#79

Massachusetts Automobile Rating Bureau
DPU 89-72
Exhibit MARB-

COMMONWEALTH OF MASSACHUSETTS
BEFORE THE DEPARTMENT OF PUBLIC UTILITIES

DIRECT TESTIMONY OF

PAUL CHERNICK
and
IAN GOODMAN
PLC, Inc.

ON BEHALF OF THE

MASSACHUSETTS AUTOMOBILE RATING BUREAU

SEPTEMBER 13, 1989

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1. EXECUTIVE SUMMARY AND QUALIFICATIONS

1.1 Qualifications

Q: Mr. Chernick, please state your name, occupation and business address.

A: My name is Paul L. Chernick. I am President of PLC, Inc., 18 Tremont Street, Suite 703, Boston, Massachusetts.

Q: Mr. Chernick, would you please briefly summarize your professional education and experience?

A: I received a S.B. degree from the Massachusetts Institute of Technology in June, 1974 from the Civil Engineering Department, and a S.M. degree from the Massachusetts Institute of Technology in February, 1978 in Technology and Policy. I have been elected to membership in the civil engineering honorary society Chi Epsilon, and the engineering honor society Tau Beta Pi, and to associate membership in the research honorary society Sigma Xi.

I was a Utility Analyst for the Massachusetts Attorney General for over three years, and was involved in numerous aspects of utility rate design, costing, load forecasting, and the evaluation of power supply options.

As a Research Associate at Analysis and Inference, and in my current position, I have advised a variety of clients on utility matters. My work has considered, among other things, the need for, cost of, and cost-effectiveness of prospective new generation plants and transmission lines; retrospective review of generation planning decisions; ratemaking for plant

under construction; and ratemaking for excess and/or uneconomical plant entering service. My resume is attached to this testimony as Appendix A.

Q: Mr. Chernick, have you testified previously in regulatory proceedings?

A: Yes. I have testified approximately sixty times on utility issues before various regulatory, legislative, and judicial bodies, including this Department, the Massachusetts Energy Facilities Siting Council, the Illinois Commerce Commission, the Texas Public Utilities Commission, the New Mexico Public Service Commission, the District of Columbia Public Service Commission, the New Hampshire Public Utilities Commission, the Connecticut Department of Public Utility Control, the Michigan Public Service Commission, the Maine Public Utilities Commission, the Vermont Public Service Board, the Minnesota Public Utilities Commission, the Rhode Island Public Utilities Commission, the Federal Energy Regulatory Commission, and the Atomic Safety and Licensing Board of the U.S. Nuclear Regulatory Commission. I have also testified before the Massachusetts Division of Insurance in several private-passenger automobile ratesetting proceedings, and in a workers' compensation insurance rate proceeding. A detailed list of my previous testimony is contained in my resume. Subjects I have testified on include capital and operation cost projections, rate design, cost allocations, cost recovery standards, the measurement of efficiency, and fair returns on investment.

Q: Have you authored any publications on ratemaking issues?

A: Yes. I have authored a number of publications on rate design, cost allocations, cost recovery, and other ratemaking issues. These publications are listed in my resume.

Q: Mr. Goodman, please state your name, occupation and business address.

A: My name is Ian Goodman. I am a Research Associate at PLC, Inc., 18 Tremont St., Boston.

Q: Mr. Goodman, would you please briefly summarize your professional education and experience?

A: I received an S.B. degree from the Massachusetts Institute of Technology, in June, 1977 from the Civil Engineering Department, with a concentration in Transportation Systems.

As a Researcher at the Massachusetts Institute of Technology, I participated in several projects relating to freight transportation policy and regulation. My work included development of regional and commodity price-indices for the trucking industry.

As a consultant to start-up software firms, I advised clients on a wide variety of strategic planning issues. My work included review of and computerization of accounting systems.

As a Consultant to Salgo & Lee, a Research Associate at Analysis and Inference, and in my current position, I have advised a variety of clients on utility matters. My work has considered, among other things, the need for, cost of, and

cost-effectiveness of generation, transmission, and conservation options; retrospective review of generation planning decisions; review of demand forecasts; and development of regulations for least-cost planning. I have also advised clients on statistical estimation of fuel oil overbilling and theft of parking meter and transit revenue. My resume is attached to this testimony as Appendix B.

1.2 Executive Summary

Q: What is the purpose of this testimony?

A: The purpose of this testimony is to review the proposal of the Statewide Towing Association (STA) for increased rates for police-ordered towing and related charges.

Q: What are the major conclusions of your analysis?

A: We conclude that the STA Cost Study is seriously flawed and that the DPU should not place any great weight on the study for ratesetting purposes. We also conclude that the available evidence indicates that current rates for police-ordered towing are not substantially inadequate.

Q: How is the remainder of this testimony structured?

A: Section 2 of this testimony discusses the theoretical principles and practical complications involved in the determination of the cost of police-ordered towing. Section 3 reviews the STA Cost Study. Section 4 examines those portions of the

STA rate proposal which are not derived directly from the study. Section 5 presents alternative sources of data on the adequacy of current towing rates. Finally, Section 6 presents our conclusions and recommendations.

2. CONTEXT OF RATESETTING FOR POLICE-ORDERED TOWING

2.1 Joint Products, Joint Sales, and Regulation

Q: What fundamental factors complicate the analysis of costs in towing industry?

A: The towing industry, like many other businesses, is characterized by joint products and by joint sales. Assigning costs or revenues to individual products is intrinsically difficult in these situations.

Q: What do you mean by joint products?

A: Joint products are those which are produced in significant part from non-competitive uses of the same input. For example, feeding and slaughtering one steer produces both meat and leather. Similarly, an electric utility power plant can produce both on-peak power and off-peak power from the same equipment.

Q: How does the concept of joint products apply to the towing industry?

A: The concept applies in several ways. The same tow trucks (and drivers) are used to provide several types of services: police-ordered (PO) towing, secondary towing, general public towing, commercial towing, and auto-club towing. Some of these services compete for the use of the common production resources, but according to the STA, commercial and club towing can be scheduled in between PO and general public towing.

Secondary towing would also appear to be largely a "filler" activity.

In addition, other parts of the towing carrier's facility may provide joint products. The same office may manage gasoline sales, repairs, towing, and storage. The dispatcher for the towing operation may also release cars from storage. Depending on the amount and type of work, additional operations may not contribute to increased labor requirements.

Q: How can the profitability of joint products be assessed?

A: The profitability of each product must be determined with reference to the cost and market value of producing the joint product. The cost of raising a steer cannot be allocated between meat and leather by weighing the two products, or by any other physical measurement. As long as the total cost of raising the steer, producing the two products, and getting them to market is less than the price of the products, the overall operation is profitable. As long as the price of each of the individual products covers its variable costs (e.g., tanning the leather), the production of each product is also profitable.

Q: What do you mean by joint sales?

A: Joint sales occur where items are often purchased together, or where the purchase of one product tends to result in the purchase of another product. Examples of joint sales are common for restaurants, for which the sale of food tends to result in the sale of more profitable alcoholic beverages; food

stores, for which sales of low-margin staples such as bread and milk often lead to sales of more profitable convenience and luxury goods, magazines, and other impulse purchases;[1] and entertainment operations (e.g., ball parks, amusement parks), for which ticket sales are a necessary prerequisite for sales of refreshments, souvenirs, and other items. A business may barely cover the variable costs of one product (e.g., milk may be priced near the wholesale price), but that product might be vital to generating sales of other products. Rational marketing programs often rely on the pricing of one product below cost (at least below fully allocated cost, and sometimes below direct variable costs) to generate sales of other products.

Q: How does the concept of joint sales apply to the towing industry?

A: Towing (particularly PO towing) generates other sales: storage, repair, and secondary towing at general public rates. Once a vehicle has been towed to the carrier's lot, the owner may not be able to avoid storage charges, and he is likely to use the carrier (who has possession of the vehicle) for repairs,[2] and/or for secondary towing to a facility which will

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[1]Hence, dairy and bakery sections of supermarkets are often located at the back of the store, to encourage customers to pick up other items on the way.

[2]The repairs may be performed by a co-located business with ownership similar to that of the towing carrier, rather than by the same business entity.

perform the repairs.[3] If these follow-up services are profitable, the profitability of PO towing must be assessed on the basis of its contribution to total business operation.[4] This is obviously a more complicated proposition than simply determining the relationship between the revenues of PO towing and the allocated costs of PO towing.

2.2 The Diversity of Police-Ordered Towing

Q: How do costs and profitability vary for individual PO tow jobs?

A: Aside from the issues of joint products and joint sales, this is still a complex relationship due to the nature of PO towing. PO towing is composed of a diversity of individual jobs, which can have substantially different levels of cost, revenue, and profitability.

Q: How can we assess the impact of the diversity of PO towing on the cost per tow job?

A: To understand this relationship, we need to determine the variables that affect cost and consider if these variables are affected by diversity. The two most obvious cost variables are time and distance. Tow jobs that take longer to complete will

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[3]According to Mr. Roy, PO towing also serves as good advertising for other services.

[4]This "total business" must include functionally related, but legally distinct, businesses.

tend to cost more. Tow jobs that are longer in distance will tend to increase operating costs such as fuel.[5] However, while it is obvious that certain factors affect costs, it is difficult to accurately evaluate these relationships outside the context of a carrier's total business.

Q: Why is the context of a carrier's total business important?

A: The importance of examining the entire towing business can be illustrated with this example. One might assume that towing costs are higher at night, due to such factors as higher labor rates and lower utilization.[6] However, a carrier may be able to fully utilize drivers and equipment with non-PO tow business during the day. Servicing additional day business may require added costs across the board: more labor, equipment, and facilities. At night, when there is less non-PO business, servicing PO tows may involve only some variable costs such as labor and fuel.[7] Thus, PO tow business that is concentrated at night might be cheaper to serve than PO tow business that is concentrated during the day.[8]

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[5]Tow jobs that are longer in distance will also tend to take longer to perform.

[6]Current PO tow rates include a $5 differential for tows outside of 8AM-5PM Monday-Friday.

[7]Some carriers pay night drivers on a commission basis, so variable labor cost is directly tied to revenue.

[8]Night towing business might also have the advantage of reduced time per tow due to less traffic.

The importance of the synergy between PO towing and other towing business is also evidenced by the practice of certain police departments of rotating PO towing between carriers on a weekly basis. Unless PO towing is extremely profitable, it would seem unlikely that towing carriers would seek PO business that results in fixed costs every week and revenue every third or fourth week. It is more likely that these carriers have found that they can perform PO towing at night by utilizing equipment that would otherwise be idle and by juggling their non-PO business during the weekdays when they are called to perform PO tows.

The importance of examining a carrier's total business is further underscored when one considers the relative importance of the carrier's different products and services. For the seven carriers in the STA Cost Study, PO towing ranges from 12 to 60% of all towing sales, averaging less than 20% of the total. For these same seven carriers, total revenues from storage exceed those from PO towing. Total revenues from businesses other than towing and storage exceed that from all towing and storage <u>combined</u>. Carriers where towing was only an incidental portion of the total business were specifically excluded from the STA cost study. Therefore, it appears that towing, and especially PO towing, is frequently a small part of a carrier's total business.

Q: Do you believe that towing costs are higher during the day than at night?

A: Our point is not that this is necessarily true, but rather that the cost relationships within the towing business are complex and not necessarily intuitive. The economics of one carrier may not reveal much about those of another.

Q: How does revenue per PO tow job vary with cost?

A: This is a function of two relationships: the relationship between costs and rates, and the relationship between rates and revenues. The current PO rate structure does include some components related to cost causation. Additional charges apply for mileage over 5 miles roundtrip, additional labor, waiting time, and special services. However, there is a flat rate for a basic 5 mile roundtrip, with differentials based on time of day and number of wheels off ground.[9] The relationship of these differentials to cost is unclear, and the STA has proposed elimination of these factors as a basis for rates. Overall, we would expect that cost per tow varies significantly more than rate per tow.

Revenue per tow and rate per tow are not the same due to abandoned (unclaimed) vehicles.[10] For certain tow jobs, the carrier, in effect, receives title to the vehicle rather than

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[9]Our discussion in this testimony is directed toward light towing. While many of our points are also applicable to heavy towing, we do not address the differential between light and heavy towing.

[10]The term "abandoned vehicle" is sometimes used to refer to vehicles illegally parked, as along a highway or even on a city street for an extended period (e.g., over 24 hours). "Abandoned" vehicles may thus be claimed by their owners.

being paid for towing and storage charges. While it is conceivable that the value of the vehicle sometimes exceeds the towing and storage charges,[11] it is likely that net revenue per unclaimed vehicle is substantially below rates.[12] Thus, abandoned vehicles introduce a major source of variation in revenue per tow.

Table 2.2.1 calculates revenue per PO light tow for each carrier in the STA Cost Study based on the November 1987 sample period. Towing revenue per light tow varies from $15.32 for

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[11]Although we would expect that the owner would usually claim a vehicle whose value exceeded towing and storage costs, this might not occur in certain instances: e.g., the owner incorrectly valued the vehicle, was unavailable to claim the vehicle, or was unable to raise the cash to pay outstanding towing and storage charges and parking tickets. The value of unclaimed vehicles to the tow carrier could also exceed the value to the owner: e.g., if the carrier sells used cars, as Winn Street apparently does.

[12]From the limited amount of information available to us, it is unclear whether net revenue per abandoned vehicle exceeds cost to the carrier. Costs for abandoned vehicles would include the cost of the initial tow, the cost of storage and notification, and any cost of disposal (including secondary towing). The cost of the initial tow and notification are under consideration in the current proceeding. The cost of storage is relatively low. We have not reviewed any comprehensive data on cost of disposal. However, we are aware of a program in the City of Springfield that removed derelict cars from private property. Commencing in November 1988, Chet's Auto Wrecking apparently agreed to remove and dispose of these vehicles at no charge. The program is not currently in effect, but Springfield authorities reported that Chet's would be willing to resume the program if offered sufficient volume. We would expect that tow carriers, with a substantial volume of vehicles for disposal and the capability to deliver the vehicles to a central location, could negotiate more attractive disposal arrangements than those that could be made for isolated vehicles on private property. In any event, it should be noted that storage probably accounts for the large majority of unpaid charges for abandoned cars. Thus, the unreimbursed cost for abandoned vehicles is certainly far less than the foregone revenue (because storage rates are substantially above cost).

