches on the following pages.

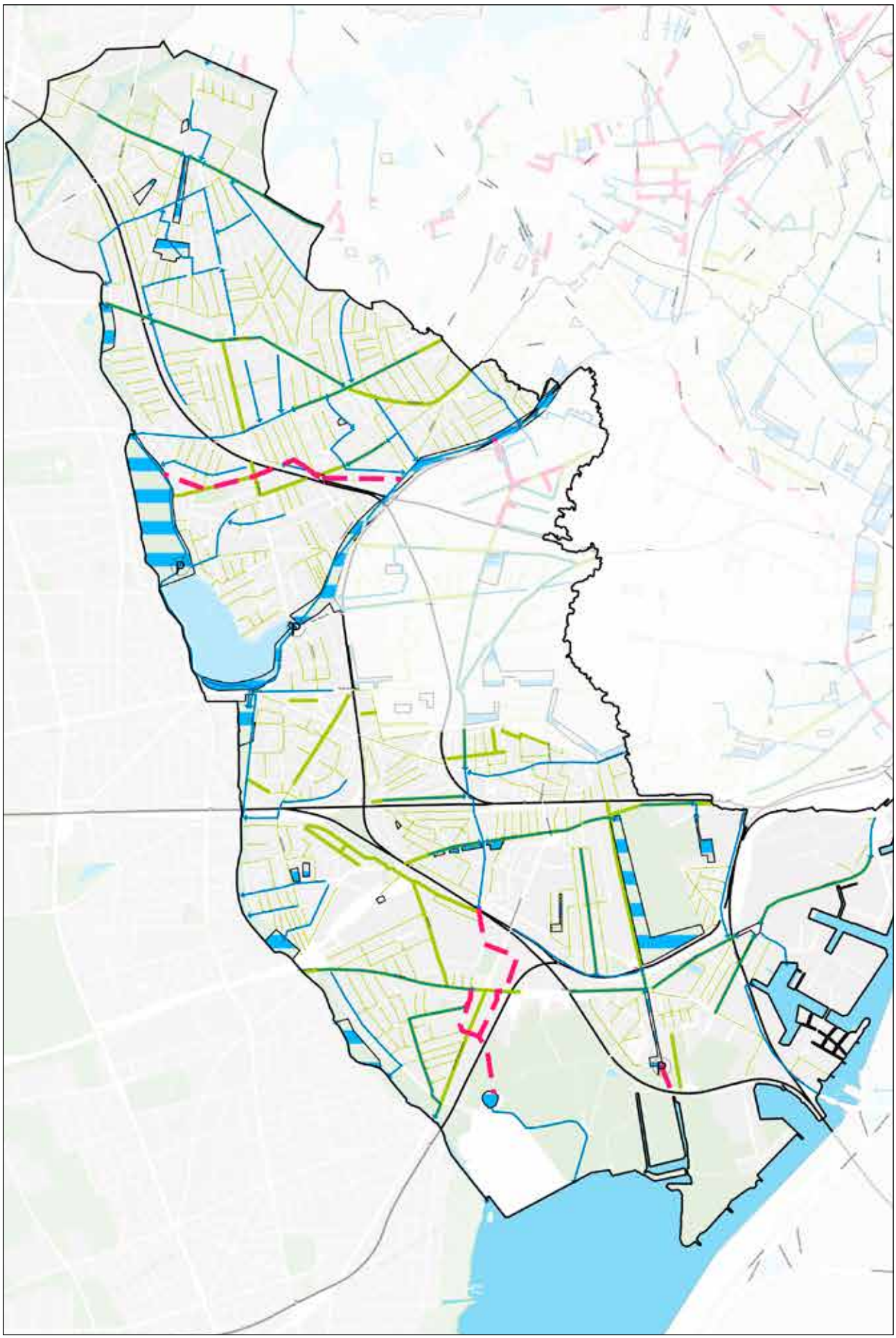
Copenhagen's first climate-adapted urban space on Tåsinge Plads in the neighbourhood of Sankt Kjelds Kvarter was officially opened in 2014. Photograph: Louise Molin Jørgensen

WATER CATCHMENT AREA OF COPENHAGEN WEST AND FREDERIKSBERG WEST

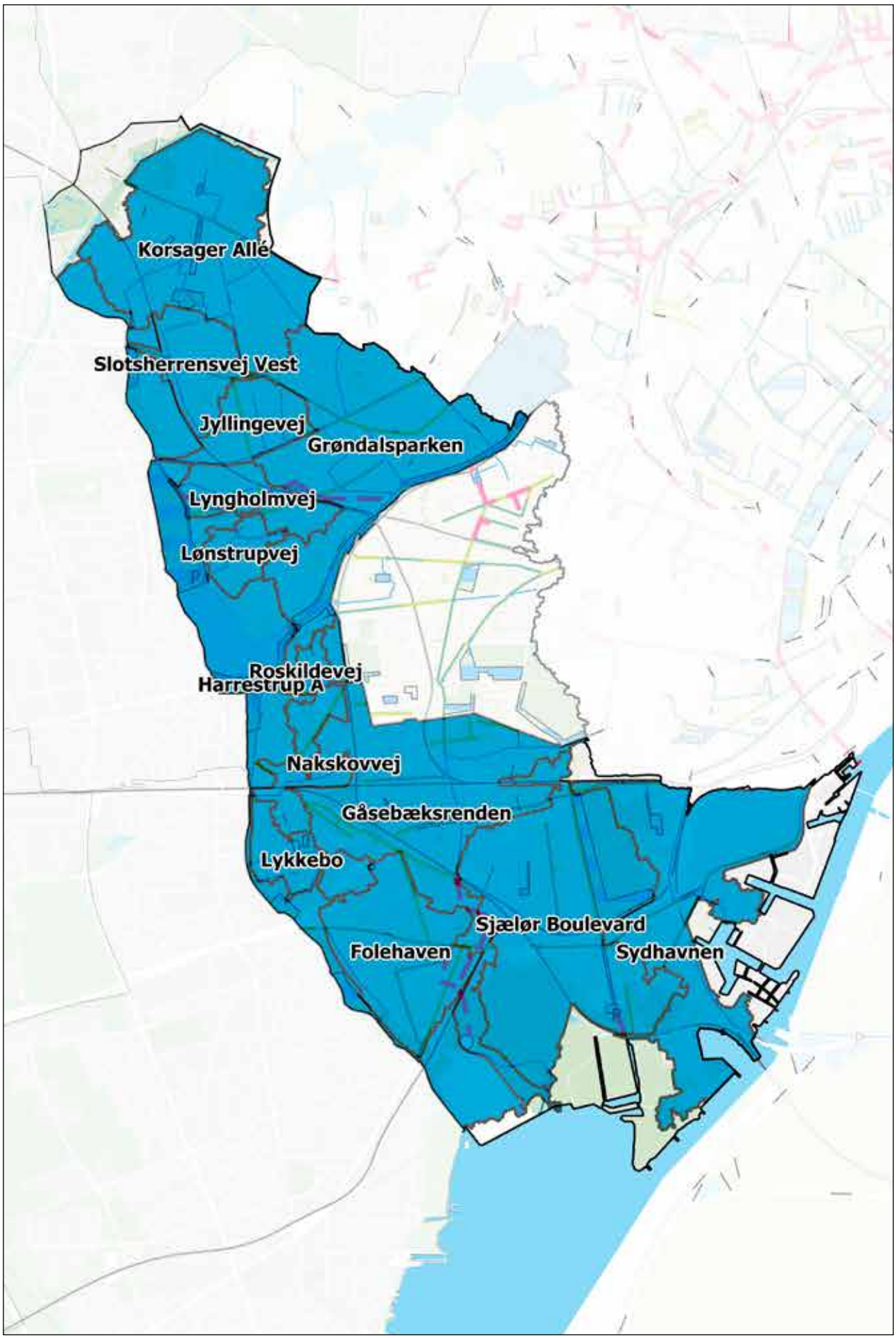
Copenhagen West is the largest water catchment area, with 14 cloudburst branches and 84 cloudburst management projects. The catchment area extends from Husum/Brønshøj via Vanløse and Valby to Kgs. Enghave and Vesterbro. In the western part of the catchment area, the Harrestrup Å and Grøndals Å rivers flow through green spaces with parks and areas of detached houses, while the piped Gåsebækrende runs through densely built-up areas in Frederiksberg and Valby. It is a catchment area that comprises areas of nature, a number of tightly packed block developments, larger areas of detached houses with several listed buildings and old industrial estates. The catchment is intersected by several large approach roads and railway tracks that act as barriers.

VISION AND STRATEGY: A LANDSCAPE FLOW AND AN URBAN FLOW ARE TO TRANSPORT THE WATER

The cloudburst management projects ensure and optimise the capacity contained in the Harrestrup Å and Grøndals Å watercourses. The line that the water will follow through these watercourses towards Kalveboderne is given the name The Landscape Flow, as it passes through green areas, and because the cloudburst management plans endeavour to support the recreational and green quality of the areas. In parallel with The Landscape Flow, the course of The Urban Flow is to convey the water from Gåsebækrenden via Dalgas Boulevard through Valbyparken to Kalveboderne. Part of the solution here will be to convey the water below ground in pipes, because it has to cross several major traffic-carrying roads and railway lines. There is an opportunity to establish a recreational rainwater park in Valbyparken.



CLOUDBURST BRANCHES COPENHAGEN WEST AND FREDERIKSBERG WEST


Korsager Allé
Slotsherrensvej Vest
Jyllingevej
Grøndalsparken
Lyngholmvej
Lønstrupvej
Roskildevej
Harrestrup A
Nakskovvej
Gåsebæksrenden
Lykkebo
Sjælør Boulevard
Folehaven
Sydhavnen

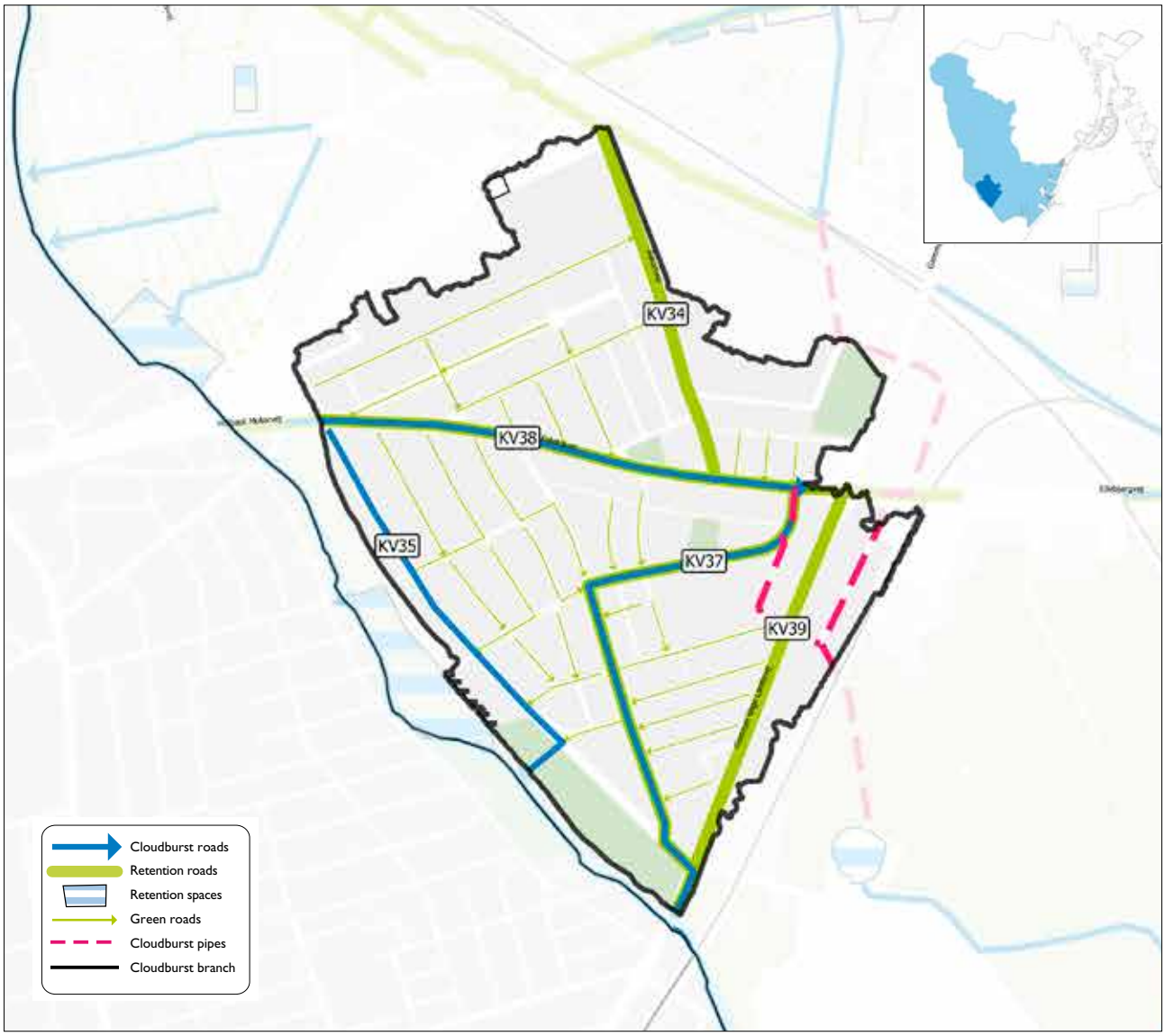
FOLEHAVEN

AREA 143 HA
HOUSEHOLDS 8,485
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 5

The Folehaven cloudburst branch is located south of Vigerslev Station between Kulbanevej and Retortvej and extends southwards towards the Harrestrup Å, bounded by the Gammel Køge Landevej road to the east. The cloudburst branch consists of five cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst branch is a combined cloudburst and retention road which runs over two kilometres on Folehaven, turns southwards towards Kirsebærhaven and finally ends up at the Harrestrup Å.

EFFECT

By implementing the 5 projects in the cloudburst branch, a medium-risk area of 143 ha with 8,485 households is cloudburst-proofed.



KV34

Retortvej

Location: Folehaven to Vigerslev Allé
Medium potential for urban space improvements
Synergies: Road renovation, cycle paths, green climate adaptation

Economics alternative: DKK 15.1m
Economics traditional: DKK 19.2m

KV35

Vigerslevvej

Location: Folehaven to Gl. Køge Landevej
Low potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 16.5m
Economics traditional: DKK 19.8m

KV37

Kirsebærhaven

Location: Kirsebærhaven, Urtehaven
Great potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 33.3m
Economics traditional: DKK 37.2m

KV38

Folehaven

Location: Retortvej to Harrestrup Å
Great potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 25.0m
Economics traditional: DKK 29.0m

KV39

Gl. Køge Landevej

Location: Folehaven to Harrestup Å
Great potential for urban space improvements
Synergies: Cycle paths

Economics alternative: DKK 11.1m
Economics traditional: DKK 13.5m

KV40 (included in more than one cloudburst branch)

Green roads and Harrestrup Å

Location: Brønshøj-Husum, Vanløse and Valby. Great potential for urban space improvements
Synergies: Green climate adaptation, road renovation, cycle paths, neighbourhood regeneration, deprived areas
Economics alternative:DKK 219.7m
Economics traditional: DKK 261.8m

GRØNDALSPARKEN

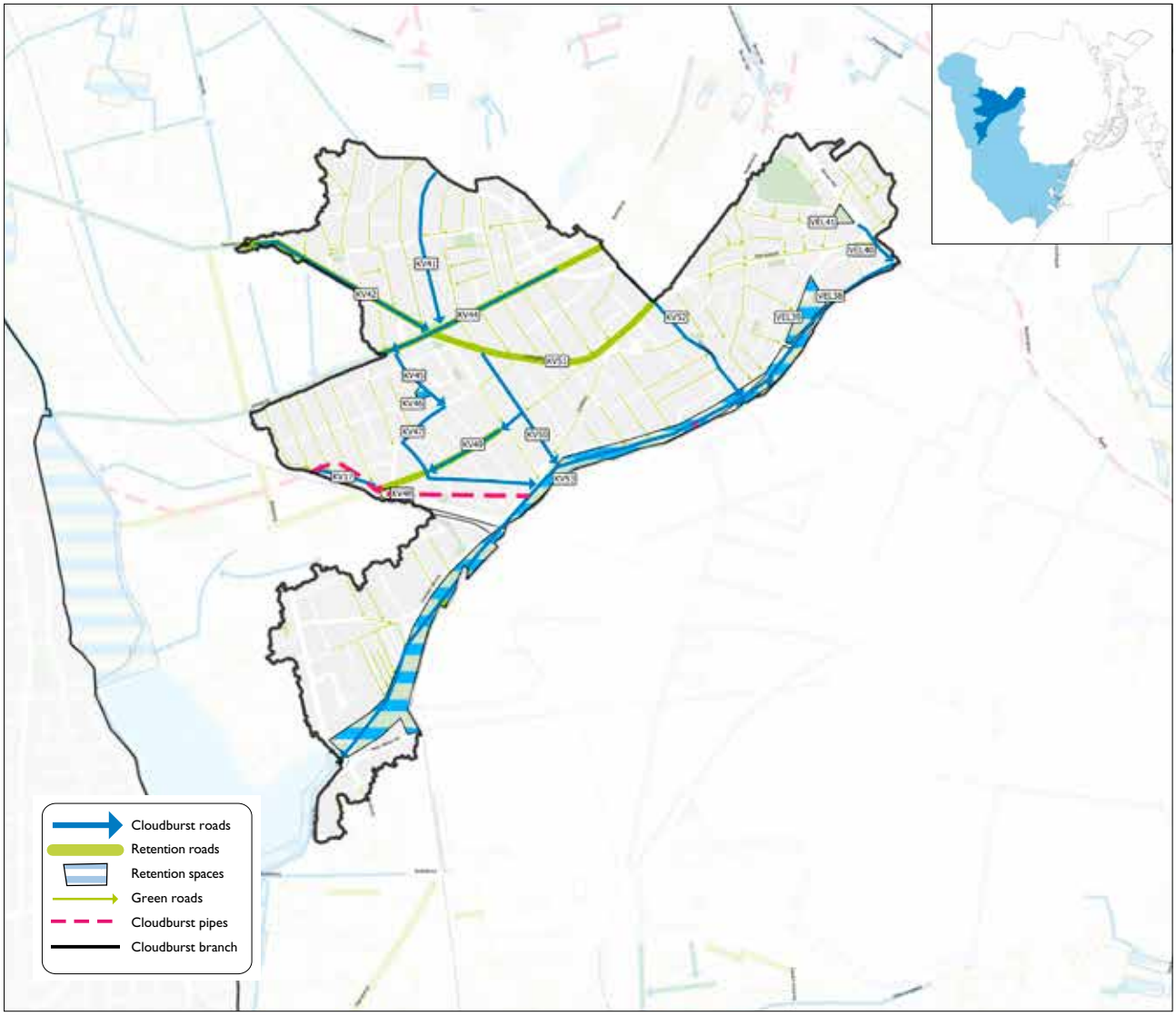
AREA 342 HA
HOUSEHOLDS 15,435
RISK PROFILE LOW
NUMBER OF PROJECTS 18

The central cloudburst management project in the cloudburst branch is the retention space KV53 Grøndalsparken, the primary purpose of which is to retain large volumes of water from the adjoining cloudburst roads. As larger volumes of water are supplied from the adjoining areas than it is possible to retain in Grøndalsparken, projects are designed also to be able to convey surplus water from Genforeningspladsen in the north-east down to the lake of Damhussøen in the south-east.

The cloudburst branch consists of 18 cloudburst management projects and a large number of green roads. They together form a continuous cloudburst management solution for the area shown below.

EFFECT

By implementing the 18 projects in the cloudburst branch, a low-risk area of 342 ha with 15,435 households is cloudburst-proofed.



KV17
Herlufsholmsvej

Location: Jernbane Allé to Katholmvej
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 4.2m
Economics traditional: DKK 5.1m

KV41
Borrebyvej

Location: Borrebyvej
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 6.6m
Economics traditional: DKK 10.7m

KV42
Slotsherrensvej East

Location: Husumvej to Bellahøjvej
Medium potential for urban space improvements
Synergies: Road renovation, green climate adaptation

Economics alternative: DKK 19.8m
Economics traditional: DKK 20.1m

KV44
Bellahøjvej

Location: Højstrupvej to Annebergvej
Great potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 29.7m
Economics traditional: DKK 30.2m

KV45
Bangsbovej

Location: Jyllingevej to Katrinedalsvej
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 11.0m
Economics traditional: DKK 14.8m

KV46
Bangsbo Plads

Location: Bangsbo Plads
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 6.6m
Economics traditional: DKK 39.4m

KV47
Katrinedalsvej

Location: Katrinedalsvej, Eskjærvej, Apollovej
Low potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 33.0m
Economics traditional: DKK 51.9m

KV48
Vanløse Station

Location: Vanløse Torv
Medium potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 5.0m
Economics traditional: DKK 30.0m

KV49
Vanløse Alle

Location: Ådalsvej to Eskjærvej
Medium potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 8.7m
Economics traditional: DKK 10.0m

KV50
Ådalsvej

Location: Ådalsvej
Medium potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 7.8m
Economics traditional: DKK 9.7m

KV51
Sallingvej

Location: Bellahøjvej to Godthåbsvej
Great potential for urban space improvements
Synergies: Road renovation, green climate adaptation

Economics alternative: DKK 20.6m
Economics traditional: DKK 32.95m

KV52
Godthåbsvej

Location: Sallingvej to Grøndalsparken
Medium potential for urban space improvements
Synergies: Road renovation, cycle paths

Economics alternative: DKK 20.7m
Economics traditional: DKK 26.5m

KV53
Grøndalsparken

Location: Grøndalsparken
Great potential for urban space improvements
Synergies: Cycle paths, green climate adaptation

Economics alternative: DKK 49.5m
Economics traditional: DKK 225.0m

VEL38
Grøndals Å

Location: Grøndalsparken
Great potential for urban space improvements
Synergies: Cycle paths, green climate adaptation

Economics alternative: DKK 2.6m
Economics traditional: DKK 34.2m

VEL39
Grøndalsvænge Allé School gardens

Location: Grøndalsparken
Low potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 0.8m
Economics traditional: DKK 1.2m

VEL40
Borups Allé West

Location: Hvidkildevej to Fuglebakken st.
Low potential for urban space improvements
Synergies: Cycle paths, neighbourhood regeneration, deprived areas

Economics alternative: DKK 16.0m
Economics traditional: DKK 20.6m

VEL41
Genforeningspladsen

Location: Genforeningspladsen
Low potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 11.0m
Economics traditional: DKK 103.1m

KV54 (included in more than one cloudburst branch)
Green roads other Grøndals Å

Location: Vanløse and parts of Frederiksberg. Great potential for urban space improvements
Synergies: Neighbourhood regeneration, green climate adaptation, road renovation, cycle paths
Economics alternative: DKK 82.1m
Economics traditional: DKK 97.8m

KV86 (included in more than one cloudburst branch)
Treatment in Cph. West

Location: Whole water catchment area
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 66.0m
Economics traditional: DKK 66.0m

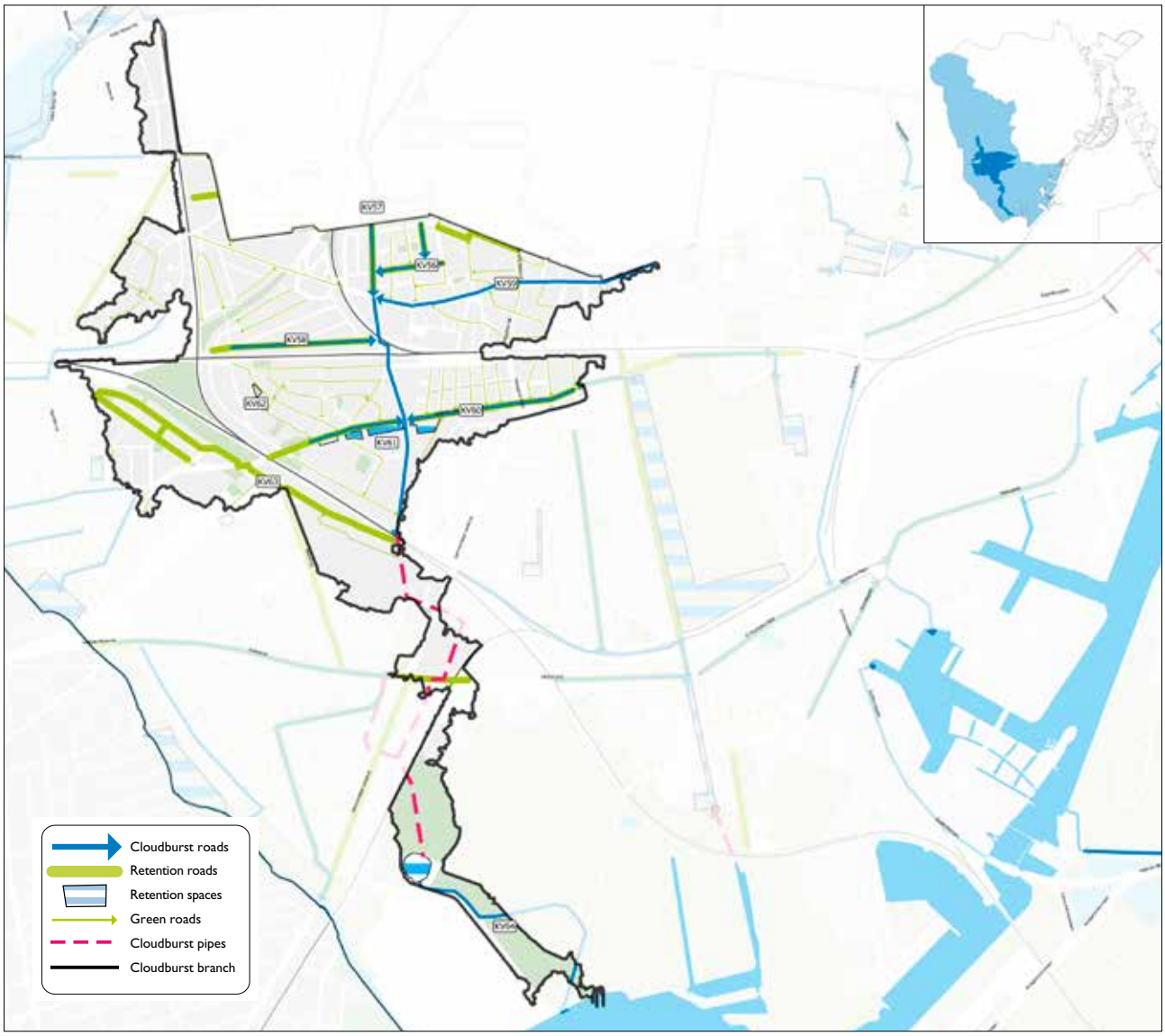
GÅSEBÆKRENDEN

AREA 300 HA
HOUSEHOLDS 12,155
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 10

The cloudburst branch Gåsebæksrenden covers the area around the stations of Danshøj, Langgade, Valby and Vigerslev. It consists of 10 cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The central project in the cloudburst branch is a combined cloudburst and retention road along Dalgas Boulevard from Finsevej to east of Langgade Station. From here a cloudburst pipe runs, carrying the water onward to Valbyparken.

EFFECT

By implementing the 10 projects in the cloudburst branch, a medium-risk area of 300 ha with 12,155 households is cloudburst-proofed.



KV56
Blankavej

Location: Blankavej
Great potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 6.8m
Economics traditional: DKK 9.9m

KV57
Gåsebækvej

Location: Gåsebæksvej
Medium potential for urban space improvements
Synergies: Cycle paths

Economics alternative: DKK 42.0m
Economics traditional: DKK 50.7m

KV58
J.P.E. Hartmanns Allé

Location: J.P.E. Hartmanns Allé
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 11.0m
Economics traditional: DKK 15.7m

KV59
Valby Langgade

Location: Skovbogårds Allé to Gåsebækvej
Medium potential for urban space improvements
Synergies: Neighbourhood regeneration, green climate adaptation
Economics alternative: DKK 48.3m
Economics traditional: DKK 58.0m

KV60 (included in more than one cloudburst branch)
Vigerslev Allé

Location: Ole Borchs Vej to Molbechsvej
Medium potential for urban space improvements
Synergies: Road renovation, green climate adaptation
Economics alternative: DKK 28.6m
Economics traditional: DKK 38.9m

KV61
Green area, Vigerslev Allé

Location: Thyregodsvej to Saxtorphsvej
Medium potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 21.8m
Economics traditional: DKK 122.8m

KV62
Green area, Panumsvej

Location: Panumsvej to Vigerslev Allé
Medium potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 2.9m
Economics traditional: DKK 17.0m

KV63
Danshøjvej

Location: Langagervej, Frugtmarkedet
Great potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 4.8m
Economics traditional: DKK 3.2m

KV64
Valbyparken

Location: Valbyparken
Great potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 108.8m
Economics traditional: DKK 126.0m

KV65 (included in more than one cloudburst branch)
Green roads, other Gåsebækrenden

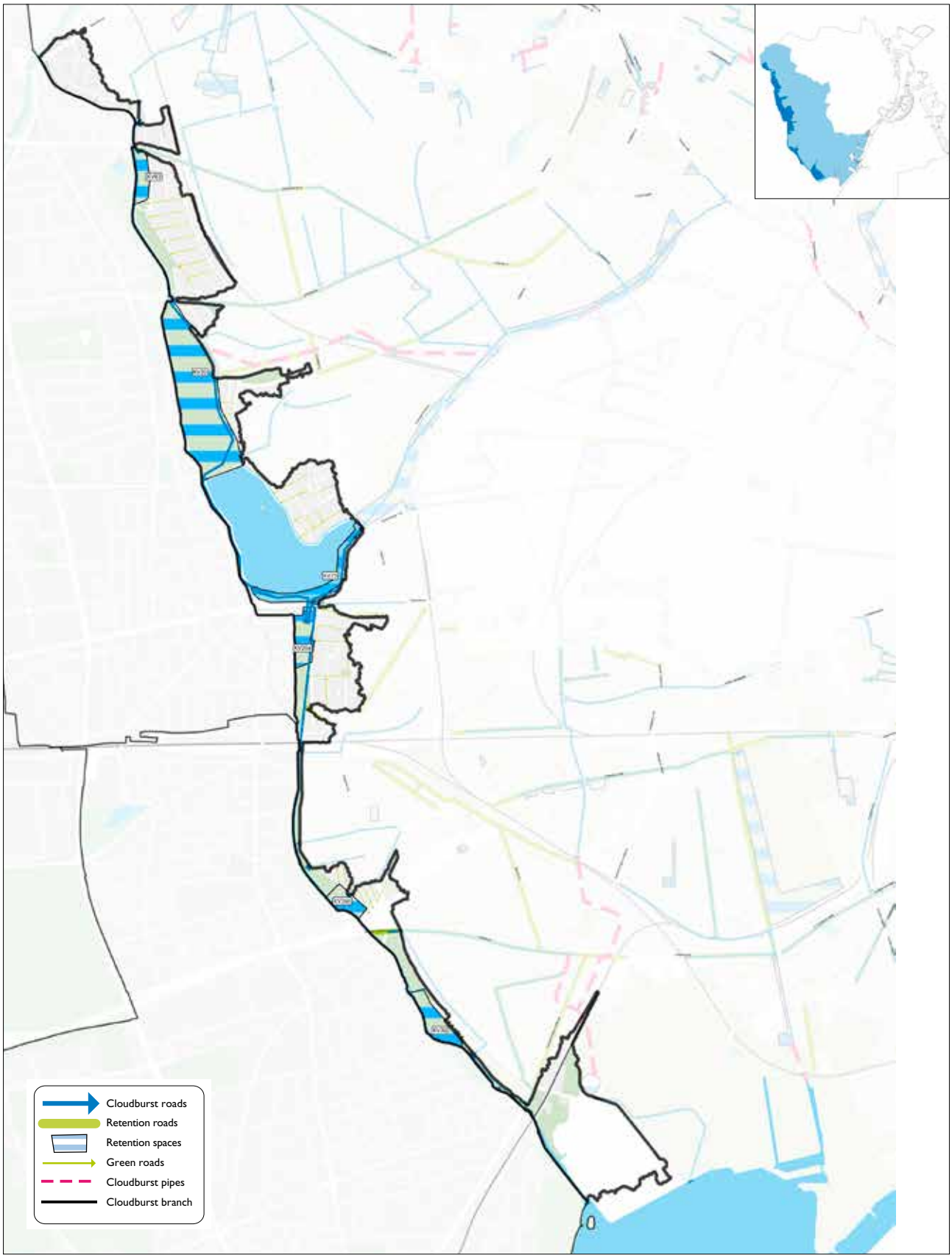
Location: Valby and Kgs. Enghave
Great potential for urban space improvements
Synergies: Neighbourhood regeneration, green climate adaptation, deprived areas, cycle paths
Economics alternative: DKK 79.4m
Economics traditional: DKK 94.6m

KV86 (included in more than one cloudburst branch)
Treatment in Cph. West

Location: Whole water catchment area
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 66.0m
Economics traditional: DKK 66.0m

HARRESTRUP Å



AREA 291 HA
HOUSEHOLDS 2,153
RISK PROFILE LOW
NUMBER OF PROJECTS 6

The cloudburst branch Harrestrup Å runs the whole length of the western municipal boundary of the City of Copenhagen and extends from Slottsherrensvej in the north to Kalveboderne in the south. The cloudburst branch consists of six cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown on the map on the left.

The backbone of the cloudburst branch is the Harestrup Å river.

Large parts of the Copenhagen West and Frederiksberg West catchment and the upstream municipalities drain to the Harrestrup Å. To prevent the river from bursting its banks during a cloudburst, six large retention spaces are established along the river which can retain the large volumes of stormwater in demarcated and controlled areas.

EFFECT

By implementing the 6 projects in the cloudburst branch, a low-risk area of 291 ha with 2,153 households is cloudburst-proofed.

KV20 Damhusengen

Location: Damhusengen
Great potential for urban space improvements
Synergies: Cycle paths, green climate adaptation

Economics alternative: DKK 33.0m
Economics traditional: DKK 2000.0m

KV23 Damhussøen

Location: Damhussøen
Great potential for urban space improvements
Synergies: Cycle paths, green climate adaptation
Economics alternative: DKK 77.0m
Economics traditional: DKK 2000.0m

KV26A Vigerslevparken North

Location: Between Roskildevej and the railway
Great potential for urban space improvements
Synergies: Cycle paths, green climate adaptation
Economics alternative: DKK 27.5m
Economics traditional: DKK 500.0m

KV26B Vigerslevparken Central

Location: Between the railway and Åhaven
Great potential for urban space improvements
Synergies: Cycle paths, green climate adaptation
Economics alternative: DKK 22.0m
Economics traditional: DKK 210.0m

KV36 Vigerslevparken South

Location: Åhaven and Gl. Køge Landevej
Great potential for urban space improvements
Synergies: Cycle paths, green climate adaptation
Economics alternative: DKK 71.5m
Economics traditional: DKK 500.0m

KV83 Krogebjergparken South

Location: Slotsherrensvej to Jyllingevej
Great potential for urban space improvements
Synergies: Cycle paths, green climate adaptation

Economics alternative: DKK 52.1m
Economics traditional: DKK 316.0m

KV40 Green roads, other Harrestrup Å

(included in more than one cloudburst branch)

Location: Brønshøj-Husum, Vanløse and Valby. Great potential for urban space improvements
Synergies: Green climate adaptation, road and cycle path renovation, neighbourhood regeneration
Economics alternative: DKK 219.7m
Economics traditional: DKK 261.8m

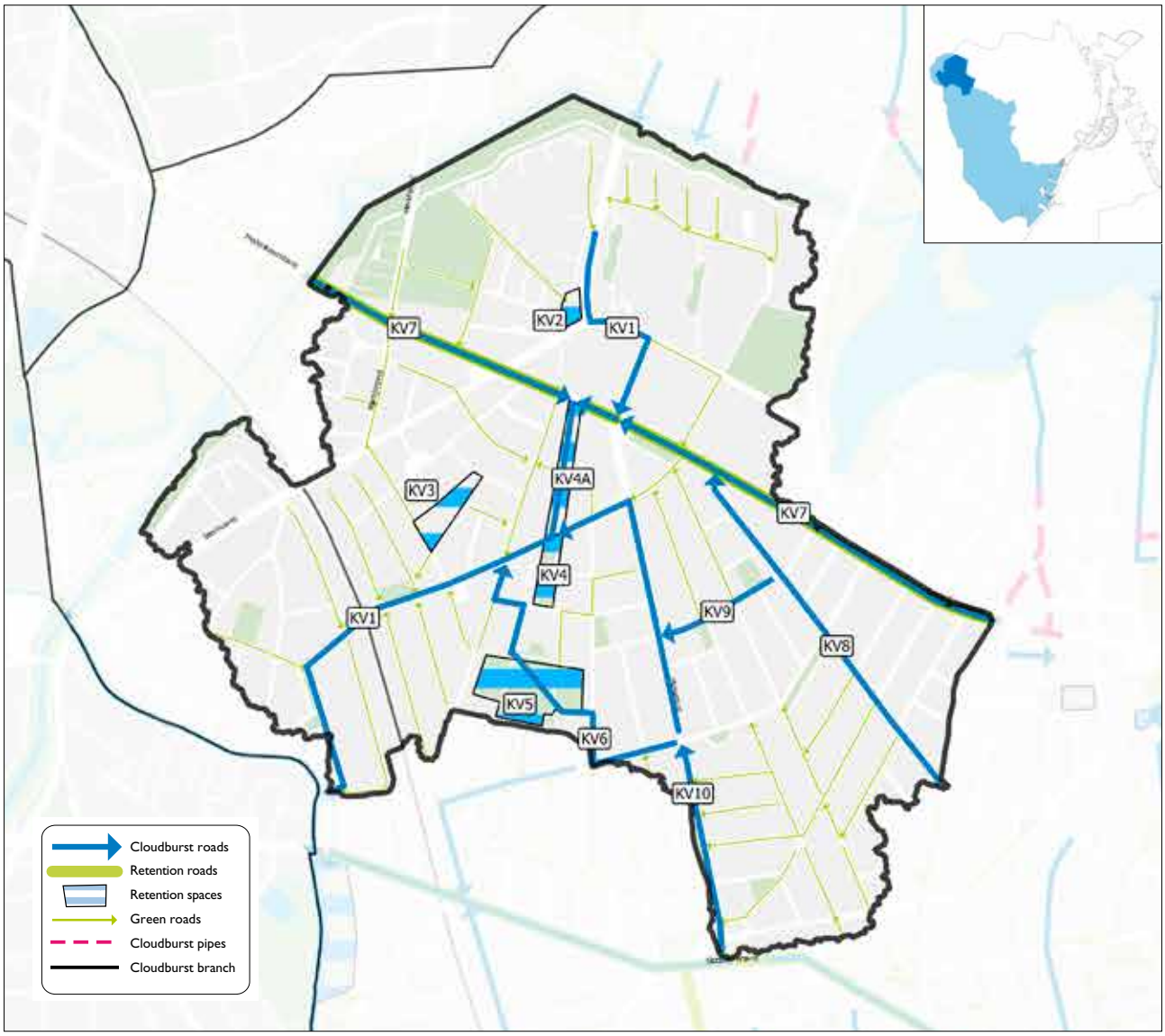
KORSAGER ALLÉ

AREA 257 HA
HOUSEHOLDS 6658
RISK PROFILE LOW
NUMBER OF PROJECTS 12

The cloudburst branch Korsager Allé is located at the western end of the water catchment area of Copenhagen West and consists of 12 cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The main structure in the cloudburst branch is the more than two kilometre long cloudburst road KV1 Korsager Allé, which collects the water from the whole cloudburst branch and conveys it from the adjoining cloudburst management projects down to the Harrestrup Å river.

EFFECT

By implementing the 12 projects in the cloudburst branch, a low-risk area of 257 ha with 6658 households is cloudburst-proofed.



KV1
Korsager Allé

Location: Bystævnet to Åvendigen
Great potential for urban space improvements
Synergies: Cycle paths, neighbourhood regeneration, green climate adaptation, deprived urban areas
Economics alternative: DKK 41.3m
Economics traditional: DKK 60.0m

KV2
Bystævnet

Location: Green space at Bystævnet
Low potential for urban space improvements
Synergies: Neighbourhood regeneration, deprived urban areas

Economics alternative: DKK 9.9m
Economics traditional: DKK 30.0m

KV3
Green area, Korsager School

Location: Behind Korsager School
Low potential for urban space improvements
Synergies: Neighbourhood regeneration

Economics alternative: DKK 21.8m
Economics traditional: DKK 122.8m

KV4
Husum Vænge

Location: Husum School and Frederikssundsvej
Great potential for urban space improvements
Synergies: Neighbourhood regeneration, green connecting link
Economics alternative: DKK 17.9m
Economics traditional: DKK 225.0m

KV4A
Husum Vænge upper part

Location: Husum School and Frederikssundsvej
Great potential for urban space improvements
Synergies: Neighbourhood regeneration, green connecting link
Economics alternative: DKK 42.9m
Economics traditional: DKK 130.0m

KV5
Husumparken

Location: Husumparken
Great potential for urban space improvements
Synergies: Neighbourhood regeneration, green climate adaptation

Economics alternative: DKK 93.5m
Economics traditional: DKK 380.8m

KV6
Cloudburst road, Husumparken

Location: Veksøvej to Husumparken and Husumparken to Korsager Allé
Low potential for urban space improvements
Synergies: Cycle paths, green climate adaptation
Economics alternative: DKK 14.0m
Economics traditional DKK 15.0m

KV7
Frederikssundsvej

Location: Havdrupvej to Vestvolden
Great potential for urban space improvements
Synergies: Road renovation, cycle paths, neighbourhood regeneration, green climate adaptation, deprived areas
Economics alternative: DKK 19.7m
Economics traditional: DKK 32.2m

KV8
Sonnerupvej

Location: Havdrupvej to Frederikssundsvej
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 8.6m
Economics traditional: DKK 15.2m

KV9
Kildebrøndevej

Location: Sonnerupvej to Husumvej
Low potential for urban space improvements
Synergies: Neighbourhood regeneration

Economics alternative: DKK 5.2m
Economics traditional: DKK 5.1m

KV10
Husumvej

Location: Slotsherrensvej to Korsager Allé
Great potential for urban space improvements
Synergies: Neighbourhood regeneration
Economics alternative: DKK 24.2m
Economics traditional: DKK 31.1m

KV40 (included in more than one cloudburst branch)
Green roads, other Harrestrup Å

Location: Brønshøj-Husum, Vanløse and Valby. Great potential for urban space improvements
Synergies: Green climate adaptation, road and cycle path renovation, neighbourhood regeneration
Economics alternative: DKK 219.7m
Economics traditional: DKK 261.8m

KV86 (included in more than one cloudburst branch)
Treatment in Cph. West

Location: Whole water catchment area
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 66.0m
Economics traditional: DKK 66.0m

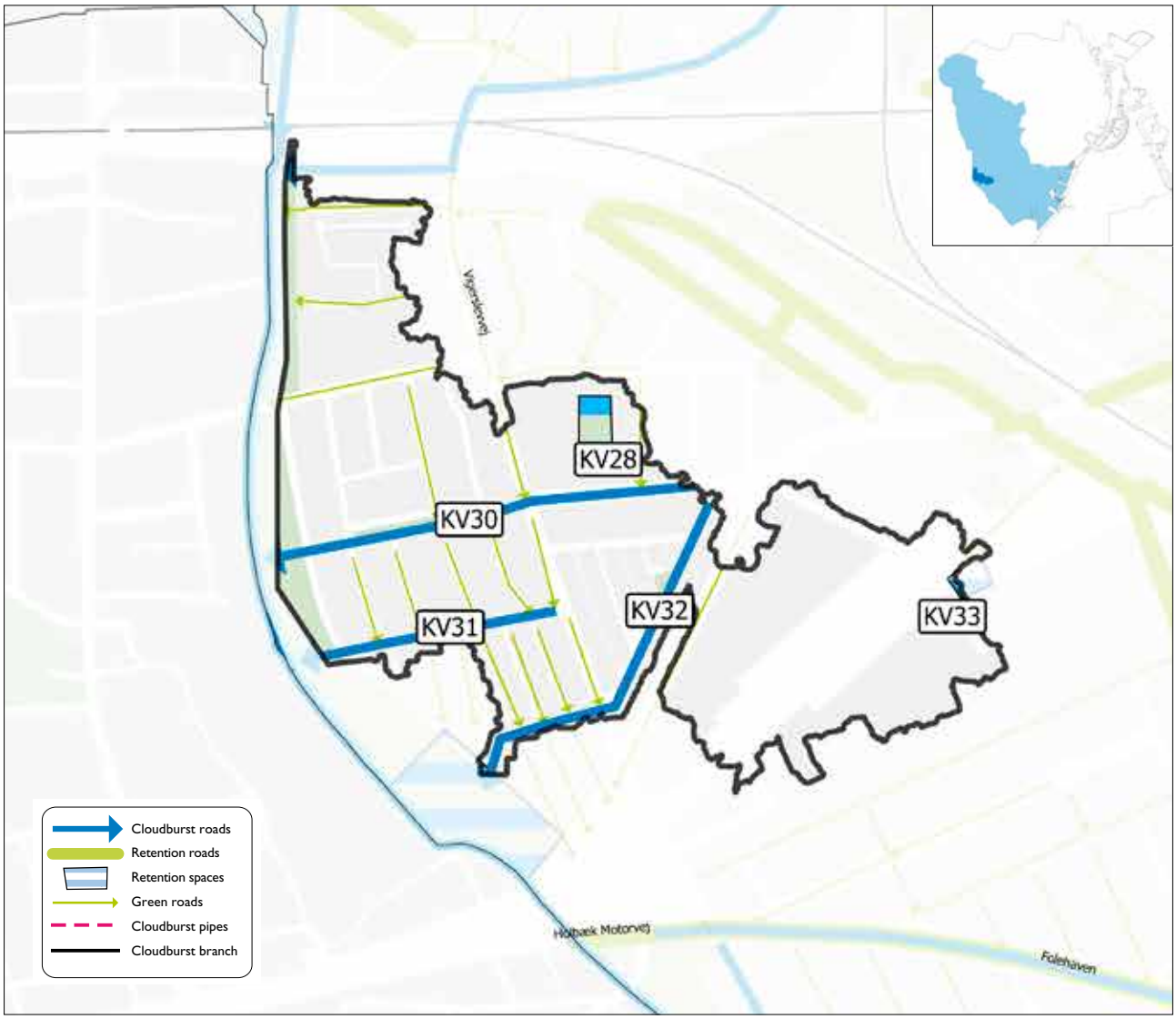
LYKKEBO

AREA 51 HA
HOUSEHOLDS 1840
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 7

The cloudburst branch Lykkebo is located east of Vigerslev Park and consists of seven cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The core of the hydraulic structure in the cloudburst branch consists of the three cloudburst roads, K30 Lykkebovej, KV31 Heldbovej and KV32 Gårdstedet, which convey the water from the area south of Lykkebo School out to the Harrestrup Å.

EFFECT

By implementing the seven projects in the cloudburst branch, a medium-risk area of 51 ha with 1840 households is cloudburst-proofed.



KV28

Green space, Lykkebo School

Location: Behind Lykkebo School
Low potential for urban space improvements
Synergies: None know at present

Economics alternative: DKK 17.2m
Economics traditional: DKK 97.8m

KV30

Lykkebovej

Location: Lykkebovej
Low potential for urban space improvements
Synergies: None know at present

Economics alternative: DKK 7.7m
Economics traditional: DKK 12.0m

KV31

Heldbovej

Location: Heldbovej
Low potential for urban space improvements
Synergies: None know at present

Economics alternative: DKK 6.4m
Economics traditional: DKK 11.1m

KV32

Gårdstedet

Location: Bavnagervej, Gårdstedet
Low potential for urban space improvements
Synergies: None know at present

Economics alternative: DKK 12.0m
Economics traditional: DKK 15.6m

KV40 (included in more than one cloudburst branch)

Green roads, other Harrestrup Å

Location: Brønshøj-Husum, Vanløse and Valby. Great potential for urban space improvements
Synergies: Green climate adaptation, road and cycle path renovation, neighbourhood regeneration
Economics alternative: DKK 219.7m
Economics traditional: DKK 261.8m

KV33

Kulbanevej

Location: Kulbanevej
Great potential for urban space improvements
Synergies: Metro building sites and railway, green climate adaptation

Economics alternative: 5,0 mio.kr.
Economics traditional: 15,0 mio.kr.

KV86 (included in more than one cloudburst branch)

Treatment in Cph. West

Location: Whole water catchment area
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 66.0m
Economics traditional: DKK 66.0m

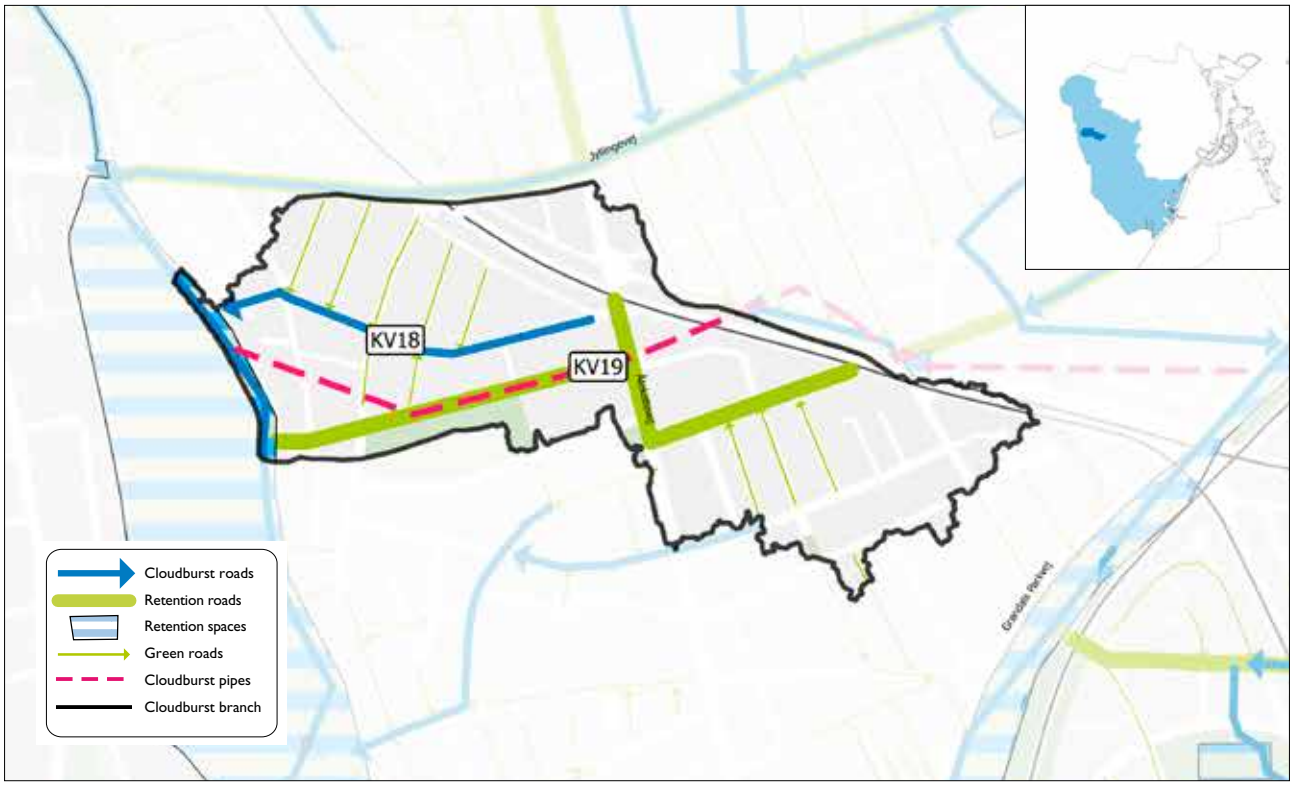
LYNGHOLMVEJ

AREA 56 HA
HOUSEHOLDS 1867
RISK PROFILE LOW
NUMBER OF PROJECTS 2

The cloudburst branch Lyngholmvej is located east of Damhusengen and consists of two cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The two projects in the cloudburst branch are the cloudburst road KV18 Lyngholmvej and the retention road KV19 Vanløse Byvej, both of which convey the water from the cloudburst pipe and the adjoining green roads out to the Harrestrup Å via Damhusengen.

EFFECT

By implementing the two projects in the cloudburst branch, a low-risk area of 56 ha with 1867 households is cloudburst-proofed.



KV18
Lyngholmvej

Location: Ålekistevej to Damhusengen
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 8.8m
Economics traditional: DKK 11.3m

KV19
Vanløse Byvej

Location: Vanløse Byvej, Ålekistevej, Klingseyvej
Great potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 4.6m
Economics traditional: DKK 7.0m

KV40 (included in more than one cloudburst branch)
Green roads, other Harrestrup Å

Location: Brønshøj-Husum, Vanløse and Valby. Great potential for urban space improvements
Synergies: Green climate adaptation, road and cycle path renovation, neighbourhood regeneration
Economics alternative: DKK 219.7m
Economics traditional: DKK 261.8m

LØNSTRUPVEJ

AREA 32 HA
HOUSEHOLDS 1164
RISK PROFILE LOW
NUMBER OF PROJECTS 2

The cloudburst branch Løntrupsvej is located north-east of Damhussøen and consists of two cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The two projects convey the water from the adjoining green roads via Damhusengen out to the Harrestrup Å.

EFFECT

By implementing the two projects in the cloudburst branch, a low-risk area of 32 ha with 1164 households is cloudburst-proofed.

KV21
Hanstholmvej

Location: Holmstien to Lønstrupvej
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 6.4m
Economics traditional: DKK 6.6m

KV22
Lønstrupvej

Location: Lønstrupvej and Hyltebjerg Allé
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 16.5m
Economics traditional: DKK 20.9m

KV40 (included in more than one cloudburst branch)
Green roads, other Harrestrup Å

Location: Brønshøj-Husum, Vanløse and Valby. Great potential for urban space improvements
Synergies: Green climate adaptation, road renovation, cycle paths, neighbourhood regeneration, deprived areas
Economics alternative: DKK 219.7m
Economics traditional: DKK 261.8m

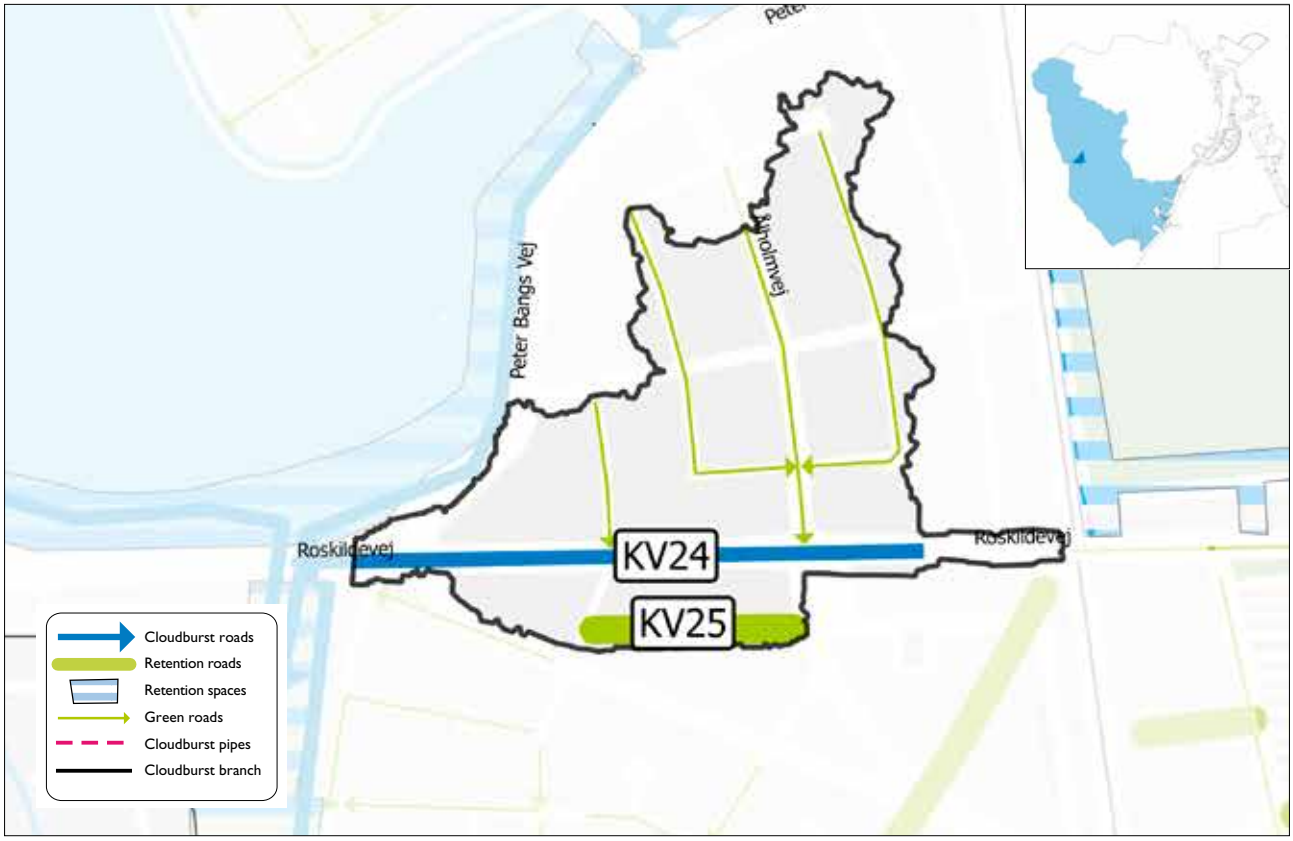
ROSKILDEVEJ

AREA 18 HA
HOUSEHOLDS 522
RISK PROFILE LOW
NUMBER OF PROJECTS 2

The cloudburst branch Roskildevej is located east of Damhussøen and consists of two cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst branch is the cloudburst road KV24 Roskildevej, which conveys water from the adjoining green roads out to the Harrestrup Å via Vigerslevparken.

