

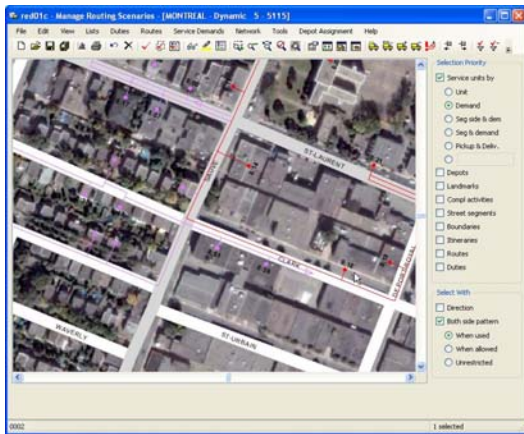
GeoRoute

Route planning & optimization software for postal operations

Designed specifically for the diverse requirements of public and private postal organizations, GIRO's *GeoRoute* software solution offers a suite of proven tools for network editing, address database management, and route planning. *GeoRoute*'s optimization features help users efficiently manage regular mail delivery routes and point-to-point routes for mailbox collection, extra pouch delivery, and parcel routes.

GeoRoute offers powerful optimization tools that minimize the number of routes needed to service a given area. Intended for organizations with multiple users and/or sites, *GeoRoute* also provides many tools that allow system administrators to configure the software for their users.

In addition, the software comprises interactive map-based tools allowing users to edit and make graphical changes to street networks and postal objects. With *GeoRoute*, it's as easy as editing the addresses or routes proposed by the software (or create your own) and then producing detailed maps and reports that accurately document each route.



Designed for postal operations

Postal operations involve diverse methods of collection and delivery and thus present various routing challenges. Mail delivery is especially complex, often involving a combination of travel modes. Parcel delivery and courier services present additional challenges because of frequent changes to service locations.

GeoRoute's ability to meet all of these requirements reflects GIRO's collaboration over the last 20 years with some of the world's largest postal organizations. Today, GIRO's routing software is widely used by postal organizations in major countries across the globe including Belgium, Canada, Germany, Ireland, Luxembourg, Norway, the Netherlands, Portugal, and the United Kingdom.



Mail delivery features

GeoRoute addresses a wide variety of requirements that are often unique to mail delivery operations:

- Build routes using postal codes (such as ZIP+4) or other forms of street sections used for mail sorting and which typically must be kept within the same route;
- Manage and service both sides of a street independently, as they may be assigned to different routes;
- Manage mail sorting and delivery times independently and assign these tasks as separate indoor and outdoor work activities;
- Include required stops at extra mailbag/pouch boxes;
- Provide support for addresses with little or no localization information in routes;
- Zigzag narrow and/or lightly populated streets where possible to improve efficiency;
- Account for multiple transport modes or a combination of modes to travel between the depot and route start/end points (e.g. public transit + walking to/from bus stop), or during delivery (e.g. park-and-loop routes), and apply parameters such as speed limits and one-way streets to each mode;
- Support park-and-loop and teamed routes with control over loop size.

GeoRoute's ability to address all of these requirements results in a more accurate evaluation of each route's duration. Based on this evaluation, *GeoRoute*'s optimization tools design routes that include as much delivery time as possible while respecting maximum workday durations. This typically translates into a reduced number of routes for any given area.

Features for motorized operations

GeoRoute incorporates many customizable rules for motorized operations such as parcel delivery, transport, mailbox collection, and extra mailbag/pouch delivery:

- Respect one-ways and turn restrictions;
- Account for access characteristics and restrictions for each location (e.g. multiple access paths, must arrive on same side of the street as a mail relay box);
- Respect delivery/collection time windows (strict or soft) for each location;
- Estimate service time at each location based on the different types of products to be delivered or collected;
- Respect parameters such as vehicle capacities and other work rules;
- Generate a route list with route details and KPIs for the selected route.

The screenshot shows the 'red27a - Manage Routes' application window. The main window displays a table of routes with columns for Route, Type, Cost, Distance, Duration, Prep, Service, Travel, and Activity. A 'Parcel' route is selected, and a detailed view of its activities is shown in a sub-window below. The activities include 'Detail-out', 'Travel-out', 'Srv demand', 'Deadhead', and 'Srv demand' with associated identifiers, distances, durations, and times.

