

Portland Private-for-Hire Transportation Demand Study

Final Report

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Executive Summary

When the City of Portland issued moratoriums on new permits for taxis and executive sedans in 1999 and 2003, it sought to reduce crowding by these private for hire (PFH) vehicles at critical locations, including the Portland International Airport (PDX) and downtown hotels. The City Council and Portland Private for Hire Transportation Board also believed that the introduction of light rail service to PDX would reduce the demand for taxis, executive sedans and shuttles, and that according to a formula used by the Revenue Bureau, had more taxi service than the national average.

In the fall of 2008 the Revenue Bureau initiated its 2009-2011 needs analysis, which included an evaluation of the current method for determining the demand for PFH transportation services, and a review of regulations used in other cities. This analysis found that the accuracy of the current demand estimation method could be improved by basing its conclusions on changes in City of Portland employment levels and passenger activity at PDX, which has been shown to directly correspond with increased and decreased trip making by City of Portland taxis.

With the Revenue Bureau's 2009 code updates, PFH transportation providers will be required to regularly provide log data, which is now collected only intermittently. Over time the log data may indicate that different variables can better forecast PFH transportation trip demand, as well as the specific demand for taxis, town cars and shuttles, and should be considered to improve the accuracy of these forecasts.

In addition, improved enforcement of PFH transportation regulations may lead to increased trip volume and revenue for legally permitted and operating PFH transportation providers; and the effect of these enforcement efforts may lead to an improved data set for use in future needs analysis studies.

It is further recommended that PFH transportation service providers should have an opportunity to provide evidence that their services are both being utilized productively and that they cannot meet demand with their supply of permits unless additional permits are issued. This evidence can include information about passenger trips and/or revenue per permit and revenue miles per permit as documented from taxi meters, contract invoices, or some other means of independent verification such as time spent in the PDX hold area or corroboration of their data by a certified public accountant.

One of the outcomes of these recommendations is to ensure that no new permits are issued unless the City is satisfied that the permits in place are being used efficiently.

While these recommendations are being reviewed, it is apparent that both the economic downturn and information gathered from research of the employment levels of the six economic sectors that are more apt to use PFH transportation than other sectors (as well as from information gathered in interviews with 14 PFH transportation providers and stakeholders), that the current number of permits for taxi, town car, and shuttle services is adequate in serving demand for their services for the time being. In addition, permits for medical assist transportation services also appear to be at an optimal number to service the increasing demand for those services in the upcoming 2009-2011 period.

Other documents being completed for the Private for Hire Transportation Demand Study are:

- Technical Memorandum No. 1 – Summary of Private for Hire Transportation Demand Estimation Methods Employed throughout the U.S.
- Technical Memorandum No. 2 – Transportation and Demographic Trends in the City of Portland

- Technical Memorandum No. 3 – Summary of Interviews with Private for Hire Transportation Providers and Stakeholders
- Technical Memorandum No. 4 – Estimating Demand for Private for Hire Transportation Services in the City of Portland
- User’s Manual – Private for Hire Transportation Demand Model for the City of Portland

This study is funded by the City of Portland. This report and other documents prepared for the “Portland Private for Hire Transportation Demand Study” can be acquired through the web link [\(do we have a web link you want to post this on?\)](#)

I. Introduction

Like most U.S. cities, the City of Portland regulates taxis, executive sedans (also known as town cars) and shuttle services through the issuance of permits to guarantee their safety, and that an appropriate number of vehicles are available to meet the demand for their services. The number and types of permits are associated with the types of services provided. For example, taxis must provide service 24 hours a day, and can be accessed via taxi stands and reserving taxi services via dispatch. Executive sedans can only be accessed by reservations made at least 60-minutes in advance of pickup, and shuttles provide door-to-door and/or terminal to terminal transportation for multiple travelers at a time.

In addition, passenger fares for each type of service are based on a regulated fare schedule. These regulations have been promulgated and are enforced by the City of Portland's Revenue Bureau.

History

In 1999, the Portland City Council adopted a temporary moratorium on the issuance of new permits for taxis, and in 2003 the Portland Private for Hire Transportation Board extended the moratorium to executive sedans (also known as town cars) and shuttle vehicles, because of evidence that the market for private for hire transportation was "oversaturated." Prior to these actions, the Port of Portland, in 1999, "reduced the number of permitted on-demand executive sedans allowed to pick up passengers at the airport from more than 190 to 20."¹

Other findings supporting the City Council moratorium included:

- A determination that business traffic had decreased at a significant rate;
- That the introduction of light rail transit service to the airport in 2001 was drawing business traffic; and
- That there was one taxi and/or town car for every 1,139 City of Portland residents in 2007 – far in excess of the standard one vehicle per every 1,400 residents rate utilized by City of Portland's Revenue Bureau.

The moratorium could be lifted based on the findings of a "Needs Analysis Study" based, in part, on the following criteria established in Order 16.40.120-006² (also known as "Board Order 6"):

1. Changes in City of Portland population.
2. Changes in demand for transportation of persons and persons with disabilities.
3. Changes in availability of public transportation services.
4. Changes in the number of airline passengers through Portland International Airport.
5. Changes in the number of Portland conventions and/or number of convention delegates.
6. Current number of taxicabs operating in City of Portland.
7. Current taxicab utilization patterns.

The Sorin Garber Consulting Group has been contracted with the City of Portland Revenue Bureau to complete a "Needs Analysis Study" for the 2009-2011 bi-enium period.

Purpose of this Report

The intent of this report is to present a recommended methodology for determining the need for increased supply of permits for private for hire transportation services regulated by the City of

¹ Private for Hire Transportation Board of Review, Order No. 16.40.120-013, Section 1. subsection E.1, 12/11/2003

² Adopted 12/3/1997 by the City of Portland Taxicab Board of Review.

Portland (i.e., taxis, town cars, shuttles, and medical-assist transportation). In earlier analyses, it was found that the current methodology used by the City's Revenue Bureau could be improved upon with different datasets. In addition, this report discusses regulations for issuing PFH permits in other cities, the trends in trip-making in the City of Portland, results of interviews with PFH transportation providers and stakeholders, and recommends new responsibilities for the Revenue Bureau that are necessary to carry out this recommended methodology.

II. Background Research

For this project, a series of analyses were completed and published as technical memoranda focused on:

- How other U.S. cities regulate the number of permits
- The current and future population and demographic trends in the City of Portland

Literature on Demand for Private for Hire Transportation

The published literature on private-for-hire (PFH) transportation demand can be categorized into three categories of investigation: 1) eliminating regulations that restrict supply; 2) the role of PFH in providing public transportation services; and 3) estimating demand to meet mobility needs. In summary, using TRIS (Transportation Research Board Information Service), twelve (12) references were identified that provide relevant information for the development of the eventual PFH demand estimation model.

