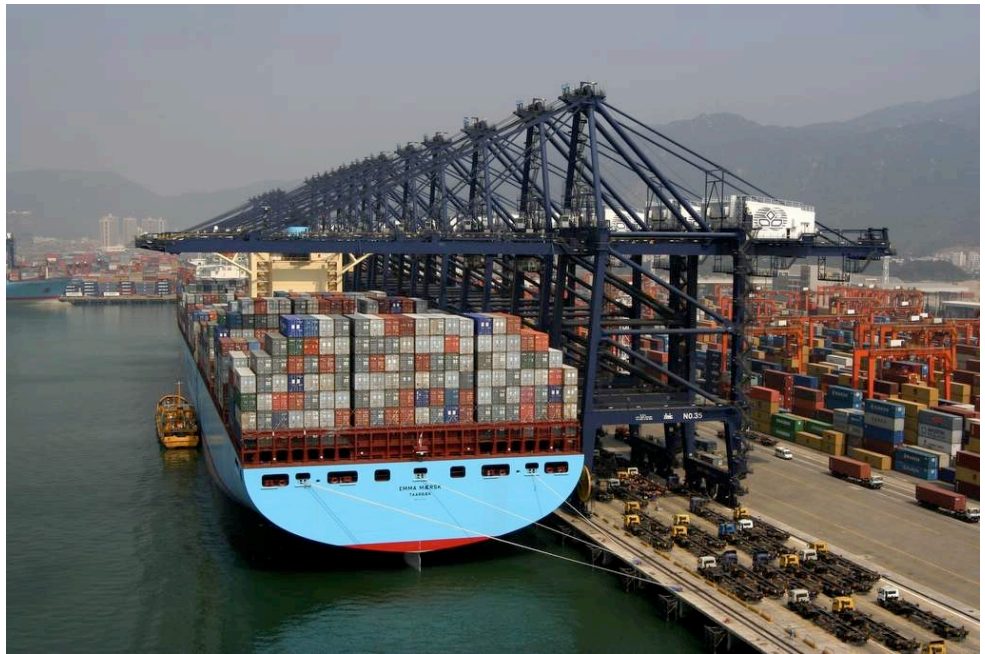


TSL News



Emma Maersk in Port

At the time of its launch in 2006, the Emma Maersk was the largest container ship in the world. This photo comes from <http://www.itashipphoto.dk/> via Maciek Nowak of Georgia Southern University. If you have an interesting TSL-related photo, feel free to share by emailing it to [Barrett Thomas](mailto:Barrett.Thomas).

New Look for the TSL Newsletter

This issue of the newsletter of the Transportation and Logistics Society of the Institute for Operations Research and Management Sciences introduces a new look for the newsletter and a number of new features. The new format builds off of the hard work of previous editors Elise Miller-Hooks and Warren Powell. The first new feature presents novel TSL-related applications. In our "In

Action" feature, we look at Michael Fry's and Jeffrey Ohlmann's work in routing voting machines in Hamilton County, Ohio. We address transportation science and logistics education in the "Education Corner." In this issue, International Liaison Stein Wallace discusses student exchange opportunities and how to facilitate them. We will also highlight TSL members who have been cited in the national media.

