BIM - important in the construction of E4 Stockholm Bypass

It is a giant infrastructure project to lead the traffic past the city center of Stockholm.

By using BIM, the data flow gets better and the error gets fewer, says Karin Anderson who is BIM specialist in the project. We get a better coordination and communication between the technical areas and the contractors. BIM leads to lower costs.

The traffic situation in the Stockholm region is severely strained. That´s why the E4 Stockholm Bypass is built to lead the traffic west of the capital and reduce the strain in the city center.

The idea is to facilitate the flow both for private and public traffic.

This giant investment is described as “one of the biggest infrastructure projects in Stockholm of all time” and is now highly ongoing. The initial study was made back in 2001 and opening is planned to 2026.

The information is the thing that keeps this huge project together.

* Our goal is to replace drawings with models, tells Karin Anderson who is BIM specialist in the Stockholm Bypass project.

Invests in BIM education

To reach this goal, it is important to show the use of the model instead of the traditional method of paper drawings. This means that attitudes must change and new knowledge will be applied.

A new way of working together with BIM is being implemented in the project.

* We have therefore put together education material to fill knowledge gaps and other obstacle to get a more effective process. We have developed the material for both Autodesk Naviswork and Bentley Navigator.

It is especially the construction managers in the subprojects that are educated.

* They must be able to find the information they need in the model to perform their duties in field and also be able to navigate them.

It´s about making the model more available and bring data to the construction area. The model is an important information carrier and is supposed to be a living tool for the construction managers that follow the work in the field from their tablet.

* We are evaluating which viewer that works best in different conditions out at the workplaces.

There are also five model coordinators that collects data from the contractor, which is later colour coded to show status. The point is to visualize the work process and create an understanding of what the contractors will do.

Free flow of data with exchange format

The subprojects are taking benefit from a free exchange of knowledge where the contractors modify their data to avoid problems, for instance so that electric cables are nor drawn over wells for daily water. The model is not only a 3D-visualization, but also an important contact between competences and technical areas to be able to control the subprojects in a smooth way.

The Swedish Transport Administration, Trafikverket, is currently not working with ifc and the information exchange is today made with dwg, dgn and xml. Karin looks forward to an exchange format that will work with infrastructure projects like E4 Stockholm Bypass.

She tells us that a format like that is under construction.

Another challenge is that all contractors should participate in working with BIM and to share information. The IT- maturity among the contractors varies though, and everyone does not share the same instinct. The reason may be that the concept and methodology is new to operators in the construction branch.

All data is collected in a coordination model coordinates and monitors the amount of data. Trafikverkets coordination model has two levels. The coding is an important area. One have

started from BSAB 96 and supplemented with own codes. The reason is that it has been missing codes on a detailed level which is needed. The coding is important to be able to filtrate the data in the different subprojects such as machine guidance and to automate processes.

Structured data is an important piece in the puzzle.

BIM contributes to lower costs

By using BIM in the Stockholm Bypass project, the gains are many, says Karin.

* We get a better coordination and communication between the technical areas and the contractors, the data flow gets better and the error gets fewer, she explains. The subprojects quality gets higher and it gets easier to focus on the right task in the big information material. Overall, BIM contributes to lower costs.

That has a positive impact on the everyday working life.

* With a well-functioning flow of information which has correct coding, we get safer models. When the construction manager arrives at the construction area he or she knows that the information that is in the tablet is the latest version.

The project gets fewer congestions and timeframes are kept in the giant project.