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Effects of Taxi Regulatory Revision in Seattle, Washington

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May 1983**

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16. Abstract

In May 1979 the City of Seattle enacted license code revisions affecting taxicabs. Entry is opened to both fleets and independents and there is no limit on total licenses or the number of licenses a single operator may obtain. Open rate setting replaces the previous standard rate of fare by allowing taxi companies to file individually selected rates.

This Final Report evaluates the effects of the regulatory revisions on local taxi service suppliers, taxi users and taxi regulators. Evaluation issues included changes in the level and quality of taxi service, changes in demand, taxi user characteristics and awareness of service, changes in taxi service productivity measures and the administrative efforts involved in implementation. Since the city's code changes affected taxi industry size and operations in King County and at Seattle-Tacoma International Airport, special attention was also paid to inter-jurisdictional issues.

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PREFACE

This Final Report describes the effects of taxi regulatory changes adopted by the Seattle City Council. The new regulations have two primary features: open entry and variable pricing, both of which became effective in the city in May 1979. King County adopted open rate setting simultaneously, and followed with open entry a year later. Subsequent city code changes require exterior rate posting and provide for zone-based shared-ride service.

The report presents impacts of the regulatory changes upon taxi service suppliers, ridership and regulators. Effects are evaluated from sample data and city license and rate filing records collected from mid-1979 through 1981.

The data were collected primarily by the City of Seattle Department of Licenses and Consumer Affairs (DLCA) with support from the Urban Mass Transportation Administration's (UMTA) Service and Management Demonstration (SMD) Program. This Final Report was prepared by De Leuw, Cather & Company for the Transportation Systems Center (TSC) of the U.S. Department of Transportation, under Contract DOT-TSC-1409. Principal researcher for the case study evaluation is Pat M. Gelb.

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The members of the Seattle taxi industry have also been generous in sharing their time, perspectives and trip sheets as well as in cooperating with the survey efforts. Their assistance was invaluable to the successful completion of this case study report.

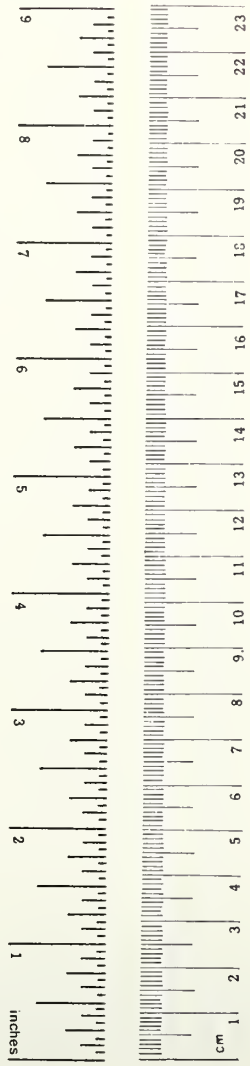
Not least is the appreciation owing to the efforts of other members of the De Leuw, Cather staff: Robert M. Donnelly, June E. Miller, and Karla J. Forsman. Tom Schnetlage provided computer programming support.

METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

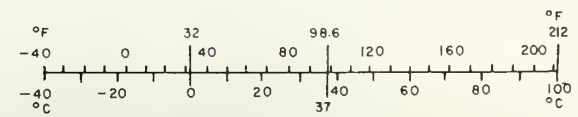
Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
	AREA			
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
	MASS (weight)			
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
	VOLUME			
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
	TEMPERATURE (exact)			
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price $2.25, SD Catalog No. C13.10:286.



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
	AREA			
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
	MASS (weight)			
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
	VOLUME			
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
	TEMPERATURE (exact)			
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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EXECUTIVE SUMMARY

INTRODUCTION

THE REGULATORY CHANGES AND THEIR OBJECTIVES

City of Seattle

In May of 1979, as part of a comprehensive program of license code reforms, the City of Seattle revised its ordinances regulating taxicabs. The taxi regulatory revisions have two primary elements: open entry and variable pricing. Open entry removes the previous taxi license ceiling and public convenience and necessity certification requirement. Application is to the city Department of Licenses and Consumer Affairs (DLCA) and there is no limit on the number of licenses a single applicant may obtain at a time. Variable pricing permits taxi operators to charge whatever rates they choose, so long as their current rates are on file with the DLCA. Rates may be changed once per quarter. Subsequent code provisions adopted in mid-1981 require exterior rate posting and provide for zone-based shared-ride taxi service.

Seattle Regulator Goals

The Seattle regulators' goals in promoting taxi license code revisions were: to remove regulatory barriers to open competition in the taxi industry; to promote taxi service innovations; and eventually to encourge multi-jurisdictional taxi regulation. The code reformers specifically sought to remove city government from price setting and maintained that competition was essential to restore the vitality of the failing local industry. Industry opponents claimed that demand was not sufficient to sustain additional suppliers and that open entry would produce numerous taxi business failures while open rate setting would result in cut-throat competition or price-gouging.

King County and Seattle-Tacoma International Airport

The impulse toward multi-jurisdictional taxi regulation moved Seattle regulators early to urge the Seattle port to abandon its exclusive franchise arrangement for taxi service from Seattle-Tacoma International Airport (Sea-Tac). Coincidentally, in 1977, the city and King County agreed to establish taxi licensing reciprocity. Since Sea-Tac Airport lies within the county boundaries, the reciprocity agreement opened the airport to city taxi licensees by easing their way to a county permit, which became the chief prerequisite for an airport sticker. An open airport also expanded the taxi market and helped to sweeten the bitter pill of open entry for city taxi operators.

King County adopted variable rate setting simultaneously with Seattle in 1979 but held off on open entry for one year. This interrupted formal licensing reciprocity between the two jurisdictions and temporarily froze the county permit total at the level which had been reached through city-county reciprocity. Open entry began in the county in June 1980. It remains for the county to enact a number of essentially housekeeping measures to bring their taxi regulations into agreement with those in the city. The Port of Seattle has regulatory jurisdiction over ground transportation and other facilities at Sea-Tac Airport. It began issuing new airport taxi permits with city-county licensing reciprocity in 1977. Due to the growing number of airport taxis and problems related to open entry and rate setting, discussed below, the port moved in early 1981 to limit new entry by raising permit fees. It also imposed a ceiling on allowable airport taxi rates and adopted stricter penalties for airport rules violations.

THE CASE STUDY EVALUATION

This case study evaluates the effects of Seattle's taxi regulatory revisions on local taxi service suppliers, taxi users and taxi regulators. Evaluation issues included changes in the aggregate level,

availability and quality of taxicab service, changes in taxi service demand and in taxi user characteristics and awareness of taxi service attributes, resultant changes in aggregate and average taxi productivity and changes in the administrative time and dollar costs involved. Special attention was also paid to interjurisdictional issues since the city's code changes affected taxi industry size and operations in King County and Seattle-Tacoma International Airport.

Monitoring of the effects of the code revisions continued throughout 34 months following the original code revisions. The data collection program included field surveys of taxicab response times to telephone requests for service, taxicab and passenger activity at cabstands, and taxi passenger characteristics; samples of taxi operator trip sheets; and compilation of taxi license records, rate filings, complaints and vehicle inspections information. Reported effects on taxi industry size and structure, rates, taxi stand activity and operating practices cover the full three years of evaluation monitoring. Trip sheet samples serve to report changes over a somewhat shorter, two-year interval following the code revisions, while the taxi passenger and response time surveys provide a single point of "after" data.

This case study is one of several evaluations of the effects of taxi regulatory revisions being conducted by the Transportation Systems Center (TSC) under the Urban Mass Transportation Administration's (UMTA) Service and Management Demonstrations (SMD) Program.

OVERVIEW OF EFFECTS

The regulatory changes produced an increase in the size of the Seattle taxi industry and a de-centralization of industry structure as the number of taxi licenses held in mini-fleets and fleets has more than doubled while that in large service companies has remained comparatively steady. The aggregate level of taxicab service has increased, but not commensurately with the rise in total permits, owing to lower average rates of taxi

vehicle utilization industrywide. From the taxi user's point of view, taxicab availability has increased, particularly at the airport, in the downtown and near major hotels, where many of the newer and smaller operators concentrate their activities. Service specialization and market segmentation have developed according to operator size, with the smaller and generally newer entities focusing on the stand hail and long-haul business while the larger and older operations emphasize the bell business while attempting to develop their package delivery and other contract trade. As a result of these changes, passenger waits at the most active cabstands have virtually disappeared and taxi response times to telephone requests for service have likely improved.

Taxicab rates have probably risen faster under variable pricing than they would have done under continued standardization, but the evidence also suggests that regulation was holding rates artificially low. The majority of taxicabs continue to be offered at the lowest rates, moreover, owing to direct competition between the three largest entities.

Although the data from this one case study do not provide for a reliable estimation of the elasticity of demand for taxi services, the Seattle findings support the following observations. First, taxi passengers are paying higher prices -- for improved service -- where under regulation they were getting taxi service below market rates. Second, some passengers may be being priced out of the market, but survey results suggest that this group constitutes a small minority of all taxi users. First, METRO's Special Transportation (scrip) program provides a 50 percent subsidy on taxi trips of qualified handicapped and low-income elderly passengers. Second, most survey respondents reported themselves not to be price sensitive and where they had decreased their taxi use over time, a variety of other factors outweighed price as the primary cause. Finally, since the large majority of lower-income riders are residents and the bell-business service orientation of the large companies is residentially based, moreover, the lower-priced companies are targetting the potentially most price-sensitive markets.

A ceiling on airport taxi rates imposed by the Seattle Port in an effort to resolve airport taxi operating problems has tended to hold county and city rates down as taxi operators licensed in more than one jurisdiction try to avoid the need for multiple metering capability. Some passenger confusion and complaints have resulted from variable pricing, particularly at the airport, where more of the highest-priced taxi services focus their operations, where passengers are more likely to be unaware that taxi rates vary, and where the basically first-in, first-out operation of the taxi queues militates against comparison-shopping.

Consumer education is a continuing problem. Many residents and most visitors were unaware as late as November 1981 that taxi rates vary in Seattle. Informational signs apparently had not solved the problem which was most acute at inter-city travel-related cabstands where visitors congregate and the greater volume of long-haul trips makes price-gouging more serious.

An estimated 25 percent decrease in total passenger trips between 1979 and 1981 combined with a 51 percent increase in total taxi permits over the same period produced an average drop in taxi trips per shift. Industry average fare revenues collected per shift or per hour remained more or less steady, however, owing to taxi company rate increases and a rise in the average trip length. Rising costs of gasoline and insurance suggest that the average taxi driver was not making as much money in 1981 as he did in 1979, however. Lease operations in general serve to insulate the taxi company (and many service company member-owners) from the vagaries of the marketplace, but reduced vehicle utilization in the second year following open entry implies that Seattle companies also experienced a drop in their lease revenues. There was no coincident decline in taxicab lease fees to indicate increased competition for drivers, however. The number of taxi companies exiting the business during the first three years of open entry was relatively small, nonetheless, although there are no longitudinal "before" data for comparison. The absence of operators' financial

information also prevents our knowing to what extent the firms which left the business were unprofitable, poorly managed, inadequately financed or otherwise less capable of responding to competitive conditions than those which have remained.

In general, the regulators' objectives for taxi code revision appear to have been achieved. The City Council has been released from the time consuming and politically sensitive tasks of certifying need for taxi service and setting rates. The local taxi industry is less centralized and more competitive. Industry and public acceptance appear to have been achieved in that there has been no sustained organized opposition to the changes since their adoption. The regulators' hopes of achieving taxi service innovations through competition have only partially been realized, however. Zone-based shared ride taxi service has yet to become a reality, and no other taxi service innovations have been attempted to date.

Interjurisdictional conflict between Sea-Tac airport and the city is not resolved. Port attempts to deal with airport taxi problems by limiting entry and rates militate against competition and produce inconsistencies in regulatory policy between related jurisdictions.

The following sections present specific effects in turn in terms of the categories of evaluation issues cited previously.

SPECIFIC EFFECTS

TAXI INDUSTRY ENTRY AND EXIT

Prior to open entry, the Seattle taxi industry was dominated by three large service companies or associations of individual member-owners, holding 295 (70%) of the total 421 permits. The remaining 126 licenses were held in 57 firms of one to 26 cabs each. Since open entry, the total number of taxi licenses increased 25 percent from 421 to 527 between August 1979 and August 1981, while the number of taxi companies rose nearly 50 percent, from 57 to 85. As of December 1981, there were 511 licenses, representing

1.03 licenses per 1,000 of city population, which is high compared with other American cities, as well as with Seattle's pre-open entry ratio of 0.75 in 1978-79.

Industry structure is less centralized. There has been a proliferation of taxi companies of different sizes owned by both new and veteran license-holders. There has also been a recent decline in both veteran and new owner held single-cab companies as these license holders either exit the industry or expand their operations into mini-fleets and fleets. The formerly dominant license share of the three large service companies -- umbrella associations of individual member-owners -- has dropped from 70 percent to 54 percent. New licensees have gradually obtained a 38 percent share of all taxi licenses. Table ES-1 presents the changing total of licenses in each company size type for the three principal jurisdictions.

The Seattle industry's growth was highest during the first year of open entry, during which the license total rose 23 percent from 421 to 519. The following year witnessed only a small additional increase to 527 licenses. The slightly smaller total of licenses (511) issued or renewed through December 1981 is typical of the gradual growth in industry size during the license year, with the taxi ranks increasing from September through June and at their largest during the summer months. The city continues to issue licenses to new operators through this writing.

About 11 percent of all city taxi licenses issued or renewed since open entry were cancelled, traded or not renewed by their owners during the first two and one-half years of open entry. Seattle's second year of open entry saw the highest turnover, or 15 percent of all licenses. All operation types have witnessed exits from their ranks, with veteran owners showing a slightly higher rate of exits than new owners (12% of all veteran-held permits compared with 10% of those in new ownership) -- a reasonable finding given that some of the new owners had tried the business

TABLE ES-1 TAXI INDUSTRY SIZE AND STRUCTURE SINCE OPEN ENTRY: CITY OF SEATTLE, KING COUNTY AND SEA-TAC AIRPORT

	August 1979*		August 1980		August 1981	
	#	%	#	%	#	%
City of Seattle						
Service Companies	295	70%	322	62%	320	61%
Independent Fleets (4 or more cabs)	74	18	107	21	127	24
Mini-Fleets (2-3 cabs)	14	3	40	7	31	6
One-cab Firms	38	9	50	10	49	9
Total	421	100%	519	100%	527	100%
King County						
Service Companies	256	69%	261	61%	246	56%
Independent Fleets (4 or more cabs)	55	15	92	22	111	25
Mini-Fleets (2-3 cabs)	25	7	29	7	19	4
One-Cab Firms	36	10	44	10	60	14
Total	372	100%	426	100%	436	100%

	December 1979		December 1980		November 1981	
	#	%	#	%	#	%
Sea-Tac Airport						
Service Companies	118	58%	124	47%	56	30%
Independent Fleets (4 or more cabs)	37	18	64	24	66	35
Mini-Fleets (2-3 cabs)	18	9	28	11	20	11
One-Cab Firms	31	15	47	18	46	24
Total	204	100%	263	100%	188	100%

*End of pre-open-entry license year.

less than a year. These numbers do not appear large in the face of the dire predictions of open entry's opponents, but it should be noted that the evaluation did not have longitudinal "before" data on taxi owner exits for comparison. Only two service company licenses were recorded relinquished during the 1978-79 year prior to open entry.

Reciprocal licensing between King County and Seattle brought a sharp increase in county taxi licenses, even prior to open entry, due to the attraction of Seattle-Tacoma International Airport, which is in the county. The total of county licenses rose from 74 in 1977 to 372 by the close of the 78-79 License year (a 400% increase) and to a high of 475 licenses by May 1981. Data for the first quarter of the 1981-82 license year mirror the city experience, as the county license total receded to 436. The structure of the county industry generally parallels that of the city as well.

Once Sea-Tac Airport was opened to all county-licensed taxi operators with reciprocity, the ranks of airport taxi operators grew very rapidly. Airport taxi permits increased from about 35 under the previous exclusive franchise agreement with Airport Taxi to just over 200 by December 1979, half-way into the first year of city open entry, and to 263 by December 1980. Airport rule changes increasing permit fees and limiting rates effective in March of 1981 evidently stemmed the tide of airport taxis, which totalled 188 as of November. The structure of the airport taxi industry offers some noteworthy differences from those of the city and county. Owners in service companies have retained a steadily declining proportion of all airport permits while the independent firm types -- many of which are not radio-dispatched and therefore rely on the airport as a primary source of trips -- continue to cover more of their cabs with airport permits. By late 1981, less than one-quarter of all service company vehicles licensed in the county carried airport stickers compared with over half of county-licensed independents.

RATES

In response to predictions that cut-throat competition or price-gouging would ensue from open rate setting, or regulator hopes that competitive pricing would tend to retard taxi rate increases, the data suggest two major findings. First, exclusive ride taxi rates have risen faster under open rate setting than they likely would have under continued standardization. Average fares for a five-mile taxi trip in Seattle rose some 72 percent, from $4.30 under the pre-revisions standard to $7.40 through April 1982. In comparison, taxi rates rose 15 percent under standardization between 1974 and 1976 as regulators attempted to hold the line on rate increases in anticipation of variable pricing.

Regulation may have been holding prices artificially low, moreover. The greatest single jump occurred in the first quarter of open rate setting, when most operators filed increases averaging 35 percent over the previous five-mile fare, a rise reportedly equal to the "emergency" rate increase prepared as draft legislation in the event the city failed to adopt code revision. As of April 1982, average Seattle taxi rate segments -- about $1.10 for the flag drop and $1.30 per mile -- nearly equalled the standard rates effective at that time in San Francisco and were within 10 percent of those prevailing in Portland, Oregon and Oakland-Berkeley, California.

On the other hand, the weighted average taxi fare, based upon the number of taxi vehicles operating at each rate, has increased only about 54 percent, compared with a 47 percent rise in the local Consumer Price Index since March 1979. The difference between the simple average rate and the lower weighted average rate* -- about $1.05 for the flag drop ($0.85 fixed) and $1.20 per mile -- highlights the second major finding.

*For the purposes of this report, the weighted average rate was calculated to account for the number of vehicles licensed to operate according to a particular company's rate filing. No attempt was made to correct for varying rates of vehicle utilization or geographic or temporal service variations.

Rates have tended to vary according to company size type, with the older and larger companies charging the lower rates. Thus the majority of taxi vehicles -- from 74 percent of all vehicles shortly after variable pricing to 56 percent as of the February-April quarter of 1982 -- have continued to be available at the lower prices. Only 6 percent (about 25 to 32 vehicles) have been operating at the highest prices. Average fares available to taxi patrons during any one quarter have varied as much as 32 percent, or $1.70 on the five-mile trip. Table ES-2 presents comparative fares for the average non-airport and airport-connected trip, as well as the five-mile fare, for mid-1979 and mid-1981.

Ceiling on Airport Taxi Rates

Since both the city and the county adopted open rate setting, dual-licensed operators were free to file different rates in the two jurisdictions. The county rate applied to pick ups at Sea-Tac. Passenger confusion over open rate setting in general, allegations that the higher, county rates provided for price gouging, and the fundamental inconsistency between variable pricing and the basically first-in, first-out taxi queue system at Sea-Tac led to problems and eventual port changes in the airport rules. These included, effective March 1981, a +10 percent ceiling on allowable airport taxi rates, a policy which helped to reduce fare-related complaints but also militated against price competition. Comparison of airport and city rates suggests that the ceiling has a depressant effect on city rates as operators seeking to operate in both jurisdictions adjust their city rate downtown to avoid the need for dual metering capability.

Pricing Innovations

The Seattle experience has produced a variety of taxi price structures in addition to price competition among the three majors. The primary innovations have been in the form of discounts offered to repeat, advance reservation and long-haul customers, and higher rates for nighttime service or short-trips. DLCA staff describe some of these rates as abusive while

TABLE ES-2 KEY SUPLY AND DEMAND CHARACTERISTICS BEFORE AND AFTER TAXI REGULATORY REVISION IN SEATTLE

	May 1979*	May 1981**
Total Weekly Shifts Supplied	2,260	2,520
Average Shifts Per Cab Per Day	0.95	0.70
Total Weekly Hours of Service	22,300	25,400
Average Hours Per Cab Per Day	9.2	7.0
Fare for a 5-Mile Trip	$4.30***	$6.65†
3.5 Mile Non-Airport Trip	$3.25	$4.90
11.5 Mile Airport-Connected Trip	$8.85	$14.50
Total Weekly Fare Revenue	$147,250	$168,800
Total Weekly Passenger Trips	35,690	26,840
Airport	7%	16%
Non-Airport	93%	84%
Total Weekly Riders	41,540	30,880
Airport	8%	18%
Non-Airport	92%	82%

*As of the third quarter of the 78-79 license year, prior to open entry and variable pricing.

**Two years later, for comparision with the other data presented.

***Standard rates of fare.

†Weighted average fares. These have continued to rise beyond this writing.

most are not implemented in a formal sense but serve to cover operations at what the market will bear. Zone-based shared-ride rates have been legal since 1981, but no company has offered this service on a regular basis, despite a shared-ride promotion by the largest service company in late 1981.

OPERATING PRACTICES

Market Segmentation

The primary changes in taxi company operating practices disclosed by the evaluation relate to the increase of new and smaller operations blanketing the airport and other high-demand pick-up locations. Prior to regulatory revision the larger veteran operations predicted that the new single-cab companies would "skim the cream" off the traditional taxi business, garnering a disproportionate share of long-haul trips to the exclusion of a balanced citywide service delivery. This result has been documented, at least to date. Both evaluation surveys of taxi stand activity observed single cab and mini-fleet vehicles on the busy stands in significantly higher proportions than their shares of all industry vehicles, while service company and independent fleet vehicles were observed in smaller proportions than their industry share. It is difficult to see how it could be otherwise, however, since a small firm, even if radioed, cannot provide citywide service independently. On the other hand, the larger companies have more potential outlets to replace the stand-hail market, such as package deliveries and contract services, in addition to their dominance of the telephone-request business

There has been little change since 1978 in this basic service orientation of small versus large companies other than the increasing number of small firm vehicles. The proportion of all taxis leaving the stands with riders had dropped from 69 percent in 1978 to 57 percent in 1981, however. Of the 30 percent of all vehicles observed leaving the

stands without passengers, about half were evidently dispatched on call; the large majority of these were service company vehicles. The smaller outfits, many of which were non-radioed, had few or no alternative sources of trips, and these firms waited over twice as long on the stands as their larger competitors did. Twenty of the 85 companies active in late 1981 were radio-dispatched.

Because of the increased focus on cabstands by the newer and smaller firms, the older and larger companies were reportedly de-emphasizing street- and stand-hail business to concentrate on the telephone-request and package delivery markets. Several of the larger firms were limiting their airport pick-ups to passengers requesting service by telephone (a practice which does not require an airport sticker).

Lease and Labor Aspects

About 50 to 75 percent of Seattle taxi shifts are operated by lessee drivers. Owner-operators within service companies are more likely to lease than independents. Although upwards of 10 percent of all shifts are still employee-driven, unionization is no longer a factor in local industry structure or operations. Average lease fees have not increased since open entry but have even dropped slightly with the trend to 12- to 24-hour leases, or more hours for the same "nut."

Reports of illegality by taxi drivers relate primarily to abuses under open rate setting, particularly in connection with exorbitant surcharges added to fares from the airport and in conjunction with the variety of rates permissible for the basic exclusive ride service. It should be noted, however, that complaints occasionally result from passengers' believing themselves to be cheated while the operators involved are operating wholly within the law.

OTHER LEVEL OF SERVICE MEASURES

Unlike conventional transit, where service policies are determined by the operator, taxicab level of service characteristics such as availability, geographic service coverage and response time are highly dependent upon the volume and temporal and spatial distribution of demand. The presence of a taxicab within the radius of any passenger's acceptable response time depends upon there having been another trip with similar temporal and spatial characteristics. Therefore, aggregate level of service measures such as total weekly shifts or hours of service are also inevitably measures of demand in that the taxi driver -- particularly the lessee driver or owner-operator -- exercises some control over output. That is, the driver may target service to busy time periods or particular locations, or may drive only as long as needed to clear a certain profit over costs. Thus, the total number of taxi permits is an insufficient measure of service supply. The following sections present more detailed findings on changes in a variety of level of service measures obtained from analysis of a sample of taxi operator trip sheets in each of two years. Table ES-2 presents key supply and demand characteristics distilled from these analyses and discussed in the following paragraphs.

Shifts and Hours in Service

The number of taxicab shifts supplied did not increase commensurately with growth in licenses over the first two years of open entry. The industry as a whole supplied 2,260 taxicab shifts per week in May 1979 and 2,520 shifts per week in May 1981, a 12 percent rise. This rate of increase was less than that in licenses chiefly because of a general drop in average vehicle utilization, from 0.95 shifts per cab per day in 1979 to 0.70 shifts per cab per day in 1981. That is, there were 51 percent more vehicles in May 1981 but each vehicle was only providing about 76 percent as much service as in May 1979. Where 50 percent of

all taxi vehicles were in service at least 21 days out of 31 in 1979, moreover, half of the larger fleet worked no more than 18 days out of the 31 in 1981.

The fleet operation types, those who derive their revenues primarily from lease fees and who therefore have the greatest stake in high vehicle utilization, provided a higher rate of service per permit than either the service companies or the small independents. This is reasonable, given that the service levels of the smaller companies and particularly the single-cab operations are more strictly limited to the capacity of the individual owner-operator.

Weekly industry hours of service increased some 14 percent owing to an apparent slight increase in the industry average shift length. The Seattle taxi industry provided 22,300 hours of service per week in May 1979 and 25,400 hours per week in May 1981. The average taxicab operated 9.2 hours per day in 1979 but only seven hours per day in 1981, however, owing to the drop in average vehicle utilization.

Changes in Geographic Service Coverage

The available data are insufficient for estimating geographic taxi service coverage in terms of ratios of vehicles, shifts or in-service hours by geographic area or major demographic distributions. Not all Seattle operations are radio-dispatched and citywide service coverage necessarily varies, with larger fleets targetting broader areas and small companies concentrating on particular districts. To the extent that taxi service supply is inherently demand-responsive, these service characteristics are measures of demand as much as of supply, as previously noted.

Anecdotal evidence from taxi industry members and the results of the trip sheet analysis -- limited as these indicators may be -- suggest little or no increase in total geographic service coverage. The service companies

supplying most nearly citywide service only slightly increased their size, while many of the new fleets were not radioed and routed their vehicles to the cabstands. Stand hail survey results indicate an over-supply of taxicabs at the airport and other major downtown and hotel locations. The industry average decline in total miles driven per shift and per hour also suggests that cruising may have increased only slightly or actually decreased with open entry and therefore that total geographic service coverage may even have contracted somewhat.

The more recent de-emphasis of the airport and downtown stands by the larger companies and veteran fleets in favor of the telephone-request and package delivery business suggests an increased supply of service to residential areas. The proportion of trips beginning and ending in non-central portions of the city rose 32 percent between 1979 and 1981, suggesting some new cruising in those areas by non-radioed firms. But the northend, downtown, and western portions of the city -- the primary service areas of the three majors -- were still receiving the best telephone-request service in late 1981.

Taxi Service Availability and Response Times

Response Time Survey results from 1981 suggest that a Seattle taxi patron had about a one-in-four chance of frustration in attempting to obtain taxi service by telephone. The three large service companies refused 10 percent of their calls, while independent fleet operators turned down 37 percent and one- to three-cab companies only accepted 41 percent. The absence of pre-revisions response time data for comparison precludes assessment of whether service had improved or deteriorated since open entry. The overall average wait was 13 to 15 minutes and response times varied with company size and pick-up distance from the CBD. Less than half (43%) of all cabs arrived within 10 minutes, 75 percent within 20 minutes and 85 percent within 30 minutes.

Passengers rarely waited at all for service at the cabstands surveyed, however. Taxi queues at these busy stands almost invariably held cabs awaiting passenger arrivals in both years of survey. The 1981 stand survey results suggest that at 1 pm on an average weekday, 18 percent of all industry vehicles were waiting in queues at the busiest stands.

Vehicle Maintenance and Condition

Available data on taxi vehicle ages suggest a gradual deterioration in taxi vehicle condition as companies opted for used replacement vehicles or continued to operate with the same (aging) fleet. The median vehicle age was four years in mid-1979 and had increased to six years by the close of 1981. Increasing rates of vehicle inspection failure on the first trial corroborate this hypothesis. There has been no reported increase in taxicab accidents or passenger complaints relating to vehicle maintenance or safety, however.

EFFECTS ON TAXI RIDERSHIP

Estimated changes in aggregate level of demand for taxi services are based upon analysis of taxi operator trip sheets. A word on trip sheets is therefore in order, since their varying completeness introduces potential bias in our results. To the extent that trips are not recorded and this neglect increases with increasing numbers of independent owner-operators and lease-drivers, the analysis underestimates demand levels over time. There was no reliable basis for adjusting the data to correct for such bias in this ground-breaking study, however.

Sample data from the taxi operator trip sheets suggest that total passenger trips declined 25 percent between 1979 and 1981. At 1.1 passengers per vehicle trip, city taxis carried 2,160,160 passengers in 1979 and 1,605,740 riders in 1981. The latter figure amounts to roughly as much as 2 percent of annual revenue passengers carried on METRO buses in 1981.

Taxi Rider Characteristics

The 1981 Passenger Profile Survey (PPS) provides the first recent data base on taxi passenger and travel behavior characteristics in Seattle. There are no prior data for comparison.

Ridership was one-third visitors and two-thirds residents. The residents generally included more females, more blacks, more retired and unemployed individuals and more lower-income individuals than the visitors. That is, the resident ridership included more transportation-dependent riders than the visitor group. Some 65 percent of visitors had household incomes over $25,000 (and 28% over $50,000) compared with 34 percent of residents, while a quarter of the residents had household incomes under $10,000. Residents were also more than twice as likely as visitors not to drive. About seven percent of the residents were observed by the surveyors to have mobility or other handicaps; virtually none of the visitors did.

Taxi Rider Travel Behavior

The residents were also more frequent taxi users, including 29 percent who made at least two taxi trips per week versus 38 percent who made only one or no taxi trips in a month, compared with 16 percent and 54 percent, respectively, for the visitors. The residents were fairly frequent METRO users as well, including 38 percent who made more than 10 bus trips over the month prior to the survey. Despite the estimated decline in taxi ridership based on trip sheets, only 10 percent of the residents said they were using taxis less frequently than they had a year ago, while 26 percent claimed to be making more taxi trips. The residents more frequently related these changes to changes in their transportation options or in their home or work location than to price.

Taxi Trip Characteristics

Owing to the differing service orientations of the larger and smaller company types, 86 percent of the residents were carried by service companies while 59 percent of the visitors were carried by independents. Consistent with this result, 77 percent of the residents' trips were initiated by telephone while 65 percent of the visitors' trips began on the street or at a taxi stand. Residents made a higher proportion of work and work-related trips than visitors while visitors made a greater share of trips described as inter-city travel-connected. Residents used taxis twice as often for shopping, while visitors used taxis for a higher share of social-recreational travel.

Sample data from the trip sheets suggest a shift toward an increased proportion of generally longer-haul and airport-connected trips at the expense of CBD trips. There was also a rise in the proportion of travel between other non-central Seattle points, which suggests that in-city travel was not neglected in the rush to the airport, although these were generally longer-haul trips. The trip sheet samples suggested an increased proportion of early morning and morning taxi travel at the expense of evening and nighttime trips between 1979 and 1981. A loss of evening and nighttime trips could help to explain the estimated drop in taxi ridership over the two-year period. The increased proportion of early morning trips likely relates to airline schedules and operators' emphasis on travel-connected taxi trips.

Average taxi trip lengths (in miles) calculated from trip fares reported on the trip sheets suggest that trips have lengthened some 41 percent from 3.2 to 4.5 miles between 1979 and 1981, chiefly owing to the increased proportions of airport and package delivery trips. Average trip travel time did not increase, however, which likely reflects the rise in faster, freeway-driven trips.

Taxi Traveler Attitudes and Awareness of Taxi Service

Overwhelming majorities of both residents and visitors gave positive ratings to the overall quality of Seattle taxi service. The ratings did not vary consistently with frequency of taxi use, nor with riders' awareness of variable pricing.

Over half of the residents and one-quarter of the visitors said they were aware that taxi rates may vary in Seattle. The most common means of learning about variable pricing among visitors (30%) was word-of-mouth, compared with 32 percent for residents, whereas residents most frequently (38%) cited exterior rate posting, an approach surprisingly little used by visitors. Only one-quarter of the residents and less than one-fifth of the visitors said they tried to comparison-shop for taxi service, in any case. The most commonly cited reason among both groups for not doing so was that the riders used taxicabs so seldom the cost did not add up to much.

Cost did not weigh heavily in riders' choice of a taxi company either. The majority of visitors (69%) said they simply took the first available cab, while 37 percent of residents cited their familiarity with one company -- although 10 percent of these residents also said their chosen company offered the best service.

The most frequently cited reason for choosing a taxicab over other modes was that it was the only transportation available (37% of visitors and 35% of residents); 29 percent of residents and 26 percent of visitors also cited the time savings afforded by taxi travel. These convenience-oriented responses suggest that the "only transportation available" option may need to be interpreted in the light of convenience, in the sense that no other transportation option offers similar convenience to a taxicab.

TAXI OPERATOR PRODUCTIVITY

This section reports changes in operator productivity measures such as number of trips, paid miles, and fare revenue collected per shift and per hour, estimated from samples of taxi operator trip sheets. The previously stated caveats regarding the possible incompleteness of the trip sheets apply to these estimates. Reliable taxi operator financial and operating data were not available for the evaluation to estimate operating cost and cost-effectiveness measures. It should also be noted that the findings reported are for the near term, 24 months following the regulatory code revisions. Longer-run impacts may differ as the continued interaction of taxi operator supply changes and traveler demand responses produces a changing level of supply and demand reflected in new revenue and productivity statistics.

Industry Average Changes

The trip sheet data suggest that a number of taxicab productivity measures declined industrywide between 1979 and 1981. The average number of vehicle trips booked per shift dropped from 16.2 to 11.2, while that of passenger trips fell from 15.8 to 10.6. The estimated number of vehicle trips produced per cab per year also fell, owing in part to declining vehicle utilization, from 5,480 in May 1979 to 2,830 in May 1981. The estimated industry average ratio of paid to total vehicle miles improved slightly, however, as drivers both booked longer trips and limited cruising between them. Thus Seattle taxi drivers logged 2.6 miles for every paid mile in 1979 and 2.2 miles for every paid mile in 1981.

The industry average of all vehicle trips booked per hour dropped from 1.6 to 1.1. At 12 minutes travel time, plus 3 minutes boarding and unloading, fare collection and so on, engaged time per hour would have amounted to about 24 minutes in 1979 and 17 minutes in 1981. On an average 10.1 hour shift, this means 1.3 additional hours of down time in 1981.

Despite the average decline in trip production per shift, none of the company types showed an actual drop in hourly fare revenue collected, chiefly because of taxi company rate increases and a rise in the average trip length. The 30 percent rise in the local Consumer Price Index between May 1979 and May 1981 suggests that these revenues failed to keep pace with inflation, however.

Changes by Company Type

The changes documented in company type shares of total weekly taxi trips reflect changes in taxi industry structure. Changes in company type shares of total weekly revenues, on the other hand, also reflect differences in company fare schedules and their varying proportions of long-haul trips. That is, the smaller operation types collected higher average fares per trip than the larger companies, owing both to their generally higher rates and to the longer-haul trips which represented a larger share of their total operations. The larger companies booked more total trips and revenues per shift, however.

INSTITUTIONAL AND ADMINISTRATIVE FEASIBILITY

Interjurisdictional Issues

Interjurisdictional friction became a facet of the implementation of Seattle's taxi code revisions. Open entry in Seattle and taxi licensing reciprocity between the city and King County impacted directly on Sea-Tac Airport, which is under the jurisdiction of the Seattle port. A rise in queue jumping, cruising, price gouging, and short-haul refusals attributed to the growing number of airport taxis and resulting long waits for fares led the Seattle port in early 1981 to impose application restrictions and nearly quadruple airport permit fees. Permit qualification requirements were expanded to require that an applicant's proposed meter rate not exceed by more than 10 percent the median of all King County taxi rates. Stricter airport operations and enforcement procedures followed in December 1981.

Although these measures improved the situation, the need for consumer education about local taxi rates remains acute. The new airport rules are also somewhat inconsistent with the open competition objectives of the city and county code provisions.

The County Commissioners' last-minute decision to delay open entry for a year until it could evaluate the city's experience was the major note of discord between the two jurisdictions. Occasionally between May of 1979 and this writing, taxi operator opponents have threatened to lobby individual Commissioners to restore the previous limits on entry or rates in order to force the city to follow suit. But city-county relations have been characterized by accommodation and cooperation since June of 1980.

The city's adoption of open entry one year ahead of the county left small but material differences between city and county taxi regulatory ordinances and subsequent code changes by the city have widened this gap. In order to maintain interjurisdictional cooperation, the county requires conformity with the city code and is thus, in effect, enforcing the city's taxi code rather than its own. The two ordinances will have to be brought into agreement before any interjurisdictional regulatory proposals can be realized.

Administrative Feasibility

Administrative implementation of the code changes was simplified by the relatively low volume of permit activity, the presence of proven license application and tracking procedures in place prior to the onset of open entry and variable pricing, and the guidance and continuity of leadership and staff experienced in licensing matters. Achieving uniform industry compliance with the new code requirements, moreover, was aided by the presence of the three large service companies which helped to "broker" the applications process for their members. That the code revisions had their genesis and development within DLCA, which was also the lead agency responsible for administering the new license code, was likely a key factor in the successful implementation of the changes as well.

Institutional Feasibility

In general, the 1979 license code revisions have met the city's goal of removing city government from the marketplace, especially price setting, although subsequent changes -- to require exterior rate posting and provide for shared-riding -- took two years to achieve. The new regulations have failed to stimulate much in the way of service innovations, however. The basic institutional feasibility of the revisions is witnessed in the gradual subsidence of all threatened legal challenges to the new code provisions, and despite early organized industry protest. The continuity of the large service companies has provided a touchstone of industry stability as well as a springboard for organizing operator opposition. The Taxi Industry Liaison Group (TILG) established by the DLCA Director also offers a forum for city-industry communication and cooperation.

Inconsistencies in taxi regulatory policy between jurisdictions, on the other hand, were a primary source of conflict following implementation of Seattle's code changes. Differing objectives for taxi service and conflicting views, particularly among city and airport regulators on the merits of open competition, have yet to be completely resolved, as reported earlier in this summary. Considerable effort in interjurisdictional liaison was required to achieve mutually acceptable approaches after the fact. These efforts would likely have proved more productive if undertaken as part of the initial and ongoing planning steps for implementation of the code changes.

TRANSFERABILITY OF FINDINGS

Transferability of the findings of the Seattle case study to other localities is likely limited by several factors. First is the high quality and quantity of local public transportation, with a free-fare zone encompassing most of the CBD and a transit mode split varying from 25 percent daily average

to 40 or 50 percent during the peak hour. Second are the blows to local tourism dealt by a sluggish national economy.

It should also be noted that there were indications prior to open entry that the local taxi industry's health was failing. A Federal Trade Commission economist had reported in 1977 that Seattle had an oversupply of taxi services and the city in 1978 recalled some 68 licenses for failure to meet the minimum operating requirement. There was no backlog or groundswell of demand for new taxi permits prior to the code changes. Indeed, some 50 licenses which could have been re-issued under the 1977 ceiling were not renewed for the 1978-79 license year prior to open entry. A 1977 report by the city's rate analyst suggested that taxi ridership was on the decline and that any rate increase would produce a net loss of revenue. On the other hand, the METRO scrip program serves to subsidize 50 percent of the cost of taxi travel for qualified low-income elderly and handicapped riders. Nonetheless, these factors likely influenced the relatively low industry growth rate and average productivity measures reported here.

1. INTRODUCTION

Taxi regulatory revision in Seattle and other U.S. cities reflects the impulse to reduce what is viewed as non-essential government involvement in private enterprise. Key aspects have been to remove exclusionary or monopolistic restrictions on service providers and transfer responsibility for determining rates and permit ceilings from local regulators to the marketplace. A related issue is whether removing regulatory barriers and increasing competition will result in broader service coverage and stimulate pricing and other service innovations.

1.1 OVERVIEW OF TAXI REGULATORY REVISION

Many taxi regulations currently in force in U.S. cities originally addressed the volatility of the industry's early years. They sought to prevent reportedly widespread customer abuses, provide for operator accountability, standardize service and limit so-called unfair competition among taxi operators and between the taxi industry and other transit modes. Over the years, however, the taxi industry in many locales has quieted into a familiar and stable structure. Often dominated by a few large fleets and more or less self-regulating in respects relating to service standards, the industry has remained subject to local government decisions on permit ceilings, standard rates of fare, and allowable service types. Little public interest focussed on taxicabs during the twenty years following the early 1950's. Local regulators, grateful that the taxi industry had outgrown its turbulent past, had come to view it as a "sleeping dog" which was better left alone.

As operating deficits and funding cuts continue to threaten public transit services, however, local regulators and planners have begun to focus on the taxicab for its potential to supplement or even replace conventional transit services. Regulations designed to protect the transit industry from unfair competition have come to be viewed as inhibiting the inherent flexibility of taxicab services. Regulators have also begun to doubt that existing code provisions offer any guarantees of a balance between supply of and demand for taxi services, or between operating costs and rates of fare. Population ratios are insufficiently sensitive to demand, while data required to demonstrate the need for rate increases are difficult to interpret, costly to assemble, and require the regulators to rely on documentation supplied by the regulated service providers. Concepts like percentage rate of return on invested capital and ratios of overall operating costs to revenues appear simply to guarantee that taxi rates will go up with costs.

