# Pilot Project to Test Potential Targets and Indicators for the Urban Sustainable Development Goal

## Final report GOLIP

May 30, 2015

## Terms of reference

**Team details:** Stina Hansson

**Workplan (original and actually followed)**

**March 1- April 17** Meetings and interviews, writing first report **(actually followed)**

**April 17- April 21** Writing second report **(actually followed)**

**April 22- May 15** Further investigations and possible pilot surveys/analyses **(no pilot surveys actually conducted, instead cost estimation for manipulating data ordered)**

**May 16** (approximately) Workshop to discuss results with relevant actors.. **(workshop held May 19)**

**May 17-May 31** Writing final report

# City profile:

Situated on the west coast of Sweden, Gothenburg is the second largest city in Sweden with a population of approximately 540,000 people. In its metropolitan area, closer to a million people reside. The city is historically a centre of trade and shipping and the port of Gothenburg is the largest port in the Nordic countries. Apart from trade, also manufacturing and industry has played a significant role in the city's growth and development with major companies such as Volvo, SKF and Ericsson originating in Gothenburg. Over the last couple of decades, the city has however undergone a shift from industrial production to high-tech, knowledge-based and service industries. This development is not necessarily equally distributed and the city is struggling with growing socio-economic disparities.

The city is divided into ten city districts with significant administrative responsibilities. The built up area stretch into three other municipalities, Partille, Mölndal and Härryda. Gothenburg is also the metropole of the Gothenburg region that consist of 13 municipalities.

The Gothenburg lead researcher Stina Hansson, from the University of Gothenburg, engaged with numerous local authority officials to explore the measurability and relevance of the different indicators. The study involved policy reviews as well as interviews conducted with officials in relevant departments in the city of Gothenburg, Mölndal, the Gothenburg region (GR), Västra Götalandsregionen, as well as with national authorities and statistical agencies such as the Swedish Civil Contingencies Agency (MSB), The Swedish Environmental Protection Agency, The Swedish National Heritage Board, Statistics Sweden, Trafikanalys, the authority for cultural analysis and with business organizations such as Avfall Sverige and Västtrafik, and with the Gothenburg municipal property company HIGAB and the municipal insurance company Göta Lejon. A concluding workshop was held at Mistra Urban Futures with representatives from the city of Gothenburg and the region to discuss the findings.

# Findings:

**11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services, including the upgrading of slums.**

It is assumed that slum is not a relevant category in Gothenburg. Instead the category can be broken down into relevant elements in the slum definition (UN-Habitat). Relevant categories would be homelessness (including insecure tenure), overcrowding and informal settlements.

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| Overcrowding |
| Data availability: Data available every second year on national level (see appendix 1) |
| **Responsible authority: Statistics Sweden (SCB)** |
| **Methodology:** Data is produced based in a national survey every second year on two different overcrowding norms, defined by Boverket (authority for planning, urban development, construction and housing). Norm 2: 2 persons/room as maximum, living room excluded (close to the Eurostat definition). Norm 3: each child should have their own room. According to this norm a household would be overcrowded when there was more than one person/room. Couples living together are expected to share room. (Boverket 2006). The figure for overcrowding based on norm 2 was in 2012-2013 4,1%, and for norm 3 it is 17% of the total population.<br><br>The survey is costly, approximately 6 millionSEK for a 17.000 household selection for the interviews alone. To this should be added costs for planning, the actual selection process, processing of material and production of tables. (informal email conversation)<br><br>Statistics will also be produced based on the housing register (Lantmäteriet) and the population register (the tax authority). The system is not yet functional. However, register data on the number of rooms is available for apartment buildings only, not for individually owned houses. The data also suffer from incorrect registration on apartment or house.<br><br>Data can be produced on city level either based on register information or through an extension of the survey to more respondents in the geographical area of interest, however it is considered very costly. |
| **Constraints and data gaps:**<br>As mentioned the survey is made on national level every second year. Different overcrowding norms makes comparison difficult. |
| **Relevance for the city (including synergies and overlaps):** The indicator is considered very relevant since overcrowding constitutes an important impediment to social sustainability. However, it is considered difficult to produce reliable data on the level of detail that is needed for municipal planning processes.<br><br>Officials at the Property Management Department argue that the indicator is more relevant on |

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| city district level rather than city level in order to be a tool for planning.<br><br>They also complain that Sweden no longer conducts a census, which is considered a great deficiency. |
| **Practicability (scope for rationalisation**): Practicable as a rough measure but requires significant resources to produce reliable data on relevant geographical and administrative unit. |

| **Homlessness** |
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| **Data availability:** Data available (790 (0,14%) in 2014, of which 49 (0,09%) live mainly outside. |
| **Responsible authority: Social resursförvaltning** |
| **Methodology:** Data is collected by Social Resursförvaltning and civil society organisations based on their every day outreach programmes. BoInvent is the tool the City of Gothenburg is using to map households who for social or medial reasons lack housing and cannot get it without assistance. Figures are produced on how many people live mainly outside, as well as in different types of housings provided by the municipality. (Appendix 2)<br><br>The definition of of homelessness is purposely broad and covers four different situations in which people can find themselves for longer or shorter periods. The definition therefore covers both people who lack roof over their head, and forms of housing that cannot be considered 'ones own'. |
| **Constraints and data gaps:** Information is gathered on people who are in some way in contact with Social resursförvaltning and civil society organizations in the respective municipalities. Data is not provided on people who have not been in contact with authorities. |
| **Relevance for the city (including synergies and overlaps):** The indicator is relevant and is already produced as part of ongoing outreach and planning activities. Gothenburg is also participating in the European Homelessness network FEANTSA that produces European statistics. |
| **Practicability (scope for rationalisation):** The indicator is practicable. |

| **Informal settlements** |
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| **Data availability:** Temporarily available. |
| **Responsible authority:** Social resursförvaltning |
| **Methodology:** The municipalities are aware of informal settlements on their land through their own outreach programmes and those of civil society organizations. However, The vast majority of people living in informal settlements are EU-migrants. As a consequence the |

number of people living in informal settlements is unstable over time, since the group is highly mobile.

Efforts to asses the number of people living in informal settlements are made regularly.

The Gothenburg region (GR) are elaborating an action plan for how to work with poor EU-citizens. The action plan emphasises the need to get better knowledge about the situation.

**Constraints and data gaps:** Constraints are as mentioned that a vast majority of people living in informal settlements are highly mobile, not just within Sweden but in Europe. It is unclear whether such an indicator would concern citizens registered in the municipality, or whether it would include for example EU-migrants.

**Relevance for the city (including synergies and overlaps):** The data is important for the city as a tool for planning. However, as a comparison with the purpose of decreasing the number of people living in informal settlements is problematic since efforts to do so have often been aiming at making people move elsewhere, hence increasing their marginal position.

**Practicability (scope for rationalisation):** Therefore a sustainable approach to the problem would have to be conceived on EU-level since the group is moving within the EU to find the least degrading conditions. The indicator is therefore not recommended both because of its limited comparability across different contexts and because of its possible effects.

**Tenure type**

**Data availability:** Data on ownership and tenancy (household as well as population statistics) are available (Appendix 3)

**Responsible authority:** Statistics Sweden (SCB)

**Methodology:** Data is available on municipal level based on register information. Only information about registered housing is available and it says nothing about insecure tenure.

**Constraints and data gaps:** The data does not include insecure tenure. Evictions may be an important additional indicator to complement tenure type (Data is available).

**Relevance for the city (including synergies and overlaps):** A concern regarding how this indicator would be used is expressed. There seems to be a value judgement that to own is better. A range of context specific aspects are not taken into consideration, such as how tenure type relates to debt patterns and vulnerability in relation to financial markets.

It is unclear what the indicator is a measure of if it does not include insecure tenure or informal settlements.

**Practicability (scope for rationalisation):** The indicator is practicable.

| **11.1.2. Proportion of population that spends more than 30% of its income on accommodation** |
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| **Data availability:** National data available every fourth year at household level. (Appendix 4) |
| **Responsible authority:** Statistics Sweden (SCB) |
| **Methodology:** Data used to be produced every year but the survey is now made every fourth year because it is considered costly and strains peoples' willingness to participate in surveys, and figures are rather stable over time.<br><br>Information is based on surveys (diary + phone interview) with a selection of 2000 households on national level. |
| **Constraints and data gaps:** Information is based on surveys (diary + phone interview) with a selection of 2000 households on national level. Information on other levels can be produced but must be paid for.<br><br>Percentage of income spent on housing is currently presented for different population groups, by gender, marital status and age. An additional run of the data would have to be made to get the figure for the indicator. The indicator could also be disaggregated by income quintile.<br><br>The figure could be disaggregated to the Gothenburg region but not to the municipality because of the small size of the selection. |
| **Relevance for the city (including synergies and overlaps):** The figure is considered to opaque and is therefore not considered to be of much value to the city. |
| **Practicability (scope for rationalisation):** The indicator is practical on regional level but costly to produce on a city or city district level. |

**General reflections and reactions to the target and indicators:**

The target as well as the different suggested indicators are considered problematic. Overcrowding is considered important from a social sustainability perspective, but difficult to measure with current methods. Several officials argue that the most important aspects of sustainable housing in a Gothenburg context is security of tenure and avoiding that insecurity becomes permanent.

In general the indicators are not considered contributing anything to the Gothenburg context where housing is a highly prioritized as it is. The main problem is considered to be the actual lack of housing that prevents mobility within the city and across types of housing.

**11.2 By 2030, provide access to safe, affordable, energy efficient and accessible transport systems for all people and goods, improving road safety and expanding public and non-motorized transport, with attention to the needs of those in vulnerable situations.**

Sweden has two goals in its transport policy, the Consideration (Hänsyn) goal (security, environment and health) and the Function goal (accessibility), that are now given equal importance to ensure socio-economic efficiency and long term sustainable transport system for the citizens and the industry and commerce. (Mål för framtidens resor och transporter, prop 2008/09:93) The national goals are supposed to be a point of departure for regional and local goals and an inspiration for transport political commitments among different actors. However, they do not affect the municipal self-government and the municipal planning monopoly. (Ibid: 70)

The most relevant geographical unit for this target according to involved actors is suggested to be the commuting zone, which would be the 13 municipalities of the Gothenburg region. Public transport is administered at the regional level (In Västra Götaland the regional council is public transport authority) and the region has a plan for creating a regional structure around transit communities. Additional communities in adjacent regions are similarly focusing on commuting possibilities to the Gothenburg area in their planning and strategies. HUR2050 is multi stakeholder plan for creating a sustainable region (the greater functional region which includes adjacent municipalities). The goal is that it should be possible to reach central Gothenburg from any place within the region within an hour.

The Gothenburg region is aiming at a long term sustainable regional structure and long term sustainable infrastructure. Currently 20% of motorized trips in the region are made with public transport. The goal is to increase the share to 40% by 2025. (K2020 – inclusive process) http://www.grkom.se/download/18.1e54ec5411db5915e3880002389/1359469263305/K2020_kollektivtrafikprog_folder_2008.pdf

The region also has a strategy for increasing accessibility for functionally impaired people. http://www.vgregion.se/upload/Regionkanslierna/Kollektivtrafikn%C3%A4mnden/Bilaga_TFP_Funktionshinderanpassning_130107low.pdf

K2020+ (Målbild 2035) will set the goals for city public transport in the built up area of Gothenburg, Mölndal and Partille.

| **11.2.1 Percentage of people living within 0.5 km of public transit [running at least every 20 minutes] in cities with more than 500,000 inhabitants** |
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| Data not immediately available but possible to produce. |
| **Responsible authority:** Trafikanalys |

**Methodology:** The data would be precented in percentage.

With the new public transport law all time tables for public transport are reported to Samtrafik, including geographical coordinates for all transits, and are collected in a database. Samtrafik is a service company owned by 38 public transport companies. Trafikanalys, is the authority that provide decision makers in the transport area with relevant knowledge, and produce official statistics in the area of transport and communication. Trafikanalys buys the relevant time tables from Samtrafiken, the information is cleaned by SWECO after which it is run through a soft ware called TRACC, provided by the British company Basemap.

Today the proportion of the population who live within 1km of public transit is measured. (For more detail see appendix 5)

Total estimated cost for producing yearly data on the indicator in a particular municipality is: SEK93.800. To add municipalities or urban areas the cost for the work hours will increase but not for the data requirements since they are delivered on national level (appendix 6)

**Constraints and data gaps:**
In order to produce relevant and comparable information a definition of the relevant geographical unit is required as well as a definition of specific days and hours when the frequency should be less than 20 minutes.

It is emphasised that the indicator doesn't say anything about accessibility to the transit or at the transit. However, to produce a measure that includes 'real' accessibility would require significant work in order to produce relevant GIS information.

Municipal officials at the traffic department argue that 400 meter is the crucial distance for people to choose public transport but the city of Gothenburg is working with both 400m and 500m.

Trafikanalys is a rather young authority and it has not yet built relations with regions and municipalities and therefore has not communicated the possibility of producing data on this indicator.

**Relevance for the city (including synergies and overlaps):**
The indicator relates to the transport political goals of the Swedish government, which include a functionality goal focusing on access of good quality, and contribution to development in the whole country, and a consideration goal focusing on safety, environmental sustainability and health.

Data is produced on access to the labour market, services and education. On a local level Trafikanalys is measuring the proportion of the population that live within 1000m from three different service points (food store, school and health service), as well as 1000m from a public transport transit. (Trafikanalys: Uppföljning av de transportpolitiska målen Rapport 2015:7)

Several stakeholders mention that measuring frequency during work hours may be the most relevant delimitation. However, the representative from Västtrafik argues that public transport during work hours is provided to keep up the system and prevent clogging. Instead it would be more relevant to measure if people are able to live without car off high traffic hours, such as weekends and evenings.

