

An Overview of New Jersey's Accident Processing Costs Based on a National Survey

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New Jersey historically has processed all reported accidents within the state. Because of the increased number of accidents and their accompanying increase in processing costs, however, the state decided in summer 1987 to conduct a survey of the states. The purpose of the survey was to determine what time- or labor-saving methods had been implemented or investigated by other states to reduce their accident processing costs. From the survey it was concluded that New Jersey's accident processing unit was one of the most efficient in the country on the basis of the per accident rate. As a result of the large number of accidents, however, the state also had one of the highest total costs. The four most significant cost-saving techniques mentioned by the other states were to (a) Implement a data base file to replace the tape-disk system; thus the user would pick up the cost of computer runs for which the processor now pays; (b) Raise "property damage only" accidents' threshold or eliminate these accidents from processing completely; this could create savings from the present budget up to 60 percent; (c) Reduce the number of items per accident that are processed; the savings would depend on the items deleted; and (d) Have local municipalities or state police input the data from accident forms. Substantial savings could be made in the future; however, there would be start-up and training costs.

New Jersey historically has processed all reported accidents within the state. Escalation of the number of accidents and the cost of processing them, however, has increased substantially over time. As a result, it has become necessary to consider time- and labor-saving methods that could reduce this processing burden. Therefore, in early August, the questionnaire shown in Figure 1 was sent to the persons responsible for accident record processing in the other 49 states to obtain ideas on any such methods. Thirty-five states, including New Jersey, have responded, and the following are general observations about the responses to the specific questions in each of the questionnaire's four sections. This is followed by conclusions and an options section based on these responses. The figures included are also based on these responses and represent the agencies that have primary responsibility for processing their state's accident records.

GENERAL INFORMATION

- In most states accident reports are processed by either the Department of Transportation (15 states), the state police (10), or the Department of Public Safety (8). New Jersey's

accidents are processed by the Department of Transportation (Figure 2).

- Of the 35 states responding, 23 used all state money to process their accidents. Of the other 12, the federal share ranged from 4 to 100 percent. New Jersey had a 50 percent share (Figure 3).

- Of the 35 states, 11 did not include accident processing costs on their forms. The 24 that did so had processing costs that ranged from \$80,000 to \$2,500,000. New Jersey's accident processing costs were \$750,000 (Figure 4). No breakdown of these cost data, such as salary, overhead, fringe cost, computer cost, and so on, was requested or received.

- Accident processing staff size ranged from 4 to 121 persons. New Jersey's staff numbered 38 persons (Figure 5).

- Accident processing costs per staff member ranged from \$12,400 to \$37,500 a year. New Jersey's cost per person was \$19,700 per year (Figure 6).

- Of the 35 states, only 2 had not finished processing their 1986 accidents by the end of August 1987. Unfortunately, New Jersey was one of them.

- Twenty-three states noted that they would meet their desired completion date for 1987 accident processing, and 12 noted that they would not. Again, New Jersey was one of the worst in the latter group (Figure 7). For those states that will not meet their expected date, processing completion is desired in either March or April.

- The number of items processed per accident ranges from 45 to 250. New Jersey processed 145 items (Figure 8).

- The cost per processed accident item [total cost/(total accidents \times items processed)] ranged from 2 to 17 cents. New Jersey's cost was 2.1 cents per processed item (Figure 9).

- The number of accident report items processed per staff member [(total accidents \times items processed)/staff size] ranged from 142,000 to 1,621,000 items. New Jersey processed 932,000 items per staff member (Figure 10).

- Thirty states did not process a narrative for each accident, and three states entered a narrative for some accidents; two states entered a narrative for all accidents. New Jersey did not process a narrative.

SPECIFIC ACCIDENT DATA

- The total number of accidents processed ranged from 12,250 to 674,600. New Jersey processed 244,000 accidents (Figure 11).

GENERAL INFORMATION

State of _____

Please list below the agencies that are responsible for any part of the accident record processing procedure, from the handling of hard copy police reports to the final yearly summaries. Also, list the specific function(s) performed by the agency, funding, funding source and staff size.

