

Belfast, 13 December 2015

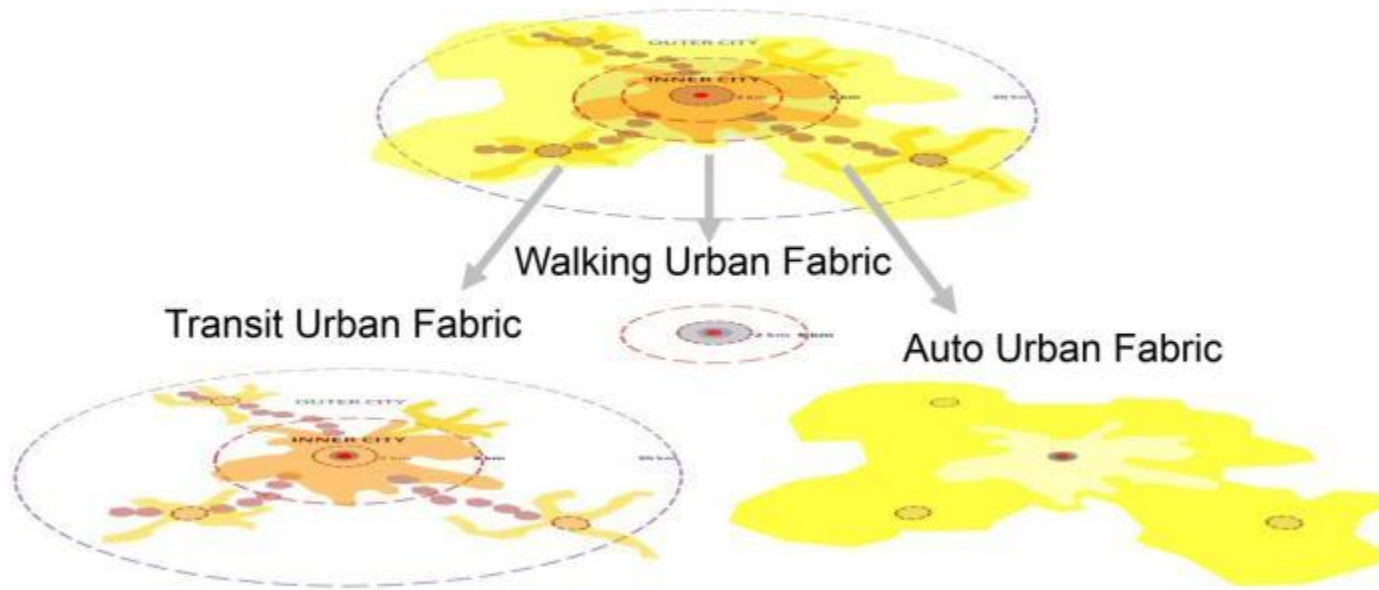


Planning Cities for People

Leo Kosonen

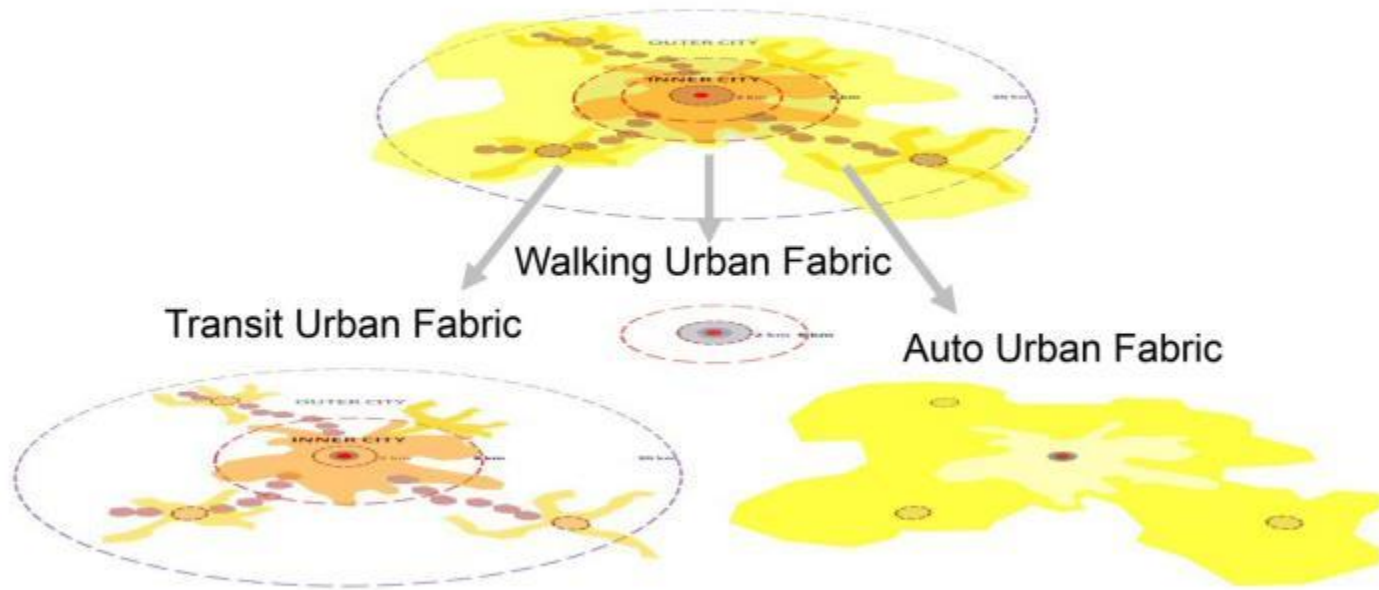
**Architect, Former City Planning Manager from City of Kuopio,
Research Fellow of Finnish Environment Institute, SYKE**

Overlap of Three Urban Fabrics



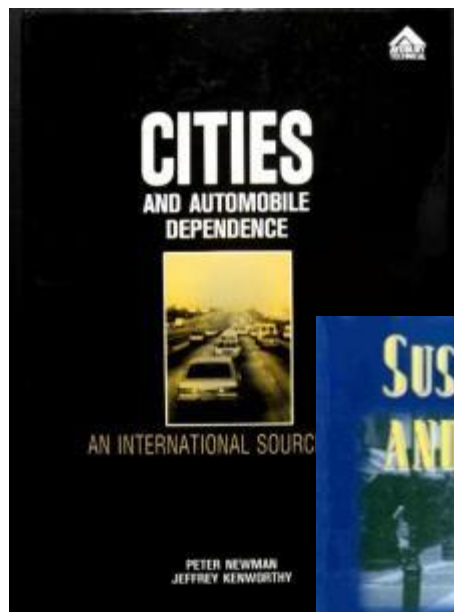
Three Urban Fabrics is a new way of thinking, including new concepts and a new theory

Overlap of Three Urban Fabrics

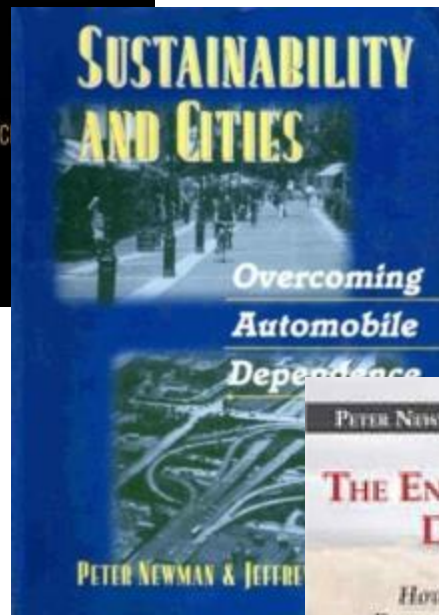


City of Kuopio has been a pilot city to recognize the urban fabrics since 1993, and that's the basis of this presentation.

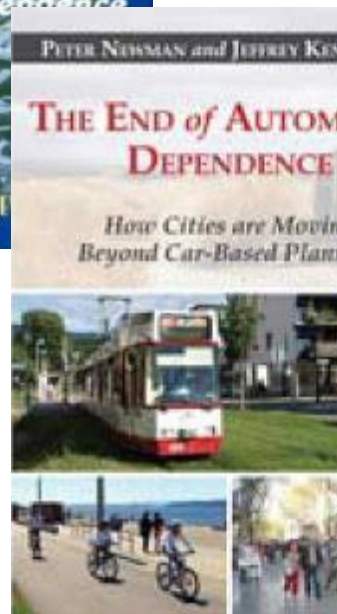
The applications concerning Belfast are drafts, which might include mistakes



1989

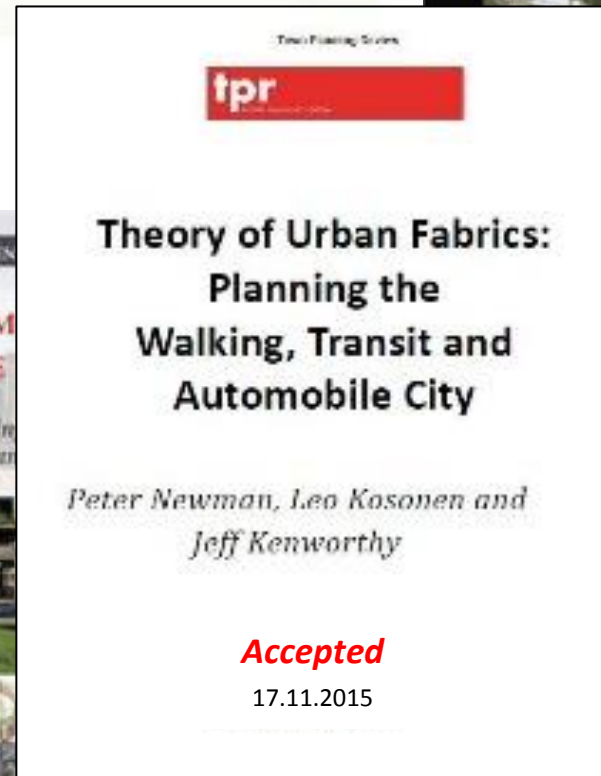
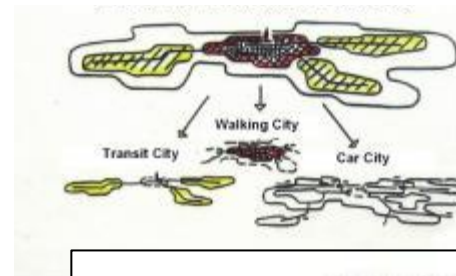


1999



2015

Kuopio Concept since 1993 Three Urban Fabrics



2015

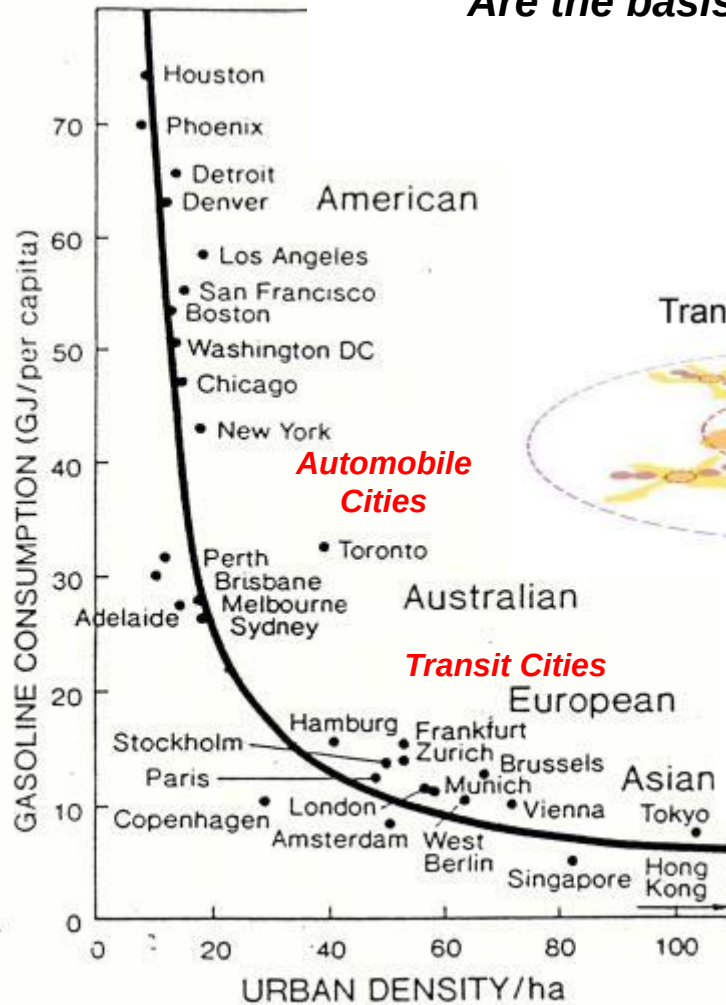


2015

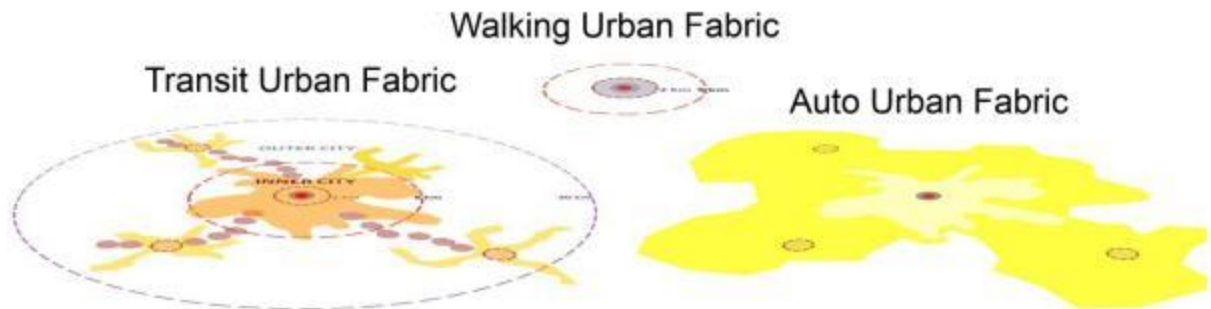
Original figure: Kosonen 1994
12.6.2015 Leo Kosonen

Three urban fabrics

Are the basis of the three city types.



Overlap of Three Urban Fabrics



Three urban fabrics

*Are based on waves of innovation
and
the time budget of one hour for daily travel*

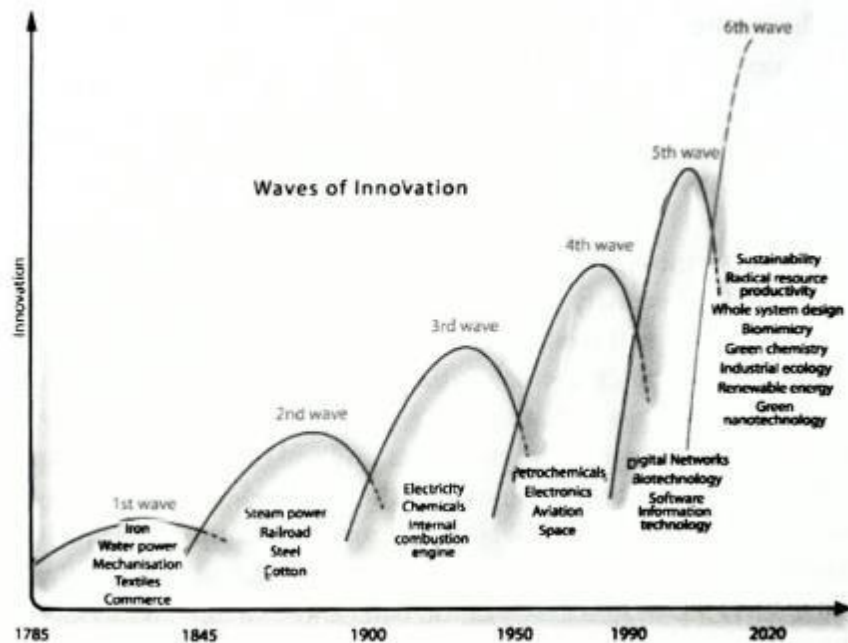
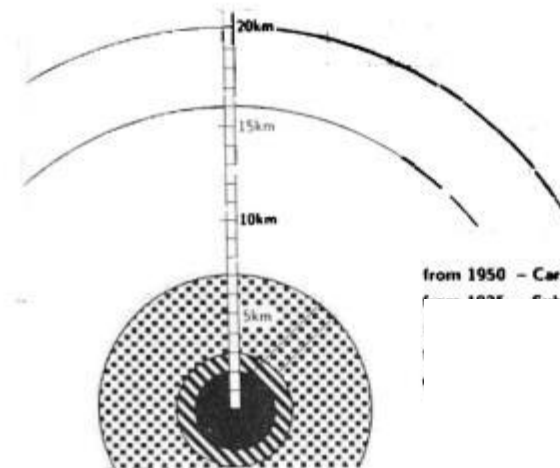


Figure 3.5 The successive waves of industrialism which have shaped cities. (Credit: Har-

from 1950 – Cars (20km)
from 1925 – Subways
from 1905 – Electric Trams (7km)
from 1860 – Horse Tramways and Buses
up to 1815 – Pedestrians and coaches (2km)

ANTHROPOLOGICAL INVARIANTS IN TRAVEL BEHAVIOR



Metropolitan Area 20 km Conceptual Combinations of Three Urban Fabrics

AREAS AND DIMENSIONAL CIRCLES

Walking Urban Fabric

- Core (0-1 km)
- Edge (1-2 km)

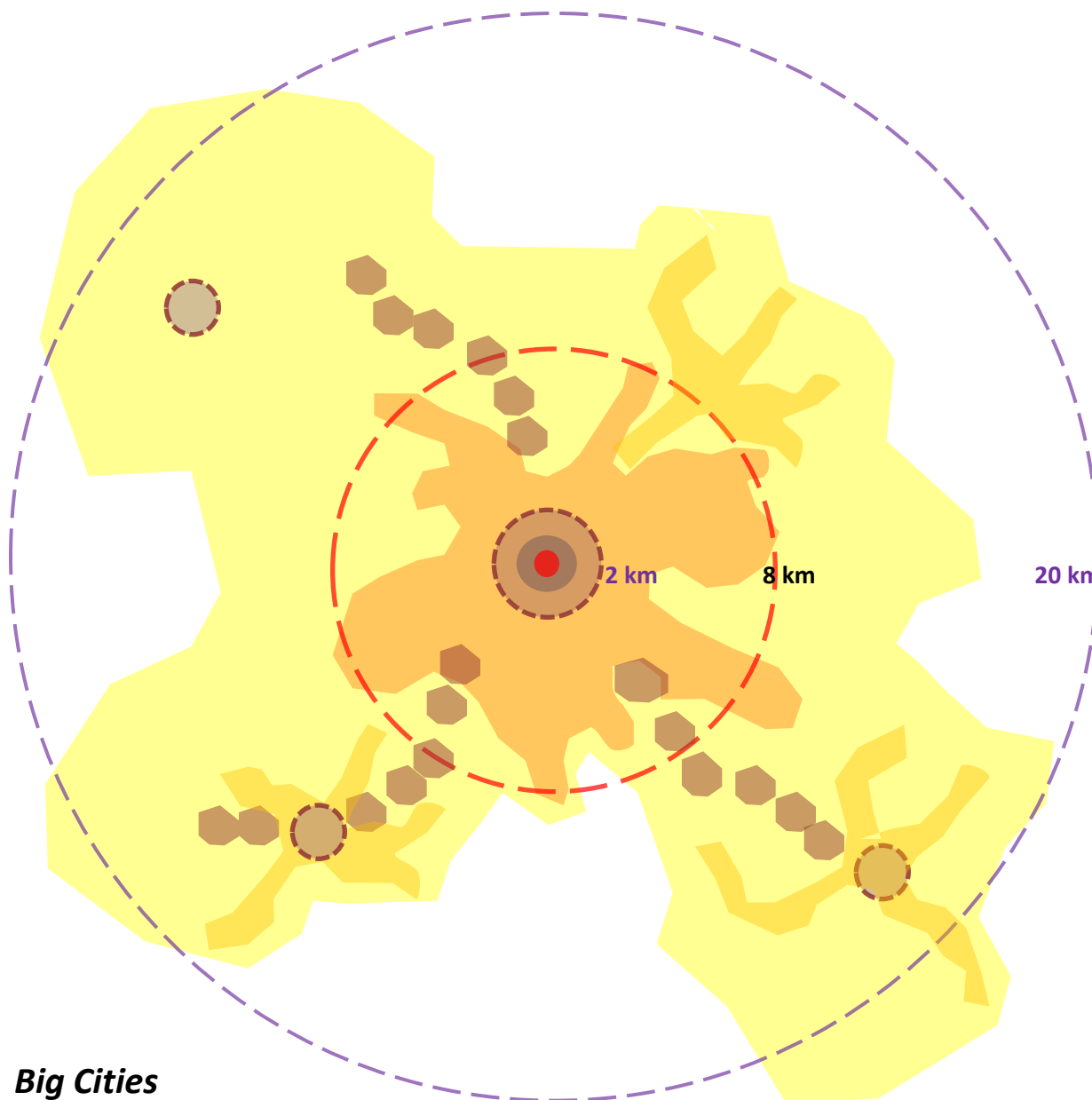
Transit Urban Fabric

- Inner Transit Urban Fabric (usually < 8 km)
- Outer Transit Urban Fabric (Busway or light rail, feeder buses)
- Outer Transit Urban Fabric (Metro, rail or light rail)

Auto Urban Fabric

- Auto Urban Fabric (Over and around the other fabrics)

- CBD - Overlap of all three fabrics
- Subcenters are units of the transit urban fabric or the auto urban fabric or both



Big Cities

0,5 -1 million inh

Conceptual Combinations of Three Urban Fabrics

AREAS AND DIMENSIONAL CIRCLES

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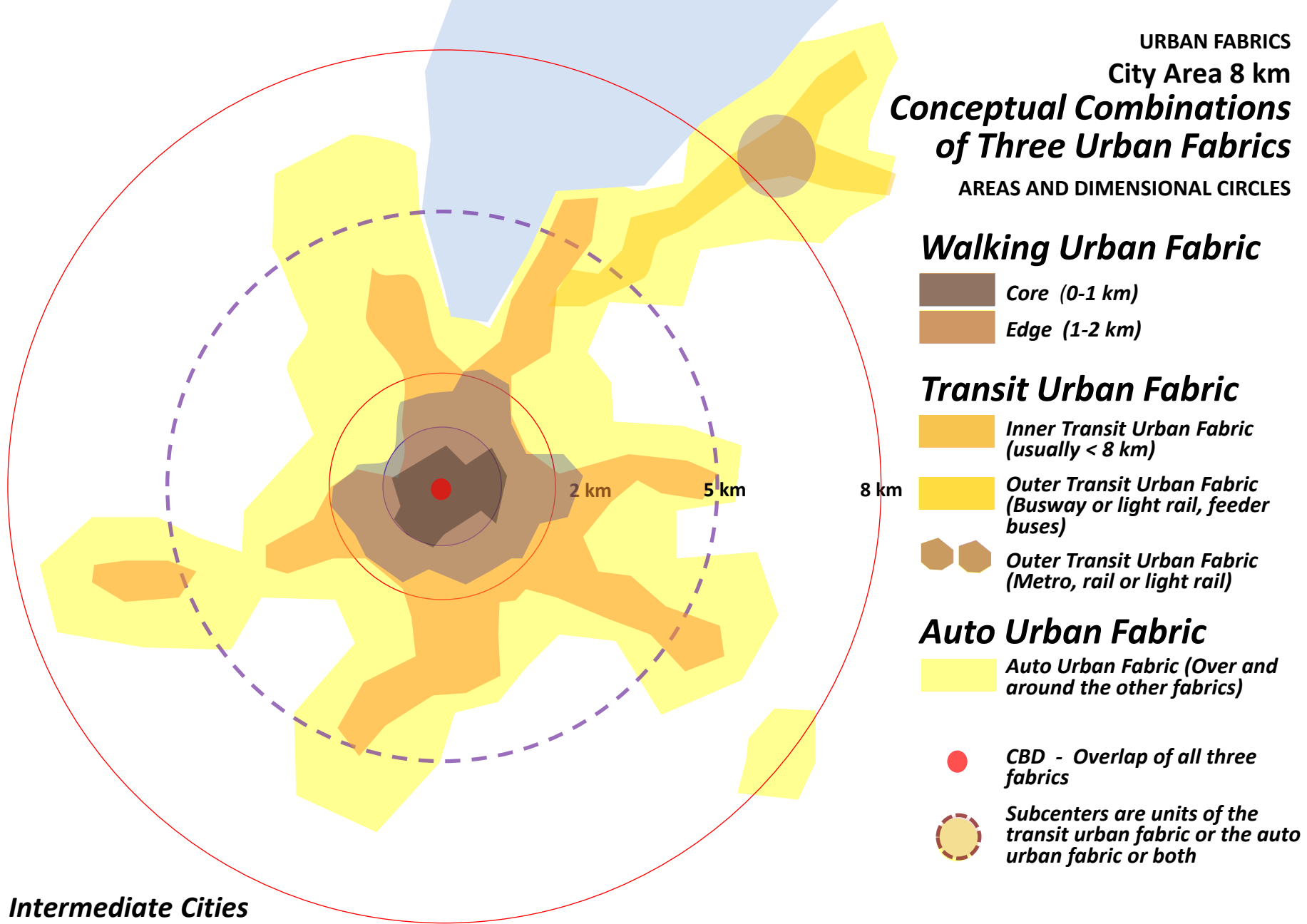
SMALL TOWNS, VILLAGES, COUNTRYSIDE, PERI-URBAN AREAS

2 km

8 km

20 km

Intermediate Cities
100 000 – 250 000 inh



Intermediate Cities
100 000 – 250 000 inh

Conceptual Combinations of Three Urban Fabrics

AREAS AND DIMENSIONAL CIRCLES

Walking Urban Fabric

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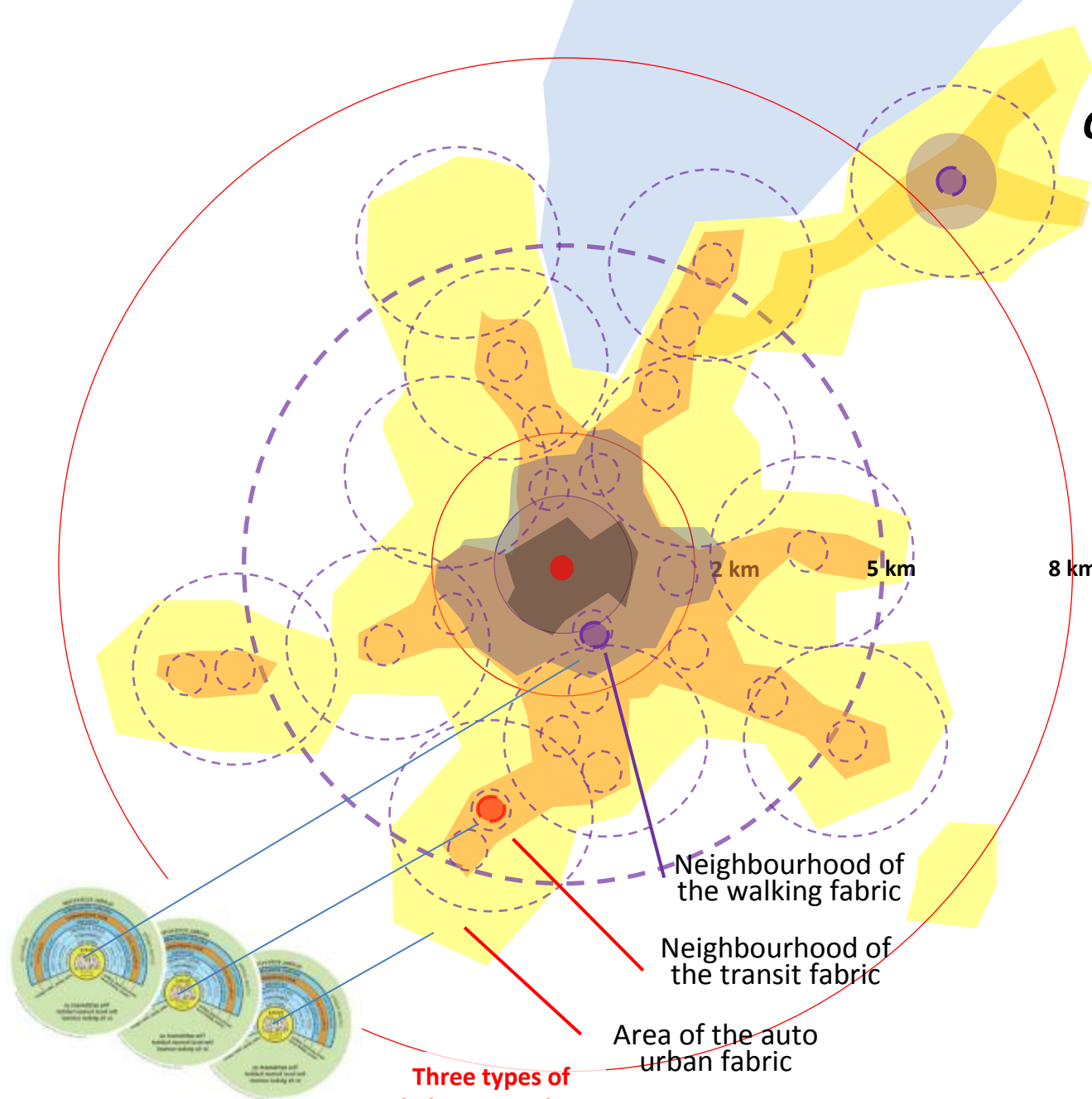
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Neighbourhood of the walking fabric

Neighbourhood of the transit fabric

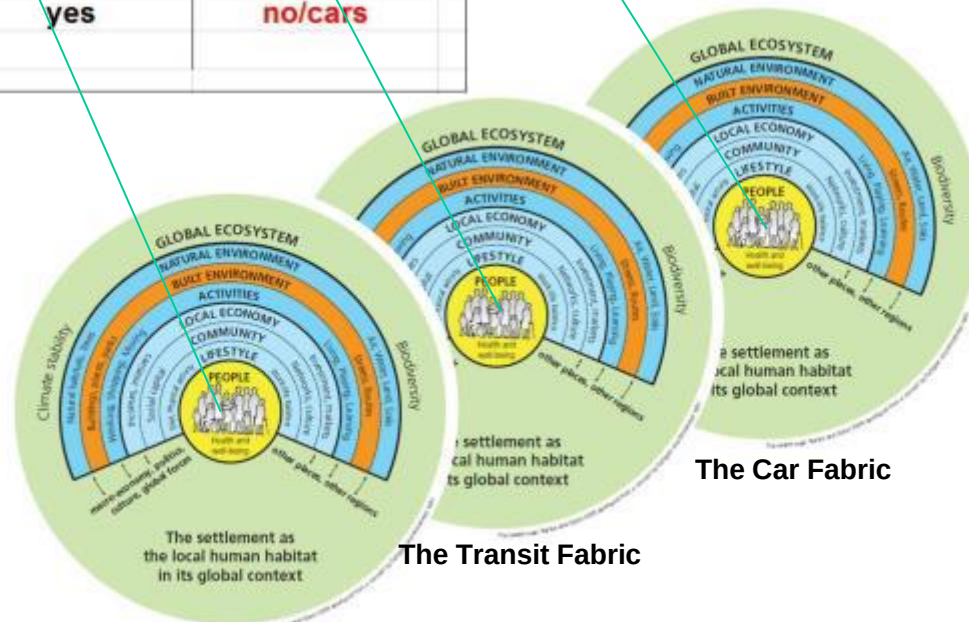
Area of the auto urban fabric

Three types of habitats need to be recognized

A Healthy City application

Kuopio

Kuopio			
Health objectives			
28.8.2006 / Leo Kosonen			
	<i>Inner City /</i> Walking City	<i>Urban fingers /</i> Transit City	<i>Urban sprawl /</i> Car City
• opportunity for healthy exercise	good	excellent	good
• social cohesion	fair	fair	segregative
• equity	yes	yes	no
• access to employment and facilities	yes	yes	by car only
• road safety	fair	good	problems/cars
• an attractive environment	good	good	good
• acceptable noise levels	fair	good	problems/cars
• good air quality	fair	good	problems/cars
• climate stability.	yes	yes	no/cars



