



**City of Seattle**  
Consumer Affairs Unit

**SEATTLE TAXICAB INDUSTRY  
REVENUE AND OPERATING STATISTICS  
[USING TAXIMETER TOTALIZER READINGS]  
2009-2010**



**August 31, 2010**

# SEATTLE TAXICAB INDUSTRY REVENUE AND OPERATING STATISTICS USING TAXIMETER TOTALIZER READINGS [2009-2010]

## SUMMARY

Taximeter *totalizer*<sup>1</sup> readings were downloaded from Seattle taxicabs during annual taximeter tests at the Consumer Affairs Unit conducted in 2009 and 2010. These readings were used to compute taxicab industry revenue and operating statistics for a 12-month period during 2009-2010. This information is needed for effective economic regulation – e.g., setting taximeter rates, issuance of additional taxicab licenses and reviewing lease caps. All statistics are based on taximeter totalizer readings from a sample consisting of 224 out of 659 Seattle taxicabs (34%) representing all five licensed taxicab associations. During the 12-month period ending in mid-2010, taximeter statistics were *annualized*<sup>2</sup> and projected for the entire industry. The Seattle taxicab industry provided 4,890,835 trips covering 21,336,913 revenue miles and earned fares totaling \$72,403,101 (excluding 10% tips). The average trip was 4.4 miles and earned a fare of \$14.80. Revenue miles comprised 40% of total vehicle miles. It is estimated that the typical full-time Seattle taxicab driver worked an average 10.2 hours per shift and 5.7 shifts per week and earned an income of approximately \$30,223 per year. This equates to \$10.42 per hour (including tips). All of the trips included in these statistics were performed under the new taximeter rate (\$2.50 drop, \$2.50 per mile) that was implemented on October 1, 2008. Previously, taximeter statistics for 2004-2005 were compared with 2005-2006 to assess the sensitivity of demand to the April 1, 2005 rate increase. The price elasticity of demand was determined to be 0.2472 (inelastic). The measure of price elasticity of demand enables regulators to predict changes to total revenue for any proposed increase in taximeter rates in the future.



ABOVE: Taxicab license for City of Seattle

## BACKGROUND

All Seattle taxicabs are required by state weights and measures administrative rule<sup>3</sup> to install taximeters that have a Certificate of Conformance (CC) issued by the National Conference on Weights and Measures (NCWM) under the National Type Evaluation Program (NTEP).<sup>4</sup> The CC explains how to access taxicab operating statistics retained by the taximeter [see insert]. Two readings (data set) are needed to compute statistics so totalizer readings were

recorded during annual taximeter tests in 2009 and 2010. For 2009-2010 there were usable sets of data for 224 out of 659 active taxicabs. The reasons for the limited number of taxicabs with usable data sets is due to several factors including: the change of vehicles that are age limited or wrecked, replacement of taximeters, re-zeroing totalizers by the drivers and inspector transcription errors.

**Operation:** Models Silent 610 and Silent 620 are operated using four (4) push buttons on the face of the taximeter. The key function in each mode is as follows:

Key	STATS	VACANT	HIRED	TIME-OFF
1- Hired	no function	go hired	no function	go to vacant
2- Time off	print stats	print receipt	go time-off	go to time-on
3- Extras	increment stats	go to stats	add extras	sum fare and extras
4- Rate	used as line feed, if printer present	used to select rate	no function	no function

The totals of a vehicle's operation may be recalled by pressing the Extras key when the taximeter is in Vacant mode. The displays are as follow:  
1- Total fare \$      2- Total extras \$      3- Total vehicle miles      4- Total paid miles      5- Total trips

Model Silent 610 RDM utilizes a LCD display manufactured by DDS. The taximeter's display occupies a 4.53 inch x 1.32 inch area of this display. The taximeter's operation is controlled by six switch functions, selectable from the display/keypad unit. The F6 key displays the taximeter's selectable menu. This taximeter menu must be displayed to operate the taximeter.

- 1-Meter: Used for placing the taximeter in the Hired and Vacant modes.
- 2-Time: In the Hired mode, the Time switch toggles the waiting-time on and off. In Vacant mode, it is used to display: software version, time of day, and rates that are programmed for use.
- 3-Extras: When the taximeter is in the Hired mode, each press of this switch increments the extras. When in Hired mode and time off, it is used to sum Fare and Extras.
- 4-Rate: In Vacant mode, used to select a rate, in Stats mode, used as a line feed (if printer is present). In Hired or time-off mode, it has no function.
- 5-Print: This function in Hired mode is used to print a Fare receipt, in Vacant mode used to print stats.
- 6- Stats: Available in vacant mode only, displays totals, date and time.

