

**CONCURRENT SESSION 6B - TRAFFIC DATA COLLECTION  
CONTRACTS PANEL**

Presented at  
National Traffic Data Acquisition Conference  
Albuquerque, New Mexico

May 5-9, 1996

THE PRIVATIZATION OF TRAFFIC MONITORING DATA COLLECTION  
MARYLAND'S EXPERIENCE

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Presented at  
National Traffic Data Acquisition Conference  
Albuquerque, New Mexico

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## INTRODUCTION

In times of severe budgetary constraints, each state is exploring every possible method to stretch their traffic monitoring budgets. Most states are experimenting with the use of contractors to collect some type of traffic monitoring data. Maryland has recently committed to a program of traffic monitoring data being completely collected by private contracts.

In December of 1995, we began using contractors to accomplish all of our data collection needs. By January, 1996, our total traffic monitoring staff had been reduced to four people who administer the contracts, perform quality control, process and report the data, and maintain our permanent count stations.

This paper will explore all aspects of Maryland's experience with the privatization of traffic monitoring data collection.

## BACKGROUND

### Program Needs

Maryland's traffic monitoring program consists of 70 ATR Stations which includes two permanent WIM stations, 2450 coverage stations, which include 350 classification stations, and approximately 1400 ramp counts to cover the Interstate system. The coverage, classification and ramp counts are done on a three-year cycle. We also do approximately 650 portable counts and 400 manual counts as special requests annually.

### State Forces

In 1995, the State of Maryland employed 13 full-time staff members to operate our Traffic Monitoring Program. These staff members were assigned as follows:

1 Program Manager	Qversight of program Quality assurance of portable & ATR data Data reporting Administer portable contracts
1 Assistant Manager	Supervision of manual field staff Administer manual contracts Quality assurance of manual data
1 Engineering Technician	Process all portable & ATR data received from field Produce reports Supervise telemetry equipment
1 Equipment & Field Supervisor	Supervise portable field staff Manage equipment Maintain ATR stations
1 Assistant Equipment Supervisor	Maintain and repair equipment Trouble shoot ATR stations
4 Portable Count Field Staff	Perform portable traffic counts
3 Part-time Field/ Part-time Office Manual Staff	Perform manual counts Process data Maintain data files
1 Full-Time Manual Staff	Perform manual counts

Before we began supplementing our staff with partial contracts, 8-years ago, we had 20 full-time permanent positions and up to 30 summer student help positions.

## **CONTRACTING**

### **Division of Contracts**

In Maryland, the State Highway Administration is divided into seven Engineering Districts. We advertised one contract for each of the Districts and one each for the Office of Traffic & Safety and the Office of Planning & Preliminary Engineering. We felt that this division allows us the best possible prices on the contracts and different contractors for different regions.

These contracts include both manual and portable counts. The manual counts are bid at an all inclusive price per person - hour of count. The portable counts are bid at flat rates by direction for volume counts and by lane for classification counts.

### **Bidders**

For many years, Maryland has been contracting the collection of manual counts. One of the biggest pitfalls in our contracts is that while most people think that performing manual counts is very simple, it is a very labor intensive procedure requiring almost no skill and very little training. Consequently, in the past, we have gotten some very unusual companies bidding on our contracts. Because we use the low bid system for selection for these contracts, the contracts are not necessarily awarded to the most qualified bidder.

In contracting the complete program and combining manual and portable counts into one contract, we felt we would get bidders with traffic monitoring experience because of the monitoring equipment required to fulfill the terms of the portable contracts. In reality, the firms which bid on our contracts subcontracted those parts of the contracts. The result was that the portable work is being accomplished by very experienced and qualified firms and in most cases the manual work is still being done by unqualified/inexperienced firms.

We have held pre-bid meetings for each of the contracts to clarify our requirements and to answer any questions from the bidders. These meetings were very helpful to us, especially since this was our first attempt to completely contract the program. The pre-bid meeting allowed us to clear up any problems with our original specifications as an addendum or on the next contracts.

