

Case 1 - Master Planning for School Building Stock, an Antwerp Experience

Location	Antwerp, Flanders (Belgium)
Started	2009
Responsible departments	Cabinet for education, work & economy
School-building portfolio	250 Schools, 50000 Pupils
Total gross floor area	243571 m ² treated new build & renovation
Investment	432.3 Mio Euro between 2011 & 2025

With its Strategic Master Plan (SMP), Stedelijk Onderwijs Antwerpen wants to improve its learning environments for over 50.000 pupils and 6.000 staff in more than 250 school buildings, because it believes that well designed learning environments will inspire better learning outcomes.

The SMP also has to support the city of Antwerp's vision on sustainability. Sustainable education in sustainable premises will help the city to meet and even exceed the EU 2020 educational and ecological targets. High quality learning environments, choice of state of the art technical solutions, preservation of heritage values and a cohesive, inclusive vision on campuses were all crucial ingredients considered to achieve this vision.

Creating a Strategic Master Plan for a large school building stock with many different stakeholders is no

sinecure. Once the strategic planning has started, there is no way back. Reaching each milestone means decisions that can only be changed or reversed at great cost. And along the winding path to the SMP, there are many stakeholders with ample reasons and desires to change parts of the SMP in favour of their own plans and aspirations. Lots of checks and balances have to be met, not only didactical and pedagogical, but also demographical, ecological, financial and not in the least political ones. There is a lot of diplomacy needed to find ways out of such bottlenecks. But if some key issues have been cleared beforehand, such as sponsorship, procedures, hierarchy in decision making, pre-agreed milestones, timing and clear targets to reach; creating a SMP will not only give the organisation a firm basis for future investments, it will also force all stakeholders to think strategically about their business: creating a better learning environment for pupils and teachers alike.

Between 2010 and 2026

The City of Antwerp will need schools for at least 30.000 extra pupils in compulsory education!

Why a strategic master plan?

The 2010 - 2025 Strategic Master Plan (SMP) for Stedelijk Onderwijs Antwerpen (SO) building stock capitalizes on the autonomous municipal education companies' existing assets and provides a development framework addressing the education networks' vision, needs and aspirations.

Phase 1: Establishing political sponsorship, overall goals and procedures

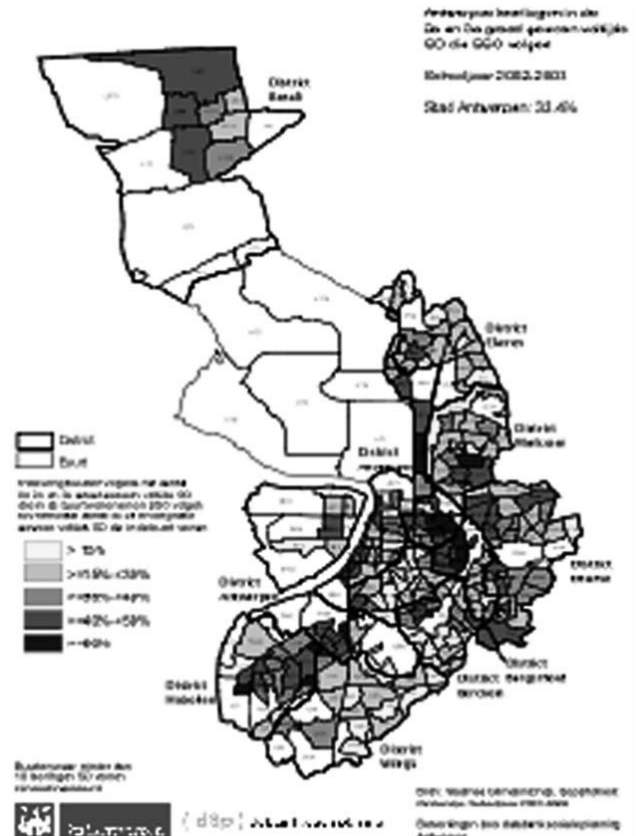
The cabinet of the vice-mayor for education, work and economy created a first separate document "towards a master plan for municipal education". It was discussed within the management board and later approved by the board of trustees, the city college and the city council. The document defined the overall strategies and procedures and the political sponsorship of the city council and especially the vice-mayor for education.

► Milepole 1: decision on a political sponsorship, overall goals and procedures

Phase 2: Defining a blueprint for sustainable school buildings

A separate document defined a "blueprint for sustainable school buildings". It was prepared by AG Vespa, the city autonomous company for investment in real estate and city projects, in co-operation with principals, teachers, maintenance people, city architects and planners, the city building master, the city environmental agency, ...

► Milepole 2: acceptance by the city college of blueprint for sustainable school buildings



Example of city map showing % of pupils in secondary vocational education in each district [Stad Antwerpen]

Phase 3: Creation of the actual master plan v.1

3.1 collection of data and knowledge on the building stock

A Master plan team was established to make correct listings of the building stock based on cadastral numbers (names of schools tend to change over the years, cadastral numbers do not) with for each building a determination of its typology, the number of m² of the different surfaces (classrooms, circulation, sports facilities etc.). Assessment of existing energy consumption and detailed quality assessment of the buildings was outsourced, using the NEN 2658 building assessment tool (Programmes of requirements for buildings and associated project procedure, Dutch Standards Institution, 1993) developed by Technical University Delft (NL).