LEFT: Certificate of Conformance for Centrodyne Silent 600 Series taximeter

<sup>1</sup> Taximeters use a totalizer (similar to a vehicle odometer) to count revenue miles, revenue trips, and fares. The totalizers usually "roll over" after 999,999. Total vehicle miles are obtained from the odometer in the vehicle.

<sup>2</sup> Annualized figures for individual taxicabs are obtained by recording the totalizer odometer (total) miles, revenue miles, revenue trips and fares for two dates then dividing the differences by the number of days between the dates then multiplying by 365. To calculate annual total statistics for taxicab associations, the sample affiliated with the association is averaged and multiplied by the total number of affiliated taxicabs. Annual total statistics for the entire taxicab industry were computed by summing the totals for each taxicab association.

<sup>3</sup> Washington Administrative Code (WAC), Chapter 16-664. See <http://www1.leg.wa.gov/LawsAndAgencyRules>.

<sup>4</sup> Certificates of conformance are available on the National Conference on Weights and Measures (NCWM) web site at <http://www.ncwm.net/certificates>

There are several possible sources of errors in the totalizer statistical data including, but not limited to: (1) use of a non-random sample; (2) drivers sometimes perform “flat rate” trips with the taximeter “off”; (3) the \$32 flat rate trips from downtown Seattle to Sea-Tac Airport earn less revenue than recorded taximeter fares; (4) some account trips are not counted (taximeter not “on”); and (5) drivers sometimes use “soon to clear” function on dispatch computer (counts non-revenue “deadhead” trips). Some of the errors overstate and some understate actual revenue and operating statistics. However, statistics obtained from taximeters are believed to be the most complete and accurate information available to taxicab industry regulators.



**RIGHT:** Centrodyne Silent 620 receipt-issuing taximeter

## VEHICLE MILES

Seattle taxicabs operated an estimated 53,124,959 total miles in the 12-month period ending in mid-2010 or an average of 80,615 total miles per vehicle (i.e., odometer miles). If fuel use is estimated to be 15 miles per gallon, then the taxicab industry in Seattle used 3,541,664 gallons of gasoline during the same period. Assuming an estimated price of \$3.00 per gallon for regular unleaded, the total cost of fuel was approximately \$10,624,992. This is a driver cost. On average, Seattle taxicabs each operated 221 total miles per day.<sup>5</sup> Assuming an average of 1.5 shifts per taxicab per day, the typical taxicab driver operated approximately 147 total miles per shift.<sup>6</sup>



**ABOVE:** Taximeter and dispatch computer in a Seattle taxicab

## REVENUE MILES

Seattle taxicabs operated an estimated 21,336,913 revenue miles<sup>7</sup> during the 12-month period ending in mid-2010 or an average of 32,378 revenue miles per vehicle. Revenue miles were approximately 40% of total vehicle miles. Conversely, 60% of odometer miles were due to “deadheading” (repositioning taxicab) or personal use. On average, Seattle taxicabs each operated approximately 89 revenue miles per day. The typical taxicab driver operated 59 revenue miles per shift, assuming an average of 1.5 shifts per taxicab per day and assuming that revenue miles for both the day and evening shifts are equal.

<sup>5</sup> Based on a 365-day year.

<sup>6</sup> There is no reliable data available on the average number of shifts per taxicab - 1.5 shifts per taxicab per day is an estimate. In other words, it is estimated that approximately half of the city taxicabs are double-shifted.

<sup>7</sup> Paid miles or miles transporting paying passengers.

## REVENUE TRIPS

Seattle taxicabs completed an estimated 4,890,835 revenue trips<sup>8</sup> during the 12-month period ending in mid-2010 or an average of 7,422 per vehicle. On average, Seattle taxicabs each operated approximately 20.3 revenue trips per day. The typical taxicab driver completed approximately 13.5 revenue trips per shift, assuming an average of 1.5 shifts per taxicab per day and that revenue miles for both the day and evening shifts are equal.

## FARE REVENUE

Seattle-Bellevue-Everett	Regular	Mid	Premium	Diesel
Current	\$3.055	\$3.164	\$3.322	\$3.280
Yesterday	\$3.066	\$3.176	\$3.334	\$3.280
Week Ago	\$3.100	\$3.211	\$3.370	\$3.255
Month Ago	\$3.082	\$3.192	\$3.351	\$3.239
Year Ago	\$2.907	\$3.012	\$3.161	\$2.905

