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

QUARTERLY PROGRESS REPORT

Project Title:	A Proposal for the Development of High Performances Concrete for Transportation Structures in New Jersey
RFP NUMBER: N/A	NJDOT RESEARCH PROJECT MANAGER: Tony Chmiel
TASK ORDER NUMBER/Study Number: 62 / 4-23806	PRINCIPAL INVESTIGATOR: Hani Nassif
Study Start Date: 04/30/2001 Study End Date: 08/31/2003	Period Covered: 4th Quarter 2003 Report dated 11/30/03

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Selection of Final Mixes	5%	0%	100%	5%
Collection of Data and Preparation of Samples During the Field Samples	20%	10%	100%	20%
Evaluation of Field Samples	10%	20%	100%	10%
Creep and Shrinkage Set-up and Testing	50%	0%	100%	50%
Preparation of Specifications for HPC	10%	5%	90%	9%
Final Report	5%	5%	100%	5%
TOTAL	100%			99%

1. Progress this quarter by task:

1. Draft final report completed and is re-submitted to NJDOT.

2. Future Tasks:

1. Make changes to Draft final report according to NJDOT recommendations.

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

N/A

4. Progress on Implementation and Training Activities

N/A

5. Problems/Proposed Solutions

N/A

6. Budget Summary*

Total Project Budget (# of years)	1.5 Years	$384,320.00
Total Project Expenditure to date		$384,320
% of Total Project Budget Expended		100%
Task Order Number/Study Number:		62 / 4-23806
Current Task Order Budget (# of years)	Year 1.5	$384,320.00
Actual Expenditure to date against current task order		$384,320
% of current task order budget expended		100%

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QUARTERLY PROGRESS REPORT

Project Title:	Monitoring of Construction Doremus Avenue Bridge Structure
RFP NUMBER: N/A	NJDOT RESEARCH PROJECT MANAGER: Nick Vittilo
TASK ORDER NUMBER/Study Number: 99 / 4-26676	PRINCIPAL INVESTIGATOR: Hani Nassif
Study Start Date: 01/01/2001 Study End Date: 12/31/2004	Period Covered: 4th Quarter 2003 Report date 11/30/03

Task*	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search and Field Coordination	2%	0%	100%	2%
Finite Element Model Development and verification (Substructure & Superstructure)	5%	20%	90%	4.5%
Develop Instrumentation Plan and Install Sensors for LMC and Stage II sensors	20%	40%	90%	18%
Parametric Study	15%	10%	80%	12%
Perform Testing of LMC layers, Stage I and II before and After LMC, Monitoring and Data Collection	20%	10%	80%	16%
Prepare Recommendations to Modify AASHTO's, NJDOT's and LMC Procedures	20%	10%	60%	12%
Comparison of Analytical and Experimental Results including LMC layer	8%	20%	70%	5.6%
Progress Reports	5%	0%	90%	4.5%
Final Report	5%	10%	20%	1%
TOTAL	100%			75.6%

* Tasks are re-assigned with the addition of LMC work

1. Progress this quarter by task
   A. Latex Modified Concrete Layer:
      1. Installing strain gages in Stage I LMC layer
      2. Collecting LMC samples to determine the material properties.
      3. Due to the Contractor's premature opening of traffic prior to the data collection of the "intact" response of the LMC layer, future data collection on strains and cracking would have to be examined.

   B. WIM System
      1. The WIM bending plate in Lanes 3 and 4 (North bound lanes) are connected to the WIM system
      2. The WIM system is calibrated, however, because of the bump between the approach slab and the roadway, the WIM plate need to be recalibrated after the final pavement is re-done in lanes 1 and 2.
      3. WIM system is currently communicating with the fatigue system and it is used as a trigger for the fatigue system.

   C. Fatigue System
      1. Fatigues system is being re-programmed to accommodate the full 4 lanes bridges. The connection to the fatigue system from the WIM lanes has been re-designed due to changes in the design of the WIM

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system. The WIM system model and software originally noted in the Doremus plans has become obsolete and the new software has been installed. The new software required adding new hardware to the fatigue system to accommodate for the text information.

2. Proposed activities for next quarter by task
   1. Performing static and dynamic testing of the full bridge (Stages I and II). The first day testing for static loading is scheduled for December 1, 2003.
   2. Calibrating the fatigue system to capture the truck traffic on the bridge (from WIM system)
   3. Monitoring of the LMC strain profile and measuring its mechanical properties under field and Laboratory conditions.

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

4. Progress on Implementation and Training Activities

5. Problems/Proposed Solutions

6. Budget Summary*

Total Project Budget (# of years)	4 Years	$736,466
Total Project Expenditure to date		$537,414
% of Total Project Budget Expended		73%
Task Order Number/Study Number:		99 / 4-26676
Current Task Order Budget (# of years)	Year 1, 2, 3, and 4	$736,466
Actual Expenditure to date against current task order		$537,414
% of current task order budget expended		73%

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QUARTERLY PROGRESS REPORT

Project Title:	Instrumentation and Monitoring of Bridge Approach Slabs – Phase II
RFP NUMBER: N/A	NJDOT RESEARCH PROJECT MANAGER: Robert Sauber and Nick Vittilo
TASK ORDER NUMBER/Study Number:	PRINCIPAL INVESTIGATOR: Hani Nassif
Period Starting: 1/1/2001 - 12/31/2004 (Start-End Date of Study)	Period Ending: 4th Quarter 2003 Report dated 11/30/03

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Instrumentation Plan and Field testing	30%	20%	90%	27%
Calibration of Sensors and DAS	20%	30%	60%	12%
Data Collection and LTRM	20%	10%	50%	10%
FEM Verification	10%	2%	8%	8%
Progress Reports & Technical Memorandum	15%	10%	60%	9%
Final Report	5%	0%	0%	0%
TOTAL	100%			66%

1. Progress this quarter by task:
   - Installed VWSG and fiber optic sensors in approach slabs in Lanes 1 and 2 near the South Abutment.
     - With help from the Rutgers team, few Fiber optic sensors were installed by UIC Team for one slab in Lane 2. The remaining fiber optic sensors were installed by Rutgers University Team in the Slab located in Lane 1. All VWSG are working but the fiber optic sensors are not.
     - Contractor damaged a number of the fiber optic sensors during the concreting of the slab. Photos will be presented during the Quarterly Report meeting.
   - Collected concrete samples to determine material properties
   - Visual inspection of cracks was performed and no cracks were detected
   - Ran sensors cables underneath the approach slab to the data logger such that the strain in the concrete can be monitor during concreting.
   - Contractor installed temporary power to the data logger on South Abutment
   - Contractor installed telephone line from Pier 2 location to the data logger at the South Abutment
   - Noted a lack of quality control during the construction and preparation of the approach slabs. The Rutgers Team communicated their concerns on various occasions to the Contractor and NJDOT on-site quality control representatives and project management. The main concerns were with the wrong reinforcement spacings, cover, geometry, and installation of WIM system. Only on few occasions were the faulty work corrected. Photos of various observations will be presented during the Quarterly report meeting.
   - Contractor opened lane 2 to traffic prior to initial static testing can be performed on the slabs. Static tests are planned for December 1, 2003. Calibration of the WIM bending plate system is scheduled for December 10, 2003.

2. Proposed activities for next quarter by task

   - Remodel FE model for the embedded beam to reflect the error made by the contractor.

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- Static testing of the approach slab and calibrating the model using the new 3D model.
- Comparing results from fiber optic sensors with VWSG.