The city of Gothenburg is working with the goal 400m to a public transport transit in the Urban development plan (Översiktsplanen), and has defined the area called 'Mellanstaden' (where the measure is achieved) as prioritized for densification. The City Environment Department is following up the target. (For further detail see Appendix 8 Översiktsplan del 1). However, there is an uncertainty whether 400 meters or 500 meters is used, and whether they are measures of different types of distance, (as the crow flies, or actual walkability)

In the Göteborg city Översiktsplan good public transport is defined as when people have less than 45 minutes travel to 50% of the work places in the city. (Översiktsplanen del 1, p109))

Mölndal has the goal to build 95% of new housing within 400 meters from public transport transits with 15 minutes frequency.

Much efforts are invested in accessibility and as a result the indicator is not considered to be of significant relevance to Gothenburg or the region. However, the frequency would contribute a dimension that is currently not prioritised and local and regional authorities were surprised by and very interested in the possibility to produce information on the indicator. Trafikanalys is a fairly new authority and the relations to the regions and municipalities remain to be developed.

Another measurement suggested by GR is walkability (including, but not reduced to time) rather than distance. Perceived distance is the relevant measure. GR together with city planners at the Property Management Department are working on more qualitative measures – how do you create attractiveness?

**Practicability (scope for rationalisation):** Considering that there would only be small yearly changes in time tables and population growth the value of measuring this target yearly can be questioned considering the cost. However, if the frequency element is added to the data that is already produced the cost may be reduced, i.e. if Trafikanalys would replace their current measurement with the indicator.

Data from Trafikanalys would be most practicable since it would be possible to define the relevant geographical unit to measure.

11.2.2 **Km of high capacity (BRT, light rail, metro) public transport per person for cities with more than 500,000 inhabitants**

Data availability: Data not immediately available but possible to produce.

**Responsible authority:** Trafikverket, Västtrafik

**Methodology:** Data is dispersed between different actors who share responsibility for infrastructure.

Vägverket holds national statistics on the railway system
The Traffic Office, City of Gothenburg holds statistics on the tram rails (80km)
Bus line statistics remain to be collected (Västtrafik).

The city of Gothenburg include trams and bus rapid transport in their definition of high capacity public transport.

Västtrafik has no clear definition of high capacity public transport, but would include trains, trams, and bus rapid transport (both expressbuss and stombuss).

Once definitions of which lines to include are clear data can be produced easily since basic data is available.

**Constraints and data gaps:** Clear definitions are missing.

**Relevance for the city (including synergies and overlaps):** The indicator is considered of no relevance since it is measuring infrastructure but not actual traffic nor actual use of the transport system. In case there is no traffic the infrastructure mainly becomes a barrier. If, on the other hand there is too much traffic (particularly trams) it may cause overcrowding in the system and limit functionality.

The indicator is considered technocratic and it is considered more relevant to know how many use the system and the actual service provided.

Trafikanalys is measuring kilometres of public transport supplied (actual kilometre service supplied) and 'sittplatskilometer' (supplied kilometres multiplied with capacity). The purpose is to reflect actually supplied services.

Practicability (scope for rationalisation): The indicator is practicable. However, data availability is spread across a number of authorities and coordinating responsibility would be necessary.

If the relevant geographical unit is the commuting zone either Trafikverket or Västtrafik would be the most suitable coordinating authority.

**Secondary: Share of trips by walking, by bicycling, and by public transport**

**Data availability**: Data available (appendix 7)

**Responsible authority:** Trafikanalys, the municipal traffic department

**Methodology:**
The national authority for monitoring transport patterns, Trafikanalys, is conducting a yearly travel share survey (6000-20000 respondents). When it is considered relevant for specific purposes the Gothenburg region orders an additional selection to produce regional data. Trafikanalys is measuring kilometres travelled rather than number of trips. The trips are also coded geographically (Trafikanalys: Uppföljning av de transportpolitiska målen Rapport 2015)

Data is available based on Kollektivtrafikbarometers survey of transport share on regional level. The barometer is a quality and attitude survey conducted by the business through Svensk Kollektivtrafik. It investigates market shares – the share of trips (complete trips) with public transport and taxi, of the total amount of trips by public transport, taxi, car and motorcycle/moped. (For more detail see Svensk Kollektivtrafik: Kollektivtrafikbarometern, Årsrapport 2014).

Measurements are also conducted in the Gothenburg municipality, both through fixed measuring stations (10), temporary measuring stations and surveys. Data is generally considered weak. Data is collected and reported by Trafikkontoret. (For more detail see Trafik och resandeutveckling (2012) (Gothenburg).

**Constraints and data gaps:** Comparisons are difficult due to different ways of measuring. As indicated above a number of different measures and methods are used which makes comparability difficult. The indicator would therefore need to identify what is being measured, kilometres or number of trips, what types of trips, as well as how it is being measured and in relation to what.

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| **Relevance for the city (including synergies and overlaps):** This indicator is considered highly relevant at all levels because of how it relates to the primary goal to increase the share of trips by public transport (from 20 to 40% in the region), as well as walking and bicycling. Its importance is indicated by the considerable efforts invested to measure and improve measurements. However, the difficulty of comparison is recognized and it is argued that a harmonization may require parallel measurements with old and new methodology in order to guarantee some continuity. This indicator has been discussed in the EU since 1998 (at least) and is addressed by Digimove – the Commission's secretariat for transport data. |
| **Practicability (scope for rationalisation):** The indicator is practicable provided that there is a clear definition and coordination of what to measure and how. Representatives of Trafikanalys are participating in ongoing discussions in EUROSTAT Task Force on indicators for the EU Commission White Paper to be completed in 2016, and a group in UNECE are discussing forms for transport statistics. |

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| **Secondary: Share of income spent by urban households on transport (by income quintile)** |
| **Data availability:** Data available on national level every fourth year. (Appendix 8) |
| **Responsible authority:** SCB |
| **Methodology:** Data used to be produced every year but the survey is now made every fourth year because it is considered costly and strains peoples' willingness to participate in surveys, and figures are rather stable over time.<br><br>Information is based on surveys (diary + phone interview) with a selection of 2000 households on national level. Information on other levels can be produced but must be paid for.<br><br>In 2009 the aggregate figure of the share of total spending that is spent on transport is 13,3% according to the tables. |
| **Constraints and data gaps:** The existing survey looks at percentage of total spending spent on different types of transport, but could also be run against the income register.<br><br>The survey would have to be extended in order to provide valid information on the specific geographic area, and it would have to be run against income quintile. |

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| **Relevance for the city (including synergies and overlaps):** Data on the price of public transport tickets is considered relevant, particularly in relation to increasing costs for trips by car. The price is reported by Trafikanalys as part of the yearly travel survey. Prices are increasing which is considered problematic as it reduces equal accessibility as well as feasibility of public transport as an option.<br>An additional reflection concerns the cost of bicycling as a realistic alternative for longer distances in different types of whether which requires expensive equipment. |
| **Practicability (scope for rationalisation):** The value of investing resources on collecting additional data on an indicator that is rather vague and the value of which is unclear can be questioned. Depending on what the purpose of the indicator is it may be more relevant to compare the costs of different types of transport and how that cost relates to income (by income quintile) It would give an indication of how different transport options stand in relation to each other when it comes to affordability. It would also measure the use of governing tools to achieve more sustainable transport patterns.<br>Such an indicator would not require expensive surveys but could consist of estimates of the average cost of different types of transport. |

**General reflections and reactions to the target and indicators:**

According to municipal officials at the Traffic department and at Gothenburg region the most relevant aspect that shapes whether people choose public transport instead of car in a context like Gothenburg is considered to be the time ratio between trips by car and trips by public transport. With a factor 1 people will choose public transport but when it takes three times the time to travel with public transport people tend to choose the car. After the time ratio comes accessibility and price.

The indicators are currently not considered to measure the target with regards to safety, security, affordability and accessibility.

### 11.3 By 2030, achieve more equitable and efficient land use through participatory urban and regional planning and management

In comparison to many other countries the Swedish government has relatively limited possibilities to govern planning. National images of built up structures are not produced to visualize spatial goals for development. The potential for coordination of governmental infrastructure planning and municipal and regional land use plans lies primarily at the regional level. All regions have bodies with responsibility for regional development plans. The municipalities have the overarching responsibility for long term development within the municipality in accordance with municipal self-government (Boverket 2013:33, p18, 21).

The municipality decides on the urban development plan (översiktsplan) and the local plan (detaljplan) in accordance with the Sweden's Planning and Building Act (PBL). The PBL stipulates that each municipality must have a plan map for how land is used. Lantmäteriet produces maps on burrough level.

Densification is an explicit city planning strategy in Sweden on national as well as regional and municipal level (Boverket 2004, s. 21).

The Gothenburg region has agreed on a regional structure for long term sustainable growth (Strategi för Hållbar Tillväxt). Particular goals are: to stimulate continued population growth while safeguarding the possibilities of continued expansion of the region, to strengthen the qualities that make us want to live and work in and visit the Gothenburg region, and to create a strong and long term sustainable regional structure that departs from the possibilities of the greater urban area. The regional structure is created around a strong and attractive regional centre and clear lines with several strong and attractive secondary centers, which indicates a clear densification goal.

The region is considered the relevant level of analysis by most stakeholders since moving patterns in the region are important for measuring sustainability as well as equitable and efficient land use. Gothenburg city and GR is working with 'transit community zones' to create sustainable land use planning.

The city of Gothenburg is also working with densification in their Exploitation plan (utbyggnadsplanen), where they are focusing on 'Mellanstaden' where there is important potential for more efficient land use.

| **11.3.1 Ratio of land consumption rate to population growth rate at comparable scale** |
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| Data availability: Data available on built up area every fifth year. (Appendix 9 & 10) |
| **Responsible authority:** Statistics Sweden (SCB) |

**Methodology:** The indicator is measured based on GIS maps of the built up area in the Gothenburg region every fifth year and the population register. The built up area (tätort) is defined as an area with 200 inhabitants and no more than a 200 meter distance between the houses. A definition shared by the other Nordic countries.

Information is currently produced in a graph. The exact way to calculate the figure to be reported needs to be defined.

Cost estimation to produce information on Gothenburg every year:

SCB estimates that it would cost 400.000SEK to geographically delimit all ca 2000 built up areas in Sweden. To do a yearly adjustment for just Gothenburg or the Gothenburg region would cost ca 25.000SEK. (email MSB)

One possibility is to just update the population data every year, but the dynamic between the two would then be lost.

The GIS data is produced with a semi-automatic method, it may be possible to increase automaticity.

**Constraints and data gaps:** Data is produced every fifth year. To produce yearly data would involve additional costs, as indicated above.

There are no international standards for how to measure. Comparability is therefore problematic. How should smaller areas of land within the built up area be counted?

The rural urban dynamic is missing. What happens to services in less populated areas within the administrative boundaries of the urban region?

In addition, the indicator does not take into consideration what type of land is being consumed, including its current and future productive use.

**Relevance for the city (including synergies and overlaps):** Data is considered relevant by SCB. The attention from the UN system is therefore appreciated. However, additional indicators rarely result in new resources. Instead it often results in reduction of other types of data collection. It is not considered relevant to measure every year. Processes are slow and changes are small in between years. However, the frequency of every fifth year may be too low.

Neither the city of Gothenburg nor the region work with this measurement – instead they look at what is built within and outside transit community zones according to their plans and targets. Stakeholders point out that the indicator must be measured on regional level to take into account exodus to small communities within commuting distance but without public transport as realistic option. Such moving patterns tend to be unsustainable. This indicator is therefore not considered contributing anything to planning processes, such as HUR2050. Identification of unsustainable moving patterns of certain groups is needed.

The city of Gothenburg also consider it important to see where work places are situated since they consume land and transport.

The indicator doesn't take fragmentation within the city into consideration and therefore cannot address segregation.

**Practicability (scope for rationalisation):**
A more suitable measure, according to the cities (Gothenburg and Mölndal) as well as the region, would be ratio of what is built in transit community zones in relation to what is built outside. This involves analysing the network structure and plan accordingly.

Because the built up area is crossing administrative boundaries SCB may be the most suitable reporting authority.

**11.3.2 Cities with more than 100,000 inhabitants that implement urban and regional development plans integrating population projections and resource needs**

**Data availability**: Data available (Översiktsplanen Göteborg, Översiktsplanen Mölndal, Strategi för hållbar tillväxt (2013)

**Responsible authority:** the City Executive Office (Stadsledningskontoret), the Urban planning department in Gothenburg, Mölndal and Partille, GR.

**Methodology:** Policy review. The region as well as Gothenburg city and Mölndal use population projections and resource needs in their development plans. (for example VISUM to assess transport needs)

**Constraints and data gaps:** How is implementation measured?

**Relevance for the city (including synergies and overlaps):** Representatives at the Property Management Department and GR emphasise the need for purpose governed planning rather than projection governed planning. Population projections are too short (5 years) to provide a basis for good land use planning.

A more important aspect is flexible use of property and mixed land use planning, to allow for taking into consideration changing resource needs (primarily schools and preschools). The UN-Habitat 5 principles for sustainable urban planning could usefully be developed in relation to detailed city planning. http://unhabitat.org/a-new-strategy-of-sustainable-neighbourhood-planning-five-principles/

Practicability (scope for rationalisation): The indicator is practicable in a Gothenburg region context depending on how implementation is supposed to be measured.
Since urban development plans are municipal this indicator would need to be reported both by the municipalities and the region, alternatively the region could be reporting authority.

