



CAIT

Center for Advanced Infrastructure & Transportation
Rutgers, The State University of New Jersey

NJDOT Bureau of Research
QUARTERLY PROGRESS REPORT

Project Title:	Estimation of Truck Volumes and Flows		
RFP NUMBER: NJDOT 2001-18	NJDOT RESEARCH PROJECT MANAGER: W. Lad Szalaj		
TASK ORDER NUMBER: 116 / 4-26855	PRINCIPAL INVESTIGATOR: Maria Boilé		
Project Starting Date: 01/01/2002 Original Project Ending Date: 12/31/2003 Modified Completion Date: 8/31/2004	Period Covered: 2nd Quarter 2004		

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	6%	-	100%	6%
1. Data Collection	8%	-	100%	8%
2. List of major truck generating facilities	8%	-	100%	8%
3. Criteria for factors that influence changes in truck flow	10%	-	100%	10%
4. Relationships between ADT and truck volumes	33%	5%	100%	33%
5. Methods to estimate truck flow and truck percentages	-	-	-	-
6. Validate the estimation method on a selection of 12 routes	17%	20%	75%	12.75%
7. Apply methodology on a statewide basis	8%	40%	60%	4.8%
Final Report	10%	20%	80%	8%
TOTAL	100%			90.55%

Project Objectives:

The objectives of this study are as follows:

- develop a database of truck classification counts, directly linked to existing NJDOT database systems
- develop methodologies for calculating truck volumes, flows and percentages on Interstates/Freeways, and principal arterials where some count information is available, and on lower facilities (principal and minor arterials) where little or no count information is available
- apply the methodology to New Jersey roadways to develop a GIS database of truck volumes, flows and percentages
- evaluate the methodology and the database developed using actual data collected through the NJDOT traffic monitoring system
- validate the method on a section of at least twelve highways, including four Interstate / Toll Authority routes, four principal arterials, two urban major arterials, and two rural major arterials

Project Abstract:

Freight transportation plays a vital role in the development and prosperity of a state such as New Jersey. More than 375 million tons of freight is transported each year in New Jersey. Trucks dominate this movement, accounting for 283 million tons. This project develops a procedure for estimating truck traffic on state highways, based on observed counts. A statistical approach is being developed for estimating truck volumes and flows, based primarily on classification counts and information on roadway functionality, employment, sales volume and number of establishments within the state. Models will be created that may predict the truck volumes at a certain location in the state. Profiles of truck traffic will also be developed for various roadways, indicating the ADT, truck and passenger car volumes and percentages. The procedure will be modeled within a GIS

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framework, which facilitates data analysis and presentation. Within this framework, locations in the state highway network may be selected and based on a set of criteria the data associated with the network, truck volumes, traffic profile, truck percentage etc can be estimated. The models would be used to predict truck volumes on locations where actual observations are not available. The predicted volumes along with the observed ones would be used to determine the truck traffic patterns along state highways. Sensitivity analysis will be conducted to determine how the model behavior changes with variations in the explanatory variables. Although the proposed method will be applied to a selected sample of state highways, a procedure will be developed for the statewide application of this method.

1. Progress this quarter by task:

Task 4: Both the linear regression and constrained models have been re-estimated based on a new set of explanatory variable data. The reason for this change had been discussed during the last quarterly meeting at the NJDOT. The new models overcome the identified problems and seem to work better than the previous ones.

Task 6: The new models have been tested on the selected roadways and predicted volumes are compared to the observed ones. In addition, sensitivity analysis has been performed and the results have been summarized. A GIS based tool has been developed for the purpose of automating the developed approach and facilitating visual observation and analysis of the results.

Task 7: The procedure for applying the methodology on a statewide basis has been developed and will discussed in the next quarterly meeting.

Final Report: A final draft of the report has been produced and will be submitted to the NJDOT by the end of May.

2. Proposed activities for next quarter by task:

Any changes that will be suggested during the next quarterly meeting and any additional changes that will be recommended by the NJDOT staff after their review of the draft final report will be addressed during the next quarter.

3. List of deliverables provided in this quarter by task (product date):

Draft final report

4. Progress on Implementation and Training Activities:

Training material is being developed in parallel to the development of the GIS based framework

5. Problems/Proposed Solutions:

None

Total Project Budget	\$198,566
Modified Contract Amount:	
Total Project Expenditure to date	\$153,123
% of Total Project Budget Expended	77%

* These are approximate expended amounts for the project; these estimates are for reference only and should not be used for official accounting purposes. For a more accurate project accounting please review the quarterly invoice for this project.