Agency Name and Address	Processing Functions Performed	Costs	Funding Source(%)	Staff Size
			Federal _____ State _____ Local _____	
			Federal _____ State _____ Local _____	
			Federal _____ State _____ Local _____	
			Federal _____ State _____ Local _____	

What is the last full year for which you have completed your accident processing procedure? _____

What is your expected completion date for processing of 1987 accidents? _____

Is this date the desired completion date? _____

If not, what is the desired completion date? _____

How many items on each accident report are coded in your processing procedure? _____

Do you code a narrative about the accident? _____

SPECIFIC ACCIDENT DATA

Please record below the number of accidents for each category shown. Please use the last full year of processed accidents.

	Fatal	Injury	Property Damage Only	
			Police Reported	Driver Only Reported
Interstate and State Highways				
County Roads				
Local Streets				
Other (explain)				

For the property damage only accidents listed above, what was your state's monetary threshold? _____

Has it changed since then? _____

FIGURE 1 Accident questionnaire.

USER INFORMATION

Please check (X) below those agencies which use the processed accident information. Give a short explanation of how the accident information is used and note any federal, state or local laws or regulations which require this function to be performed.

USERS	USE	LAWS OR REGULATIONS
<input type="checkbox"/> Traffic Bureau		
<input type="checkbox"/> Research Bureau		
<input type="checkbox"/> Planning Bureau		
<input type="checkbox"/> Design Bureau		
<input type="checkbox"/> Safety Bureau		
<input type="checkbox"/> State Police		
<input type="checkbox"/> County Agencies		
<input type="checkbox"/> Municipal Agencies		
<input type="checkbox"/> Other (list)		

PROCESSING PROCEDURE

Please briefly comment on those techniques which you now use or plan to use in the near future to improve the timeliness of the accident processing procedure.

Technique	Presently Use	Planned for Future Use
Optical Scanners		
Automated Field Coding by Police		
Electronic Maps		
Computer Printouts		
Other (please explain) For example, processing less items, increasing PDO monetary threshold, not processing PDO accidents, processing only state road jurisdiction accidents, increase staff, etc.		

Are there any general or specific comments about your accident processing procedure which should be noted?

Name and address of person completing this questionnaire:

Do you want a copy of the results of this questionnaire? _____

FIGURE 1 (continued)

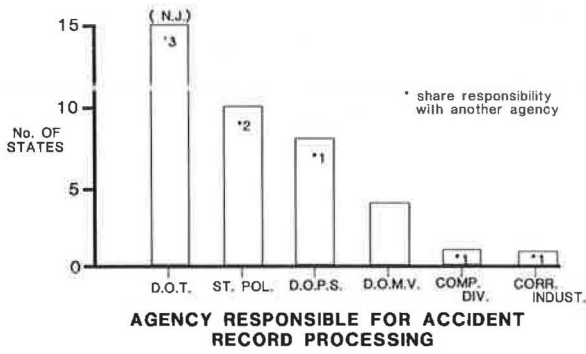


FIGURE 2 Accident record processing responsibility by agency.

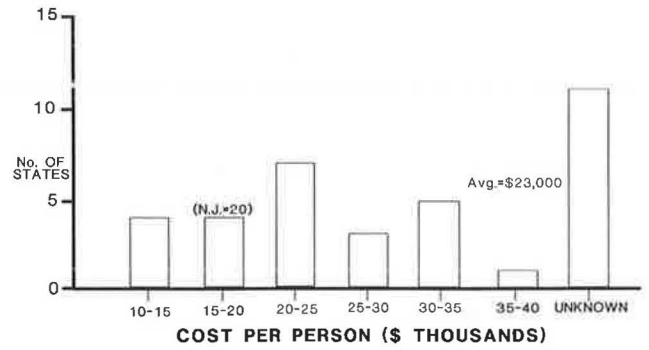


FIGURE 6 Accident processing cost per staff member.