3. List of deliverables provided in this quarter by task (product date)
   N/A
4. Progress on Implementation and Training Activities
   N/A
5. Problems/Proposed Solutions
   N/A
6. Budget Summary*

Total Project Budget (# of years)	1 Year ADD-ON	$736,466
Total Project Expenditure to date		$537,414
% of Total Project Budget Expended		73%
Task Order Number/Study Number:		99 / 4-26676
Current Task Order Budget (# of years)	Year 1 ADD-ON	$736,466
Actual Expenditure to date against current task order		$537,414
% of current task order budget expended		73%

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QUARTERLY PROGRESS REPORT

Project Title:	Seismic Analysis of Retaining Walls, Buried Structures, Embankments, and Integral Abutments
RFP NUMBER: 2000-25	NJDOT RESEARCH PROJECT MANAGER: Mr. Anthony Chmiel
TASK ORDER NUMBER/Study Number: Task Order No. 127 / 4-26995	PRINCIPAL INVESTIGATOR: Dr. Husam Najm
Study Start Date: 01/01/2003 Study End Date: 12/31/2004	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Review on Seismic Design of Abutments, Retaining Structures, Buried Structures, and Embankments	10	20	80	8
Provide Analysis, Design, and Detailing of Free Standing Abut and Retaining Walls	20	20	50	10
Provide Analysis, Design, and Detailing of Integral (Diaphragm) Abutments	20	20	50	10
Provide Guide Specifications Manual to Assist Designers in Designing Free-Standing and Integral Abutments, Embankments, Buried Structures and Retaining Walls	30	20	40	12
Prepare Progress reports	10	10	4	5
Prepare Technical Memorandum and Final Report	10	5	4	4
TOTAL	100%	20	44	49

1. Progress this quarter by task:
   Submitted a paper to US-PRC Conference on seismic design of bridges in NJ comparing new provisions to existing provisions. Two typical examples were evaluated for both new and old provisions. Transverse requirements in columns could change significantly for large columns with larger bars. PB started working on detailed example that will be part of the final report. A summary of existing research and available data on response of retaining walls to earthquake was prepared and will be presented.

2. Proposed activities for next quarter by task:
   Collect site-specific response spectra for various available projects in NJ and NY area. Ask bridge office at NJDOT if they have site-specific info from previous projects. Prepare a database and use it to assess these spectra with those specified in NCHRP provisions. PB will work on detailed example for integral abutment. Continue working on design criteria and guidelines. Update draft of final report based on comments form NJDOT customer and research manager.

3. List of deliverables provided in this quarter by task (product date):
   Analysis and design results of typical examples. US-PRC Conference paper on seismic design of bridges in NJ

4. Progress on Implementation and Training Activities: None

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5. Problems/Proposed Solutions:
None

6. Budget Summary*

Total Project Budget (# of years)	1 Year	$173,017
Total Project Expenditure to date		$94,132
% of Total Project Budget Expended		54%
Task Order Number/Study Number:		127 / 4-26995
Current Task Order Budget (# of years)	Year 1	$173,017
Actual Expenditure to date against current task order		$94,132
% of current task order budget expended		54%

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QUARTERLY PROGRESS REPORT

Project Title:	Development of Airport Obstruction Identification System
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Ed Kondrath
TASK ORDER NUMBER/Study Number: 115 / 4-26857	PRINCIPAL INVESTIGATOR: Patrick Szary
Study Start Date: 01/1/2002 Study End Date: 12/31/2004	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
1. Literature Search	10%	0%	100%	10%
2. Develop criteria	5%	0%	100%	5%
3. Evaluate the cost effectiveness	8%	0%	100%	8%
4. Conduct laboratory experiments	5%	0%	80%	4%
5. Conduct laboratory/field experiments	15%	5%	85%	12.75%
6. Develop prototype software	25%	5%	75%	18.75%
7. Demonstrate field test system	5%	5%	25%	1.25%
8. Redesign a new prototype	5%	0%	60%	3%
9. Demonstrate prototype system	5%	5%	5%	.25%
10. Train NJDOT personnel	7%	14%	50%	3.5%
11. Final Report	10%	0%	1%	1%
TOTAL	100%			67.5%

1. Progress this quarter by task:

A. The most significant progress this task was the training phase for the DOT personnel. To date, nine training sessions have been held on the campus of Rutgers University with two training personnel. The training consists of both hands on, in the field flying of the training helicopters along with some classroom and simulator time during each session.

B. The final helicopter from Bergen RC was completed and delivery was taken. During the training the instructors have flown and the DOT personnel have each had a few minutes of flight time on the Industrial Twin.

2. Proposed activities for next quarter by task:

A. Continuing helicopter training sessions until all trainees become proficient in flying the helicopters.

B. Designing and installing a front mount system for the Industrial Twin for the Camera, GPS, and other components.

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

A. List of requirements for a custom made RC helicopter.

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4. Progress on Implementation and Training Activities

A. Training activities have begun and are progressing nicely. Trainees have all been able to get flight time with both the simulator and actual helicopters.

5. Problems/Proposed Solutions

A. Ability of the NJDOT personnel to learn to fly an RC helicopter because it is considered a difficult task. Thus it is critical to begin training as soon as the GPS selection is made to allow enough training time prior to the development and delivery of the final system.

6. Budget Summary*

Total Project Budget(# of years)	2 Years	$210,000.00
Total Project Expenditure to date		$123,768
% of Total Project Budget Expended		59%
Task Order Number/Study Number:		115 / 4-26857
Current Task Order Budget (# of years)	Year 1 and 2	$210,000.00
Actual Expenditure to date against current task order		$123,768
% of current task order budget expended		59%

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QUARTERLY PROGRESS REPORT

Project Title:	New Jersey State LTAP Technology Transfer Center
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Nicholas Vitillo
TASK ORDER NUMBER/Study Number:	PRINCIPAL INVESTIGATOR: Dr. Ali Maher
Study Start Date: 01/01/2003 Study End Date: 12/31/2003	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Activity				
1. Compile and Maintain Mail List	1.88		97.63	1.84
2. Publish Monthly Newsletter	10.30		96.00	9.88
3. Distribute Technology Transfer Materials	15.45		75.87	11.73
4. Provide Technical Assistance	34.25		87.40	29.93
5. Provide Training	33.31		82.20	27.38
6. Evaluate Effectiveness of Program	4.81		100	4.81
Final Report				
TOTAL	100			85.66

1. Progress this quarter by task:

A. Compile and Maintain Mail List

The mail list was updated on an as needed basis during this quarter.

B. Publish Monthly Newsletter

Three newsletters were published this quarter. Newsletter distribution occurred via email. The newsletter is available in three forms: within the email, attached to the email in PDF format, and posted online at the LTAP web page. All subsequent issues are archived under the "Library" section of the LTAP the web page.

Volume 5, Number 10 was published in October 2003. This issue featured the 2003 Road Scholar Program graduates, the TEA-21 five-month extension, Put the Brakes on Fatalities Day, a Public Works Survey and updated events and course offerings . The monthly "*Free for the Asking*" offering was an interactive CD ROM- "***WORK ZONE SAFETY FOR ROADWAY MAINTENANCE OPERATIONS***" produced by the Center for Advanced Infrastructure and Transportation at Rutgers University, in cooperation

with Advanced Technology Concepts, Inc, the New Jersey Division of Highway Traffic Safety, and the National Highway Traffic Safety Association.

Volume 5, Number 11 was published in November 2003. The eleventh newsletter of this year included an article on the 5th Annual NJDOT Research Showcase, a new congestion study conducted by the Texas Transportation Institute, and information on roadway safety in New Jersey. Also, events and course schedules, as well as a "*Free for the Asking*" offering- "***Walkable Community: Common Characteristics of Pedestrian Friendly Communities",*** a publication published by the United States Department of Transportation, Federal Highway Administration were included.

Volume 5, Number 12, was published in December 2003. This issue featured information on the upcoming Spring 2004 educational programs, the 2004 Trans Action Conference, and a *Free for the Asking"* offering. In addition, an updated events calendar was included.

C. Distribute Technology Transfer Materials

Technology transfer materials were distributed during training seminars, workshops, and free for the asking requests. Course materials, work zone safety pocket guides, technical publications, and reference materials from the lending library were made available. 3,600 individuals received each issue of the newsletter. In addition, 507 technical publications and manuals were distributed this quarter. Aside from training materials, these included pavement markings identification guides, work zone safety interactive CD-ROMS, and technical reports.

