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Dr. Kristen Monaco
Director, Office of Economics
Surface Transportation Board
395 E Street SW
Washington, DC 20423

Subject: Request for Access to CCWS for Academic Research

Dear Dr. Monaco,

I respectfully write to request access to the Confidential Carload Waybill Sample (CCWS) for academic research purposes. At Princeton University, I lead the **Complex Infrastructure Systems** group within the Department of Civil and Environmental Engineering. Our interdisciplinary research team focuses on understanding, modeling, and improving the resilience, efficiency, and sustainability of large-scale infrastructure networks. We specialize in developing advanced modeling techniques rooted in network science, data analytics, and systems theory to better understand the behavior of multi-modal transportation networks, energy systems, and other critical infrastructures. Access to the CCWS would play a vital role in advancing our ongoing research on railway freight transportation in North America by enabling detailed modeling of cargo flows and operational dynamics across the rail system. This dataset would be critical to achieving the scientific objectives outlined below.

Research Objectives

The goal of our research is to apply novel methodologies from network science and complex systems to model the structure and function of railroad infrastructure. We are particularly interested in modeling in detail how trains and cargo move from origin to destination through the multi-modal freight network. Some specific research objectives include:

1. Characterizing the *structure* and *function* of the geographically embedded physical infrastructure network.
 - ▶ Using network analysis to identify the most structurally important stations and junctions, which are those whose failure or removal would do the most to modify the structural characteristics of the network.
 - ▶ Characterizing the physical infrastructure network as a conduit for the movement of goods, identifying the most functionally important stations, junctions, and corridors based on detailed information about the volume and flow of trains and freight.
 - ▶ Identifying *higher-order patterns* by analyzing trajectories or paths of trains and cargo through the railway network.
2. Analyzing how the rail infrastructure and freight system has evolved *over time* by developing a generative or mechanistic model for the growth and evolution of large-scale railway infrastructure.
3. Integrating with trucking and air freight datasets to analyze intermodal cargo routing using a multi-layer network modeling approach.

**Justification for
Confidential Data**

The CCWS is the best available dataset to address our research objectives as it contains samples of trajectories of trains and freight through the railway network at a scale appropriate for our analyses. We have investigated the possibility of using the Public Use Waybill File, however the aggregation of the routing and interchange data to the BEA level does not provide sufficient granularity for our research objectives, which require data at or as close as possible to the station and junction level. We have also gathered data about the physical infrastructure network from other sources such as the [STB National Rail Map](#) and the [North American Rail Network datasets](#) maintained by U.S. DOT. However, neither of these datasets includes data about how the system actually functions, *i.e.*, how trains and cargo move through the network, which data is only available within individual railroad operators or in the CCWS.

Data Requested

In order to address our research objectives, and given that we are interested in modeling the evolution and growth of the railway system over time, we request access to a longitudinal sample of the CCWS encompassing data from as many years as are available between 1984 and 2025.

The main unit of analysis in our planned research is a sequence of stations and junctions navigated by trains and freight and therefore we are particularly interested in the Routing data ([column 32](#)). We also request data pertaining to the date of the movement to test for seasonal effects; the type and weight of freight transferred; the railroads involved in each segment of the journey (necessary to maintain confidentiality); information about intermodality and type of movement; as well as whether shipments cross state or national borders (type of move).

We note that we are not at this time planning to carry out an economic analysis, thus we are not requesting access to any revenue or fee data in this instance.

Confidentiality

We recognize that the data contained in the CCWS is considered highly confidential proprietary information and agree to treat the CCWS data confidentially in line with the terms codified in 49 CFR 1244.9 paragraphs (b)(4)(i) through (iv). At Princeton University, we have access to encrypted storage systems where we can hold the data such that only authorized users may access it. The only users authorized to access the data will be Professor Jürgen Hackl and Dr. Timothy LaRock. We further agree that any results of our analyses that we hope to publish in the scholarly record will be shared with no one else without the approval of STB, will be approved by the STB before submission, and will be aggregated such that the data cannot identify individual railroads.

Concluding Remarks

We appreciate your consideration of this request and are fully committed to complying with all confidentiality requirements and data handling protocols set forth by the STB. We believe that access to the CCWS will substantially advance the scientific understanding of freight transportation systems and support the development of models and tools with broad relevance to infrastructure planning, policy, and resilience. Please do not hesitate to contact me if further information or documentation is required in support of this request.

Yours sincerely,

Jürgen Hackl