EFFECT

By implementing the two projects in the cloudburst branch, a low-risk area of 18 ha with 522 households is cloudburst-proofed.



KV24
Roskildevej

Location: Ålholms Plads to Vigerslevparken
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 34.3m
Economics traditional: DKK 40.9m

KV25
Bramslykkevej

Location: Ålholmvej to Vestervang
Great potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 1.1m
Economics traditional: DKK 1.3m

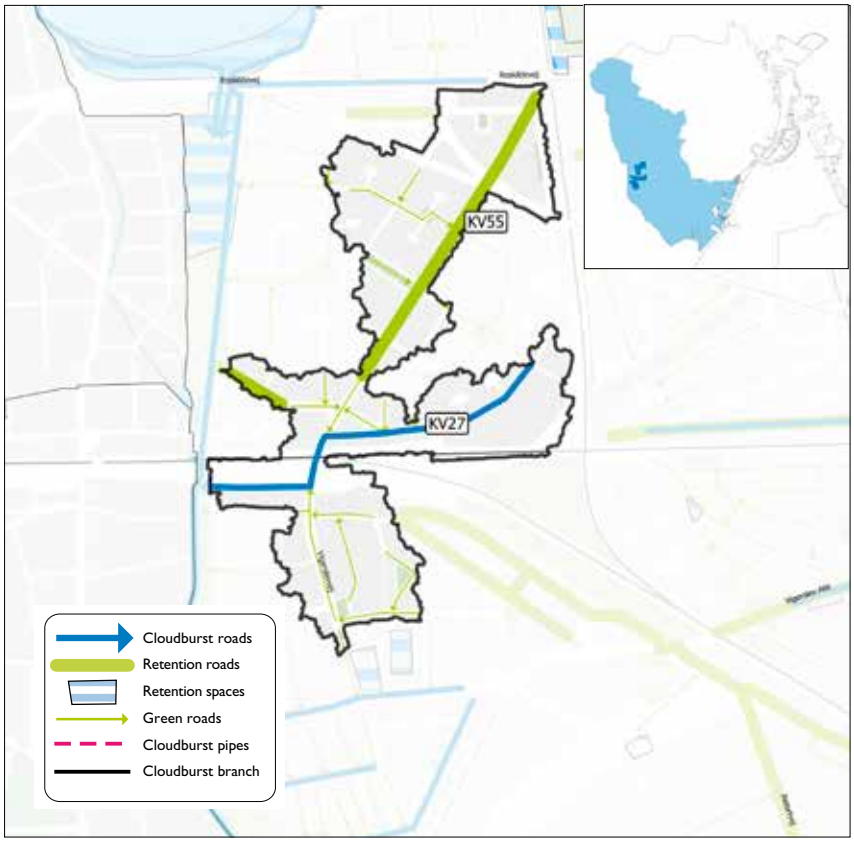
KV40 (included in more than one cloudburst branch)
Green roads, other Harrestrup Å

Location: Brønshøj-Husum, Vanløse and Valby. Great potential for urban space improvements
Synergies: Green climate adaptation, road and cycle path renovation, neighbourhood regeneration
Economics alternative: DKK 219.7m
Economics traditional: DKK 261.8m

NAKSKOVVEJ

AREA 50 HA
HOUSEHOLDS 2051
RISK PROFILE LOW
NUMBER OF PROJECTS 2

The cloudburst branch Nakskovvej is located east of the Harrestrup Å between Roskildevej in the north and Lykkebo School in the south. The cloudburst branch consists of two cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst pipe is the KV27 Nakskovvej, which conveys the water from the central and southern parts of the cloudburst branch to the Harrestrup Å. At the same time, the inflow of the water from the northern part of the cloudburst branch is restricted by the retention road KV55 Vigerslevsvej Nord holding back part of the stormwater from this area.



EFFECT
By implementing the two projects in the cloudburst branch, a low-risk area of 50 ha with 2051 households is cloudburst-proofed.

KV27
Nakskovvej

Placering: Maribovej to Kamhusene
Low potential for urban space improvements
Synergies: Cycle paths

Economics alternative: DKK 13.6m
Economics traditional: DKK 19.3m

KV55
Vigerslevvej - North

Placering: Ålholm Station to Hansstedvej
Medium potential for urban space improvements
Synergies: Road renovation, cycle paths
Economics alternative: DKK 9.9m
Economics traditional: DKK 14.6m

KV40 (included in more than one cloudburst branch)
Green roads, other Harrestrup Å

Location: Brønshøj-Husum, Vanløse and Valby. Great potential for urban space improvements
Synergies: Green climate adaptation, road renovation, cycle paths, neighbourhood regeneration, deprived areas
Economics alternative: DKK 219.7m
Economics traditional: DKK 261.8m

KV65 (included in more than one cloudburst branch)
Green roads, other Gåsebækrenden

Location: Valby and Kgs. Enghave
Great potential for urban space improvements
Synergies: Neighbourhood regeneration, green climate adaptation, deprived areas, cycle paths
Economics alternative: DKK 79.4m
Economics traditional: DKK 94.6m

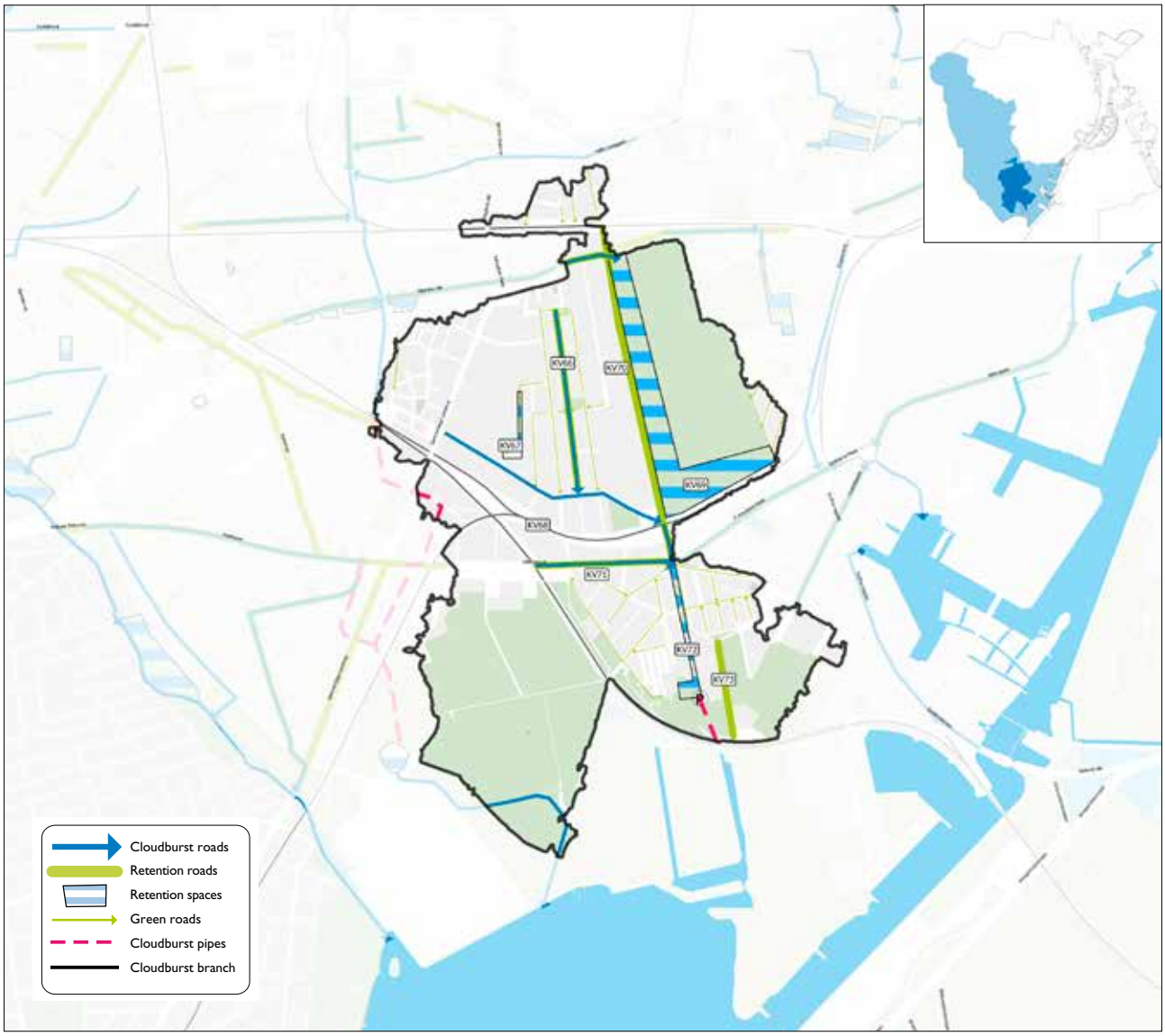
SJÆLØR BOULEVARD

AREA 336 HA
HOUSEHOLDS 8485
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 10

The cloudburst branch Sjælør Boulevard covers a large area of Sydhavnen and Valby and extends from Vigerslev Allé in the north to Sydhavnstippen in the south. The cloudburst branch consists of 10 cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst pipe is the oblong retention space KV72 Karensminde, which both retains large volumes of stormwater from the upper part of the cloudburst pipe and discharges the surplus water to Kalveboderne

EFFECT

By implementing the 10 projects in the cloudburst branch, a medium-risk area of 336 ha with 8485 households is cloudburst-proofed.



KV60 (included in more than one cloudburst branch)

Vigerslev Allé

Location: Ole Borchs Vej to Molbechsvej
Medium potential for urban space improvements
Synergies: Road renovation, green climate adaptation
Economics alternative: DKK 28.6m
Economics traditional: DKK 38.9m

KV66

Strindbergsvej

Location: Bryggerivej to the railway
Great potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 11.0m
Economics traditional: DKK 16.8m

KV67

Path behind Ottiliavej

Location: behind Ottiliavej
Great potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 31.4m
Economics traditional: DKK 168.9m

KV68

Carl Jacobsebs Vej

Location: Carl Jacobsens Vej
Low potential for urban space improvements
Synergies: Cycle paths

Economics alternative: DKK 11.0m
Economics traditional: DKK 28.0m

KV69

Vestre Kirkegård

Location: Vestre Kirkegård
Low potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 42.9m
Economics traditional: DKK 300.0m

KV70

Sjælør Boulevard

Location: Sjælør Boulevard
Great potential for urban space improvements
Synergies: Metro building sites, neighbourhood regeneration, green climate adaptation
Economics alternative: DKK 31.0m
Economics traditional: DKK 35.5m

KV71

Ellebjergvej

Location: Ellebjergvej
Great potential for urban space improvements
Synergies: Metro building site

Economics alternative: DKK 12.5m
Economics traditional: DKK 28.2m

KV72

Karens Minde

Location: Ellebjergvej to Wagnersvej
Great potential for urban space improvements
Synergies: Neighbourhood regeneration, green climate adaptation, deprived urban areas
Economics alternative: DKK 49.5m
Economics traditional: DKK 225.0m

KV73

Thomas Koppels Allé

Location: Thomas Koppels Allé
Great potential for urban space improvements
Synergies: Neighbourhood regeneration, green climate adaptation, deprived urban areas
Economics alternative: 2,5 mio.kr.
Economics traditional: 3,0 mio.kr.

KV65 (included in more than one cloudburst branch)

Green roads, other Gåsebækrenden

Location: Valby and Kgs. Enghave
Great potential for urban space improvements
Synergies: Neighbourhood regeneration, green climate adaptation, deprived areas, cycle paths
Economics alternative: DKK 79.4m
Economics traditional: DKK 94.6m

KV82 (included in more than one cloudburst branch)

Green roads, other, Teglholmen

Location: Kgs. Enghave
Great potential for urban space improvements
Synergies: Green climate adaptation, deprived areas, cycle paths, road renovation
Economics alternative: DKK 36.1m
Economics traditional: DKK 43.0m

KV86 (included in more than one cloudburst branch)

Treatment in Cph. West

Location: Whole water catchment area
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 66.0m
Economics traditional: DKK 66.0m

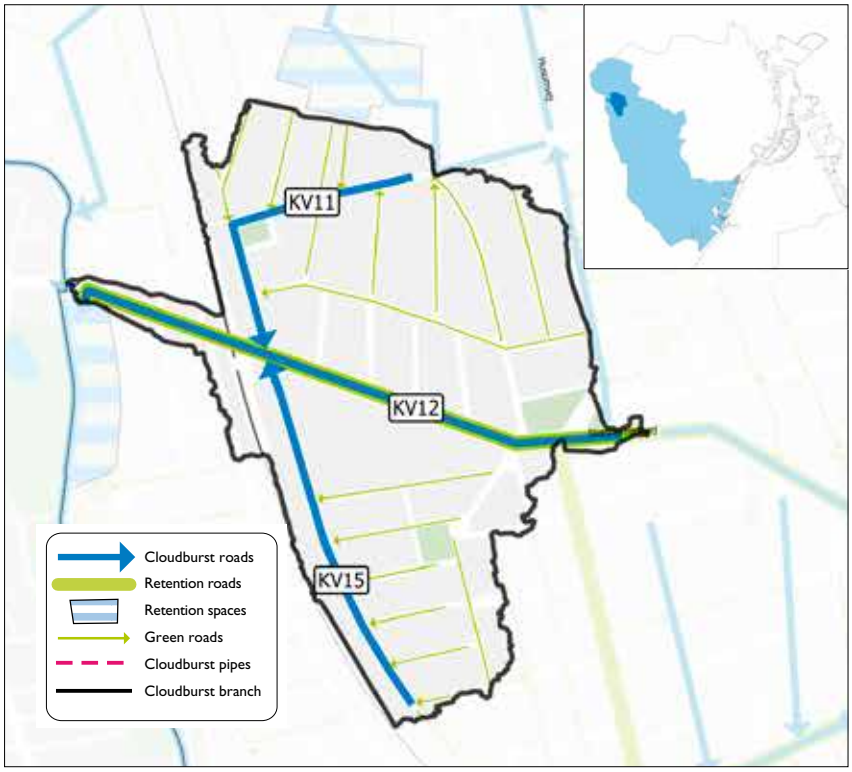
SLOTSHERRENSVEJ VEST

AREA 64 HA
HOUSEHOLDS 1111
RISK PROFILE LOW
NUMBER OF PROJECTS 3

The cloudburst branch Slottsherrensvej Vest is located east of the Harrestrup Å and covers the area around the western end of Slotsherrensvej. The branch consists of three cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst branch is the combined cloudburst and retention road KV12 Slotsherrensvej Vest, which conveys stormwater from the adjoining cloudburst roads and green roads out to the Harrestrup Å.

EFFECT

By implementing the three projects in the cloudburst branch, a low-risk area of 64 ha with 1111 households is cloudburst-proofed.



KV11
Veksøvej

Location: Smørumvej to Stenløsevej
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 6.6m
Economics traditional: DKK 8.8m

KV12
Slotsherrensvej West

Location: Husumvej to Harrestrup Å
Great potential for urban space improvements
Synergies: Road renovation, green climate adaptation

Economics alternative: DKK 24.9m
Economics traditional: DKK 30.0m

KV15
Tybjergvej

Location: Eriksholmvej to Slotsherrensvej
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 11.6m
Economics traditional: DKK 14.4m

KV40 (included in more than one cloudburst branch)
Green roads, other Harrestrup Å

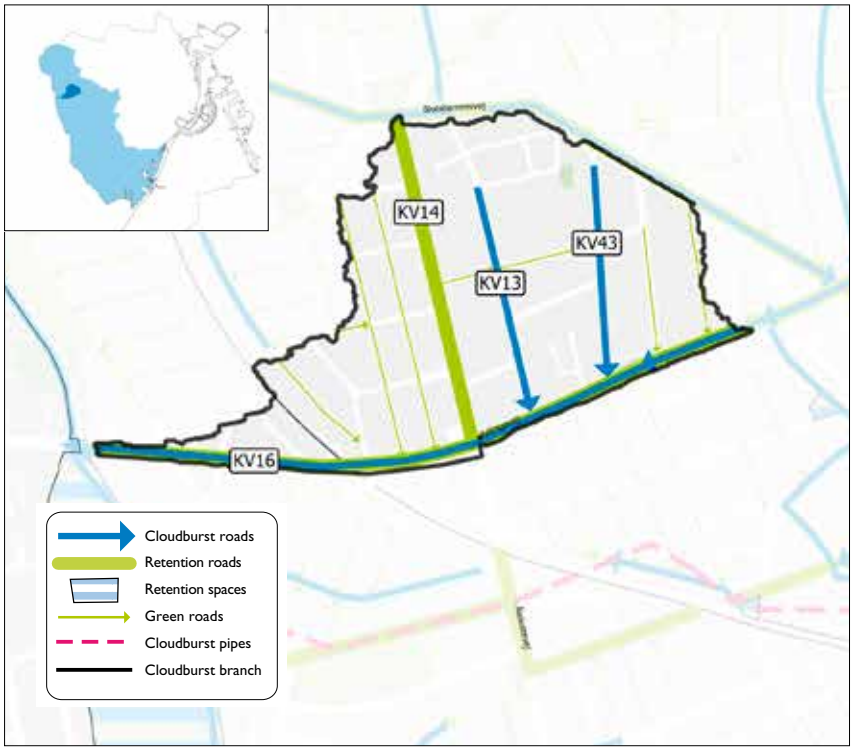
Location: Brønshøj-Husum, Vanløse and Valby. Great potential for urban space improvements
Synergies: Green climate adaptation, road and cycle path renovation, neighbourhood regeneration
Economics alternative: DKK 219.7m
Economics traditional: DKK 261.8m

JYLLINGEVEJ

AREA 56 HA
HOUSEHOLDS 1484
RISK PROFILE LOW
NUMBER OF PROJECTS 4

The cloudburst branch Jyllingevej is located east of the Harrestrup Å and covers the area around Jyllingevej. The branch consists of four cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst pipe is the combined cloudburst and retention road KV1 Jyllingevej, which conveys stormwater from the adjoining cloudburst roads and green roads to the Harrestrup Å via Damhusengen.

EFFECT
By implementing the four projects in the cloudburst branch, a low-risk area of 56 ha with 1484 households is cloudburst-proofed.



KV13
Skjulhøj Allé

Location: Holsteinborgvej to Jyllingevej
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 3.4m
Economics traditional: DKK 7.6m

KV14
Ålekistevej

Location: Slotsherrensvej to Jyillingevej
Great potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 6.6m
Economics traditional: DKK 12.0m

KV16
Jyllingevej

Location: Tryggevældevej to Harrestrup Å
Great potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 22.0m
Economics traditional: DKK 26.4m

KV40 (included in more than one cloudburst branch)
Green roads, other Harrestrup Å

Location: Brønshøj-Husum, Vanløse and Valby. Great potential for urban space improvements
Synergies: Green climate adaptation, road and cycle path renovation, neighbourhood regeneration
Economics alternative: DKK 219.7m
Economics traditional: DKK 261.8m

KV43
Tryggevældevej

Location: Slotsherrensvej to Jyillingevej
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 4.1m
Economics traditional: DKK 6.2m

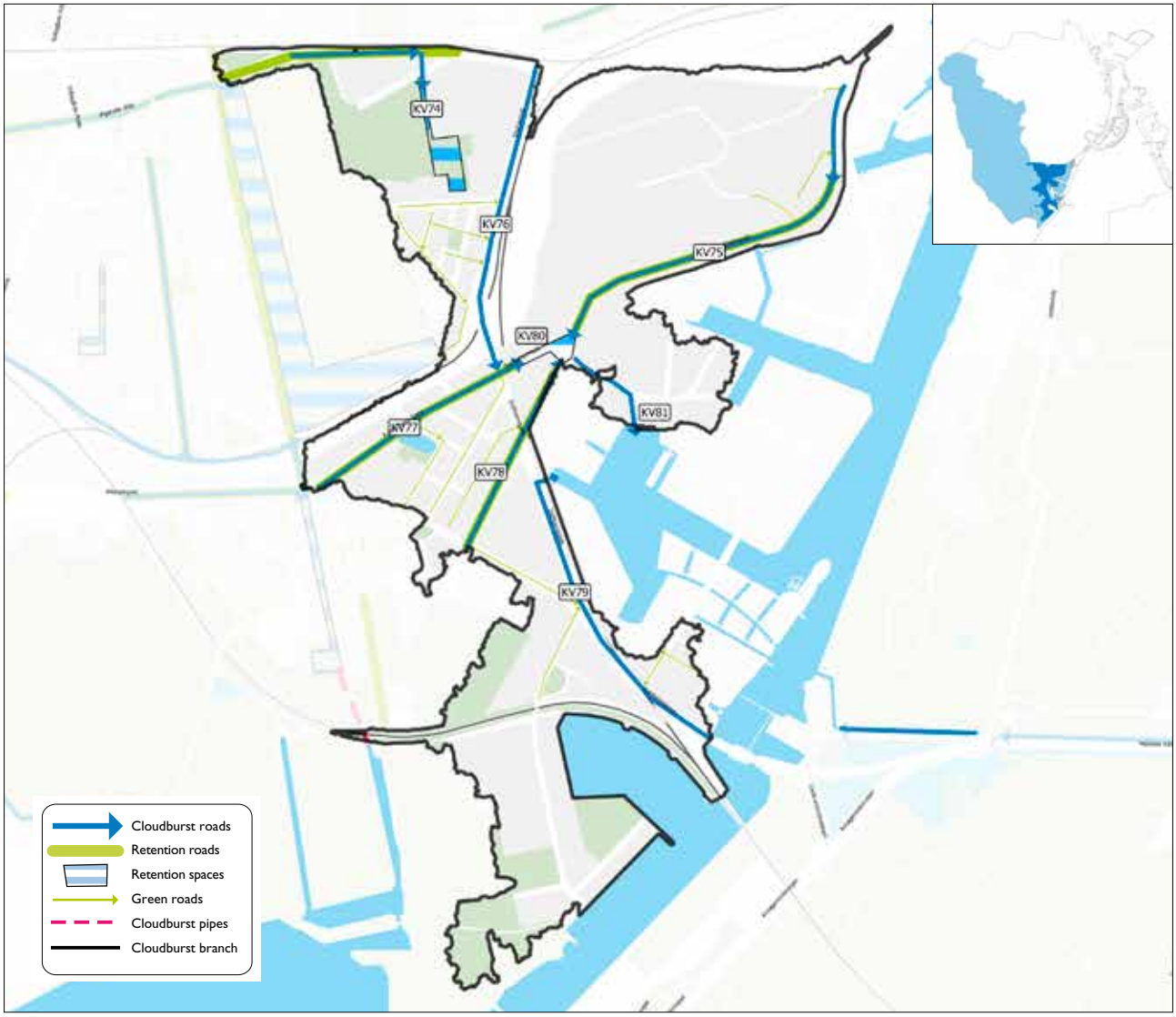
SYDHAVNEN

AREA 250 HA
HOUSEHOLDS 5024
RISK PROFILE HIGH
NUMBER OF PROJECTS 8

The cloudburst branch Sydhavnen covers a large area of Kongens Enghave and Sydhavnen and extends from Fisketorvet in the north to Sjællandsbroen in the south. The cloudburst branch consists of eight cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The hydraulic solution in the cloudburst branch is built around the retention space KV80 Sydhavns Plads, which is located in the middle of the branch. The stormwater is conveyed from the other parts of the cloudburst branch to the retention space, which retains a small proportion of the water. The surplus water is jointly conveyed further from there by the cloudburst road KV81 Teglholmsgade to Copenhagen Harbour.

EFFECT

By implementing the eight projects in the cloudburst branch, a high-risk area of 250 ha with 5024 households is cloudburst-proofed.



KV74

Bavnehøj sports facility

Location: Bavnehøj Allé
to Vestre Fængsel prison
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 22.0m
Economics traditional: DKK 100.0m

KV75

Enghave Brygge

Location: Vasbygade
Great potential for urban space improvements
Synergies: Cycle paths, metro building, green climate adaptation

Economics alternative: DKK 27.2m
Economics traditional: DKK 32.7m

KV76

Enghavevej

Location: Vigerslev Allé til Vasbygade
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 20.9m
Economics traditional: DKK 24.2m

KV77

P. Knudsens Gade

Location: P. Knudsens Gade
Great potential for urban space improvements
Synergies: Road renovation, Metro building sites, green climate adaptation

Economics alternative: DKK 27.5m
Economics traditional: DKK 39.2m

KV78

Scandiagade

Location: Scandiagade
Great potential for urban space improvements
Synergies: Cycle paths, neighbourhood regeneration, green climate adaptation

Economics alternative: DKK 23.5m
Economics traditional: DKK 31.5m

KV79

Sydhavnsgade

Location: Sydhavnsgade
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 27.3m
Economics traditional: DKK 26.7m

KV80

Sydhavns Plads

Location: Between Scandiagade and Vasbygade
Great potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 20.2m
Economics traditional: DKK 72.2m

KV81

Teglholmsgade

Location: Teglholmsgade
to Teglværkshavnen
Low potential for urban space improvements
Synergies: Cycle paths

Economics alternative: DKK 23.3m
Economics traditional: DKK 45.0m

KV82 (included in more than one cloudburst branch)

Green roads, other, Teglholmen

Location: Kgs. Enghave
Great potential for urban space improvements
Synergies: Green climate adaptation, deprived areas, cycle paths, road renovation
Economics alternative: DKK 36.1m
Economics traditional: DKK 43.0m


VY 90718

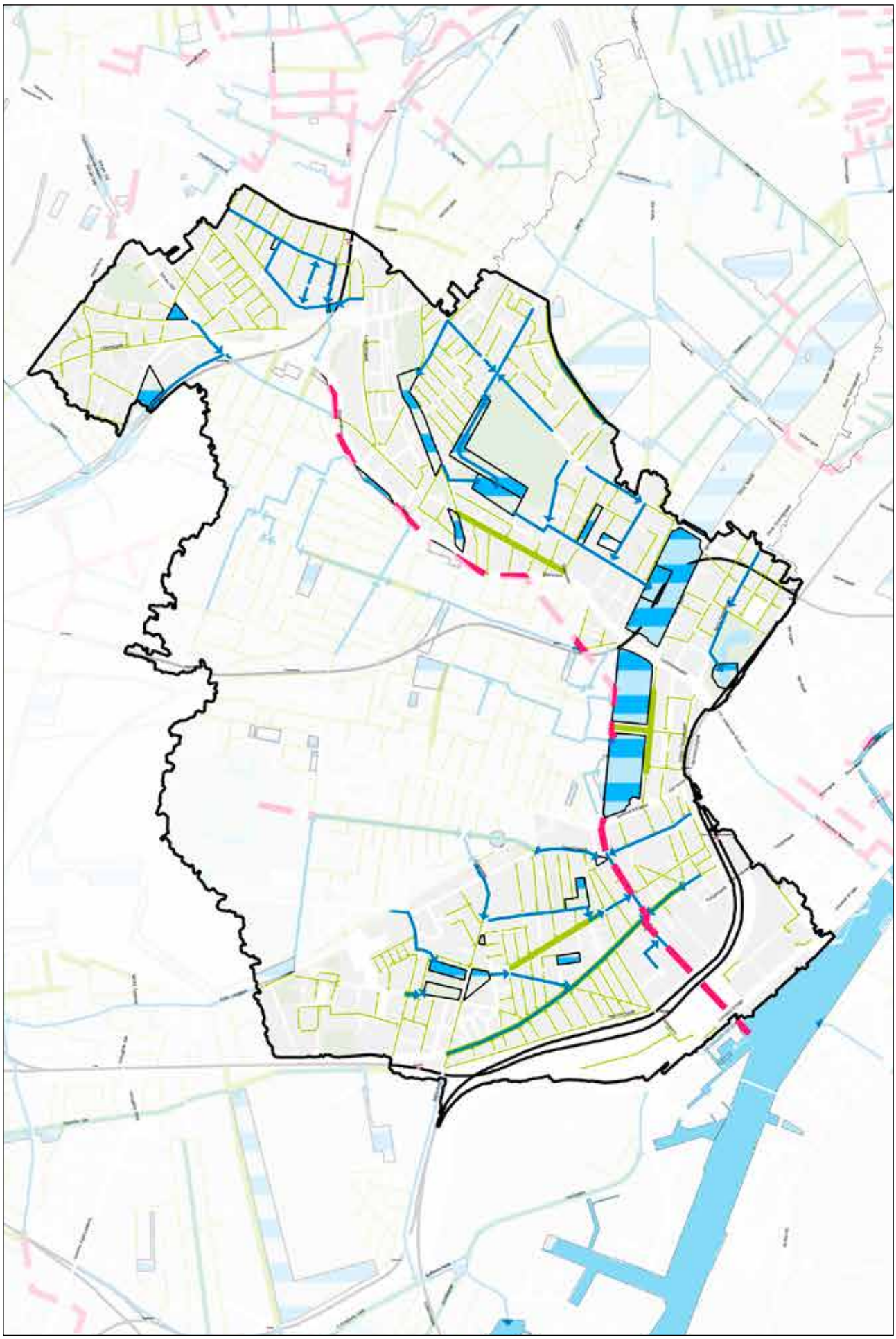

malbeck
malbeck

WATER CATCHMENT AREA OF LADEGÅRDÅEN, FREDERIKSBERG EAST AND VESTERBRO

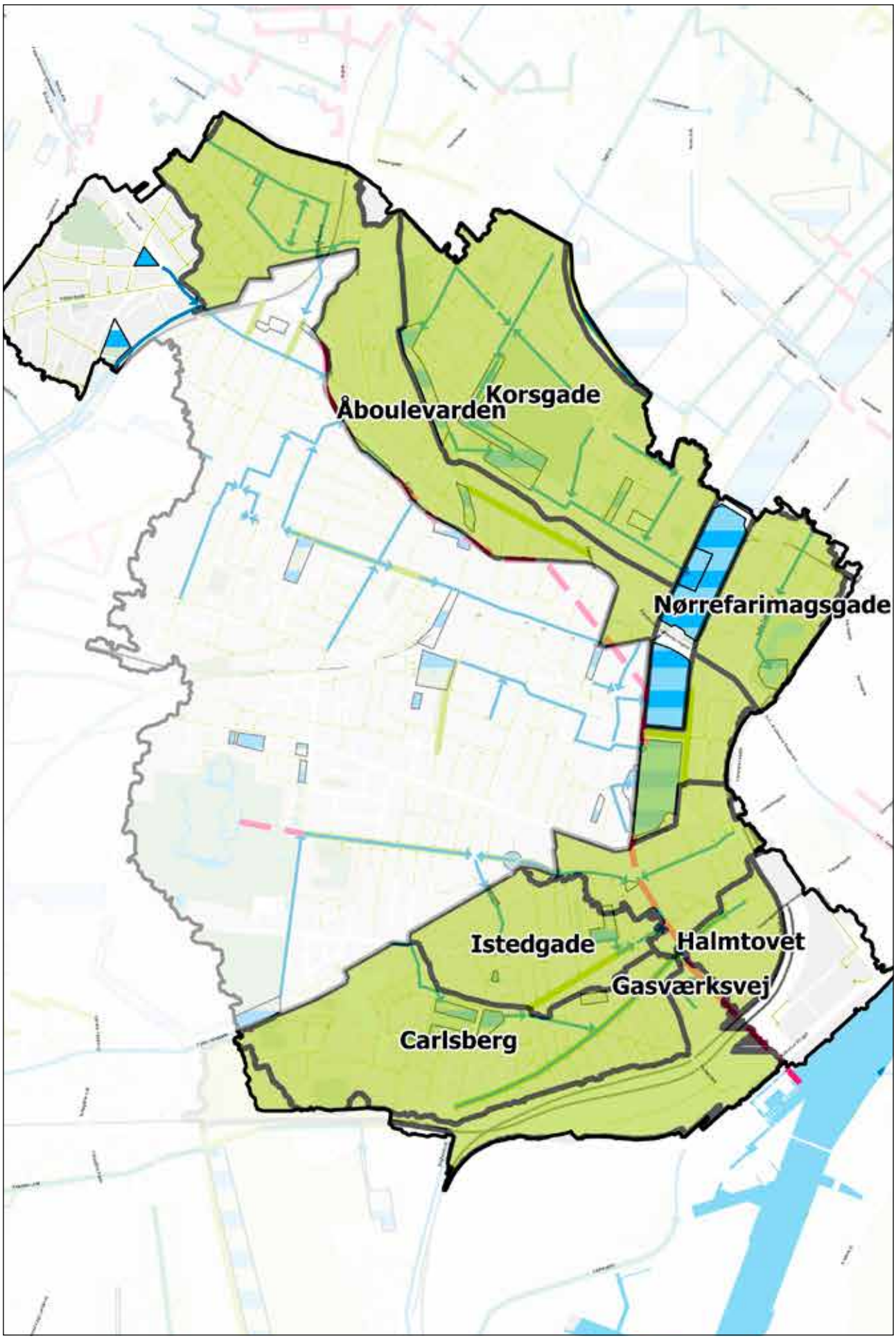
The water catchment area of Ladegårdsåen, Frederiksberg East and Vesterbro consists of seven cloudburst branches and 39 projects. The catchment area is named after the Ladegårds Å river, which runs in pipes beneath Åboulevarden and conveys water to the lake of Peblinge Sø. The catchment area, which extends from Bispebjerg and Nørrebro via Frederiksberg to Vesterbro and Sønder Boulevard, is characterised by very dense building development, and many obstacles to the stormwater. A large part of the solution is to convey the area's water via Skt. Jørgens Sø onward in a cloudburst pipe out into the harbour.

CHARACTERISTICS OF THE WATER CATCHMENT AREA

The water catchment area is among the most densely built-up and populated areas in Copenhagen, with a low proportion of green m2 per inhabitant in Vesterbro and Nørrebro. In addition to challenges with floods, a high heat island effect and poor air quality are experienced, and several areas in this catchment area are characterised as deprived areas of housing. Nørrebro is due for urban development at Sølund, areas along the lakes and neighbourhood regeneration projects, all of which it is logical to combine with climate adaptation measures. The green structure is principally formed by Frederiksberg Have, the Assistens Kirkegård cemetery, De Indre Søer (The Inner Lakes) and Nørrebroparken, as well as a number of smaller green urban spaces and pocket parks.



CLOUDBURST BRANCHES LADEGÅRDSÅEN, FREDERIKSBERG EAST AND VESTERBRO


Åboulevarden
Korsgade
Nørrefarimagsgade
Istedgade
Halmtovet
Gasværksvej
Carlsberg

ÅBOULEVARDEN

AREA 131 HA
HOUSEHOLDS 12,813
RISK PROFILE HIGH
NUMBER OF PROJECTS 8

The cloudburst branch Åboulevarden extends from Fuglekvarteret in the north to Skt. Jørgens Sø in the south and consists of eight cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The backbone of the branch is the cloudburst pipe beneath Åboulevarden, which ensures that the water from the cloudburst management projects, in Fuglekvarteret and along Åboulevarden, is conveyed to the retention space in Skt. Jørgens Sø.

EFFECT

By implementing the eight projects in the cloudburst branch, a high-risk area of 131 ha with 12,813 households is cloudburst-proofed.

VEL17

Sankt Jørgens Sø

Location: Sankt Jørgens Sø
Great potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 72.6m
Economics traditional: DKK 400.0m

VEL18

Vester Søgade, etc.

Location: Vester Søgade, Kampmannsgade
Medium potential for urban space improvements
Synergies: Steam conversion, green climate adaptation
Economics alternative: DKK 4.5m
Economics traditional: DKK 9.0m

VEL20

Rantzausgade

Location: Den Grønne Sti to Åboulevard
Great potential for urban space improvements
Synergies: Cycle paths, neighbourhood regeneration, deprived urban areas
Economics alternative: DKK 18.0m
Economics traditional: DKK 25.0m

VEL28

Nørrebroparken Syd

Location: Rantzausgade to Ågade
Potential for urban space improvements: Unclarified
Synergies: Cycle paths, neighbourhood regeneration, deprived urban areas

Economics alternative: DKK 11.7m
Economics traditional: DKK 144.4m

VEL36

Ågadeparken

Location: Langs Ågade
Great potential for urban space improvements
Synergies: Green climate adaptation, deprived urban areas

Economics alternative: DKK 10.6m
Economics traditional: DKK 134.8m

VEL37

Bispeengbuen

Location: East of Nordre Fasanvej
Great potential for urban space improvements
Synergies: Green climate adaptation, deprived urban areas

Economics alternative: DKK 2.5m
Economics traditional: DKK 37.5m

VEL42

Ørnevej, etc.

Location: Ørnevej, Glentevej, Nordre Fasanvej
Medium potential for urban space improvements
Synergies: Cycle paths, neighbourhood regeneration, deprived urban areas
Economics alternative: DKK 38.5m
Economics traditional: DKK 64.4m

VEL43

Supplementary cloudburst roads

Location: Hejrevej, Svanevej and Glentevej. Low potential for urban space improvements
Synergies: Road renovation, cycle paths, neighbourhood regeneration, deprived urban areas
Economics alternative: DKK 6.0m
Economics traditional: DKK 54.8m

VEL44 (included in more than one cloudburst branch)

Green roads, other Ladegårdsåen

Location: Leads to Sønder Boulevard
Great potential for urban space improvements
Synergies: Cycle paths, neighbourhood regeneration, road renovations

Economics alternative: DKK 614.7m
Economics traditional: DKK 732.5m

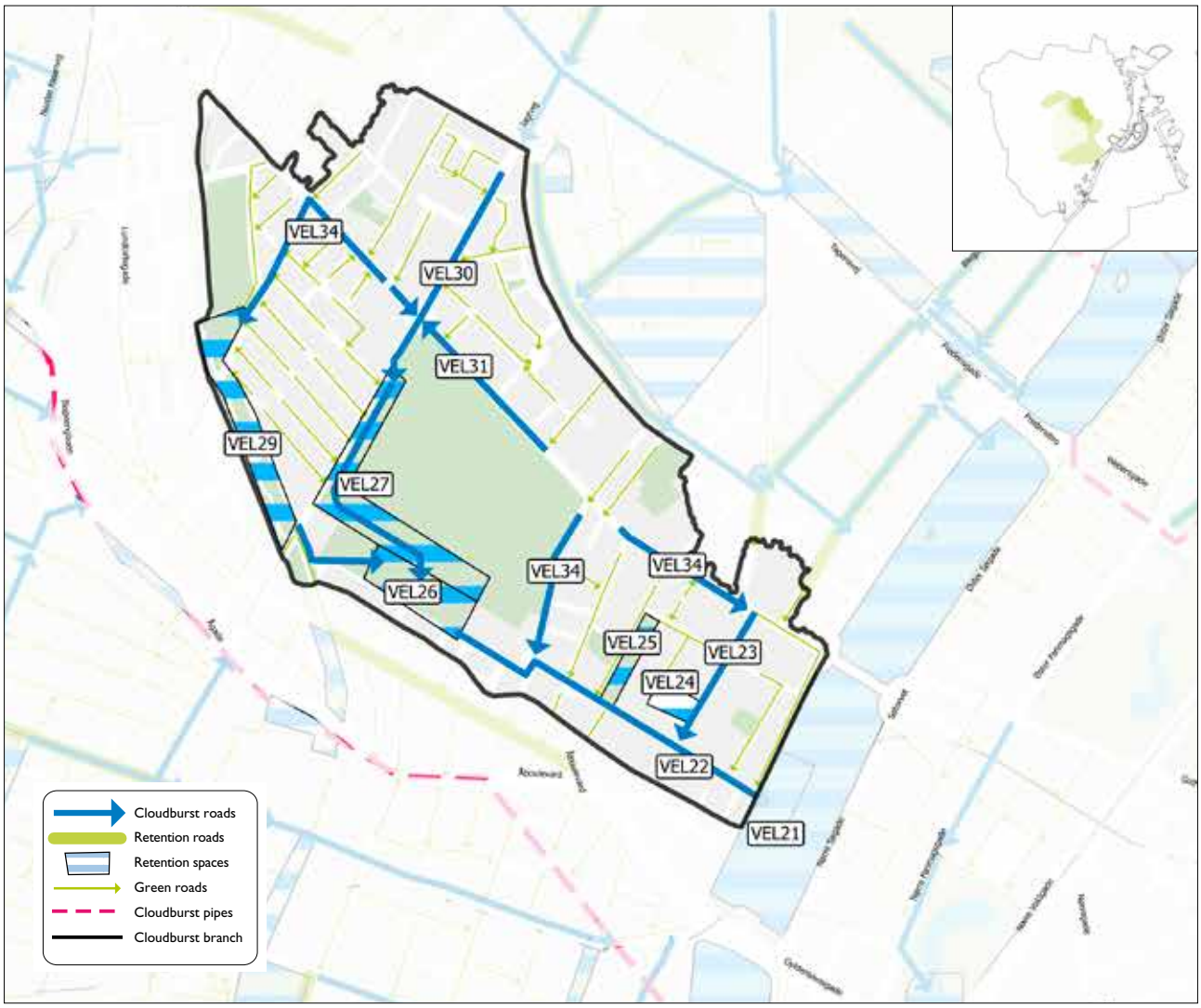
KORSGADE

AREA 119 HA
HOUSEHOLDS 11,873
RISK PROFILE HIGH
NUMBER OF PROJECTS 11

The cloudburst branch Korsgade covers most of inner Nørrebro and parts of outer Nørrebro and consists of 11 cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst branch is the cloudburst road VEL22 in Korsgade and the retention space VEL26 Hans Tavsens Park and VEL27 Assistens Kirkegård. Together, these three projects form the backbone of the cloudburst branch in that they retain large volumes of stormwater and discharge surplus water to the lake of Peblinge Sø. The remaining projects in the cloudburst branch act as side-branches to this backbone.

EFFECT

By implementing the 11projects in the cloudburst branch, a high-risk area of 119 ha with 11,873 households is cloudburst-proofed.



VEL21

Rainwater park in Peblinge Sø

Location: At the end of Korsgade.
Medium potential for urban space improvements
Synergies: Neighbourhood regeneration, deprived urban areas

Economics alternative: DKK 16.9m
Economics traditional: DKK 16.9m

VEL22

Korsgade etc.

Location: Korsgade, Hans Tavsens Gade
Great potential for urban space improvements
Synergies: Neighbourhood regeneration, green climate adaptation, deprived urban areas
Economics alternative: DKK 21.9m
Economics traditional: DKK 23.8m

VEL23

Blågårdsgade

Location: Blågårdsgade
Low potential for urban space improvements
Synergies: Neighbourhood regeneration, deprived urban areas

Economics alternative: DKK 7.7m
Economics traditional: DKK 8.0m

VEL24

Blågårdsplads

Location: Blågårdsplads
Medium potential for urban space improvements
Synergies: Neighbourhood regeneration, deprived urban areas

Economics alternative: DKK 3.0m
Economics traditional: DKK 29.9m

VEL25

Stengade

Location: Along Stengade
Medium potential for urban space improvements
Synergies: Neighbourhood regeneration, deprived urban areas

Economics alternative: DKK 5.0m
Economics traditional: DKK 45.2m

VEL26

Hans Tavsens Park

Location: Hans Tavsens Park
Great potential for urban space improvements
Synergies: Neighbourhood regeneration, deprived urban areas

Economics alternative: DKK 55.0m
Economics traditional: DKK 259.2m

VEL27

Assistens Kirkegård

Location: Along Jagtvej
Low potential for urban space improvements
Synergies: Metro building sites, neighbourhood regeneration, green climate adaptation, deprived urban areas
Economics alternative: DKK 5.5m
Economics traditional: DKK 25.0m

VEL29

Nørrebroparken North

Location: Stefansgade to Jagtvej
Medium potential for urban space improvements
Synergies: Cycle paths, metro building sites, green climate adaptation, deprived urban areas
Economics alternative: DKK 49.6m
Economics traditional: DKK 385.0m

VEL30

Jagtvej North

Location: Tagensvej to Julius Bloms Gade. Medium potential for urban space improvements
Synergies: Cycle paths, metro building sites, green climate adaptation, deprived urban areas
Economics alternative: DKK 23.8m
Economics traditional: DKK 25.0m

VEL31

Nørrebrogade

Location: Meinungsgade to Runddelen
Low potential for urban space improvements
Synergies: Metro building sites, deprived urban areas

Economics alternative: DKK 15.7m
Economics traditional: DKK 15.6m

VEL34 (included in more than one cloudburst branch)

Supplementary cloudburst roads

Location: Leads to Assistens Kirkegård cemetery. Low potential for urban space improvements
Synergies: Cycle paths, neighbourhood regeneration, green climate adaptation, deprived urban areas
Economics alternative: DKK 7.6m
Economics traditional: DKK 21.9m

VEL44 (included in more than one cloudburst branch)

Green roads, other Ladegårdsåen

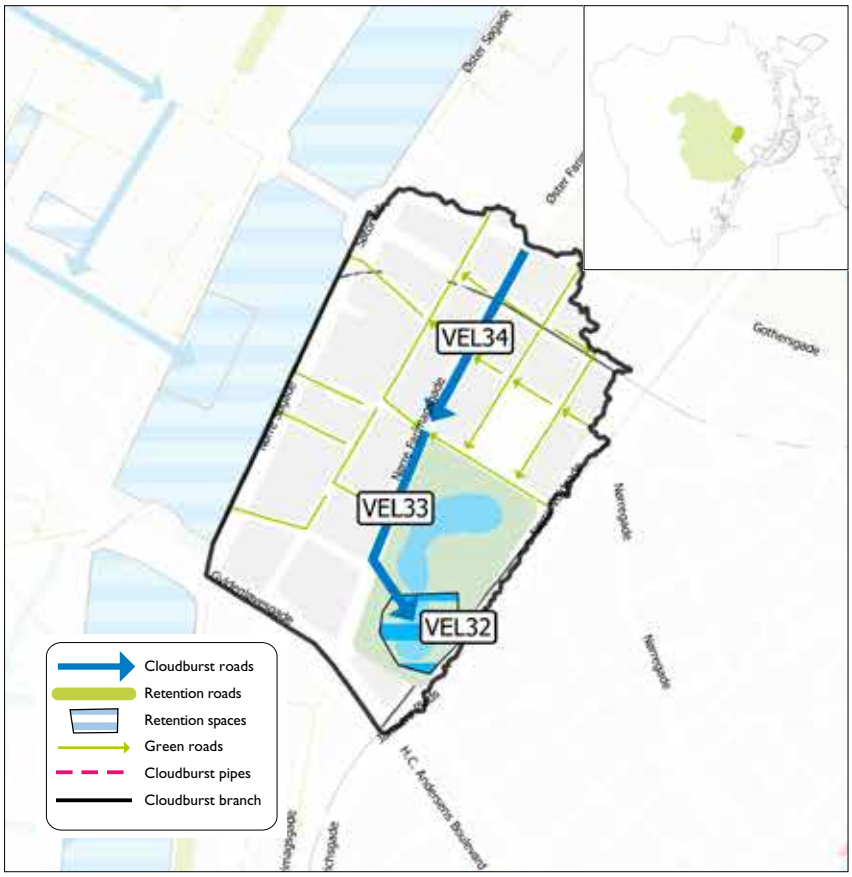
Location: Leads to Sønder Boulevard
Great potential for urban space improvements
Synergies: Cycle paths, neighbourhood regeneration, road renovations

Economics alternative: DKK 614.7m
Economics traditional: DKK 732.5m

NØRRE FARIMAGSGADE

AREA 34 HA
HOUSEHOLDS 2986
RISK PROFILE HIGH
NUMBER OF PROJECTS 3

The cloudburst branch Farimagsgade covers neighbourhoods located between Nørre Voldgade, Peblinge Sø, Gyldensløvsgade and Gothersgade. The cloudburst branch consists of three cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst branch is the two cloudburst roads which are extensions of each other on Nørre Farimagsgade and convey stormwater down to the lake in Ørstedsparken. The old roads in the cloudburst branch act as the outermost protrusions of the branch, collecting rainwater from a number of other streets in the cloudburst branch and carrying it down to Nørre Farimagsgade.



EFFECT

By implementing the 3 projects in the cloudburst branch, a high-risk area of 34 ha with 2986 households is cloudburst-proofed.

VEL32
Rainwater water in Ørstedsparken

Location: Southern part of H. C. Ørstedsparken
Low potential for urban space improvements
Synergies: Deprived urban areas

Economics alternative: DKK 8.5m
Economics traditional: DKK 8.5m

VEL33
Nørre Farimagsgade

Location: Ahlefeltsgade to Gyldenløvesgade
Low potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 4.3m
Economics traditional: DKK 12.4m

VEL34 (included in more than one cloudburst branch)
Supplementary cloudburst roads

Location: Leads to Assistens Kirkegård cemetery. Low potential for urban space improvements
Synergies: Cycle paths, neighbourhood regeneration, green climate adaptation, deprived urban areas

Economics alternative: DKK 7.6m
Economics traditional: DKK 21.9m

VEL44 (included in more than one cloudburst branch)
Green roads, other Ladegårdsåen

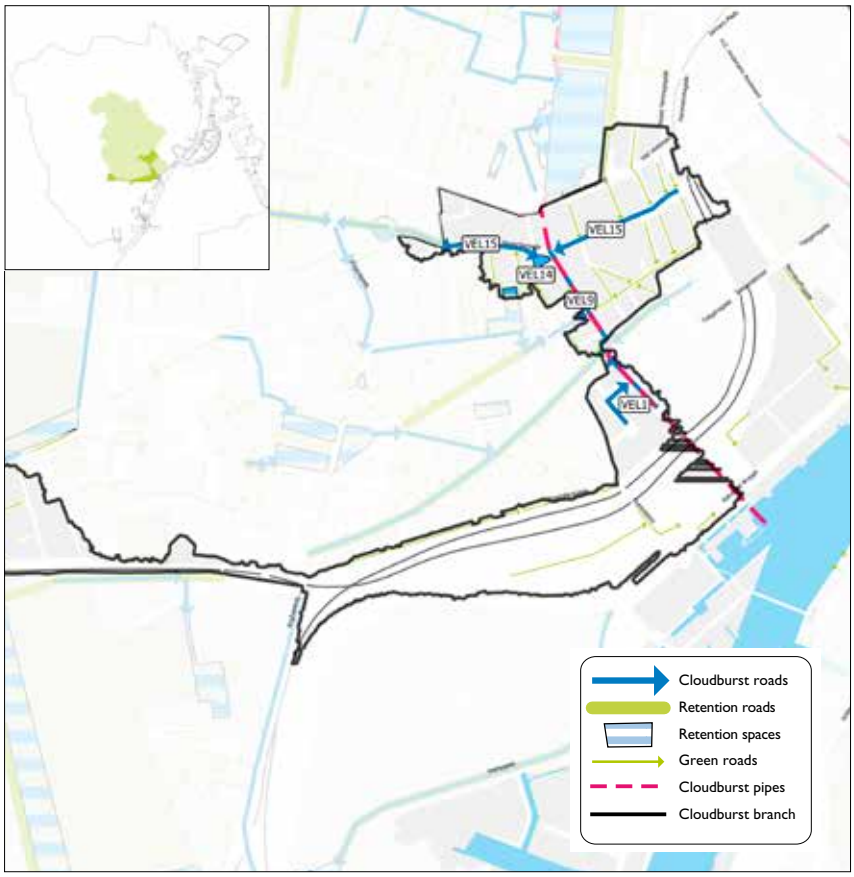
Location: Leads to Sønder Boulevard
Great potential for urban space improvements
Synergies: Cycle paths, neighbourhood regeneration, road renovations

Economics alternative: DKK 614.7m
Economics traditional: DKK 732.5m

GASVÆRKSVEJ

AREA 92 HA
HOUSEHOLDS 2848
RISK PROFILE HIGH
NUMBER OF PROJECTS 4

The cloudburst branch Gasværksvej covers Gasværksvej, Kødbyen and the area around Vesterbrogade between Frederiksberg Allé and Reventlowsgade and consists of four cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst branch is the cloudburst road VEL9 Gasværksvej, which conveys rainwater via the cloudburst pipe beneath Kødbyen from the whole branch out to Copenhagen Harbour. The Supplementary Cloudburst Roads (VEL15) and the green roads supply VEL9 Gasværksvej with stormwater.



EFFECT
By implementing the four projects in the cloudburst branch, a high-risk area of 92 ha with 2848 households is cloudburst-proofed.