**Secondary: Proportion of cities with legislation that promotes participatory mechanisms related to urban planning and local decision-making that ensure a fair representation of the urban population, including slum dwellers and informal workers.**

Data availability: Data available – national legislation.

**Responsible authority:** Sweden's Planning and Building Act (PBL), GR, the City Executive Office.

**Methodology:** Policy review.

Sweden's Planning and Building Act (PBL) stipulates that consultations should be held with involved stakeholders, including the public. The purpose is to gather sufficient information as well as to enable transparency and influence. The municipality is also obliged to display proposed plans for at least two months and inform about the display accordingly and compile and report the views that have been presented as well as address proposed changes.

The law also gives the public the right to appeal.

**Constraints and data gaps:** The indicator is problematic. Proportion of cities within the country? In the case of Sweden legislation is national. On the municipal level priorities are made as part of the budget:

"Göteborgs principer för medborgardialog" (1 juli 2014).

Mölndal: Översiktsplanen, Vision2022

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| **Relevance for the city (including synergies and overlaps):** The indicator does not define type of participation.<br><br>Other (and perhaps more important) participatory processes do not depend on legislation, nor does the quality of participation. Important efforts are invested in improving citizen dialogue in the city of Gothenburg, both through direct dialogue and through the role of the burroughs in municipal planning. The aim is to bring in different perspectives to improve decision making, by creating a variety of channels into the decision making process.<br><br>Legislation is considered important as a minimum requirement. |
| **Practicability (scope for rationalisation):** Practicable.<br>Since urban development plans are municipal this indicator would need to be reported both by the municipalities and the region, alternatively the region could be reporting authority. |

**General reflections and reactions to the target and indicators:**
A general concern that indicators do not measure target

Densification may be seen as a measure of how the built up area is developed. However, it is argued that it is important to capture the urban-rural dynamic, and that the suggested indicators don't do that. For example, when new housing is concentrated in transit communities what happens to services in the surrounding area?

### 11.4 Strengthen cities' efforts to protect and promote cultural and natural heritage

Protection of Swedish cultural heritage is regulated through Sweden's Planning and Building Act (PBL), the Environmental Law (Miljöbalken) and the Cultural Heritage Law (Kulturminneslagen).

Cultural heritage sites are considered particularly valuable environments from a cultural environment perspective as stated in chapter 3 in the Environment law (1998:808) and chapter 2 and 8 in the Sweden's Planning and Building Act (2010:900). Often whole or parts are protected as ancient remains, cultural heritage or churches according to the Cultural heritage law (1988:950), as national cultural heritage according to regulation of national cultural heritage (1988:1229), as nature reserve or national park according to the Environment law or in local plans (detaljplanen) or other regulations by the Sweden's Planning and Building Act. (http://www.boverket.se/sv/PBL-kunskapsbanken/teman/Kulturvarden/Andra-Styrmedel-for-kulturvarden/Varldsarvskonventionen/)

In Sweden's Planning and Building Act chapter 8 it is stated that
§13 "A building that is particularly valuable form a historical, cultural, environmental or artistic perspective should not be distorted", and

§14 "A building shall be kept in good condition and be maintained so that its shape and its

technical characteristics are …protected. Maintenance shall be adapted to the character of the surroundings and the historical, cultural, environmental and artistic values of the building". " If a building is particularly valuable form a historical, cultural, environmental or artistic perspective it shall be maintained so that the particular values are protected".

| **11.4.1 Percentage of budget provided for maintaining cultural and natural heritage** |
|---|
| **Data availability:** Data not available and not possible to produce. |
| **Responsible authority:** The Swedish National Heritage Board, The authority for cultural analysis, the City Museum |
| **Methodology:** It is possible to produce data on the funds allocated to protection of cultural heritage provided that the necessary definitions and delimitations are made. Work would need to be done to extract the relevant costs from a range of budgets. These could possibly also be reported to the responsible authority.<br><br>The last report on cultural heritage protection statistics was produced in 1995. The new authority for cultural analysis (Myndigheten för kulturanalys) is currently developing statistics to show development over time when it comes to content, use and costs.<br><br>Several authorities are responsible for cultural heritage sites, including HIGAB (Göteborg municipal property company), The National Property Board of Sweden, Fortifikationsverket, Naturvårdsverket, Riksdagen, Sjöfartsverket, Statens Fastighetsverk, Trafikverket, Länsstyrelsen, The Swedish Church. Several authorities also apply for funds from other sources, both public and private, specifically for the purpose of maintaining cultural and natural heritage – which means it is not part of their ordinary budget. |
| **Constraints and data gaps:** Because the funds are allocated from a multiplicity of budgets on different levels a percentage of the budget is not possible to calculate. The work presented here is based only on cultural heritage. Adding natural heritage would make the indicator even less possible to produce data on. |
| **Relevance for the city (including synergies and overlaps):**<br>The most important institution for allocation of funds to protect built up cultural heritage in the city of Gothenburg is HIGAB (Göteborg municipal property company). The City Museum considers it of high value to be able to separate the budget posts in HIGAB's budget in order to get an indication of priorities in the city.<br><br>The relevance of producing data every year is questioned by Byggnadsantikvarie Henrik Ordstedt (HIGAB) since planned maintenance is not conducted every year, and heavy costs would appear only in some years. Data would be more relevant over a 10-year period.<br><br>Combining cultural and natural heritage in the indicator would give data that would be of little use and relevance. |

**Practicability (scope for rationalisation):** As it is currently formulated this indicator is not practicable. First and foremost cultural and natural heritage need to be separated. The purpose of the indicator needs to be clearly defined and the indicator adjusted accordingly. The comparability of this indicator is very limited since the presence of cultural and natural heritage varies between urban areas. If the purpose is to work as a planning tool this is also problematic since budgets can be rearranged to indicate priorities without any actual change in allocation. The allocation of funds from the municipal budget is only relevant if related to the allocation from national and regional budgets as well as external funds. However, it would make the indicator too complex.

**11.4.2 Percentage of urban area and percentage of historical/cultural sites accorded protected status**

**Data availability:** Data not available but possible to produce

**Responsible authority: The Swedish National Heritage Board, the City museum,**

**Methodology:** This indicator includes two different measures that would involve on the one hand the relationship between area of protected sites in relation to total urban area, and on the other the percentage of protected sites in relation to all historical/cultural sites.

The first measure could be produced by using the GIS coordinates of historical and cultural sites registered by the Swedish National Heritage Board and the City museum. Churches are registered separately and would also need to be added. (For the sites registered by the Swedish National Heritage Board, see http://www.bebyggelseregistret.raa.se/bbr2/sok/search.raa), or for a screen shot see appendix 11). Area would need to be registered in the GIS information.

The second measure would require a registration of all historical/cultural sites and a calculation of sites with protected status. In the case of Sweden all historical/cultural sites have some type of protection in Swedish law. The percentage would therefore be 100. However, a number of sites have the strongest protection according to the Environmental law, but all sites have some protection according to the Plan- och Bygglagen.

**Constraints and data gaps:**
This indicator is actually two indicators, which needs to be clarified.

A better definition of what is meant by protected status is needed.

With regards to the first part of the indicator **i**nformation about area of the different sites is lacking. This lacuna has been considered and may be produced by Riksantikvarieämbetet in the future. The Swedish church is currently mapping the area of its sites.

**Relevance for the city (including synergies and overlaps):** A clear definition of protected status will be needed in order to produce the relevant information. It may be argued that all historical/cultural sites are protected by Swedish law. On the other hand the County administrative board can always make exceptions from the law on request form the municipality or private property owner.

The indicator is considered relevant and is linking up with current (but nascent) processes by relevant authorities such as the authority for cultural analysis, the Swedish National Heritage Board and the Church of Sweden.

The most important contribution of this indicator is that it requires extensive registration and documentation of cultural sites which is the first step towards protection.

**Practicability (scope for rationalisation):** The indicator is practicable because of the extensive registration and documentation already made in the case of Gothenburg. However, additional work needs to be done to register and extract area from GIS information which means that data can not be provided immediately.

Much registration is in place which means that in order to be practicable the indicator would on the one hand need to rely on already existing categories, and on the other relate to some agreed international categorisation.

This indicator would involve a considerable mapping and registration exercise that in the case of Gothenburg has been going on for 40 years and the city is now continuing with modern cultural heritage. The task is very important but the extent of it should not be underestimated.

The Swedish National Heritage Board, or the authority for cultural analysis, may be the most relevant reporting authority.

| **11.4.2 Secondary: Number of public libraries per 100.000 people** |
|---|
| **Data availability:** Data available |
| **Responsible authority:** the City Library |
| **Methodology:** Calculation |
| **Constraints and data gaps: -** |
| **Relevance for the city (including synergies and overlaps):** Relevant as a safeguard against budget cuts and rationalisations. |
| **Practicability (scope for rationalisation):** Practicable. |

**General reflections and reactions to the target and indicators:**

Officials at the city museum argue that protection of cultural heritage needs to be included in planning rather than an issue to be dealt with afterwards. Most importantly, cultural heritage and cultural environments need to be mapped (and also include modern cultural environments and cultural resources that are prioritized). The authorities working with protection of cultural heritage need tools for influencing planning processes. The city is working with possibilities for cultural impact assessment. Particularly as protection of cultural heritage tends to be overruled by other priorities such as infrastructure development.'Soft' targets therefore need to be enforced more strongly through clearly defined and enforcable indicators. A target and indicators would be highly appreciated by people working with these issues since they always find themselves struggling for space and priority in relation to urban development needs.

Other suggested indicators would therefore be registration of cultural sites and presence of cultural impact assessment in urban planning. CIA is partly present in the Göteborg city Översiktsplan, but not considered sufficient by staff at the City museum.

Educating politicians on the importance of protecting cultural heritage is also considered crucial.

It is considered problematic that the target does not take immaterial cultural practices into account. Immaterial cultural practices are important in their own right but they are also crucial for understanding what the built heritage means.

**11.5 By 2030, significantly reduce the social, health, economic and ecological risks and impacts of disasters, environmental change and disease outbreaks by better designing and managing cities, protecting people in vulnerable situations**

In the city of Gothenburg the municipal executive committee is responsible for contingency plans and management and the City Executive Office is charges with supporting the committee in leading, coordinating and following up the activities in the city. Within the City Executive Office there is a Crisis coordinating group with stakeholders from the Gothenburg area. They meet when required to coordinate crisis management.

In case of an extraordinary event in peace time the municipalities and the county administrative boards are obligated to report and provide information to the authority identified by the government (Law 2006:544). (förordning 2006:637). In practice this means that the municipalities inform the county administrative boards who report to the Swedish Civil Contingencies Agency (MSB). The municipalities are also under obligation to report yearly to MSB.

The county administrative board constitutes the link between local and regional contingency work and other authorities, MSB and the government.
http://www.lansstyrelsen.se/vastragotaland/Sv/manniska-och-samhalle/krisberedskap/lansstyrelsens-ansvar/Pages/lansstyrelsens-ansvar.aspx

The board produces yearly Risk and vulnerability reports where threats, risks and vulnerabilities in the region are identified and evaluated.

When it comes to the metropolitan agglomeration Malmö, Göteborg and Stockholm have particular responsibilities to coordinate their disaster prevention and the involved municipalites are compensated for it. (SKL 12/6159). In Gothenburg the cooperation initially includes Mölndal, Härryda and Partille but all the 13 GR municipalities are involved.

Existing databases on disaster effects are produced by EM-dat (these have proven deficient according to MSB), and reinsurance companies, who work with more or less the same thresholds. http://www.emdat.be/

Desinventar (UN ISDR) has a more inclusive definition of disasters (with ca 82 participating countries), and provides important input to the GAR report that produces disaster data every two years. http://www.desinventar.org/

The Swedish Civil Contingencies Agency (MSB) is publishing Naturolycksdatabasen with information about the effects of natural events.

The primary problem with producing statistics on the impacts of disasters in Sweden is the definition of disaster and the absence of treshhold values. Work is being done at EU level (Joint Research Centre, Institute for the Protection and Security of the Citizen) to produce operational indicators (a minimum set of loss indicators) for the Sendai framework. Thresholds will not be provided but member states will be expected to produce and report theirs. The loss data base is event-based, ”i.e. loss data are related to a specific hazard event which should be uniquely identified”. It is likely that Sweden will conduct a study to find treshold values that relate to that of other bodies. The EU process has related to and tried to sync up with Sendai and the SDG process. One of the primary purposes is to produce well grounded information for the EU solidarity fund.

“The current practice in disaster loss data recording across the EU shows that there are hardly any comparable disaster damage and loss data: difference exists in the methods of data recording as well as in the governance approaches to managing disaster damage and loss data” (JRC 2015:3)

| **11.5.1 Number of people killed, injured, displaced, evacuated, relocated or otherwise affected by disasters** |
|---|
| **Data availability:** Data available (example in appendix 12) |
| **Responsible authority:** The Swedish Civil Contingencies Agency (MSB), The National Board of Health and Welfare, Municipal authorities (Civil contingencies divisions), the county administrative boards. |

**Methodology:** MSB collects information on natural disaster loss and aims to collect data on large accidents, but statistics are currently weak. Mostly because they have no threshold values for defining disasters. MSB don't do their own analyses but rely on data from the municipalities and from Socialstyrelsen.

The National Board of Health and Welfare produces a register on cause of death every year. MSB produces a register on personal injury every year.

Information is published in Naturolycksdatabasen http://ndb.msb.se/# - with reports on major events. It includes deaths, evacuations, isolated, and estimations of costs. The information is collected from different sources.