Increases in taxi operator costs, moreover, particularly in gasoline prices and liability insurance, have accelerated the frequency of operator requests for rate increases and therefore, of the lengthy and sometimes acrimonious public hearings required to adjudicate them. Financial and economic pressures have also led to taxi business failures and areawide service interruptions. Cutbacks in taxi service may also be experienced as operators in a highly concentrated market curtail output to reduce costs. These various conditions have prompted local regulators to re-examine the purposes and content of their taxi regulatory policy.

The impulse to taxi regulatory revision (or reform) has typically expressed some version of the following goals:

1. to distance the city or county council from time-consuming public hearings and politically-sensitive regulatory issues, such as rate-setting; and

2. to remove institutional barriers to the development of new service types and rate structures.

Frequently, these objectives are stated in terms of free-market economic theories, that is: to remove exclusionary, protective or even monopolistic regulation and to encourage service innovations and free-market pricing by stimulating competition.

Regulators have generally settled upon some form of open entry and rate setting as their means to these ends. This includes relaxation of previous restrictions on new taxicab permits--typically a permit ceiling (often population-based) and a demonstration by the applicant that public convenience and necessity require additional taxi service. Open rate setting means replacement of the previous standard taxi rate of fare with a variable pricing policy, sometimes under a ceiling, and more or less limiting the rate structures operators may offer and the frequency with which they may change their rates.

The revised regulations have typically included stiffer requirements for vehicle safety and meter inspections. They may prohibit unaffiliated small owner-operators or require radio-dispatching, exterior rate posting and driver identification cards to maintain operator accountability. The primary thrust, in sum, has been to remove barriers to price and service competition while attempting to preserve or improve service standards. Some such changes have been adopted by city and county councils in Portland, Oregon and Oakland, Berkeley, and San Diego, California, in addition to Seattle.

1.2 CASE STUDY REGULATOR OBJECTIVES AND OPPONENT VIEWS

1.2.1 Seattle Regulator Objectives

The taxi regulatory revisions adopted by the Seattle City Council have two major elements: open entry and variable pricing. The previous public convenience and necessary certification requirement and license

ceiling have been removed. Taxi licenses are issued along with other business licenses by city staff. There is no limit on the number of permits which may be issued or the number which may be obtained by a single applicant at a time. Operators are permitted to file individual rates and to change them as often as quarterly. The major thrust of these changes has been to facilitate entry into the local taxi industry consonant with the following objectives:

1. to improve areawide taxi service coverage and encourage service and pricing innovations by increasing competition; and

2. to transfer responsibility for setting taxi rates and evaluating need for service from the city council to the market place.

1.2.2 Local Opponent Views

Opposition to the regulatory changes came from existing taxi operators, primarily owners within the three large service companies, who argued that demand was insufficient to sustain additional suppliers. They predicted deteriorations in service as new operators congregated at the airport, which had recently been opened to all county-licensed operators non-exclusively as a preparatory step to open entry in the city. They organized to protest the changes and lobby for state regulation of Seattle taxi operations.

1.3 SMD INTEREST IN TAXI REGULATORY REVISION*

The Urban Mass Transportation Administration's (UMTA) interest in taxi regulatory revision stems from the taxicab's potential as a complement or alternative to conventional fixed-route transit. Since modifications to existing taxi regulations are frequently a prerequisite to such service developments, these revisions represent an important new topic of research within the Service and Methods Demonstrations (SMD) Program.

*Much of this section was adopted from B. Spear, et. al., SERVICE AND METHODS DEMONSTRATION PROGRAM REPORT, Transportation Systems Center, December 1981, US DOT, UMTA-MA-06-0049-81-12, p. 150ff.

Prior to the case study evaluations of taxi regulatory revisions in Seattle, Portland, and San Diego, there had been no rigorous studies of the nature and scope provided by these efforts. Since the inception of these projects, the SMD Program has also undertaken case studies of taxi regulatory revisions in Oakland and Berkeley, California, and a retrospective study of revisions which were adopted in Indianapolis in 1973. In addition, an SMD demonstration in Dade County, Florida will provide a further opportunity to examine the impacts of taxi regulatory revision.

1.4 EVALUATION PROCESS AND DATA COLLECTION PROGRAM

The essence of the evaluation process consists in comparing characteristics of the taxi industry, taxi operations, and travel behavior prior to and following regulatory revision. In order to ensure that the methodology and findings will be as consistent as possible across sites to facilitate cross-cutting comparisons using combined data, the taxi regulatory revision case studies are being structured according to a framework developed by Transportation Systems Center.*

1.4.1 Evaluation Framework for Taxi Regulatory Revision Case Studies

The case study evaluations of taxi regulatory revisions have two major objectives: (1) a thorough documentation and analysis of the regulatory changes process; and (2) an assessment of the impacts of the changes on operators, travelers, and regulators. Specific impact issues to be examined include the effects of the regulatory revisions on the composition and fluidity of the taxi industries and operating practices; the quality, quantity, and price of services; operating efficiency and productivity; and the administrative costs associated with regulation.

Evaluation of these impacts is structured in accordance with principles of supply-demand analysis. On the supply side, this means examination of the nature and magnitude of changes in operator behavior along dimensions

*Carla Heaton, "Evaluation Design for Taxi Regulatory Revision Case Studies," Transportation Systems Center, Staff Study No. 55-24-U.3-175, US DOT, September 1979.

such as entry and exits, pricing practices, service offerings, and operating practices. On the demand side, it includes analysis of changes in traveler behavior in terms of mode choice, taxi trip frequency and timing, and destination choice decisions. The interaction of supply changes and demand response produces a new level of supply and demand which is reflected in measures of service utilization, revenues and productivity statistics.

Equally important is to study the process by which the regulatory revisions are implemented. By documenting the political, legal and institutional barriers encountered by local governments in changing their taxi ordinances and how they have dealt with them, the SMD program seeks to transfer valuable insights to other localities which may be contemplating similar actions.

1.4.2 Evaluation Issues

The following research questions and hypotheses were identified for investigation in the Seattle case study.

1.4.2.1 Supply Issues - Supply issues include changes in taxi industry size and structure, effects on operating and pricing practices, effects on level of service and effects on taxi operator productivity.

a. Changes in Taxi Industry Size and Structure - The advocates of open entry hypothesised that demand and capacity for additional taxi licenses existed and was being denied by the closed entry policy. Once the market became saturated and there was no more capacity for additional suppliers, they reasoned, new permit applications would cease.

1. What are the aggregate changes in taxi industry size?
2. How does the rate of new entry vary over time?
3. When does the demand for new taxi permits appear to peak and/or begin to drop off?

4. Does the taxi industry become more fluid as a result of open entry?
5. What are the changes in taxi industry composition and structure?
6. How are permits re-distributed among new versus veteran or large versus smaller operations?
7. How does the rate of exit vary over time?
8. How are exits distributed among different operation types?

b. Effects on Taxi Pricing and Operating Practices - Regulators anticipated that variable pricing would produce a range of taxi rates and pricing innovations for exclusive ride and other services, and that it would tend to hold taxi prices down. While many taxi operators welcomed the opportunity for a rate increase, some predicted that variable pricing would give rise to cut-throat competition, price gouging and customer abuses.

1. How do rates for exclusive ride services vary among different company types following variable pricing?
2. Do new rate structures or other pricing innovations appear?
3. What has been the increase in the weighted average rate for exclusive ride service since regulatory revision?
4. How does this rise compare with that of the CPI and with the rate of rate increase prior to regulatory revision?

Questions of operating practice considered here include operator association types, lease versus employee arrangements, dispatching practices, geographic or service type specialization, use of cabstands and service innovations.

c. Effects on Level of Service - The regulators anticipated that licensing additional suppliers in a competitive market would result in increased spatial and temporal availability of taxi services. Many existing operators argued that new small firms could not provide round-the-clock or citywide service, but would concentrate on the airport and

other busy cabstands, "skimming the cream" off the taxi business. As competition increased for a limited number of trips, moreover, all types of operations would try to reduce costs by limiting cruising. Vehicle maintenance would be one of the first items to be deferred.

1. What is the change in aggregate miles, days and hours in service?
2. What is change in the vehicle utilization rate among different company types?
3. Do shift lengths change or vary among different operator types?
4. Is there a change in the distribution of days and hours in service?
5. Is taxi service increased to areas previously under-supplied?
6. Is there a change in passenger wait times for telephone and stand-hail trips?
7. How does the age of vehicles in the fleet vary over time?

d. Effects on Operator Productivity - While the code revisors maintained that there was sufficient market capacity to sustain additional suppliers, many taxi operators held that increased competition would mean lower shift productivities and declining revenues.

1. What are the changes over time in total trips and meter revenues per shift, per hour, and per cab among different operator types?
2. What are the changes in paid miles per total miles per shift and per hour?
3. What are the changes in occupied and total hours per shift and per cab by operator type and vehicle occupancy?

1.4.2.2 Demand Issues - Demand issues include estimation of changes in aggregate taxi ridership, and development of a taxi user profile, including taxi travel behavior, and taxi trip characteristics. The absence of "before"

data on taxi ridership precluded evaluation of changes in many rider and trip characteristics in Seattle. An on-board survey of taxi travelers conducted during 1981 included retrospective questions aimed at estimating taxi user awareness of open entry and variable pricing and appreciation of changes in taxi service levels.

1.4.2.3 Institutional/Administrative Issues - The administrative and institutional feasibility of regulatory revision are of interest for their transferable implications to other regulatory locales. The evaluation attempted to assess changes in council and staff involvement in taxi regulation since the code revisions and to identify what other factors (besides the changes themselves) have contributed to greater or lesser ease of implementation and administration.

1.4.2.4 Related Effects - The related effects considered here chiefly concern interjurisdictional conflicts which arose as a result of the changes adopted by the City of Seattle and how these conflicts were resolved.

1.4.3 Organizational Roles in the Evaluation

Transportation Systems Center (TSC) is responsible to the Urban Mass Transportation Administration (UMTA) for the conduct of evaluations performed within the Service and Methods Demonstration (SMD) Program. The City of Seattle Department of Licenses and Consumer Affairs (DLCA) was the local UMTA grant recipient responsible for carrying out the evaluation data collection program. City staff also provided liaison to local events and issues potentially affecting evaluation findings. De Leuw, Cather & Company serves as TSC's evaluation contractor.

1.4.4 The Data Collection Program

The Seattle taxi regulatory revision evaluation data collection program was originally designed to provide for comparisons of taxi

industry and operating characteristics and travel behavior over time since adoption of the code changes. The innovativeness of the data collection program should be noted; comprehensive taxicab operating and passenger statistics had rarely been targetted for in-depth evaluation before. The scope of the data collection program required design of novel field surveys and observation techniques.

Some data items were collected at specific points in time and others were monitored continuously. A single survey of taxi passenger profiles (PPS) was conducted, and one survey of taxicab response times to telephone requests (RTS). Surveys of taxi stand activity (SHS) were conducted in 1978 and 1981. One month's taxi trip sheets were sampled from each of 1979 and 1981 to provide for before and after comparisons of many taxi operating statistics. Taxi operator rate filings and permit records were monitored and tabulated continuously throughout the evaluation. Ongoing liaison with local industry members was essential to achieving the evaluation data collection program. The local taxi industry was generally very cooperative and personal interviews with taxi operators conducted throughout the evaluation provided a rich data source.

The chronology of the regulatory revisions was documented and their implementation monitored during the first half of the evaluation. This phase also included comprehensive documentation of pre-regulatory revision taxi industry and ridership characteristics from available data sources. The reader is referred to Taxi Regulatory Revisions in Seattle Background and Implementation, UMTA-MA-06-0049-80-17, for this documentation as well as a point-by-point comparison of the old and new codes and copies of all of the ordinances and regulations.

Figure 1-1 depicts the relationship between the schedule of data collection activities and key regulatory/administrative events. The major recent events affecting responses to open entry and competitive

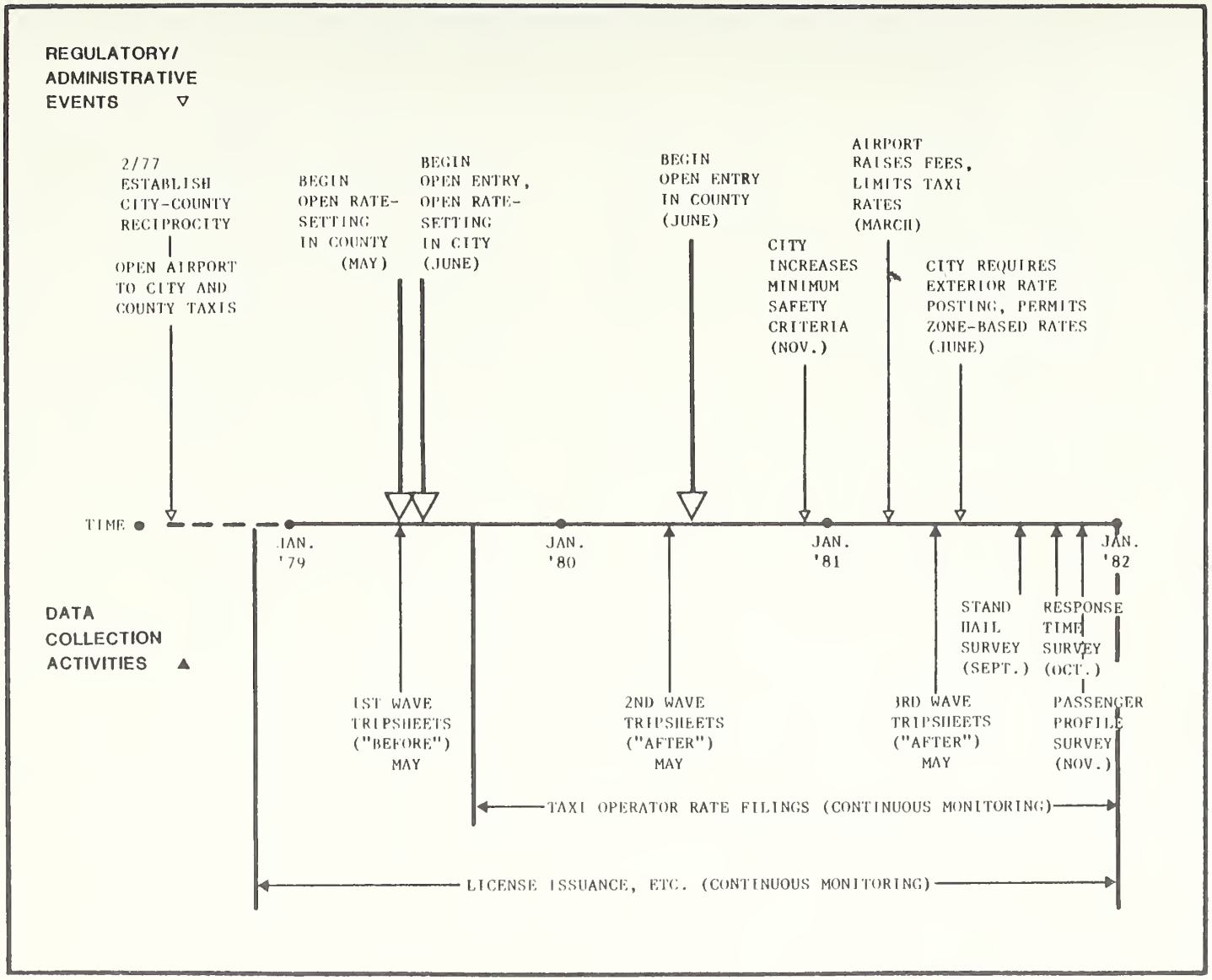

FIGURE I-1 RELATIONSHIP OF REGULATORY/ADMINISTRATIVE EVENTS AND DATA COLLECTION ACTIVITIES

pricing in the City of Seattle are the city's ordinance requiring exterior rate posting and permitting zone fares, and the port's changes in airport taxi fees and limitations on rates, both adopted during early 1981.

1.4.5 Data Limitations

A variety of data limitations potentially affecting findings reported in this evaluation should be noted. Substantial delay in the city's securing its UMTA data collection grant and commencement of the evaluation data collection activities after the onset of regulatory revision were major factors precluding collection of longitudinal data on taxi traveler characteristics, taxicab response times and rates of taxi company entry and exit prior to open entry. There is a general lack of reliable and comprehensive operator financial information to provide for analysis of taxi operator investment decisions and profitability. Hisorical business license tax data exist for the larger companies but their extraction exceeded both the evaluation contractor's authority and the city's grant limitations. City staff question the reliability and representativeness of these data in any case.

The city ceased to require maintenance of taxi driver trip sheets with open entry and the trend toward lessee-drivers and owner-operators is affecting practice such that trip sheets are becoming progressively incomplete or actually unavailable. The data collection program attempted to control the potential threat of measurement error by targetting the largest possible sample sizes of trip sheets in all cells in both years. Operator cooperation in providing trip sheets was disappointing, however. Direct adjustments to the data were applied as necessary (see Appendix A for details).

1.5 Organization of this Report

This report is organized into eight primary sections. Following this introduction is a brief description of the case study setting and then an overview of the regulatory changes adopted in Seattle. Section 4 describes the effects of the changes in level of taxi service supply; Section 5 treats taxi demand and travel behavior; Section 6 presents effects on taxi operator productivity; and Section 7 deals with taxi regulators. Section 8 presents evaluation conclusions and the transferable implications the Seattle case study suggests for other regulatory agencies and localities.

2. CASE STUDY SETTING

2.1 GEOGRAPHY, POPULATION, AND ECONOMICS

With an urbanized population of over 1.3 million residents in an area of 2,130 square miles, Seattle-King County is the largest metropolitan area in the Pacific Northwest. An inland seaport bordered on the west by Puget Sound and on the east by Lake Washington, the City of Seattle is the focus of the urbanized area. Its 493,350 residents (1980) occupy about 89 square miles (4% of the county total); densities within the city limits vary from an average of 5,500 up to 25,000 persons per square mile in the central area. The terrain is hilly with many streets on grades of 10 percent; only the waterfront and retail shopping core are situated on relatively level ground.

King County had a 1980 employment base of 473,000 jobs, of which the Seattle CBD provides about 20 percent. Seattle households had generally higher incomes than the national median in 1977 ($18,500 compared to $16,000).* The Consumer Price Index is comparable to that for other large metropolitan areas. METRO (the Municipality of Metropolitan Seattle, which supplies the region's utility and transit services) projects King County population to reach 1.4 million and jobs to reach 600,900 by 1990; Seattle population has declined about 7 percent since the mid-1970's, however. Figure 2-1 presents a base map of the area, showing the locations of the Seattle CBD, METRO's downtown free-fare transit zone and the Seattle-Tacoma International Airport, features which are discussed in the following paragraphs.

2.2 POLITICAL JURISDICTIONS AND RESPONSIBILITIES

Principal jurisdictions within the Seattle-King County area are King County, the City of Seattle, the 38 smaller municipalities, and the

*1980 data unavailable at this writing.

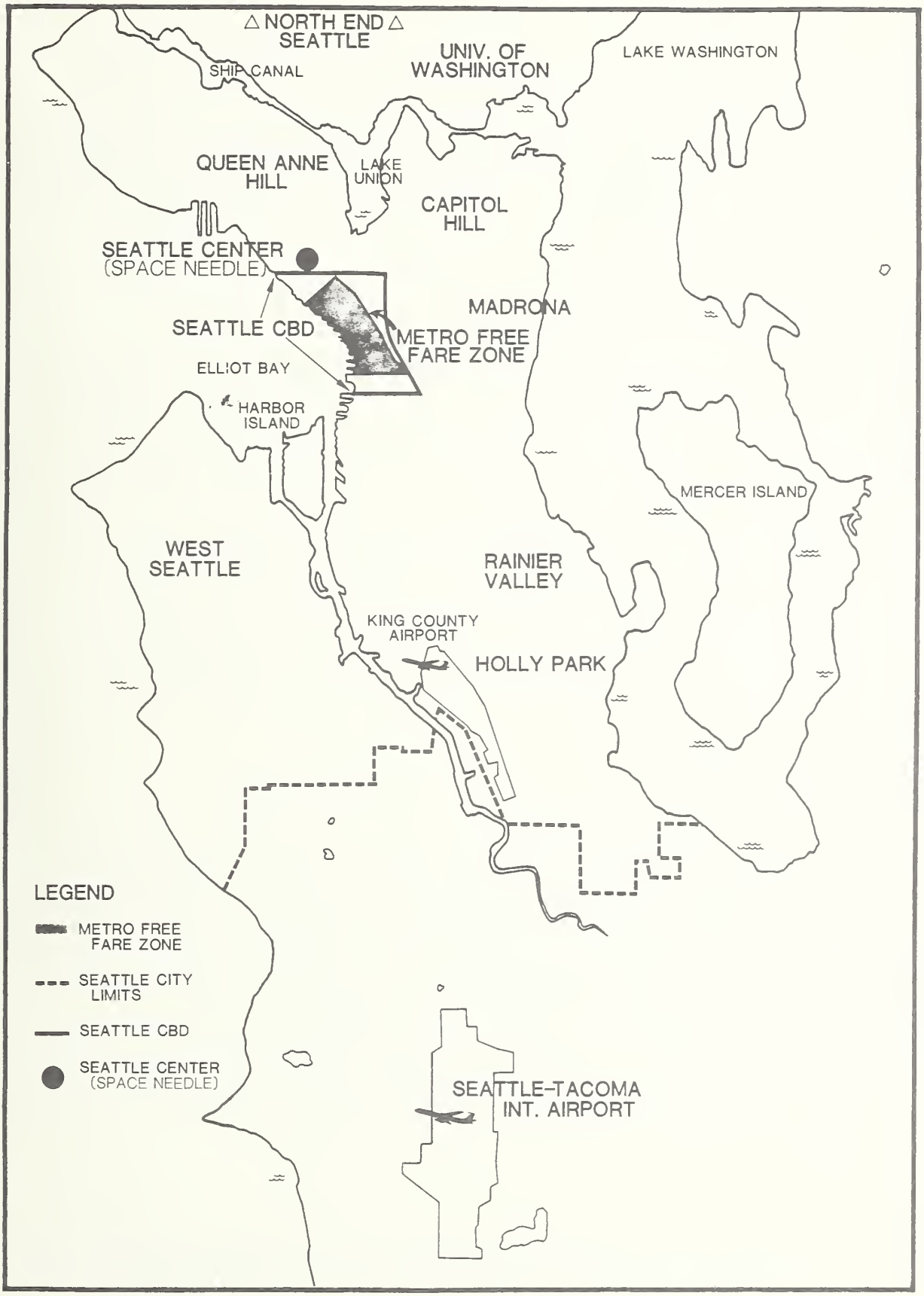

FIGURE 2-1 SEATTLE SETTING

Port of Seattle. State of Washington for-hire vehicle and insurance certification are required for taxicab operations within King County and Seattle. The Puget Sound Council of Governments (PSCOG) and the Municipality of Metropolitan Seattle (METRO) are the key agencies in regional and transportation planning.

2.2.1 King County

King County is governed by a nine-member Council elected by district under an elected Executive. The county has jurisdiction for taxicab operations within the unincorporated areas and issues licenses under the Business License Section of its General Services Division. The county has generally cooperated with Seattle and the port in its taxi regulatory requirements and many of the smaller municipalities accept the county's license as the chief prerequisite for their own permits. The current County Executive, former City Councilman Randy Revelle, the principal advocate of city license code revision, is expected to encourage county activism toward multi-jurisdictional taxi regulation in the future.

2.2.2 City of Seattle

The City of Seattle is governed by a nine-member Council and Mayor elected at large. Authority for taxi regulation under the council is located in the Department of Licenses and Consumer Affairs (DLCA) which issues most other business licenses as well. The DLCA was established in 1973 to carry out the city's license code revision, including taxis. For-hire drivers licenses and taxi vehicle inspections are also DLCA responsibilities and the department maintains taxi-related complaints as part of its consumer protection function. Cabstands are established and maintained by the Department of Engineering.

2.2.3 Port of Seattle*

The Seattle Port District has operated for over 70 years with jurisdiction over Seattle Harbor and Sea-Tac International Airport, which lies within King County. A public corporation, the port is governed by five commissioners elected from the county for staggered six-year terms. An Executive Director heads the Port District staff of 1,100. Taxi operations are supervised through the Port's Operations Office which qualifies and licenses taxicabs dispatched at the airport through an innovative customer telephone and closed-circuit television system implemented in 1979.

2.2.4 State of Washington

The State Department of Licensing issues for-hire vehicle certification which requires that liability insurance be maintained. Regulation of charter buses and for-hire vehicles that file rates and hold nine passengers or more (i.e., not taxicabs) belongs to the Washington State Utilities and Transportation Commission (WUTC).

2.2.5 Puget Sound Council of Governments (PSCOG)

The Puget Sound Council of Governments is the metropolitan planning organization (MPO) for transportation and the areawide planning organization for the four-county region. Its 53 member jurisdictions send as representatives locally-elected officials who are appointed to the PSCOG by their mayor or local government. These officials represent 98 percent of the population in the region. PSCOG has responsibility for transportation, land use and housing planning and serves as a pass-through agency for federal and state funds for specific allocations.

*Information presented is from 1980 Annual Report: Port of Seattle, 1981, passim.

2.2.6 Municipality of Metropolitan Seattle (METRO)

Originally established as a sewer district, METRO is currently comprised as a dual-purpose agency with responsibility for water quality and public transportation within the Seattle metropolitan and Lake Washington areas. These responsibilities include transport, treatment and disposal of waste water in addition to the City of Seattle sewer system. METRO took over responsibility for transit operations within King County in 1973, and holds exclusive rights to operate the bus system within the county. The METRO Council is comprised of 37 members including the Seattle and King County Councils, the County Executive, Seattle Mayor, and elected officials from the larger cities and representatives of Bellevue, the suburban areas, and the sewer district.

2.3 TRANSPORTATION CHARACTERISTICS

Four elements of the transportation system in Seattle are briefly described here: the highway system, the transit system, services to elderly and handicapped, and the airport.

2.3.1 Highways

Four controlled-access highways form the skeleton of the highway network in the Seattle metropolitan area: I-5 and I-405 running north/south; and I-90 and SR-520 running east/west. (Auto-carrying ferries provide service across Puget Sound.) About two million vehicle trips per day are generated within King County. Congestion is a problem, particularly during the morning and evening peak periods when several major corridors connecting Seattle, the University District, Bellevue, Tukwila, and Renton are operating at demand to capacity ratios at or above 1.0.* By far the heaviest traffic volumes are carried on Interstate 5. This

*See, e.g., Metro Transit's More Mobility for the eighties, METRO TRANSITION Phase IV Technical Report, August 1980, pp. 215ff.

facility is generally four lanes in each direction, although north of the downtown, reversible express lanes allow for up to eight lanes in the peak direction (and four in the minor-flow direction). METRO reports that local opinion currently favors increased transit-carrying capacity over increased highway developments as the solution to these problems.

2.3.2 Transit Service

METRO provides transit service to the full 2,130 square mile King County area. With 1,026 active vehicles, including 158 articulated coaches* and 340 lift-equipped accessible coaches (259 diesels and 79 trolleys), METRO carried 66 million revenue passengers in 1981.** Most of the system's nearly 200 routes are oriented to the Seattle CBD; about 22 percent of total system ridership in 1980 was suburban.

Headways vary from every ten minutes in the close-in areas to every 60 minutes, or peak hours only, in the outlying areas. The area is divided into two zones; the basic fare for trips within one zone is $0.50, and $0.60 during the AM-PM peak (established February 1982), while two-zone trips are $0.75 basic and $0.90 peak. Seniors and handicapped pay $0.15 all day. Monthly passes provide for significant savings over daily fares.

Transit trips within a downtown core area from Battery Street to Jackson, between 6th Avenue and the waterfront, are free, a traditional sore point with local taxi drivers. Indeed, the high quality of transit service in the Seattle area poses formidable competition to local taxi service as most trips within the urbanized area are short (see section 5.0). The transit mode split is high and varies from between 40 percent

*Metro reports it leads the nation in high-capacity artics, see ibid., p.15.
**Metro operating statistics quoted are from Metro, "Monthly Management Report," Municipality of Metropolitan Seattle, Transit Department, April 1982, passim.

and 50 percent during the peak hour to about 25 percent on average during the day. Transit ridership had been rising about 8 percent per year since 1973 but levelled off between 1980 and 1981; ridership growth is now projected at about 4 percent per year to 1990.

Metro policy targets service to the county's estimated 77,000 low-income elderly or disabled persons (including 2,000 wheelchair users)* with fully-accessible fixed-route transit. Ridership on the system's 63 accessible routes using 259 lift-equipped buses totalled 4,000 one-way trips per month in 1981. In addition to the fixed-route service is Metro's Special Transportation Service -- or scrip -- program designed to provide access to and supplement Metro's regular facilities. The scrip program includes a 50 percent cab fare subsidy to qualified handicapped or low-income elderly persons; the coupons are applicable countywide with any participating cab company. All three large service companies and a few of the independents accept Metro scrip; two of the service companies operate lift-equipped vans with a special surcharge on the flag drop but report few requests for them. Metro reported over 50,000 rides by scrip users in 1980 and scrip subsidies were estimated at $149,00. Total METRO subsidies for over twice as many trips amounted to $417,000 in 1981, when the average subsidy per trip (60% of the total fare) was $3.25.** The program is paid for out of Metro's UMTA Section 5 allocation.

2.3.3 Airport

Sea-Tac International Airport is the regional airport serving much of western Washington via twelve airlines serving all major U.S. points, the Orient, Europe, and Latin America as well as seven commuter lines

*Estimated on the basis of data reported by David Koffman in A TAXI SCRIP PROGRAM IN SEATTLE, WASHINGTON, US DOT, UMTA-MA-06-0049, 82-2, September 1982, and UMTA's National Survey of Transportation Handicapped People, cited in Crain & Assoc., Lift-Equipped Bus Service in Seattle, WA. USDOT UMTA-MA-06-0049-81-41, March 1982.

**Koffman, op. cit., pp.20 and 45ff.

and several charter companies. Air passenger traffic at Sea-Tac reached 9.2 million passengers in 1980. Thus the airport is a major regional generator of taxi trips, many of which are fairly long, as the airport is situated 14 miles south of downtown Seattle. Airporter buses compete with taxicabs in supplying trips to and from downtown Seattle and other key points, at half-hour intervals during service hours, from 5:00 to 1:00 AM.

3. OVERVIEW OF THE REVISION PROCESS AND CODE CHANGES

The taxi code changes adopted by the City of Seattle were part of a broad-based reorganization of city license regulations initiated in the early 1970's. The original impetus to license code revision sprang from the "free-market" economic theories of the regulators. These principles came into direct confrontation with taxi industry requests for rate increases as the process was carried out. The project interim report, Taxi Regulatory Revision in Seattle: Background and Implementation,* details the chronology of events leading up to the changes which are briefly described here for the reader's convenience.

3.1 BRIEF OVERVIEW OF THE REGULATORY CHANGE PROCESS AND ITS OBJECTIVES

Several studies of and position papers on local taxi industry conditions and regulatory policy punctuated the revisions process in Seattle. These efforts formulated the following primary goals for license code reform:

1. to remove regulatory barriers to open competition in the industry;
2. to promote taxi service innovations; and
3. to encourage multi-jurisdictional, regional taxi regulation to eliminate dead-head mileage between jurisdictions.

The code reformers maintained that these changes were essential to restore the vitality of a failing industry. Local taxi operators protested that the market could not support additional suppliers and that increased competition would deal the taxi industry its final blow.

The code changes were achieved in two principal waves. Early in 1977, the City of Seattle froze its taxi license total at the current level while providing for reciprocal Seattle-King County licensing.

*Op. cit., Section 4.0.

Under an agreement between the two jurisdictions, taxi operators licensed (at $100 per annum) in either jurisdiction could obtain the other's license for a small additional fee ($25). At the same time, the city persuaded the Seattle Port to abandon its exclusive franchise agreement -- currently with Airport Taxi, Inc. -- which had been policy since 1971. The airport was opened to all county-licensed operators, while reciprocity provided city operators with ready access to the airport via a county-reciprocal license.

The second major wave of code revisions came in May of 1979 when the city adopted a new ordinance providing for open entry and replacing the council-established rate with an open rate setting policy.

3.2 SUMMARY OF THE NEW CITY REGULATIONS

Table 3-1 provides a summary comparison of the new Seattle taxi code provisions with the former ones. The case study interim report includes copies of all applicable legislation through early 1981. Appendix C presents copies of more recent provisions including rules affecting rate posting, vehicle safety inspections, shared-ride operations and taxi driver identification and permit requirements and airport taxi rule changes, discussed below.

3.2.1 Provisions Covering Entry

The major change affecting entry into the Seattle taxi industry is removal of the previous ceiling on total taxi licenses. Licenses are issued to independent owner-operators as well as to fleet operators; there is no minimum cab requirement and no limit to the number of licenses a single operator may obtain at a time.

Application is to the Seattle DLCA. Qualification requirements include Washington State For-Hire certification incorporating insurance, specification of an acceptable color scheme and rates, vehicle inspection

TABLE 3-1 MAJOR TAXI CODE REVISIONS IN THE CITY OF SEATTLE

Previous Code	Revised Code
Entry Requirements	**Entry Requirements**
Licensing required. Numerical limit on total licenses (frozen at 1977 level).	Licensing required. No limit on total licenses. License fee $60.
Investigation into applicant operator's fitness required.	Same.
Insurance to specified limits from an insurance company required.	Insurance required, limits raised to those required by State law; City not required to be named as additional insured. Self-insurance permitted.
Minimum operating requirement of 10 miles per day, 230 days per year.	Minimum operating requirement removed.
Holders of valid King County licenses may obtain City license for $25 and vice versa. Fee for first jurisdiction's license $100; total for both licenses $125.*	Joint licensing suspended prior to adoption of open entry by County, not formally re-instated.
Rate Regulations	**Rate Regulations**
Standard rate of fare as established by City Council. Contract rates may differ from standard rate.*	Open rate setting. Rates to be filed with DLCA Director. Changes permitted up to four times per year. Contract rates may differ from filed rates; zone-based rates permitted for shared-ride, exterior rate posting required 5/81.
Other Requirements	**Other Requirements**
Taxicab defined as seating 9 passengers or fewer, transporting passengers for hire not exclusively over a fixed route.	Taxicab defined as carrying passengers for hire with route or destination controlled by customer and where fare is recorded on a taximeter. "Affiliated cab" also defined as cab operating under same identification scheme as others.
Taximeters required (inspection by DLCA Director).	Same.
Meter and vehicle inspections required. (Vehicle inspections required by regulation, not ordinance.)	Same, but frequency of inspections and equipment to be certified increased. (inspections required by ordinance.)
Trip sheets to be kept for each shift operated, and maintained on file for five years.	Trip sheet requirement removed.
Nothing in ordinance to be construed as prohibiting leasing of taxi vehicle.*	Not included, although leasing is permitted.
	Nothing in ordinance to be construed as prohibiting use of taxis for package delivery.
	Shared-ride standards, zone map established 5/81.
	Revocation, suspension or denial of City licenses provided for violation of County or Port taxi regulations.

*Effected by 1977 interim legislation preparatory to major license-code revisions.

and payment of all applicable fees. Financial responsibility is considered to be demonstrated in possession of State For-Hire certification and insurance.

3.2.2 Provisions Covering Rates

An open rate-setting policy replaces the previous council-established standard rate. Operators may file whatever rates they choose and change their rates quarterly, in February, May, August, and November. City rates may differ from county rates. Airport taxi rates are limited by Port regulation, see section 3.3.2. Zone-based rates are permitted for shared-ride trips, although shared-ride service had yet to be undertaken on any regular basis at this writing. Operators are also effectively permitted to file and charge more than one rate for exclusive ride service. Thus, there are higher exclusive ride rates -- not surcharges per se -- for nighttime service and short trips (usually under two miles), and reduced rates for "senior citizens" and long trips (usually over 30 miles). It is not clear that these rates are actually being used on any regular basis, see section 4.2.

It should be noted that, although the city required with open rate setting that operators post their rates in the cab interior, the 1979 ordinance avoided exterior rate posting. This approach aimed to discourage bickering between drivers and riders but served to preclude comparison shopping as well. Exterior rate posting was eventually required in May 1981, two years following the open rate setting policy.

3.2.3 Other Provisions

The new regulations increase both the frequency of taxi vehicle safety inspections and the list of equipment required to be in good working order. The trip sheet maintenance, minimum operating and driver medical examination requirements are removed. Taxi vehicles are no longer limited in size by code definition. Shared-ride service is permitted and a standard zone map established as of May 1981.

3.3 INTER-JURISDICTIONAL ISSUES

3.3.1 King County

It had been anticipated that King County would adopt open entry simultaneously with the city changes in 1979, but the County Council decided to postpone open entry for one year in order to observe the Seattle results.* In keeping with its traditional cooperation with the city, however, the county agreed to accept open rate setting to preclude taxi operators' need for dual metering. Open entry went into effect in King County in June 1980. It remains for the county to adopt a number of essentially housekeeping measures -- such as elimination of the radio-dispatch capability requirement and provision for exterior rate posting -- to bring its ordinance into full agreement with that of Seattle.

3.3.2 Seattle-Tacoma International Airport (Sea-Tac)

Between 1971 and 1977 taxi service to Sea-Tac Airport was supplied by a single operation under an exclusive franchise with the port. Open access to the airport was advocated and achieved by city legislators in order to sweeten the bitter pill of open entry for local taxi operators. The dramatic surge in the number of airport taxi operators which resulted (see section 4.1) reportedly led to numerous procedural and enforcement problems, prompting the port to revise its taxi rules. Effective March 1, 1981, the port raised airport taxi permit fees from $100 per year to $90 per quarter, with permits to be issued quarterly. Permit qualification requirements were expanded to include a limitation on allowable airport taxi rates. That is, the applicant's proposed meter rate could not exceed the median of all King County filed drop and mile charges by

*It should be noted that the one-year delay of open entry in the county effectively removed license reciprocity between the two jurisdictions. It was not formally restored on adoption of open entry in the county -- or since -- but the current license fee in both jurisdictions ($60 per annum) offers practically the same entry costs.

more than 10 percent, rounded up to the next $0.10 increment.* (King County is charged with supplying the port with a quarterly tally of its rate filings to permit the port to publish the current median.)

Stricter operations and enforcement procedures were adopted in December 1981. These rules specify first-in, first-out operation of the airport taxi queues at the direction of airport dispatchers, although passengers' right of refusal is not to be restricted. The first-in, first-out rule tends to militate against price competition, however, by forcing the passenger to reject the first cab -- or the first few -- in order to select a lower-priced ride. Passengers may also request taxi service of a specific company by telephone and the responding vehicle -- which is not to emanate from airport stands or holding area -- may provide this service without an airport taxi permit. The new procedures prohibit fare refusals, solicitation and cruising, and require operators to present a courteous, professional demeanor. Airport permit suspension or revocation is provided for violation of these rules, or two substantiated complaints, regardless of whether the perpetrator is a taxi owner, employee or lease driver thereof.

*Thus, if the median mile charge was $1.20, for example, the airport allowable rate would be $1.32 rounded up to the next $0.10, or $1.40, actually 17 percent above the median.

4. CHANGES IN TAXI SERVICE SUPPLY

This chapter describes changes in a variety of taxi service attributes as a result of the 1979 license code revisions. Included are changes in taxi industry size and structure in the three principal jurisdictions affected, incorporating a detailed discussion of entry and exit to and from the city taxi industry. Changes in local taxi fares and pricing practices are presented next, including the effects of differing city and airport policies and an appreciation of the results from the taxi passenger's point of view. Changes in taxi company operating practices follow, including association types, labor and lease aspects, dispatching procedures and utilization of cabstands. Next are a variety of aggregate and disaggregate level-of-service measures such as total weekly shifts and hours of service supplied, average shift lengths and number of shifts operated per cab per day; implied changes in geographic service coverage; changes in the relative proportions of telephone-request, street-, stand-hail and airport-originating service; taxi availability in terms of wait times for telephone-requested service; and vehicle safety and comfort as represented by data on taxi vehicle ages.

A major emphasis in these discussions is the variation among different service attributes by company and operator type in order to identify the effects of open-entry-induced changes in industry structure on taxi service supply. The chapter closes with an attempt to interpret what these various supply changes mean from the taxi passenger's standpoint.

4.1 CHANGES IN TAXI INDUSTRY SIZE AND STRUCTURE

This section reports changes in the numbers of taxi companies and taxi licenses since open entry in the City of Seattle, in King County and at Seattle-Tacoma International Airport. Findings are based upon data provided by these three jurisdictions.

4.1.1 City of Seattle

4.1.1.1 Summary of Changes in Taxi Industry Size and Composition. Prior to open entry, the Seattle taxi industry was dominated by three large service companies, or associations of member-owners holding varying numbers of taxi licenses and vehicles. As of the close of the pre-open entry license year, these operations accounted for 295 (70%) of the total 421 taxi licenses. The remaining 126 licenses were held in some 54 companies of from one to 26 licenses apiece.

Since open entry, the total number of Seattle taxi licenses has increased 21 percent (from 421 to 511) while the number of taxi companies has risen nearly 50 percent (from 57 to 85). As of December 1981 the taxi license total represented 1.03 licenses per 1,000 of city population,* compared with 0.75 licenses per 1,000 in 1978-79.** The current ratio is higher than those calculated from data reported by Gilbert, et al. for 741 U.S. cities, and well over the average of 0.85 licenses per 1,000 derived for the thirty largest cities alone.*** Indeed, while the Seattle taxi industry has been growing under open entry, city population has evidently decreased some 7 percent.