D. Provide Technical Assistance

There were 511 instances of technical assistance provided by LTAP staff. Requests were made via telephone, mail, e-mail, and fax.

E. Provide Training

Training was provided to 240 individuals via 15 programs during the October- December quarter. Program areas were composed of conferences, Road Scholar I and Road Scholar II.

F. Evaluate Effectiveness of Program

Program effectiveness was measured by course evaluations for each course and each instructor. Participants rated the over all quality of courses, instructors, and course content at or above their expectations.

2. Proposed activities for next quarter by task

A. Compile and Maintain Mail List

Contact information will continue to be added to, and revised, on a continual basis.

B. Publish Monthly Newsletter

Newsletters will be published monthly. The newsletter will be continually offered online in both html and PDF formats, and in a simple email format.

C. Distribute Technology Transfer Materials

Technology transfer materials will be distributed during training programs, conferences and trade shows. The "Free for the Asking" component of the newsletter will continue to offer select technical publications free of charge. The lending library is always available.

D. Provide Technical Assistance

Technical assistance will be provided for any inquiries made via telephone, fax, or e-mail to the LTAP staff.

E. Provide Training

Training programs for the next quarter will be provided for the Public Works Road Scholar I and Public Works Road Scholar II Programs, the Public Works Academy, Municipal Engineering Construction Inspection I and II, and a 3-Day Public Works: Incident Command System is scheduled for January 2004.

F. Evaluate Effectiveness of Program

Course evaluations will be completed at each training program for each instructor. Follow-up course surveys for participants are under development. The quarterly meeting of the Advisory Committee will also reflect evaluation of program activities.

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

Newsletter:

Volume 5, Number 10	October 2003
Volume 5, Number 11	November 2003
Volume 5, Number 12	December 2003

Training Programs:

Drainage Maintenance: The Key to Roads that Last, Road Scholar I	October 1, 2003
Asphalt Roads: Common Maintenance Problems, Road Scholar I	October 1, 2003
Superpave, Road Scholar II	October 7, 2003
Third Annual Local Research Showcase	October 8, 2003
Effective Incident Documentation, Road Scholar I	October 15, 2003
Hazard Communications and Awareness, Road Scholar I	October 15, 2003
Public Works: Preparing For And Responding To Terrorism and Weapons Of Mass Destruction, 3-day conference	October 15-17, 2003
Grant Writing for Public Works, Road Scholar II	October 28, 2003
Trenching and Excavation Safety, Road Scholar I	November 5, 2003
Confined Space and Excavation Rescue, Road Scholar I	November 5, 2003
Successful Budgeting for Public Works, Road Scholar II	December 2, 2003
Low Cost Surface Rehabilitation, Road Scholar I	December 3, 2003
Hot Mix Asphalt Resurfacing, Road Scholar I	December 3, 2003
Winter Maintenance, Road Scholar I	December 3, 2003
Preventive Maintenance, Road Scholar I	December 3, 2003

4. Progress on Implementation and Training Activities

N.A.

5. Problems/Proposed Solutions

N.A

6. Budget Summary*

Total Project Budget(# of years)	$275,000
Total Project Expenditure to date	$235,577
% of Total Project Budget Expended	86%
Task Order Number/Study Number:	
Current Task Order Budget (# of years)	$275,000
Actual Expenditure to date against current task order	$235,577
% of current task order budget expended	86%

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QUARTERLY PROGRESS REPORT

Project Title:	New Jersey Local Congestion, Safety, Security Initiative
RFP NUMBER:	NJDOT/FHWA RESEARCH PROJECT MANAGER(S): Nazhat Aboobaker/William Hoffman
TASK ORDER NUMBER/Study Number: Task Order No. 132 / 4-26993	PRINCIPAL INVESTIGATOR: Ali Maher/Joe Orth
Study Start Date: 12/11/2002 Study End Date: 12/11/2004	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
1.1 Literature Search	15	7	100	15
1.2 Present NJDOT/FHWA	5	30	100	5
2.1 Survey Customers	30	45	100	30
3.1 Crash Data Training	6.25	0	60	3.75
3.2 Identify/Provide Tools	6.25	0	50	3.13
3.3 Provide Emergency Response Training	6.25	10	50	3.13
3.4 Promote Congestion Mitigation	6.25	0	40	2.50
3.5 Introduce Congestion Best Practices	6.25	0	100	6.25
3.6 Explore Mass Transit Alternatives	6.25	20	25	1.56
3.7 Facilitate Safety and Security	6.25	50	50	3.13
3.8 Personnel Safety Training	6.25	60	60	3.75
TOTAL	100			77.2

1. Progress this quarter by task:

   A. The Congestion/Safety/Security Literature Review has been completed and will be distributed to NJDOT & FHWA for approval in December.

      a. An interview was held on 10/17/03 with Mr. Art Egan, NJDOT, who is now responsible for completing security planning for the counties of New Jersey, while Rod Roberson, former Assistant Commissioner, has be assigned to prepare a consolidated plan for NJDOT that includes the Parkway and the Turnpike Authority.

      b. As per the recommendation of Art Egan, a second interview was conducted with Kurt Aufschneider on the Emergency Management System that has been developed at NJDOT. He provided logistical information as well as contacts for establishing county wide safety systems.

      c. A series of handouts were prepared from the Literature Review that are identified below:
         1. Safety Conscious Planning Presentation - LTAP Showcase (10/03)
         2. Safety Conscious Planning Presentation – NJDOT Showcase (10/03)

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B. Several meetings have been held between FHWA, NJDOT, and Rutgers CAIT-LTAP representatives:
- Strategic Planning Subcommittee (9/25, 11/6)
- Crash Data/Police Manual Subcommittee (9/16, 10/14, 10/28)
- Data Integration Subcommittee (10/2, 11/14)
- Intersection Safety & Pavement Markings Subcommittees (9/30, 10/28, 11/25)
- FHWA Meeting (10/30)

C. **Update of Grant Project**: Representatives from SJTPO distributed the SCP survey to the police, public works, engineers, planners, and elected officials from the 86 municipalities that are included in their jurisdiction. CAIT-LTAP distributed the SCP surveys to the aforementioned departments for the 384 municipalities from the NJTPA and the 113 municipalities that are represented by the DVRPC.

The on-line survey was completed by the consultant and linked to the LTAP website where respondents are directed to submit their responses.

D. Literature Review: The three sections of the Literature Review were compiled into a technical presentation that was presented at two state conferences during the fall semester. Also, the final presentation to the FHWA/NJDOT will be conducted in December 2003.

E. Discussion of Safety Conscious Planning Model: The Safety Conscious Planning Meeting will be held on December 11th with representatives from the lead state agencies. Also, the New Jersey Statewide Safety Conscious Planning Forum has been scheduled on March 16th in New Brunswick at the Hyatt Hotel.

F. Survey Plan: distributed.

G. Proposed activities for next quarter by task

CSS Initiative Programs	
Activity	**Projected Time Period**
SCP Forum	March 2004
Local SCP Forums	May 2004
Local SCP Forums	September 2004
Local SCP Forums	December 2004

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a) Continue Literature Search
b) Report regularly on current state of practice to the executive board
c) Distribute survey
d) Meet with various stakeholders

3. List of deliverables provided in this quarter by task (product date)
CSSI Literature Review Final Report
SCP Survey Results
SCP Forum Brochure

4. Progress on Implementation and Training Activities
SCP Planning Meeting (12/03)
SCP Forum (3/04)
SCP Workshops (5/04, 9/04, 12/04)

5. Problems/Proposed Solutions

1. Problem: Gaining Support for Safety Conscious Planning Model

Solution: FHWA Meeting scheduled on 12/11/03 to plan for the Spring 2004 Program.

2. Problem: The Safety Conscious Planning Model has recently been modified to include Security Into the Safety component, which is more useful for local transportation agencies that are seeking technical support in developing their own security plans.