Information gathered from the literature that is most relevant to this Portland study includes surveys of taxi availability in 118 U.S. cities and counties³. For this dataset, on average, there is one taxi/1,400 residents (this average variable has been the basis for the Revenue Bureau's demand estimation method); in Portland the number is one taxi/1,507 residents (and one taxi or town car for every 1,154 residents). Further evaluation of this data also found:

- Auto-oriented cities such as Los Angeles, Dallas and Houston accommodate fewer than 1.2 taxis/1,000 residents.
- Chicago, New Orleans and Boston are the only other cities with more than 2.4 taxis/1,000 residents.
- Cities with the highest number of taxis/residential population are those with the highest number of households without access to a car, the highest subway (distinct from ridership on light rail, commuter rail, bus, and other non-subway transit systems) ridership, and the highest number of taxi passenger volumes to airports. The author discusses the inadequacy and inconsistency of population as a surrogate value for taxi demand given that cities of similar population size may have very different density, economic and land use characteristics.

In *A Regression Model of the Number of Taxicabs in U.S. Cities* (by Bruce Schaller, 2005), the author compared the number of taxi cabs in operation with a wide range of critical variables including population, employment, vehicle ownership patterns, transit usage by commuters, airport passenger volume, and taxi fares. The analysis found that the greatest calibration occurs between subway commuters⁴ (though not for bus or light rail transit commuters), airport taxi trips, and households without access to an automobile. The author found that taxi usage varied significantly even between cities and counties of similar population sizes.

A study of taxi regulation in Portland⁵ found that:

- “Taxicabs transport 700 to 900 passengers daily to and from PDX during non-holiday periods and up to 1,200 rides during service peaks, constituting approximately 3.7 percent of ground trips.”

³ *New York City Taxicab Fact Book*, 2006, Schaller Consulting, New York, NY, November 2007

⁴ According to the author, (in an email exchange with Sorin Garber on 12/27/2008), ridership of other transit services—even those that travel between important taxi generation locations such as airports and central business districts—does not substitute for subway ridership because: “...the subway ridership variable is in part a proxy for center city density and other characteristics that are affected by transit-oriented development. Since most light rail cities were built prior to the light rail system itself, they were not shaped by the presence of a rail system.”

⁵ *An Economic Analysis of Taxicab Regulation in Portland, Oregon*, Boroski and Mildner, 1998

- “Business travelers represent 63 percent of taxicab users, whereas non-business, non-residents (e.g. tourists, visitors) constitute just under 15 percent of taxicab users.”
- “While non-resident business travelers utilize taxicabs and town cars almost equally, resident business travelers tend to prefer taxicabs. This suggests that town cars have captured a large segment of the airport market.”

Private for Hire Transportation Service Supply in Four Cities

In addition to the literature search, private for hire transportation supply was reviewed in four similar-sized cities through interviews with program administrators. The interviews were conducted by telephone and questions sought information on the following:

- Background – population, types of PFH services, number of registered PFH vehicles, description of administrative programs, review boards, and governance.
- Services in Operation – number of registered vehicles, coordination with other agencies/organizations.
- How number of registered PFH vehicles/licenses is determined – e.g., through use of a demand model, survey, economic analysis, other methods, none, etc.
- Monitoring/Inspections – how often, what’s being investigated, etc.
- Problems needing attention – with respect to competing services such as town cars, jitneys, and executive sedans.

Table 1 displays some of the general characteristics of the four cities interviewed. The information gathered in these interviews provides context for the literature reviewed, as well as helps to characterize some issues and requirements that are associated with different demand estimation methodologies.

Of the four cities/counties interviewed, only one regulates the number of taxi permits in a manner similar to the one employed in Portland, yet in cities that do not regulate the number of permits issued (Arlington County, and the cities of Sacramento and Seattle), there are both fewer and more taxis per capita. For example, Arlington County, which does not regulate the number of taxi permits, has over two and-a-half times the number of taxis in service, and Seattle which also has no permit cap, has 0.9 taxis per 1,000 residents

Table 1. General Characteristics of Peer Cities

	Population	Cap on PFT Vehicles?	Registered Taxis	Taxis/ 1,000 residents	Registered Town Cars & Shuttles	Accessible Taxis	Method for Increasing Taxi Supply
Arlington County, VA	202,800	No	752	3.7	na*	29	Formal review of company requests.
City of Austin, TX	743,000	Yes	669	0.9	30	38	Requests reviewed on basis on population and airport taxi usage.
City of Sacramento, CA	460,242	No	310	0.7	na*	na	Open permit system coordinated by industry.
City of Seattle, WA	592,800	No	883	1.5	66*	0	Formal review of company requests.

Source: Portland Private for Hire Transportation Demand Study: Technical Memorandum No. 1: *Summary of PFH Demand Estimation Methods Employed throughout the U.S*

* Regulated by others.

Transportation Trends in the City of Portland

Analyses of travel behavior (including trip generation, transportation modes used, and origins and destinations) in the City of Portland were completed, using output from the Metro regional travel demand forecast model⁶, to illustrate how City and non-City residents travel throughout and within the City and thus provide context for the estimates of PFH demand. The travel demand forecast model does not estimate or account for trips by PFH vehicle or service, so it's not possible to directly determine PFH demand from this data. However, the data is very helpful in identifying strong market segments for PFH service (e.g., trips by transit during non-commute periods).

In 2005 there were 4.7 million daily person trips in the City of Portland and 11.2 million person trips in the four-county region. The Central City district has the lowest percentage of daily person trips accomplished by automobile, but at 75%, is still the overwhelming mode of choice (see Table 2). Auto trips represent from 86% to 89% of all person trips in the other City districts and the four counties, and all six City districts combined generate and attract 85% of their total person trips by automobile.

Table 2. Percent of Total Person Trips by Mode and Geographic Area

	Central City	North PDX	Northeast PDX	Northwest PDX*	Southeast PDX	Southwest PDX*	Clack. County	Mult. County**	Wash. County	Clark County
Auto + HOV	75%	89%	87%	86%	89%	87%	87%	88%	87%	86%
Transit***	12%	5%	5%	5%	5%	4%	3%	1%	3%	1%
Walk	11%	4%	4%	4%	3%	6%	6%	7%	6%	7%
Bicycle	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%

Auto + HOV – Automobiles with one or more passengers.

* Does not include Central City area.