Table 4-1 reports the changing numbers of city taxi companies and licenses by company size and owner type over the first 28 months of open entry compared with the August 1979 baseline. The first year of open entry witnessed the greatest annual rise in total licenses (23% from 421 to 519), while the second year recorded only a small additional increase (from 519 to 529). The 511 total licenses issued or renewed during the first trimester of the third year fall below both the August 1980

*Calculated on a 1980 city population base of 493,850.
**Calculated on a 1976 population base of 531,000.
***Gorman Gilbert, Connie J. Garber and James F. Foerster, Establishing Innovative Taxicab Services : A Guidebook, USDOT, UMTA-NC-11-0005, 1977, p.13.

TABLE 4-1 SEATTLE TAXI LICENSES BY COMPANY AND OWNER TYPE
BEFORE AND AFTER OPEN ENTRY

Company/Owner Type	Number of Companies( ) and Licenses with % of all Licenses by Year											
	AUGUST 79*			AUGUST 80**			AUGUST 81***			DECEMBER 81†		
	# Cos.	# Lic.	%	# Cos.	# Lic.	%	# Cos.	# Lic.	%	# Cos.	# Lic.	%
SERVICE COMPANIES:												
Veteran-Owned††	(3)	289	69%	(3)	287	55%	(3)	257	49%	(3)	210	41%
New-Owned††	-	6	1	-	35	7	-	63	12	-	66	13
FLEETS††† (4 or more cabs)												
Veteran-Owned	(9)	74	18	(9)	89	17	(10)	64[a]	12	(11)	81	16
New-Owned	-			(3)	18	3	(9)	63	12	(12)	76	15
MINI-FLEETS††† (2-3 cabs)												
Veteran-Owned	(6)	12	3	(9)	22	4	(5)	10	2	(5)	12	2
New-Owned	(1)	2	<1	(7)	18	3	(9)	21	4	(9)	21	4
ONE-CAB FIRMS:												
Veteran-Owned	(32)	32	8	(20)	20	4	(16)	16	3	(15)	15	3
New-Owned	(6)	6	1	(30)	30	6	(33)	33	6	(30)	30	6
TOTAL COMPANIES & PERMITS†††												
Veteran-Owned	(50)	407	97	(41)	418	81	(34)	347	66	(34)	318	62
New-Owned	(7)	14	3	(40)	101	19	(51)	180	34	(51)	193	38
TOTAL	(57)	421	100%	(81)	519	100%	(85)	527	100%	(85)	511	100%

Source: DLCA taxi license records.

*End of 78-79 license year, pre-open entry.
**End of 79-80 license year, first year "after."
***End of 80-81 license year, second year "after."
†End of computerized data; 4 months into 81-82 license year.
††Veteran companies are held by owners who obtained their first license prior to open entry; new companies are held by owners who obtained their first permit since open entry.
†††Permits held by a single owner or ownership entity under different company names are grouped together as a single company in the resulting size category for purposes of this table.
[a]One of the larger companies temporarily cancelled all 22 of its licenses toward the close of the 80-81 license year. It subsequently resumed operations at one-third its former strength.

and 1981 totals and may suggest that demand for new licenses has peaked and industry size is stabilizing.*

The number of taxi companies has increased nearly twice as fast as that of licenses, and indeed, there has been a proliferation of taxi companies of all size types, except service companies, including fleets, mini-fleets and single-cab firms owned by both new and veteran license-holders. The number of taxi licenses held in two- to three-cab mini-fleet operations as well as those in fleets have more than doubled while those in single-cab firms have risen only 18-30 percent. Although the mini-fleets grew the fastest during the first year of open entry, the fleets category has shown the most remarkable increase overall as both new and veteran cab owners have acquired multiple permits.** The Seattle industry now includes some twenty-three companies with four to thirteen permits each where previously there were only nine, the majority of which operated in conjunction with one of the service companies. In general, therefore, the industry presents a less centralized and more diversified composition than it had prior to open entry.

The formerly dominant license share of the three large service companies -- umbrella associations of member-owners paying monthly dues to cover administration, radio-dispatching, advertising and other joint operation needs -- has dropped from 70 percent to 54 percent. This has occurred despite continual entry of new license-holders into the service companies.*** Indeed, the associations have maintained a more or less steady size in the face of other industrywide expansion. One of the three filed for bankruptcy and reorganized at a somewhat smaller size under bank trusteeship without interrupting service.†

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*This total includes only partial data; additional licenses may be issued through August 1982 and the Seattle license total typically grows throughout the license year, from a low in the first September to December quarter to a high during the summer months. A DLCA summary of active licenses as of March 1982 produced a total of 524 with the added growth divided among service companies and independents.

**Nothing in the Seattle taxi regulations prevents a qualified license applicant from obtaining multiple licenses at the same time.

***For discussion of attrition within the service companies, see section 4.1.1.3.

†Management attributed the bankruptcy to the company's crippling debt service acquired prior to open entry and not to the regulatory changes.

Although new licensees have gradually obtained a 38 percent share of all taxi licenses, the majority are retained by veteran license-holders in and outside of the service companies. Not surprisingly, veteran owners still hold the majority of licenses in the fleet category (although their dominance here is gradually disappearing) while new owners hold most of the mini-fleet and single-cab licenses. There has been a gradual decline in the number and proportion of both veteran and new owner held single-cab companies as these permit-holders either exit the industry or expand into mini-fleet and fleet owners. Figure 4-1 illustrates the changing proportions of all licenses held by new and veteran owners in the various company size types.

The Seattle taxi industry was characterized by fragmentation prior to open entry. There were rivalries between service company members and occasionally, threatened take-overs by one or another member-owner holding a sizeable share of the licenses. Individuals splintered off from one to another service company or independent operation, and separately-named fleets allied themselves and shifted their allegiance among the majors as well. This orientation has continued into open entry. Owners enter and exit the service companies and increase or decrease their individual proportion of company cabs more or less rapidly. At least one owner has simultaneously held cabs in two service companies, and three or four have held cabs both independently and under a service company umbrella. Surprisingly few (less than 15 overall) previous service company owners have defected from the large associations to form or join independent operations since open entry, however. A few have apparently abandoned independence to return to their former service company.* The implied disadvantage of maintaining an unaffiliated, single taxicab operation -- and presumably, the costs of taxi operation -- have also prompted a number of temporary and longer-term partnerships among individual taxicab

*Tracking individual owner movements is complicated by the anonymity of corporation and cab company names registered with the Seattle DLCA.

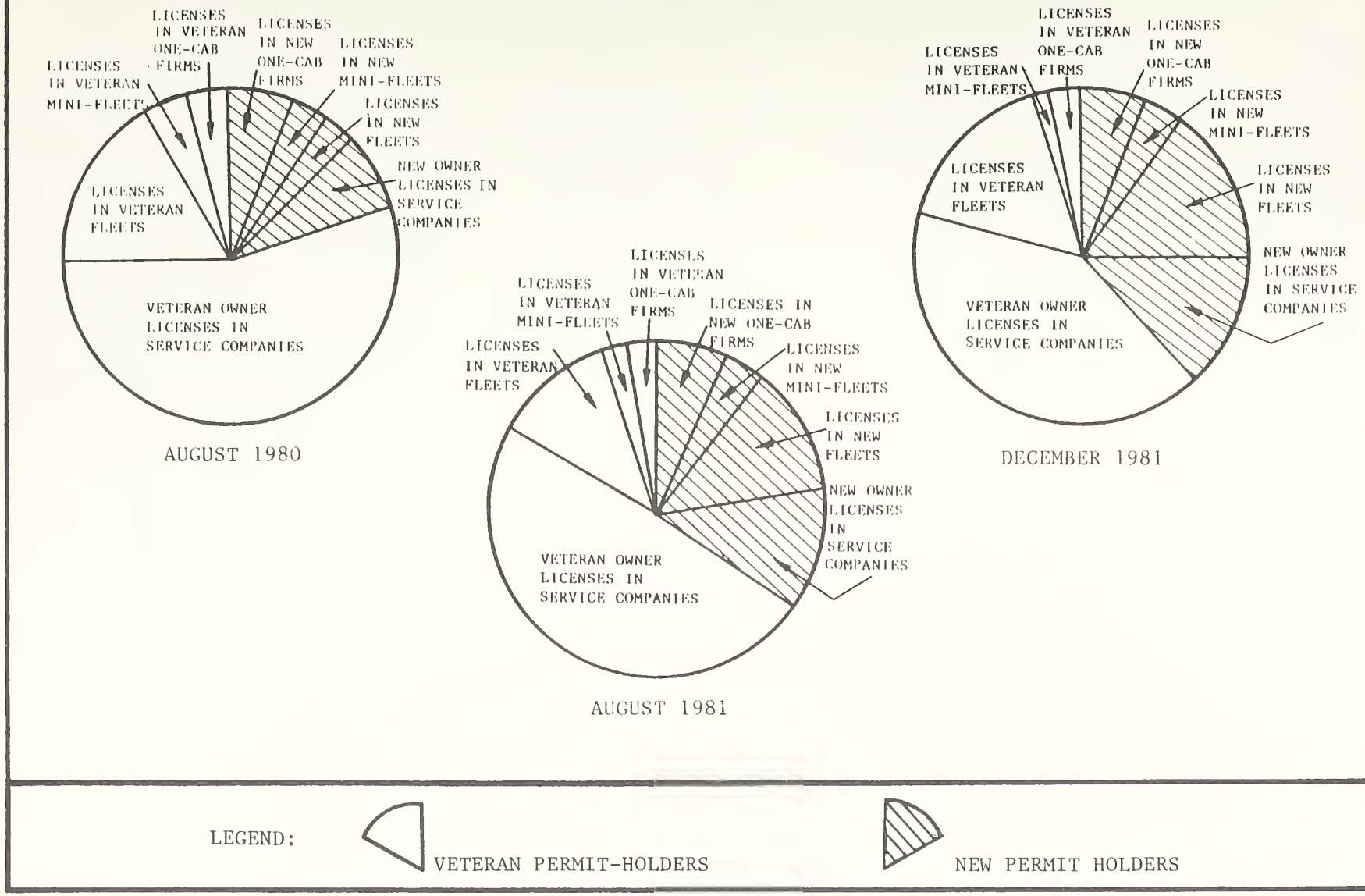


FIGURE 4-1 TAXI LICENSES HELD BY NEW AND VETERAN OWNERS SINCE OPEN ENTRY

owners who figure as part owners in different taxi companies from time to time. Thus, the number of fleet and mini-fleet taxi owners consistently exceeds the number of such companies.

The structure of Yellow Cab is consistently more concentrated into a few principal owners than that of the other two service companies, where the typical member-owner holds only one or two licenses. Farwest and Yellow generally maintained the same ratio of licenses to owners through 1981 as they had prior to open entry. Graytop seems to have changed after its reorganization from a group of two-cab owners to a smaller association of chiefly single cab holders. Table B-1 presents the distribution of Seattle taxi licenses by ownership entity and owner type within service companies before and after open entry. Table B-2 shows that among veteran and new owners for the industry as a whole.

Table 4-2 summarizes annual and cumulative changes in the Seattle taxi industry since open entry in terms of companies, owners, and licenses. The number of companies has shown the largest cumulative change, owing to the increase in smaller firm types. The number of taxi companies has risen 49 percent (from 57 to 85 companies), while that of taxi licenses has shown a cumulative rise of only 21 percent. Owing to the relatively high turnover among individual taxi owners, the cumulative change in total cab owners since open entry (+2%) is unimpressive.

The largest annual increases in all three categories were experienced during the first year of open entry. The number of taxi firms rose 42 percent while licenses rose 23 percent and owners 12 percent. Growth in both companies and licenses slowed during the 80-81 license year (to 5 percent and 2 percent, respectively), while the number of taxi owners actually declined, losing half the increase gained over the first year as a few owners began to accumulate small independent companies. There was no change in the number of taxi companies recorded between the end

TABLE 4-2 SUMMARY OF CHANGES IN TAXI INDUSTRY SIZE AND STRUCTURE SINCE OPEN ENTRY

	Pre-Open Entry		Post-Open Entry					
	AUGUST 1979		AUGUST 1980		AUGUST 1981		DECEMBER 1981	
	#	%	#	%	#	%	#	%
Taxi Companies	57	100%	81	100%	85	100%	85	100%
Veteran-Owned	50	88	41	51	34	40	34	40
New-Owned*	7	12	40	49	51	60	51	60
Annual change in Total Companies	-	-	+24	+42	+ 4	+5	-	-
Cumulative Change in Total Companies	-	-	+24	+42	+28	+49	+28	+49
Taxi Owners	247	100%	277	100%	262	100%	251	100%
Veteran	235	95	209	75	166	63	146	58
New	12	5	68	25	96	37	105	42
Annual Change in Total Owners	-	-	+30	+12	-15	-5	-11	-4
Cumulative Change in Total Owners	-	-	+30	+12	+15	+6	+4	+2
Taxi Licenses	421	100%	519	100%	527	100%	511	100%
Held by Veterans	407	97	418	81	347	66	318	62
Held by New Owners	14	3	101	19	180	34	193	38
Annual Change in Total Licenses	-	-	+98	+23	+8	+2	-16	-3
Cumulative Change in Total Licenses	-	-	+98	+23	+106	+25	+90	+21

*For purposes of this report, a new-owned company is one whose owner(s) obtained their first Seattle taxi permit since open entry; that is, they were not members of the 1977-1979 industry.

of the 80-81 license year and the close of the first trimester of the 81-82 year. The totals of both owners and licenses declined, however.*

4.1.1.2 Company Types Obtaining the New Licenses - The number of new (i.e., not renewal) licenses issued by the DLCA has remained generally stable over the three years of evaluation monitoring since open entry. There were 193 new licenses issued during the 1979-1980 license year and 191 during 1980-81. The 96 new licenses issued during the first four months of the 1981-82 year is comparable to the preceding two and suggests that demand for new Seattle taxi licenses still exists.** In comparison, the DLCA issued only about one-half as many (95) new licenses during the 1978-79 license year before open entry. There are no longitudinal data for prior open entry years.

Table 4-3 displays the numbers of these new licenses issued each year and shows whether they were issued to veteran or new license-holders and in which of the four company types. The experience to date illustrates two primary points. First, the new licenses have not been monopolized by any one company type category. All company types have acquired new licenses, with generally subtle variations in their proportions of new permits obtained in different years. The overall proportion of new licenses relegated to single-taxi operations is remarkably small and underscores the emphasis on multi-vehicle or affiliated taxi operation in Seattle. This experience contrasts with the distribution of new licenses issued during the 78-79 license year, prior to open entry. Owners in service companies garnered 76 percent of the 95 new licenses issued in 1978-79, with the remaining 24 licenses distributed more or less equally among the other three company types.

*Taxi owners may wait to renew all of their permits until the busy summer months, as previously noted.

**The taxi industry has not grown by this amount each year owing to non-renewals, including taxi company exits and transfers discussed in the following sections.

TABLE 4-3 NEW TAXI LICENSES ISSUED BY COMPANY AND OWNER TYPE SINCE OPEN ENTRY

Company/Owner Type	Number of New Licenses Issued by Year*							
	79-80		80-81		81-82**		Total	
	#	%	#	%	#	%	#	%
SERVICE COMPANIES								
To Veteran Licensees***	41	21%	47	25%	11	11%	99	21%
To New Licensees***	34	18	48	25	19	20	101	21
INDEPENDENTS								
Fleets (4 cabs & Up)								
To Veteran Licensees	38	20	15	8	14	15	65	14
To New Licensees	13	7	31	16	21	22	67	14
Mini-Fleets (2-3 cabs)								
To Veteran Licensees	11	6	3	2	1	1	13	3
To New Licensees	20	10	18	9	19	20	59	12
One-Cab Firms								
To Veteran Licensees	-	-	1†	<1	-	-	1†	<1
To New Licensees	36	19	28	15	11	11	75	16
TOTAL NEW LICENSES	193	100%	191	100%	96	100%	480	100%
To Veteran Licensees	90	47%	66	35%	26	27%	178	37%
To New Licensees	103	53%	125	65%	70	73%	302	63%

Source: DLCA taxi license records.

*Includes transfers following cancellation of the previous license and changes of ownership noted without such cancellation. Excludes renewals.
**Partial data for first 4 months of new license year.
***Veteran licensees are those who obtained their first Seattle taxi license prior to open entry (August-September 1979), regardless of whether they subsequently change operation type; new licensees are those obtaining their first license since open entry.
†New license issued to veteran operator who previously exited the industry.

The proportion of new licenses distributed to pre-existing (veteran) taxi owners has declined steadily over the first two and a half years of open entry, from nearly half (47%) to just over one-quarter of all new licenses. That is, demand for new permits has evidently abated among veteran Seattle taxi operators.

4.1.1.3 Taxi Owner Exits and License Transfers - A few preliminary notes will help to clarify the following discussion. First, company exits as represented here denote the company and owner's departure from the Seattle taxi industry. The DLCA does not attempt to monitor taxi company exits per se. A company may cease to operate a vehicle or at all without its coming to the attention of the city until many months later or at renewal time. The city requires return of the license itself, but prompt compliance is difficult to achieve and monitor. Transfer of the license to another or incoming operator provides the city's chief means of catching up with these changes in industry size and composition. But the date of transfer may follow abandonment of operations by a considerable interval. The evaluation work scope did not provide for obtaining operating or anecdotal data on exiting companies, moreover.

It should also be noted that a taxi company exit is not necessarily negative. Owners may choose to leave the taxi business because they find other work, have accumulated the capital to start another business, perceive the opportunity to sell out at a profit under open entry, or for other reasons. The lack of comprehensive and reliable operating cost information precluded assessment of the relative profitability of departing and continuing taxi companies.

The rate of taxi owner exits over the first two years of open entry, compared with that recorded during the 78-79 license year, suggests that the Seattle industry experienced increasing turnover during the near term following the code changes. Table 4-4 displays the number of

TABLE 4-4 SUMMARY OF TAXI OWNER EXIT RATES SINCE OPEN ENTRY

Company Type	Number of Licenses Relinquished* and as % of All Licenses Issued by Company and Owner Type				
	78-79**	79-80	80-81	81-82**	TOTAL
SERVICE COMPANIES:					
Veteran Licensees	2 (<1%)†	20 (7%)	39 (13%)	20 (9%)	81 (9%)
New Licensees	-	1 (3%)	10 (14%)	13 (16%)	24 (13%)
INDEPENDENTS:					
Fleets (4 cabs & Up)					
Veteran Licensees	-	30 (25%)	22†† (26%)	-	52 (18%)
New Licensees	-	-	-	-	-
Mini-Fleets (2-3 cabs)					
Veteran Licensees	-	2 (8%)	-	-	2 (4%)
New Licensees	-	3 (10%)	-	2 (9%)	5 (8%)
One-Cab Firms					
Veteran Licensees	-	2 (9%)	5 (24%)	1 (6%)	8 (16%)
New Licensees	-	1 (<1%)	17 (34%)	6 (17%)	24 (21%)
TOTAL	2	59	93	42	196
Veteran Licensees	2 (<1%)	54 (11%)	66 (16%)	21 (6%)	143 (12%)
New Licensees	-	5 (5%)	27 (13%)	21 (10%)	53 (10%)
% of All LICENSES ISSUED DURING THE YEAR	<1%	10%	15%	8%	11%

Source: DLCA taxi license records.

*Includes all licenses cancelled, traded or not renewed by owners leaving the Seattle taxi industry, as well as temporary exits of several months to a year. Note that DLCA procedures under open entry require return of the license (to DLCA) when taxi businesses are sold or discontinued; the license may not be transferred. Data suggests that such transfers continue to be effected, particularly within service companies.

**Pre-open entry.

***Partial data for first 4 months of the 81-82 license year; may exaggerate non-renewals.

†That is, less than 1% of all licenses issued to veteran licensees in service companies.

††22 licenses temporarily cancelled by a single owner; 7 were subsequently renewed.

licenses cancelled, traded or simply not renewed by owners exiting the Seattle industry, by company and owner type by year. All of the four major operation types experienced exits from their ranks, with a slightly higher rate of exit among veteran owners (12 percent over the 28 months) than newer owners (10%). New single cab and veteran fleet owners have cancelled, traded or failed to renew the largest overall shares (21% and 18%, respectively) of their total licenses. Veteran fleet owners showed the greatest proportionate rate of exits (25% of all veteran-held fleet licenses) during the 79-80 license year, while new single-cab owners had the highest attrition during 1980-81 and the first part of 81-82 (34% and 17% of all single cab owner licenses, respectively). Mini-fleet operations have experienced the lowest exit rate of all company types. This is reasonable given this category's apparent standing as a temporary stage along the way to fleet operation.

Veteran license-holders within the three service companies have retained a steadily declining proportion of all service company permits, from 89 percent in 1979-80 to 76 percent by December 1981, see Table 4-1. This is not merely the result of growth: after expanding an average 10 percent over the first two years of open entry, two of the service companies have reduced their sizes to below pre-open entry levels.* Indeed, veteran service company licensees have cancelled, traded or failed to renew from 7 percent to 13 percent of their medallions during these first 28 months. There was an even greater turnover, however, among the new service company license holders, who gave up 14 percent of their medallions during the 80-81 license year and cancelled, traded or failed to renew 16 percent of those issued to them during the first part of the 81-82 year.

In summary, about 11 percent of all of the taxi licenses active since open entry have been cancelled, traded, or not renewed by owners leaving the Seattle industry. The second year of open entry saw the

*Yellow is still up 10 percent.

highest turnover, when 15 percent of all of the licenses issued (whether as new licenses or scheduled for renewal from 1979-80) were either cancelled, traded or not renewed. These numbers do not appear large in themselves or in comparison to the dire predictions of open entry's opponents. An increasing rate of taxi operator trial and error which the code revisors sought as the chief means to service improvements, is a reasonable development in an expanding industry.

Although it is in the interest of an exiting taxi owner to transfer his business -- that is, the taxi vehicle, equipment, and any other items or "good will" the seller can work into the bargain -- Seattle's new licensing regulations prohibit the transfer of taxi licenses. Indeed, the ease of obaining a taxi license under open entry avoids the necessity of trading existing licenses, and whatever "monopoly value" formerly accrued to the license under closed entry has presumably disappeared.* The new rule aims chiefly to improve operator accountability and the accuracy of taxi license records. Operators leaving the industry are expected to return their license to the city which issues a new license to the new owner in the event of a vehicle transfer or change of ownership. (The city does not require or maintain data on taxi business sales.)

License record data provided to the evaluation by the Seattle DCLA suggest that these objectives are only gradually being realized. While some business and vehicle transfers are identifiable by means of a recorded change of ownership (with or without cancellation of the previous license), others evidently take place between years or within a larger company organization with little city documentation. Conversely, if a formerly active company re-appears at the start of a new license year

*No comprehensive and reliable data on taxi sales prices have been available to the evaluation, although operators complain that medallions formerly worth up to $12,000 are now worthless.

as licensed to a different owner, it may be impossible to track whether or not it was traded. The new owner may have adopted the trade name abandoned by the former owner. Or the previous owner may continue as part-owner in the same company re-registered under a new fictitious trade or and corporation name.

As a result of these obscurities in the license records, fewer transfers are documented in Table 4-5 than the exits previously reported, but it cannot be assumed that the remaining exits involved no transfers. Moreover, the transfers reported cover a broader base than the exits, including instances where an owner transfers a vehicle but remains in operation with others. As previously noted, the license data show frequent changes (in both directions) in the size of individual operations or individual owner numbers of association vehicles.

Table 4-5 provides for an "audit trail" of the vehicle transfers identified to date by company and owner type. That is, each year's data shows the number of vehicles transferred from each company and owner type as well as the company and owner type to which the vehicles were transferred. (The totals are thus equal for each year.)

Owners within service companies have accounted for the slight majority of all vehicle transfers recorded to date, on both the selling and the receiving ends, and these owners have bought as many vehicles as they have sold. Not surprisingly, veteran service company owners account for the large majority of vehicles sold, while new company owners have acquired more vehicles than they have given up. The majority of all service company vehicles obtained by trade have been acquired by new service company member-owners. That is, most of the service company vehicles traded remain within service companies with company management helping to broker the trade. In contrast, most of the traffic involving fleet owners, the second most active group, has been among veteran

TABLE 4-5 SUMMARY OF TAXI VEHICLE TRANSFERS SINCE OPEN ENTRY

Company Type	Number of Vehicles Transferred* with Seller and Buyer Shares by Company and Owner Type by Year									
	78-79**		79-80		80-81		81-82**		TOTAL	
	From	To	From	To	From	To	From	To	From	To
SERVICE COMPANIES										
Veteran Licensees	7 (78%)	7 (78%)	19 (35%)	8 (15%)	13 (65%)	2 (10%)	1 (25%)	1 (25%)	40 (45%)	18 (20%)
New Licensees	-	-	1 (2%)	12 (22%)	2 (10%)	13 (65%)	2 (50%)	2 (50%)	5 (6%)	27 (31%)
INDEPENDENTS										
Fleets (4 cabs & Up)										
Veteran Licensees	1 (11%)	-	30 (55%)	26 (47%)	-	-	-	-	31 (35%)	26 (30%)
New Licensees	-	-	- -	4 (7%)	-	2 (10%)	-	1 (25%)	-	7 (8%)
Mini-Fleets (2-3 cabs)										
Veteran Licensees	-	-	2 (4%)	-	-	-	-	-	2 (2%)	-
New Licensees	-	-	-	4 (7%)	1 (5%)	2 (10%)	1 (25%)	-	2 (2%)	6 (7%)
One-Cab Firms										
Veteran Licensees	1 (11%)	2 (22%)	1 (2%)	-	1 (5%)	-	-	-	3 (3%)	2 (2%)
New Licensees	-	-	2 (4%)	1 (2%)	3 (15%)	1 (5%)	-	-	5 (6%)	2 (2%)
TOTAL										
Veteran Licensees	9 (100%)	9 (100%)	52 (95%)	34 (62%)	14 (70%)	2 (10%)	1 (25%)	1 (25%)	76 (86%)	46 (52%)
New Licensees	-	-	3 (5%)	21 (38%)	6 (30%)	18 (90%)	3 (75%)	3 (75%)	12 (14%)	42 (58%)

Source: DLCA taxi license records.

*That is, recorded as a change of ownership, with or without a foregoing cancellation, by DLCA clerks; does not include apparent changes in company ownership between years.

**Pre-open entry.

***Partial data for first 4 months of the 81-82 license year.

owners who have sold only slightly more vehicles than they have acquired. Indeed, no company type appears to have increased at the expense of another as a result of the vehicle transfers recorded.

The smaller firm types appear to account for relatively few transfers -- a surprising result given their comparatively high rate of turnover -- but this may result from data omissions. The 1979-80 license year evidently witnessed the highest rate of total transfers, but this finding may simply indicate gradual compliance with the new, no-transfer rule.

4.1.1.4 A Note About Rejected License Applications - DLCA taxi licensing procedures require State For-Hire certification, vehicle registration and liability and uninsured motorist insurance as pre-requisites for obtaining a city taxi license. This helps to assure that applicants will be able to meet all other qualifications requirements, chiefly specification of an acceptable vehicle color scheme and taximeter rates, vehicle inspection and payment of all applicable fees. Financial responsibility is considered demonstrated in possession of the required insurance. The applicant must also pass a criminal and traffic records check. Few taxi license applications are formally denied by the DLCA, although some applicants fail to complete processing. In any event, no formal records are maintained unless the denial is appealed by the applicant. Most frequently the applicant chooses to withdraw their application on the basis of DLCA staff advice that it will not qualify for a license. Few opt to pay the $15.00 filing fee required for an appeal.

4.1.2 King County

Prior to the 1977 reciprocity agreement between Seattle and King County, city taxi licenses traditionally out-numbered county licenses by more than five to one. City-county license reciprocity in conjunction with the Seattle Port's abandonment of its former exclusive franchise arrangement

for airport taxi services spurred a dramatic rise in county permits, even prior to open entry. With airport access the chief attraction of a county taxi license -- since Sea-Tac Airport lies within the jurisdiction of the county -- the county taxi industry grew from 74 licenses in February 1977 to 372 licenses (a 400% increase) by the close of the 1978-79 license year (prior to open entry).*

Table 4-6 displays the changes in county industry size and structure since open entry. Similar to the pattern demonstrated in the city, the county industry continued to grow through the first and second years of open entry (at an average rate of 14%) but began to contract somewhat during the 81-82 license year, likely owing to the airport rules changes. County licenses increased 17 percent cumulatively between August 1979 and August 1981. The service companies retained their traditional dominance and the majority of all county taxi licenses through the first quarter of the 81-82 license year (see table note), comparable to their dominance within the city taxi industry. Indeed the structure of the county industry is generally similar to that in the city.

The large majority of county operations hold city licenses, but not all city taxi vehicles are covered with county permits. The fleet and mini-fleet operations maintain a smaller proportion of their vehicles on the county rolls than the larger service companies do. On the other hand, the county industry includes ten to fifteen single-cab operations with no city permits; about half of these are new companies licensed since open entry began.

*A county license was the chief pre-requisite for an airport sticker between early 1977 and early 1981. Entry into the airport holding area and cabstands requires an airport sticker, but county cabs without airport permits may pick up airport passengers requesting service by telephone (i.e., not through the airport taxi dispatch system). Port Police do not enforce county taxi license regulations at the airport and prior to the new airport rules, reports of unlicensed taxis picking up passengers at Sea-Tac were not uncommon.

TABLE 4-6 KING COUNTY TAXI LICENSES BY COMPANY TYPE SINCE OPEN ENTRY*

Company Type**	Number and % of All Licenses by Date							
	AUGUST 1979***		AUGUST 1980†		MAY 1981††		AUGUST 1981†††	
	#	%	#	%	#	%	#	%
SERVICE COMPANIES	256[a]	69%	261	61%	284	60%	246	56%
OTHER FLEETS (4 or more cabs)	55	15	92	22	108	23	111	25
MINI-FLEETS (2-3 cabs)	25	7	29	7	32	7	19	4
ONE CAB FIRMS	36	10	44	10	51	11	60	14
TOTAL	372	100%	426	100%	475	100%	436	100%
ANNUAL CHANGE:								
Licenses	-		+54		+49		-39	
%	-		+15%		+12%		- 8%	
CUMULATIVE CHANGE:								
Licenses	-		+54		+103		+64	
%	-		+15%		+28%		+17%	

*Based upon King County taxi license records (pre-1981) and rate filings (post-1981).

**Permits and companies owned by a single owner or ownership entity under different names are grouped together under the resulting size type.

***At the close of the 78-79 license year, prior to Seattle open entry.

†At the close of the 79-80 license year, the first year of Seattle open entry.

††Based upon taxi operator rate filings effective May-August 1981, and describing the last quarter of the 80-81 license year, following King County open entry.

†††Based upon taxi operator rate filings effective September-November 1981, and describing the first quarter of the 81-82 license year.

[a]Includes 6 independent fleet and mini-fleet companies operated in conjunction with service companies.

4.1.3 Seattle-Tacoma International Airport (Sea-Tac)

The promise of a ready supply of potentially long-haul trips attracted numerous taxi operators to the airport, even prior to open entry, following the city-county reciprocal licensing agreement adopted in February 1977. The number of airport taxicabs swelled from about 35 under the previous exclusive franchise agreement, to about 175 following the reciprocity agreement, to just over 200 by December of 1979. As Table 4-7 shows, airport taxi ranks continued to grow through 1980. Reported overcrowding of the taxi holding areas and procedural violations by taxi drivers ultimately prompted the port to revise its airport taxi regulations, raising fees, limiting rates and stiffening penalties, as reported in section 3.3.2.

These actions appear to have achieved the reduction in total airport taxis desired by the port. The November 1981 roster of airport permittees amounts to a reduction of nearly 30 percent below peak levels, and even falls below the 204 total permits issued during 1979. Only about 43 percent of all county taxicabs and 38 percent of city vehicles continue to be covered by airport stickers, compared with about 62 percent and 51 percent, respectively, toward the close of 1980. The proportion of service company vehicles with airport permits dropped most dramatically, from 46 percent in 1979 to 23 percent in 1981. Mini-fleet operations and unaffiliated single-cab firms -- those likeliest to lack a well-developed radio business -- retain the largest proportion of airport stickers (from 100% of mini-fleet vehicles to 77% of one-cab operations).

4.2 CHANGES IN FARES AND PRICING PRACTICES

This section presents results of an analysis of taxi company rate filings since variable pricing was instituted in May 1979, through February 1982. The reader is referred to section 3.2 for the code provisions governing open rate setting.

TABLE 4-7 AIRPORT TAXI PERMITS BY COMPANY AND OWNER TYPE SINCE OPEN ENTRY*

Company/Owner Type	Number of Companies( ) and Permits with % of All County-Licensed Vehicles by Category					
	DECEMBER 1979**			DECEMBER 1980		
	#			#		
SERVICE COMPANIES†	(3)	118	(46%)	(3)	124	(48%)
OTHER FLEETS						
Veteran Owners	(8)	37	(67%)	(9)	55	(70%)
New Owners		-		(2)	9	
MINI-FLEETS						
Veteran Owners	(6)	15	(72%)	(8)	18	(97%)
New Owners	(3)	3		(5)	10	
ONE-CAB FIRMS						
Veteran Owners	(23)	23	(86%)	(20)	20	(100%)
New Owners	(8)	8		(27)	27	
TOTAL AIRPORT PERMITS	(48)	204	(55%)	(74)	263	(62%)
ANNUAL CHANGE						
Permits		-			+59	
%		-			+29%	
CUMULATIVE CHANGE						
Permits		-			+59	
%		-			+29%	

Company/Owner Type	NOVEMBER 1981***		
	#		
SERVICE COMPANIES†	(3)	56	(23%)
OTHER FLEETS			
Veteran Owners	(6)	38	(59%)
New Owners	(7)	28	
MINI-FLEETS			
Veteran Owners	(3)	6	(100%)
New Owners	(6)	14	
ONE-CAB FIRMS			
Veteran Owners	(10)	10	(77%)
New Owners	(36)	36	
TOTAL AIRPORT PERMITS	(70)	188	(43%)
ANNUAL CHANGE			
Permits		-75	
%		-29%	
CUMULATIVE CHANGE			
Permits		-16	
%		- 8%	

*On the basis of airport taxi permit records; some variation between airport, county and city sources results from the different time periods reported.

**At the close of the pre-open entry airport license year but five months into open entry in the city.

***Latest available data; three months into the third year of open entry in the city and second year for county.

†Airport taxi license data do not permit identification of new and veteran owners within service companies.

4.2.1 A Preliminary Note on Taxi Rate Structure

A note on taxi rate structure may be in order for readers unfamiliar with its peculiarities. Seattle taxi rates include four primary segments: a flag drop charge, the amount registered by the meter at the start of a trip and usually including some fraction of the first mile; the mileage charge per fraction of a mile thereafter, a wait (or time) charge clocked while the cab is engaged but either waiting at the passenger's direction or delayed in traffic, and an optional extra passenger charge assessed for each rider after the first.

In traditional practice, the drop charge lessens the disincentive against short trips by increasing the revenue they generate. Drop charges 30 percent to 50 percent higher than mileage charges are therefore not uncommon. Only in the case of a very short trip (2 miles or less) would the drop charge comprise the major portion of a taxi fare, which increases more rapidly with trip length. Since the average non-airport taxi trip in the Seattle area is about 3.5 miles, the mileage charge effectively determines the large majority of local taxi trip fares.

Prior to open rate setting, Seattle taxi rates were set at $0.90 drop (or $0.80 fixed), plus $0.70 per mile, $9.20 per hour waiting and $0.20 per extra passenger. This rate had been in effect since 1976 when it was adopted as a temporary measure and subsequently extended until the onset of variable pricing.

4.2.2 Effects on Fares

In response to predictions that cut-throat competition or price-gouging would ensue from open rate setting, or regulator hopes that competitive pricing would tend to retard taxi rate increases, the data suggest two major findings. First, as shown in Table 4-8, through February 1982, fares for a five-mile taxi trip in the City of Seattle

TABLE 4-8 PRICE OF A FIVE-MILE TAXI TRIP CALCULATED FROM AVERAGE RATE FILINGS* BY COMPANY TYPE BY QUARTER

		Five-Mile Fares by Quarter												
Company Type	Pre-Revisions Standard Rate	May-Jul 1979	Aug-Oct 1979	Nov-Jan 1980	Feb-Apr 1980	May-Jul 1980	Aug-Oct 1980	Nov-Jan 1981	Feb-Apr 1981	May-Jul 1981	Aug-Oct 1981	Nov-Jan 1982	Feb-Apr 1982	% Change Since Variable Pricing
Service Companies	4.30	5.80	5.80	5.80	5.80	5.80	5.80	6.15	6.15	6.15	6.15	6.15	6.15	+ 6%
Sea-Tac/Airport	4.30	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	6.60	6.60	6.60	6.60	+25%
Independents with 4 or more cabs	4.30	5.65	5.80	5.80	6.40	6.50	6.90	6.95	6.95	7.10	7.30	7.30	7.30	+29%
Independents with 2-3 cabs	4.30	5.80	6.30	6.80	7.00	6.90	7.00	7.50**	6.90	7.20	7.40	7.70	7.95	+37%
One-Cab Firms	4.30	5.90	6.10	6.20	6.55	6.70	6.70	6.85	7.00	7.00	7.30	7.40	7.45	+26%
Industry Average	4.30	5.80	6.05	6.25	6.55	6.70	6.80	6.95	6.95	7.00	7.25	7.35	7.40	+28%
% Change per Quarter	-	+35%	+4%	+3%	+5%	+2%	+2%	+2%	-	+1%	+4%	+1%	+1%	-
Range of Variation (from highest to lowest)	-	9%	16%	25%	28%	+30%	32%	42%	32%	17%	20%	25%	29%	-

*To nearest $0.05, with no waiting.
**Shows effect of a single company's attempt to influence the new ceiling on airport rates.

have risen some 72 percent on average above the pre-revisions standard fare. The greatest single increase occurred in the first quarter of open rate setting, when all operators filed increases averaging 35 percent over the previous five-mile fare.* Average fares gradually rose another 28 percent over the following 36 months. In comparison, taxi fares had risen 15 percent under rate standardization between 1974 and 1976. Table 4-9 presents average rate segments filed or in effect by company size type by quarter since open rate setting was adopted. Note that individual companies owned and operated together as a single entity may have differing rates due to operator choice or acquisition of a previously operating company. Thus the tables show data for more companies than reported in section 4.1. Weighted averages based upon the number of vehicles operating at each rate are discussed below.

The rise in average Seattle taxi rates under open rate setting has not outpaced that in other West Coast cities. Average Seattle taxi rates as filed -- about $1.10 for the flag drop and $1.30 per mile as of April 1982 -- nearly equal standard rates effective in San Francisco and are within 10 percent of those in Portland, Oregon and Oakland-Berkeley, California.

The rise in Seattle taxi fares, moreover, reflects the increase in the local inflation rate over the past three years. Figure 4-2 illustrates the rise in city taxi operators' weighted average flag drop and mileage charges as well as in the 3.5 mile non-airport taxi trip fare in comparison with that of the Consumer Price Index for the Seattle-Everett metropolitan area. (Note that the weighted average rate segments and the resulting trip fares presented are calculated on the basis of the industrywide proportion of all taxicabs operating at the different rates each quarter.)**

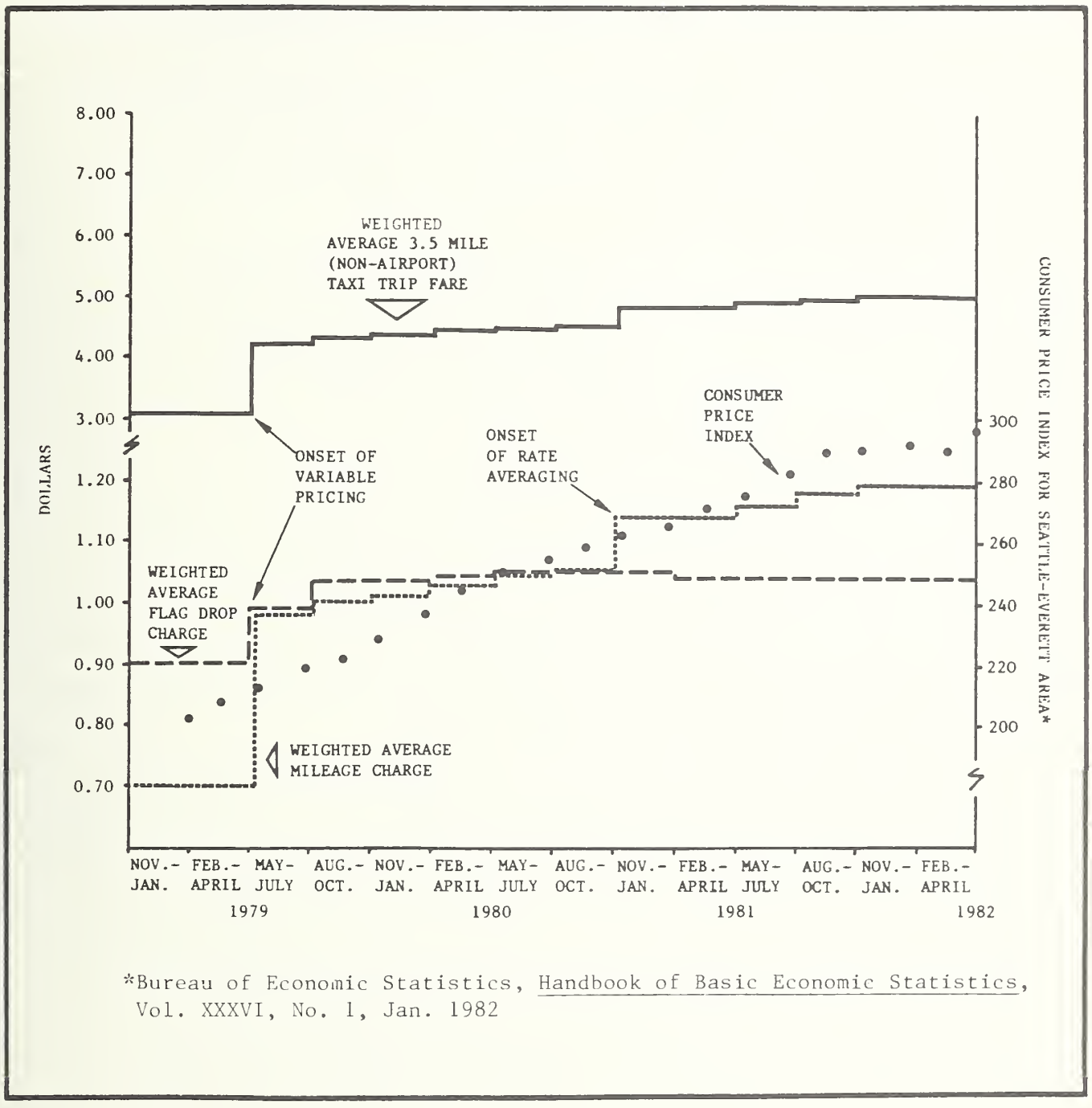
*Managers in the three major companies explained that this increase conforms to the 35% "emergency" rate increase, to $1.00 drop and $1.00 per mile, requested by the industry and prepared as draft legislation in the event that the city and county failed to adopt open rate setting.