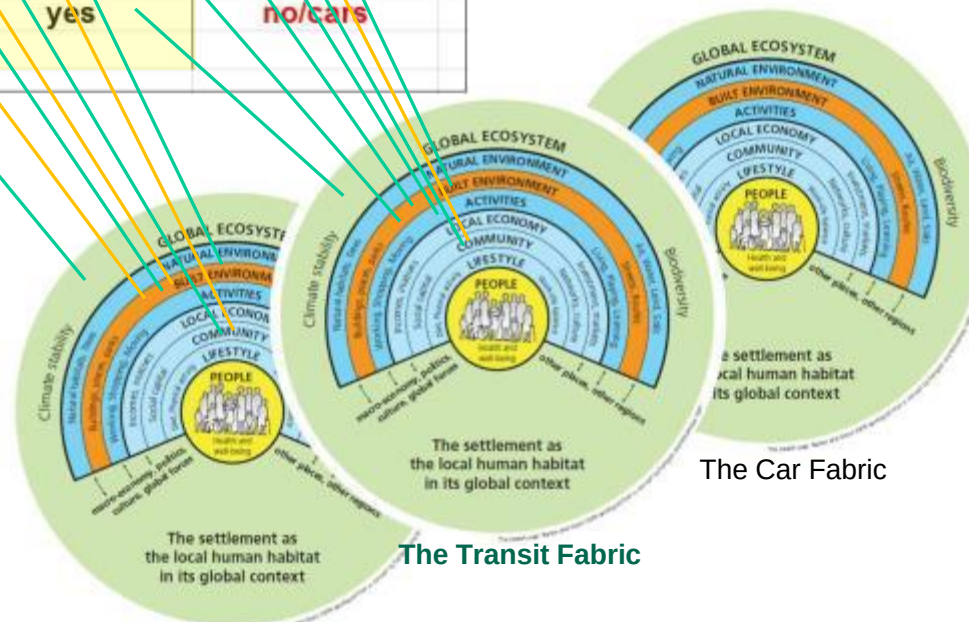
The Walking Fabric

The Transit Fabric

The Car Fabric

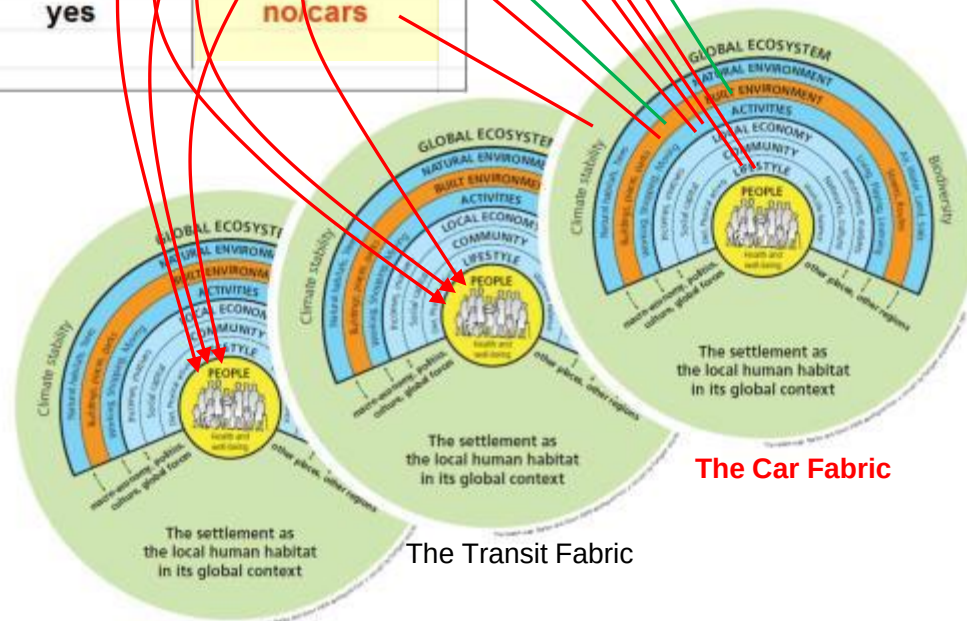
A Healthy City application Kuopio

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A Healthy City application Kuopio

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The Walking Fabric

The Transit Fabric

The Car Fabric

Walking Urban Fabric

Core 1 km
(radius)

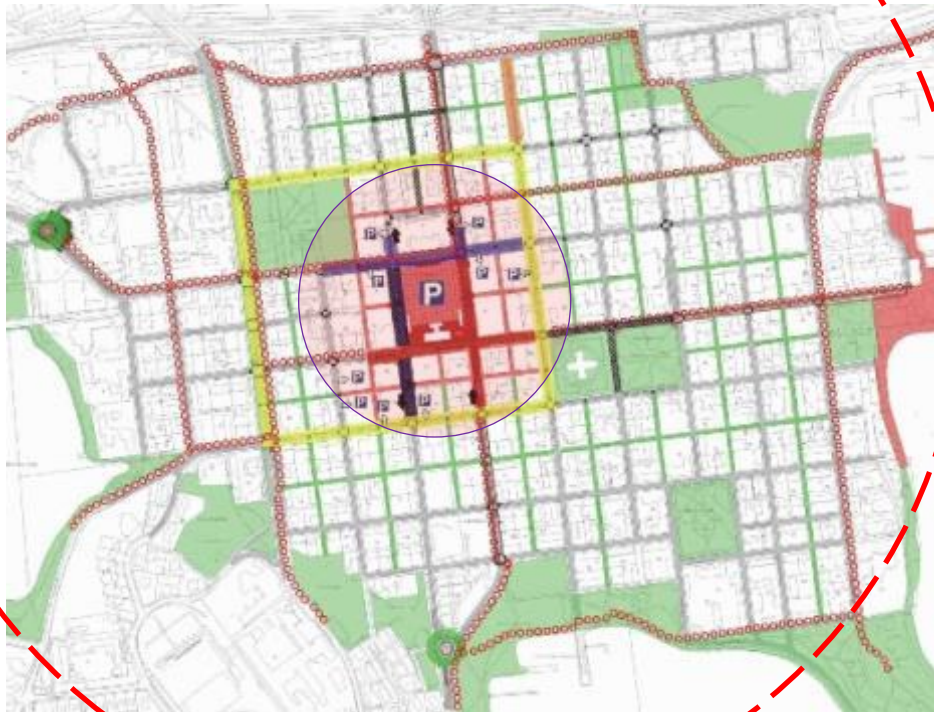
Centre 1 km

Walking Urban Fabric

Pedestrian Centre of the CBD

Walking fabric around the CBD

1 km



Dimensional circles of the city center:

250 m CBD

1 km Core of the walking fabric

CBD is a combination of walking, transit and car fabrics

CBD 250 m

*Walking transit
and car fabrics*

**CBD is now a pleasant
pedestrian centre.**

Hosts the bus lines and
easy parking for 3000 cars



*Walking transit
and car fabrics*

*Car fabric is in symbiosis
instead of dominance*

**CBD is now a pleasant
pedestrian centre.**

Hosts the bus lines and
easy parking for 3000 cars



Centre 1 km *Walking Fabric*

Walking fabric renewal around the CBD

12000 inhabitants, new
housing of the walking
fabric (1/3 carless)



Dimensional circles of the city center:

250 m CBD

1 km Core of the walking fabric

*CBD is a combination of walking, transit
and car fabrics*

Centre 1 km *Walking Fabric*

Walking fabric renewal around the CBD

12000 inhabitants, new
housing of the walking
fabric (1/3 carless)

Network of pedestrian
laneways (10 km)

Dimensional circles of the city center:

250 m CBD

1 km Core of the walking fabric

*CBD is a combination of walking, transit
and car fabrics*



1 km

source: City of Kuopio

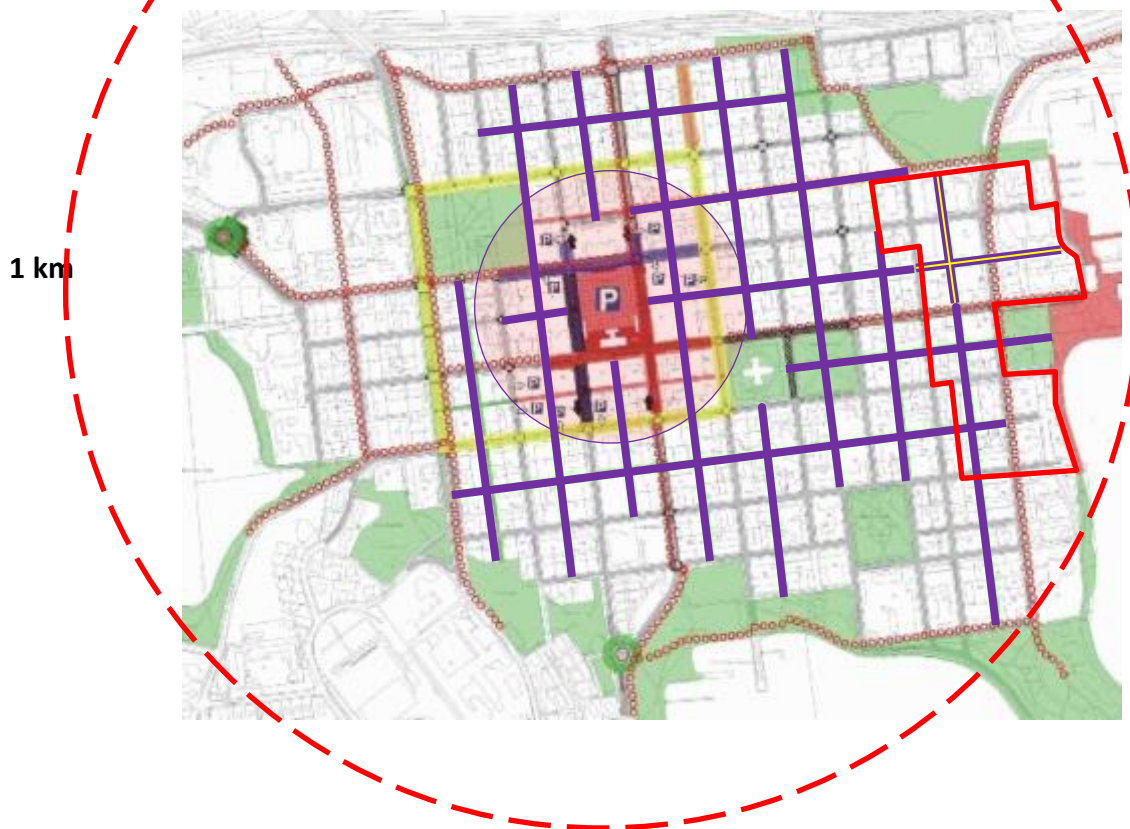
14.8.2014



Leo Kosonen

Centre 1 km *Walking Fabric*

*Car fabric is in symbiosis
instead of dominance*



City Region
120 000 inh / 20 km

source: City of Kuopio

Walking fabric renewal around the CBD

12000 inhabitants, new
housing of the walking
fabric

Network of pedestrian
laneways (10 km)

*Two way streets,
through traffic reduced*

**Accidents, noise and
pollution reduced**

Dimensional circles of the city center:

250 m CBD
1 km Core of the walking fabric

*CBD is a combination of walking, transit
and car fabrics*

Centre 1 km

Walking Urban Fabric

Vejle, Denmark

Pedestrian centre



1 km

City Region
120 000 inh / 20 km

source: nki

Dimensional circles of the city center:

250 m CBD
1 km Core of the walking fabric

CBD is a combination of walking, transit and car fabrics

Centre 1 km

Walking Urban Fabric

Tampere, Finland

Pedestrian centre
and Walking Fabric
renewal



1 km

City Region
250 000 inh / 20 km

source:

Dimensional circles of the city center:

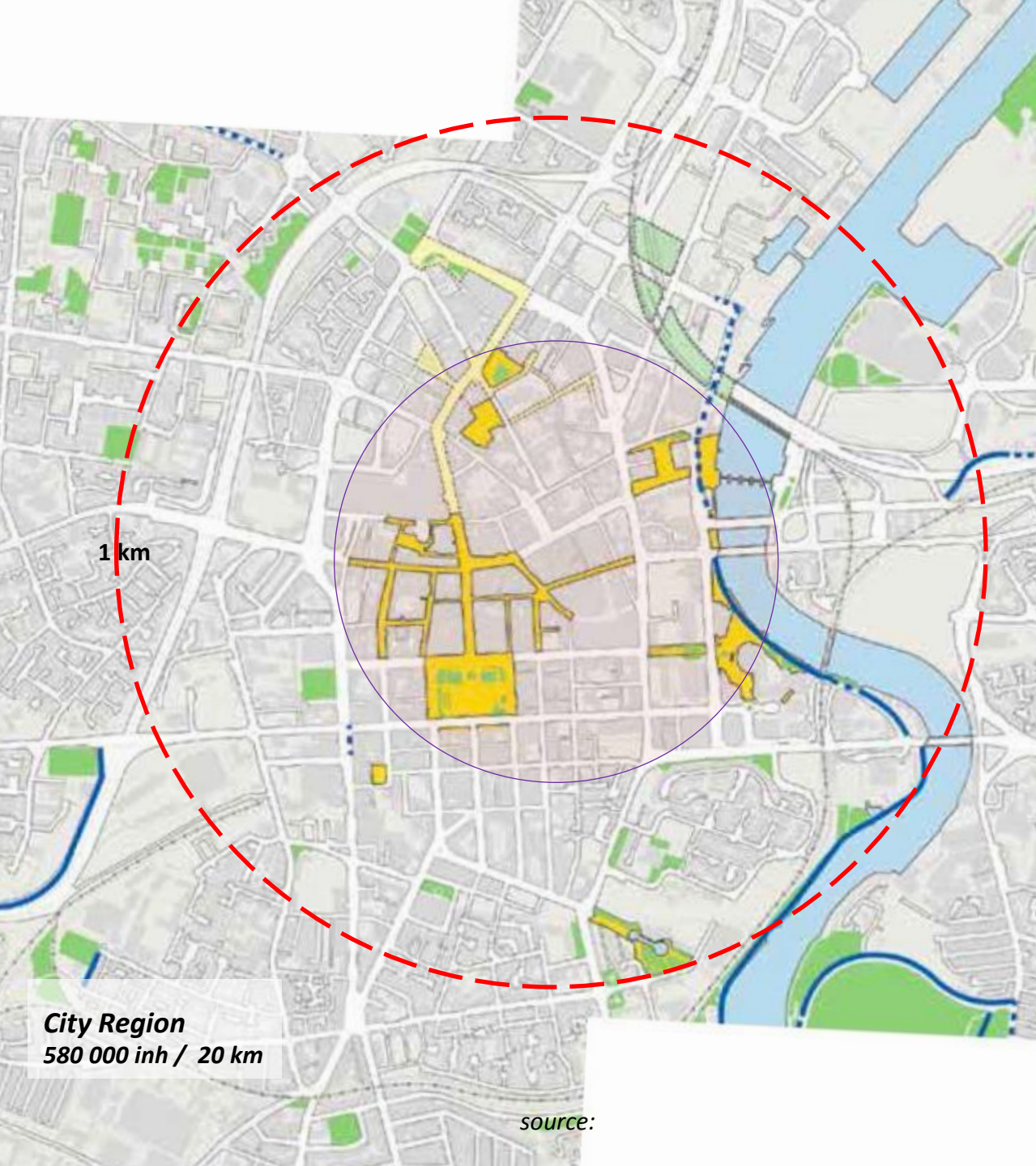
500 m CBD
1 km Core of the walking fabric

*CBD is a combination of walking, transit
and car fabrics*

Centre 1 km *Walking Urban Fabric*

Belfast

**Pedestrian centre
and Walking Fabric
renewal**



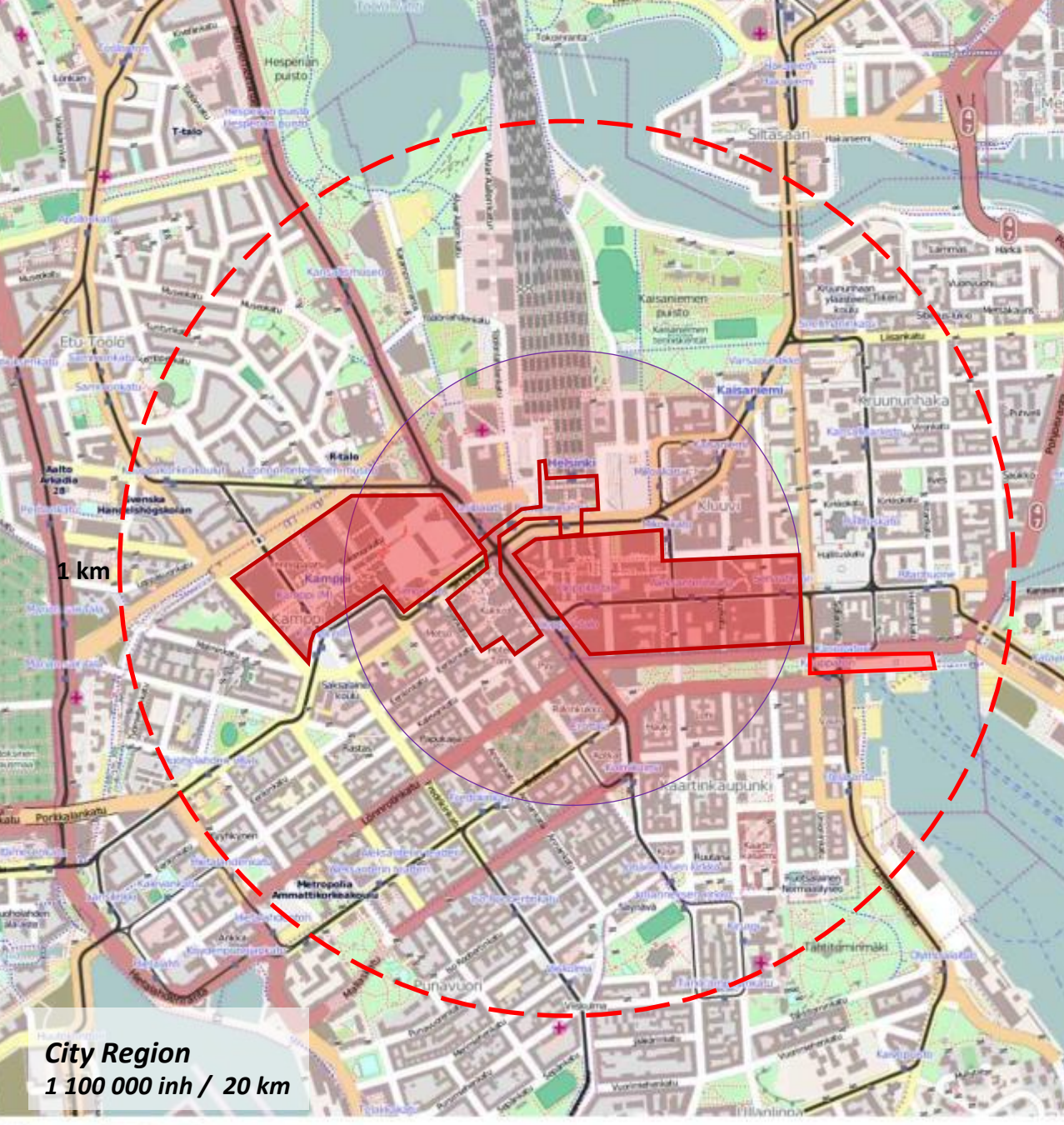
City Region
580 000 inh / 20 km

source:

Dimensional circles of the city center:

500 m CBD
1 km Core of the walking fabric

*CBD is a combination of walking, transit
and car fabrics*



URBAN FABRICS

Centre 1 km

Walking Urban Fabric

Helsinki, Finland

Pedestrian centre

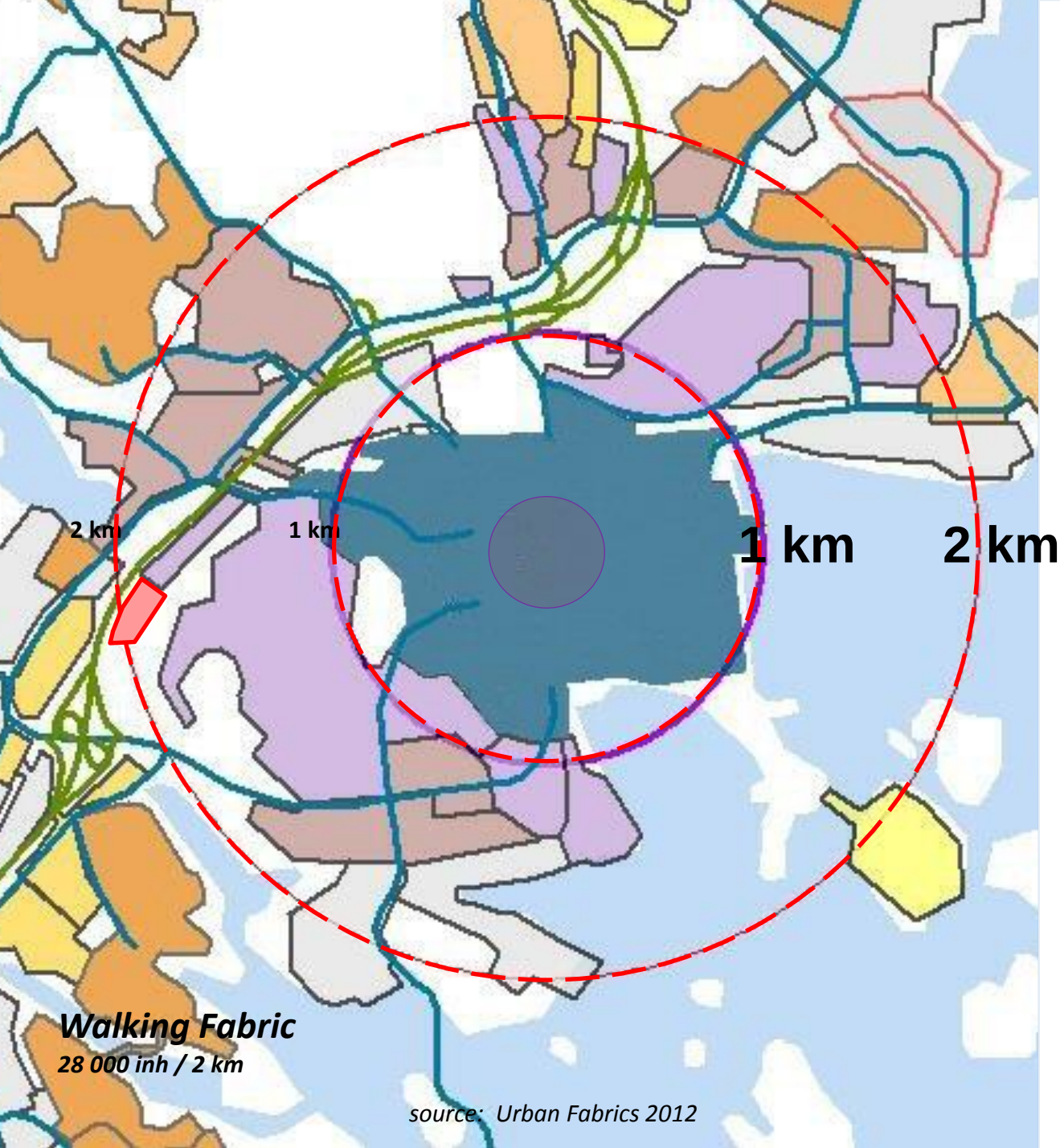
Dimensional circles of the city center:

- 500 m CBD
- 1 km Core of the walking fabric
- CBD is a combination of walking, and ransit fabrics

source: Kuopion kaupunki

Walking Urban Fabric

Edge 1-2 km



URBAN FABRICS

City Center 2 km

Kuopio 2014

DIMENSIONAL CIRCLES OF THE FABRICS

***Outer area of the
walking urban fabric
(1-2 km)***

***Main roads and
fragmented urban fabric***

Dimensional circles:

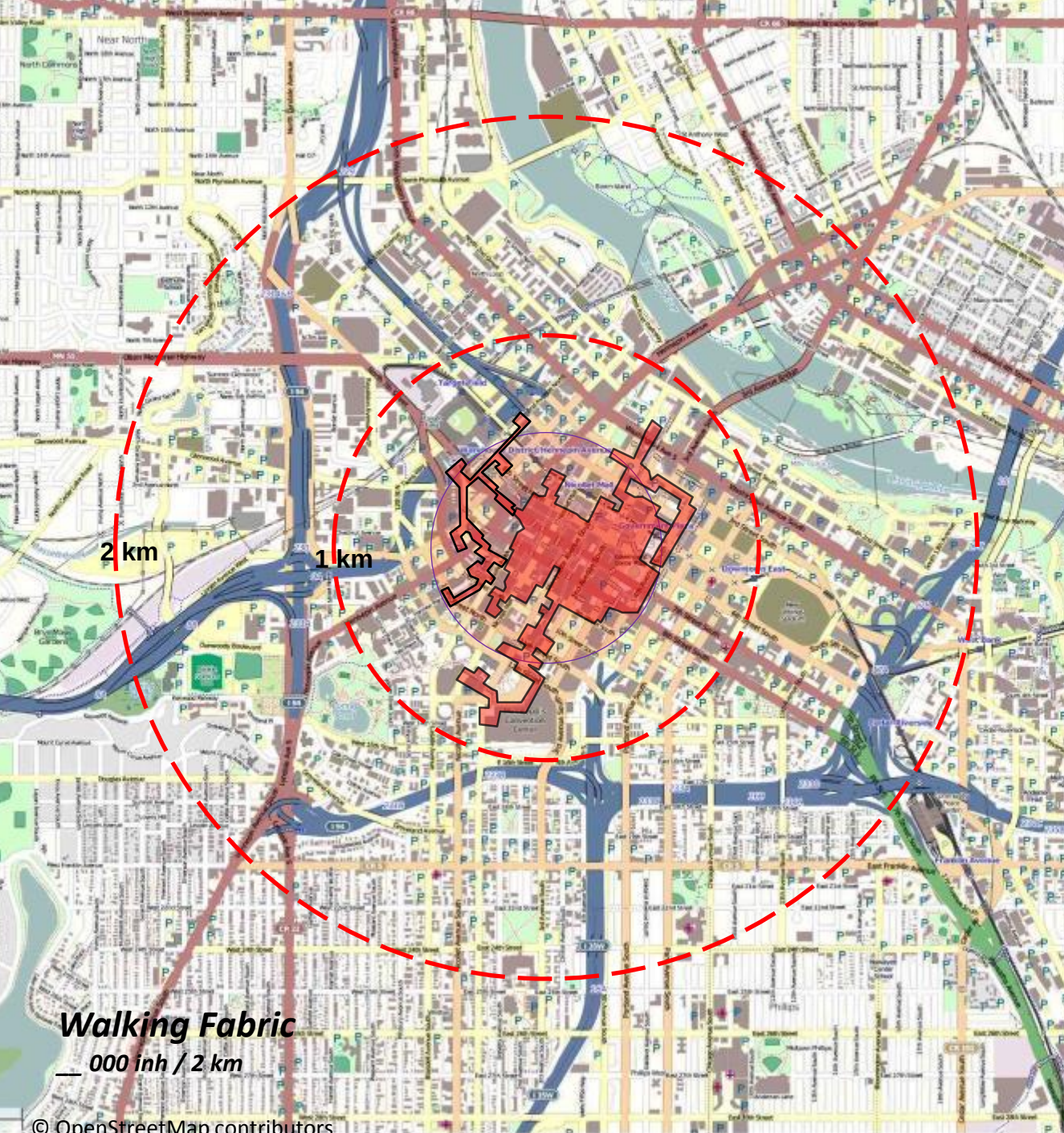
0,5 km CBD

1,0 km Inner walking urban fabric

***2 km Outer walking urban fabric
Car fabric is over and
around the other fabrics***

source: Urban Fabrics 2012

2.10.2013 **UF** Leo Kosonen



URBAN FABRICS

City Center 2 km

Minneapolis 2014

DIMENSIONAL CIRCLES OF THE FABRICS

*Outer area of the
walking urban fabric
(1-2 km)*

*Main roads and
fragmented urban fabric*

Skyway network of the CBD

Dimensional circles:

0,5 km CBD

1,0 km Inner walking urban fabric

2 km Outer walking urban fabric

**Car fabric is over and
around the other fabrics**

15.6.2014



Leo Kosonen

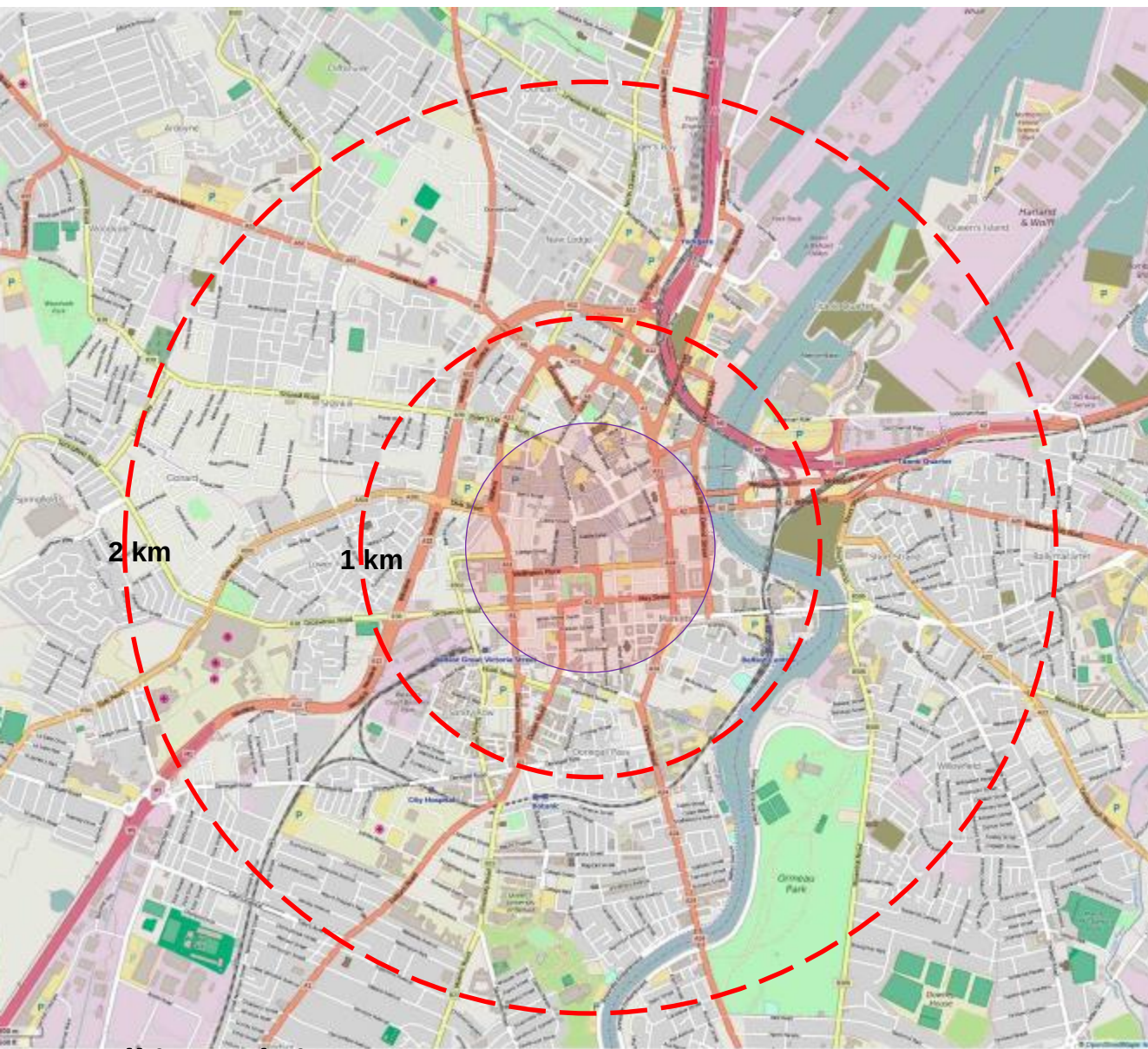
City Center 2 km

Belfast 2015

DIMENSIONAL CIRCLES OF THE FABRICS

*Outer area of the
walking urban fabric
(1-2 km)*

*Main roads and
fragmented urban fabric*



Walking Fabric

— 000 inh / 2 km

Dimensional circles:

- 0,5 km CBD
 - 1,0 km Inner walking urban fabric
 - 2 km Outer walking urban fabric
- Car fabric is over and around the other fabrics

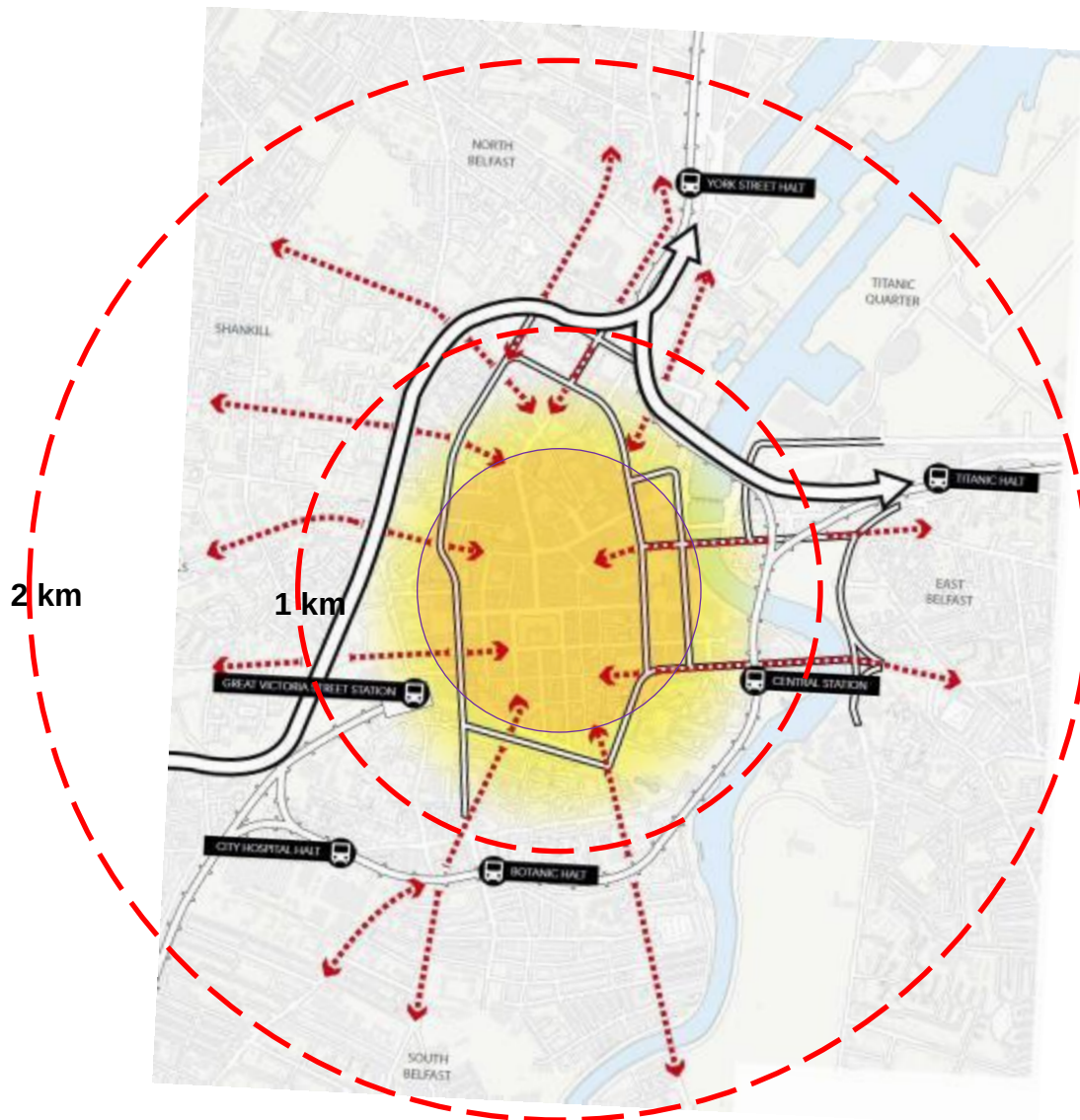
City Center 2 km

Belfast 2015

DIMENSIONAL CIRCLES OF THE FABRICS

*Outer area of the
walking urban fabric
(1-2 km)*

*City Centre regeneration
2015*



Legend

- City Centre Fabric
- Physical Barriers
- ➔ Connections

Dimensional circles:

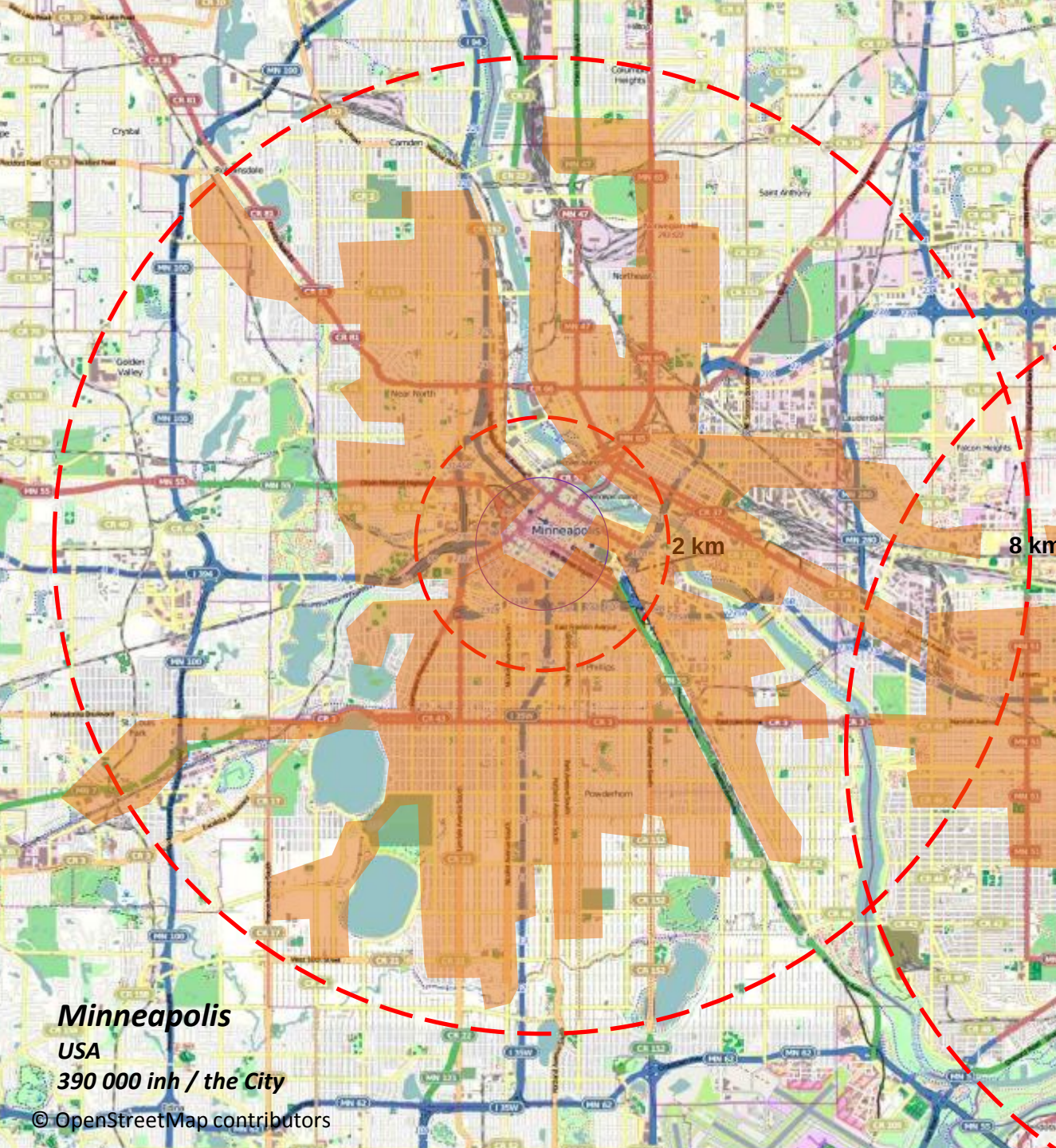
- 0,5 km CBD
 - 1,0 km Inner walking urban fabric
 - 2 km Outer walking urban fabric
- Car fabric is over and around the other fabrics

Transit Urban Fabric

Inner Area 8 km

URBAN FABRICS
City Area 8 km
DIMENSIONAL CIRCLES
OF THE FABRICS
Minneapolis

*Areas of the streetcar
lines 1914*



Minneapolis

USA

390 000 inh / the City

© OpenStreetMap contributors

*Dimensional circles of the
urban fabrics:*

2 km *Walking fabric*

8 km *Inner transit fabric*

*Car fabric is over and
around the other fabrics*

15.6.2014



Leo Kosonen

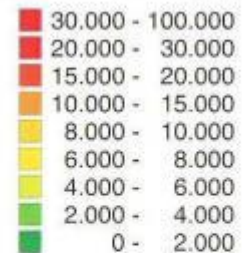
URBAN FABRICS
City Area 8 km

DIMENSIONAL CIRCLES
OF THE FABRICS

**Köln, Germany
2002**

Light rail

Population density per sqkm



--- city centre
— light rail

Dimensional circles:

2 km *Walking City Fabric*
8 km *Inner Transit City Fabric*

*Car City Fabric is over and
around the other fabrics*

*500 cities and towns of
Europe had tramways*

*Now the number is 180
and it's growing again.*

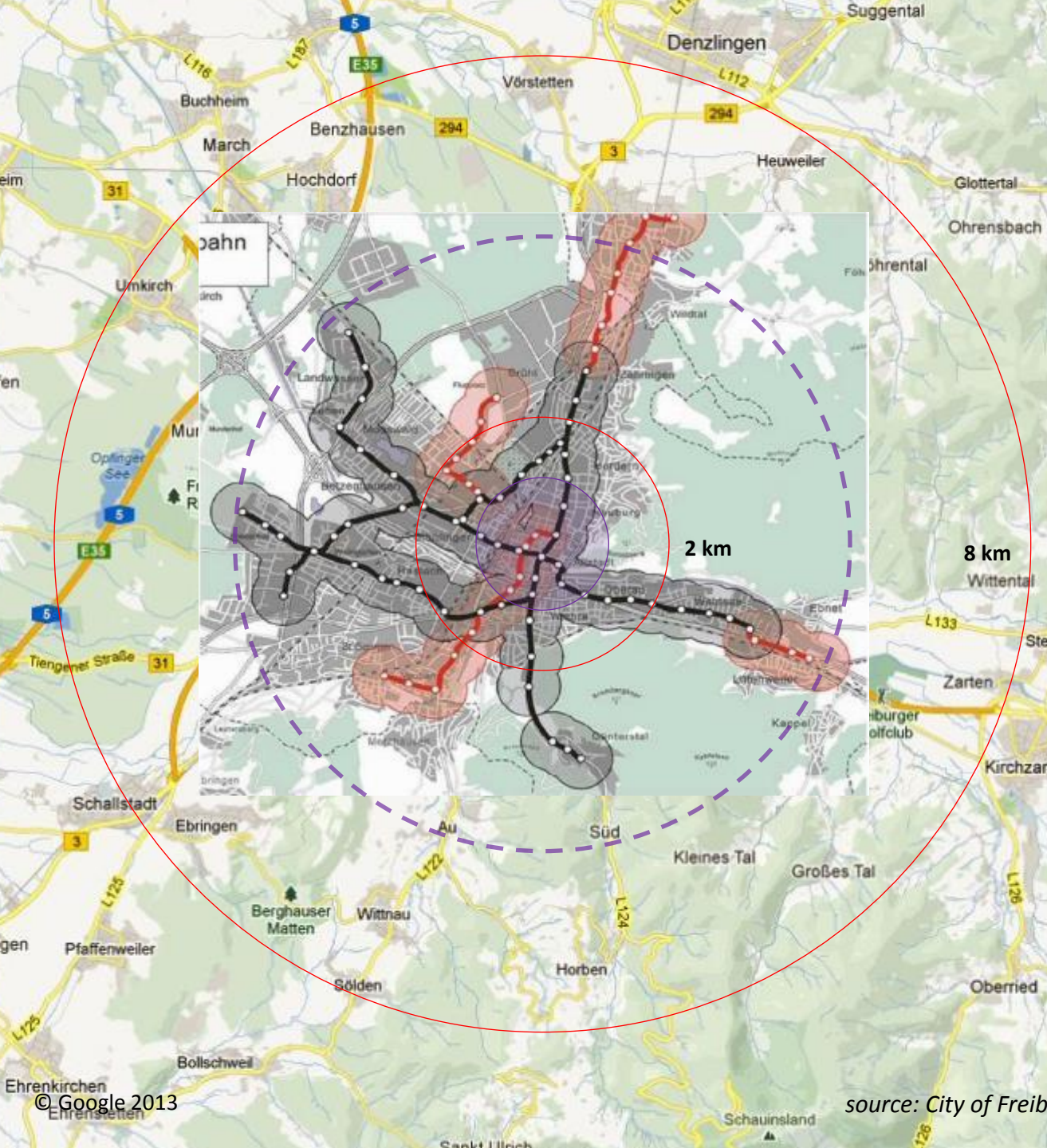
source: Hass-Llau, Crampton 2002

URBAN FABRICS City Area 8 km

DIMENSIONAL CIRCLES
OF THE FABRICS

Freiburg, Germany
2006

Light rail



Light rail



Light rail stops and
300 m coverage area

*Dimensional circles of the
urban fabrics:*

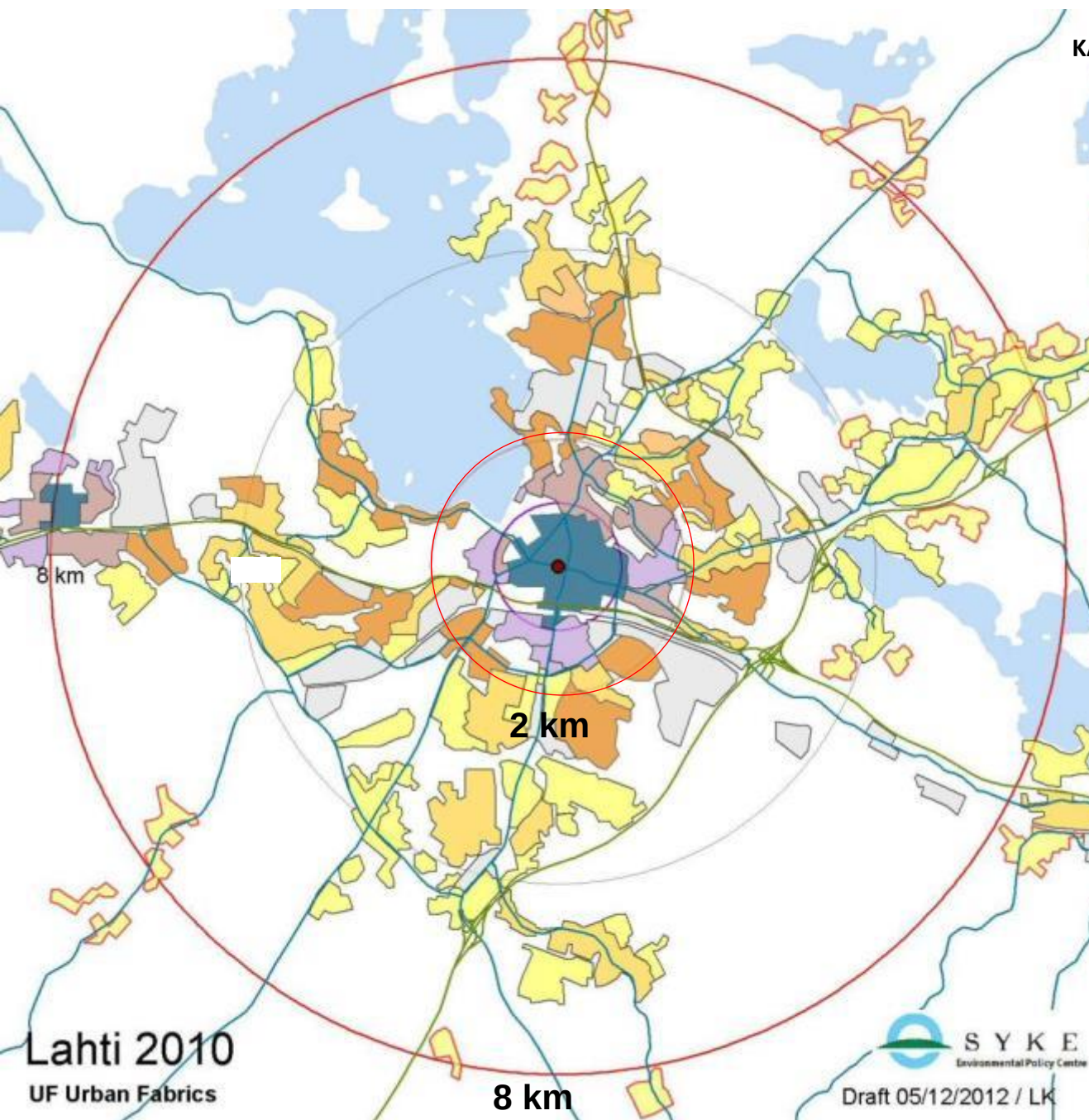
2 km *Walking fabric*

8 km *Inner transit fabric*

*Car fabric is over and
around the other fabrics*

Kaupunki 8 km

Lahti 2010

JÄRJESTELMIEN ALUEET
JA MITOITTAVAT KEHÄT**Jalankulkukaupunki**

- Ydinalue (0-1 km)
- Reuna-alue (1-2 km)
- Joukkoliikennealue

Joukkoliikennekaupunki

- Joukkoliikennekaupungin perusalue
- Autoistunut joukkoliikennekaupungin alue

Autokaupunki

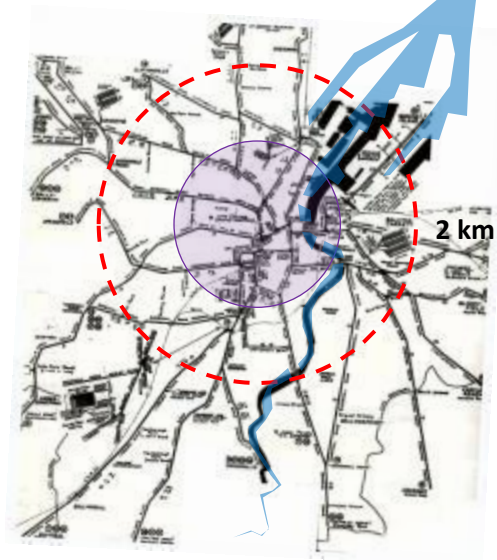
- Autokaupungin joukkoliikennealue
- Autokaupungin perusalue
- Autoriippuvainen autokaupungin alue
- Paikkasidonnainen tuotanto- tai erityisalue

URBAN FABRICS
City Area 8 km

DIMENSIONAL CIRCLES
OF THE FABRICS

**Belfast
1938**

Tramways



8 km

2 km

Tramways 1872-1954

**Dimensional circles of the
urban fabrics:**

2 km *Walking fabric*

8 km *Inner transit fabric*

*Car fabric is over and
around the other fabrics*

source: Belfast Forum 2011

5.6.2015



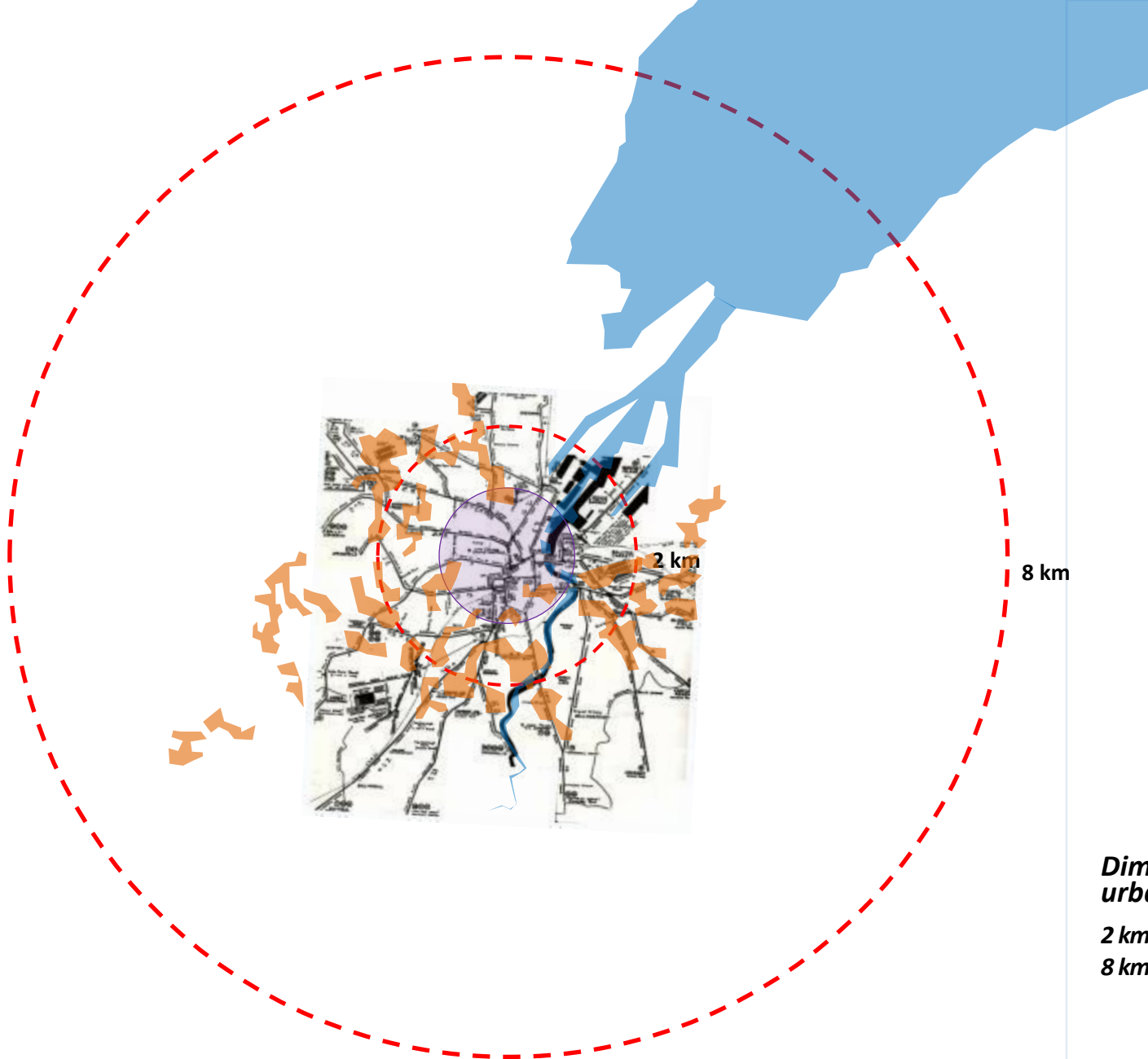
Leo Kosonen

URBAN FABRICS
City Area 8 km

DIMENSIONAL CIRCLES
OF THE FABRICS

**Belfast
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Tramways



Tramways 1872-1954

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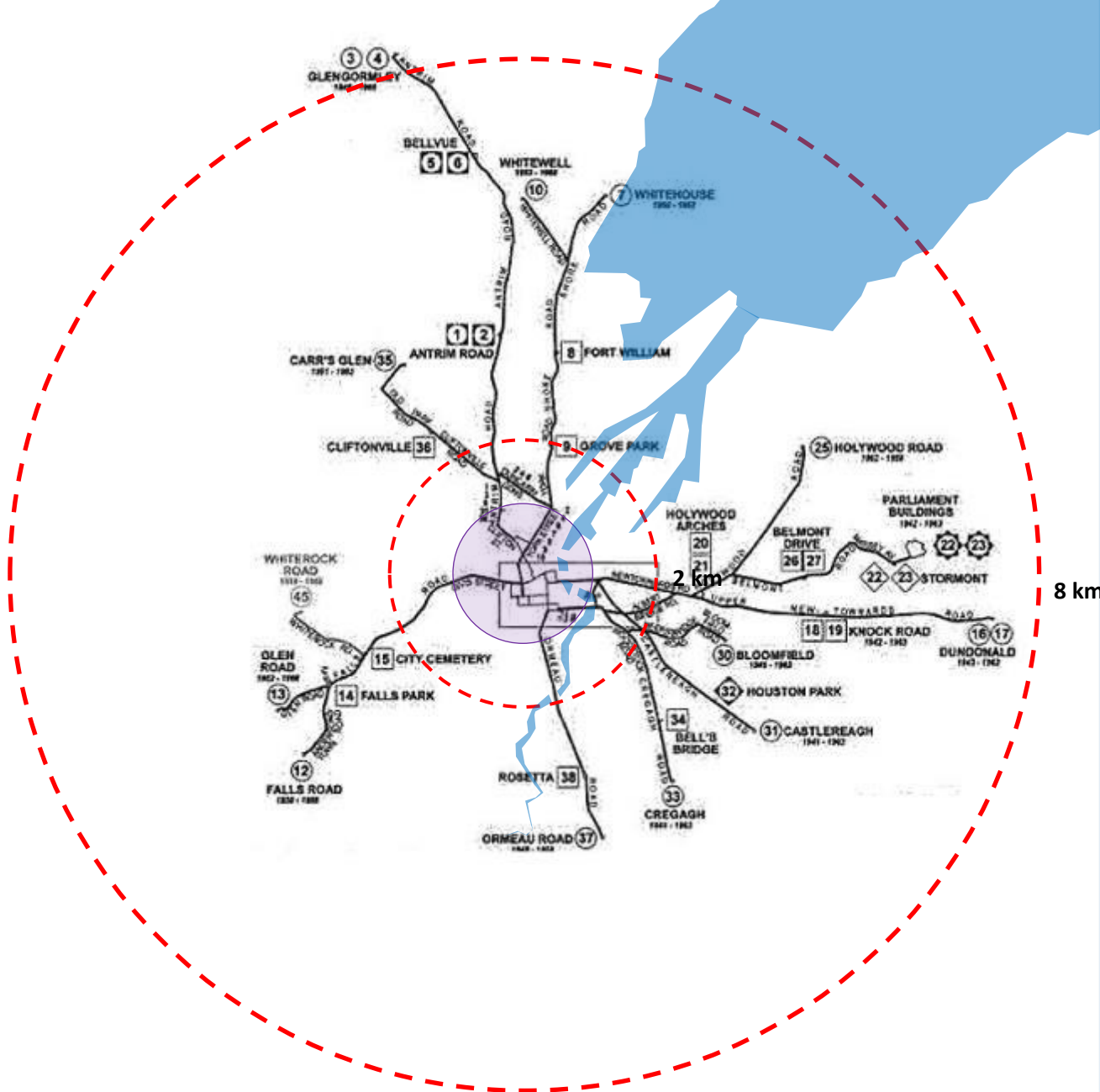
URBAN FABRICS