**COSTS****1995**

State Forces	
Portable - All	\$233,611.00
Manuals	183,617.00
Travel	5,682.00
Supplies & Equipment	34,655.00
Manual Contracts	147,500.00
Portable Contracts	<u>36,000.00</u>
	\$641,065.00

**1996**

Contracts	
Manual	\$232,350.00
Portable Volume	209,350.00
Portable Class	80,770.00
State Forces	<u>77,105.00</u>
	\$599,575.00

## CUSTOMER SERVICE

In Maryland's point of view, the most important issue in privatization will always be customer service. So the major question is "Can we service our customers better by contracting the traffic monitoring data collection?". This question is still largely unanswered. We are working to perfect the system of contracting data collection.

There are two major points of concern with our customer service: The timeliness of the data and the quality of the data.

### **Timeliness**

When we had our own staff it was possible to deploy staff almost immediately to collect emergency data. Some of our contractors have been very responsive to emergency work, often responding within 48-hours. Our contract contains a provision to pay 125% for emergency work. But we have not been very successful in getting regular work done in a reasonable amount of time. The worst timeliness problem we encountered was with manual counts. Some of our manual contractors have had delays in getting the work completed. Also some contractors have had difficulties in getting reliable staffs assembled and trained.

### **Quality**

As previously stated we have experienced difficulties with unqualified contractors and the quality of the data has suffered the most. Our contracts state that we would only pay for "good" counts, so although recounts do not cost us monetarily, they do cost greatly in delivering quality counts to our customers. One of the provisions in the contract allows us to request retakes when we suspect that a count is not good. We review the count received, checking historical and spatial data, and make a decision on the validity of the data. At this point, we request a retake and allow one week for the new count to be returned to us. **We review** the new count and if it matches the original count and there is an explanation as to why these counts differ from our historical data then we will pay for both counts. This can be a major problem with our system, because it would then be in the best interest of the contractor that the second count match the first count. **We are** exploring several ways to deal with this problem. One way-would require the contractor to perform a manual count for an hour or two along with portable counts or to place at least one portable counter at the site of manual counts. This procedure brings up the question of whether this should be a pay item in the contract or if this should be required as a quality control measure by each contractor and would be included in their bid prices.

Another issue which we overlooked in our current contracts but we will include in future contracts is the issue of equipment calibration. Since we do not have the staff to accomplish or even oversee the calibration process, we are considering requiring some sort of certification of calibration from the contractors along with a copy of their calibration schedule.

## **FINDINGS**

### **Displacement of State Forces**

We were actually very lucky that our Traffic Monitoring program was one of the first programs in MSHA to be privatized. This allowed our staff to apply for positions still available within SHA. Each employee has now obtained a position in which they are suited and in areas where they had an interest. Initially, there was a great deal of anxiety involved in privatizing this program. It was very difficult to deal with the emotions involved especially in those of us with a long history in this program.

### **Limitations of Contractors**

As mentioned before, our biggest problem has been the inexperience of some of our contractors. This forced two of our contractors to hire Engineering Consulting firms to train their staff and review some of their work. We thought we could solve this problem by requiring 60 hours of traffic counting experience for all personnel and 120 hours of traffic counter experience for supervisors in our contracts. Unfortunately, these experience requirements have not solved the problem in unqualified bidders, as they only sporadically utilized their Engineering Consultants.

We are researching several ways to avoid this problem. We have been using service contracts but have decided to pursue Engineering Consulting contracts. These contracts can be awarded using a rating system, which would require a professional engineering on staff who would verify and stamp all counts turned in, and we would not always award to the lowest bidder.

### **The Importance of Tight Specifications**

We can never stress enough the importance of really tight specifications. It is essential that you fully understand exactly what you will need to be covered by the contract, especially if you will have no State staff to pick-up emergency counts, verify data or check scheduling and equipment.