**No attempt was made to adjust this weighting to account for variable rates of vehicle utilization or geographic or temporal service variations.

TABLE 4-9 MEAN SEATTLE RATE SEGMENTS* FILED BY COMPANY TYPE BY QUARTER SINCE OPEN RATE SETTING

Company Type	Rate Segments by Quarter: Pre-Revisions Standards Rate Segments	May-Jul 1979	Aug-Oct 1979	Nov-Jan 1980	Feb-Apr 1980	May-Jul 1980	Aug-Oct 1980	Nov-Jan 1981	Feb-Apr 1981	May-Jul 1981	Aug-Oct 1981	Nov-Jan 1982	Feb-Apr 1982	% Change Since Variable Pricing
Flag Drop Charges:														
Service Companies	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
Sea-Tac/Airport	0.90	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	+33%
Independents - 4+	0.90	0.99	1.00	1.00	1.00	1.00	1.03	1.07	1.05	1.09	1.10	1.09	1.09	+16%
Independents - 2-3	0.90	1.00	1.08	1.23	1.29	1.28	1.27	1.31	1.21	1.21	1.16	1.16	1.16	+16%
One-Cab Firms	0.90	1.08	1.10	1.08	1.11	1.14	1.15	1.18	1.16	1.11	1.14	1.14	1.15	+ 6%
Industry Average Flag Drop	0.90	1.05	1.08	1.10	1.13	1.15	1.16	1.17	1.14	1.12	1.13	1.12	1.12	+ 8%
Mileage Charges:														
Service Companies	0.70	1.00	1.00	1.00	1.00	1.00	1.00	1.07	1.07	1.07	1.07	1.07	1.07	+ 7%
Sea-Tac/Airport	0.70	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	1.10	1.10	1.10	1.10	+22%
Independents - 4+	0.70	0.97	1.00	1.00	1.12	1.14	1.21	1.22	1.22	1.25	1.29	1.29	1.29	+33%
Independents - 2-3	0.70	1.00	1.08	1.15	1.18	1.16	1.19	1.28	1.18	1.25	1.30	1.36	1.40	+40%
One-Cab Firms	0.70	1.00	1.04	1.07	1.13	1.16	1.16	1.17	1.21	1.23	1.28	1.30	1.31	+31%
Industry Average Mileage Charge	0.70	0.99	1.03	1.07	1.13	1.15	1.17	1.20	1.20	1.23	1.28	1.30	1.31	+32%
Wait Time Charges (per minute):														
Service Companies	0.12	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	-
Sea-Tac/Airport	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	-
Independents - 4+	0.12	0.19	0.20	0.20	0.24	0.24	0.27	0.26	0.27	0.29	0.31	0.30	0.30	+58%
Independents - 2-3	0.12	0.20	0.21	0.23	0.25	0.26	0.26	0.27	0.28	0.31	0.31	0.35	0.34	+70%
One-Cab Firms	0.12	0.21	0.21	0.22	0.24	0.24	0.25	0.26	0.27	0.27	0.29	0.29	0.29	+38%
Industry Average Wait Charge	0.12	0.20	0.21	0.21	0.24	0.24	0.25	0.26	0.27	0.28	0.30	0.30	0.30	+50%
Extra Passenger Charges:														
Service Companies	0.20	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	-
Sea-Tac/Airport	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	-
Independents - 4+	0.20	0.20	0.18	0.18	0.36	0.38	0.54	0.54	0.54	0.63	0.68	0.71	0.71	+255%
Independents - 2-3	0.20	0.23	0.27	0.36	0.42	0.53	0.62	0.76	0.75	0.91	0.88	1.05	1.05	+357%
One-Cab Firms	0.20	0.30	0.29	0.30	0.36	0.40	0.42	0.48	0.54	0.57	0.68	0.67	0.69	+130%
Industry Average Extra Charge	0.20	0.26	0.26	0.28	0.36	0.42	0.48	0.54	0.56	0.64	0.70	0.73	0.74	+185%
Number of Firms Reported**		50	71	74	85	88	105	98	108	107	117	122	123	

*City of Seattle Exclusive Ride Service
**i.e., for which individual rates were filed



*Bureau of Economic Statistics, Handbook of Basic Economic Statistics, Vol. XXXVI, No. 1, Jan. 1982

FIGURE 4-2 CHANGE IN CITY OF SEATTLE TAXI RATES AND WEIGHTED AVERAGE TRIP FARE BY QUARTER SINCE VARIABLE PRICING

The weighted average taxi fare rose 54 percent compared with 47 percent for the CPI between January 1979 and April 1982. Thus, although taxi rates are likely higher now than they would have been under continued standardization and although the rise in rates slightly exceeds that of the local CPI, the data suggest that regulation was holding taxi rates artificially low.

This hypothesis is supported by the dramatic increase in local prices for gasoline, a major taxi operating cost item. The average full-service station price for gasoline in Seattle rose 38 percent between 1979 and 1980 alone.* (Operator reports of liability insurance cost increases are discussed in section 4.3.)

The calculated industry weighted average rate -- about $1.05 for the flag drop ($0.85 fixed) and $1.20 per mile -- is somewhat lower than the simple average owing to the fact that the largest companies have continued to charge among the lowest rates. Thus the majority of taxi vehicles have been available at the cheaper rates. And this is the second major finding, that rates have varied noticeably among different company types and between veteran and newer operators.

Figure 4-2 reveals a gradual shift in traditional taxi structure as the rise in the mileage rate outpaces that of the drop charge. The mileage segment has gradually become the primary determinant of trip fares for all but the shortest trips. This shift is noteworthy on several counts. As the drop charge declines relative to the mileage charge, the disincentive to take short-haul trips increases. Reduced reliance on the drop may relate to the overall reduction in cruising, or to an influx of new owner-operators who do not follow the traditional approach to taxi rate

*Gasoline prices rose 33.6% nationwide between 1979-1980 compared with a 13.5% increase in all consumer items combined; American Petroleum Institute, Basic Petroleum Data Book, Vol. 1, No. 3, Section VI.

structure. (Witness the proliferation of high short-haul trip rates rather than increased drop charges.) There may also be a deliberate (though illogical) effort to compete by holding the drop low, since it is the first item a prospective passenger sees in considering a taxi rate.

4.2.3 Variation in Rates Among Company and Operator Types

While the largest taxi companies -- the three service companies and Sea-Tac/Airport Taxis -- have continued to operate at the lowest rates, the highest rate filings generally belonged to the two- to three-cab mini-fleets. The other fleet-type operations and one-cab firms have both tended to fall in between these extremes. Thus, the majority of taxicabs -- from 74 percent of all vehicles shortly following adoption of open rate setting to 56 percent as of February 1982 -- have continued to be available at the lowest rates, while only 6 percent (about 25 to 32 vehicles) have been operating at the highest rates. Average fares available to taxi patrons during any one quarter have varied as much as 32 percent, or $1.70 on the five-mile trip.* Individual company rates have varied as much as $2.10.

Farwest, Graytop, and Yellow, the three service companies, have generally been in direct competition at the low end of the rate spectrum. Sea-Tac/Airport was the actual low price leader during 21 months of the three-year period under study, but its airport and package-oriented business including an unusually high incidence of long-haul trips is not really in direct competition with these other firms. Veteran operators (including the large companies) have maintained lower rates than new operators, and the gap between them has generally remained between 5 percent and 9 percent, or up to $0.55 on a five-mile trip. New operators'

*Fares varied from $5.30 to $7.50 during November-January 1981, but these filings reflect exorbitant rates files by one company attempting to influence the new ceiling on airport rates.

rates have risen about 31 percent over the 36 months of study, in contrast with a 23 percent rise in veterans' rates (see Table B-3).

The higher rates of the smaller unaffiliated firms likely relate to these companies' inability to influence the market through any unilateral pricing decision as much as to higher operating costs.* A small independent firm cannot expect to increase its business by lowering its rates no matter how well it advertises. Not only would it be extremely difficult having only one or two vehicles to connect with price-sensitive riders, but customers could not be expected to support the inconvenience involved in limiting themselves to the services of a small company. The company could likely not lower its cost sufficiently to offset the added wait time.

Moreover, since it is also difficult to ply the telephone request business with only one or two vehicles, even on a centralized dispatch, most of the small independent firms concentrate on opportunity markets.** These include the airport, downtown hotels and other visitor-oriented pick-up and cruise locations which generally inhibit comparison-shopping and where potential passengers likely weigh convenience much heavier than price. Rather than posing any disincentive to high rates, the fundamentally first-in, first-out operation of the airport and other taxi stands even militates against competitive pricing. The responsibility rests wholly on the passenger to comparison shop and reject the higher-priced offerors. Operators contend their waits on the busy stands have become so long that they justify higher rates. Some independent operators insisted that their higher rate schedules help them to secure a steady supply of lease drivers who would switch to one of their higher-priced competitors if they were to lower their rates.

*See for example, James F. Foerster, "Economic of Taxi Operations and Regulations" University of North Carolina Department of City and Regional Planning, November 1976, p.7.

**Seattle does not require taxicabs to be radio-dispatched.

Large, telephone-oriented fleet-type operations, on the other hand, are in an advantageous position to undersell the competition. This is perhaps especially true where the industry has been relatively concentrated and combines that traditional organization with an influx of small independents. Thus price competition obtains between the largest entities. But the situation is not that of cut-throat competition and price wars waged by majors against independents which was predicted by the opponents of regulatory revision. Rather, some market segmentation has developed with the large service companies de-emphasizing the airport and other stands (as they reportedly become saturated with independent operators) in favor of their traditional telephone-request business and a new focus on package and other contract trips. It is an unresolved question, in any case, whether the large firms could drive the smaller ones away from the convenience markets through price competition alone.

The majors also perceive themselves as inhibited from raising prices, since they have an existing (presumably price-sensitive) clientele to support. Where member-owners depend on their lease revenues, moreover, they cannot control operating costs by limiting supply (reducing shift lengths or numbers, or imposing operating restraints) since they will only forfeit lease revenues in the process. If regulation previously held rates artificially low then the large, older firms confront an added constraint in attempting to stave off increases, since they had a pre-existing rate to maintain whereas the new smaller firms have tended to start out higher than prevailing average rates. Findings from the trip sheets suggest that the large Seattle firms continue to garner a large number of trips per shift but earn lower revenues per trip than the independents (see section 4.5). It should be recognized, nonetheless, that the large operations' dependence on lease, rather than shift, revenues helps to insulate them from the ups and downs of the marketplace to which lease drivers and owner-operators are more directly subject. The larger entities also have the advantages size affords them to provide telephone-request and contract type services.

A comparison of the current rates of companies which have left the industry with those of continuing firms of comparable size is generally inconclusive. Closing companies may have interrupted service some time before actually leaving the industry, and their rate filings may therefore be out of date.* (These filings are collected in Table B-4.)

4.2.4 Variability of Rate Offerings and Potential for Passenger Confusion and Abuse

Under the new code, taxi operators may file new rates up to four times per year. In practice, however, few companies have filed more than 2 rates in any 12-month period. Two of the three largest companies have maintained constant rates since open rate setting was adopted, moreover, while the largest has changed its rate only once (after 18 months) so that the majority of all taxi vehicles have presented a relatively stable rate picture over the three-year period. Rates have varied considerably among the smaller firm types, however, producing taxi patron consternation and occasional complaints and leading to limitation of airport taxi rate schedules, discussed in section 4.2.5.3.

Another source of passenger confusion and potential for abuse exists in the variety of permissable discounts and surcharges operators may apply to their basic city exclusive ride rate. These include 10 to 20 percent discounts for elderly or military riders, advance reservations and long-haul trips, 10 to 20 percent nighttime and short-haul surcharges and "extra" charges for luggage. While these various qualifiers -- generally filed by the independents as distinctive drop and mileage rates in accordance with code regulations* -- are certainly legal, DLCA staff suggest that they are rarely used in a formal sense.** They chiefly seem to provide the individual operator some leeway to run the basic

*Most have been recorded since February 1981.
**Except for a surcharge on the flag drop for lift-equipped service, reportedly also rarely used.

service at different rates within the law. That is, the discounts cover trips run under the operators' filed rate and the surcharges cover trips over it. The larger companies (which pride themselves on maintaining a single exclusive ride rate) allege that the latter are particularly prone to abuse. That is, taxi patrons are not only presented with a variety of rates among different operators but also subject to different rates for the same service by a single operator, depending upon specific conditions as described above -- or as a particular operator may attempt to assert. If the passenger refuses to accept the conditions, the driver then has the option of revising the price.

Fare-related complaints have been the most frequent category among complaints recorded by DLCA since the latter half of 1979 (see Table 5-11). These are generally initially investigated by DLCA staff who calculate the allowable fare according to the operator's current filing -- including discounts and surcharges -- for the trip distance described by the complainant before passing the complaint on to the police. In most cases, the disputed fare has been found to be legal and the complaint prompted by the passenger's "comparison-shopping" after the fact.

The variation between airport (or county) and city rates also provides another potential source of passenger confusion and abuse, since rates may vary as much as $0.40 per mile on the potentially long-haul airport-connected trips. This is why the airport was the chief focus of fare-related complaints. These complaints have evidently decreased, however, since the port began averaging to establish a rate ceiling. Airport rates are discussed more fully in section 4.2.5.3.

4.2.5 Price Competition and Innovation

As previously noted, two of the three large companies are in direct competition at the low end of the taxi rate spectrum (and thus exert some pressure on the rest of the industry as well). Otherwise, there was

relatively little price competition as a result of open rate setting prior to establishment of a ceiling on airport fares. Most of the smaller companies appeared to set their rates in terms of their assessment of what the market would bear as well as their costs rather than in an attempt to expand their market share. Since the change in airport taxi rules, many rates have come down, either as firms abandon airport operations or seek to qualify for airport stickers, or to avoid the need for dual metering.

There has also been little pricing innovation other than the discounts already mentioned and discount coupons distributed (technically illegally) by various operations to regular or repeat customers as a promotional gimmick.* A few small firms (including some "deluxe" service operations) have filed a $10.00 flat rate for the first five miles -- hardly a savings over average meter rates. Following industrywide debate over the appropriate zone boundaries and code revisions to permit shared riding, several companies filed zone rates. One of the service companies proposed to initiate the service several times during 1981 and went so far as a one-day promotion on local election day. But no company has actually operated the service on a formal basis to date. Indeed, this largest company has lobbied actively and threatened a referendum item to effect a return to standardized rates --or at least one rate per company -- as a consumer protection issue.

4.2.6 Effect of Airport Rules on Taxi Pricing Practices

Effective March 1981, and owing to a rise in fare-related taxi complaints at the airport, the port established a ceiling on airport taxi rates 10 percent above the median of the rates filed by all county-licensed taxi operators. Approval of an airport operating permit was

*Filing a special discount rate apparently provides for a coupon promotion within the rules.

TABLE 4-14 TAXI VEHICLE WAIT TIMES AT CABSTANDS BY COMPANY TYPE AND STATUS ON DEPARTURE: 1981

Company Type	Taxi Vehicle Wait Times (Minutes) by Status on Departure: Left with Riders	Left Empty - Dispatched Elsewhere	Left Empty - Not Dispatched	Average Wait Times by Company type
Service Companies	8.9	12.6	11.6	10.9
Independent Fleets (4+ Cabs)	39.4	65.3	20.8	35.8
Independent Mini-Fleets (2-3 Cabs)	57.3	62.0	26.1	50.1
Independent One-Cab Firms	66.8	51.7	26.7	57.3
Average, All Companies	44.9	16.7	20.6	34.9
Number of Cases	763	218	253	1,234
Standard Deviation	22.6	13.2	6.5	49.3

Source: Survey of Taxi Stand Activity, October 1981

cabs spent in the holding area before entering the feeder queue. Independents waited 10 minutes for passengers compared with 8 minutes for service company cabs.

The stands were more heavily covered in 1981 than in 1978, owing to the larger number of licensed taxicabs as well as to increased focus on stand-hail business. Analysis of the length of the taxi queues at the stands at half-hour intervals over the weekday afternoons of the 1981 survey revealed only one instance when there were no cabs at a stand, compared with several cases from time to time in 1978. The number of cabs waiting at Sea-Tac in the 1981 survey varied from no fewer than 40 to 50, while those waiting at the other stands surveyed varied from 24 to 42. At the busiest time recorded during the survey observation period in either year -- 1:00 pm -- a total of 91 taxi vehicles, or 18 percent of all licensed taxicabs, were recorded standing in the queues at these stands in 1981. The queues held 41 vehicles, or 15 percent of all active licenses, in 1978. The queues were shortest at 6:00 pm in both years, when 61 vehicles or 12 percent of those licensed in 1981, and 17 vehicles or 6 percent of active licenses in 1978, were observed to be waiting.*

A much larger number of vehicles in the 1981 survey were observed either cruising the stands or dropping passengers off and not joining the queues than were recorded on the stands. Eighty-three percent carried no riders and thus may have been seeking space on the stands. The majority (69%) belonged to service companies. In comparison, only about half as many vehicles were cruising the stands as were in the queues in 1978. (The surveyors did not record whether or not the cruisers carried passengers in the earlier survey.)

*Since the effective capacities of these busiest stands represented up to 54 percent of all Seattle taxi stand spaces, the total proportion of cabs in cabstand queues during a single hour would have been somewhat higher. There were no data on the rate of use of the non-surveyed stands.

4.4 CHANGES IN OTHER LEVEL OF SERVICE MEASURES

Unlike conventional transit, where service policies are determined by the operator, taxicab level of service characteristics such as availability, geographic service coverage and response time are highly dependent upon the volume and temporal and spatial distribution of demand.* The presence of a taxicab within the radius of any passenger's acceptable response time depends upon there having been another trip with similar temporal and spatial characteristics. Therefore, aggregate level of service measures such as total weekly shifts or hours of service are also inevitably measures of demand in that the taxi driver -- particularly the lessee driver or owner-operator -- exercises some control over output. That is, the driver may target service to busy time periods or particular locations, or drive only as long as needed to clear a certain profit over costs. Seattle no longer imposes a minimum operating requirement. Thus, the total number of taxi permits is an insufficient measure of service supply.

The following section focuses upon changes in various taxicab level of service measures since open entry. Findings reported derive from several sources, including analysis of sample data from taxi driver trip sheets from 1979 and 1981, the onboard taxicab Passenger Profile Survey (PPS), the cabstand activity survey and a survey of taxicab response times to telephone requests for trips. Appendix A describes the sampling designs and data adjustments used.

4.4.1 Changes in Aggregate Service Supply

Although taxi service levels increased with industry growth under open entry, the industrywide total of taxicab shifts supplied did not increase commensurately with the 51 percent rise in licensed taxicabs

*This discussion is adapted from Carla Heaton et al., "Impacts and Effectiveness of Third-Party Vanpooling," in CURRENT STATUS OF RIDESHARING ACTIVITIES, Transportation Research Record 823, 1981, pp. 31ff.

between May 1979 and May 1981. On the basis of sample data from taxi operator trip sheets, the industry as a whole supplied 2,260 taxicab shifts per week in 1979 and 2,520 shifts per week in 1981, a 12 percent increase. The rate of increase in shifts supplied was less than that in licenses because of an average drop in taxi vehicle utilization -- the number of shifts provided per cab per day -- over the two-year period. Industry average daily vehicle utilization declined from 0.95 to 0.70 shifts per cab, a 26 percent drop. That is, there were 51 percent more vehicles, but each vehicle was only providing about 76 percent as many shifts per day.

Figure 4-4 compares the cumulative distribution of days in service during the month for all taxi vehicles in May 1979, before open entry, and May 1981, two years into open entry. Where 50 percent of all vehicles were in service at least 21 days out of the 31 in 1979, half of the larger fleet worked no more than 18 days out of the month in 1981.* Similarly, where the top 25 percent of all taxi vehicles were in service 26 days or more in 1979, this fourth quartile of all vehicles was out as few as 24 days in 1981. Indeed, a quarter of the industry worked as few as 10 days out of the month in 1981.**

4.4.1.1 Changes in Taxi Vehicle Utilization by Company Type - Table 4-15 presents taxi vehicle utilization rates -- number of shifts per cab per day -- by company type for the companies submitting trip sheets in 1979 and 1981. The data suggest that the industrywide drop in average vehicle utilization is primarily owing to the decline in service company

*The city had contended that only 69 percent of all licensed taxicabs were operating on any given day in 1976. Seattle removed its minimum operating requirement with open entry in May 1979.

**Taxi vehicle utilization rates are estimated from trip sheets supplied by the industry. To the extent that increasing numbers of new, independent owner or lessee drivers do not maintain trip sheets for their shifts, these rates may underestimate or distort the distribution of actual service. See Appendix A.

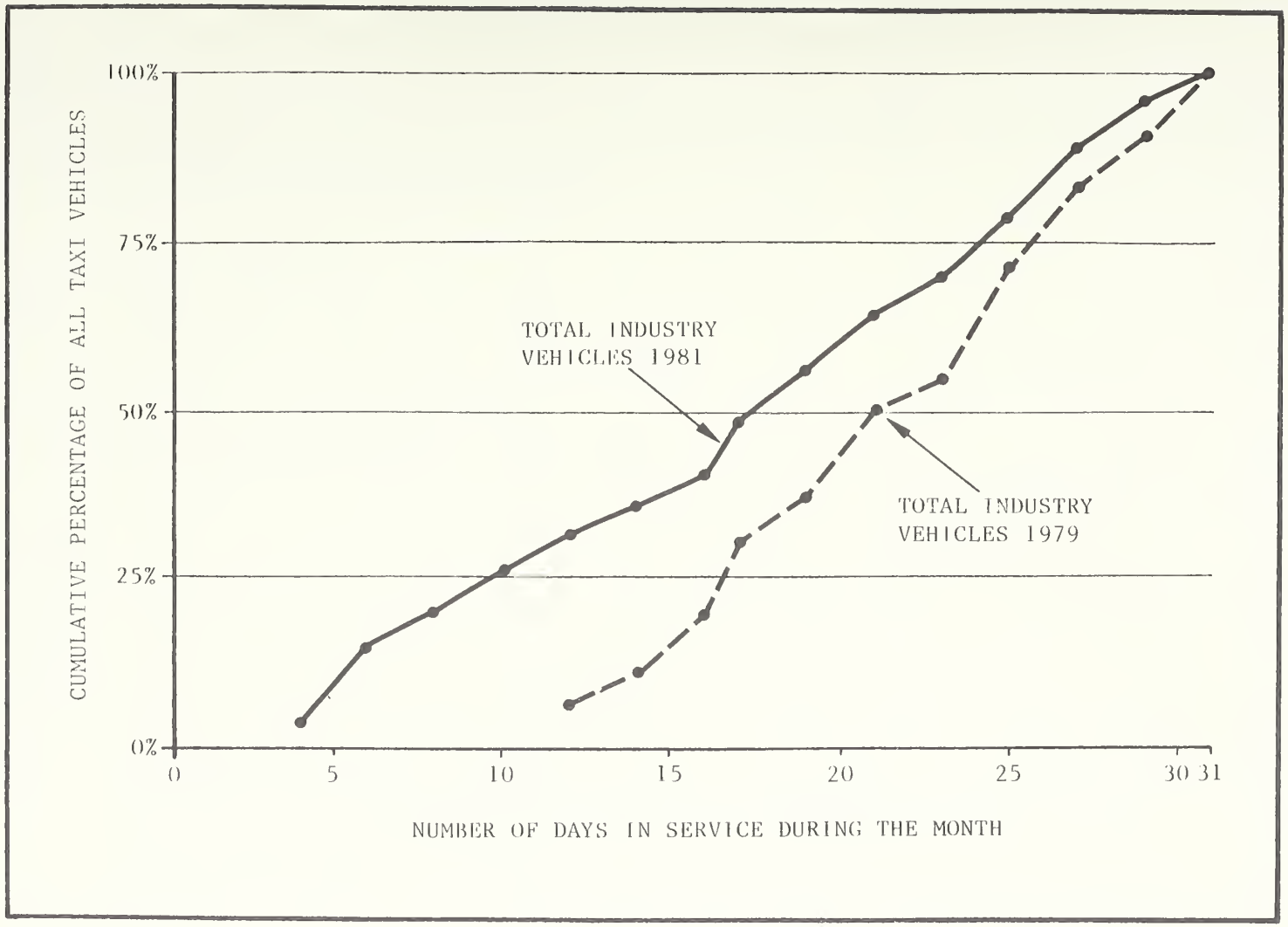


FIGURE 4-4: CUMULATIVE DISTRIBUTION OF DAYS IN SERVICE FOR ALL INDUSTRY VEHICLES: 1979 & 1981

TABLE 4-15 TAXI VEHICLE UTILIZATION RATES (SHIFTS PER CAB PER DAY) BY DAY OF WEEK AND COMPANY TYPE: 1979 and 1981

	Shifts Per Cab Per Day By Company Group											
	Service Companies		Sea-Tac Airport**		Independents 4 or More Cabs		Independents 2-3 Cabs		Independents One Cab		Total Industry	
Day of Week	79	81*	79	81	79***	81	79***	81†	79***	81	79	81
Average Weekday (Mon-Thurs)	1.01	0.69	0.75	1.11	0.38	0.86	1.13	0.75	0.94	1.03	0.93	0.78
Average Friday	1.32	0.67	0.77	1.11	0.50	0.93	1.25	0.50	0.88	1.06	1.17	0.78
Average Weekend Day (Sat & Sun)	0.73	0.47	0.63	0.43	1.25	0.50	0.88	0.25	0.75	0.50	0.77	0.47
Total (Average Daily)	1.02	0.63	0.73	0.94	0.63	0.79	1.09	0.56	0.88	0.91	0.95	0.70
Sample Sizes												
(Shifts)	358	459	152	105	20	139	35	9	28	58	593	770
(Vehicles)	28	45	13	7	2	11	2	1	2	4	34	68

Source: Taxi Operator Trip Sheets

*Excludes Graytop, which did not submit for 1981

**Sea-Tac's uncommon service characteristics account for its standing as a separate company class in these analyses.

***One company only.

†Two companies only.

vehicle use rates, from 1.02 to 0.63 shifts per cab per day. Most of the independents show improvements in their rates of vehicle utilization, but these results must be interpreted cautiously, as few companies are represented in the independent company class. It should be noted that the atypical characteristics of Sea-Tac/Airport Cab Company's service -- including a large proportion of package deliveries and 100 percent employee-driven shifts -- argued its standing as a separate company class in the analysis. The decrease in service company vehicle use may be owing to increasing scarcity of lease drivers as former lessees acquire their own taxicabs under open entry. Service company managers reported a temporary shortage of lease drivers during the first year following open entry, but said there were plenty of drivers as of 1981.

4.4.1.2 Changes in Vehicle Utilization by Day of Week - The data from both years' shift samples suggest that weekends receive lower levels of service than weekdays in Seattle. This finding is even more pronounced in 1981 than in 1979. There is no apparent emphasis on Friday service, in contrast to other locales, where Fridays are particularly busy.*

4.4.1.3 Changes in Company Group Shares of Total Shifts - Table 4-16 presents each major company group's percentage share of average weekly shifts supplied by day of week in 1979 and 1981. The major change is an increase in the independents' share of service at the expense of the service companies. The data suggest that the service companies' share of the average total weekly shifts has fallen faster than their share of all taxi liceses. That is, as previously noted, the independents represented in the sample have higher vehicle utilization rates than the service companies. Non-Friday weekday service has increased while Friday and weekend service have deceased, despite industry growth under open entry. This is partly owing to the fact that new owners evidently

*In San Diego, for example, Fridays are reported as the heaviest day of the week. Level of service by day of week could vary on a seasonal basis, however; the San Diego data were from late summer.

TABLE 4-16 PERCENTAGE SHARE OF TAXI SHIFTS BY DAY OF WEEK AND COMPANY TYPE: 1979 and 1981

	Share of all Shifts (%) Supplied by Company Type							
	Service Companies		Sea-Tac/Airport		Other Independents		Total Industry Shifts	
Day of Week	79	81	79	81	79	81	79	81
Average Weekday (Mon-Thurs)	75.5	54.2	8.4	6.0	16.1	39.9	330	410
Average Friday	79.0	53.5	6.9	6.0	14.1	40.4	410	400
Average Weekend Day (Sat & Sun)	65.5	61.7	8.2	3.9	26.3	34.4	270	240
Total Weekly Shifts	1670	1400	180	130	410	990	2260	2520
Sample Sizes	358	459	152	105	83	206	593	770

Source: Taxi Operator Trip Sheets

work less on weekends than veteran owners. The new owners worked 8 percent of their total weekly shifts on weekends in 1981, compared with 18 percent for the veterans. The data also indicate that service companies were providing a higher proportion of their service on weekends in 1981 than the independents.

4.4.1.4 Changes in Proportions of Day and Night Shifts - There was no significant change in the average proportions of day versus night shifts supplied between 1979 and 1981 (see Table 4-17).* The data suggest that the overall proportion of weekend nighttime service may have increased, despite the drop in total weekend shifts, and that the independents have stepped up their Friday nighttime service, but these differences are not significant at the 95 percent level.

4.4.1.5 Changes in Aggregate In-Service Hours - On the basis of the trip sheet data, the Seattle taxi industry provided 22,300 hours of service per week or 3,190 hours per day in May 1979, before open entry, and 25,400 hours per week or 3,630 hours per day (a 14 percent increase) in May 1981, two years into open entry. The average taxicab operated 9.2 hours per day in 1979 but only 7.0 hours per day in 1981, chiefly because of the drop in daily vehicle utilization over the two years. As shown in Figure 4-5, 50 percent of all vehicles were in service between eight and ten hours per day in 1979, while half of the larger fleet was out only six to eight hours in 1981. Similarly, the most active 25 percent of 1979 vehicles worked more than ten hours a day, while the uppermost quartile in 1981 worked as little as eight hours, Note that very few vehicles worked more than 16 hours -- or two 8-hour shifts -- a day in either year.

*Local taxi operators reported the boundaries of the day lease as 4 am to 4 pm and the night lease as 4 pm to 4 am with some variation by individual company. Ideally the actual time boundaries of individual taxi shifts will overlap so as to provide continuous service. In order to provide for a comparison of day versus night service, the evaluation categorized shifts as mostly day if the majority of their total time was logged before 6 pm and mostly night if afterward.

TABLE 4-17 PROPORTIONS (%) OF DAY AND NIGHT SHIFTS BY DAY OF WEEK AND COMPANY TYPE: 1979 and 1981

Day of Week	Shifts by Company Type: Service Companies 79	Service Companies 81	Sea-Tac/Airport 79	Sea-Tac/Airport 81	Other Independents 79	Other Independents 81	Total Industry 79	Total Industry 81
Weekday (Mon-Thurs)								
Day	65.5	60.7	83.1	80.6	79.0	77.6	69.4	69.4
Night	34.5	39.3	16.9	19.4	21.0	22.4	30.6	30.6
Friday								
Day	56.3	65.3	76.3	79.3	84.4	64.6	62.1	65.9
Night	43.7	34.7	23.7	20.7	15.6	35.4	37.9	34.1
Weekend (Sat & Sun)								
Day	61.7	51.4	88.9	66.7	62.2	52.2	64.3	52.3
Night	38.3	48.6	11.1	33.3	37.8	47.8	35.7	47.7
Average Weekly								
Day	63.0	59.3	83.3	78.5	75.1	70.9	67.0	65.4
Night	37.0	40.7	16.7	21.5	24.9	29.1	33.0	34.6
Sample Sizes	358	459	152	105	83	206	593	770

Source: Taxi Operator Trip Sheets

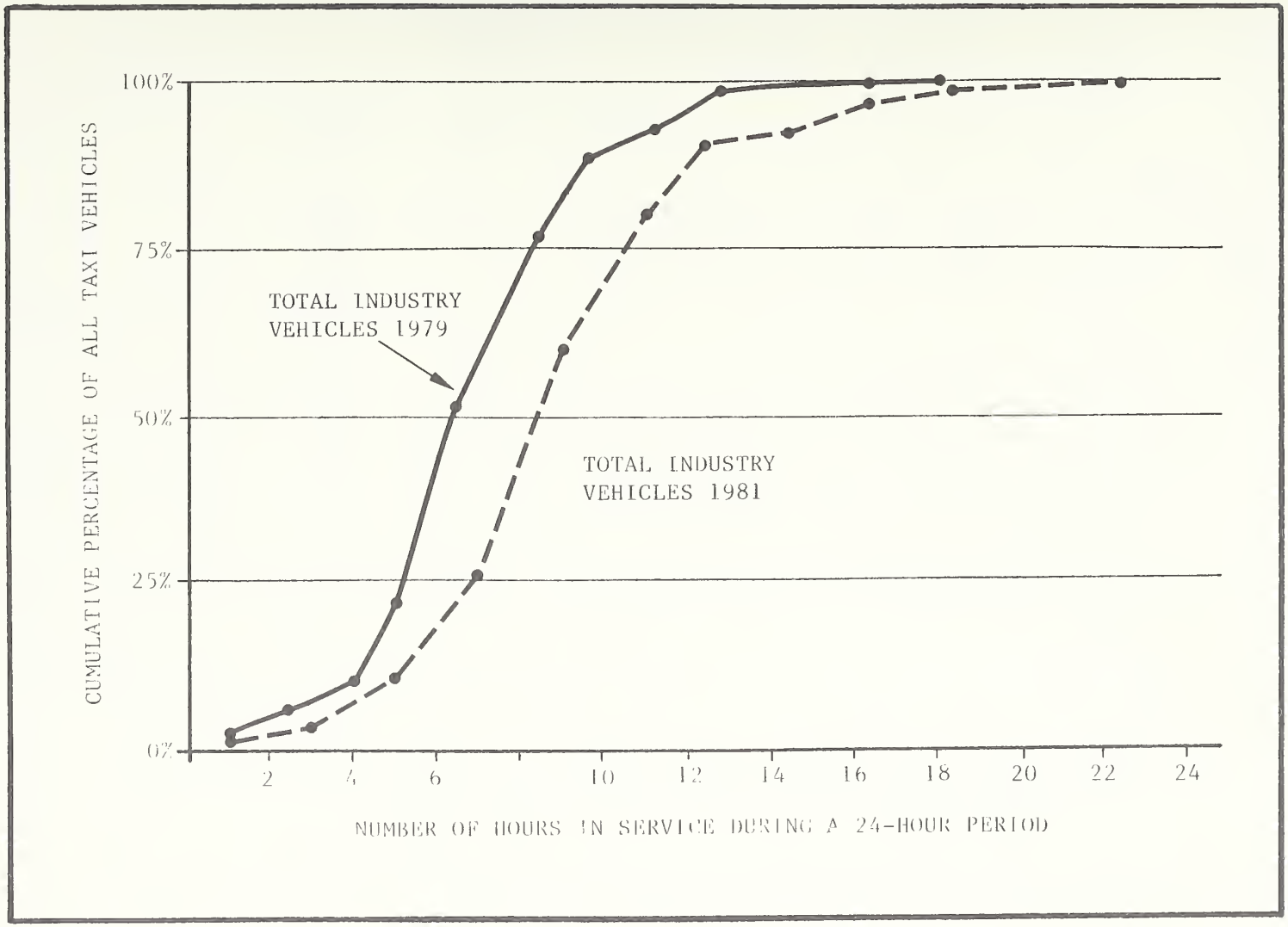


FIGURE 4-5 CUMULATIVE DISTRIBUTION OF HOURS IN SERVICE PER DAY FOR ALL INDUSTRY VEHICLES: 1979 AND 1981

The rise in total weekly in-service hours outpaced growth in shifts supplied because of an apparent slight increase in the industry average shift length. The average shift length was 9.9 hours in the 1979 sample and 10.1 hours in 1981, but this difference is not significant at the 95 percent level.

4.4.1.6 Changes in Shift Lengths by Company Type - Table 4-18 presents mean shift lengths in hours by day of week and company type and reveals some rather subtle differences between years. The industry average shift length increased significantly on weekends, from 9.2 to 11.1 hours, chiefly owing to the longer shifts of Farwest and the independents other than Sea-Tac. This suggests that although vehicle utilization is generally down on weekends in 1981, those drivers who are out clock the industry's longest shifts on these days. The new operators in the sample averaged 8.2 hours per shifts on a weekly basis compared to 10.4 hours for the veterans, but those new operators who worked on weekends worked nearly as long -- or 10.1 hours per shift -- as veterans. Sea-Tac appears to have lengthened its shifts about an hour and a half overall from 9.4 to 10.9 hours, while the other independents showed shorter shifts on weekdays in 1981 (9.6 hours as compared with 12.3 hours in 1979). Shifts coded as employee-driven were substantially shorter than others in 1979 -- or 8.6 hours compared to 12.6 for owner-operators and 10.5 for lease drivers -- but nearly an hour longer (11.2 to 10.5) than lessee-driven shifts in 1981.

4.4.1.7 Summary Comparison of Level of Service with Company Type Shares of All Licenses - Table 4-19 provides a comparative summary of level of service measures by company type share of all taxi licenses for 1979 and 1981. All three groups maintained shares of average weekly shifts and in-service hours which were generally in proportion to their license shares in both years. The primary change was the increase in the service shares of the independents at the expense of the service companies and Sea-Tac/Airport. The service companies' share of all licenses dropped from 69 percent in 1979 to 61 percent in 1981 while its

TABLE 4-18 AVERAGE SHIFT LENGTH (HOURS) BY DAY OF WEEK AND COMPANY TYPE: 1979 and 1981

Day of Week	Mean Shift Length by Company Type							
	Service Companies		Sea-Tac/Airport		Other Independents		Total Industry	
	79	81	79	81	79	81	79	81
Weekday (Mon-Thurs)	9.9	9.8	9.5	11.0	12.3	9.6	10.3	9.8
Friday	9.1	9.7	9.5	11.0	11.6	10.4	9.5	10.1
Weekend (Sat & Sun)	9.3	10.4	9.2	10.3	8.8	12.3	9.2	11.1
Average Daily	9.6	10.0	9.4	10.9	11.2	10.2	9.9	10.1
Sample Sizes	358	459	152	105	83	206	593	770
Group Std. Deviation	3.23	2.64	3.61	2.43	4.14	4.60	3.50	3.60

Source: Taxi Operator Trip Sheets

TABLE 4-19 SUMMARY OF 1979 AND 1981 LEVEL OF SERVICE MEASURES WITH COMPANY TYPE SHARE OF ALL TAXI LICENSES

Company Type	No. and % of All Taxi Licenses	No. and % of Total weekly Shifts	No. and % of Total Weekly In-service Hours	Weekly Shifts Per License	Weekly Hours Per License
1979:					
Service Companies	238 69%	1,670 74%	16,030 (72%)	7.0	67.4
Sea-Tac/Airport	36 (10%)	180 8%	1,740 (8%)	5.0	48.3
Other Independents	72 (21%)	410 18%	4,510 (20%)	5.7	62.6
Total	346 100%	2,260 (100%)	22,280 (100%)	6.5	64.4
1981:					
Service Companies	317 (61%)	1,400 (56%)	13,920 (55%)	4.4	43.9
Sea-Tac/Airport	22 (4%)	130 (4%)	1,530 (6%)	5.9	69.5
Other Independents	182 (35%)	990 (39%)	9,990 (39%)	5.4	54.9
Total	521 100%	2,520 (100%)	25,440 (100%)	4.8	48.8

share of weekly shifts supplied fell from 74 percent to 56 percent and its share of weekly hours from 72 percent to 55 percent. That is, before open entry the service companies supplied a higher share of service than their share of all licenses, while as of May 1981, they were supplying a lower rate of service.

As of 1981, the independents were providing the highest service levels per permit, with Sea-Tac/Airport showing 6 weekly shifts and 70 weekly hours per license and the other independents 5 weekly shifts and 55 weekly hours per license compared with the service companies' average of 4 shifts and 44 hours. These results are remarkable given the service companies' reportedly higher rate of leasing. On the other hand, Sea-Tac/Airport cabs are wholly driven by employee drivers.

4.4.2 Changes in Geographic Service Coverage

The available data are insufficient for estimating geographic taxi service coverage in terms of ratios of vehicles, shifts or in-service hours by geographic area or major demographic distributions. Not all Seattle operations are radio-dispatched and therefore not all attempt to offer citywide service. The larger fleets target broader areas and the smaller companies concentrate on particular districts. To the extent that taxi service supply is inherently demand-responsive, these service characteristics are measures of demand as much as of supply.

Anecdotal evidence from taxi industry members and the results of the trip sheet analysis -- limited as these indicators may be -- suggest little or no increase in total geographic service coverage. The largest operations supplying the most nearly citywide service only slightly increased in size, while many of the smaller fleets targetted the airport and other busy taxi stands in the CBD. The geographic distribution of these mostly non-radioed companies' vehicles is more or less at the discretion of the individual lease driver. Stand hail survey results

indicate there was an oversupply of taxicabs at the airport and other major cabstands. The industry average decline in total miles driven per shift and per hour suggests that cruising increased only slightly or even decreased with open entry and therefore that total geographic coverage may even have contracted somewhat.