Solution: Rutgers personnel will advocate to support both, Safety and Security into the training forum.

6. Budget Summary*

Total Project Budget (# of years	Year 1	$ 741,836
Total Project Expenditure to date		$261,881
% of Total Project Budget Expended Yr 1 ($370, 918)		35%
Task Order Number/Study Number:		132 / 4-26993
Current Task Order Budget (# of years)	Year 1 and 2	$ 741,836
Actual Expenditure to date against current task order		$261,881
% of current task order budget expended		35%

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QUARTERLY PROGRESS REPORT

Project Title:	Ride Quality Follow-Up
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Mr. Nick Vitillo
TASK ORDER NUMBER/Study Number: Task Order No. 126 / 4-26526	PRINCIPAL INVESTIGATOR: Dr. Nenad Gucunski
Study Start Date: 01/01/2003 Study End Date: 12/31/2004	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search and Planning	5	30	100	5
Design and Development	70	20	40	28
Implementation and Training	10	0	0	0
Reporting	10	0	0	0
TOTAL	100%			33

1. Progress this quarter by task:

- Testing with walking profiler is complete on Rt. 55 S MP 26.4-26. Testing was done on three 528 ft sections using Rod and level, Australian Walking profiler and the ARAN.Preliminary analysis shows good correlation between WP and Rod and level.
- Testing on RT. 195W MP 19-17 is ongoing-ARAN runs are complete but WP and rod & level are incomplete. A total of six 528ft sections are being tested.
- Development of alternative ways (e.g. wavelet analysis) in pavement smoothness description in progress.

2. Proposed activities for next quarter by task:

- Development of a more representative ride statistic, including a new approach utilizing wavelet transforms.
- Software review and evaluation, software development

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

4. Progress on Implementation and Training Activities

N/A

5. Problems/Proposed Solutions

N/A

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6. Budget Summary*

Total Project Budget(# of years)	2 Years	$232,005
Total Project Expenditure to date		$24,338
% of Total Project Budget Expended		8%
Task Order Number/Study Number:		126 / 4-26526
Current Task Order Budget (# of years)	Year 1, 2, and 3	$232,005
Actual Expenditure to date against current task order		$24,338
% of current task order budget expended		8%

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QUARTERLY PROGRESS REPORT

Project Title:	Evaluation of Poisson's Ratio
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Mr. Anthony Chmiel
TASK ORDER NUMBER/Study Number: Task Order No. 128 / 4-26531	PRINCIPAL INVESTIGATOR: Thomas Bennert
Study Start Date: 01/1/2003 Study End Date: 12/31/2004	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search/Sensitivity Analysis	10%	50%	100%	10%
1. Material Collection	5%	0%	100%	5%
2. Laboratory Testing	65%	10%	20%	13%
3. Calibration	10%	25%	25%	2.5%
4. Reporting	10%	0%	0%	0%
Final Report				
TOTAL	100%			30.5%

1. Progress this quarter by task:
   A. A large number of resilient modulus tests were conducted with the horizontal deformations also be measured to obtain values of Poisson's ratio. The testing comprised of evaluating how the Poisson's ratio changes with the change in aggregate gradation. The testing was conducted for both an NJDOT designated I-3 aggregate and a DGABC aggregate. Currently CAIT researchers are conducting the data analysis and hope to have representative data for presentation at the quarterly meeting.

2. Proposed activities for next quarter by task:
   A. Evaluate how the Poisson's ratio (and resilient modulus) varies with the effect of temperature. The temperatures selected for testing will be in the range found in the on-going NJDOT Seasonal Variation research project.

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

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4. Progress on Implementation and Training Activities

N.A.

5. Problems/Proposed Solutions

N.A.

6. Budget Summary*

Total Project Budget(# of years)	2 Years	$426,111
Total Project Expenditure to date		$144,993
% of Total Project Budget Expended		34%
Task Order Number/Study Number:		128 / 4-26531
Current Task Order Budget (# of years)	Year 1 and 2	$426,111
Actual Expenditure to date against current task order		$144,993
% of current task order budget expended		34%

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QUARTERLY PROGRESS REPORT

Project Title:	The Development of a Performance Specification for Granular Base and Subbase Material
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Mr. Anthony Chmiel
TASK ORDER NUMBER/Study Number: Task Order No. 83 / 4-23914	PRINCIPAL INVESTIGATOR: Dr. Ali Maher
Study Start Date: 03/01/2000 Study End Date: 08/31/2003	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	5%	0%	100%	5%
1. Material Collection	5%	0%	100%	5%
2. Laboratory Testing	60%	10%	95%	57%
3. Calibration	10%	25%	90%	9%
4. Reporting	20%	40%	70%	14%
Final Report				
TOTAL	100%			90%

1. Progress this quarter by task:
   A. Resilient modulus testing was completed and the data analysis for the testing has also finished. Based on the analysis, some repeat testing for the resilient modulus is needed to complete the conclusion of trends found in the study. The testing should take minimal amount of time.
   B. A final report is being generated and should be ready for NJDOT review shortly. A meeting will be arranged with NJDOT Materials and Pavement Design representatives to discuss an optimal format of the results so the NJDOT representative can used the information in the most meaningful manner.

2. Proposed activities for next quarter by task:
   A. Complete final report for submission and review.

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

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4. Progress on Implementation and Training Activities
N.A.

5. Problems/Proposed Solutions
N.A.

6. Budget Summary*

Total Project Budget(# of years)	2 Years	$286,041.00
Total Project Expenditure to date		$282,893
% of Total Project Budget Expended		99%
Task Order Number/Study Number:		83 / 4-23914
Current Task Order Budget (# of years)	Year 1 and 2	$286,041.00
Actual Expenditure to date against current task order		$282,893
% of current task order budget expended		99%

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QUARTERLY PROGRESS REPORT

Project Title:	Demonstration Project – The Measurement of Pavement Noise Using the NCAT Noise Trailer
RFP NUMBER:	NJDOT PRINCIPAL Anthony Chmiel
TASK ORDER NUMBER/Study Number: Task Order No. 140 / 4-29052	PRINCIPAL INVESTIGATOR: Thomas Bennert
Study Start Date: 08/1/2003 Study End Date: 8/31/2004	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
1. Pavement Type Selection	10%	100%	100%	10%
2. Pavement Noise Testing	70%	100%	100%	70%
3. Data Analysis and Reporting	20%	100%	100%	20%
Final Report				
TOTAL	100%			100%

1. Progress this quarter by task:
   A. A preliminary report by CAIT researchers was submitted to the NJDOT for review. Although the National Center for Asphalt Technology (NCAT) is responsible to presenting a final report on December 12th, 2003, CAIT obtained the results from NCAT to provide a preliminary report to the NJDOT for review. NCAT members will also provide a presentation on the testing and results at the NJDOT on December 12th, 2003.
   B. The results indicated that overall, HMA pavement surfaces were ultimately quieter than PCC pavement surfaces. The quietest pavement surfaces found were comprised of open graded friction course (OGFC), with the crumb rubber modified OGFC ultimately having the lowest recorded noise. The loudest pavement surfaces found were PCC pavements that had transverse tining. However, it was found that if the PCC was treated via diamond grinding, the tire/pavement related noise dropped significantly, even comparable to some of the quieter HMA pavement surfaces.
   C. The noise was found to have a linear relationship with the travel speed of the vehicle. Overall, a 0.2 decibel increase occurs for every 1 mph increase in traffic speed.
   D. The NCAT Noise trailer was found to be quite repeatable, as long as the measured test section was greater than 0.1 miles. Shorter test sections, especially bridge decks, were found to provide standard deviations much larger.

2. Proposed activities for next quarter by task:
   A. Doug Hansen from NCAT will provide a presentation of results for the NJDOT on December 12th, 2003. At this meeting, he will also provide a final report.

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

4. Progress on Implementation and Training Activities
   N.A.

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5. Problems/Proposed Solutions

N.A.

