



Stantec

Memo

To: Mike Birett
Waste Diversion Ontario
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From: Kerrie Skillen
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File: 1054270 Date: August 28, 2009

Reference: Route Optimization Software Review

1.0 Consulting Overview

Stantec Limited conducted a review of software providers to identify potential vendors of route optimization software. A list of potential software providers was identified through:

- a review of industry magazines;
- an internet search using Google;
- discussions with Stantec senior waste management staff; and,
- discussions with Stantec transportation analysts.

The following is a list of providers that supply route optimization software as standalone products that are not linked to other services such as tracking, billing, and/or extensive reporting.

- Fleet Route, provided by C2Logix
- eRoute Logistics, provided by Institute of Information Technology
- RouteFinder 3.00 for ArcGIS 8&9 and RouteFinder 3.62 for MapInfo, provided by Route Ware
- Route Smart ArcGIS, provided by Route Smart Technologies

Each of the software providers will conduct demonstrations using sample data provided by the client. It is recommended that each software provider be contacted to set up a demonstration of their product.

See Table 1-1 for details on software capabilities, data requirements, support system requirements, cost and contacts.

2.0 Closure

If you have any questions or would like further clarification on our results, please contact me directly at 905-631-3923 or by email at Kerrie.Skillen@Stantec.com at your earliest convenience.

One Team. Infinite Solutions.

Stantec

August 27, 2009

Mike Birett

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Sincerely,

STANTEC LIMITED

- Original Signed By -

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Table 1-1 Summary of Software Providers

| Software | Provider | Sample of Capabilities | Data Source | Software Support System Needed | Cost | Reference Municipalities | Contact |
|-------------|--|---|---|---|--|---|--|
| Fleet Route | C2Logix – operated by Gershman, Brickner and Bratton Inc., GBB | <ul style="list-style-type: none"> Specify the maximum and minimum number of hours, stops, capacity, dump trips and distance desired for each vehicle. Balance your service days and districts. Control the types of turns made such as minimizing U-turns, specifying cul-de-sac turn rules, etc. Find the closest dump points in the route within the limits of the total load. Find the closest transfer stations/landfills for each vehicle for each dump trip and allocate vehicles to the optimal depot. | <p>Client provides street network and addresses for stops to C2Logix. C2Logix uploads data into software package and generates the route map for the client.</p> <p><i>Format:</i> Excel or GPS coordinates.</p> <p>C2Logix can update street network data using Navteq data (at a cost).</p> | <p>Software Option Software package is operated directly by the client.</p> <p>Requires Windows 98, NT, or XP based operating system, and ESRI ArcGIS version 9.x</p> | <p>Base Price: Cost unknown. Depends on amount of time required to generated maps.</p> <p><i>Estimate:</i> Community of 13 000 residents = approximately \$25,000 US</p> <p>Community of 100,000 residents = approximately \$40-50,000 US</p> <p>Maintenance Agreement (Optional): Approximately 20% of the contract fee. This includes technical support. Updates to software are free.</p> <p>Technical Support: If choose not to purchase maintenance agreement, are required to pay for technical support: 150US/hour</p> | <ul style="list-style-type: none"> City of Ontario, California, USA Total cost \$88,723 – included single license, installation of software, initial route optimization, training, and one-year of maintenance Metropolitan Government of Nashville and Davidson County, Tennessee City of Edmond, Oklahoma Miami-Dade County, Florida | <p>Bob Roberts Route Optimization Consultant C2Logix Route Optimization Solutions</p> <p>9450 W. Cabela Drive, Suite 3259, Glendale, AZ 85305 USA</p> <p>Direct: 480.686.4672; Main office: 703-698-5001</p> <p>Website: www.C2Logix.com</p> |
| | | | <p>Client provides street network and addresses for stops to C2Logix. C2Logix uploads data into software package and generates the route map for the client.</p> <p><i>Format:</i> Excel or GPS coordinates.</p> <p>C2Logix can update street network data using Navteq data (at a cost).</p> | <p>Service Option: Program hosted by C2Logix. Client needs GIS software to use program: ESRI ArcGIS version 9.x</p> <p>If client does not have GIS software, can request reports in pdf or view them in ArcView.</p> <p>Client has access to program and ability to manipulate routes (direction and stop sequences only).</p> | <p>Base Price: Cost unknown. Depends on amount of time required to generated maps.</p> <p><i>Estimate:</i> Community of 13 000 residents = approximately \$25,000 US</p> <p>Community of 100,000 residents = approximately \$40-50,000 US</p> <p>Maintenance Agreement: Do not have to purchase a maintenance agreement.</p> <p>Technical Support: 150 US/hour</p> | | |