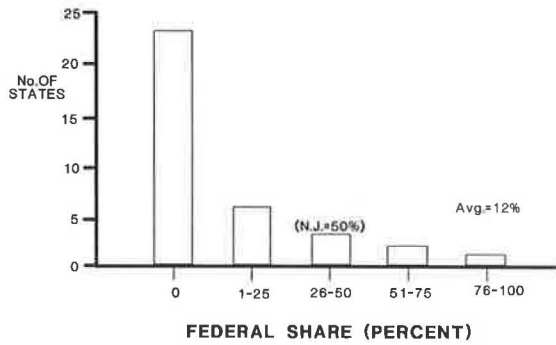


FIGURE 3 Federal share of expenditure for accident record processing.

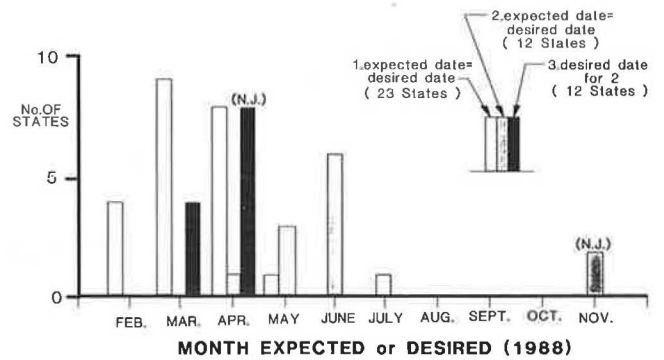


FIGURE 7 Completion date for processing of 1987 accidents.

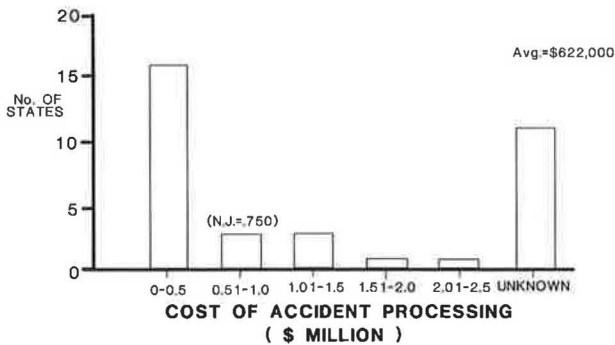


FIGURE 4 Cost of accident record processing by states.

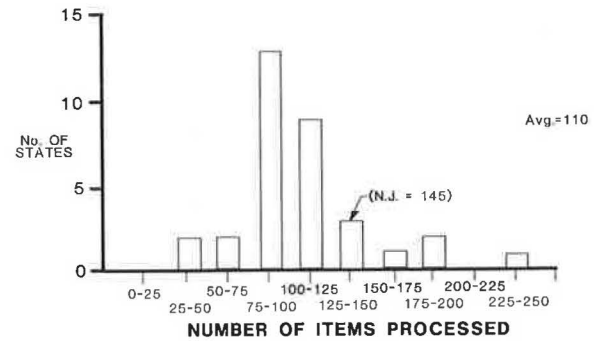


FIGURE 8 Number of items processed per accident.

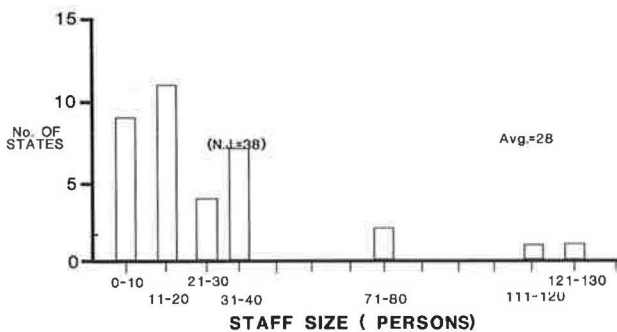


FIGURE 5 Accident record processing staff size.

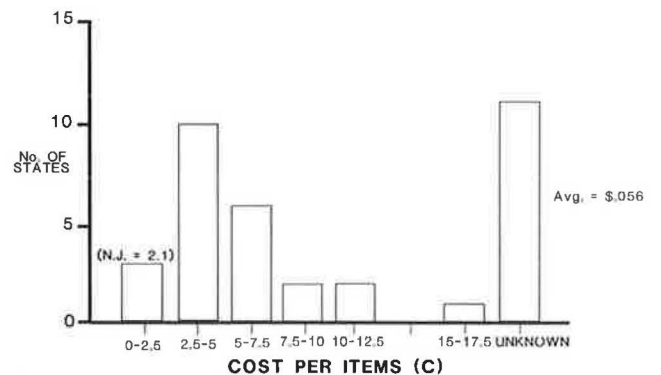


FIGURE 9 Cost per item processed.