**Multnomah County trips minus City of Portland trips.

*** Does not include person trips by school bus – see Appendix B for breakdown by geographic area.

Transit is used for 12% of all Central City trips, and between 4% and 5% in the other City districts (or 7% for the City as a whole), and less than 3% in each of the four counties. Walking represents 7% of all City of Portland person trips, with as much as 11% in the Central City district; and is a relatively high 6%-7% in each of the four counties. Finally, bicycling represents 2% of all person trips in both the City of Portland and all four counties. Walking, bicycling, and in particular transit, represent the most promising markets for PFH services.

Another important market segment for PFH services is the number of person trips completed for non-commute trip purposes because non-commute trips do not involve travel between home and place of work, which is a very small market for PFH services.

As shown in Table 3, the non-commute trips completed by transit were evaluated by their geographic origins and destinations of person trips, and found that:

- 20% of the total four-county non-commute transit trips are destined for the Central City
- The NW and NE Portland districts generate the largest number of originating non-commute transit trips in the four-county area; and
- The five highest volume origin-destination pairs for non-commute transit trips are:
 - a. Central City to/from Central City (19,280 trips/day)
 - b. SW Portland to/from SW Portland (15,983 trips/day)
 - c. Multnomah County to NW Portland (15,359 trips/day)
 - d. Clackamas County to SE Portland (15,028 trips/day)
 - e. Clark County to North Portland (14,764 trips/day)

⁶ This data was prepared by the Metro Travel Demand Forecast Unit staff.

Table 3. Total Transit Non-Commute Person Trips by Sub Area Origin and Destination

<i>Destined to</i> →	Central City	North PDX	Northeast PDX	Northwest PDX	Southeast PDX	Southwest PDX	Clack. County	Mult. County	Wash. County	Clark County	TOTAL
<i>Originating from</i> ↓											
Central City	19,280	358	1,351	1,325	1,398	823	519	300	1,483	978	27,816
No PDX	1,804	1,891	870	1,097	101	582	134	694	1,065	14,764	22,999
NE PDX	6,656	675	5,395	2,234	614	405	1,152	1,260	13,140	65	31,596
NW PDX	8,511	886	2,214	7,826	510	959	1,602	12,281	387	36	35,214
SE PDX	3,004	55	624	441	2,543	1,147	14,615	94	556	7	23,086
SW PDX	1,485	517	286	824	1,089	15,983	11	27	186	6	20,413
Clackamas	1,085	126	1,251	1,664	15,028	31	1,343	106	42	10	20,686
Multnomah	1,490	678	1,211	15,359	148	64	120	2,844	282	7	22,203
Washington	6,499	1,005	11,096	261	338	257	21	158	8,912	9	28,555
Clark	1,909	13,638	122	83	13	21	18	11	17	4,740	20,572
	51,724	19,830	24,420	31,115	21,781	20,270	19,535	17,774	26,070	20,621	253,140

Analysis of Criteria Used in the Revenue Bureau’s Demand Estimation Methodology

New data was also developed to update the seven criteria used by the Revenue Bureau in its demand estimation method. As shown in Table 4, there have been increases in five criteria (population, elderly/ disabled rides, transit ridership, PDX passenger volumes and Convention Center events and visitors), with Convention Center usage growing at 25% between 2004 and 2008, and regional transit ridership by nearly 12% over the same period. The number of permitted taxis and taxi passenger trips, however, remained unchanged during since 2004.

According to the Revenue Bureau’s taxis and town cars/Portland population target ratio, the number of permitted cabs and town cars decreased from one vehicle for every 1,103 city residents in 2004 to one vehicle for every 1,154 residents in 2008.

Table 4. 2004-2008 Trends in Revenue Bureau Seven Criteria

	2004	2005	2006	2007	2008
POPULATION					
City of Portland	550,560	556,370	562,690	568,380	575,930
Portland Region	1,522,400	1,543,910	1,569,170	1,593,370	1,614,465
ELDERLY/DISABLED TRIPS					
Portland Region	1,544,300	1,574,551	1,563,916	1,589,527	1,630,772
TRANSIT RIDERSHIP					
Portland Region	88,863,600	91,071,600	95,826,000	96,918,000	99,230,400
PDX PASSENGERS					
Boardings	12,660,351	13,507,515	14,036,985	14,287,906	na
PDX CONVENTION ACTIVITY					
Number of Conventions	327	318	369	361	410
Number of Convention Visitors	230,056	305,930	320,670	312,506	283,031
TAXI SUPPLY					
Number of Taxicabs and Town cars	499	499	499	499	499
Taxicabs & Town cars: Population	1:1,103	1:1,115	1:1,128	1:1,139	1:1,154
PDX PFH UTILIZATION					
Taxi Trips/Day	650-700	650-700	650-700	650-700	650-700

III. Interviews with Private for Hire Transportation Providers and Other Stakeholders

A critical set of information to assess the needs for the PFH demand estimation model was established through interviews with representatives of fourteen (14) PFH providers (taxis, executive sedans, limousines and shuttles), as well as customers of those services, including the PDX and a downtown hotel operator.

Overview of Private for Hire Transportation Services in the City of Portland

A. Taxi Industry

There are six taxi companies in the City of Portland (all of whom were interviewed): Broadway Cab, Green Taxi, New Rose City Cab, Portland Cab Company, Radio Cab, and Sassy's Cab (which was purchased by Broadway Cab).

With the exception of Radio Cab, taxi companies do not hire drivers as employees, but instead have a contracted relationship with them. The City of Portland issues vehicle permits to taxi companies, which in turn lease them to owner-operator drivers. Typically, permits are leased by the week to cover, in part, overhead costs such as insurance, dispatching costs, other overhead, and administration. Owner-operators often lease their vehicle to other drivers when they are not driving the vehicle in order to recover the cost of leasing the permit. Radio Cab is unique in the local industry in that it is 100% employee owned. While Radio Cab permit holders do lease out permitted vehicles, the company's income relies more on fare and contract revenues than from leases to drivers.

Table 5 provides an overview of the interviewed cab companies, including the number of permits and drivers as well as the ratio of drivers to permits. Radio Cab employs about twice the number of drivers per permit than the other cab companies.

Table 5. Portland Taxi Companies

Company	City of Portland Permits	Drivers	Drivers/Permit
Broadway Cab*	136	241	1.8
Green Taxi	48	82	1.7
New Rose City Cab	19	35	1.8
Portland Cab	26	48	1.9
Radio Cab*	136	500	3.7
Sassy's**	17	28	1.7

* Owns an additional 44 cabs and permits (total 180) for locations outside of the City of Portland, but within the Portland metropolitan area.