VEL1
Kødbyen

Location: Flæsketorvet
Low potential for urban space improvements
Synergies: Deprived urban areas

Economics alternative: DKK 2.6m
Economics traditional: DKK 7.2m

VEL9
Gasværksvej

Location: Gasværksvej
Low potential for urban space improvements
Synergies: Cycle paths, deprived urban areas

Economics alternative: DKK 5.0m
Economics traditional: DKK 16.7m

VEL14
Vesterbro Torv

Location: Vesterbro Torv
Great potential for urban space improvements
Synergies: Deprived urban areas

Economics alternative: DKK 5.9m
Economics traditional: DKK 49.0m

VEL15 (included in more than one cloudburst branch)
Supplementary cloudburst roads

Location: Leads to Sønder Boulevard
Low potential for urban space improvements
Synergies: Cycle paths, neighbourhood regeneration, deprived urban areas

Economics alternative: DKK 6.0m
Economics traditional: DKK 17.5m

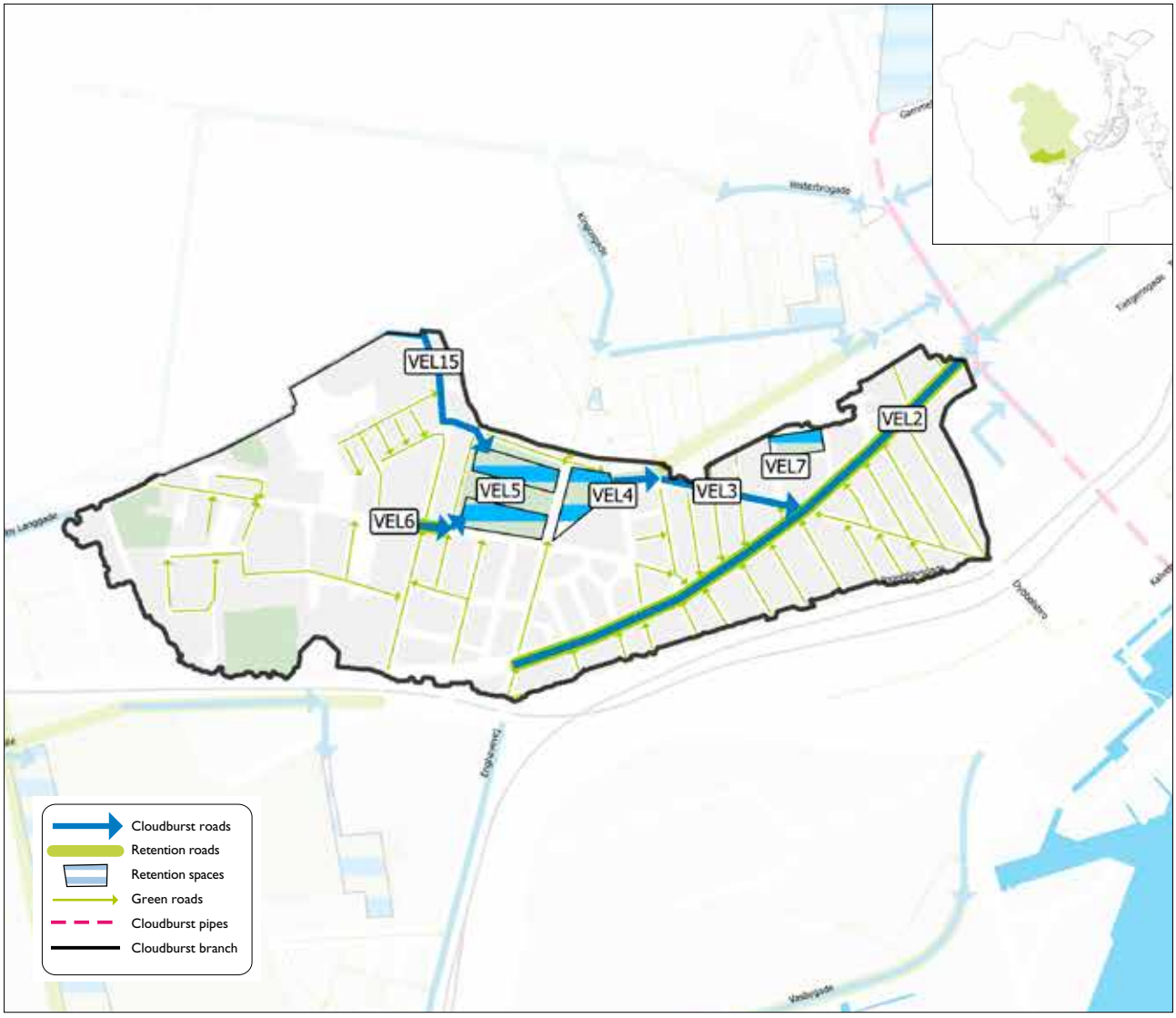
CARLSBERG

AREA 91 HA
HOUSEHOLDS 8807
RISK PROFILE HIGH
NUMBER OF PROJECTS 7

The cloudburst branch Carlsberg extends from Carlsberg in the west to Gasværksvej in the east and consists of seven cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst branch is three cloudburst roads which together form a combined route for discharge of stormwater from Enghave Plads to the cloudburst pipe beneath Gasværksvej.

EFFECT

By implementing the seven projects in the cloudburst branch, a high-risk area of 91 ha with 8807 households is cloudburst-proofed.



VEL2 (included in more than one cloudburst branch)

Sønder Boulevard

Location: Enghavevej to Halmtorvet
Great potential for urban space improvements
Synergies: Cycle paths, metro building sites, neighbourhood regeneration, green climate adaptation, deprived urban area
Economics alternative: DKK 96.7m
Economics traditional: DKK 125.9m

VEL3

Dybbølsgade

Location: Enghave Plads to Sønder Boulevard. Low potential for urban space improvements
Synergies: Metro building sites, neighbourhood regeneration, deprived urban areas
Economics alternative: DKK 15.0m
Economics traditional: DKK 17.0m

VEL4

Enghave Plads

Location: Enghave Plads
Great potential for urban space improvements
Synergies: Metro building sites, neighbourhood regeneration, deprived urban areas
Economics alternative: DKK 20.1m
Economics traditional: DKK 111.7m

VEL5

Enghaveparken

Location: Enghaveparken
Great potential for urban space improvements
Synergies: Neighbourhood regeneration, deprived urban areas

Economics alternative: DKK 35.3m
Economics traditional: DKK 332.8m

VEL6

Ny Carlsbergvej

Location: Vesterfælledvej to Enghaveparken. Low potential for urban space improvements
Synergies: Road renovation, neighbourhood regeneration, deprived urban areas
Economics alternative: DKK 6.6m
Economics traditional: DKK 7.6m

VEL7

Litauens Plads

Location: Litauens Plads
Low potential for urban space improvements
Synergies: Neighbourhood regeneration, deprived urban areas

Economics alternative: DKK 11.5m
Economics traditional: DKK 29.8m

VEL15 (included in more than one cloudburst branch)

Supplementary cloudburst roads

Location: Leads to Sønder Boulevard
Low potential for urban space improvements
Synergies: Cycle paths, neighbourhood regeneration, deprived urban areas

Economics alternative: DKK 6.0m
Economics traditional: DKK 17.5m

VEL44 (included in more than one cloudburst branch)

Green roads, other Ladegårdsåen

Location: Leads to Sønder Boulevard
Great potential for urban space improvements
Synergies: Cycle paths, neighbourhood regeneration, road renovations

Economics alternative: DKK 614.7m
Economics traditional: DKK 732.5m

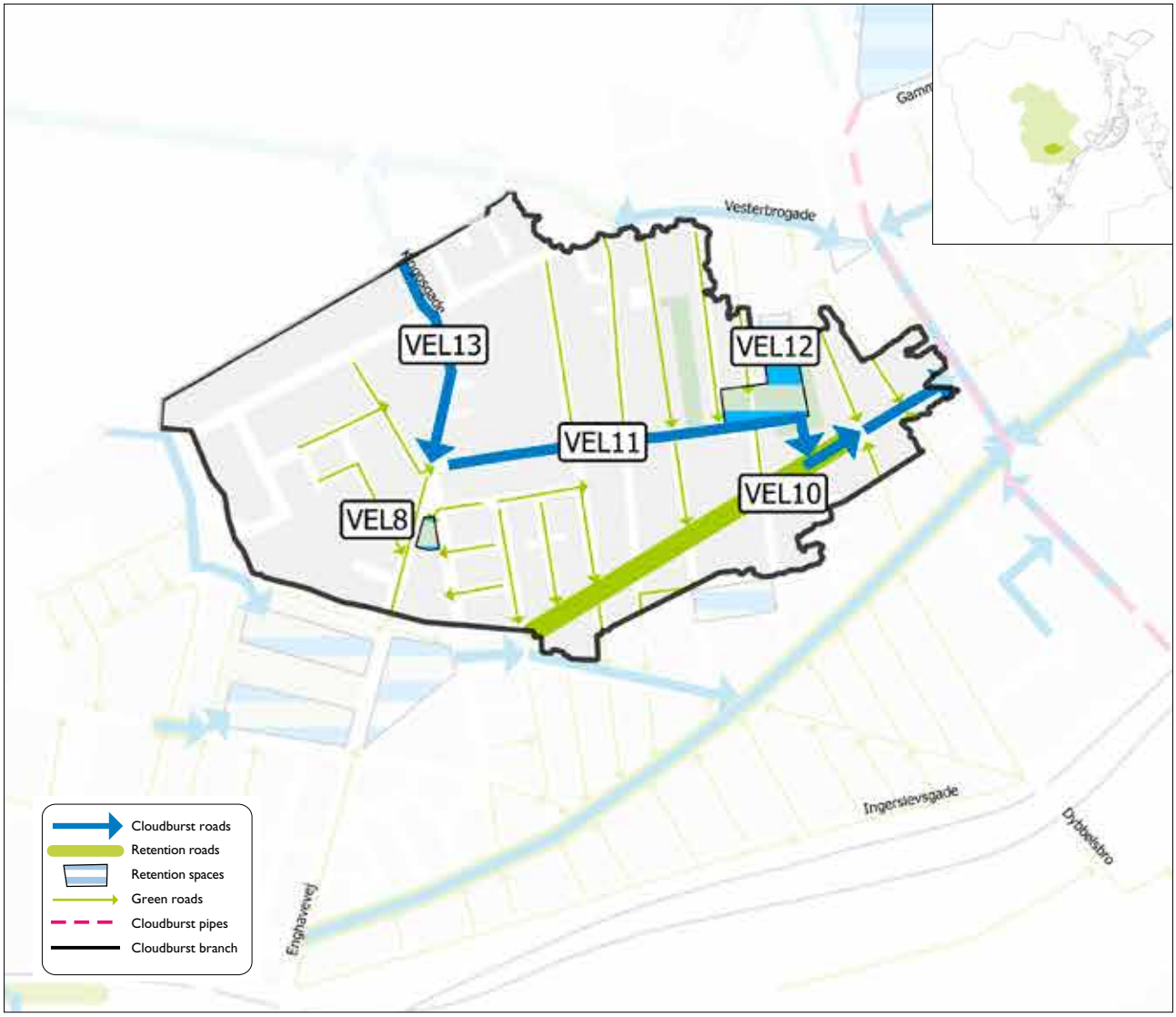
ISTEDGADE

AREA 44 HA
HOUSEHOLDS 6647
RISK PROFILE HIGH
NUMBER OF PROJECTS 5

The cloudburst branch Istedgade, which extends from Vesterfælledevej in the west to Gasværksvej, consists of five cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst branch is the three cloudburst roads VEL10 Istedgade, VEL11 Matthæusgade and VEL13 Kingosgade, which together form a combined route for the discharge of stormwater from Kingosgade to the cloudburst pipe beneath Gasværksvej.

EFFECT

By implementing the five projects in the cloudburst branch, a high-risk area of 44 ha with 6647 households is cloudburst-proofed.



VEL8

Tove Ditlevsens Plads

Location: Tove Ditlevsens Plads
Low potential for urban space improvements
Synergies: Neighbourhood regeneration, deprived urban areas

Economics alternative: DKK 2.1m
Economics traditional: DKK 10.0m

VEL10

Istedgade

Location: Enghave Plads to Gasværksvej. Great potential for urban space improvements
Synergies: Green climate adaptation, deprived urban areas

Economics alternative: DKK 24.4m
Economics traditional: DKK 33.7m

VEL11

Matthæusgade

Location: Matthæusgade
Low potential for urban space improvements
Synergies: Neighbourhood regeneration, deprived urban areas

Economics alternative: DKK 15.8m
Economics traditional: DKK 34.8m

VEL12

Skydebanehaven

Location: Skydebanehaven
Great potential for urban space improvements
Synergies: Deprived urban areas

Economics alternative: DKK 34.2m
Economics traditional: DKK 208.0m

VEL13

Kingosgade - Enghavevej

Location: Kingosgade, Enghavevej
Low potential for urban space improvements
Synergies: Road renovation, neighbourhood regeneration, deprived urban areas

Economics alternative: DKK 13.1m
Economics traditional: DKK 19.6m

VEL44 (included in more than one cloudburst branch)

Green roads, other Ladegårdsåen

Location: Leads to Sønder Boulevard
Great potential for urban space improvements
Synergies: Cycle paths, neighbourhood regeneration, road renovations

Economics alternative: DKK 614.7m
Economics traditional: DKK 732.5m

HALMTORVET

AREA 17 HA
HOUSEHOLDS 620
RISK PROFILE HIGH
NUMBER OF PROJECTS 1

The cloudburst branch Halmtorvet covers a small area of Vesterbro between Kødbyen and Copenhagen Central Station. The branch consists of one cloudburst management project and a handful of green roads, which together form continuous cloudburst management solution for the area shown below. The backbone of the cloudburst branch is the combined cloudburst and retention road VEL2 Sønder Boulevard, which conveys the stormwater to the cloudburst pipe beneath Kødbyen.

EFFECT

By implementing the single project in the cloudburst branch, a high-risk area of 17 ha with 620 households is cloudburst-proofed.

VEL2 (included in more than one cloudburst branch)

Sønder Boulevard

Location: Halmtorvet
Great potential for urban space improvements
Synergies: Cycle paths, metro building sites, neighbourhood regeneration, green climate adaptation, deprived urban area
Economics alternative: DKK 96,7m
Economics traditional: DKK 125.9m

VEL44 (included in more than one cloudburst branch)

Green roads, other Ladegårdsåen

Location: Leads to Sønder Boulevard
Great potential for urban space improvements
Synergies: Cycle paths, neighbourhood regeneration, road renovations

Economics alternative:DKK 614.7m
Economics traditional: DKK 732.5m

WATER CATCHMENT AREA OF NØRREBRO

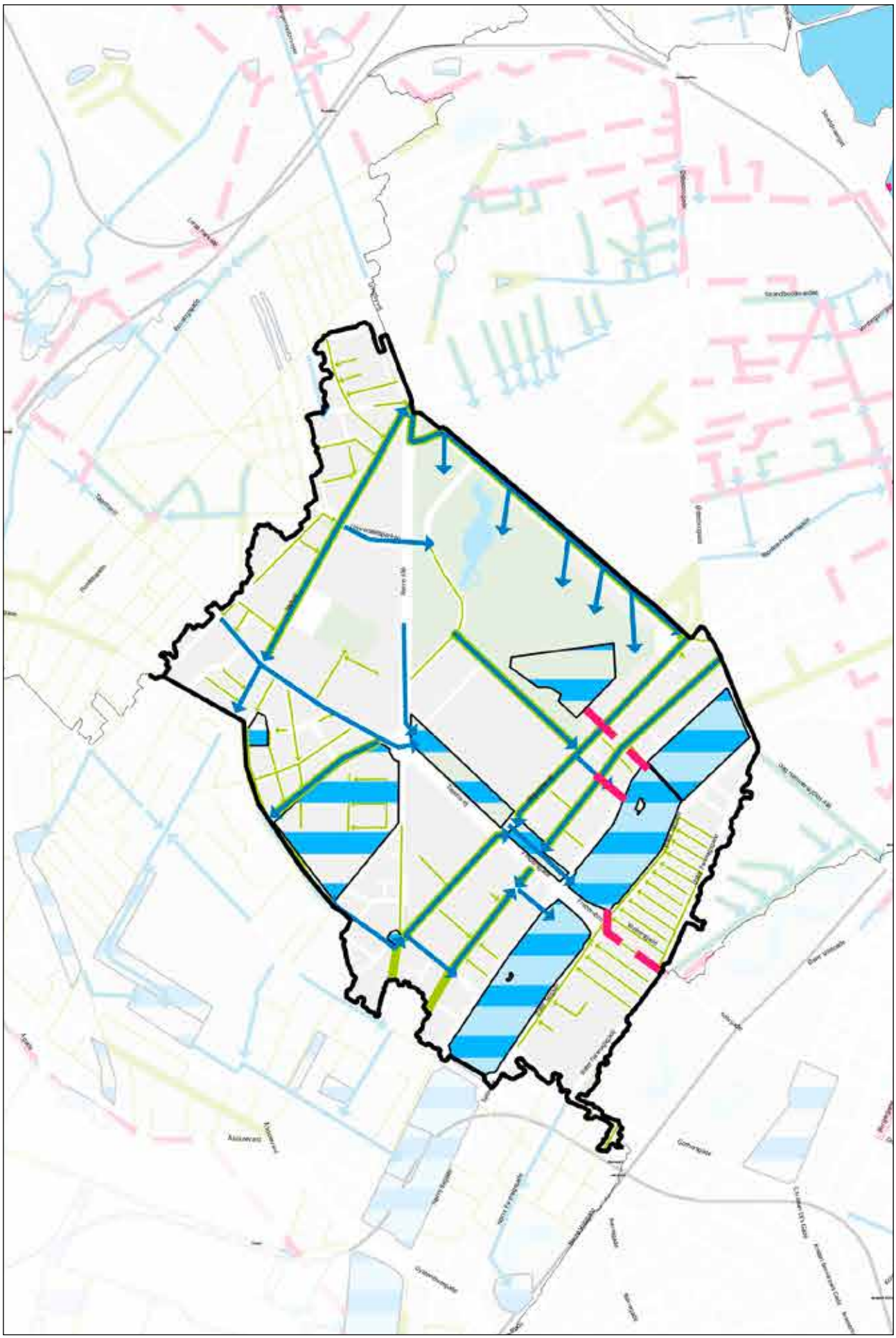
The Nørrebro catchment consists of five cloudburst branches and 21 projects. In Nørrebro, Fælledparken, Fredens Park, Amor Park and, in particular De Indre Søer (The Inner Lakes) play a key role in the cloudburst management solution. The challenge will be to create solutions that preserve and boost the recreational assets of the parks, at the same time as supporting the already existing good water quality in De Indre Søer.

CHARACTERISTICS OF THE WATER CATCHMENT AREA

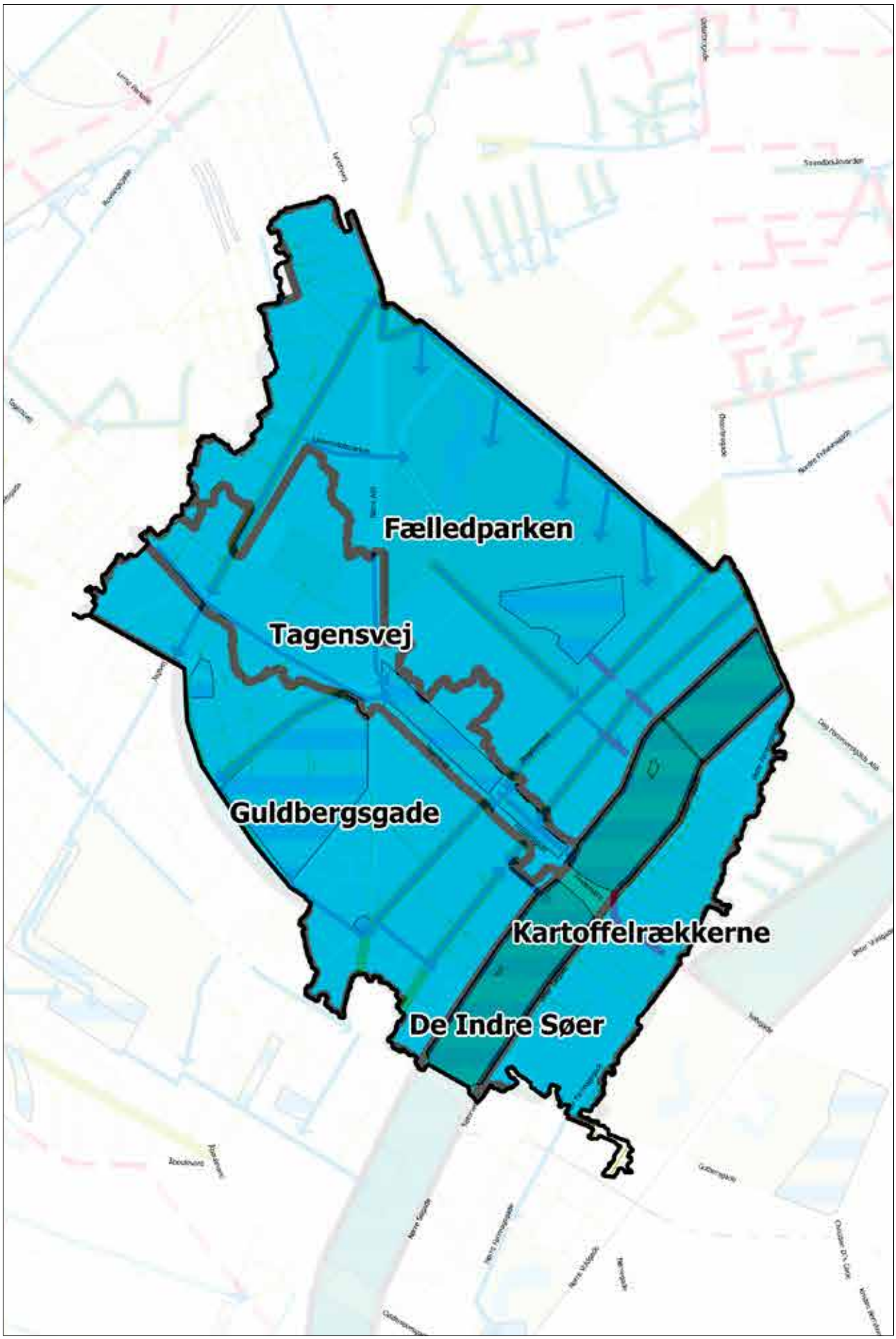
Sortedamssøen is located low in the Nørrebro water catchment area, and the water will therefore naturally flow towards the lake. There are no clear lines regarding how the water is to move through the water catchment area. The catchment does not have any significant height differences, and apart from Fælledparken the catchment area is characterised by buildings and roads. For the same reason, the water follows the traffic-carrying roads to De Indre Søer.

When the water in the lakes was to be use, it was ensured that the water did not flow out into the city by building high banks. Today, the high banks just as effectively prevent the cloudburst water from running down into the lakes, which means that the water accumulates at the streets running alongside De Indre Søer.

The Nørrebro water catchment area contains two important institutions, Rigshospitalet (Copenhagen University Hospital) and Copenhagen University. In addition, there are two of Copenhagen's most visited recreational areas: Fælledparken and De Indre Søer. These areas are also flooded when cloudbursts occur. The green and blue structure is principally formed by Fælledparken, Amor Park, Fredens Park, Universitetsparken, De Gamles By and Sortedamssøen.



CLOUDBURST BRANCHES NØRREBRO


Fælledparken
Tagensvej
Guldbergsgade
Kartoffelrækkerne
De Indre Søer

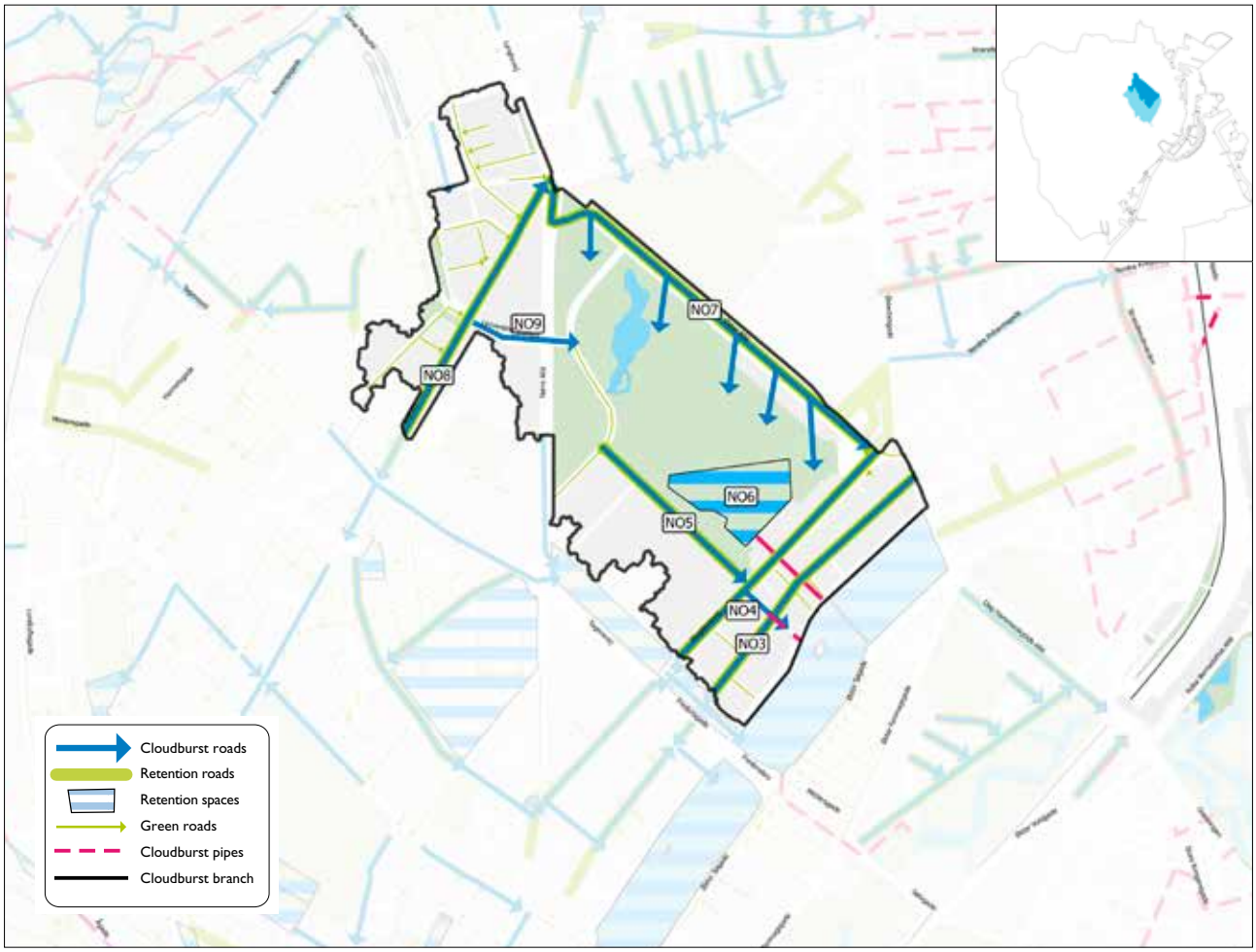
FÆLLEDPARKEN

AREA 112 HA
HOUSEHOLDS 4383
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 7

The cloudburst branch Fælledparken is centred around Fælledparken and consists of seven cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The key project in the cloudburst branch is the retention space NO06 Fælledparken. This retention space retains the large volumes of stormwater that fall in Fælledparken itself, and prevents it from flowing across Blegdamsvej and flooding the areas of housing between Fælledparken and Sortedams Sø. The retention space is also central to the cloudburst management projects north of Jagtvej and Nørre Campus, as it receives and retains the stormwater from these areas. The retention space was established by constructing a landscape elevation in the terrain down towards Blegdamsvej, so that the water is retained in Fælledparken. The retention space is established in such a way that Fælledparken can maintain its everyday existing functions.

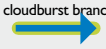
EFFECT

By implementing the seven projects in the cloudburst branch, a medium-risk area of 112 ha with 4383 households is cloudburst-proofed.



NO3 (included in more than one cloudburst branch)

Ryesgade

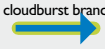


Location: Ryesgade and Ravnsborggade
Medium potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 42.4m
Economics traditional: DKK 74.4m

NO4 (included in more than one cloudburst branch)

Blegdamsvej North



Location: Juliane Maries Vej to Øster Allé. Great potential for urban space improvements
Synergies: Road renovation, cycle paths, metro building sites, green climate adaptation
Economics alternative: DKK 40.1m
Economics traditional: DKK 44.7m

NO5

Frederik V's Vej

Location: Frederik V's Vej
Medium potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 19.2m
Economics traditional: DKK 24.6m

NO6

Fælledparken

Location: Fælledparken
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 45.3m
Economics traditional DKK 323.1m

NO7

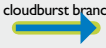
Øster Allé

Location: Øster Allé
Low potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 23.4m
Economics traditional: DKK 37.6m

NO8 (included in more than one cloudburst branch)

Jagtvej



Location: Lyngbyvej to Mimersgade
Great potential for urban space improvements
Synergies: Steam conversion, road renovation, cycle paths, green climate adaptation
Economics alternative: DKK 54.3m
Economics traditional: DKK 54.8m

NO9

Universitetsparken

Location: Jagtvej to Fælledparken
Medium potential for urban space improvements
Synergies: Steam conversion, road renovation, green climate adaptation

Economics alternative: DKK 6.6m
Economics traditional: DKK 7.7m

NO20 (included in more than one cloudburst branch)

Green roads, other

Location: Whole water catchment area
Great potential for urban space improvements
Synergies: Road renovation and steam conversion
Economics alternative: DKK 20.2m
Economics traditional: DKK 28.3m

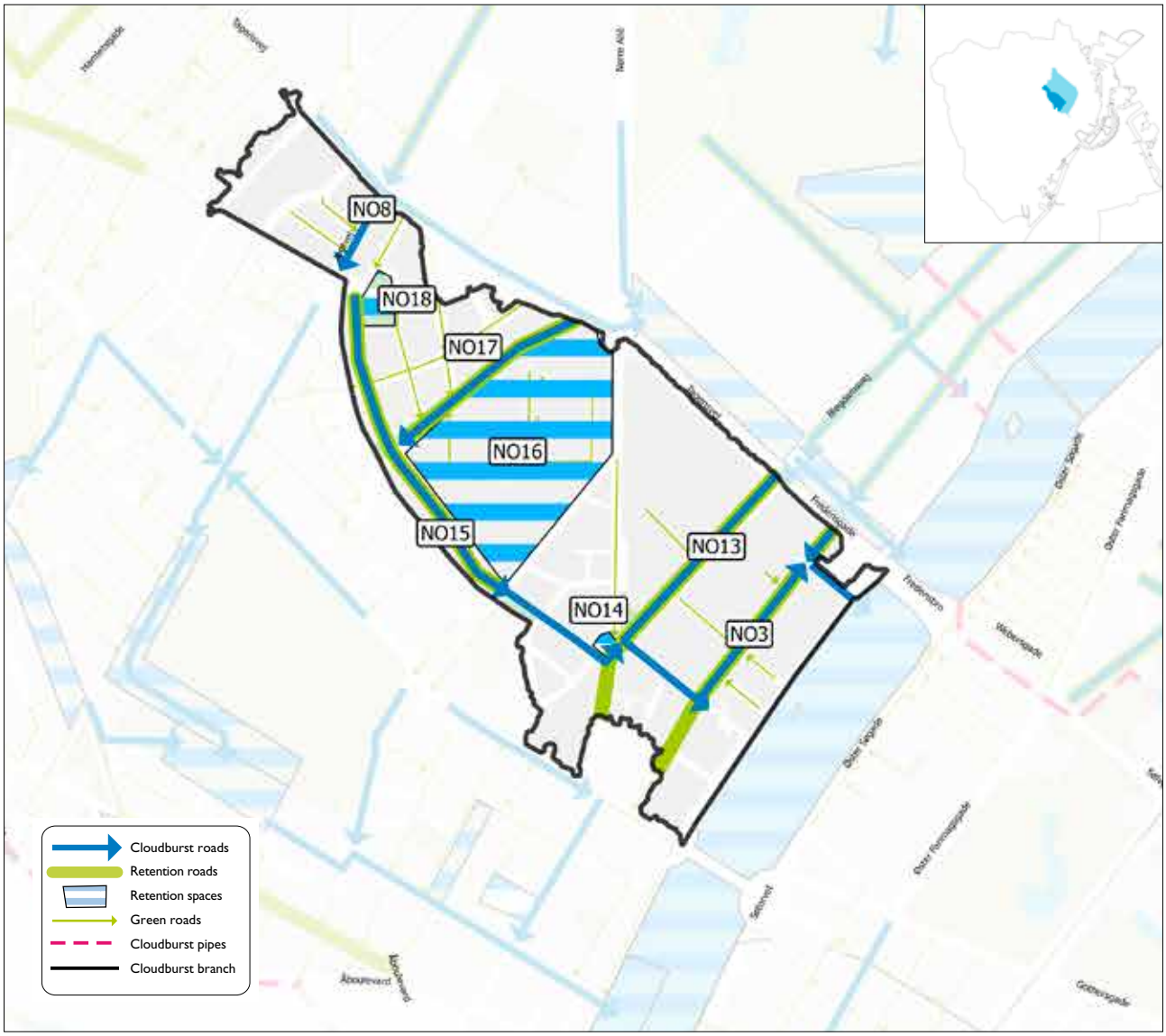
GULDBERGSGADE

AREA 67 HA
HOUSEHOLDS 7459
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 9

The cloudburst branch Guldbergsgade is located at De Gamles By and consists of nine cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The principal aim is to retain water in De Gamles By (NO16) and create controlled discharge to De Indre Søer via Guldbergsgade and Ryesgade.

EFFECT

By implementing the nine projects in the cloudburst branch, a medium-risk area of 67 ha with 7459 households is cloudburst-proofed.



NO3 (included in more than one cloudburst branch)

Ryesgade

Location: Ryesgade and Ravnsborggade
Medium potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 42.4m
Economics traditional: DKK 74.4m

NO8 (included in more than one cloudburst branch)

Jagtvej

Location: Lyngbyvej to Mimersgade
Great potential for urban space improvements
Synergies: Steam conversion, road renovation, cycle paths, green climate adaptation
Economics alternative: DKK 54.3m
Economics traditional: DKK 54.8m

NO13

Blegdamsvej Syd

Location: Tagensvej to Sankt Hans Torv
Great potential for urban space improvements
Synergies: Road renovation, green climate adaptation, deprived urban areas

Economics alternative: DKK 20.6m
Economics traditional: DKK 24.4m

NO14

Sankt Hans Torv

Location: Sankt Hans Torv
Medium potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 3.3m
Economics traditional: DKK 10.3m

NO15

Guldbergsgade

Location: Jagtvej to Sankt Hans Torv
Medium potential for urban space improvements
Synergies: Road renovation, deprived urban areas

Economics alternative: DKK 29.9m
Economics traditional: DKK 40.5m

NO16

De Gamles By

Location: De Gamles By
Great potential for urban space improvements
Synergies: Steam conversion, road renovation, cycle paths, green climate adaptation, deprived urban areas
Economics alternative: DKK 5.5m
Economics traditional: DKK 11.8m

NO17

Sjællandsgade

Location: Tagensvej to Guldbergsgade
Great potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 33.0m
Economics traditional: DKK 58.9m

NO18

Guldbergs Plads

Location: Guldbergs Plads
Low potential for urban space improvements
Synergies: Cycle paths, deprived urban areas

Economics alternative: DKK 3.3m
Economics traditional: DKK 16.0m

NO20 (included in more than one cloudburst branch)

Green roads, other

Location: Whole water catchment area
Great potential for urban space improvements
Synergies: Road renovation and steam conversion
Economics alternative: DKK 20.2m
Economics traditional: DKK 28.3m

NO1 (included in more than one cloudburst branch)

Treatment Nørrebro catchment area

Location: The inner lakes
Medium potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 21.7m
Economics traditional: DKK 21.7m

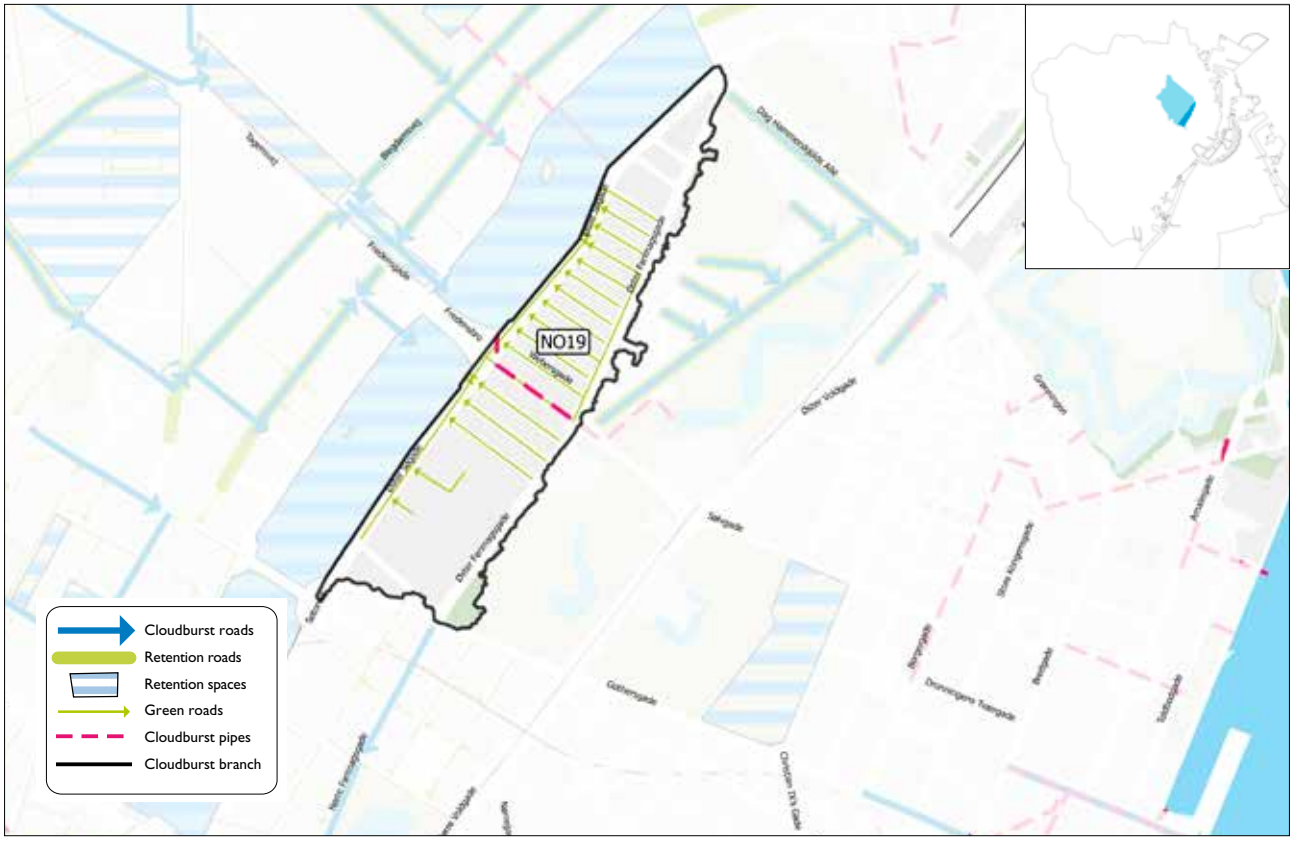
KARTOFFELRÆKKERNE

AREA 29 HA
HOUSEHOLDS 2401
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 2

The cloudburst branch Kartoffelrækkerne is located south of Sortedams Sø and consists of two cloudburst management projects, which form a continuous cloudburst management solution for the area shown below. The main aim is to discharge water to Sortedams Sø via green roads south of the lake, and to create small retention elements where possible.

EFFECT

By implementing the two projects in the cloudburst branch, a medium-risk area of 29 ha with 2401 households is cloudburst-proofed.



NO19
Kartoffelrækkerne

Placering: Along Øster Søgade
Medium potential for urban space improvements
Synergi: Cycle paths

Economics alternative: DKK 25.6m
Economics traditional DKK 27.8m

NO20 (included in more than one cloudburst branch)
Green roads, other

Location: Whole water catchment area
Great potential for urban space improvements
Synergies: Road renovation and steam conversion
Economics alternative: DKK 20.2m
Economics traditional: DKK 28.3m

NO1 (included in more than one cloudburst branch)
Treatment Nørrebro catchment area

Location: The inner lakes
Medium potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 21.7m
Economics traditional: DKK 21.7m

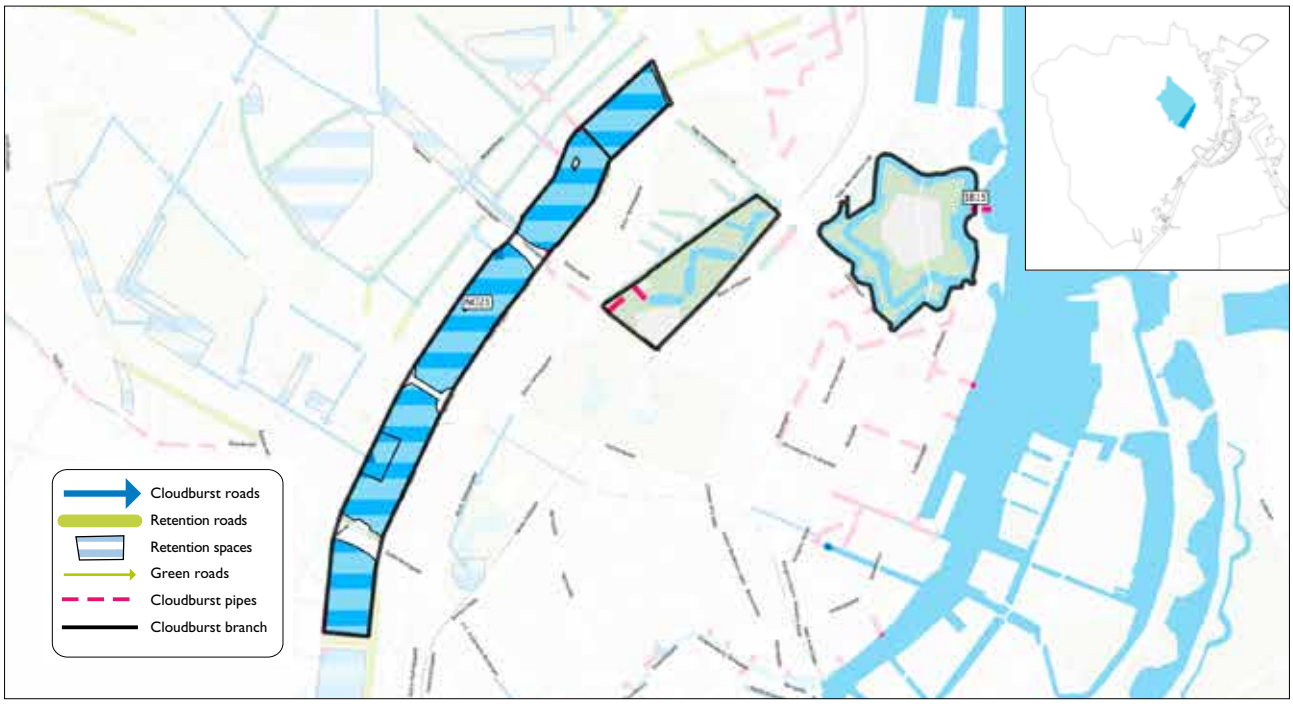
DE INDRE SØER (THE INNER LAKES)

AREA 89 HA
HOUSEHOLDS 10
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 3

The cloudburst branch De Indre Søer extends from the lakes to Kastellet and consists of three cloudburst management projects which together are to ensure that the freshwater system from De Indre Søer via Kastellet and out into the harbour can be used during cloudbursts. NO21 creates the hydraulic context and retention capacity, while NO1 ensures that the water supplied to De Indre Søer is treated. The cloudburst branch is of decisive importance in draining the Nørrebro and Ladegårdsåen, Frederiksberg and Vesterbro catchment areas.

EFFECT

By implementing the three projects in the cloudburst branch, a medium-risk area of 89 ha with 10 households is cloudburst-proofed. It should be noted however, that a large number of cloudburst branches in the Nørrebro catchment and the Ladegårdsåen, Frederiksberg and Vesterbro catchment area drain to this cloudburst branch.



NO1 (included in more than one cloudburst branch)
Treatment Nørrebro catchment area

Location: The inner lakes
Medium potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 21.7m
Economics traditional: DKK 21.7m

NO21
De Indre Søer

Location: Sortedams Sø to Kampmannsgade
Low potential for urban space improvements
Synergies: Metro building sites

Economics alternative: DKK 34.2m
Economics traditional: DKK 618.0m

IB15 (included in more than one cloudburst branch)
Kastelsgravens Pumpestation

Location: Between Kastellet and the Harbour
No known potential for urban space improvements at present
Synergies: Synergistic effects not known at present
Economics alternative: DKK 38.5m
Economics traditional: DKK 200.0m

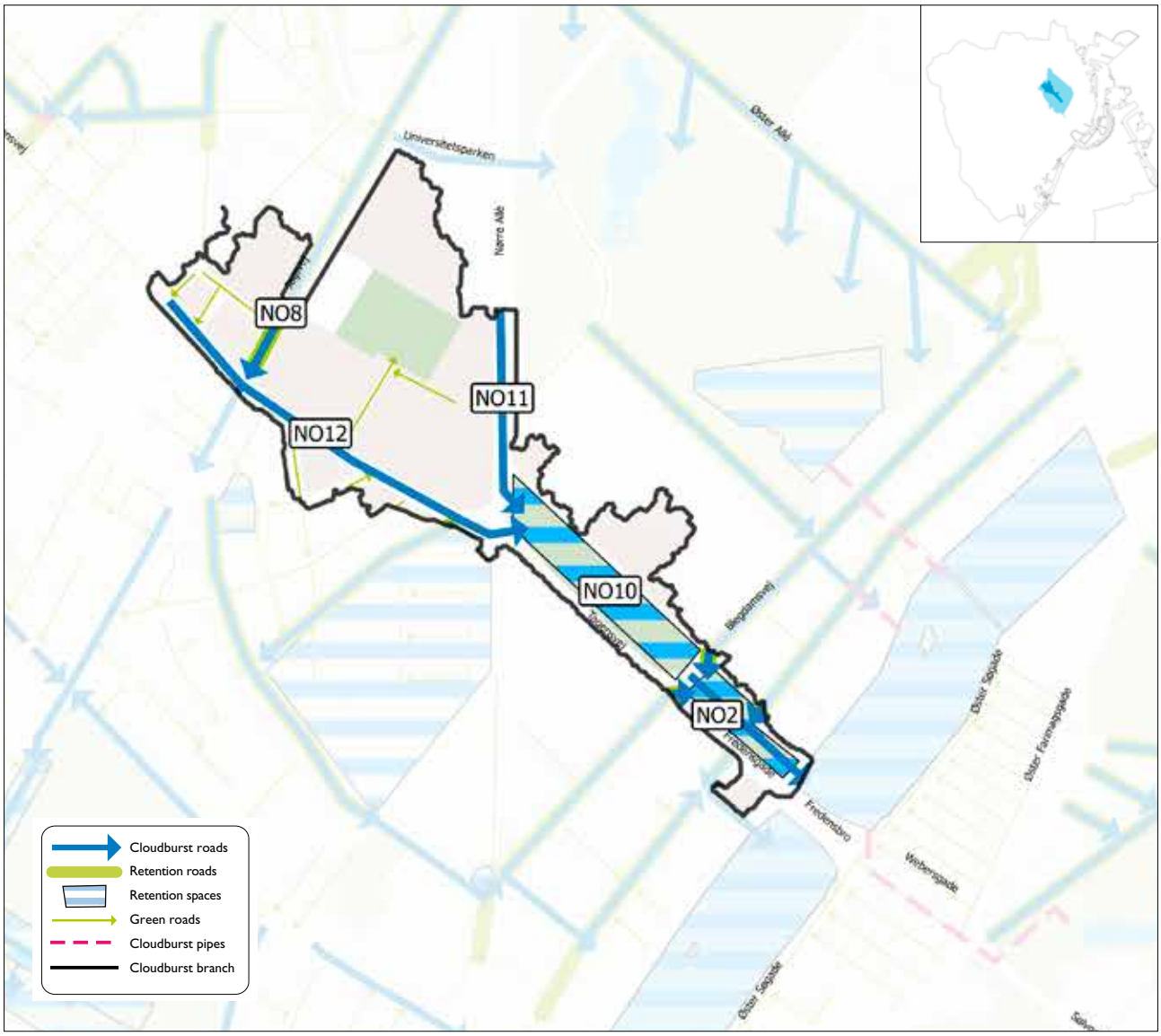
TAGENSVEJ

AREA 37 HA
HOUSEHOLDS 1774
RISK PROFILE HIGH
NUMBER OF PROJECTS 8

The cloudburst branch Tagensvej is located in the middle of the Nørrebro catchment area and consists of eight cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The main aim is to retain water in Amor Park (NO10) and Fredens Park (NO02) and to create controlled discharge to De Indre Søer along Tagensvej.

EFFECT

By implementing the eight projects in the cloudburst branch, a medium-risk area of 37 ha with 1774 households is cloudburst-proofed.



NO2
Fredens Park

Location: Fredens Park
Medium potential for urban space improvement
Synergies: Green climate adaptation

Economics alternative: DKK 10.8m
Economics traditional: DKK 111.7m

NO3 (included in more than one cloudburst branch)
Ryesgade

Location: Ryesgade and Ravnsborggade
Medium potential for urban space improvement
Synergies: Road renovation

Economics alternative: DKK 42.4m
Economics traditional: DKK 74.4m

NO4 (included in more than one cloudburst branch)
Blegdamsvej Nord

Location: Juliane Maries Vej to Øster Allé. Great potential for urban space improvements
Synergies: Road renovation, cycle paths, metro building sites, green climate adaptation
Economics alternative: DKK 40.1m
Economics traditional: DKK 44.7m

NO8 (included in more than one cloudburst branch)
Jagtvej

Location: Lyngbyvej to Mimersgade
Great potential for urban space improvements
Synergies: Steam conversion, road renovation, cycle paths, green climate adaptation
Economics alternative: DKK 49.9m
Economics traditional: DKK 54.8m

NO10
Amorparken

Location: Amorparken
Medium potential for urban space improvement
Synergies: Cycle paths, green climate adaptation

Economics alternative: DKK 13.4m
Economics traditional: DKK 17.2m

NO11
Nørre Allé

Location: Universitetsparken to Tagensvej
Medium potential for urban space improvement
Synergies: Road renovation

Economics alternative: DKK 4.9m
Economics traditional: DKK 6.4m

NO12
Tagensvej

Location: Jagtvej to Nørre Allé
Low potential for urban space improvements
Synergies: Vejrenovering, grøn klimatilpasning

Economics alternative: DKK 16.1m
Economics traditional: DKK 19.8m

NO20 (included in more than one cloudburst branch)
Green roads, other

Location: Whole water catchment area
Great potential for urban space improvements
Synergies: Road renovation and steam conversion
Economics alternative: DKK 20.2m
Economics traditional: DKK 28.3m

NO1 (included in more than one cloudburst branch)
Treatment Nørrebro catchment area

Location: The inner lakes
Medium potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 21.7m
Economics traditional: DKK 21.7m

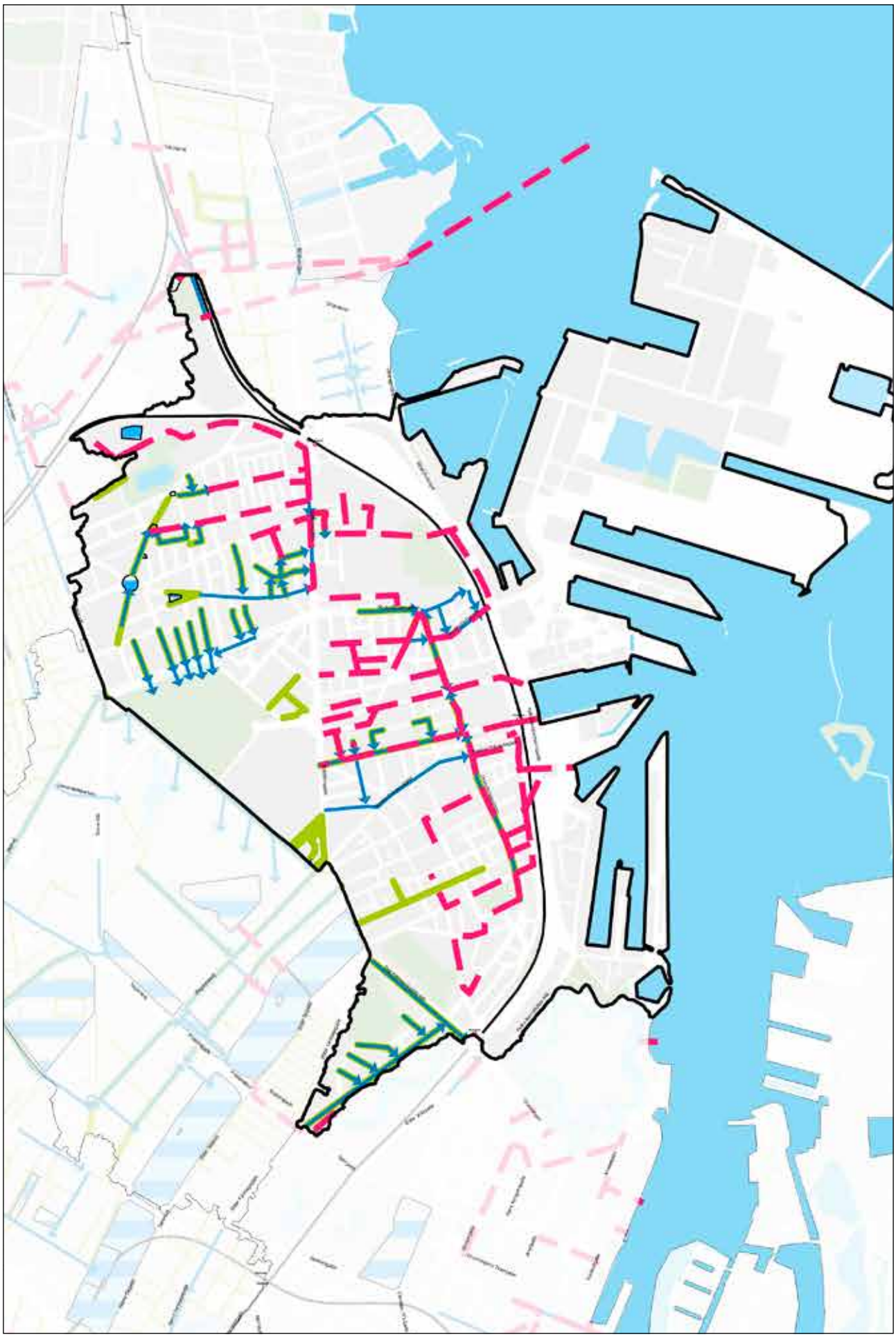
WATER CATCHMENT AREA OF ØSTERBRO

There are three cloudburst branches in the Østerbro water catchment area, which together contain 18 projects. The water catchment has an area 350 ha, and the water from the water catchment area is primarily discharged to the harbour through underground pipes. However, this does not apply to the water from the Klosterfælleden cloudburst branch, which is conveyed to the northern part of Fælledparken.

Østerbro is characterised by consisting of two plateaus, which are connected by a slope. The result is that it is relatively simple to manage stormwater in the top and middle parts of the catchment area. In the lower part the drop in terrain is so small that the water will accumulate and cause flooding unless it is quickly discharged to the harbour. Østerbrogade and Strandboulevarden are right at the start of the lowest part of the catchment area and are therefore easily flooded. The solution for Østerbro is therefore to create a physical possibility for discharging stormwater from Østerbrogade and Strandboulevarden to the harbour.

VISION AND STRATEGY: NEW GREEN URBAN SPCES AND CLEAN STORMWATER TO THE HARBOUR

The objective for the Østerbro water catchment is to create stormwater solutions that combine surface solutions with underground solutions and create new urban spaces that are resilient to climate change and torrential downpours.



