

1125-00-618

**Meghan Stuart\*** (mstuart3@vols.utk.edu), **Jorge Cisneros Paz**, **María José Pérez Pereda** and **Navdha Malhotra**. *Ballast Cleaning Scheduling Optimization*.

CSX Corporation is one of the nation's leading railway transportation suppliers. A large part of CSX annual expenses results from track upkeep and repair work, including track-ballast cleaning. Having clean ballast prevents damage to ties, supports and holds the ties in place, facilitates water drainage, and reduces vegetation around railways. Ballast cleaners' routes are normally scheduled manually due to frequent changes in the planned route with constraints such as geography, weather, types of track, cleaner speed, cleaner working hours, repair work on portions of track, and union furlough activity. In this presentation, we describe an algorithm to schedule optimized ballast-cleaner routes, completing all high priority jobs in minimum time. The algorithm is based on a modified version of a heuristic traveling salesman solution algorithm that takes as input a list of jobs with priorities, regions with curfew, and other relevant scheduling data, and outputs a near-optimal route for the following year. The algorithm is configurable and dynamic to change as conditions and constraints are altered. (Received September 08, 2016)