** Owned by Broadway Cab.

Trip Generators

According to the interviewed taxi companies, the following locations are significant trip generators:

- Portland International Airport (PDX)
- Downtown businesses and hotels
- Oregon Health Sciences University (OHSU)/ Veterans Administration Hospital
- Providence Hospital
- Other hospitals and medical facilities

- Portland Public Schools
- Private residences throughout Portland

With respect to service throughout the City of Portland, most taxi companies stated that they are able to effectively serve any passenger no matter where the call comes from. One interviewee said that “if there is an area that is not well-served, it is likely the St. Johns area of North Portland, because in large part there are no significant trip generators (such as PDX or major hotels) in that area”.

Sources of Business

The amount of business that comes from PDX, corporate contracts, hotels/taxi stands and dispatching varies from business to business. For example:

- A Broadway cab representative said that 35% of its pickups come from hotels/taxi stands, 30% from dispatching, 25% from contracts or business arrangements, and 10% from PDX.
- Radio Cab reported that pickups come primarily from dispatching (66%)⁷ with the remaining pickups from contracts or business arrangements (30%) and hotels/taxi stands (3%).
- Portland Cab, a smaller cab company, estimated that about 80% of its business comes from airport pickups with the remaining coming from contracts, dispatching, and hotels.

Portland International Airport

Despite the fact that the airport is a large trip generator, with between 650-700 average daily pickups, there is a consensus among those interviewed that there are usually too many cabs waiting in the holding area at the airport. Typically the holding area is at capacity (which is 72 cabs), resulting in a 2-4 hour wait time for drivers on a typical weekday.

According to the Port of Portland, sometimes the holding area is so full of taxis that there is no room to accommodate executive sedans, hotel courtesy shuttles, limousines, and charter buses. However, there are times when the Port calls taxi companies to ask for additional cabs, such as Sunday nights when there are few cabs and shuttles in service, and for special events and during holidays when passenger activity at the airport peaks.

Many of those interviewed suggested that smaller taxi companies, without the resources for more advanced dispatching systems, are more likely to sit and wait for fares at PDX.

According to the Port of Portland, the two largest providers of transportation service at PDX are taxis and courtesy hotel shuttles. Non-hotel shuttle services account for less than two percent (2%) of business, and executive sedans make up about one percent (1%).

Contracted Service

Some taxi companies have contracts with local businesses which formalize the business arrangement and may include a discounted fare schedule. For example, Green Cab has contracts with Providence Hospital, OHSU, Portland Public Schools, several law firms and Multnomah County. According to New Rose City Cab, smaller companies that do not have enough permits have difficulty securing these contracts because they cannot meet the demand for service. Radio Cab holds contract work with hospitals, school districts and businesses, which constitutes the second-most important source of trips after dispatching. Broadway Cab has contracts for service with TriMet and multiple other private and public organizations.

⁷ According to Radio Cab, very few of its drivers wait for fares in the holding area at the airport. At times, some passengers arrange for Radio Cab to pick them up at the airport. Some PDX pickups are included in the dispatch figure.

Hotels/Taxi Stands

Taxis do not receive much business through hailing, in part because Portland residents are not accustomed to doing so. Taxi stands, which are typically located near downtown hotels, are also not thought to be significant trip generators. In part, as will be discussed below under the Executive Sedan section, this may be related to practices employed by staff at hotels in the downtown area. Reportedly, some hotel valets are in the practice of directing guests to executive sedans instead of taxis in return for a tip from executive sedan drivers.

Dispatching

The quality of dispatching service varies from company to company. Broadway Cab and Radio Cab have high-quality dispatch and GPS systems that ensure that they can match the closest cab to a passenger, thereby reducing non-revenue miles. The overwhelming majority of business for Radio Cab comes from dispatch systems. Broadway Cab also has a relatively high percentage of business, around 30%, coming from their dispatch systems.

Smaller companies, such as New Rose City Cab, do not have sufficient resources to invest in computer-based dispatching and GPS systems. For this reason, it is difficult for them to easily and effectively track where their drivers are and which driver to send to a specific call.

B. Executive Sedan Industry

The City of Portland also regulates the number of permits issued to the executive sedan industry (also known as town cars) and seeks to differentiate it from the taxi industry. City code stipulates that:

- Executive sedan companies must hold a permit for each vehicle.
- Executive sedans are not allowed to pick up passengers who hail a trip as taxis can; all trips must be arranged in advance.
- Executive sedan drivers are not allowed to pick up passengers sooner than one hour before a call.
- Executive sedans are required to charge a minimum of \$50 between the airport and Fareless Square.

Today, there are 53 executive sedan companies registered in the City of Portland who hold 129 permits for executive sedans. The majority of executive sedan companies operate between one and two vehicles. Some companies, such as Entourage International, employ their drivers, whereas others, such as Point to Point, lease permits to drivers who are self-employed.

It is not common for executive sedan companies to enter into formal contracts with hotels or larger businesses and corporations. Most executive sedan companies are not large enough to exclusively handle the business of one hotel or larger business. According to a representative of one of the executive sedan companies, “they would need at least 5-10 vehicles” to operate such a service. Point to Point, one of the area’s largest executive sedan companies, has a sufficient number of vehicles to serve repeat corporate clients.

A significant number of executive sedan pickups are generated by businesses and private residences located outside of the Portland city limits, and a large portion of these trips are to and from PDX. Most of the executive sedan companies are located just outside of Portland where a significant portion of their contract business is.

Corporate clients are typically steady customers of executive sedan companies. However, conversations with area businesses suggest that the recent economic downturn is affecting the

demand for executive sedans. For example, Intel has substantially reduced travel expenses, and in particular use of executive sedans. Also, Adidas America, which formerly used executive sedans, now requires that either taxis or personal vehicles be used for ground transportation.

Non-permitted Executive Sedans

According to several individuals who were interviewed, there are a number of executive sedan operators who provide on-demand service without a permit, or with leased permits from another company. Several of the interviewed stakeholders stated that non-permitted executive sedans regularly serve the downtown area. At many downtown hotels, executive sedan drivers reportedly tip hotel valets between \$5-15 for each referral. (It has also been reported that some taxi drivers also tip valets for referrals.)

These operations and arrangements have led some taxi drivers to avoid the downtown, which they universally claim is saturated with illegal executive sedans. These non-permitted companies may not only compete with taxis, but they also may be taking business away from legitimate executive sedan companies. It's been reported that the non-permitted companies may represent themselves as legitimate, and transport passengers who made prior arrangements with legal executive sedan companies.

C. Other Transportation Services

There are other forms of private for hire transportation in the City of Portland, including airport shuttles, limousines, and Sports Utility Vehicles (SUVs).

