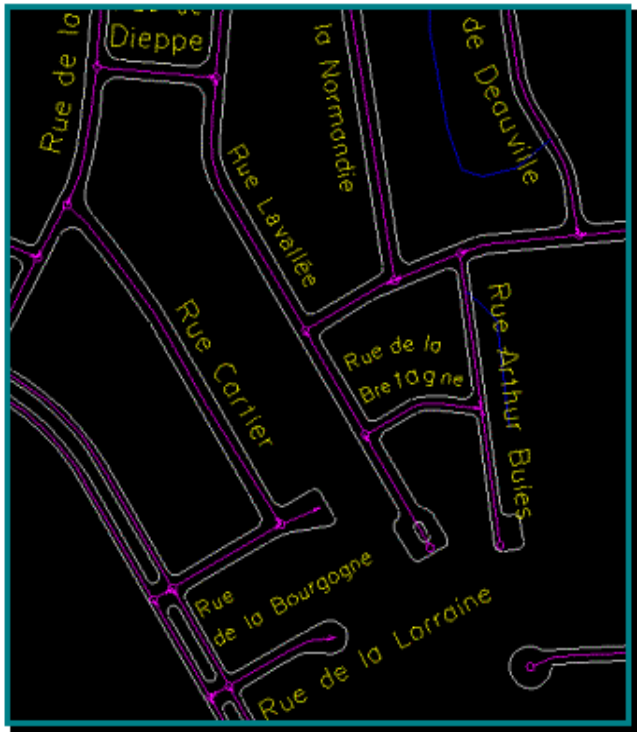
GEO-ROUTE MODULE

Support tools for the automated generation of routes

Integrated into the SRUIS, the primary objective of the GEO-ROUTE application is to automatically generate routes for snow removal from streets. It also allows for the management of inventory, as well as allowing to perform analysis of information gathered on street sections.



Characteristics of the module:

- The inventory management module allow, among others, to enter information about events of snow accumulation, removal and meltdown. The system performs a complete update of the data according to new information received (calculation of the width of snowbanks).
- The analysis module allows the user to make queries on the data in order to determine, for example, the critical zones (excessive amount of snow) within all road-sections of the city. The result of an analysis query can be graphically viewed and sent to the printer.

- The generation of routes is carried out automatically, taking into account the:

  ⇒ type of route (plowing, removal, etc.);

  ⇒ analysis result (critical zone, dead ends, etc.);

  ⇒ specific criteria for the desired route (maximum distance, width of the machinery, etc.).

  The user can also generate routes semi-automatically, with the help of the system that will show the inconsistencies (driving in the opposite direction of a one-way street, illegal turns, etc.). The routes created may be modified with the help of editing tools. The printout of a route generates a graphic report showing a global view of the route and a descriptive report indicating the streets to follow and the turns to take.

- The route management application is not limited to snow removal routes. Routes for street washing, spreading of abrasives and sidewalk snow removal are some of the many possible uses of GEO-ROUTE.

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Specific algorithm to generate a route according to the activity fulfilled:

- Snow plowing - Block turns (right turns)
- Snow removal - Full street (straight ahead)

Criteria used to generate a route:

- General route
  - ⇒ No turns
  - ⇒ One ways
  - ⇒ Type of route section (end of a block, bridge, dead end, etc.)
  - ⇒ Route length in kilometers and in time
- Snow plowing
  - ⇒ Steep slope
  - ⇒ Caution, bumpy, uneven streets
  - ⇒ Section priority
  - ⇒ Width by lane number
  - ⇒ No parking
- Snow removal
  - ⇒ Snow removal period
  - ⇒ Route section priority
  - ⇒ No parking
- Machinery
  - ⇒ Machine speed
  - ⇒ Machine width
- Personnel
  - ⇒ Break
  - ⇒ Launch hour

Reports produced

- Accumulation
- Intervention
- Event statistics
- Graphic and georeferenced route
- Descriptive route
- Step-by-step list of streets for a route
- Any interactive queries

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