

**NJDOT Bureau of Research  
QUARTERLY PROGRESS REPORT**

<b>Project Title:</b> Development of New Jersey Rates for NJCMS Incident Delay Model	
<b>RFP Number:</b> 2005-02	<b>NJDOT Research Project Manager:</b> Robert Sasor
<b>Task Order Number/Study Number:</b> TO-66	<b>Principal Investigator:</b> Chien, Steven I-Jy
<b>Project Starting Date:</b> 1/1/2006 <b>Original Project Ending Date:</b> 12/31/2006 <b>Modified Completion Date:</b> 9/30/2007	<b>Period Starting Date:</b> 10/01/2006 <b>Period Ending Date:</b> 12/31/2006

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	5	0	100	5
Review the Current Practice of NJCMS	5	0	100	5
Comprehensive Literature Search	5	0	100	5
Technology Transfer	5	20	60	3
Develop NJCMS Incident Database	35	10	40	14
Development of Robust Models for Incident Rates and Durations	10	10	20	2
Develop a Procedure to Maintain the Database	5	0	0	0
Determine Reasonably Accurate Incident Rates and Duration Estimates	20	10	20	4
Feasibility and Cost/Benefit Analysis	10	0	0	0
Final Report	10	0	0	0
Final Report				
TOTAL	100 %			38.0 %

**Project Objectives:**

- Determine if and how existing incident reports and databases can be used to generate good, New Jersey specific estimates of incident rates, response times, and clearance times for both peak and off-peak periods.
- Determine if new data in the form of actual field observations of incidents (from the beginning to the end of an incident) will be reasonable and useful to supplement and tie together the existing data.
- Develop an up-to-date incident database to store the information required and generate reasonably accurate estimates of inputs required by the NJCMS model.
- Conduct a cost and benefit analysis of various methods and technologies to collect continuous incident related data for the database developed in this project.

**Project Abstract:**

The Congestion Management System used by the New Jersey Department of

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Transportation (NJCMS) contains a model that estimates the non-recurring delay that occurs from incidents on highways. The NJCMS model uses rates for incident types that were determined from national studies. To make better predictions of non-recurring delay for New Jersey highways, NJ specific rates are needed. These incident rates should be developed for the nine categories of incidents for peak and off-peak periods (fatal, personal injury, property damage, mechanical/electrical, stall, flat tire, abandoned, debris, other). In addition, percent blockage of lanes and shoulders, percent capacity remaining, response time, and clearance times need to be determined for incidents. While various incident reports exist such as police reports, and various Traffic Operations reports, they do not provide data for the NJCMS model.

A feasibility study is required to determine if and how police reports, Traffic Operations databases, Emergency Service Patrol records, and other existing incident data can be utilized to provide estimates of the input parameters needed for the NJCMS non-recurring delay model. This study would decide if new data in the form of actual field observations of incidents (from beginning to end) would be reasonable and useful to supplement and tie together the existing data. If so, the feasibility and cost effectiveness of various methods and technologies to collect this continuous incident observation data would be examined.

**1. Progress this quarter by task:**

- Prepared and submitted the revised report and an electronic file, which contain missing capacity and volume in links NJCMS database to NJDOT.
- Conducted an investigation and submitted the results in electronic format of milepost missing records statistics in NJDOT crash records, TOC incident data, and ESP data.
- Collected and reviewed NJTP and GSP incident data.
- Assigned NJCMS number to all collected database including NJTP, GSP, TOC incident data, and NJDOT crash records.
- Reviewed and checked overlapped records among different data sources.

**2. Proposed activities for next quarter by task:**

- Design NJCMS incident database
- Calculate the preliminary incident rates and duration estimates
- Develop a procedure to maintain the database

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

None.

**4. Progress on implementation and training activities:**

None.

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**5. Problems/proposed solutions:**

None.

**6. Budget summary:**

Total Project Budget	\$198,993.00
Modified Contract Amount	\$0.00
Total Project Expenditure to date	\$75,867.00
% of Total Project Budget Expended	38.13%