Airport shuttles

There are approximately 20 permitted airport shuttle companies serving the Portland area. Two of the most commonly used shuttles are:

- **Blue Star Shuttle:** Door-to-door service for multiple passengers to PDX from Tri-County metropolitan area. Blue Star has a fleet of 10-passenger vans.
- **Downtown Express Shuttle:** Operated by Blue Star Shuttle and provides service between PDX and four downtown hotels. Fare is \$14 one-way; \$24 RT between 4:00AM-7:00PM. Lesser levels of service are provided between 7:00PM and midnight.

According to Blue Star Shuttle, they have experienced some increase in shuttle service, but not enough to require additional permits. Recently, Blue Star requested two additional permits, but their request was based on needs that were due to reduced van supply during shift changes which occurred at the same time as peak travel periods.

Blue Star is experiencing more requests to and from areas outside the metropolitan region such as The Dalles, Hood River, and Skamania Lodge, and some as far north as Longview, WA. Shuttles have taken passengers to the Oregon coast as well, but the Portland metropolitan area is overwhelmingly their business market.

Limousines

The City of Portland does not regulate the limousine industry (the State of Oregon does), which consists primarily of longer stretch vehicles. The industry, which distinguishes itself by its higher level of service, provides trips using chauffeurs who open doors, assist with luggage, and ensure that the vehicle is in top shape. A significant portion of limousine companies' business comes from special events such as wine tours, wedding-related events, proms and formal events, etc.

SUVs

SUVs are not currently regulated by the City of Portland. Notably, many SUVs operate less like limousines services and more like taxi and executive sedans. There are many SUV drivers who compete with executive sedans and taxis for airport trips and often go undetected because they look like private vehicles.

Specially Assisted Transportation (SATs)

Specially Assisted Transportation (SAT) permits are issued by the City of Portland for specialized transportation services for passengers with special needs, not otherwise requiring emergency medical transportation. TriMet contracts with 55 separate service providers which, in total, employ 450 drivers and use 1,250 vehicles to deliver services for its Medical Transportation Program (MTP) within the three-county region. The MTP contracts with 35 separate sedan companies, including two taxi companies, Broadway and Radio. In addition, the MTP contracts with 23 separate wheelchair providers, including the Broadway and Radio Cab companies. TriMet's LIFT program also contracts with Broadway Cab Company to provide some of its complementary paratransit trips⁸.

There are some companies, such as KB Express, who primarily provide medical-assist transportation services, and there are other taxi and executive sedan companies which dedicate a portion of their fleet to these services. These services are regulated with SAT permits, which are issued by the City of Portland. Currently, there is no cap on the number of SAT permits. The City stipulates that SATs operate by reservation only within the City of Portland. Permitted SAT vehicles display signs that state "reservation only".

Demand for Private for Hire Transportation

A. Taxi Industry

Most of the interviewed companies stated that they believe that there is a sufficient number of cab permits in Portland, especially given the economic downturn. However, all taxi companies said that they could use additional permits in order to grow segments of their business.

Some stated that the non-permitted activities of some executive sedans may distort the demand for taxi service as well as executive sedans, particularly in the downtown area. In addition, some stakeholders suggested that if the rules and regulations were enforced more thoroughly and consistently, there would be fewer non-permitted trips by executive sedans, resulting in an inadequate number of taxis for demand at hotels.

B. Executive Sedan Industry

Representatives from the executive sedan companies had somewhat mixed opinions about whether there was a strong demand for additional permits. However, each business was clear in stating that they could use additional permits to grow their businesses. According to the Executive Sedan industry representatives, acquiring additional permits would allow their companies to tap into new markets.

In addition, sedan companies described how non-permitted executive sedans affect the market and make it difficult for legal sedans, as well as taxis, to serve the market they are intended to serve.

Due to the recent economic downturn, more business clients may be using less expensive means of ground transportation. Therefore, some may choose executive sedans rather than limousines

⁸ Technical Memorandum #2: *TriMet Paratransit and Medical Transportation Programs' Use of Private for Hire Services*, January 2009.

while others may move from executive sedans to taxis. Overall, it is likely that the recession will lead to more general cut backs in transportation that affect taxis, executive sedans, and limousines.

C. Shuttles

In the near future, airport shuttles do not appear to have a strong need for additional permits; however, there may be an incremental need for additional permits, especially as the economy improves.

D. SATs

SAT companies are pleased that TriMet is not adding any new providers to its LIFT and MTP programs because “more permits won’t translate to more business”. According to one company, one reason for the surplus of SAT service is that TriMet advocated for as many permits as possible in order to ensure that their programs are well served. Another reason is that the programs that use SATs have trimmed their budgets and have significantly reduced service requests. Due to the recent downturn, a number of SAT providers have had to scale back their services, staff, and vehicles.

Some of those interviewed mentioned that SATs compete with taxi service and are cutting into their business. Some suggested that SATs be more thoroughly monitored for non-permitted uses and that a cap be placed on the total number of permits issued.

IV. Research Conclusions for Consideration in Development of PFH Demand Estimation Model

As background to the recommended method for determining demand for private for hire transportation services, five conclusions were reached from the research completed:

- 1) Current demand estimation method can be improved upon. The Revenue Bureau's needs analysis method for determining whether additional permits should be issued for taxis, town cars and shuttles is based on changes in seven criteria from one bi-ennium to the next. These criteria serve as indicators of general economic conditions that are commonly associated with business activity; however, the methodology does not directly lead to an estimation of demand for private for hire (PFH) transportation. For example, the primary variable in determining the number of needed taxi permits is based on a formula that compares the number of taxis permitted by the City with taxi fleet size in cities of similar population⁹. The resulting average ratio from this method is one taxi for every 1,400 City of Portland residents. On closer examination of the data used in this method it's clear that there are significant inconsistencies from one city to another: the City of Portland permits 382 taxis, while Washington, DC has 6,200 taxis in its fleet, and Omaha, Nebraska, with a slightly higher population than Portland, has only 165 registered taxis. Such a wide variance in fleet size for cities with common populations suggests that a simple average is an inaccurate means to estimate the need for additional taxi permits.
- 2) Estimating the true demand for PFH transportation services is a complex exercise. In fact, no city or region in the U.S. has completed a genuine technical analysis of the demand for taxis or town cars (some agencies have completed analyses for airport shuttle services). A comprehensive evaluation of the transportation and demographic data used in the Metro regional travel demand forecasting model was completed, and while the model suggests that certain trips (e.g., non-commute trips by transit in NW Portland and Central City) may be a strong market for PFH transportation services, the model does not specifically provide a specific estimate of the demand for PFH transportation services.