City Area 8 km

DIMENSIONAL CIRCLES
OF THE FABRICS

Belfast
1958

Trolleybuses



Trolleybuses 1938-1968

*Dimensional circles of the
urban fabrics:*

2 km Walking fabric

8 km Inner transit fabric

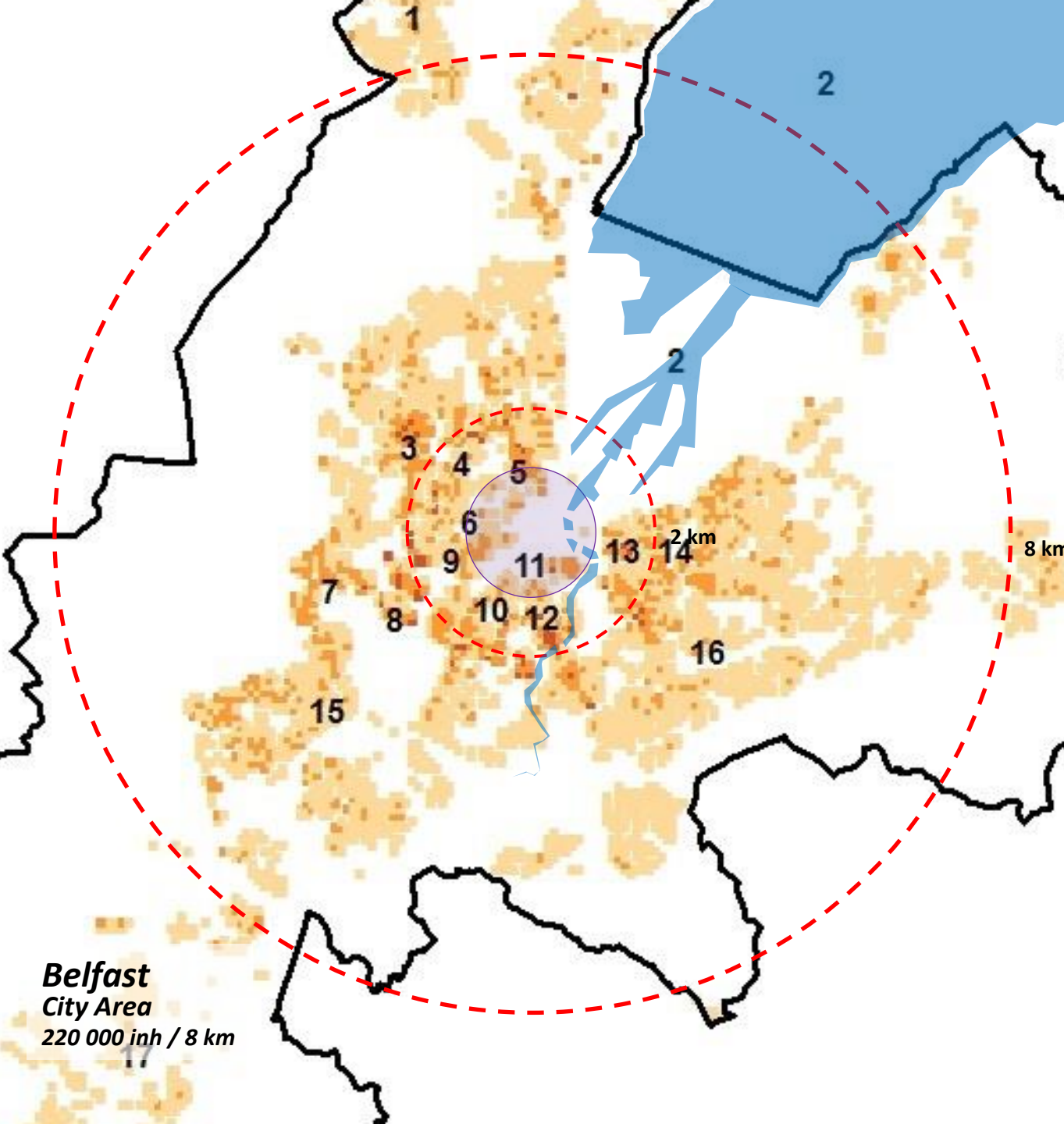
*Car fabric is over and
around the other fabrics*

source: Harvey 2009

URBAN FABRICS
City Area 8 km
DIMENSIONAL CIRCLES
OF THE FABRICS

**Belfast
2001**

Population density



**Belfast
City Area**
220 000 inh / 8 km

***Dimensional circles of the
urban fabrics:***

2 km *Walking fabric*

8 km *Inner transit fabric*

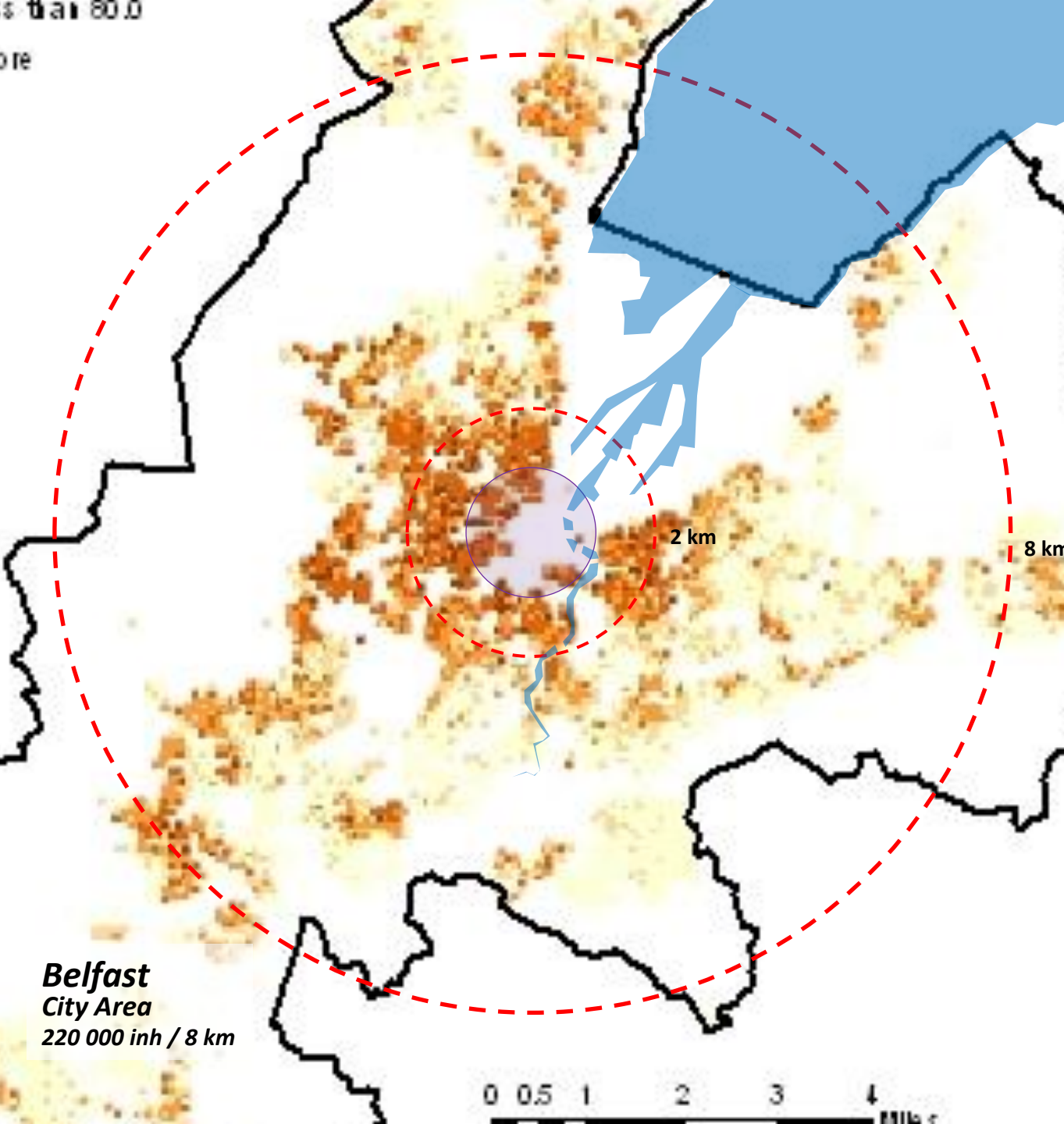
*Car fabric is over and
around the other fabrics*

0.0 80.0
ore

URBAN FABRICS
City Area 8 km
DIMENSIONAL CIRCLES
OF THE FABRICS

**Belfast
2001**

***Households with
no car %***



less than 20.0

20.0 to less than 40.0

40.0 to less than 60.0

60.0 to less than 80.0

80.0 or more

***Dimensional circles of the
urban fabrics:***

2 km *Walking fabric*

8 km *Inner transit fabric*

*Car fabric is over and
around the other fabrics*

**Belfast
City Area**
220 000 inh / 8 km

0 0.5 1 2 3 4 miles

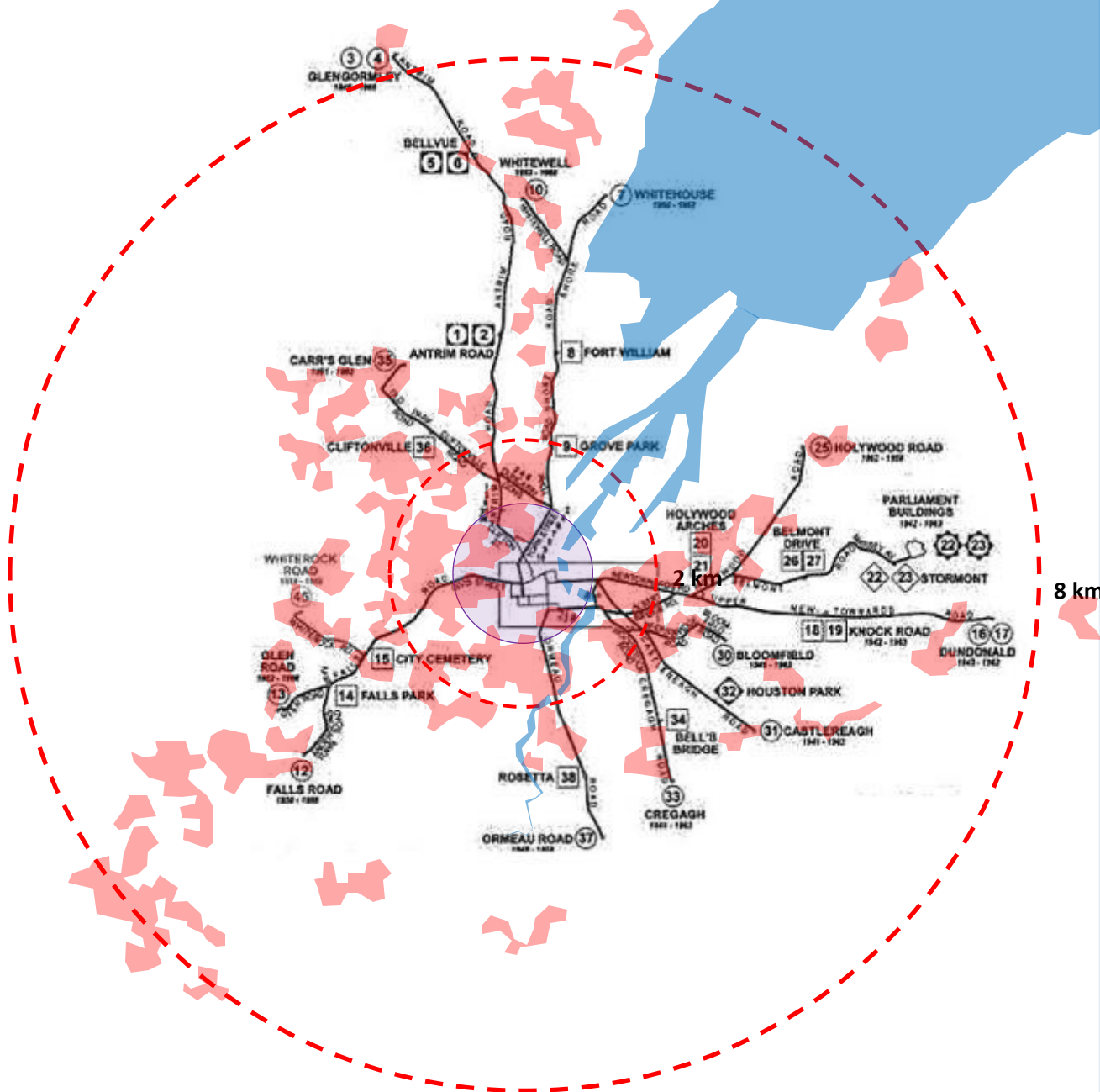
URBAN FABRICS

City Area 8 km

DIMENSIONAL CIRCLES
OF THE FABRICS

Belfast
1958

Trolleybuses



40 % or more of the
households have no car
(2001)

*Dimensional circles of the
urban fabrics:*

2 km *Walking fabric*

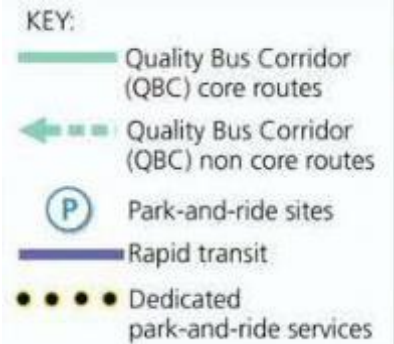
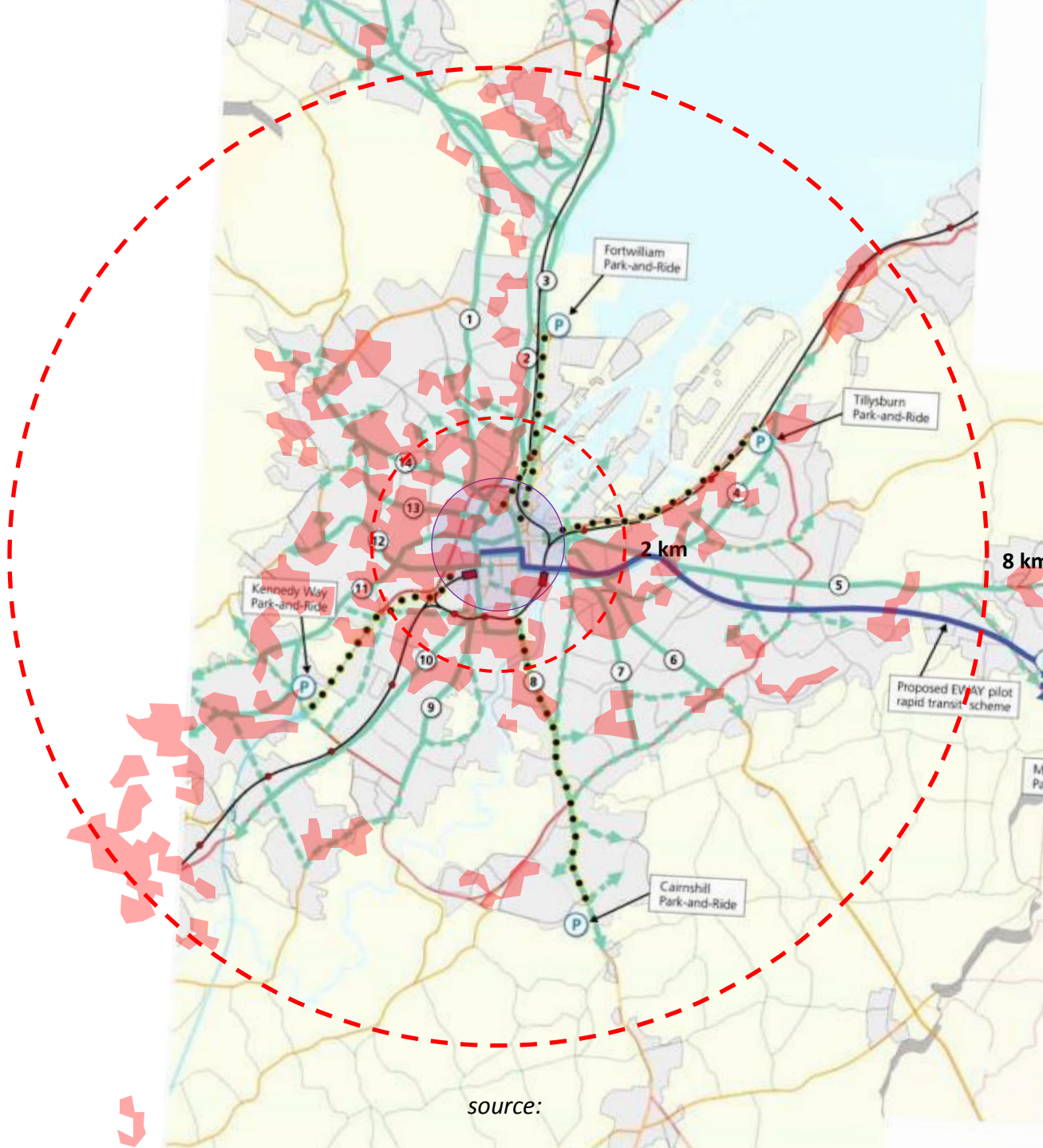
8 km *Inner transit fabric*

*Car fabric is over and
around the other fabrics*

URBAN FABRICS
City Area 8 km
 DIMENSIONAL CIRCLES
 OF THE FABRICS

Belfast
2004

Transit and Car City



 **40 % or more of the households have no car (2001)**

Dimensional circles of the urban fabrics:

2 km *Walking fabric*

8 km *Inner transit fabric*

Car fabric is over and around the other fabrics

source:

URBAN FABRICS City Area 8 km

DIMENSIONAL CIRCLES
OF THE FABRICS

**Belfast
2015**

Local shops

• Local shop of the walking and transit fabrics

■ Shopping unit of the car fabric

40 % or more of the households have no car (2001)

Dimensional circles of the fabrics:

2 km Walking fabric

8 km Inner transit fabric

20 km Outer transit fabric

Car fabric is over and around the other fabrics

**Belfast
City Area**
220 000 inh / 8 km

source:

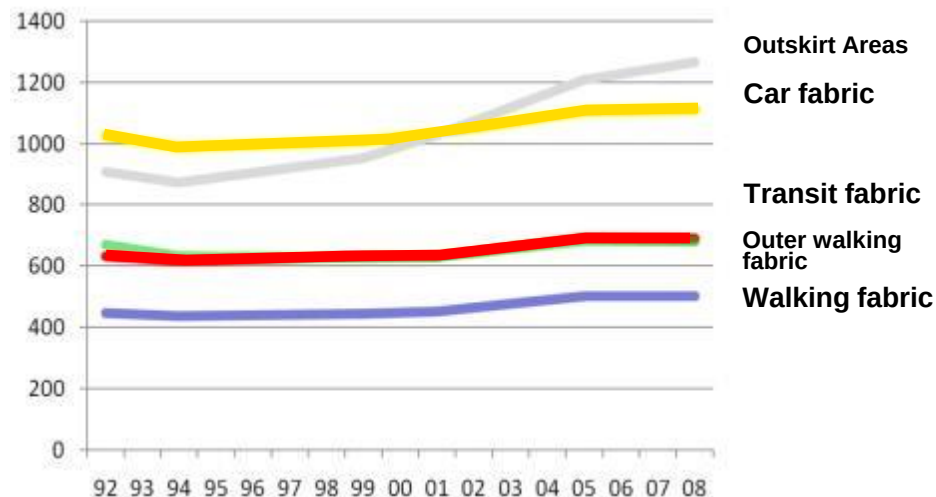
Analysis map 2001

Kuopio

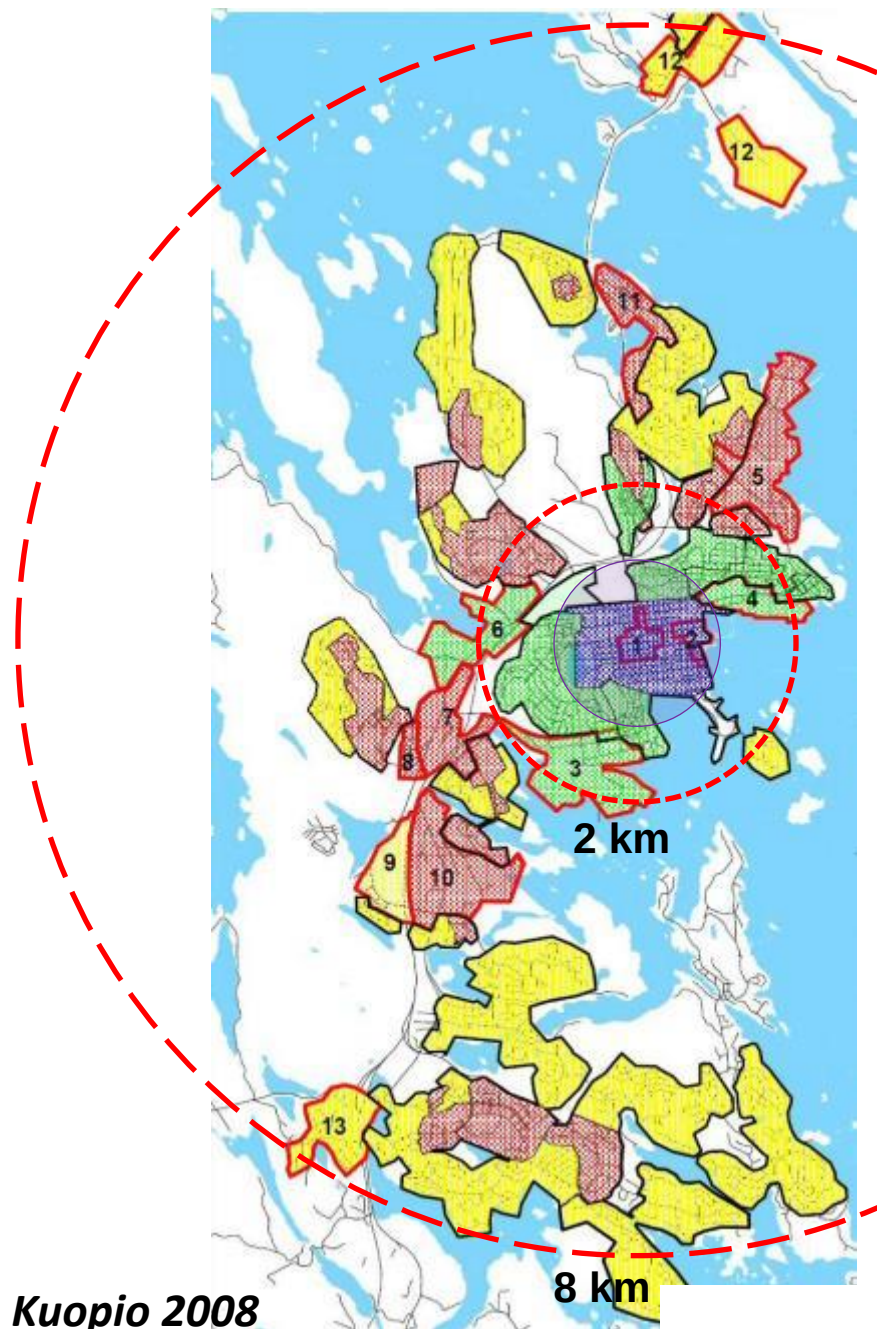
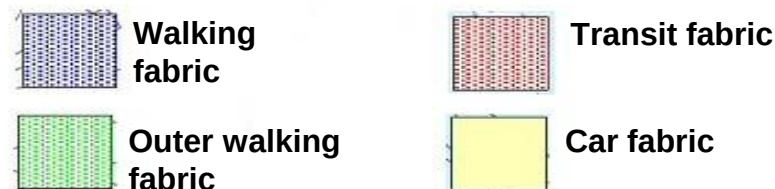
Example:
Motorization 1990-2008
by areas of urban fabrics

The Fabrics were
recognized in
Kuopio

cars / 1000 households



Areas of the Urban Fabrics



Kuopio 2008

source: National Car Register 1992, 1994, 1999, 2001, 2005, 2008

Kuopio 8 km Transit Fabric 2015

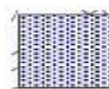
Suburbs of the transit fabric
within the radius of 8 km from the
city centre

are regenerated to **Pedestrian
precincts and neighbourhoods**

Särkilahti
transit fabric

District of Islands
transit fabric
and car fabric

Housing areas of the Fabrics



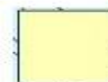
**Walking
fabric**



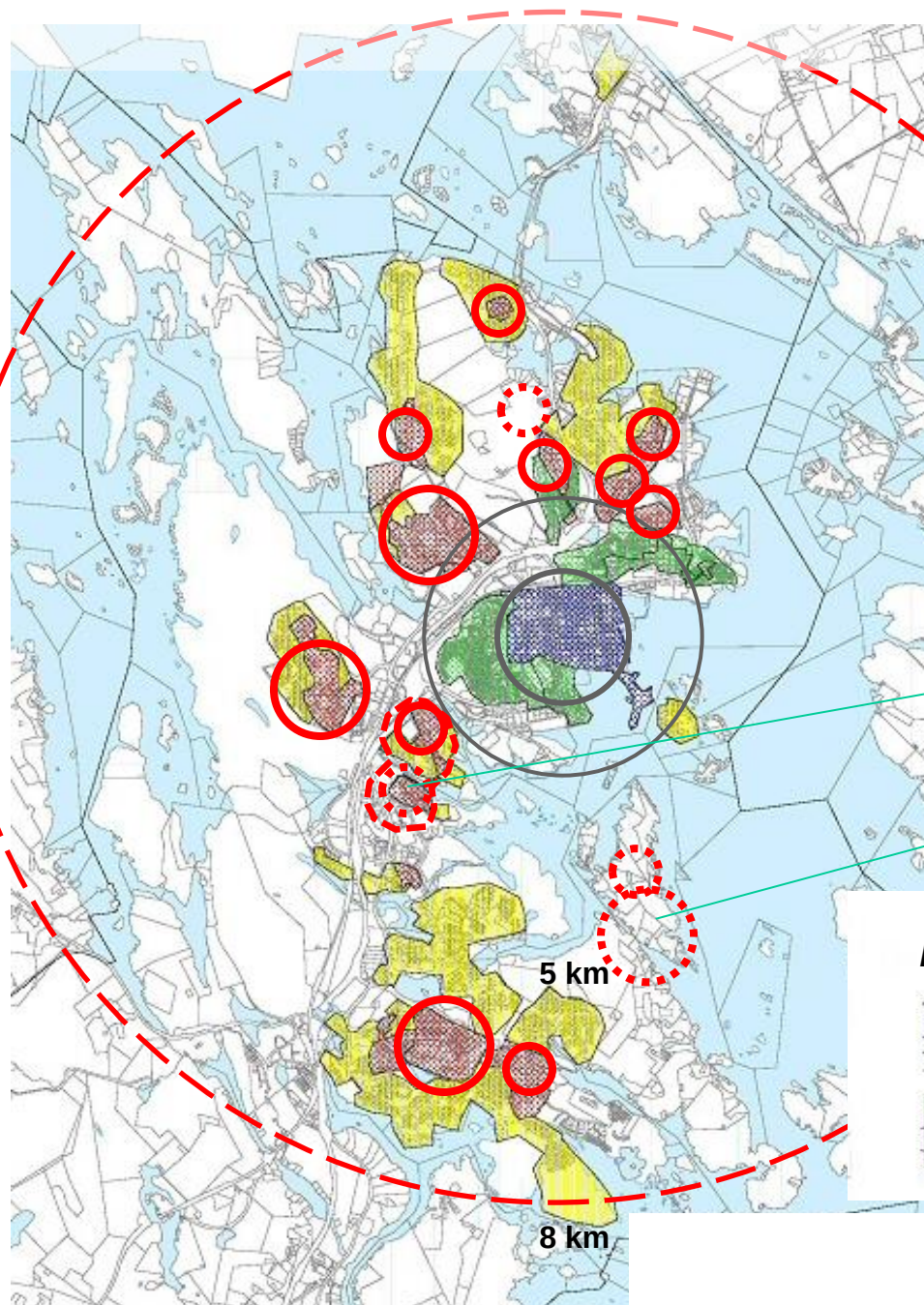
**Outer walking
fabric**



Transit fabric



Car fabric



Kuopio 8 km Transit Fabric 2015

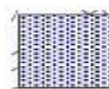
Suburbs of the transit fabric
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precincts and neighbourhoods**

Särkilahti
transit fabric

District of Islands
transit fabric
and car fabric

Housing areas of the Fabrics



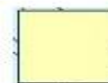
Walking
fabric



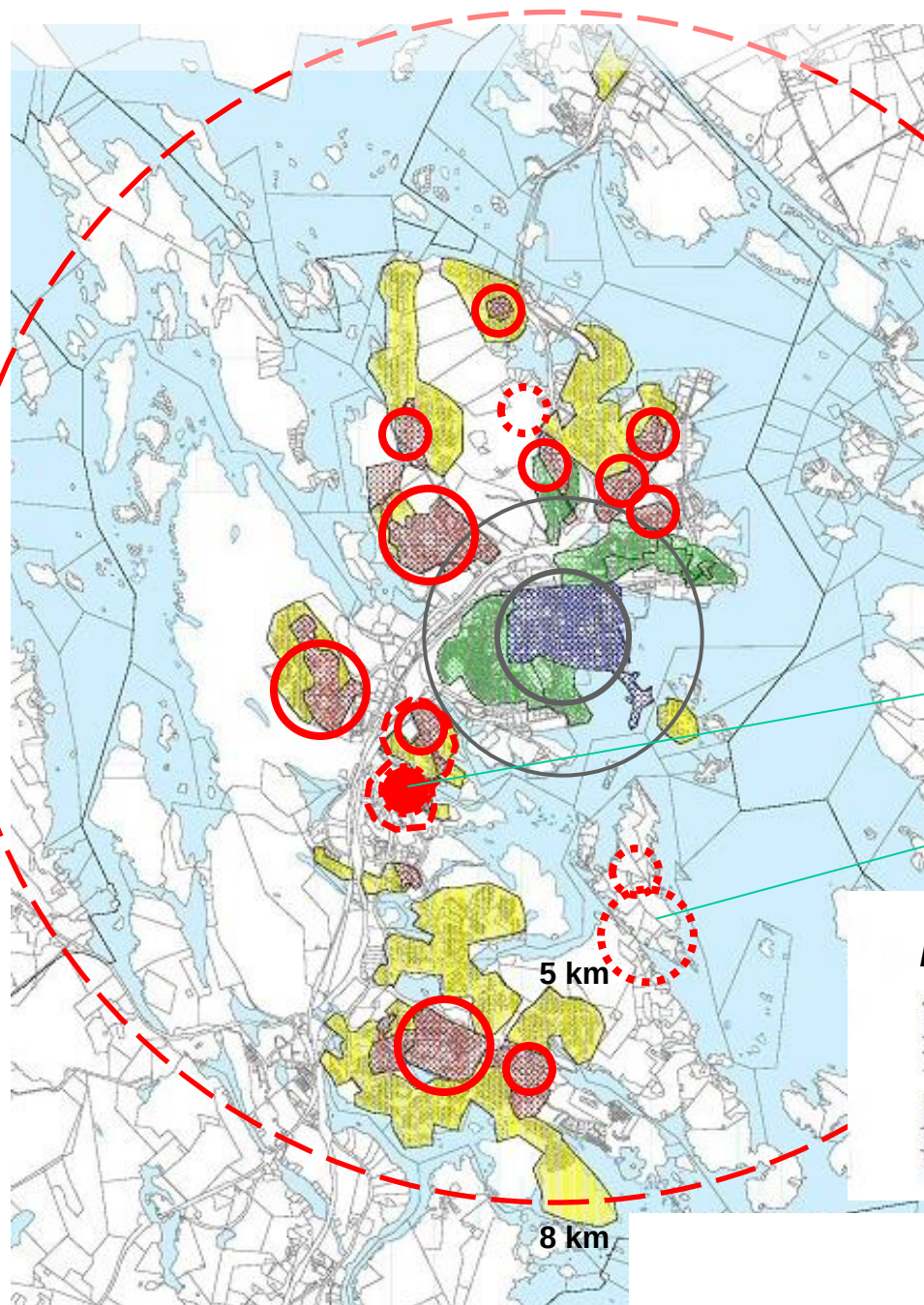
Outer walking
fabric



Transit fabric



Car fabric



Kuopio Concept Finland

URBAN FABRICS
Precinct 500 m
*A New Pedestrian
Neighbourhood*
TRANSIT FABRIC



Särkilahti

Kuopio Concept Finland

URBAN FABRICS
Precinct 500 m
*A New Pedestrian
Neighbourhood*

TRANSIT FABRIC



Kuopio Concept Finland

URBAN FABRICS
Precinct 500 m
*A New Pedestrian
Neighbourhood*
TRANSIT FABRIC

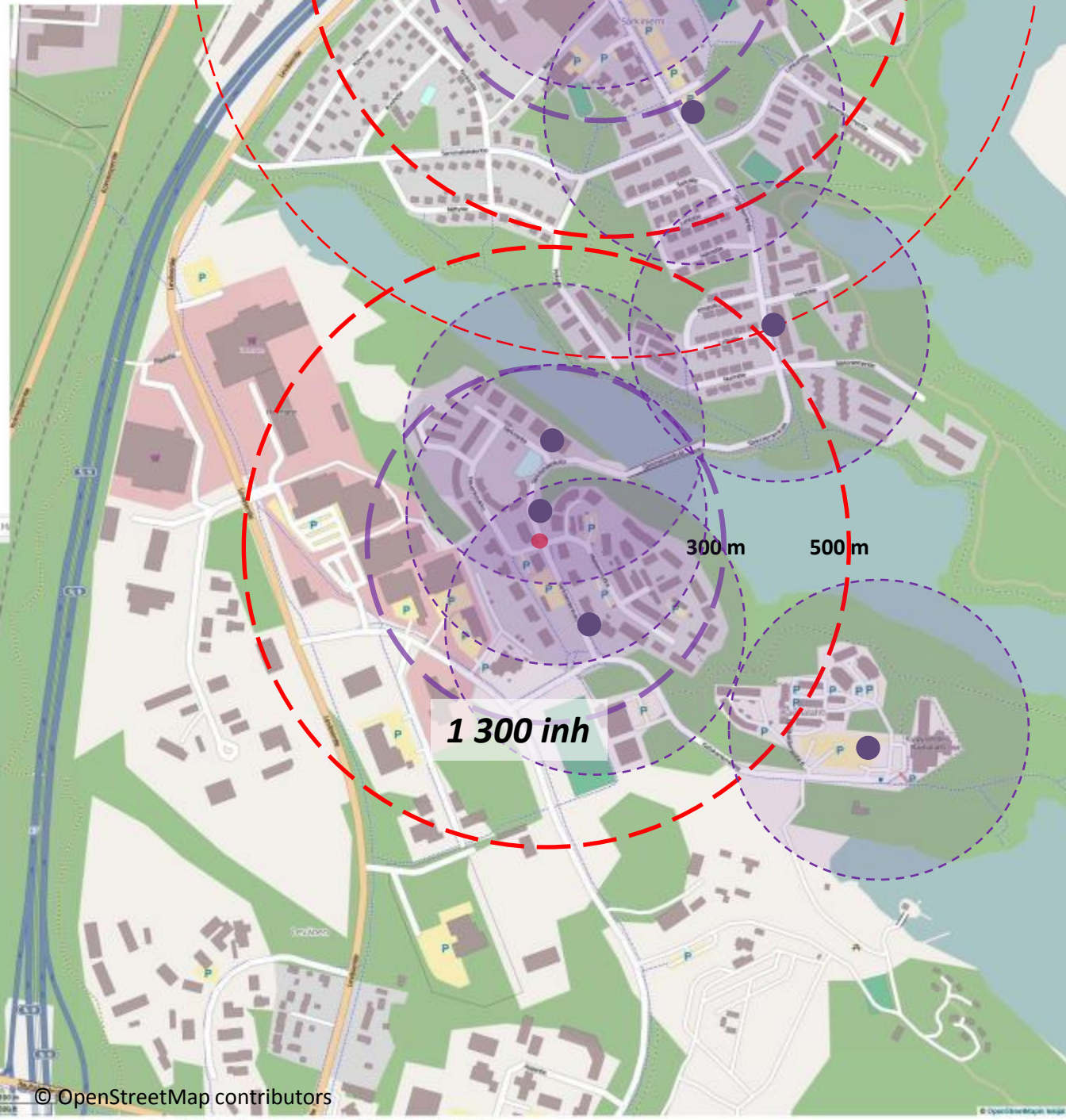


Särkilahti



URBAN FABRICS
Transit Fabric
Neighbourhood
500 m

Särkilahti
Kuopio, Finland
2014



*Dimensional circles of the
pedsheds:*



Local centre or a shop :