Route	Type	Cost	Distance	Duration	Prep	Service	Travel	Activity
Parcel0015	Parcel	206.95	22.367	7h15:32	0h00:00	6h14:19	0h16:30	
Parcel0016	Parcel	302.43	33.254	7h37:07	0h00:00	5h42:23	0h11:46	0h30:00
Parcel0017	Parcel	209.26	25.940	7h14:23	0h00:00	6h07:16	0h11:48	
Parcel0018	Parcel	282.36	25.437	6h54:51	0h00:00	5h19:41	0h12:04	
Parcel0019	Parcel	294.08	22.468	7h06:14	0h00:00	6h04:22	0h11:26	
Parcel0020	Parcel	283.34	26.764	6h54:49	0h00:00	5h47:09	0h07:23	
		780.430	196h41:10	14h00:00	16h30:56	9h37:52	1h30:00	
		286.43	27.873	7h01:34	0h30:00	5h49:25	0h12:04	0h31:12

Prk	Type	Identifier	Distance	Duration	Qty	Arrival	Earliest	Latest
1	Detail-out...	PRIP_OUT	0.0	0h15:00		7:40		
2	Travel-out...	From Depot To CD792 Cones	4131.0	0h04:00		7:55		
3	Srv demand	CD792 Cones // 8:00	0.0	0h10:31	1	8:00	8:00	10:00
4	Deadhead	From CD792 Cones To CD198 Cones	320.0	0h00:28		8:10		
5	Srv demand	CD198 Cones // 8:10	0.0	0h16:08	2	8:10	8:00	12:00
6	Deadhead	From CD198 Cones To CD793 Cones	134.0	0h00:12		8:27		
7	Srv demand	CD793 Cones // 8:27	0.0	0h05:03	1	8:27	8:00	17:00
8	Deadhead	From CD793 Cones To CD194 Cones	1360.0	0h01:43		8:32		
9	Srv demand	CD194 Cones // 8:34	0.0	0h13:05	1	8:34	8:00	10:00

Route list with route details for selected route.

For operations such as parcel delivery and courier services where delivery/collection locations change on a daily basis, *GeoRoute* can be used to plan base routes or territories, with daily optimization functionality to account for exact locations to service.

Complementary tools

All *GeoRoute* installations can be supplemented with optional software modules including:

- GPS-based tools for field data collection; these can be used to accurately identify all service locations, measure the access and service time at each location, and update digital maps using raster maps (e.g. missing street, new housing developments, courtyards, etc.);
- Web-based and XML-based information allowing users to query database information and print maps and reports;
- Powerful reporting features enabling users to compare and analyze organizational entities, branches, and delivery offices using key performance indicators, as well as interface with business intelligence tools and Crystal Reports®;
- A route-to-depot assignment tool that facilitates decisions such as which depot each route should originate from, where a new depot should be constructed, or which depot should be closed.

Implementation and benefits

GIRO can define a phased implementation approach for any postal organization to ensure that its *GeoRoute* software is up and running quickly and delivering immediate benefits. A standard installation project could be implemented as follows:

Edit the geographical street network and reproduce the organization and reporting hierarchies in *GeoRoute*;

Manage addresses and products and reproduce existing routes;

Perform route optimization and reorganize postal offices and centers.

Route reductions generated by *GeoRoute* typically reach up to 5% for mail delivery and 15% for other operations.

Other applications

Although originally intended for postal operations, *GeoRoute* provides functionality that is well suited to other route-based operations with special requirements such as waste and recycling collection, meter reading, and school transportation.

About GIRO – *GIRO* has earned an excellent reputation for timely delivery of proven software and high-quality post-implementation support. Our products combine advanced operations research optimization techniques with powerful data management tools that bring tangible benefits. Based in Montreal, *GIRO* serves customers in Asia, Australia, Europe, and North and South Americas. For more information on *GIRO* or *GeoRoute* please visit our website at www.giro.ca.

GIRO Inc.
75 Port Royal Street East, Suite 500
Montreal, QC H3L 3T1
CANADA

Tel.: +1 514.383.0404
Fax: +1 514.383.4971
Email: info@giro.ca