CLOUDBURST BRANCHES ØSTERBRO


Ydre Østerbro
Klosterfælleden
Indre Østerbro

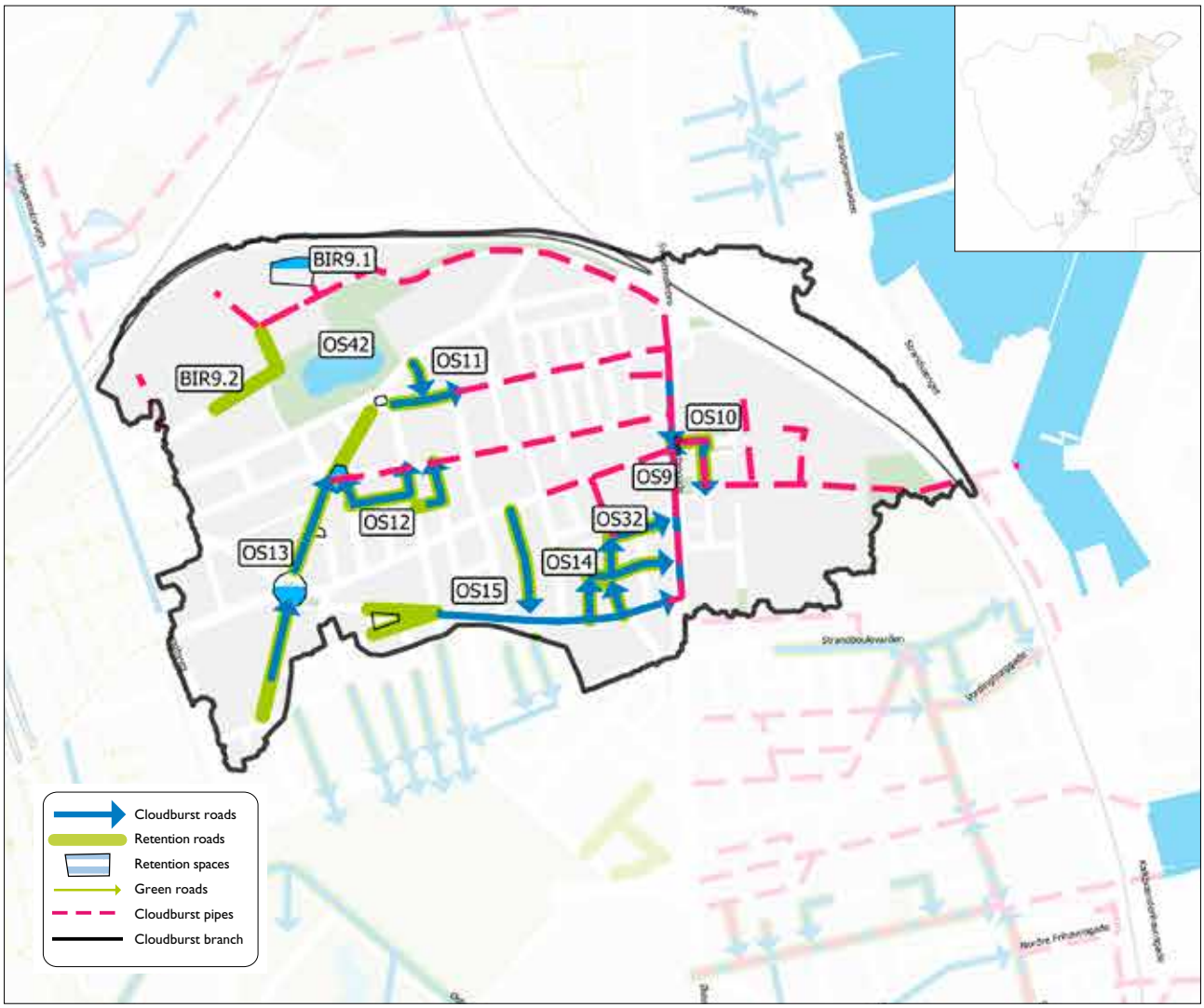
YDRE ØSTERBRO

AREA 120 HA
HOUSEHOLDS 9973
RISK PROFILE HIGH
NUMBER OF PROJECTS 11

The cloudburst branch Ydre Østerbro (Outer Østerbro) covers most of Østerbro north of Jagtvej and consists of 11 cloudburst management projects, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst branch is the cloudburst road OS9 Østerbrogade, the combined cloudburst and retention road OS10 Carl Nielsens Allé and the cloudburst pipe beneath Gasværksgrunden. Together, they form a continuous route to discharge stormwater from Østerbrogade to Copenhagen Harbour. The other projects in the cloudburst branch convey water from the higher-lying areas at Skt. Kjelds Plads, Tåsinge Plads and Kildevældsparken down to Østerbrogade.

EFFECT

By implementing the 11 projects in the cloudburst branch, a high-risk area of 120 ha with 9973 households is cloudburst-proofed.



BIR9.1

Meteorological Institute

Location: At Ryparken Station
Low potential for urban space improvements
Synergies: Neighbourhood regeneration

Economics alternative: DKK 7.9m
Economics traditional DKK 17.2m

BIR9.2

Borgervænget

Location: Borgervænget
Low potential for urban space improvements
Synergies: Road renovation, cycle paths, neighbourhood regeneration

Economics alternative: DKK 0.8m
Economics traditional: DKK 2.5m

OS9

Østerbrogade

Location: from Kildevældsgade to Tåsingegade. Medium potential for urban space improvements
Synergies: Steam conversion, road renovation, cycle paths, green climate adaptationg
Economics alternative: DKK 10.0m
Economics traditional: DKK 21.3m

OS10

Carl Nielsens Allé

Location: Johan Svendsens Vej
Great potential for urban space improvements
Synergies: Steam conversion, neighbourhood regeneration, green climate adaptation
Economics alternative: 2,6 mio.kr.
Economics traditional: 3,9 mio.kr.

OS11

Vennemindesvej etc.

Location: Kildevældsgade, Marthagade
Low potential for urban space improvements
Synergies: Neighbourhood regeneration

Economics alternative: DKK 7.1m
Economics traditional: DKK 10.8m

OS12

Hesseløgade etc.

Location: Hesseløgade,
Otto Mallings Gade
Low potential for urban space improvements
Synergies: Steam conversion, neighbourhood regeneration
Economics alternative: DKK 8.1m
Economics traditional: DKK 15.3m

OS13

Sankt Kjelds Plads

Location: Sankt Kjelds Plads, Bryggervangen. Great potential for urban space improvements
Synergies: Steam conversion, road renovation, area renovation, green climate adaptation, deprived urban area
Economics alternative: DKK 26.7m
Economics traditional: DKK 38.4m

OS14

Reersøgade etc.

Location: Hjortøgade
Medium potential for urban space improvements
Synergies: Neighbourhood regeneration, green climate adaptation

Economics alternative: DKK 8.7m
Economics traditional: DKK 11.7m

OS15

Tåsingegade

Location: Tåsingegade, Masnedsøgade
Medium potential for urban space improvements
Synergies: Metro building sites, neighbourhood regeneration

Economics alternative: DKK 35.7m
Economics traditional: DKK 50.8m

OS32

Christiansmindevej

Location: Stakkesund - Østerbrogade
Medium potential for urban space improvements
Synergies: Neighbourhood regeneration, green connection

Economics alternative: DKK 4.9m
Economics traditional: DKK 9.1m

OS42

Treatment Kildevældesøen

Location: I Kildevældesøen
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 1.2m
Economics traditional: DKK 1.2m

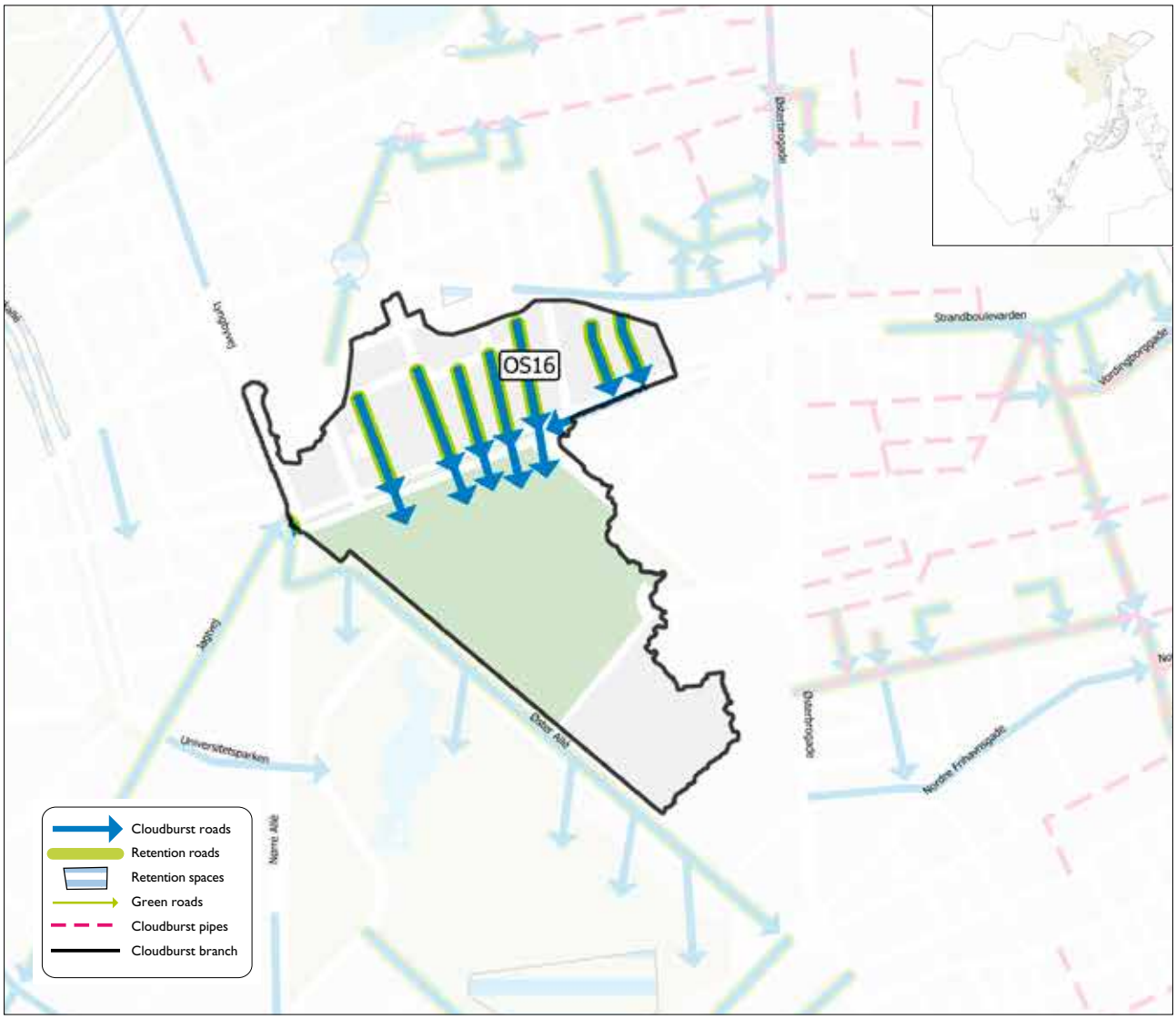
KLOSTERFÆLLEDEN

AREA 39 HA
HOUSEHOLDS 2035
RISK PROFILE HIGH
NUMBER OF PROJECTS 1

The cloudburst branch Klosterfælleden covers Klosterfælleden and the area between Jagtvej, Masnedogade, Tåsingegade and Samsøgade and consists of one project. The hydraulic solution in the cloudburst branch is to convey stormwater from the side-streets to Jagtvej across Jagtvej and into Klosterfælleden, where the water slowly percolates down.

EFFECT

By implementing the combined cloudburst and retention road OS16 Jagtvej, a high-risk area of 39 ha with 2035 households is cloudburst-proofed.



OS16

Jagtvej

Placering: Seven side-streets of Jagtvej
Medium potential for urban space improvements
Synergies: Steam conversion, road renovation, neighbourhood regeneration, green climate adaptation, deprived urban area
Economics alternative: DKK 37.6m
Economics traditional: DKK 93.5m

INDRE ØSTERBRO

AREA 191 HA
HOUSEHOLDS 20,109
RISK PROFILE HIGH
NUMBER OF PROJECTS 9

The cloudburst branch Indre Østerbro (Inner Østerbro) extends from Jagtvej in the north to Østerport in the south and consists of nine cloudburst management projects, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst branch is the combined cloudburst and retention road OS1 Strandboulevarden, which collects and retains stormwater from the area between Østerbrogade and Strandboulevarden. The surplus water is conveyed via seven cloudburst pipes to Copenhagen Harbour. The remaining cloudburst management projects in the cloudburst branch retain stormwater locally or convey it down to Strandboulevarden.

EFFECT

By implementing the nine projects in the cloudburst branch, a high-risk area of 191 ha with 20,109 households is cloudburst-proofed.

OS1

Strandboulevarden

Location: From Middelfartgade to Arendalsgade
Great potential for urban space improvements
Synergies: Road renovation, cycle paths, green climate adaptation
Economics alternative: DKK 111.4m
Economics traditional: DKK 1143.8m

OS4

Middelfartsgade etc.

Location: Vordingborggade etc.
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 13.6m
Economics traditional: DKK 19.9m

OS5

Rothesgade etc.

Location: Gammel Kalkbrænderivej etc.
Low potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 17.8m
Economics traditional: DKK 27.9m

OS7

Løgstørgade

Location: Vordingborggade to Strandboulevarden
Medium potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 4.0m
Economics traditional: DKK 5.5m

OS8

Brumleby

Location: Brumleby
Medium potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 18.5m
Economics traditional: DKK 27.1m

OS17

Other retention spaces

Location: Tåsingegade, Masnedsøgade
Medium potential for urban space improvements
Synergies: Metro building sites, neighbourhood regeneration

Economics alternative: DKK 23.7m
Economics traditional: DKK 37.0m

OS19

Nordre Frihavnsgade etc.

Location: Østerbrogade to Strandboulevarden
Medium potential for urban space improvements
Synergies: Cycle paths

Economics alternative: DKK 37.8m
Economics traditional: DKK 76.4m

OS20

Willemoesgade and Ringstedgade

Location: Willemoesgade and Ringstedgade
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 15.5m
Economics traditional: DKK 23.3m

OS38

Østerfælled Torv

Location: Willemoesgade and Ringstedgade
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 62.9m
Economics traditional: DKK 87.7m

WATER CATCHMENT AREA OF INDRE BY

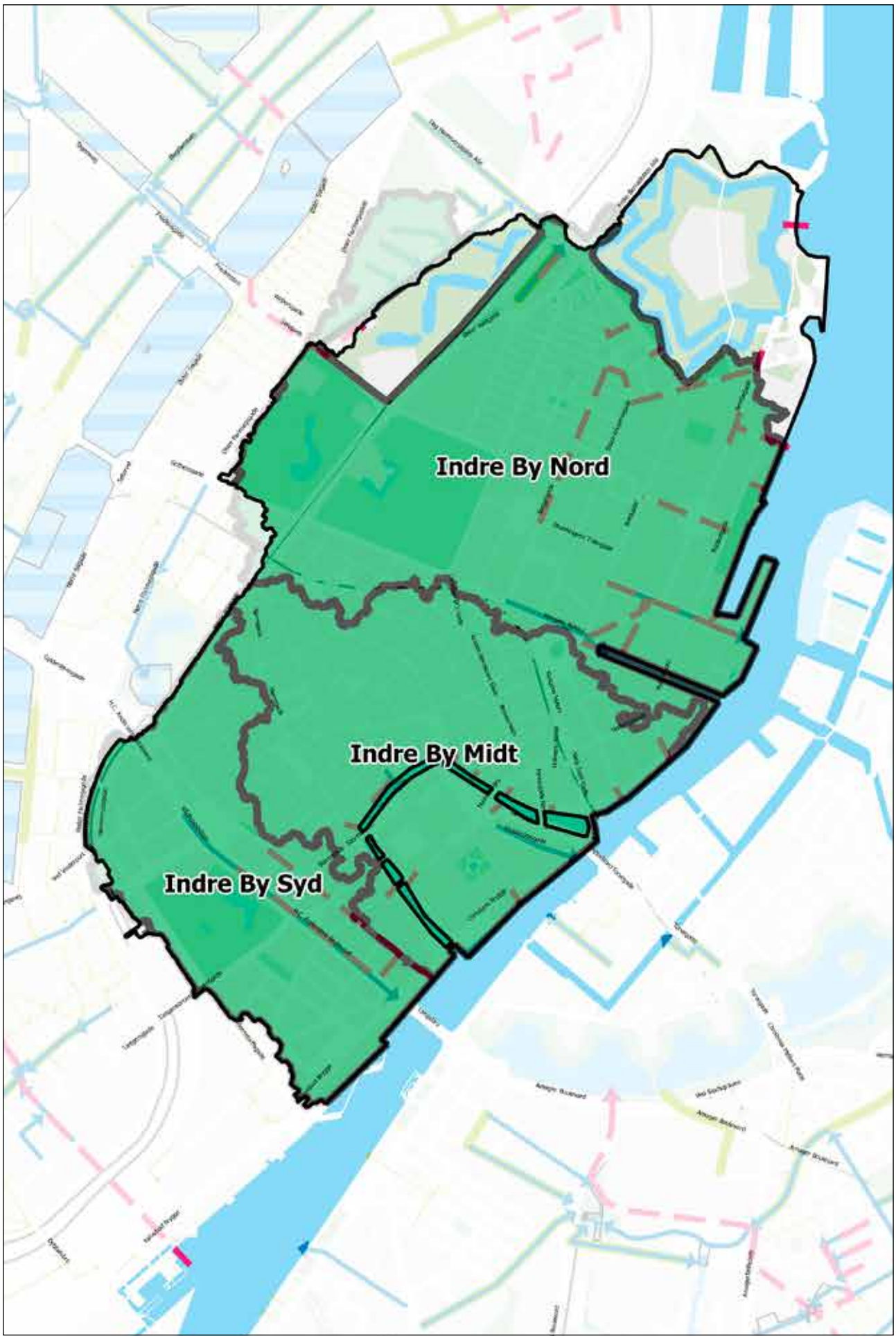
The water catchment area consists of three cloudburst branches with a total of eight projects and covers 335 ha. All the cloudburst branches in the catchment discharge the water to the harbour through pipes, however part of the water is conveyed from the cloudburst branch Indre By Nord to the moat around Kastellet and onward to the harbour.
Indre By (Inner City) contains irreplaceable assets. It is the historic centre of the capital, and large parts of the central administration are located here. At the same time, this district is vulnerable, because it is low-lying, and the quayside of the harbour in several places forms a barrier that prevents stormwater from flowing out into the harbour. In other places there are dips where the water accumulates. The projects in Indre By are put together with a view to protecting this district against torrential downpours with the greatest possible respect for the historic significance of the area.

VISION AND STRATEGY: TO PROTECT AND EMBELLISH

In a unique and vulnerable district such as Indre By, in principle it is a matter of creating climate change solutions that protect against stormwater, without the solutions destroying the special character of the area. At the same time, it is important to look at the potential of climate-proofing to embellish existing problem areas. It is a matter of creating a passage for the stormwater to the harbour and establishing the necessary drainage pipes and penetrations in the quayside so that the water can be discharged into the harbour when torrential downpours occur.


OS20

CLOUDBURST BRANCHES INDRE BY


Indre By Nord
Indre By Midt
Indre By Syd

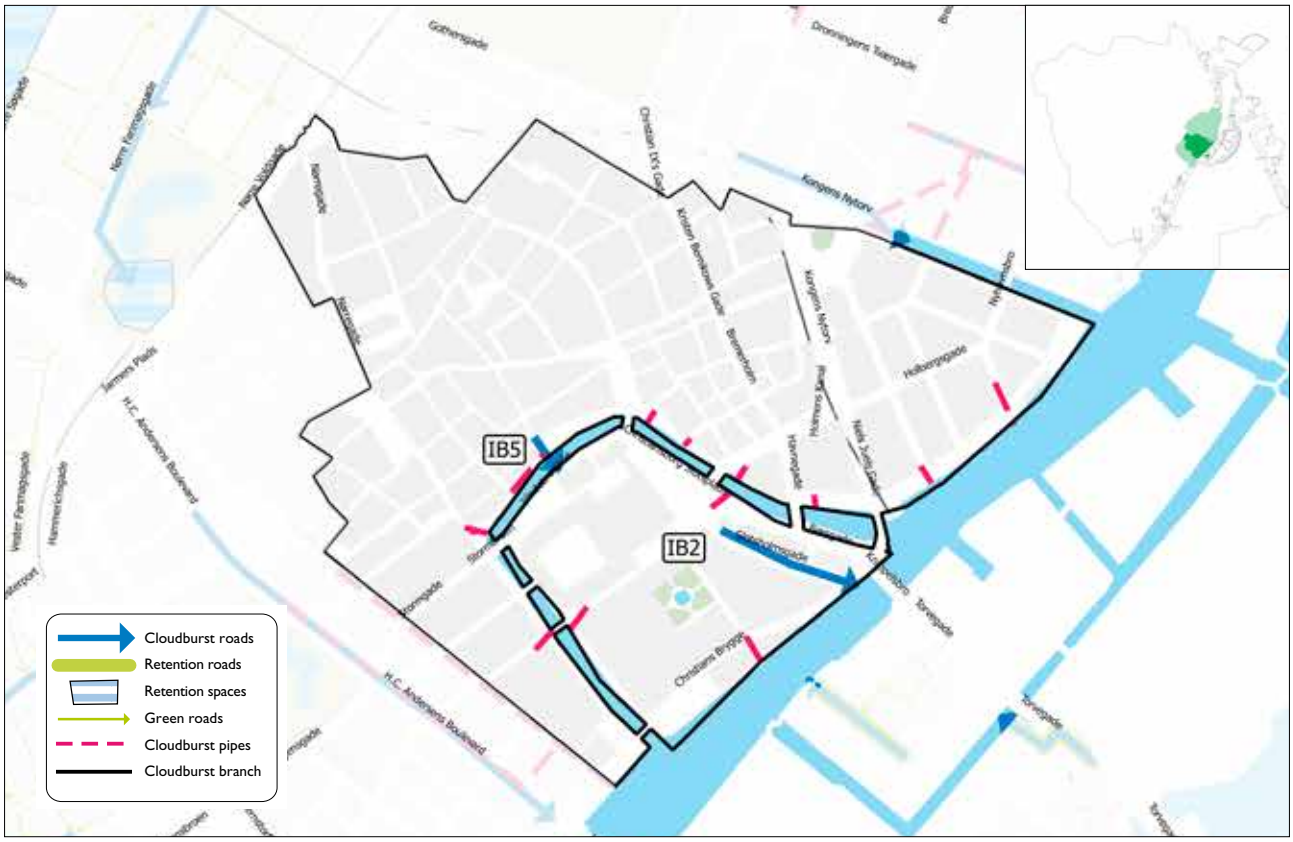
INDRE BY CENTRAL

AREA 105 HA
HOUSEHOLDS 3392
RISK PROFILE HIGH
NUMBER OF PROJECTS 2

The cloudburst branch Indre By Central is located in the medieval city of Copenhagen at Christiansborg and consists of two cloudburst management projects that function independently of each other. The function of both cloudburst management projects is to discharge stormwater directly into Frederiksholm Canal and Copenhagen Harbour.

EFFECT

By implementing the two projects in the cloudburst branch, a high-risk area of 105 ha with 3392 households is cloudburst-proofed.



IB2
Slotsholmen

Location: Slotsholmsgade
Medium potential for urban space improvements
Synergies: Road renovation, cycle paths

Economics alternative: DKK 21.0m
Economics traditional DKK 40.0m

IB5
Naboløs

Location: Naboløs to harbour
Low potential for urban space improvements
Synergies: None known at present

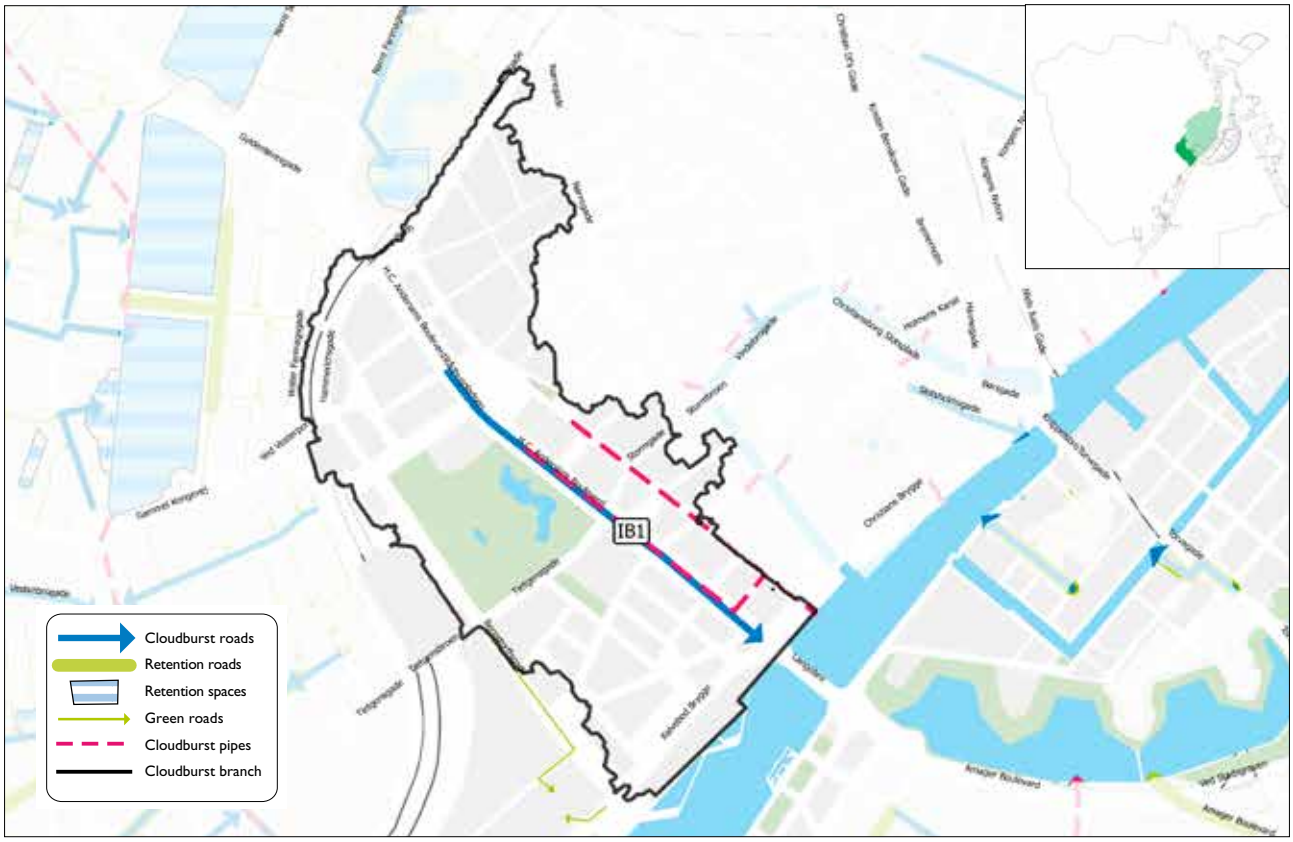
Economics alternative: DKK 4.6m
Economics traditional: DKK 6.0m

INDRE BY SOUTH

AREA 70 HA
HOUSEHOLDS 1409
RISK PROFILE HIGH
NUMBER OF PROJECTS 1

The cloudburst branch Indre By South is located at Rådhuspladsen (Town Hall Square) and consists of one cloudburst management project, which forms a cloudburst management solution for the area shown below. The principal is to discharge water to the harbour via H.C. Andersens Boulevard.

EFFECT
By implementing the two projects in the cloudburst branch, a high-risk area of 70 ha with 1409 households is cloudburst-proofed.



IB1

H. C. Andersens Boulevard

Location: From Jernbanegade to Chr. Brygge
Great potential for urban space improvements
Synergies: Cycle paths, metro building sites, green climate adaptation
Economics alternative: DKK 54.5m
Economics traditional: DKK 97.9m

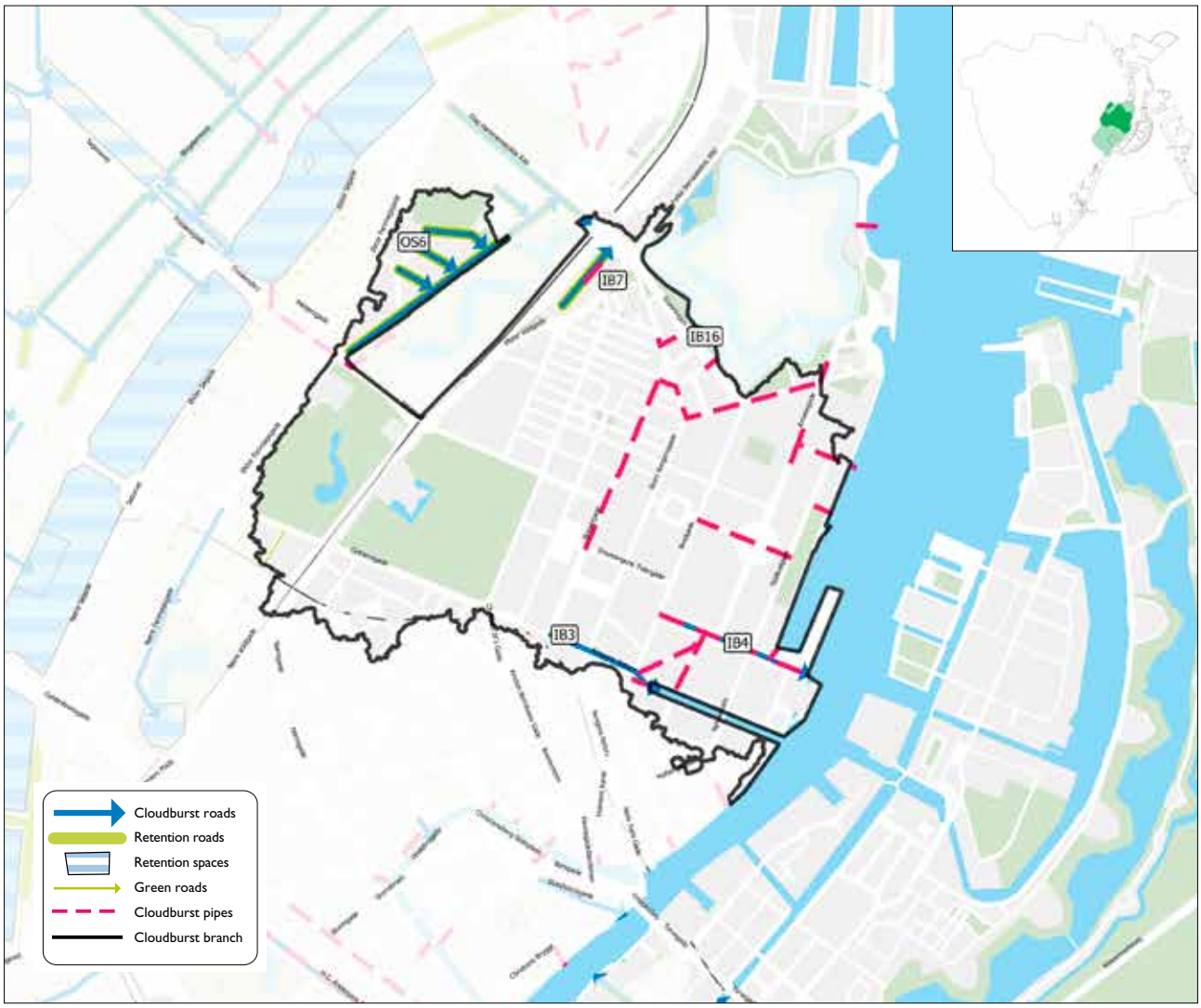
INDRE BY NORTH

AREA 160 HA
HOUSEHOLDS 7339
RISK PROFILE HIGH
NUMBER OF PROJECTS 5

The cloudburst branch Indre By North covers the area between Gothersgade, Kastelet, Stockholmsgade and Copenhagen Harbour and consists of five cloudburst management projects, which together form the cloudburst management solution for the area shown below. The five cloudburst management projects are not directly dependent on each other, but partially drain the same areas. For example, the cloudburst road IB3 Gothersgade ensures that no stormwater flows from Gothersgade into Kronprinsessegade, Bredgade and Store Kongensgade, which would alternatively mean that the cloudburst management solution on Sankt Annæ Plads would have to be expanded to manage even larger volumes of water.

EFFECT

By implementing the two projects in the cloudburst branch, a high-risk area of 160 ha with 7339 households is cloudburst-proofed.



IB3

Gothersgade

Location: At Kongens Nytorv
Medium potential for urban space improvements
Synergies: Cycle paths, metro building sites

Economics alternative: DKK 3.0m
Economics traditional: DKK 30.0m

IB4

Sankt Annæ Plads

Location: Sankt Annæ Plads to harbour
Great potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 45.8m
Economics traditional: DKK 59.5m

OS6

Stockholmsgade

Location: From Lundsgade to Østre Anlæg
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 27.7m
Economics traditional: DKK 39.6m

IB7

Path at Nyboder School

Location: From Oslo Plads to Øster Voldgade
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 3.3m
Economics traditional: DKK 4.4m

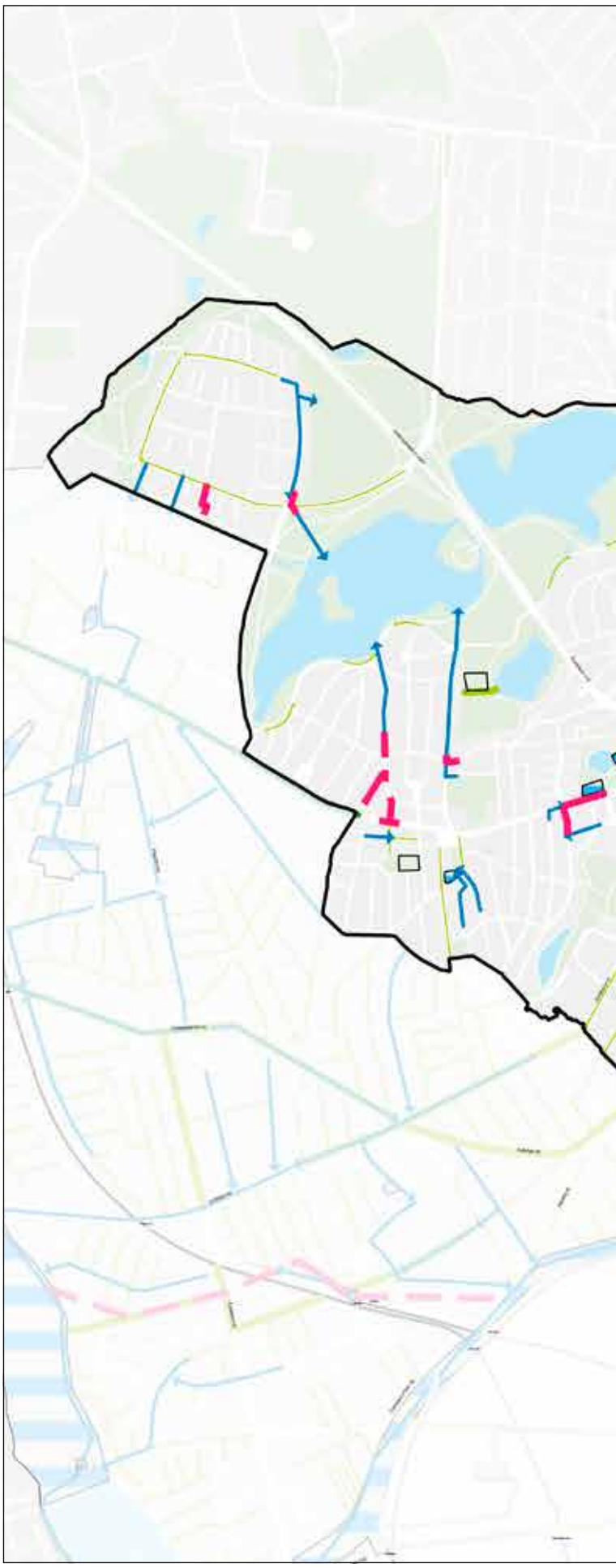
IB16

Treatment Kastelsgraven

Location: At Kastelsgraven
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 2.8m
Economics traditional: DKK 2.8m

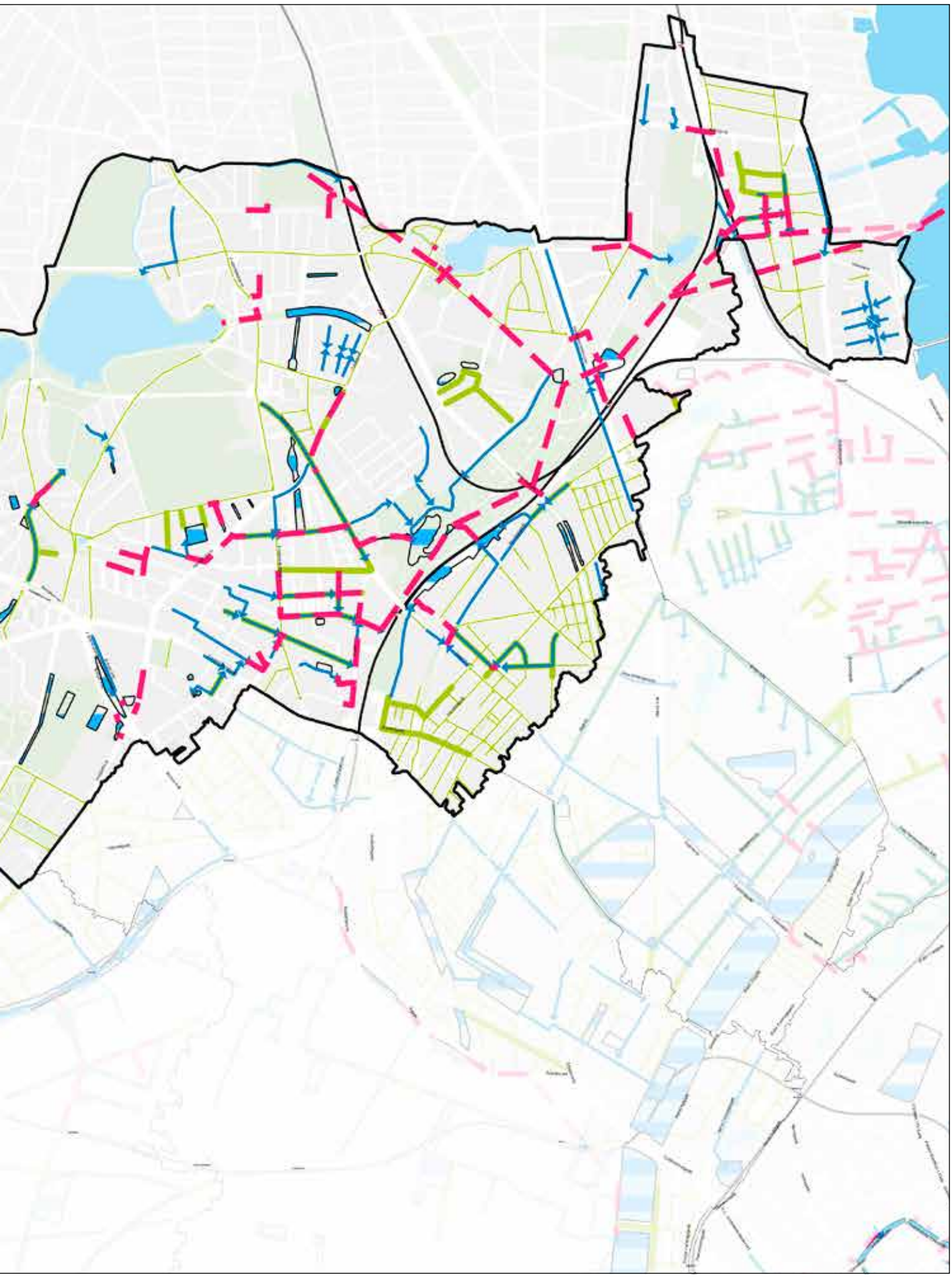
WATER CATCHMENT AREA OF BISPEBJERG, RYPARKEN AND DYSSEGÅRD



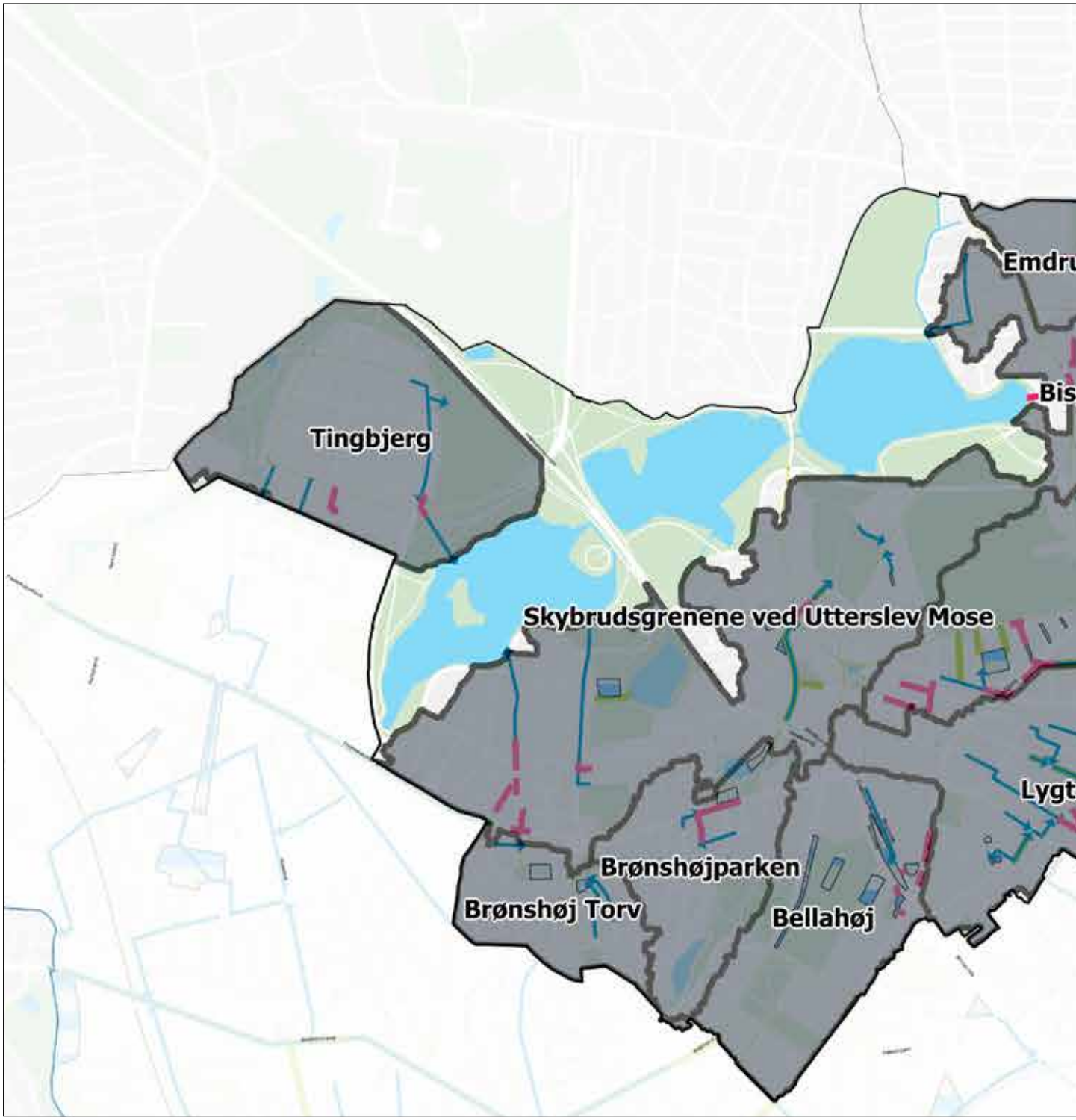
The water catchment area of Bispebjerg, Ryparken and Dyssegård contains 16 cloudburst branches and 65 projects. The water catchment area is characterised by a great height difference between the highest point, Bellahøj, and the low land at Svanemøllen. This means heavy pressure of water on the low-lying areas in the event of torrential downpours, which the present-day infrastructure cannot cope with. The 65 cloudburst management projects are therefore intended to create solutions that retain and store the water upstream, and additionally ensure that there is capacity to convey the water to the harbour downstream.

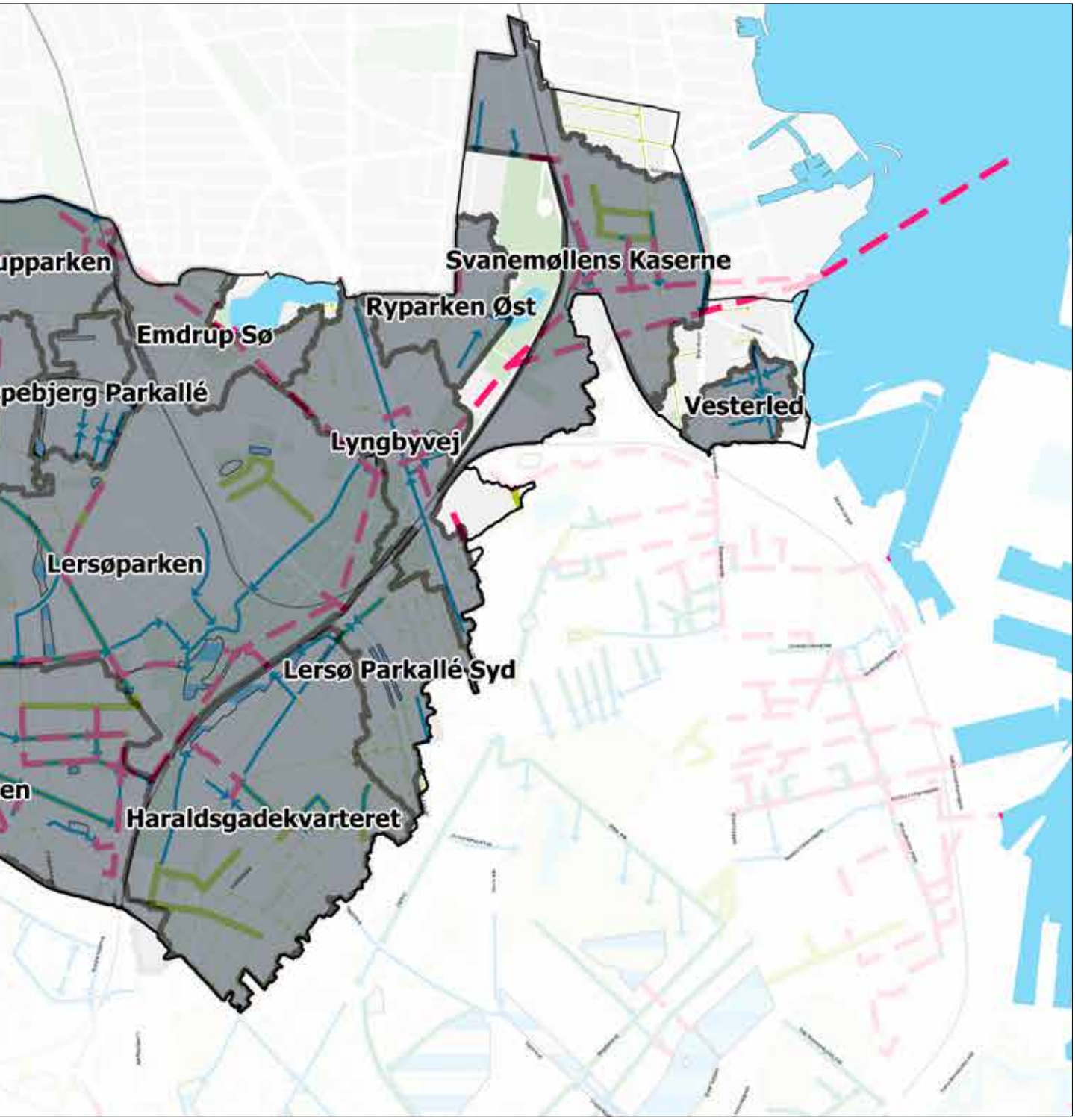
VISION AND STRATEGY: STORAGE AND DRAINING

The water tunnel (the 'Big Y'), which is to carry the water from the Bispebjerg area to the Øresund, is crucial to meeting the cloudburst challenge of the water catchment area. It becomes the hidden stem of the water system, while there will be visible green and blue "leaves" on the stem on the surface that contribute to meeting the challenge. The tunnel is so extensive to design and build that it cannot be ready to carry stormwater until 2021. There is therefore a need to take other initiatives that can help to store and retain the water in the intervening period. The cloudburst management projects will mainly assist towards strengthening local green everyday life with many fewer actions. There is also an opportunity to create a number of notable projects such as renewal of Lersøparken and integration of stormwater management with urban development. This is primarily concerned with business and recreation around the railway land at Bispebjerg Station/Rovsingegade, which can also give a boost to the deprived urban areas.



CLOUDBURST BRANCHES BISPEBJERG, RYPARKEN AND DYSSEGÅRD




upparken
Svanemøllens Kaserne
Ryparken Øst
Emdrup Sø
pebjerg Parkallé
Vesterled
Lyngbyvej
Lersøparken
Lersø Parkallé Syd
en
Haraldsgadekvarteret

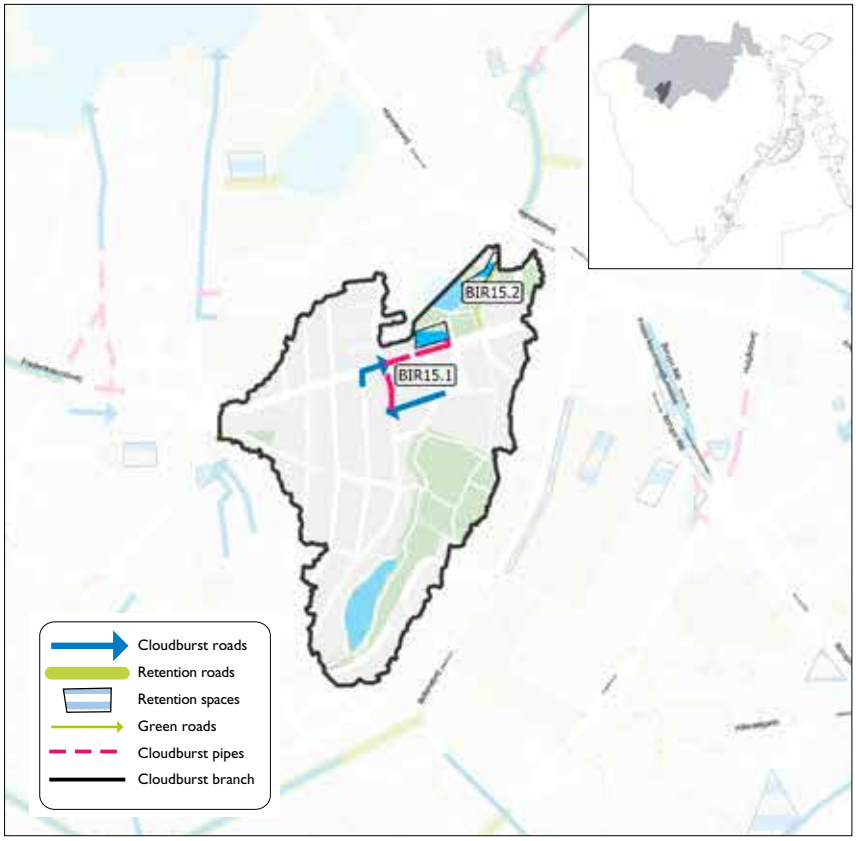
BRØNSHØJPARKEN

AREA 50 HA
HOUSEHOLDS 2119
RISK PROFILE LOW
NUMBER OF PROJECTS 3

The cloudburst branch Brønshøjparken is located at the boundary between Bellahøj and Brønshøj and consists of three cloudburst management projects and a green road, which together form the cloudburst management solution for the area shown below. The backbone of the cloudburst branch is the two retention spaces in Brønshøjparken, which will receive water from parts of Brønshøj and large parts of Bellahøj.

EFFECT

By implementing the three projects in the cloudburst branch, a low-risk area of 50 ha with 2119 households is cloudburst-proofed.



BIR15.1
Svenskelejren

Location: Degnemose Allé, Frederikssundsvej
Medium potential for urban space improvements
Synergies: Road renovation, cycle paths, deprived urban areas
Economics alternative: DKK 9.4m
Economics traditional: DKK 93.7m

BIR15.2
Brønshøjparken

Location: Brønshøjparken
Low potential for urban space improvements
Synergies: Deprived urban area

Economics alternative: DKK 2.8m
Economics traditional: DKK 82.3m

BIR22.1 (included in more than one cloudburst branch)
Green roads, other, Bispebjerg

Location: Bispebjerg, Ryparken and Dyssegård. Great potential for urban space improvements
Synergies: Roads, neighbourhood regeneration, deprived areas, climate adaptation, metro, cycle paths, etc.
Economics alternative: DKK 100.6m
Economics traditional: DKK 120.6m

BIR23 (included in more than one cloudburst branch)
Treatment of disconnected stormwater Bispebjerg

Location: Whole water catchment area
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 38.5m
Economics traditional: DKK 38.5m

VESTERLED

AREA 12 HA
HOUSEHOLDS 301
RISK PROFILE LOW
NUMBER OF PROJECTS 1

The project BIR3.1 Vesterled is the sole project in the cloudburst branch Vesterled, located north of Svanemøllen Station in the area between Strandvejen and Strandpromenaden. The project consists of a demarcated and continuous cloudburst management solution for the area shown below.

EFFECT
By implementing the project in the cloudburst branch, a low-risk area of 12 ha with 301 households is cloudburst-proofed.

BIR3.1
Vesterled

Location: Vesterled
Low potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 10.5m
Economics traditional: DKK 19.4m

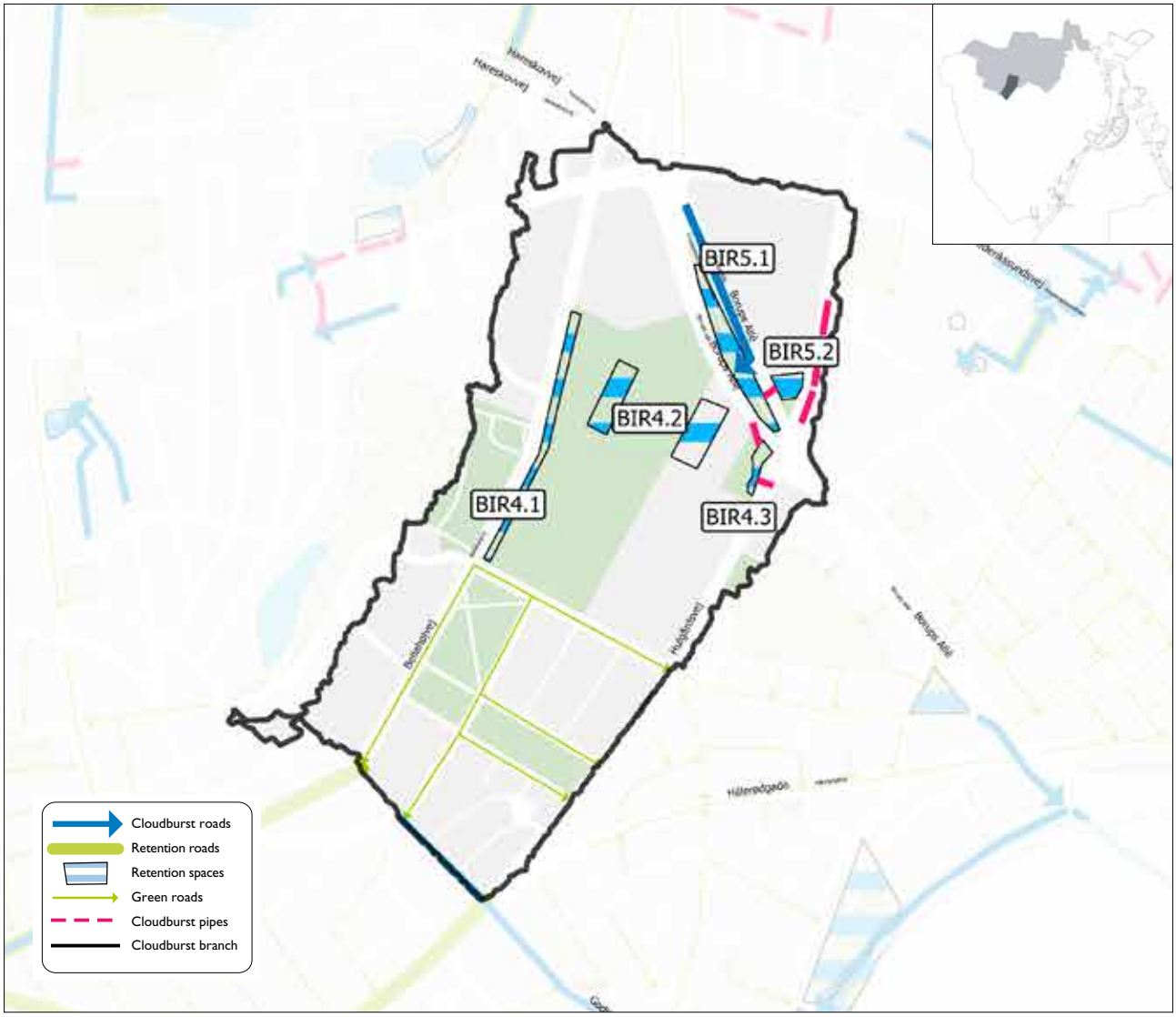
BELLAHØJ

AREA 75 HA
HOUSEHOLDS 1670
RISK PROFILE HIGH
NUMBER OF PROJECTS 5

The cloudburst branch Bellahøj is located on Bellahøj Bakke (Bellahøj Hill) and consists of five cloudburst management projects and a number of green roads, which together form the cloudburst management solution for the area shown below. The core of the cloudburst branch consists of the six retention spaces located on Bellahøj Bakke and along the road tunnel on Borups Allé at Frederikssundsvej. The retention spaces prevent stormwater from Bellahøj Bakke from causing floods in the road tunnel, as well as the areas below Bellahøj Bakke.