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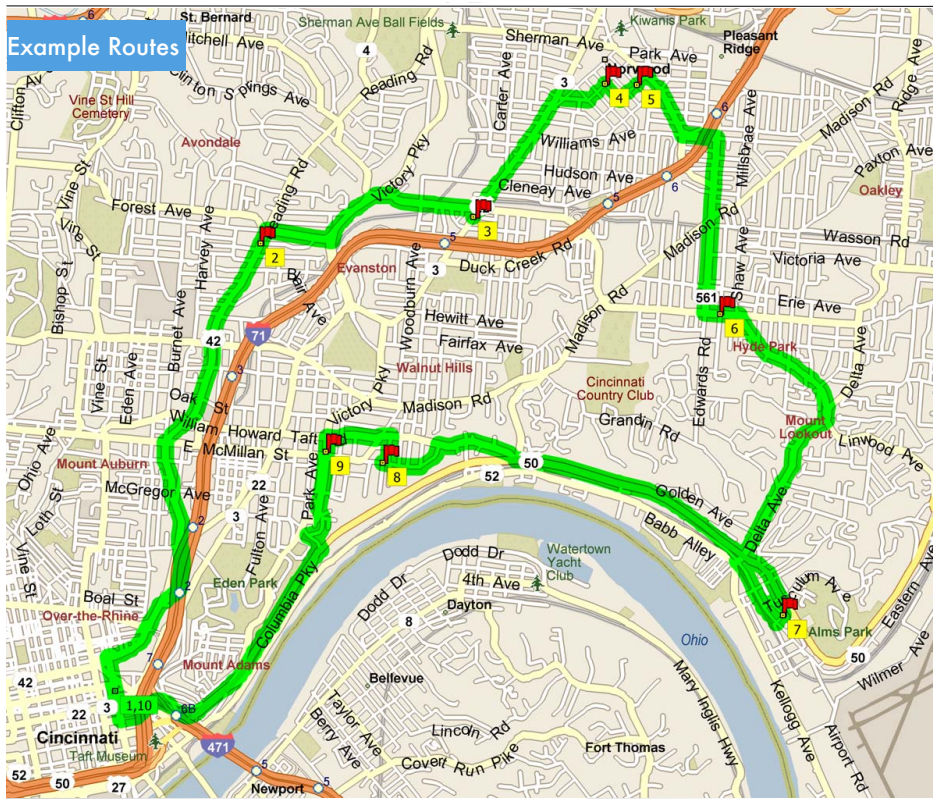
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*Institute for Operations Research
and the Management Sciences*

In Action: Voting Machine Routing in Hamilton County, Ohio



by Michael Fry and Jeffrey Ohlmann

Editor's Note: This article is the start of a new newsletter feature in which we highlight novel TSL-related applications. If you have an application which you like highlighted, email [Barrett.Thomas](mailto:Barrett.Thomas@tsoi.com).

As a result of the disputed ballot counting in the 2000 presidential election in the state of Florida, Congress passed the Help America Vote Act in 2002. This act required states to replace many traditional voting methods, such as punch cards, with newer voting technologies that can provide immediate verification and error rectification of votes, such as optical scanning machines or touch-screen monitors, by November 2006. This change greatly increases the operational and logistical complexities of administering elections. Due to security concerns and the larger physical size of many updated voting systems, the new voting machines must be delivered to each polling location during a specified

day and time. Therefore, election boards must now solve a difficult vehicle routing problem in order to generate feasible, cost-effective delivery routes.

In a forthcoming *Interfaces* article, we discuss our experience working with the Hamilton County Board of Elections in Ohio to devise effective routes for delivering optical scanning machines. The pre-election logistics consist of two phases: (1) poll workers submit requests for the day and time that they wish to receive voting machines; and (2) poll workers' requests are compiled to create an instance of a vehicle routing problem with time windows.

Initially, the Board of Elections allowed poll workers to specify any delivery day and time that they wished to receive voting machines. We observed that this request collection approach resulted in a costly route design. They analyzed alternative protocols for requesting delivery

times and they developed a new method in which poll workers select multiple delivery time slots from a limited choice set. Delivery time assignments are then made by solving a binary integer program. The solution from the binary integer program is then passed to the routing heuristic and the procedure iterates until a satisfactory assignment is found. We demonstrate that their routing heuristic performs well and that the new protocol for assigning delivery times greatly increases the efficiency of the delivery process.

Since May 2006, the Board of Elections has successfully used this solution method for multiple local and national elections, each of which entailed the delivery of more than 900 voting machines to over 500 polling locations in Hamilton County, Ohio.

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Example of the New Optical Scan Voting Machines

Education Corner: International Exchange



by Stein Wallace

As International Liaison, I would like to present the following ideas to our membership to see if there is any interest. On the website we wish to make available:

- Offers from institutions that can receive visiting students (master and Ph.D. - perhaps undergraduate as well) for a semester or more in transportation, logistics or related fields.
- A possibility for students to ask for the same.
- An overview over intensive Ph.D. courses which accept outside participation.
- Offers and requests for student placements.

In all cases, we wish to open for postings. We will not actively collect information. The question is simple: Is this a good idea, and are there related subjects that should be added to the list?