Norfolk to $48.80 for Ted's. This variation reflects the widely differing mixes of day/night work, 2 wheel/4 wheel off ground, additional mileage, other additional charges, and abandoned cars. Norfolk, which has the lowest average revenue, had a large proportion of unpaid tows. Also, Norfolk was towing for the Boston Police, whose maximum rates are below those generally in effect in the state.[13] Storage revenue per PO light tow is quite substantial, ranging from $17.33 to $120.00 for the six carriers for which data was available. Total revenue (towing and storage) per PO tow for these six carriers ranges from $61.20 for Norfolk to $150.00 for Winn Street.

Table 2.2.2 calculates towing revenue per light and heavy tow using the fiscal year revenue data for each carrier in the STA Cost Study and the number of tows estimated in Table 3.2.2. Revenue per light tow is generally somewhat lower than in Table 2.2.1, varying from $19.59 for Norfolk to $42.82 for Winn Street. The differences in revenue per tow between Tables 2.2.1 and 2.2.2 reflect two factors: (1) differences between

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[13]Norfolk's rates currently filed with the DPU include maximum charges for PO towing in Boston of $12/tow for parking violations; $25/tow ($30/tow with 4 wheels off ground) for accidents, stolen cars, or vehicles impeding fire department operations; and storage charges of $15/day. However, prior to January 5, 1989, the rate for accidents, stolen cars, or vehicles impeding fire department operations was $20/tow ($24/tow with 4 wheels off ground). The City of Boston currently performs its own parking-violation towing, and none of the paid towing in the sample week appeared to be related to parking violations.

the November 1987 sample period and the fiscal year,[14] and (2) the methodology used in producing Table 2.2.2, which results in some underestimation of revenue per tow.[15]

Q: Given the variability of cost and revenue, what can be said about the profitability of individual PO tow jobs?

A: Without detailed analysis beyond the scope of the testimony in DPU 89-72, it is difficult to reach any comprehensive conclusions. However, the profitability of tow jobs is likely to be affected by the following factors:

- o the time required to complete the job,
- o storage revenue,
- o repair revenue,
- o secondary tow revenue,
- o the probability that the vehicle will remain unclaimed, and
- o the marginal resources required to complete the job.

Q: How do the factors you identified above relate to the various situations where PO towing occurs?

A: Police order that vehicles be towed in a multitude of circumstances. Vehicles that are unable to proceed in a safe manner

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[14]The annual data reflects a complex estimation process, in which Mr. Poutasse drew on a number of data sources and estimates.

[15]The methodology used in Table 3.2.2 produces an estimate of maximum number of tows, since it converts all billable hours into basic tows without adjusting for extra mileage and waiting time. The revenue per tow data derived in Table 2.2.2 is thus somewhat lower than actual, since it is based on a number of tows which are somewhat higher than actual.

after an accident are towed. The police impound vehicles that are stolen, unregistered, or required for evidence. Vehicles that are left unattended in a hazardous condition are towed.[16] Police tow vehicles for a variety of parking violations including street cleaning, road construction, and "storage" (i.e., extended parking). PO towing can also result from a situation where the police prevent a driver from continuing to operate a vehicle, e.g., the driver is unlicensed, intoxicated, or is the subject of an arrest warrant.

It is unclear to what extent profitability varies with the type of towing. Accidents might appear to be more difficult, time-consuming, and unpredictable than other types of tow work. However, Mr. Roy indicated that accidents have certain advantages, in that the drivers are on the scene with keys and that the vehicles are already damaged, so less care and precautions are necessary. Accidents will also tend to generate revenues from storage, repairs, and secondary towing. In any event, accidents appear to be a relatively small portion of the PO towing business. Mr. Roy estimated that they account for 25% of his PO towing, and Mr. Tracey estimated accidents at 30% of his PO towing. Our discussions with various Massachusetts police departments confirmed that accidents are a

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[16]For example, a car becomes disabled and cannot be parked safely off the road. The driver leaves the vehicle to get assistance, and the police arrive before the driver returns. It should be noted that towing of attended, disabled vehicles is considered voluntary, rather than police-ordered.

relatively small part of PO towing, especially in municipalities with a large volume of parking violation towing.

Q: Does each type of PO tow produce a different mix of day, night, and weekend tows?

A: Different types of PO tows would tend to have different time patterns. Street cleaning is usually scheduled during weekdays. Intoxicated drivers are probably more common at night. Roy's Towing performs PO towing as the sole contractor for Springfield and Longmeadow as well as for the State Police and the Turnpike Authority. In Ex. STA-60, Mr. Roy indicates that approximately half of his PO light tow volume occurs on weekdays (which apparently include Saturdays). Weeknights account for 38% of the total. The remaining 10% occurs on Sundays/Holidays, primarily during the day. Mr. Tracey stated that PO towing at his operation, located in Lincoln, is concentrated from 4:30 to 7:30 in the evening. Mr. Poutasse's workpapers for Tower Hill Towing in Lawrence showed slightly more than half of PO towing at night and on weekends. The workpapers for Chuck's Auto Service in Chicopee, which tows for Chicopee and the State Police, indicated 79% of PO tows during nights and weekends.

The available data does indicate that non-PO towing is primarily a weekday operation. Half of Chuck's general public business and 89% of its commercial business occur during weekdays. Workpapers for Winn Street in Burlington showed its general public and commercial business to be concentrated

during weekdays; the single PO tow reported for the sample week occurred during the night/weekend period.

Q: Is the probability of abandoned vehicles related to type of PO tow?

A: We would expect that abandoned vehicles are more likely for certain types of tows and in certain jurisdictions, but we have not investigated this relationship. Ex. STA-66 and STA-67 indicated that unpaid tows were twice as common for Chicopee Police tows than for State Police tows (Chuck's Auto Service May 1987-April 1988). Mr. Poutasse indicated a rate of unpaid tows for two metropolitan Boston PO towing carriers that was only slightly above that for Chuck's State Police tows. (See Ex. STA-27 at 18). Roy's Towing and the City of Boston indicated a proportion of unpaid tows that exceeded the rate for Chicopee Police.[17] It would appear that abandoned vehicles might be more common in highly urbanized operations with a large volume of parking violation towing and less common for more suburban and highway-oriented towing.[18]

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[17]Actually Mr. Roy provided two sets of figures for abandoned vehicles. For his operation as a whole, he indicated that abandoned vehicles were 49% of the total vehicles towed in 1988 and has dropped to 35-38% recently. (Tr. 2-94-2-95). For City of Springfield PO towing, Mr. Roy indicated abandoned vehicle as 15% of the total. (Tr. 2-153).

[18]Vehicles are more likely to accumulate a substantial amount of unpaid parking tickets in highly urbanized areas. If the owner must pay parking tickets as well as towing and storage charges, vehicles are more likely to be unclaimed when towed (for parking violations or another reason).

2.3 Other Issues for Rate Setting

Q: Have you identified other issues that are important in setting PO towing rates?

A: We have identified three other issues: technical change, the effects of inadequate and excessive rates, and heterogeneity within the state.

Q: Has the technology involved in PO towing changed since 1980?

A: Mr. Tracey and Mr. Roy testified at some length concerning this issue. The thrust of their testimony appears to be that changing vehicle design and safety concerns require tow carriers to utilize more sophisticated and expensive equipment. Towing with all four wheels on the ground is obsolete and has not been done by towing carriers for many years. For towing with two wheels off ground, cranes are being replaced by wheel lifts, since the front ends of newer cars would be damaged by crane towing. For towing with four wheels off ground, towing by crane and dolly has been superseded by ramp trucks.

Q: What is the impact of this technical change on the carriers' costs of performing PO towing?

A: Mr. Tracey and Mr. Roy provided specific examples of how the price of towing equipment had increased. However, it is unclear how much effect technical change has on costs. The price of equipment cannot be considered in isolation, since it is only one part of the picture.

Q: What are some of the factors that must be considered in evaluating the impact of the technical change on cost?

A: First, we must consider the effect of changing technology on productivity and other costs. For example, use of ramp trucks may allow higher towing speeds, and hence shorter travel times. The shift from cranes to wheel lifts may have reduced the time required to pick up a vehicle. The newer equipment may limit damage to vehicles, resulting in fewer claims against carriers.[19]

Second, the capital cost of equipment may not be that important in terms of the carriers' total costs. As Mr. Poutasse notes, many of the vehicles in the sample carriers' towing fleet are fully depreciated. A quick review of the fleet data provided in the 1987 Annual Reports (for the four sample carriers for whom we have that data) indicates that half of the vehicles were from the 1980 model year or earlier.

Third, it is unclear how the costs of changing technology should be allocated among PO and the other types of towing business. PO towing has always required the use of specialized equipment to deal with damaged cars. By contrast, general public and commercial towing may have required relatively less expensive equipment in the past. The equipment mix currently required for all types of towing may be more similar. The need

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[19]This may be a greater concern for commercial and general towing, since a larger proportion of PO tows involve vehicles which are already damaged.

for new equipment in order to avoid damage to vehicles may be more related to general public and commercial towing than to PO towing. As Mr. Roy pointed out, damage to vehicles from towing is less of a concern for vehicles already damaged in accidents. In any event, PO towing is not generally the bulk of a carrier's towing business, so much of the cost of new equipment may be properly allocated to other parts of the towing business.

Q: What can you conclude about the effect of technical change on the cost of towing?

A: It is not clear that technical change has increased the cost of towing. To the extent that the overall cost of towing has changed, there are reasons to believe that the cost of PO towing has changed less than the cost of other types of towing.

Q: What are the effects of inadequate and excessive rates for PO towing?

A: If PO towing rates were inadequate (too low), we would expect that towing carriers would be reluctant to supply this service. Police departments would have difficulty getting tow carriers to agree to be designated as PO carriers. The quality of service provided might also deteriorate, as carriers gave PO calls a lower priority. Police dispatchers would find that response time had increased and that carriers were more likely to be unable to respond. The structure of the towing industry might also change. As those carriers who were unable to remain viable as PO tow carriers left the business, the companies who

could remain viable (due perhaps to low cost of operation) would expand their market share. If rates were drastically too low, serious problems with supply and quality of service might occur. Even low-cost carriers would be unwilling to provide adequate levels of supply.

If rates were excessive (too high), we would expect that towing carriers would seek to enter the PO towing business. Police departments would find a growing number of carriers offering to perform PO towing. At least in certain desirable markets, price competition might occur, with carriers offering to provide services below the statewide-maximum rate. Carriers would maintain high reserve margins of labor and equipment, so that they would be less likely to have to turn down a PO tow call. Profitability might increase somewhat, but increased competition and lower utilization would increase costs. Thus, we would expect that average cost per tow would increase in response to higher rates. The increased supply of towing services might lead to reductions in non-regulated towing rates, especially for services which were complementary to PO towing, such as some commercial towing.

Q: Why is heterogeneity within the state an issue for ratesetting?

A: In the past, the DPU has set maximum rates for PO towing which apply to the entire state. If the economics of PO towing varied substantially across the state, this could create problems, even if the statewide rates were appropriate for an

average of all carriers. Rates could be inadequate in some areas of the state while being excessive elsewhere.

Q: Is there substantial variation in the economics of PO towing in different areas of the state?

A: In Section 3, we consider whether location affects the costs of carriers in the STA Cost Study. The four carriers closest to Boston have a higher estimated cost per basic light tow than the three carriers located significantly outside of Route 128. The results of the STA Cost Study may be an indication of a pattern of geographical cost variation, but we do not believe there is sufficient evidence to make such a determination at this time. Leaving aside our various concerns about the probative value of the STA Cost Study, the sample of carriers is too small to permit us to disentangle the effects of various factors such as location, carrier size, and mix of types of towing.

3. THE STA COST STUDY

3.1 Sources and Quality of Input Data

Q: Does the data used in the STA study appear to fairly represent Massachusetts towing operations?

A: There are several reasons to doubt the validity of the data. These reasons can be divided into two major groups: the source of the data, and the composition of the sample.

Q: What problems have you identified with the source of the data?

A: The three problems we have identified with the data are that:

1. The data comes from a variety of sources, which do not appear to have been subjected to extensive checking or review.
2. The data has not been organized to facilitate the determination of total return to the owners of the carriers.
3. Many important inputs are derived from estimates of the owners.

The first category includes a range of problems and limitations, including

- the use of unaudited financial data,
- the absence of a consistent accounting system across carriers,
- the lack of detailed record-keeping for other regulatory purposes,

- inconsistency between the data assembled for the study and the Annual Reports filed with the DPU,[20] and
- use of a mix of data from tax returns, internal data from an earlier fiscal year, and data from a week in November 1987.[21]

Q: How does the data create problems in determining the total return to the carriers' owners?

A: The data does not readily indicate many aspects of the owners' relationship to the business, including

- the relationship to co-located related businesses, including the owners' interests in those businesses, the profitability of the businesses, cost-sharing between the studied firm and the co-located business, and other transactions (e.g., purchases, rentals, equipment loans, sub-contracting, referrals) between the businesses;[22] and
- the actual income to the owners, in the form of salary of officers, partners, etc.; other salaries to family members; profits; compensation to partners; rents; fringe benefits; and so on.

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[20]We return to this point in Section 3.2.

[21]We discuss the inconsistencies between these sources in subsequent sections.

[22]Co-located separate businesses include three service bays at Tower Hill and wrecker body sales at Winn Street. Mr. Tracey also owns a gas station and repair garage in Acton. Mr. Tracey's Lincoln facility generates business for and subcontracts business to the Acton facility.

Q: What problems arise from the use of towing carrier estimates and assumptions?

A: First, the carriers may have limited analytical capabilities to provide accurate, detailed data of the kind required by the Cost Study. Second, the carriers have a financial interest in the outcome of the Cost Study. They could seek to bias their responses if they perceive that they can influence the results in a way that will benefit them.

Q: What difficulties would the carriers face in accurately responding to the STA Cost Questionnaire?

A: The Questionnaire asks the respondents to provide a wide variety of detailed information about their businesses, such as:

1. the average time for basic light and heavy tows,
2. the average road speed for towing light and heavy vehicles,
3. allocation of each employee's time between towing and other businesses, and
3. allocation of overhead expenses between towing and other businesses.