EFFECT

By implementing the two projects in the cloudburst branch, a high-risk area of 75 ha with 1670 households is cloudburst-proofed.



BIR4.1

Bellahøjvej

Location: Along Rødkilde Park
Great potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 18.8m
Economics traditional: DKK 238.6m

BIR4.2

Bellahøj Camping

Location: Rødkilde Park
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 34.2m
Economics traditional: DKK 64.7m

BIR4.3

Hulgårdsvej

Location: At Hvidkildevej
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 5.0m
Economics traditional: DKK 57.9m

BIR5.1

Borups Allé

Location: Bellahøj Halerne to Hulgårdsvej. Low potential for urban space improvements
Synergies: Road renovations, metro building sites

Economics alternative: DKK 20.8m
Economics traditional: DKK 280.4m

BIR5.2

Cirkuspladsen Bellahøj

Location: Borups Allé to Hulgårdsvej
Great potential for urban space improvements
Synergies: Neighbourhood regeneration, green climate adaptation, deprived urban areas
Economics alternative: DKK 9.9m
Economics traditional: DKK 86.7m

BIR22.1 (included in more than one cloudburst branch)

Green roads, other Bispebjerg

Location: Bispebjerg, Ryparken and Dyssegård. Great potential for urban space improvements
Synergies: Roads, neighbourhood regeneration, deprived urban areas, climate adaptation, metro, cycle paths, etc.
Economics alternative: DKK 100.6m
Economics traditional: DKK 120.6m

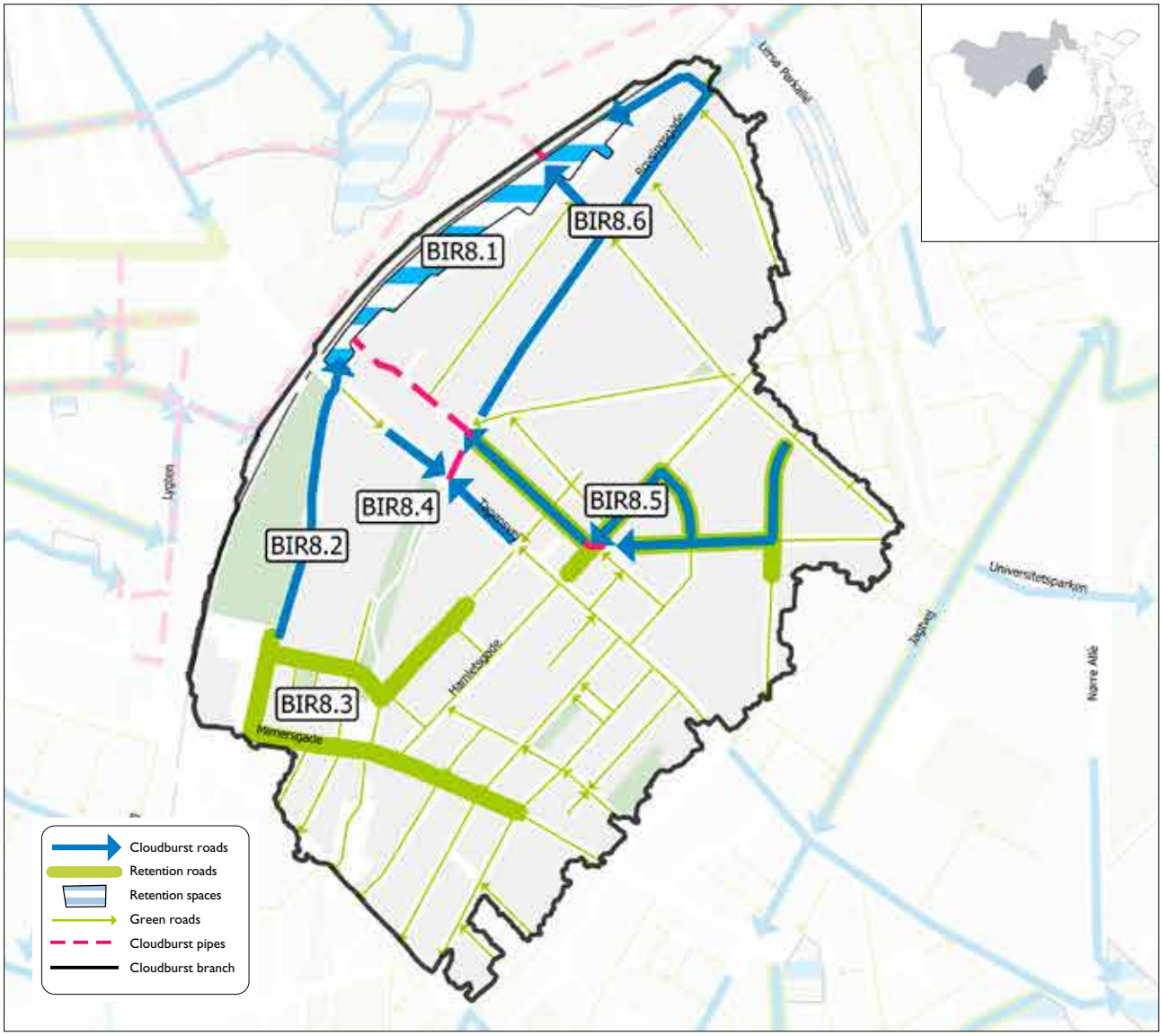
HARALDSGADEKVARTERET

AREA 101 HA
HOUSEHOLDS 8474
RISK PROFILE HIGH
NUMBER OF PROJECTS 6

The cloudburst branch Haraldsgadekvarteret is located east of the railway line between Nørrebro Station and Bispebjerg Station and consists of six cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The key project in the cloudburst branch is a retention space located along the railway line, to which the water from other cloudburst management projects in the cloudburst branch is conveyed.

EFFECT

By implementing the six projects in the cloudburst branch, a high-risk area of 101 ha with 8474 households is cloudburst-proofed.



BIR8.1

Banearealet (railway area)

Location: Bispebjerg Station to Ryparken Station. Great potential for urban space improvements
Synergies: Cycle paths, green climate adaptation, deprived urban areas

Economics alternative: DKK 99.0m
Economics traditional: DKK 1366.5m

BIR8.2

Mjølnerparken

Location: Mjølnerparken
Low potential for urban space improvements
Synergies: Cycle paths, deprived urban areas

Economics alternative: DKK 7.5m
Economics traditional: DKK 7.5m

BIR8.3

Mimersgade

Location: Borgmestervangen and Heimdalsgade. Medium potential for urban space improvements
Synergies: Green climate adaptation, deprived urban areas

Economics alternative: DKK 14.0m
Economics traditional: DKK 23.5m

BIR8.4

Tagensvej South

Location: Rovsingsgade to Haraldsgade
Low potential for urban space improvements
Synergies: Road renovation, deprived urban areas

Economics alternative: DKK 5.3m
Economics traditional: DKK 13.5m

BIR8.5

Sigurdsgade

Location: Sigurdsgade, Titangade, Valkyriegade. Medium potential for urban space improvements
Synergies: Road renovation, metro building sites, green climate adaptation

Economics alternative: DKK 20.4m
Economics traditional: DKK 50.8m

BIR8.6

Rovsingsgade West

Location: Lersø Parkallé to Signynsgade
Great potential for urban space improvements
Synergies: Steam conversion, Road renovation

Economics alternative: DKK 7.7m
Economics traditional: DKK 10.3m

BIR22.1 (included in more than one cloudburst branch)

Green roads, other Bispebjerg

Location: Bispebjerg, Ryparken and Dyssegård. Great potential for urban space improvements
Synergies: Roads, neighbourhood regeneration, deprived urban areas, climate adaptation, metro, cycle paths, etc.
Economics alternative: DKK 100.6m
Economics traditional: DKK 120.6m

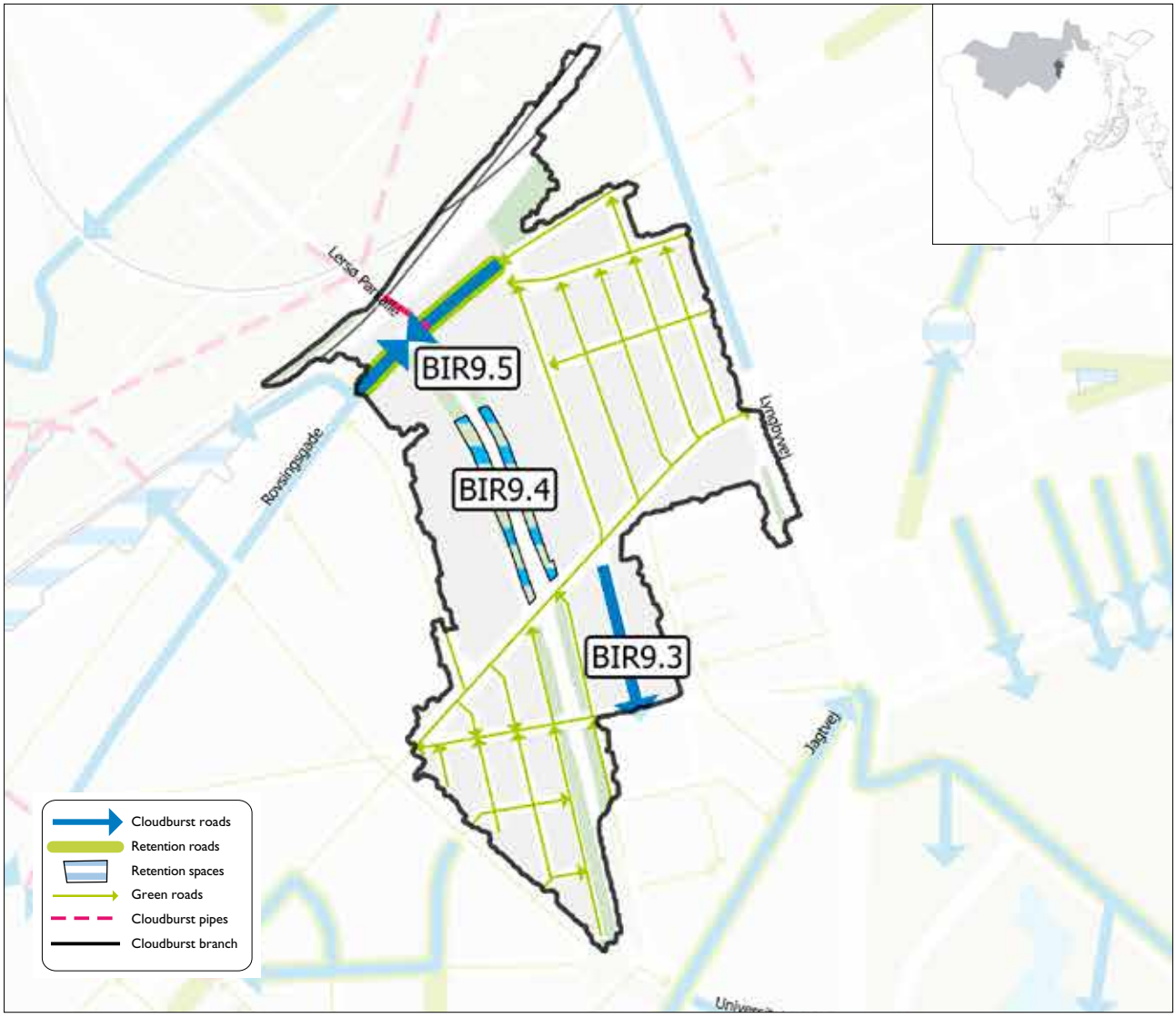
LERSØ PARKALLÉ SOUTH

AREA 31 HA
HOUSEHOLDS 2225
RISK PROFILE HØJ
NUMBER OF PROJECTS 3

The cloudburst branch Lersø Parkallé South is located in the area around the southern part of Lersø Parkallé and consists of three cloudburst management projects and number of green roads, which together form a continuous cloudburst management solution for the area shown below.

EFFECT

By implementing the six projects in the cloudburst branch, a high-risk area of 31 ha with 2225 households is cloudburst-proofed.



BIR9.3

Rønnegade

Location: Rønnegade
Low potential for urban space improvements
Synergies: Steam conversion

Economics alternative: DKK 2.1m
Economics traditional: DKK 3.3m

BIR9.4

Lersø Parkallé South

Location: Along Lersø Park Allé
Low potential for urban space improvements
Synergies: Steam conversion, road renovation, green climate adaptation

Economics alternative: DKK 30.8m
Economics traditional: DKK 330.4m

BIR9.5

Rovsingsgade East

Location: Rovsingsgade
Low potential for urban space improvements
Synergies: Steam conversion, road renovation

Economics alternative: DKK 1.2m
Economics traditional: DKK 4.0m

BIR22.1 (included in more than one cloudburst branch)

Green roads, other Bispebjerg

Location: Bispebjerg, Ryparken and Dyssegård. Great potential for urban space improvements
Synergies: Roads, neighbourhood regeneration, deprived urban areas, climate adaptation, metro, cycle paths, etc.
Economics alternative: DKK 100.6m
Economics traditional: DKK 120.6m

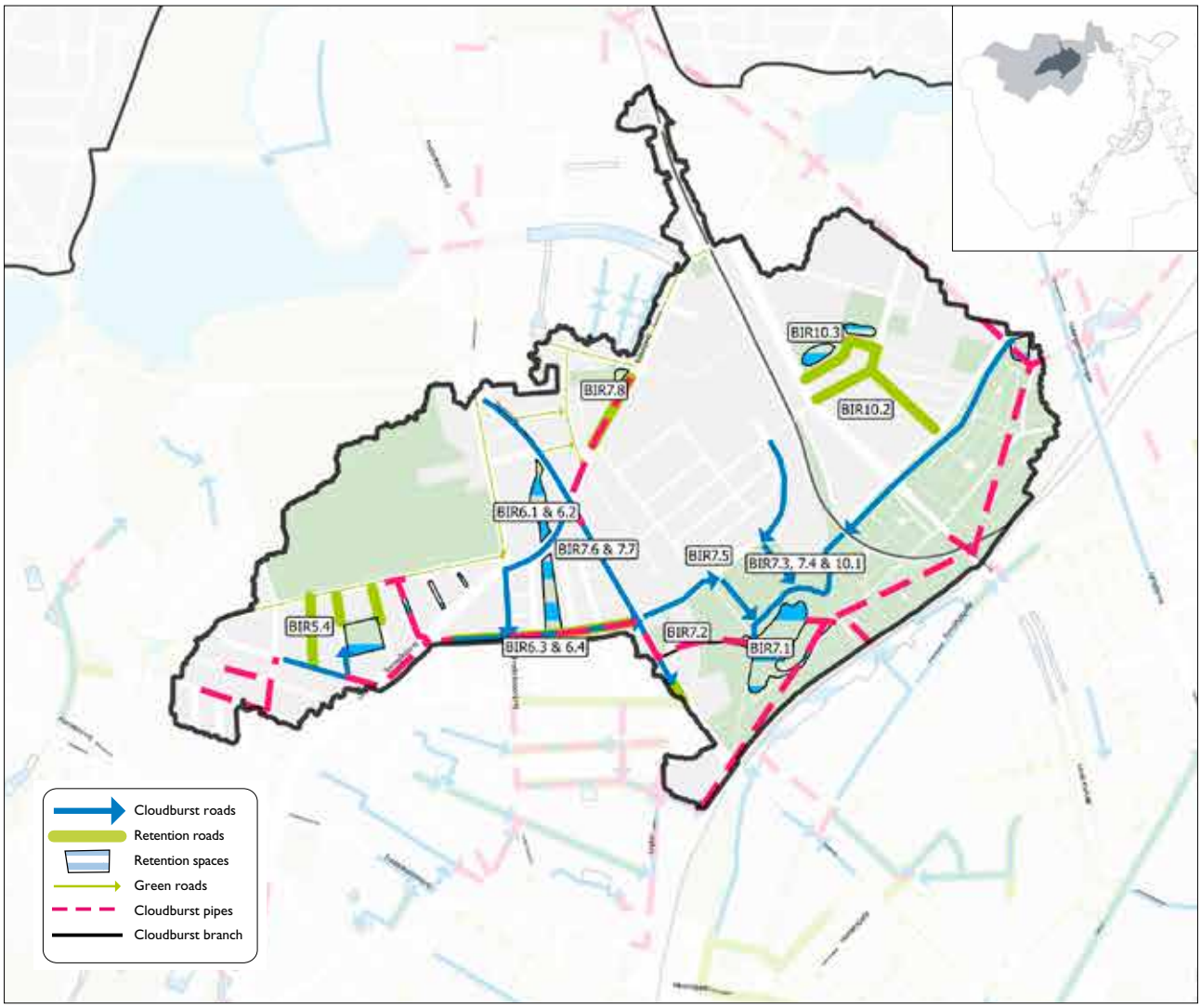
LERSØPARKEN

AREA 205 HA
HOUSEHOLDS 7250
RISK PROFILE HIGH
NUMBER OF PROJECTS 11

The cloudburst branch Lersøparken extends from Lyngbyvej in the east to Utterslev Torv in the west, as well as a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The key project in the cloudburst branch is the retention space BIR7.1 Lersøparken, which collects and retains water from all parts off the cloudburst branch. When the retention capacity in Lersøparken has been used up, the surplus water is carried down in the large cloudburst pipe "The "Big Y", which carries the water further to Svanemøllen Bay. The remaining cloudburst management projects in the cloudburst branch convey the water from the other parts of the cloudburst branch to Lersøparken or retain it locally.

EFFECT

By implementing the 11 projects in the cloudburst branch, a high-risk area of 205 ha with 7250 households is cloudburst-proofed.



BIR5.4
Tomsgårdsvej

Location: Birkedommervej to Hovmestervej. Medium potential for urban space improvements
Synergies: Steam conversion, deprived urban areas

Economics alternative: DKK 36.3m
Economics traditional: DKK 194.4m

BIR6.1 & 6.2
Bispeparken

Location: North and south of Tuborgvej. Great potential for urban space improvements
Synergies: Steam conversion, road renovation, deprived urban areas

Economics alternative: DKK 24.6m
Economics traditional: DKK 335.4m

BIR6.3 & 6.4
Hovmestervej

Location: Tuborgvej, Frederiksborgvej, Tagensvej. Low potential for urban space improvements
Synergies: Steam conversion, green climate adaptation, deprived urban areas

Economics alternative: DKK 9.1m
Economics traditional: DKK 16.0m

BIR7.1
Lersøparken

Location: Lersø Parken
Great potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 91.0m
Economics traditional: DKK 1225.5m

BIR7.2
Lygten Canal

Location: Lersø Parken at Tagensjej
Great potential for urban space improvements
Synergies: None known at present

Economics alternative:DKK 5.0m
Economics traditional: DKK 5.6m

BIR7.3,7.4 & 10.1
Lundehus Kirke (Church)

Location: Lersø Parken
Medium potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 6.0m
Economics traditional: DKK 180.1m

BIR7.5
Bispebjerg Bakke (Hill)

Location: Bispebjerg Bakke
Low potential for urban space improvements
Synergies: Steam conversion, road renovation

Economics alternative: DKK 2.6m
Economics traditional: DKK 8.3m

BIR7.6 & 7.7
Tagensvej North

Location: Frederiksborgvej to Lygten
Medium potential for urban space improvements
Synergies: Steam conversion, road renovation, green climate adaptation

Economics alternative: DKK 21.0m
Economics traditional: DKK 29.9m

BIR7.8
Tuborgvej

Location: Bispebjergej to Tagensvej
Medium potential for urban space improvements
Synergies: Green climate adaptation, green climate adaptation, urban areas

Economics alternative: DKK 12.0m
Economics traditional: DKK 140.0m

BIR10.2
Fruebjergvej

Location: Fruebjergvej, Mårumvej, Gribskovvej
Low potential for urban space improvements
Synergies: Steam conversion

Economics alternative: DKK 3.6m
Economics traditional: DKK 11.9m

BIR10.3
Lundehus skole

Location: green spaces at Lundehus skole
Low potential for urban space improvements
Synergies: Steam conversion

Economics alternative: DKK 19.0m
Economics traditional: DKK 239.5m

BIR22.1 (included in more than one cloudburst branch)
Green roads, other Bispebjerg

Location: Bispebjerg, Ryparken and Dyssegård. Great potential for urban space improvements
Synergies: Roads, neighbourhood regeneration, deprived urban areas, climate adaptation, metro, cycle paths, etc.
Economics alternative: DKK 100.6m
Economics traditional: DKK 120.6m

LYNGBYVEJ

AREA 45 HA
HOUSEHOLDS 1581
RISK PROFILE HIGH
NUMBER OF PROJECTS 2

The cloudburst branch Lyngbyvej is located as an oblong corridor alongside Lyngbyvej from Haraldsgade in the south to Emdrup Sø in the north. The cloudburst branch consists of two projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The key project in the cloudburst branch is a retention space and the cloudburst pipe BIR11.1 Ryparken, which ensures that the water floods Lyngbyvej, is discharged across the road and into the green area north of Ryparken Station, where a retention space is constructed. When the capacity in the retention space is exceeded, the surplus water is conveyed down into the large cloudburst pipe, the "Big Y", which takes the water onward to Svanemøllen Bay.

EFFECT

By implementing the six projects in the cloudburst branch, a high-risk area of 45 ha with 1581 households is cloudburst-proofed.

BIR11.1 & 11.2
Ryparken

Location: Ryparken at Lyngbyvej
Great potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 32.0m
Economics traditional: DKK 265.7m

BIR22.1 (included in more than one cloudburst branch)
Green roads, other Bispebjerg

Location: Bispebjerg, Ryparken and Dyssegård. Great potential for urban space improvements
Synergies: Roads, neighbourhood regeneration, deprived urban areas, climate adaptation, metro, cycle paths, etc.
Economics alternative: DKK 100.6m
Economics traditional: DKK 120.6m

BIR23 (included in more than one cloudburst branch)
Treatment of disconnected stormwater Bispebjerg

Location: Whole water catchment area
Low potential for urban space improvements
Synergies: None known at present

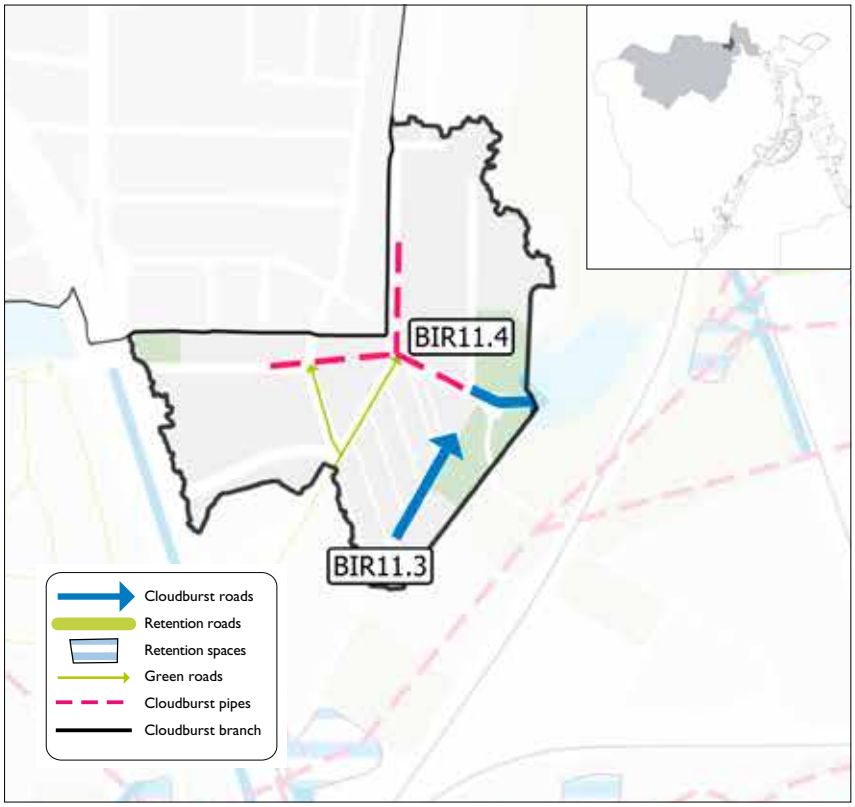
Economics alternative: DKK 38.5m
Economics traditional: DKK 38.5m

RYPARKEN EAST

AREA 20 HA
HOUSEHOLDS 1025
RISK PROFILE HIGH
NUMBER OF PROJECTS 3

The cloudburst branch Ryparken East is located in the area between Lyngbyvej and Ryparken Nature Park, and consists of three cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The solution for the floods in the cloudburst branch is to convey the stormwater into Ryparken Nature Park, where it is treated before being discharged.

EFFECT
By implementing the three projects in the cloudburst branch, a high-risk area of 20 ha with 1025 households is cloudburst-proofed.



BIR11.3
Ryparken sports facility

Location: Ryparken at the sports facility
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 0.9m
Economics traditional: DKK 2.7m

BIR11.4
Ryparken East

Location: Ryparken
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 3.9m
Economics traditional: DKK 4.5m

BIR22.1 (included in more than one cloudburst branch)
Green roads, other Bispebjerg

Location: Bispebjerg, Ryparken and Dyssegård. Great potential for urban space improvements
Synergies: Roads, neighbourhood regeneration, deprived urban areas, climate adaptation, metro, cycle paths, etc.
Economics alternative: DKK 100.6m
Economics traditional: DKK 120.6m

BIR23 (included in more than one cloudburst branch)
Treatment of disconnected stormwater Bispebjerg

Location: Whole water catchment area
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 38.5m
Economics traditional: DKK 38.5m

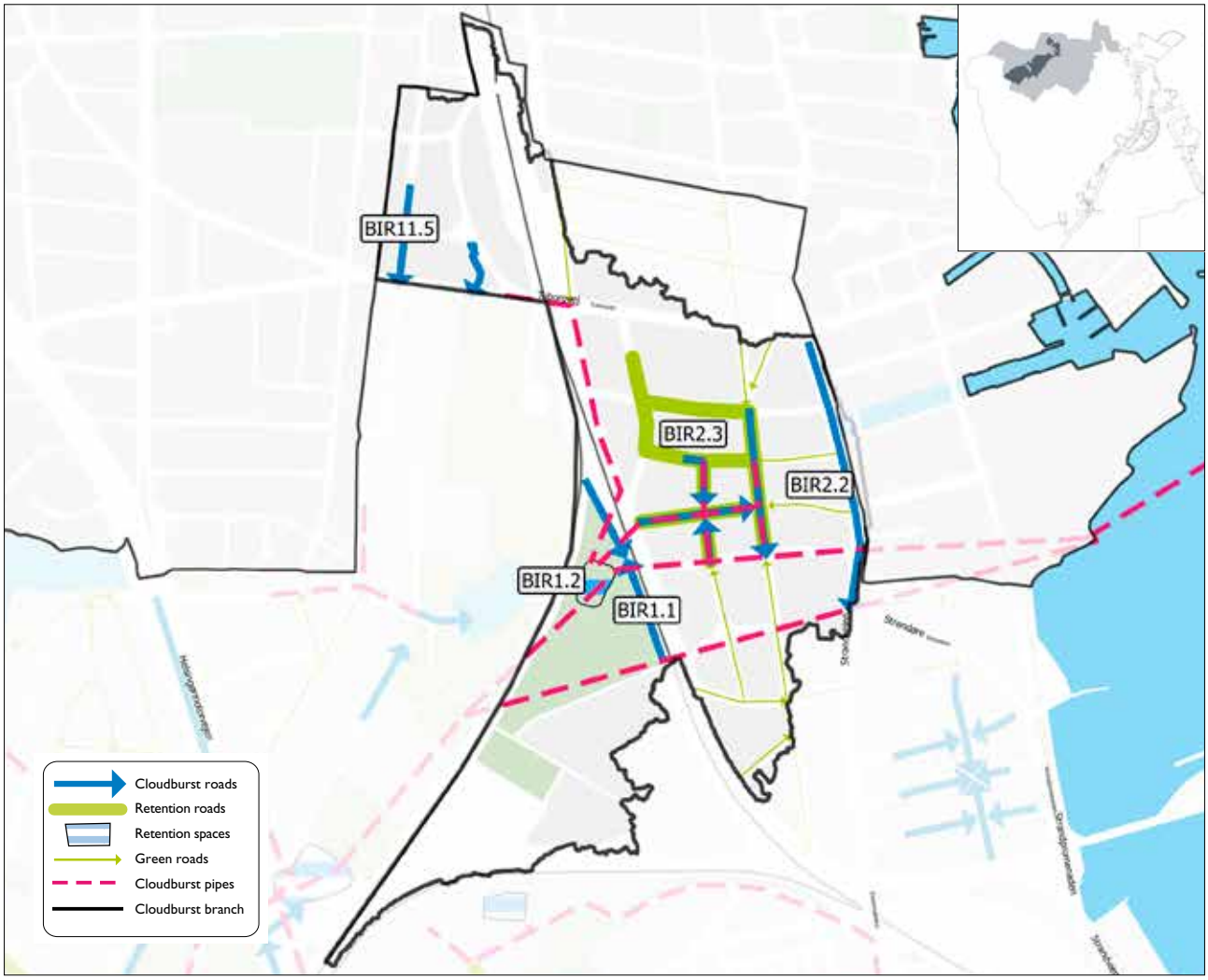
SVANEMØLLENS KASERNE

AREA 75 HA
HOUSEHOLDS 1188
RISK PROFILE HIGH
NUMBER OF PROJECTS 5

The cloudburst branch Svanemøllens Kaserne extends from Hellerup Station in the north to Svanemøllen Kaserne (Svanemøllen Barracks) in the south, and consists of five projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The core of the cloudburst branch is the retention space BIR1.2 Svanemøllens Kaserne North, which collects stormwater from the rest of the cloudburst branch. When the capacity of the retention space is exceeded, the surplus water is carried down into the large cloudburst pipe, the "Big Y", which takes the water onward to Svanemøllen Bay. The remaining projects in the cloudburst ranch collect the water and convey it to BIR1.2 Svanemøllen Kaserne North.

EFFECT

By implementing the five projects in the cloudburst branch, a high-risk area of 75 ha with 1188 households is cloudburst-proofed.



BIR1.1

Svanemøllens Kaserne

Location: Along the railway line
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 0.4m
Economics traditional: DKK 11.9m

BIR1.2

Svanemøllens Kaserne North

Location: Sports field on the barracks site. Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 33.7m
Economics traditional: DKK 67.0m

BIR2.2

Strandvejen

Location: Tuborgvej to Strandøre
Low potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 2.7m
Economics traditional: DKK 8.5m

BIR2.3

Vestagervej

Location: Vestagervej and adjoining roads. Medium potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 23.5m
Economics traditional: DKK 24.4m

BIR11.5

Rebekkavej

Location: Rebekkavej
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 3.2m
Economics traditional: DKK 10.7m

BIR22.1 (included in more than one cloudburst branch)

Green roads, other Bispebjerg

Location: Bispebjerg, Ryparken and Dyssegård. Great potential for urban space improvements
Synergies: Roads, neighbourhood regeneration, deprived urban areas, climate adaptation, metro, cycle paths, etc.
Economics alternative: DKK 100.6m
Economics traditional: DKK 120.6m

TINGBJERG

AREA 94 HA
HOUSEHOLDS 2589
RISK PROFILE LOW
NUMBER OF PROJECTS 2

The cloudburst branch Tingberg is located at the western end of the water catchment area, where it covers the whole of Tingberg and consists of two cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The principal aim of the cloudburst branch is to discharge the stormwater into the fortress canal and Utterslev Mose, after it has been treated.

EFFECT

By implementing the two projects in the cloudburst branch, a low-risk area of 94 ha with 2589 households is cloudburst-proofed.

BIR12.1 & 12.3
Tingbjerg

Location: Tingbjerg
Medium potential for urban space improvements
Synergies: Road renovation, green climate adaptation, deprived urban areas

Economics alternative: DKK 10.8m
Economics traditional: DKK 16.0m

BIR22.1 (included in more than one cloudburst branch)
Green roads, other Bispebjerg

Location: Bispebjerg, Ryparken and Dyssegård. Great potential for urban space improvements
Synergies: Roads, neighbourhood regeneration, deprived urban areas, climate adaptation, metro, cycle paths, etc.
Economics alternative: DKK 100.6m
Economics traditional: DKK 120.6m

BIR23 (included in more than one cloudburst branch)
Treatment of disconnected stormwater Bispebjerg

Location: Whole water catchment area
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 38.5m
Economics traditional: DKK 38.5m

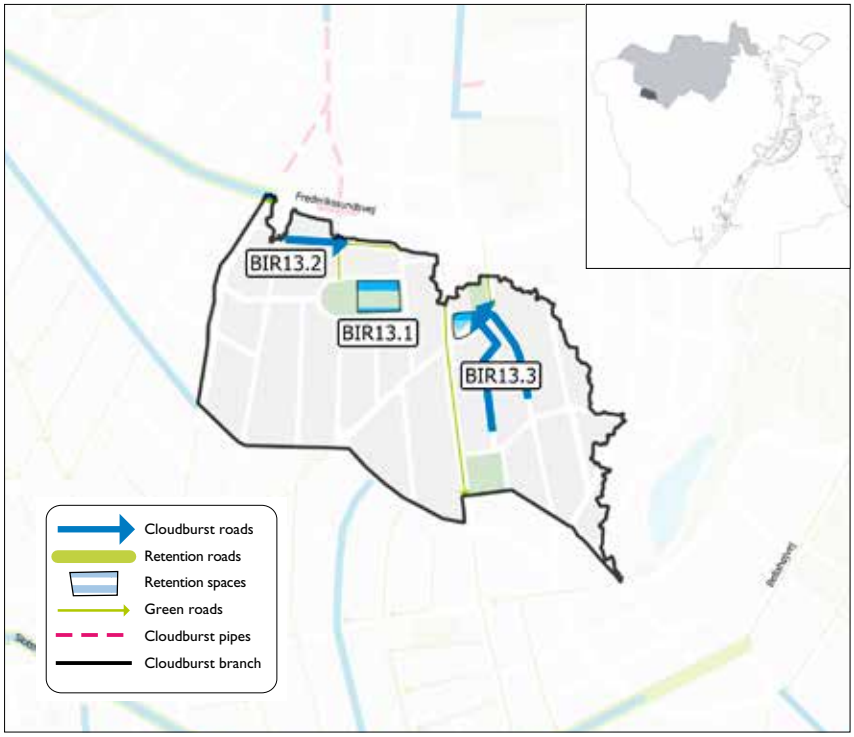
BRØNSHØJ TORV

AREA 33 HA
HOUSEHOLDS 1244
RISK PROFILE LOW
NUMBER OF PROJECTS 3

The cloudburst branch Brønshøj Torv covers a small area of Brønshøj and extends from Svend Ganges Vej in the east to Havdrup Vest in the west, bounded by Federiksundsvej in the north and Sonnerupvej in the south. The cloudburst branch consists of three cloudburst management projects and a handful of green roads, which together form a continuous cloudburst management solution for the area shown below. The three projects are not directly connected to each other, but drain overlapping areas, and are therefore indirectly dependent on each other. It is thus most appropriate, according to the effect calculations, to regard the three projects as a combined solution for the cloudburst branch.

EFFECT

By implementing the three projects in the cloudburst branch, a low-risk area of 33 ha with 1244 households is cloudburst-proofed.



BIR13.1
Brønshøj Skole (School)

Location: Brønshøj School
Medium potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 1.7m
Economics traditional: DKK 172.4m

BIR13.2
Nordfeldvej

Location: Astrupvej to Klintholmvej
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 0.6m
Economics traditional: DKK 0.9m

BIR13.3
Brønshøj Gadekær

Location: Engelholmvej and Sparresholmvej. Medium potential for urban space improvements
Synergies: Road renovation, cycle paths, green climate adaptation

Economics alternative: DKK 9.1m
Economics traditional: DKK 112.5m

BIR22.1 (included in more than one cloudburst branch)
Green roads, other Bispebjerg

Location: Bispebjerg, Ryparken and Dyssegård. Great potential for urban space improvements
Synergies: Roads, neighbourhood regeneration, deprived urban areas, climate adaptation, metro, cycle paths, etc.
Economics alternative: DKK 100.6m
Economics traditional: DKK 120.6m

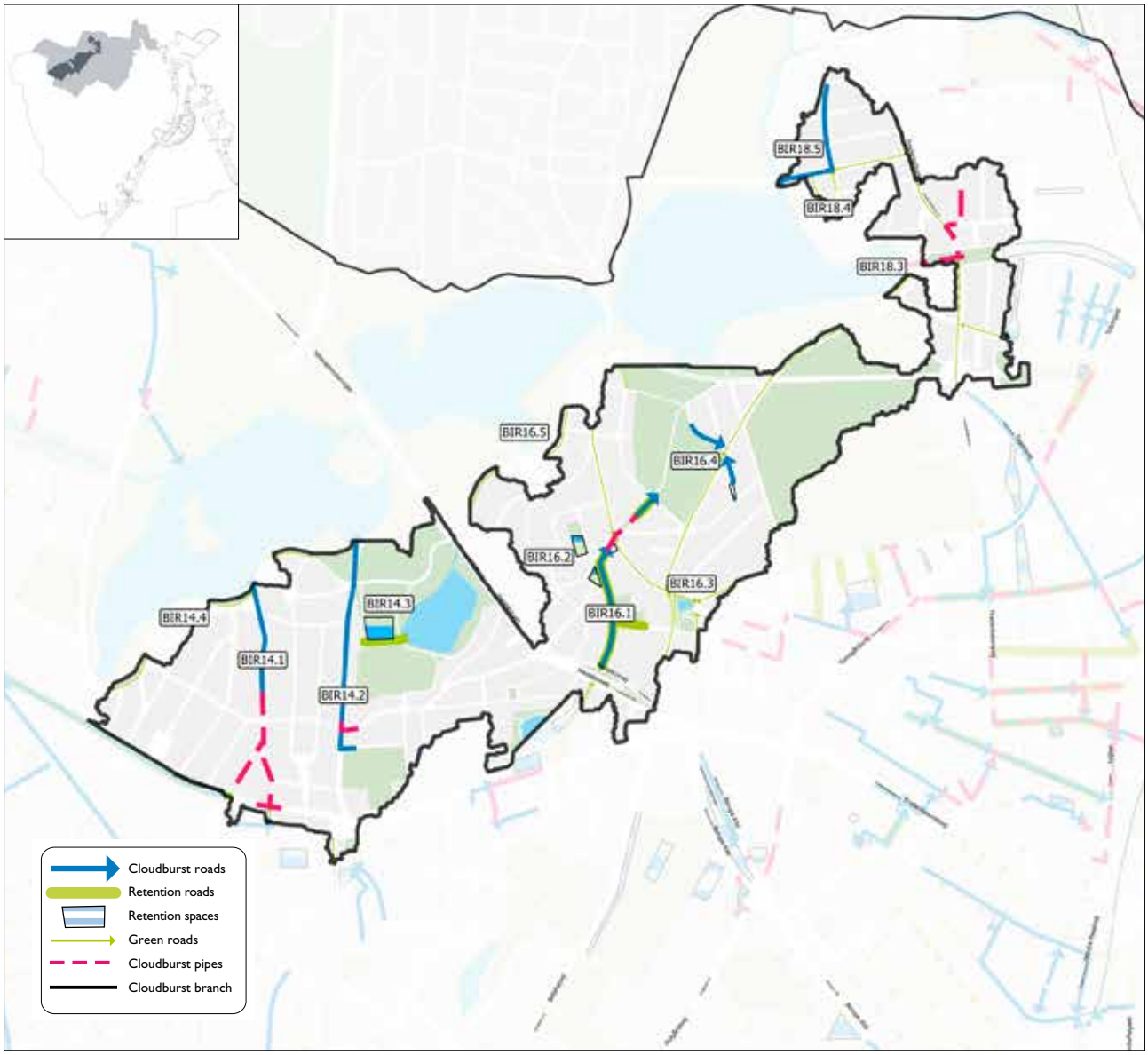
UTTERSLEV MOSE

AREA 208 HA
HOUSEHOLDS 4797
RISK PROFILE LOW
NUMBER OF PROJECTS 13

The 13 cloudburst management projects in the area around Utterslev Mose and Utterslev Torv are not directly dependent on each other, as they all discharge directly to Utterslev Mose and the pond at Utterslev Torv. But as many of the projects receive water from overlapping areas, they are indirectly dependent on each other's implementation, and it is therefore most appropriate, according to the effect calculations, to regard the 13 projects as a combined solution for the area around Utterslev Mose.

EFFECT

By implementing the 13 projects in the cloudburst branch, a low-risk area of 208 ha with 4797 households is cloudburst-proofed.



BIR14.1

Præstegårds Allé

Location: Præstegårds Allé
Low potential for urban space improvements
Synergies: Cycle paths

Economics alternative: DKK 15.9m
Economics traditional: DKK 19.3m

BIR14.2

Brønshøj Kirkevej

Location: Kirketoften to Pilesvinget
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 7.5m
Economics traditional: DKK 12.6m

BIR14.3

Kirkemosen

Location: Kirkemosen
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 4.3m
Economics traditional: DKK 138.1m

BIR14.4

Pilesvinget

Location:
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 1.9m
Economics traditional: DKK 4.8m

BIR16.1

Hyrdevangen

Location: Hareskovvej to Engsvinget
Low potential for urban space improvements
Synergies: Cycle paths

Economics alternative: DKK 15.9m
Economics traditional: DKK 52.4m

BIR16.2

Enemærket

Location: Green space along Enemærket. Medium potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 1.8m
Economics traditional: DKK 64.2m

BIR16.3

Utterslev Torv

Location: Utterslev Torv
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 0.007m
Economics traditional: DKK 0.637m

BIR16.4

Ørevadsvej

Location: Ørevadsvej and Folevadsvej
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 1.7m
Economics traditional: DKK 24.7m

BIR16.5

Mosesvinget

Location: Along Mosesvinget and Engsvinget. Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 0.05m
Economics traditional: DKK 3.50m

BIR18.3

Rådvadsvej

Location: Along Rådvasdsvej
Low potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 0.02m
Economics traditional: DKK 1.91m

BIR18.4

Engblommevej

Location: Along Engblommevej, etc.
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 0.01m
Economics traditional: DKK 0.94m

BIR18.5

Grønnemose Allé

Location: Engblommevej and Grønnemose Allé
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 3.0m
Economics traditional: DKK 6.6m

BIR22.1 (included in more than one cloudburst branch)

Green roads, other Bispebjerg

Location: Bispebjerg, Ryparken and Dyssegård. Great potential for urban space improvements
Synergies: Roads, neighbourhood regeneration, deprived urban areas, climate adaptation, metro, cycle paths, etc.
Economics alternative: DKK 100.6m
Economics traditional: DKK 120.6m

BIR23 (included in more than one cloudburst branch)

Treatment of disconnected stormwater Bispebjerg

Location: Whole water catchment area
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 38.5m
Economics traditional: DKK 38.5m

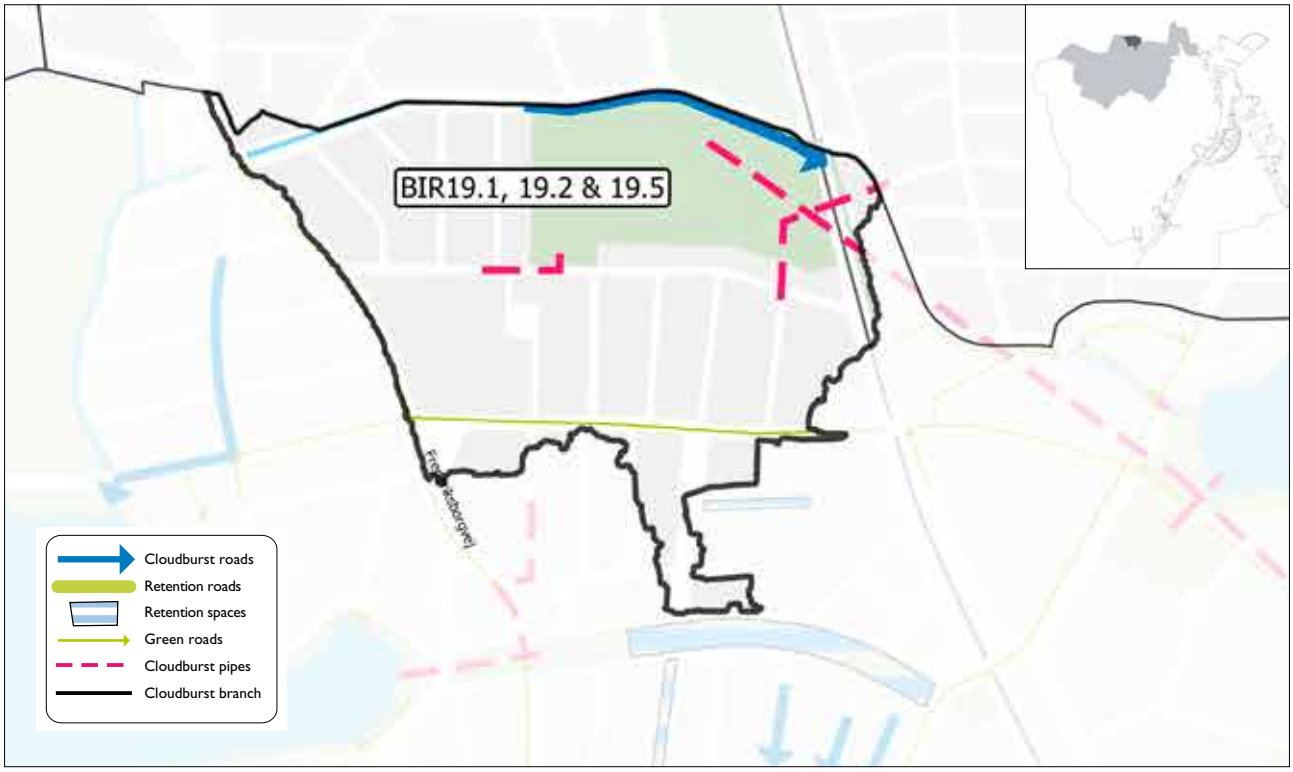
EMDRUPPARKEN

AREA 37 HA
HOUSEHOLDS 678
RISK PROFILE LOW
NUMBER OF PROJECTS 1

The cloudburst branch Emdrupparken is located at the northern end of the City of Copenhagen municipality towards the Municipality of Gentofte, and consists of the cloudburst management project BIR19.1, 19.2 & 19.5 Emdrupparken and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The principal aim of the cloudburst branch is to establish an embankment along Søborghusrenden to prevent water from Søborghusrenden and Gentofterenden from flooding Emdrup Park and the nearby areas during torrential downpours.

EFFECT

By implementing the project in the cloudburst branch, a low-risk area of 37 ha with 678 households is cloudburst-proofed.



BIR19.1,19.2 & 19.5

Emdrupparken

Location: Beneath Nøkkerosevej
Medium potential for urban space improvements
Synergies: Cycle paths

Economics alternative: DKK 16.5m
Economics traditional: DKK 16.5m

BIR22.1 (included in more than one cloudburst branch)

Green roads, other Bispebjerg

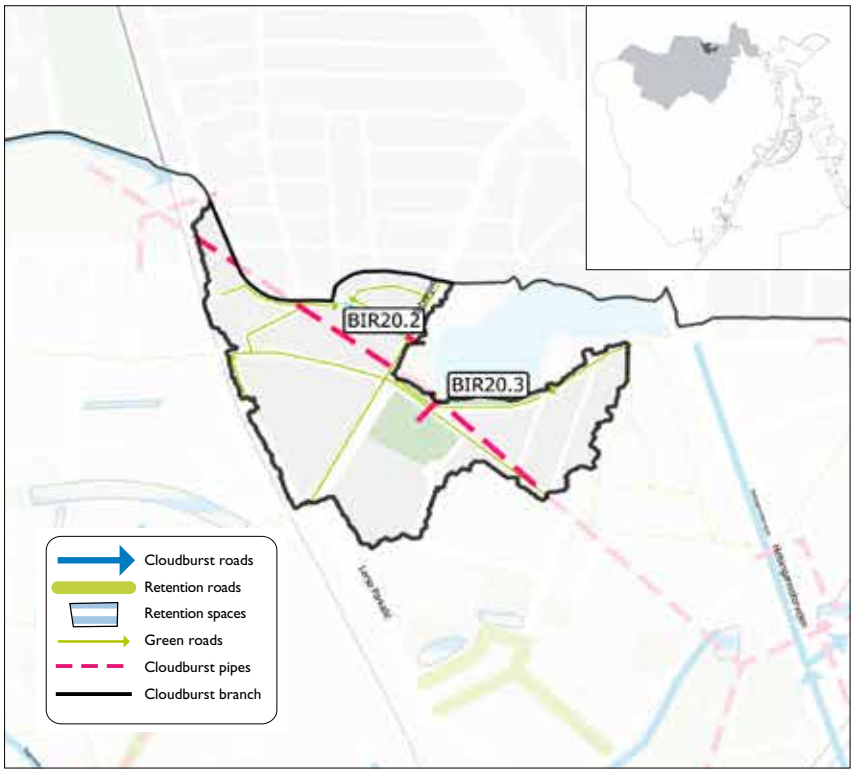
Location: Bispebjerg, Ryparken and Dyssegård. Great potential for urban space improvements
Synergies: Roads, neighbourhood regeneration, deprived urban areas, climate adaptation, metro, cycle paths, etc.
Economics alternative: DKK 100.6m
Economics traditional: DKK 120.6m

EMDRUP SØ

AREA 26 HA
HOUSEHOLDS 737
RISK PROFILE LOW
NUMBER OF PROJECTS 3

The cloudburst branch Emdrup Sø is located south-west of the lake of Emdrup Sø and consists of three cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The principal aim of the cloudburst branch is to form natural dips in the grass between Emdrup Sø and the adjoining roads, so that stormwater from the roads can be discharged into Emdrup Sø, where it is treated before being discharged.

EFFECT
By implementing the three projects in the cloudburst branch, a low-risk area of 26 ha with 737 households is cloudburst-proofed.



BIR20.3
Emdrup Sø

Location: South-eastern end of Emdrup Sø. Low potential for urban space improvements
Synergies: Cycle paths

Economics alternative: DKK 0.02m
Economics traditional: DKK 1.60m

BIR20.2
Søborghusrenden/Tuborgvej

Location: Western end of Emdrup Sø Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 0.4m
Economics traditional: DKK 0.4m

BIR22.1 (included in more than one cloudburst branch)
Green roads, other Bispebjerg

Location: Bispebjerg, Ryparken and Dyssegård. Great potential for urban space improvements
Synergies: Roads, neighbourhood regeneration, deprived urban areas, climate adaptation, metro, cycle paths, etc.
Economics alternative: DKK 100.6m
Economics traditional: DKK 120.6m

BIR23 (included in more than one cloudburst branch)
Treatment of disconnected stormwater Bispebjerg

Location: Whole water catchment area Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 38.5m
Economics traditional: DKK 38.5m

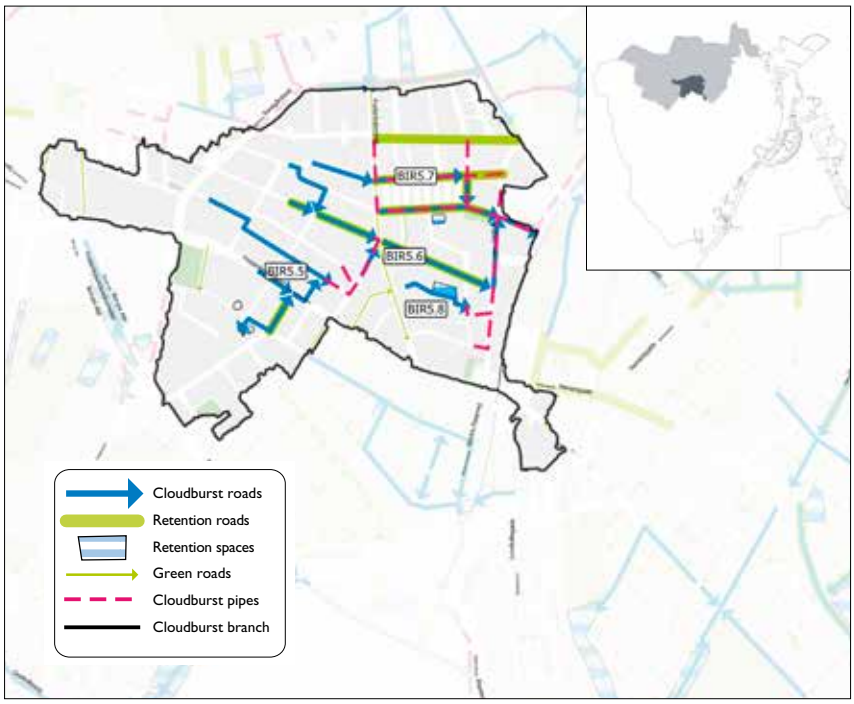
LYGTEN

AREA 112 HA
HOUSEHOLDS 10192
RISK PROFILE HIGH
NUMBER OF PROJECTS 4

The cloudburst branch Lygten extends from Nørrebro Station and Lygten in the east to Tomsgårdsvej and Utterslev Torv in the west. The cloudburst branch consists of four cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst branch is a widely branched network of combined cloudburst and retention roads, which collect the water from the other parts of the cloudburst branch and convey it down to the cloudburst pipe the "Big Y" which starts southwest of Bispebjerg Station. From here, the water is discharged directly into Svanemøllen Bay through the cloudburst pipe.

EFFECT

By implementing the four projects in the cloudburst branch, a high-risk area of 112 ha with 10,192 households is cloudburst-proofed.



BIR5.5
Fuglekvarteret West

Location: Ørnevej to Rentemestervej
Great potential for urban space improvements
Synergies: Road renovation, cycle paths, green climate adaptation, deprived urban area
Economics alternative: DKK 19.8m
Economics traditional: DKK 135.0m

BIR5.6
Rentemestervej

Location: Peter Ipsens Alleé to Lygten
Great potential for urban space improvements
Synergies: Road renovation, cycle paths, Green climate adaptation, deprived urban areas
Economics alternative: DKK 19.2m
Economics traditional: DKK24.7m

BIR5.7
Dortheavej

Location: Oldermandsvej and Bisidervej
Medium potential for urban space improvements
Synergies: Steam conversion, green climate adaptation, deprived urban areas

Economics alternative: DKK 29.2m
Economics traditional: DKK 83.3m

BIR5.8
Lygten

Location: Rebslafervej, Emaljehaven Park
Medium potential for urban space improvements
Synergies: Deprived urban areas

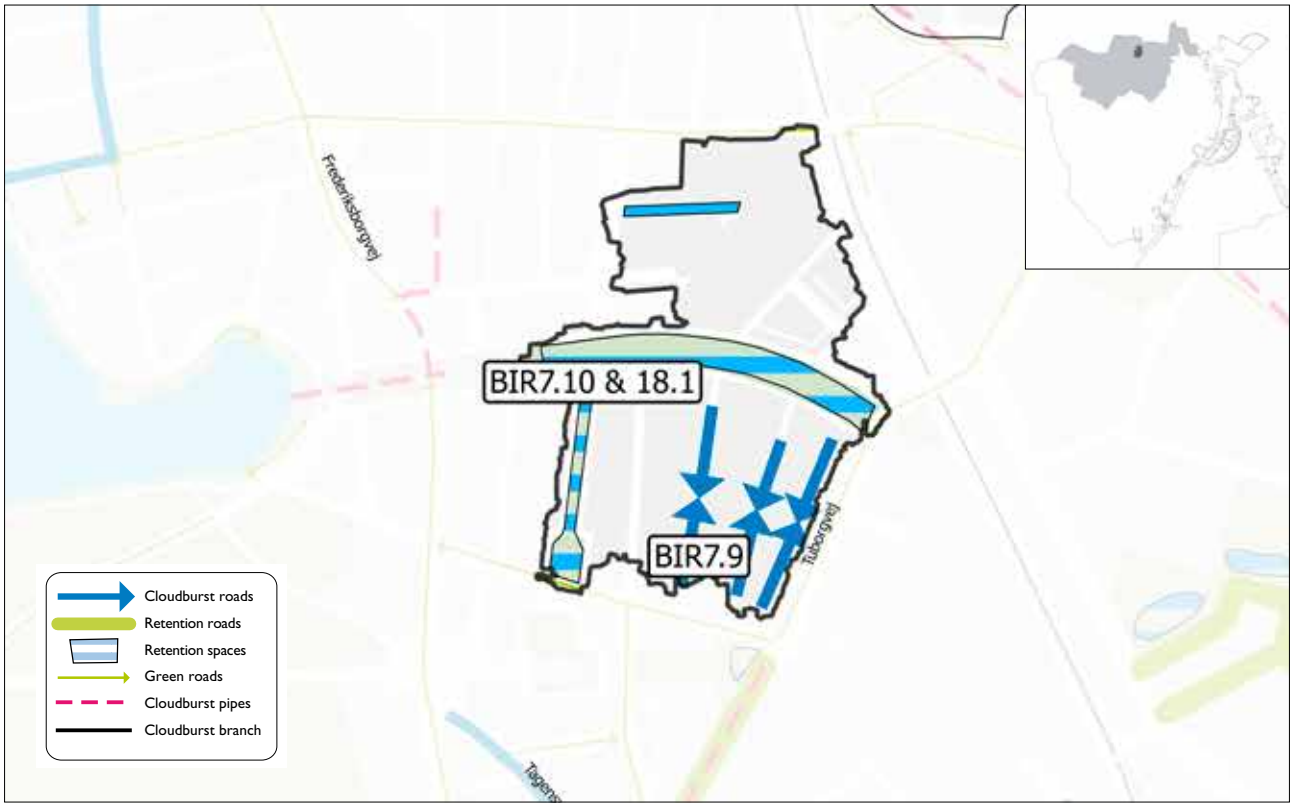
Economics alternative: DKK 14.8m
Economics traditional: DKK 95.1m

BISPEBJERG PARKALLÉ

AREA 18 HA
HOUSEHOLDS 930
RISK PROFILE LOW
NUMBER OF PROJECTS 3

The cloudburst branch Bispebjerg Parkallé covers an area along Bispebjerg Parkallé, as well as the area south of this. The cloudburst branch consists of three cloudburst management projects, which together form a continuous cloudburst management solution for the area shown below. The central project in the cloudburst branch is a large retention space which is located in the green area in the middle of Bispebjerg Parkallé.