### **The Importance of Contract Management**

You must also never underestimate the time and effort it takes to manage traffic monitoring data collection contracts. It is helpful to require that your contractors provide you with copies of their schedules in advance so that you can perform spot checks on their data collection efforts. It is also essential that you work out in advance the method you will use to deal with retakes. To successfully manage the counting contracts, you sometimes have to be in constant communication with your contractors to ensure that any questions are answered and you know the status of your counts.

## **CONCLUSION**

In Maryland we believe that we can successfully contract out our complete data collection effort. Although we have encountered some difficulties we believe that they can be overcome by better specifications and close management of these contracts.

PRIVATIZATION OF ELEMENTS OF TRAFFIC MONITORING PROGRAMS  
VIRGINIA'S EXPERIENCE

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Presented at  
National Traffic Data Acquisition Conference  
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## **PRIVATIZATION OF ELEMENTS OF TRAFFIC MONITORING PROGRAMS VIRGINIA'S EXPERIENCE**

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Within the past five years the Virginia Department of Transportation has reduced its employee level from just over 12,000 employees to just over 9,000, a 25% reduction in force. In the same time period the demands put on the traffic monitoring programs brought about by internal needs as well those mandates in ISTEA, which have now abated to some degree, have increased steadily. The trends toward privatization in all levels and aspects of government function have been strongly supported by the current administration in Virginia. These factors have combined to make certain elements of the traffic monitoring effort almost impossible to achieve using in-house resources. Therefore, Virginia has moved toward privatization of certain elements of its count program.

Virginia completed an assessment of its traffic data needs several years ago, conducted by Cambridge Systematics who also designed a monitoring program to obtain the level of detail necessary for the internal and external demands identified. This program demanded a considerable expansion in the number of continuous count sites capable of vehicle classification by axle configurations. One of the main problems in the previous count program was our inability to secure maintenance of our detection systems contained in the pavement. This factor alone pushed our consideration of some type of public private initiative to address a problem already identified and worsening due to the downsizing of the department.

An assessment of our abilities and resources to carry out the planned traffic monitoring program resulted in a decision to privatize the installation and maintenance of our traffic monitoring fixed sites. In a proposal put out for bids the Department sought to obtain the installation and maintenance of the continuous sites, including the detection systems, the lease of counters and telecommunication lii. The contract awarded in the summer of 1995 is now underway and nearing completion. There have been some problems, especially in the early phases of the contract, which have been worked out successfully. Time will tell concerning the maintenance of the sites, but our experience has shown this to be lacking even having access to state forces as count locations have traditionally been given low priority for maintenance.

Due to other reductions in force VDOT has also contracted for coverage counts in the more urbanized areas of the state. The decision here being based on services in this area being available and limited staff being utilized for more pressing needs. Keep in mind that Virginia's count program is statewide and that we manage some 60,000 miles of state maintained roads most of which being what is thought of as county roads in most states.

In our deliberations we have sought to maintain an internal ability to perform the function to protect against complete dependence on the use of private efforts. We privatized what-we felt we

could not do ourselves. Cost in itself was not the driving issue. In the fixture we may continue in this fashion even moving, to the point of simply specifying what counts are needed and having the private sector simply furnish us with the data necessary to meet our business needs. The jury is still out on our arrangement but the signs are encouraging. It is safe to say that we will be looking more and more to the private sector to perform tasks here-to-fore considered to be ones for the public sector.

NEW YORK CITY CONTRACT TRAFFIC COUNTING

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Presented at  
National Traffic Data Acquisition Conference  
Albuquerque, New Mexico

May 5-9, 1996

by Dayton J. Burlarley-Hyland

1992 saw the first traffic count data collection contract in the history of the New York State Department of Transportation (NYSDOT).

Although we have experienced numerous failures related to this venture, we are now enjoying the success of a well managed effort.

I would like to start by giving a brief overview of the need for Contract Traffic Counting in New York City.