The more recent de-emphasis of the airport and downtown stands by the larger companies and veteran fleets in favor of the telephone-request and package delivery business suggests an increased supply of service to residential areas. The proportion of trips beginning and ending in non-central areas of the city rose 32 percent between 1979-1981, suggesting some new cruising in these areas by non-radioed firms. But the northend, downtown, and western portions of the city -- the primary service areas of the three majors -- were still receiving the best telephone-request service in late 1981. Ethnic minority and low-income areas received somewhat poorer service than other city areas. (See section 4.4.4 for fuller discussion of these results; the stand survey results are presented in section 4.3 and data on taxi trip origins and destinations in section 5.3).

4.4.3 Proportions of Telephone Request, Street, Stand-Hail, and Airport Service

Trip sheet sample data from 1979 and 1981 presented in Table 4-20 provide for estimation of changes in the general proportions of telephone-request, street- and stand-hail service since open entry. While the overall industry proportions of telephone-request and stand-hail service have not changed significantly, there are notable changes in service orientation among the different company types. The larger entities, the service companies and independent fleets, have evidently increased their focus on the telephone-request business at the expense of stand-hails. This is consistent with operator assertions and the results of the

TABLE 4-20 PROPORTIONS OF TELEPHONE-REQUEST, STREET- AND STAND-HAIL TRIPS BY COMPANY TYPE: 1979 and 1981

Trip Initiation Type	Proportion (%) of All Trips By Company Type											
	Service Companies		Sea-Tac Airport		Independents 4 or more Cabs		Independents 2-3 Cabs		Independents One Cab		Total Industry	
	79	81	79	81	79	81	79	81	79	81	79	81
Telephone-Request	73.2	81.6	88.7	98.9	10.6	34.9	-	-	-	-	62.9	65.6
Stand-Hail	23.8	17.6	10.9	-	87.0	62.2	99.8	100.0	100.0	98.9	34.6	33.2
Street-Hail	3.0	0.8	0.5	1.1	2.4	2.9	0.2	-	-	1.1	2.6	1.2
(Airport-Connected)	(3.3)	(3.2)	(54.1)	(65.3)	(1.1)	(28.9)	(14.5)	(100.0)	(19.9)	(30.8)	(7.4)	(16.2)
(Package Delivery)	(1.2)	(7.3)	(7.3)	(31.9)	(0.2)	(0.5)	-	-	-	-	(1.3)	(6.7)
Sample Sizes	1060	587	225	280	320	683	484	27	296	212	2385	1789

Source: Taxi Operator Trip Sheets

stand-hail survey reported earlier. The smaller, one to three-cab independents continued to derive their business almost solely from cabstands. There was increased emphasis on package deliveries (chiefly telephone-request) among the service companies and especially Sea-Tac/ Airport. On the other hand, all company types except the service companies stepped-up their airport-oriented business.

A breakdown of all service recorded during the 1981 onboard taxi passenger survey produces a somewhat higher rate of telephone-requests among service companies (87%) and much lower proportion among independents (8%), while the industrywide proportion remains about the same. These differences and the significantly smaller industrywide proportion (23%) of stand-hail service recorded during the survey may result from any of three factors. These include the different time periods over which the two data sets were collected (May 1981 for the trip sheets and November 1981 for the survey); the characteristic service orientation of the operators who agreed to participate in the survey; and erroneous inferences recorded by the trip sheet coders.

4.4.4 Service Availability in Terms of Taxi Response Times and Passenger Waits

Surveys of taxi company response times to telephone requests for service, of activity at selected cabstands and of on-board operations provide a variety of sources for estimating service availability in terms of service refusals and passenger wait times since open entry.

Response Time Survey results from late 1981 suggest that a Seattle taxi patron has a slightly better than one-in-four chance (28%), when placing a call for taxi service, of receiving either no answer or being refused service by the taxi company dispatcher. Of the 72 percent of all calls which were accepted by the dispatcher or referred to another

taxi company,* the overwhelming majority (90 percent, or 64 percent of all calls placed), resulted in passenger pick-up. (In 10 percent of the cases, no cab arrived within 45 minutes and this was recorded as "no-show.") The absence of comparable data from before open entry prevents assessment of whether these results represent any improvement or deterioration over previous service availability.

There were some noteworthy differences among geographic areas and company types. Nearly half (48%) of the calls placed from Holly Park, a lower-income ethnic-minority subarea in the southeastern part of the city, were refused, which is consistent with operator admissions that they hesitate to make pick-ups in this area. But the other such neighborhood in the survey fared no worse in terms of service refusal than the downtown area or citywide average. The three large service companies refused 10 percent of their calls, while independent fleet operators turned down 37 percent and one to three-cab companies rejected 59 percent (that is, they only accepted 41 percent of their calls). For the two areas with the highest refusal rates, Holly Park and the larger, central-eastern district of the city, the majors refused 15 percent of the calls, the independent fleets, 54 percent, and the one-cab companies and mini-fleets, 70 percent. In about one out of three cases (38%), the dispatcher queried the caller's destination before accepting the trip.

Table 4-21 presents the refusal rates and percentage of no-shows as well as taxicab response times by area and time of day throughout the survey. Not surprisingly, the shortest average response times were in the Denny-Medical area adjacent to downtown (7.6 $\pm$ 3.2 minutes at the 95 percent level) and downtown itself (10.6 minutes). The longest waits were for trips requested from the west, three to seven miles

*Despite operator reports of dispatch-reciprocity with other companies, only 3 percent of all the calls accepted were referred. Only two pick-ups (1% of all pick-ups) were made by unexpected companies (stolen bells).

TABLE 4-21 TAXICAB RESPONSE TIMES AND PERCENTAGE OF NON-RESPONSE BY TIME OF DAY AND GEOGRAPHIC AREA

Time of Day (Weekdays)	Response Time (Minutes) by District and Sub-Area: DISTRICTS North-end	Central-East	Denny-Medical	Downtown	Southeast	West	SUB-AREAS Crown Hill(N)	Holly Park(SE)	High Point(W)	CITYWIDE	Number of Calls
Morning (7-10 AM)	13.9	13.8	6.0	7.0	13.9	20.6	9.3	13.4	15.7	13.1	69
Afternoon (1-6 PM)	17.4	10.1	6.5	12.6	16.0	17.7	19.1	14.8	17.4	14.9	83
Evening/Night (7-11 PM)	12.7	9.6	15.5	11.7	10.7	16.3	10.1	N/A*	16.0	11.3	54
Number of Calls	24	30	14	18	25	26	24	20	24		206
Std. Deviation	6.2	8.6	6.1	9.5	7.2	14.4	7.8	17.8	9.4		10.6
Availability of Service Summary											
Pick-Up Completion Rate	73%	54%	63%	75%	60%	72%	71%	49%	73%	64%	206
% Calls Refused	18%	31%	14%	25%	21%	17%	12%	48%	24%	25%	
% No Shows	-	12%	23%	-	14%	17%	11%	10%	4%	10%	23
Total Calls Placed	33	55	22	24	42	36	34	43	33		322

Source: Taxicab Response Time Survey, October 1981

*N/A = not applicable

**Note: Percentages do not always sum to 100%, owing to non-response to telephone (3% of total calls) and referrals to other companies (also 3%).

south of the central areas (18.3 minutes), including High Point, the other low-income, ethnic minority subarea (16.5 minutes). The overall average wait was 13.4 $\pm$ 1.5 minutes. Citywide, less than half (43%) of all cabs arrived within 10 minutes, three quarters (75%) within 20 minutes, and 85 percent within 30 minutes.*

The independent fleets appeared to have longer average response times (16.1 minutes) than service companies (11.4 minutes, significant only at the 90 percent level). The one to three-cab firms clearly had the longest response times (20.6 minutes on average) which likely relates to the smaller number of cabs with which they have to respond.

The average wait time in response to telephone-requests for immediate service reported by passengers in the November 1981 onboard passenger survey was considerably shorter, or 7.44 minutes. This may be because passengers tended to underestimate their wait or because of shorter response times among drivers participating in the PPS. Passengers generally reported their wait times for street- and stand-hail trips as under 5 minutes, which is consistent with the results of the cabstand survey.** There was only one instance during the entire survey effort when the taxi queue was actually empty on any stand, and the average passenger wait time -- including that from the airport call stations -- was therefore only 2.25 minutes. No cabstand patrons failed to get a taxicab, moreover. The 1978 cabstand survey recorded several instances when there were no cabs in the queue at a stand, but passenger wait times were not recorded.

*There are no pre-open entry data for comparison. Seattle does not postulate response time acceptability standards.

**Some visitors evidently included time spent as the airport telephoning the dispatchers.

4.4.5 Age and Maintenance Level of Taxi Vehicles

The age of taxi vehicles since open entry provides a proxy for estimating passenger comfort and safety. Table 4-22 presents the median age of all taxi vehicles by ownership type since open entry and suggests that there may have been a gradual deterioration in average vehicle condition as many companies continued to operate with a comparable -- and aging -- fleet.* The rising cost of new automobiles may outweigh decreasing propensity to do good maintenance as the primary factor, however. Where the industry median vehicle age was 4 years in mid-1979, it had increased to 6 years by the close of 1981. The oldest vehicles on average belonged to the larger companies: service companies, independent fleets and fleet-sized accumulations of smaller companies. Entities of 3 or more vehicles operated within service companies and independent 1 or 2-cab firms had the newest vehicles, the median age of which was 5 years in 1981.

Rising rates of taxi vehicle inspection failure (on the first trial) -- from 25 percent in 1976 to 19 percent in 1977 to 20 percent in 1978, 33 percent in 1979 and 35 percent in 1980** -- tend to corroborate the hypothesis of a deteriorating fleet. The data provide little correlation between company size or owner type and inspection failure, however.

4.4.6 Level of Taxi Service Supply: The Traveler's Perspective

In summary, over the near-term following the regulatory revisions, the primary growth sectors within the Seattle taxi industry were the mostly non-radioed independent fleets and mini-fleets. Thus the chief

*In fact, taxi vehicle replacements were relatively frequent; the gradual aging of the fleet suggests that replacement vehicles are generally as old as the originals.

**Only two months' of (year-end) data was provided to the evaluation for 1981.

TABLE 4-22 MEDIAN AGE OF TAXI VEHICLES BY OWNERSHIP TYPE SINCE OPEN ENTRY

Owner Type	Median Age of Taxi Vehicles (Years)			
	July 79	July 80	July 81	Dec 81
Owned and Operated by Service Companies	5.0	6.0	7.0	7.0
1-2 Vehicle Entity within Service Companies	3.0	5.0	6.0	6.0
Fleet (3+ vehicles) within Service Companies	4.0	4.0	5.0	5.0
Unaffiliated Fleet	5.0	7.0	7.0	7.0
Unaffiliated 1-2 Cab Firm	4.0	4.0	5.0	7.0
Unaffiliated-Multi-Companies	-	6.0	7.0	7.0
Industry Median	4.0	5.0	6.0	6.0

Source: DLCA Taxi License Records

increases in taxi service supply from the passenger's point of view were to the airport, downtown, and hotel cabstands serving a travel-oriented, largely visitor clientele. Excess capacity waited in cabstand queues while there was generally little cruising in residential areas and response times to outlying areas were over twice as long as those to the downtown.

As these prime locations became crowded with unengaged taxicabs, however, the larger radioed firms withdrew in order to develop their package and commercial contracts -- to replace the lost stand-hail trips -- and to re-emphasize the residentially-based telephone-request business. Cruising by some of the independent fleets in the outlying areas suggests that some of the larger independents were following this model in 1981. From the Seattle resident's point of view, therefore, it may take several years before open entry induces a perceptible improvement in the general availability of taxicabs, although passenger waits at busy cabstands were quickly reduced to seconds. But competition is already taking place, with service specialization based upon the capabilities of different company types.

Taxi rates may have risen faster under open rate setting than they could have done under continued standardization, but the evidence also suggests that regulation was holding rates artificially low, as the industry contended. Moreover, at least over the near term, the majority of industry vehicles continued to be offered at the lowest rates. Trip sheet and survey results presented in the next chapter suggest that few if any taxi passengers were priced out of the market. Indeed, as the larger and lower-priced operations emphasize the residentially-based telephone request business, they will be specifically targetting the most price sensitive markets.

5. EFFECTS ON DEMAND

This section deals with changes in taxi travel demand since regulatory revision, including taxi traveler attitudes toward changes in level and quality of taxi service. It also provides the first recent data on taxi passenger profiles. The data sources for this section are the 1981 on-board passenger profile survey (PPS) conducted for the evaluation and the 1979 and 1981 trip sheet samples. See Appendix A for the sampling designs and data adjustments used.

5.1 ESTIMATES OF TAXI RIDERSHIP AND CHANGES IN AGGREGATE TRIPS

5.1.1 Change in Total Taxi Trips

The trip sheet sample data compiled from 1979 and 1981 suggest that total passenger trips declined 25 percent over the two-year interval, while taxi ridership dropped about 26 percent. Estimated total annual taxi trips were 1,894,880 in 1979 and 1,473,160 in 1981.* At 1.14 or 1.09 passengers per trip, respectively,** on the basis of the trip sheets, Seattle taxis carried 2,160,160 passengers in 1979 and 1,605,740 passengers in 1981. The latter figure amounts to as much as 2 percent of total revenue passengers carried on METRO buses in 1981.*** Indeed, the quality of

*As previously noted, the trip sheets may underestimate total trips with the rate of such omissions increasing with independent and lease operations. The PPS shifts corroborate the low productivity of the trip sheets in 1981, however, yielding an average of 7.8 trips per shift compared with 11.2 for the trip sheets, likely owing to the survey administration's effect on productivity.

**The November 1981 PPS documented average occupancy at 1.4 passengers per trip. It is likely that the PPS results overestimate average ridership somewhat, however, because firms and drivers focussing on package and airport service did not participate in the survey.

***From Transit Facts, in Municipality of Metropolitan Seattle, "Monthly Management Report," METRO Transit Department, April 1982. The Seattle transit mode split averages 25 percent and is as high as 45 percent during the peak hour, see Section 2.3.2. Previously growing at 8 percent annually, METRO ridership is currently projected to rise at about 4 percent per year to 1990.

local transit service, including the 1.3 mile long downtown free-fare area, poses formidable competition to local taxi service. Given the decline in taxi ridership, it seems unlikely that taxi open entry and variable pricing have attracted appreciable numbers of riders from METRO transit (although resident taxi riders' primary alternative mode was METRO bus, see section 5.4.6).

5.2 TAXI USER PROFILES AND TRAVEL BEHAVIOR CHARACTERISTICS

The PPS results provide the first recent data base on Seattle taxi traveler socio-economic and attitudinal characteristics; there are no previous data for comparison.

5.2.1 Socio-Economic Characteristics of Residents and Visitors

Survey data revealed Seattle taxi ridership to be one-third visitors and two-thirds residents. The residents generally included more females, more blacks, more retired and unemployed individuals, and more lower-income individuals than the visitors. That is, the resident ridership included more transportation-dependent riders than the visitor group. Table 5-1 presents socio-economic characteristics for the two sub-populations.

Resident riders were 53 percent female compared with 38 percent of visitors. Whereas the majority of both populations was white, the residents included nearly one-quarter (23%) blacks and 5 percent other non-white persons, while the visitors were 95 percent white. The visitors were 79 percent employed and 5 percent retired while the residents

*A surprising result is the high proportion of 21 to 30 year-olds and low proportion of 41 to 50 year olds among the residents which the proportions of military personnel, students and unemployed do not wholly explain. Possible reasons are first, given 30 percent non-response to the age question, that persons 41 to 50 tended not to disclose their age or, given 48 percent non-response generally, that younger persons tended to complete the questionnaire. The age distribution of persons refusing the questionnaire and reported by the surveyors is normal. No weighting was added to raise the proportion of older respondents.

TABLE 5-1 INDIVIDUAL CHARACTERISTICS OF TAXI RIDERS

	Residents (%)	Visitors (%)
Sex		
Male	47%	62%
Female	53	38
	100%	100%
Ethnicity		
White	72%	94%
Black	23	3
Hispanic	2	1
Asian	1	2
American Indian	1	0
Other	1	0
	100%	100%
Age		
Under 21	5%	6%
21-30 years	50	30
31-40 years	16	24
41-50 years	5	14
51-60 years	12	17
61-70 years	5	10
Over 70 years	6	0
	100%	100%
Employment Status		
Employed	60%	79%
Military	5	1
Student	5	8
Homemaker	7	4
Retired	12	5
Unemployed	8	1
Other	4	2
	100%	100%

Source: 1981 Passenger Profile Survey

included 60 percent employed, 5 percent military, 12 percent retired and 8 percent unemployed. The two populations had comparable proportions of students and homemakers as well as of elderly, although the residents included more of persons well beyond 70 years.

5.2.2 Household Income and Transportation Dependency Characteristics

The visitors were considerably more affluent than the resident taxi riders. As shown in Table 5-2, 65 percent of visitors had household incomes over $25,000 (and 28% over $50,000) compared with 34 percent of residents, while a quarter of the residents had household incomes under $10,000. These findings substantiate operator statements of the importance of the METRO scrip program in maintaining taxi ridership by low-income persons.* Of the two-thirds of all visitors who reported the main purpose of their visit to Seattle, the majority (55%) listed business; another 4 percent were conventioneers. Vacationing and visiting friends or relatives were the next most cited (15% and 16%, respectively) reasons for being in Seattle.

Majorities of both groups said they held a drivers license, but residents were more than twice as likely as visitors not to drive (31% compared with 13%, respectively). Indeed, 38 percent of the residents said they had no motor vehicles in their household (a question not asked of the visitors). The residents, with an average of 7.6 trips per month, had used taxicabs twice as frequently, moreover, as the visitors had (average 3.8 trips) over the month previous to the survey. The residents were also fairly regular METRO users, averaging 17 one-way bus trips over the previous month while 20 percent had ridden the bus at least once daily. Some 7 percent of the residents and virtually none of the visitors were observed by the surveyors to have mobility impairments or other handicaps.

*These results are adjusted for riders' reported taxi trip frequency on day of survey, the chief effect of which is somewhat to reduce the apparent level of transportation dependency amoung the survey ridership since the more affluent use taxicabs less frequently than poorer riders as a group.

TABLE 5-2 HOUSEHOLD INCOME AND TRANSPORTATION DEPENDENCY CHARACTERISTICS OF TAXI RIDERS

	Residents (%)	Visitors (%)
Household Income		
Under $10,000	25%	10%
$10,000 - $24,999	41	25
$25,000 - $49,999	28	27
$50,000 and Over	6	28
	100%	100%
Driver's License		
Yes	69%	87%
No	31	13
	100%	100%
Vehicles in Household		
0	38%	N/A
1	42	
2	12	
3	4	
4	4	
More than 4	<1	
	100%	
Could Have Rented Car		
Yes	N/A	78%
No		22
		100%
Disability (Observer Noted)		
Not Handicapped	93%	100%
Mobility Impaired	6	-
Other Handicap	1	-
	100%	100%

Source: 1981 Passenger Profile Survey

5.2.3 Reported Change in Residents Frequency of Taxicab Use

While 44 percent of the residents stated that their frequency of taxi use was the same at the time of the survey as it had been a year ago, 26 percent claimed to be making more trips now and 10 percent said they made fewer trips. Of those who said they had begun to use taxicabs since regulatory revision, the majority used taxis infrequently: 58 percent had made only one or no trips during the previous month. The major reasons given for the change in taxi use frequency were fewer transportation alternatives now (24 percent) and change in home or work location (21 percent). One-third (33 percent) of those who said they made more taxi trips now gave "fewer transportation alternatives" as their reason; 29 percent said their home or work location had changed and 21 percent said they could now afford to use taxis more. Of those

TABLE 5-3 RIDERS' REPORTED FREQUENCY OF TAXI AND BUS USE IN PREVIOUS MONTH*

	Residents (%)	Visitors (%)
Taxi Trips Last Month		
One or None	38%	54%
2-4 Trips	19	18
5-8 Trips	14	13
8-15 Trips	12	10
More than 15 Trips	17	6
	100%	100%
Bus Trips Last Month		
One or None	36%	N/A
2-5 Trips	17	
6-10 Trips	10	
More than 10 Trips	38	
	100%	

Source: 1981 Passenger Profile Survey

*Adjusted for taxi trip frequency on the day of survey.

who said they were making fewer taxi trips this year, 34 percent cited a change in home or work location and another third said taxis cost too much. (Small overall proportions related their taxi use to cost: 11 percent of all respondents said they could affort more taxi trips now while 10 percent said taxis had become too expensive.)

5.2.4 Company and Trip Initiation Types of Residents and Visitors

Owing to the differing service orientations of the larger and smaller company types (as reported in section 4), the large majority of the residents (86%) surveyed were carried by service companies whereas the majority of the visitors (57%) were carried by independents. As Table 5-4 shows, 77 percent of the residents' trips had been initiated

TABLE 5-4 COMPANY AND TRIP INITIATION TYPES OF RESIDENTS AND VISITORS

	Residents (%)	Visitors (%)
Company Type		
Service Companies	86%	43%
Independent Fleets (4 or more cabs)	4	21
Independent Mini-Fleets (2-3 cabs)	5	9
Independent One-Cab Firms	5	27
Total	100%	100%
Trip Initiation Type*		
Telephone-request	77%	32%
Street or Stand-Hail	21	65
Pre-arranged	2	3
Total	100%	100%

Source: 1981 Passenger Profile Survey

*As reported by riders themselves

by telephone-request while 65 percent of the visitors' trips began on the street or at a taxi stand.

5.2.5 Taxi Rider Group Size

Visitors, with a mean group size of 1.7 riders compared with 1.3 for residents, documented by the PPS, travelled in the largest groups.* The proportion of multi-rider trips (with two riders or more) did not change significantly over the two years of trip sheet data. As shown in Table 5-5, the amount of total taxicab engaged time spent carrying at least one passenger actually decreased, owing to the rise in package trips. Taxis spent 89 percent of their time with one passenger in 1979 compared with 82 percent in 1981.

TABLE 5-5 CHANGE IN PERCENTAGE OF ENGAGED TAXI TIME AT DIFFERENT OCCUPANCIES: 1979 and 1981

Number of Riders Per Trip	% of Total Engaged Time 1979	1981
0	1.5%	8.3%
1	88.9	81.5
2	7.5	8.0
3	1.2	1.5
4 or more	0.9	0.7
Total	100.0%	100.0%

Source: Taxi Operator Trip Sheets

*Recall that average occupancy rates are higher from the PPS than from the trip sheets, likely owing to the smaller incidence of package trips in the former. A negligible number of the PPS trips was coded as shared-ride; both carried only one rider.

5.3 TAXI TRIP CHARACTERISTICS

5.3.1 Taxi Trip Purposes

Not surprisingly, specific taxi trip purposes varied considerably between residents and visitors. Home-based trips (all trips either to or from home/accommodations) represented 80 percent of all trips by the former and 64 percent of trips by the latter. As Table 5-6 shows, residents made a greater proportion of work and work-related trips (35 percent compared with 22 percent for visitors), while a large share of visitors' trips were inter-city travel-connected (35 percent compared with only 4 percent for residents). Residents used taxis twice as frequently for shopping as visitors (12 percent compared with 6 percent), while visitors used taxis more often than residents for social-recreational travel (22 percent with 10 percent).

TABLE 5-6 TAXI TRIP PURPOSES (COMBINED ORIGINS AND DESTINATIONS) OF RESIDENTS AND VISITORS AS PERCENTAGE OF ALL TRIP ENDS: 1981

Purposes	Residents (%)	Visitors (%)
Home/Accommodations (non-work, non-school, etc.)	18.5%	1.1%
Work and Work-related	35.1	22.4
School	2.8	2.7
Shopping	12.3	5.9
Medical	7.7	7.5
Personal Business	8.6	4.0
Social-Recreational	10.2	21.5
Travel Connection	3.7	34.9
METRO Connection	0.8	-
Other	0.2	-
Total	100.0%	100.0%

Source: 1981 Passenger Profile Survey

5.3.2 Changes in Time of Day of Taxi Trips

The trip sheet data suggest an increase in early morning and morning taxi travel at the expense of evening and nighttime trips. Table 5-7 displays the proportions of weekday, Friday, weekend, and total trips beginning within selected time bounds for 1979 and 1981. Trips beginning between 8 am and 1 pm increased from 29 percent to 33 percent of all trips and those beginning between 3 am and 8 am rose from 8 percent to 11 percent while late night trips starting between 11 pm and 3 am dropped from 13 percent to 9 percent.*

These shifts are primarily due to changes in Friday and weekend taxi travel. The proportion of early morning trips on Fridays doubles (from 7% to 14%) between 1979 and 1981, while that on weekend mornings more than triples. In contrast, morning to noontime Friday travel decreased from 37 percent to 29 percent, while that on weekend evening travel declined markedly, both in the 6 pm - 11 pm time period (from 32% to 17%) as well as in the late night 11 pm - 3 am band (from 18% to only 3% of all weekend trips). These changes may relate to the fact that the new trips are primarily those of visitors (served by independents) and that many of these are daytime travel-connected. Or, they may reflect citizen -- chiefly resident -- concern over potential danger at night.

Figures 5-1 and 5-2 display the time distributions of weekday taxi trips served by the three primary company types in 1979 and 1981. The major difference to be noted between the two years is the gradual clustering of all three company types around the same basic service envelope. Peaks and valleys distinguishing their different service orientations are smoothed out with the three company types apparently competing for the same sorts of trips. The service companies' service envelope is almost unchanged while those of the other company types have apparently flattened out to approximate this model.

*The 1981 PPS results corrobrate this distribution.

TABLE 5-7 TAXI TRIPS BY TIME OF DAY AND DAY OF WEEK: 1979 and 1981

Time Period	As % of All Trips by Day of Week: Weekday 79	Weekday 81	Friday 79	Friday 81	Weekend 79	Weekend 81	Total 79	Total 81
3 am - 8 am	9%	9%	7%	14%	4%	13%	8%	11%
8 am - 1 pm	29	30	37	29	20	42	29	33
1 pm - 6 pm	26	25	28	27	26	25	27	26
6 pm - 11 pm	22	24	17	17	32	17	23	21
11 pm - 3 am	13	11	12	13	18	3	13	9
Total	100%	100%	100%	100%	100%	100%	100%	100%
Sample Sizes	1329	991	525	527	536	271	2385	1789

Source: Taxi Operator Trip Sheets

5.3.3 Changes in Origins and Destinations Served

The trip sheet samples indicate a shift from 1979 to 1981 toward a greater proportion of generally longer-haul airport-connected travel at the expense of CBD trips. As shown in Table 5-8, 7.3% of average weekly trips in 1979 were airport-connected, compared with 16.2% in 1981. The change is primarily due to the varying focus of the different company types: 3.1% of all service company trips were airport-connected in 1981, compared with 65.4% of Sea-Tac trips and 35.1% of other independents. Correspondingly, generally short CBD-connected trips declined from 45 percent to 31 percent. On the other hand, there was also a rise in travel between other Seattle points from 19 percent to 25 percent, which suggests that in-city travel is not being wholly neglected in favor of airport-connected trips, although it is also consistent with the indicated preference for longer-haul trips. Travel between other major city and King County origin-destination pairs remains substantially unchanged.

FIGURE 5-1 DISTRIBUTION OF TAXI TRIPS (AS PERCENTAGE OF ALL RECORDED TRIPS WITHIN COMPANY CATEGORIES) BY START TIME AND COMPANY TYPE: WEEKDAYS 1979

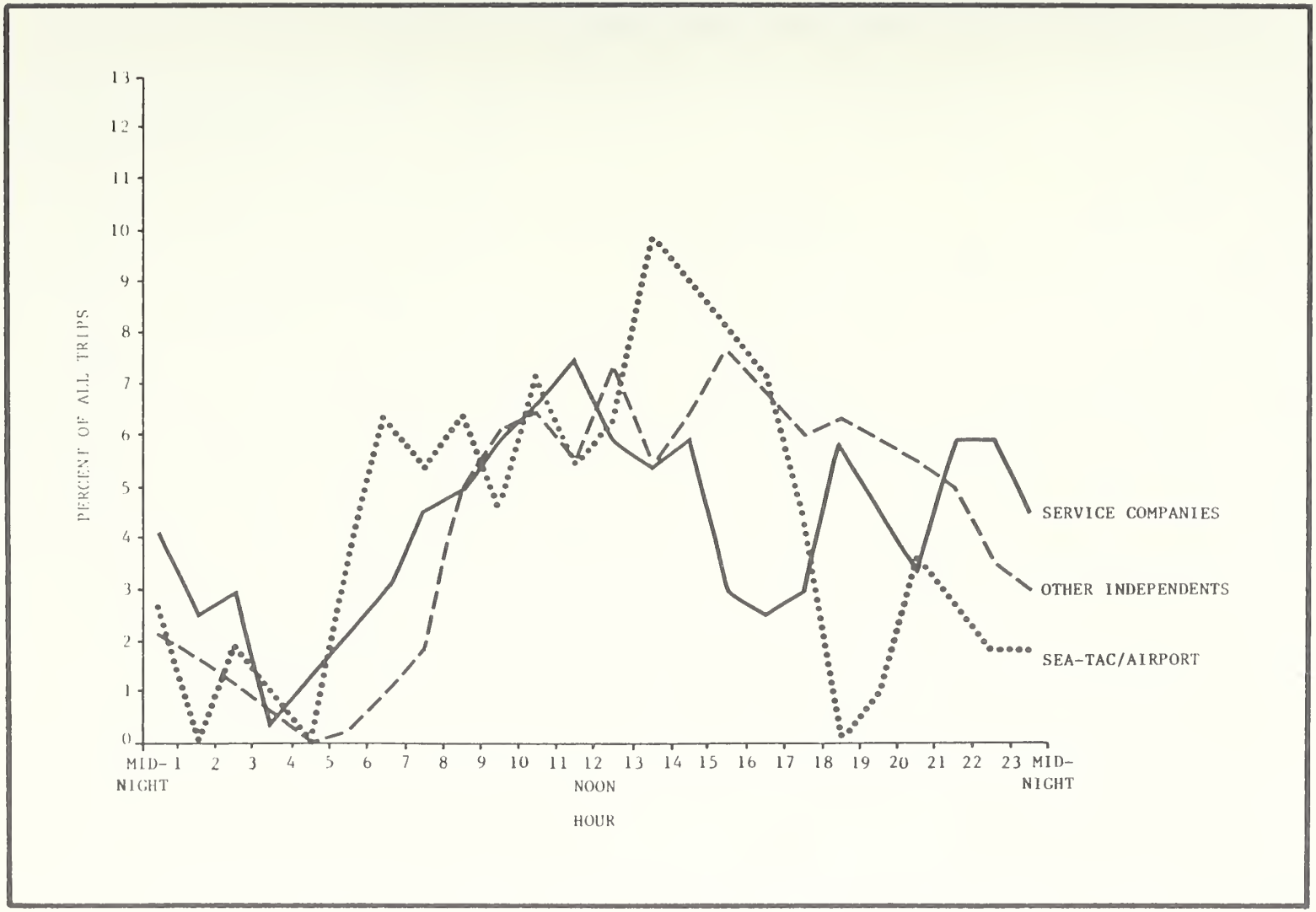


FIGURE 5-2 DISTRIBUTION OF TAXI TRIPS (AS PERCENTAGE OF ALL RECORDED TRIPS WITHIN COMPANY CATEGORIES) BY START TIME AND COMPANY TYPE: WEEKDAYS 1981

TABLE 5-8 CHANGES IN TRIP PROPORTIONS OF MAJOR ORIGIN-DESTINATION PAIRS: 1979 and 1981

Principal O/D Pairs	As % of All Trips 1979	1981
Airport-Seattle CBD	1.9%	3.0%
Airport-Other Seattle	3.1	5.7
Airport-King County	2.3	7.5
Intra-CBD	7.9	4.5
CBD-Other Seattle (not King County)	36.9	26.4
Intra-Denny Medical	6.0	7.9
Denny Medical-Other Seattle (non-CBD)	17.6	14.9
Intra-Other Seattle	19.4	25.1
Seattle-King County	3.8	3.1
Intra-King County	1.1	1.8
Total	100.0%	100.0%
Sample Sizes	2385	1789

Source: Taxi Operator Trip Sheets

5.3.3.1 Variation Among O/D Pairs by Time of Day - Little of added interest can be learned by studying the distributions of O/D pairs by time of day. The proportion of airport-connected trips rises consistently between 1979 and 1981 except for the evening and early morning hours, when it remains about stable. CBD-connector trips, formerly dominant during the daylight hours, drop to about a third of all trips between 8 am and 6 pm, to a quarter between 6 and 11 pm and a fifth of 3 to 8 am travel. The proportion of Intra-Other Seattle (non-CBD) trips increases more or less consistently, as reported. The rise in early morning travel in 1981 is evidently partly owing to an increase in Denny Medical-Other Seattle and Intra-Other Seattle trips during this time period, although airport trips maintain a consistent share during these hours as well.

5.3.3.2 Changes in Trip Initiation Mode by Trip Origins - Examining the distribution of taxicab trip origins by initiation mode -- telephone-request, stand- or street-hail -- merely corroborates conclusions reported earlier. There is a sharp rise (from 5% to 28%) in the proportion of stand-hail trips originating at the airport. There is also an increase (from 7 to 14%) in the proportion of stand- and street-hail trips beginning outside the CBD and Denny Medical areas, suggesting some cruising in these outlying areas by non-radioed firms.

5.3.4 Changes in Taxi Trip Lengths and Travel Times

Average taxi trip lengths (in miles) calculated from trip fares reported on the trip sheets suggest that trips have lengthened some 41 percent from 3.2 to 4.5 miles between 1979 and 1981, chiefly owing to the rise in airport and package delivery service. The 1981 PPS documents a considerably shorter average trip length of 3.2 miles. While the PPS results are presumably more accurate than those from the trip sheets -- the surveyors recorded odometer readings at the trip start and end -- they likely include some bias against longer trips as drivers focussing chiefly on package and airport service did not participate in the survey.

Trip time boundaries recorded on the trip sheets reveal no significant increase in average trip travel times despite the increase in average mileage. This finding likely reflects the fact that the longer airport and package trip types are faster, freeway-driven trips. This hypothesis is supported by the difference in trip travel times reported in the PPS. The trip sheets yielded an average travel time of 11.7 minutes for 1979 and 12.1 minutes for 1981, with an average trip length of 3.2 and 4.5 miles, respectively. The PPS yielded an average trip travel time of 9.7 minutes for an average trip of 3.2 miles. The PPS travel time is proportionately longer for the distance than those reported from the trip sheets since the former source evidently excludes many of the fast, freeway-oriented airport and package trips. (Survey administration may have lengthened the PPS trips somewhat.)

5.4 TAXI TRAVELER ATTITUDES AND AWARENESS OF TAXI SERVICE

The 1981 PPS provides a variety of indices of passenger awareness and valuation of changes in taxi service incident on open entry and rate setting. There are no previous data for comparison, but patrons were asked to estimate their valuations of perceived changes in service attributes as well as their responses to these level of service changes.

5.4.1 Passengers' Opinion of Overall Quality of Taxi Service

Vast majorities of both residents and visitors (87% and 90%, respectively) gave positive ratings to the overall quality of Seattle taxi service, as shown in Table 5-9. The ratings generally did not vary consistently with frequency of taxi use: 22-23 percent of residents or visitors who said they had made one taxi trip in the previous month rated the service "poor," while 18 percent of Seattle residents who were rather frequent taxi users (more than 15 trips per month) did so; 18 percent of visitors who claimed to be occasional taxi users (2 to 4 trips per month) also rated Seattle service as poor.

5.4.2 Awareness of Variable Pricing

Over half of the residents (59%) and one-quarter of the visitors (27%) said they were aware that taxi rates may vary in Seattle. As shown in Table 5-10, the most common means of learning about variable pricing among visitors (38%) was word of mouth, compared with 32 percent of residents, whereas residents most frequently (38%) cited exterior rate posting, an approach surprisingly little used by visitors.

TABLE 5-9 TAXI PASSENGER VALUATIONS OF TAXI SERVICE ATTRIBUTES

	Residents (%)	Visitors (%)
Overall Quality of Taxi Service		
Excellent	23%	26%
Good	64	64
Fair	8	4
Poor	4	4
Don't Know	-	3
Total	100%	100%
Awareness of Variable Rates		
Yes	59%	27%
No	41	73
Total	100%	100%
Taxi Availability		
Better	12%	N/A
Worse	6	
Same	52	
Don't Know	29	
Total	100%	
Promptness of Taxi Service		
Better	10%	N/A
Worse	4	
Same	60	
Don't Know	25	
Total	100%	
Condition of Vehicles		
Better	10%	N/A
Worse	16	
Same	50	
Don't Know	24	
Total	100%	
Quality of Drivers		
Better	15%	N/A
Worse	9	
Same	47	
Don't Know	29	
Total	100%	

Source: 1981 Passenger Profile Survey

TABLE 5-10 MEANS BY WHICH RIDERS LEARNED ABOUT VARIABLE PRICING

Means of Learning	Residents (%)	Visitors (%)
Print or electronic media	17%	32%
Signs at airport	6	14
Rates on taxi doors	38	1
Company advertisements	10	4
Learned from someone else	32	38
Learned from experience	10	-
Other means	18	11
Total (Multiple Responses)	131%	100%

Source: 1981 Passenger Profile Survey

This knowledge did not appear to influence riders' overall quality of service ratings, however, except insofar as those who rated the service as "poor" (5% overall) were more than three times as likely to be aware of variable pricing (78% aware compared to 22% unaware). Not surprisingly, progressively more frequent resident taxi users included a progressively higher proportion of riders who were aware of variable pricing, from 33 percent aware among non-users to 84 percent among those making more than 15 taxi trips during the previous month.*

5.4.3 Response to Variable Pricing: Comparison Shopping

Visitors were much less likely to comparison-shop for taxi service than residents. Although about half of the residents and one-quarter of the visitors said they were aware of variable pricing, only 26 percent of residents and 9 percent of visitors reported they try to comparison-shop when selecting a taxicab. Most of the residents (65% of those who said they comparison-shop) used exterior rate posting to compare rates.

*Curiously, this relationship also appeared to hold for visiting taxi travellers; 10 percent of non-users were aware that Seattle rates varied, compared with 69 percent of visitors who made 8 to 15 taxi trips at home during the previous month. Only 40 percent of high-frequency user-visitors were knowledgeable about Seattle taxi rates, however.

Surprisingly, 37 percent of visitors cited loyalty to one company* while 34 percent said they called different companies to ask rates.

Of those who explained why they chose not to comparison-shop, 31 percent of the residents and 24 percent of the visitors said they used taxicabs so seldom that the cost did not add up to much. Indeed, 18 percent of the residents and 15 percent of the visitors said price did not matter that much, while 19 percent of residents also cited their loyalty to one company as the overriding factor.

5.4.4 Perceived Changes in Taxi Service Attributes

In addition to the overall quality of service, residents were asked to rate perceived changes over the past year in several taxi service attributes. About half of all respondents observed each attribute to be the same as before. The highest frequencies of response for an observed change were for "condition of vehicles" rated "worse" by 16 percent of respondents (while 10 percent said it was "better"), and "quality of drivers," rated "better" by 15 percent (while 9 percent said worse).

Patron complaints recorded by DLCA from mid-1979 through mid-1981 and presented in Table 5-11 shed little further light on passenger appraisals of taxi service. Fare-related complaints, particularly at the airport, are the most frequent in all three years, but have declined substantially, from 49 percent to 35 percent of all complaints over the first half of 1981. Service refusal (18%) and driver discourtesy (16%) are the other most frequently recorded complaints. The total number of complaints has declined from a high of 73 throughout calender year 1980 to 20 over the first six months of 1981.

*Which suggests that they answered in terms of their hometown use or that they used the same-named company in Seattle that they favored at home.

TABLE 5-11 PROPORTIONS (%) OF VARIOUS TAXI-RELATED COMPLAINTS OVER TIME

Type of Complaint	Proportions of All Recorded Complaints by Year			Total (24 mos)
	1979 (6 mos)	1980	1981 (6 mos)	
Fares/Rates-Airport	37.5%	37.0%	15.0%	32.7%
Fares/Rates-Other Locations	-	12.3	20.0	12.9
Service Refusal	12.5	21.9	5.0	17.8
Response Time	12.5	-	-	1.0
Circuitous Route	12.5	5.5	10.0	6.9
Discourtesy or Driver Behavior	25.0	12.3	25.0	15.8
Vehicle Appearance or Safety	-	1.4	5.0	2.0
Other	-	9.6	20.0	10.9
Total	100.0%	100.0%	100.0%	100.0%
Number of Complaints	8	73	20	101

5.4.5 Factors in Taxicab Mode Choice and Company Selection

Table 5-12 shows the survey options resident and visitor taxi riders checked to explain why they chose a taxicab for their trip. The highest frequency response among both groups was that a taxi was the only transportation available (37% of visitors and 35% of residents). An almost equally large proportion of visitors (31%) took a taxi because they were unfamiliar with Seattle. Like proportions of both groups (29% of residents and 26% of visitors) also said they chose a taxicab because it saves time. While similarly high frequencies of both residents and visitors also cited "only transportation available" as their major reason for using a taxicab, respondents' relatively high affluence and low taxi trip frequencies suggest that they are not really transportation dependent. Perhaps the "only transportation" response needs to be interpreted in the light of "saves time," that is, that no other transportation option offers the convenience of a taxicab.

As to why they chose the particular taxi company they were riding, the majority of visitors (69%) said the cab was the first available,* while the highest frequency response among residents (37%) was that it was the company with which they were most familiar. (Ten percent of residents also said their chosen company offered the best service.) Low rates, vehicle or driver appearance, and company advertising were cited relatively infrequently as factors in taxi company selection.