300 m	good
500 m	moderate
700 m	bad



Busstops:

250 m	good
300 m	moderate
400 m	bad

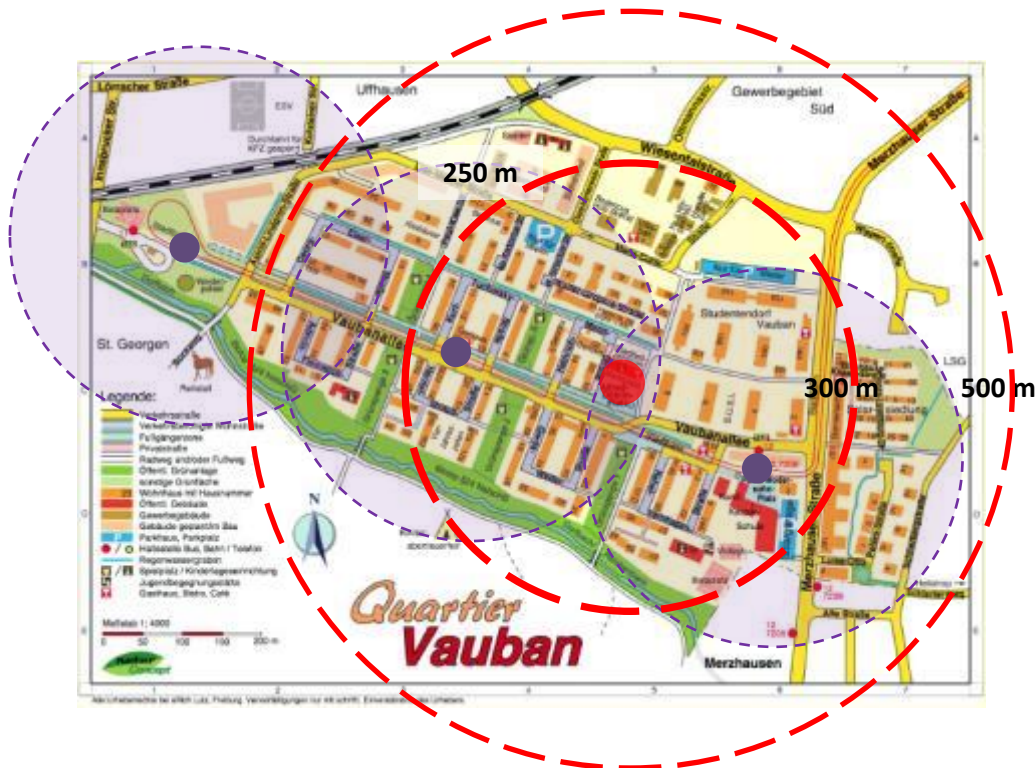




*Vauban
Freiburg*

URBAN FABRICS
Transit Fabric
Neighbourhood
500 m

Vauban
Freiburg, Germany
2008



Dimensional circles of the pedsheds:



Local centre or a shop :

300 m	good
500 m	moderate
700 m	bad



Busstops:

250 m	good
300 m	moderate
400 m	bad



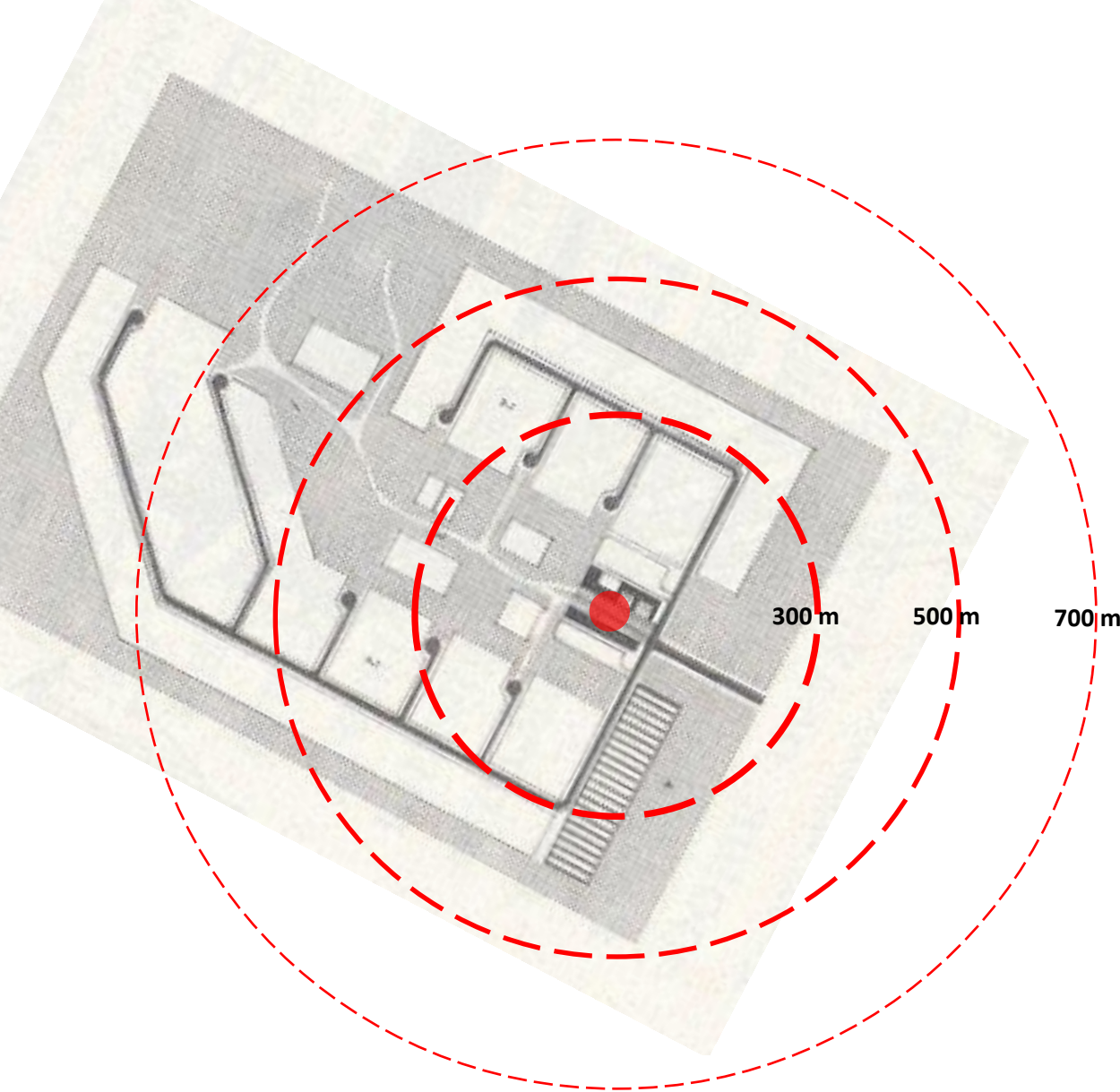
Särkilahti
Kuopio, Finland
2014



-  **Local centre or a shop :**
- | | |
|-------|-----------------|
| 300 m | good |
| 500 m | <i>moderate</i> |
| 700 m | <i>bad</i> |
-  **Tramstops:**
- | | |
|-------|-----------------|
| 250 m | good |
| 300 m | <i>moderate</i> |
| 400 m | <i>bad</i> |

URBAN FABRICS
Transit Fabric
Neighbourhood
500 m

Model of a
Neighbourhood
Olli Kivinen
Finland
1957



***Dimensional circles of the
pedsheds:***



Local centre or a shop :

300 m	<i>good</i>
500 m	<i>moderate</i>
700 m	<i>bad</i>

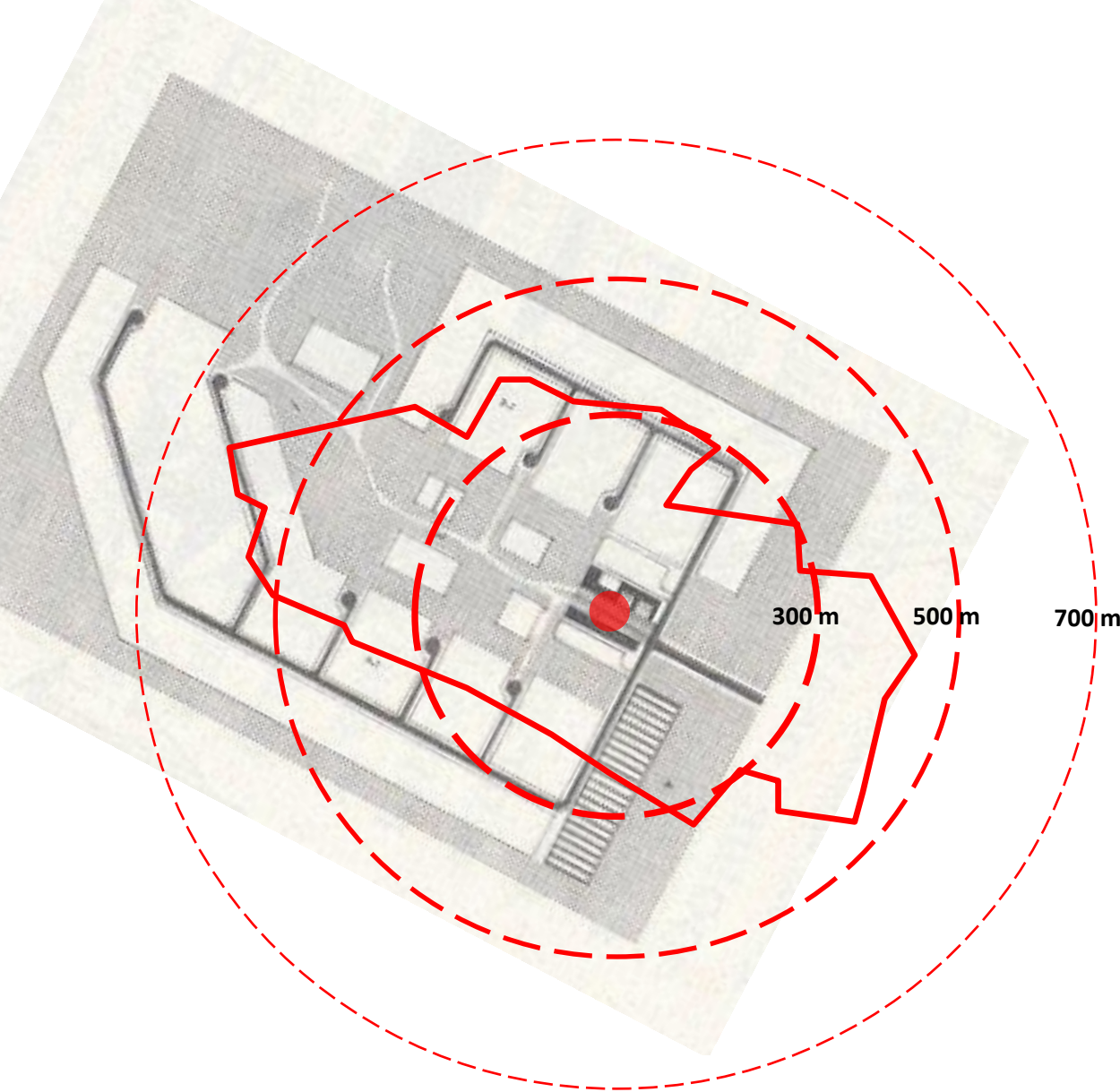


Busstops:

250 m	<i>good</i>
300 m	<i>moderate</i>
400 m	<i>bad</i>

URBAN FABRICS
Transit Fabric
Neighbourhood
500 m

Model of a
Neighbourhood
Olli Kivinen
Finland
1957



***Dimensional circles of the
pedsheds:***



Local centre or a shop :

<i>300 m</i>	<i>good</i>
<i>500 m</i>	<i>moderate</i>
<i>700 m</i>	<i>bad</i>

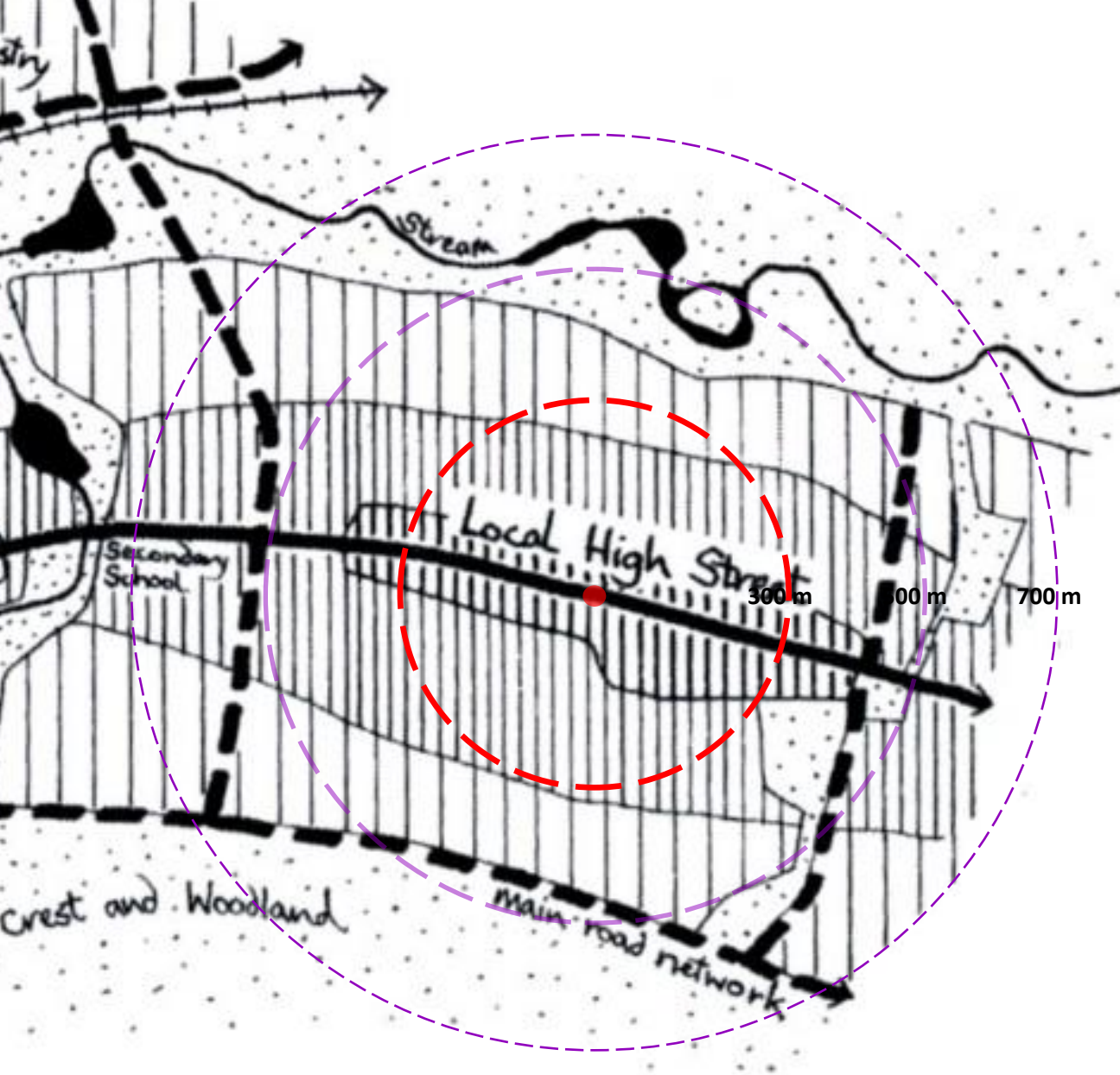


Busstops:

<i>250 m</i>	<i>good</i>
<i>300 m</i>	<i>moderate</i>
<i>400 m</i>	<i>bad</i>

URBAN FABRICS
Transit Fabric
Neighbourhood
500 m

Concept of a Local
High Street
Barton et al
2010



*Dimensional circles of the
pedsheds:*



Local centre or a shop :

300 m	good
500 m	moderate
700 m	bad



Busstops:

250 m	good
300 m	moderate
400 m	bad

URBAN FABRICS
Transit Fabric
Neighbourhood
500 m

Concept of a Local
High Street
Barton et al
2010



*Dimensional circles of the
pedsheds:*

Local centre or a shop :

300 m	<i>good</i>
500 m	<i>moderate</i>
700 m	<i>bad</i>

Busstops:

250 m	<i>good</i>
300 m	<i>moderate</i>
400 m	<i>bad</i>

URBAN FABRICS
Transit Fabric
Neighbourhood
500 m

*Concept of a Local
High Street
Woodstock Road*

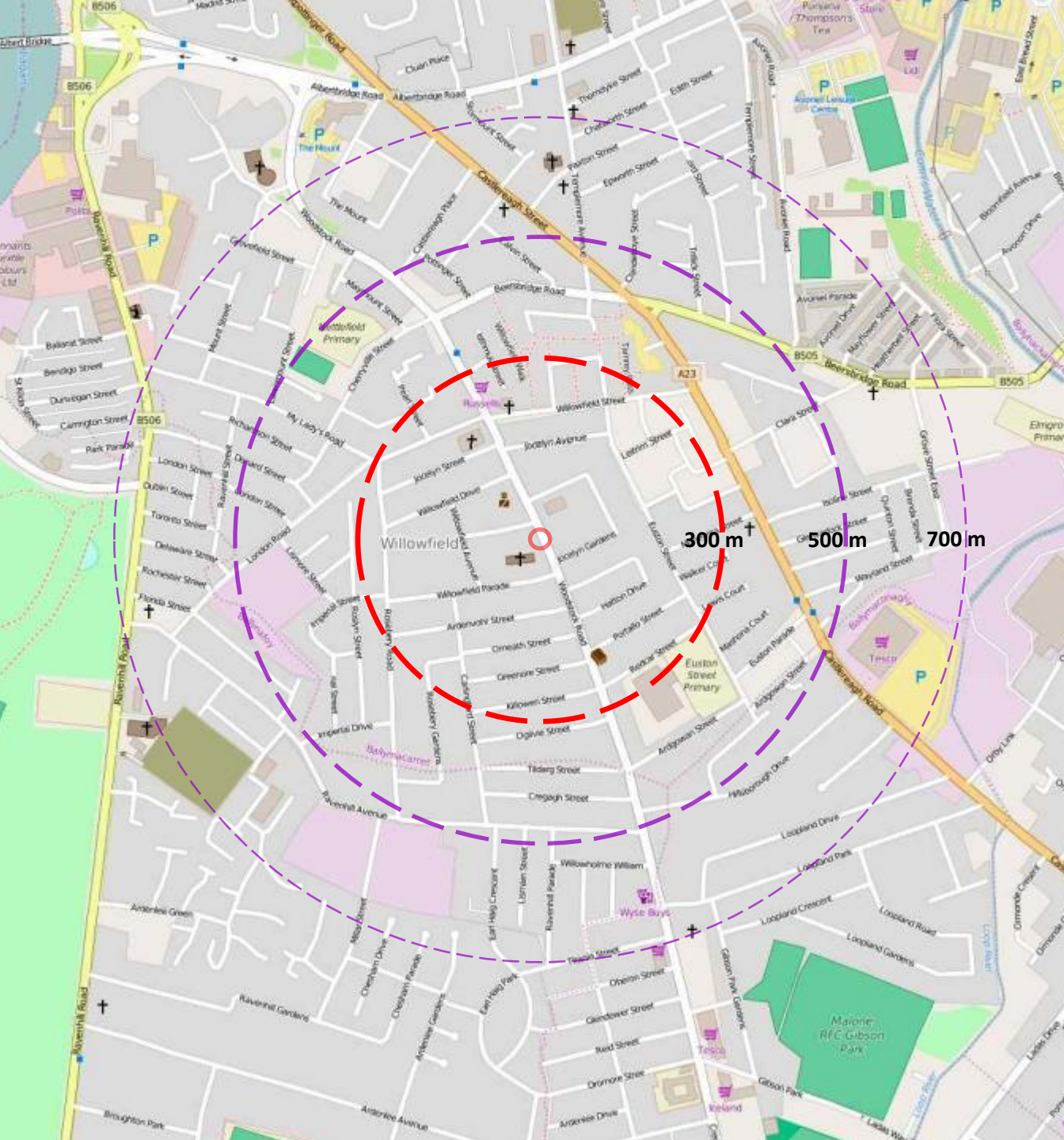
*Dimensional circles of the
pedsheds:*

Local centre or a shop :

300 m	good
500 m	moderate
700 m	bad

Busstops:

250 m	good
300 m	moderate
400 m	bad



URBAN FABRICS
Transit Fabric
Neighbourhood
500 m

**Concept of a Local
High Street
Woodstock Road**

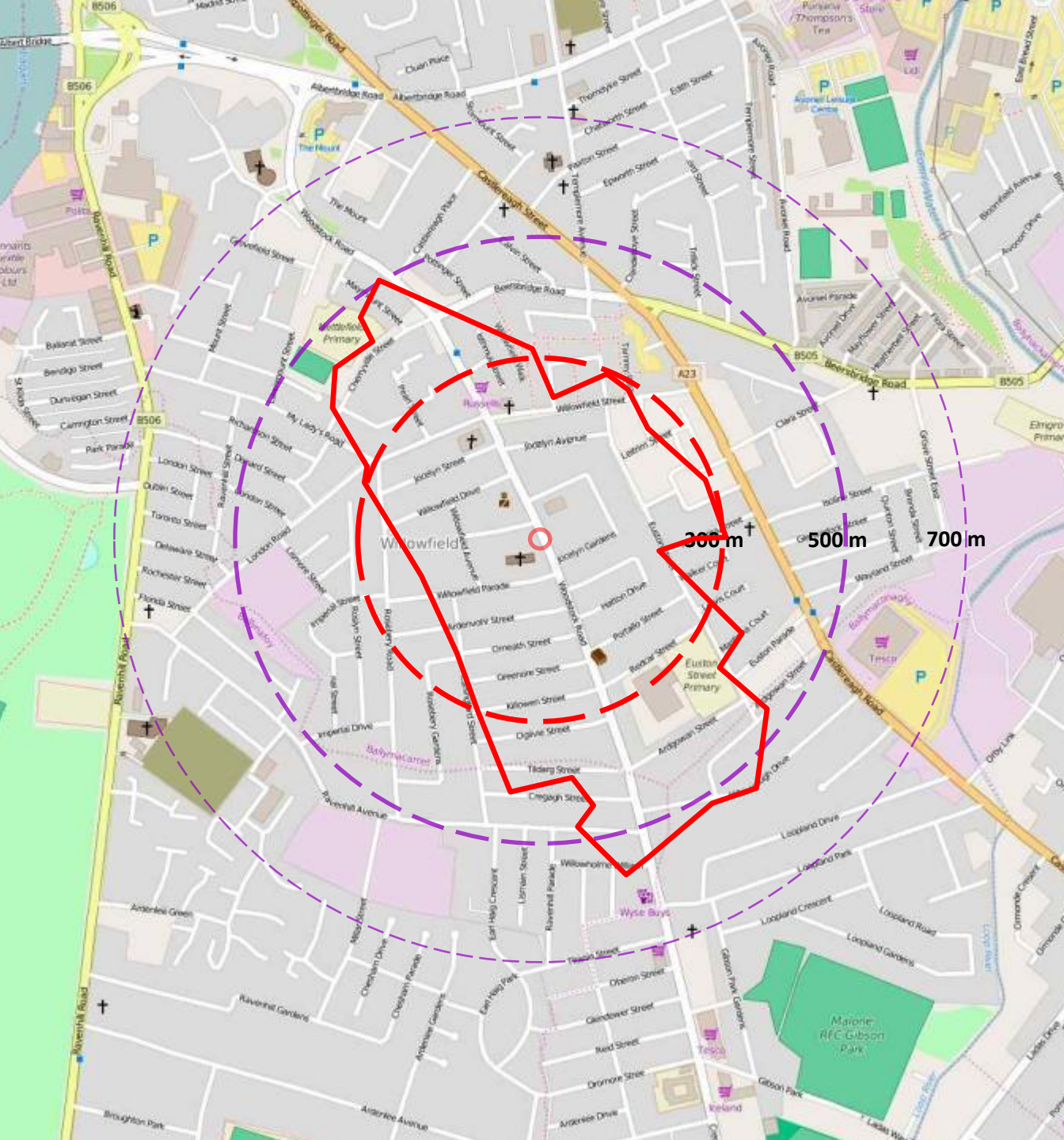
**Dimensional circles of the
pedsheds:**

Local centre or a shop :

300 m	good
500 m	moderate
700 m	bad

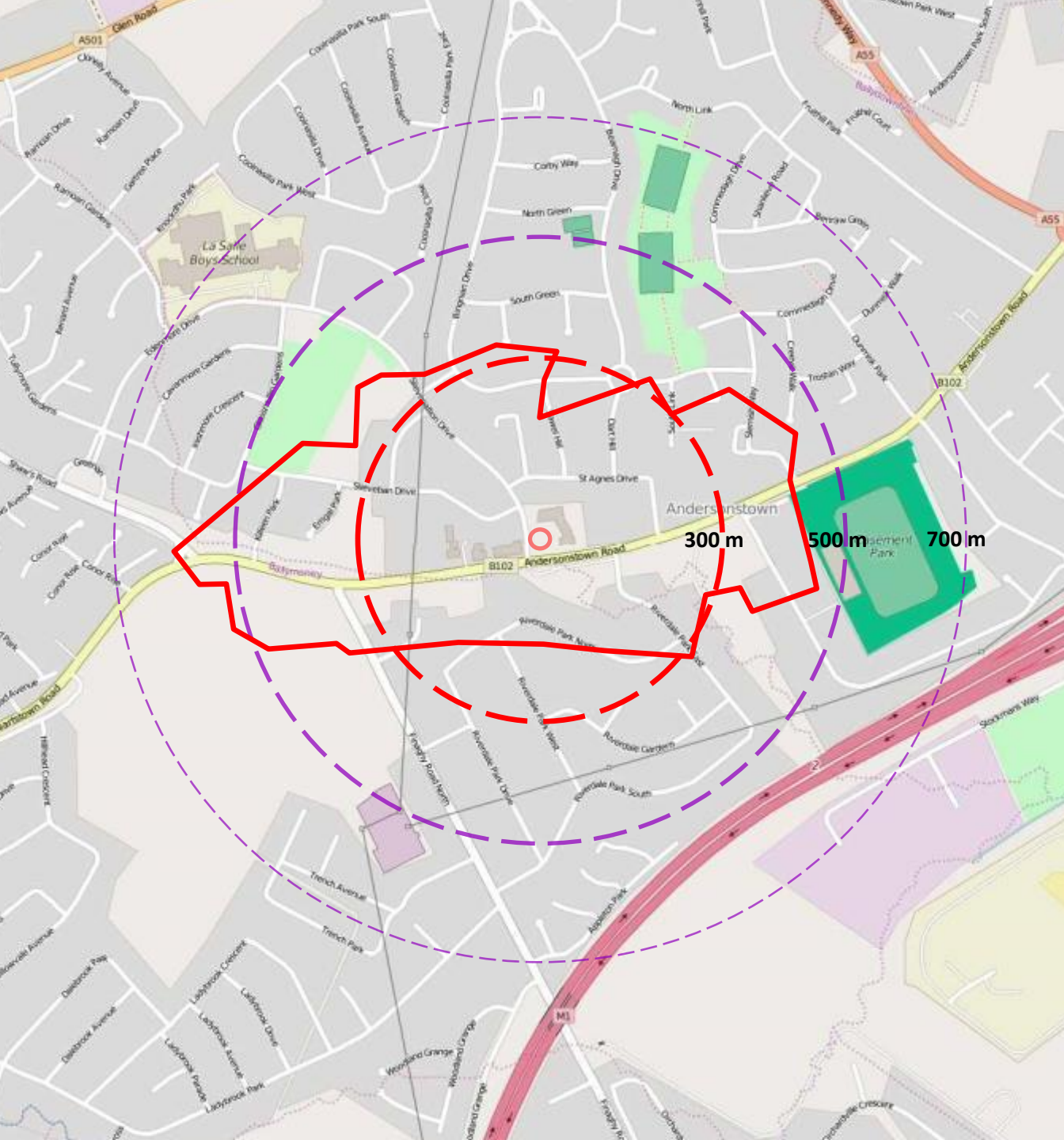
Busstops:

250 m	good
300 m	moderate
400 m	bad



URBAN FABRICS
Transit Fabric
Neighbourhood
500 m

***Concept of a Local
 High Street
 Andersonstown***



***Dimensional circles of the
 pedsheds:***

Local centre or a shop :

