

Summary:

Analyses of three scenarios for spatial development in Haugesund

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As a commissioned work for Municipality of Haugesund, Institute of Transport Economics (TOI) analysed impacts on eight criteria of three scenarios for spatial development in Haugesund. The criteria are largely related to objectives concerning to develop Haugesund into the viable, sustainable and vibrant city that attracts residents and businesses to the city and the region. In scenario City Centre, one third of the new housing, as well as the bulk of new development for trade and businesses, are located in or close to the city centre. In scenarios Zero and All Options Open, new development are mainly located at the outer edges of the city. The analysis concludes that scenario City Centre contributes most to achieving the defined objectives. This scenario scores best on all criteria the scenarios are assessed against.

Municipality of Haugesund is revising its overall municipal plan. As part of this work, they wanted an analysis of effects and consequences on specific criteria of three different scenarios for spatial development. The purpose was to improve their basis for planning of and deciding on strategies for overall spatial development in the municipality, which contribute in achieving key objectives. The client had outlined three scenarios for spatial development, and eight criteria to which the scenarios should be analysed. The scenarios and criteria were further developed and defined in collaboration between the client and TOI.

In *scenario Zero*, land use development is in line with the perceived ongoing trends. New residential buildings are mainly constructed at the outskirts of today's settlements, mainly in the north. The bulk of new development of area-intensive workplaces (many workplaces per square meter building), trade and service takes place at the southern outskirts of the municipality. Housing for 800 residents, as well as 30 % of new area-intensive workplaces, are developed in the city centre. There is no growth in trade and services in the city centre.

In *scenario City Centre*, it is assumed that the City council takes lead in steering the spatial development in directions contributing to Haugesund becoming the dense, urban *City* in the region. Much of the development takes place in and around the city centre. Most of the housing is still built at the outskirts of the city, but developments located furthest from the city centre are not included. Housing for 3 000 residents are developed in and close to the city centre. 60 % of new area-intensive workplaces and 60 % of new trade and service are to be developed in and close to the city centre. Lower proportions of such development takes place at the southern outskirts.

Scenario All Options Open follows the market economy, and the steering ambitions of the municipality are low. Investors and developers are allowed to take lead. All residential areas included in Scenario Zero are included in this scenario, in addition to housing for 1 500 residents in the northernmost part of the municipality. Housing for 500 new residents are located in and close to the city centre, as is 20 % of new area-intensive workplaces. An even higher share of new area-intensive workplaces than in scenario Zero are located at the southern outskirts. All new development of trade and services take place in the southernmost part of the municipality.

The criteria the scenarios were analysed against were defined based on main objectives in the municipal planning program. The criteria are:

- Limiting land consumption
- Reducing transport demand and car-usage
- Limiting costs for public infrastructure and operations
- Increasing proximity to daily activities for inhabitants
- Increasing the attractiveness and vibrancy of the city centre
- Improving the city's attractiveness for inhabitants and businesses
- Strengthening the city's role as the main city in the region

Methodology and results

Stringent qualitative planning analyses, based on state-of-the-art expert knowledge concerning relevant topics, is the main method applied. This includes to discussing and explaining, on basis of described and documented knowledge, how and why different spatial development (defined in the scenarios) have different effects and consequences with respect to the defined criteria. We also discussed important conditions for the scenarios to lead to goal achievement, as well as complementary measures which might strengthen the goal achievement potential of the recommended scenario.

The results of the analysis are summarized in Table S1. As the table shows, scenario City Centre scores best on all criteria. Scenario Zero scores second best, while scenario All Options Open has lowest scores.

Table S1: Ranking of scenarios for the various criteria, summary.

| Criteria | Scenario Zero | Scenario City Centre | Scenario All options open |
|---|---------------|----------------------|---------------------------|
| Limit land consumption | 2 | 1 | 3 |
| Reduce demand for transport and car usage | 2 | 1 | 3 |
| Limit costs for public infrastructure and services | 2 | 1 | 3 |
| Increase proximity to daily activities | 2 | 1 | 3 |
| Increase vibrancy and attractiveness of city centre | 2 | 1 | 3 |
| Increase attractiveness for inhabitants | 2 | 1 | 3 |
| Increase attractiveness for businesses | 2 | 1 | 3 |
| Strengthen Haugesund as main city in the region | 2 | 1 | 3 |
| Total ranking | 2 | 1 | 3 |

Scenario City Centre

Scenario City Centre includes the highest degree of densification and transformation in and close to the city centre, with a relatively high density. Most new homes are built at the outskirts of the city, but the outermost fields are not developed in this scenario. This means that the scenario results in the lowest area consumption. Further, since the scenario causes less sprawl than the other scenarios, and because most new workplaces, trade and service are developed in and close to the city centre, this scenario also causes the lowest transport demand and car-usage, the highest degree of proximity to daily activities for the inhabitants, and the lowest public costs for infrastructure and services. Because this scenario steers more development than the other scenarios to central areas, it contributes the most to make the city centre

more vibrant and attractive. This, together with the qualities mentioned above, and that the scenario will contribute most to increase variety in housing types and residential areas, cause this scenario to be ranked highest with respect attractiveness for inhabitants. This scenario utilizes to the greatest extent Haugesund's comparative advantage in competition with neighbouring municipalities for establishment of new companies and expansion of existing ones. The scenario ensures that such development can take place in central areas, where they find urbanity benefits, co-location with large and important businesses, and many potential employees living in walking and bicycling distance. All together, these factors contribute to scenario City Centre being ranked as contributing most to strengthening Haugesund as the main city in the region. Scenario City Centre is ranked highest with respect to all criteria, and hence in total.