A comprehensive method for estimating demand cannot be completed without a robust market survey, including collection of field data (such as, passenger intercept surveys), travel diaries, interviews, and advanced statistical analyses. With more consistent and complete reporting of passenger trip volume by time, date and origin and destination (i.e., through information provided in driver's logs), an intermediate demand estimation model can be prepared for future use.
- 3) Illegal activities involving PFH transportation modes must be considered in the estimation of PFH demand. A common problem, particularly at downtown hotels, is the large number of permitted or unpermitted town cars waiting at hotels for fares. Town cars may only pick up passengers on a pre-arranged basis; they cannot wait, as taxis can, for passengers to request service on the street. A more systematic problem is that hotel valets are reportedly directing passengers to town cars, who are waiting nearby, instead of taxis, in return for a fee paid by the town car drivers. Increased enforcement of these illegal activities would result in increased demand for taxis. This is important to recognize because true demand for any mode should not include trip-making data that includes trips that result from illegal activities.

⁹ Most of the U.S. cities that regulate the number of taxis use this method.

- 4) Need to provide a means of distinguishing the demand for the different PFH services. Even with an estimate of the demand for PFH transportation services, there is no procedure in place to determine whether there is demand for taxis, or for town cars, or for shuttles. Since these three transportation modes serve similar customer markets, it's essential that specific procedures are in place to issue permits to each mode separately based on the particular demands for those services.

A comprehensive set of data about trip origins and destinations was provided by the local taxi industry, which indicates that the majority of all passenger trips by taxi are for trips to and from a variety of locations, including:

- Medical facilities
- Bars, restaurants and entertainment facilities
- Shopping areas
- Hotel, motel and other tourism related origins and destinations
- Residences
- Business locations
- Special workshops, daycare
- Schools
- Other personal, such as places of worship, fitness facilities, etc.
- Transit facilities

- 5) The City already uses data to accurately forecast demand for medical-assist transportation. As the region's primary provider of medical-assist transportation (either through its own resources or as contractor for the services with others), TriMet completes accurate demographic and other analyses of the number of elderly and disabled persons requiring PFH transportation services for medical appointments, shopping, recreation, and other trips when determining the size of the fleet needed to service the demand. With our population growing older, the need for these services has grown year by year, and TriMet has added more providers (and thus, more vehicles and drivers) to the fleet of providers it contracts with.

The number of medical assist transportation permits issued to taxis by the City is consistent with the trends identified by TriMet.

Employment Data in Combination with PDX Passenger Levels should be used to Estimate PFH Demand

Since employment data is frequently used to indicate changes in the economy (and, therefore, changes in demand for PFH transportation), analyses were completed of employment in those economic sectors that are more likely to use PFH transportation between the years 2005 and 2008. When these findings were compared with passenger trip volume data provided by the Radio Cab taxi company and airplane boardings data at the Portland International Airport (PDX) for the same years, some direct correspondence and consistency with respect to trends was found.

As shown in Table 6, the passenger volume data provided by Radio Cab indicates that the company experienced growth between 2005 and 2006 (5.8%) and 2006 and 2007 (1.0%), before a 1.4% decline in passenger trips between 2007 and 2008. Overall, between 2005 and 2008, Radio Cab experienced a 5.3% growth rate.

As shown in Table 7, employment in the selected economic sectors for the Portland region experienced very similar changes. Like the Radio Cab trip data, employment increased by 3.2% between 2005 and 2006 and by a lesser amount between 2006-2007 (0.7%), and then declined by

2.1% between 2007 and 2008. Between 2005 and 2008, employment in these sectors increased by 1.7%.

Finally, Table 8 presents passenger boardings data at the Portland International Airport (PDX) for the same years. Again, the same pattern of increases between 2005 and 2007 with a decline between 2007 and 2008 is found. Between 2005 and 2008, PDX passenger volume grew by 2.9%.

While not an exact match, the similarity in the increases and decreases in these three closely related variables indicates some correlation between the three related data sets. As shown in this analysis, market demand (as illustrated by declining employment levels and PDX passenger volumes) for PFH transportation services decreased between 2007 and 2008, indicating that no new permits should be issued at this time.

Table 6. Passenger Trips by Radio Cab (2005-2008)

	Day	Night	TOTAL	% Change
2005	504,124	627,863	1,131,987	
2006	542,031	655,138	1,197,169	5.8%
2007	552,325	656,343	1,208,668	1.0%
2008	544,692	647,168	1,191,860	(1.4%)
<i>Between 2005 and 2008</i>				5.3%

Source: Steve Enter, Radio Cab Taxi Company, February 2009

Table 7. Portland Region Employment -- Selected Economic Sectors (2005-2008)

	ECONOMIC SECTORS							% Change
	Manufacturing	Trade	Information	Finance	Prof'l Services	Leisure	TOTAL	
2005	125,000	200,100	23,300	69,300	131,900	90,300	639,900	
2006	127,700	203,500	24,500	71,200	138,300	95,200	660,400	3.2%
2007	126,400	206,700	24,900	69,500	138,600	98,700	664,800	0.7%
2008	121,600	202,700	24,700	67,200	135,300	99,300	650,800	(2.1%)
<i>Between 2005 and 2008</i>								1.7%

Source: Oregon Labor Market Information System, Oregon Employment Department, <http://www.qualityinfo.org/olmisj/CES?areacode=21038900&action=annual&startyear=2008&submit=Continue>

Table 8. PDX Passengers (2005-2008)

	PDX Passengers	% Change
2005	13,879,701	
2006	14,043,489	1.2%
2007	14,654,222	4.4%
2008	14,288,234	(2.5%)
<i>Between 2005 and 2008</i>		2.9%

Source: Port of Portland Aviation Statistics, <http://www.portofportland.com>

<http://www.portofportland.com>

Distinguishing Specific Demand for Taxis, Town Cars and Shuttles

Taxis. Passenger trip volume provided by members of the taxi industry results in an estimated 8,387 total trips by taxi/day. Dividing that by the number of permits held by those companies' results in an average of 22 daily trips/taxi permit; which is similar to the average utilization rates found in other cities. On an annual basis (using a 300-work day year; i.e., assuming Saturday and Sunday, and holiday trip making is 50% that of Monday-Friday trip making), the City's taxi fleet generates a total of 2,516,047 total taxi trips/year (see Table 4).

Town Cars. Since there is no similar dataset for the town car industry, the following assumptions should be used to estimate the total number of town car trips: town cars average four (4) trips to or from PDX each day. Assuming all of the 129 permitted town cars make four trips to or from the airport each day, results in 516 daily town car trips. Using a 300-work day year (i.e., assuming Saturday and Sunday, and holiday trip making is 50% that of Monday-Friday trip making), the annual total of town car trips to or from PDX is 154,800 (see Table 9).