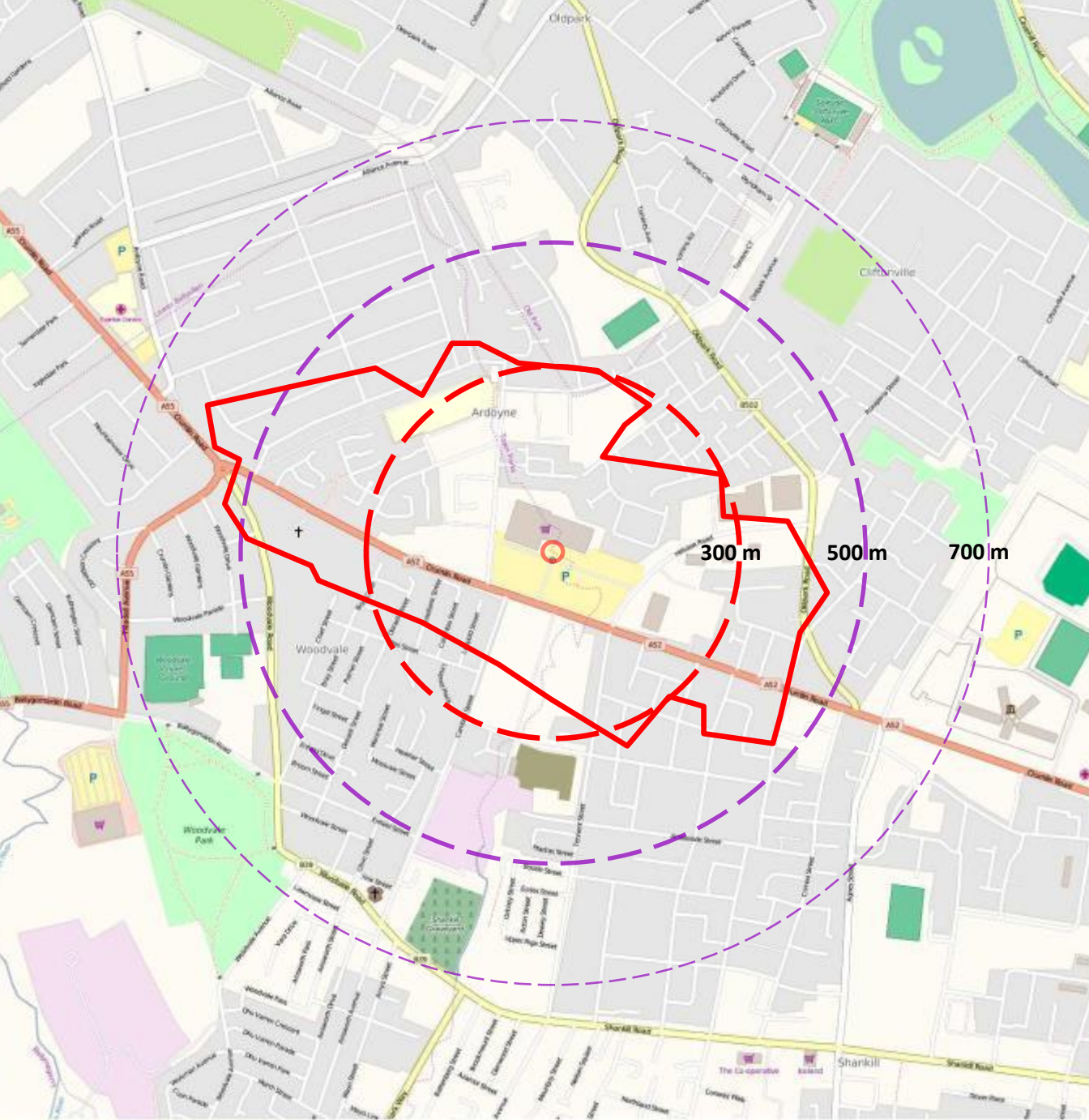
300 m	<i>good</i>
500 m	<i>moderate</i>
700 m	<i>bad</i>

Busstops:

250 m	<i>good</i>
300 m	<i>moderate</i>
400 m	<i>bad</i>

URBAN FABRICS
Transit Fabric
Neighbourhood
500 m

**Concept of a Local
High Street
Crumlin Road**



**Dimensional circles of the
pedsheds:**

Local centre or a shop :

300 m	good
500 m	moderate
700 m	bad

Busstops:

250 m	good
300 m	moderate
400 m	bad



URBAN FABRICS
Transit Fabric
Neighbourhood
500 m

Concept of a
Township
Barton et al
2010



Dimensional circles of the
pedsheds:

Local centre or a shop :

300 m	good
500 m	moderate
700 m	bad

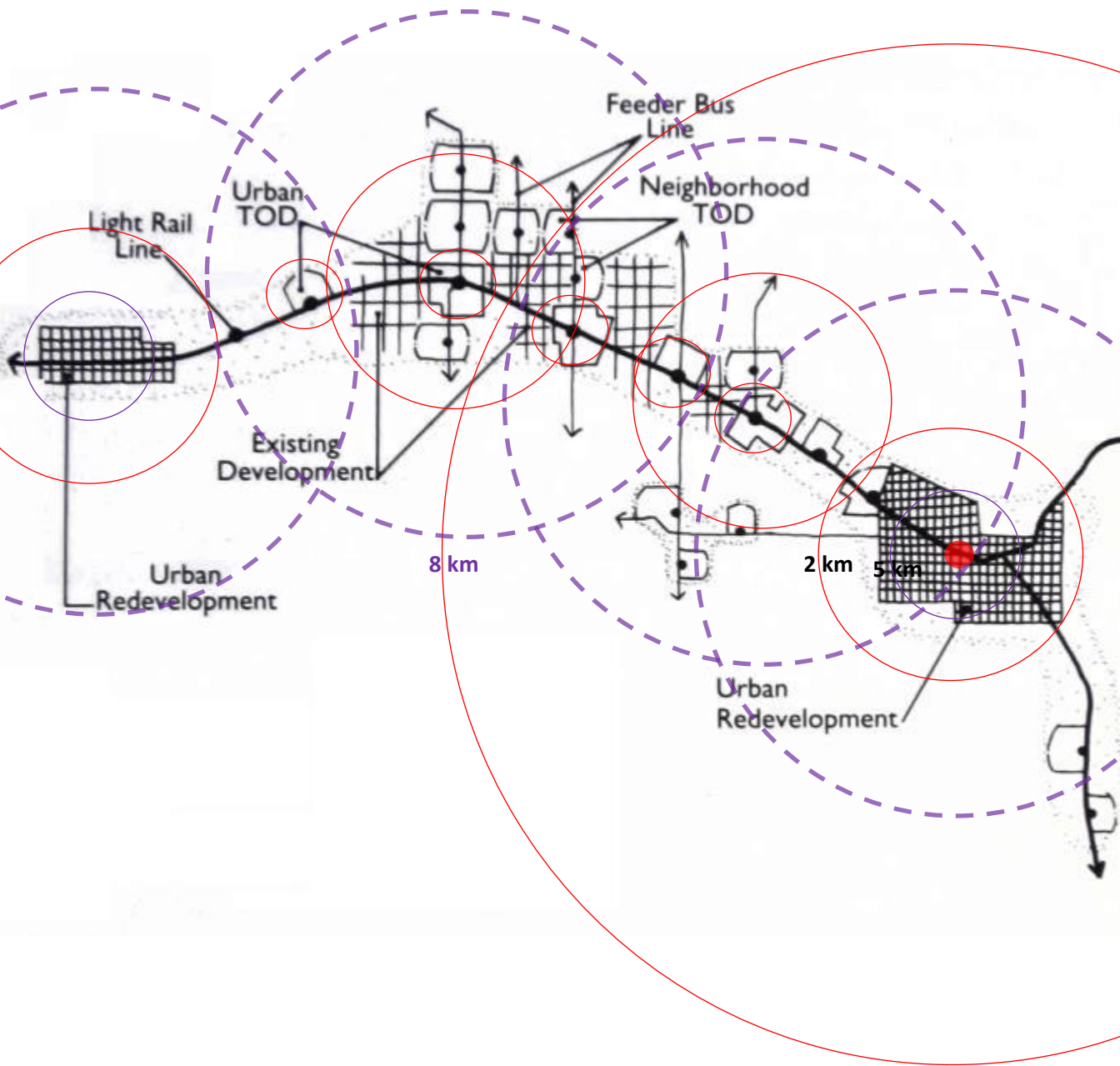
Busstops:

250 m	good
300 m	moderate
400 m	bad

URBAN FABRICS
City Area 8 km
DIMENSIONAL CIRCLES
OF THE FABRICS

New Transit Fabric Precincts

**Urban TODs and
Neighbourhood TODs
Calthorpe
1993**
Pedshed 500 m or less



**Dimensional circles of the
urban fabrics:**

2 km Walking fabric

8 km Inner transit fabric

**Car fabric is over and
around the other fabrics**

5 km Cycling zone

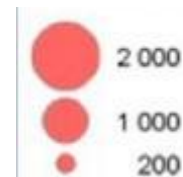
URBAN FABRICS
City Area 8 km
DIMENSIONAL CIRCLES
OF THE FABRICS

New Transit Fabric

**Light Rail Plans
2013**

Tampere, Finland

Population 2013
250x250 m squares

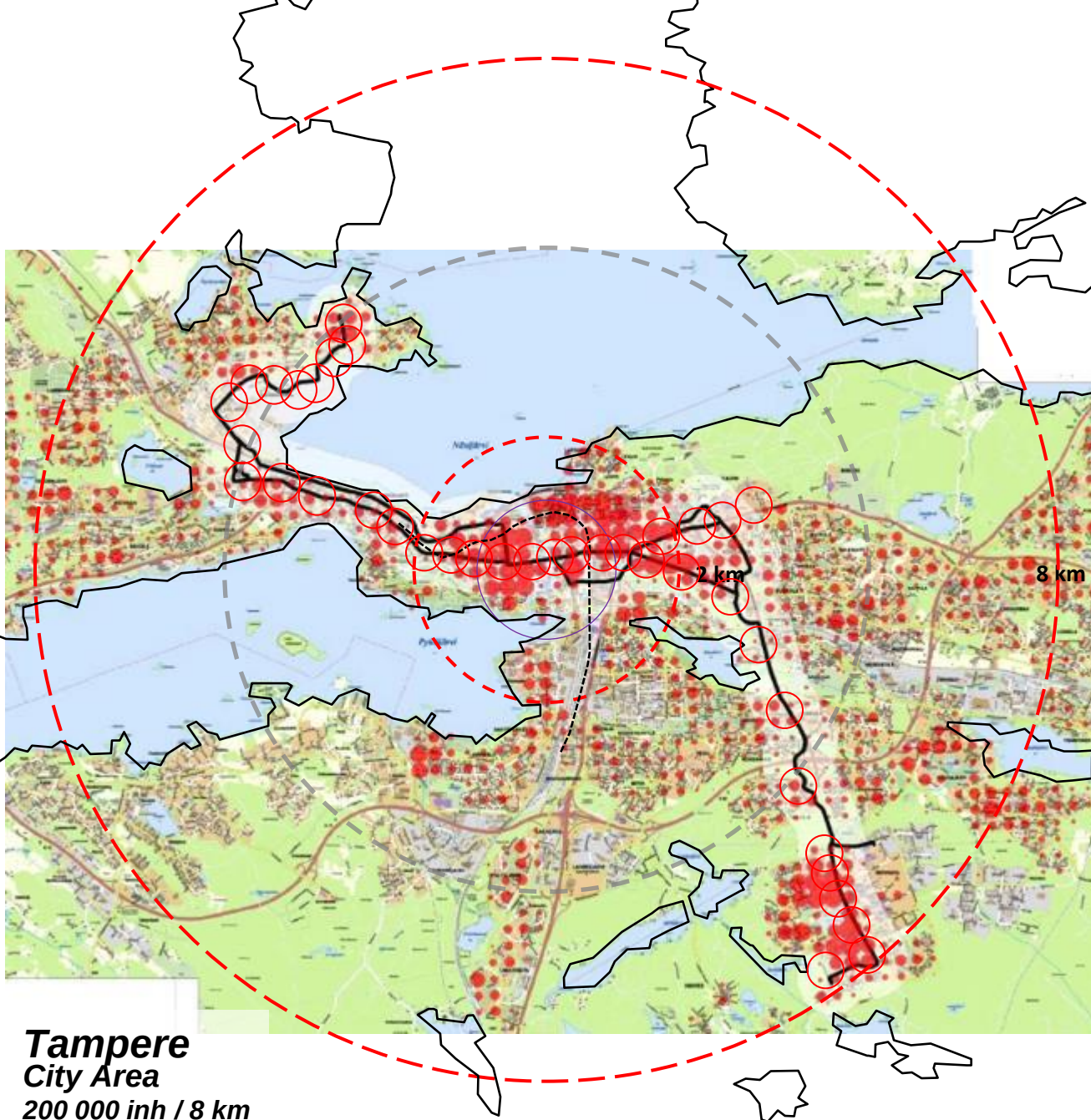


**Dimensional circles of the
urban fabrics:**

2 km *Walking fabric*

8 km *Inner transit fabric*

*Car fabric is over and
around the other fabrics*



Tampere
City Area
200 000 inh / 8 km

New Transit Fabric

Light Rail
New Precincts
2013

Tampere, Finland



URBAN FABRICS *City Area 8 km*

DIMENSIONAL CIRCLES
OF THE FABRICS

**Belfast
2015**

Local shops

• Local shop of the walking and transit fabrics

■ Shopping unit of the car fabric

— BRT line

40 % or more of the
households have no car
(2001)

*Dimensional circles of the
urban fabrics:*

2 km *Walking fabric*

8 km *Inner transit fabric*

*Car fabric is over and
around the other fabrics*

**Belfast
City Area**
220 000 inh / 8 km

source:

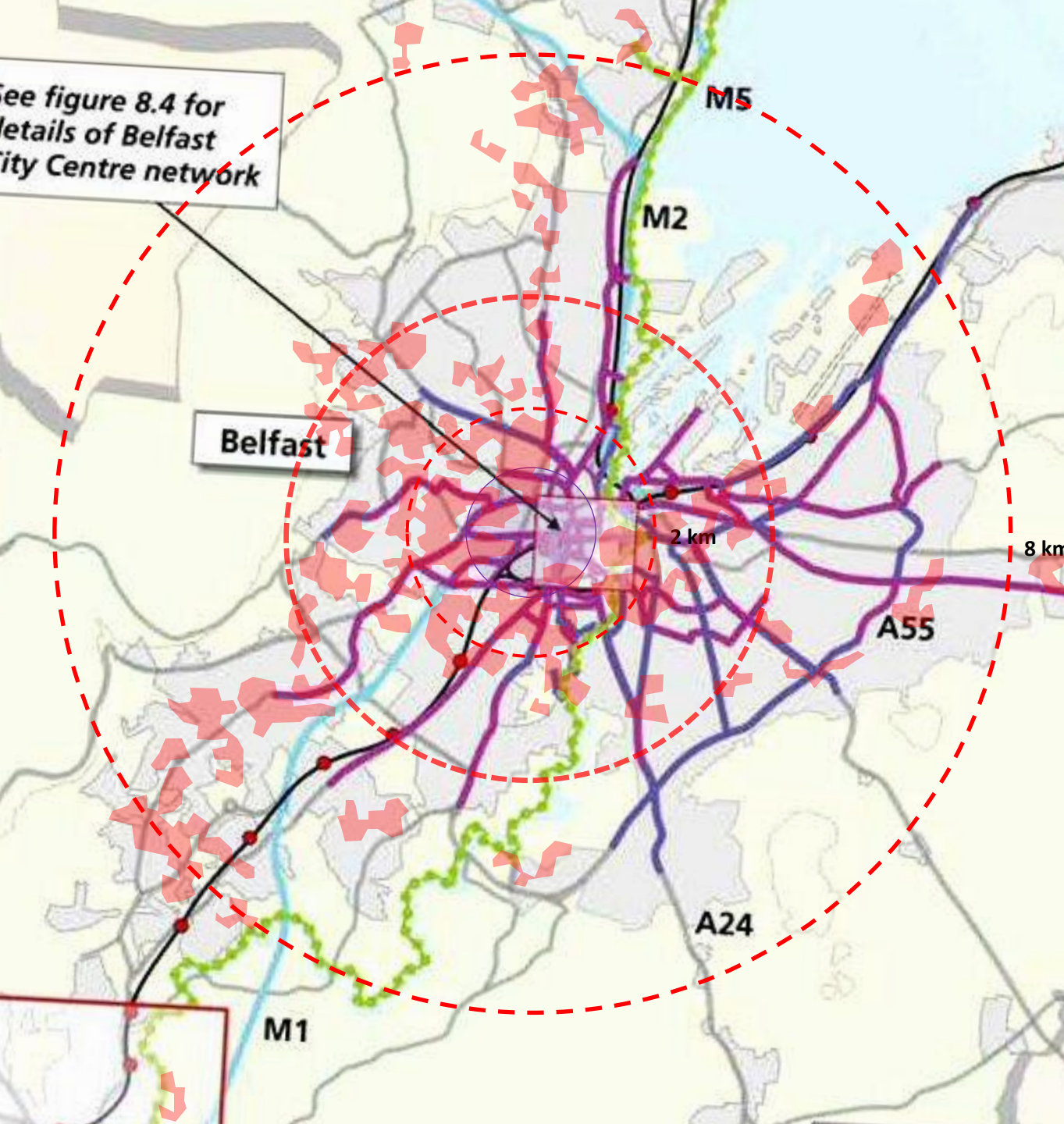
Auto Urban Fabric



Transit City and Car City

District of Islands

See figure 8.4 for details of Belfast City Centre network



URBAN FABRICS City Area 8 km DIMENSIONAL CIRCLES OF THE FABRICS Belfast

Cycle network plan 2004

KEY:

- Existing National Cycle Network (NCN)
- Existing cycle routes
- BMTTP proposed cycle routes
- Motorway
- Other roads
- Rail network

40 % or more of the households have no car (2001)

Dimensional circles of the urban fabrics:

- 2 km Walking fabric
- 8 km Inner transit fabric
- Car fabric is over and around the other fabrics
- 5 km Cycling zone

URBAN FABRICS
City Area 8 km
DIMENSIONAL CIRCLES
OF THE FABRICS
Belfast

***Traffic Plan of
the Car Fabric
1969***



***Dimensional circles of the
urban fabrics:***

2 km *Walking fabric*

8 km *Inner transit fabric*

*Car fabric is over and
around the other fabrics*

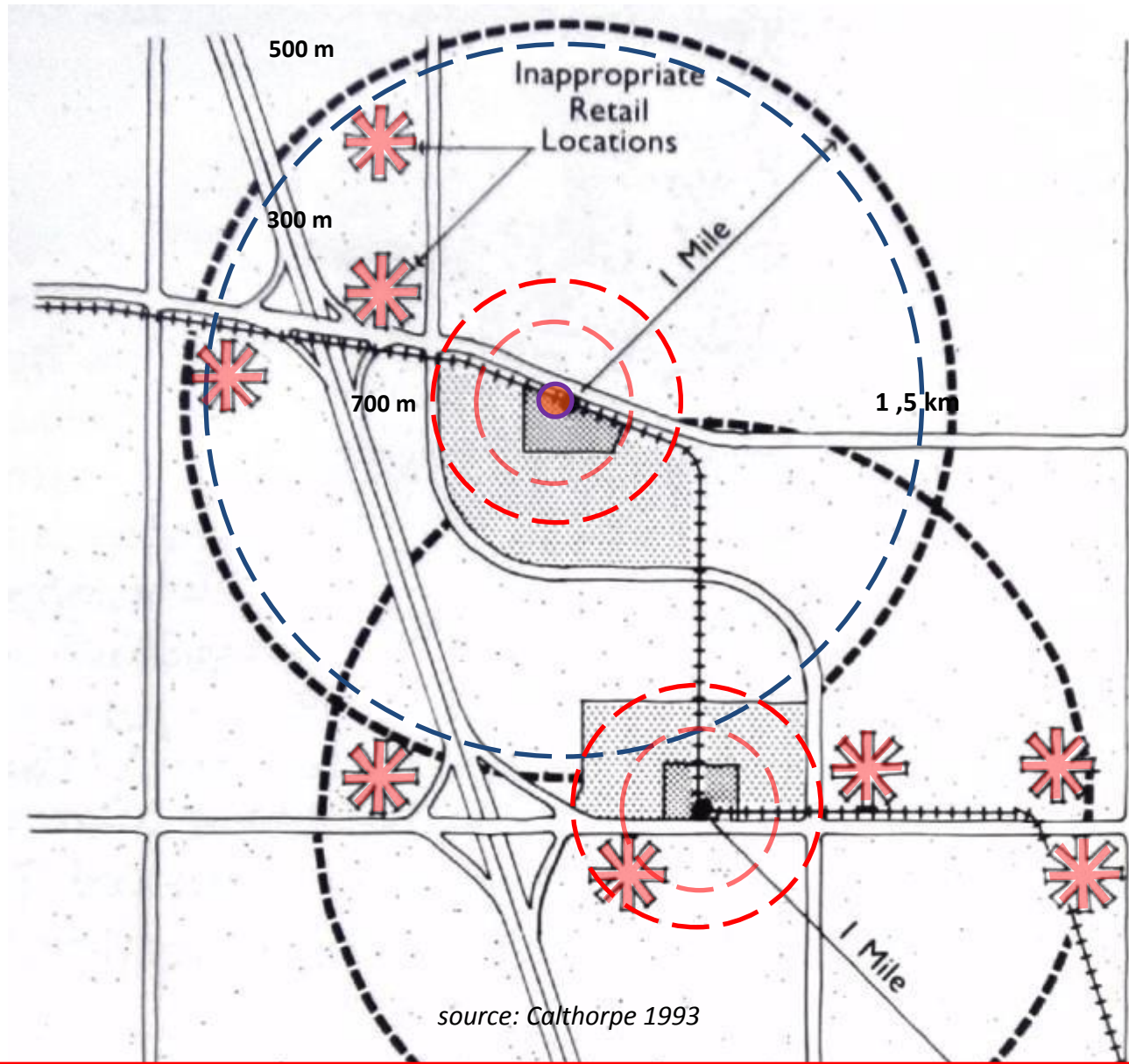
KOLME KAUPUNKIJÄRJESTELMÄÄ
Kaupunkialue 1,5 km
Kehittäminen

JOUKKOLIIKENNEKAUPUNKIA
AUTOKAUPUNKIIN

Calthorpe 1993

TOD and secondary areas

 *Inappropriate Retail Locations*



source: Calthorpe 1993

17.4.2015



Leo Kosonen

URBAN FABRICS City Area 8 km

DIMENSIONAL CIRCLES
OF THE FABRICS

**Kuopio
2010**

Shops of Daily Goods



*Local shop with pedsheds
300 m ja 500 m*



*Local shop of the transit and
car fabrics,*



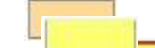
*Shopping units of the car
fabric access 1,5 km and 5
km*



Walking Urban Fabric



Transit Urban Fabric



Auto Urban Fabric



Other areas



CBD

**Dimensional circles of the
urban fabrics:**

2 km *Walking fabric*

8 km *Inner transit fabric*

*Car fabric is over and
around the other fabrics*

Kuopio 2010
UF Urban Fabrics



Draft 05/12/2012 / LK

9.9.2014



Leo Kosonen

URBAN FABRICS City Area 8 km

DIMENSIONAL CIRCLES
OF THE FABRICS

**Belfast
2015**

Local shops

- Local shop of the walking and transit fabrics, pedshed 300 m
- Shopping unit of the car fabric, access by car 1,5 km

Dimensional circles of the urban fabrics:

2 km *Walking fabric*

8 km *Inner transit fabric*

Car fabric is over and around the other fabrics

Belfast
Northern Ireland
_220 000 inh / 8 km

source:

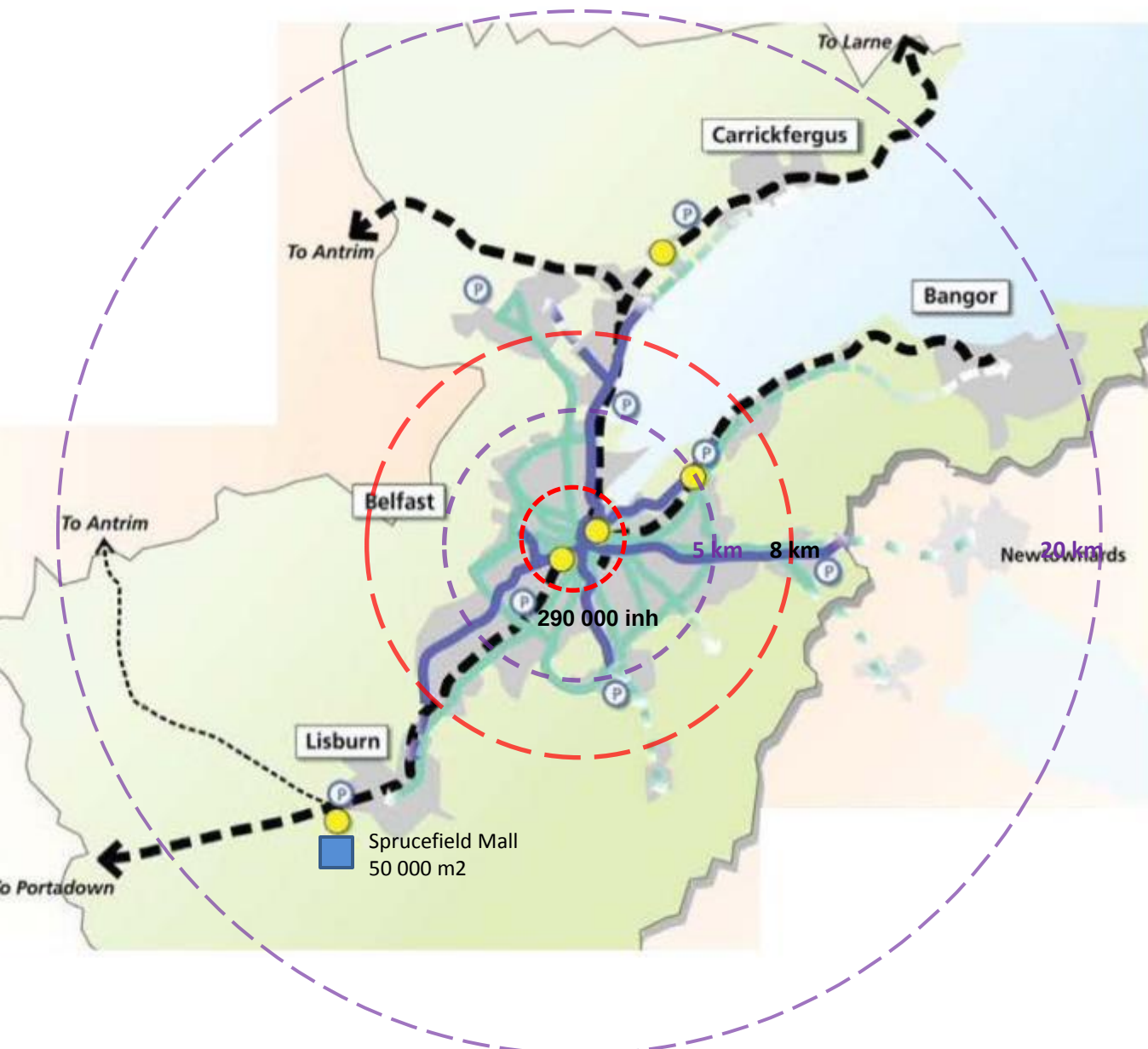
Transit Urban Fabric

Outer Area 20 km

Cities

Metropolitan Area
(20 km)

2004
Belfast



Dimensional circles of the fabrics:

2 km Walking fabric

8 km Inner transit fabric

20 km Outer transit fabric

Car fabric is over and around the other fabrics

source: BMAP 2015

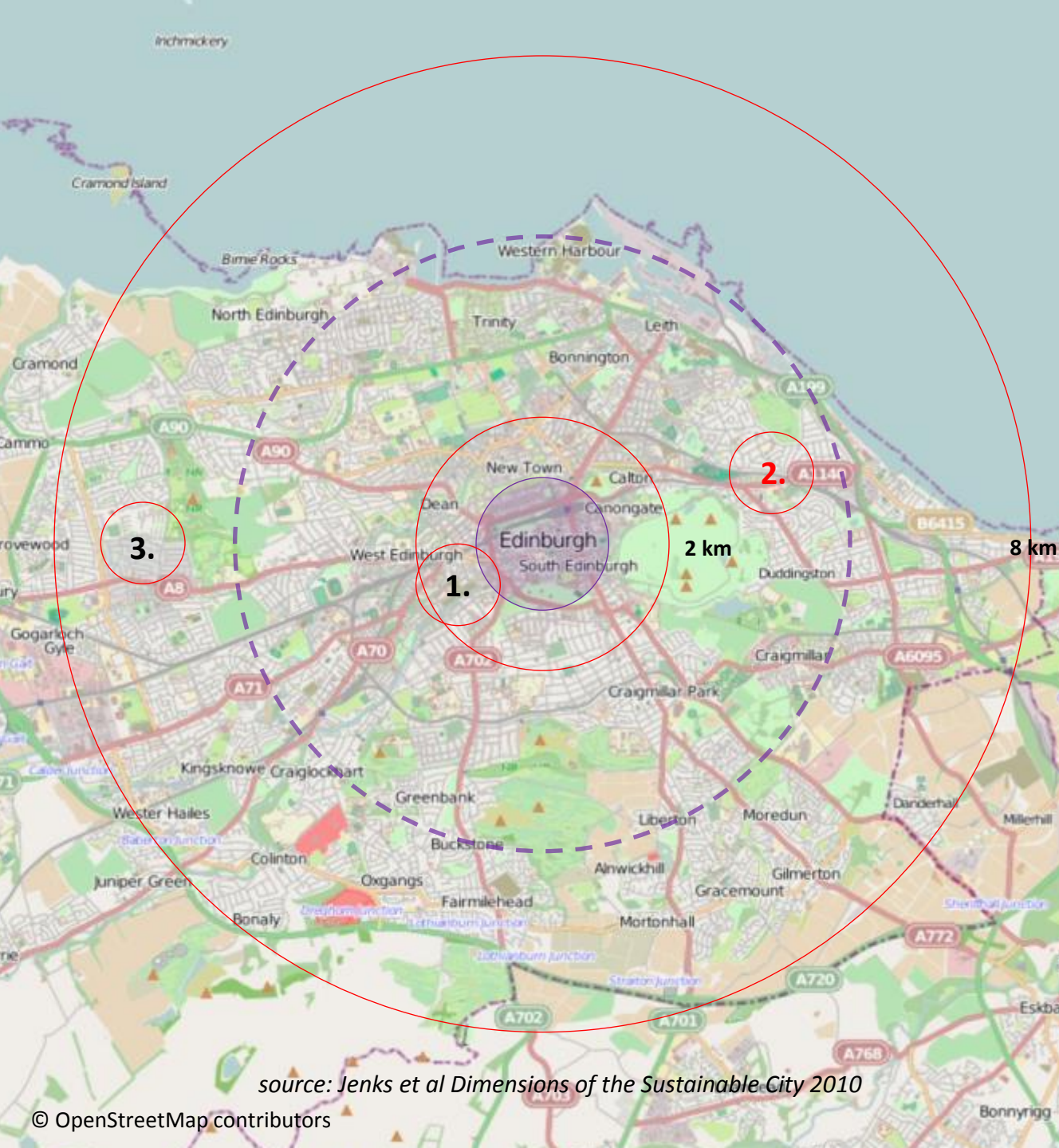
Combinations of the fabrics

Inner Area 8 km

Types of the Neighbourhoods

AREAS AND DIMENSIONAL CIRCLES

Edinburg



Jenks et al 2010:

1. Central Neighbourhoods
2. Neighbourhoods in Between
3. Suburban Neighbourhoods

Dimensional circles of the urban fabrics:

- 1 km Core of the walking fabric
- 2 km Outer walking fabric
- 8 km Inner transit fabric

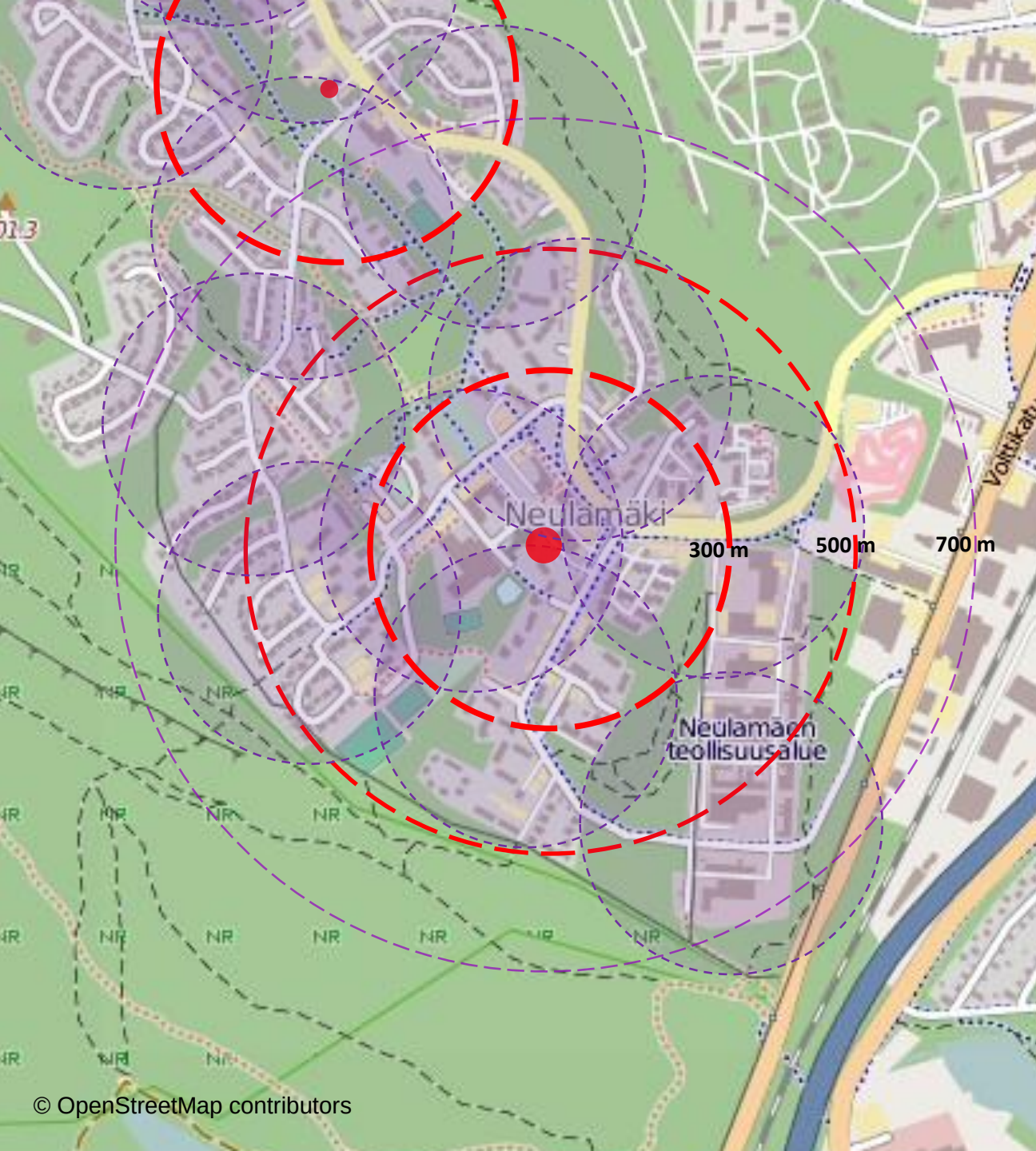
Car fabric is over and around the other fabrics

(Cycling zone 5 km)

source: Jenks et al Dimensions of the Sustainable City 2010

URBAN FABRICS
Transit and Car Fabric
Neighbourhood
500 m

Neulamäki
Kuopio, Finland



*Dimensional circles of the
pedsheds:*



Local centre or a shop :

300 m	good
500 m	moderate
700 m	bad



Busstops:

250 m	good
300 m	moderate
400 m	bad

Kuopio 8 km Finger Plan 2020

The concept of urban fabrics
led to Finger Plan and new
practices

Fingers of **the walking and transit fabrics** need to be respected and regenerated.