The carriers do not have sophisticated accounting or management information systems. Much of the information requested would not be routinely available, especially in the form requested. The seven towing carriers in the sample are all relatively small businesses, with limited management resources. However, these carriers perform a diverse mix of towing and are involved in a variety of other businesses. Cost allocation in a complex

environment of joint products and joint services is not a simple undertaking. Thus, the quality of the data provided by the carriers is uncertain.

Q: How likely is it that the responses to the STA Cost Questionnaire are biased or partial in any way?

A: Many of the items in the Cost Questionnaire ask the respondents to provide estimates. Mr. Poutasse testified that the respondents could not intelligently exercise a bias because there is not a close enough connection between the estimates requested and the results of the cost study. After reviewing the Cost Questionnaire responses and Cost Study results, we agree that it is not always easy to understand the relationship between the responses and results. The estimate of the cost per tow is far more sensitive to some inputs than to others.

However, this is not to say that the relationships between the responses and results are completely obscure. For example, the respondents were asked to allocate costs between towing/storage and other businesses. This allocation has a major impact on the cost and profitability of the towing operations. The relationship is exactly as one would expect; allocating more expenses to towing/storage increases the cost per tow and shifts profits from towing and storage to other business. We are not suggesting that the respondents sought to bias their responses; rather that such a bias could have been intelligently exercised by the respondents and their

accountants.[23] Given the inherently difficult nature of attempting to allocate costs in an environment of joint products and joint services, the STA Cost Study's reliance on the estimates of interested parties is problematical.

Q: Could you give some examples of your concerns about the estimates provided by the carriers?

A: Yes. We have specific concerns relating to time per tow, allocation of direct labor costs, allocation of officers' salaries, and allocation of advertising expense.

Q: Do the carriers or Mr. Poutasse provide any basis for estimated time per tow?

A: No substantial justification was found in the workpapers to support the estimates of time per basic tow for each company. One exception was a note in the workpapers relating to Section F of the Cost Questionnaire for Winn Street. Apparently, the carrier submitted an estimate of 1.5 hours per basic tow. Combining this estimate with the number of tows in the sample week resulted in a number of billed hours that exceeded the actual payroll for that week. Based on this result, Mr. Poutasse decreased Winn Street's average time for a basic tow to one hour.

The carriers did not appear to present any data on actual time per tow job in the sample week. The carriers appeared to

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[23]Mr. Poutasse testified that some respondents paid their accountants to prepare parts of their Questionnaire responses. Ex. STA-27 at 30.

estimate their time per tow based on their experience and rounded to the nearest quarter of an hour.[24] The estimates for time per basic light tows vary from .5 to 1 hour, with no stated basis for this variation.

Q: How is the labor cost of tow drivers, dispatchers, and mechanics allocated?

A: Respondents to the Cost Questionnaire were asked to allocate expenses for each of these labor categories into two types of business: Towing (including Storage)[25] and Other Business Operations. Time constraints prevented us from comprehensively reviewing the Questionnaire responses and Mr. Poutasse's workpapers, but we did examine some payroll data for each carrier except Tracey's.[26] Based on this review, it appears that all driver costs were attributed to towing.[27] Dispatcher

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[24]From Tracey's workpapers, it appears that some actual time per tow data may have been supplied for that carrier.

[25]It is assumed by the Questionnaire that storage has no direct payroll costs other than watchmen.

[26]We have not located comparable data for Tracey's in the workpapers provided by the STA.

[27]On cross-examination, Mr. Poutasse indicated that, in some cases, employees performed a variety of tasks including driving and pumping gas. He stated that, in those instances, number of hours at each task were estimated. In our review of his workpapers, it was not clear where such an allocation had been made. At Tower Hill, the owner drove tow trucks quarter time. Some other drivers seemed to work only part-time. Perhaps some of these part-time drivers were also included in the payroll for other operations.

and Mechanics costs were entirely attributed to the towing business, except at Norfolk and Chuck's.[28]

Given that both Norfolk and Chuck's operate other businesses that are substantially larger (in terms of revenue) than their towing and storage business, it is not surprising that dispatchers and mechanics perform tasks outside of the towing operation. It is less clear how much tow drivers are used outside of the tow operation. Mr. Tracey indicated that drivers are idle at night when not out on tow jobs. He also indicated that when extra labor is required for tow jobs, no one is idle. Thus, during the day, a mechanic would be taken off repair work. At night, an extra person would be called in to work. We have not been able to independently investigate labor utilization practices at towing carriers, but we would expect that tow drivers are sometimes used outside of the tow operation, especially at carriers that operate service stations. It may be the case that this practice is more common at operations smaller than those in the STA Cost Study.

Q: How are officers' salaries and other overhead expenses allocated?

A: Respondents to the Cost Questionnaire were asked to allocate officers' salaries and other overhead expenses to Towing

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[28]The workpapers for Dealer indicate that 10% of one mechanic was allocated to Other Business Operations. During the fiscal year ending June 30, 1987, Dealer conducted an auto body operation for three months. It is unclear if the mechanic's allocation represents work in the auto body business (which was discontinued prior to the sample period in November 1987) or in some other business.

(including Storage) and Other Businesses. We attempted to determine the allocation of costs between towing/storage and other businesses from the STA study. Schedules 8-A and 8-B of the Cost Study (Ex. STA-29) provide data on General Overhead Expenses allocated to towing/storage. Schedules 9-A and 9-B show total expenses for all businesses as reported for tax purposes. It is not always straightforward to compare these schedules because the categorization of expenses is not always the same.

From a relatively brief review of the available data, the allocations for officers' salaries and at least one other overhead expense, advertising, appear to be rather heavily weighted toward towing/storage. Table 3.1.1 shows that the officers' salaries allocated to towing/storage are almost always a higher percentage of the total officers' salary expense than the share of total revenue generated by towing/-storage.[29] For example, Tracey's allocates all of officers' salaries to towing/storage. It seems surprising that Tracey's other business, which generates more than twice as much revenue as towing/storage, apparently requires none of the officers'

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[29]For all carriers except Tower Hill and Winn Street, Table 3.1.1 shows that the officers' salaries allocated to towing/storage are a higher percentage of the total officers' salary expense than the share of total revenues generated by towing/storage. As Note 8 to Table 3.1.1 indicates, 100% of Tower Hill officers' salary expense is actually allocated to towing/storage. As Note 9 to Table 3.1.1 indicates, Winn Street officers' salary expense is actually compensation to partners. See Section 3.3 of this testimony for further discussion of Mr. Poutasse's derivation of compensation to partners at Winn Street.

time. Even more surprising is Ted's, where the amount of officers' salary allocated to towing/storage exceeds the total for all businesses reported for tax purposes.

Advertising expense follows a similar pattern. Table 3.1.1 indicates that four of the seven carriers allocated 100% of the advertising expense disclosed on their tax forms expense to towing/storage. It seems unlikely that related businesses have absolutely no advertising expense in the majority of these companies.[30] It seems even more unlikely that Tracey's advertising expense for towing/storage can be greater than its total advertising for all businesses. However, this would appear to be how the STA Cost Study allocates this expense. The documentation provided in the Cost Study, Questionnaire, and Mr. Poutasse's testimony is not sufficient to fully determine how allocations were performed. Within the time available, our review of Mr. Poutasse's workpapers also did not resolve our concerns about these allocations.

3.2 The Data as a Sample of Massachusetts Towing Operations

Q: What problems or potential problems are evident in the composition of the sample?

[30]It should also be noted that even if general public and commercial towing require substantial advertising, PO towing does not.

A: There are two types of sampling problems: the choice of the time periods analyzed, and the choice of the carriers in the sample.

Q: How is the choice of time periods problematic?

A: As Mr. Poutasse explains in his testimony, the data from which the STA study derives the relationship between the number of tows and the size of the payroll is taken from one week in November 1987.

Q: Is the same week used for each carrier?

A: No. Ted's and Dealer used the week ending 11/7, Norfolk and Winn Street used the week ending 11/13, Chuck's used the week ending 11/19, Tracey's used the two weeks ending 11/15, and Tower Hill used the entire month of November.

Q: Does the choice of this period present any problems?

A: Yes. There are at least two such problems. The first problem is that the sample period in November is later than the middle of the fiscal years of the carriers. As shown in Table 3.2.1, the average study date is 6.4 months later than the middle of the fiscal year. In fact, for three of the carriers, November 1987 is after the end of the fiscal year. Since the various costs are from different periods, ratios computed with data from both sources will tend to be inaccurate. For example, if average wages were higher in November than in the fiscal year, using wage rates from November and total driver pay for the year will tend to understate the number of driver hours, and hence overstate the cost per hour.

Q: What is the second problem with the choice of the study period?

A: November 1987 was a very unusual month in a meteorological sense. The first week was quite warm and mild, but the second week had unusually inclement weather. A major snow storm dropped 8.1" of snow on Boston on the twelfth, with another 3.3" of snow on the two preceding days. Temperatures were also as much as 14 degrees below normal, with lows in the mid-20's.[31] Neither week seems to be particularly representative: the first seems to be too mild, and the second was far too severe. One or the other of these two weeks was used for four of the carriers, both weeks were used by one carrier, and the entire month was used by one carrier.

Mild weather may increase costs per billable hour, since business will tend to be relatively slow.[32] On the other hand, driver costs may be relatively low, since less overtime and commissions would be required. Inclement weather will tend to reduce costs per hour, since utilization rates will tend to be high, but may increase average wage rates.

Q: Was the week selected by each carrier typical for its business?

A: Table 3.2.2 addresses this issue. It displays the billable hours reported by the STA study for each carrier in its 1987

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[31]Low temperatures and a heavy snow-fall early in the season will probably catch many drivers unprepared, resulting in many cars failing to start or getting stuck in snow.

[32]Interestingly, Dealer is the highest-cost carrier per billable hour and per basic light tow. Dealer is also one of the two carriers who used the first week in November.

fiscal year for light towing and heavy towing, and the average estimated time required for a basic tow. The STA developed these billable hours from the number of tows in the selected November 1987 week. From this information, line 7 computes the maximum number of tows, if all tows were basic tows. Since some tows are longer than the basic tow, the actual number of tows would be smaller.

Lines 8-10 of Table 3.2.2 list the number of tows (PO, other and total) reported for each carrier in its 1988 Annual Report.[33] Line 11 shows the ratio of annual tows implied by the study to the number of tows for 1988. For Tracey's, the STA study assumed only about 37% of the tows reported for 1988, while for Ted's, the STA study assumed over twice as many tows as reported for 1988.

Lines 12-14 list the tows reported for each carrier in its 1987 Annual Report. Line 15 shows the ratio of annual tows implied by the study to the number of tows for 1987. The study assumed more annual tows than were reported for 1987 for all of the carriers, although the two data sources for Chuck's are virtually identical.

Similar data from the 1986 Annual Report would be interesting to review, since the fiscal-year data used in the STA study include part of 1986 for 5 of the carriers, and is half

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[33]This data is not available for Norfolk (Carrier 4), since the company apparently did not file a complete 1988 Annual Report (page 4, where number of tows is reported, is missing).

from 1986 for one of them. Curiously, the 1986 Annual Reports, despite their obvious relevance, were not included in Mr. Poutasse's workpapers, and hence have not been made available to us by the STA.[34] Unfortunately, the DPU has not been able to provide copies of the pre-1988 Annual Reports in a timely fashion.

Q: Does any evidence in the STA study's workpapers indicate that the selected weeks were not representative of the year as a whole?

A: Yes, there is such evidence for two carriers. The workpapers for Winn Street contain the notation:

> Sample week does not have the same payroll-to-sales ratio as total year. Driver payroll is 31% of towing revenue versus 22.5% for year. Revenue in sample week is equivalent to average for the year, but driver payroll is 36% higher than average.
>
> Decided to increase estimated utilization from 84% in sample week to 95%, assuming that commercial tows and equipment can be scheduled without non-working time -- see Section D.
>
> Balance of discrepancy could come from a number of causes:
>
> > variation in sales mix,
> >
> > large paid-outs in other weeks, higher than in sample (such as crane rental), [and]
> >
> > high proportion of overtime in sample week.

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[34]The STA Cost Questionnaire (Section B-9) requests each carrier to provide their most recent annual report filed with the DPU.

Since Winn Street was one of the two carriers who used data from the week with the snow storm, both the variation in sales mix and the high proportion of overtime seem to be plausible explanations for the discrepancies.[35]

The week chosen by Dealer Towing happened to be one in which it did PO towing for the Medford Police. Since Dealer does Medford PO towing in only one week out of three, the week was obviously atypical.[36] Tower Hill resolved a similar problem with PO towing rotation by using the entire month of November; Dealer should have used a similarly representative period.

Q: What is the stated purpose of the STA's sample of carriers?

A: Mr. Poutasse, at page 3 of his testimony, states that:

> The study is not designed to determine a single average or median cost of all towing companies in the state. Instead, it is designed to show the range of costs between companies which operate in different locations and with different customer mixes.

Q: Does the STA use the sample in a manner compatible with its stated purpose?

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[35]The assumption that utilization would be as high as 95% (which becomes 87% when non-working hours are included) results in part from the assumption that the average basic tow at Winn Street requires one hour. This type of ad hoc adjustment requires more detailed explanation and documentation than the STA has provided.

[36]Dealer does provide PO towing for the State Police on a 52 week per year basis. In the November 1987 sample week, towing for the State Police generated 39% of total Dealer PO towing revenue, with the Medford Police generating the remainder. Based on the sample week data, Dealer's weekly PO revenue when towing for both the Medford Police and State Police is more than twice as high than weekly revenue when towing only for the State Police.

A: No. While the original Cost Study did not compute averages, the revised Cost Study (Ex. STA-29, which added Chuck's) does compute averages. The STA offers these averages as the basis for most of the rates it has proposed.

Q: What problems are evident in the choice of the carriers covered by the STA study?

A: There are several ways in which the sample is not random or representative. In terms of non-randomness, the problems include the following:

- o The sample is restricted to STA Members.
- o The sample was selected by the STA Board, rather than drawn randomly from a membership list.
- o Participation was voluntary.

Q: In what ways is the sample not representative of Massachusetts towing business as a whole?