MSB also produces a report over the activities by the municipal emergency services. It includes information on deaths, injuries, costs of accidents and of the activities by Rescue Services.

The municipalities and the regional administrative board are responsible for reporting to MSB during and after "extraordinary events in peace time" according to Law 2006:544 and förordning 2006:637, as well as Överenskommelse om kommunernas krisberedskap MSB/SKL Diarienr SKL 12/6159.

**Constraints and data gaps:** Data is produced on natural events/hazards and not categorized based on threshold values for disaster. It may be difficult to limit effects of events to the specific urban area.

**Relevance for the city (including synergies and overlaps):** The indicator is considered relevant since it show how hard society is hit by an extraordinary event.

**Practicability (scope for rationalisation):** MSB would most likely be charged with reporting this target. New responsibility requires resources, but the indicator would not involve important alterations of current activities. Producing the information is realistic once definitions and threshold values are in place. A study to establish treshold values would take approximately two years). The indicator is considered reasonable. It is part of the suggested EU indicators, which include directly affected, deaths and missing. Reporting in the EU will include pedigree score, i.e. an assessment of the quality of data.

The Swedish Civil Contingencies Agency is the most relevant reporting authority.

**11.5.2 Number of housing units damaged and destroyed**

**Data availability:** Data available irregularly.

**Responsible authority:** The Swedish Civil Contingencies Agency (MSB), The National Board of Health and Welfare, Municipal authorities (Civil contingencies divisions), the county administrative boards.

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| **Methodology:** MSB collects information on natural disaster loss and aims to collect data on large accidents.<br><br>MSB don't do their own analyses but rely on data from the municipalities, Information is published in Naturolycksdatabasen http://ndb.msb.se/# - with reports on major events. It includes deaths, evacuations, isolated, and estimations of costs. The information is collected from different sources. |
| **Constraints and data gaps:** Same weaknesses as above. |
| **Relevance for the city (including synergies and overlaps):** This indicator is considered less relevant in the Gothenburg context for various reasons 1) damage on housing units is extremely rare. Due to the specificities of the region such damages would mainly result from landslides and since the major landslide event in the 1970s landslides are considered under control. 2) there are significant support systems in place if such damages would occur. |
| **Practicability (scope for rationalisation):** Practicable<br>The Swedish Civil Contingencies Agency is the most relevant reporting authority. |

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| **Secondary: Economic losses related to GDP caused by disasters** |
| Data availability: Data available but the quality of data needs consideration |
| **Responsible authority:** The Swedish Civil Contingencies Agency (MSB)**,** |
| **Methodology:** Assessments are made for major events such as the storm Gudrun and the Tuve landslide. http://ndb.msb.se/# . However, reliable data is considered difficult to produce and requires clear definitions and time frames. The EU expert working group on disaster damage and loss data suggest that only direct costs need to be reported. Direct loss = the monetary value of physical damage to capital and tangible wealth assets<br><br>MSB conducts a search job and looks systematically for reports about events from national authorities as well as regional and municipal authorities, insurance companies and media. The information is compiled in Naturolycksdatabasen. In the case of the storm Gudrun information was collected from Vägverket, Banverket (currently Trafikverket), the electricity companies, telecommunication companies, Skogsstyrelsen, farmers, and municipalities.<br><br>The municipal insurance company Göta Lejon can produce data on insurable costs. Similar estimations can be made by private insurance companies. They are currently reporting this type of information to reinsurance companies such as the Swiss Re Group and Munich Re, both which publish data on economic loss from disasters. Göta Lejon is also conducting preventive work in order to get better premiums from the reinsurance companies.<br><br>Reporting in the EU will include pedigree score, i.e. an assessment of the quality of data. |

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| **Constraints and data gaps:** Important challenges are: the spatial and temporal scale, Avoid double counting losses (value of machine + the lost production from its destruction) (Kousky 2012:5)<br><br>What are the relevant affected elements? (area, property (buildings, content, vehicles, products, stock, crop), infrastructure, economic activity, owner). |
| **Relevance for the city (including synergies and overlaps):** The indicator is considered relevant if it is made practicable. The municipal insurance company Göta Lejon is currently working to link data to GIS coordinates to improve their preventive work. Such efforts are made possible through reliable loss data. |
| **Practicability (scope for rationalisation):** This indicator is practicable. The search job is already conducted for major events. Treshold values and reporting mechanisms will most likely be developed as a result of EU requirements.<br>The Swedish Civil Contingencies Agency is the most relevant reporting authority. |

**General reflections and reactions to the target and indicators:**

It is considered important to have a data coordinator to ensure the application of a coherent methodology.

The data should be event based. Major events often cross administrative and other boundaries.

The most important aspect to consider in the Gothenburg region would according to municipal officials be damages on infrastructure, including roads, railways, water and sewage systems, electricity and telecom. They are most vulnerable and would cause most damage to society. An indicator could consist of minutes of interruption in certain services, or on key transport routes. Such interruptions are already reported by authorities in the different sectors. In the case of Gudrun information was collected on interruptions in the road system, the rail way system as well as the electricity and telecommunication systems.

The indicators are criticized by representatives of the Göteborg city and the The Swedish Civil Contingencies Agency (MSB) for being reactive rather than proactive. Two important elements that could be measured and provide indicator for preparedness would be the presence of stations for measuring environmental effects, and redundance in service provision systems.

Lives and economic loss are complementary since economic loss is mostly in wealthier places, and lives are lost in lees wealthy places, that are also to a lesser extent insured and therefore does not show up in statistics over economic loss.

**11.6 By 2030, reduce the adverse environmental impacts of cities, paying special attention to biodiversity loss, air quality, construction materials, and waste management.**

Sweden has 16 prioritized environmental goals http://www.miljomal.se
The most relevant goals for this target are: Limit climate effects, Fresh air, Good built up environment. The county administrative boards have the overarching responsibility to adapt the national environmental goals to current regional conditions and needs. The regional environmental goals in Västra Götaland are almost identical to the national goals. They constitute the point of departure for the environmental work conducted by actors at regional and local level.

The city of Gothenburg is working with 12 local environmental goals that are monitored by The Environment Department and reported every year. Based on the national goals Mölndal has specified 20 local targets in their strategy Environmental goals 2022. Partille is currently in the process of localizing the national goals.

With regards to the specific primary and secondary targets below work is conducted at both municipal and regional level. The 13 municipalities in the region are cooperating both on waste management since they jointly own Renova, the environmental company in waste management and recycling. At the regional level an Air quality program has been agreed that provides a platform for cooperation. http://www.grkom.se/toppmenyn/dettajobbargrmed/miljosamhallsbyggnad/luftvardsprogrammet.4.159cca31120ce9831a180002114.html

| **11.6.1 Percentage of urban solid waste regularly collected and re-cycled.** |
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| Data availability: Data is partly available. (Appendix 13) |
| **Responsible authority:** Avfall Sverige, The Swedish Environmental Protection Agency |

**Methodology:** The data on municipal waste are based on the Swedish Environment law (MB 15.2) ”household waste and thereby comparable waste from other activities”.

Each municipality is obligated to have a waste plan and the plan shall include the goals for all waste management in the municipality, both the waste the municipality is responsible for and waste from business and old deposits (A2020). The municipality is responsible for collection and management of household waste. Collection and management of packages, waste paper, electrical and electronic products, batteries, cars and tires is the responsibility of the producers. For other types of waste its management is the responsibility of the one who is generating the waste.

Avfall Sverige produces data based on information from all these sources.

The indicator is actually four, collection of waste and e-waste, and recycling of waste and e-waste. First it is assumed, but not measured, that the percentage of household waste is 99,5% (Naturvårdsverket makes estimation of waste generated on national level but it is not possible to delimit waste generation to the urban area). According to random sample analysis of residual waste 0,5% of e-waste is not collected.

Percentage of non e-waste recycled is 33% in Gothenburg. Statistics based on specified urban area (including additional municipalities – but not limited to built up area) can be produced.

It is assumed that the e-waste that is being collected is also recycled (with some reject). But Avfall Sverige and the Swedish Environmental Protection Agency are working with indicators to show actual recycling of what has been collected.

The region is cooperating through a jointly owned waste company. Mölndal has a separate system with their own cars and their own deposits.

**Constraints and data gaps:** Waste collected in the urban area cannot be related to the total amount of waste generated since information on the latter is lacking on a local level. The Swedish Environmental Protection Agency produces statistics on waste generated on a national level, however it is difficult to link waste and packages put on the market to its col lection in a particular local context.

What counts as recycling? For example in Gothenburg 60% of waste is burnt, which produces 20% ashes that are used as roads in the deposits. This is the worst kind of recycling.

It is argued that there is much corruption in reporting which makes comparisons difficult.

**Relevance for the city (including synergies and overlaps):** The indicator is relevant since how well a city manages its waste is considered an indicator of overall environmental work. However, the indicator adds nothing to current work. It may contribute to making Sweden a role model internationally.

According to the EU waste framework directive from 2008 (2008/98/EG) the member country waste policies should primarily prevent the emergence of waste. Data is reported to EUROSTAT.

The goal is overlapping with the national environmental goal of ”Good built up environment: The total amount of waste produced shall not increase and the resource that waste constitutes shall be made the most of to the extent possible while at the same time minimizing the effects on and risk for health and environment”. The goal includes indicators on recycling of glass, metal, paper packages and plastic.

The local target in Gothenburg is to decrease waste and improve management of resources. The target is that waste generated/inhabitant should be less in 2020 than in 2008, 435 kg/person, and that the resources in waste shall be made good use of to the extent possible.

The municipality is experimenting with initiatives to decrease consumption as it is considered required in order to reach the target.

Mölndal has specified percentage targets for the proportion of waste that should be recycled. (appendix 14)

Avfall web is a site produced by Avfall Sverige (the Swedish interest and business organisation in waste management and recycling) that is used for benchmarking. Work is under way to not just measure what is collected but to better measure recycling and reject. Avfall Sverige is working towards two goals in their Vision for 2020, 1) break the link between waste generation and economic growth, 2) a strong movement upwards in the waste hierarchy.

There is a concern at all levels that this indicator does not measure the amount of waste generated which would be an indicator of sustainable lifestyles. A better indicator would be waste generated/person.

**Practicability (scope for rationalisation):** Practicable in the Gothenburg region.
Avfall Sverige or The Swedish Environmental Protection Agency may be the most relevant reporting agencies.

| **11.6.2 Level of ambient particulate matter (PM 10 and PM 2.5)** |
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| **Data availability:** Data available (appendix 15) |
| **Responsible authority:** The municipal environment department, the Regional air quality programme |
| **Methodology:** PM10 Both urban background and particular streets are measured and yearly average levels estimated. PM 2,5 – Information available in Gothenburg. A factor is used to calculate PM2,5 in relation to PM10 levels in municipalities where PM2,5 is not measured. Gothenburg is measuring at three fixed stations in combination with mobile stations. The level is reported from one station respectively. The city of Gothenburg is also reporting data on an hourly basis on the web page. |
| **Constraints and data gaps:** In order to achieve comparability some specifications need to be made, such as where in the city the stations are placed. Since the purpose of measuring particles is the effect on peoples' health the stations should be placed where most people are exposed, at ground level where people dwell.<br><br>Measuring requires competence and is complex. Cooperation is required in order to enable measurements also in the smaller municipalities. |

**Relevance for the city (including synergies and overlaps):**
Level of ambient particulate matter (PM 10 and PM 2.5) is one of the indicators for the national environmental target Fresh air. The air quality regulation (2010:477) and the rules regarding control of air quality produced by The Environmental Protection Agency (NFS 2010:8) set requirements for measuring air quality. The diagrams are based on material from Datavärden för Luft, an assignment to IVL Svenska Miljöinstitutet from the Swedish Environmental Protection Agency. The data reported are levels in the urban background in built up areas (which gives an image of the average conditions in the built up area).

The Gothenburg region is monitoring air quality as part of the Air quality program since 1980. The purpose is to inform about the air quality and provide information for planning. Measuring at fixed and temporary stations is combined with calculations that give assessments of air quality in the municipalities. The air quality program owns measuring stations in Gårda, Göteborg and in Mölndal.

The city of Gothenburg sets yearly targets to fall below a certain amount of micrograms/square meters. In 2013 the target level for PM10 was to fall below a target 24 hour average of 35 micrograms/ square meter. The level can be topped no more than 37 days/year at ground level. The yearly average of PM2,5 should fall below 12 micrograms/square meter. The level is measured at roof level. Gothenburg has higher set targets than the national ones, and manages to achieve them.

The indicator is relevant for following trends but not as planning tool. For planning it would be more relevant to measure exposure (how many are exposed above a certain level in specific places), according to officials at the Gothenburg city Environment Department..

A discussion ensues at the Environment Department regarding whether the indicator is the most relevant. Other indicators may be levels of nitrogen dioxide. Nitrogen dioxide may be a more general indicator for air quality in the context of Gothenburg. Particles can decrease at the same time as other substances increase, which has been the case in Gothenburg. However, particles are more directly affecting peoples' health and are most likely more relevant in a global context.

**Practicability (scope for rationalisation):** The indicator is practicable provided the way to measure, where to measure, and what to measure (yearly average, average in 24 hours) is clearly defined.

The Gothenburg region Air Quality Programme would be the most relevant reporting agency.

