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# 5 WAYS 3D LASER SCANNING CAN SAVE MONEY IN THE TELECOM INDUSTRY

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## INTRODUCTION

Through innovation and the continuing quest to meet the demands of the Telecom Industry, 3D Laser Scanning is now a possibility and is becoming more available to a wider audience. And as 3D data capture becomes more utilized throughout the industry, workflows are becoming more established, which is leading to an increased understanding of where 3D Laser Scanning can provide value, generally through increased efficiency, lower costs, and higher accuracy.

The benefits of 3D data capture are clearly becoming more evident. 3D laser scanning surveys are increasingly being used to examine how equipment and structures can come together, can be deployed and built, and be placed into service more efficiently. 3D laser scanning is increasingly valuable in the construction and deployment phase, Equipment overlay or modernization, design process and Network Site, and facilities management process.

Laser scanning can help ensure that the network sites meets the intent of what was originally designed, reducing overall project cost by reducing waste, increasing labor efficiency and limiting rework.

In this document, learn about five practical applications of the technology and see how they can help your projects. Learn how to:

1. Reduce surveying time in the pre-design phase
2. Improve design efficiency by reducing site visits using 3D visualization
3. Increase the accuracy of contractor pricing in the bidding stage
4. Reduce change orders and increasing off-site fabrication
5. Deliver more accurate as-built documentation

## REDUCING SURVEY TIME IN THE DESIGN PHASE

In the initial phase of a new network or technology overlay, network modernization, or expansion, Telecom engineers typically are looking for information to help them during the surveying phase to identify problem areas or design areas that they need to address. In this phase, 3D Laser Scanning can be used for surveying the site and surrounding area to create a frame of reference, As-Builts, and additional important information on how components of the project will fit together.

Figure 1 is an example that demonstrates how a site project might be initially visualized with a 3D Laser Scan.



Figure 1

For this project, line of sight and shadowing studies were completed to get the appropriate approvals to move forward with the site. Also, Antenna dimensions and characteristics were considered for RF design purposes and the shelter was scanned also (Figure 2).

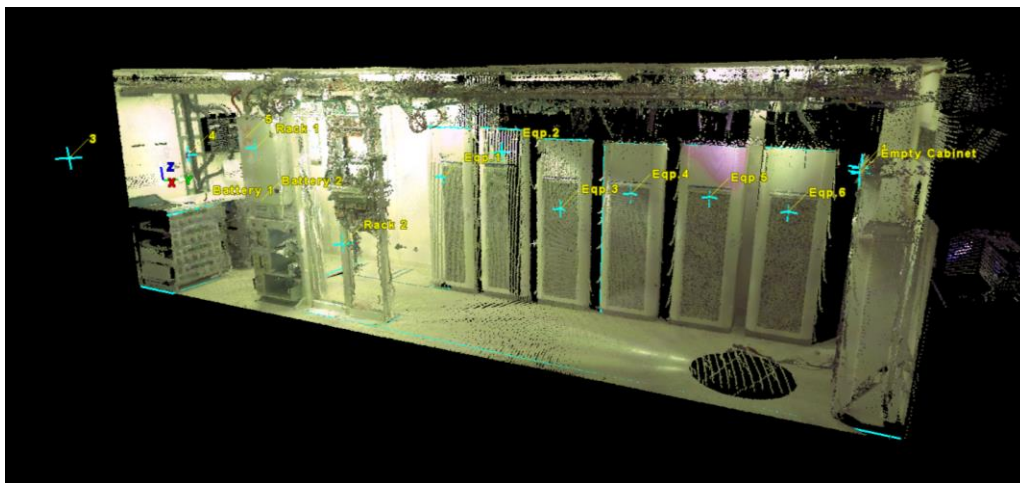


Figure 2



**Figure 3**

It is also relevant to mention that NAAP Laser Scanning produces also at least three (3) 360 degree images per site with zoom-in capabilities. These are extremely useful to provide a good sense of the site in a whole new way and provides a virtual tour of the site without incurring the costs associated with time and resources to go to the site. See Figure 3

3D Laser Scanning is a tool that can be implemented and utilized in a very fast, effective manner. It can be used to capture data and display it as a scaled image with zooming and measuring capabilities. These collection processes ripple down through the rest of the project, creating efficiencies along the way. In essence, the better the initial data and design, the more likely the project will match the design at the lowest cost.