A: There are several ways in which the sample is not (or may not be) truly representative. These include geographical considerations, the size of the operations, the proportion of other towing and other businesses, interstate operation, and the presence of heavy truck towing.

Q: How is the sample not geographically representative?

A: The sample includes two carriers from urban Boston (Medford and Mattapan), two from the northwestern suburbs along Route 128, one in Lawrence, one half-way between Boston and Worcester, and one in Chicopee. The sample include no

representation at all for the rural portions of the state,[37] for southeastern Massachusetts, or for the Berkshires, to name a few categories.[38]

Q: Does geographical location matter?

A: Apparently so. The four most expensive carriers in the STA Cost Study (based on their estimate of cost per basic light tow) are all located on or within Route 128. The three less expensive carriers (Ted's, Tower Hill, and Chuck's) are located well beyond Route 128. Proximity to Boston may be an important factor in determining the cost of towing, as estimated by the STA study.

One would expect that towing costs would be affected by urbanization, traffic congestion, land costs, wage rates, average tow lengths, weather, and other factors which vary with location.

Q: How do the seven carriers compare with the average Massachusetts towing operation in terms of size?

A: We have not been able to locate statistics that summarize the size distribution of carriers within the state. However, it does appear that the seven carriers are drawn from the larger

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[37] The closest the sample gets to a rural location is Ted's in Southborough, which hardly qualifies as rural.

[38] Unrepresented counties include Norfolk, Berkshire, Franklin, Hampshire, Bristol, Plymouth, and Barnstable. Worcester County is represented by Southborough, which appears to be the town in Worcester County closest to Boston. Three of the seven carriers are located in Middlesex County. It should be noted that the STA Cost Study listed Norfolk Service (Carrier 4) as being in Norfolk County, but this error has been corrected on the record.

end of spectrum. Mr. Poutasse testified that only companies with significant towing operations were selected and that carriers where towing was incidental to operating a service station were specifically excluded. Furthermore, participation in the STA Cost Study was voluntary and self-selected. Mr. Poutasse testified that each respondent had to devote at least eight hours, and sometimes considerably more time, to completing the study. All of these factors tend to favor large companies over small companies in terms of sample selection.

Q: What is the effect of restricting the sample to STA members?

A: The STA reports 510 members as of August 2, 1989. Ex. STA-31. Meanwhile, the DPU reported 2682 tow carriers in Massachusetts as of August 11, 1989; 977 of these carriers were reported as engaged in PO towing. Even if we assume that every STA member performed PO towing, it is clear that a substantial portion of the PO-towing carriers within the state are not members of the STA. The restriction of the Cost Study carrier sample to STA members has the effect of excluding the majority of the state's towing carriers, and a large portion of those engaged in PO towing. It may also tend to favor large companies over small companies in terms of sample selection, since large companies may be more likely to join a voluntary association such as the STA.

Q: Is size of carrier related to cost of operation?

A: The effect of size on cost is uncertain. Small carriers may have certain economic advantages. Operating a towing business

may add relatively little to the costs of an existing gas station, repair or body shop; the towing and storage business may be operated with personnel and facilities that would otherwise be under-utilized. At the same time, towing may bring in substantial storage and repair revenue. On the other hand, small carriers may be unable to compete for larger tow jobs and contracts because they lack specialized equipment and cannot handle the large volumes that are generated by customers such as the City of Springfield.

Large carriers may gain some economies of scale. They may be able to utilize specialized equipment that would not be economical in a smaller operation. For example, Mr. Roy testified that his operation is large enough so that abandoned cars can be processed with a crusher onsite. However, large carriers will have sizable fixed costs, so maintaining a high volume of business is essential. Towing, especially light towing, is a localized business.[39] Thus, a high volume of business would generally require a location serving population centers, major highways, and/or heavy towing. For this reason, the size bias in the carrier sample may also introduce a geographical bias.

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[39]The area that a towing carrier can practically service is limited by considerations of cost and time. Outside of urban regions, the area where a carrier can compete for calls may be larger in geographical size but perhaps smaller in terms of business. Heavy truck towing carriers may be able to compete over a larger area because their business requires more specialized equipment and generates fewer calls than light towing.

Q: How do the seven carriers compare with the average Massachusetts towing operation in terms of the relative sizes of PO towing, other towing, and other businesses?

A: We have not been able to locate statistics that summarize the size distribution of carriers' businesses. Given that the STA carrier sample excluded companies where towing was a small (less than 10%) portion of the total, it is clear that one end of the spectrum has been excluded. In terms of PO towing as a proportion of total towing, the seven carriers vary from less than 1% to 60%, averaging less than 20%. We would expect that PO towing is generally less than 25% of most carriers' total tow business, since many police departments utilize carriers on a rotation that provides business to carriers every third or fourth week.

Q: How does relative size of PO towing, other towing, and other businesses affect costs and profitability?

A: For any given carrier, a certain mix of PO and other towing may be optimal in terms of profit maximization, since different types of towing business tend to have different time patterns, required response times, and joint services. The ideal mix will depend on the resources of the carrier and on the timing of the individual tow jobs.[40]

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[40]For example, some types of PO towing are heavily concentrated on weekends, while some commercial towing is concentrated on weekdays.

The effect of towing-business mix on costs is less clear-cut, since the mix that maximizes profit may not minimize cost. A higher-than-optimal amount of PO towing may result in higher costs per tow, even if PO towing is inherently no more expensive than other towing. By the same token, a lower-than-optimal amount of PO towing may also increase average costs. Since the towing carrier can take advantage of the diversity of different types of towing to increase utilization of labor, equipment, and other resources, any variation from the maximum diversity probably increases costs.

Towing carriers that operate other synergistic businesses, such as gas stations and body and repair shops, can take advantage of certain economies of operation and opportunities for profit from sale of joint services. Thus, businesses with sizable non-towing operations may have certain economic advantages over businesses engaged principally in towing and storage.

Q: Is the sample representative in terms of the fraction of carriers with interstate towing operations?

A: According to Mr. Tracey, four of the seven sample carriers have authority to perform interstate towing. Mr. Tracey could not estimate the percentage of STA members with interstate operations, but he was aware of perhaps 50.[41] Non-STA carriers who

[41]Ex. STA-31 indicates there are 510 STA members as of August 2, 1989.

do PO towing are probably less likely to have interstate operations than are STA members.

Q: How does an carrier's interstate towing operation affect its cost structure?

A: Interstate operation requires carriers to comply with certain federal regulations concerning insurance, driver certification, and maximum working hours. However, Mr. Tracey indicated that Massachusetts has adopted the federal requirements concerning driver certification. We have not investigated this issue in detail, and it is unclear how many of these requirements are imposed on light towing (as opposed to heavy). However, interstate operation still appears to impose some additional requirements (at least for insurance and possibly for labor costs), and these may impose additional costs.

Q: Is the sample representative in terms of the fraction with heavy truck towing operations?

A: Three of the seven sample carriers perform heavy truck towing.[42] We were not able to determine what portion of STA members and all Massachusetts tow carriers were engaged in heavy towing. However, we would not be surprised if the sample contains relatively more heavy truck operations than the entire population of tow carriers.

Q: How does an carrier's participation in heavy truck towing affect its cost structure?

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[42]Schedule 3-A in the Cost Study indicates that Dealer owns 2 heavy wreckers even though it performs no heavy truck towing.

A: Heavy truck towing requires specialized equipment and more skilled drivers.[43] Utilization of equipment and labor may tend to be lower because of the lower volume of calls. We have not performed a detailed analysis of the allocation of costs between light and heavy towing in the STA Cost Study. We are aware that an attempt was made to assign the more expensive (and presumably more skilled) drivers to the heavy towing operation. It is possible that the STA Cost Study has not captured all of the marginal costs related to heavy truck towing and properly allocated them to this side of the towing business.

3.3 Problems with the STA Study Methodology and Documentation

Q: What problems have you identified in the methodology of the STA Cost Study, apart from its data sources?

A: Reviewing the methodology is complicated by the poor quality of study's documentation. Thus, we have not been able to fully assess the study's methodology and assumptions, and may have missed many specific difficulties. However, we have identified a few problems with the methodology.

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[43]Heavy truck towing probably also requires additional insurance.

First, in the allocation of overhead costs between storage and towing,[44] the study assumes that storage-related overhead is 10% of storage revenues. No basis is offered for this assumption. It is most unclear why this ratio should be the same for carriers with low overhead costs and those with high overhead costs. Nor is it clear why storage overhead should be estimated directly, leaving towing overhead as a residual, rather than vice versa.

Second, it appears that depreciation expense is taken from tax returns and is therefore set at tax-depreciation rates. These rates are intentionally set higher than realistic economic depreciation rates.

Third, if depreciation expense is taken from the tax return, but accumulated depreciation is from book accounting data, there is a mismatch of costs. It would be inconsistent to use a high depreciation rate for expense purposes, but a low depreciation expense rate for calculating net investment and required return.

Q: What problems have you identified concerning the documentation of the STA study?

A: The documentation of the STA study is less thorough than one would expect of a study performed specifically for use in a regulatory proceeding. Frequently, the citations in the Cost Study are not sufficiently specific, in many cases referring

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[44]Other overhead allocations are based on owner estimates.

only to a large section in the Questionnaire. In fact, many of the inputs used in the study report were taken from computations in Mr. Poutasse's workpapers, and not from the questionnaire itself. Within Mr. Poutasse's workpapers, there is no consistent paper trail, so it is difficult to trace an assumption from the report, back through the workpapers, to the raw data.[45]

If Mr. Poutasse's analysis had simply consisted of an essentially mechanical transcription of the questionnaires, as implied by his statement and by the study report, these difficulties in following his work might not be as serious a problem. In fact, Mr. Poutasse appears to have made many assumptions, selected data from among contradictory sources, modified the values given in the questionnaire, and often produced a different result than a simple transcription would have implied. Since Mr. Poutasse's testimony does not fully describe the derivation of the estimates, and since the workpapers are difficult to follow, it would be time-consuming (and perhaps impossible) for any reviewer to confirm or reproduce the results of the STA study.

Q: Can you provide some examples of the types of assumptions or adjustments Mr. Poutasse made in performing the study?

A: Yes. As noted in the quotation repeated above, Mr. Poutasse modified the utilization rate for Winn Street, to force the

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[45]The workpapers for Tracey's are particularly difficult to follow, due to their volume and their idiosyncratic structure.

weekly data (from a very unusual week) to approximate the annual data. Mr. Poutasse also revised Winn Street's estimated time per tow, since the owners' estimate produced a physically impossible result.[46] Additionally, Mr. Poutasse chose to exclude a portion of Winn Street's taxable income from the Schedules in the Cost Study. This adjustment in reported income reduces the reported total compensation to owners by a like amount.[47]

For Dealer, he derived three estimates of annual general public towing revenue: $64,428 based on the sample week, $18,439 from Section B of the questionnaire, and $72,000 from Section G. He claims in his workpapers to have used the sample week less 10% (but does not explain why), which would be

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[46]This revision is discussed in Section 3.1 of this testimony.

[47]Mr. Poutasse's workpapers for Winn Street's income tax return (Section H of the Questionnaire) show $24,295 of sales income and $5,012 of interest income for other businesses. Total income for other businesses shown is $29,307. Total compensation to officers for all businesses is reported as $29,397. 25% of compensation to officers is allocated to other businesses ($7,349), and the remainder is allocated to towing and storage. Net taxable income for Winn Street is zero, i.e. all profits are paid out as compensation to partners.

Schedule 3-B of the STA Cost Study reports total income of $24,295 for other businesses; the $5,012 in interest income is not included. Schedule 9-C reports total compensation to officers as $24,385. 25% of total compensation is allocated to other businesses ($6,097) and the remainder is allocated to towing and storage. The difference between the total compensation to officers reported on Winn Street's tax return and that reported in Schedule 9-C of the Cost Study is $5,012 (the amount of interest income reported on the tax return but not in the Cost Study). Apparently, Mr. Poutasse has reduced compensation to officers to reflect his adjustment in income for Winn Street. We have not been able to locate any documentation that describes or justifies Mr. Poutasse's adjustments.

$57,985, but actually uses $57,600. Dealer is also the carrier for whom Mr. Poutasse decided to gross up Medford PO towing revenues from the sample by 17.3 (rather than 52) weeks, to reflect the fact that the Medford Police rotate towing assignments, and that the sample week was one in which Dealer was towing for the Medford Police.[48]

Q: Have you found any errors in Mr. Poutasse's workpapers?

A: We have not attempted any comprehensive review of his computations, since in many cases we have had difficulty even following the data flow. However, we have identified one apparent error. Chuck's questionnaire reports annual revenues of $13,048.26 for general public towing, and $38,720.45 for PO towing. These figures are reversed in the study report.

Q: What significance do the documentation problems with the STA study have for the DPU's use of the study in setting rates?

A: As described above, the study is very difficult to review. We do not believe that the DPU should rely extensively upon studies which are not fully reviewable within the DPU's proceeding.

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[48]It is not clear whether he made comparable adjustments for all carriers who tow on a rotating basis. For Tower Hill, which used the entire month of November, the fraction of the month with PO towing is not the same as the fraction of the year with such towing.

3.4 Profitability of Police-Ordered Towing

Q: Would the STA cost study, if its data were correct, accurately reflect the profitability of PO towing?

A: No, for at least three reasons. First, the study does not reflect the joint relationship of police-ordered towing to storage, repairs, and other services. Second, the study does not examine the variety of sources of profit to the owners. Third, the "loss" computed for some companies and operations in Schedule 3-B is not a loss, but a revenue deficiency compared to the return on equity which Mr. Poutasse considers appropriate.

Q: How important is the joint provision of PO towing and storage, in determining the total profitability of PO towing?

A: This relationship is very important. According to the STA Cost Study, storage is profitable for every carrier. The STA also attributes virtually all storage activity to PO towing. As shown in Table 3.4.1, the revenues from storage are generally of the same order of magnitude as those from PO towing, and even the profits from storage are often larger than PO-towing revenues. If the profits from storage are primarily due to PO towing, the net compensation to the carrier for a PO tow is the sum of the direct towing revenue and the indirect revenue from the storage profit. Table 3.4.1 demonstrates that storage adds significantly to PO towing profitability, measured as storage revenue per dollar of PO towing revenue, as storage profit per

dollar of PO towing revenue, and as storage profit per dollar of PO towing loss. The last calculation relies on the assumption that PO towing is no more or no less unprofitable than other towing operations.