**Secondary indicator: National city biodiversity index** :

Data availability: Data available

**Responsible authority:** The municipal Environment Departments, the County administrative

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| board |
| **Methodology:** The County administrative board is working to preserve important plants, animals and natural environments. This includes creating and managing natural reserves and making inventories of species and natural environments and try permits that may affect the natural environment.<br><br>Neither the regional level nor the city of Gothenburg are working with the Singapore index but are making a regular inventory as part of environmental goals. In the city of Gothenburg it involves the environment target 'a rich diversity of plant and animal life', that includes 17 indicators. (for more detail see Miljörapport 2013)<br><br>Gothenburg is also participating in Eurocities working groups such as "Green Areas and diversity".<br><br>Gothenburg also has defined 'ansvarsarter' where the presence of the species in Gothenburg is considered significant for its survival and vitality from a national perspective. Gothenburg has identified 12 such species. |
| **Constraints and data gaps:** A biodiversity index is not used. |
| **Relevance for the city (including synergies and overlaps):** Gothenburg is participating in Eurocities and the work of *the Union's new Environment Action Programme (EAP)[that] shall ensure that by 2020, the loss of biodiversity and the degradation of ecosystem services are halted and ecosystems and their services are maintained and enhanced* |
| Practicability (scope for rationalisation): To implement the city biodiversity index is considered both complicated and resource demanding according to authorities at the Park and Nature Department and the Environment Department. An inventory is therefore preferred to an index. |

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| **Secondary: percentage of wastewater treated within an urban agglomeration** |
| Data availability: |
| **Responsible authority:** The municipal Environment Department, the Water authorities (Vattenmyndigheterna) |
| **Methodology:** |
| **Constraints and data gaps:** |
| **Relevance for the city (including synergies and overlaps):** |

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| Practicability (scope for rationalisation) |

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| **Secondary GHG emissions tons/capita** |
| **Data availability:** Data available. Göthenburg, Mölndal and Partille all have climate related goals that are monitored. And emissions are measures on regional level by the Air quality programme. |
| **Responsible authority:** The municipal Environment Department, the Regional air quality programme |
| **Methodology:** |
| **Constraints and data gaps:** |
| **Relevance for the city (including synergies and overlaps):** |
| **Practicability (scope for rationalisation):** Practicable |

**General reflections and reactions to the target and indicators:**

The indicators are generally well received but considered adding little of value for Gothenburg since these are areas where Sweden is well advanced in a European context where comparison is usually made.

### 11.7 By 2030, provide, maintain, and encourage access to safe, inclusive and multipurpose public space

Sweden is working with two types of public space. Public place (allmän plats) is regulated according to Sweden's Planning and Building Act (PBL).It may be a street, park or square. The purpose should be shared needs, it should be accessible for the public and cannot be shut off. Another definiction is "Offentlig plats", which is a broader concept. It may be a "allmän plats", but can also be an indoor square with a private owner where the public has access when the square is open. The owner gives permission to activities. (Översiktsplanen part 1, p56)

What is a public space is regulated by the municipal Urban Development Plan (Översiktsplanen) and the local plan (detaljplanen).

The city of Gothenburg has several relevant strategic goals for its urban development: Attractive urban environment, Diverse, safe and human, Recreation and health for improved life quality, Nature and cultural environments for attractivity, Access to the coast.

Mölndal is focusing on the use of public space and how to use the bottom floor of buildings. The goal is that 50% of bottom floors in the city centre shall consist of public activities to create spaces where people want to dwell.

| **11.7.1 Area of public space as a proportion of total city space** |
|---|
| **Data availability:** Data not immediately available but possible to produce. Basic data available. |
| **Responsible authority:** Statistics Sweden (SCB), Geodata division at the Urban Planning Department |
| **Methodology:**<br>SCB can produce a rough measure based on the property taxation register and GIS coding according to owner and type of property. It may be difficult to determine exactly what activity of public character is allowed on private land. The data is available in the basic GIS-information but needs to be processed.<br><br>Cost for processing is estimated to SEK25000 for the built up area of Gothenburg. Different demands would incur different costs.<br><br>Geodataavdelningen can produce the information based on existing GIS layers of different types of public space. |
| **Constraints and data gaps:** It needs to be clarified whether the category allmän plats or offentlig plats would apply. I.e. if the indicator is refering to public space that cannot be sut of for the public, or if it includes privately owned space that is regulated as public space when it is open. |
| **Relevance for the city (including synergies and overlaps):** The indicator is relevant as a planning tool and for spotting trends and warninings that public space is being threatened by construction and privatization. However, several officials point out that not all public space is valuable space to the public. |
| **Practicability (scope for rationalisation).** The category ‘allmän plats’ would be preferable, both because it is more practicable and because it will indicate if public space is being privatised and hence made less public.<br><br>Information from SCB would be provided based on a definition of built up area in the region while the data from the municipalities will concentrate on public space within their administrative boundaries which is why the SCB data may be more practicable for the purpose of the SDG. |

**11.7.2 Proportion of residents within 0.5 km of accessible green and public space**

**Data availability:** Data available on 300 meter distance. (appendix 16)

**Responsible authority:** the Park and nature department, Statistics Sweden (SCB)

**Methodology:** SCB produces information on land use in built up areas (in cities with more than 30.000 inhabitants) where they identify green areas that are at least 0,5 hectares. They work with 300 meters since that is what is sought after and considered relevant for public health and children's access (Boverket 2007, 14), but it can be easily modified at a small cost. Green space is coded on GIS with satellite images (all ground data is available but needs to be processed) and private and/or non accessible land is isolated. (Satellite images with 10m pixles). In their latest report SCB is also reporting proportion of residents within 200 meters of green and public space. 200 meters is considered a relevant distance for children and elderly. http://www.scb.se/sv_/Hitta-statistik/Statistik-efter-amne/Miljo/Markanvandning/Gronytor-i-och-omkring-tatorter/12898/12905/Behallare-for-Press/390926/

The city of Gothenburg has several targets for different types of green space. They measure small the proportion of people who live less than 300 meters from green spaces (at least 0,2 hectares). (Grönstrategin page 42) The green areas shall be places so that no major barriers in the form of major roads, large hight differences and water precent access. Data is presented as areas that lack access on a map, not as a percentage figure.

Mölndal has set the target that all inhabitants shall have access to green space within 300 meters by 2022. The target is new and statistics will be produced based in GIS data.

**Constraints and data gaps:** The data is not produced on a yearly basis. According to SCB a yearly reclassification of satellite data would cost around 60.000SEK/year. If only the population data is updated every year, and the satellite data less frequently the cost would decrease to around 25.000SEK. The green structure changes slowly.

**Relevance for the city (including synergies and overlaps):** This indicator is considered of high relevance to all stakeholders. It is particularly important in planning processes that aim at densification and when different conflicts of interest present themselves.

Green space is emphasised as an important element of the national environmental goal "Good built up environment". However, the indicator in the national goal only concerns the presence of municipal planning that focus on green space.

**Practicability (scope for rationalisation):** The indicator is practicable and will be produced by both SCB and the municipalities. However, to report the 0,5 km distance would constitute an unnecessary reporting burden and it would be more practicable if the 300 meter distance could be reported. It will not be changed as a target.

Frequency is a bit unclear. SCB has made a cost estimation for yearly updating. As mentioned the green structure changes slowly and it could be possible to update the population register every year and the satellite data less frequently.

**General reflections and reactions to the target and indicators:**
The indicators are considered both relevant and important.

## General comments on the goals:

- In general the targets are considered good and valuable while sustainability is considered to get lost in the indicators.
- Indicators are considered important by most participants in the project and there is a call for evidence based and practicable indicators.
- There is a concern that the indicators will become an additional reporting burden in cases when they are not directly relevant for current activities.
- Questions have been raised regarding the feed-back loop. How will the global reporting be communicated back to the relevant actors in a format that is accessible?
- The question of what the specific indicators are aiming at has been frequently raised and there is a desire that the purpose is clearly communicated.
- It is suggested that reporting should not be placed on a central level but with the authorities directly involved. However, the workshop was appreciated and the view expressed that such meetings across different departments would be constructive for collecting, presenting and discussing achievements.
- The indicators seem to be more appreciated by actors who experience that their areas are not prioritized in planning processes, and by certain officials who see a challenge in arguing for their prioritized areas upwards in the administrative hierarchy.
- Some of the indicators are considered to be minimum requirements and therefore of less value in areas where Sweden and the Gothenburg region as well as the city of Gothenburg are more advanced in terms of quality work.

## Feedback to local authorities:

Throughout the work much focus has been placed on involved actors perceptions of the value of the targets and indicators for the involved authorities. Concern has been taken to ensure that their reflections have been included in the report. The project concluded with a workshop with involved actors held at Mistra Urban Futures where the team communicated the results and where the actors were discussing the targets and indicators with each other, which was considered valuable. The report, together with conclusions from the larger process will also be communicated back to the representatives of the different authorities that have participated.

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Pylj0fD6fx0Ip0XF3G8qdaMGXKsmvjQeYLGf3yWoJ2PdQ9nMyV2yaf3I89VsXPSV-uxuxiv4JB4O_TNwUZg!!/dz/d5/L2dBISEvZ0FBIS9nQSEh/

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# Pilot Project to Test Potential Targets and Indicators for the Urban Sustainable Development Goal

## Final report GOLIP Appendices

May 30, 2015

### Appendix 1. Overcrowding

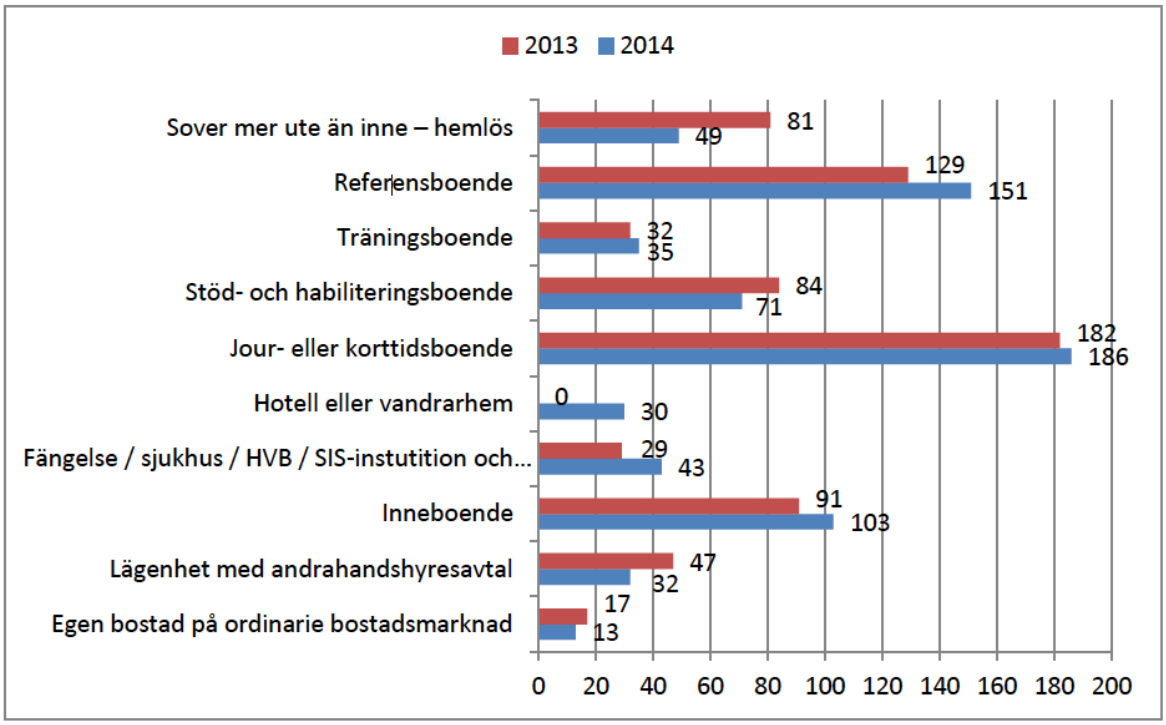
**Boende 2014. Andelar**

Skattade andelar i procent samt felmarginal (95-procentigt konfidensintervall).
Värden för 2014, personer 16 år eller äldre.
Redovisning efter kön, ålder, hushållstyp, utländsk/svensk bakgrund, utbildning och SKL-region (indelning enligt Sveriges kommuner och landsting 2011).
*Källa: SCB, Undersökningarna av levnadsförhållanden (ULF/SILC)*

