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Making cities smarter

- Business applies technology to efforts to better locate and manage infrastructure



ProStar Geocorp has joined with the city in a project to use its technology to more precisely locate and manage infrastructure and make a smart city even smarter.

Making Cities Smarter

June 13, 2017 Article - Phil Castle Business Times

Page Tucker already considers Grand Junction a smart city because of the ways technology and information are used to improve efficiencies and, in turn, the quality of life.

But Tucker believes his company can help make Grand Junction and other cities even smarter in more precisely locating and managing buried utilities and using information for modeling that offers a more proactive approach to dealing with everything from road maintenance to natural disasters. “We can make the city a lot smarter. It’s just a question of what’s the priority and where do we start first.”

Tucker, president and chief executive officer of ProStar Geocorp, has started with a pilot project with the City of Grand Junction. It’s an effort that’s attracted the attention of an organization promoting the use of so-called geospatial intelligence elsewhere and wants to add Grand Junction to a list of cities that also includes London, New York and Singapore.

“My goal is to literally put Grand Junction on the map in terms of technology, and now it looks like we have the opportunity to do it on a global basis,” Tucker says.

The effort also fits into his business plan in diversifying the products and services ProStar Geocorp initially developed for the energy industry to cater to a municipal market.

Jim Finlayson, information technology director for the City of Grand Junction, says the city already ranks as a leader in Colorado in using geographic information systems. But he says he’s excited to about the potential for the project with ProStar Geocorp to develop new and even better uses.

While there are different definitions for the concept, Finlayson considers a smart city one that uses technology to improve efficiency and in turn, the quality of life for its residents. Examples in Grand Junction include the use of cameras connected to traffic signals to improve traffic slow and parking meters that accept credit cards, he says.



Benjamin Skogen, a software developer at ProStar Geocorp in Grand Junction, demonstrates how a map of underground utilities appears on computers as well as mobile devices. ProStar Geocorp has joined with the City of Grand Junction on a pilot project to more precisely locate and manage infrastructure. (Business Times photo by Phil Castle)

Tucker says his concept of a smart city includes knowing where buried utilities are located to a precise level. While technology that guides people to within 10 feet of a coffee shop is more than adequate, that's not nearly accurate enough when it comes to excavating near natural gas or power lines, he says. That's when a matter of inches becomes important.

Finlayson agrees it's important to know the location of water and sewer lines, natural gas pipelines, power lines, cables and other utilities. "A smart city knows where things are at."

ProStar Geocorp combines geographic information systems and data to offer computer software and services to help customers manage infrastructure, whether it's displaying, collecting, storing or using information about the location of pipelines, fiber optic cables or other facilities.

ProStar has worked with several partners in developing and testing its software and services, Tucker says, including Embridge Pipeline, a Canadian-based company that operates one of the largest and most sophisticated oil and liquid transportation systems in the world.

ProStar Geocorp also has worked to develop a niche market for what are known in the energy sector as midstream companies that transport oil, natural gas and other products.

ProStar is working with an energy company and students at Colorado Mesa University in Grand Junction to locate flow lines in areas of Mesa and Garfield counties, Tucker says.

But the same technology also can be used to make smart cities even smarter, he says.

In Grand Junction, Tucker believes ProStar can help by compiling and displaying information about buried utilities. That includes city water and sewer lines, but also pipelines maintained by water and drainage districts as well as natural gas and power lines maintained by utilities and telephone lines, cables and fiber optic lines maintained by telecommunications companies.

Different utilities maintain records about the location of underground utilities, but are sometimes reluctant to share that information, Tucker says. It's a question of storing that information in way that can be shared, but also remains secure. ProStar offers expertise in just that, he says.

ProStar also can provide information not only on computers, but also smartphones, tablets and other mobile devices that can be used in the field, he says.

In locating underground pipes or utilities based on records, there could be differences between where records indicate utilities were installed and where they actually exist. Using ProStar systems and locating equipment, workers can update records as utilities are located, Tucker says.

Finlayson says the technology would help in another aspect of operating a smart city. The city strives to monitor the conditions of water and sewer lines as well as streets so aging pipelines can be replaced at the same time streets are repaired, limiting the excavation required.

ProStar has added to its capabilities in developing software that uses augmented reality. Unlike virtual reality, augmented reality combines computer-generated images with what's perceived in the real world. Tucker envisions a day when crews working in the field using headsets or other displays will "see" buried utilities as if they possessed X-ray vision.

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Finlayson says he's especially excited about the possibility for using augmented reality not only in locating buried utilities, but also seeing what a project or development designed in two dimensions looks like in three dimensions.

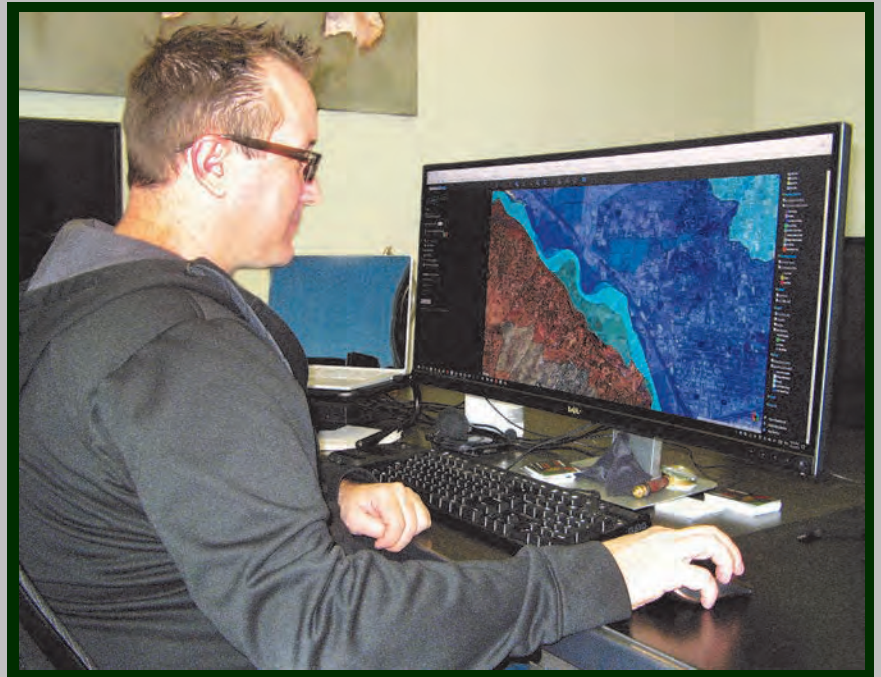
Tucker envisions still more uses for smart city technology — enabling residents to use their smartphones to alert the city where street repairs could be needed or offensive graffiti should be removed.

Technology also can be used to combine mapping and information in computer models, he says — taking into account information about flood plains, mountain snowpack levels and weather forecasts to predict the possibility of flooding, for example.

Finlayson says the city already uses computer modeling in a number of ways — to determine the best locations for fire stations given the history of calls and capability of streets to handle rapid responses.

As technology advances, smart cities will enable residents to use their mobile devices to find parking spots and avoid construction areas. Smart cities also will accommodate what could be the increasing use of self-driving cars, Finlayson says.

Tucker says what once was considered the stuff of science fiction has become fact. “It’s not a question of if this type of technology is coming, it’s a question of when.”



Carey Wheeler, a geospatial intelligence specialist at ProStar Geocorp, demonstrates a display of flood plains in Grand Junction. Information can be used in modeling to help respond to natural disasters. (Business Times photo by Phil Castle)