As I am sure many of our members know, student exchange is more common in Europe than elsewhere.

SOURCE:

<http://panther.indstate.edu/tutorials/international/conclusion.html>

Simply stated, the reason is that the European Union sees exchange as a way to promote not just education and research, but also integration in Europe. Many institutions, like my own in Norway, require doctoral students to spend at least one semester abroad. Also, many programs at lower levels require students to go out. In some cases this exchange is done within a defined group of universities. But in many other cases, the variety resulting from not predefining where the students should go is given high value. It is within these settings the suggested postings will be useful.

Within the Nordic countries (which I naturally know the best), intensive PhD courses have existed on a large scale for at least 30 years. This promotes two important goals. First, universities can offer courses at what they are good at, and send their students to other universities if these are better. This means that students are given courses which on average are much better than what the fame of the home institution would indi-

cate. Second, a side effect is that basically all university professors in the Nordic region know each other because they met at various PhD-courses as graduate students. This is useful for student exchange, research and joint funding much later in life. As more of these intensive courses become available around the world, we should make sure that those who wish to receive outside students have a place to post the courses. This posting will not be for normal courses "each Monday afternoon."

I am looking forward to hear your views on these issues.

Stein Wallace is a Professor in Quantitative Logistics at Molde University College in Molde, Norway. Wallace is currently a visiting professor at the Chinese University of Hong Kong. You can contact him at Stein.W.Wallace@hiMolde.no.

By the Numbers

This past year, TSL introduced listservs for each of its special interest groups (SIGs). To date, we have had the following number of subscribers to these listservs:

125	Air Transportation
143	Facility Logistics
582	Freight Transportation and Logistics
113	ITS
126	Urban Transportation

If you are interested in joining one of the TSL SIG mailing lists, visit the [TSL page](#) and click on "Our Special Interest Groups."

Material Handling & Logistics Summit



SOURCE: www.forklifting.com/adobeequip/fsoc.php

In June 2007, the Material Handling Industry of America sponsored a Material Handling & Logistics Summit in Whitefish, Montana. The Summit was comprised of 10 members each from the academic, consulting, equipment manufacturing, and end-user communities. Their charge was to identify trends in facility logistics, the impacts of those trends, and then to develop initiatives in response. Several members of the TS&L Facility Logistics SIG were in attendance.

The group developed more than 50 initiatives, which were organized into 14 themes. The following initiatives were felt to be among the most important:

1. Creating a funding source that supports material handling and logistics initiatives in research, education, innovation and development.
2. Building a vision and roadmap for next generation supply chains and

material handling and logistics strategies that support them.

3. Developing the workforce of the future for distribution, warehousing and manufacturing.
4. Expanding industry and academia collaboration especially in research and technology transfer.

A full report on the event is available at www.mhia.org/summit2007. If you are interested in participating or in learning more, please contact [Kevin Gue](#) or [Russ Meller](#).

News to Share?

If you have been featured in the national media or have news to share with the Society, email [Barrett Thomas](#) to have it included in the next TSL newsletter.

In the Media:

Airport Congestion

Anyone who has flown this summer knows that delays are more likely than not. The airlines' on-time performance is at an all time low. TSL Past President Cindy Barnhart is part of the solution. Along with fellow MIT researchers, Barnhart has demonstrated the magnitude the effect that the delays will have on airline passengers. This work has recently been highlighted in the [International Herald Tribune](#) and on the [CBS Evening News](#).

Congestion Pricing

As cities around the world look for ways to battle car-clogged streets, many are closely following the congestion-pricing model which has been a success in London. Anna Nagurney of the University of Massachusetts tells us that congestion pricing has a much longer history, all the way back to Roman times. Nagurney and congestion pricing were featured at [Bloomberg.com](#).

Routing and Fantasy Football?

It is no secret that fantasy football is one of the forces driving the National Football League to the top spot in the pantheon of American sports. Now, those fantasy football players have some help. Jeffrey Ohlmann of the University of Iowa along with Michael Fry and Andrew Lundberg of the University of Cincinnati have developed an algorithm to aid player selection in a draft. In an interview with [BusinessWeek](#), Ohlmann relates the algorithm to those used for vehicle routing. This work has also been featured in the [USA Today](#).