6. Budget Summary*

Total Project Budget(# of years)	6 Months	$15,000
Total Project Expenditure to date		$13,127
% of Total Project Budget Expended		88%
Task Order Number/Study Number:		
Current Task Order Budget (# of years)	Year 1	$15,000
Actual Expenditure to date against current task order		$13,127
% of current task order budget expended		88%

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QUARTERLY PROGRESS REPORT

Project Title:	Rut Testing of Hot Mix Asphalt
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Mr. Nicholas Vitillo
TASK ORDER NUMBER/Study Number: Task Order No. 98 / 4-26677	PRINCIPAL INVESTIGATOR: Dr. Ali Maher
Study Start Date: 01/01/2001 Study End Date: 12/31/2003	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search/Local Agency Survey	10%	0%	100%	10%
Lab Testing for Rutting Criteria	25%	0%	100%	25%
Lab Testing for NJ HMA Characterization	25%	10%	100%	25%
Lab Testing for SUPERPAVE vs Marshall	20%	15%	100%	20%
Field Calibration/Evaluation	10%	10%	45%	4.5%
Final Report	10%	20%	75%	7.5%
TOTAL	100%			92%

1. Progress this quarter by task:
   A. The part one of the project, "A Rutting Criteria for the Asphalt Pavement Analyzer", was accepted for a final report and is therefore officially completed.
   B. The Low Volume road section of the project is currently wrapping up. Four mix designs, from well performing Marshall mixes that are still in service, are the basis for the analysis. The results are currently being analyzed and conclusions should be ready for presentation at the upcoming quarterly meeting.
   C. The flexural beam fatigue testing should begin. The fatigue testing of the material is delayed due to the delay in the equipment delivery.

2. Proposed activities for next quarter by task:
   A. Completer the fatigue testing of the four different mixes (4 Marshall and 4 Superpave). The fatigue properties will be added to the overall volumetric and performance comparison.
   B. Complete the final report and submit it to the NJDOT for evaluation.

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

4. Progress on Implementation and Training Activities:
   N/A

5. Problems/Proposed Solutions:
   N/A

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6. Budget Summary*

Total Project Budget(# of years)	2 Years	$391,867.00
Total Project Expenditure to date		$390,151
% of Total Project Budget Expended		99%
Task Order Number/Study Number:		98 / 4-26677
Current Task Order Budget (# of years)	Year 1 and 2	$391,867.00
Actual Expenditure to date against current task order		$390,151
% of current task order budget expended		99%

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QUARTERLY PROGRESS REPORT

Project Title:	Estimation of Truck Volume and Flows
RFP NUMBER: NJDOT 2001-18	NJDOT RESEARCH PROJECT MANAGER: Nicholas Vitillo
TASK ORDER NUMBER/Study Number: 116 / 4-26855	PRINCIPAL INVESTIGATOR: Maria Boilé
Study Start Date: 01/01/2002 Study End Date: 8/31/2004	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	6%	-	100%	6%
Task 1 Data collection	8%	-	100%	8%
Task 2 List of major truck generating facilities	8%	-	100%	8%
Task 3 Criteria or factors that influence changes in truck flow	10%	-	100%	10%
Task 4 Relationships between ADT and truck volumes	33%	20%	85%	28%
Task 5 Methods to estimate truck flow and truck percentages	-	-	-	-
Task 6 Validate the estimation method on a selection of 12 routes	17%	10%	35%	6%
Task 7 Apply methodology on a statewide basis	8%	0%	0%	0%
Task 8 Quarterly progress and final reports	10%	5%	55%	5.5%
TOTAL	100%			71.5%

1. Progress this quarter by task:

Task 4 *– Additional models were tested to account for the effect of population density on truck volume estimates. It was determined that statistically, population density is not an important factor. The final models to be used were thus selected and preliminary sensitivity analysis has been performed based on these models. As it was decided during the August 22 meeting at NJDOT, the use of the O-D matrix estimation method will not be pursued any further. Thus, the planned effort for task 5 was re-allocated. The research team is now working on the implementation of the Task 4 analysis within a GIS environment. The team is planning to produce a GIS based tool to perform the truck volume and flow estimation analysis. Development of such a tool was not included in the proposal, it seems however that it will facilitate the proposed analysis, thus it is being pursued further by the research team.*

Task 6 *– A method for assessing the accuracy and validity of the results to be produced under task 4 is being developed and will be implemented within a GIS environment.*

Task 7 *– The use of GIS to model the procedures under tasks 4 and 6 will facilitate the statewide implementation of the methodology.*

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2. Proposed activities for next quarter by task
Task 4 will be finalized with models used to predict truck volumes and flows being implemented within a GIS environment, results of the sensitivity analysis and traffic volume and percentage profiles being produced for each of the selected highways.

3. List of deliverables provided in this quarter by task (product date)
N/A

4. Progress on Implementation and Training Activities
A GIS framework is being used to model the procedures for truck volume and flow estimation and for traffic volume and percentage profile development. This framework will be used in the development of the training material.

5. Problems/Proposed Solutions
N/A

6. Budget Summary*

Total Project Budget(# of years)	2 Years	$ 198,508.00
Total Project Expenditure to date		$133,077
% of Total Project Budget Expended		67%
Task Order Number/Study Number:		116 / 4-26855
Current Task Order Budget (# of years)	Year 1 and 2	$ 198,508.00
Actual Expenditure to date against current task order		$133,077
% of current task order budget expended		67%

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QUARTERLY PROGRESS REPORT

Project Title:	The Future of Transportation Modeling
RFP NUMBER: NJDOT 2001-19	NJDOT RESEARCH PROJECT MANAGER: Karl Brodtman
TASK ORDER NUMBER/Study Number: 117 / 4-26856	PRINCIPAL INVESTIGATOR: Maria Boilé
Study Start Date: 01/01/2002 Study End Date: 8/31/2004	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Task 1 Detailed model comparison and development of a summary matrix	25%	0%	100%	25%
Task 2 Conduct a survey to determine the potential future transportation models	25%	30%	90%	22.5%
Task 3 Develop a plan to be followed by the Bureau of Technical Analysis if they wish to switch from their current models to others identified as future standards	20%	10%	25%	5%
Task 4 Implementation and Training	15%	20%	40%	6%
Task 5 Quarterly and final reports	15%	5%	60%	9%
TOTAL	100%			67.5%

1. Progress this quarter by task:

Task 2

The list of contacts was finalized and the survey questionnaire was mailed out. Several responses have been received and their results are being summarized. Most of the responses came from the industry and a few from the academic sector. A document summarizing results of the survey is being produced. A summary of the responses for each question is being produced, as well as an overall summary of the industry's view on the future transportation models.

Task 3

Survey findings will be included in the plan to be developed.

Task 4

A first version of the interactive tool which allows comparison of the features of two selected software packages at a time is available. Contacts with software developers have been made and an attempt has been made to organize a software presentation.

2. Proposed activities for next quarter by task

Task 2

Based on the survey findings, recommendations on the models that will most likely be used in the future will be made.

Task 3

The plan to be followed by the Bureau of Technical Analysis will be updated further based on the survey results.

Task 4

The interactive tool will be finalized.

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3. List of deliverables provided in this quarter by task
N/A

4. Progress on Implementation and Training Activities
Software developers have been contacted and an attempt has been made to organize a demonstration of one software package.