5.4.6 Riders' Mode Alternatives to Taxi

About one-quarter (29% and 27%, respectively) of both residents and visitors said they would have made their trip by private car as driver or passenger if they had not used a taxicab. METRO bus was the highest frequency alternative among residents (31%), however, and 23 percent of visitors also cited this alternative. Only 14 percent and 13 percent, respectively, said they would not have made the trip if not by taxicab.

*Recall that the majority of visitor trips were initiated at stands or on the street.

TABLE 5-12 FACTORS IN TAXICAB MODE CHOICE AND CAB COMPANY SELECTION

Reason Chose Cab for Trip	Residents (%)	Visitors (%)
Only transportation	35%*	37%*
Rider's disability	8	3
Unfamiliar with area	7	31
Packages/Luggage to carry	7	18
Not feeling well	7	2
Bad weather	14	7
Saves time	29	26
Saves money	3	2
Safety	4	5
Someone else is paying	9	3
No particular reason	3	3
Total (multiple responses)	126%	137%
Reason Chose This Cab Company		
First available	20%	69%
Vehicle/Driver appearance	6	1
Low rates	7	6
Company serves my area	22	2
Most familiar with it	37	2
Driver courteous/helpful	18	5
Company advertising	4	1
Offers best service	10	4
Other reasons	20	27
No particular reason	6	2
Someone else chose cab	2	11
Employer contracts with company	5	1
Total (multiple responses)	157%	131%

*Major reason identified by respondents

6. EFFECTS ON TAXI OPERATOR PRODUCTIVITY

This chapter reports changes between May 1979 and May 1981 in taxi operator productivity measures such as number of trips, paid miles, and fare revenue collected per shift and per hour, based upon data from operator trip sheets. It should be noted that Seattle no longer requires taxi companies to maintain trip sheets and many operators reported their sheets to be unavailable. Findings based upon the sample data must be therefore interpreted cautiously, as noted. Reliable financial and operating data were also not available for the evaluation to estimate operating cost and cost-effectiveness measures. Finally, it should be emphasized that the findings reported here are for the relatively near term 22 months following the regulatory code revisions in Seattle. Longer-run impacts may differ as the continued interaction of taxi operator supply changes and traveler demand responses produces a changing level of supply and demand reflected in new revenue and productivity statistics.

6.1 CHANGES IN INDUSTRY AVERAGE SHIFT PRODUCTIVITIES

The data suggest that a number of taxi shift productivity measures declined with industry expansion between 1979 and 1981. The average number of all trips booked per shift dropped from 16.2 to 10.6. The estimated number of all trips produced per cab per year therefore fell dramatically, from 5,480 per cab given the smaller industry in 1979 to 2,830 per cab following industry expansion through May 1981.* That is, in 1981 there were 51 percent more taxicabs, running only about 76 percent as many trips per shift. The number of all trips booked per hour declined from 1.6 to 1.1, while the number of riders carried per hour dropped from 1.8 to 1.2, although average occupancy per trip remained at 1.1.

*Seattle economist Keith Kleinhen, in his "Analysis of the Price Elasticity of Demand...," Seattle DLCA, May 1977, estimated annual trips per cab at 5,300 in 1977, down from 6,510 in 1976, based upon B&O tax records from 87 taxicabs. Although the 1979 estimate represents a productivity improvement with industry growth in 1979, the tax data base is not strictly comparable with the 1979 and 1981 trip sheets.

Total weekly vehicle miles driven also declined 8 percent from 299,870 in 1979 to 277,160 in 1981. The trip sheets collected generally omit the paid miles driven per shift, but a weekly estimate can be derived on the basis of the industry average trip length in each year -- 3.2 and 4.5 miles, respectively -- calculated from trip fares. According to these estimates, total weekly paid miles driven increased 9 percent from 116,600 in 1979 to 127,500 in 1981, but the rate of paid miles driven per in-service hour dropped from 5.23 to 5.02.*

On the other hand, this estimate suggests that the ratio of paid to total miles improved slightly from 0.389 to 0.460 industrywide. That is, drivers logged 2.6 vehicle miles for every paid mile booked in 1979, compared with 2.2 miles in 1981. This increase in the face of other productivity decreases is likely owing to two primary factors: reduction in total vehicle miles travelled to obtain trips as many of the newer operators particularly plied the airport and other high-yield cabstands; and increase in the number and proportion of long-haul airport and package trips.

Total weekly fare revenue increased 15 percent, from $147,250 in 1979 to $168,800 in 1981, owing to a similar rise in the industry weighted average taxi rate as well as to the larger number of shifts provided and an estimated increase in the average taxi trip length. But average revenue booked per shift remained more or less steady, at $65.37 in 1979 and $66.92 in 1981. Although local lease fees remained more or less steady over the same interval, the local CPI rose 29 percent; on the basis of these data, taxi operators lost ground against inflation

*The November 1981 on-board passenger survey conducted for the evaluation documented the average trip length at 3.2 miles, but this result is likely biased downward owing to the lesser proportions of airport and package trips run by the operators participating in the survey effort. Seattle FTC economist Randall K. Bartlett, in "The Regulation of Taxicabs in the City of Seattle," U.S. Federal Trade Commission, Seattle Regional Office, April 1977, estimated industry average paid miles per hour at 5.3 in 1976. His estimate is based upon trip sheets of an 8 percent sample of industry vehicles from 9 companies.

between 1979 and 1981. Average fare revenue collected per hour was $6.60 in 1979 and $6.65 in 1981. Table 6-1 presents these key productivity measures for 1979 and 1981.

6.2 EFFECTS BY COMPANY TYPE

6.2.1 Changes in Company Type Shares of Average Weekly Trips

The changes in company type shares of all average weekly taxi trips documented between 1979 and 1981 in Table 6-2 reflect changes in industry size and structure. Thus, the independents' share of all trips has increased 54 percent, chiefly at the expense of the service companies. On the other hand, the larger companies continue to garner a larger share of total trips than their commensurate share of permits. The service companies held 69 percent of all active licenses in May 1979 and captured 78 percent of all trips; in May 1981, these companies held a 61 percent share of all licenses and accounted for 70 percent of all trips. Independents other than Sea-Tac/Airport accounted for 21 percent of all licenses and 16 percent of all trips in 1979 compared with 35 percent of licenses and 26 percent of all trips in 1981.

There was little variation in company type shares of all trips by day of week. The data suggest that the service companies may garner an increased share (77%) of all weekend trips in 1981, but the difference is not statistically significant at the 95 percent level.

6.2.2 Change in Company Type Shares of Average Weekly Fare Revenues

The independents (other than Sea-Tac) greatly improved their share of average weekly fare revenue at the expense of the service companies between 1979 and 1981. The service companies' majority share of average weekly fare revenues dropped from three-quarters in 1979 to 57 percent in 1981, while that of the independents more than doubled, rising from

TABLE 6-1 CHANGES IN INDUSTRY PRODUCTIVITY MEASURES SINCE OPEN ENTRY

	1979*	1981*
Industry Size (No. of Licenses)**	346	521
Average Weekly In-Service Hours	22,300	25,400
Average Weekly Trips (Total)	36,440	28,330
Average Weekly Passenger Trips	35,690	26,840
Average Weekly Paid Miles	116,600***	127,500***
Average Weekly Vehicle Miles	299,870	277,160
Average Weekly Fare Revenue	$147,250	$168,800
Average Weekly Riders	41,540	30,880
Ratio of Paid to Total Miles	0.389***	0.460***
Average Trips per Cab per Day	15.0	7.8
Average Riders per Trip	1.14	1.09
Average Trips per Hour	1.63	1.12
Average Paid Miles per Hour	5.23***	5.02***
Average Fare Revenue per Hour	$6.60	$6.65
Average Riders per Hour	1.82	1.15

*Data from statified random sample of industry trip sheets; see Appendix A for sampling methodology and data adjustments used.
**Based upon DLCA license records.
***Estimated paid miles derived from trip lengths estimated from fares.

TABLE 6-2 CHANGES IN COMPANY TYPE SHARES OF AVERAGE WEEKLY TRIPS AND FARE REVENUE: 1979 and 1981

	% Shares of Total Weekly Trips By Company Type			Total Weekly Industry Trips
	Service Companies	Sea-Tac/Airport	Other Independents	
1979	77.9%	5.8%	16.3%	36,440 (100%)
1981	69.5	5.4	25.1	28,330 (100%)

	% Share of Total Weekly Fare Revenue by Company Type			Total Weekly Industry Fare Revenue
	Service Companies	Sea-Tac/Airport	Other Independents	
1979	75.6	8.9	15.5	$147,250 (100%)
1981	56.9	7.3	35.8	$168,800 (100%)
Sample Sizes (Shifts)				
1979	358	152	83	593
1981	459	105	206	770

Source: Taxi Operator Trip Sheets

16 percent in 1979 to 36 percent in 1981.* The smaller firms' cut of weekly fare revenues despite their smaller share of all trips results from the higher average rates filed by these firms (see section 4.2.3) as well as from the longer trips they book (see section 6.2.3.5).

The weekday proportion of weekly fare revenue rises at the expense of weekends owing to the fact (as reported in section 4.4) that many of the newer independent operators de-emphasize weekend service. The Friday share of weekly revenues remains roughly constant over the two-year interval.

6.2.3 Changes in Shift Productivities by Company Type and Day of Week

6.2.3.1 Trips per Shift - Both the large service companies and the independents other than Sea-Tac have experienced steep reductions in their average number of trips booked per shift, as shown in Table 6-3. The service companies' trip production declined by 21 percent, from 17 to 14 trips per shift while that of the independents dropped to half its previous level, from 15 to 7 trips. Sea-Tac has generally maintained its productivity over the two-year period. The service companies maintain the industry's highest average trip production rates, nonetheless, booking 14 trips per shift on average compared to 11 industrywide in 1981.

There is little variation by day of week. Weekend shifts show the highest productivity levels for service companies and the lowest for independents other than Sea-Tac in 1979, but produce about as many trips as other days for these company types, as well as industrywide, in 1981.

*It should be remembered, however, that the larger companies do a sizable contract business which may not be completely reported in the shift revenues estimated here.

TABLE 6-3 AVERAGE TRIPS PER SHIFT BY DAY OF WEEK AND COMPANY TYPE: 1979 and 1981

Day of Week	Average Trips per Shift by Company Type: 1979 and 1981							
	Service Companies		Sea-Tac/Airport		Other Independents		Total Industry	
	79	81	79	81	79	81	79	81
Weekday (Mon-Thurs)	16.6	13.8	11.5	10.7	15.6	7.2	16.0	11.0
Friday	15.6	15.3	11.9	12.0	16.7	8.1	15.5	12.2
Weekend (Sat & Sun)	19.6	14.0	11.7	11.0	11.8	6.6	16.9	11.3
Average Weekly Trips per Shift	17.1	14.1	11.6	11.0	14.5	7.2	16.2	11.2
Sample Sizes	358	459	152	105	83	206	593	770
Group Std. Deviation	7.6	5.9	5.4	3.7	7.4	4.2	7.6	6.1

Source: Taxi Operator Trip sheets

6.2.3.2 Paid Miles Per Shift - Too few trip sheets reported paid miles driven in either 1979 or 1981 for the evaluation to report accurate averages by company type or assess changes over time.

6.2.3.3 Total Vehicle Miles per Shift - The owner-operator or lessee driver likely attempts to reduce total vehicle mileage driven on a shift in order to minimize gasoline costs and mileage charges assessed over the lease fee. Thus the attraction of the airport and other high-demand cab-stands where drivers do not have to answer bells or cruise to obtain trips.* With a proliferation of (generally non-radioed) independent owner-operators and lessee-driven shifts under open entry, therefore, we would expect to witness a drop in total vehicle miles driven per shift. Industry average total miles per shift does decline 21 percent from 135 miles in 1979 to 112 miles in 1981 (as shown in Table 6-4), and more or less evenly across all company types and throughout the week.

The sole exception is the increase in total miles driven on the weekend shifts of the independents other than Sea-Tac. As previously noted, these are also the longest shifts driven -- 12.3 hours versus 11.1 hours on average, industrywide -- as well as the least productive -- 6.6 trips compared with 11.3 trips industrywide. These high odometer readings may simply reflect drivers' dogged persistence in the face of low trip productivity.

Sea-Tac/Airport drivers continue to clock more than 50 percent more miles per shift on average than those either of the service companies or other independents across both years. According to company management, Sea-Tac service comprises a growing proportion of package deliveries which may run up to 38 miles individually. These readings also include from 4 to 6 airport-connected trips per shift on average, the industry's highest proportion of airport-connected trips. Although the company no

*On the other hand, one fleet operator reported he aims to keep his vehicles running because experience teaches him this lowers maintenance costs.

TABLE 6-4 AVERAGE MILEAGE DRIVEN PER SHIFT BY DAY OF WEEK AND COMPANY TYPE: 1979 and 1981

Day of Week	Total Miles Per Shift by Company Type: 1979 and 1981							
	Service Companies		Sea-Tac/Airport		Other Independents		Total Industry	
	79	81	79	81	79	81	79	81
Weekday (Mon-Thurs)	128.4	107.3	196.8	165.1	123.3	101.4	135.2	110.2
Friday	130.1	110.5	199.8	164.1	127.1	115.3	135.6	117.1
Weekend	142.6	109.0	198.4	168.8	81.9	104.8	134.2	111.3
Average Weekly Vehicle Mileage per Shift	132.1	108.1	197.6	165.4	108.4	104.5	135.0	111.5
Sample Sizes	358	459	152	105	83	206	593	770
Group Std. Deviation	43.1	34.5	72.4	60.4	46.4	45.9	52.5	44.7

Source: Taxi Operator Trip Sheets

longer maintains airport stickers for its vehicles, it continues to pick up at the airport in response to its (reportedly numerous) telephone requests for airport service.

The extent of missing data on paid miles per shift precludes accurate estimation of and comparisons between ratios of paid to total miles by sub-group. As previously noted, the estimated industry average paid to total miles ratio improved slightly between 1979 and 1981. It seems likely that this change reflects both the average drop in total vehicle miles and the increase in long-haul trips, the chief markets of new and independent operators as well as of Sea-Tac/Airport. This hypothesis is supported by the average trip lengths reported by company type in section 6.2.3.5.

6.2.3.4 Fare Revenues per Shift - The sample data suggest that the industry managed to maintain its average levels of fare revenue at about $66 booked per shift between 1979 and 1981, as shown in Table 6-5. Sea-Tac/Airport is the only sub-group which shows an actual average gain -- from $72 to $87 per weekly shift. The service companies, Sea-Tac and the industry as a whole showed increases in Friday revenues, while the independents increased their weekend revenues, given their longer weekend shifts.

The industry managed to hold the line on per shift revenues despite the general decline in the number of trips booked per shift chiefly because of increases in their rates as well as in the number and proportion of their long-haul trips. According to the U.S. Bureau of Economic Statistics, however, the Seattle-Everett Consumer Price Index increased by 29 percent between May 1979 and May 1981,* so that according to these data, all operation types actually lost ground in relation to the local inflation rate.

*HANDBOOK OF BASIC ECONOMIC STATISTICS, Vol. XXXVI, No. 2, June 1982.

TABLE 6-5 AVERAGE FARE REVENUE PER SHIFT BY DAY OF WEEK AND COMPANY TYPE: 1979 and 1981

Day of Week	Per Shift Revenue ($) by Company Type: 1979 and 1981							
	Service Companies		Sea-Tac/Airport		Other Independents		Total Industry	
	79	81	79	81	79	81	79	81
Weekday (Mon-Thurs)	$66.27	$69.01	$72.69	$88.85	$60.62	$62.68	$65.89	$67.68
Friday	63.62	73.29	72.88	90.87	65.25	63.43	64.49	70.36
Weekend (Sat & Sun)	72.13	64.11	68.53	74.08	44.24	55.48	64.76	61.53
Average Weekly Fare Revenue per Shift	67.00	68.63	71.71	87.22	55.83	61.58	65.37	66.92
Sample Sizes	358	459	152	105	83	206	593	770
Group Std. Deviation	28.69	26.05	26.26	35.39	22.58	28.13	27.87	28.10

Source: Taxi Operator Trip Sheets

On the other hand, the totals reported on the trip sheets may underestimate actual fare revenues. Given a lease fee of $25 per shift and $17 for gasoline, independent lessees would have taken home $20 per 10-hour shift in 1981. This finding is hardly consistent with current operator reports of a continuing abundance of lessee drivers. (If the data underestimate total trips and fares somewhat, however, they evidently do so across both years and appear sufficiently consistent to indicate company type and temporal differences.)

6.2.3.5 Trip Lengths - Comparing average trip lengths by company type helps to explain the differences in per shift revenues just reported. Owing to the lack of data on paid miles, trip lengths reported in Table 6-6 are estimated from fares. Results should be interpreted cautiously as there are few companies represented in certain cells. The major difference to be noted is that although some of the independents book trips commensurate in length with those of service companies in 1979, the smaller firm types all show longer trips -- despite variations in rates -- in 1981. The average trip length among one-cab firms has increased 34 percent while that among independent fleets nearly tripled. These changes far outweigh the 20 percent average rate increase among the first group and 15 percent rise among the latter.

6.2.3.6 Hourly Productivities by Company Group - Table 6-7 summarizes hourly productivities in terms of trips and fare revenue by company type for 1979 and 1981. These measures help to crystallize the issue of productivity from the taxi driver's point of view.

a. Trips per Hour - All company types are less active in 1981 than in 1979, while the sevice company shifts remain the most active industrywide, booking nearly 2 trips per hour in 1979 and almost one and a half in 1981. If the average trip takes 12.10 minutes in 1981 (see section 5.3.4), plus 3 minutes to load and unload, at 1.12 trips per hour, the average taxicab would be engaged only 17 minutes out of every service hour in 1981. In comparison and on the basis of an average trip

TABLE 6-6 CHANGE IN AVERAGE TRIP LENGTHS* BY COMPANY TYPE: 1979 and 1981

Year	Average Trip Length (Miles) by Company Type					
	Service Companies	Sea-Tac/ Airport	Independents 4 or more Cabs	Independents 2-3 Cabs	Independents One Cab	Total Industry
1979:	3.12	5.64**	2.03**	3.15**	3.85	3.22
1981:	3.57	6.21	6.58	12.83**	5.14	4.53

Source: Operator Trip Sheets

*Estimated from trip fares
**One company's data only

TABLE 6-7 CHANGES IN HOURLY PRODUCTIVITY RATES BY COMPANY TYPE: 1979 and 1981

	Hourly Measures by Company Type: 1979 and 1981							
	Service Companies		Sea-Tac/Airport		Other Independents		Total Industry	
	79	81	79	81	79	81	79	81
a. Trips Booked per Hour in Service	1.77	1.41	1.22	1.01	1.31	0.71	1.63	1.12
b. Fare Revenue Booked per Hour in Service	$6.95	$6.90	$7.53	$8.01	$5.06	$6.05	$6.60	$6.65
c. Passengers Carried per Hour in Service	1.97	1.48	1.16	0.86	1.56	0.75	1.82	1.15

Source: Taxi Operator Trip Sheets

time of 11.7 minutes plus 3 for boarding, etc., the average taxicab was engaged 24 minutes out of the hour in 1979. On an average 10.1 hour shift, then, this means 1.3 additional hours of unengaged time in 1981.

b. Fare Revenue per Hour - On the other hand, none of the company types shows an actual drop in hourly fare revenue collected, although any gains recorded are generally meager. The hourly return in fares is maintained, as previously noted, chiefly by virtue of company rate increases and increases in the average length of trips provided. The service companies' high trip productivity is not reflected in higher hourly fare revenues because of the higher incidence of short-haul trips they serve as well as their comparatively low rates.

c. Passengers Carried per Hour - Since the average vehicle occupancy per trip did not change over the two-year interval, the rate of passengers carried per hour declines across all company types with the drop in passenger trips between 1979 and 1981. Sea-Tac/Airport did not decrease its total trips but evidently shifts its focus toward more non-passenger-carrying package deliveries.

6.2.4 Variation and Changes in Shift Productivities Veteran and New Owners

The 1979 data, which represent industry operators prior to open entry, include no trip sheets from new operators. The 1981 data provide for comparisions between veteran and new operators among all company types. But the results yield no significant differences in the various productivity measures considered here.

6.2.5 Differences Between Day and Night Shifts

There were no significant differences on these measures between day and night shifts in the 1979 data set. Night shifts were some three-quarters of an hour on average longer in 1981 than day shifts, and

principally among the service companies and Sea-Tac. The longer night shifts produced about two more trips on average than day shifts. The added trips were not reflected in higher total fare revenue, however, evidently because nighttime trips were somewhat shorter than day trips. Night shifts incurred slightly more total mileage than day shifts, moreover, because nighttime service included more bell trips than daytime.

These various results generally raise some key issues relating to taxicab service supply and availability. First is the varying interest of different ownership entities in high average hourly trip or fare revenue rates. The larger entities which operate primarily through leasing are primarily interested in lease revenues. Their major attractions for lease drivers are a well-developed radio business and the high name recognition that promises to produce numerous trips. In maintaining these attractions, the large companies' interests are consonant with those of the taxi-travelling public: quick response times, radio-dispatched citywide service, competitive rates. But these priorities are not consistent with the primary objective of lease drivers, i.e., a high individual return per shift in fare revenues. Since the lease drivers are not in a position to change company operating style, there is some incentive for them to avoid the large citywide suppliers in favor of the more exclusive, long-haul focused service of their smaller competitors.

These smaller company types are most directly interested in the bottom line, or a high rate of fare revenues per shift, partly because most are owner-operated, at least for one shift four to five days per week. Also, these operators either depend themselves more or less directly on fare revenues or perceive that the high-return, relatively low operating cost long-haul service orientation will attract lease drivers from the larger firms.

The near-term scenario at least, therefore, does not look hopeful for low-priced, high-response, citywide service. As long as the airport and other high demand sources of potentially long-haul trips offer sufficient trips to out-produce (in dollars) the citywide service approach, there is little incentive to look elsewhere. Indeed, this service model will tend to attract drivers away from the traditional one.

As average trip production continues to decline, however, the smaller companies will presumably start to look elsewhere for their trips and competition will increase for short trips as well as longer ones. Since the primary source of these trips is telephone requests, we can expect to see smaller firms attempting to obtain radio services and develop a repeat or reservation clientele. An indication that this development is in the offing can be seen in the recent flurry among the unaffiliated firms of discounted rates offered to repeat or reservation customers. It is also witnessed in the gradual consolidation of smaller companies into fleet-sized operations (see section 4.1) by owners attempting to accumulate sufficient vehicles to provide radio-based service. But these effects have yet to be documented.

7. EFFECTS ON REGULATORS

The taxi regulatory revisions impact upon regulators in three primary ways. First is the institutional feasibility of the changes and whether they realize the policy goals of the code revisors. These effects include taxi industry opposition and other institutional barriers encountered and the steps required to overcome them. Closely related to these are the interjurisdictional issues raised by the changes and the need to identify, achieve and implement follow-on regulatory revisions both unilaterally and in cooperation with other agencies. Also important is the administrative feasibility of the new regulations including city staff time to implement the new application and licensing procedures, conduct inspections, maintain rate filings, handle complaints and generally interface between the taxi industry and the public Finally are the estimated dollar costs of the new procedures and the proportion of these costs which is recovered in the additional license and other fees collected.

7.1 INSTITUTIONAL FEASIBILITY

7.1.1 Implementation Issues

The institutional feasibility of the new code provisions is generally demonstrated in the consistency of city regulatory policy and code revisions since the 1977 and 1979 landmark ordinances as well as in the lack of actual legal challenges to the new laws despite numerous threats. The city's goal of ceasing to influence the market place -- specifically, setting taxi rates -- has been realized. Although development of the more recent ordinances to change for-hire driver licensing requirements and particularly, those to require exterior rate posting and provide for shared ride taxi service, has required extensive administrative and staff involvement, the Council's involvement has been kept to a minimum.

Taxi regulatory revision has had a high profile politically in the Seattle area, moreover. The current County Executive was the city's chief advocate of license code revision and made taxi regulatory revision a feature of his platform. He has since supported steps to assemble an inter-jurisditional group to identify issues and alternatives to provide for multi-jurisdictional taxi regulation. The County Commissioners, meanwhile, are reportedly reluctant to press ahead with a March 1981 proposed county "housekeeping" ordinance to bring county taxi regulations into line with the city code changes, given the potentially negative ramifications of their votes in taxi issues.

Earlier industry objections in the form of a proposed class action suit against the city's "illegal" taking of taxi medallion values, and a petition to the Washington State Utilities and Transportation Commission to assume regulatory authority for Seattle taxicabs have ultimately been ineffective. The most recent threat -- a petition to require a voter referendum to re-establish standardized rates which surfaced during the fall of 1981 -- was evidently stymied for lack of sufficient industry support. Lobbying efforts are reportedly being mounted, however, in an attempt to influence King County to reimpose a licence ceiling and standard rates.

Industry liaison efforts by city staff have helped to de-fuse industry opposition and improve mutual cooperation. The Taxi Industry Liaison Group (TILG) established by the DLCA Director early in 1980 has been the chief forum for taxi industry and governmental interaction. The TILG has provided for discussions in advance of final legislation on for-hire driver, rate posting and driver identification requirements as well as for review of alternative shared-ride zone and pricing proposals. This liaison effort has perhaps slowed the follow-on code revisions process, but has evidently been successful in helping to achieve industry acceptance of the more recent changes.

7.1.2 Interjurisdictional Issues

The primary inter-jurisdictional issues raised by Seattle's taxi regulatory revisions are three. First are the inconsistency in taxi code provisions between the city and King County and between the city, county and port as a result of the changes. Third is the impulse to multi-jurisdictional regulation of taxicabs expressed as one of the original objectives for license code revision.

7.1.2.1 Consistency Between Seattle and King County Regulations - The traditional cooperation and regulatory consistency between the city and the county which was re-emphasized under the 1977 reciprocal licensing agreement was interrupted when the county decided to postpone open entry for one year. The city's adoption of open entry one year in advance of the county, moreover, left small but material differences between the taxi regulatory ordinances in effect in the two jurisdictions. Subsequent code revisions by the city have tended to widen the gap, while the County Commissioners have postponed action on the only taxi regulatory ordinance proposed since its mid-1980 adoption of open entry. Items of difference include the county's continuing radio dispatch capability requirement and provisions governing enforcement of rates filed under variable pricing; moreover the county does not equire exterior rate posting, although dual-licensed cabs should conform to the city requirements.

In its traditional cooperation with the city on interjurisdictional regulation, however, the county requires conformity with the city code. Thus, it is in effect enforcing the city ordinance rather than its own. The two ordinances will have to be brought into conformity before inter-jurisdictional regulatory proposals can be realized. On the other hand, reported efforts by local industry members to influence the county to reimpose restrictions on entry and rates threaten to produce additional inconsistencies and potential regulatory barriers between the two jurisdictions.

7.1.2.2 Effects on Sea-Tac/Airport Regulatory Policy and Operations - The primary interjurisdictional conflict occasioned by the Seattle taxi regulatory revisions was between the city and Sea-Tac International Airport, although relations between the county and the port were temporarily strained as well. Open entry in the city produced a growing demand for airport taxi stickers under city-county reciprocal licensing, even in advance of open entry in the county. The pressure mounted once the county opened entry and the airport taxi industry reached record size. Rules infractions and passenger complaints about exorbitant rates and illegal surcharges reportedly increased throughout 1980. The port attempted first to get the county to stop reciprocal licensing, then threatened a return to the exclusive franchise approach to airport taxi service and finally increased airport permit fees nearly four-fold, limited taxi rates and stepped up enforcement provisions in order to stem the tide of airport taxis.

Although the new airport rules have evidently resolved the primary problems to the satisfaction of the port, inconsistent regulatory policy results. The high airport permit fee -- $90 per quarter -- poses a barrier to entry while the essentially first-in first-out queue and dispatch system and rate ceiling militate against open competition by placing the whole burden on the taxi passenger to obtain taxi price information and an acceptable ride -- most likely after a cab arrives from the holding area.* Consumer education remains an issue, since the majority of visitors and many residents are unaware that taxi rates vary in Seattle. The airport rate ceiling helps to limit the passenger's risk, but a 20 percent difference on a 13- to 14-mile airport-to-downtown trip can be significant. The airport rate ceiling is inconsistent with the city policy of open rate setting and it has evidently had a depressant effect on county and city rates as well.

*Passengers may decline the cab which is sent up from the bull-pen and try their chances with a second or third call, in order to save as much as 20 percent on the fare for their efforts. Most will probably not choose to incur the delays and potential embarrassment of this approach, however.

7.1.2.3 Multi-jurisdictional Taxi Regulation - City, county and port administrative personnel have met to establish an on-going interjurisdictional committee to review the effects of taxi regulatory revision, identify the need for additional code revisions and propose multi-jurisdictional legislation. Activities to this writing have been limited to discussing the need for such a group. It does not now appear that the city will take the lead in its establishment, quartering or staff support, however. Given that the current County Executive was the principal advocate of license code revision in Seattle, this group may constitute under county aegis. Interest from the three party jurisdictions suggests that the local spirit of interjurisdictional cooperation was not seriously harmed despite strained relationships following regulatory revision.

7.2 ADMINISTRATIVE REQUIREMENTS OF THE NEW CITY REGULATIONS

The adoption of open entry in Seattle brought an increase in the volume of taxi and for-hire drivers' license applications and thus an increase in the administrative and staff time required to process and document license issues. Anecdotal evidence suggests that DLCA staff has accommodated these needs within their existing schedules. No new staff were added specifically to assist in taxi licensing; indeed, a few individuals previously responsible for taxi (and other) matters have left the department. The DLCA staff appointed to administer the data collection program under the UMTA grant had separate and parallel responsibilities, although they did share in required industry liaison activities.

Several factors mitigated the force of an increasing volume of new taxi licenses in Seattle. First, the new demand was met by a long-established system of license application and tracking procedures already in place. Licensing of various categories is a primary function of the

DLCA, and experience gained in issuing licenses and monitoring compliance among licensees of far greater numbers than those for for-hire vehicles was readily transferred to taxi licenses. Procedures were continually improved as necessary but they did not need to be developed and implemented simultaneously with implementation of the new code provisions.

Another factor was that the volume of license demand was never overwhelming and there was no backlog of applications. There was also no need to require a waiting list or limit the number of licenses issued to a single applicant in order to ensure fairness in the face of very rapid industry growth.

Achieving uniform compliance with the new code requirements, moreover, was eased by the relatively large proportion of taxi licenses affiliated with one or another large company. The service companies generally tended to batch their license renewals for submittal to DLCA and to assist renewal and new licensees through the administrative requirements, thereby reducing the number of individual industry contacts required of DLCA staff. Prohibitions on transfers of the actual license on taxi business sales and compliance with the requirement to return the license in the event of vehicle replacement or taxi business failure continued to pose problems, however. The data reveal increased turnover in taxi licenses since open entry, moreover (see section 4.1).

The generally successful implementation of the new code changes is also explained by a capable and experienced DLCA staff already in place and by DLCA's continual involvement in the taxi code change process. Indeed, license code revision was the department's original mandate. The changes to be implemented were already familiar, having been developed and revised within the department, not imposed from another city agency.

7.3 COSTS OF TAXI REGULATION

Only very incomplete data has been made available to the evaluation to estimate the changing costs of taxi regulation since the code revisions. The data which have been collected suggest rising staff time and dollar costs in two areas as indicators of total impacts.

7.3.1 City of Seattle: Increase in Vehicle and Meter Inspections Since Open Entry

Increasing need for vehicle and meter inspections, particularly, was cited in 1978 by Applied Economics, Inc., the industry's consultant, as a potential cost of regulatory revision which had been neglected by the previous studies. The data provided by DLCA suggest that taxi regulatory revision increased the city's staff time costs for vehicle and meter inspections by virtue of three factors: first is the increase under open entry in the number of taxi vehicles to be inspected; second is the enlarged list of items to be checked in an annual or spot-check inspection, raising the amount of time required per inspection; last is the multiplicity of rates and quarterly rate changes permitted under variable pricing, and the concomitant rise in meter (and vehicle) inspections required.*

Table 7-1 presents the total number of meter/vehicle inspections completed by DLCA Weights and Measures section personnel from 1977 through 1980. (Only two months of data was obtained for 1981.) Given 251 working days per year, the number of inspections performed over the period reported has risen from just under five to nearly seven vehicles per day. The time required for each inspection increased 50 percent.

*The department more or less routinely updates the entire vehicle inspection simultaneously with a meter check. DLCA staff reported during 1981 that the aging taxi fleet was producing an increased rate of rejections on the first trial and thus an increase in total inspections. The inspectors did not think that failure was correlated with company or owner type, however. In any case, these more recent data were not forwarded to the evaluation.

moreover, from 20 minutes per vehicle prior to open entry to 30 minutes thereafter. That is,inspectors spent 108 minutes per day on taxi vehicle inspections in 1978, compared with 201 minutes per day on average in 1981, an 86 percent increase.

TABLE 7-1 TAXI INSPECTIONS PERFORMED BY YEAR WITH SPECIAL FEES COLLECTED, DLCA WEIGHTS AND MEASURES SECTION: 1977-1980

Year	Total Inspections	Average Number Per Working Day	Total Special Fees Collected
1980	1671	6.7	$2,315
1979	1454	5.8	$1,502
1978	1367	5.4	$ 414
1977	1240	4.9	$ 353

Source: DLCA Weights and Measures Section Annual Reports

Taxi vehicles must pass inspection by their second trial in Seattle. These two inspections including the meter check are provided for in the $60 taxi license fee. Periodic spot checks required by the new regulations are performed without charge and are also supposed to be covered by the annual license fee. Additional rates after the first and rate changes involve a special inspection fee of $5.00 (up from $2.00 as of June 15, 1979). According to Weights and Measures staff, the $5.00 fee covers the time required to re-inspect and seal the meter or check the calibration of additional rates. It is chiefly in the increased number and length of vehicle inspections where the shortfall reportedly occurs. Unfortunately, Weights and Measures reporting summaries do not provide for conversion of total inspections into vehicles represented, nor has the department quantified either the proportion of all license fees which is allocated to inspections or the administrative staff time devoted to taxi regulatory functions in general.

7.3.2 Port of Seattle Costs of Airport Taxi Regulation

The Port of Seattle provided a schedule of estimated 1981 costs of taxicab administration, dispatching, regulation and enforcement as shown in Table 7-2. These costs do not include any portion of installation or maintenance of the closed-circuit television and telephone call-up dispatch system installed in late 1979 at a cost of $14,000.* It should be noted as shown in section 4.1, that airport taxi industry size peaked during 1980, while the permit fee was still $100 per cab per year.

TABLE 7-2 ANNUALIZED PORT OF SEATTLE COSTS FOR TAXICAB REGULATION AND ADMINISTRATION 1981

Item	Amount
Operations Controllers	$11,508
Central Control Supervisor	1,456
Superintendant of Operations	5,226
Airport Supervisor	8,262
Airport Manager	2,412
Clerical	11,221
Police	16,425
Subtotal	$56,510
Average Employee Benefits	15,032
Total	$71,542

Source: Port of Seattle, June 1982.

*Telephones placed at four locations along the deplaning roadway are provided for passengers to request a taxicab from the airport's control center. The controllers, who have closed-circuit television surveillance of the taxi queue, then dispatch the next available cab in response. Taxi dispatching is one of several controller functions; the others include monitoring the automated quickway transit system, security, heating and cooling, and handling aircraft emergencies.

The port estimates annual permit revenues (on the basis of $90 per quarter) at $61,000; thus it projects a sizeable short-fall between taxi regulation and administrative costs and revenues. One potential potential source of additional revenues identified by the port is the taxi holding area which it projects would net $50,000 if converted to metered parking. The port therefore proposes to relocate the taxi bullpen to a remote area. This will increase general revenues but not affect the taxi cost/revenue balance directly since the lost revenue the current holding area represents is not included in these annual cost figures.

8. CONCLUSIONS AND TRANSFERABLE IMPLICATIONS

8.1 CASE STUDY CONCLUSIONS

8.1.1 Fluidity of the Local Taxi Industry

Open entry has increased the fluidity of the Seattle taxi industry, enabling small operators to enter the business and new operators to accumulate fleets. The former dominance of the three major service companies has been reduced from 70 percent to 54 percent of all licenses, while new licensees have gradually obtained a 38 percent share of all licenses. Rates of exit among both old and new owners over the first two years of open entry suggest increasing turnover but much less than that predicted by the opponents of regulatory revision. The continuation of the three major companies -- despite bankruptcy proceedings filed by one -- has provided for continuity. In any case, indications are that the majority of existing operators have been able to transfer their businesses to other operators. As of late 1981 new owners were continuing to enter the Seattle industry.

8.1.2 Rates and Fare Increases

Taxi rates increased more rapidly during the first 36 months of open rate setting than they had over the previous three years of standardization. The weighted average taxi rate for exclusive ride service only slightly outpaced the rise in the local Consumer Price Index, however. The greatest single increase occurred in the first quarter of open rate setting, which supports industry contentions that regulation was holding rates artificially low.

The three larger companies have been competing with one another by holding their prices low so the majority of all taxi vehicles are operating at the lower end of the rate spectrum. Little pricing innovation other than nighttime and short-haul surcharges and special group discounts has appeared, however.

8.1.3 Level of Service Supply

There has been an increase in taxi service supply with industry growth, but it was less than that in licenses owing to lower average daily utilization of taxi vehicles since open entry. The data suggest both that larger firms were not fielding all of their vehicles after open entry and that most taxicabs were typically operated much less than two shifts per day.

New and smaller operator concentration on the airport and other prime cabstand sources of long-haul trips suggests that little if any expansion of geographic service coverage has taken place. Market segmentation by company size, with the smaller firms focusing on stand-hail trips and the service companies shouldering the primary burden of the residentially-based shorter trips suggests that the primary increases in service have been to the airport and downtown. On the other hand, the data also reveal an increase in non-telephone-request, intra-Seattle (non-CBD) travel which suggests some cruising by non-radioed firms in outlying areas.

8.1.4 Effects on Ridership

Sample data from operator trip sheets indicates a 25 percent decrease in total passenger trips between 1979 and 1981. Rider occupancy per trip did not increase, so total ridership declined commensurately. The data suggest that a larger share of the 1981 trips are of the visitor and inter-city travel-connected variety targetted by the newer and

smaller independents than previously. Since the visitors tend to be more affluent, less price-sensitive and to use taxis less frequently than residents as a group -- and because the former make the more attractive, longer trips -- the focus of the newer and growing industry sectors on the visitor market may tend to exclude some residentially-based taxi travel. The larger companies' concentration on this market and METRO's taxi scrip subsidies for qualified low-income elderly and handicapped taxi riders probably mitigate this effect. Although 26 percent of residents said they were using taxicabs more than before, given the drop in taxi ridership, it seems doubtful that open entry has lured many riders from METRO buses.

8.1.5 Taxi Service Productivity

Almost all indicators of per shift and per vehicle productivity declined industrywide between 1979 and 1981. The industry average of trips booked per shift fell most dramatically. The average level of fare revenue collected remained stable, however, chiefly owing to company rate increases and an increase in average trip length. The smaller operation types (including most of the new operators) and package deliverers generally show higher rates of revenue generated per hour than their larger competitors by virtue of their higher rates and the longer trips they book. But almost all company types have lost ground against inflation.

8.2 TRANSFERABLE IMPLICATIONS FOR OTHER REGULATORY AGENCIES

This section attempts to interpret the effects of the regulatory revisions on taxi regulators for their transferable implications for other regulatory agencies and locales. It should be emphasized that it is not the aim of the following observations to judge the capabilities or performance of Seattle regulators. Rather, the purpose here is by

"examining the political, legal, and institutional barriers encountered by local governments...and documenting how each was overcome,...(to provide) useful information and insight to other local officials who may be contemplating similar actions."* The section closes with a discussion of the non-transferable features of the Seattle case study.

8.2.1 Institutional Feasibility of Taxi Regulatory Revisions

The eventual demise of the direct or proposed legal challenges to the new license code regulations attests to the basic institutional feasibility of taxi regulatory revision in Seattle, despite early organized protests of the code changes and the interjurisdictional conflict between the city and the port over airport taxi issues. Centralization of both the license code revision and implementation functions with the DLCA likely helped to smooth the implementation process. Regulatory revision did not change the basic characteristics of the Seattle industry, although it did alter its structure. The majority of taxi licenses were traditionally held within the three larger service companies, but there were small independent operations prior to open entry as well. Thus the city, county and airport had experience in dealing with both types of taxi organization. The Taxi Industry Liaison Group (TILG) established since open entry has helped to ease implementation and provide a forum for city-industry communication and interaction.

Although it was effective for one agency to assume command of and responsibility for the code revision and implementation effort, the Seattle case study also suggests that intensive inter-jurisdictional coordination efforts are essential to ensure cooperation and avoid inconsistent or contradictory policy. Where there is a recent history

*TSC, op. cit., 1981, p.150.

of cooperation, as between the county and the city in coordinating taxi regulatory provisions, continued cooperation can be expected. Where there has been a disjunction of jurisdictional authority or where policy goals vary and the actions of one jurisdiction can be expected to impact upon another -- such as open entry and rate setting affected airport taxi operations -- special attention to interjurisdictional coordination is warranted. A schedule of workshops or appointment of special task forces and coordinators may be required to formalize the interaction process to achieve working consensus.

8.2.2 Administrative Implementation and Feasibility

The Seattle case study suggests that the presence of proven application, licensing and tracking procedures and documentation systems already in place simplified implementation of the new entry and rate filing requirements. Continuation of experienced staff and continuity of administrative leadership also appeared to be key factors in the success of this early phase.

The continuity of the three large service companies was a touchstone of industry stability as well as of organized opposition, moreover. Company management tended to assist their members through the administrative process following the code changes, thus minimizing the amount of individual operator liaison required of DLCA staff.