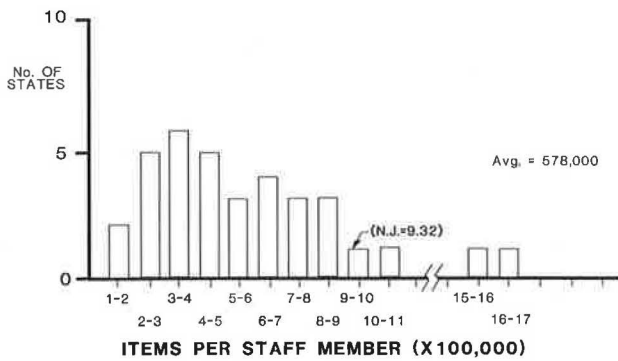


FIGURE 10 Items processed per staff member.

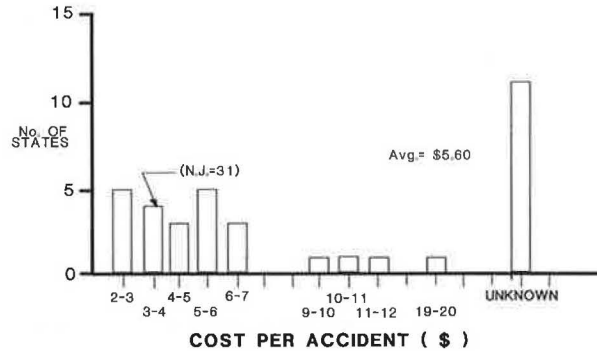


FIGURE 12 Processing cost per accident.

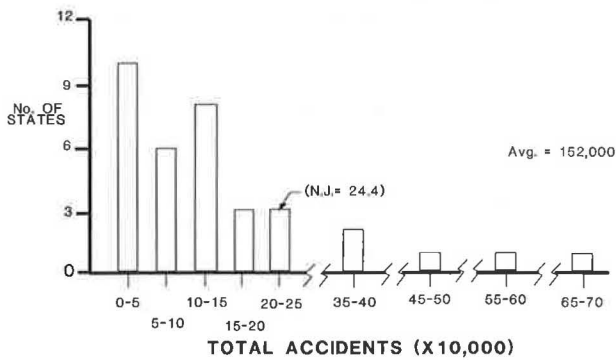
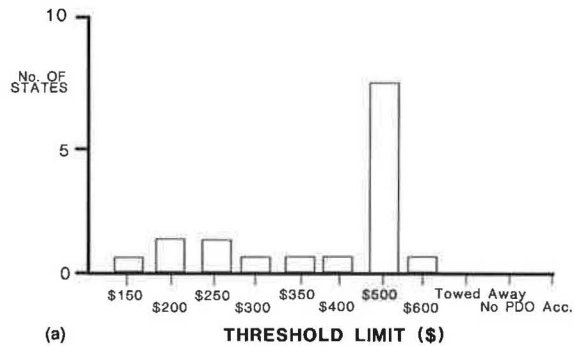
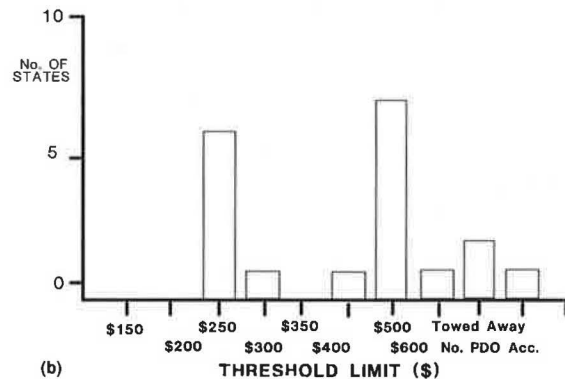


FIGURE 11 Total accidents processed by states.



