Fynbus
Optimized Scheduling in Demand Responsive Transport
About Rapidis

Software and tools for Transportation and Logistics

Esri Business Partner since 2003

All products and solutions are based on ArcGIS

1. Traffic Analyst provides tools for transport forecasting models and transit planning

2. Rapidis Logistics Planner for ArcGIS. 3 editions for Postal Routing, **Demand Responsive Transport** and Service Visits and Goods Distribution

3. Logistics Planner for ArcGIS are extensions for ArcGIS Desktop and Enterprise
Fynbus

1. Regional Transit Authority
2. Demand Responsive Transport; School buses, Medical trips, Paratransit....
3. 25,000 DRT orders per month
4. Competitive market – service level decided by municipalities

Disclaimer:
Fynbus data and screenshots of the administrative user interface are confidential. To illustrate this case we have created a set of anonymous data and an interface based on ESRI map services. The core planning software used in this case is the same as used by Fynbus.
Fynbus experience

Efficiency
- Total drive time
- Number of busses
- Time spent on planning
- Test more scenarios
- KM and CO2
- Adapt to demand change

Restrictions and constraints
- Time windows
- Preferred driver
- Who can travel together?
- Maximum travel time

Passenger convenience
- Less individual travel time
- Service goals
- Late delivery option
- Early pickup option
DRT Scenario
Objective

The best overall plan for a fleet of vehicles

That is the plan that:

• Minimizes operational costs
• Meet all restrictions and constraints
Minimizing operational cost

Cost elements:

• Drive time between pickups and deliveries
• Travel time for individual passengers
• Start costs for additional busses
• Wait time for the resources
• Pickup or delivery outside time window (if allowed)
• Exceeding max travel time (if allowed)
• Using resource outside preferred resource group (if allowed)
Restrictions and constraints

- Max. travel time for individual passengers
- Advanced use of Time Windows; begin task
- Late delivery or early pickup is optional
- Capacity and load; busses can have individual and multiple capacities for passengers, wheelchairs etc.
- Siblings, passengers with identical needs for transportation are identified and served with the same bus
- Order groups; when passengers may, may not or must travel together
- Qualifications, ensure that the bus/driver has the required qualifications
- Multiple pickups/deliveries; tools to make total service time realistic
Describing the busses as input
Orders and Tasks as input
The initial plan...
Same scenario with 5 optimization steps

**Resources Used**

Number of resources scheduled:
12 Resources

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<th>Calculation</th>
<th>Resources</th>
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2 Calculations

**Total Schedule Time**

Total time used on all resource schedules:
1600 Minutes

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2 Calculations

**Total Travel Distance**

Total travel distance used on all resource schedules:
900 kilometers

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2 Calculations
Zones and barriers
Fynbus Architecture

ArcGIS Server
Cloud Hosted or On Premise

- Logistics Planner
- Road Networks
- Geo-processing

Fynbus CenterPlan
ERP
Dispatch System
TMS
Materials available

Product Flyers

User case stories

Documentation

“Getting started guides”

Trials

Booth 606
www.rapidis.com