5. Problems/Proposed Solutions
N/A

6. Budget Summary*

Total Project Budget(# of years)	2 Years	$ 125,124.00
Total Project Expenditure to date		$124,225
% of Total Project Budget Expended		99%
Task Order Number/Study Number:		117 / 4-26856
Current Task Order Budget (# of years)	Year 1 and 2	$ 125,124.00
Actual Expenditure to date against current task order		$124,225
% of current task order budget expended		99%

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QUARTERLY PROGRESS REPORT

Project Title:	Operational Improvements at Traffic Circles (Project 2002-16)
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Robert Sasor
TASK ORDER NUMBER/Study Number: 129 / 4-26544	PRINCIPAL INVESTIGATOR: Kaan Ozbay (Rutgers) / George List (RPI)
Study Start Date: 01/01/2002 Study End Date: 12/31/2004	Period Covered: 4rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Phase 1: Preliminary Literature Search	5%	50%	100%	5%
Phase 2				
Task 1: Literature Review	10%	25%	100%	10%
Task 2: Selection and Use of Computer Tool.	30%	100%	100%	2.5%
Task 3: Evaluation of Operational Alternatives.	30%	25%	25%	7.5%
Task 4: Safety Evaluation	20%	105	10%	2%
Task 5: Cost – Benefit Analysis	10%			
Tasks 6: Final Recommendations	5%			
Tasks 7: Administration / Final Report.	10%			
TOTAL				27.5%

1. Progress this quarter by task:

- Phase 1: Preliminary Literature Search is complete.
- Task 1: This Task is comp lete. As part of this task, we also reviewed the following topics:
  - Available simulation models that can be used for the modeling o traffic cicrles
  - Related studies published in the open literature
  - Papers dealing wit Operation improvement applicable to traffic cicles
  - Data needs for the validation and calibration of traffic simulation model to be used to model the selected circles
  - Safety Issues
- Task 2: This Task is Complete
- Task 3: We completed the first phase of data collection at, Collingwood and Asbury Circles
- .Below a summary of our efforts in this quarter:

The Rutgers University and Rensselaer Polytechnic Institute (RPI) Team has completed data collection at Collingwood Circle and Asbury Circle. Table 1 lists the data collection dates

Data	**Location**	**Remarks**
10/15/2003	Collingwood Circle	Due to high wind and gust the data collection was cancelled
10/16/2003	Collingwood Circle	Rutgers Team collected 7 AM – 5 40 PM. Due to continuing

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		high wind after noon, The RPI Team had to take down their equipment. The RPI Team collected 8:30 AM – 12 PM data.
10/30/2003	Collingwood Circle	
10/31/2003	Asbury Circle	

The collected traffic data is being extracted by the Rutgers and RPI teams. So far, the Rutgers Team has extracted the queue waiting time, average queue speed, entry waiting time at Route 33 and 34 intersections with the circle and the traffic volume on 34 NB/SB and 33-34 EB/WB every 5 minutes.

We are now collecting inter-arrival times at vehicles at these locations and going to fit this data to a known input probability distribution function. The simulation model will be driven with these input values and validated with the system output data as described above.

- We have also completed the preliminary Paramics models for the Collingwood circle.

2. Proposed activities for next quarter by task

- Data processing and analysis
- Calibration of simulation models
- Completion of the literature review
- Completion of an interim report for the first two tasks.

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

- Technical memorandum on the computer software package that will accurately model traffic circles and effectively simulate traffic movements with animated graphics.

4. Progress on Implementation and Training Activities

5. Problems/Proposed Solutions

We received the final task order from NJDOT in order to start the work.

6. Budget Summary*

Total Project Budget(# of years)	1 Year	$ 141,040.00
Total Project Expenditure to date		$60,317
% of Total Project Budget Expended		43%
Task Order Number/Study Number:		129 / 4-26544
Current Task Order Budget (# of years)	Year 1	$ 141,040.00
Actual Expenditure to date against current task order		$60,317
% of current task order budget expended		43%

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QUARTERLY PROGRESS REPORT

Project Title:	Evaluation of Adaptive Control Strategies for NJ Highways
RFP NUMBER: N/A	NJDOT RESEARCH PROJECT MANAGER: Karl Brodtman
TASK ORDER NUMBER/Study Number: 101 / 4-26682	PRINCIPAL INVESTIGATOR: Kaan Ozbay
Study Start Date: 01/01/2001 Study End Date: 12/31/2003	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Task 1: Literature Survey	10%	30%	100%	10%
Task 2: Inventory Assessment	25%	20%	100%	25%
Task 3: Site Selection	5%	0%	100%	5%
Task 4: DSS Development	35%	10%	100%	35%
Task 5: Gap Analysis	5%	80%	100%	5%
Task 6: Implementation Strategies	5%			
Task 7: Training	5%			
Progress Reports				
Final Report	10%	40%	40%	4%
TOTAL	100%			845%

1. The percentages were adjusted to reflect the work needed for each task.

1. Progress this quarter by task:
Task1: This task is complete.
Tasks 2 and 3: We completed these tasks for the sites given to us by NJDOT. .
Task 4:
We continue to spend considerable amount of time on this task due the following major developments:

- We had to go back to Task 4 and develop simple numerical procedures for the quantifying the impacts of these control strategies in terms of delays. This was mainly due to the difficulty of obtaining a trend from the Paramics runs for different intersections. This is an additional work that required the development of numerical simulations in C and QBasic to be integrated with the DSS. .

Task 5: We documented the data needed to create the three arterial networks and the gaps that exist in terms of data.

Final Report: Parts of the final report that deal with the first 43 tasks and portion of task 4 was put together as a draft report.

2. Proposed activities for next quarter by task
Task 6: We will continue working on developing guidelines for implementation strategies. The prototype expert system program will be programmed based on the developed rule base.

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

4. Progress on Implementation and Training Activities

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5. Problems/Proposed Solutions

- We might need additional time to finalize the rule base and complete the final report based on the final results of Task 6 due to the reasons below:
  - It is becoming clear that the adaptive signal strategies such as SCOOT and SCATS are not readily available for us to implement in Paramics. This considerably slows don our progress since we have to build algorithms similar to these and then program them.
  - Also, it is clear that we need to use CORSIM for RT-TRACS algorithms since they are only available for CORSIM. This was a totally new step for our research.
  - We have also introduced hardware-in-the-loop concept. But due to the impossibility of getting run time extensions for CORSIM we could not obtain positive results in this approach.
  - One new problem is the fact that we have to use different simulation packages for different types of evaluations. Thus, we are now trying to compare the results obtained form different software packages to ensure that that the final results are compatible.
  - There is a considerable delay between the official starting date of the project and the actual starting date, date when the account is set-up and students can be hired. This time lag also affects the availability of students. Now we have all the student we need, however, the time lag can cause some delay at the end of the project.

6. Budget Summary*

Total Project Budget(# of years)	2 Years	$318,458.00
Total Project Expenditure to date		$318,458
% of Total Project Budget Expended		100%
Task Order Number/Study Number:		101 / 4-26682
Current Task Order Budget (# of years)	Year 1 and 2	$318,458.00
Actual Expenditure to date against current task order		$318,458
% of current task order budget expended		100%

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QUARTERLY PROGRESS REPORT

Project Title:	Evaluation Study of the NJ Turnpike Authority's Value Pricing Initiative
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Nancy Ciaruffoli
TASK ORDER NUMBER/Study Number: 114 / 4-26514	PRINCIPAL INVESTIGATOR: Kaan Ozbay (Rutgers) / Jose Holguin-Veras (RPI)
Study Start Date: 01/01/2002 Study End Date: 12/31/2004	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	5%	25%	100%	5%
Task 1: Collect socio-economic characteristics of the users.	10%	15%	30%	3%
Task 2: Identification of toll structure changes.	2.5%	100%	100%	2.5%
Task 3: Traffic data collection.	5%	50%	50%	2.5%
Task 4: Assess impacts on users.	5%	20%	20%	1%
Task 5: Monitor media and decision-makers' reaction to value pricing	2.5%	30%	50%	1.25%
Tasks 6-7: Assemble panel of users. Collect travel behavior data.	20%	10%	10%	2%
Tasks 8-9: Behavioral modeling. Estimation of econometric parameters.	10%	20%	20%	2%
Task 10: Traffic modeling.	10%	20%	40%	4%
Task 11: Estimate congestion levels and travel time savings/losses for before and after conditions.	10%			
Task 12 : Estimate environmental impacts for before and after conditions.	5%			
Tasks 13-14: Estimate economic value of travel time savings. Differential impacts among user classes.	5%	30%	30%	1.5%
Final Report	10%	20%	20%	2%
TOTAL	100%			26.75%

1. Progress this quarter by task:

- Task 1: we continued to work on the possible questions for the focus groups and surveys.
- Task 2:We completed the review of previous value pricing projects and related literature.
- Task 3: We met Allan Lichtensten of TPI for media questionsing. Task 3: We obtained preliminary data from NJTPK and started to analyze it.
- Task 5: Martin Robbins and Allan Lichtensten of TPI continued to work on the media issues.