Table 9. Estimated Total Taxi and Town Car Trips (Daily and Annual)

	No. of Permits	Trips/Day	Trips/Year	% of Trips/Year
Taxis	386	8,387	2,516,047	94%
Town Cars	129	516	154,800	6%

Shuttles. As with town cars, the overwhelming majority of shuttle travel is for trips to and from PDX. New demand for shuttle service, therefore, would be associated with increased passenger boardings at PDX. These data are available on-line at: http://www.portofportland.com/Aviation_Stat.aspx.

The methodology suggests that increases in shuttle permits be directly associated with increased PDX passenger levels based on the mode split (12% of all PDX passenger trips to and from PDX by shuttle) for shuttles found in the *PDX Airport Master Plan*¹⁰, and the shuttle companies ability to accommodate the increased demand with their existing permits. For example, if PDX were to accommodate 1,000 more boardings, shuttles would be expected to accommodate 120 of them. If they can demonstrate that their current number of permits is unable to accommodate that demand, they would have a valid case for a request for additional permits.

Since there is no similar dataset for the town car industry, the following assumption was used to estimate the total number of town car trips:

¹⁰ *PDX Airport Master Plan*, Inventory of Existing Conditions, Table 5-13
http://www.pdxairportfutures.com/Documents/PDX_Airport_Ftrs_MstrPln2010.pdf

V. **A Recommended Methodology for Determining the Number of Needed PFH Transportation Permits**

As discussed in Chapter IV, the Revenue Bureau's PFH demand estimation method is largely based on determining whether or not the rate of permitted taxis to City population meets the average rate found in a study of 118 U.S. cities (i.e., one taxi per 1,400 residents). If the number of taxis per every 1,400 residents is higher (e.g., if there is one taxi per every 1,300 residents), the conclusion is that there is a surplus of taxi service. If the rate is lower (e.g., if there is one taxi per every 1,500 residents), more permitted taxis are needed.

While using an average rate simplifies the estimation process, the results do not necessarily relate to the specific characteristics of the market for PFH services in Portland.

In addition, Chapter IV describes the findings of Metro's multi-modal transportation forecast model, which is used extensively for transportation planning purposes; however, the model does not provide any output for use of PFH services.

Finally, there are no procedures in place in Portland, or elsewhere, to distinguish the demand for taxis versus the demand for town cars or shuttles.

In other words, a new methodology is needed to more accurately forecast current and future demand for PFH transportation services; however, this new method must maintain the advantages of the current demand method with respect to having regularly available data for updates, and be simple to both apply and use for the bi-annual reporting required for the PFH transportation program.

Economic Trends that Demonstrate there is or is not a Demand for Increased PFH Transportation Permits

In the absence of a detailed market survey, employment data in six economic sectors that are more likely to use PFH transportation services than others has been shown to be a good indicator of the demand for PFH transportation services. For example, as shown in Table 7, the "Leisure and Hospitality" sector, which includes employees in the "accommodation" (or hotel) industry, is a good barometer of tourism activity. That is, increased employment in the accommodation industry is generally due to increased hotel stays by tourists and/or business travelers, who are often customers of PFH transportation services.

Other sectors, including "Professional and Business Services", "Financial Services", "Information", "Trade, Transportation and Utilities", and "Manufacturing", employ more business travelers than other sectors, and increases in their employment could generally translate into increased demand for PFH transportation by employees and customers of these industries.

In addition, as shown in tables 6, 7, and 8, increases and decreases in the employment levels in these six economic sectors directly corresponded to Radio Cab passenger volume and passenger boardings data at the PDX between 2005 and 2008. Changes in employment levels in the future should be used to determine if there is a general demand for more PFH transportation permits.

The employment data is produced monthly by sector by the Oregon Employment Department and can be directly downloaded via the department's web site at <http://www.qualityinfo.org/olmisi/CES?areacode=21038900&action=annual&startyear=2008&submit=Continue>

For the purposes of the PFH transportation demand methodology, employment increases in these six economic sectors will indicate that the economic climate in the City of Portland is growing and there is a need for additional PFH transportation permits. The number of taxi and town car

permits should be relational to the percent increase in employment levels of all six sectors combined. In other words, if employment in the six sectors increases by 10%, there should be a corresponding increase of 10% in the number of total taxi and town car permits issued (or 41 new permits).

Determining the Number of Taxi and Executive Sedan Permits

As discussed in the previous chapter, 94% of all taxi and town car trips are estimated to be by taxi and 6% by town car. That is, if we use the previous 10% increase in the number of total taxi and town car permits example, 94% of the 41 new permits suggested by the methodology would be dedicated to taxis (or 39) and two (2) permits would be dedicated to town cars.

Determining the Number of Shuttle Permits

As with town cars, the overwhelming majority of shuttle travel is for trips to and from PDX. New demand for shuttle service, therefore, would be associated with increased passenger boardings at PDX. These data are available on-line at: http://www.portofportland.com/Aviation_Stat.aspx. For example, if PDX were to accommodate 1,000 more boardings, shuttles would be expected to accommodate 120 of them. If they can demonstrate that their current number of permits is unable to accommodate that demand, they would have a valid case for a request for additional permits.

Determining the Number of Medical-Assist Permits

As stated earlier, the current analyses and processes utilized by TriMet to determine the number of needed medical assist PFH transportation vehicles appears to be providing the correct number of requested permits to meet the anticipated demand.

Applying the Methodology

A User's Manual of the demand methodology was developed with step by step instructions for estimating demand under separate cover¹¹; and staff have been trained in use of the methodology.

¹¹ Portland Private for Hire Transportation Demand Study: *User's Manual – Private for Hire Transportation Demand Model for the City of Portland*

VI. Recommended Future Improvements to the Demand Estimation Methodology

Clearly, this method could be significantly improved with data from all of the PFH transportation providers. Without data from all providers we're not 100% confident that the passenger trip volume data received from members of the taxi industry is typical for the industry or not. A dataset containing trip information for all of the PFH transportation providers would not only provide the full range of information needed to complete an optimal analysis, but would lead to more accurate updates that could lead to more informed decision-making about issuing permits.

Moreover, information collected from the smaller taxi companies might lead the Revenue Bureau to develop a set of standards for issuing permits to small taxi companies and another set of standards for issuing permits to larger taxi companies. Similarly, data collected from town car and shuttle companies may demonstrate that they do in fact serve different market segments that may have different circumstances than is found with the taxi companies when evaluating demand for their more specialized services.

