DHL Express Europe
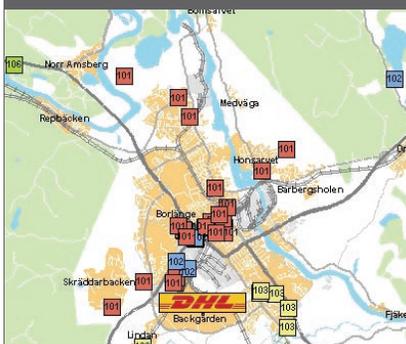
GIS Determines Better Route Planning and Minimizes Fleet Driving Distances

CHALLENGE

A leader in international shipping needed to optimize the sorting and loading of packages onto delivery trucks.

RESULTS

- **Saved 600 man-hours each day**
- **Package sorting time reduced by 50 percent**
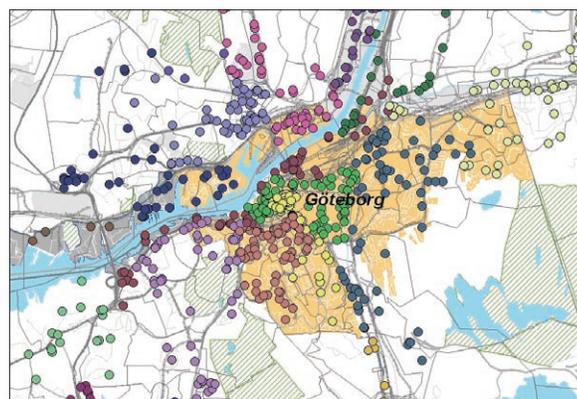- **Now able to sort packages to each specific tour or route**

"ArcGIS allows us to find accurate delivery locations, increasing our productivity and customer satisfaction . . . This has improved our competitive position in the marketplace, leading to higher package turnover rates and better margins."

Henrik Dahlin
Process Development Manager
DHL Express

DHL has been an innovative leader in the worldwide shipping business for more than 35 years. The company is now part of Deutsche Post, the modern privatized German mail service. Deutsche Post acquired Airborne Express in 2003 and integrated it into DHL, creating a division now known as DHL Express. Today, DHL Express employs 550,000 people and manages the shipment of packages and goods in 220 countries and territories.

The Challenge

DHL is always on the lookout for improving how it does business. In 2002, as part of a test project, the company tackled the challenge of streamlining its pickup and delivery (PuD) system in Sweden, where DHL operates 1,400 vehicles. PuD represents 40 percent of the total cost of the company's daily operations. Each morning, DHL drivers spent, on average, 30 minutes of their shift or tour sorting goods that needed to be delivered. At that time, packages were sorted by postal

Overview Map Showing Planned Deliveries in the Town of Gothenburg, Sweden

codes, resulting in piles of shipments shared by four or five vehicles. Drivers spent valuable time looking through the piles, then moving the packages to their gates. This translated into a long searching and loading time with too much room left for human error. "Finding an improvement on the tour preparation and other activities would have a great impact on our total productivity," says Henrik Dahlin, process development manager, DHL Express. "It was a priority for us to find a solution."

The Solution

With this in mind, DHL looked at several solutions to help improve sorting and logistics. They chose ESRI® geographic information system (GIS) software to improve the sorting and sequencing in the loading area. Using a mainframe environment, DHL is able to allocate resources, using ArcGIS® Server software, through the Web to each terminal. This allows staff members to use ArcGIS Server to manage routes and stops, as well as edit geographic data when necessary. Using GIS as part of the overall operation, all sequencing is now done at night. "The core of this solution is the geocoding," elaborates Dahlin. "Without it, the whole system wouldn't work."

First, data entry staff enter the information for the next day's deliveries into the main computer system. The information is automatically loaded into ArcGIS Server, where shipment addresses are geocoded and checked against a map to determine the zone to which each shipment belongs. The zones are created based on routes and drivers. These zones are then clustered and optimized into tours based on allocation rules and driver input. All data is accessible to staff via handheld computers and LAN radio at any time and across the whole facility.

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DHL Express Europe

Once the tour plans are created, delivery notes and sort code files are synchronized with shipments. As a result of the new system, deliveries are now placed at the correct gates by the time drivers arrive at the terminal. Even after double-checking and loading, the drivers are out of the terminal in half the time it took before the system was implemented.

Being able to optimize the number of tours per terminal helps DHL minimize its fleet and the driving distances of each vehicle. Routes can be optimized daily, which greatly reduces the effort and resources needed during peak shipment periods such as the winter holiday season. The system was up and running in a short time, with parameters set up and fail-safe measures in place. "The system has to work," Dahlin stresses. "We rely on it and can't afford for it to not function."
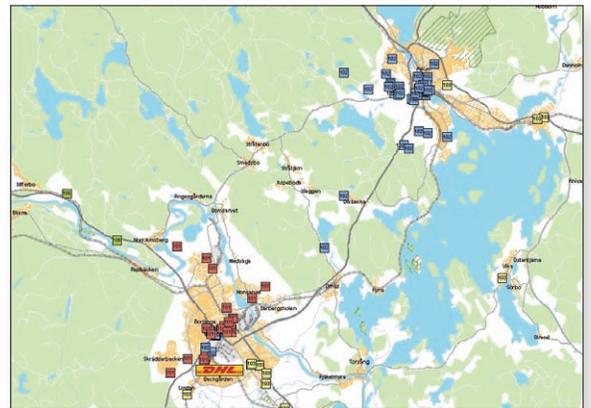
The Results

Before using ArcGIS Server, DHL could only sort to a group of vehicles, leaving a lot of room for error and taking too much time at the terminal. After implementing ArcGIS Server, the logistics giant is able to sort to each particular tour instead of a larger, less specific postal code. This reduced the time spent and manpower needed to sort, search, and sequence the loading area by 50 percent. The time savings are equivalent to 30 minutes per tour per day. Currently, DHL Express operates 1,200 tours per day from the terminals.

Overview Map Showing Planned Deliveries in the Towns of Falun and Borlänge

Creating an optimum network configuration means a lower total transportation cost and minimizes the distance driven by each vehicle. "This has improved our competitive position in the marketplace, leading to higher package turnover rates and better margins," says Dahlin.

Optimized tours result in lowered PuD and fleet costs. Correct prices and delivery time windows can be given to clients, which increases their satisfaction and fosters customer loyalty.

DHL Express has found ArcGIS Server improves operations threefold: the bottom line results are increased; service to customers is improved; and, through accurate drive times, the company's impact on the environment is lessened.

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