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- Task 10: We started to build the network around the NJTPk for the traffic modeling.
- Task 11: We did considerable amount of modeling work to model the travel benefits. This will be fed into Task 10.
- Tasks 13 and 14: We worked on a value of time model that will be used to quantify the economic value of travel time savings in these tasks.

2. Proposed activities for next quarter by task

Obtain additional traffic data form NJTPk
Work on the development of surveys and focus group questions
Work on the behavioral and traffic model to assess the impacts of value pricing

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

4. Progress on Implementation and Training Activities

5. Problems/Proposed Solutions
We received the final task order from NJDOT in order to start the work.

6. Budget Summary*

Total Project Budget(# of years)	1 Year	$ 477,468.00
Total Project Expenditure to date		$93,871
% of Total Project Budget Expended		20%
Task Order Number/Study Number:		114 / 4-26514
Current Task Order Budget (# of years)	Year 1	$ 477,468.00
Actual Expenditure to date against current task order		$93,871
% of current task order budget expended		20%

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QUARTERLY PROGRESS REPORT

Project Title:	Noise Education Outreach Program
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Dominick Billera
TASK ORDER NUMBER/Study Number: 109 / 4-26710	PRINCIPAL INVESTIGATOR: Patrick Szary
Study Start Date: 04/19/2001 Study End Date: 6/30/2004	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	10	0	98	9.8
Development of CD-ROM	47	0	100	47
Information Clearinghouse	17	0	5	0.9
Education	21	0	15	3.15
Record Keeping & Reporting	5	0	0	0
TOTAL	100			28.4

1. Progress this quarter by task:
   a) Work on this project has been temporarily suspended, pending NJDOT reevaluation of Departmental commitments, at the direction of Dominick Billera, NJDOT Research Project Manager.

2. Proposed activities for next quarter by task, assuming NJDOT determines it desires to proceed with this project:

   a) As per our conversations we have processed a request to extend the Project. However, as requested by the NJDOT the project has been on-hold for nearly one year and the current scope of work would need to be revisited prior to restarting of work. In recent discussions it was identified that at a minimum the CD-Rom development could be completed. We have checked with our subcontractor and he has indicated that this could be accomplished in roughly a month or so from the restart. Ideally, at a minimum, the CD-Rom development and production; as well as a clearinghouse effort to disseminate the CD-Rom could be accomplished. However training and other tasks might be completely out. Please be advised that due to the stop work request, individuals who were working on this project may no longer be with the university. This disruption in work and loss of temporary staff clearly will affect the original SOW, and will require a new SOW prior to restarting this contract. This extension basically keeps the project open, thus allowing the work to be restarted; however it also releases the university from the prior SOW and deliverables (to be renegotiated if the NJDOT decides to restart the project).

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

4. Progress on Implementation and Training Activities
   N.A.

5. Problems/Proposed Solutions

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Problem: The NJDOT must decide whether it wants to complete this project. While funding for the entire project may not be available, it would be lamentable not to at least complete the CD on which considerable effort and funding has already been expended.

Solution: Make a decision, and go with it.

Problem: The NJDOT has not yet approved the concept or production of "Fact Sheets" to be distributed when there are requests for additional information. An implementation plan needs to be drafted.

Solution: The NJDOT must address this question forthrightly. No significant effort will be expended on the Fact Sheets until explicit approval is received.

6. Budget Summary*

Total Project Budget (# of years)	1 and 2 Year	$ 347,853.00
Total Project Expenditure to date		$185,368
% of Total Project Budget Expended		53%
Task Order Number/Study Number:		109 / 4-26710
Current Task Order Budget (# of years)	Year 1 and 2	$ 347,853.00
Actual Expenditure to date against current task order		$185,368
% of current task order budget expended		53%

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QUARTERLY PROGRESS REPORT

Project Title:	Implementation of Weigh-In-Motion (WIM) Systems
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Nick Vitillo
TASK ORDER NUMBER/Study Number: 92 / 4-23941	PRINCIPAL INVESTIGATOR: Dr. Ali Maher
Study Start Date: 06/14/2000 Study End Date: 12/31/2003	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	10%	0%	100%	10%
1. Packaging	17%	0%	100%	17%
2. Testing	14%	0%	95%	13.3%
3. Site Determination	11%	10%	100%	11%
4. Field Implementation & Calibration	16%	15%	75%	12%
5. Monitoring and Analysis	22%	0%	0%	0%
Final Report	10%	0%	0%	0%
TOTAL	100%			63.3%

1. Progress this quarter by task:

A. WIM installation was completed.
B. We coordinated with the State Police and also have opened discussions about comparing our data to the Truth Data that the State Police Collects.
C. Chairs were placed in the grooves to level and elevate the sensors to a height where the top surface was just below the road. The entire groove in the asphalt was outlined with duct tape.
D. Trenches for the conduit/wires as well as a hole was dug for the junction box on the side of the roadway.
E. The sensors, wires, conduit and junction boxes were all 'dry-run' placed prior to mixing of epoxy.
F. The epoxy was poured into the groove up to the chair height and then the sensors were placed on the first layer of the epoxy and chairs, a second layer of epoxy was poured (moments after he first i.e. still during pot life) to finish the encapsulation, fully covering the sides and top of the sensor.
G. The groove (running from the sensor to the edge of pavement) in the pavement containing the sensor wires was filled with epoxy.
H. After the sensors were installed the conduit lines (roughly 9" below the grade) with the sensor wires were coupled with the weather tight junction box (roughly 3" below grade) and trenches were backfilled.
I. During gel time about half an hour after mixing the duct tape was removed from the perimeter of the sensor and epoxy was allowed to set. After one and a half hours the roadway was reopened to traffic.
J. The DAQ system failed. The unit's motherboard and other parts sustained damage allegedly after one of the data acquisition cards malfunctioned. The cause of this malfunction is presently unknown.
K. The card's manufacturer has agreed to repair the card.
L. All other damaged parts in the unit have been replaced. Negotiations have been made with the vendors involved to have service and or parts replaced at a minimal fee, as this malfunction was no fault of our own.

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2. Proposed activities for next quarter by task
   A. Collect data
   B. Calibrate data with the weigh station.

3. List of deliverables provided in this quarter by task (product date)
   N/A

4. Progress on Implementation and Training Activities
   N/A

5. Problems/Proposed Solutions
   A. In our last quarterly report we stated that the "The DAQ system has started to show signs of failure, we have contact the manufacturer about our concerns. We may need to take the system to a repair shop or possibly switch to another DAQ system." The DAQ system failed. The portable field computer is currently being repaired. The unit's motherboard and other parts sustained damage allegedly after one of the data acquisition cards malfunctioned. The cause of this malfunction is presently unknown. The card's manufacturer has agreed to repair the card. All other damaged parts in the unit have been replaced.
   B. Negotiations have been made with the vendors involved to have service and or parts replaced at a minimal fee, as this malfunction was no fault of our own.
   C. We have been unable to begin colleting data. We expect to receive the DAQ system back from the manufacture in December and then have the DAQ card sent out for repair. This will prevent us from collecting data until the beginning of 2004. This failure has prevented us from collecting data during the most critical time of year where we could have monitored temperature from 90-0°C. Due to this unforeseen failure we would like to discuss an extension to allow us to collect data during a wide range of temperature.