In Focus: CASTLE Lab



From the laboratory, to the real-world, and back

Editor's Note: This is the first in a series of articles highlighting TSL-focused laboratories. If you have a laboratory which you would like featured in the TSL newsletter, contact [Barrett Thomas](#).

CASTLE Lab at Princeton University was founded in 1990 to tackle large-scale, complex problems, originally motivated by freight transportation. Supported by graduate student research but using full-time professional developers to handle deliverables, CASTLE develops models and algorithms to solve these problems, and tests them in a production setting. The experience has highlighted weaknesses in traditional

models, and has produced new algorithmic technologies for solving these problems. While most of the transportation science literature has focused on modeling physical systems (the flows of trucks, trains, planes and containers), we have emphasized modeling the organization and flow of information and decisions. Drawing on this work, CASTLE is proud to announce that a new book, *Approximate Dynamic Programming: Solving the curses of dimensionality*, will be coming out this fall (published by John Wiley and Sons). A short brochure describing the activities of the lab is now [available](#). You can also visit the CASTLE Lab's [website](#).

Newsletter Submission Deadlines

If you would like to submit content for an upcoming TSL newsletter, keep these deadlines in mind:

Issue	Deadline
Fall 2007	December 1
Winter 2008	March 1
Spring 2008	June 1
Summer 2008	September 1
Fall 2008	December 1

Membership

TSL membership is open to everyone. You do not need to be an INFORMS member. Just fill out the [application](#). TSL also maintains mailing list for both members and non-members. For more information on the mailing lists and the Society in general, visit our [webpage](#).

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Odds and Ends

Election

Continued from page 2

Hamilton County is excited to have developed a solution method in such a limited time. Other counties have experienced a myriad of difficulties with new voting technologies in recent elections, including some cases where voting systems did not arrive on time. Furthermore, it is expected that even more counties will move to the use of optical scanning machines as they provide a paper audit trail for vote verification. Thus, indications are that effective vehicle routing procedures for election logistics will become even more important in future elections.

Michael Fry is an assistant professor in the Department of Quantitative Analysis and Operations Management at the University of Cincinnati.

Jeffrey Ohlmann is an assistant professor in the Department of Management Sciences at the University of Iowa.

Editor

Continued from page 1

For our last new department "In Focus," we feature a TSL-focused research laboratory. In this issue, we overview the CASTLE Lab at Princeton University. This summer, we feature Cindy Barnhart, Anna Nagurney, and Jeffrey Ohlmann.

If you are interested in providing content for a future issue, please

contact [Barrett Thomas](#). Any TSL-related article is welcome. We are also looking TSL-related news. The submission deadlines for upcoming issues can be found on page 5.

Letter from Yupo Chan

I am currently doing a second edition to my 2001 book, entitled "Location Theory & Decision Analysis," originally published by Thomson/South-Western. Obviously, I'd like to add materials that are as responsive to the user community as possible. My impression of the first edition is that it is not totally responsive for classroom use. The main thrust of the second edition is to provide additional educational materials, including homeworks and exercises, to tailor it to programs that offer courses on this subject. In the first edition, most of the Homeworks and Exercises were either geared toward an advanced audience, or open-ended case studies in nature. I wish to supplement this with more introductory problems that are suitable to those who are exposed to the subject for the first time. Following past practice, answers to half of the homeworks will be provided. The answers will be supplemented with pedagogic suggestions to instructors and students on the subject at hand. If you have any specific suggestions, I would like to hear from you.

Thanks in advance for your courtesy.

Yupo Chan

Yupo Chan is a professor in and the founding chair of the Department of Systems Engineering at the Massachusetts Institute of Technology. You can reach Chan by [email](#).

Upcoming:

INFORMS Regional Conference

The first IN-FORMS regional conference



will take place August 24 and 25 at the Northwestern University in Evanston, Illinois.

INFORMS Annual Meeting



The 2007 INFORMS Annual Meeting will be held in Seattle, Washington, November 4 - 7.

TO VIEW MORE INFORMS EVENTS, VISIT THE [INFORMS CONFERENCE CALENDAR](#)