Q: In your last answer, you assumed that all storage revenues are generated by PO towing. Do you have any evidence with which you can test this assumption?

A: Yes. There are two such sources. First, the questionnaires requested each carrier's estimate of the portion of storage revenue attributed to PO towing. These percentages are shown on line 10 of Table 3.4.1. Even with these percentages taken into account, the carriers made profits on storage from PO towing which ranged from 109% to 30 times their losses from PO towing.[49]

Second, the questionnaires requested each carrier's data on towing and storage revenue from tows during sample periods in November. Our review of Mr. Poutasse's workpapers located summaries of this data for six of the seven carriers. This data is shown in Table 2.2.1.[50] For example:

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[49]Again, these calculations rely on the STA study's estimates of profits and losses, and on the assumption that towing losses are proportional to revenues.

[50]The ratio of PO storage revenues to PO towing revenues for the November 1987 sample period is shown in Table 2.2.1, Line 8. The comparable ratio for the Cost Study for the 1987 fiscal year is shown in Table 3.4.1, Line 11.

- Tracey's reports for the first half of November 1987 $3,051.20 in police-ordered light towing (and $160 of heavy truck work), and $1,989 in PO storage revenue, or 65% of the PO light towing revenues.[51]
- Ted's reports $1,464 of revenues for PO light towing and $520 of associated storage revenues, or 36% of the PO towing revenues.[52]
- Chuck's reports $674 of PO towing, and $700 of associated storage revenue, or 104% of the PO towing revenues.
- Winn Street reports only one PO tow, for $30, and $120 in associated storage revenues, or 400% of PO towing revenues.
- Norfolk reports $1,394 in PO towing revenues and $4,175 in associated storage, or 299% of PO towing revenues.

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[51]In our review of Mr. Poutasse's workpapers, we were unable to locate a breakdown of storage revenue by type of customer for the first half of November. Thus, we estimated PO storage revenue as follows. Total storage revenue for November was reported as $4,060. Mr. Poutasse's workpapers assumed that half of this occurs in the first half of the month. We assumed that 98% of total November storage revenue was generated by PO tows; Mr. Poutasse's workpapers used a 98% figure for the Tracey's fiscal year.

Tracey's workpapers did include a breakdown of storage by type of customer for two other periods. Tracey's reports for the first half of January 1987 $2,695.25 in police-ordered towing (and $375 of heavy truck work), and $1,905 in PO storage revenue, or 71% of the PO light towing revenues. In the first half of April, the corresponding values were $951 and $1,840, so PO storage revenues were 193% of PO towing revenues.

[52]Ted's reports $1,129 of revenues for Massachusetts Turnpike PO light towing and $320 of associated storage revenues, or 28% of the PO light towing revenues. The corresponding figures for Ted's other PO light towing were $335 and $200, or 60%.

All of these analyses indicate that storage revenue generated by PO towing adds substantially to the direct revenue from PO towing.

Q: Do you have any way of translating these storage revenues into values per PO tow?

A: Yes. Table 3.4.2 presents data from the 1988 Annual Financial Report Covering All Towing Operations (the Annual Report) for six of the seven carriers in the sample.[53] If all storage revenue is generated by PO tows, the average storage revenue for each such tow is about $30, or 140% of the average direct PO revenues of $21.60.[54] If the percentage of storage revenues from PO tows is equal to the estimates given by the carriers in the questionnaire, the storage revenue for each such tow ranges from $41.44-$71.32, or 103%-211% of the direct PO towing revenues, for the five carriers for which we have complete information.[55]

Table 3.4.3 presents similar data from the 1987 Annual Reports for the same carriers. The storage revenue for each PO tow ranges from $31.72-$127.94, or 70%-228% of the direct

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[53]Norfolk did not file a complete Annual Report for 1988.

[54]Winn Street (Carrier 6) did not provide data for storage revenues in its 1988 Annual Report. Thus, the "total" value for line 8 of Table 3.4.2 includes Carrier 6 for PO tows, but not for storage revenues, and is therefore slightly understated. Similarly, the "total" for line 5 includes Carrier 6, who has the highest revenue per PO tow, and is therefore slightly overstated, for comparison to line 8.

[55]The failure of some of the tow carriers to file complete Annual Reports restricts the scope of several of our analyses.

PO towing revenues, for the six carriers for which we have complete information.

The data from the November 1987 sample period (Table 2.2.1) is equivalent to PO towing storage revenues of $46/tow (or $65 per paid tow) for Norfolk, $120/tow for Winn Street, and $37/tow for Chuck's. The sample period data showed that towing revenue, at least for some of the carriers, included some additional charges associated with the PO tows, such as road service, gasoline sales, and opening locked cars.

Q: Is there any evidence within the study itself that the rates for towing are influenced by revenues for storage, repairs and other activities?

A: Yes. The STA study shows that Winn Street Service operates at a "loss."[56] This tow carrier does almost no PO towing, so virtually all of its towing rates are set by competitive considerations. For some reason, Winn Street has set those rates about 8.5% below the costs Mr. Poutasse assigns to Winn Street's towing business. Perhaps Mr. Poutasse has simply overstated the cost of the towing business. Alternatively, perhaps Winn Street finds it profitable to operate the towing business below cost, in order to bring in storage, repair, and other revenues.

Q: Can you determine the total return or compensation paid to the owners of each towing carrier?

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[56]As discussed below, this "loss" is simply the failure to earn the return Mr. Poutasse selected.

A: No. As discussed in Section 3.1, the STA has not identified the total remuneration to the owners and their families. Nor do we know how much time and effort the owners put into their businesses. Hence, we can not determine whether Mr. Poutasse's target profit levels are fair, excessive, or inadequate.

Q: Does the STA study's methodology properly determine the compensation due the owners?

A: It does not appear to do so. For example, Winn Street apparently reported no profit on its tax return, by paying out all its net income to the partners as profit. Mr. Poutasse counts this $24,385 payment as a cost of business.[57] He then decides that the partners deserve another $13,232 profit as "return on investment," which he also considers to be a cost of business. As a result, Mr. Poutasse finds that Winn Street "lost" $13,232, exactly the amount of the return on equity. Since Mr. Poutasse added the $13,232 cost to a tax return the partners had zeroed out, this result was inevitable.

It appears that Mr. Poutasse would have assigned the same return on investment, regardless of whether the actual profit to the Winn Street partners had been $4,000, the $24,000 reported in the study, or $44,000. Indeed, it is not clear that his methodology would have produced any different results if the partners had taken $84,000 out of the business.

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[57]As discussed in Section 3.3 of this testimony, Winn Street's tax return reported $29,397 in compensation to partners. Thus, the owners of Winn Street may have received $5,012 in additional compensation.

Regardless of how profitable the Winn Street station had been, the STA study would have shown it to have operated as a loss of $13,232.

Q: Why is the "loss" reported in Schedule 3-B of the STA study not really a loss?

A: Mr. Poutasse's measure of "loss" includes a target profit level. Hence, the use of the term "loss" is misleading. Earning a profit below the target level is not the same as operating at a loss.

The losses on towing, even given the rest of the STA assumptions and methodology, are less than those shown in Schedule 3-B, by the amount of the return on investment added in Schedule 9-C. The total profit line at the bottom of Schedule 3-B should similarly be increased by the allowance for return on investment computed in Schedule 10.

Q: Does the STA study indicate that the operations of the sample carriers are profitable overall?

A: Yes. Schedule 3-B shows four carriers earning more than Mr. Poutasse found appropriate, and three earning less.[58] The total "profit" for the seven carriers is $9,924. This "profit" is in addition to the fair return of 18% Mr. Poutasse estimated, plus any other return in the form of salaries, dividends, rents, and so on. From Schedule 10, Mr. Poutasse's return on

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[58]Of the three with "losses" in Schedule 3-B, two (Carriers 5 and 6) have other businesses on the same premises which are not included in Schedule 3-B.

equity target comes to a total of $148,847. Thus, the total profit indicated in the STA study is $158,771, or 19.2% of equity investment.

4. THE STA RATE PROPOSAL

Q: Does the STA proposal for new rates come directly from the STA study?

A: No. There are aspects of the rate proposal which are not reflected in, or derived from, the study.

Q: What are these aspects of the rate proposal?

A: The portions of the STA rate proposal which are not drawn from the study include the setting of PO towing rates approximately 20% above the indicated cost, the "profit" on waiting charges, and the storage notification fee.[59]

Q: What is the basis for the STA's proposal to set PO towing rates 20% above the cost indicated in the STA's own study?

A: Mr. Poutasse alleges that PO towing is at least 20% more expensive than the average towing costs. No evidence is provided to support this position. As we noted in Section 2.2 of this testimony, police-ordered towing spans a wide range of operations, some expensive and some inexpensive. It is not at all clear that PO towing is any more expensive on average than are other towing operations.

Q: Mr. Poutasse assumes that PO towing is 20% more expensive than the average cost of towing. Is this assumption internally consistent?

A: No. This assumption makes little sense, and the results are highly sensitive to the sample. If one carrier does very

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[59]The rate proposal also includes two years of escalation from the period of the study's data.

little PO towing, and a second does a very large amount of PO towing, and the differential between PO towing and other towing is the same for the two carriers, the average cost for the second carrier must be much closer to his PO towing cost than will be the case for the second carrier. Alternatively, if we assume that the difference between the average and the PO cost is equal across carriers, the cost of PO towing and (especially) other towing must vary widely across carriers.

For example, the STA study estimates that the average cost of a basic light tow is $35.91 for Tower Hill (Carrier 5) and $41.81 for Winn Street (Carrier 6). Based on 1988 data, PO tows comprise 63% of Tower Hill's tows, but only 4% of Winn Street's tows. If PO tows for these carriers cost 20% more than the average costs estimated by the STA study, PO tows would cost $43.09 for Tower Hill, and $50.17 for Winn Street, which seem to be reasonable numbers. However, in order to produce the estimated averages, the non-PO tows would have to cost $23.14 for Tower Hill, and $41.76 for Winn Street.[60] The PO towing would cost 86.2% more than non-PO towing for Tower Hill, but only 20.1% more for Winn Street. These results of the STA assumption are counter-intuitive and generally difficult to believe.

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[60]For an carrier with slightly over 83% PO towing, non-PO towing would have to be free, in order for the ratio of PO cost to average cost to be 1.2. For higher percentages of PO towing, non-PO towing would have to operate at negative costs.

If PO towing were actually 20% more expensive than other towing (rather than 20% more expensive than average towing), the STA method would always overestimate the cost of PO towing. The overestimate would be higher if the sample carriers did a large number of PO towing (which, under our assumption, would increase the average cost) than if the sample did little PO towing.

Q: Is there any obvious correlation between the STA-estimated cost of towing and the amount of PO towing attributed to each carrier in the STA sample?

A: No. Figure 4.1 plots the relationship between the STA estimate of the fraction of revenues which come from PO towing and the cost per basic light tow.[61] There is no clear trend in the data.

Q: Are Mr. Poutasse's comments in Ex. STA-27 at 16-17, regarding the correlation between utilization rate and PO towing, correct and relevant to the DPU's setting of towing rates?

A: No, for four reasons. First, while Mr. Poutasse selects one carrier with a low utilization rate and high rate of PO towing, other carriers show other patterns. Figure 4.2 graphs utilization ratio versus PO towing as a % of revenues (all for light towing), with all data taken from the STA study.[62] Again,

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[61]As we discussed in Section 3.3, the data for Chuck's used in the STA study appears to have reversed the entries for PO and general towing, as represented in the workpapers. In Figure 4.1, we have used the data for Chuck's from the workpapers.

[62]Again, Chuck's is represented by data from the workpapers.

no clear relationship exists between STA-estimated utilization rates and PO towing.

Second, the data Mr. Poutasse uses is stated in revenue terms. Since some carriers receive about the same average revenue from PO towing as from other towing, while others receive half as much (see Tables 3.4.2 and 3.4.3), comparisons stated in terms of revenues tell us little about the true mix of operations.

Third, the utilization rates are just an artifact of the carriers' estimates of the time per tow. Shorter estimated tow times imply lower utilization rates, for a given number of driver hours and tows in the sample week. The two "high-utilization" carriers (Winn Street and Chuck's-Carriers 6 and 7) estimated 1 hour for the average basic light tow,[63] the "low-utilization" carrier (Tower Hill-#5) estimated 30 minutes, and the four carriers with intermediate "utilization" rates estimated 45 minutes. Correlation of utilization with any other factor is largely coincidental.

Fourth, the utilization rate does not have much effect on the cost per tow in the STA study, since utilization is largely a result of the time assumed for the average basic tow. For

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[63]Actually, Winn Street (Carrier 6) estimated 1.5 hours, but this would have required more billed driver hours than the total payroll for the sample week, so Mr. Poutasse revised this figure to 1 hour/tow. It is possible that the use of the snowstorm week for the Winn Street sample produced atypical results, or that the carrier's estimates are simply arbitrary. As noted in Section 3.2, Mr. Poutasse further modified the utilization rate to make the sample week data more comparable to the year.

example, a low assumed time, and the resulting low utilization, will produce a high cost per billable hour. However, once the cost per hour is multiplied by the low assumed time per basic tow, the resulting cost per basic tow is not necessarily significantly different than it would have been with a higher assumed time per tow. Indeed, Tower Hill (Carrier 5), with the lowest assumed tow time (30 minutes) shows the lowest utilization ratio, the second-highest estimated cost per billable hour, but the second-lowest cost per basic tow. Winn Street and Chuck's (Carriers 6 and 7) show the longest tow time (1 hour), the highest utilization rates, the lowest costs per billable hour, but with costs per basic tow just slightly less than average and well above the lowest-cost carriers.[64]

Q: The STA has argued that the fast response time required for PO towing implies that the cost of PO towing is higher than the average cost of towing, and that the need for fast response time requires carriers to maintain extra capacity, which remains idle for a large part of the time. Is this argument valid?

A: Only in part. Fast response time may be required for some PO tows, but it is important not to overstate the importance of this consideration, for at least three reasons. First, the

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[64]All of the references to "costs" and "utilization rates" discussed in this paragraph apply to the estimates derived in the STA study. As discussed elsewhere in this testimony, we do not necessarily believe that these estimates are accurate or meaningful.

bulk of PO tows are not generated by accidents, as discussed in Section 2.2. Some PO towing operations, such as for street cleaning, are steady work, are scheduled in advance, and provide a very high utilization of equipment and personnel.