8.2.3 Taxi Regulatory Revision May Be a Multi-Stage Process

Although the May 1979 license code revisions achieved very comprehensive taxi regulatory changes in a single stroke, and distanced the council from rate setting, prior and subsequent code and administrative revisions were also necessary. An interim ceiling on city taxi licenses, licensing reciprocity with King County and an open airport had been achieved in 1977 in preparation for open entry two years later. The move to exterior

rate posting was achieved some 24 months following variable pricing, and it took as long to identify and codify the shared-ride service option and requisite zone system. The ceiling on allowable airport taxi rates was adopted ad hoc by the port early in 1981, with King County designated responsible to identify and report the median county filed rate on a quarterly basis. DLCA staff predict further code revisions and a possible move to multi-jurisdictional taxi regulation in the wake of this report. The main point is that regulators should not anticipate that council and staff involvement with taxi regulation will simply cease as a result of one comprehensive set of reforms.

8.2.4 Regulation as a Means to Achieving Service Innovations

It is clear that taxi service innovations cannot emerge under a regulatory structure which prohibits or discourages them. But it is not clear from the results to date of the Seattle case study that a more flexible regulatory structure alone will induce the kinds of service innovations sought by regulators. Although the larger firms have engaged themselves in direct competition at the low end of the rate spectrum, many newer and smaller operations appear to be targetting the visitor and long-haul taxi markets for as much as they will bear or regulations will allow. What market segmentation has occurred is evidently the result of saturation of these stand-hail markets, or "cream skimming," by these newer and smaller firms.

The DLCA and TILG devoted a considerable effort to obtaining industry consensus on a zone map for shared riding in advance of the new code provisions allowing the service. But no taxi companies to date have really implemented zone-based shared ride service, despite a promotional effort by the largest company and zone-based rate filings from a handful of others. According to the operators, public assistance with marketing and consumer information to develop potential markets for these services is essential before they can assume the risk of providing a new service.

8.2.5 Limitations on Transferability of Seattle Findings

Transferability of the findings of the Seattle case study to other localities is likely limited by several factors. First is the high quality and quantity of local public transportation, with a free-fare zone encompassing most of the CBD and a transit mode split varying from 25 percent on average to 40 or 50 percent during the peak hour. Second are the blows to local tourism dealt by a sluggish economy. There were also indications that the local taxi industry's health was failing and that there was an oversupply of taxi service prior to open entry. These factors likely influenced the relatively low industry growth rate and average productivity measures reported here.

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APPENDIX A: DATA COLLECTION AND METHODOLOGY

Under the terms of their cooperative agreement with UMTA, the Seattle Department of Licenses and Consumer Affairs (DLCA) was responsible for data collection required for the evaluation. The evaluation contractor provided technical assistance in the design of survey instruments and sampling procedures, field methods and obtaining operator cooperation.

The data collection program included sample surveys of taxi passenger characteristics, travel behavior and attitudes, passenger and taxicab activity at cabstands, and taxicab company response times to telephone requests for service. Stratified samples of taxicab operator trip sheets were collected as the primary source of data on taxicab operating characteristics, level of service and productivity. The evaluation also analyzed taxi license records and taxi company rate filings on a continuous basis. Figure 1-1 (in section 1.0) shows the relationship of individual data collection efforts to key events and changes in the Seattle taxi regulatory environment. Table A-1 lists the chronology of data collection activities and sample sizes obtained.

In general, the pursuit of accuracy in estimation of population parameters was subordinate to other considerations, primarily survey and data processing costs. In terms of statistical reliability, findings reported in this document have generally been determined to be statistically significant at the 95 percent confidence level, unless otherwise stated. Table A-2 summarizes the generalized confidence intervals for the various sample sizes obtained.

The following sections describe the major data collection efforts, including survey methodology, sampling, and sample sizes obtained. Copies of the survey and field observation forms employed are included in this appendix.

TABLE A-1 DATA COLLECTION METHODOLOGY

Date	Data Collection Activity	Unweighted Sample Size Obtained
Pre-Open Entry:		
October 1978	Taxi Stand Activity Survey	2,283 observations
May & Aug, 1979	Taxi Operator Trip Sheets	593 shifts 2,385 trips
Post-Open Entry:		
May 1981	Taxi Operator Trip Sheets	770 shifts 1,789 trips
Sept-Oct 1981	Taxi Stand Activity Survey	1,868 taxi cab queue observations 4,086 taxicab cruise observations
Oct 1981	Taxicab Response Time Survey	322 calls 206 trips
Nov-Dec 1981	Onboard Taxi Passenger Profile Survey	698 vehicle trips 1,078 person trips 560 respondent Q's

Taxi license records were monitored continuously between May 1978 and December 1981. Taxi company rate filings were monitored quarterly between May 1979 and February 1982.

TABLE A-2 CONFIDENCE LIMITS FOR SAMPLE MEANS AND PROPORTIONS

Sample or Subsample Size	Limits at 95% Confidence		
	Means	P=0.50	P=0.10
2400	±.040(S)	±.020	±.012
1800	±.046(S)	±.023	±.014
1100	±.059(S)	±.030	±.018
770	±.071(S)	±.035	±.021
590	±.081(S)	±.040	±.024
460	±.091(S)	±.046	±.027
360	±.103(S)	±.052	±.031
200	±.139(S)	±.069	±.042
150	±.160(S)	±.080	±.048
100	±.196(S)	±.098	±.059
60	±.253(S)	±.127	±.076
20	±.438(S)	±.219	±.131

A.1 Onboard Taxi Passenger Profile Survey (PPS)

A.1.1 Survey Design and Sampling

An onboard survey of taxicab riders was conducted in November and early December 1981. The first recent effort of its kind in Seattle, the survey gathered information on taxicab passenger and trip characteristics as well as passenger attitudes toward local taxi service. The evaluation contractor provided technical assistance in survey sample design and the design and production of survey instruments. DLCA staff hired, trained and supervised the survey workers and were responsible for the conduct of the survey in the field. A survey worker rode in the cab and recorded basic trip and rider data, assisting as needed in a self-completion survey form distributed to all taxi patrons.

A blocked approach with randomized quota sampling within company type, day of week and time of day stratifications was developed in order to ensure the statistical reliability of results. The survey was planned for a two-week period in early to mid-November. Unexpectedly low productivity of the smaller fleets occasioned a supplemental reound of surveying. In order to avoid Thanksgiving holiday travel, this data was collected during the first week of December. Table A-3 shows the principal sample design factors, sample sizes, and completion rates obtained.

A.1.2 Data Adjustments Used

Companies and drivers were randomly selected within assignment blocks insofar as practicable given variation in cooperation among operators. The set of cases obtained was weighted in inverse proportion to the effective rate of sampling of all industry shifts and hours of service provided by each company type to approximate a representative sample of industrywide travel.

TABLE A-3 PASSENGER PROFILE SURVEY DESIGN FACTORS

a. Sample Design and Weighting

Company Type Category	Number of Survey Shifts				Sampling Rate of Shifts (%)	Weight*
	Weekday	Weeknight	Weekend Day	Weekend Night		
Farwest	4	3	2	1	15.8	6.33
Graytop	5	3	2	1	37.7	2.65
Yellow	5	3	3	1	100.0	1.00
Independents (4 or more cabs)	5	3	2	1	39.1	2.55
Independents (2-3 cabs)	5	3	2	1	61.8	1.62
Independent One-Cab Firms	7	6	3	3	59.9	1.67
Total	31	21	14	8	(40.7)	(2.46)

b. Analysis Files

Vehicle Trips	698
Person Trips	1,078
Respondent Questionnaires	560
o Residents	331
o Visitors	229
Completion Rate	52%
Productivity per Shift	
o Vehicle Trips	7.8
o Person Trips	12.6

*Weight = 1/sampling rate of shifts. The weights were also adjusted to account for the total proportion of actual hours served for which the survey worker was actually on duty in the taxi vehicle.

The respondent file was also adjusted to account for patrons' variable probability of sampling based upon their taxi use frequency on the day of survey. The resultant sample (weighted by the inverse of riders' taxi use frequency that day) better represents daily riders, the people making at least one taxi trip on an average day.*

Although the survey form was designed and tested for completion within five minutes, experience showed that some patrons were unable to complete the form on their trip. A final adjustment was made to the data to account for this bias against short trip-makers. The weights applied were derived from the inverse of the completion rate within discrete travel time intervals, as shown below.

TABLE A-4 ADJUSTMENTS FOR NON-RESPONSE BIAS BY TRIP TRAVEL TIME
PASSENGER PROFILE SURVEY

Trip Length (Minutes)	Completion Rate (%)	Weight
Less than 3 minutes	21%	4.84
3-5 minutes	22	4.50
5-7 minutes	38	2.62
7-10 minutes	50	2.01
10-15 minutes	55	1.81
15-20 minutes	55	1.82
20-45 minutes	54	1.86
Total	(52%)	(1.92)

*An analysis file of average monthly taxi riders was also compiled, weighted by the inverse of riders' taxi use frequency over the month, in order to approximate average monthly ridership. The chief effect of these weightings is to reduce the evidence of transportation dependency among the rider population, since poorer persons use taxis more frequently than more affluent persons as a group.

A.2 TAXI OPERATOR TRIP SHEETS

A.2.1 Shifts

Although the 1979 Seattle taxi code revisions remove the requirement that taxi companies maintain trip sheets, many operators still keep them as their primary source of daily shift cost and productivity information. With DLCA's support, the evaluation requested that local companies and drivers maintain trip sheets thoughout the month of May 1981 to provide for analysis of this key data and comparisons with a sample of May 1979 sheets already compiled.

A random sample of trip sheets was targetted, stratified by company type, based upon fleet size. Sea-Tac/Airport was isolated because anecdotal evidence suggested its operations were unique in the Seattle industry. The blocking extended to day type, in order to ensure adequate numbers of weekday and weekend shifts within company groups. The first and third weeks of the month were targetted, and these dates identified for shift selection. Two extra Fridays were included to provide for comparisons between Fridays -- which had been reported to be the highest demand day in the week in another case study.

A sub-set of each company groups' sheets was selected using a random sample of vehicle ID numbers within companies and selecting all of the designated dates available for these vehicles.* The number of vehicles required in each company was based upon average vehicle utilization rates within companies calculated from a preliminary analysis of all trip sheets. Because of low cooperation, however, the sample ultimately included all of the shifts submitted for the selected dates from the independent operation types as well as from one of the service companies in one year.

*Prior to sampling, all sheets of vehicles which existed in the industry under the same ownership or entity over the two-year interval were identified for use as a panel. It later proved that only 7 such vehicles had trip sheets submitted for both 1979 and 1981.

The shift samples were weighted according to the inverse of the sampling rate of all vehicle shifts within company groups. Additional weighting was applied to reduce the effect of the extra Fridays. Although its May 1979 trip sheets were first reported to be available, one of the large service companies was ultimately able to supply only August data to the evaluation for 1979. Since its membership had not changed during this last month of the old license year -- even though new owners were beginning to enter the industry in other companies -- these data could be classified as "before." Comparative analysis between this company's August data and those of the other operators revealed its shifts to be 10 percent longer than those from May (likely because of the longer summer days), although they were not significantly more productive of trips or otherwise different from their spring counterparts. No contemporaneous data was available from this company to provide a basis for adjusting these shifts to typical May service and productivity, however, and no further adjustments to the data were applied. The unweighted shift sample sizes and weights by company group are presented in Tables A-5 and A-6.

A.2.2 Trips

The trip sheet trip sample was comprised as a random sub-sample of selected shifts and included all trips recorded on the selected shifts for all of the company and day types represented in the shift sample. Variable sampling rates were applied according to estimated trip production (based upon review of the shift samples) within company types. A randomized skip interval was employed to avoid bias against low-yield companies as well as to provide for inclusion of contiguous shifts. A sample size of 2,500 trips was targetted to provide for a minimum of 50 trips in any cross tabulation of aggregated geozones (7 x 7 zones).

The individual trips were weighted according to the inverse of the sampling rate of shifts selected within company groups. Identical day-type factors were applied as those utilized in the shift samples to account for the higher probability of selection of Fridays (see Tables A-7 and A-8).

TABLE A-5 TRIP SHEET SHIFT SAMPLE DESIGN FACTORS AND DATA ADJUSTMENTS: 1979

Company or Type	No. of Licenses	No. of Vehicles Submitted	Sampling Rate of Vehicles (%)	Unweighted Shift Sample Size	Weight
Service Companies:					
Farwest	135	4	0.03	60	33.75
Graytop	45	13	0.29	137	3.46
Yellow	58	11	0.19	162	5.27
Sea-Tac/Airport	36	13	0.36	151	2.77
Other Independents:					
Fleets (4 or more cabs)	30	2	0.067	20	15.00
Mini-Fleets (2-3 cabs)	13	2	0.154	35	1.09
One-Cab Firms	29	2	0.069	28	0.88
Total	346	47	(0.136)	583	(7.36)

TABLE A-6 TRIP SHEET SHIFT SAMPLE DESIGN FACTORS AND DATA ADJUSTMENTS: 1981

Company or Type	No. of Licenses	No. of Vehicles Submitted	Sampling Rate of Vehicles (%)	Unweighted Shift Sample Size	Weight
Service Companies:					
Farwest	185	31	0.168	231	
Graytop	52	-	-	-	7.04*
Yellow	80	14	0.175	228	
Sea-Tac/Airport	22	7	0.318	105	3.14
Other Independents:					
Fleets (4 or more cabs)	99	11	0.111	139	9.00
Mini-Fleets (2-3 cabs)	30	1	0.033	9	30.00
One-Cab Firms	53	4	0.075	58	13.25
Total	521	68	(0.131)	770	(7.66)

*All service companies weighted equally to account for absence of Graytop.

TABLE A-7 TRIP SHEET TRIP SAMPLE SIZES AND WEIGHTS: 1979

Company or Type	(a) Average Weekly Shifts by Day Type*			(b) Number of Shifts Selected for Trip Coding			(c) Unweighted Trip Sample Sizes			(d) Weights by Daytype**		
	WD	FRI	WE	WD	FRI	WE	WD	FRI	WE	WD	FRI	WE
Service Companies:												
Farwest	473	194	152	8	5	2	173	120	63	59.13	58.80	76.00
Graytop	294	69	111	9	3	8	164	45	150	32.67	23.00	13.88
Yellow	227	54	90	17	4	0	276	69	0	— —	17.67	— —
Sea-Tac/Airport	111	28	44	13	3	6	130	24	71	8.54	9.33	7.33
Other Independents:												
Fleets (4 or cabs)	45	15	75	6	4	10	92	85	143	7.50	3.75	7.50
Mini-Fleets (2-3 cabs)	59	16	23	14	4	6	327	82	75	4.21	4.00	3.83
One-Cab Firms	109	25	44	14	8	6	162	100	34	7.79	3.13	7.33
Total	1,316	402	538	81	31	38	1,324	525	536	(16.24)	(12.97)	(14.16)

*Based upon weighted shift sample.
**i.e., inverse of sampling rate of shifts: a ÷ b

TABLE A-8 TRIP SHEET TRIP SAMPLE SIZES AND WEIGHTS: 1981

Company or Type	(a) Average Weekly Shifts by Day Type*			(b) Number of Shifts Selected for Trip Coding			(c) Unweighted Trip Sample Sizes			(d) Weights by Daytype**		
	WD	FRI	WE	WD	FRI	WE	WD	FRI	WE	WD	FRI	WE
Service Companies:	884	216	299	28	9	5	363	133	91	31.57	24.00	59.80
Sea-Tac/Airport	97	24	19	11	10	4	114	132	34	8.82	2.40	4.75
Other Independents:												
Fleets (4 or more cabs)	342	92	99	44	21	17	386	192	105	7.77	4.38	5.82
Mini-Fleets (2-3 cabs)	90	15	15	4	1	1	18	5	4	22.50	15.00	15.00
One-Cab Firms	219	56	53	20	11	6	110	65	37	10.95	5.09	8.83
Total	1,631	404	485	107	52	33	991	527	271	(15.24)	(7.77)	(14.70)

*Based upon weighted shift sample.
**i.e., inverse of sampling rate of shifts: a ÷ b

A.3 TAXICAB RESPONSE TIME (TELEPHONE-REQUEST) SURVEY (RTS)

The taxicab response time survey was designed to obtain selected measures of taxi performance on telephone requests for trips. The survey therefore focussed on the 18 taxi companies which had radio-dispatch capability in October 1981. The data obtained in the survey relates to these areas of evaluation: dispatcher response -- was the trip accepted, refused, referred? did the dispatcher query the patron's destination or estimate cab arrival time?; taxi response -- was the trip served, and by which company? how long was the actual wait time and how did it compare with the estimate?; quality of service -- how would a rider rate the vehicle and driver's appearance, courtesy and safety? did the driver take the most direct route?

A major objective was to allow for comparisons among different geographic districts. For this purpose, the city was divided into six large districts. Three sub-areas were also delineated; two -- Holly Park and High Point -- because they represent lower socio-economic, ethnically-mixed neighborhoods; the third -- Crown Hill, a middle-class, predominantly white neighborhood -- was used as a control.

The survey also provided for comparisons by time of day. Three time periods were used in the sample design: mornings, 7-10 am; afternoons, 1-6 pm; and evenings/night, 7-11 pm. The survey was restricted to weekdays to provide maximum comparability within budgetary limitations. (In order to prevent disclosure, the surveyors requested, took and paid for actual taxi trips.) Trip assignments were such that approximately equal numbers of completed trips (about eight trips) would be obtained from each of the nine districts during each time period (for a total of about 220 trips). As part of the planning process, a normal distribution of trip distances for a random sample of trip lengths with a mean distance close to that believed to be the average of Seattle area taxi trips -- 3.5 miles with a fare of $5.25 -- was generated as the basis for surveyor

itineraries. The survey instrument, a facsimile of which is included in this appendix, was a small card easily concealed from the taxi drivers' view.

Care was taken to direct the same proportion of calls from each district during each time period to the three different taxi company type stratifications. Table A-9 documents the geographic, temporal, and company type distributions of calls placed during the survey.

A.4 CABSTAND ACTIVITY (STAND-HAIL) SURVEYS (SHS)

Before and after surveys of taxicab activity at cabstands were conducted by the evaluation in October 1978 and October-November 1981. The second effort monitored passenger as well as taxicab arrivals and departures; the 1978 survey was of supply characteristics only. The purposes of the surveys were to compare stand use by the different company types, to estimate taxicab and passenger wait times, and generally to assess the relationship of supply to demand at the stands.

In order to limit survey costs, only stands with relatively high use by both taxicabs and passengers -- as identified by local industry members -- were included in the survey. The 1981 effort included surveying Monday through Saturday, during both morning and afternoon shifts at the Greyhound and Park Hilton stands and afternoons only at the rest. The 1978 survey was of afternoons (1-6 pm) only. Analysis files of weekday afternoons were ultimately compiled for maximum comparability. Tables A-10 and A-11 present the number of taxicab observations recorded by day of week at each cabstand location for both surveys.

Information recorded included number of passengers in group, passenger arrival and departure times, departure mode, cab company name, cab ID number, cruise-by, arrival and departure times, and number of passengers in taxicab on departure. Wait times of cabs already in the queues at

TABLE A-9 RESPONSE TIME SURVEY DESIGN FACTORS AND SAMPLE SIZES OBTAINED

Geographic Divisions	Calls Placed and Trips Completed By Time of Day			Total	
	Morning	Afternoon	Evening	#	Percent Completion
District:					
1. Northend	13 (9)	12 (9)	8 (6)	33 (24)	- 73%
2. Central-East	17 (10)	26 (12)	12 (8)	55 (30)	- 54%
3. Denny-Medical	10 (6)	9 (6)	3 (2)	22 (14)	- 63%
4. Downtown	10 (6)	11 (9)	3 (3)	24 (18)	 75%
5. Southeast	14 (9)	18 (9)	10 (7)	42 (25)	 60%
6. West	10 (8)	16 (10)	10 (8)	36 (26)	 72%
Subareas:					
7. Crown Hill (N)	6 (6)	13 (9)	15 (9)	34 (24)	 71%
8. Holly Park (SE)	14 (8)	19 (9)	10 (4)	43 (21)	 49%
9. High Point (W)	7 (7)	16 (10)	10 (7)	33 (24)	 73%
Company Type:					
1. Service Companies	50 (53)	77 (58)	48 (43)	175 (154)	 88%
2. Other Fleets (4+cabs)	26 (10)	33 (14)	18 (6)	77 (30)	 39%
3. One to Three Cab Firms	25 (6)	30 (11)	15 (5)	70 (22)	 29%
TOTAL CALLS PLACED (Total Trips Completed) Percent Completion	101 (69) 68%	140 (83) 59%	81 (54) 67%	322 (206) 64%	 64%

the start of a survey shift or remaining after it ended were separately estimated. Conventions were established for surveyors to record cabs leaving empty but evidently dispatched from the stands on call, as well as incidents such as fare refusals, altercations between drivers or drivers and passengers, comparison-shopping or informal rider-group formations. The reliability of these observations is dubious, however, owing to the surveyor subjectivity required, while their number was exceedingly small. A copy of the survey form is included with this appendix.

TABLE A-10 TAXI VEHICLE OBSERVATIONS OBTAINED AT SURVEY CABSTANDS: OCTOBER-NOVEMBER 1981

Cabstand Location	Approximate Capacity (Vehicle Spaces)*	Total Taxi Vehicle Observations (Queue and Cruise) by Day of Week			
		Weekday	Friday	Saturday	Total
Sea-Tac (Call Stations)	4	408	309	155	872
Sea-Tac (Queue & Holding Area)	50	249	132	90	471
Greyhound Bus Station	6-10	801	157	87	1,045
Ferry Terminal (Pier 52)	6- 8	167	35	43	245
Park Hilton Hotel	12	779	127	87	993
Washington Plaza Hotel	8	328	114	177	619
Frederick and Nelsons Department Store	4- 5	631	270	288	1,189
University Towers	4	45	25	46	116
1st and Pike	2- 4	178	107	119	404
Total Vehicles		3,586	1,276	1,092	5,954

*According to DLCA inventory of cabstands; ranges denote effective capacity above legal specification.

TABLE A-11 TAXI VEHICLE OBSERVATIONS OBTAINED AT SURVEY CABSTANDS: OCTOBER 1978

Cabstand Location	Taxi Vehicle Observations (Queue only) by Day of Week			
	Weekday	Friday	Saturday	Total
Sea-Tac Airport	367	61	87	515
Olympic Garage	141	46	57	244
Greyhound Station	95	85	45	225
Olympic Hotel	439	143	87	669
University of Washington	94	26	41	161
Washington Plaza Hotel	119	118	100	337
Ferry Terminal	132	-	-	132
Total Vehicles	1,387	479	417	2,283

SEATTLE TAXICAB PASSENGER PROFILE SURVEY (PPS) - SURVEYOR **VEHICLE TRIP** FORM

CARD 1

a DATE [2] b INTERVIEWER NO. [6] c CAB COMPANY CODE [8] d CAB NUMBER [11] e SHIFT I.D. NO. [15]

1. TRIP NUMBER (ON SURVEYOR SHIFT THIS DAY) [19] 2. CALL TYPE: (1) Phone (2) Stand (3) Street-hail (4) Pre-arranged [21]

3. WAS PICK-UP MADE? (1) Yes (2) Taxi no-show (3) Passenger no-show [22]

4. IS THIS TRIP FOR (1) Movement of Passengers (2) Delivery of Goods [23]

5. HOW MANY RIDERS ON THIS TRIP? [24] 6. IN HOW MANY DISTINCT GROUPS? [26] 7. HOW MANY ARE UNDER 13 YEARS OLD? [28]

8. IS THIS A SHARED-RIDE TRIP? (1) No (2) Yes [30] 9. IF SHARED-RIDE, IS IT: (1) Zone-based (2) Meter-based [31]

10. RIDER NO.	11. R/V	12. SERIAL NUMBER	13. START TIME	14. START MILEAGE	15. ORIGIN OF TRIP	16. TYPE OF DELIVERY	17. SEX	18. ETHNICITY	19. RIDER STATUS	20. NOTES	21. HANDICAP
[32]	[34]	[35]	[39]	[43]	[47]	[51]	[52]	[53]	[54]	[55]	[56]

22. DESTINATION MILEAGE	23. DESTINATION OF TRIP	24. END TIME	25. FARE	26. FORM STATUS
[57]	[61]	[65]	[69] [71]	[73]

IF REFUSED: CARD 2

AGE	EMPL.	TAXI TRIP FREQ. TODAY	TAXI TRIP FREQ. LAST MO.
[39]	[40]	[41]	[43]

27. HOW WAS TRIP PAID? (1)Cash (2)METRO Scrip (3)City Scrip (4)Charge card (5)Charge acct. with company (6)Tour package coupon [74]

28. WEATHER CONDITIONS: (1) Clear (2) Overcast (3) Fog (4) Light rain (5) Heavy rain [75]

A - 19

SEATTLE TAXICAB PASSENGER PROFILE SURVEY (PPS) - SURVEYOR SHIFT FORM CARD 1 [1]

SHIFT I.D. NO. [2] INTERVIEWER NAME _____ NUMBER [6] DATE [8]

CAB COMPANY _____ CODE [12] CAB NUMBER [15] DRIVER NAME _____ NUMBER [19]

CAB SHIFT START TIME [23] CAB SHIFT END TIME [27] MILEAGE AT START(CAB SHIFT) [31] MILEAGE AT START OF

FIRST PASSENGER TRIP [35] MILEAGE AT END OF LAST PASSENGER TRIP [39] MILEAGE AT END(CAB SHIFT) [43]

SURVEYOR SHIFT START TIME [47] SURVEYOR SHIFT END TIME [51] MILEAGE AT START(SURVEYOR SHIFT) [55]

MILEAGE AT START OF FIRST PASSENGER TRIP(SURVEYOR SHIFT) [59] MILEAGE AT END OF LAST PASSENGER TRIP(SURVEYOR

SHIFT) [63] MILEAGE AT END(SURVEYOR SHIFT) [67]

VEHICLE TYPE: (1)Sedan (2) Station Wagon (3) Van [71] IS THIS A WHEELCHAIR-ACCESSIBLE VEHICLE? (1) Yes (2) No [72]

VEHICLE CONDITION: (1) Excellent (2) Good (3) Fair (4) Poor INTERIOR [73] EXTERIOR [74]

DRIVER IS: (1) Leasee (2) Owner-driver (3) Employee [75] DRIVER AGE: [76] CARD 2 [1] DRIVER ETHNICITY: [6]

HOW LONG HAS DRIVER BEEN DRIVING A CAB? [7] YEARS [9] MONTHS

DRIVER COMMENTS (ON SURVEY, EFFECTS OF REGULATORY CHANGES): _____

_____

_____

_____ [11]

Your
Seattle
Department of Licenses and Consumer Affairs

Regina L. Glenn, Director
Charles Royer, Mayor

SEATTLE AREA TAXICAB SURVEY

RESIDENT

The taxi companies and the City of Seattle are conducting a survey to improve the quality of taxi service in the Seattle area. Please complete this questionnaire to help us provide you with better service. Thank you.

1. Please indicate where you are COMING FROM and where you are GOING TO on this trip. (Check ONE in EACH column)

Coming From	Going To	
O	O	Home
O	O	Work
O	O	School
O	O	Shopping
O	O	Medical
O	O	Work-related trip or appointment
O	O	Personal business (library, church)
O	O	Recreational or social activity
O	O	Intercity travel connection (airport, train, etc)
O	O	METRO bus connection
O	O	Other (SPECIFY)_____

2a. Why did you choose to make this trip by taxi? (Check as MANY as apply)

- O Only form of transportation available
- O Disability hinders my driving a car or riding a bus
- O Unfamiliar with area
- O Package(s) or luggage to carry
- O Not feeling well enough to drive
- O Bad weather
- O Saves time
- O Saves money
- O Safety
- O Someone else is paying for this trip
- O No particular reason

2b. Please underline which of the above was the MAJOR reason you chose a taxi for this trip.

3. If you had NOT used a taxi for this trip, what alternative WOULD you have chosen? (Check ONE)

- O Private car, as driver
- O Private car, as passenger
- O Rental car
- O Company car
- O Hustlebus or Airporter
- O Social service agency vehicle
- O METRO Bus
- O Walking
- O Would not have made this trip
- O Other (SPECIFY)_____

4. How did you obtain this taxi?

- O On the street or at a stand
- O By telephone, I requested pick-up as soon as possible
  - a. How long did you wait for the taxi to arrive? _____ minutes
- O By telephone, I requested pick-up at a later time
- O By prior arrangement with the company or driver
  - b. Did the taxi arrive when you expected it?
    - O It was ON TIME
    - O It was EARLY by _____ minutes
    - O It was LATE by _____ minutes

5. Why did you choose THIS TAXI or THIS TAXI COMPANY? (Check as MANY as apply)

- O This taxi was first available
- O Vehicle/driver appearance
- O Low rates
- O This company serves my area of town
- O I am most familiar with this company
- O Courtesy/helpfulness of drivers
- O Taxi company advertising
- O Other (SPECIFY)_____
- O No particular reason

6. How many OTHER taxi trips have you made or do you plan to make TODAY?

_____ OTHER taxi trips (number)

7. LAST MONTH, how many ONE-WAY taxi trips did you make in the Seattle area?

_____ one-way taxi trips (number)

8. How does this compare with your usage of taxis A YEAR OR TWO AGO?

I NOW make about _____ MORE taxi trips per month

I NOW make about _____ FEWER taxi trips per month

- O My current taxi usage is about the same as before
- O I did not use taxis until this year
- O I don't recall

9. If your usage of taxis has INCREASED OR DECREASED during the past year or two, please check the MAJOR reason.

- O Taxi service is better now
- O I have fewer transportation alternatives than before
- O I can afford more taxi trips now
- O My home or work location has changed
- O Taxi service is worse now
- O I have more transportation alternatives than before
- O Taxis are too expensive now
- O Other (SPECIFY)_____

PLEASE CONTINUE ON OTHER SIDE

9. Did you know that different taxi companies in the Seattle area charge different rates?

- ○ No
- ○ Yes

If yes, how did you find out about this? (Check ANY that apply)

- ○ Newspaper
- ○ Signs at airport
- ○ Rates are shown on taxi doors
- ○ Taxi company advertisements
- ○ Someone told me
- ○ Other (SPECIFY)_____

10a. Did you try to comparison-shop for the taxi trip you are now making?

- ○ No (PLEASE ANSWER QUESTION 10b)
- ○ Yes

If yes, how did you comparison-shop? (Check ANY that apply)

- ○ Called different companies to ask rates
- ○ Read the rates on the door of the taxi
- ○ Asked different drivers what the trip would cost
- ○ Bargained with the driver for a lower fare
- ○ Other (SPECIFY)_____

10b. If you did NOT comparison-shop, why was that? (Check ANY that apply)

- ○ All taxis charge about the same
- ○ Price doesn't matter that much to me
- ○ I didn't know how to find cheaper cabs
- ○ I use taxis so seldom it doesn't add up to much
- ○ Other (SPECIFY)_____
- ○ No particular reason

11. What city are you from?

_____

12. What is the MAIN purpose of your stay in the Seattle area? (Check ONE)

- ○ Business
- ○ Convention
- ○ Military
- ○ Vacation
- ○ Visit friends or relatives
- ○ Family emergency
- ○ Medical
- ○ Other (SPECIFY)_____

13. Which of the following best applies to you? (Check ONE)

- ○ Member of the armed forces
- ○ Employed full-time
- ○ Employed part-time
- ○ Student
- ○ Unemployed
- ○ Retired
- ○ Homemaker
- ○ Other (SPECIFY)_____

14. What is your age?

_____ years

15. Do you have a driver's license?

- ○ No
- ○ Yes

If yes, could you have rented a car during your stay here?

- ○ No
- ○ Yes

16. How many persons INCLUDING YOURSELF live in your household?

_____ persons (number)

17. What is the combined income of ALL of the members of your household?

- ○ $5000 or less
- ○ $5001 - $9,999
- ○ $10,000 - $14,999
- ○ $15,000 - $24,999
- ○ $25,000 - $34,999
- ○ $35,000 - $49,999
- ○ $50,000 or more

THANK YOU!

Your
Seattle
Department of Licenses and Consumer Affairs

Regina L. Glenn, Director
Charles Royer, Mayor

SEATTLE AREA TAXICAB SURVEY
VISITOR

The taxi companies and the City of Seattle are conducting a survey to improve the quality of taxi service in the Seattle area. Please complete this questionnaire to help us provide you with better service. Thank you.

1. Please indicate where you are COMING FROM and where you are GOING TO on this trip. (Check ONE in EACH column)

Coming From	Going To	
O	O	Accommodations
O	O	Work
O	O	School
O	O	Shopping
O	O	Medical
O	O	Sight-seeing
O	O	Personal business (library, church)
O	O	Recreational or Social activity
O	O	Intercity travel connection (airport, train, etc.)
O	O	METRO bus connection
O	O	_____ (Other)

2a. Why did you choose to make this trip by taxi? (Check as MANY as apply)

- O Only form of transportation available
- O Disability hinders my driving a car or riding a bus
- O Unfamiliar with area
- O Package(s) or luggage to carry
- O Not feeling well enough to drive
- O Bad weather
- O Saves time
- O Saves money
- O Safety
- O Someone else is paying for this trip
- O No particular reason

2b. Please underline which of the above was the MAJOR reason you chose a taxi for this trip.

3. If you had NOT used a taxi for this trip, what alternative WOULD you have chosen? (Check ONE)

- O Private car, as driver
- O Private car, as passenger
- O Rental car
- O Hustlebus or Airporter
- O Courtesy car
- O METRO Bus
- O Walking
- O Would not have made this trip
- O Other (SPECIFY) _____

4. How did you obtain this taxi?

- O On the street or at a stand
- O By telephone, I requested pick-up as soon as possible
  - a. How long did you wait for the taxi to arrive? _____ minutes
- O By telephone, I requested pick-up at a later time
- O By prior arrangement with the company or driver
  - b. Did the taxi arrive when you expected it?
    - O It was ON TIME
    - O It was EARLY by _____ minutes
    - O It was LATE by _____ minutes

5. Why did you choose THIS TAXI or THIS TAXI COMPANY? (Check as MANY as apply)

- O This taxi was first available
- O Vehicle/driver appearance
- O Low rates
- O This company serves my area of town
- O I am most familiar with this company
- O Courtesy/helpfulness of drivers
- O Taxi company advertising
- O Other (SPECIFY) _____
- O No particular reason

6. How many OTHER taxi trips have you made or do you plan to make in the Seattle area TODAY?

_____ OTHER taxi trips
(number)

7. LAST MONTH, how many ONE-WAY taxi trips did you make? (Count ALL your taxi trips, both in and out of your home town.)

_____ one-way taxi trips
(number)

8. Overall, how do you rate the taxi service in the Seattle area?

- O Excellent
- O Good
- O Fair
- O Poor

PLEASE CONTINUE ON OTHER SIDE

10. Overall, how would you rate the taxi service in the Seattle area now?

- ○ Excellent
- ○ Good
- ○ Fair
- ○ Poor

11. Have you noticed any CHANGES in the following aspects of taxi service in the PAST YEAR OR TWO? ((Please rate EACH aspect below)

SERVICE IS NOW:

Better	Worse	Same	Don't Know	
○	○	○	○	Availability of taxis
○	○	○	○	Promptness of service
○	○	○	○	Condition of vehicles
○	○	○	○	Quality of drivers
○	○	○	○	_____ (Other)

12. Did you know that different taxi companies in the Seattle area charge different rates?

- ○ No
- ○ Yes

If yes, how did you find out about this? (Check ANY that apply)

- ○ Newspaper
- ○ Signs at airport
- ○ Rates are shown on taxi doors
- ○ Taxi company advertisements
- ○ Someone told me
- ○ Other (SPECIFY)_____

13a. Do you try to comparison-shop when you take a taxi?

- ○ No (PLEASE ANSWER QUESTION 13b)
- ○ Yes

If yes, how do you comparison-shop? (Check ANY that apply)

- ○ Call different companies to ask rates
- ○ Read the rates on the door of the taxi to compare
- ○ Ask different drivers what the trip will cost
- ○ Bargain with the driver for a lower fare
- ○ Other (SPECIFY)_____

13b. If you DON'T comparison-shop for taxis, why is that? (Check ANY that apply)

- ○ All taxis charge about the same
- ○ Price doesn't matter that much to me
- ○ I wouldn't know how to find cheaper taxis
- ○ I use taxis so seldom it doesn't add up to much
- ○ Other SPECIFY)_____
- ○ No particular reason

14. How long have you lived in the Seattle area?

_____ years
(number)

15. What is your age?

_____years

16. Which of the following best applies to you? (Check ONE)

- ○ Member of the armed forces
- ○ Employed full-time
- ○ Employed part-time
- ○ Student
- ○ Unemployed
- ○ Retired
- ○ Homemaker
- ○ Other (SPECIFY)_____

17. Do you have a driver's license?

- ○ No
- ○ Yes

18. How many vehicles in operating condition do you have in your household?

_____ vehicles
(number)

19. Last month, how many ONE-WAY BUS trips did you make in the Seattle area?

_____ one-way BUS trips
(number)

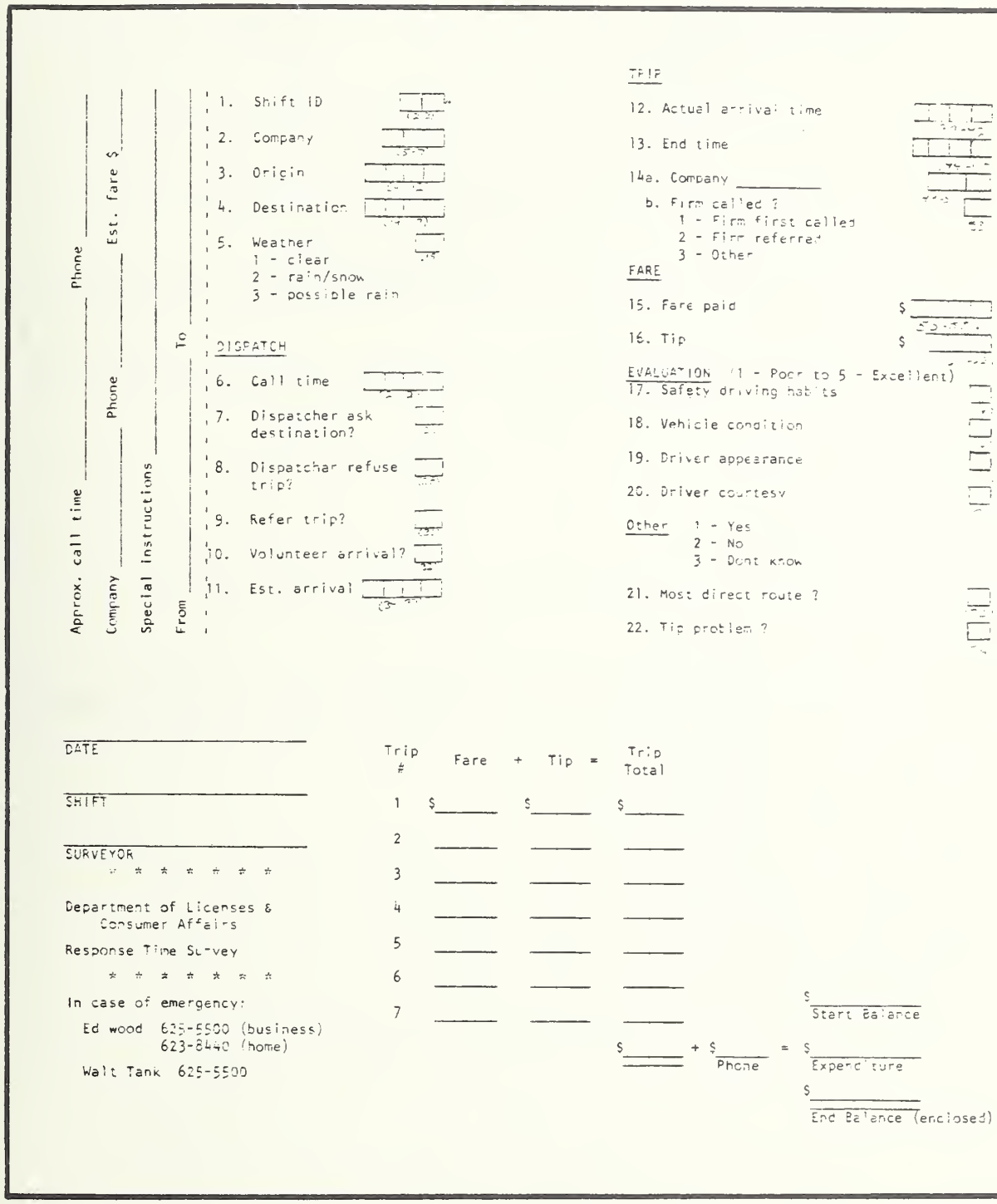
20. How many persons INCLUDING YOURSELF live in your household?