(a) THRESHOLD LIMIT (\$)



(b) THRESHOLD LIMIT (\$)

FIGURE 13 Threshold limits for (a) total property damage only accidents (b) individual property damage only accidents.

- Processing cost per accident ranged from \$2.30 to \$19.60. New Jersey's cost per accident was \$3.10 (Figure 12).

- Twenty-seven states did not process private property accidents. Of the eight that did, five did not know the percentage of their total made up by private property accidents; these percentages for the remaining three were 1, 11, and 14, respectively. New Jersey did not process private property accidents.

- Twenty-four states did not have or process driver-only reported accidents. Of the 11 that did, 3 did not know the percentage of the total made up by driver only reported accidents; these percentages for the remaining 8 states were 3, 5, 7, 8, 19, 21, 25, and 25, respectively. New Jersey did not process driver only reported accidents.

- The property damage only (PDO) accident threshold ranged from as little as \$150 total accident damage to a non-existent threshold for one state that did not process property damage accidents at all, no matter what the property damage was. New Jersey's threshold was \$500 for an individual's property (Figures 13a and 13b).

- Six states changed or will change their threshold for PDO accidents. One increased it from \$600 to \$1,000; another from \$250 to \$400; and another from \$150 to \$400. A fourth state was going to drop driver only reported PDO accidents completely, which would cause a 6-8 percent decrease in the accidents processed. The fifth state increased the threshold from \$400 for total accident damage to \$500 for one individual's property. This was predicted to decrease the accidents reported by 9-14 percent. The sixth state increased it from \$300 to \$500. An 8 percent reduction was predicted.

USER INFORMATION

Data on the use of the final processed accidents show many users, for many uses, and a few rules or regulations that required that the data be analyzed or collected (Figures 14 through 16).

PROCESSING PROCEDURE

- All thirty-five states produced computer outputs once the data had been coded and keypunched.

- There were 14 specific techniques mentioned to improve timeliness or reduce the costs of accident processing (Figure 17). The first nine are possibilities to reduce costs that New Jersey has not tried. The next four are techniques to reduce

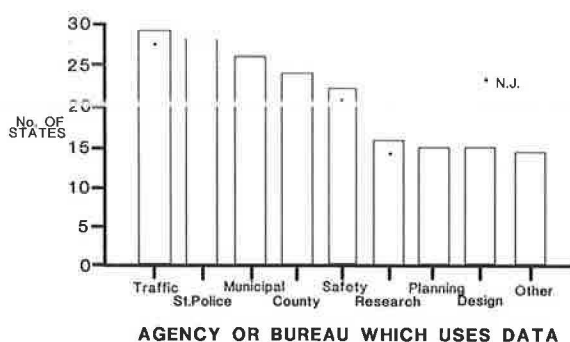


FIGURE 14 Users of processed accident data.

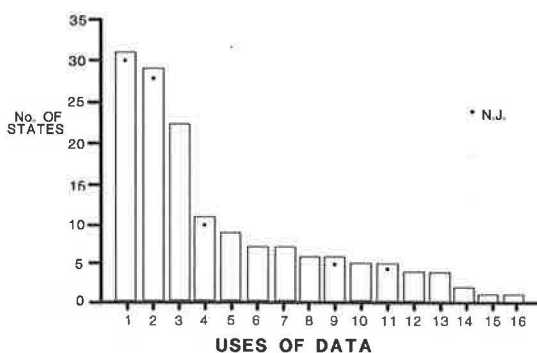


FIGURE 15 Uses of processed accident data.

1 = Engineering justification, 2 = Identify hazardous locations, 3 = State police patrol, 4 = Before/after evaluations, 5 = Statistical safety analysis, 6 = Public education, 7 = Request for funding, 8 = HPMS-maintenance, 9 = Design exceptions, 10 = Design improvements, 11 = Benefit/cost analysis, 12 = News stories, 13 = Planning, 14 = Construction program, 15 = State police budget, and 16 = Pupil transportation safety.