Second, while some accidents require a fast response time from the towing system as a whole, this does not necessarily translate into a situation of excess capacity for each carrier. Given high rates for PO towing, each individual carrier may find it profitable to maintain enough excess capacity to meet virtually all demands for PO towing. However, if carriers do not maintain these high capacity levels, the only cost to society or to the public agencies which order the towing is that the dispatcher may need to call a second carrier for some fraction of tows. Hence, there is no need to encourage tow carriers to maintain high levels of idle equipment and personnel, or to pay carriers as if such idle capacity were required.

Third, PO tows generate additional revenues from storage, secondary towing, and repair work. As discussed in Section 2.1, the associated joint sales must be included in evaluating the PO towing costs. Even if the cost of PO towing were unusually high, the benefits of that towing to the carrier also appear to be unusually high.

Q: Mr. Tracey's statement proposes a profit on waiting charges on top of the costs estimated in the STA study. Is such an increase justified?

A: No. The sole justification offered by the STA for this addition to the cost estimated in the STA's own study is that the carriers are entitled to a profit on their investment in equipment. We agree that carriers are entitled to a rate which will allow them to earn a profit on PO towing.[65] However, since the STA study has already included a return on equity (i.e., a profit) of 18%, no further profit adder is required on top of the costs estimated in the study.

Q: The STA proposes a $12 fee for notifying owners that their cars are in storage. Is this storage notification fee justified?

A: We have four concerns about this fee: its conceptual justification, its effect on the STA study, its size, and its administration. First, the Legislature set both the storage rates for police-ordered towing and the requirements for notifying owners that their cars are in storage. We would expect that the Legislature anticipated the cost of notification when it set the storage rate. It is not at all clear that the Legislature intended that the carriers be allowed to assess an additional fee for notification on top of the storage rate. Storage is already the most profitable portion of the towing business, and (according to the STA study) is highly profitable. Increasing storage charges by adding a notification fee would add profit to a portion of the business for which rates are already substantially above costs.

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[65]Any meaningful determination of the profit on PO towing must include the profits from related products and sales.

Second, the STA study was performed without any notification fee. If such a fee were added to the revenues received from the combined towing and storage business, it would increase the already very high average returns reported in the study. Alternatively, if the DPU determines that some increase in PO towing revenues is justified, any imposition of a notification fee would have to be counted in the computation of the allowed increase.

Third, the derivation of the fee assumes that certified mail costs $2, and that the labor required to contact the Registry, fill out a form letter, and address the letter, would cost $10. While the former cost seems to be quite real, it is not clear that the latter is a real cost. The STA maintains that the drivers for the sample carriers spend 13% to 62% of their time idle, waiting for a service call.[66] In addition, dispatchers (and perhaps whoever releases cars from storage) must spend a large portion of their time idle, waiting for calls, new arrivals, or owners claiming their cars. Thus, a substantial labor pool may be available to complete these simple clerical tasks. It is not clear that the notification fee, if any, should be much larger than the postage cost.

Fourth, we are concerned that the notification fee could become a mandatory portion of virtually all tows, unless the

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[66]The STA study assumes that the heavy-tow drivers for Tracey's are 95% utilized, but the average utilization reported for all Tracey drivers is 62%, leaving 38% of their time idle.

DPU ties it to a specific schedule for notification. The public would not benefit either by excessive delay in notification (which increases storage charges) or by excessive haste in notification (if that action would impose a notification fee on owners who are already on their way to recover their cars). No notification charge substantially greater than the postage expense should be permitted unless the DPU is able to impose specific requirements for the timing of notification.[67]

[67]We have not formulated recommendations for such timing.

5. REAL-WORLD MEASURES OF THE ADEQUACY OF CURRENT RATES

5.1 Adequacy of Rates

Q: What are some indicators of the adequacy of current PO towing rates?

A: Current rates are adequate if they compensate towing carriers sufficiently, in order that towing as a whole remains profitable, and that an adequate supply of PO towing services is maintained.[68]

The adequacy of the supply of PO towing services can be determined by reviewing the experience of police departments in signing up carriers, and in getting carriers to respond to calls. In the long run, carriers will not supply PO towing services unless they are profitable at the margin. In the short run, the supply can be maintained by existing PO carriers, operating above short-run marginal cost but below the long-run marginal cost of PO towing. We can determine whether Massachusetts is in the latter situation by examining whether PO carriers are investing in additional equipment, and by examining the number of new entrants to the PO towing

[68]Asking whether PO towing is profitable is largely meaningless, except in the context of the overall profitability of the business as a whole. As long as PO towing revenues are sufficient to cover PO towing costs, and carriers find it profitable to engage in PO towing business, the relationship between PO towing revenues and any cost allocation is largely irrelevant.

business, whether from other lines of towing, or from firms which previously performed no towing for hire.[69]

Another approach in assessing the adequacy of regulated rates is to compare them to rates in competitive markets. In the case of PO towing, we have information from at least one Massachusetts jurisdiction which set PO rates competitively, and we also have some information on the rates charged for similar services.

5.2 Adequacy of Supply

Q: Does the experience of police dispatchers indicate problems with the adequacy of supply of PO towing?

A: To investigate this question, we contacted the following police departments: Cambridge, Springfield, New Bedford, Pittsfield, Burlington, Lincoln, Plymouth, the MDC, and the State Police (both the Concord and the Northampton Barracks). Throughout the state, police departments reported no difficulty in finding an adequate number of carriers. The picture that emerges is that carriers were actively seeking to be designated as PO carriers. Most, but not all, of the departments require a

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[69]As an additional test, there are examples of regulated PO rates in Massachusetts which are set below the general rate determined by the DPU. If supply is adequate for these situations, it is very likely that the higher state-wide rates are adequate.

specific response time which ranges up to 20 minutes.[70] All departments felt the overall quality of service provided was satisfactory. The MDC and State Police in Northampton commented that some carriers had been dropped from their list due to slow response time or overcharging problems, but that replacement carriers were readily available.

Q: What has been the experience of the Massachusetts Turnpike Authority in terms of adequacy of supply of PO towing?

A: The Turnpike Authority contracts with eight companies, which each handle a section of approximately 15 miles. The process includes formal bids (although not price competition), but the list of carriers has changed little over time. The Authority occasionally audits the towing carriers' books and strictly enforces the maximum 20 minute response time.

Q: Are there jurisdictions within Massachusetts where rates for PO light towing are below those set by the DPU?

A: We are aware of at least three jurisdictions with tow rates below those set by the DPU: Springfield, Boston, and the Massachusetts Turnpike.

Q: Are there jurisdictions within Massachusetts where rates for storage are below those set by the Legislature?

A: We are aware of at least four jurisdictions: Springfield, Cambridge, Boston, and Pittsfield.

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[70]The required response times in more urban areas are generally 5-10 minutes, with longer times in more rural areas.

Q: Are the towing and storage rates in any jurisdictions substantially below the statewide maximum?

A: Yes, the differences are sometimes quite large. The rate in Springfield for all light tows is $22.25.[71] Mr. Roy, whose company is the sole contractor for Springfield, estimated that applying DPU rates to his mix of tow jobs would yield an average charge of $31.76 per light tow.[72] Thus, the current rate for Springfield is $9.51 (or 30%) lower than the DPU rates for equivalent services. The rate for storage in Springfield is $9 per day, less than half that allowed by the Legislature.

The maximum tow charges in Boston are $12 for traffic violations and $25 ($30 for 4 wheels off ground) for accidents, stolen vehicles, or impeding fire department operations.[73] Storage is $15 per day. PO towing in Cambridge and Pittsfield is at DPU-set rates, but storage rates are $7.50 and $15 per

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[71]The Springfield rate includes no day/night differential and apparently no additional charges for mileage, waiting time, or for 4 wheels off ground.

[72]The $31.76 figure is derived by Mr. Roy in Ex. STA-60. It should be noted that Ex. STA-60 utilizes data from all of Roy's PO towing customers, which includes several jurisdictions in addition to Springfield. Springfield's mix of PO tow jobs may be somewhat different than the average mix for all of Roy's PO towing, but we would not expect the average charge at DPU rates for Springfield to be significantly different than $31.76.

[73]Our data on Boston tow rates is based on the tariff filed by Norfolk Service Station with the DPU. Prior to January 5, 1989, the tow charge for accidents, stolen cars, and impeding fire operations was $20 ($24 for 4 wheels off ground). The rate for traffic violations was confirmed by personnel at the City of Boston, who also indicated that Boston tow rates are set by the Legislature.

day, respectively.

The Massachusetts Turnpike Authority has established tow rates of $25 for the first mile and $1.50 for each additional loaded mile, with a $50 maximum charge. Comparison of rates set by the Turnpike Authority and the DPU is complicated because of differences in the rate structure. For certain tows (e.g. weekday, 2 wheels off ground, under 5 loaded miles), the charge based on Turnpike rates could be somewhat higher than the current DPU rates. For most tows, the charge based on Turnpike rates will be similar to or lower than that based on DPU rates.[74]

Q: In assessing the adequacy of PO towing rates, how relevant are the rates for storage?

A: Rates for storage have a major impact on the economics of PO towing. PO towing and storage are joint services. The specific level of the rates charged for each service is far less important than the amount of total revenue generated. For the seven carriers in STA Cost Study, storage revenue generally exceeds the tow revenue, and virtually all storage is generated by PO towing. Storage is a highly profitable business.

Thus, the level of storage rates has a direct impact on what level of towing rates are required to assure an adequate supply of PO towing. If an adequate supply of PO towing is

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[74]It should be noted that the Turnpike Authority's rates apply only to towing to the nearest interchange.

maintained in a jurisdiction where PO towing rates are at the DPU-set maximum and storage rates are below the Legislature-set maximum, this implies that the same supply could have been maintained with lower towing rates and higher storage rates.

Q: Has the supply of PO towing been adequate in jurisdictions with towing and storage rates below the statewide-maximum rates?

A: Cambridge, Springfield, and Pittsfield were included in our survey of police dispatchers and reported no problems with adequacy of supply. In addition, Massachusetts Turnpike Authority staff indicated that they had achieved a very stable level of supply and had experienced a consistent degree of performance from towing carriers.

The situation in Boston is more complex. As discussed above, the rate for PO towing in Boston varies depending on the reason. Towing at the $12 rate (abandoned vehicles, traffic violations, and cars booted for parking violations) is now performed by a tow fleet operated by the City of Boston. Towing at the $25 and $30 rate (accidents, stolen cars, and impeding fire department operations) is apparently still performed by private carriers.[75] The City of Boston indicated that it did experience problems with the adequacy of PO towing services prior to the establishment of its own tow fleet two years ago.

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[75]Prior to January 5, 1989, Norfolk's rate for this type of towing was $20 ($24 for 4 wheels off ground).

Q: What does the experience of jurisdictions with towing and storage rates below the statewide maximum indicate about the adequacy of current PO towing rates?

A: It indicates that, at least in certain jurisdictions, the current PO rates set by the DPU are above the minimum required to attract an adequate supply of PO towing. Springfield has an adequate supply of PO towing service with storage and towing rates 30-55% below the statewide maximum. Cambridge also has an adequate supply with very low storage rates. Several factors appear to make the cities of Springfield and Cambridge desirable service areas for tow carriers. Both offer a high volume of business from a small geographical area. Cambridge generates 70-150 light tows per day from street cleaning alone.[76] Cambridge contracts out to three companies. Roy's Towing holds an exclusive contract for Springfield, which generates 13,000 calls per year.

The experience of Boston indicates that adequacy of supply can deteriorate when rates are set at very low levels, i.e., $12/tow and storage $15/day. Boston's problems in maintaining an adequate supply of PO towing may also be exacerbated by congestion, a high proportion of abandoned cars, high costs for wages, land, and security.

Q: Do the DPU's current PO tow rates appear sufficiently able to maintain an adequate supply of service over the long term?

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[76]We would expect street cleaning to be especially desirable because it generates a large volume of highly predictable towing.

A: We can examine two indicators of the future adequacy of service: new entrants and new equipment. If the current rates are inadequate, we would not expect carriers to be entering the PO towing business. If rates were substantially inadequate, we would expect carriers to be leaving the PO towing business. PO towing essentially utilizes the same technology as other types of towing, and it also appears to be a relatively small part of the total towing business. Thus, we would expect that carriers would have a substantial ability to enter or leave the PO portion of the towing business.

We have not been able to obtain any summary statistics which describe the movement of carriers into and out of PO towing. However, our discussions with police dispatchers indicate that carriers are actively seeking PO towing business. The number of carriers offering to perform the service generally appears to exceed the demand, and in some cases at a substantial level.

The willingness of carriers to invest in new equipment is another indicator of the adequacy of rates. Reduction of capital expenditures is symptom that rates are below long-run marginal cost. In the near term, this reduction in investment may have little impact on the adequacy of supply. In the long run, capacity shortages will appear and quality of service will suffer due to reduced capacity and productivity.

We have not been able to obtain any summary statistics concerning investment levels by towing carriers. However, we

have briefly reviewed the equipment purchases by the seven carriers in the STA Cost Study. We see no evidence of a pattern of inadequate investment. In fact, most of the carriers appear to have purchased some new equipment within the last year or so, and some have made substantial additions to their fleets. This pattern suggests that current rate levels are sufficient to maintain an adequate supply of towing services.

5.3 Competitive Rates

Q: Are there any jurisdictions within the state where rates for PO towing and storage are the result of a competitive process?

A: Springfield utilizes a bid process. As discussed above, both its towing and storage rates are substantially below the statewide maximum. A number of other jurisdictions utilize a bid process, but price competition is generally not an aspect of the process.

Q: Are rates for general public towing set competitively?

A: Yes. Carriers must file maximum rates with the DPU, but the level of these rates is not regulated. Carriers are free to set rates in response to market conditions.

Q: How do the rates charged by the seven carriers for general public light towing compare with those for PO towing?