This scenario is also the most complex to develop, mainly because it requires transformation and densification in and close to the city centre. This is demanding with respect to technique, processes, planning and politics, and it involves goal conflicts. Such development requires knowledgeable and intelligent planning, and strong political steering, if to be successful.

Scenario Zero

In *Scenario Zero*, most of the residential development takes place at the outskirts of the city, mainly in the north. Development of trade and workplaces takes place mainly at the southern outskirts, and with relatively low density (partly because of surface parking in these areas). This causes more land consumption compared to scenario City Centre. Since travel distances between destinations are longer, transport demand and car-usage are higher. This scenario requires larger investment and operating costs for technical infrastructure, as large shares of residential development is taking place on new land with no existing infrastructure, as the need for road expansions are higher (since the transport demand and car-usage increase), and as this urban structure is more expensive to operate with public transport. The sprawl reduces the degree of proximity to daily activities for inhabitants. Since almost all new housing, as well as the bulk of new workplaces, trade and service, are steered towards the outskirts of the city, the scenario thus contributing to weaken rather than strengthen the vibrancy and attractiveness of the city centre. Combining these factors, and the fact that the scenario does not increase diversity of options with respect to housing types and residential areas, we find that it negatively affects Haugesund's attractiveness for existing and potential inhabitants. Since the scenario offers few opportunities for establishing and expanding businesses in and close to the city centre, it does not take advantage of Haugesund's urban and co-location advantages when competing for being the preferred location for workplaces. This is not compensated by the higher possibilities for development in the business parks in the southern outskirts of the city. Given all this, we do not find that the scenario contributes to strengthen Haugesund as a strong city for the region. At the other hand, this scenario is easier to implement than scenario City Centre. It involves less complex planning and less political steering.

Scenario All Options Open

Scenario *All Options Open* is quite similar to scenario Zero, but involves a higher degree of sprawl. In addition to the residential areas in scenario Zero, it also includes new housing areas in northernmost parts of the municipality, outside the existing building zone. The largest residential area is developed with a lower density than in the other scenarios. An even higher proportion of new area-intensive workplaces are

located at the southern outskirts. Hence, the city is stretched to its maximum. This causes the greatest land consumption, the greatest transport demands, the highest level of car-usage, and the highest public expenses. It reduces average proximity to daily activities for inhabitants, and it reduces the vibrancy and attractiveness of the city centre. It does not increase diversity in housing and residential areas, but offer more of what the city and the region already have a lot of. As in scenario Zero, the spatial development hence does not increase Haugesund's attractiveness for residents, and it does not utilize Haugesund's comparative advantages when it comes to business location. We do not find that this scenario contributes to strengthening Haugesund as the main city for its region.

This is the only scenario that includes development of new housing in the northernmost parts of the municipality, outside the existing building zone. This may allow for establishing a grocery store in this area, but otherwise contributes negatively to all criteria analysed. If this strategy is continued, and Haugesund eventually develops even more housing in the northern areas and possibly also in the area between the current settlement zones and the northernmost parts, Haugesund will no longer be a city with bicycling distances on most journeys. The scenario is the least demanding with respect to planning and political steering.

Conclusions and recommendations

The City Council has decided that strengthening Haugesund's role as the main city in the region should be a prerequisite for municipal planning, and that all planning should lead towards sustainable urban development. In the analysis, these objective were concretised to eight criteria, which the scenarios were analysed against. Scenario City Centre scores best on all criteria. Our analysis concludes that scenario City Centre contributes the most to Haugesund reaching its main objectives.

Discussions in the this planning process regards what kind of city Haugesund is to become. Scenario Zero and All Options Open will result in a city consisting of low density housing areas, business parks detached from the urban structure, and a city centre functioning mainly as a local centre. Transport demand and car-usage will be high. Haugesund will become more similar to its neighbours. Scenario City Centre. On the other hand, contributes to Haugesund developing into a more viable, vibrant and sustainable city.

To improve the goal achievement potential, housing densification should be increased even further than in scenario City Centre, i.e. as apartments in and around local centres. Positive as well as restrictive transport measures contributing to reduce car-usage should be implemented. There is a strong need to conduct a thorough planning process concerning city centre development, in order to facilitate for desirable development that increases the city's attractiveness. A prerequisite for goal achievement is that Haugesund develops a strong municipal plan, steering development in desired directions. The goal achievement potential increases if neighbour municipalities and the county support Haugesund in developing the urban and vibrant city the region wants and needs. Still, Haugesund must expect to take the leading role in this process.