CUSTOMER STORY

# Reykjavik City Graffiti Tracking and Cleaning Project with GPS Mapping

## PROJECT HIGHLIGHTS

- Using Trimble Recon and Trimble Nomad handheld computers, individuals collected precise GPS data points for nearly 25,000 graffiti points
- The team shared GIS and attribute data with police to support stronger legal action against graffiti
- With this information they implemented a more systematic and efficient cleaning schedule to paint over tagged areas
- In six months, the department reported a 62 percent decrease in the number of graffiti marks in Reykjavik city centre

**PROJECT: Rugged handheld computers with built-in GPS capabilities used in Reykjavik City to clean up graffiti**

**PROJECT DATE: Ongoing**

Founded in 1786, Reykjavik is the capital of Iceland and the northern-most capital city in the world. The Reykjavik City area has just under 120,000 inhabitants, which is about 40 percent of the total population of the country. The Reykjavik area coastline is gorgeous, with pristine peninsulas, coves, straits, and islands. As the modern capital of a highly developed country, the city boasts a first-class infrastructure that is managed by city council and maintained by the City of Reykjavik Department of Public Works.

In 2007, the Reykjavik community began to notice a growing problem on the city streets: graffiti. Faced with this issue, the city's department of public works began an important pilot project. Two staff members from the city's GIS group began using Trimble® Recon® handheld computers equipped with ESRI ArcPad software to collect data points and other attributes about graffiti marks. With these handhelds the GIS team performed reliable, accurate, and validated field data collection of graffiti marks located on city property, including traffic signs, parking meters, trashcans, and other public assets.

The team also collected GPS coordinates and took digital photos of graffiti on private (as well as public) property, including tags found on garages, private residences, fences, and more. For the initial project, the team focused on a small section of the city centre, capturing data points for about 3300 unique graffiti marks all at a reliable 2 to 5 meter accuracy level. The team then loaded the data into the public work databases to allow further analysis and to share this detailed information with the city's police department and the city council. With data from the pilot project in hand, the city council determined it was time to implement a more strategic and long-term plan for combating graffiti city-wide.

"In 2008 the council enacted Project Clean City and at that point we knew we needed to extend our investment in Trimble to make the project a success," said Hermann Hermannsson, GI specialist for the Reykjavik Department of Public Works. "We purchased five Trimble® Nomad™ handheld computers to collect, save, and transmit data in the field because they are rugged, have a long battery life and they include built-in GPS, bar code scanner, and digital camera."

To get the project off the ground quickly, the department hired students studying GIS at Reykjavik University to collect graffiti data points throughout the entire city. Over a five month period the students worked a combined 1,600 hours and collected nearly 25,000 unique graffiti points. Using the integrated GPS receiver within the Nomad devices, they captured the precise location of each graffiti mark along with valuable attribute data, including: type of position (i.e. garage, house, lamp pole, etc.), size of graffiti mark, and type of graffiti (i.e. words, images, etc.). For even more detail, the team took about 8000 digital photos using the handheld's integrated digital camera. This information was then loaded into the department's database where staff could compile results, make queries, and identify patterns in the data.

"The team is able to calculate the combined square meters of certain types of graffiti, and then the police use surveillance footage to match them to the responsible parties," said Hermannsson. "Our data is helping to make the case for tracking these crimes on a larger scale, essentially so law enforcement can take more effective legal action."

In addition to supporting the police, the department is also using the data to deploy a more systematic graffiti cleaning

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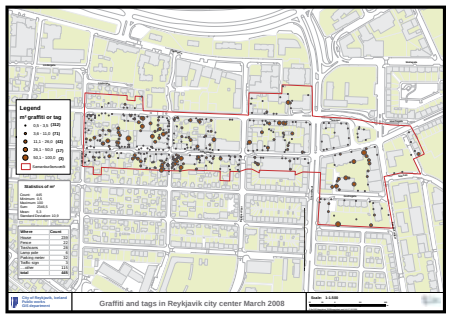
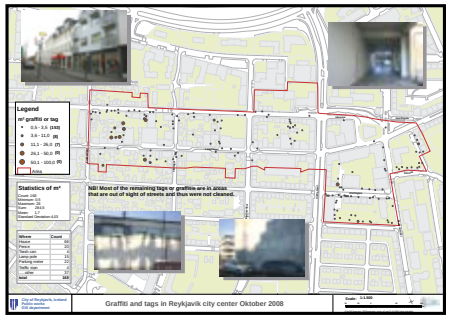
schedule. Today public works staffers are assigned to particular areas to clean or paint over the marks. And because details about the graffiti are shared beforehand, field workers can bring the right tools to the site the first time, saving time and money. Hermannsson believes quick action is important because ultimately graffiti tends to attract more graffiti and even other criminal activities.

Since using Trimble the public works department has recorded fewer incidences of graffiti in the project's sample area. In fact in a six month period, between March 2008 and October, the team rescored a 62% decrease in graffiti marks overall, shrinking the number of captured marks from 445 to 168. Happy with the results, the team nominated the Reykjavik Clean City Project for an award sponsored by the Association of Town Centre Management (ATCM). The ATCM Awards seek to recognize best practice in six critical areas of city management, from Best City Initiative to Best City Experience. The City of Reykjavik has been recognized as a finalist in the prestigious Centre Experience category; winners will be announced in spring 2009.

Hermannsson believes that Trimble Nomad handheld devices were critical in helping his department tackle the city's graffiti problem in the most efficient and cost effective manner possible. Pending future funding, the public works department plans to continue its efforts by cleaning up graffiti as quickly as possible and by revaluating the effectiveness of the program on a yearly basis.

"Collecting thousands of graffiti data points by hand would have been nearly impossible, taking too many man hours and requiring too much money," said Hermannsson. "We're always looking for ways to stretch our budget and without Trimble the problem could have gotten out of control quickly."




Hermannsson is also excited about the organization's plans to utilize Trimble technology in other projects in the future. He hopes the team can take advantage of the bar code scanner built into the Trimble Nomad handhelds to streamline the department's traffic sign maintenance efforts and other critical asset management programs.

**THE EQUIPMENT USED ON THIS PROJECT INCLUDES**

- Trimble Recon handhelds
- Trimble Nomad handhelds
- ESRI ArcPad software
- ESRI ArcGIS Desktop software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