A: Table 5.3.1 summarizes the general public rates currently on file at the DPU for the seven carriers. General public rates for Chuck's and Norfolk are the same or lower than current PO rates. The other five carriers have general public rates with basic charges ranging from $5 to $25 more than current PO rates.[77] None of the carriers have general public rates which are as high as the PO towing rates proposed by the STA in the current proceeding.[78]

Q: Does the level of general public rates imply that current PO towing rates are inadequate?

A: No. The relationship between general public rates and PO rates is not straightforward. Several factors will tend to make general public rates higher than adequate PO towing rates. First, PO tows generate substantially more secondary revenue (from storage, secondary tows, and repairs) than do general public tows. Second, PO towing may offer a substantial and reliable volume of business, with restricted competition from other carriers. Third, the general public rates are maximums. A carrier may always agree to a lower rate to secure a particular job.

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[77]One of these five carriers, Tower Hill, had general public rates similar to those set by the DPU prior to a rate increase effective September 3, 1989. Tower Hill's general public rates now have basic charges per tow which are $5 more expensive than current DPU PO rates.

[78]For certain night tows, Tracey's and Dealer general public rates would be higher than the proposed PO rates.

On the other hand, general public business has certain advantages over PO towing. Carriers may have greater flexibility in response time or acceptance of jobs, as compared to PO towing. Payment can be required at the time of service, and cars are much less likely to remain unclaimed.

Q: How do the rates charged by the seven carriers for commercial customers compare with those for PO towing?

A: The rates for light towing for commercial customers such as service stations and automobile dealers fall in a small range. The upper end of the range is equivalent to the rates currently set by the DPU for PO towing. The lower end of the range is about $5 per tow below the PO rates.

Q: How do auto club rates compare with those for PO towing?

A: We have seen rates for AAA towing inside Route 128. The rates per call vary from $12.50 down to $9, as volume increases. This service may be less expensive than PO towing, but the rate suggest a lower bound on variable costs per tow.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Use of the STA Cost Study

Q: What reliance should the DPU place on the STA Cost Study?

A: Not much. The STA Cost Study appears to be a considerable improvement, compared to the level of cost analysis presented in earlier towing rate proceedings. Unfortunately, given the many problems with the study, it is of limited probative value.

6.2 Adjustment in Current Rate Levels

Q: Is any increase in PO towing rates justified at this time?

A: The evidence in this case certainly does not support any major increase. The sample companies appear to be profitable as a whole, bid rates for PO towing are sometimes less than the current maximum rates, and there appears to be an adequate level of competition and new supply.

The size of the requested towing rates, waiting time rates, and storage notification charge all appear to be excessive.

The STA's proposed rate simplification, including the inclusion of higher minimum miles in the basic tow, and the elimination of both the day/night differential and surcharges for certain forms and types of towing (mostly technology-based and now apparently obsolete) would require a higher minimum rate, all other things being equal, to produce the same revenue

level as do the current rates. We have not seen a comprehensive sample of the data necessary to determine the mix of PO towing by tow length, day/night split, or tow type, so we can not determine exactly how large an increase in the basic rate would be justified by simplification.

Q: Are the proposed rate simplifications appropriate and justified?

A: We have not attempted to comprehensively review the proposals for simplification, but we do have two comments. First, it is not at all clear that night service is more expensive than day service. While labor utilization may be lower and wage rates may be higher for night operation, equipment costs are almost certainly lower. Daytime operations assuredly dominate the decision to purchase trucks, and no additional equipment is likely to be needed to provide night service. Hence, just as pure capacity costs are not included in off-peak electricity prices, capacity costs need not be included in off-peak towing rates.

Second, the use of higher minimum miles could have implications for industry structure, and could encourage consolidation of the industry. Larger carriers will be able to serve larger areas with no rate penalty, and may be able to displace smaller local carriers. We have not reached any conclusion as to the advisability of encouraging such changes.

TABLE 3.4.1: STORAGE REVENUES AND POLICE-ORDERED TOWS: STA STUDY, 1987 FISCAL YEAR

	COMPANY							
	1	2	3	4	5	6	7	TOTAL
1. STORAGE REVENUES	$50,700	$89,737	$144,677	$236,678	$103,665	$30,000	$53,347	$708,804
2. STORAGE PROFIT	$33,521	$70,357	$97,564	$150,685	$85,896	$22,865	$33,752	$494,640
3. PO TOWING REVENUE	$71,352	$210,603	$110,634	$78,913	$48,957	$1,620	$13,048	$535,127
4. TOTAL TOWING REVENUE	$571,143	$1,061,880	$184,390	$213,280	$121,724	$540,068	$108,911	$2,801,396
5. TOTAL TOWING LOSS	($89,437)	($99,363)	($145,083)	($260,232)	($100,174)	($49,821)	($62,184)	($806,294)
6. PO SHARE OF TOWING LOSS	($11,173)	($19,707)	($87,050)	($96,285)	($40,290)	($149)	($7,450)	($154,020)
7. STORAGE REVENUE/ PO TOWING REVENUE	0.71	0.43	1.31	3.00	2.12	18.52	4.09	1.32
8. STORAGE PROFIT/ PO TOWING REVENUE	0.47	0.33	0.88	1.91	1.75	14.11	2.59	0.92
9. STORAGE PROFIT/ PO TOWING LOSS	3.00	3.57	1.12	1.56	2.13	153.00	4.53	3.21
10. REPORTED % OF STORAGE DUE TO PO	98%	90%	97%	77%	100%	20%	95%	87%
11. PO STORAGE REVENUE/ PO TOWING REVENUE	0.70	0.38	1.27	2.31	2.12	3.70	3.88	1.15
12. PO STORAGE PROFIT/ PO TOWING LOSS	2.94	3.21	1.09	1.21	2.13	30.60	4.30	2.78

NOTES:

[1],[2],[4],[5]: SCHEDULE 3-B.
[3]: SCHEDULE 4-A, "AUTO AND LIGHT TRUCKS" PLUS "HEAVY TRUCKS." IT APPEARS THAT SCHEDULE 4-A MAY NOT ACCURATELY REPORT DATA FOR COMPANY # 7 (CHUCK'S). THE CORRECT FIGURE FOR PO TOWING REVENUE MAY BE $38,720. SEE SECTION 3.3 OF TESTIMONY.
[6]: [5] x [3]/ [4].
[7]: [1] / [3].
[8]: [2] / [3].
[9]: [2] / [6].
[10]: COST QUESTIONNAIRE, SECTION G & POUTASSE WORKPAPERS FOR TRACEY'S (CARRIER 1).
[11]: [7] x [10].
[12]: [9] x [10].

TABLE 3.4.2: STORAGE REVENUES AND POLICE-ORDERED TOWS: ANNUAL FINANCIAL REPORTS, 1988

	COMPANY							
	1	2	3	4	5	6	7	TOTAL
1. PO TOW REVENUES	$46,030	$75,028	$58,894	N/A	$111,014	$14,600	$49,074	$354,640
2. PO TOWS	8,170	1,872	1,746	N/A	2,922	362	1,346	16,418
3. OTHER TOW REVENUES	$275,440	$966,401	$70,646	N/A	$90,305	$581,590	$97,024	$2,081,406
4. OTHER TOWS	28,132	10,343	2,099	N/A	1,748	7,950	2,772	53,044
5. AVERAGE REVENUE PER PO TOW	$5.63	$40.08	$33.73	N/A	$37.99	$40.33	$36.46	$21.60
6. AVERAGE REVENUE PER OTHER TOW	$9.79	$93.44	$33.66	N/A	$51.66	$73.16	$35.00	$39.24
7. STORAGE REVENUE	$61,200	$86,195	$128,371	N/A	$156,146	N/A	$65,817	$497,729
8. STORAGE REVENUE PER PO TOW	$7.49	$46.04	$73.52	N/A	$53.44	N/A	$48.90	$30.32
9. REPORTED % STORAGE FROM PO	98%	90%	97%	77%	100%	20%	95%	
10. STORAGE REVENUE ATTRIBUTABLE TO PO TOW	$7.34	$41.44	$71.32	N/A	$53.44	N/A	$46.45	

NOTES:

NORFOLK DID NOT FILE A COMPLETE 1988 ANNUAL REPORT.
WINN ST. DID NOT REPORT STORAGE REVENUES.
[5]: [1]/[2].
[6]: [3]/[4].
[8]: [7]/[2].
[9]: COST QUESTIONNAIRE, SECTION G & POUTASSE WORKPAPERS FOR TRACEY'S (CARRIER 1).
[10]: [8]x[9].

TABLE 3.4.3: STORAGE REVENUES AND POLICE-ORDERED TOWS: ANNUAL FINANCIAL REPORTS, 1987

COMPANY	1	2	3	4	5	6	7	TOTAL
1. PO TOW REVENUES	$49,945	$115,485	$110,892	$70,011	$48,689	$16,205	$42,790	$454,017
2. PO TOWS	975	2,546	2,851	1,246	1,459	461	1,306	$10,844
3. OTHER TOW REVENUES	$260,842	$969,722	$71,790	$166,685	$73,035	$447,795	$80,810	$2,070,679
4. OTHER TOWS	6,012	8,411	1,392	3,063	2,078	8,100	2,939	31,995
5. AVERAGE REVENUE PER PO TOW	$51.23	$45.36	$38.90	$56.19	$33.37	$35.15	$32.76	$41.87
6. AVERAGE REVENUE PER OTHER TOW	$43.39	$115.29	$51.57	$54.42	$35.15	$55.28	$27.50	$64.72
7. STORAGE REVENUE	$72,480	$89,737	$140,677	$207,031	$103,665	N/A	$56,958	$670,548
8. STORAGE REVENUE PER PO TOW	$74.34	$35.25	$49.34	$166.16	$71.05	N/A	$43.61	$61.84
9. REPORTED % STORAGE FROM PO	98%	90%	97%	77%	100%	20%	95%	
10. STORAGE REVENUE ATTRIBUTABLE TO PO TOW	$72.85	$31.72	$47.86	$127.94	$71.05	N/A	$41.43	

NOTES:

N/A: NOT AVAILABLE
WINN ST. DOES NOT REPORT STORAGE REVENUES
[2]: NUMBER OF PO TOWS FOR CARRIER #1 CONFIRMED VERBALLY BY MR. TRACEY, BUT INCONSISTENT WITH NUMBER REPORTED ON TRACEY'S 1987 ANNUAL REPORT.
TOTAL NUMBER OF PO TOWS REPORTED IN TRACEY'S 1987 ANNUAL REPORT WAS 9,177.
[4]: SEE NOTE [2]. TOTAL NUMBER OF OTHER TOWS REPORTED IN TRACEY'S 1987 ANNUAL REPORT WAS 26,012.
[5]: [1]/[2].
[6]: [3]/[4].
[8]: [7]/[2].
[9]: COST QUESTIONNAIRE, SECTION G & POUTASSE WORKPAPERS FOR TRACEY'S (CARRIER 1).
[10]: [8]x[9].

TABLE 5.3.1: GENERAL PUBLIC LIGHT TOWING RATES, STA SAMPLE

COMPANY	2 WHEEL OFF GROUND		4 WHEEL OFF GROUND		WAITING TIME		MILEAGE CHARGE
	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	
1 TRACEY'S	$40	$55	$45	$60	$45	$60	$3.50 / MILES ROUND TRIP OVER THREE MILES
2 TED'S	$30	$40	$40	$50	$40	$50	$3.00 / MILE LOADED
3 DEALER	$40	$55	$45	$60	$45	$60	$3.50 / MILE LOADED OVER THREE MILES
4 NORFOLK	$25	$30	$30	$35	$20	$25	$1.25 / MILE ROUND TRIP OVER FIVE MILES
5 TOWER HILL	$30	$35	$35	$40	$40	$46	$1.75 / MILE LOADED OVER THREE MILES
6 WINN STREET	$30	$35	$40	$45	$40	$50	$1.50 / MILE ROUND TRIP OVER FIVE MILES
7 CHUCK'S	$25	$30	$30	$35	[1]	[1]	$1.00 / MILE ROUND TRIP OVER FIVE MILES

NOTES:

SOURCE: RATES CURRENTLY ON FILE AT DPU, EXCEPT NORFOLK.
NORFOLK: NO GENERAL PUBLIC RATES ON FILE. DPU REPORTED THIS INDICATES RATES SAME AS POLICE-ORDERED.
DAY: 8AM-5PM MONDAY-FRIDAY EXCEPT HOLIDAYS.
NIGHT: ALL OTHER TIMES.
[1]: NO RATE FOR WAITING TIME INDICATED.