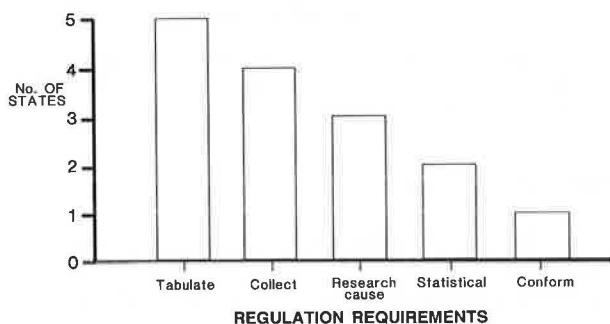


FIGURE 16 State regulations regarding use of processed accident data.

costs that New Jersey has already implemented. The final one would actually increase costs. New Jersey is planning to add staff in the future to improve the timeliness of its accident processing.

• Besides New Jersey, the following states responded and would like to receive a copy of the findings: Alabama, Arizona, Arkansas, California, Georgia, Idaho, Illinois, Indiana,

1. Implement data base file rather than tape-disk system: investigated by eight states, implemented by three of them.
2. Use of optical scanners: investigated by four states with one state predicting a 30 percent reduction in staff needs.
3. Accident form data input by municipalities or State Police: investigated by six states, partially implemented by three of them.
4. Raise property damage only accident threshold: investigated by five states, reduction of 8–14 percent of total accidents.
5. CAD mapping system for location of accidents: investigated by three states.
6. Drop property damage only accidents completely: investigated by one state, has been implemented.
7. Use of floppy disk for pulled-out, specific accident data: investigated by one state.
8. Reduce amount of data entered for property damage only accidents: investigated by two states.
9. Use of credit card type registration and driver license for automated field entry: investigated by one state.
10. Drop driver only reported accidents: investigated by one state, predicting a reduction of 7 percent of total accidents.
11. Drop accidents on private property: investigated by one state.
12. Input data directly from accident form rather than using code sheets: investigated by one state.
13. Change accident form to use numeric codes: investigated by one state.
14. Add staff: investigated by two states.

FIGURE 17 Techniques mentioned by other states to improve timeliness or reduce costs of accident processing.

Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Minnesota, Missouri, Montana, Nebraska, Nevada, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Texas, Virginia, Washington, Wisconsin, and Wyoming.

CONCLUSIONS

From these data it can definitely be concluded that New Jersey is one of the states lagging the most when it comes to timeliness of processing accidents. Its November 1988 expected completion date for processing 1987 accidents is matched by only one other state. All the other responding states expected to have their processing completed at least by June 1988.

As for cost, New Jersey had the sixth highest budget for processing accidents of the 24 budget-responding states. It was also among those with the greatest use of federal funds. However, the state had the sixth highest number of accidents to process and the fifth highest number of items to code. When these figures are combined, New Jersey's cost per accident was the sixth lowest of the 24 states. If the number of specific items to be processed is included, New Jersey becomes the

second most efficient state of the 24 in processing accident reports.

When staff size is added to these calculations, the same point is evident. New Jersey's staff size is the sixth largest of the 35 states. Its cost per staff member, however, is the seventh lowest among the 24 budget responding states. When the number of items to be processed for the year is divided by the number of staff members, New Jersey has the fourth highest ratio of the 35 states.

Figures 18 and 19 were attempts at trying to find a relationship between the expected completion date of processing the 1987 accidents and two of these combinations—cost per processed item and processed items per staff member. As can be seen, the points are quite spread out and, although no statistical relationship was calculated, the data for processed items per staff member do seem to increase as the expected completion date is extended.

From these numbers it is certainly evident that although New Jersey is lagging behind in processing accidents, that is not the fault of the processors themselves. The state is one of the top two or three states in terms of efficiency, getting more work completed for less money per unit. Therefore, how can New Jersey improve its overall processing standing while keeping costs down? The next section attempts to answer this question.

OPTIONS

Figure 1 lists 14 possibilities, which at least one state has investigated, for reaching the goals of improved timeliness and continued low costs. The first option to be discussed that could improve timeliness is to increase staff. Although this option conflicts with the other goal of keeping costs down, the cost per processed item for New Jersey is currently so low that this increase still would not push it near the national average.