The New York State Department of Transportation's Region 11 was created by splitting Region 10 into two separate DOT Regions in the late '60's. Region 11 stands alone in that all highways, whether local, state, or interstate (by New York State law) fall under the jurisdiction of the city of New York. By virtue of these statutes, all routine highway maintenance is provided by the New York City Department of Transportation (CDOT). All work along, over, under, or on any street or highway facility in any of the five boroughs requires a work or lane closure permit that is issued by CDOT and enforced by the New York City Police Department. This legislation also requires CDOT to provide all routine highway maintenance. Due to this unique agreement, Region 11, when created, did not include highway maintenance resources.

Traffic counting was also provided by CDOT through the late 80's. By then, however, the burden of this task had become too great and the traffic data needs for the CDOT and NYSDOT were becoming more and more dissimilar. In 1992 the first contract was developed and let for the collection of various traffic count data.

Late in 1989, in anticipation of the need for contract counting, the NYSDOT started the task of establishing standards for all traffic counts whether in-house or by contract. Recommendations and required of the Traffic Monitoring Guide and Highway Capacity Manual were included as well as recommendations from all 11 DOT Regions. This effort resulted in the 1990 document known as Engineering Instruction 90-44 (EI90-44), "New York State Traffic Monitoring Standards for Contractual Agreements". This document is currently under revision and in draft form. Only minor changes are, anticipated and the final document is expected by late 1996.

With EI90-44 in place, Region 11 Planning staff developed the original contract. The contract, as written, included three years of work, but was split and bid by annual element. The second and third years were renewable at the discretion of NYSDOT.

Because of a lack of a "well tooled team" having experience in the area of contract counting, we got off to a rocky start. The Department had never let this type of contract and Region 11 was unfamiliar with the technical aspect of traffic counting and the processing of traffic count data. The first year, less than 50% of the scheduled counts were acceptable.

With mandates of the 1990 CAAA rapidly approaching and the count contract close to complete failure, a contract manager with traffic count background was brought on board in January of 1993.

What the new contract manager found was a complete departure from standard procedures. Some examples follow:

1. Count schedules were developed on Friday and faxed to the contractor for deployment the following week, even though over 90% of the count locations were -identified in the contract and only needed to be put into weekly schedules. This diminished the contractor's ability to efficiently plan week to week operations.
2. Department staff unfamiliar with the New York City highway system often had the contractor working in multiple boroughs during the same week.
3. Data was rejected because volumes were not consistent from interchange to interchange, or from block to block even though diversions are expected at interchanges and street corners.
4. Staff for field reconnaissance to check deployment methods and specific locations was not in place.
5. Acceptance letters to the contractor were not prepared per the contract requirements.
6. The contractor would occasionally submit multiple weeks of work together which complicated the editing and slowed up the payment process.
7. Incomplete count stations were submitted by the contractor.
8. Vendor and State software glitches went unresolved.
9. Good, accepted data was not catalogued. Frequently, data requested by an in-house customer was collected multiple times before it was received by the requester.
10. Finally, anything that could possibly go wrong went wrong.

The first steps in correcting the problems were to meet with staff members then the contractor. From those two meetings, the new team developed a plan for action.

All staff were taught the fundamentals of traffic counting. The basic needs for a comprehensive traffic count program were also explained. To expedite getting this effort back on track, data processing staff was sent to the Department's Main Office in Albany for training. Field reconnaissance staff were assigned to the Region 10 (Long Island) traffic count crew for training in all aspects of counter deployment and highway safety. Back in Region 11, once everyone was comfortable in performing their respective duties, all staff were cross-trained so the team could draw on each other's strengths. All accepted counts were plotted on maps and added to a regional and statewide data base.

A meeting was held with the contractor, all contract issues were discussed: It was explained the count data was critical to the Department and that we expected contract conditions to be met. In addition, the contract manager would personally assure that payments would follow the letter of the contract: meaning that timely payments would follow all accepted work. (At the time, over \$50,000 in payments were delinquent for various

reasons. ) The State also agreed to provide weeey schedules for the duration of the year with an open week every five for make-ups and specials Also, field reconnaissance by Regional staff would alert the contractor of any noticed problems. Software problems were resolved with help from Main Office staff and the counter equipment vendor.