Figure 4.1: % PO Towing vs Cost per Tow

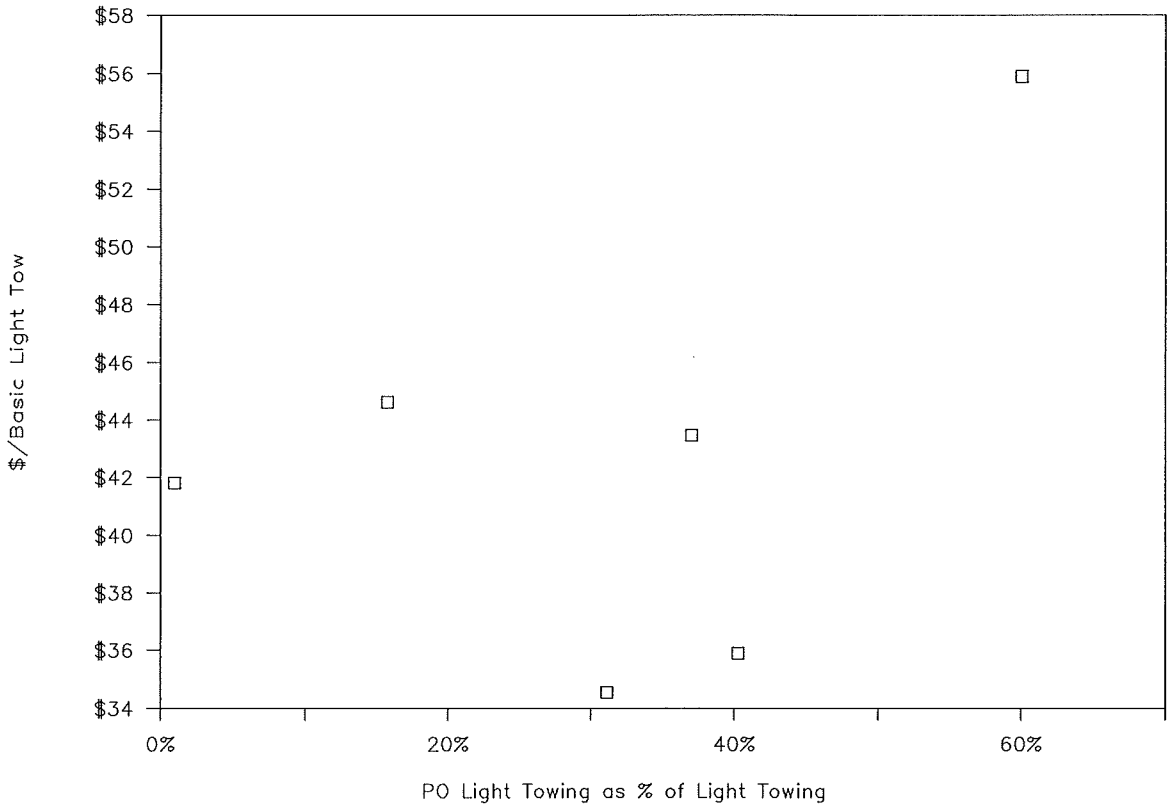
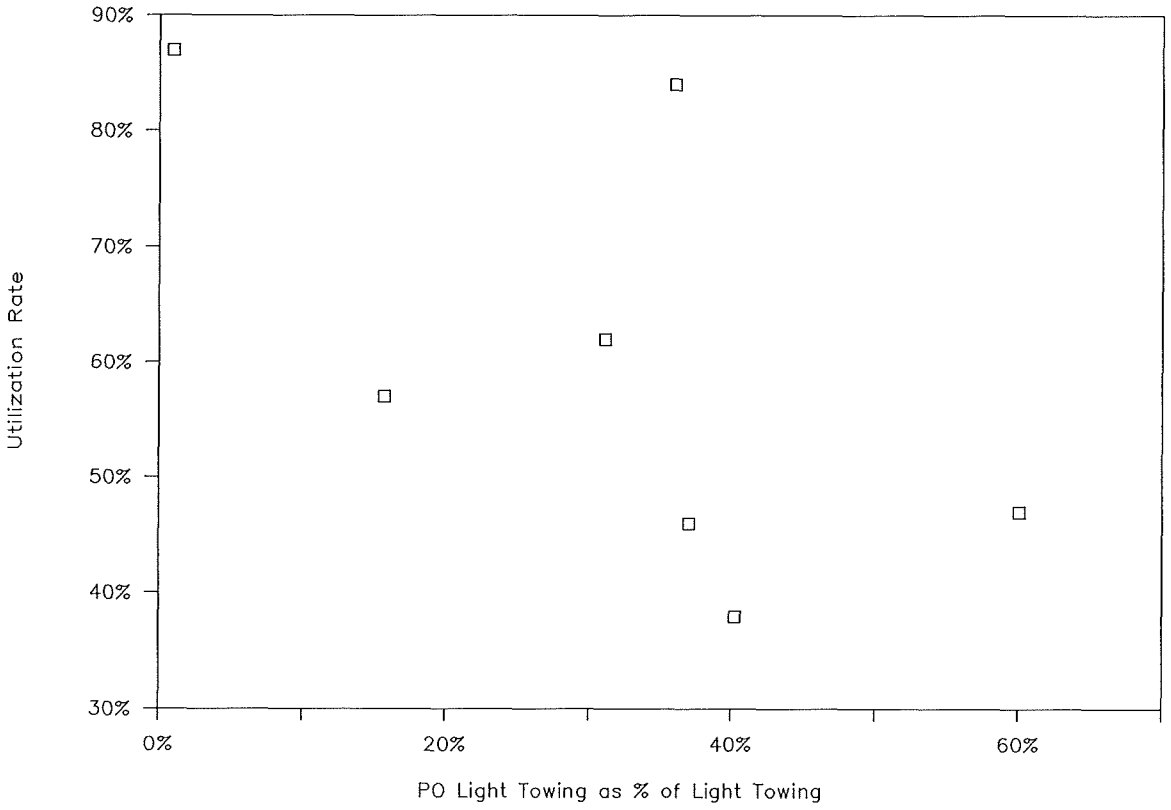


Figure 4.2: % PO Towing vs. Utilization



INDEX TO CARRIER NAMES AND NUMBERS

TOW CAR CARRIER (COMPANY)	NAME OF CARRIER (COMPANY)
1	TRACEY'S SERVICE STATION, INC., LINCOLN, MA (MIDDLESEX COUNTY)
2	TED'S OF FAYVILLE, INC., SOUTHBOROUGH, MA (WORCESTER COUNTY)
3	DEALER TOWING SERVICE, INC., MEDFORD, MA (MIDDLESEX COUNTY)
4	NORFOLK SERVICE STATION, INC., MATTAPAN, MA (SUFFOLK COUNTY)
5	TOWER HILL TOWING SERVICES, INC., LAWRENCE, MA (ESSEX COUNTY)
6	WINN STREET SERVICE, BURLINGTON, MA (MIDDLESEX COUNTY)
7	CHUCK'S AUTO SERVICE, INC., CHICOPEE, MA (HAMPDEN COUNTY)

TABLE 2.2.1: REVENUE PER LIGHT TOW, STA STUDY, NOVEMBER 1987 SAMPLE PERIOD

	COMPANY						
	1	2	3	4	5	6	7
1. PO TOWS	71	30	90	91	151	1	19
2. PO TOW TOWING REV.	$3,051	$1,464	$3,535	$1,394	$6,153	$30	$674
3. PO TOW STORAGE REV.	$1,989	$520	NA	$4,175	$14,825	$120	$700
4. TOTAL PO REVENUE	$5,040	$1,984	NA	$5,569	$20,978	$150	$1,374
5. TOWING REV/PO TOW	$42.97	$48.80	$39.28	$15.32	$40.75	$30.00	$35.47
6. STORAGE REV/PO TOW	$28.02	$17.33	NA	$45.88	$98.18	$120.00	$36.84
7. TOTAL REV/PO TOW	$70.99	$66.13	NA	$61.20	$138.92	$150.00	$72.32
8. PO TOW STORAGE REV./ PO TOW TOWING REV.	0.65	0.36	NA	2.99	2.41	4.00	1.04

NOTES:

NA: NOT AVAILABLE

[1],[2],[3]: INFORMATION IS TAKEN FROM MR. POUTASSE'S WORK PAPERS FOR EACH COMPANY.

LINE 3 FOR CARRIER 1 = TOTAL STORAGE REVENUE FOR PERIOD x ANNUAL EST. OF % OF STORAGE REVENUE FROM PO TOWING

= $2030 x 98%

[4]: [2]+[3]

[5]: [2]/[1]

[6]: [3]/[1]

[7]: [4]/[1]

[8]: [3]/[2]

TABLE 2.2.2: REVENUE PER TOW: STA STUDY, 1987 FISCAL YEAR

	COMPANY						
	1	2	3	4	5	6	7
1. LIGHT TOW REVENUE	$426,108	$451,291	$184,390	$213,280	$121,724	$167,421	$108,911
2. LIGHT TOWS	11,384	14,860	5,895	10,889	6,180	3,910	4,305
3. HEAVY TOW REVENUE	$145,035	$610,226	$0	$0	$0	$372,647	$0
4. HEAVY TOWS	2,119	12,761	N/A	N/A	N/A	6,950	N/A
5. REVENUE PER LIGHT TOW	$37.43	$30.37	$31.28	$19.59	$19.70	$42.82	$25.30
6. REVENUE PER HEAVY TOW	$68.45	$47.82	N/A	N/A	N/A	$53.62	N/A

NOTES:

[1], [3]: SCHEDULE 4-A.
[2], [4]: TABLE 3.2.2.
[5]: [1]/[2].
[6]: [3]/[4].

TABLE 3.1.1: ALLOCATIONS, STA COST STUDY, FISCAL YEAR 1987

	-----OFFICERS' SALARIES------			----------ADVERTISING---------			
COMPANY	TOWING & STORAGE	TOTAL	RATIO	TOWING & STORAGE	TOTAL	RATIO	TOWING & STORAGE AS % OF TOTAL CO. REVENUE
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
1	26,000	26,000	1.00	17,090	14,410	1.19	0.31
2	72,050	62,050	1.16	16,342	16,342	1.00	0.92
3	47,895	47,895	1.00	2,438	2,438	1.00	0.77
4	31,925	63,850	0.50	9,410	18,821	0.50	0.21
5	28,687	38,250	0.75 [8]	3,054	3,054	1.00	1.00
6	18,288	24,385	0.75 [9]	2,649	2,649	1.00	0.94
7	17,803	53,949	0.33	2,531	8,436	0.30	0.29

NOTES:

[1]: ALLOCATION OF OFFICERS' SALARY TO TOWING (INCLUDING STORAGE), FROM SCHEDULE 8A, EXCEPT COMPANY 6.
COMPANY 6: COMPENSATION TO PARTNERS ALLOCATED TO TOWING, FROM SCHEDULE 9-C.

[2]: TOTAL OFFICERS' SALARIES AS REPORTED ON TAX RETURN, FROM SCHEDULE 9A, EXCEPT COMPANY 6.
COMPANY 6: COMPENSATION TO PARTNERS ALLOCATED TO TOWING & TO OTHER OPERATIONS, FROM SCHEDULE 9-C.

[3]: [1]/[2].

[4]: ALLOCATION OF ADVERTISING TO TOWING (INCLUDING STORAGE), FROM SCHEDULE 8B.

[5]: TOTAL ADVERTISING AS REPORTED ON TAX RETURN, FROM SCHEDULE 9-A.

[6]: [4]/[5].

[7]: TOWING (INCLUDING STORAGE) REVENUE AS A PERCENT OF TOTAL REVENUE, FROM SCHEDULE 3B.

[8]: THE OFFICER OF COMPANY 5 ACTS AS A PART-TIME DRIVER. THE REMAINING 25% OF THE TOTAL OFFICER'S SALARY WAS ALLOCATED TO DRIVERS' SALARY EXPENSE.

[9]: BASED ON COMPENSATION TO PARTNERS FROM SCHEDULE 9-C. SEE SECTION 3.3 OF TESTIMONY FOR DISCUSSION OF MR. POUTASSE'S DERIVATION OF THIS DATA.

TABLE 3.2.1: COMPARISON OF FISCAL YEARS TO STUDY PERIODS

		COMPANY							
		1	2	3	4	5	6	7	Average
[1]	Fiscal Year Ends	08/31/87	12/31/87	06/30/87	11/30/87	12/31/87	12/31/87	08/31/87	10/26/87
[2]	Middle of Fiscal Year	03/02/87	07/02/87	12/30/86	06/01/87	07/02/87	07/02/87	03/02/87	04/27/87
[3]	Study Week Ends	11/15/87	11/07/87	11/07/87	11/13/87	11/30/87	11/13/87	11/19/87	11/14/87
[4]	Middle of Study Week	11/08/87	11/04/87	11/04/87	11/10/87	11/15/87	11/10/87	11/16/87	11/09/87
[5]	Difference (Days)	251	125	309	162	136	131	259	196
[6]	Difference (Months)	8.2	4.1	10.1	5.3	4.5	4.3	8.5	6.4

NOTES:

[1]: Schedule 3-B.
[2]: Questionnaire, Section H.
[3]: Questionnaire, Section D. Company 1 used 11/1 - 11/15. Company 5 used entire month.
[6]: [5] / 30.5

TABLE 3.2.2: COMPARISON OF TOW NUMBERS, STA STUDY AND ANNUAL REPORTS

	COMPANY								
	1	2	3	4	5	6	7	TOTAL	
1. LIGHT TOWING BILLABLE HOURS	8,538	11,145	4,421	8,167	3,090	3,910	4,305	43,576	
2. HEAVY TOWING BILLABLE HOURS	2,119	11,740				6,950		20,809	
3. HOURS PER BASIC LIGHT TOW	0.75	0.75	0.75	0.75	0.50	1.00	1.00		
4. HOURS PER BASIC HEAVY TOW	1.00	0.92				1.00			
5. MAXIMUM LIGHT TOWS	11,384	14,860	5,895	10,889	6,180	3,910	4,305	57,423	
6. MAXIMUM HEAVY TOWS	2,119	12,761				6,950		21,830	
7. MAXIMUM TOWS, STA STUDY	13,503	27,621	5,895	10,889	6,180	10,860	4,305	79,253	TOTAL W/O CO. 4 [16]: 68,364
8. PO TOWS 1988	8,170	1,872	1,746	N/A	2,922	362	1,346	16,418	
9. OTHER TOWS 1988	28,132	10,343	2,099	N/A	1,748	7,950	2,772	53,044	
10. TOTAL TOWS 1988	36,302	12,215	3,845	N/A	4,670	8,312	4,118	69,462	
11. RATIO OF STUDY TOWS TO 1988 TOWS	0.37	2.26	1.53	N/A	1.32	1.31	1.05	0.98	
12. PO TOWS 1987	975	2,546	2,851	1,246	1,459	384	1,306	9,792	
13. OTHER TOWS 1987	6,012	8,411	1,392	3,063	2,078	8,100	2,939	31,995	
14. TOTAL TOWS 1987	6,987	10,957	4,243	4,309	3,537	8,484	4,245	41,787	
15. RATIO OF STUDY TOWS TO 1987 TOWS	1.93	2.52	1.39	2.53	1.75	1.28	1.01	1.90	

NOTES:

[1]: FROM SCHEDULE 5-A.
[2]: FROM SCHEDULE 5-B.
[3]: FROM SCHEDULE 1.
[4]: FROM SCHEDULE 2.
[5]: [1]/[3].
[6]: [2]/[4].
[7]: [5] + [6].
[8]: FROM TABLE 3.4.2, LINE 2.
[9]: FROM TABLE 3.4.2, LINE 4.
[10]: [8] + [9].
[11]: [7]/[10]. "TOTAL" FROM LINE 7 EXCLUDES CO. #4.
[12]: FROM TABLE 3.4.3, LINE 2.
[13]: FROM TABLE 3.4.3, LINE 4.
[14]: [12] + [13].
[15]: [7]/[14].
[16]: USED IN COMPUTATION OF TOTAL, LINE 11.