This promotes sustainable and healthy urban development.

The fingers **balance** the growth and development of **the car fabric** (yellow colour).

Dimensional circles of the Urban Fabric:

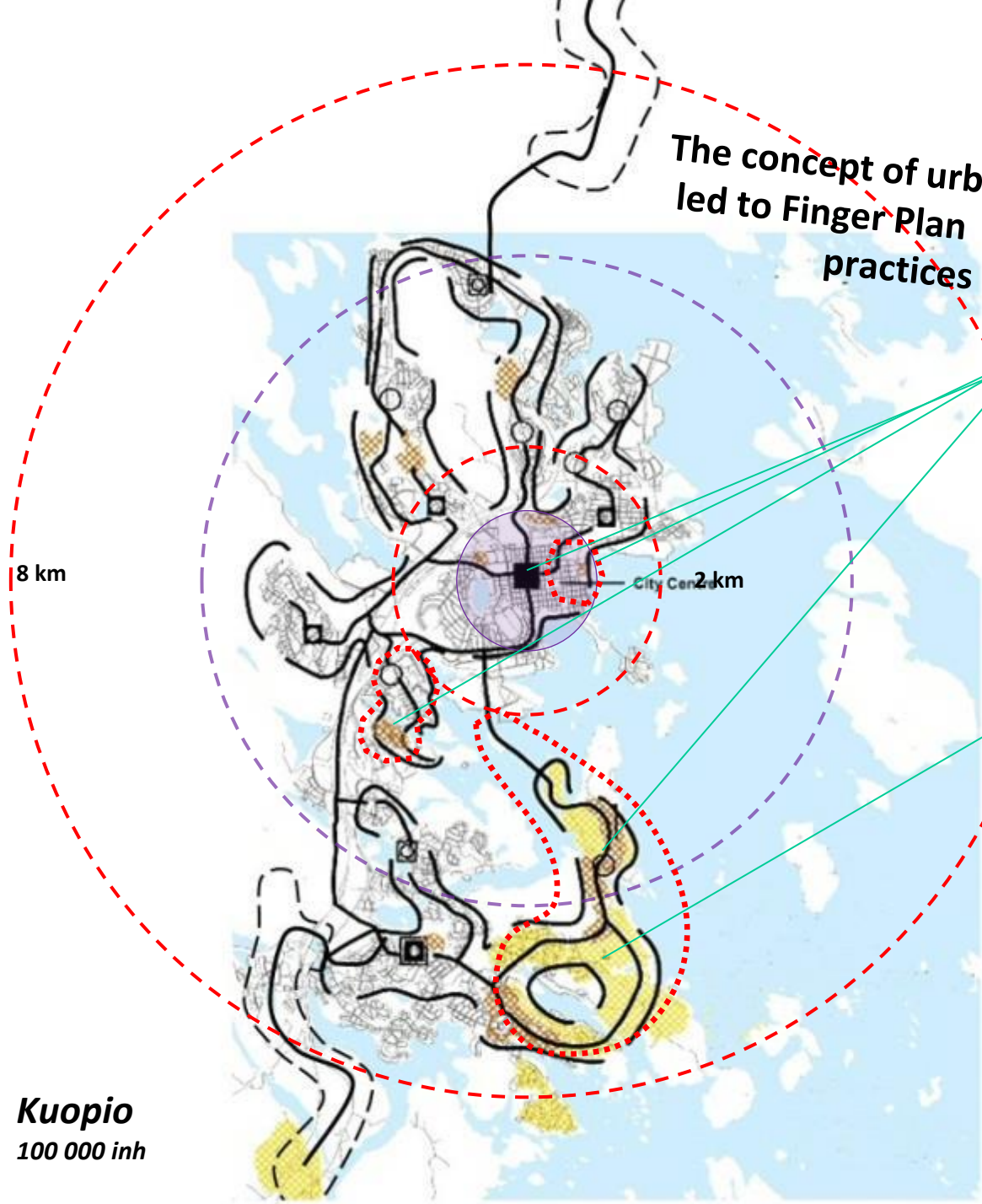
2 km **Walking Fabric**
8 km **Inner Transit Fabric**

Car Fabric is over and around the other fabrics

Kuopio
100 000 inh

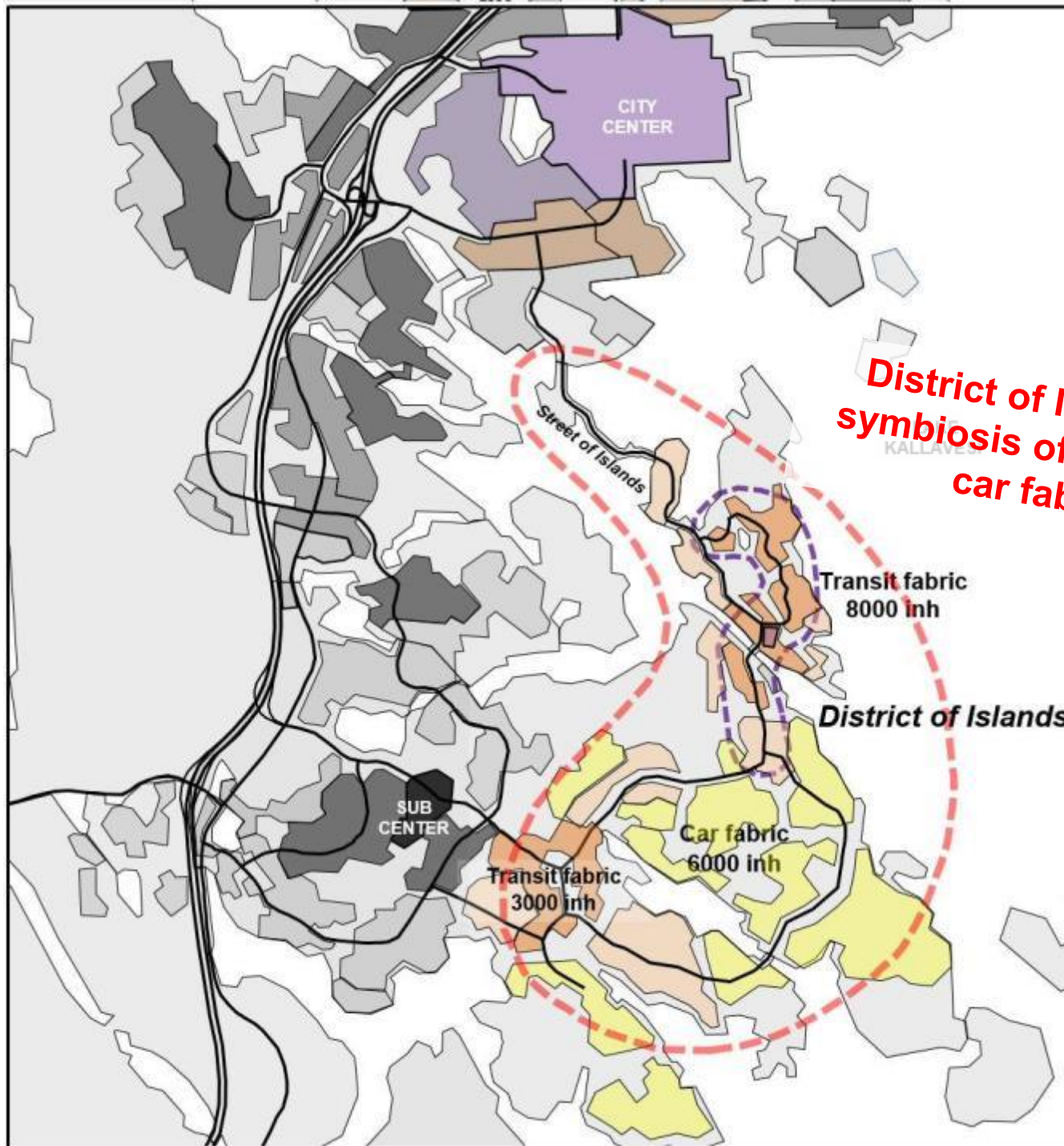
Original figure: Kosonen 2004

12.6.2015  Leo Kosonen



City Area 8 km

*New growth areas
of the transit and
car fabrics*



*District of Islands is a
symbiosis of transit and
car fabrics*

City Area 8 km

New growth areas of the transit and car fabrics

The core of the district is a pedestrian neighbourhood of the transit fabric (within cycling distance)

Dimensional circles of the fabrics:

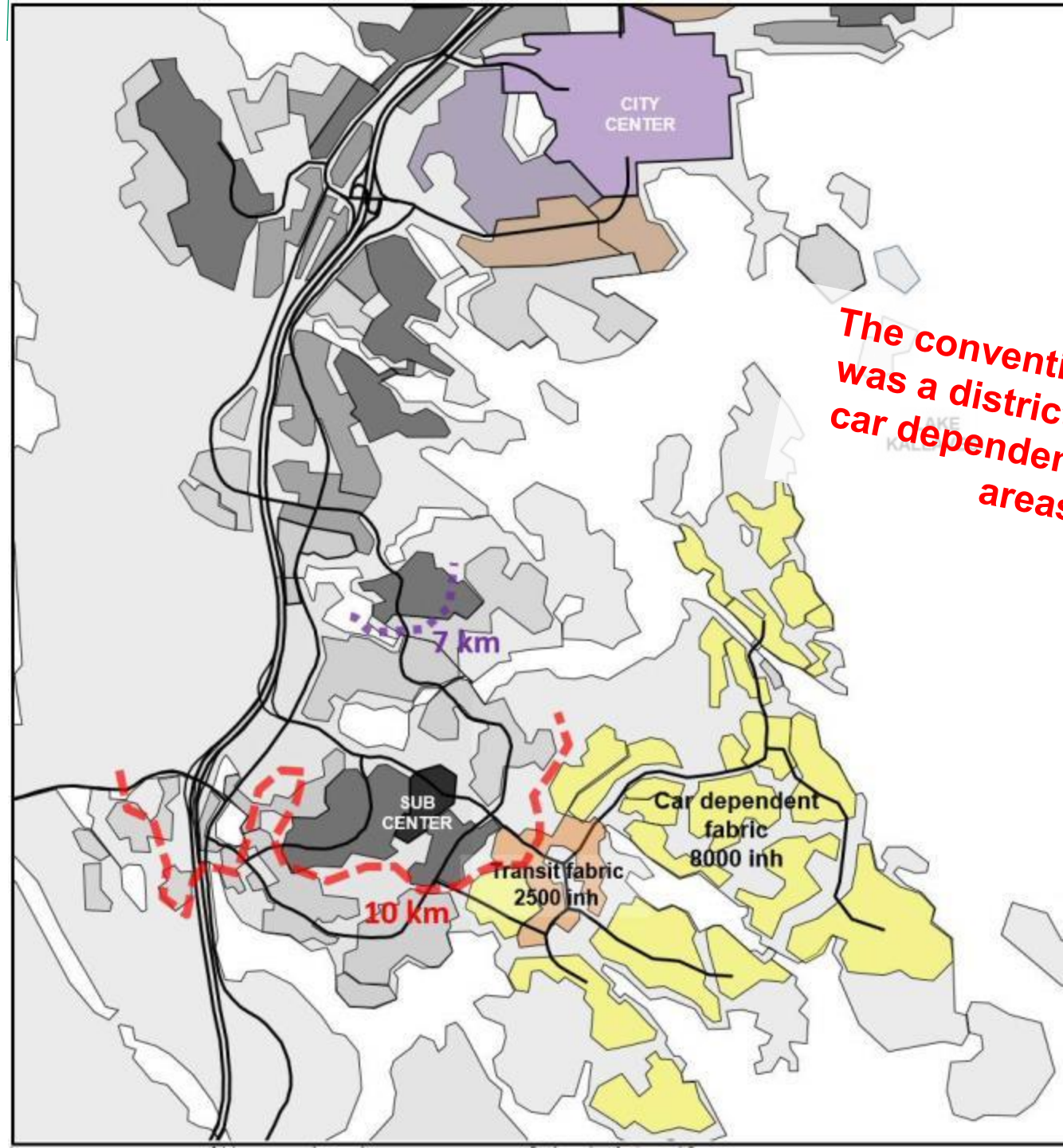
- 2 km Walking Fabric
- 8 km Transit Fabric
- 5 km Cycling zone

Car Fabric is over and around the other fabrics

City Area 8 km

*Areas were reserved
for the growth of
the car fabric*

*The conventional option
was a district of remote
car dependent housing
areas*



City Area 8 km

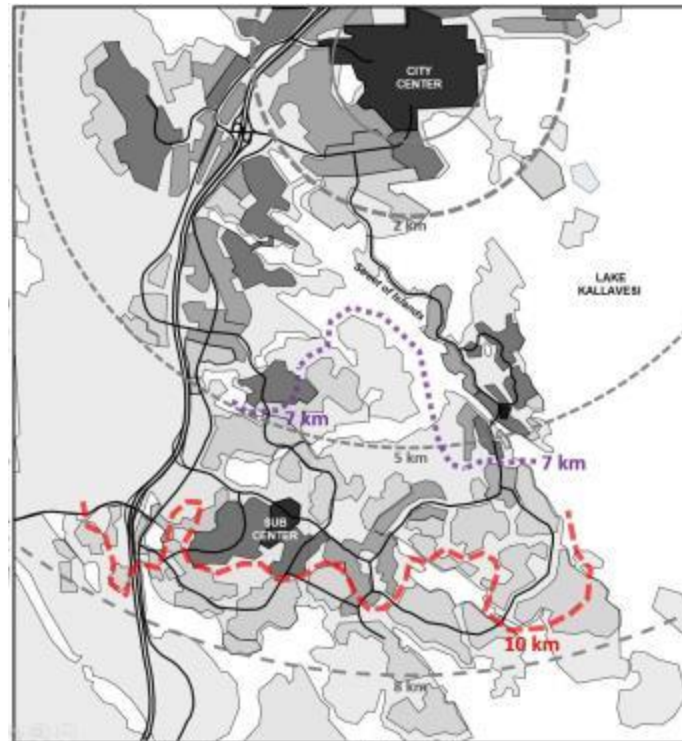
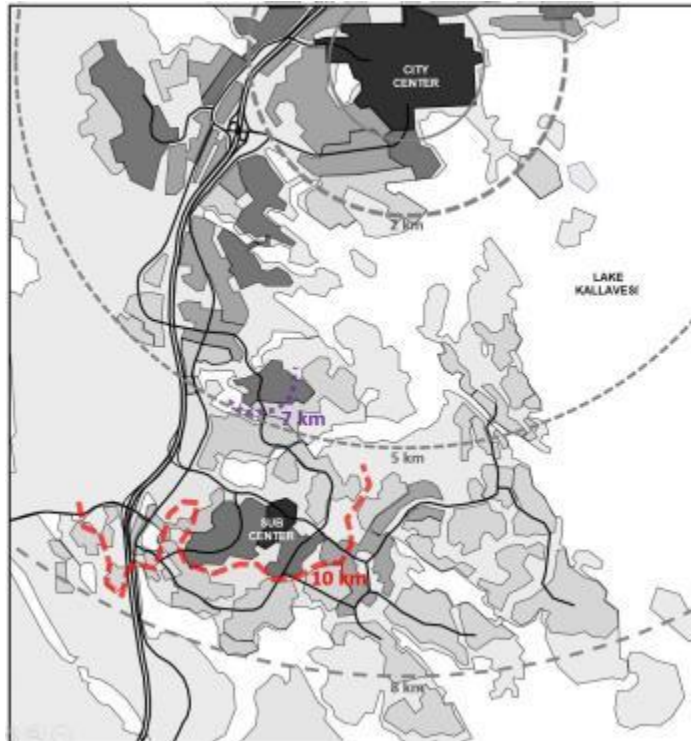
New growth areas
of the transit and
car fabrics

*The alternatives were
assessed*



Alt 0+ / Car fabric

Alt 1 / Transit fabric

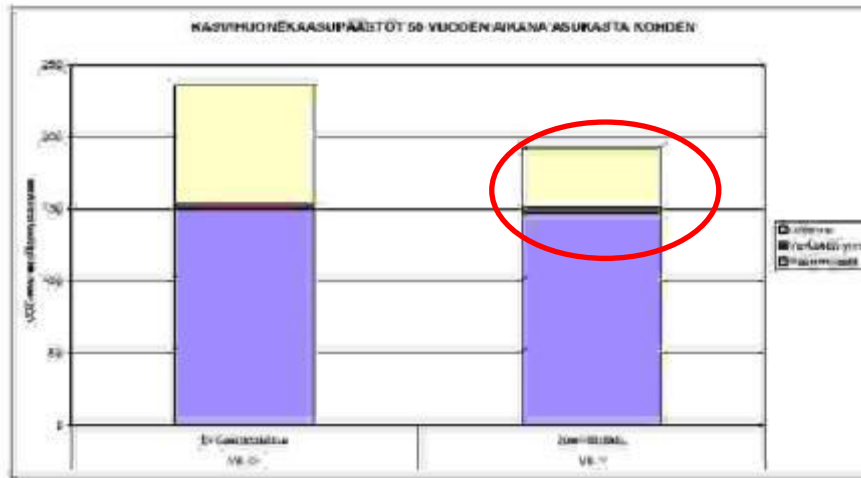


City Area 8 km

New growth areas
of the transit and
car fabrics

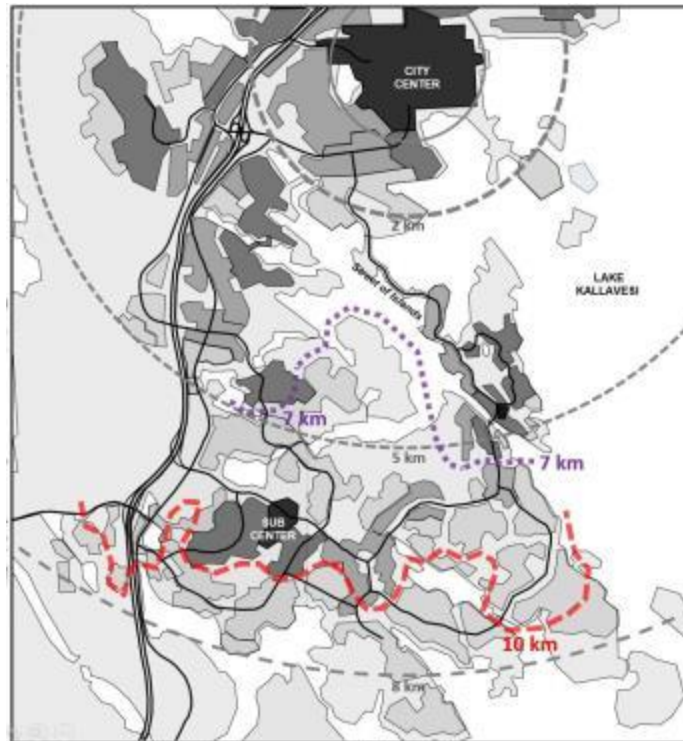
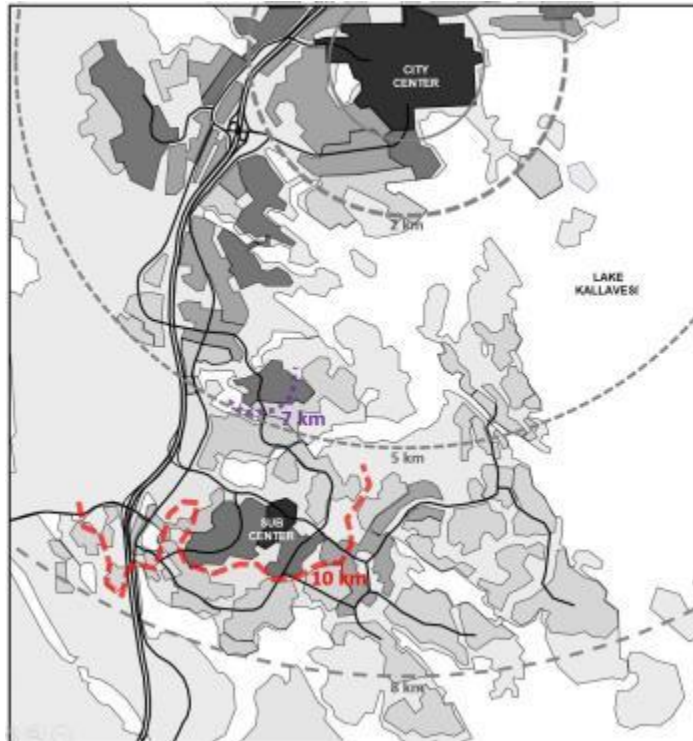
Symbiosis of transit and
car fabrics is sustainable
and economical

50 % reduction of costs and gas
house emissions of transportation in
50 years



Alt 0+ / Car fabric

Alt 1 / Transit fabric



Special elements of the fabrics
were needed



District of Islands

Symbiosis of fabrics is based on special elements of the walking and transit fabrics

Special elements of the fabrics
were accepted

Walking and
transit fabric

Transit fabric
8000 inh

Car fabric
6000 inh



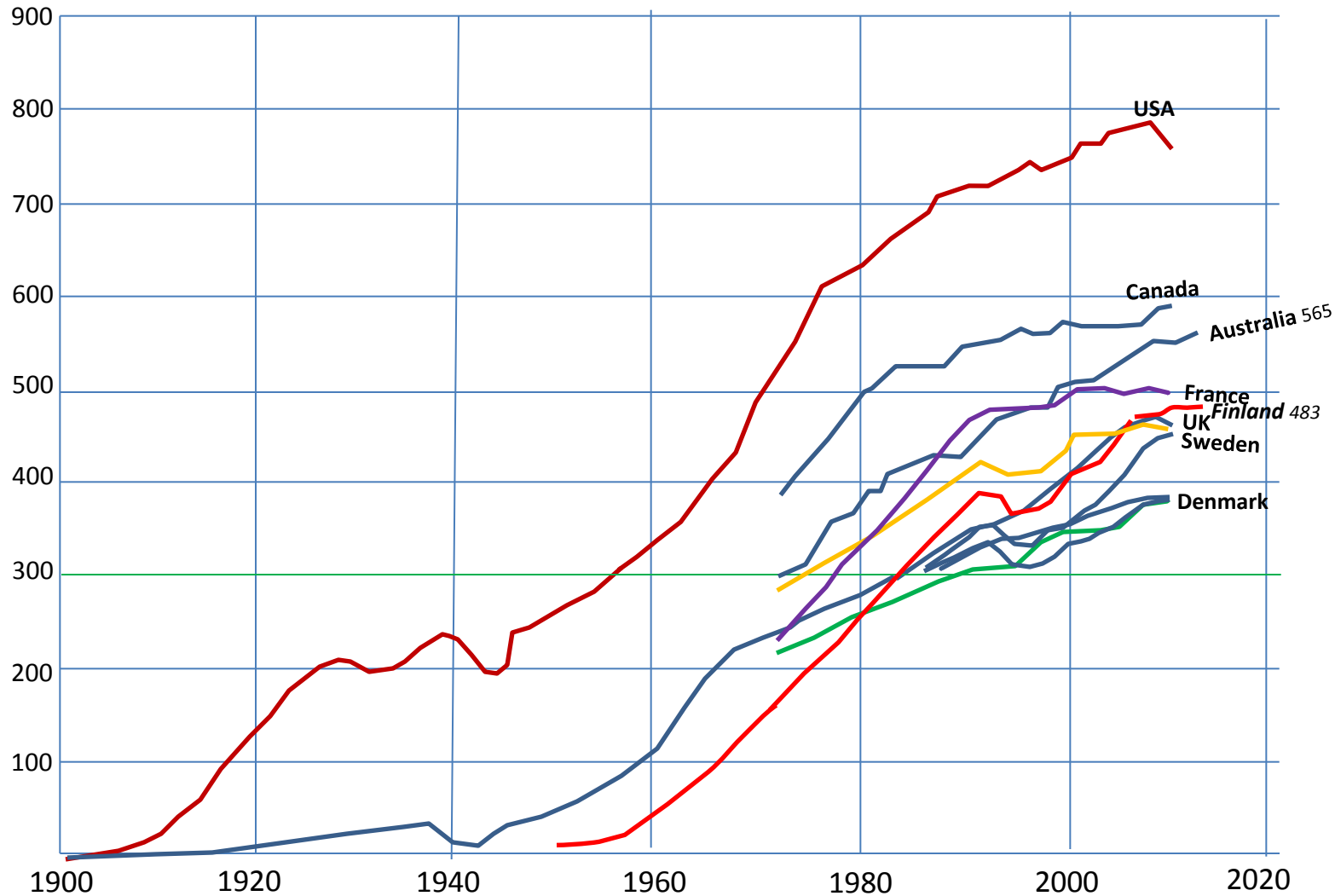
District of Islands

Symbiosis of fabrics is
based on special elements
of the walking and transit
fabrics – **not on**
conventional elements of
the car fabric

Conclusions

Motorization

Motorization 1900 – 2010 cars /1000 inh



Main sources: EU Energy and Transport in Figures 2013 (1970-2011)
Transportation Energy Databook 2012 (USA)
Trafi, (Finland 1975-2013), Tilastokeskus, Autoalan
tiedotuskeskus 2014

Hall 1992 (USA and UK 1900-1970)
Autopaikkatoimikunta 1965 (Finland 1950-1965)