With the adopted code update it is anticipated that more consistent and comprehensive reporting will be conducted by providers which will help to calibrate the recommended method described here, and/or provide evidence that this method's variables should be modified based on a more complete set of information. Another accurate means of collecting data would be to estimate revenue miles and trips from taxi meters during the annual safety inspections of those vehicles.

Finally, complaints about response time for dispatch trips, availability of taxis at taxi stands, and no shows, can also be a good indicator of the need for additional permits. The Revenue Bureau has not received many complaints about these issues because customers were unaware of the City's responsibilities with PFH transportation services, and likely made any complaints directly to the providers. With implementation of the updated code requirements, passengers will have information in each PFH vehicle identifying the Revenue Bureau as the place to lodge complaints about taxi service response time, availability and no-shows.

In addition, additional enforcement of illegal activities by town cars at downtown hotels may produce a new modal split at PDX; which could increase the percentage of passenger trips by taxi to and from PDX.

Other Recommendations

Throughout the earlier analyses, and in particular through the information gathered from the fourteen (14) interviews, there are other important recommendations, that while not directly related to a measurement of the demand for PFH transportation services, are important steps for the Revenue Bureau to consider in carrying out its charge for the PFH transportation program.

Other recommendations include:

- ***Consider Issuing Permits on an Incremental Basis Rather than a Large Number at Once.*** In 1998, the Revenue Bureau issued 65 new taxi permits (a 21% increase over the number of taxi permits in place at that time), which was difficult for the industry to assimilate at that time. Rather than waiting several years to add new permits to the fleet based on a needs analysis, the Bureau may find that issuing a few new permits each bi-ennium would be a more efficient means of increasing the size of the permitted fleet.
- ***Review Utilization of Current Permits.*** Regardless of the outcome of the analyses performed in the demand estimation procedures, a more specific assessment of the *use* of

all PFH transportation services would provide important information when the Bureau is considering the issuance of new permits. In other words, it's critical that the Revenue Bureau have an understanding about how the current permits are utilized to ensure that new permits would not lead to an uncompetitive environment for providers, and more importantly, that the permits in use are providing the most efficient and effective set of services possible.

- **Review “Transactions” Data at PDX Commercial Roadway and Holding Area.** One of the more important markets for taxis, town cars and shuttles is PDX. With respect to picking up passengers, these vehicles must enter the commercial roadways, which they can access through an electronic gate that permits entry after display of a card. If the gate acknowledges the card is from a permitted vehicle it opens to allow travel on the commercial roadway. In nearly all cases, taxis must proceed to the holding area where they fall in line behind other taxis and town cars that preceded them. In some instances, town cars and shuttles also must first drive toward the holding area.

Each time a vehicle passes through the gate it is recorded and a fee is assessed to the permit holder. This is followed up by an invoice sent to the permit holder. From this information it is possible to determine which permitted vehicles entered the commercial roadway and when they did so.

Given that the holding area is generally full, and wait time is between 2 and 4 hours, those permitted vehicles that consistently use the holding area for fares are serving only PDX customers, who already have substantial PFH transportation service available, and not the other PFH transportation markets of the City. Moreover, using the airport as a principal source for fares can result in a permitted taxi serving less than three or four trips/day, while permitted taxis that serve all of the PFH transportation markets, generate 20 trips/day.

Under this review, it would be possible to deny requests for additional permits when the holding area data demonstrates that the current permits are not being utilized as well as they could be.

VII. Conclusion

The private for hire (PFH) transportation demand estimation method described in this document represents a more accurate and tailored means of determining changes in demand for PFH permits in the City of Portland than the current processes and calculations employed by the Revenue Bureau. Like the current process, this new method can be updated with regularly updated and available data, and is simple to calculate. In fact, the data used for the new method can be assembled from on-line sources, and can be applied in a few steps; whereas, the current seven-step process requires research from several different organizations, not all of whom supply information on-line.

The new method also estimates demand for PFH services on the basis of the health and/or growth in the local economy. That is, the method relies on employment levels in those sectors that are most apt to use PFH services and airplane passenger levels at the Portland International Airport (PDX); two of the most relevant and credible sources of information about the local economy. The critical variable used in the current method is the comparison of taxis per capita in Portland to the taxis per capita rate found in a study of 118 cities and counties throughout the U.S. This simple average does not account for the unique market characteristics of Portland, nor does it incorporate the needs of town car, shuttle or medical-assist transportation services.

While use of PFH services isn't entirely dependent on economic conditions – e.g., persons without access to an automobile or transit services will consider taxis whether the economy is healthy or not – growth in passenger demand for the industry (which corresponds with requests for additional permits) is primarily reliant on increased economic activity.

Ultimately, the number of PFH transportation permits issued should result in an optimal and efficient balance of service availability to meet needs, and should not result in a surplus of PFH services which can lead to unnecessary cruising by PFH drivers and congested conditions at PFH service nodes – such as PDX and downtown hotels. Incorporation of the above recommendations, and in particular updates to the datasets based on more extensive and complete log books, should ensure that this balance is better achieved.

Independent of the demand estimation method, it is recommended that the Revenue Bureau also review utilization of a company's permits in the evaluation of requests for additional permits. If a company's current permits are generating less than the expected number of trips (average range from 16-22 per day), which the Revenue Bureau can ascertain via log books, transactions data at PDX, invoices, and taxi meters, staff should consider denial of those requested permits until utilization rates are increased to average range.

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- Gail Bauhs, TriMet representative
- Jeff Blosser, Manager, Convention Center, Tourism representative
- Ramon Corona, Portland Office of Transportation representative
- Dawn Huddleston, Port of Portland representative
- Butch Miller, Broadway Cab, elected Driver representative
- Al Ochoa, Riding Public representative
- Jon Putnam, Persons with Disabilities representative
- Doug Rauhen, Point to Point, elected Company representative

Private for Hire Transportation Providers

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- Paul Burke, KB's Express Shuttle
- John Case, Classic Chauffeur
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Appendices

- *Technical Memorandum No. 1 - Summary of Private for Hire (PFH) Transportation Demand Estimation Methods Employed Throughout the U.S.*
- *Technical Memorandum No. 2 – Transportation and Demographic Trends in the City of Portland*
- *Technical Memorandum No. 3 – Summary of Interviews with Private for Hire Transportation Providers and Stakeholders*
- *Technical Memorandum No. 4 – A Recommended Private for Hire Transportation Demand Estimation Model for the City of Portland*
- *User’s Manual – Private for Hire Transportation Demand Model for the City of Portland*

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