_____ persons
(number)

21. What is the combined income of ALL of the members of your household?

- ○ $5000 or less
- ○ $5001 - $9,999
- ○ $10,000 - $14,999
- ○ $15,000 - $24,999
- ○ $25,000 - $34,999
- ○ $35,000 - $49,999
- ○ $50,000 or more

THANK YOU



FACSIMILE TAXICAB RESPONSE TIME SURVEY FORMS

CITY OF SEATTLE
DEPARTMENT OF LICENSES AND CONSUMER AFFAIRS

TAXICAB STAND SURVEY RECORDING FORM

DE LEUW, CATHER & CO.
TSC/SMD EVALUATION
OCTOBER, 1981

SURVEYOR NAME _____ CABSTAND LOCATION _____ DATE _____ SHIFT START TIME _____ SHIFT END TIME _____ SHIFT ID # (1-4) _____

PAGE __ OF __

PASSENGER ACTIVITY							TAXICAB ACTIVITY : ARRIVALS								DEPARTURES	
A. TIME PASSENGERS ARRIVE (6-9)	B. # of PERSONS (11-12)	C. MORE THAN 1 GR. (14)	D. COMP. SHOP (16)	E. NOT 1st CAB (18)	F. LEFT WITHOUT CAB MODE (20)	G. LEFT WITHOUT CAB TIME DEPARTS (22-25)	H. TIME CAB ARRIVES (30-33)	I. COMPANY NAME	OFFICE CODE (35-37)	J. CAB ID NUMBER (39-42)	K. L. M. ARRIVAL STATUS (# of Pass.) CRUISE (44-5)	DROP (47-8)	STAND (50-1)	N. INCI-DENTS (53)	O. TIME CAB DEPARTS (55-58)	P. DEPART STATUS (60)

APPENDIX B: SUPPORTING DOCUMENTATION

TABLE B-1 SEATTLE TAXI LICENSES BY OWNERSHIP ENTITY AND TYPE WITHIN SERVICE COMPANIES BEFORE AND AFTER OPEN ENTRY

Owner Type Within Service Companies	Number of Entities () and Licenses by Year							
	August 1979		August 1980		August 1981		December 1981	
	# Entities	# Licenses	# Entities	# Licenses	# Entities	# Licenses	# Entities	# Licenses
FARWEST								
Veteran Owners	(131)	169	(120)	172	(102)	160	(85)	126
New Owners	(2)	3	(6)	14	(13)	28	(26)	39
GRAYTOP								
Veteran Owners	(27)	52	(22)	46	(15)	23	(9)	13
New Owners	-	-	(11)	15	(22)	28	(16)	20
YELLOW								
Veteran Owners	(20)	68	(18)	69	(10)	74	(10)	71
New Owners	(3)	3	(5)	6	(6)	7	(6)	7
TOTAL								
Veteran Owners	(178)	289	(160)	287	(127)	257	(104)	210
New Owners	(5)	6	(22)	35	(41)	63	(48)	66

TABLE B-2 SEATTLE TAXI OWNERS AND LICENSES BY COMPANY TYPE BEFORE AND AFTER OPEN ENTRY

Company/Owner type	Number of Owners and Licenses with % of All Licenses by Year											
	AUGUST 1979*			AUGUST 1980**			AUGUST 1981***			DECEMBER 1981†		
	# of Owners	# of Licenses	%	# of Owners	# of Licenses	%	# of Owners	# of Licenses	%	# of Owners	# of Licenses	%
SERVICE COMPANIES:												
Veteran Owners	(178)	289	69%	(160)	287	55%	(127)	257	49%	(104)	210	41%
New Owners	(5)	6	1	(23)	35	7	(41)	63	12	(48)	66	13
FLEETS†† (4 or more cabs)												
Veteran Owners	(16)	74	18	(15)	89	18	(15)	64†††	12	(19)	81	16
New Owners		-		(5)	17	3	(11)	63	12	(17)	76	15
MINI-FLEETS†† (2-3 cabs)												
Veteran Owners	(9)	12	3	(14)	22	4	(8)	10	2	(5)	12	2
New Owners	(1)	2	<1	(9)	18	3	(11)	21	4	(9)	21	4
ONE-CAB FIRMS††												
Veteran Owners	(32)	32	8	(20)	20	4	(16)	16	3	(15)	15	3
New Owners	(6)	6	1	(31)	30	6	(33)	33	6	(30)	30	6
TOTAL OWNERS & PERMITS††												
Veteran Owners	(235)	407	97%	(209)	418	81%	(166)	347	66%	(146)	318	62%
New Owners	(12)	14	3%	(68)	101	19%	(96)	180	34	(105)	193	38
TOTAL	(247)	421	100%	277	519	100%	(262)	527	100%	(251)	511	100%

Source: DLCA taxi license records

*End of 78-79 license year, pre-open entry.
**End of 79-80 license year, first year "after."
***End of 80-81 license year, second year "after."
†End of data; 4 months into 81-82 license year.
††Permits held by a single ownership entity under different company names are grouped together within the resulting size for purposes of this table.
†††One larger company temporarily cancelled all of its 22 permits at the close of the 80-81 license year. It later resumed operation with seven licenses.

TABLE B-3 MEAN RATE SEGMENTS BY OPERATOR TYPE BY QUARTER: MAY 1979 THROUGH FEBRUARY 1982
CITY OF SEATTLE EXCLUSIVE RIDE SERVICE

Operator Type	Rate Segments by Quarter													
	Pre-Revisions Standard Rate	May-Jul 1979	Aug-Oct 1979	Nov-Jan 1980	Feb-Apr 1980	May-Jul 1980	Aug-Oct 1980	Nov-Jan 1981	Feb-Apr 1981	May-Jul 1981	Aug-Oct 1981	Nov-Jan 1982	Feb-Apr 1982	% Change Since Variable Pricing
Flag Drop Charges:														
Veteran Owners	0.90	1.05	1.09	1.10	1.13	1.15	1.15	1.15	1.12	1.10	1.10	1.08	1.08	+ 3%
New Owners	-	1.00	1.05	1.07	1.11	1.14	1.17	1.19	1.15	1.14	1.14	1.14	1.14	+14%
Industry Average Flag Drop	0.90	1.04	1.08	1.09	1.12	1.15	1.16	1.17	1.13	1.12	1.13	1.12	1.12	+ 8%
Mileage Charges:														
Veteran Owners	0.70	0.99	1.03	1.06	1.10	1.10	1.15	1.18	1.17	1.21	1.24	1.23	1.26	+27%
New Owners	-	1.00	1.05	1.08	1.17	1.19	1.19	1.22	1.23	1.25	1.31	1.34	1.34	+34%
Industry Average Mileage Charge	0.70	0.99	1.03	1.07	1.13	1.15	1.17	1.20	1.20	1.23	1.28	1.30	1.31	+32%
Wait Charges:														
Veteran Owners	0.12	0.20	0.20	0.21	0.23	0.23	0.25	0.25	0.27	0.28	0.28	0.28	0.28	+40%
New Owners	-	0.20	0.22	0.22	0.24	0.25	0.26	0.26	0.27	0.29	0.30	0.31	0.31	+55%
Industry Average Wait Charges	0.12	0.20	0.21	0.21	0.24	0.24	0.25	0.26	0.27	0.28	0.30	0.30	0.30	+50%
Extra Passenger Charges:														
Veteran Owners	0.20	0.26	0.27	0.30	0.38	0.42	0.48	0.54	0.56	0.62	0.65	0.66	0.66	+154%
New Owners	-	0.26	0.24	0.25	0.34	0.42	0.48	0.53	0.56	0.65	0.73	0.78	0.79	+204%
Industry Average Extra Passenger Charges	0.20	0.26	0.26	0.28	0.36	0.42	0.48	0.54	0.56	0.64	0.70	0.73	0.74	+185%
Number of Firms Reported*		50	71	74	85	88	105	98	108	107	117	122	123	

*i.e., for which individual rates were filed

TABLE B-4 MEAN RATE SEGMENTS ON FILE FOR CONTINUING OPERATIONS VERSUS THOSE EXITING THE INDUSTRY, BY QUARTER: MAY 1979 - FEBRUARY 1982

Company Type	Rate Segments by Quarter: Pre-Revisions Standard Rate	May-Jul 1979	Aug-Oct 1979	Nov-Jan 1980	Feb-Apr 1980	May-Jul 1980	Aug-Oct 1980	Nov-Jan 1981	Feb-Apr 1981	May-Jul 1981	Aug-Oct 1981	Nov-Jan 1982	Feb-Apr 1982
Flag Drop Charges:													
Continuing Industry Average	0.90	1.04	1.08	1.09	1.12	1.15	1.16	1.17	1.13	1.12	1.13	1.12	1.12
Continuing Independents		1.05	1.08	1.10	1.13	1.15	1.17	1.18	1.14	1.12	1.13	1.12	1.12
Independents Exiting Industry During Quarter		-	1.00	-	1.40	-	1.09	-	1.20	-	1.40	-	-
Mileage Charges:													
Continuing Industry Average	0.70	0.99	1.03	1.07	1.13	1.15	1.17	1.20	1.20	1.23	1.28	1.30	1.31
Continuing Independents		1.00	1.04	1.07	1.14	1.15	1.18	1.21	1.20	1.24	1.29	1.30	1.32
Independents Exiting Industry During Quarter		-	1.00	-	1.10	-	1.20	-	1.15	-	1.28	-	-
Wait Time Charges:													
Continuing Industry Average	0.12	0.20	0.21	0.21	0.24	0.24	0.25	0.26	0.27	0.28	0.30	0.30	0.30
Continuing Independents		0.20	0.21	0.22	0.24	0.25	0.26	0.26	0.27	0.29	0.30	0.30	0.30
Independents Exiting Industry During Quarter		-	0.20	-	0.20	-	0.25	-	0.24	-	0.28	-	-
Extra Passenger Charges:													
Continuing Industry Average	0.20	0.26	0.26	0.28	0.36	0.42	0.48	0.54	0.56	0.64	0.70	0.73	0.74
Continuing Independents		0.27	0.27	0.29	0.37	0.43	0.50	0.55	0.58	0.65	0.72	0.75	0.76
Independents Exiting Industry During Quarter		-	0.20	-	0.35	-	0.42	-	0.48	-	0.64	-	-
Number of Firms Reported*		50	71	74	85	88	105	98	108	107	117	122	123
Number of Firms Exiting During Quarter*		0	2	0	2	0	9	0	6	0	5	0	0

*i.e., for which individual rates were filed

APPENDIX C: RECENT ORDINANCES AND REGULATIONS

ORDINANCE: _____

AN ORDINANCE amending Sections 6.170 and 6.220 of Ordinance 108934 (New Seattle License Code), changing "uninsured motorist coverage" to "underinsured motorist coverage"; requiring taxicab rates to be posted on the vehicle exterior, and requiring identifying information to be displayed within the passenger compartment.

BE IT ORDAINED BY THE CITY OF SEATTLE AS FOLLOWS:

Section 1. Section 6.170 of Ordinance 108934, as added by Ordinance 109348, is amended as follows:

Section 6.170 -- Financial Responsibility

All taxicab licensees shall maintain and furnish to the Director proof of compliance with RCW Chapter 46.72, as now or hereafter amended, relating to financial responsibility. Such proof shall consist of proof of For-Hire certification with the State of Washington. Additionally, all licensees shall maintain a policy of ((uninsured)) underinsured motorist coverage which runs to the benefit of passengers. The City of Seattle need not be named as an additional insured. Licensees may meet the above requirements for financial responsibility through a program of self insurance pursuant to RCW 46.29.630.

Section 2. Section 6.220 of Ordinance 108934, as added by Ordinance 109348, is amended as follows:

Section 6.220 -- Posting Rates and Displaying Identifying Information

(1) Each taxicab shall display on the interior and exterior of the taxicab, the filed, metered rates of fare. Fares shall be displayed in the manner and form required by the Director by rule, according to a uniform system which can be readily understood by passengers, including the listing of drop, mileage, waiting time, and extra passenger charges; provided that any taxicab licensee doing business by reservation only, and who does not offer taxicab service except by prior reservation, is not required to comply with this subsection.

(2) Each taxicab ((~~shall have conspicuously displayed~~)) within its passenger compartment ((~~the name and number of the taxicab~~)), shall display a sign, plaque, or card of identification in the manner and form required by the Director by rule.

Section 3 This ordinance shall take effect and be in force thirty days from and after its passage and approval, if approved by the Mayor; otherwise it shall take effect at the time it shall become a law under the provisions of the city charter.

Passed by the City Council the 2nd day of February, 1981,

and signed by me in open session in authentication of its passage this 2nd day of February, 1981

President of the City Council.

Approved by me this day of , 19 2/6/81

Mayor.

Filed by me this day of , 19

Attest:
City Comptroller and City Clerk.

(SEAL)

ublished By
Deputy Clerk.

ORDINANCE 109685

AN ORDINANCE relating to licensing and regulation of taxicabs, amending the New Seattle License Code (Ordinance 108934), Sections 6.020, 6.150, and 6.300, and adding a new Section 6.245, authorizing shared ride services pursuant to a standard grid map from which to calculate fares.

BE IT ORDAINED BY THE CITY OF SEATTLE AS FOLLOWS:

Section 1. Section 6.020 of the New License Code (Ordinance 108934) is hereby amended to read as follows:

Section 6.020 -- Definitions.

For purposes of this Chapter, the following definitions apply:

"Affiliated taxicab" means a taxicab associated with a group of taxicabs having multiple owners and operating under the same color, business name, or other identification scheme.

"Affiliation representative" means the person who has the authority to file rates, trade name, color scheme, or other identification scheme for a group of affiliated taxicabs.

"Exclusive ride" means transporting one (1) passenger or a group of passengers, all of whom have the same point of origin and destination.

"Independent taxicab" means a taxicab or group of taxicabs having one (1) owner and operating under the same color, business name, or other identification scheme.

"Operate" means engage in the activity of picking up any passenger for-hire.

"Owner" means the registered owner as defined by the Revised Code of Washington (RCW) 46.04.460, as now or hereafter amended.

"Shared ride" means transporting two (2) or more passengers with different origins and/or destinations in one (1) taxicab.

"Taxicab" means any motor vehicle which carries passengers for-hire, where the ((~~route traveled or~~)) destination is controlled by a passenger, and the fare is based on an amount recorded and indicated on a taximeter for exclusive rides, or on an amount calculated on a standard grid map for shared rides.

"Taximeter" means a device which records and indicates a fare, rate, or charge calculated according to distance traveled, and may also record and indicate a fare, rate, or charge based on waiting time, extra passengers, initial charge, and such other fares, rates, or charges as are not prohibited by the License Code or the Weights and Measures Code.

Section 2. Section 6.150 of the New License Code (Ordinance 108934) is hereby amended to read as follows:

Section 6.150 -- Violations.

It is a violation for any person to:

(1) Falsify any record, document, or information required to be kept or submitted to the Director (or Hearing Examiner) by this title, or by rule or regulation prescribed hereunder;

(2) Drive, or ((~~any licensee to~~)) authorize any person to drive a taxicab which is not equipped and in safe condition as required by the Seattle Traffic Code and RCW 46.37, as now or hereafter amended;

(3) Drive, or ((~~any licensee to~~)) authorize any person to drive a taxicab which is not equipped with seat belts for all passengers;

(4) Drive, or ((~~any licensee to~~)) authorize any person to drive a taxicab designed for the transportation of persons confined to a wheelchair, unless retaining locks for wheelchairs are installed and operable;

(5) Charge, or ((~~to~~)) authorize a driver to charge, any passenger an amount different than a rate or charge filed pursuant to this Code, or, if the transportation is provided pursuant to a contract, an amount different than the rate or charge set forth in the contract;

(6) Use, or authorize to be used, a trade name, color scheme, or other identification upon a taxicab or in any advertising or public listing, which is likely to be confused with the registered trade name, scheme, or identification of another licensee or which tends to deceive or mislead the public as to the type of service offered;

(7) Carry any exclusive ride passenger to the destination by a route that is not the safest and most direct, unless the customer specifically authorizes the deviation or alternate route;

(8) Refuse to accept as a passenger any person of proper deportment who requests transportation when the taxicab is not already carrying an exclusive ride passenger;

(9) Operate, or ((~~to~~)) authorize a person to operate, a taxicab offering exclusive ride service unless it is equipped with a taximeter, the taximeter has been inspected and approved by the Director, and on which the seal has not been broken, the size of the gears operating the taximeter has not been changed, and the taximeter has not been changed from one vehicle to another, or otherwise tampered with from the time of the Director's last inspection;

(10) Activate the meter when the taxicab is not employed or fail to activate the meter at the beginning of each ((~~for-hire~~)) exclusive ride trip, unless the transportation is provided pursuant to a written contract;

(11) Activate any equipment which indicates that the taxicab is carrying an exclusive ride passenger when it is not, or to fail to activate such equipment when the taxicab is carrying an exclusive ride passenger.

(12) Use a taxistand for purposes other than to await the carriage of passengers for-hire; or

(13) For exclusive rides, pick up additional passengers without the approval of the original passenger ((~~or to charge rates not in compliance with shared ride rates filed with the Director~~)).

Section 3. Section 6.300 of the New Seattle License Code (Ordinance 108934) is hereby amended as follows:

Section 6.300 -- Equipment.

(1) If exclusive ride service is offered, each taxicab shall be equipped with a taximeter installed in the vehicle in such a position that the face upon which the fare or charge is indicated is readily visible to and readable by passengers.

(2) At a minimum, each taxicab shall be equipped with either a top light, a flag attached to the taximeter, or other equipment approved by the Director which indicates that the taxicab is employed or unemployed and is visible from a distance of ten (10) feet from the vehicle.

Section 4. A new Section 6.245 is hereby added to the New Seattle License Code (Ordinance 108934) as follows:

Section 6.245 -- Shared ride service.

(1) Shared ride service may be offered on a reservation basis to passengers requesting the service.

(2) Charges for each shared ride trip shall be calculated by multiplying a licensee's filed shared ride rate by standard values assigned for travel between zones. The values shall be fixed by the Director by rule.

(3) Charges for shared ride service shall be based on a standard zone map approved by ordinance; provided, that the Director may amend the zone map by rule at any time after this subsection has been effective for nine (9) months, and provided further, that for any amendment the Director shall consider, among other relevant factors, the following:

(a) Fairness to taxicab companies and the public;

(b) Ability of the public to understand the charges and the zone map;

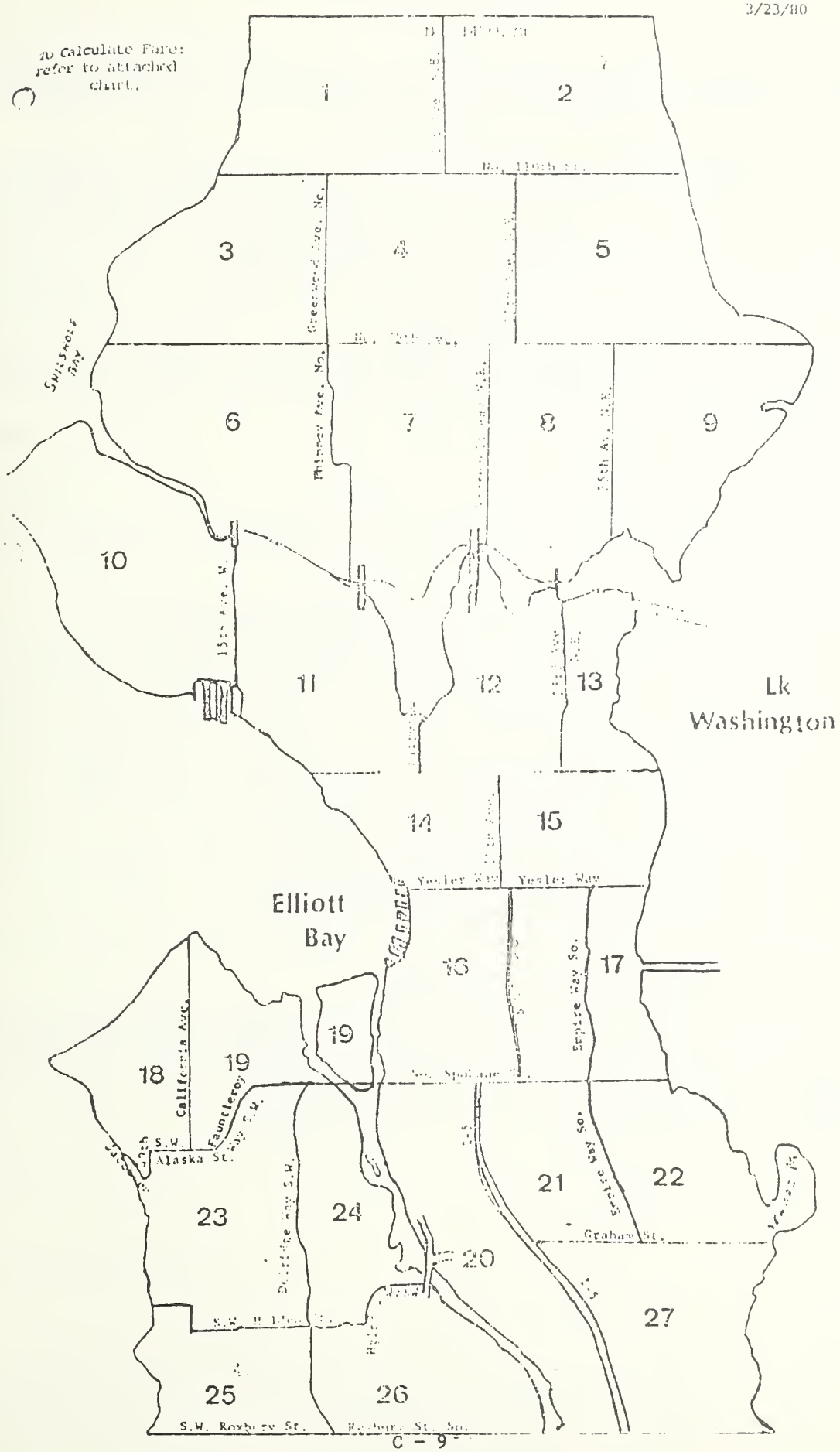
(c) Ease of City administration and enforcement; and

(d) Innovations in shared ride service programs.

(4) Charges for shared ride service shall be based on the following standard zone map:

3/23/80

To calculate Fare: refer to attached chart.



Authority. These rules are made pursuant to Section 1.040 of Ordinance 108934, which grants rulemaking authority to enforce the New License Code to the Director of Licenses and Consumer Affairs.

Rules and regulations promulgated pursuant to Ordinance 59866 and effective on June 1, 1965 and February 28, 1979, and any other rules and regulations promulgated pursuant to Ordinance 59866 and pertaining to taxicabs and/or motor vehicles for hire, and any rules and regulations promulgated pursuant to Section 19.1 of Ordinance 48022, are null and void.

R-6.020.1. "Taximeter" Charge is Based On

"Based on" means that when a taximeter is used to calculate the fare, the distance traveled is the predominant factor, with any additional charges secondary.

R-6.150(2)-1. Safe Condition

A taxicab shall be deemed to be in safe condition for the transportation of passengers when the following minimum requirements have been complied with:

(a) An efficient and operable windshield wiper system.
(b) An adequate braking system, including emergency or auxilliary.
(c) A complete lighting system, including signalling devices.
(d) Rear-view mirrors.
(e) Glass, free of breaks, cracks or defects sufficient to inhibit vision.
(f) Tires, minimum State required tread depth, 2/32 inch.
(g) Exhaust system integrity.
(h) Spare tire and jack in serviceable condition.
(i) Structural integrity of body members.
(j) Brake and clutch foot pads, no exposed metal parts.
(k) Speedometer in working order.
(l) An adequate steering and suspension system.

R-6.150(2)-2. Safety Check Required; When

Vehicles that have mechanical, structural or safety defects at the time of inspection, may be required to submit to a safety check from any recognized agency of the manufacturer of such vehicle or other established mechanic who retains no financial interest in the taxicab company. This report shall be on forms approved by the Director.

KING COUNTY BUSINESS LICENSE SECTION
4 King County Administration Building
Seattle, Washington 98104
344-2504

FOR-HIRE DRIVER

_____
(Applicant's Name)

_____
(Address) (City) (Zip)

The requirements for FOR-HIRE DRIVER licensure, to rule out infirmity of body or mind which would unfit him/her for the safe operation of any automobile or other vehicle for hire, are:

HAVE YOU HAD?	CHECK YES	CHECK NO
Bone or joint disease or injury		
Diabetes		
Dizziness		
Fits or epilepsy		
Heart trouble		
Hernia or rupture		
Mental illness		
Tuberculosis		
Unconsciousness		
A drug problem		
Other		
Are you taking any medications? If yes, What?		

_____
APPLICANT

REFLEXES
Rhomberg _____
Eye _____
Finger to nose _____

HEART
Murmurs _____
Rate _____
Rhythm _____

BLOOD PRESSURE
Systolic _____
Diastolic _____

DISTANT VISION
Right 20/_____ Cor. to 20/_____
Left 20/_____ Cor. to 20/_____

HEARING Less than 20 decibels loss at:
Right Ear _____ c.p.s.
Left Ear _____ c.p.s.

COLOR VISION Pic. _____
Yarns _____

ANGLE VISION _____

DEPTH PERCEPTION _____

SEROLOGY _____

URINALYSIS _____

X-RAY No. _____

MUSCULO-SKELETAL DEFECTS:

REMARKS:

_____

Date _____

_____ M.D.

_____ Address

_____

NOTE: Results of examination should be returned on the attached form.

PORT OF SEATTLE

SEA-TAC INTERNATIONAL AIRPORT
P.O. BOX 68727 / SEATTLE, WASHINGTON 98188

SEA-TAC INTERNATIONAL AIRPORT
TAXICAB OPERATING AGREEMENT AND PERMIT RECEIPT

This Agreement, made and entered into by and between the Port of Seattle (hereinafter referred to as "Port") and the taxicab owner/operator indicated below (hereinafter referred to as "Operator"), the parties agree for themselves as follows:

The Port will take reasonable measures within its authority to prevent persons, firms, or corporations engaged in the taxicab business who do not hold Airport Permits from soliciting such business on the Airport.

The Operator agrees to operate his taxicab(s) at the Airport in compliance with all provisions of law and applicable ordinances of King County. Operator further agrees to comply with Port Rules and Regulations as they pertain to Operation of Vehicles for Hire, and with provisions of published procedures for taxicab operations on the Airport The pertinent Port Regulation and the current Procedures Letter are attached hereto and by reference become a part of this Agreement.

The Operator agrees that he/she must surrender his/her Airport Taxicab Permit(s) on demand of the Port's Director of Aviation or his designated representative.

The Operator acknowledges receipt of the below described Airport Permits constituting the non-exclusive right to operate the taxicab(s) listed for the purpose of picking up passengers at Sea-Tac International Airport: PERMIT(S) EXPIRES: February 28, 1982.

Airport Permit #(s): _____

Company Name & Cab #(s): _____

Mailing Address: _____ Phone: _____

King County License #(s): _____

Initial Issue ☐ Renewal ☐ Replacement ☐ Owner Change ☐ Name Change ☐

Paid: _____Cash/Check Date: _____ Rec'd. By _____

Attachments: POS Rules & Regulations - Vehicle For Hire - Section 4, Pg. 4-6, 4-7, 4-8
Taxicab Operating Procedures
Sea-Tac International Airport Tariff No. 1, Pg. 16

OPERATOR

_____
(Company Name, Typed/Printed)

By: _____
(Signature)

_____
(Name, Typed/Printed)

_____
(Title, Typed/Printed)

PORT OF SEATTLE AVIATION DEPARTMENT

By: _____
(Signature)

Robert A. Marr
(Name, Typed/Printed)

Superintendent of Operations
(Title, Typed/Printed)

(Rev. 12-1-81)

b. Prohibit motor vehicles requiring additional time to assemble passengers and/or baggage from occupying space in roadways (including curb lanes).

c. Reserve parking areas for the use of vehicles for hire assembling passengers and baggage.

2. No motor vehicle shall park unattended except in:

a. Areas operated or leased for commercial parking by the Port or under a Port lease or concession agreement.

b. Areas leased or specified for the parking of Airport employees, including the employees of lessees, permittees, and concessionaires.

c. Metered parking areas which may be specially reserved or assigned.

d. Other areas specifically signed or designated as a permit area by the Director.

E. OPERATION - VEHICLES FOR HIRE:

1. No person shall operate a vehicle for hire to pick up passengers on the Airport without first having executed a Permit Agreement in form and content approved by the Director and paying the appropriate fees and/or charges as provided in said Permit Agreement.

2. No vehicle for hire shall load or unload passengers at the Airport in any place other than that designated by the Director.

3. Taxicabs shall comply with the following additional specific regulations:

(Continued on next page)

a. Only taxicabs displaying a current taxicab permit decal issued by the Port shall be permitted to pick up passengers at the Airport. This shall not preclude other taxicabs from responding to specific requests for their services from prospective customers. Nor shall this preclude any taxicab from discharging passengers at the Airport.

b. The taxicab permittee shall be permitted to conduct operations at the Airport provided there is compliance with the conditions as stated in the Sea-Tac International Airport Taxicab Operating Agreement and any future amendments thereto.

4. All vehicles for hire shall comply with the following rules and regulations:

a. Placing, throwing, or dropping of waste, refuse, or rubbish upon any taxi/bus stand, roadway, street, or sidewalk adjacent thereto is strictly forbidden and should this be disregarded, the violating driver of a vehicle for hire shall clean the area upon order to do so.

b. The owners or operators of all vehicles for hire, their employees, invitees, and those doing business with them shall conduct themselves in an orderly and proper manner at all times.

c. No owner or operator of a vehicle for hire or any person at any time, while on the Airport, by words, gestures, or otherwise, shall solicit, persuade, or urge any person to use or hire any vehicle for hire or other means of transportation or conveyance at the Airport.

d. Any driver of a vehicle for hire who violates any of these rules and regulations shall be subject to immediate expulsion from the Airport and will not be allowed to reenter the Airport without the permission of the Director. Also, such vehicle permit may be revoked.

(Continued on next page)

e. Any vehicle for hire company or owner failing to comply with these rules and regulations or who permits, encourages, or allows any of its representatives to violate these rules and regulations shall be subject to exclusion from the Airport and/or cancellation of the permit to operate on the Airport.

f. The vehicle for hire companies or owners shall assist and render all possible cooperation to the Port employees in enforcing these rules and regulations and failure to so cooperate or assist shall be considered a violation of these rules and regulations and may result in a revocation of their permit.

F. IMPOUNDMENT OF MOTOR VEHICLES:

1. When Vehicle May Be Impounded:

Any vehicle in violation of the provisions as referenced in Chapter 46.52 (Abandoned Vehicles) or Chapter 46.61 (Rules of the Road) of the Revised Code of Washington may be subject to impoundment pursuant to the provisions and procedures contained therein.

2. Method of Impounding:

No vehicle shall be impounded except under the direction of an authorized police officer of the Port of Seattle as herein provided. Where such officer directs the impoundment of an unattended vehicle because it is used in violation of the traffic code, a traffic violation ticket must first be attach to such vehicle. In all other cases where the Port of Seattle Police Department has ordered a vehicle to be held for investigative, evidentiary, or other purposes of such department, the officer must attach to each impounded vehicle an impounding ticket, signed by the towing contractor as witness thereto, indicating the reason for impounding, the location from which it is removed and whether such location is private or public property, and the time of removal.

PORT OF SEATTLE
SEA-TAC INTERNATIONAL AIRPORT
P.O. BOX 68727 / SEATTLE, WASHINGTON 98188

December 1, 1981

TO: All Taxicab Operators, Sea-Tac Airport

SUBJECT: Procedures for Taxicab Operations on the Airport

This document sets forth procedures for obtaining Sea-Tac Airport Taxicab Permits and operating procedures to be followed by all taxicabs picking up passengers at Sea-Tac Airport. Effective December 15, 1981, authority to operate a taxicab for the purpose of picking up passengers at the Airport shall be contingent upon the proper execution of a Sea-Tac International Airport Taxicab Operating Agreement and payment of the Airport Taxicab Permit fees as prescribed in Sea-Tac International Airport Tariff No. 1. This document supercedes all previous correspondence of the same subject.

FEES: Currently the above referenced tariff establishes Taxicab Permit fees at $90.00 per taxicab, per quarter. Such fees are subject to review on a quarterly basis.

ELIGIBILITY: Operators of taxicabs licensed by King County may apply for Airport Taxicab Permits. Acceptance by the Port will depend on rate schedules filed by such taxicab operators with the King County licensing authority. Generally speaking, Taxicab Operators will be eligible to obtain taxicab permits if they meet one of the following criteria and additional criteria set forth in the Operating Agreement:

For the quarter beginning December 1, 1981, only:

1. Applicant's rates currently filed with King County do not exceed the following amounts: Flag drop - $1.00, Per Mile - $1.20 and Waiting time per minute - $0.20. (These are the median averages of all rates on file as of the last day of August 1981.)

2. Applicant's currently filed flag drop, per mile and waiting time rates do not exceed the King County median average for the current filing period (November 1981) by more than ten percent (10%) rounded upward to the nearest ten cent (10¢) increment.

The Port shall determine from King County the Median average of all taxicab rates filed in King County during the latest filing period (November 1981). Each taxicab will be treated individually in the determination of the county median average.

ISSUANCE OF PERMITS: Permits will be issued on a quarterly basis only, normally between the 5th and 15th days of March, June, September and December. Operating Permits must be signed and permit fees paid prior to the permit being issued. Airport Taxicab Permits will be issued only to the person whose name appears on the King County Taxicab License or in the case of a corporation, an officer of the listed corporation. Permits will not be issued to individual drivers.

TRANSFERS: Airport Taxicab Permits may be transferred between owners provided there is no increase in filed rates and further provided there is no change in the King County identity of the taxicab in question.

VOLUNTARY TERMINATION: Operators wishing to voluntary terminate operations on the Airport without transfer of their permit(s) will be reimbursed for the unused portion of their quarterly permit fee on a pro-rata basis. In such cases, only full months will be considered in determining the amount of reimbursement.

EQUIPMENT REPLACEMENT: In the event of equipment replacement, the operator may, upon proper notice to the Port, have the remaining portion of his permit fee transferred to the replacement vehicle, provided that the replacement vehicle retains the same King County identity. A new permit decal will be issued without charge. The Port must be notified of any vehicle replacements within three (3) working days of the change.

PROCEDURES:

1. All taxicabs picking up passengers at the Airport must display in the lower right corner of the windshield a current Taxicab Permit issued by the Port of Seattle. The identification decal is the exclusive property of the Port, which reserves the right to reclaim it from the vehicle to which it has been assigned for whatever reason the Port deems appropriate.

2. In addition to compliance with terms of the Operating Agreement, all drivers must comply with all provisions of Washington State Law, King County Ordinances and the Port's Rules and Regulations and Operating Procedures as they pertain to operation of Vehicles for Hire at the Airport.

3. Before picking up passengers at the Airport (except on the Passenger Check-in Drive), all taxicabs must first pass through the taxicab holding area (feeder line) immediately north of the Passenger Terminal on the Passenger Pick-up level. Taxicabs will be dispatched from the holding area by Sea-Tac Central Control on a first-in, first-out basis. See Attachment 1 for description of the Taxicab Call-up and Dispatch System.

4. First cab in line must hold his position until walk-up customers are loaded or the cab is dispatched by Central Control to one of the call-up stations.

5. Drivers must respond to the specific call station to which they are dispatched. The fact that the driver observes potential customers waiting at intermediate points or call stations is immaterial. Other cabs will be dispatched to those customers.

6. When responding to call stations, drivers should attempt to stop as close to the curb as traffic will allow. Parking in lanes designed for through traffic is prohibited.

7. Two (2) taxi stands for Airport licensed cabs are located on the Passenger Check-in Drive. These stands may be occupied by any Airport Licensed cab on a first-come, first-served basis. It is not necessary to pass through the taxicab holding area before occupying these stands. A maximum of two (2) cabs are authorized at each stand.

8. Drivers waiting in the feeder line or on one of the upper drive taxi stands must remain in close proximity of their cabs at all times. Solicitation of fares beyond a simple, "Taxi, Sir/Ma'am?" will not be tolerated. Loitering in the passenger terminal is strictly prohibited. Use of the restroom facilities, food/beverage dispensing machines located at the North end of the baggage claiming area and Employee's Cafeteria by cab drivers whose cabs have not yet entered the feeder line from the holding area is permitted.

9. Sleeping in taxicabs in the holding area, feeder line or taxi stands is prohibited.

10. No taxicab may pass another in the feeder line without the expressed consent of the drivers of those cabs being passed. However, the right of the passenger to wait for a specific taxicab of his/her choice shall not be restricted. Unattended cabs in the remainder of the holding area should expect to be passed as the line continues to move. Cabs whose drivers are asleep may be passed in the feeder line as well as the holding area line.

11. Drivers must accept all fares regardless of their destination. Failure to do so is a direct violation of the Operation Agreement between the taxicab operator and the Port. Refusal of a fare of good deportment could, if the violation can be confirmed by written customer or Taxicab Committee complaint result in revokation of the Port of Seattle Taxicab Permit, with no refund of taxicab license fees. Normally a letter of warning will be given for a first offense, however, if the complaint is of a serious nature, such as, for example, striking a customer or abusive treatment result in immediate revokation of license. The Port reserves the right to judge each violation and take appropriate action as it see's fit. The owner of a taxicab whose license has been revoked, will not be permitted to reapply for a license for that taxicab or another vehicle bearing the same King County identification until the third rate filing period following the revokation.

12. Every driver shall use the most direct route to passenger destination and if requested, will follow passenger's directions in this regard. Only those charges reflected on the taximeter may be assessed against the passenger.

13. Customers will be charged for services based soley on rates that qualified them for an Airport license and which are on file with King County for operation in King County. These rates will be prominently displayed in plain view of passengers. Those drivers caught charging a rate other than the one filed for Airport qualification, will loose their Airport license. Mileage and waiting time charges must be reflected on the taximeter.

14. The above procedures are not intended to restrict drivers of any taxicabs, whether licensed to operate on the Airport or not, from responding to "belled calls" initiated by a specific customer for passenger and/or parcel pick-up. However, such pick-ups must be made on the Passenger Check-in Drive only.

15. All drivers will present a neat and clean appearance, their vehicles will also be clean inside/outside and in safe operation condition. Disabled vehicles must be towed from Airport property as soon as possible.

16. Drivers will be courteous at all times and shall not engage in loud, profane, threatening conduct, abusive language or disruptive conduct. Treatment of passengers in other than a courteous manner will not be tolerated, violations could result in immediate loss of Airport license. Drivers will assist passengers with the handling of their luggage into and out of their taxicab.

17. Drivers shall not engage in any form of gambling at the Airport. Throwing freisbees, baseballs, footballs or other objects with other drivers or persons while waiting in the holding area or feeder line is prohibited.

18. No driver shall bring any deadly weapon on the Airport unless a permit from the appropriate governmental authority has been obtained. In no event shall the weapon be displayed or used at the Airport.

19. No driver shall permit any person(s) (this includes children or other family members) to occupy or ride in the taxicab unless the person(s) first employing the taxicab shall consent to acceptance of additional passenger, or unless person is undergoing training for the purpose of becoming a licensed driver, then no longer than 3 consecutive days. Additionally, no driver shall transport any animal unless such animal belongs to the person(s) employing the taxicab.

Sincerly,

Robert A. Marr
Superintendent of Operations

lkw

cc: Port of Seattle Police

ATTACHMENT #1

TAXICAB CALL-UP AND DISPATCH SYSTEM

Taxicab pick-up points/call stations have been established at four locations along the Passenger Pick-up Drive. Stations are located under each of the three southernmost pedestrian bridges and the fourth on the concrete support column at the extreme south end of the Passenger Terminal. These call stations are numbered one through four from north to south.

Passengers exiting the baggage claiming area from all except the northernmost doors will be directed by appropriate signs to the taxi call phones at curbside. Instructions have been posted instructing the caller not to use the phone until they, their passengers and all luggage are present and ready for loading.

When the phone is lifted from the cradle, it will automatically ring in Central Control and be answered by a dispatcher. The customer will be given the name and number of the taxi next up and advised to remain at that location. The taxi driver will be given the customer's last name and station number over the speaker phone located at the head of the feeder line. Since more than one customer may be waiting at the call station, when the cab arrives, the driver must make sure that the correct passenger is being picked up. In the event the customer fails to follow these instructions and is absent when the cab arrives or if the customer should refuse to use the cab, the driver has the option of remaining at the call station and taking the first walk-up customer who arrives on the scene or returning to the end of the feeder line. The driver should use the phone and advise the dispatcher so that another cab is not unnecessarily dispatched. Upon receiving a fare, the driver should again advise the dispatcher before proceeding. No more than one taxicab will be allowed to remain at the call station under conditions described above.

Customers exiting from the north end of the baggage claiming areas will be expected to walk directly to the head of the feeder line. Taxi drivers must cooperate with the dispatcher. When United Airlines' flights are in, there will be many walk-up customers. This could subject the call-in customer waiting down the line to a long delay unless controls are imposed by the dispatcher. In such cases, alternate cabs will be assigned to walk-up or call-in passengers. The lead cab in the feeder line must hold position until loaded by walk-up customers or until dispatched to one of the call stations.

AIRPORT TAXICAB PERMITS

The following applies to taxicab operations at Sea-Tac International Airport:

Fees:

$90.00 per taxicab per quarter. Subject to review on a quarterly basis.

Eligibility Requirements:

Taxicab operators will be eligible to obtain taxicab permits if they meet one of the following criteria and the additional criteria set forth in the Operating Agreement:

For the quarter beginning March 1, 1981 only:

1. Applicant's rates currently filed with King County do not exceed the following amounts: Flag drop - $1.20; per mile - $1.20; waiting time per minute - $0.30.

or

2. Applicant's currently filed flag drop, per mile, and waiting time rates do not exceed the King County median average for the current filing period by more than ten percent (10%) rounded upward to the nearest ten cent (10¢) increment.

For all subsequent quarters:

1. Applicant's currently filed flag drop, per mile, and waiting time rates are equal to or less than the King County median average for the immediately previous filing period rounded upward to the nearest ten cent (10¢) increment.

or

2. Applicant's currently filed flag drop, per mile, and waiting time rates do not exceed the King County median average for the current filing period by more than ten percent (10%) rounded upward to the nearest ten cent (10¢) increment.

APPENDIX D: REPORT OF NEW TECHNOLOGY

A thorogh review of the work performed under this contract has revealed no significant innovations, discoveries, or inventions at this time. In addition, all methodologies employed are available in the open literature. However, the findings in this document do represent new information and should prove useful throughout the United States in evaluating future taxi regulatory revisions.

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