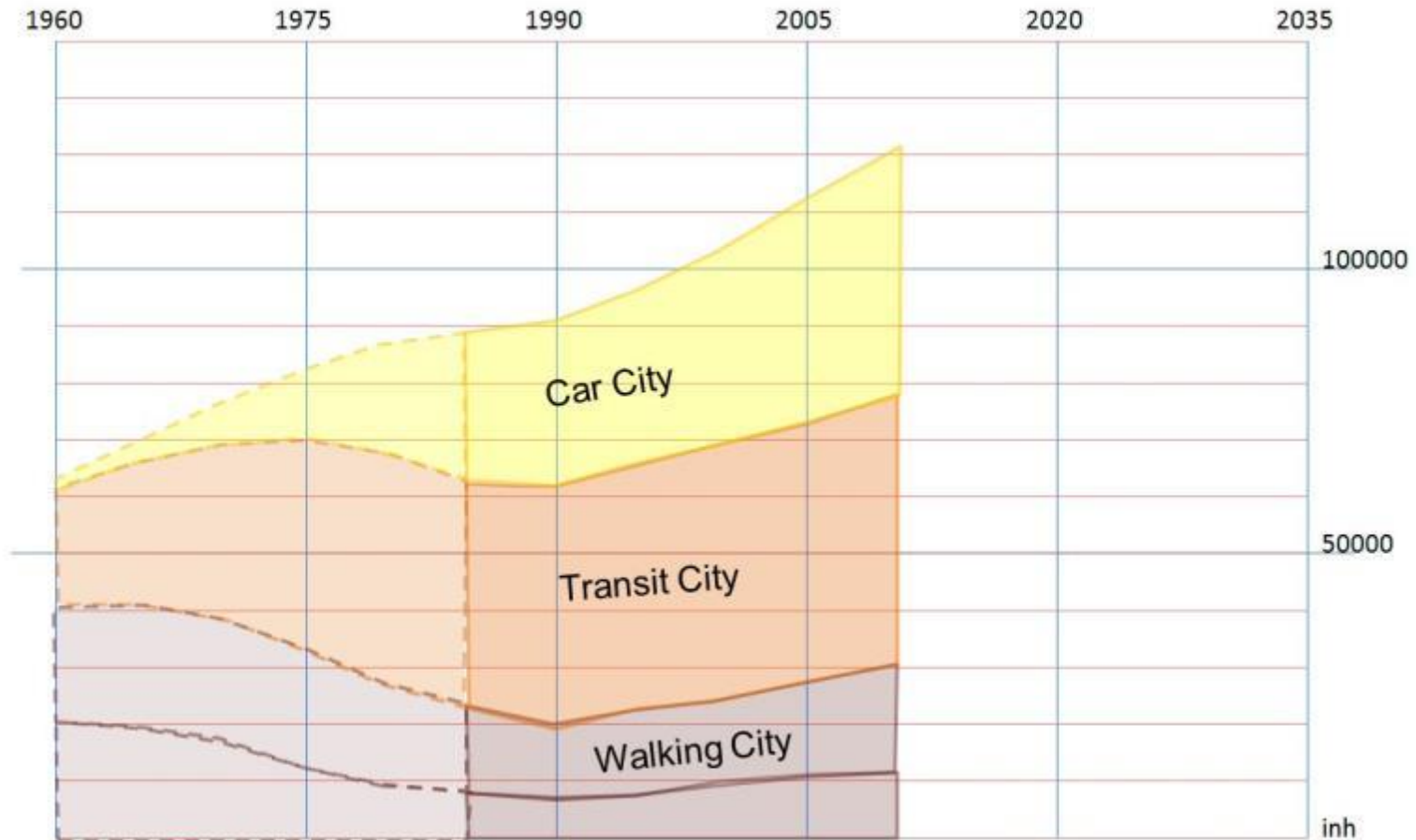
29.10.2014



Leo Kosonen

History of the Fabrics 1960-2010

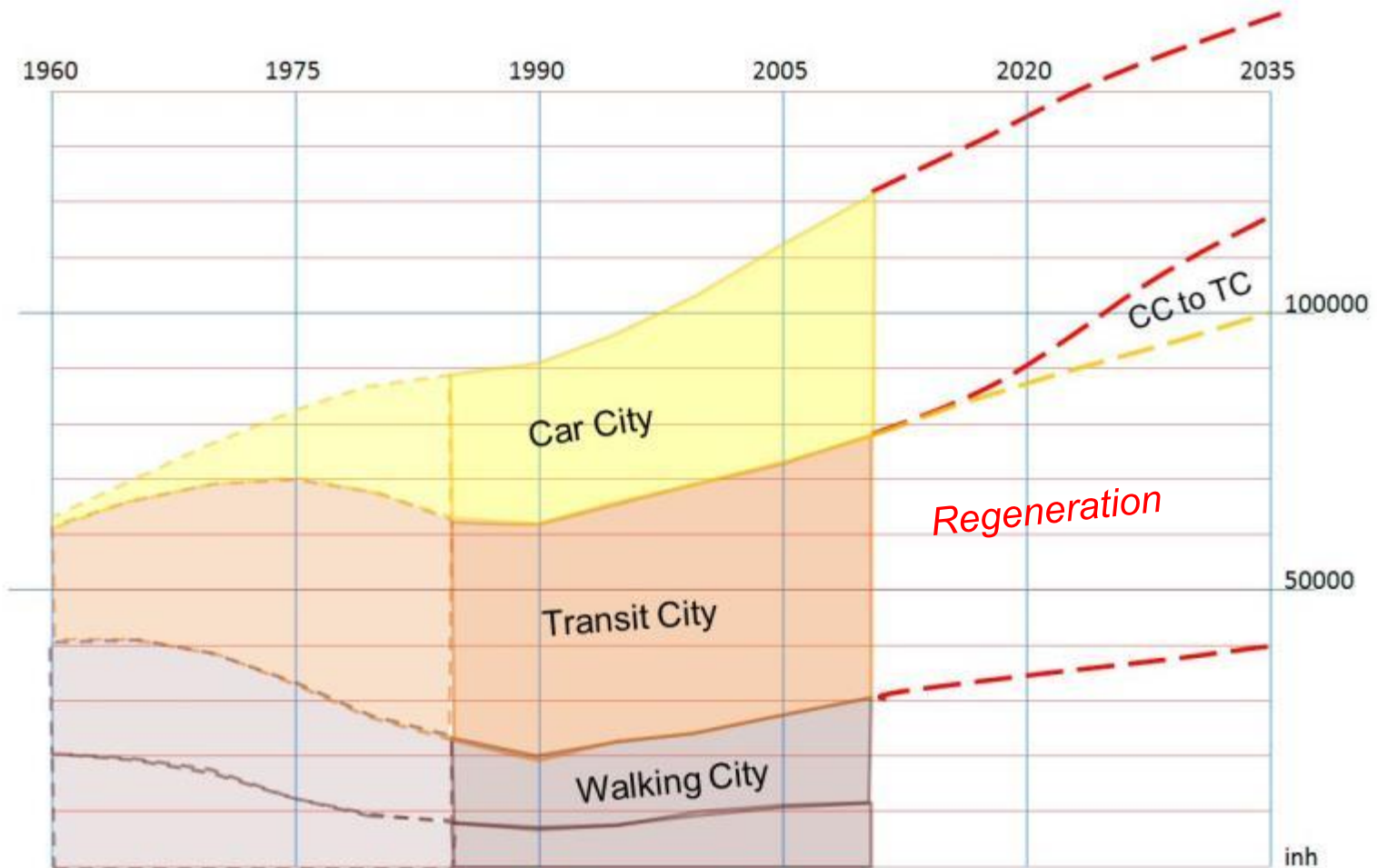
*The Fabrics of the Finnish Cities
have faced periods of **growth and
decline***



Population by Areas of Urban Fabrics
An Intermediate City, Finland (Radius 8 km)

Scenario A 2010-2035

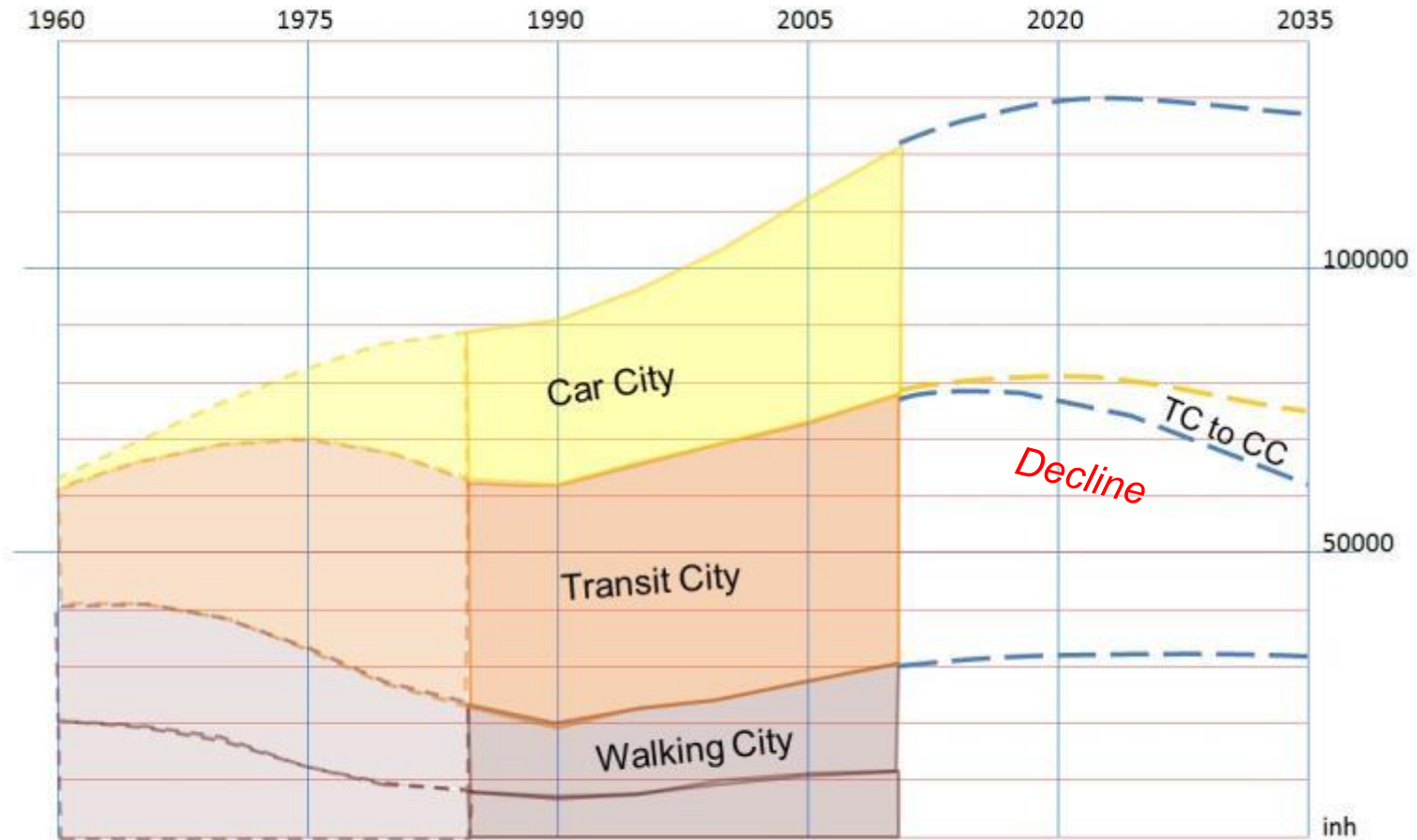
Growth of the **Transit Urban Fabric** leads to growth



Population by Areas of Urban Fabrics
An Intermediate City, Finland (Radius 8 km)

Scenario B 2010-2035

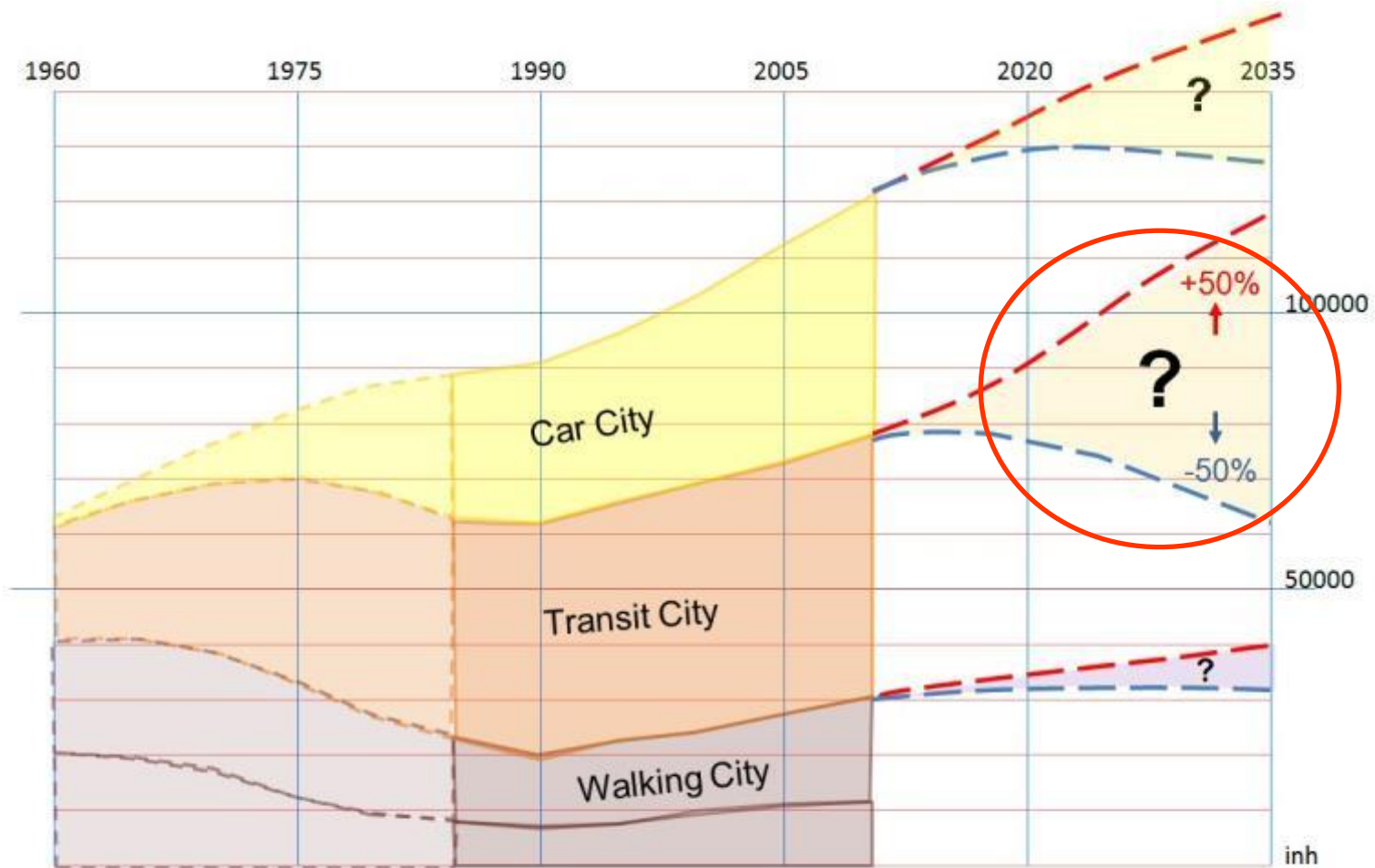
Decline of the *Transit Urban Fabric* leads to *decline*



Population by Areas of Urban Fabrics
An Intermediate City, Finland (Radius 8 km)

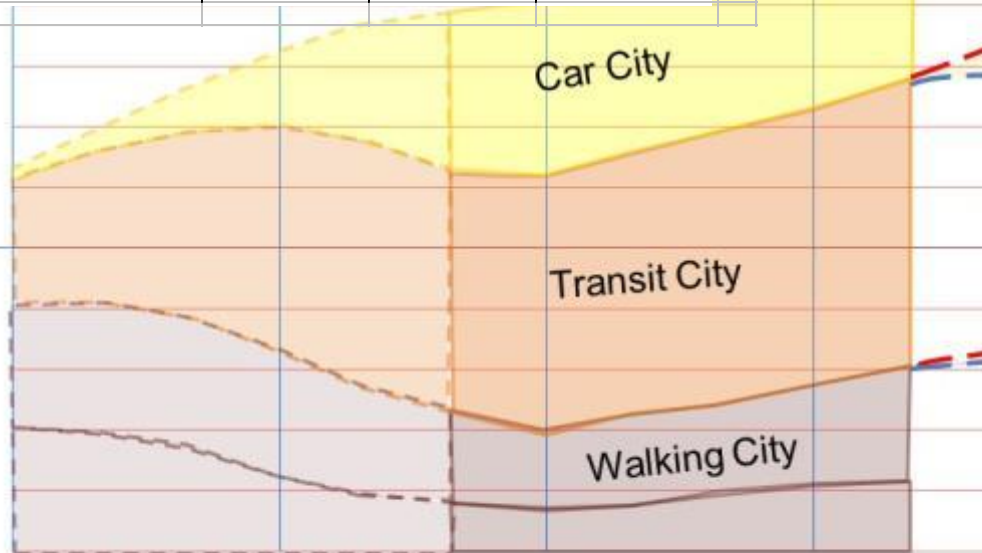
Potentials and Challenges 2010-2035

*The Transit City Fabric is the
key factor of the change*

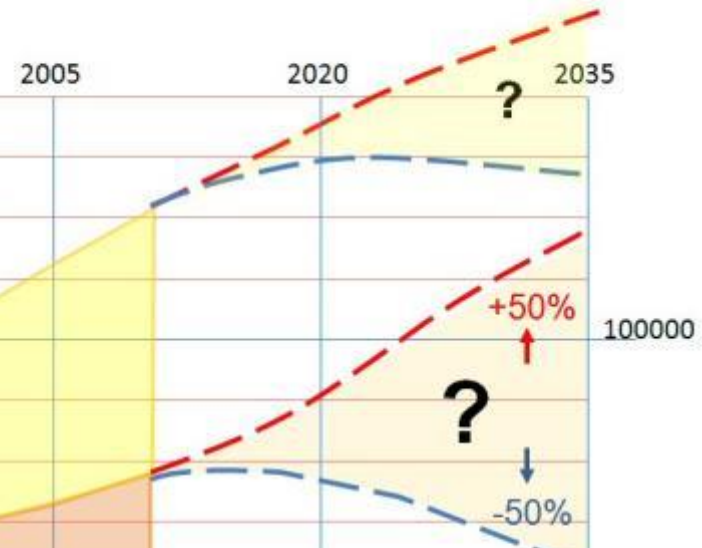


Population by Areas of Urban Fabrics
An Intermediate City, Finland (Radius 8 km)

	Kuopio			
	Healthy objectives			
	28.8.2006 / Leo Kosonen			
	<i>Inner City / Walking City</i>	<i>Urban fingers / Transit City</i>	<i>Urban sprawl / Car City</i>	
• opportunity for healthy exercise	good	exelent	good	
• social cohesion	fair	fair	segrecative	
• equity	yes	yes	no	
• access to employment and facilities	yes	yes	by car only	
• road safety	fair	good	problems/cars	
• an attractive environment	good	good	good	
• acceptable noise levels	fair	good	problems/cars	
• good air quality	fair	good	problems/cars	
• climate stability.	yes	yes	no/cars	



Challenges are addressing sustainability and resilience of each of the Fabrics



Chapter 2. Automobile Dependence at the End of the Twentieth Century

51

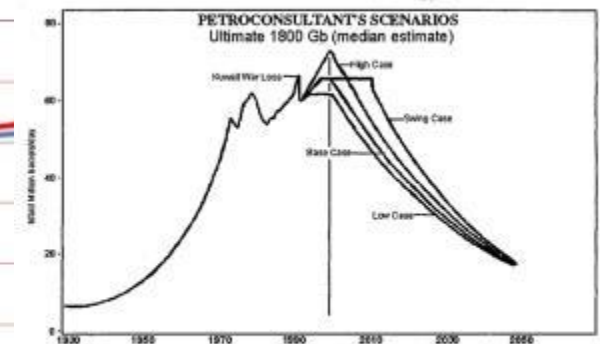
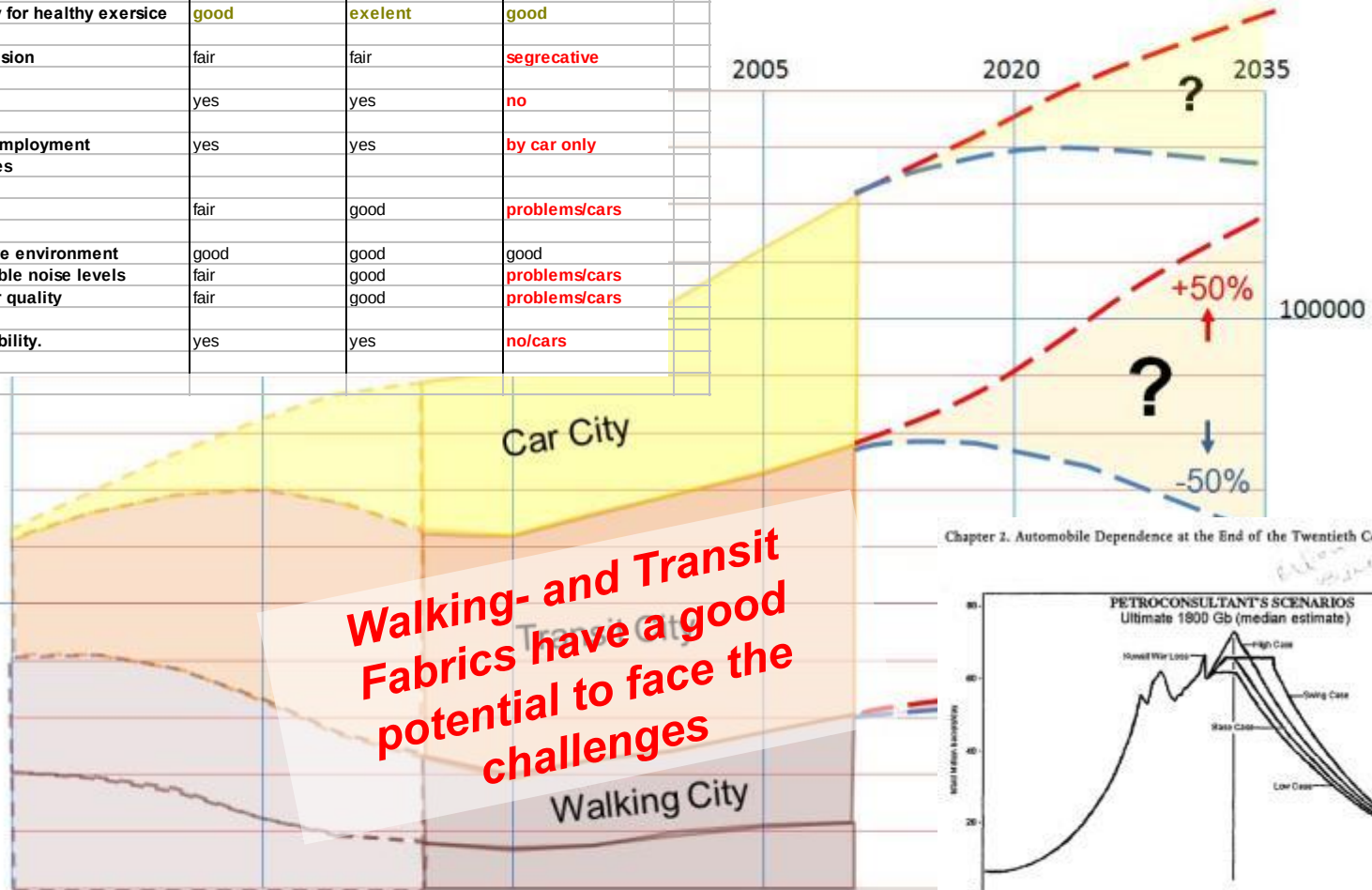


Figure 2.6. World oil production, 1930–2050. Source: Campbell and Laherrère (1995). Notes: Base Case: anticipated path; High Case: strong economic growth path; Swing Case: swing oil producers in Middle East decide to rationalise oil production; Low Case: weak economic growth path (some expensive oil is never developed).

**Population by Areas of Urban Fabrics
An Intermediate City, Finland (Radius 8 km)**

Kuopio			
Healthy objectives			
28.8.2006 / Leo Kosonen			
	Inner City / Walking City	Urban fingers / Transit City	Urban sprawl / Car City
• opportunity for healthy exercise	good	exelent	good
• social cohesion	fair	fair	segrecatve
• equity	yes	yes	no
• access to employment and facilities	yes	yes	by car only
• road safety	fair	good	problems/cars
• an attractive environment	good	good	good
• acceptable noise levels	fair	good	problems/cars
• good air quality	fair	good	problems/cars
• climate stability.	yes	yes	no/cars

Challenges are addressing sustainability and recilience of each of the Fabrics



Chapter 2. Automobile Dependence at the End of the Twentieth Century

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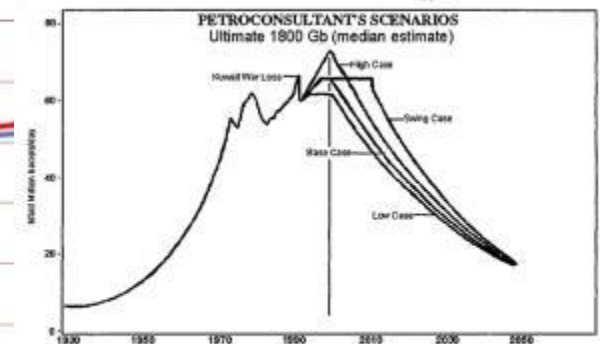
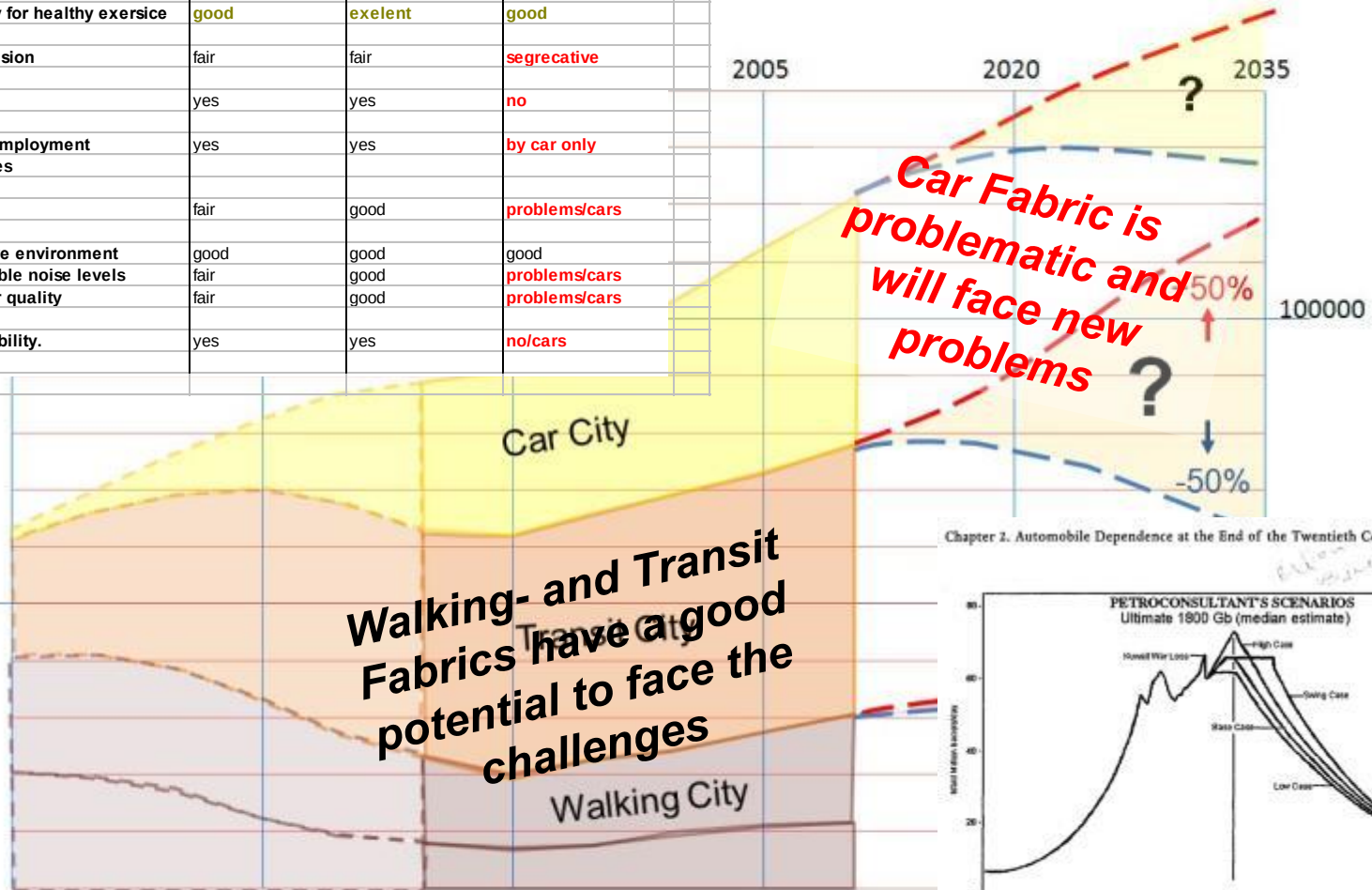


Figure 2.6. World oil production, 1930–2050. Source: Campbell and Laherrere (1995). Notes: Base Case: anticipated path; High Case: strong economic growth path; Swing Case: swing oil producers in Middle East decide to rationalise oil production; Low Case: weak economic growth path (some expensive oil is never developed).

Population by Areas of Urban Fabrics An Intermediate City, Finland (Radius 8 km)

Kuopio			
Healthy objectives			
28.8.2006 / Leo Kosonen			
	Inner City / Walking City	Urban fingers / Transit City	Urban sprawl / Car City
• opportunity for healthy exercise	good	exelent	good
• social cohesion	fair	fair	segrecative
• equity	yes	yes	no
• access to employment and facilities	yes	yes	by car only
• road safety	fair	good	problems/cars
• an attractive environment	good	good	good
• acceptable noise levels	fair	good	problems/cars
• good air quality	fair	good	problems/cars
• climate stability.	yes	yes	no/cars

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51

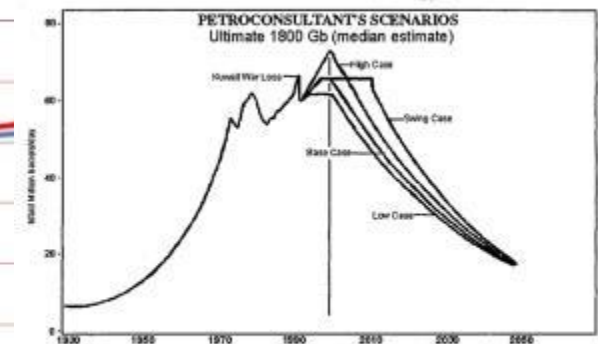


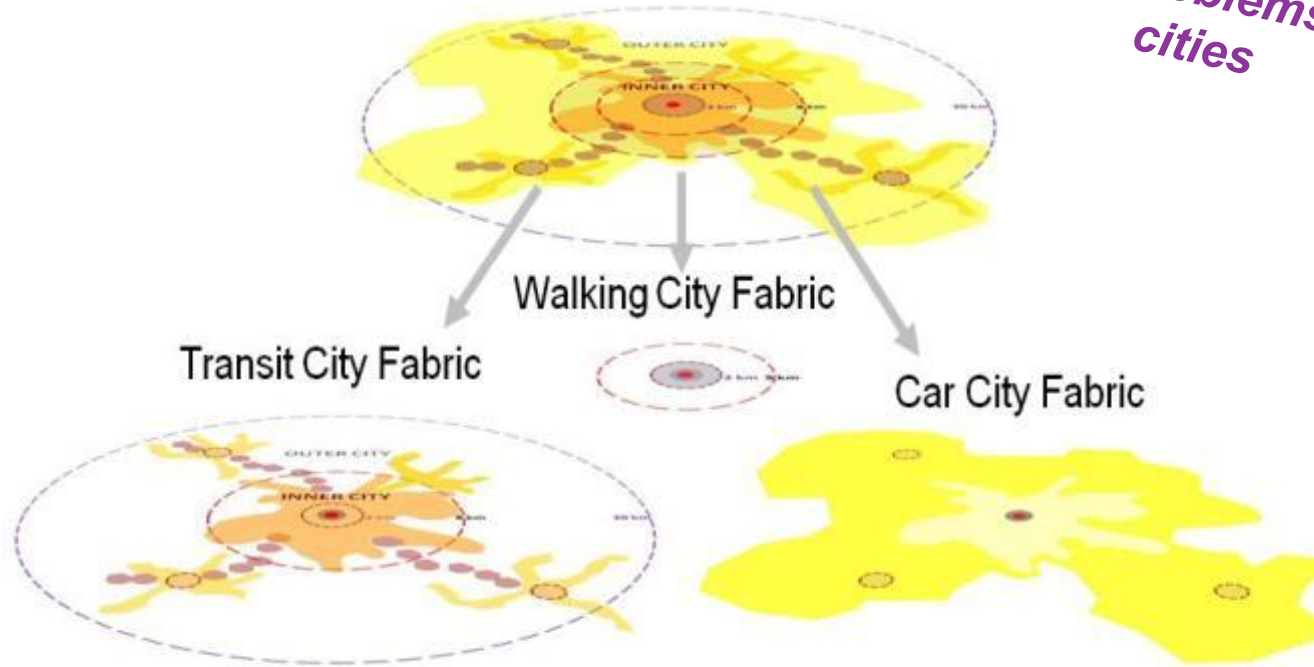
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Population by Areas of Urban Fabrics An Intermediate City, Finland (Radius 8 km)

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cities*



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