| Definitioner | En- eller tvåfamiljsvilla | | Flerbostads-hus | | Hyresrätt | | Bostadsrätt | | Äganderätt | | Trångboddhet enligt Norm 2 | | Trångboddhet enligt Norm 3 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Andel | Konfidens-intervall | Andel | Konfidens-intervall | Andel | Konfidens-intervall | Andel | Konfidens-intervall | Andel | Konfidens-intervall | Andel | Konfidens-intervall | Andel | Konfidens-intervall |
| **Samtliga 16+ år** | **53,7** | **± 1,2** | **45,2** | **± 1,2** | **34,3** | **± 1,2** | **17,8** | **± 1,0** | **47,9** | **± 1,2** | **3,6** | **± 0,5** | **16,1** | **± 1,0** |
| Män 16+ år | 54,9 | ± 1,8 | 44,2 | ± 1,8 | 34,0 | ± 1,8 | 17,4 | ± 1,4 | 48,6 | ± 1,8 | 3,5 | ± 0,8 | 16,6 | ± 1,5 |
| Kvinnor 16+ år | 52,5 | ± 1,7 | 46,2 | ± 1,7 | 34,6 | ± 1,7 | 18,2 | ± 1,4 | 47,1 | ± 1,7 | 3,7 | ± 0,8 | 15,6 | ± 1,3 |
| Samtliga 16-84 år | 54,5 | ± 1,2 | 45,0 | ± 1,2 | 34,0 | ± 1,2 | 17,5 | ± 1,0 | 48,4 | ± 1,2 | 3,7 | ± 0,6 | 16,5 | ± 1,0 |
| Män 16-84 år | 55,0 | ± 1,8 | 44,4 | ± 1,8 | 34,1 | ± 1,8 | 17,2 | ± 1,4 | 48,7 | ± 1,8 | 3,6 | ± 0,8 | 17,0 | ± 1,5 |
| Kvinnor 16-84 år | 53,9 | ± 1,8 | 45,7 | ± 1,8 | 34,0 | ± 1,7 | 17,9 | ± 1,4 | 48,1 | ± 1,8 | 3,9 | ± 0,8 | 16,1 | ± 1,4 |
| **ÅLDER** | | | | | | | | | | | | | | |
| 16-24 år | 51,8 | ± 3,8 | 48,2 | ± 3,8 | 44,9 | ± 3,8 | 13,9 | ± 2,6 | 41,2 | ± 3,8 | 6,9 | ± 2,1 | 39,2 | ± 3,8 |
| 25-34 år | 30,6 | ± 3,3 | 69,1 | ± 3,3 | 54,6 | ± 3,5 | 20,6 | ± 2,8 | 24,8 | ± 3,0 | 7,8 | ± 2,0 | 27,6 | ± 3,3 |
| 35-44 år | 58,4 | ± 3,4 | 41,6 | ± 3,4 | 31,5 | ± 3,3 | 15,9 | ± 2,5 | 52,5 | ± 3,4 | 6,6 | ± 1,9 | 21,5 | ± 2,9 |
| 45-54 år | 65,4 | ± 3,2 | 34,6 | ± 3,2 | 26,8 | ± 3,1 | 14,5 | ± 2,4 | 58,6 | ± 3,3 | 2,0 | ± 1,0 | 11,2 | ± 2,3 |
| 55-64 år | 60,4 | ± 3,4 | 38,8 | ± 3,4 | 26,9 | ± 3,2 | 16,3 | ± 2,5 | 56,8 | ± 3,4 | 0,4 | ± 0,5 | 5,3 | ± 1,8 |
| 65-74 år | 63,0 | ± 3,1 | 36,3 | ± 3,1 | 21,2 | ± 2,7 | 20,5 | ± 2,5 | 58,2 | ± 3,1 | 0,3 | ± 0,3 | 2,4 | ± 1,0 |
| 75-84 år | 50,9 | ± 4,3 | 46,2 | ± 4,2 | 28,7 | ± 3,9 | 24,8 | ± 3,7 | 46,6 | ± 4,3 | 0,0 | ± 0,0 | 1,5 | ± 1,2 |
| 85+ år | 32,5 | ± 5,6 | 49,9 | ± 6,4 | 43,2 | ± 6,7 | 26,6 | ± 6,0 | 30,2 | ± 6,0 | 0,0 | ± 0,0 | 1,6 | ± 1,8 |
| **16-24 ÅR** | | | | | | | | | | | | | | |
| Män | 52,8 | ± 5,5 | 47,2 | ± 5,5 | 45,3 | ± 5,5 | 14,4 | ± 3,7 | 40,3 | ± 5,4 | 6,8 | ± 3,2 | 39,2 | ± 5,5 |
| Kvinnor | 50,6 | ± 5,4 | 49,4 | ± 5,4 | 44,5 | ± 5,3 | 13,4 | ± 3,6 | 42,1 | ± 5,3 | 6,9 | ± 2,9 | 39,3 | ± 5,4 |
| **25-34 ÅR** | | | | | | | | | | | | | | |

SCB. Undersökning om befolkningens levnadsförhållande/ULF 2014. http://www.scb.se/sv_/Hitta-statistik/Statistik-efter-amne/Levnadsforhallanden/Levnadsforhallanden/Undersokningarna-av-levnadsforhallanden-ULFSILC/#c_li_354229

## Appendix 2 Homlessness




**Figur 4 - Nuvarande boende fördelat på typ av boende 2013-2014**

Göteborgs stad, Fastighetskontoret: BoInvent1, Kartläggning april 2014 (p9).

## Appendix 3 Tenure type

**Andel hushåll efter boendeform och kommun den 31 december 2014**

| | Småhus | | | Flerbostadshus | | Specialbostad | Övrigt |
|---|---|---|---|---|---|---|---|
| Kommun | ägande | bostadsrätt | hyresrätt | bostadsrätt | hyresrätt | | |
| Upplands Väsby | 32,7 | 2,0 | 1,1 | 30,6 | 32,0 | 1,0 | 0,7 |
| Värnamo | 55,2 | 3,3 | 1,3 | 10,3 | 26,6 | 1,5 | 1,8 |
| Emmaboda | 72,4 | 0,4 | 1,0 | 4,0 | 20,6 | 0,9 | 0,6 |
| Bjuv | 66,0 | 4,3 | 3,2 | 7,1 | 17,4 | 1,4 | 0,5 |
| Partille | 45,2 | 2,1 | 1,1 | 17,0 | 31,1 | 1,1 | 2,3 |
| Gullspång | 74,0 | 2,5 | 2,0 | 2,2 | 15,5 | 3,1 | 0,8 |
| Töreboda | 65,6 | 2,9 | 1,7 | 6,5 | 19,9 | 2,1 | 1,3 |
| Göteborg | 19,6 | 1,1 | 0,4 | 25,7 | 47,4 | 4,7 | 1,1 |
| Mölndal | 42,3 | 3,5 | 2,9 | 23,5 | 24,7 | 2,3 | 0,7 |
| Kungälv | 55,7 | 5,3 | 2,2 | 15,6 | 18,9 | 1,6 | 0,7 |
| Lysekil | 56,6 | 2,4 | 1,3 | 5,0 | 30,9 | 1,3 | 2,6 |
| Uddevalla | 43,9 | 2,3 | 0,6 | 16,4 | 32,8 | 2,3 | 1,5 |
| Strömstad | 56,7 | 3,8 | 1,0 | 7,3 | 28,0 | 1,7 | 1,5 |
| Vänersborg | 48,5 | 2,8 | 2,2 | 15,3 | 28,1 | 2,0 | 1,1 |

SCB. Living conditions/Hushållens boende. Register statistics 2014. http://www.scb.se/sv_/Hitta-statistik/Statistik-efter-amne/Hushallens-ekonomi/Inkomster-och-inkomstfordelning/Hushallens-boende/#c_undefined

**Appendix 4 11.1.2. Proportion of population that spends more than 30% of its income on accommodation**

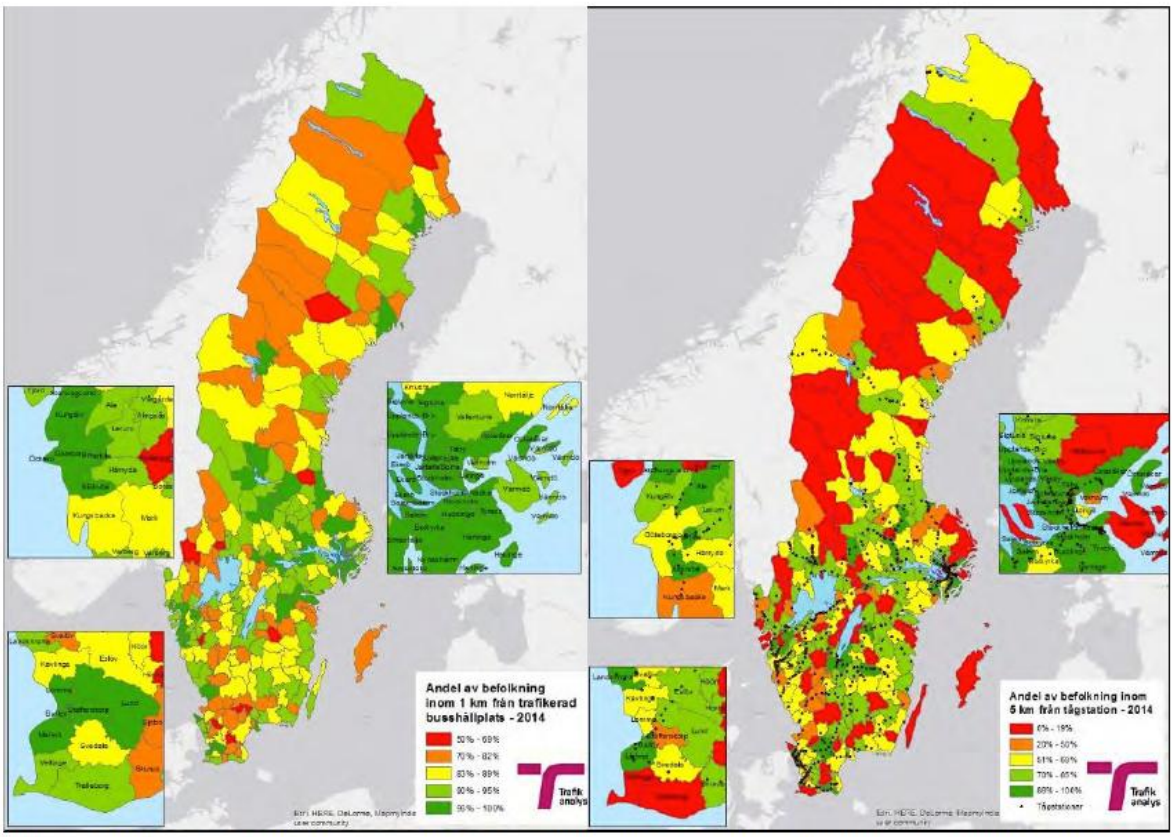
**Genomsnittlig boendeutgift, boendeutgiftsprocent och konsumtionsutrymme upplåtelseform och hushållstyp**

År 2013. Tkr

| | Boendeutgift i tusentals kr | | Boendeutgifts-procent | | Konsumtionsutrymme per k.e. i tusentals kr | |
|---|---|---|---|---|---|---|
| **Äganderätt** | | | | | | |
| Ensamboende | 56,0 | ±4,2 | 22,5 | ±1,7 | 167,4 | ±15,3 |
| -64 år | 66,1 | ±8,9 | 19,8 | ±2,7 | 212,7 | ±21,4 |
| Kvinnor | 58,8 | ±10,2 | 19,2 | ±6,0 | 206,2 | ±34,8 |
| Män | 69,6 | ±12,0 | 20,6 | ±3,5 | 222,9 | ±33,1 |
| 65- år | 50,5 | ±4,0 | 23,5 | ±2,0 | 139,0 | ±13,1 |
| Kvinnor | 51,3 | ±5,4 | 25,7 | ±2,5 | 129,3 | ±17,8 |
| Män | 49,7 | ±5,9 | 20,4 | ±2,9 | 145,2 | ±17,8 |
| Sammanboende utan barn | 67,5 | ±2,4 | 13,5 | ±0,5 | 223,0 | ±7,8 |
| -64 år | 78,0 | ±4,1 | 13,4 | ±0,7 | 262,5 | ±10,7 |
| 65- år | 58,0 | ±2,6 | 13,6 | ±0,7 | 177,7 | ±7,9 |
| Ensamstående med barn | 83,6 | ±8,4 | 20,9 | ±2,1 | 133,3 | ±9,9 |
| Sammanboende med barn | 103,9 | ±3,8 | 15,8 | ±0,5 | 172,4 | ±4,3 |
| Övriga hushåll | 87,0 | ±4,3 | 12,2 | ±0,9 | 202,7 | ±11,9 |
| **Samtliga hushåll** | **79,4** | **±1,8** | **15,7** | **±0,4** | **189,3** | **±3,8** |

SCB. Hushållens ekonomi 2013.
http://www.scb.se/sv_/Hitta-statistik/Statistik-efter-amne/Hushallens-ekonomi/Inkomster-och-inkomstfordelning/Hushallens-ekonomi-HEK/7289/7296/Boendeutgifter/147050/

**Appendix 5 – Proportion of population with less than 1km to public transport transit.**




**Figur 3.4.2: Andel av befolkningen som bor inom 1 000 meter från en busshållplats respektive 5 km från en järnvägsstation 2014.**
**Källa: Egen bearbetning av befolkningsstatistik från SCB och hållplatser från Samtrafiken.**

Trafikanalys: Uppföljning av de transportpolitiska målen. Rapport 2015:7

**Appendix 6** Cost estimation för running the required information through the soft ware:

The cost estimation is based on the municipality of Gothenburg. The transits are all bus stops, tram stops and railway stops reported to Samtrafiken. The time table is the one produced by Samtrafik week 40, 2014. Distande is measured on the map and does not take barriers or other information into account. In table 1 you see the data requirements and the cost. IN table 2 you see a cost estamation for the work, and finally you see the total sum for the task.