Day to day problems were handledby the contract manager. A few examples are as follows:

1. Reversing lanes.
2. Parking along curbs at certain times of the day. (Some New York City facilities are 6 to 8 lanes during peak travel time, but allow parking along one or both sides during off-peak times.
3. Traffic tickets for commercial plates on contractor vehicles working on parkways.
4. Traffic tickets for passenger plates on contractor vehicles working on non-parkway facilities.
5. Various New York City authorities not honoring the CDOT permit and prohibiting counter deployment.
6. A massive reconstruction effort City-wide. Reconstruction on the LIE in Queens for example would influence traffic patterns on Long Island.
7. Coordination of the count program with the CDOT count program. It was determined that both the NYSDOT and CDOT were collecting screenline andbridge corridor data.

The comprehensive training and team effort resulted in Region 11 collecting the mst traffic counts of any Region in the state within one year. Over 95% of all scheduled counts were accepted and paid in calendar year 1993.

January of 1994 brought the reassignment of the contract manager to Albany. Region 11 appointed a replacement in short order and the program continued successfully for five months. Promotions, staff changes and the contract manager's decision to enter the private sector caused the programto deteriorate over the next few months. A hiring freeze and an additional contract to collect portable classification data compounded the problems.

Before a new contract managerwas able to be hired, the program was again failing. portable classification data collection was close to being a complete failure. Over 65% of the data collected was not usable. Short headways, reoccurring, and non-reoccurring incidents causing major congestion, were the main reasons for this failure.

A new contract manager was in place by January 1995, but with diminishing staff the mad to recovery was a long one. Again, staff training and good management skills have turned this contract around.

Twenty-four hour manual classification counts have replaced portable ATR classification data collection in all but a few locations. Fortunately, a manual classification data collection item was included in the original contract. The item was bid per lane per hour. The item amount overran considerably, but all items balanced considering the underrun of the portable classification effort.

Burlarley-Hyland

Current prices for data collection in the New York City are:

1. ~~3-day volume~~ \$310 per site
2. 7-day volume \$600 per site
3. 3-day portable classification \$540 per site
4. vehicle occupancy \$500per site  
(4-hour duration,  
peak direction only)
5. manual classification \$20 per hour per lane

Over 600 volume sites, 60 portable classification, 126 vehicle occupancy, and 30 four to eight lane 24-hour manual. counts are completed annually by the NYSDOT contractor. This task is completed in an environment where daily city street volumes in excess of 100,000 are no longer exceptional and interstate highway sections with AADT's over 150,000 and directional peak hour volumes over 10,000 are commonplace.

Additionally, it is important to note that the CDOT work permits, restrict deployment that require lane closures to between 10:00 a.m. and 3:00 p.m. non-holiday weekdays only.

From all this, NYSDOT has learned that contract traffic counting can be a success, but only with significant oversight. All aspects of the contract must be managed by staff fully trained inanddedicatedto their assigned tasks.

We are currently developing four contracts to supplement our eight upstate Regions. All contracts are now developed by the Traffic Monitoring Team in our Main Office under the direction of Michael Fay. The Traffic Monitoring Team consists of traffic count, contract, financial, and data processing experts. Development and management of all future contracts will. be by this team. Day to day fieldproblems will be handledby Regional count managers in their respective Regions.

