

# Connecting with the community

—by Todd Schmitt

*Since they first became available in the late 1980s, digital maps have evolved beyond simple display and spatial analysis to become navigation tools increasingly integrated into our everyday lives. Digital maps not only help users navigate from point A to point B, they also connect users to the people, places and products they're most interested in. The future will bring advances in technology and growth in the global community of digital map users which will create a map super rich in real-world, real-time information that will provide benefits to consumers and enterprises alike!*

**F**or many years, map data had to be gathered from tens of thousands of independent data sources, such as zoning boards, public safety officials, construction companies, and truck drivers. The updates were manually digitized by thousands of cartographers—the work was highly labor intensive. Then, with the advent of improved hardware and software came sophisticated data collection and verification “on wheels.” The vehicles travel highways and local roads, collecting large quantities of map data attributes and features such as road signage and building textures.

## The future is in users' communities

The future of digital maps is within their users; it's the users who will contribute ever larger quantities of dynamic data and personal information to these maps. By virtue of collecting data on the roads they daily travel and reporting changes they have observed, map users are harnessing the power of a global community.

The feedback can only lead to maps with location-based content of unprecedented richness and accuracy. The result—a global navigation community connected by the very maps its members have been updating at a level, magnitude, and speed never before thought possible. Better, more accurate maps will meet the needs of all users, be they consumers or business.

Advances in technology and the growth of the digital map community all mean that we can compile and verify current map data and update underlying databases while making more accurate and richer maps available to all map users. GPS technology allows users to improve maps by responding in real time to changes on the roads, such as blocked streets, reversed one-way traffic, or new street names.

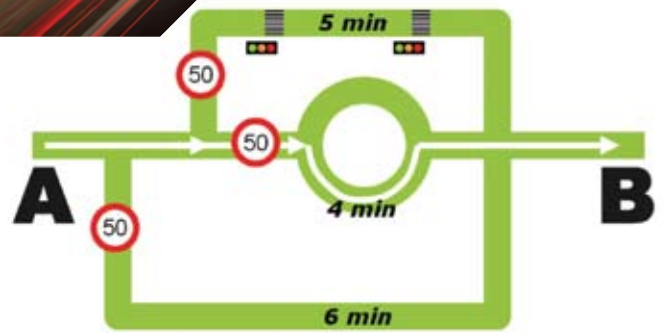


Figure 1. Predicted time for travel from A to B.

They can also submit new points of interest (POIs) or even contribute opinions regarding existing POIs. Users are currently submitting tens of thousands of map improvements every day.

## One immediate benefit: More intelligent routing

This level of community involvement means everybody can contribute to the creation of richer digital maps in a way that benefits not only the entire group but also each individual. For example, users' speed data are being captured to predict travel times more accurately and so provide users with the ability to plan their trips more intelligently. When millions of users share their speed data, the information they provide can be leveraged to improve the accuracy and quality of any navigation route chosen by any user, on any road, at any time of the day.

Let's look at an example of how this would work. On the map depicted in Figure 1 above, a driver is considering three options to get from point A to point B at 8:30 a.m. All of the available roads have a 50 mph speed limit. Traditional, sophisticated, mapping calculations, which account for road type, speed rating, and known delays such as stop signs and traffic lights suggest that the shortest route through the roundabout should be the quickest, at four minutes. The “top” route should be a minute slower, since it includes two stoplights. And the longest “bottom” route should be slowest, requiring six minutes to travel.

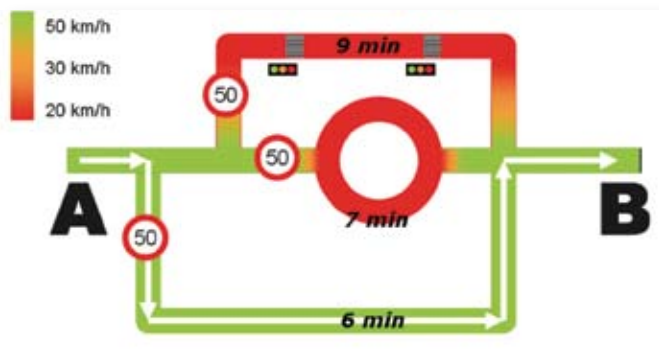


Figure 2. Measured average time to travel from A to B.

But by factoring in historical speed data—shown in Figure 2 which is based on information from thousands of trips on these very roads at all hours of the day—we see that because of heavy traffic at the roundabout during the morning commute, it takes seven minutes on average rather than four minutes if one takes the straight route. It takes nine minutes to travel the top route, due to extended delays at the traffic lights. But the bottom route remains a six-minute trip, same as when only actual speed data were considered. Thus, rather counter-intuitively, the longest route is the fastest.

The next step in leveraging navigation data will be real-time traffic updates provided on always connected devices. As with historical speed profiles, meaningful real-time traffic updates will require capturing data from a large and active user community.

This same two-way communications channel will one day provide the means for the global digital map to be updated on a daily basis. Ultimately, we can foresee a future where this map is hosted centrally and only the freshest, most relevant portions are downloaded to the local, connected device.

### What's next?

**New applications:** Many more pedestrians will be turning to navigation applications, which will create new challenges for map providers as well as interesting new functionality for users.

**Then there's content:** Wireless connectivity means maps can display a vast array of useful content that's not only up-to-date but up-to-the-minute. Users will come to rely on this real-time content to obtain traffic information, latest fuel prices, parking availability at different times of the day, and community events such as concerts and shows.

**Richer maps:** No more two-dimensional data presented in two-dimensional graphics! Flat maps are giving way to enriched maps that display more features in a highly visual format, including 3D visualizations of buildings, landmarks and other structures.

This “texture” at the ground level is especially important to the pedestrian who is trying to orient himself in unfamiliar surroundings. Significant buildings, landmarks and tourist attractions are popular way finders; detailed features add to the value of the richer mapping experience.

**Mobile social networking:** The future is not so far when users will be able to combine text messaging with pictures and maps and interact with each other—which would enhance our social ties, no doubt, but also help keep us safe.

### My life, My map

With an approach that emphasized community and personalization, every user of digital maps can help make better maps. This new model for map updates will not only capture direct, factual observations from the user community about various locations, but it can also be layered with more personal information, and even opinions.

Connecting people to other people and places easily, and in locations they frequent daily or like to visit, will enrich the quality of life. And imagine the possibilities if one can combine knowledge of places with a knowledge of where our business associates or even friends are at any given time. Connecting with the community is about more than just navigating from point A to point B, it's about creating a living map that not only accurately mirrors the reality of your physical environment, but also your whole world.



#### About Tele Atlas

Tele Atlas delivers digital maps and dynamic content that power many of the world's most essential navigation and location-based services (LBS). Through a combination of its own products and partnerships, Tele Atlas offers map coverage of more than 200 countries and territories worldwide. Today, Tele Atlas maps are developed with the insight of a community of millions of GPS system users worldwide, who are adding to the company's unmatched network of sources to track and validate changes in real time and deliver the best digital maps and dynamic content. For more information, visit [www.teleatlas.com](http://www.teleatlas.com).

**About the author:** Todd Schmitt has been with Tele Atlas since 1998. Over the last ten years, he has served in a number of roles in project, product, and marketing management, including bringing several new products to market.