If reduction of costs is the major concern, the first nine possible remedies shown in Figure 17 might be investigated. One of the four best of these possibilities is to implement a data base file to replace the tape system used today. Eight states mentioned this option, and three had already implemented it. This implementation would allow the accident record section to drop part of its data processing costs by permitting users direct access to the data while charging the costs directly to them.

The second option is either to raise the monetary threshold for "property damage only" accidents or to eliminate them entirely. One state has already eliminated PDO accidents. The costs saved by eliminating PDO accidents would be dramatic because approximately 60 percent of all New Jersey accidents are in that category. An increase in the threshold would not, of course, yield the same reduction. However, two states have set their threshold for a PDO accident at a vehicle being towed away, which again reduced the number substantially.

A less drastic technique would be a reduction in the number of items that are input for a "property damage only" accident. Two states mentioned this option. The amount of costs saved from this option would depend on the amount of data eliminated from the processing procedure. These data could still be obtained by reviewing the hard copy microfiche.

The final possible solution would be for municipalities and/or the state police to input the accident data. Three states have partially implemented this option, and three others are planning it in the future. This option would probably have a high implementation cost because the municipality would have to be supplied with the computer hardware and software and the operator's costs paid for the first year or two to help the municipality cope with these increased costs. In the long run, however, the state's costs would be reduced tremendously.

Other possible options, which were not investigated by other states but should be considered, include charging a fee to users of the processed accident data, so that total processing costs would be provided by these users and not by the processors. Another option, reducing the number of items processed for all accidents, could reduce the processing costs substantially, depending on how much data was eliminated. Processing only those accidents that occur on state-operated roads is another option. This would reduce the processing procedure by 70 to 90 percent, depending on whether the PDO accidents were also eliminated. The final two options are, first, to stop editing or correcting accident reports and, second, to stop processing all accidents entirely on the state level.

It must be noted that a few of the options just discussed are quite drastic and the decision concerning which, if any, to implement will be difficult. Therefore, the next step must be an open discussion with the users of processed accident

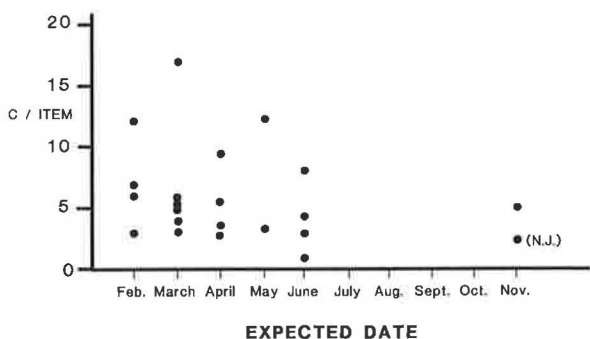


FIGURE 18 Cost/item vs. expected completion date of processing 1987 accidents.

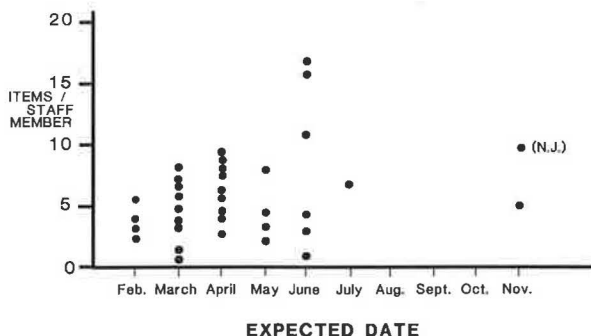


FIGURE 19 Items/staff member vs. expected completion date of processing 1987 accidents.

data to determine how each of these options would affect them and whether they could fulfill their responsibilities if the options were implemented. From this discussion, a better decision could be made about which options are realistic alternatives. Also, a few of the options deal with local municipalities picking up part of the workload. A discussion with representatives of some of these municipalities would be helpful in again determining if these options are realistic.

Finally, it must be pointed out that these solutions may eliminate the existing need for a large staff at the state level. Reduction of this staff is a delicate and troublesome aspect that must be handled appropriately if any of these options is to be implemented.

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