► Milepole 3: All possible data on building stock collected and (double) checked

Data on the demographic changes and need for building capacity | Since 2005 the city statistical service has been conducting a comprehensive survey on demographic changes in the city neighbourhoods using predictive software to assess future needs. Every year the central pupils' registration confirmed these needs but also calculates on a yearly basis the existing capacity in all education networks in Antwerp.

► Milepole 4: Demographic data collected & capacity discussed with all school networks

Data and vision on new didactical /pedagogical needs | Decisions were reached about ICT, inclusion, reorganising grades, vocational education, "open schools". Stedelijk Onderwijs chose to create campuses instead of independent dispersed schools, based on the choice for mobility and social inclusion.

Mobility according to the "S.T.O.P principle" which first promotes walking, then biking and public transport and discourages the use of private cars for inner city mobility. Because of their limited mobility it was decided to create children and youth campuses in each neighbourhood: nursery, kindergarten, primary and first two grades of secondary education. By extending the stay on the same campus, the selection of a type of secondary education can be moved from the age of 12 to 14. This will enable teachers, parents and pupils to make more well-advised choices for further education, preventing truancy, drop-out and unqualified school leaving.

For pupils with higher mobility, existing secondary and adult schools would be reorganized on thematic campuses (general, technical, vocational) and art campuses in each district. Preferably on the cross roads of circular and radial public transport lines (train, metro, trams, buses) to create a better mix of pupils from the inner city (mostly lower socio-economic level) and pupils from (wealthier) suburbia.

► Milepole 5: Clear decisions reached on didactical & pedagogical choices for the future

On new building techniques to reach Passive House (PH) or nZEB standards | As of 2009 the city of Antwerp decided to build only PH schools. Passive House Platform was asked to give support to create newly built PH schools. But as "newly built" alone cannot make reaching the EU targets possible, renovation to PH or nZEB standards of a large part of the building stock is necessary. Only industrialized modular retrofit will make it possible to achieve this fast enough. And as a partner in the SchoolVentCool project, SO hopes to improve simultaneously the indoor air quality with better ventilation and cooling.

3.2: *pendulum negotiations*

One “editor” was commissioned to co-ordinate the SMP process, sponsored by the vice-mayor and the board. A hierarchy of targets was decided.

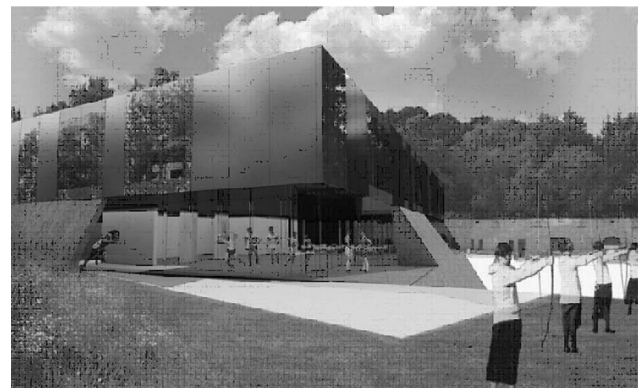
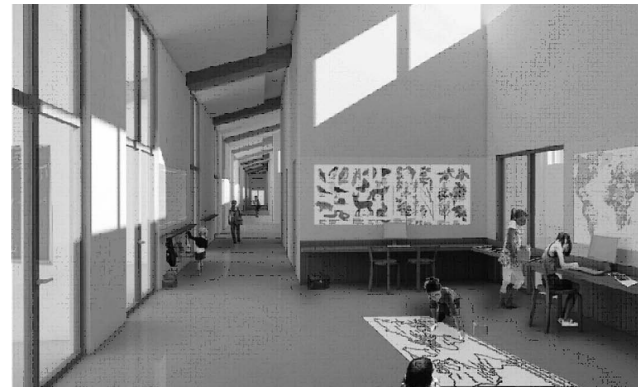
- ▶ Milepole 6: Commission co-ordinating editor / project manager & hierarchy of targets

All existing master plans per division were collected and individual meetings of the editor with all division managers gave a clear picture about their aspirations and their targets. This led to mini-master plans and to series of “dominoes” for several sites. A domino project involves consecutive decisions wherein several buildings and schools are concerned finally resulting in the new campuses.

- ▶ Milepole 7: First overall draft of the strategic master plan

3.3: *Final negotiations*

Each division manager presented his part of the SMP in plenary meetings to all other managers, the vice mayor, the general manager and the editor. “Give and take” negotiations create a balance between investment in capacity, rational energy use and pedagogical needs. The editor wrote a second version of a draft master plan, listing all decisions and short-listing all still undecided issues. Final debates presided by the vice-mayor and general manager led to final decisions on all issues.



Examples of new built Passive House Schools in the City of Antwerp [Planners, Compagnie-O architecten]

Phase 4: writing & deciding the SMP in its first definite version

The editor used all this basic input to finalize the first version of the SMP. Approximately 200 formulas and 18.000 automated calculations were needed to create interrelated spreadsheet files, adaptable for future versions. The costs/ m2 were calculated for each type of investment and related to the according m2 per building. A priority list of over 300 different actions and dominoes for execution in 168 lines and 99 columns between 2011 and 2025 shows an investment of over 442 Mio Euros. The matrix includes the planned start, duration and completion of all individual construction sites and actions to rationalize energy use, the timing in communication, budgets and co-financing available and needed per action and per year. It also includes the overall budgets assigned and needed, cash flow expectancy, needs for external co-financing and possible financial constructions.

► Milepole 8: Masterplan v.1 agreed by the management board, board of trustees and the city college

The whole procedure took well over a year...

*... and then the job to put all this in to realization
only just begins !*