*Tabell 1 Källa och kostnad för databehov*

| **Grunddata** | **Källa** | **Kostnad (SEK)** |
|---|---|---|
| Befolkningsdata | SCB | 0 (ingår i geodatasamverkan) |
| Kommunindelning | Lantmäteriet | 0 (ingår i geodatasamverkan) |
| Tidtabell | Samtrafiken | 55 000 |
| Konvertering tidtabell | Basemap | 15 500 |
| | | |
| Totalt | | 65 000 |

*Tabell 2 Tid och kostnad för arbetsinsats*

| **Arbetsinsats** | **Tidsåtgång (timmar)** | **Kostnad (SEK)** |
|---|---|---|
| Insamling grunddata | 8 | 9 600 |
| Bearbetning grunddata i ArcMap | 4 | 4 800 |
| Bearbetning tidtabell i TRACC | 4 | 4 800 |
| Beräkningar i ArcMap | 8 | 9 600 |
| | | |
| Totalt | 24 | 28 800 |

Total årlig kostnad för grunddata samt arbetsinsats = **93 800 SEK**

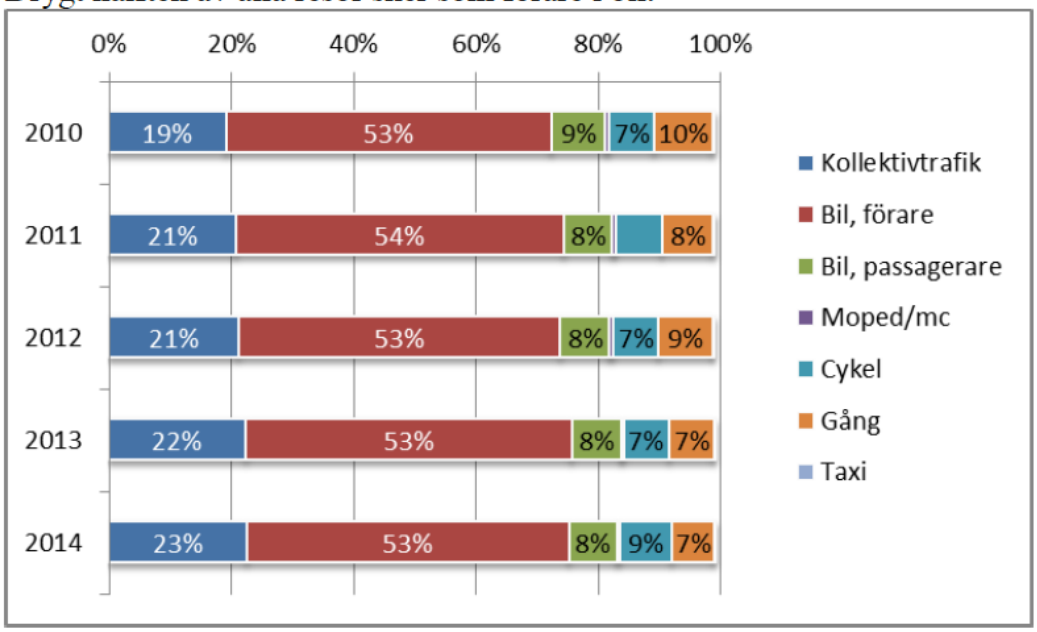
**This estimation is for producing information on one municipality. For more municipalities or urban areas the cost for the work hours will increase but not for the data requirements since they are delivered on national level.**

Provided by Märit Izzo, Trafikanalys.

**Appendix 7 Share of trips**

2.1 Färdmedelsfördelning

Drygt hälften av alla resor sker som förare i bil.




**Figur 2. Färdmedelsfördelning 2010-2104** **Bas: 282 096 resor**

Svensk Kollektivtrafik: Kollektivtrafikbarometern, Årsrapport 2014.

**Färdmedelsfördelning 2008-2012.**

| Färdmedel | 2012 | 2011 | 2010* | 2009* | 2008* |
|---|---|---|---|---|---|
| **Bil** | 44% | 44% | 48% | 47% | 48% |
| **Kollektivt** | 26% | 26% | 29% | 28% | 28% |
| **Cykel** | 6% | 6% | 9% | 10% | 10% |
| **Till fots** | 25% | 25% | 14% | 14% | 14% |

*1) Andelarna 2009 summerar inte till 100 pga avrundningseffekt på samma sätt 2011 då summan blir 101.*

** För 2011-2012 används en ny metod vilket innebär svårigheter att göra jämförelsen med tidigare år.*

Trafikkontoret: Trafik och resandeutveckling (2012) (Gothenburg)

## Appendix 8: Share of income spent by urban households on transport

**Tabell 2. Hushållsgrupp - andel av totala utgifter per hushåll år 2009**
**Type of household - share of total expenditure per household during 2009 in SEK**

| | Ensam-stående med barn | Ensam-stående utan barn | Samman-boende med barn | Samman-boende utan barn | Övriga sam-manboende med barn | Övriga |
|---|---|---|---|---|---|---|
| **Antal medverkande hushåll** | 116 | 352 | 765 | 596 | 89 | 129 |
| **Genomsnittligt antal** | | | | | | |
| **personer** | 2,6 | 1,0 | 3,9 | 2,0 | 4,6 | 2,9 |
| **konsumtionsenheter** | 1,77 | 1,00 | 2,39 | 1,51 | 2,92 | 2,08 |
| **Beräknad populations-** | 218 430 | 1 515 210 | 802 530 | 1 160 050 | 94 690 | 211 630 |
| **storlek** | ± 26 600 | ± 111 620 | ± 33 140 | ± 62 250 | ± 18 740 | ± 32 810 |
| **Hushållets genomsnittliga** | 254 150 | 190 530 | 530 260 | 400 500 | 624 660 | 478 310 |
| **disponibla inkomst** [1] | ± 18 630 | ± 11 190 | ± 25 140 | ± 14 470 | ± 46 700 | ± 48 170 |
| **TOTALA UTGIFTERNA** | **255 950** | **170 660** | **415 210** | **309 820** | **464 110** | **340 690** |
| | ± 0,6 | ± 0,4 | ± 0,4 | ± 0,8 | ± 1,2 | ± 0,5 |
| **TRANSPORT** | **11,1** | **9,2** | **15,4** | **21,0** | **16,7** | **15,9** |
| | ± 1,7 | ± 4,5 | ± 2,1 | ± 14,7 | ± 2,3 | ± 2,4 |
| Inköp av bil | 1,2 | -0,9 | 4,5 | . | 3,6 | 3,3 |
| | ± 0,9 | ± 4,4 | ± 2,2 | . | ± 1,9 | ± 1,7 |
| Inköp av övriga persontransport- | 1,0 | 0,9 | 1,0 | . | 1,6 | 1,0 |
| medel | ± 0,5 | ± 0,5 | ± 0,2 | . | ± 1,1 | ± 0,7 |
| Drift av bil | 6,5 | 6,2 | 7,8 | 8,0 | 8,2 | 8,9 |
| | ± 1,2 | ± 0,8 | ± 0,5 | ± 1,3 | ± 1,2 | ± 1,7 |
| Ränta (bil - brutto), bilskatt | 0,6 | 0,6 | 0,7 | 0,7 | 1,0 | 0,8 |
| | ± 0,2 | ± 0,1 | ± 0,1 | ± 0,2 | ± 0,4 | ± 0,2 |
| Drift av övriga persontransport- | 0,5 | 0,2 | 0,4 | 0,3 | 0,4 | 0,3 |
| medel | ± 0,3 | ± 0,1 | ± 0,1 | ± 0,1 | ± 0,2 | ± 0,2 |
| Ränta (ej bil - brutto), fordonskatt | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| (ej bil) | ± 0,0 | ± 0,0 | ± 0,0 | ± 0,0 | ± 0,0 | ± 0,0 |
| Lokalresor, transporttjänster | 1,4 | 2,1 | 1,1 | 1,4 | 2,0 | 1,6 |
| | ± 0,6 | ± 0,5 | ± 0,2 | ± 0,4 | ± 0,7 | ± 0,5 |

SCB. Household expenses, Hushållens utgifter (HUT) 2009.
http://scb.se/sv_/Hitta-statistik/Statistik-efter-amne/Hushallens-ekonomi/Hushallen-utgifter/Hushallens-utgifter-HUT/Tidigare-pongar/368435/2009/368438/

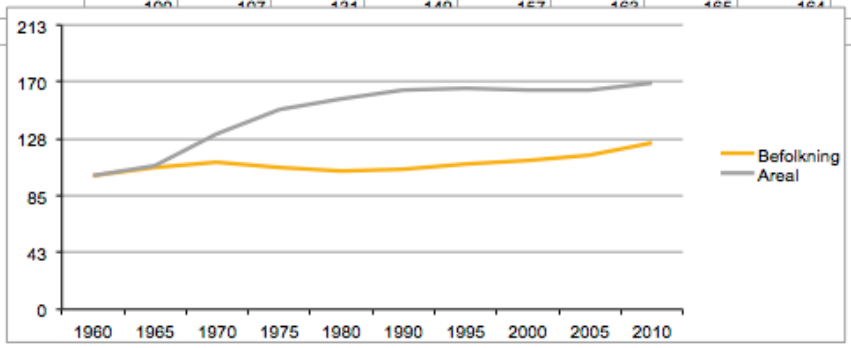
**Appendix 9: Ratio of land consumption rate to population growth rate at comparable scale. Map of built up area**


geodata.se

**Appendix 10: Ratio of land consumption rate to population growth rate at comparable scale. Table.**

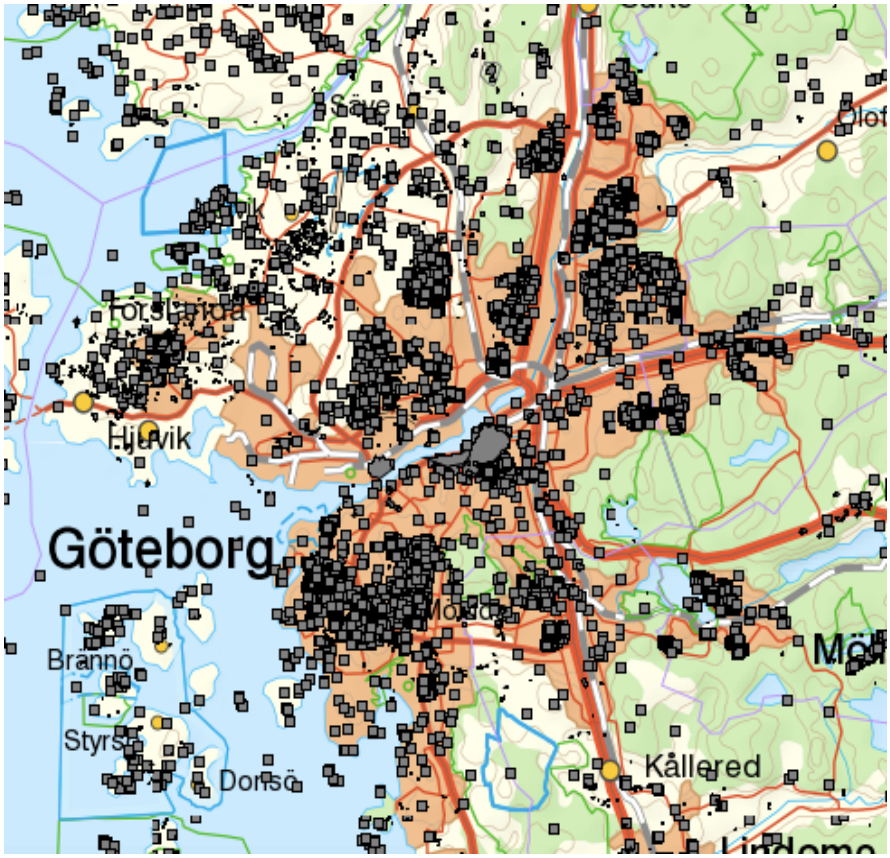
A1 fx Relationen mellan arealtillväxt och befolkningstillväxt 1960–2010 i Göteborg

| | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **Relationen mellan arealtillväxt och befolkningstillväxt 1960-2010 i Göteborgs tätort** | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| 3 | **År** | **1960** | **1965** | **1970** | **1975** | **1980** | **1990** | **1995** | **2000** | **2005** | **2010** |
| 4 | Befolkning (antal) | 443 843 | 471 619 | 485 785 | 470 529 | 456 684 | 465 474 | 480 839 | 495 822 | 510 491 | 549 839 |
| 5 | Areal (ha) | 12 028 | 12 928 | 15 701 | 17 941 | 18 878 | 19 662 | 19 845 | 19 744 | 19 684 | 20 367 |
| 6 | | | | | | | | | | | |
| 7 | Indexerad utveckling 1960 basår | | | | | | | | | | |
| 8 | Befolkning | 100 | 106 | 109 | 106 | 103 | 105 | 108 | 112 | 115 | 124 |
| 9 | Areal | | | | | | | | | 164 | 169 |




SCB. Land use statistics. Markanvändsningsstatistik.