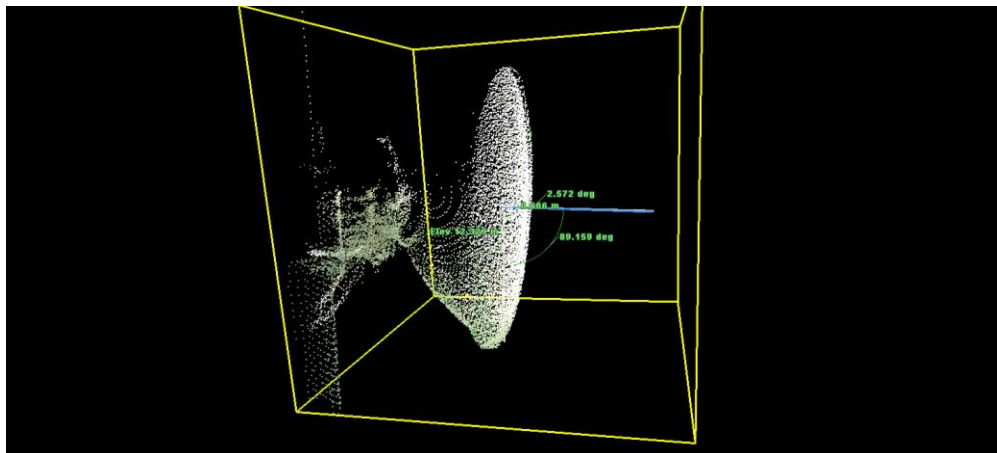
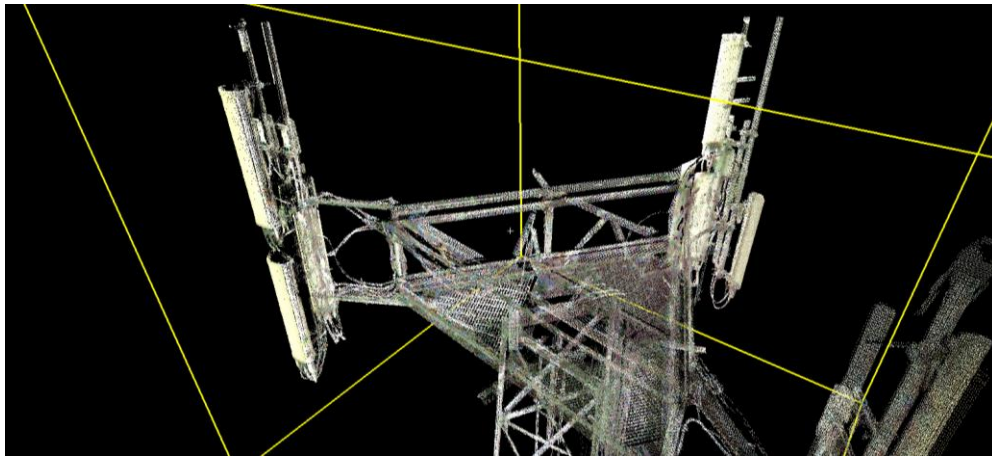
## IMPROVING DESIGN EFFICIENCY BY REDUCING SITE VISITS

As the project progresses further into the design phase, so does the need for additional detail. 3D Laser scanning can help reduce return site visits, saving a significant amount of time and money.

Additional review and measurements can be made by virtually re-visiting the site point cloud and 360 degree images from the computer and together with the right people who need provide input.

Though initially there might be some resistance from engineers and operators when it comes to utilizing 3D data, by and large these tools are becoming more accepted and utilized in the Telecom industry. As the benefits of dense point cloud data become more evident, everyone is now seeing the possibilities these tools can offer. But this is only effective if the data is collected correctly.

Having to rescan or working with bad data can produce costly and frustrating end results, turning an owner off from the practice of 3D data collection all together. At NAAP Global Solutions we have a vast amount of experience with the scanning of thousands of Telecom sites





## INCREASING THE ACCURACY OF CONTRACTOR PRICING IN THE BIDDING STAGE

During the bidding phase, contractors commonly complain that they have a lack of information when it comes to pricing and therefore will add additional cost for additional surveys. However, information from laser scans can provide more accurate documentation, giving the contractors a better idea of what the project will entail and which tools can help them gain access to the site. These tools increase communication and ensure everyone working on the project will feel

Better site drawings and information provide higher levels of accuracy in the bidding phase. For many scopes of work, the only thing required in this phase would be a scaled image of point cloud data. This reduces the amount of work engineers and designers have to do on their end in preparing the bid set, while maintaining the details only captured in the point cloud.

Using 3D data collection tools also means that the property manager/owner does not have to coordinate numerous site visits with people going to and from the project site in order to gather information. Remote access tools can provide positions where data was collected from, giving different members who are working on the project the ability to pan around the site, looking at a photography view from anywhere.

The massive amounts of data generated by these types of projects required the adequate tool to distribute and provide access to this information. NAAP Global Solutions provides a Platform to manage this. This can be an effective way to handle data since it allows all people involved in the project to have access to the data, allowing for more controlled and effective sharing and dissemination. If needed, clients can also be given copies of data to host and utilize internally.

Further, with free point cloud viewers accessible to all different types of people working on a project, sharing capabilities are increased, increasing the potential for collaboration. By integrating these tools into design packages that people are using every day, information can be better utilized and optimized. Having information in one location also makes finding and revising information easier and more effective.



## **REDUCING CHANGE ORDERS AND INCREASING OFF-SITE FABRICATION**

During the actual implementation phase of a project, scanning can have concrete benefits; from reducing changes and errors to the design, to increased accuracy in the designs, laser scanning can provide numerous cost and time-saving capabilities.

Scanning can be particularly useful during work on existing sites where record drawings are often inaccurate.

## **DELIVERING MORE ACCURATE AS-BUILT DOCUMENTATION**

Once a site has been constructed or modified, what is the potential to deliver accurate as-built model documentation of the facility?

Often, 2D information or contract documents from a site can be inaccurate or outdated. To ensure accuracy, scanning of the site can be performed, reducing risk and potential costly outcomes. This also allows for components to be designed offsite and integrated into a virtual model prior to physically creating and installing these elements onsite. This can also clearly save enormous amounts of time and money.

## **CONCLUSION**

From helping reduce survey time in the pre-design phase to delivering more accurate as-built information, there are many benefits to using 3D data capture in the Telecom industry. The increasing affordability of 3D data capture only serves to enhance the popularity and feasibility of utilizing this collection method. It can also save the client a significant amount of money. Laser scanning can be particularly useful during network modernization or overlay work, where record drawings are unlikely to be accurate. It can help to validate the information before it moves into site/facility management stage. There are also numerous 2D deliverables that can be created from 3D data. Laser scanning can reduce the need for onsite visits, improve efficiency and allow for increased collaboration between numerous members of a project. And with the growing number people who work remotely in the Telecom industry, the benefits of laser scanning only become more apparent