The NYSDOT is confident that our team approach to contract traffic counting will assure its success,

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NEW JERSEY DEPARTMENT OF TRANSPORTATION OUTSOURCING OF  
TRAFFIC MONITORING

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Presented at  
National Traffic Data Acquisition Conference  
Albuquerque, New Mexico

May 5-9,1996

NEW JERSEY DEPARTMENT OF TRANSPORTATION:  
OUTSOURCING OF TRAFFIC MONITORING

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Traffic and Technology Section  
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While preparing for this panel, I was somewhat surprised to realize that we first started outsourcing the collection of traffic data over ten years ago. During the early 1980s, we found it increasingly difficult to hire new staff at our entry-level Traffic Enumerator title, which paid less than most clerical positions. An interim measure was the hiring of hourly workers at \$6.00 per hour, with no benefits. These were filled for a time by individuals who had been laid off from other jobs, retirees, and those looking for an entry into the regular civil service. After a few years, it became unpopular to employ people in the “unclassified” positions, and we were forced to abandon the moderately successful program.

In 1986, we went to the private sector and engaged a traffic consulting firm to assist us by performing manual turning movement counts. This consultant contract covered the northern half of New Jersey, and our association with this firm has endured through the present. The original contract executed in 1986 was extended ten times, and finally allowed to expire at the end of 1995. In 1992, we executed a similar agreement for the southern half of the state with another firm.

As our traffic monitoring field staff continued to decline from 25 in 1976 to four today; and environmental, political, and other considerations required much more, and more detailed, traffic data. We found ourselves caught between FHWA’s demands for the Traffic Monitoring Guide (TMG) program to support the Highway Performance Monitoring System (HPMS) and other federal requirements for traffic data; and the demands for special project-related traffic data collection which was the basis for internal support within NJDOT, and our piece of the HPR or SPR pie. We tried to keep up with the demand for HPMS counts and special counts with dishing resources, and found we could do neither. Other units began to include traffic data collection as a task within the design consultants’ contracts.

In 1990/91, a couple of things changed which altered our course. Our compliance with the National Maximum Speed Limit fell below 50 percent for the first time; our Assistant Commissioner for Construction and Maintenance became New Jersey’s AASHTO Strategic Highway Research Program (SHRP) Coordinator; and the Intermodal Surface Transportation Efficiency Act (ISTEA) was enacted. The first, the speeding motorists, put our Bureau in the media -- and management’s -- spotlight. The second, SHRP, opened the door for us to add continuous traffic monitoring stations -- weigh-in-motion (WIM), automatic vehicle classification (AVC), and simple traffic counting -- in almost any construction contract we wished. The third, the ISTEA, gave us what I thought would be a continuing, stable funding source to improve our traffic monitoring capabilities.

As the requirements for the Traffic Monitoring System for Highways (TMS/H) unfolded, it **was** obvious that we would have to expand our consultant assistance to meet the additional needs for traffic data. Since the watchword at the time was “public/private partnership”, we held **a meeting** of consultants, equipment manufacturers and suppliers, and others in March **1994** to discuss the scope and form of this outsourcing. Our assignment was to “create an industry” of full-time, traffic monitoring firms. We didn’t think there were firms with enough equipment or personnel to carry out a statewide program of the magnitude we envisioned. We also worried whether anyone would invest in new equipment and staffing without some assurance of a long-term agreement with NJDOT: There were many opinions and opposing views, of course, but our decision was to advertise for four regional consulting firms corresponding to the four NJDOT maintenance regions.

During the course of this process, my colleague, Bob Bousenberry, wrote a white paper in October 1994 evaluating the merits and problems of privatization. Our approach should more accurately be termed outsourcing, since we chose to maintain control of the program, the processing of **the** data, and the distribution of the information.

**We** considered advertising separate contracts for the TMS/H stations and the special program. We thought we could get a unit-price contract based on low bids for the fixed number and locations of TMS/H stations. The extent of the special program is unknown, especially in light of design’s reliance on their own consultants collecting data for each project. These, we determined, would be better under our conventional cost-plus-fixed-fee consultant agreements. After discussions with our procurement officers, potential vendors, and our counterparts in other states, we fell back upon the conventional consultant selection process.