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| eRoute Logistics | Institute of Information Technology (IIT) | <ul style="list-style-type: none"> Daily and weekly route balancing Provides routing for residential or commercial collection Considers break and lunch times and customer time windows Considers speed limits, turn restrictions and adheres to site of street for residential restriction Allows for multiple vehicle load and unload locations | <p>Client provides addresses for stops to IIT. IIT uploads data into software package. IIT provides street network. IIT generates the route map for the client.</p> <p>Client can also provide hours of operation for depots, MRF, etc, as well as vehicle capacity.</p> <p><i>Format:</i> Excel or GPS coordinates. However, generally any text file is compatible.</p> | <p>Service Option: Program hosted by IIT. Client has access to program through a web-based portal.</p> <p>Client can log into program online using an access code. Client can make modifications to the program anytime.</p> | <p>Base Price: Approximately \$40,000 US plus additional costs for each vehicle in the fleet. Additional cost price per vehicle decreases as number of vehicles increases.</p> <p>Licensing Fee: 20% of contract cost and includes upgrades and technical support.</p> <p>Technical support is available during regular working hours. Client is supplied with pager number to contact sales manager in case of need.</p> | <ul style="list-style-type: none"> South Oregon Sanitation, Grants Pass, Oregon Cost: Approximately \$20,000 (10 automated routes covering 23, 000 customers) City of Houston City of Memphis City of Tallahassee City of San Diego City of Shreveport City of Waco | <p>Jim Phillips Sales 5910 FM 1488 Magnolia, TX 77354 USA</p> <p>Cell: 310-722-2029 Office: 713-559-4208</p> <p>Email: jphillips@e-iit.com</p> <p>Website: www.e-iit.com</p> |
| RouteFinder 3.00 for ArcGIS 8&9 and RouteFinder 3.62 for MapInfo | Route Ware | <ul style="list-style-type: none"> Provides three versions (free, standard and pro). Choice depends on functions. Calculate routes with any number of points Calculate the best sequence in which to visit a number of customers Determine the shortest or fastest path (using any package) Identifies cul-de-sacs, can close or slow down streets (using Pro package) | <p>Client provides street network and addresses for stops to Route Ware. Route Ware uploads data into software package and generates the route map for the client.</p> <p><i>Format:</i> Format for addresses is unknown.</p> <p>Client can use Statistics Canada Road Network Files for the street network.</p> | <p>Service Option: Programs are hosted by Route Ware.</p> <p>RouteFinder 3.00 for ArcGIS 8&9: Requires user to have ArcGIS 8.x/9.x (ArcView/ArcEditor/ArcInfo).</p> <p>RouteFinder 3.62 for MapInfo: Requires user to have any 32-bit Windows version (5/98/ME/NT4/2000/XP) and MapInfo 4.1.2 or newer.</p> <p>Both programs also require RW Net, which works on Windows. RW Net is purchased through Route Ware.</p> | <p>RouteFinder:</p> <p>Free: No cost for street networks with 3000 links or less (equivalent to a town of 50,000 residents)</p> <p>Standard: 900 Euro/user</p> <p>Professional: 1500 Euro/user</p> <p>RW Net:</p> <p>Standard: 1000 Euro/developer</p> <p>Professional: 2000/developer</p> <p>Support and Maintenance (for all packages): 270 Euro/year</p> | <ul style="list-style-type: none"> Granger Container Services, Lansing, Michigan Greater Vancouver Transportation Authority Ville de Quebec | <p>Uffe Kousgaard</p> <p>RouteWare Trægården 9, 2 th 4000 Roskilde Denmark</p> <p>Email: uffe@routeware.dk</p> <p>Website: www.routeware.dk</p> |

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| Route Smart ArcGIS | Route Smart Technologies is a wholly-owned subsidiary of Bowne AE&T | <ul style="list-style-type: none"> Side-of-street, address-specific routing calculations Select priority areas to be serviced first Can build in time constraints (define best time to service a street) Define flow intake data (i.e. amount of waste to be picked up per mile) Route reports can be generated and distributed to collections crews Balance routes based on time or volume parameters such as house counts | <p>Client: Client provides street network and addresses for stops to Route Smart. Route Smart uploads data into software package and generates the route map for the client.</p> <p><i>Format:</i> Excel, Access, Dbase, ASCII text files or via ODBC connection. Generally any text file is compatible.</p> <p>Route Smart Technologies: Navteq is used as default data when client does not have own data.</p> | <p>Software Option: Software package is operated directly by the client. It is an extension of ESRI ArcGIS platform.</p> <p>Training is provided by Route Smart.</p> <p>Service Option: Program hosted by Route Smart. Client has access to program through a web-based portal.</p> <p>Ideal for clients who does not have technical expertise in GIS applications, or a specific role in charge of route logistics.</p> | <p>Sales representative would not provide detailed cost estimate.</p> <p>Pricing is based on a licensing model.</p> <p>Installation of application is possible for an unlimited number of users.</p> <p>Price varies depending on implementation costs, population or fleet size.</p> <p>Yearly maintenance fee is 20% of the licensing fee and covers possible upgrades.</p> <p>Technical support is available.</p> <p>Training is available and recommended, and lasts approximately 10 days which is included in the licensing fee.</p> | <p>Area Disposal Co. Chillicothe, Illinois</p> <p>City of San Diego</p> <p>Sacramento County</p> <p>City of Cleveland</p> <p>City of Folsom</p> | <p>Jessica Cearfoss Business Development Manager</p> <p>8850 Stanford Boulevard, Suite 3250 Columbia, MD 21045 USA</p> <p>1-800-977-7284, ext. 3100 1-410-290-0226</p> <p>Email: jcearfoss@routesmart.com</p> <p>Website: www.routesmart.com</p> |