EFFECT
By implementing the three projects in the cloudburst branch, a low-risk area of 18 ha with 930 households is cloudburst-proofed.



BIR7.9
Pernillevej

Location: Pernillevej, Magdelonevej
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 3.9m
Economics traditional: DKK 6.1m

BIR7.10 & 18.1
Bispebjerg Parkallé

Location: Bispebjerg Parkallé, Jeppes Allé
Medium potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 12.5m
Economics traditional: DKK 349.2m

BIR19.4
Kantorparken

Location: Emdrupvej, Bispebjerg Parkallé
Medium potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 1.6m
Economics traditional: DKK 38.0m

WATER CATCHMENT AREA OF AMAGER AND CHRISTIANSHAVN

This water catchment area contains 12 cloudburst branches and 60 cloudburst management projects. Amager is low-lying and is very flat. During torrential downpours it is therefore difficult for the water to escape, which causes flooding in many places, for example on Amagerbrogade, which was affected during the torrential rains in 2011. The water catchment area is notable for having good access to the sea. The cloudburst branches therefore discharge on the eastern side of the water catchment area to the sea, either directly or through underground pipes. On the western side, the water is discharged to Copenhagen Harbour and Stadsgraven.

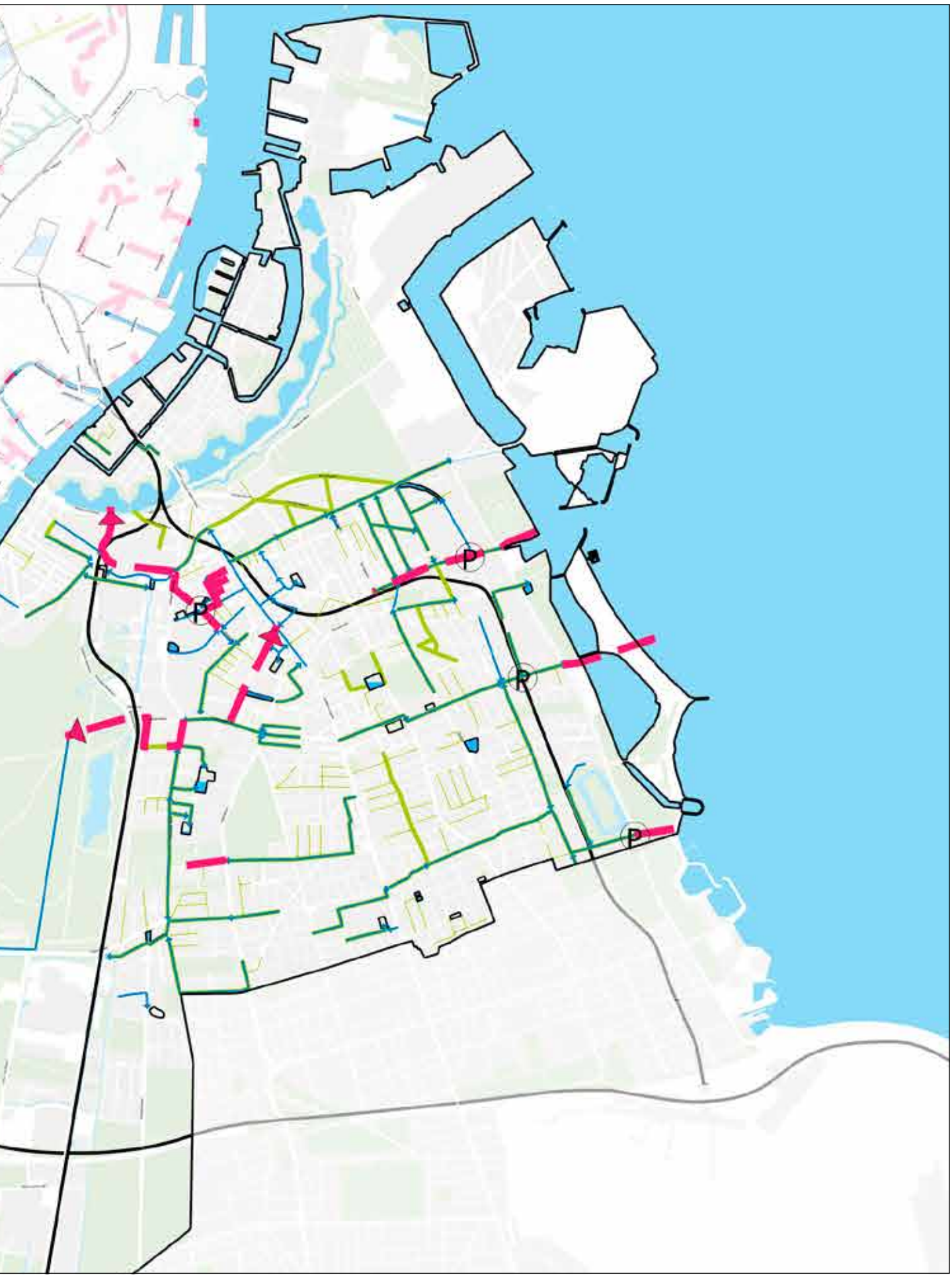
VISION AND STRATEGY: A GREEN PRINCIPLE AND A BLUE PRINCIPLE

The challenges facing Amager with water from torrential downpours are broadly to be addressed on the basis of two principles:

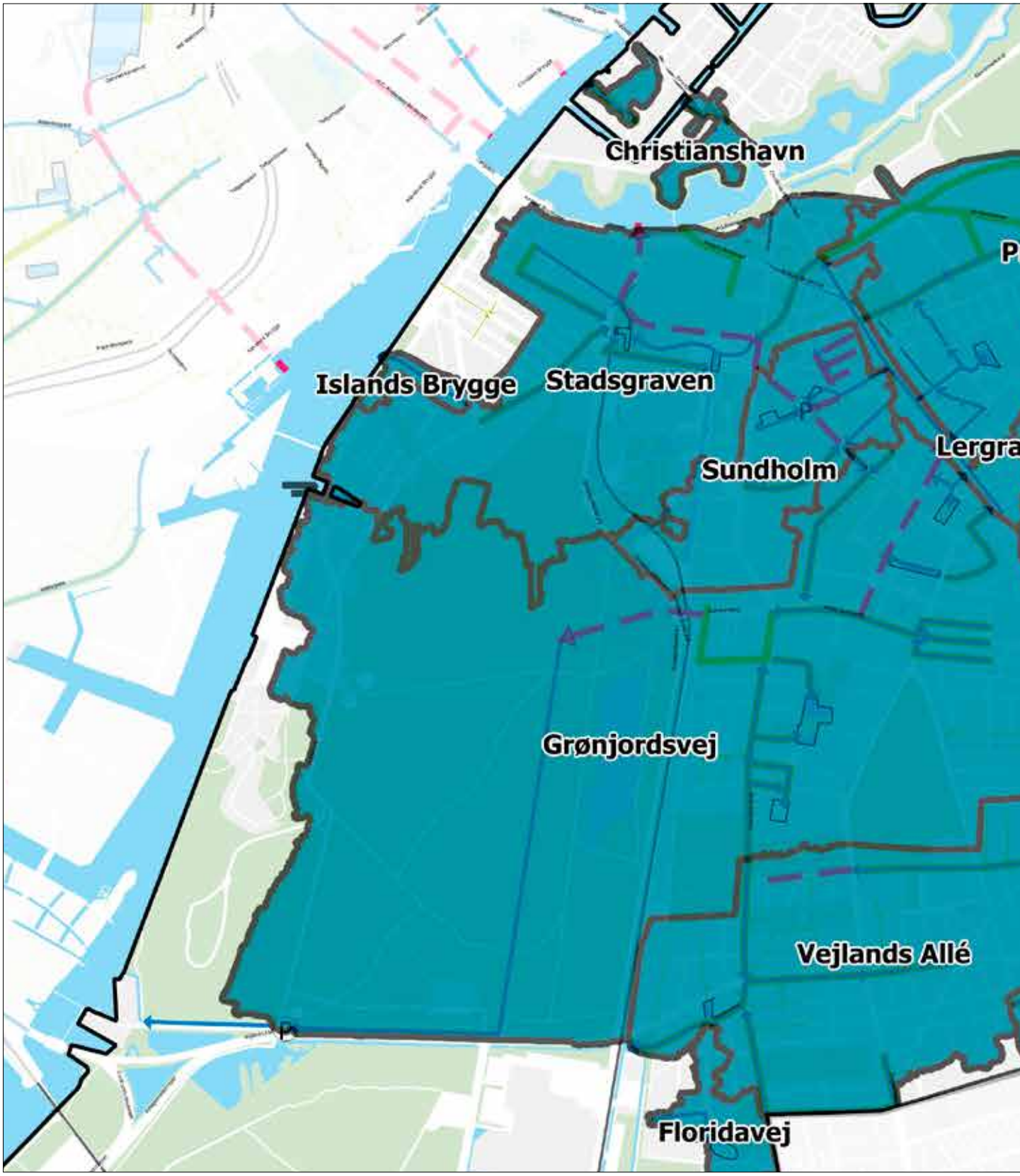
The blue principle: The water is to be discharged via canals, cloudburst roads or park tracks to the Øresund, Stadsgraven and Kalvevbodløbet respectively.

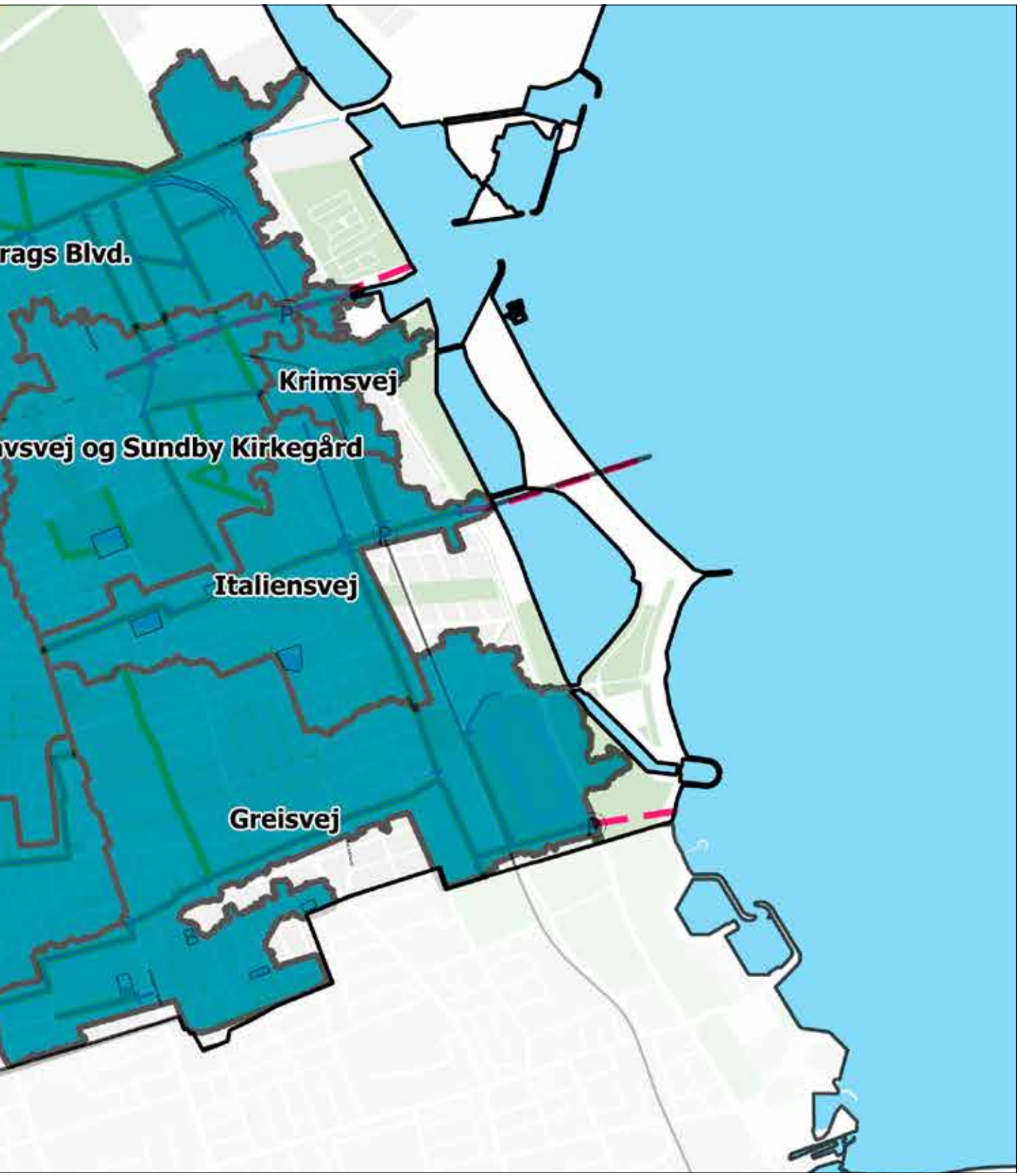
The green principle: The stormwater is to be stored and retained on existing green areas such as parks or sports fields.

The Municipal Council has decided to proceed with cloudburst management based on the blue principle.



CLOUDBURST BRANCHES AMAGER AND CHRISTIANSHAVN



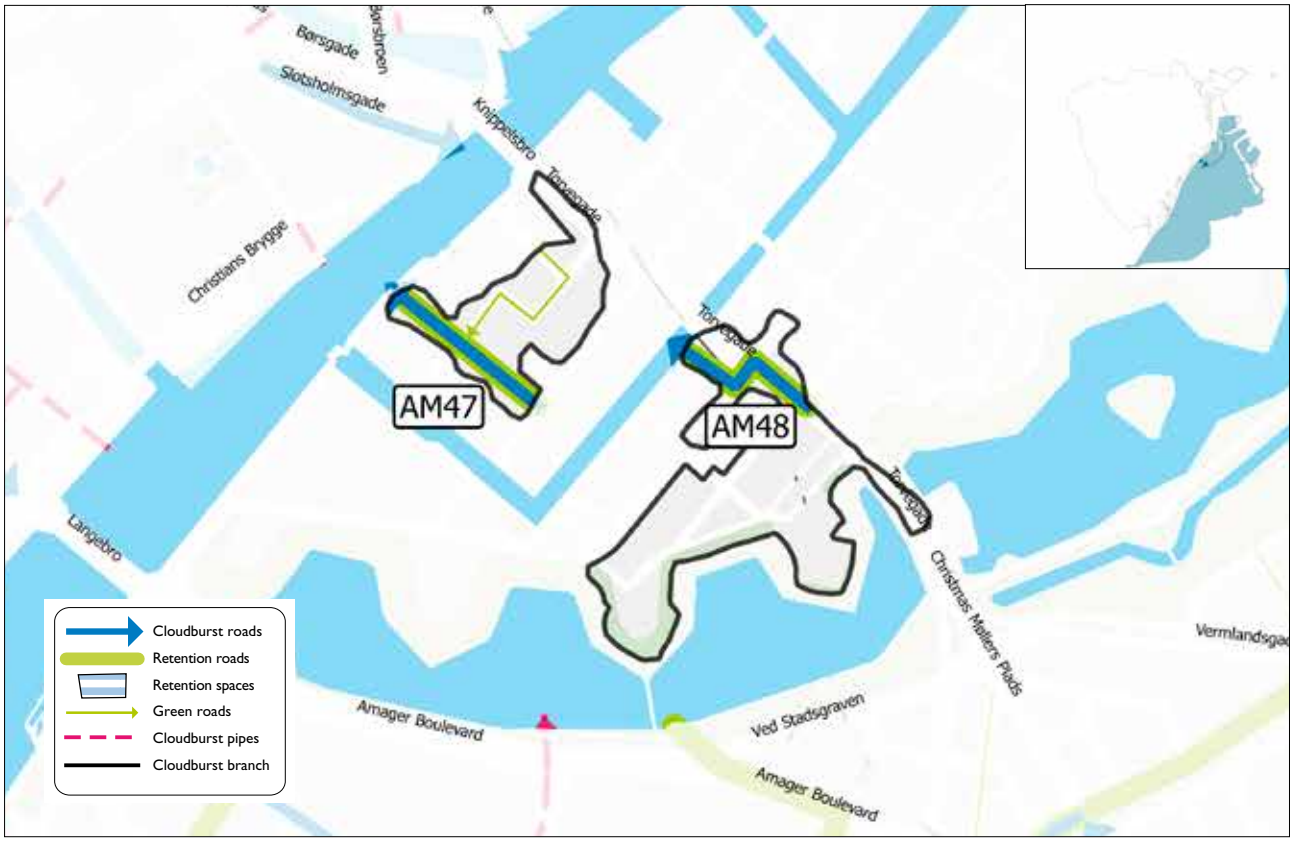

rags Blvd.
Krimsvej
avsvej og Sundby Kirkegård
Italiensvej
Greisvej

CHRISTIANSHAVN

AREA 9 HA
HOUSEHOLDS 798
RISK PROFILE HIGH
NUMBER OF PROJECTS 2

The cloudburst branch Christianshavn is located in the area around Torvegade and consists of two cloudburst management projects and one green road, which together form a continuous cloudburst management solution for the area shown below. The principal aim is to discharge water to the harbour, both directly and via Christianhavn Canal.

EFFECT
By implementing the two projects in the cloudburst branch, a high-risk area of 9 ha with 798 households is cloudburst-proofed.



AM47
Johan Semps Gade

Location: Wildersgade to the harbour Medium potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 2.4m
Economics traditional: DKK 4.3m

AM48
Christianshavns Torv etc.

Location: Christianshavns Torv, Torvegade. Medium potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 2.2m
Economics traditional: DKK 3.9m

AM52 (included in more than one cloudburst branch)
Green roads, other, Amager

Location: Christianhavn, Amager East and West. Great potential for urban space improvements
Synergies: Road renovation, cycle paths

Economics alternative: DKK 43.7m
Economics traditional: DKK 87.4m

ISLANDS BRYGGE

AREA 4 HA
HOUSEHOLDS 75
RISK PROFILE LOW
NUMBER OF PROJECTS 1

The cloudburst branch Islands Brygge is located at Sturladsgade and consists of the cloudburst management project AM37 Sturlasgade, which discharges stormwater directly to Copenhagen Harbour. Together with a small green road, AM37 Sturlasgade provides cloudburst proofing for a small area on Islands Brygge shown on the map below.

EFFECT
By implementing the project, a low-risk area of 4 ha with 75 households is cloudburst-proofed.

AM37
Sturlasgade

Location: Sturlasgade
Medium potential for urban space improvements
Synergies: Road renovation, green climate adaptation

Economics alternative: DKK 4.0m
Economics traditional: DKK 7.2m

AM52 (included in more than one cloudburst branch)
Green roads, other, Amager

Location: Christianhavn, Amager East and West. Great potential for urban space improvements
Synergies: Road renovation, cycle paths

Economics alternative: DKK 43.7m
Economics traditional: DKK 87.4m

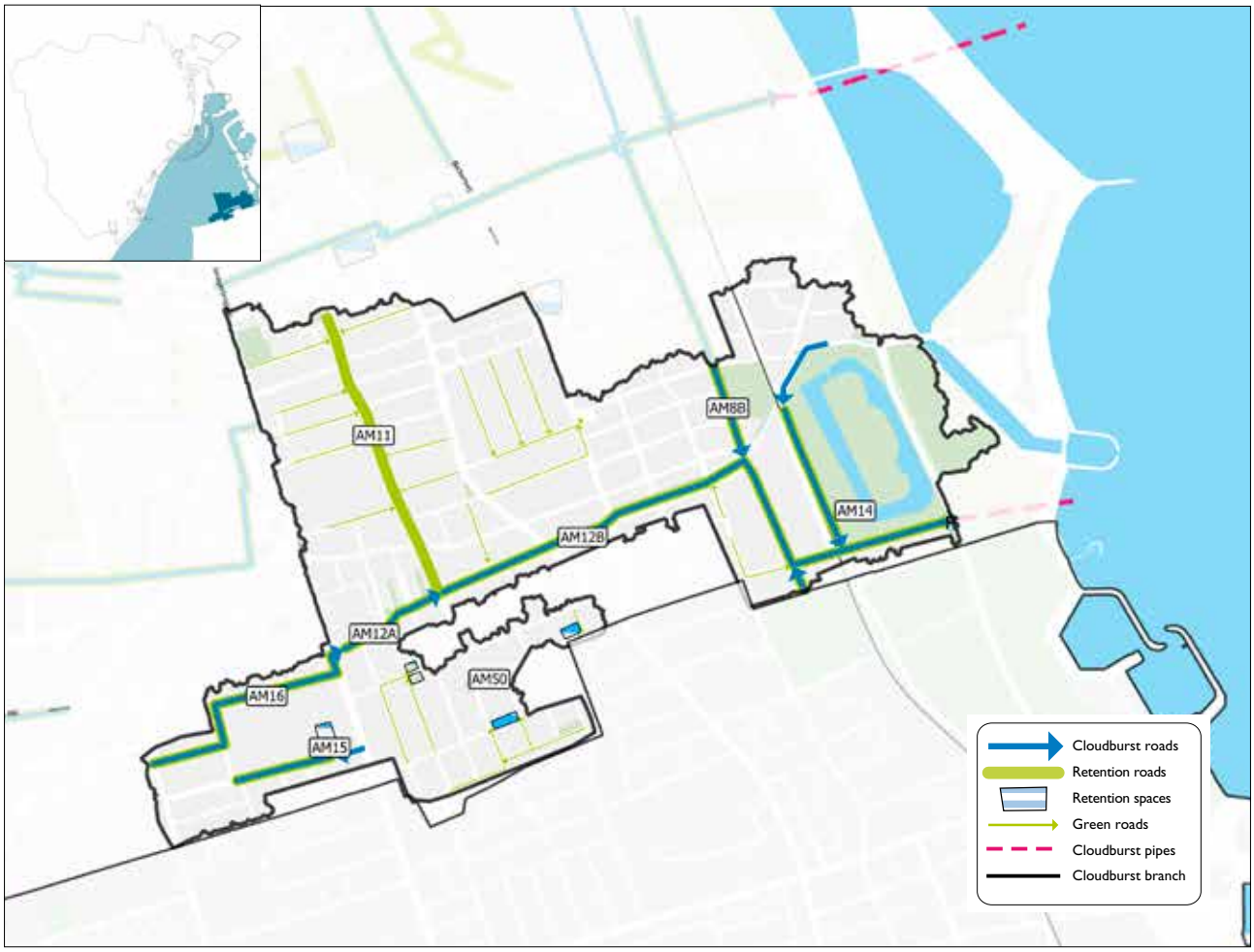
GREISVEJ

AREA 177 HA
HOUSEHOLDS 4864
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 8

The cloudburst branch Greisvej is located in the southern part of Amager at the boundary with the Municipality of Tårnby, and extends from Kastrupfortet in the east to Irlandsvej in the west. The cloudburst branch consists of eight cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst branch is the combined cloudburst and retention roads AM16, AM12b and AM12b, which together form an almost 3 km long cloudburst management solution that can discharge large volumes of stormwater from the adjoining areas to the Øresund. The remaining cloudburst management projects in the cloudburst branch carry stormwater from the other parts of the area to the backbone of the cloudburst branch, at the same time as retaining some of the stormwater locally with a view to relieving the pressure on the backbone.

EFFECT

By implementing the eight projects in the cloudburst branch, a medium-risk area of 177 ha with 4864 households is cloudburst-proofed.



AM8B (included in more than one cloudburst branch)

Engvej Central

Location: Italliensvej to Greisvej
Low potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 10.3m
Economics traditional: DKK 22.8m

AM11

Grækenlandsvej

Location: from Kretavej to Greisvej
Great potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 9.4m
Economics traditional: DKK 13.5m

AM12A

Greisvej West

Location: Amagerbrogade to Grækenlandsvej. Low potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 3.8m
Economics traditional: DKK 6.1m

AM12B

Greisvej East

Location: Grækenlandsvej to Engvej
Great potential for urban space improvements
Synergies: Cycle paths, green climate adaptation

Economics alternative: DKK 76.5m
Economics traditional: DKK 87.0m

AM14

Hedegaardsvej, Jorisvej

Location: Hedegaardsvej, Jorisvej
Great potential for urban space improvements
Synergies: Cycle paths

Economics alternative: DKK 8.9m
Economics traditional: DKK 14.8m

AM15

Gyldenrisvej etc.

Location: Gyldenrisvej and car park behind Kvickly
Medium potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 8.9m
Economics traditional: DKK 28.6m

AM16

Oxford Have and Store Krog

Location: Oxford Have and Strore Krog
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 8.1m
Economics traditional: DKK 14.8m

AM50

Grækenlandskvarteret

Location: Green spaces in Grækenlandskvarteret neighbourhood
Great potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 13.5m
Economics traditional: DKK 40.8m

AM52 (included in more than one cloudburst branch)

Green roads, other, Amager

Location: Christianhavn, Amager East and West. Great potential for urban space improvements
Synergies: Road renovation, cycle paths

Economics alternative: DKK 43.7m
Economics traditional: DKK 87.4m

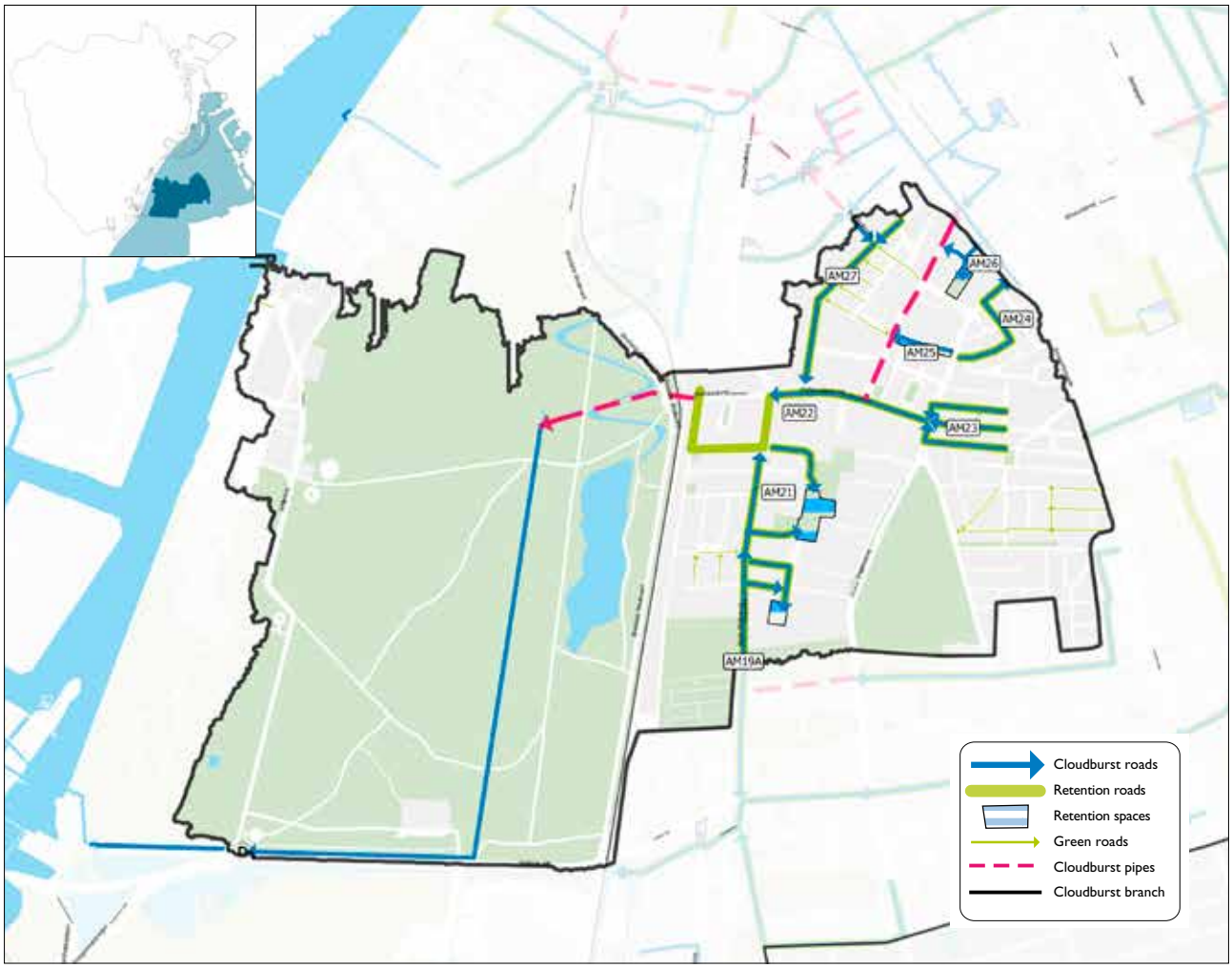
GRØNJORDSVEJ

AREA 456 HA
HOUSEHOLDS 10180
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 8

The cloudburst branch Grønjordsvej is located in Amager West and extends from Amagerbrogade in the east to Artillerivej in the west. The cloudburst branch consists of eight cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst branch is the combined cloudburst and retention road AM22 on Peder Lykkes Vej and Grønjordsvej, which receives stormwater from the rest of the cloudburst branch and discharges it into Copenhagen Harbour via a cloudburst pipe and a channel on Amager Fælled. The remaining projects in the cloudburst branch take stormwater to AM22 from the other areas of the cloudburst branch, or retain it locally, so that AM22 is not overloaded.

EFFECT

By implementing the eight projects in the cloudburst branch, a medium-risk area of 456 ha with 10,180 households is cloudburst-proofed.



AM19A

Røde Mellemvej

Location: Peder Lykkes Vej to Vejlands Allé. Medium potential for urban space improvements
Synergies: Road renovation, deprived urban areas

Economics alternative: DKK 15.2m
Economics traditional: DKK 27.6m

AM21

Urbanplanen & Remiseparken

Location: Urbanplanen
Great potential for urban space improvements
Synergies: Cycle paths, deprived urban area and green connecting link

Economics alternative: DKK 8.8m
Economics traditional: DKK 72.0m

AM22

Peder Lykkes Vej

Location: Englandsvej to Røde Mellemvej. Great potential for urban space improvements
Synergies: Road renovation, green climate adaptation, deprived urban areas

Economics alternative: DKK 12.4m
Economics traditional: DKK 22.5m

AM23

Thyge Krabbes Vej etc.

Location: Peder Lykkes Vej, Ulrik Birchs Vej, Englandsvej. Low potential for urban space improvements
Synergies: Road renovation, deprived urban areas

Economics alternative: DKK 10.0m
Economics traditional: DKK 18.3m

AM24

Skipper Clemens Allé etc.

Location: Dyvekes Allé, Søren Norbys Allé
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 4.8m
Economics traditional: DKK 8.6m

AM25

Sæterdalsparken

Location: Sæterdalsvej, Englandsvej
Great potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 3.3m
Economics traditional: DKK 7.1m

AM26

Tingvej and Skotlands Plads

Location: Amagerbrogade, Lærdalsgade, Hemsedalsgade. Great potential for urban space improvements
Synergies: Road renovation, deprived urban areas

Economics alternative: DKK 5.4m
Economics traditional: DKK 8.9m

AM27

Brydes Allé

Location: Telemarksgade, Romsdalsgade. Great potential for urban space improvements
Synergies: Road renovation, green climate adaptation, deprived urban areas

Economics alternative: DKK 8.9m
Economics traditional: DKK 16.2m

AM52 (included in more than one cloudburst branch)

Green roads, other, Amager

Location: Christianhavn, Amager East and West. Great potential for urban space improvements
Synergies: Road renovation, cycle paths

Economics alternative: DKK 43.7m
Economics traditional: DKK 87.4m

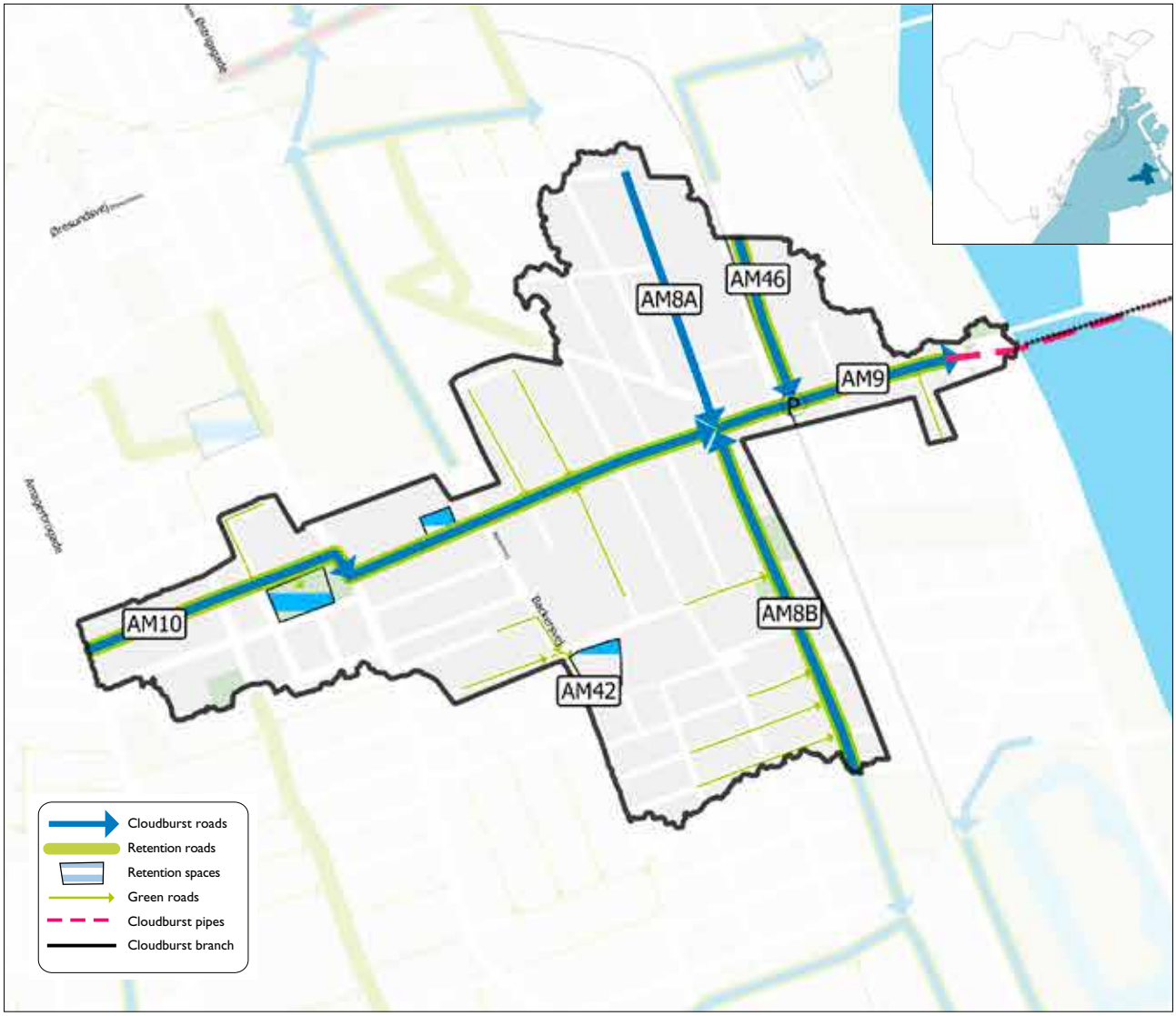
ITALIENSVEJ

AREA 82 HA
HOUSEHOLDS 3863
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 6

The cloudburst branch Italiensvej is located in Amager East and extends from Amagerbrogade in the west to the Øresund in the east, with Italiensvej in the middle of the branch. The cloudburst branch consists of six cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The backbone of the cloudburst pipe is the combined cloudburst and retention road AM9 Italiensvej, which collects stormwater from the whole cloudburst branch and discharges it to the Øresund. The remaining projects in the cloudburst branch carry stormwater down to AM9 Italiensvej or retain it locally.

EFFECT

By implementing the six projects in the cloudburst branch, a high-risk area of 82 ha with 3863 households is cloudburst-proofed.



AM8A

Engvej North

Location: Øresundsvej to Italiensvej
Low potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 4.8m
Economics traditional: DKK 7.7m

AM8B (included in more than one cloudburst branch)

Engvej Central

Location: Italliensvej to Greisvej
Low potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 10.3m
Economics traditional: DKK 22.8m

AM9

Italiensvej

Location: Kastrupvej to Amager Strandvej. Great potential for urban space improvements
Synergies: Green climate adaptation

Economics alternative: DKK 65.5m
Economics traditional: DKK 120.0m

AM10

Elbagade and Filipsparken

Location: Elbagade and Filipsparken
Medium potential for urban space improvements
Synergies: Road renovation, green climate adaptation

Economics alternative: DKK 6.1m
Economics traditional: DKK 18.3m

AM42

Skolen ved Sundet, playing field

Location: Skolen ved sundet (School at the Sound), playing field
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 2.6m
Economics traditional: DKK 9.8m

AM46 (included in more than one cloudburst branch)

Krimsvej area

Location: Øresundsvej, Krimsvej, Tovelillevej. Great potential for urban space improvements
Synergies: Road renovation, cycle paths, green climate adaptation

Economics alternative: DKK 14.7m
Economics traditional: DKK 26.7m

AM52 (included in more than one cloudburst branch)

Green roads, other, Amager

Location: Christianhavn, Amager East and West. Great potential for urban space improvements
Synergies: Road renovation, cycle paths

Economics alternative: DKK 43.7m
Economics traditional: DKK 87.4m

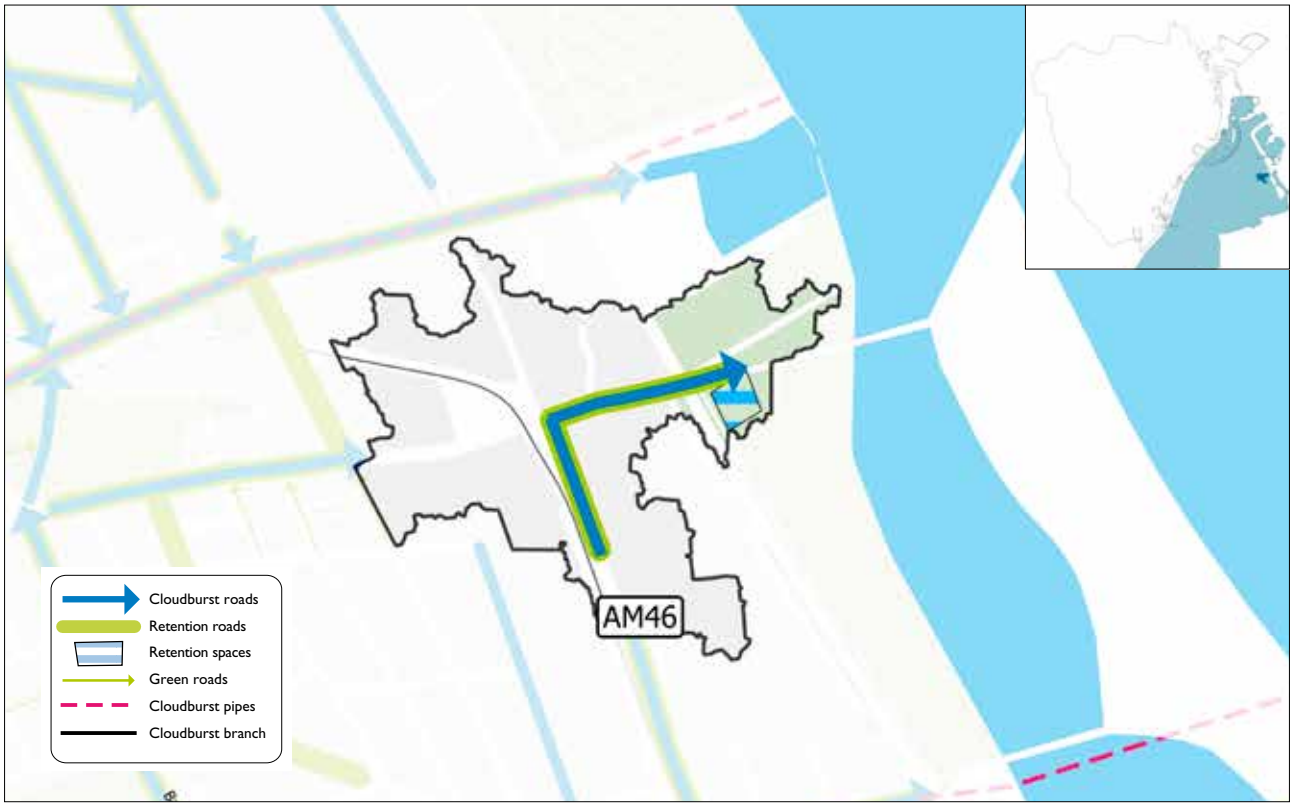
KRIMSVEJ

AREA 17 HA
HOUSEHOLDS 587
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 1

The cloudburst branch Krimsvej is located in Amager East at Øresund Station and consists of the northern part of the combined cloudburst and retention road AM46 Krimsvej area. The area covered by the cloudburst branch can be seen on the map below. The solution for the flooding in the area is to discharge the storm-water to the Øresund.

EFFECT

By implementing the eight projects in the cloud-burst branch, a medium-risk area of 17 ha with 587 households is cloudburst-proofed.



AM46 (included in more than one cloudburst branch)

Krimsvej area

Location: Øresundsvej, Krimsvej, Tovelillevej. Great potential for urban space improvements
Synergies: Road renovation, cycle paths, green climate adaptation

Economics alternative: DKK 14.7m
Economics traditional: DKK 26.7m

FLORIDAVEJ

AREA 89 HA
HOUSEHOLDS 434
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 1

The cloudburst branch Floridavej is located in Amager West at Kongelundsvej and consists of the cloudburst management project AM49 Floridavej. The area covered by the cloudburst branch can be seen on the map below. The principal aim is to carry stormwater to a small retention space at Floridavej.

EFFECT
By implementing the eight projects in the cloudburst branch, a medium-risk area of 14 ha with 434 households is cloudburst-proofed.

AM49
Floridavej

Location: Green space opposite Floridavej, between Præstemarksvej and Kongelundsvej. Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 4.6m
Economics traditional: DKK 28.0m

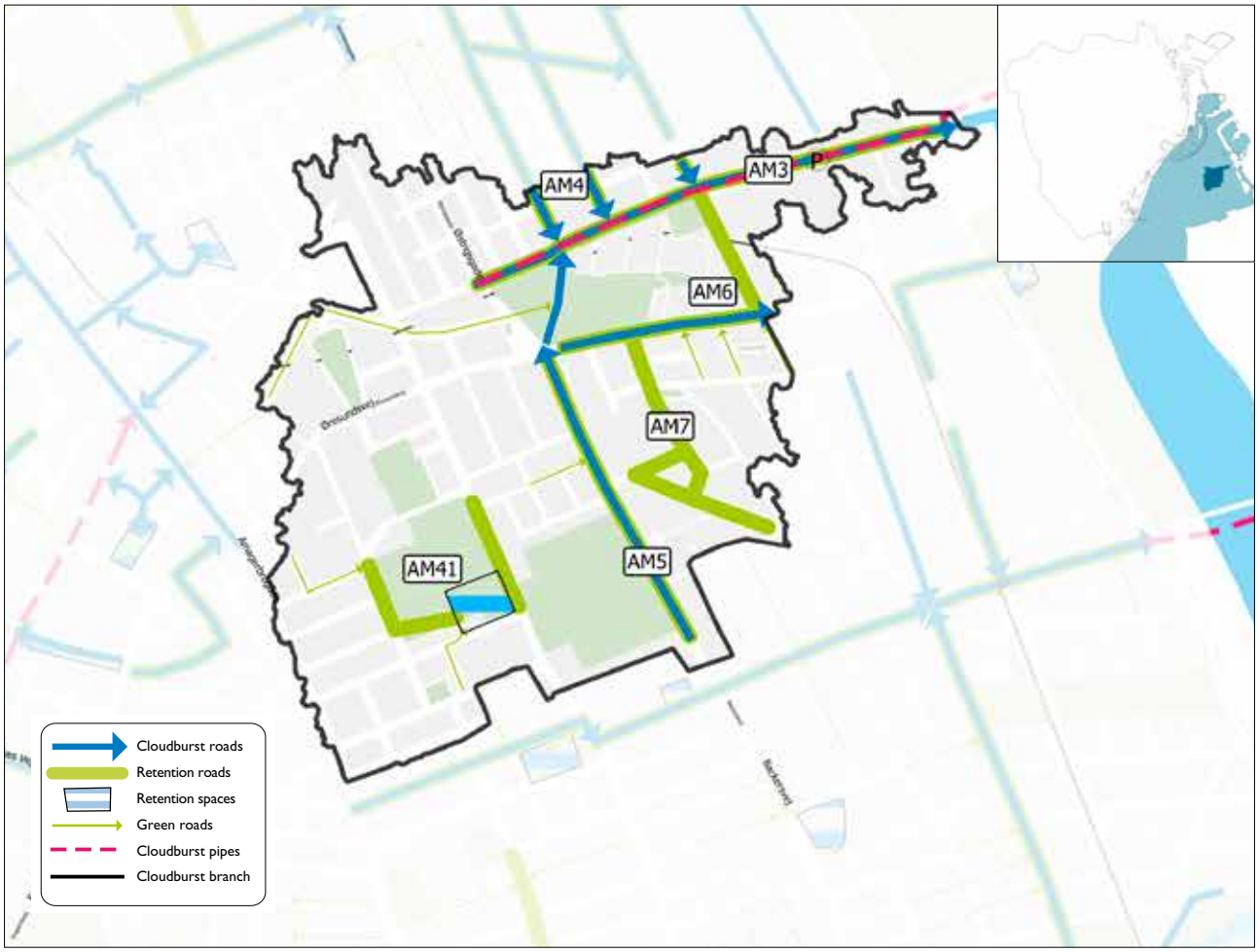
LERGRAVSVEJ AND SUNDBY KIRKEGÅRD

AREA 101 HA
HOUSEHOLDS 9403
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 6

The cloudburst branch Lergravsvej & Sundby Kirkegård is located in Amager East and extends from Amagerbrogade in the west to the Øresund in the east. The cloudburst branch consists of six cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The principal aim is to discharge water to the Øresund at the sailing club Sundby Sejlforening via the combined cloudburst and retention road AM3 Lergravsvej, and to retain stormwater in the retention space at Sundby Kirkegård (cemetery), which is part of AM41 Kirkegårdsvej etc.

EFFECT

By implementing the eight projects in the cloudburst branch, a medium-risk area of 101 ha with 9403 households is cloudburst-proofed.



AM3

Lergravsvej, Lergravsparken

Location: Østrigsgade to the Øresund Great potential for urban space improvements
Synergies: Road renovation, Green climate adaptation, deprived urban areas

Economics alternative: DKK 6.1m
Economics traditional: DKK 14.4m

AM4 (included in more than one cloudburst branch)

Strandlodsvej etc.

Location: Strandlodsvej, Nyrnberggade, Bremensgade. Low potential for urban space improvements
Synergies: Road renovation, deprived urban areas

Economics alternative: DKK 24.5m
Economics traditional: DKK 37.7m

AM5

Backersvej

Location: Amager Hospital to Lergravsvej. Medium potential for urban space improvements
Synergies: Road renovation, deprived urban areas

Economics alternative: DKK 9.5m
Economics traditional: DKK 14.6m

AM6 (included in more than one cloudburst branch)

Øresundsvej, Strandlodsvej

Location: Øresundsvej, Strandlodsvej Great potential for urban space improvements
Synergies: Road renovation, green climate adaptation, deprived urban areas

Economics alternative: DKK 7.7m
Economics traditional: DKK 12.0m

AM7

Messinavej

Location: Messinavej, Marengovej, Sorrentovej, Lodivej. Medium potential for urban space improvements
Synergies: Green climate adaptation, deprived urban area

Economics alternative: DKK 8.9m
Economics traditional: DKK 14.4m

AM4l

Kirkegårdsvej etc.

Location: Kirkegårdsvej, Kastrupvej, Sundby Kirkegård. Low potential for urban space improvements
Synergies: Road renovation, deprived urban areas

Economics alternative: DKK 6.3m
Economics traditional: DKK 12.5m

AM52 (included in more than one cloudburst branch)

Green roads, other, Amager

Location: Christianhavn, Amager East and West. Great potential for urban space improvements
Synergies: Road renovation, cycle paths

Economics alternative: DKK 43.7m
Economics traditional: DKK 87.4m

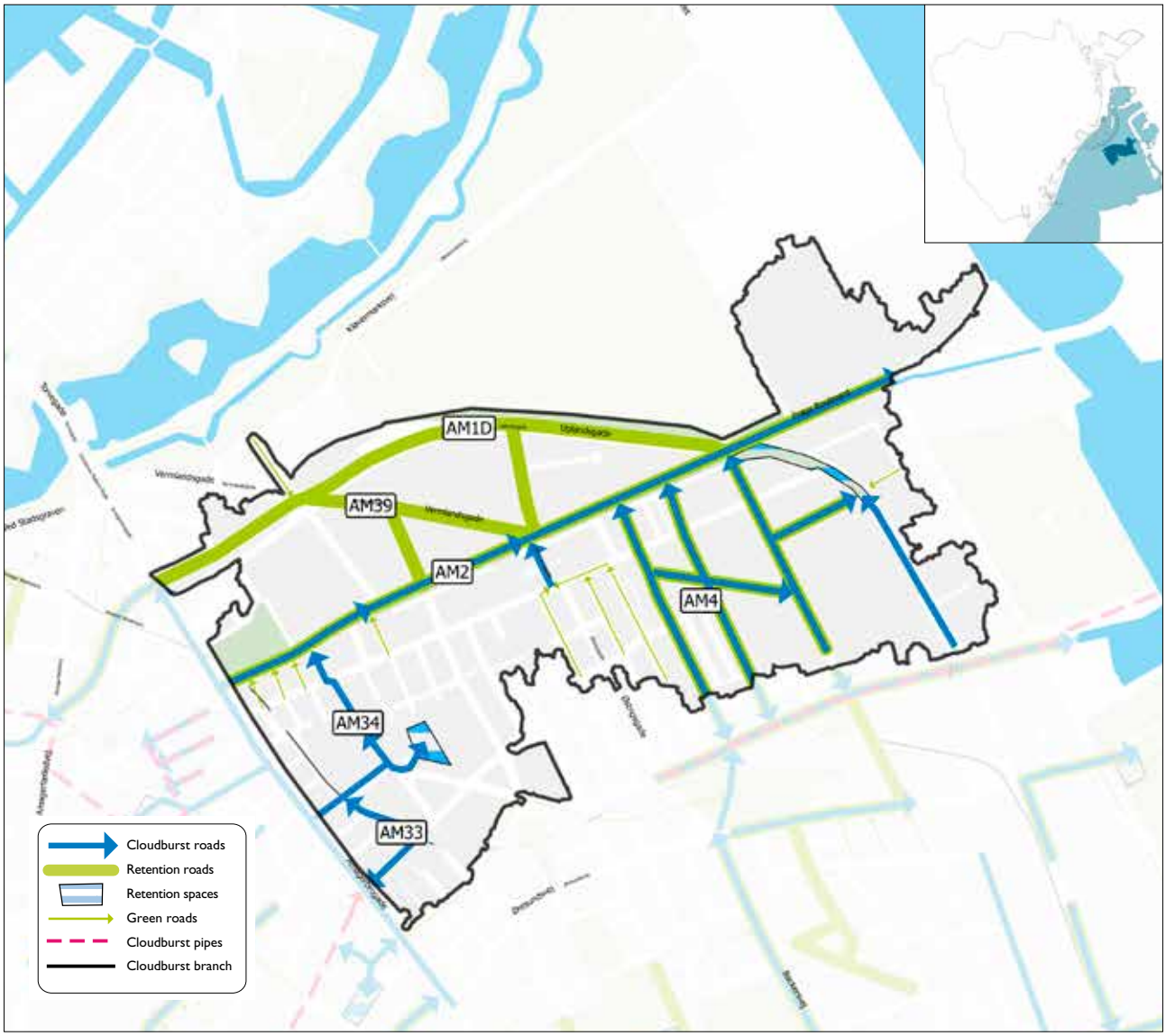
PRAGS BOULEVARD

AREA 128 HA
HOUSEHOLDS 8606
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 6

The cloudburst branch Prags Boulevard is located in the northern part of Amager East and consists of six cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The principal aim is to discharge water to the Øresund at the bridge Prøvestensbroen, via the combined cloudburst and retention road AM2 Prags Boulevard.

EFFECT

By implementing the six projects in the cloudburst branch, a medium-risk area of 128 ha with 8606 households is cloudburst-proofed.



AM1D

Amagerbanen. Prags Boulevard

Location: Ved Amagerbanen, Lergravsvej. Great potential for urban space improvements
Synergies: Cycle paths

Economics alternative: DKK 16.0m
Economics traditional: DKK 11.1m

AM2

Prags Boulevard

Location: Amager East, Amagerbrogade, Prøvestensbroen. Low potential for urban space improvements
Synergies: Green climate adaptation, deprived urban areas

Economics alternative: DKK 26.9m
Economics traditional: DKK 27.1m

AM4 (included in more than one cloudburst branch)

Strandlodsvej etc.