**Appendix 11: Cultural sites protected according to the Cultural environment act (1988:950) and governmental regulation (1988:1229)**




Geodata.se

**Appendix 12: Extract (translated) from Naturolycksdatabasen, for the storm Gudrun.**

http://ndb.msb.se/ViewCase.aspx?id=21&l=SV&xMax=779848.5757999998&xMin=258450.4950000001&yMax=6525010.9945&yMin=6111275.669500001

**Damages/effects on society**

- Human lives: 18
- Health: 141
- Evacuated: NA
- Isolerated: NA
- Evironmental damage: Yes
- Buildings: Yes
- Business: Yes
- Costs: 20800 MSEK

## Appendix 13 Waste collected and recycled

**Tabell 8 Farligt avfall och el-avfall**

| Kommun/ förbund | Mängd insamlat avfall, kg/person | | | | Resultat plockanalys | |
|---|---|---|---|---|---|---|
| | Farligt avfall från hushåll | Elavfall totalt | Bärbara batterier | Bilbatterier | Andel farligt avfall i brännbart kärl- och säckavfall (%) | Andel elavfall i brännbart kärl- och säckavfall (%) |
| **VÄSTRA GÖTALANDS LÄN** | | | | | | |
| Ale | 12,91 | 12,5 | 0,24 | 1,26 | - | - |
| Alingsås | 11,51 | 10,7 | 0,16 | 0,24 | 0,14 | 0,76 |
| AÖS Avfallshantering Östra Skaraborg | 9,39 | 18,1 | 0,34 | 0,94 | - | - |
| Bengtsfors | 7,56 | 13,4 | 0,51 | 0,79 | - | - |
| Bollebygd | 16,67 | 15,3 | 0,26 | 1,04 | - | - |
| Borås | 9,02 | 12,0 | 0,14 | 0,65 | 0,53 | 0,33 |
| Dals-Ed | - | - | - | - | - | - |
| Essunga | 7,27 | 13,9 | 0,27 | 0,97 | - | - |
| Färgelanda | 4,55 | 13,3 | 0,19 | 0,88 | - | - |
| Grästorp | - | - | - | - | - | - |
| Gullspång | 13,37 | 20,0 | 0,27 | 1,33 | - | - |
| Göteborg | 5,64 | 9,8 | 0,21 | 0,23 | 0,3 | 0,5 |
| Götene | - | - | - | - | - | - |
| Herrljunga | 9,79 | 15,7 | 0,18 | 0,73 | - | - |
| Härryda | 17,55 | 12,6 | 0,08 | 0,92 | - | - |
| Kungälv | 30 | 15,8 | 0,25 | - | 0,14 | 0,18 |

**Tabell 4 - Återvinning**

| Kommun/ förbund | Andel av hushållsavfall till materialåtervinning inkl biologisk behandling (%) | Matavfall till biologisk behandling (kg/pers) | | | Hushållsavfall till behandling (kg/pers) | | |
|---|---|---|---|---|---|---|---|
| | | Central kompostering | Central rötning | Hemkompost/ kvarn till avlopp | Materialåtervinning, exkl biologisk behandling | Kärl- och säckavfall till förbränning | Deponering |
| **VÄSTRA GÖTALANDS LÄN** | | | | | | | |
| Ale | 30 | 0 | 10 | 13 | 109 | 219 | 13 |
| Alingsås | 50 | 0 | 53 | 8,9 | 128 | 144 | 10 |
| AÖS Avfallshantering Östra Skaraborg | 35 | - | 17 | 0,5 | 133 | 191 | 1,0 |
| Bengtsfors | 35 | - | 0 | 7,9 | 134 | 192 | 19 |
| Bollebygd | 39 | 0 | 59 | 1,2 | 134 | 113 | 0,8 |
| Borås | 35 | 0 | 42 | 0,9 | 110 | 143 | 1,0 |
| Dals-Ed | - | - | - | - | - | - | - |
| Essunga | 25 | 0 | 0 | 0,2 | 106 | 273 | 38 |
| Färgelanda | - | - | 41 | 0 | - | 124 | 2,9 |
| Grästorp | - | - | - | - | - | - | - |
| Gullspång | 21 | - | 0 | 10 | 123 | 248 | 15 |
| Göteborg | 33 | 0 | 33 | 4,0 | 84 | 200 | 14 |
| Götene | - | - | - | - | - | - | - |

Avfall Sverige: Hushållsavfall i siffror, statistikrapport 2013.

## Appendix 14: Mölndal targets for waste management

**KF-mål samt indikatorer med värden**

Beslutade av KF 2014-11-19

**1. De som besöker stadskärnan ska i ökad grad uppleva den som sammanhållen, karaktäristisk och modern.**

**9. Mölndals miljö- och klimatarbete ska stärkas för att tillförsäkra Mölndalsborna en hälsosam och god miljö.**

| *Indikator* | *2014* | *2015* | *Möjligt 2016* | *Möjligt 2017* |
|---|---|---|---|---|
| Totala utsläpp av växthusgaser i Mölndal i ton $CO^2$-ekvivalenter/invånare och år. | 2011: 3,52 | 2013: 3,4 | 2014: 3,3 | 2015: 3,2 |
| Andel av invånare i Mölndal som har tillgång till minst ett grönområde inom 300 m. | | | | |
| Andel hushållsavfall som återvinns genom materialåtervinning inklusive biologisk behandling) | Uppgift ännu ej framtagen. | 42% | 45% | 50% |

## Appendix 15 Level of ambient particulate matter (PM 10 and PM 2.5)

***Tabell A*** *Beräknade PM10-halter (µg/m³) för de olika gatu-/vägavsnitten, ogynnsammaste sida av gatan/vägen. Röd färg betyder överskriden miljökvalitetsnorm (MKN), orange klarad MKN men överskriden övre utvärderingströskel, gult klarad övre men överskriden nedre utvärderingströskel, grönt klarad nedre utvärderingströskel.*

| Kommun | Gatunamn/ Beteckning | Avsnitt i beräkningarna | Årsmedel-värde | 90-percentil av dygnsmedel-värden |
|---|---|---|---|---|
| Ale | E45 Bohus | Göteborgsvägen-Jordfallsbron | 17,4 | 30,0 |
| Alingsås | Västra Ringgatan | Viktoriagatan-Södra Strömg. | 19,3 | 34,0 |
| Göteborg | Guldhedsgatan | Ehrenströmsgatan-Per Dubbsg. | 26,3 | 49,7 |
| Härryda | RV40, Landvetter<br>Härrydavägen, Landvetter | Landvettermotet-Björrödsmotet<br>Dito. Bägge sammanräknade → | 19,1 | 33,6 |
| Kungälv | E6 | Skarpenord-Kungälvsmotet | 21,7 | 42,5 |
| Kungsbacka | Varbergsvägen | Söderåleden-Hantverksgatan | 18,5 | 31,4 |
| Lerum | Göteborgsvägen | Kornettgången-Häradsvägen | 15,8 | 27,4 |
| Lilla Edet | E45 Lilla Edet | Mittför Götaslättsv-Högtorpsv | 10,2 | 15,1 |
| Mölndal | Gamla Kungsbackav. | Söder om Mölndals Bro | 22,6 | 42,5 |
| Partille | Göteborgsvägen | Postgången- Finngösavägen | 24,5 | 47,1 |
| Stenungsund | Göteborgsvägen | Mellan korsningar Strandvägen | 13,2 | 20,2 |
| Tjörn | Väg 169 Sjötången | Vid Myggenäs/Bastekullen | 10,6 | 16,1 |
| Öckerö | Öckerövägen, Hönö | Lökholmsvägen-Gårdavägen | 10,8 | 15,1 |

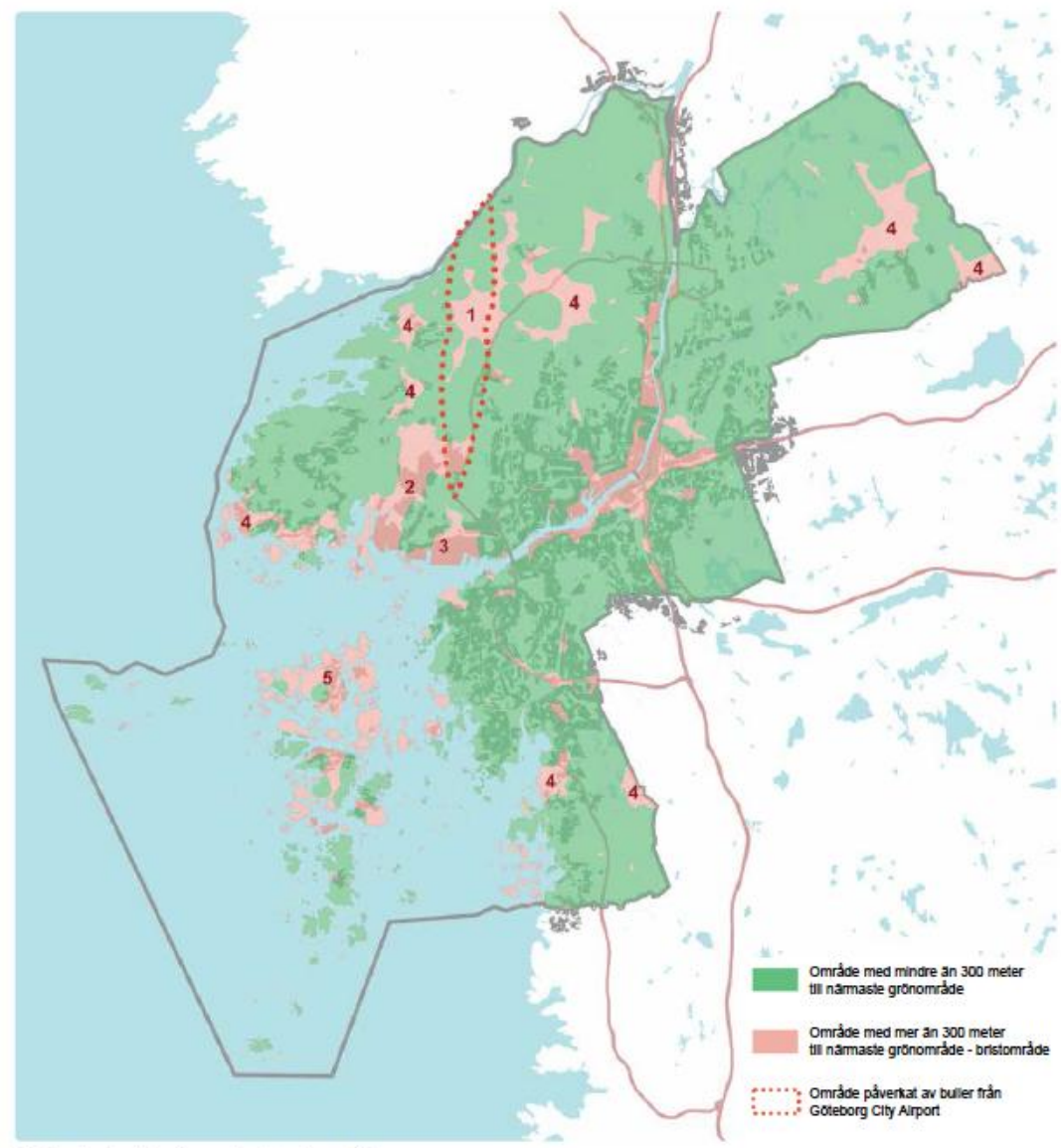
*Tabell 3 Beräknade PM10-halter (µg/m³) för de olika gatu-/vägavsnitten, ogynnsammaste sida av gatan/vägen. Röd färg betyder överskriden miljökvalitetsnorm (MKN), orange klarad MKN men överskriden övre utvärderingströskel, gult klarad övre men överskriden nedre utvärderingströskel, grönt klarad nedre utvärderingströskel. Understrykning betyder halt över miljökvalitetsmål.*

| Kommun | Gatunamn/ Beteckning | Avsnitt i beräkningarna | Årsmedel-värde | 90-percentil av dygnsmedelvärden |
|---|---|---|---|---|
| Ale | E45 Nol | Gallåsvägen-Folketshusvägen | 14,8 | 24,3 |
| | E45 Älvängen (1) | Norr om Sarrkärrsvägen | 11,5 | 17,1 |
| | E45 Älvängen (2) | Söder om Sarrkärrsvägen | 12,2 | 18,8 |
| | E45 Bohus | Göteborgsvägen-Jordfallsbron | 17,4 | 30,0 |
| Alingsås | E20 | Sveaplan-Smedjegatan | 16,8 | 27,0 |
| | Norra Strömgatan | Färgaregatan-Lendahlsgatan | 12,8 | 19,0 |
| | Västra Ringgatan | Viktoriagatan-Södra Strömg. | 19,3 | 34,0 |
| | Lendahlsgatan | Norra Ringgatan-Norra Strömv. | 13,3 | 20,8 |
| Göteborg | Guldhedsgatan | Ehrenströmsgatan-Per Dubbsg. | 26,3 | 49,7 |
| | Berzeliigatan | Stadsbiblioteket-Konserthuset | 25,1 | 47,5 |
| | Parkgatan | Kungsportsavenyn-Raul W. g. | 24,5 | 44,5 |
| | Engelbrektsgatan | Teatergatan-Götabergsgatan | 22,8 | 40,1 |
| | Linnégatan | Andra Långgatan-Plantagegatan | 23,1 | 40,9 |
| | Kungsladugårdsgatan | Godhemsgatan-Mariagatan | 17,8 | 27,9 |
| | Hjalmar Brantings gata | Gustaf Dalénsg.-Wieselgrensg. | 21,1 | 35,9 |
| | Myntgatan | Brämaregatan-Tunnbindareg. | 19,7 | 31,9 |
| | Redbergsvägen | N. Gubberog.-Kobbarnas väg | 22,6 | 37,5 |
| Härryda | Allén i Mölnlycke | Kyrkovägen-Biblioteksgatan | 16,6 | 26,9 |
| | RV40 Landvetter | Landvettermotet-Björnrödsmotet | 19,1 | 33,6 |

Göteborgs stad, Miljö: Miljörapport 2013.

http://goteborg.se/wps/portal/invanare/miljo/miljolaget-i-goteborg/luft/luften-just-nu/!ut/p/z1/hY7RCoIwGEafpRfYv6lsejkLQxepEKi7ERVbA6cxpUFPnz1A9N0dzrn4QEINcu5eWnWbXuZu2rmRtC1IVoYx4Tg_RwlOb6JIruKSH2MC1b9A7hr_GMeQgdS9QW4wCCOfeZQFhAU-RYyH1GFQxNGYSp6H8PuFz74cKpB3vox0teizrBrVzDimLtgWepn6nKz98AInr-3E!/dz/d5/L2dBISEvZ0FBIS9nQSEh/

**Appendix 16 Proportion of residents within 300 of accessible green and public space**




**Bristanalys bostadsnära park- och naturområden**
*Kartan redovisar brist (rosa) samt tillgång (grön) på bostadsnära park eller naturområde. Som urval för att få fram bristanalysen har större vägar, stora nivåskillnader och vattendrag räknats som barriärer.*

Göteborgs stad: Grönstrategi för en tät och grön stad. Antagen av Park- och naturnämnden 2014-02-10.