**We advertised in regional newspapers for expressions of interest in the four regional traffic monitoring contracts; the continuous station service contract; digital videolog and road inventory; automation of our straight line diagrams; and GIS-T database integration.** Throughout this process, we were reminded again and again that the Department could not execute an agreement with firms that are not “Cost Basis Approved”. This, from what I understand, involves elaborate accounting procedures on the part of the vendors, with which many firms were reluctant or fiscally unable to comply. As a result, firms specializing in traffic data collection in the New York City area were excluded from the process.

**We** also decided to act on an unsolicited proposal to outsource the maintenance of our continuous traffic monitoring stations. The firm eventually selected learned about the stringent requirements of Cost Basis Approval during nearly two years of correspondence and meetings with NJDOT auditors and procurement personnel before becoming an approved vendor. This firm submitted the only acceptable proposal for this “light maintenance” contract. This contract was executed in August of 1995.

**The next step was gaining approval from the Consultant Selection Committee of NJDOT of a short**

list to which Requests for Proposals would be sent. **At this point, I was notified that I had violated the “Mini-Brooks Act” by asking for the technical proposal and fee proposal together. Everyone knows the selection is based on technical merit only, not on the cost. I notified each firm and reminded them the fee proposals were to be in separate, sealed envelopes. We were only able to open the fee proposals of the selected firms. The three short-listed consultants for each region gave oral presentations to our technical evaluation committee members. We selected the four regional consultants, opened their fee proposals, and began the process of negotiating their contracts.** Throughout this negotiation period, the Department conducted pre-award audits on the firms, and Auditing’s concerns were incorporated into the contracts. Two of the selected firms were our long-time manual data collection consultants. The other two firms had only been sub-consultants on other jobs and this was their first experience as primes. At the end of this process, the draft agreements were signed by the consultants and submitted to the Attorney General’s office for review and approval.

Finally, after 8 to 10 months, the regional traffic monitoring agreements were executed **between** November 20 and December 28 of 1995.

We had a “kick-off” meeting on December 8. After a few false starts because of the weather, traffic data collection started in earnest during March.

The regional contracts are for one year, with two additional one-year extensions to be offered at our option. Since it was management’s view that we hadn’t expended the allotted money fast enough, our Fiscal Year 1996 funding was transferred. This is Federal STP-SPR money, and we are told that the FFY-’97 won’t be available until January of 1997. We will have to do a zero-cost modification to extend the contracts until they can be modified for another year with funding.

Our four remaining field staff are being turned into “inspectors” to check on the consultants’ whereabouts and installations. Since there are only four “traffic enumerator”-series titles left in the state, and there is a move to “broadband” civil service titles, one of these was reclassified as an Engineering Technician 4. Three of the four staff have been pre-qualified for the examination and we can expect to have the whole series converted. It is my hope that we can retain a cadre of experienced traffic monitoring field staff to carry us over transitions from vendor to vendor, to advise and assist our private-sector partners, and to act as our eyes in the field as part of our **quality-assurance efforts.**

**As you can see, we have burned our bridges behind us, and we’re going to need significant funding every year as long as a TMS/H is required. Now we have to “market” our services again to the design groups, provide superior service, and not bankrupt the TMS/H part of the contracts to rebuild internal management support of the program.**

These contracts include tasks other than pure data collection. These include obtaining Global Positioning System (GPS) coordinates for each monitoring site; reformatting the data into NJDOT’s **mainframe** format; and ensuring the data can be integrated into NJDOT’s Geographic Information

System for Transportation (GIS-T). Because of these extra tasks; and the necessity for elaborate maintenance protection of traffic to install equipment on heavily traveled roadways; and the uncertainty of the number, scope, and locations of special counts, I don't know at this point what our per-count cost really is. The simple division of the contract cost by the estimated number of counts results in an average cost of about \$700 to over \$1,100 (including manual and automatic turning movement, counting, classification, and occupancy data collection).

We hope that as these contracts progress, we will zero in on the actual cost to do each count, and then we can see how much more (or less) we are paying in order to properly evaluate this outsourcing. But as Bob Bousenberry said in his paper, we are not outsourcing by choice, we are doing so out of necessity.