Location: Strandlodsvej, Nyrnberggade, Bremensgade. Low potential for urban space improvements
Synergies: Road renovation, deprived urban areas

Economics alternative: DKK 24.5m
Economics traditional: DKK 37.7m

AM33

Frankrigsgade

Location: Brysselsgade, Reberbanegade Great potential for urban space improvements
Synergies: Road renovation, deprived urban areas

Economics alternative: DKK 8.7m
Economics traditional: DKK 15.8m

AM34

Ålandsgade

Location: Holmbladsgade, Brysselgade Low potential for urban space improvements
Synergies: Road renovation

Economics alternative: DKK 7.0m
Economics traditional: DKK 12.7m

AM39

Vermlandsgade

Location: Uplandsgade to Prags Boulevard. High potential for urban space improvements
Synergies: Road renovation, green climate adaptation

Economics alternative: DKK 11.9m
Economics traditional: DKK 21.6m

AM52 (included in more than one cloudburst branch)

Green roads, other, Amager

Location: Christianhavn, Amager East and West. Great potential for urban space improvements
Synergies: Road renovation, cycle paths

Economics alternative: DKK 43.7m
Economics traditional: DKK 87.4m

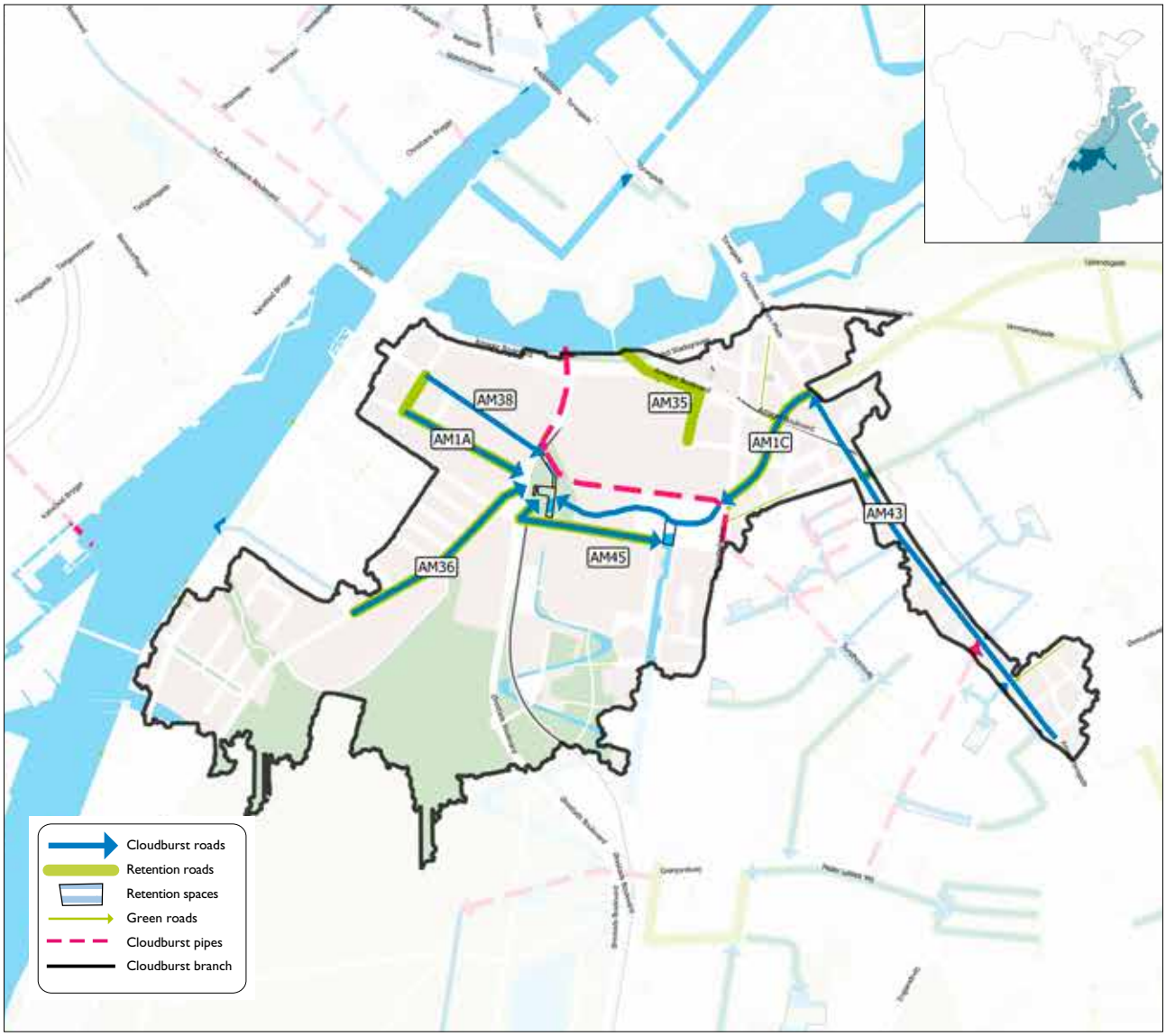
STADSGRAVEN

AREA 162 HA
HOUSEHOLDS 10549
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 7

The cloudburst branch Stadsgraven is located in Amager West in the area south of Stadsgraven and consists of seven cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The principal aim is to discharge water to Stadsgraven and to establish retention spaces and smaller retention elements along the roads.

EFFECT

By implementing the seven projects in the cloudburst branch, a medium-risk area of 162 ha with 10,549 households is cloudburst-proofed.



AM1A

Amagerbanen. Thorshavnsgade

Location: Klaksvigsgade, Sven Aukens Plads, Myggenæsgade
Low potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 3.9m
Economics traditional: DKK 6.4m

AM1C

Amagerbanen. Vermlandsgade

Location: On Svinget
Great potential for urban space improvements
Synergies: Road renovation, cycle paths

Economics alternative: DKK 7.9m
Economics traditional: DKK 8.1m

AM35

Amager Boulevard

Location: Badenfelthsgade, Peter Vedels Gade. Great potential for urban space improvements
Synergies: Roads, climate adaptation, deprived urban areas

Economics alternative: DKK 5.6m
Economics traditional: DKK 8.6m

AM36

Artillerivej and Ørestad Boulvard

Location: Kigkurren - Sven Aukens Plads
Great potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 6.6m
Economics traditional: DKK 12.0m

AM38

Wiedekampsgade

Location: Ørestads Boulevard, Amager Boulevard
Great potential for urban space improvements
Synergies: Green connecting links

Economics alternative: DKK 5.3m
Economics traditional: DKK 8.6m

AM43

Amagerbrogade

Location: Amagerbrogade
Great potential for urban space improvements
Synergies: Road renovation, cycle paths

Economics alternative: DKK 34.0m
Economics traditional: DKK 40.6m

AM45

Njalsgade

Location: Artellerivej, Ørestads Boulevard. Great potential for urban space improvements
Synergies: Road renovation, green climate adaptation

Economics alternative: DKK 5.2m
Economics traditional: DKK 9.5m

AM52 (included in more than one cloudburst branch)

Green roads, other, Amager

Location: Christianhavn, Amager East and West. Great potential for urban space improvements
Synergies: Road renovation, cycle paths

Economics alternative: DKK 43.7m
Economics traditional: DKK 87.4m

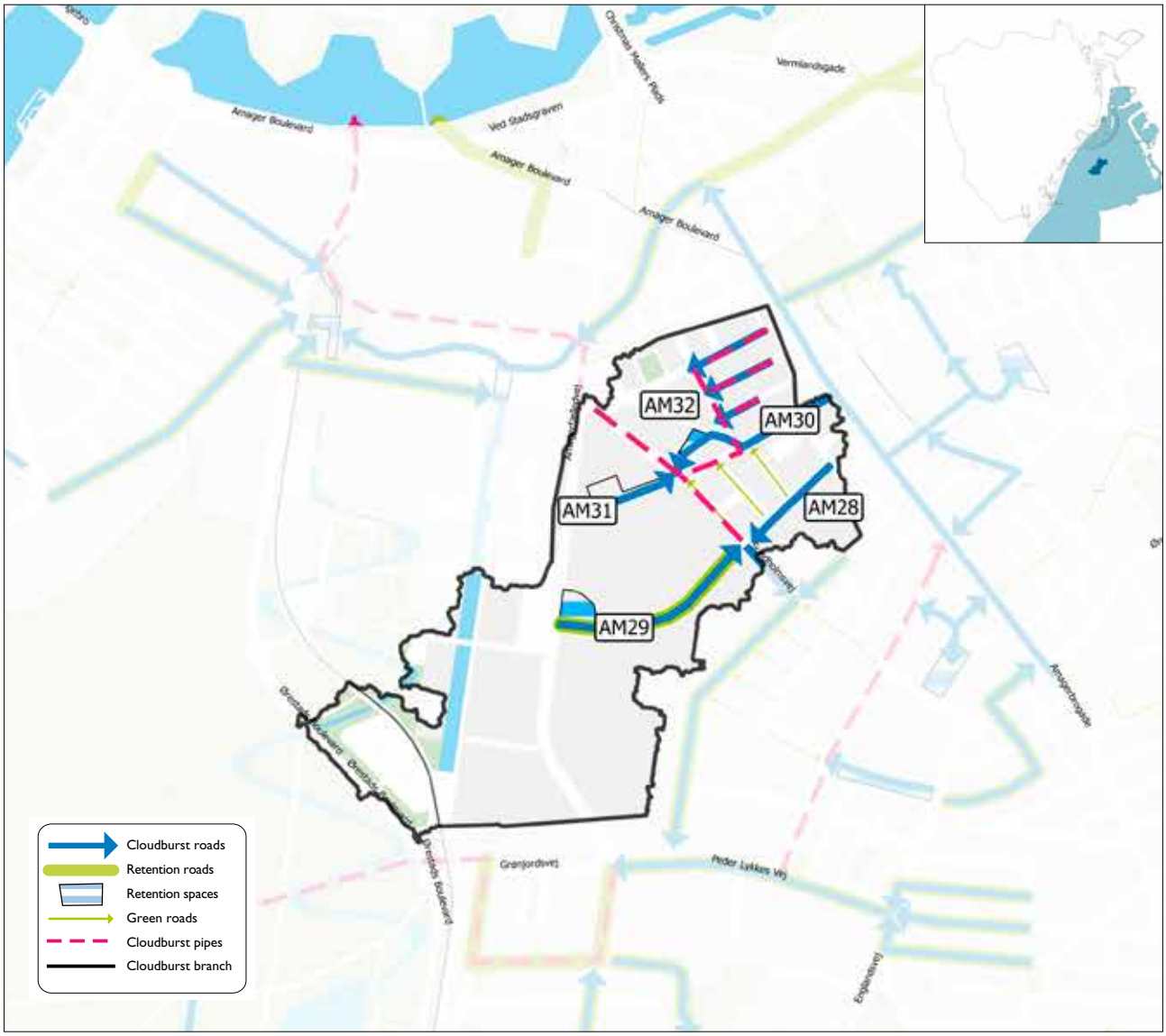
SUNDHOLM

AREA 44 HA
HOUSEHOLDS 2444
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 5

The cloudburst branch Sundholm is located in Amager West in the area around the Sundholmskvarteret neighbourhood and consists of five eight cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The principal aim is to discharge water to Stadsgraven via the cloudburst pipe beneath Sundholmsvej and to establish retention spaces and smaller retention elements along the roads.

EFFECT

By implementing the five projects in the cloudburst branch, a medium-risk area of 44 ha with 2444 households is cloudburst-proofed.



AM28

Kornblomsvej

Location: Amager West outlet at lake of Grønjordssøen. Great potential for urban space improvements
Synergies: Road renovation, deprived urban areas

Economics alternative: DKK 2.5m
Economics traditional: DKK 4.6m

AM29

Sundholdm Syd

Location: Amagerfælledvej, Sundholmsvej. Potential for urban space improvements
Synergies: Green climate adaptation, deprived urban areas

Economics alternative: DKK 9.7m
Economics traditional: DKK 233.7m

AM32

Kongedybet

Location: Sverigesgade, Norgesgade, Hallandsgade, Kongedybet. Low potential for urban space improvements
Synergies: Roads, green climate adaptation, deprived urban areas

Economics alternative: DKK 5.9m
Economics traditional: DKK 10.6m

AM30

Brigadevej

Location: Amagerbrogade, Finlandsgade, Sndholmsvej. Great potential for urban space improvements
Synergies: Road renovation, deprived urban areas

Economics alternative: DKK 4.3m
Economics traditional: DKK 9.5m

AM31

Sundholm Nord

Location: Sundholmsvej, Amagerfælledvej. Great potential for urban space improvements
Synergies: Road renovation, deprived urban areas

Economics alternative: DKK 41.3m
Economics traditional: DKK 87.7m

AM52 (included in more than one cloudburst branch)

Green roads, other, Amager

Location: Christianhavn, Amager East and West. Great potential for urban space improvements
Synergies: Road renovation, cycle paths

Economics alternative: DKK 43.7m
Economics traditional: DKK 87.4m

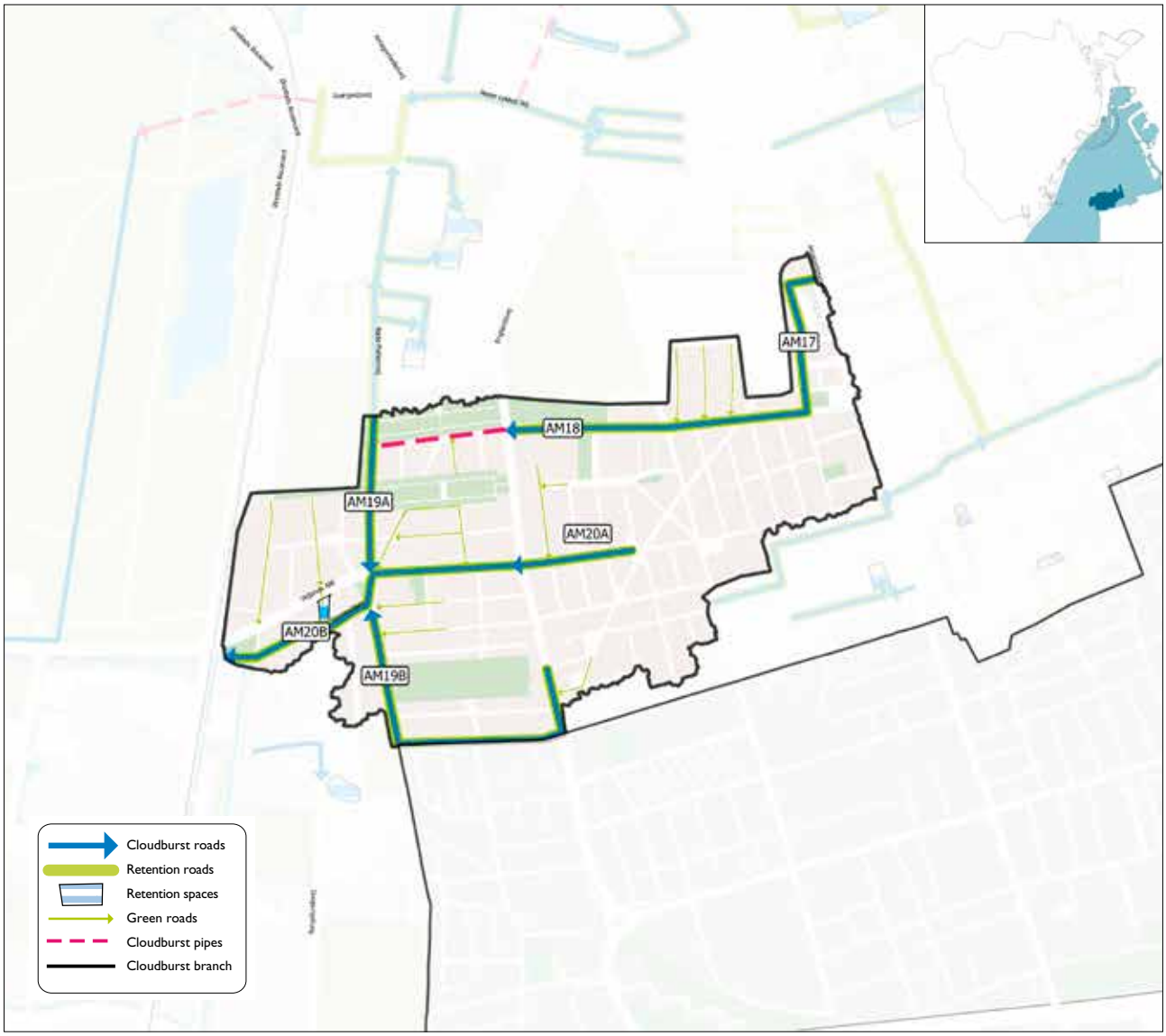
VEJLANDS ALLÉ

AREA 142 HA
HOUSEHOLDS 3155
RISK PROFILE MEDIUM
NUMBER OF PROJECTS 6

The cloudburst branch Vejlands Allé is located in Amager West at Sundbyvester and consists of six cloudburst management projects and a number of green roads, which together form a continuous cloudburst management solution for the area shown below. The principal aim is to discharge water to Copenhagen Harbour via the channels along Vejlands Allé.

EFFECT

By implementing the six projects in the cloudburst branch, a medium-risk area of 142 ha with 3155 households is cloudburst-proofed.



AM17

Gyldenlakvej and Funkiavej

Location: Amagerbrogade to Sundbyvestervej
Medium potential for urban space improvements
Synergies: None known at present

Economics alternative: DKK 5.1m
Economics traditional: DKK 8.3m

AM18

Sundbyvestervej

Location: Gyldenlakvej to Røde Mellemvej. Medium potential for urban space improvements
Synergies: Road renovation, cycle paths, deprived urban areas

Economics alternative: DKK 14.8m
Economics traditional: DKK 22.0m

AM19A

Røde Mellemvej

Location: Peder Lykkes Vej to Vejlands Allé.
Medium potential for urban space improvements
Synergies: Roads, deprived urban areas

Economics alternative: DKK 15.2m
Economics traditional: DKK 27.6m

AM19B

Bygrænsen

Location: Kingstonvej to Røde Mellemvej. Low potential for urban space improvements
Synergies: Road renovation, green climate adaptation

Economics alternative: DKK 12.9m
Economics traditional: DKK 23.4m

AM20A

Vejlands Allé

Location: Enghavevej to Derbyvej Medium potential for urban space improvements
Synergies: Road renovation, cycle paths, green climate adaptation

Economics alternative: DKK 3.7m
Economics traditional: DKK 6.7m

AM20B

Hyttehusvej etc.

Location: Vejlands Allé, Englandsvej, Røde Mellemvej. Medium potential for urban space improvements
Synergies: Roads, green climate adaptation

Economics alternative: DKK 11.1m
Economics traditional: DKK 20.0m

AM52 (included in more than one cloudburst branch)

Green roads, other, Amager

Location: Christianhavn, Amager East and West. Great potential for urban space improvements
Synergies: Road renovation, cycle paths

Economics alternative: DKK 43.7m
Economics traditional: DKK 87.4m

CHAPTER 4

POTENTIAL FOR URBAN SPACE IMPROVEMENTS

When climate adaptation is implemented as surface solutions, opportunities arise to give the city a boost. The 300 cloudburst management projects are the start of 300 new better urban spaces, which are to take shape gradually as the construction projects are programmed and carried out.

The programming and the continued work are to be based on the identity of Copenhagen, in terms of the city's major architectural features, local problems and challenges.
This part of the climate adaptation and investment statement presents a brief description of the physical environment and history of the individual districts. Based on the description of the districts, an assessment is made of where in the district the cloudburst management planning can assist in strengthening the overall architectural features and contexts of the district. In addition, a proposal is made regarding how cloudburst management projects can assist towards creating local connecting links and strengthening local urban spaces and where synergies can be created with development plans for deprived urban areas.

EVEN CLOSER TO THE NEEDS OF CITIZENS AND SYNERGIES WITH OTHER CONSTRUCTION PROJECTS

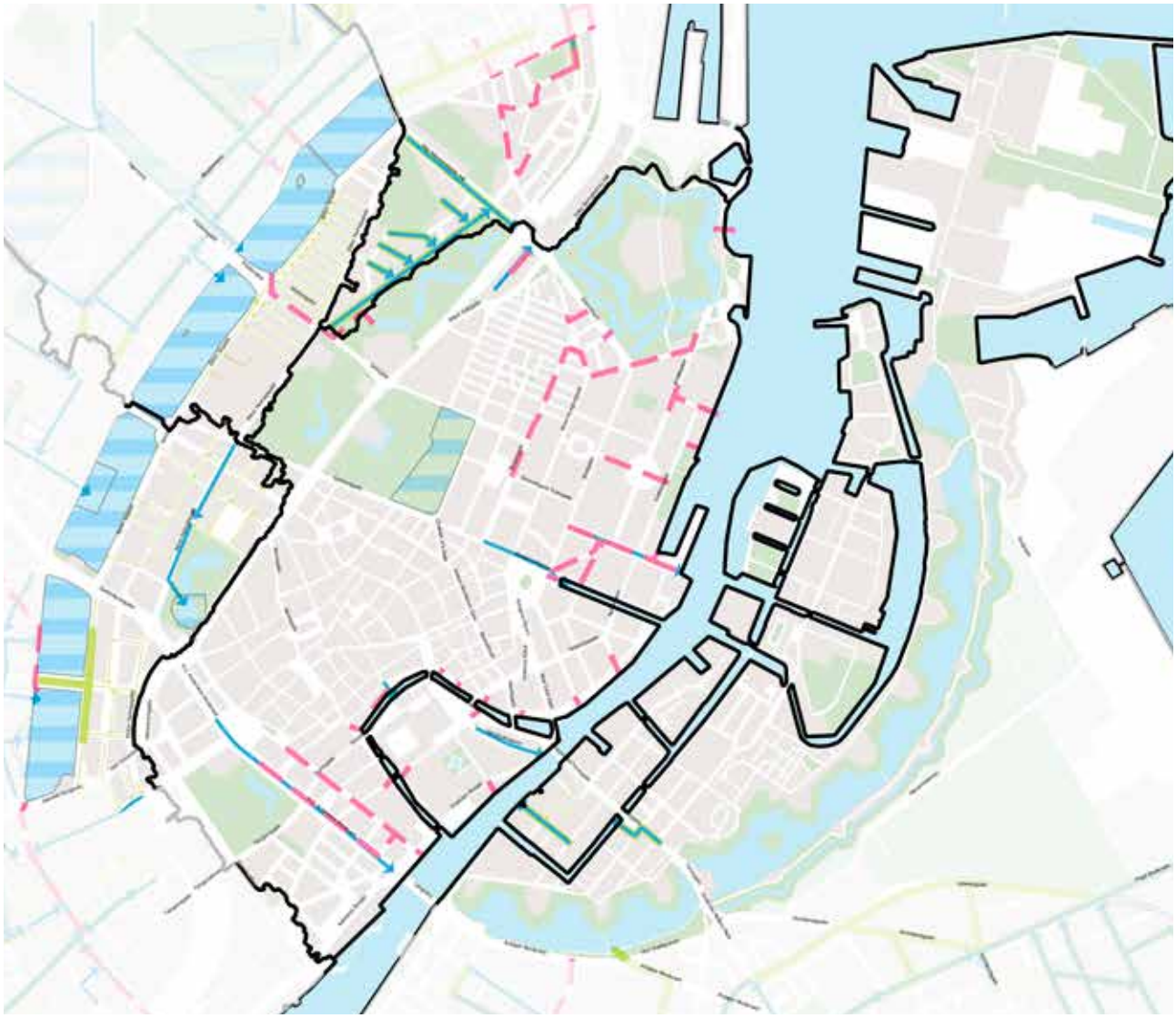
Copenhagen is growing, and we have to manage more in the same space. At the same time, it has to become simpler for the people of Copenhagen and visitors to move around the city, and the people of Copenhagen have to have an opportunity to use the city more.

Climate adaptation and cloudburst management planning present a unique opportunity for the city's population jointly to create change and guide the way change in urban spaces can be brought about jointly and assist towards added value and innovation.

In next year's statement the districts' different characteristics, needs and opportunities for synergies with cloudburst planning will be highlighted, and we will attempt to come closer to the wishes and needs of the citizens.

INDRE BY AND CHRISTIANSHAVN
DESCRIPTION

POPULATION APPROX. 51,900 INHABITANTS IN CHRISTIANSHAVN AND INDRE BY IN 2015
AREA 8.98 KM2
M2 GREEN PER INHABITANT 24.67



Indre By and Christianshavn with water catchment areas and cloudburst management projects

Indre By and Christianshavn looking from east to west

Indre By (Inner City) and Christianshavn are part of the cultural and tourist centre of the capital and represent a great historical narrative asset for the city, which has grown up around the harbour. There are structures of building development here from origins of the medieval city, and Christian IV's urban planning and urban expansion from the second half of the 17th century, Frederiksstaden, the fires, the fall of the ramparts and Gammelholm. And from the modern era, with more recent developments rising up around the harbour area and with neighbourhoods converted to new purposes.

GREEN AND BLUE FEATURES

The major green features of Indre By and Christianshavn are the green fortress ring, which consists of previous and present-day rampart and fortress structures, the harbour area as the city's blue common, the gardens of Kongens Have and the lakes, which form one large and green arch across Indre By.

In Christianshavn, in addition to the unique landscape of the ramparts, it is green and blue areas at Holmen and on the island of Refshaleøen, the trees subject to preservation orders along the canals and the trees along Danneskiolds-Samsøes Allé in particular that represent the major green features.

The dense structure of the medieval city is emphasised by solitary trees, such as the plane tree on Gråbrødre Torv, trees alongside Frue Kirke and trees along the canals. At Kongens Nytorv the characterful Krinsen marks the transition from the medieval city to Nyhavn, Frederiksstaden and Gammelholm, each of which have their own green features. Emphasis is given here to the gardens and pollarded trees of Sankt Annæ Plads, the pollarded trees of Dronningsgården and the gardens of Amaliehaven, all of which highlight the tight development and urban spaces of Frederiksstaden. On Gammelholm, the freely growing trees along the side streets highlight the characterful urban structure with streets and views to the harbour. Outside are the Voldgade streets (rampart streets), framing the medieval city (partially) in green.

DEVELOPMENT AND URBAN STRUCTURE

Indre By and Christianshavn together form a unique urban picture, with towers, fine interaction between city and port, Slotsholmen and the striking neighbourhoods and the major cultural institutions.

In brief, the medieval city and Christianshavn represent the core of the built environment structure. In addition to this there are more recent developments outside the ramparts, as well as Slotsholmen, Frederiksstaden, Gammelholm and Holmen.

The historical streets, squares and marketplaces bind the city together. HC Andersens Boulevard, the Voldgade streets, the Gothersgade line, Bernstorffsgade, Dag Hammerskjölds Allé and Torvegade represent the most central street spaces. More recent developments along the harbour. Bridges running across the harbour and canals and the transformation of Holmen help to regenerate the city and bind it together.

Indre By and Christianshavn looking from south to north

URBAN SPACES

Indre By and Christianshavn have a special character with a high concentration of shops, cafes and restaurants, cultural institutions, tourist attractions and many different major and minor urban spaces, which at the same time are among the most visited in the city. Space and accessibility are a challenge along and in the dense network of marketplaces, squares, alleys and parks.

Rådhuspladsen (Town Hall Square), Kongens Nytorv and the Palace Square are the largest and most central open squares in the city. The harbour, canals, lakes and parks in particular are the places where people meet, relax, run, sail and swim. The quieter places are, for example, Bibliotekshaven, Sankt Annæ Plads, Trinitatis Kirkeplads and along the ramparts in Christianshavn. The urban spaces of this district are constantly developing and changing to provide space for more urban life and to improve traffic flow and accessibility. In recent years a large number of urban spaces have been modernised, particularly along Strøget, Købmagergade, in the neighbourhood around Nørreport, along the harbour and most recently at Christianshavns Torv. Work is also in progress to provide improved conditions for pedestrians, cyclists and public transport.

POTENTIAL

The cultural and architectural features of the district represent significant assets, including for the rest of Copenhagen, and are generally vulnerable to change.

The location of the projects in the cloudburst management plan means that in particular they can assist in supporting two of the city's larger and more notable features and connecting links. Several of the cloudburst management projects adjoin the Lakes and in particular Sankt Jørgens Sø. The lakes are among the most notable urban spaces in the city, at the same time representing an important recreational area and connecting link for the whole city. New measures have to respect and support the many existing assets and assist towards creating new opportunities and experiences in everyday life.

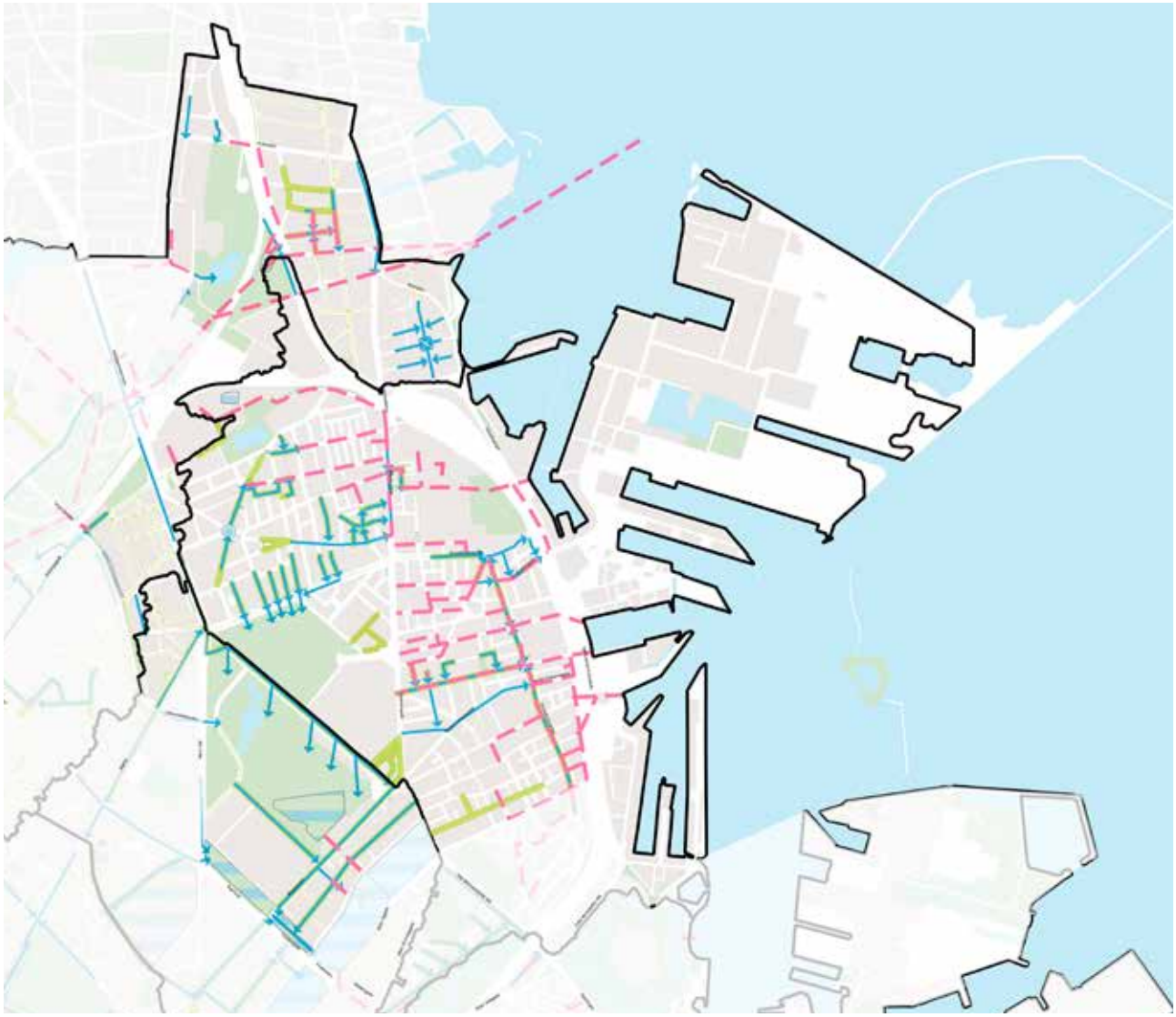
H.C. Andersens Boulevard can be strengthened as the central route of the whole city with the focus on recreating the boulevard feature and on Rådhushaven (Town Hall Garden), which today can only be observed as fragmentary traces. In addition, the link and the spatial relationship between Vesterbro and Indre By are enhanced in particular at Rådhuspladsen (Town Hall Square).

Furthermore, cloudburst management and regeneration of Sankt Annæ Plads, Kværhusgade and Nyhavn with the Royal Danish Theatre are already under way.

Schematic diagram, development potential for Indre By and Christianshavn

ØSTERBRO
DESCRIPTION

POPULATION APPROX. 75,000 IN 2015
AREA 8.74 KM2.
M2 GREEN PER INHABITANT 15.58



Østerbro with water catchment areas and cloudburst management projects

Østerbro, looking from west to east

In Østerbro there is a little more room in the streetscape, and here there is urban life and a strong retailing hub along Østerbrogade and Nordre Frihavnsgade. Parken and Fælledparken are located in Østerbro and among the most heavily visited places in the city. Alongside these, everyday life is lived in the green spaces and on squares and marketplaces. The expansion in the years after 1890 took place in Østerbro, and Østerbro came into being with wider streets, and the building standard in general is higher than in Nørrebro and Vesterbro.

GREEN FEATURES

Østerbro contains some of the city's important parks and characterful green streetscapes. Fælledparken is to be emphasised, as well as its relationship with Amorparken, Fredenspark as far as the Lakes, Svanemølle Strand and the green boundary at Ryvangen as well as a number of smaller parks and green urban spaces, including Kildevældsparken, Classens Have and Bopa Plads.

Nørre Allé and Øster Allé, Jagtvej and Strandboulevarden, Lersø Park Allé and Willemosegade are all characterful and notable green urban spaces. In addition, it is characteristic that the local streets often have trees planted at the street corners.

DEVELOPMENT AND URBAN STRUCTURE

The block structure dominates in Østerbro. The historical development means that the individual neighbourhoods are experienced differently, and at the same time a number of developments have taken place over the years that clash with the block structure. For example, there are unique urban environments in the neighbourhood around Rosenvængets Allé, Brumleby, the Komponistkvarteret neighbourhood, the large areas of detached houses at Ryvangen and the larger institutional areas at Universitetsparken, Rigshospitalet (Copenhagen University Hospital) and the former Øresund Hospital.

The stretch of roads Dag Hammerskjölds Allé – Østerbrogade – Strandvejen has been the most important road link in North Zealand since the foundation of Copenhagen.

Østerbro has been almost cut off from the harbour area for many years. This trend has been reversed with the many developments along the harbourside. Urban development in Nordhavnen (North Harbour) continues to make it appropriate to support and expand connecting links and relationships across the railway line.

URBAN SPACES

Østerbro is predominantly a residential district with cultural facilities, cafes, shops, etc. Cultural facilities, the construction of the Metro City Ring, Fælledparken and the development of the Campus Area and Rigshospitalet, among other things, mean that the district also attracts users and visitors from all parts of the city. The development of Nordhavn means that the district will gain many new users, visitors and residents. Good accessibility, good places for people to congregate and cohesion are crucial in order to support everyday life that works well.

The most central urban space is the newly renovated Fælledparken and Svanemølle Strand, which offer themselves to the whole city. Østerbrogade is the central shopping street and at the same time each neighbourhood has its own local streets, squares and green spaces.

Strandboulevarden is an important urban space for inner Østerbro and may become the point where the district opens up and provides a transition to Nordhavnen. Ryesgade and Nordre Frihavnsgade are important for the southern part of this district, and the urban spaces in Sankt Kjelds Kvarter are important for the northern part of Østerbro.

Østerbro and Nordhavn looking from north to south

POTENTIAL

The location of the cloudburst management plan projects in the district means that they can help in particular in strengthening larger green and notable features and connecting links. In addition, the cloudburst management plan can help in strengthening links between the individual neighbourhoods.

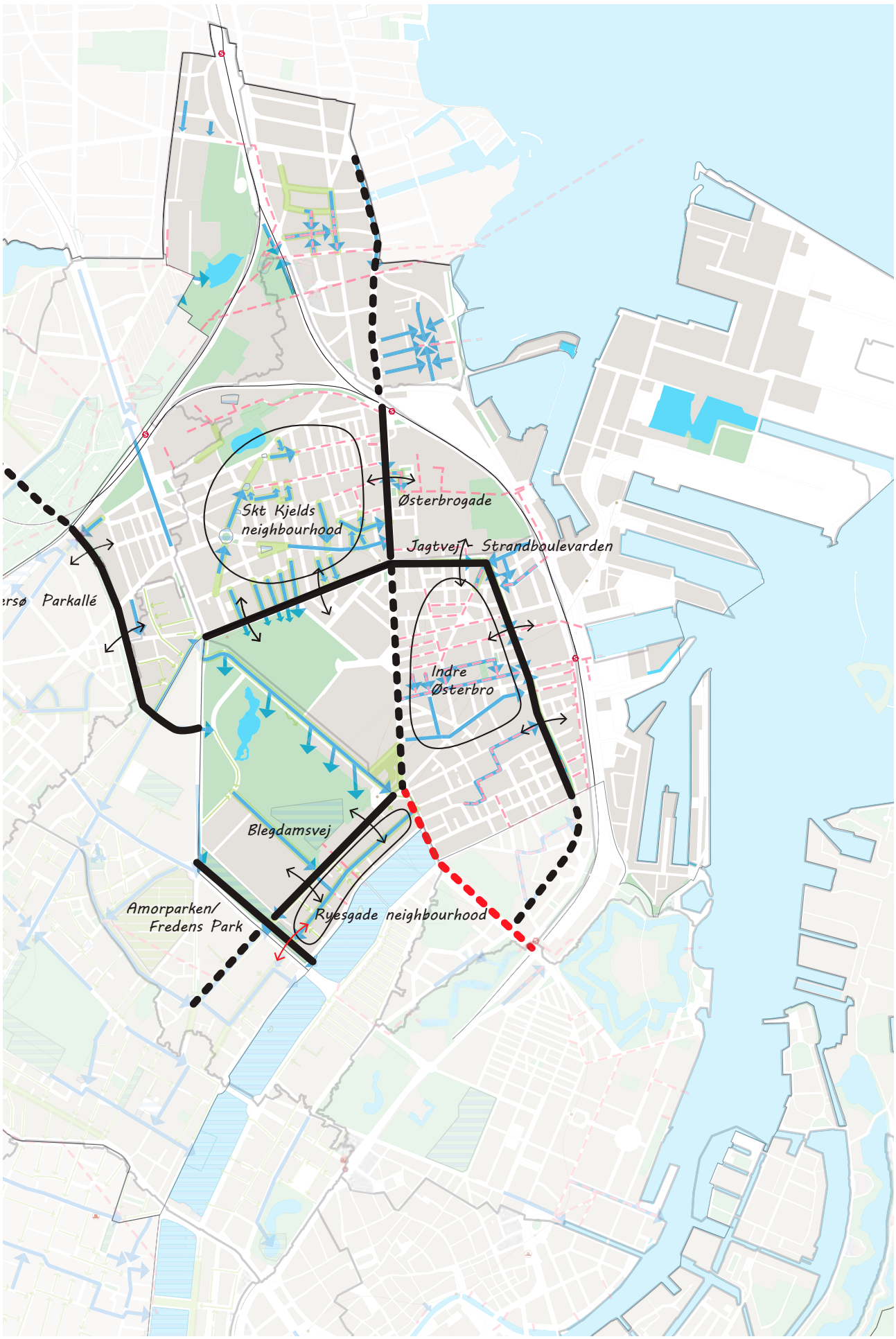
Lersø Park Allé can be strengthened as a combined park avenue, a unique green and recreational route that can improve accessibility and bind the city together better. Amorparken and Fredens Park can be enhanced as a combined green and recreational route as far as the Lakes.

Fælledparken is vulnerable to change, and cloudburst management solutions therefore have to take place in such a way that the character and recreational value of the park are respected and supported.

The northern part of Østerbrogade can be strengthened so that the central street in the district stands out as a combined green space and connector with good links across the street and enhanced shopping activity. Blegdamsvej can be strengthened as a combined green route and connecting link between Nørrebro and Østerbro.

The cloudburst management plan also provides an opportunity to strengthen one of the district's most notable green features, Jagtvej and Strandboulevarden all the way to Kristiansgade in Indre By (Inner City). Both longitudinal and transverse connecting links between the neighbourhoods and local everyday life can be strengthened here.

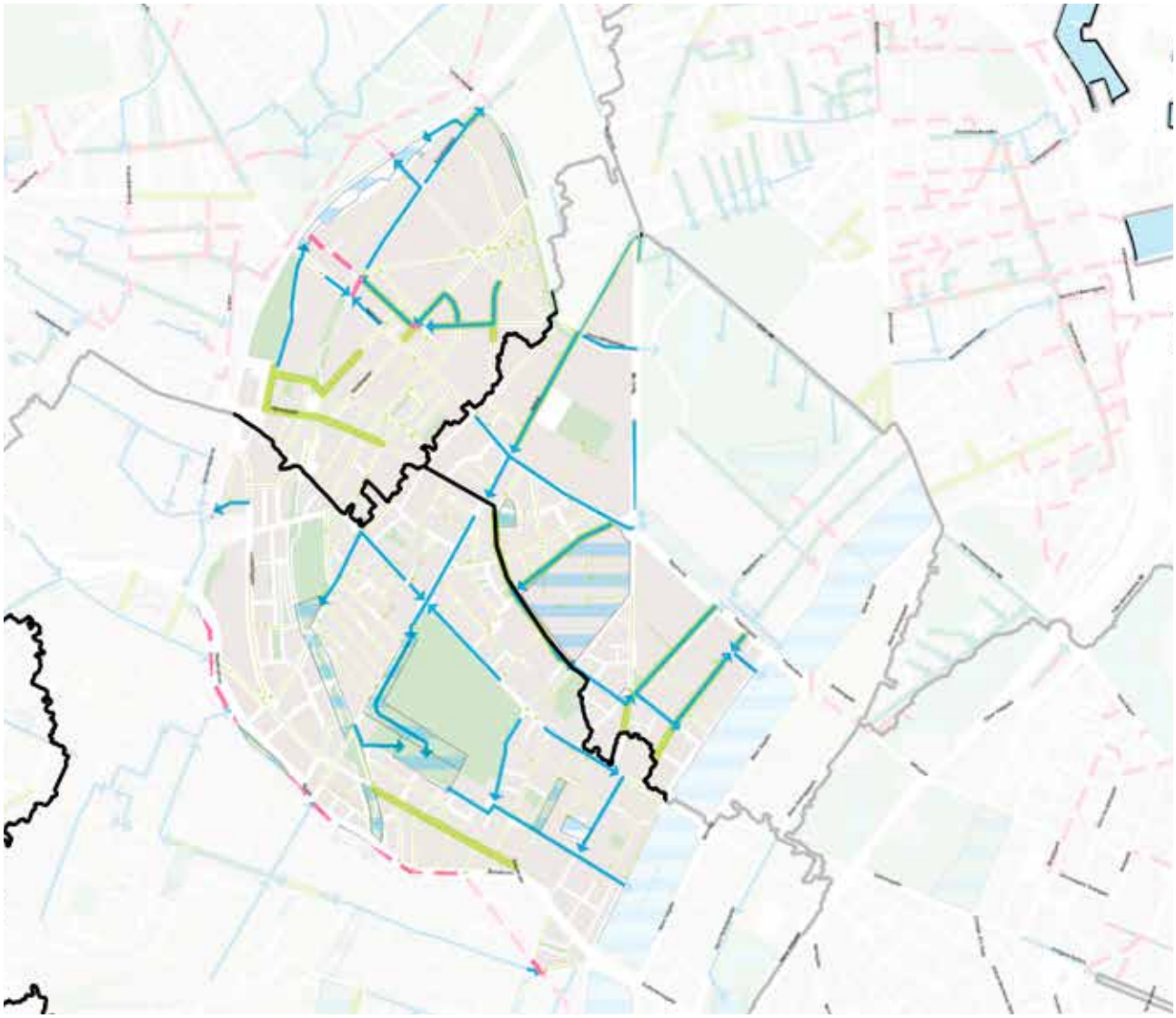
Locally there is potential to strengthen the urban space and the special urban structure, as well as the local green features and everyday life in the neighbourhood around Sankt Kjelds Plads, east of Østerbrogade and around Ryesgade.



Schematic diagram, development potential for Østerbro

NØRREBRO
DESCRIPTION

POPULATION APPROX. 78,000 IN 2015
DEPRIVED AREAS OF HOUSING THE WHOLE OF NØRREBRO
AREA 4.10 KM2
M2 GREEN PER INHABITANT 6.00



Nørrebro with water catchment areas and cloudburst management projects

Nørrebro, looking from north to south-east

Nørrebro is a built-up and varied residential neighbourhood. Nørrebrogade is the central thoroughfare through the different neighbourhoods of the district with shops and cafes and vast numbers of cyclists and pedestrians. The innermost part of Nørrebro was expanded rapidly and without planning. Large parts of the urban area south-east of Jagtvej were erected before 1870. In the northern part of Nørrebro, more open residential and commercial development took place after the turn of the century. The radical urban renewal at the end of the 1970s and in the 1980s has created a notable change of character in parts of Inner Nørrebro.

GREEN FEATURES

The major green features in Nørrebro are created by a green continuous belt along the railway area together with Mimersparken and onward towards Lersø Parken (of the city's green rings), and also by the almost continuous green chains formed by Nørrebroparken, Hans-Tavsens Park and Assistens Kirkegård and finally by the unique Søfront (lakeside).

There are lines of trees along Jagtvej, Nørre Alle and Blegdamsvej. Nørrebro also has small green oases such as De Gamles By, Bannapark, Folkets Park, Guldbergsplads and Balders Plads.

DEVELOPMENT AND URBAN STRUCTURE

Nørrebro's characteristic block development is mixed with notable developments and urban environments that represent different times and styles, such as De Gamles By, the neighbourhood around Guldbergs Plads, Vibekevang at Lersø Park Allé, the oldest development at Ryesgade, and the redevelopment in the Blågårdsgade neighbourhood. The district's 'gate' at Dronning Louises Bro and the large through-roads, including Tagensvej, Jagtvej and Nørrebrogade, which are the artery and pulse of the district.

Nørrebro is in the centre of the city, and is therefore a very busy connecting link for traffic in the city, and it is therefore often on the traffic policy agenda. This applies to both through-traffic and local traffic.

URBAN SPACES

Nørrebro has varied cultural facilities and cafes. There is great pressure on the urban spaces here, and a need for more places to meet and green recreational spaces. The Metro City Ring and development of the Campus Area, among other sites, means that the district attracts, and will in future continue to attract, users and visitors from the whole city. The most central urban space is Sankt Hans Torv, Blågårds Plads, Superkilen, Nørrebroparken and Mimersparken. The more locally established urban spaces are, for example, Guldbergs Plads, Balders Plads, Bannapark and Folkets Park.

Particularly in the outer part of Nørebro and in the neighbourhood around Rantzausgade and at Nørrebro Station and along the railway line there continues to be a great need to enhance the urban space, urban nature and connecting links.

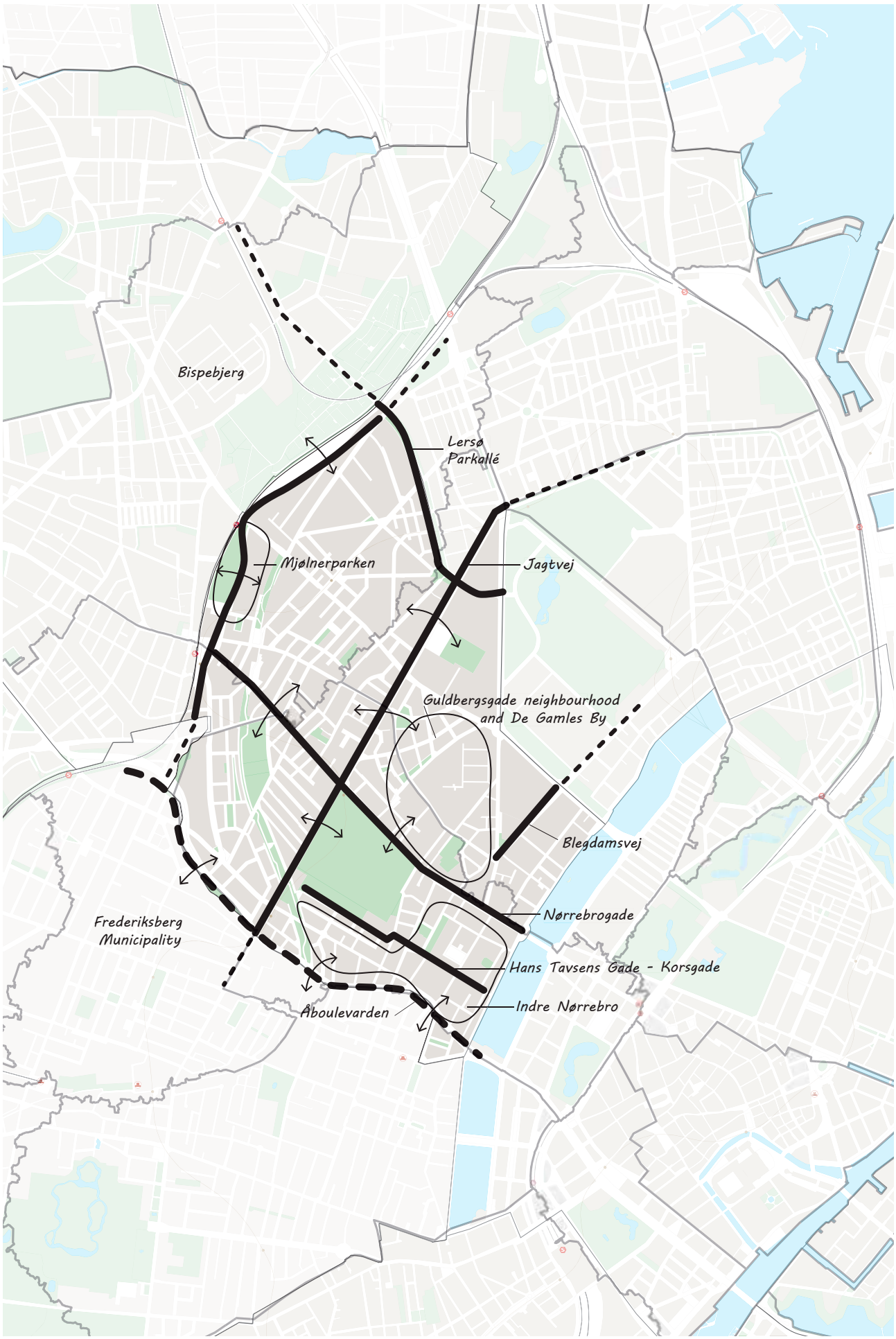
Nørrebro, looking from south to north

POTENTIAL

The location of the projects in the cloudburst management plan in Nørrebro means that they can be involved in enhancing the major green features and connecting links. Better cohesion and connecting links across neighbourhoods and districts can be created, as well as more green hubs of activity.

Emphasis is given here to the green ring along the boundary between Nørrebro and Bispebjerg at Mjølnerparken, which can be made clearer and more accessible. Lersø Park Allé, which is a green recreational urban space, which can link outer Nørrebro and outer Østerbro together. Åboulevarden, if a tunnel solution is chosen, can create good links and cohesion with Frederiksberg as a notable, green, combined connection. The local character of Nørrebrogade from neighbourhood to neighbourhood can be enhanced in the continued cloudburst management activity.

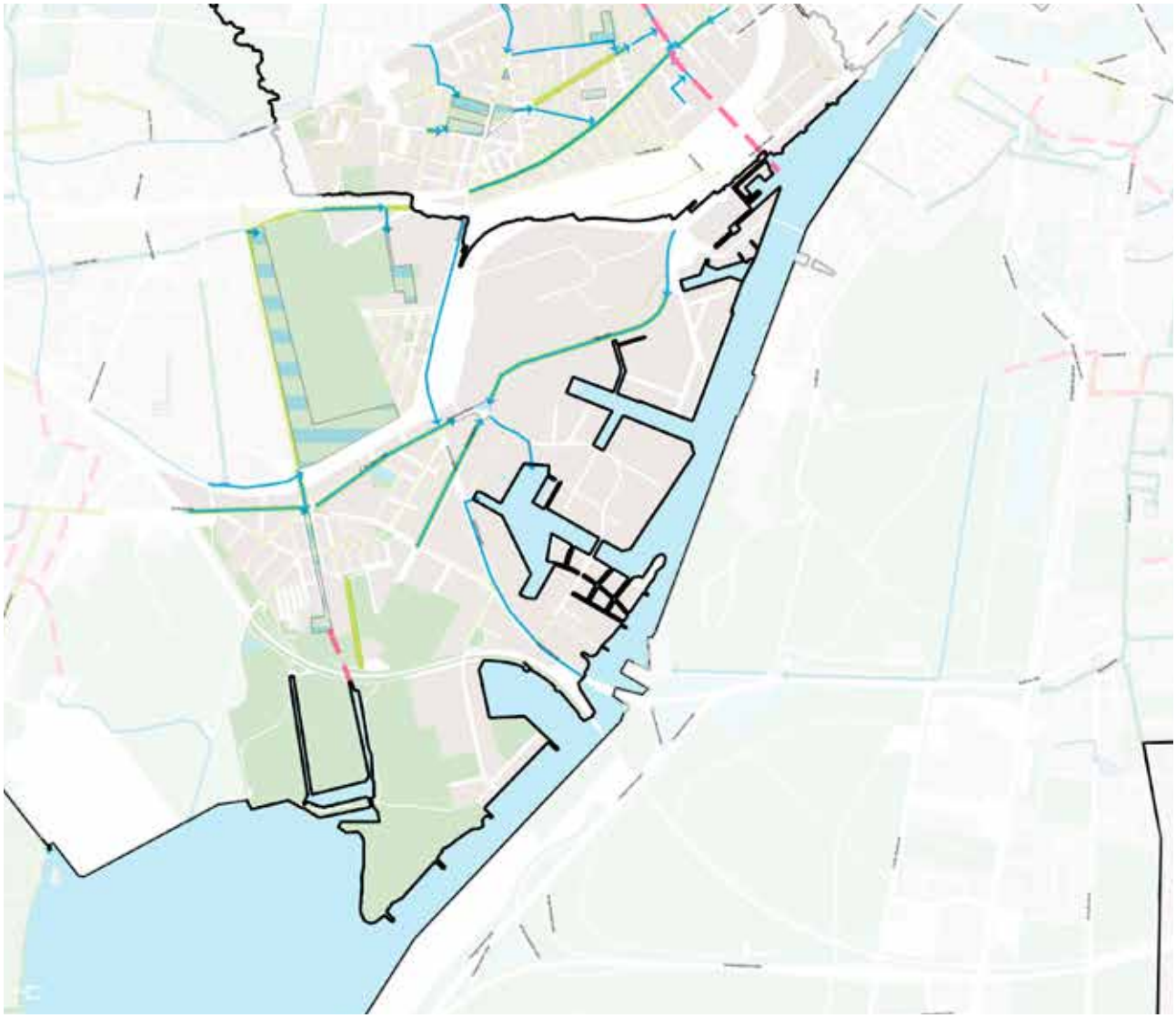
In addition, the district's major green roads, though-routes and transverse links are strengthened in particular on Jagtvej and Blegdamsvej. The local routes and connections can be strengthened in particular in the Rantzaus neighbourhood between Hans Tavens Park, Stengade and Korsgade onward to the Lakes and across Assistens kirkegård (cemetery) and in the neighbourhood around De Gamles By and Guldbergsgade.



Schematic diagram, development potential for Nørrebro

VESTERBRO – KGS. ENGHAVE
DESCRIPTION

POPULATION APPROX. 39,000 VESTERBRO AND APPROX. 20,000 KGS. ENGHAVE IN 2015
DEPRIVED AREAS OF HOUSING THE WESTERN PART OF VESTERBRO AND THE CENTRAL PART OF KGS. ENGHAVE
AREA 8.18 KM2. VESTERBRO AND KGS. ENGHAVE
M2 GREEN PER INHABITANT 23.65



Vesterbro – Kgs. Enghave with water catchment areas and cloudburst management projects

Vesterbro looking from north-east to south-west

The central part of Vesterbro today is a classical and urban residential neighbourhood. Vesterbro has undergone large changes over the course of the past 30 – 40 years, with urban regeneration and urban space improvements. There are well defined square, road and park spaces here. Vesterbro was almost fully expanded in the period 1856 – 1901. Kgs. Enghave, like Vesterbro, has always had its own soul and history, and was expanded during the period from 1908 through to the 1950s with strong traditions of creating good housing conditions and light and air for the working class.

The railway and harbour area located between and south of Vesterbro and Kgs. Enghave are being transformed. The new housing, new residents, new Metro, etc. will have an impact on the attractiveness of the district and contribute to creating new relationships and connecting links.

