

# Roger William Baugher

11130 Medlock Bridge Road, Apt 1333

Johns Creek, GA 30097

Cell 770-656-8886

E-mail [rwbaugher@gmail.com](mailto:rwbaugher@gmail.com)

Website [tranalyticsllc.com](http://tranalyticsllc.com)

Roger Baugher has worked in the rail industry for forty-five years in a wide range of positions. He received a Masters in Civil Engineering under Dr. William Hay at the University of Illinois, and then earned an MBA from Northwestern University in Transportation and Finance. In his career at four railroads, he has worked on service design and analysis, equipment management, system analysis and design, line capacity analysis and much more. He performed dispatching studies at three railroads, working closely with dispatching offices. He contributed chapters to two railroad handbooks.

## **Education**

Master of Business Administration (Transportation and Finance Specialization), J. L. Kellogg Graduate School of Management, Northwestern University, Evanston, Illinois

Master of Science, Civil Engineering (Railroad Specialization), University of Illinois at Urbana-Champaign, Illinois

Bachelor of Science, Civil Engineering, Case Western Reserve University, Cleveland, Ohio

## **Experience**

### **Cedar AI, 2017 to Present**

#### **Railroad Advisor**

Advise for a start-up railroad technology company that applies artificial intelligence to improve railroad processes and solve operational problems.

### **TrAnalytics, LLC, 2013 to Present**

#### **President**

Exploiting the features of AnyLogic, a commercial simulation program, developed models for railroad operations. Most recent projects included simulation of intermodal terminals and flat yards.

## **TranSystems, 2013 to Present**

### **Industry Specialist**

As a key member of the company's railroad simulation team, analyzed plans for reconfiguration of a hump yard and one flat yard, performed capacity planning for multiple commuter agencies and developed track expansion plans at three large rail shipper facilities. The work included field observation, data gathering and processing, computer modeling and analysis.

## **BNSF Railway, March 2006 to September 2012**

### **Director, Interline and Special Projects**

Exploited new computer technologies to deliver numerous systems that streamline program deployment and provide users greater insight into operational issues. Business Intelligence tools within the Visual Studio and SQL Server platform were built to ease data extraction from many sources and to provide direct feeds to components of Microsoft Office. Years of experience working with and analyzing operational data, and extensive knowledge of Excel and macro programming, enabled me to produce systems to visualize yard operations, model and improve yard processes, analyze blocking quality, understand and improve interchange performance and address other issues to improve railroad operations.

## **RWB Consulting, 2001 – 2006**

### **President**

Work as an independent consultant generated opportunities to analyze a wide range of railroad issues.

In the former Soviet Republic of Georgia, railroads sought advice on modernizing management practice and expanding capacity.

A study for commuter rail operation involved collection of data on infrastructure and operations.

Two projects were undertaken for local government agencies seeking to improve railroad operations in their communities. The work included field observations, and analysis of traffic routing and costing.

Defense of railroad rates involved operating plan development and dispatch analysis.

A project for CSX Transportation and Wabtec Railway Electronics involved development of business cases for the deployment of CSXT's Communication-Based Transportation Management (Positive Train Control) system.

Unit coal train operations in South America required development of capital and operating plans. A train dispatching model was developed and delivered to the railroad.

## **Norfolk Southern Corporation, 1989 – 2001**

**Director, Industrial Engineering and Operations Research**

**Manager, Industrial Engineering and Operations Research**

**Applications Manager, Operations Research**

For twelve years, managed a staff of as many as twenty professionals in Industrial Engineering and Operations Research, supply chain management, simulation, optimization, strategic and tactical planning, and strategic and real-time asset distribution. Responsibilities included analysis of all line capacity projects, and guiding corporate decisions on selection of a next-generation real-time dispatching system. A particularly significant achievement during my NS tenure was the development and implementation of a new real-time, shortest-path-based blocking system that simplified table maintenance and provided powerful planning capabilities.

## **Grand Trunk Western Railroad, 1984 – 1989**

**Manager, Planning and Schedules**

**Manager, Transportation Planning – Equipment**

Developed systems to devise and evaluate schedule feasibility and performance, and deployed tools to simulate network operations and identify redundant yards that were closed, improving service and cutting costs.

## **Illinois Central Gulf Railroad, 1976 – 1984**

**Manager, Performance Analysis**

**Manager, Line Rationalization**

**System Planner**

Performed financial audits on railcar fleet investments and pioneered use of computer systems to analyze operating plan effectiveness and efficiency. Through analysis of the transportation network, identified key corridors for investment and surplus routes for retirement. Responsibilities included analysis of train accidents, single-tracking studies, and analytic support for projects funded under the Federal 4R Act, including track rehabilitation and capacity enhancements.

## **Recognition**

One of thirteen recipients (out of 30,000 employees) of Norfolk Southern Corporation's highest employee award – The Chairman's Thoroughbred Quality Award – for a revolutionary vehicle routing system

Recipient of The Railroad Applications Section (RAS) award recognizing Innovative and Pioneering Applications of Operations Research at Railroads. RASIG, a chapter of the Institute for Operations Research and The Management Sciences (INFORMS), states that my work over a period of ten years to "propose and see through the implementation of dynamic blocking plan management tools, moving to algorithmic rather than table-driven solutions to update the railroad operating plans, has represented a true inroad into how operations research should be utilized in transportation companies."

Recipient of The Railroad Applications Section (RAS) 2022 Distinguished Member Award "for distinguished service to RAS which has helped to significantly advance the goals and objectives of the society."

Organized and chaired two-day railway engineering conference on analysis of line capacity under auspices of American Railway Engineering and Maintenance-of-Way Association (AREMA)

Authored Train Performance Calculator chapter in AREMA Committee 16 Manual; assisted in revisions to other sections

Session chair and presenter at numerous conferences on railroad management, operations and systems.

Sponsored speaker at two railroad universities in China.

Review academic papers for TRB committees.

## **Publications**

Wolf, G. P. and Baugher, R.W., "Development and Application of an Advanced Microprocessor Based Line Capacity and Train Scheduling Model," COMPRAIL-92, Proceedings of 3rd International Conference on Computer Aided Design, Manufacture and Operation in the Railway and Other Advanced Mass Transit Systems, Washington D.C., 1992

Baugher, R. W. (2004, May). PTC: Overlay or Stand-Alone? Railway Age, 205, 68.

Vantuono, William C. (Ed.). (2008) . John H. Armstrong's The Railroad What It Is, What It Does . Omaha, NE: Simmons-Boardman Publishing. (My four chapters were titled "Line-Haul Operations", "Unit-Train Operations", "Operations", and "Transportation")

Patty, Bruce W. (Ed.). (2015) . Handbook of Operations Research Applications at Railroads . New York: Springer. (My two chapters were titled "Simulation of Line of Road Operations" and "Simulation of Yard and Terminal Operations")

## **Presentations**

“Exploiting Data to Create Yard and Terminal Replay,” INFORMS Annual Conference

“Application of AnyLogic to Railroad Operations Analysis,” INFORMS Annual Conference

“Line & Terminal Capacity Techniques Compared,” INFORMS Annual Conference

“The System Perspective – How Technology Advances are Shaping the Application of OR in the Rail Industry”, INFORMS Annual Conference

“Planning for Conrail Integration: the Role of Models,” INFORMS Annual Conference

“Equipment Distribution Methodologies: Current Practices and Future Directions,” INFORMS Annual Conference

“Automated Blocking for the Norfolk Southern Railroad,” INFORMS Annual Conference