6. Budget Summary*

Total Project Budget(# of years)	2 Years	$194,500.00
Total Project Expenditure to date		$103,904
% of Total Project Budget Expended		53%
Task Order Number/Study Number:		92 / 4-23941
Current Task Order Budget (# of years)	Year 1 and 2	$194,500.00
Actual Expenditure to date against current task order		$103,904
% of current task order budget expended		53%

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QUARTERLY PROGRESS REPORT

Project Title:	Geopolymer Protective & Graffiti Resistant Coating (I-295 Scenic Overlook)
RFP NUMBER: Not Applicable	RESEARCH PROJECT MANAGER: Robert Sasor
TASK ORDER NUMBER/Study Number: 145 / 4-29065	PRINCIPAL INVESTIGATOR: P. Balaguru
Study Start Date: 10/15/2003 Study End Date: 04/01/200?	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search(colors)	5%	25%	25%	1%
Lab tests	25%	30%	30%	7%
Field Implementation	60%	1%	1%	0%
Final Report	10%	0%	0%	0%
TOTAL	100%			8%

1. Progress this quarter by task:
Laboratory tests are being conducted to obtain matching colors. Two field visits have been made to check the color match.

2. Proposed activities for next quarter by task
Continue the laboratory Investigation to obtain the color co-ordination.

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

4. Progress on Implementation and Training Activities

5. Problems/Proposed Solutions
None

6. Budget Summary*

Total Project Budget(# of years)	Years	$ 10,000.00
Total Project Expenditure to date		No Data
% of Total Project Budget Expended		0%
Task Order Number/Study Number:		145 / 4-29065
Current Task Order Budget (# of years)	Year 1 - 4.5	$10,000.00
Actual Expenditure to date against current task order		No Data
% of current task order budget expended		0%

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QUARTERLY PROGRESS REPORT

Project Title:	Material Characterization and Seasonal Variation in Material Properties
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Mr. Tony Chmiel
TASK ORDER NUMBER/Study Number: Task Order No. 100 / 4-26701	PRINCIPAL INVESTIGATOR: Dr. Nenad Gucunski
Study Start Date: 01/01/2001 Study End Date: 12/31/2004	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Selection of Test Sections	5	0	100	5
Field Testing & Instrumentation	50	15	95	47.5
Analysis	35	10	55	19.3
Reporting	10	10	40	4
TOTAL	100%			75.8

1. Progress this quarter by task:

The FWD Testing and Climatic data collection at the instrumented LTPP and non-LTPP sites and corresponding office processing continued during the reporting period.

1. The FWD and SPA testing proceeded as scheduled, except the October FWD and SPA testing on Site 6. The SPA testing for October was conducted in early November due to repeated failures of the high frequency hammer load cell.
2. Climatic Data was collected for all the LTPP and Non-LTPP sites through November.
3. Office Processing of the October 2003 climatic data in terms of QC/QA have been completed and is in progress for the November 2003 reporting period.
4. Processing of FWD and SPA data for the reporting period is in progress.
5. A correlation analysis is being carried out.
6. Site 2 piezometer pipe was damaged, most likely during mowing operations.

2. Proposed activities for next quarter by task:
   - Continue analysis on environmental, FWD and SPA data.
   - Continue with model development.

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

4. Progress on Implementation and Training Activities
   N/A

5. Problems/Proposed Solutions
   N/A

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6. Budget Summary*

Total Project Budget(# of years)	3 Years	$1,779,642.00
Total Project Expenditure to date		$1,375,052
% of Total Project Budget Expended		77%
Task Order Number/Study Number:		100 / 4-26701
Current Task Order Budget (# of years)	Year 1, 2, and 3	$1,779,642.00
Actual Expenditure to date against current task order		$1,375,052
% of current task order budget expended		77%

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QUARTERLY PROGRESS REPORT

Project Title:	Investigation into Modified Asphalt Binders for Improved Pavement Performance
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Mr. Anthony Chmiel
TASK ORDER NUMBER/Study Number: Task Order No. 80 / 4-23908	PRINCIPAL INVESTIGATOR: Dr. Ali Maher
Study Start Date: 02/01/2000 Study End Date: 01/31/2003	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	10%	0%	100%	10%
1. Material Collection	5%	0%	100%	5%
2. Laboratory Testing	50%	0%	100%	50%
3. Calibration	15%	0%	100%	15%
4. Reporting	20%	5%	100%	20%
Final Report				
TOTAL	100%			100%

1. Progress this quarter by task:
   A. The final report was accepted and therefore the project has officially completed.
2. Proposed activities for next quarter by task:
   N.A.
3. List of deliverables provided in this quarter by task (product date)
   N.A.
4. Progress on Implementation and Training Activities
   N.A.
5. Problems/Proposed Solutions
   N.A.
6. Budget Summary*

Total Project Budget(# of years)	3 Years	$213,544.00
Total Project Expenditure to date		$212,041
% of Total Project Budget Expended		100%
Task Order Number/Study Number:		80 / 4-23908
Current Task Order Budget (# of years)	Years 1, 2, and 3	$213,544.00
Actual Expenditure to date against current task order		$212,041
% of current task order budget expended		100%

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QUARTERLY PROGRESS REPORT

Project Title:	Development and Evaluation of Geotechnical Design Parameters Using the Seismic Piezocone
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Mr. Anthony Chmiel
TASK ORDER NUMBER/Study Number: 88-04 / 4-23932	PRINCIPAL INVESTIGATOR: Dr. Ali Maher
Study Start Date: 06/01/2000 Study End Date: 9/30/2001	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	10%	0%	100%	10%
1. Field Testing	40%	0%	100%	40%
2. Laboratory Testing	20%	0%	100%	20%
3. Calibration	10%	0%	100%	10%
4. Reporting	20%	0%	100%	20%
Final Report				
TOTAL	100%			100%

1. Progress this quarter by task:
   The final report was submitted and accepted. The project is officially completed.
2. Proposed activities for next quarter by task:
   A. Completed
3. List of deliverables provided in this quarter by task (product date)
   N.A.
4. Progress on Implementation and Training Activities
   N.A.
5. Problems/Proposed Solutions
   N.A.
6. Budget Summary*

Total Project Budget(# of years)	1 Year	$30,000.00
Total Project Expenditure to date		$29,965
% of Total Project Budget Expended		100%
Task Order Number/Study Number:		88-04 / 4-23932
Current Task Order Budget (# of years)	Year 1	$30,000.00
Actual Expenditure to date against current task order		$29,965
% of current task order budget expended		100%

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QUARTERLY PROGRESS REPORT

Project Title:	Demonstration Project – Beneficial use of Dredge Clay in Upland Sites
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Michael Riley
TASK ORDER NUMBER/Study Number: 139 / 4-29053	PRINCIPAL INVESTIGATOR: Dr. Ali Maher
Study Start Date: 07/15/2003 Study End Date: 07/14/2004	Period Covered: 4th Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
1. Literature Search	2%	1%	1%	1%
2. Unloading and Transporting of Clay to Test Area	25%	100%	100%	25%
3. Placement of Clay According to Technical Specifications	20%	100%	100%	20%
4. Geotechnical Field and Laboratory Testing	25%	20%	20%	5%
5. Analysis of Use Potential	15%	0%	0%	0%
6. Cost Analysis	8%	0%	0%	0%
7. Final Report	5%	0%	0%	0%
TOTAL	100%			51%

1. Progress this quarter by task:
   A. Unloading, transportation, and all field work completed.

2. Proposed activities for next quarter by task:
   A. Completion of laboratory testing and cost analysis.

3. List of deliverables provided in this quarter by task (product date)
   A. Field daily notes and laboratory testing results.

4. Progress on Implementation and Training Activities
   A.

5. Problems/Proposed Solutions
   A.

6. Budget Summary*

Total Project Budget(# of years)	1 Year	$348,064.00
Total Project Expenditure to date		$95,700
% of Total Project Budget Expended		28%
Task Order Number/Study Number:		139 / 4-29053
Current Task Order Budget (# of years)	Year 1 and 2	$348,064.00

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Actual Expenditure to date against current task order	$95,700
% of current task order budget expended	28%

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