GREEN AND BLUE FEATURES

The major green features and green sections of road bind Vesterbro and Kgs. Enghave together through routes such as Søndermarken, Carlsberg, Vestre Kirkegård through to Karens Minde and Tippen. Enghavevej and Sydhavnsgade together also create a green chain. The harbour, Kalvebod-erne and Tippen also contribute to binding the new and older areas together.

The most important green spaces in Vesterbro are Enghave-parken together with Enghave Plads, Sønder Boulevard – Halmtorvet and Skydebanehaven and the gardens in Carls-berg. The green features in the area around Otto Bussevej are also of significance to the district.

In Kgs. Enhave, large parts of the built environment adjoin either Vester Kirkegård, Valby Parken, Tippen or the har-bour. The large areas around Karens Minde form a transi-tion to vegetable plots and green areas of housing, and create unique green environments. Many of the larger roads also have notable lines of trees. The new housing area in Slus-eholmen is created in a unique interaction with the harbour.

DEVELOPMENT AND URBAN STRUCTURE

The dominant feature in Vesterbro is the clear boundaries between the densely built-up Vesterbro, the railway line and the harbour, as well as the view across the city and HC Ørstedsværket. The dense block structure, the low and unique Kødbyen adjoining Copenhagen Central Station and the railway line and the Carlsberg area together form a dense and varied urban landscape. Vesterbro is character-ised each in their own way by four almost parallel streets, Vesterbrogade, the historically important approach road, Istedgade, the local shopping street, Sønder Boulevard as the green place where people come together and Vasbygade, which frames the district and forms the boundary to the railway line.

Kgs. Enghave is divided into Musikbyen with Karens Minde, the Frederiksholm neighbourhood with the allot-ment society Frem and the Bavnehøj neighbourhood and the new Sydhavn area, whose old and more recent industry forms the transition between new and old. Musikbyen is fringed by colourful allotment gardens and green areas of housing. The whole harbour area is being transformed into harbour-side homes, businesses and institutions. In addi-tion, the large roads and railway lines carrying high vol-umes of traffic are characteristic of the district.

Kgs. Enghave set fra nordvest mod sydøst

URBAN SPACES

Copenhagen Central Station, hotels, the development of Carlsberg, urban development along the harbour and railway, construction of the Metro City Ring and the Metro to Sydhaven (Southern Harbour), cultural facilities, places to eat, Fisketorvet and much else besides mean that this district attracts other Copenhagen residents and visitors. The urban development also means that more people will move to the district and there will be an increased need for activity and options for spending time.

Vesterbro has a number of squares, marketplaces, parks and gardens of varying size and with various provisions and functions. The central urban spaces include the newly renovated Istedgade, Enghave Plads and Enghave Park, as well as Sønder Boulevard-Halmtorvet and Køsbyen. In addition there are the central approach road Vesterbrogade and Vesterbros Torv, where shopping activity is concentrated. Vesterbro additionally contains a number of smaller spaces with a local flavour, including Tove Ditlevsens Plads, Litauens Plads and Otto Krabbes Plads.

The green cycle route 'Søruten' (the Lake Route) provides a good connecting link between Vesterbro, Amager and Frederiksberg, and the Carlsberg Route will provide a good connecting link between Valby-Vesterbro and Indre By.

In Kgs. Enghave, Mozarts Plads and the smaller squares long the shopping route Mozartsvej-Borbjergsvej are the key places where people congregate. The Karens Minde area and the house of culture are the green oasis of Kgs. Enghave and a place where people come together with many different activities and cultural provisions. Brønshøj Allé is the central green urban space of the Bavnehøj neighbourhood and the connecting link with the Vester Kirkegård cemetery.

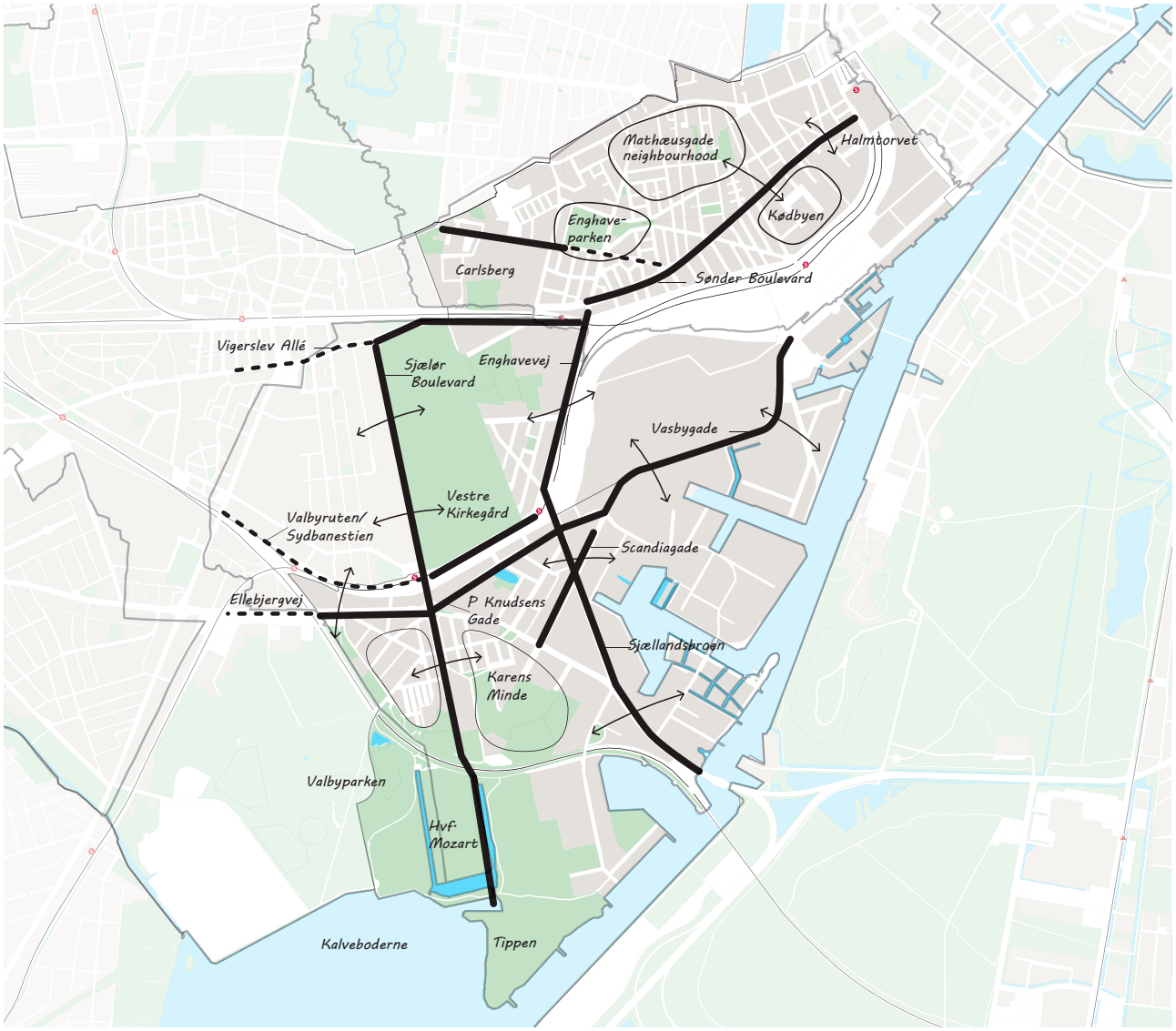
The major traffic arteries and the railway line represent notable barriers both internally and towards the harbour areas. Expansion of the Metro will mean that Mozarts Plads with more transfers between lines will have a changed significance for the district.

The residential area of Sluseholmen today offers new urban space qualities along the garden and the canals. The school is one of the places where people congregate in the neighbourhood. The new urban areas along the harbour are expected to contain a number of different local and regional urban spaces, including a number of urban spaces and promenades alongside the water. The Metro will be significant for the cohesion of Sluseholm with the rest of the city.

The development of the harbour which is under way means that the area will attract more people. There is a continued need to strengthen the contact with the water, and new connections will be able to link the district more closely to the rest of the city.

POTENTIAL

The location of the projects in Vesterbro and in Kgs. Enghave in the cloudburst management plan mean that they can help strengthen the overall green features and recreational connecting links of the district and create better cohesion in the city and between existing urban and harbour areas. The projects can assist towards enhancing local green features, connections and everyday life.



Schematic diagram, development potential for Vesterbro – Kgs. Enghave

Vesterbro

In central Vesterbro there is potential to enhance the overall green features, connecting links and urban life in Enghaveparken in conjunction with Carlsberg, among other places, and along Halmtorvet – Sønder Boulevard green notable chains in conjunction with the urban spaces and functions of Kødbyen. Locally, everyday life and the local green features are enhanced in the area around Matthæusgade in conjunction with Otto Krabbes Plads, among others.

Kgs. Enghave

In Kgs. Enghave, the cloudburst management plan can help strength Sjælør Boulevard as a notable green connecting link with better cohesion between the local areas and the larger green and recreational areas Vester Kirkegård and Tippen. A footpath and cycle route – Valbyruten (the Valby Route) can also be enhanced here.

Vigerslev Allé towards the north and the central through-route of Valbygade – P. Knudsens Gade – Folvehaven can be strengthened both as green general and through-routes in Copenhagen and as connecting links across Kgs. Enghave, Vesterbro and the harbour areas. In addition, the cloudburst management plan can support the Enghavevej – Sydhavns gade – Sjællandsbroen route and support links between existing urban and harbour areas.

Finally renewal of Scandiagade can be significant both as a connecting link to the harbour and as a local green and recreational place where people congregate.

VALBY
DESCRIPTION

POPULATION APPROX. 52,000 IN 2015
DEPRIVED AREAS OF HOUSING FOLEHAVEN, AT SJÆLØR BOULEVARD/STATION AND AT KULBANEVEJ
AREA 9.23 KM2
M2 GREEN PER INHABITANT 30.10

Valby with water catchment areas and cloudburst management projects

Valby looking from south-east to north-west

Valby today is experienced as a diverse residential town. It is still possible to sense the village of Valby and the distinctive historical development that took off in the early years of the 20th century. By virtue of its location, its clear physical boundaries, its history and varying built environments, the district has its own identity as a town within the city.

GREEN FEATURES

Valby is fringed by some of Copenhagen's important parks and areas of nature, including Valby Parken and Vigerslev Parken, which are part of the course of the Harrestrup Å river connecting through to Utterslev Mose, etc. Vestre Kirkegård forms the boundary with Kgs. Enghave and Søndermarken with Frederiksberg. In addition, the district offers several smaller green breathing spaces, allotment societies and areas of detached houses.

DEVELOPMENT AND URBAN STRUCTURE

Valby is dissected by large approach roads and the railway network. Today, Valby is formed of varied built environments and neighbourhoods, from multi-storey housing developments to housing associations, detached houses and terraced houses, as well as former industrial and commercial businesses such as Grøntorvet and Fl. Smith Grunden, which are now under development. The neighbourhoods lie side by side, but are often physically separated by large and heavily used through-roads such as Folehaven, Gammel Køge Landvej, Vigerslev Allé and railway lines. They are, in addition, either raised or lowered in relation to the surrounding terrain, which further splits the district physically.

There is therefore a need in Valby to join and establish connecting links across neighbourhoods, the town centre and large recreational areas such as the Valby sports grounds (Valby Idrætsarealer) and Valby Parken.

URBAN SPACES

The central hubs of activity of the district are in the district centre at Porcelænstorvet, Valby Tingsted and Valby Langgade, as well as Toftegåds Plads and Toftegårds Allé. The local places where people congregate activity are typically places such as Valby Storbyhave, Herman Bands Plads and Åholm Plads.

Apart from Gamle Valby (Old Valby), there are few actual squares and hubs of activity. The most central urban space is Toftegårds Plads and Valby Tingsted. In addition, Toftegårds Alle and Valby Langgade with the adjoining spaces are the central streets with shopping and cafes. Some of the squares, including Toftegårds Plads and Åholm Plads, need renovation, so that they can offer a framework for vibrant and varied urban life to a greater extent.

Valby area at Retortvej looking from south-east to west

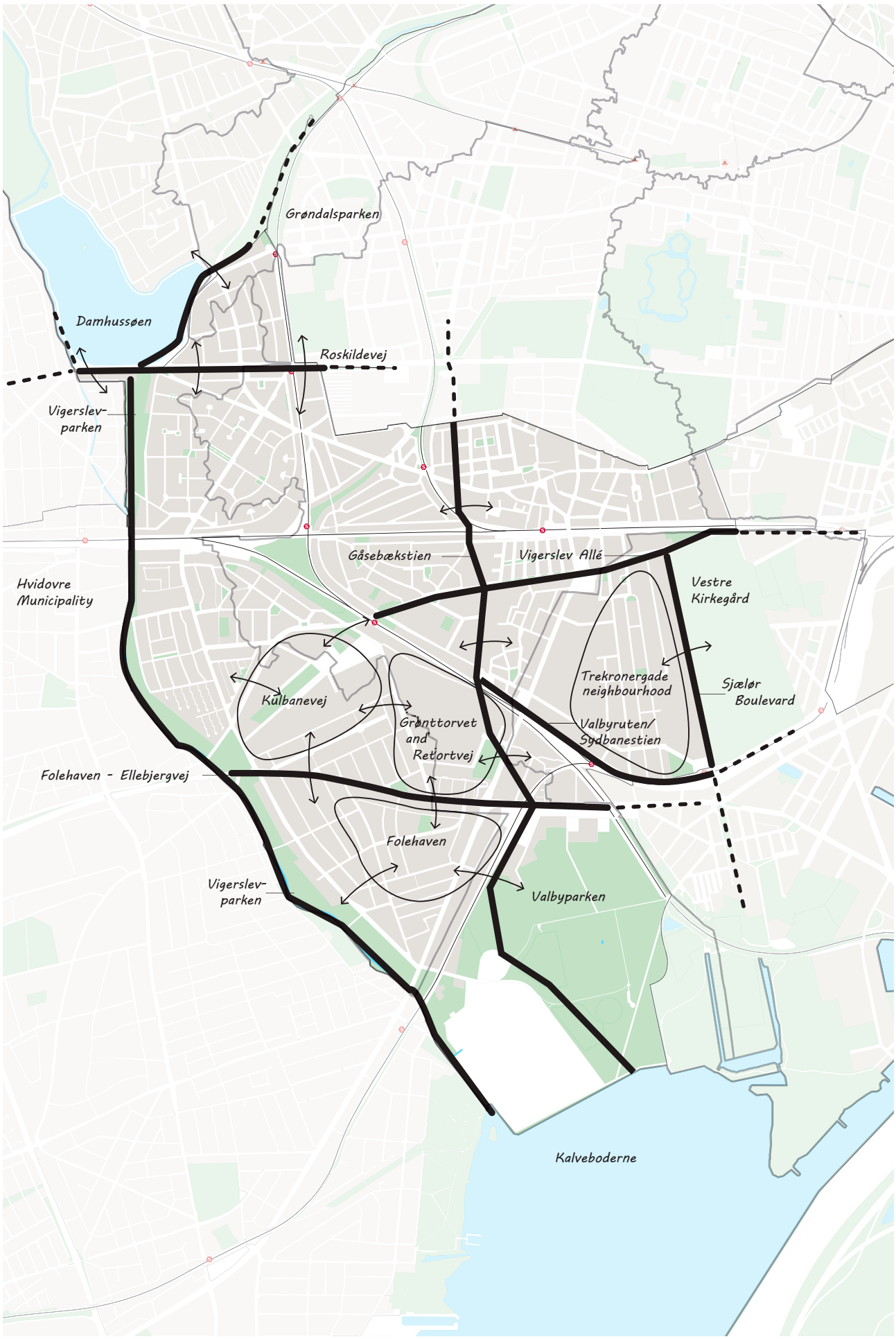
POTENTIAL

The location of the cloudburst management projects in the district means that they can help enhance connecting links internally between the individual neighbourhoods and urban spaces and help enhance everyday life by creating more green hubs of activity.

The cloudburst management plan can assist locally in creating better access to the Valby idrætspark sports grounds, Gammel Valby and the development area at Grønttorvet and Retortvej, enhancing the landscape features at Vigerslevparken to Grøndalsparken in Vanløse and enhancing Folehaven and Roskildevej as an approach road to the city, so that they appear as combined green routes with good connecting links across.

Locally the projects can strengthen some of the longitudinal and transverse relationships that already exist. Gåsebækstien is a footpath route that partially exists. Tunnelling can support the development of the path linking Valbyparken and Gammel Valby, which has great potential as a safe and recreational connecting link for pedestrians and cyclists. There is also potential in enhancing the future green cycle route, Valbyruten.

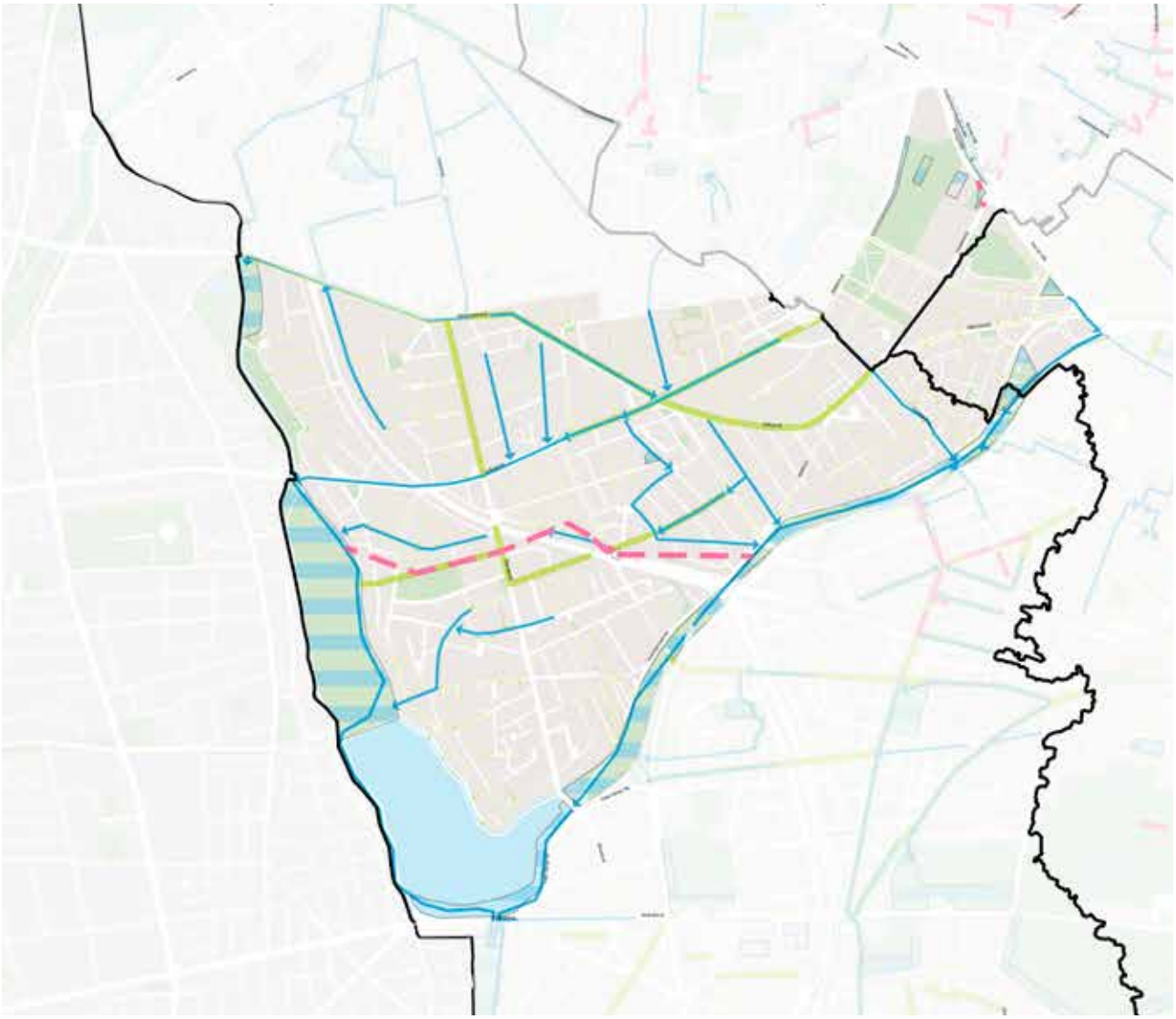
In addition, there is great potential and synergies in joining the cloudburst management effort to projects for the deprived urban areas, which today are isolated in the urban district, for example at Folehaven, Kulbanevej and Sjælør Station.



Schematic diagram, development potential for Valby

VANLØSE
DESCRIPTION

POPULATION APPROX. 39,500 IN 2015
AREA 6.69 KM2
M2 GREEN PER INHABITANT 26.68



Vanløse with water catchment areas and cloudburst management projects

Vanløse town centre viewed from the south-east

Vanløse is an area of detached houses. The focus is on everyday living. There is space, greenness and local shopping here. Vanløse was incorporated into the City of Copenhagen in 1901 and has expanded around Jernbane Alle and Vanløse Station. As one of the youngest districts in Copenhagen, Vanløse was not fully expanded until the 1950s.

GREEN FEATURES

The main green features are the clear demarcation of the district towards the east, south and west. Towards the north/west, Krobebjergparken and the Harrestrup Å river mark the boundary with Rødovre. The Harrestrup Å runs onward into the open Damhuseng meadow along the boundary with Vanløse. Damhuseng adjoins the lake of Damhussøen, which a distinctive green and blue feature of the city, one of the city's areas of nature, with protected species and a visual hub, which at times marks arrival in Copenhagen from the south. The varied park space of Grøndalsparken marks the boundary between Vanløse and Frederiksberg all the way to Fuglebakken Station.

Vanløse has several smaller parks, such as Bellahøjmarken and Genforeningspladsen. In the many areas of detached houses there are green commons. The roads in the district are often planted with trees.

DEVELOPMENT AND URBAN STRUCTURE

The district contains large areas of detached houses, as well as terraced houses, housing association houses and open multi-storey housing developments. The western part of Vanløse is particularly notable for the extensive neighbourhoods of detached houses. The eastern part also has large areas of detached houses, but also contains enclaves of multistorey dwellings, which are often located as protective peripheral development around the neighbourhoods consisting of detached houses.

In addition, there are combined and well planned multi-storey residential developments such as Genforeningspladsen at Hulgårdsvej/Borups Alle and blocks at Sandbygårdsvej, Grøndals Haveby and Lønstrupshuse, as well as the mixed neighbourhood around Skulhøj Allé and Bakkehusene. The district is dissected by large roads, which together with the railway line split the district into smaller areas. The approach roads Islevvej – Slotsherrensvej – Sallingvej – Hillerødgade and Jyllingevej – Bellahøjvej at one and the same time represent the combined east/west main artery and a barrier of heavy traffic between north and south. Both sections of road are notable approach roads to Copenhagen with differing characters.

Damhussøen viewed from east to west

URBAN SPACES

The district's joint urban spaces are the large areas of nature at Damhussøen, Damhusengen and Grøndalsparken and the many more local parks and green spaces. There are opportunities here to cultivate leisure activities and take daily walks.

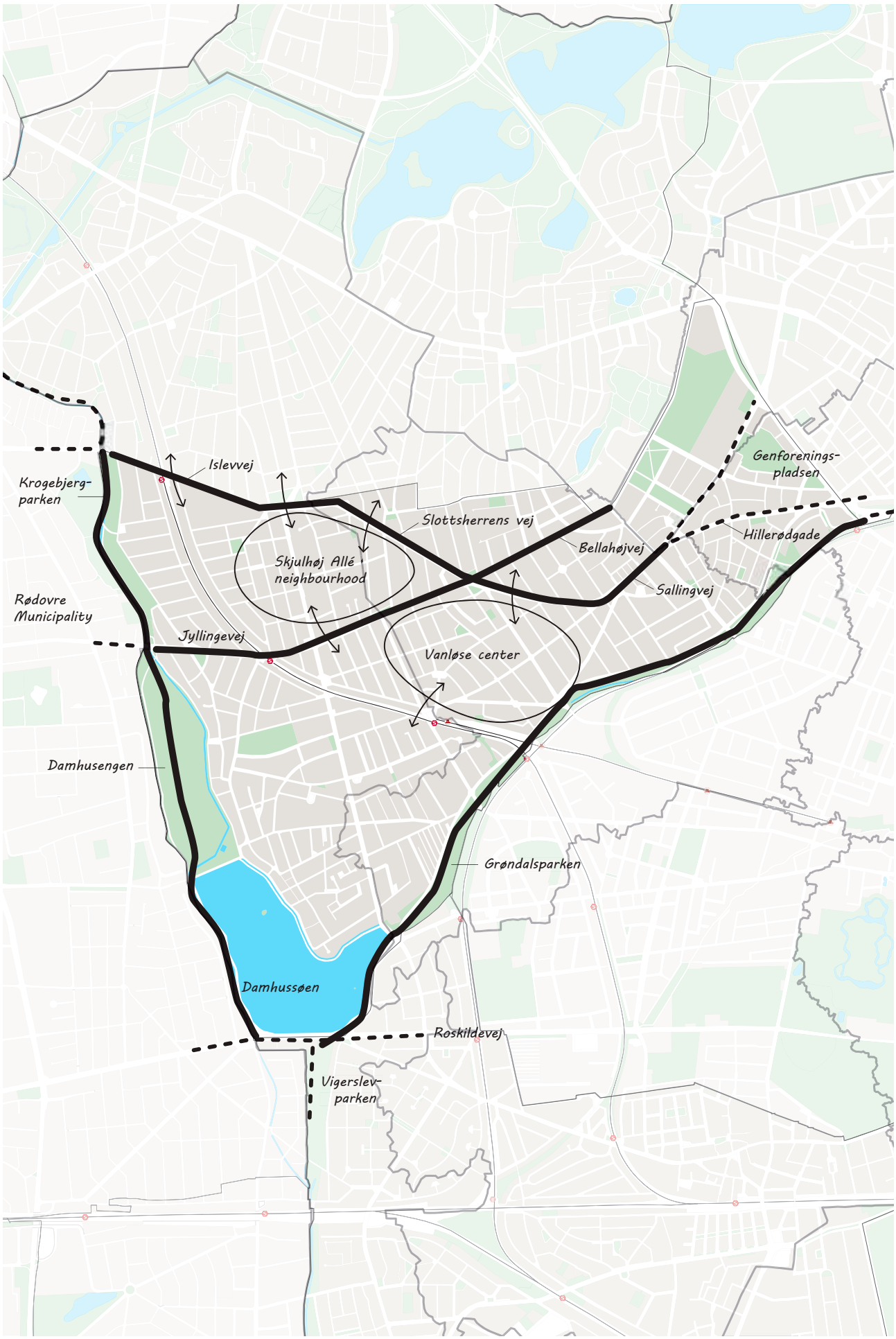
Commercial activity mainly takes place along Jernbane Allé as part of the town centre of Vanløse together with Vanløse Torv at Vanløse Station and Metro. The town centre has been expanded in recent years with joint functions, and a new shopping centre is being built here. In addition, there are plans for expansion of Frode Jakobsens Plads. Taken together, this will mean that the town centre of Vanløse will attract more visitors form the rest of the city.

POTENTIAL

The location of the cloudburst management projects in the district means that the projects can help to enhance longitudinal and transverse connecting links between the individual neighbourhoods and urban spaces and connection and interrelationship with the rest of the city.

The projects can enhance cohesion across the major traffic barriers in the district (Islevvej – Slotsherrensvej – Sallingvej – Hillerødgade and Jyllingevej – Bellahøjvej), as well as strengthening the potential to enhance the green character of the roads. In addition, the projects can help boost recreational use of Krogebjergparken, Grøndalsparken and Damhusengen and create better accessibility between the parks, Damhussøen, Grøndalsparken and Vigerslevsparken. Locally, the cloudburst management projects can strengthen the local community in the areas of detached houses.

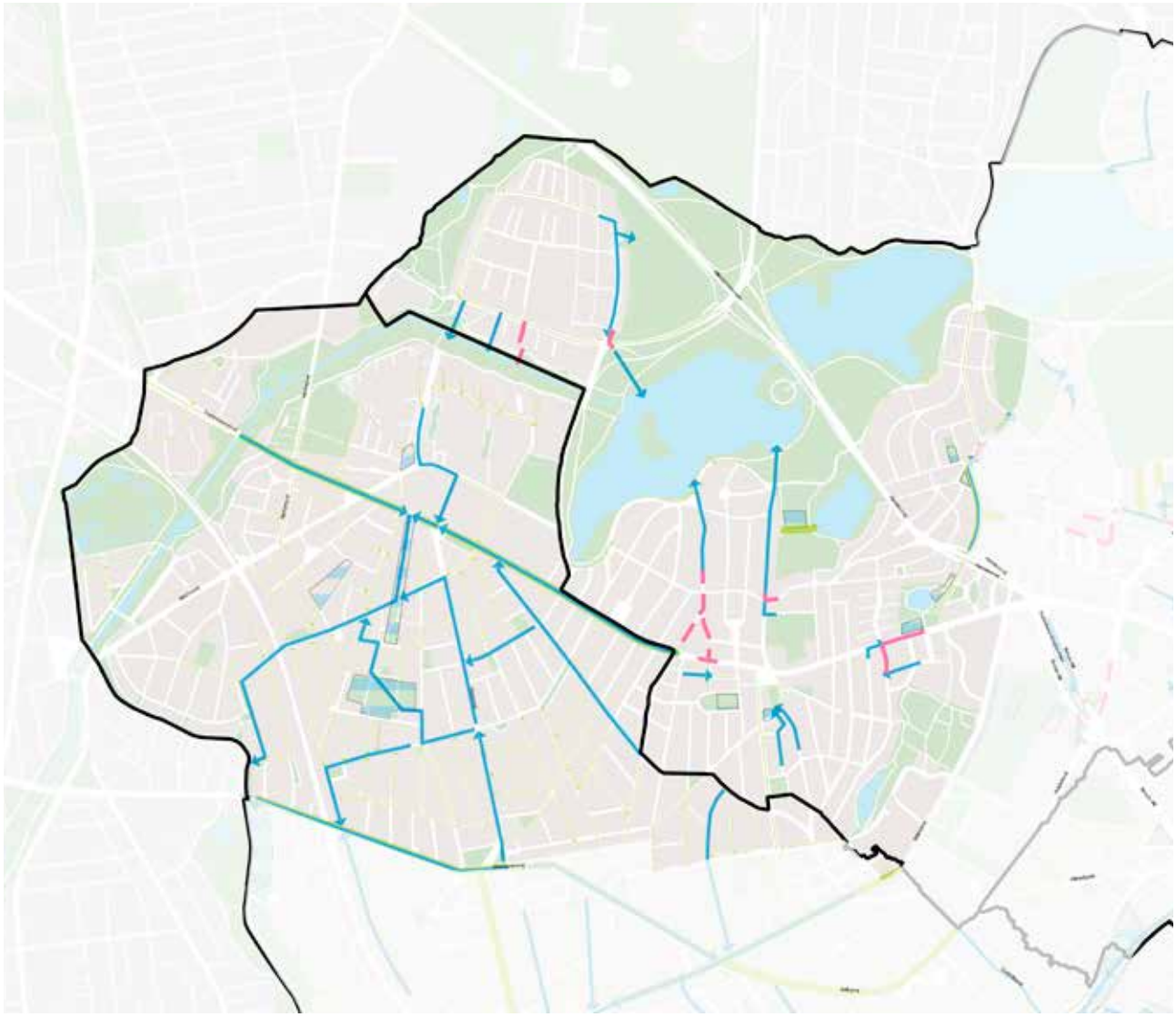
Damhusengen meadow and the lake, as areas of nature, are vulnerable to change. Cloudburst management solutions therefore have to take place in such a way that the character, nature and recreational assets of the area are respected and supported.



Schematic diagram, development potential for Vanløse

BRØNSHØJ – HUSUM – TINGBJERG
DESCRIPTION

POPULATION APPROX. 44,000 IN 2015
DEPRIVED AREAS OF HOUSING TINGBJERG, VOLDPARKEN AND BYSTÆVNEPARKEN AS WELL AS BELLAHØJHUSENE
AREA 8.73 KM2.
M2 GREEN PER INHABITANT 44.96



Brønhøj – Husum – Tingbjerg with water catchment areas and cloudburst management projects

Brønshøj, Husum viewed from south-east to north-west

In Brønshøj, Husum and Tingbjerg it is local everyday life that is of interest. The focus here is on housing, schools, institutions and good access to and coherence with the rest of the city. The district is part of Copenhagen's area of detached houses and has expanded around the country road to Frederikssund and the two villages of Husum and Brønshøj. The whole area was incorporated into the City of Copenhagen in 1901. The greatest building activity took place over the period 1910 to 1940, and by 1955 expansion of the district was largely complete.

GREEN AND BLUE FEATURES

The main green features are the boundaries of the district to the west, north and east. To the west, it is the notable feature of the Vestvolden embankment that, together with Kagsmosen, forms the boundary. Towards the north, the district adjoins the large blue and green area of nature Utterslev Mose and Kirkemosen. Towards the east, the Bellahøj development, Degnemosen, the ridge and Bellahøjmark form a clear green and landscape boundary. In addition, the district offers several smaller parks such as Husumparken and Brønshøjparken.

The Frederikssundvej tree plantation forms a continuous and distinctive green chain in the district.

The large expanse of allotment societies and areas of detached houses mean that there are also many green breathing spaces in the urban structure, and the minor roads in the district are often tree-lined.

DEVELOPMENT AND URBAN STRUCTURE

The characteristic terrain conditions in the district, the Frederikssundsvej through-road and the areas of detached houses are distinctive features of the district. The star-shaped road structure of the village is still noticeable in the southern part of Husum.

The three sub-areas of the district, Brønshøj, Husum and Tingbjerg, are each very different, in particular as a result of terrain conditions, the street structure and the period of expansion, with Brønshøj as the oldest part and Tingbjerg as the youngest. Tingbjerg is an independent and isolated town within the city surrounded by green on all sides and with only one road linking it to the outside world.

The multi-storey housing developments in the districts are small in number, but are highly distinctive and are generally of high architectural quality, including Tingbjerg, Bellahøjhusene, Voldparken, Gadelandet, Humlevænget, Enigheden, Den Engelske Haveby and the development around Brønshøj School. Most are park developments or terraced housing developments, where the open spaces are green streets and open green spaces.

The Tingbjerg area looking from west to south-east

URBAN SPACE

The largest common places where people come together in the district are the large areas of nature at Utterslev Mose and Vestvolden and the many more local parks and green spaces. There are opportunities here to cultivate outdoor leisure activities.

Frederikssundsvej is, at one and the same time, the combining historical main artery, where shopping is concentrated, and a heavily used traffic barrier between north and south.

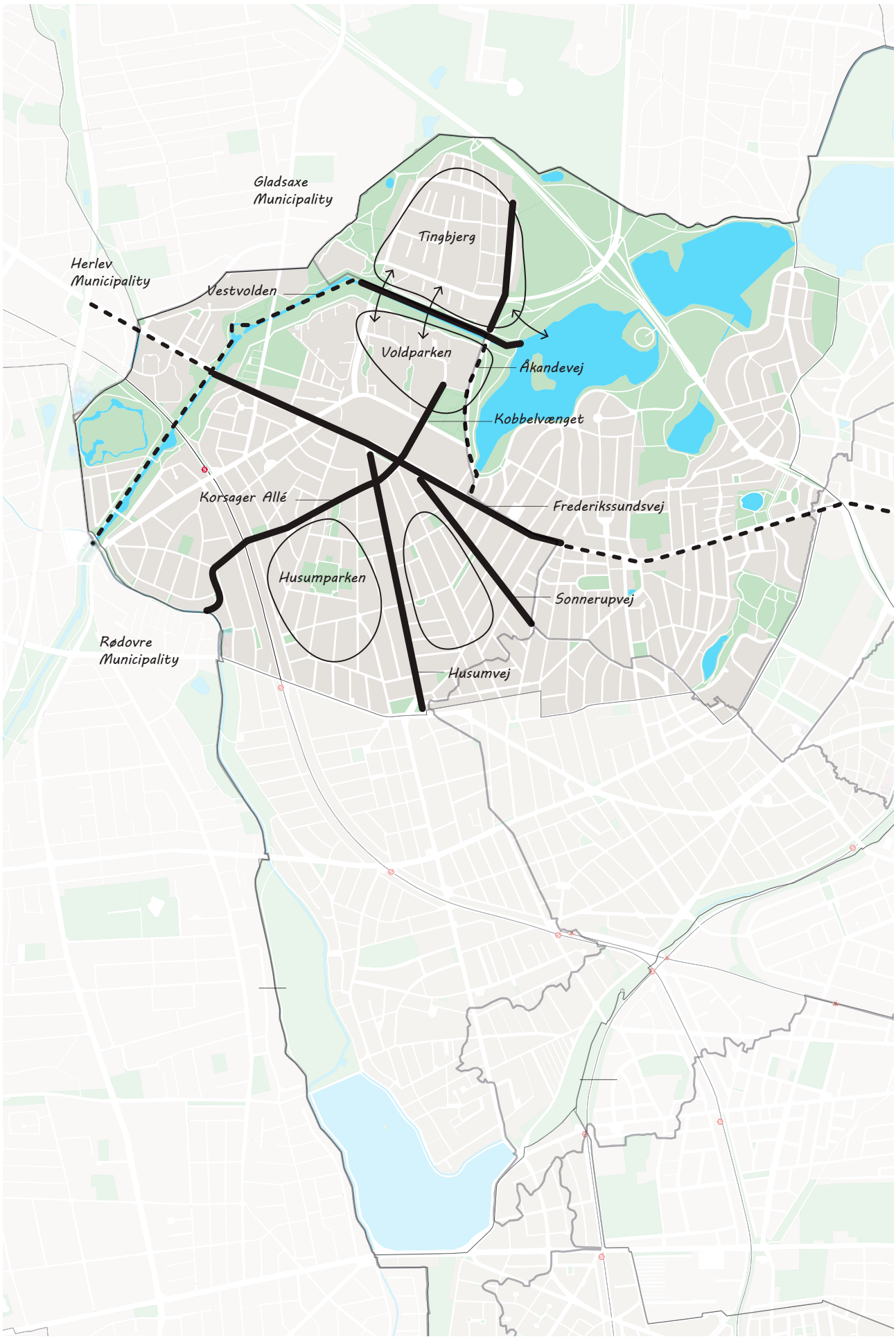
In Brønshøj, the square Brønshøj Torv, the pond and the Rytterskolen school are the district's join green district square with more traditional activities such as a market, displaying a Christmas tree, etc. In Husum, Husum Torv has become a bus loop and an interchange. People come together here more for shopping activity and the new city garden at Husumvej, and in Tingbjerg around the school and the local market square.

POTENTIAL

The location of the projects in the cloudburst management plan mean that overall they can help to support Frederikssundsvej as an approach road to the city and a central street in the district. In addition, the project can help support regeneration in the deprived areas of housing such as in Voldparken, Bystævenparken and Tingbjerg. The cloudburst management projects can also, in particular, enhance green connecting links and smaller park and green spaces in Husum.

There is great potential to enhance Tingbjerg as a residential area that is safer and works better and as an integral part of the district and the rest of the city. The cloudburst management projects here can support the urban development strategy that is in progress for the area and create connection and cohesion with the southern part of southern Husum across Vestvolden.

Locally, the characteristic star-shaped road pattern and green features, connecting links and smaller places where people come together in Husum can be enhanced.



Schematic diagram, development potential for Brønshøj – Husum – Tingbjerg

BISPEBJERG
DESCRIPTION

POPULATION APPROX. 53,000 IN 2015
DEPRIVED AREAS OF HOUSING THE WHOLE OF THE SOUTHERN AND CENTRAL PARTS AND THE AREA AROUND BISPEPARKEN AND TOMGÅRDSVEJ/DEGNESTAVNEN
AREA 6.83 KM2.
M2 GREEN PER INHABITANT 29.62

Bispebjerg with water catchment areas and cloudburst management projects

Bispebjerg looking from west to east

Bispebjerg extends from Nørrebro Station to Utterslev Mose, and contains widely differing and characterful developments. Large parts of Bispebjerg have been expanded following a combined urban plan over the period 1920 to 1940 according to the ideals of that time regarding light, air and green spaces and bear the hallmarks of the best architects of the time. The oldest neighbourhood in this district are in the north-west towards the south, where the previous function of the area as an industrial and residential neighbourhood can still be witnessed in the mixed and dense development.

GREEN FEATURES

The major green features of Bispebjerg consist of Utterslev Mose, Ved Renden and Empdrup Sø, as well as Lersøparken and Ryparken, which are part of the city's third green ring. The Bispebjerg Kirkegård cemetery and Bispebjerg Park Allé are among the notable green features of the district.

The north-west neighbourhood does not have any green areas. Local park areas have been established in two of the more recent developments in the area, Nordvestparken and Emaljehaven. The Grøndalsvænge school yard has been opened up to the district, and at the same there is experimentation with temporary gardens on plots of land and building sites.

The larger park developments, the neighbourhoods of detached houses and the gardens of Bispebjerg Hospital are also important to the green features of the district. In addition, Utterslev Torv and Hulgårds Plads, as well as the major roads lined with trees, are characteristic green features, including Tagensvej and Frederiksborgvej. Finally there are several smaller green spaces, green corners and roads, as well as yards and open spaces in the district.

DEVELOPMENT AND URBAN STRUCTURE

Bispebjerg has the Grundtvig Church on the hill top. This church is an important characteristic feature of the city, and the architecture, height and structure of the church have made their mark on the surrounding developments locally. The district contains several major notable developments, including blocks at Tomgårdsvej, Bispeparken and Emdrup Vænge. The areas of detached houses at the edge of the district, meandering roads, sloping terrain and proximity to the bog represent landscape assets.

In the north-westerly neighbourhood there are smaller market town developments, planned and unplanned developments. Most recently, Biblioteket (The Library) has been built as the distinctive cultural centre for the district at Rentemestervej.

Frederikssundsvej and Frederiksborgsvej are the historic roads in the district with great significance for the district both structurally and functionally. In addition, Borups Alle – Hareskovsvejen is a notable boundary to the west carrying heavy traffic.

Bispebjerg – the area around Rentemestervej viewed from west to east

URBAN SPACES

The largest recreational areas in the district are Utterslev Mose, Lersøparken and Bispebjerg Kirkegård. In addition, Emdrup Torv and Utterslev Torv are the most central points where people come together.

The north-westerly neighbourhood continues to lack green locations and opportunities for recreation.

The many major roads and the railway line create barriers and weaken connection across the district, creating the experience of a district with a number of smaller independent areas of housing.

Commercial activity takes place mainly along Frederiksundsvej and on parts of Frederiksborgvej.

The centre of the district is Nørrebro Station, even though this borders on Nørrebro. The station area will become one of the largest interchanges in Copenhagen. The elevated railway is, at one and the same time, the joining and separating element and today represents a barrier between Nørrebro and Bispebjerg. However, there are good opportunities to establish several new urban spaces and connecting links.

POTENTIAL

The location of the projects under the cloudburst management plan mean that they can help in supporting the overall green profile of the district and at the same time strengthen local links, green features and places where people come together.

Lersøparken can be enhanced as the large recreational and active park space for both Bispebjerg and Nørrebro.

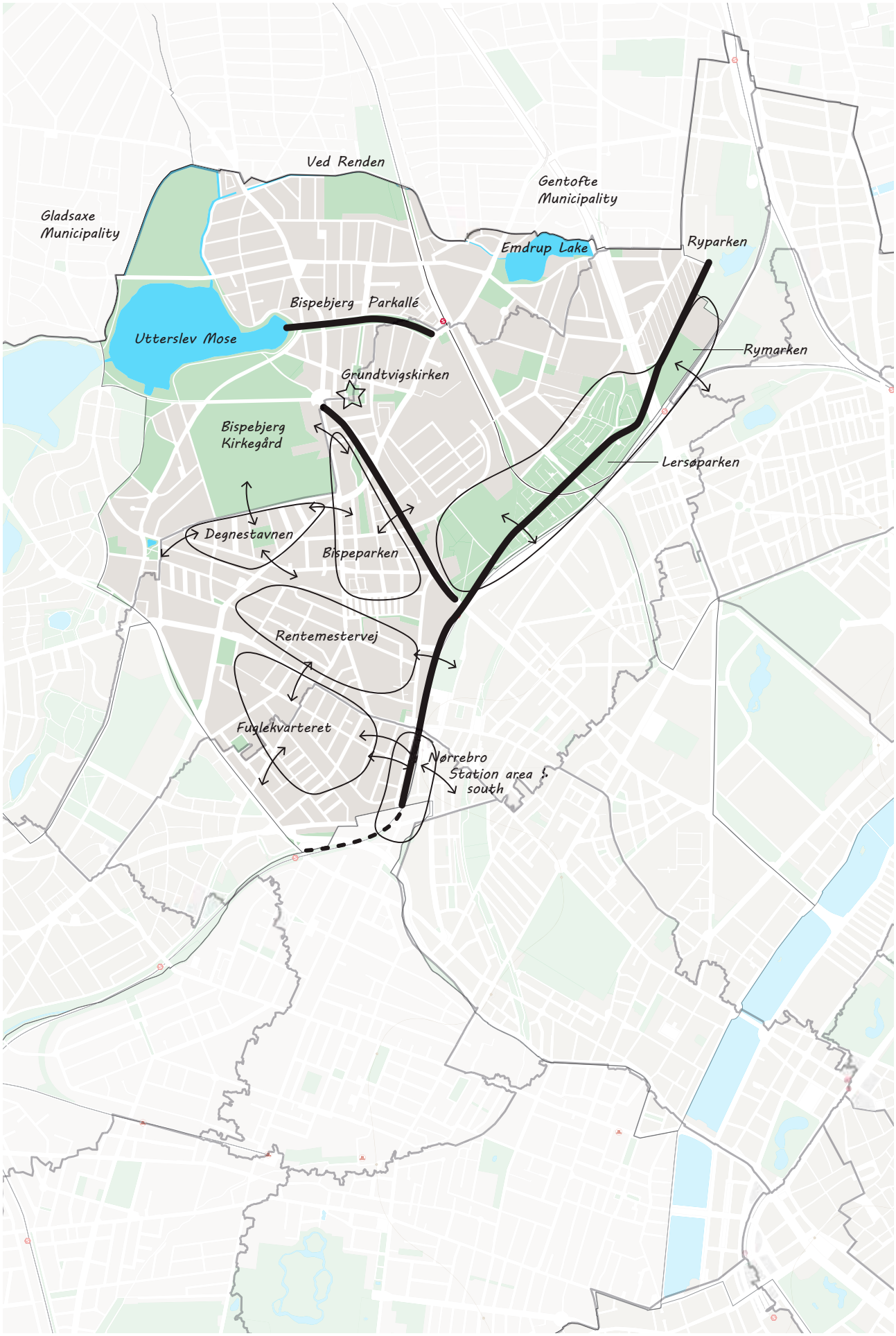
The green character and connecting function of Tagensvej can be further enhanced in conjunction with the route and significance of the road through the rest of the city. There is a good opportunity to enhance links to Bispebjerg Hospital at Tagensvej.

Bispebjerg Park Allé is a unique green section of road, which can be strengthen as a green link between Utterslev Mose, Emdrup Station and Lersø Park Allé.

Several of the architecturally fine residential developments today suffer insecurity and isolation, including Bispeparken and the area around Tomgårdsvej/Degnestavnen. The cloudburst management plan can help in supporting efforts to make these housing areas integrated, accessible and attractive for the district.

Around Nørrebro Station, the cloudburst management plan can assist towards creating green provisions for relaxation and communications between the North-West and Nørrebro.

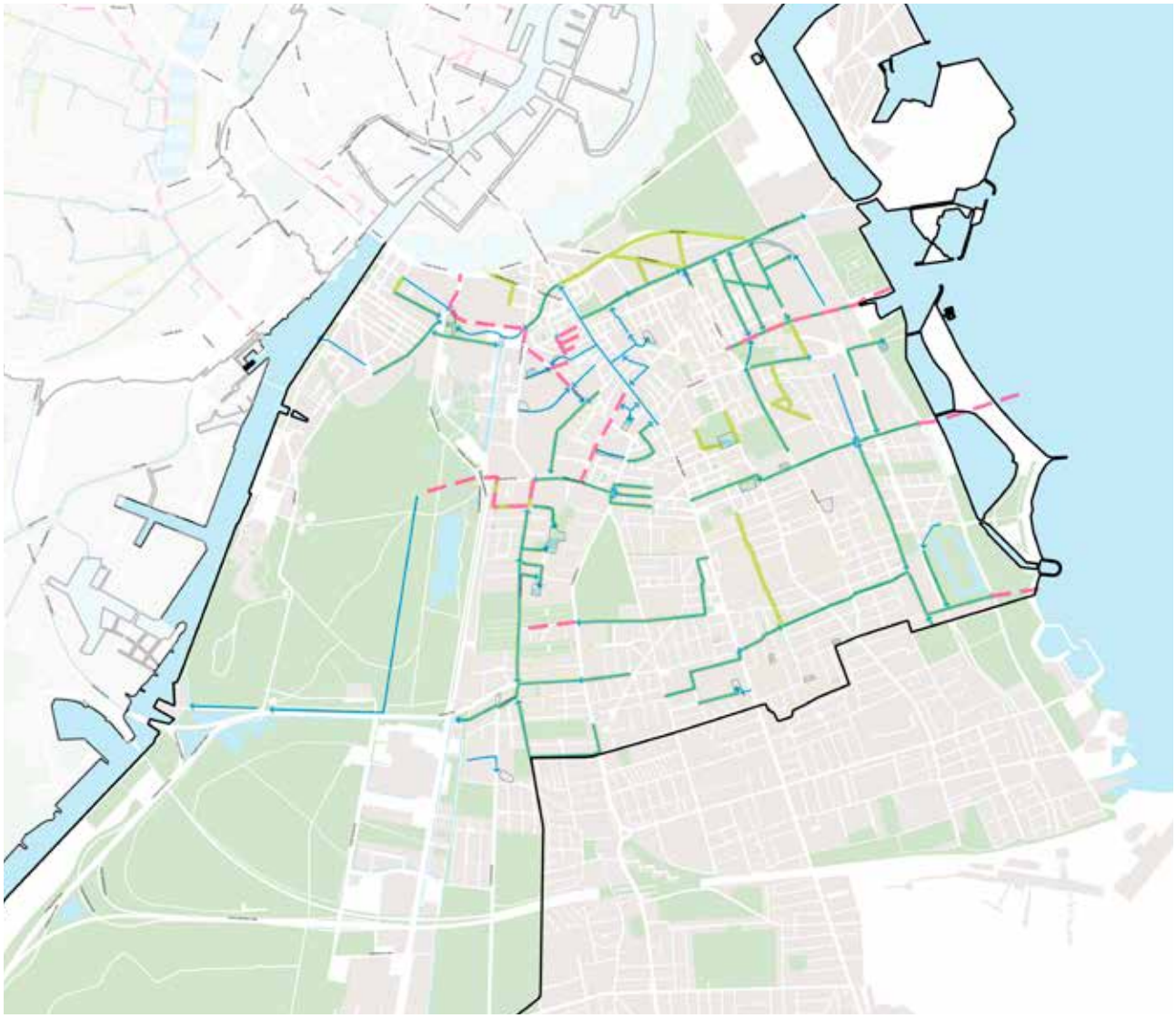
The internal communications, green roads and smaller green areas where people come together can be enhanced in particular in the neighbourhood around Rentemestervej, where the green cycle route Hareskovruten runs, as well as in the Fuglekvarteret neighbourhood south of Frederikssundsvej.



Schematic diagram, development potential for Bispebjerg

AMAGER ØST – VEST
DESCRIPTION

POPULATION APPROX. 120,000 IN 2015 (EAST APPROX. 55,000 / WEST APPROX. 65,000)
DEPRIVED AREAS OF HOUSING REMISSEPARKEN, AND THE SUNDHOLM NEIGHBOURHOOD
AREA 28.29 KM2 (EAST 9.11 KM2 / WEST 19.18 KM2)
M2 GREEN PER INHABITANT AMAGER EAST 29.85 / AMAGER WEST 134.13



Amager with water catchment areas and cloudburst management projects

Amager looking from west to east

The island of Amager constitutes an entity and contains everything from almost pristine nature, agriculture, garden allotments, neighbourhoods of detached houses and multi-istorey residential buildings to dense and high-rise blocks and industry. Amager was incorporated into the City of Copenhagen at the start of the 20th century, and in contrast to the Østerbro, Vesterbro and Nørrebro neighbourhoods only modest urban development took place at the end of the 19th century. The urban development of Amager has principally taken place in the period since 1900.

GREEN AND BLUE FEATURES

The larger and characteristic green features of the district extend from Amager Fælled, the harbour front and the coastline to the Amager motorway, Amager Strand, Kløvermarken and the line of ramparts towards Christianshavn. In addition, Amager contains many green allotment society gardens and areas of detached houses, as well as many green spaces, breathing spaces and connecting links. The old railway line Amagerbanen and the four transverse green belts leading out to the coast, Prags Boulevard, Lergravesvej, Italiensvej and Greisvej are to be emphasised here.

DEVELOPMENT AND URBAN STRUCTURE

On Amagerbro in the northern part of Sundbyerne and on Islands Brygge there is dense block development from around the turn of the century. There are also more recent multistorey apartment buildings from the inter-war period and later, for example, Urbanplanen. Amager contains many areas of housing with housing association houses and semi-detached houses, and in the southern part of Sundbyerne extensive neighbourhoods of detached houses and the largest stock of allotment society plots in Copenhagen. In addition, urban development is under way around Amagerbanen, Lergravsvej, Øresundsvej, Krimsvej and Amager Stransvej with a concentration of high-rise buildings and terraced houses.

The overall characteristic feature of Amager is the flat landscape, the north-south roads Amagerbrogade, Kastrupvej and Amager Strandvej and Øresund Boulevard, together with the communicating links running east to west.

In addition, the Metro lines running through in Amager east and Amager west are highly characteristic of the district. The Metro lines link the district together, but are also a notable barrier for the district in the transverse direction. Amagerbanen, with its curved historical course, is also a unique feature of the district, and the district's gates at Christmas Møllers Plads and Amager Boulevard are significant for the public perception of Amager.

Amager looking form south to north

URBAN SPACES

The University of Copenhagen, Standparken, Havnebadet, Fælleden, Ørestaden and the airport attract many users and visitors. Amager's central points where people come together are Havneparken on Islands Brygge, Amager Strandpark and Amagerbrogade. Commercial activity is concentrated along Amagerbrogade. At the same time, each neighbourhood has its local places where people come together, including Sundbyøster and Sundyvester Plads. The square at Leifsgade, Prags Boulevard, Skotlands Plads, Remisseparken, Lergravsparken.

The Green Cycle Paths, Amagerruten, Ørestadsruten and Christianshavnsruten, are on Amager. There are several routes across Fælleden, for example Universitetsrouten.

POTENTIAL

The location of the cloudburst management projects in the district mean that they can help enhance proximity to the shore, coast and harbour as well as the common, which are major assets for Amager. In addition, the cloudburst management plan can strengthen everyday life by creating communicating links in the longitudinal and transverse directions.

The cloudburst management plan can assist in supporting, preserving and redefining the unique green chain of the Amagerbanen railway line for cycling, walking and relaxation.

In addition, the transverse communicating links between the common and the shore represent important urban assets as distinctive recreational features and as connecting lines for cyclists and pedestrians. This applies, for example, to Prags Boulevard, Lergravsvej, Øresundsvej, Italiensvej – Peter Lykkes vey and Greisvejs – Vejlands Allé.

Finally there is potential to enhance the local identity and cohesion in and between the individual neighbourhoods. This applies in particular to the deprived urban area of Remisseparken, Kornblomstparken, the Sundholm neighbourhood and the urban area around Amagercenteret.

Schematic diagram, development potential for Amager East and West

FOR MORE INFORMATION PLEASE CONTACT
KLIMATILPASNING@TMF.KK.DK

PHOTOGRAPHS
URSULA BACH/ CITY OF COPENHAGEN
SCANPIX
KRISTINE PETERSEN
MATHIAS ØGENDAL
THOMAS MELBYE