Seattle taxicabs earned an estimated \$72,403,101 in taximeter fare revenue during the 12-month period ending in mid-2010 or an average of \$109,868 per vehicle. On average, Seattle taxicabs earned approximately \$301 in fare revenue per day. The typical taxicab driver earned an estimated \$201 per shift assuming an average of 1.5 shifts per taxicab per day and that revenue miles for both the day and evening shifts are equal. If a typical driver worked an average of 5.7 shifts per week and 50 weeks per year, the taxicab driver's gross earnings would be approximately \$57,285. Since a 10% tip is usual, the adjusted gross earnings become \$63,014 per year. Typical driver costs are taxicab lease (\$20,800)<sup>9</sup>, fuel (\$10,731)<sup>10</sup>, and cashier fees (\$1,260)<sup>11</sup> or \$32,791 per driver per year. As a result, the estimated annual net earnings (income) for a typical driver is \$30,223. Since the typical driver works 10.2 hours per shift and 5.7 shifts per week, the driver earns approximately \$10.00 per hour.

### WA Metro Averages

\*Prices Are In US Dollars Per Gallon.

**ABOVE:** AAA gasoline prices<sup>12</sup> on August 31, 2010

## AVERAGE TRIP

The average trip for Seattle taxicabs was 4.4 miles. The average taximeter fare was \$14.80 excluding tips or extra charges. The average taximeter fare was \$16.28 with a 10% tip. The drop charge (\$2.50 per trip) and time charge (\$0.50 per minute at speeds under 12 mph) comprised 17% and 9% of the taximeter fare respectively. The distance charge (\$2.50 per mile, \$0.25 per 1/10 mile) constituted 74% of the average taximeter fare. There were approximately 2.7 (\$1.33) minutes of time charges in the taximeter fare for the average trip.<sup>13</sup>

<sup>8</sup> Paid trips or trips transporting paying passengers.

<sup>9</sup> Assumes an average of \$400 per week X 52 weeks per year. Based upon median lease rates filed with City of Seattle: \$350 per week (Farwest Taxi, Orange Cab, STITA-dual), \$420 per week (Yellow Cab).

<sup>10</sup> 147 total miles per shift/15 mpg = 9.8 gal/shift. Annual cost is 9.8 gal/shift X \$3.00/gal. X 365 shifts/year.

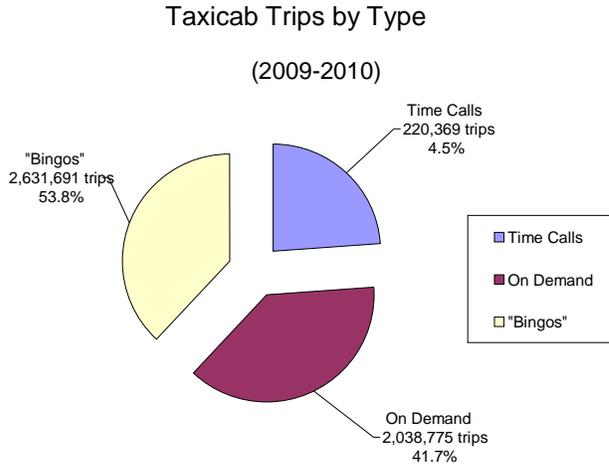
<sup>11</sup> Assumes 4% fee X (adjusted gross earnings per driver per year/2).

<sup>12</sup> See AAA Daily Fuel Gauge Report at <http://www.fuelgauge.com/WAMetro.asp>.

<sup>13</sup> Time charges are assessed at \$0.25 per 30 seconds.

## ESTIMATE OF NON-DISPATCHED REVENUE TRIPS

The number of non-dispatched (“stand-and-hail”<sup>14</sup>) trips performed by taxicabs affiliated with each taxicab association is computed by subtracting the total number of computer-dispatched trips from the total revenue trips. Counts of computer-dispatched trips are submitted by taxicab associations in monthly service response time reports. Counts of total revenue trips are extrapolated from a sample of taximeter totalizer statistics. There were 2,631,691 non-dispatched trips during 2009-2010 or 53.8% of 4,890,835 total revenue trips. There were 2,259,144 dispatched trips over the same period including 2,038,775 on-demand trips (41.7%) and 220,369 (4.5%) time calls.<sup>15</sup>



## CHANGE FROM 2005-2006 (BASE YEAR)<sup>16</sup>

Total annual (odometer) miles increased 3.0% from 51,584,952 during 2005-2006 to 53,124,959 during 2009-2010 and total revenue miles as a percentage of total odometer miles declined from 42% to 40% over the same period. Total revenue miles decreased 2.5% from 21,886,078 during 2006-2006 to 21,336,913 during 2009-2010 due, in part, to a 2.2% decrease in the average trip distance from 4.5 to 4.4 miles per trip. Total revenue trips declined 0.2% from 4,900,315 during 2005-2006 to 4,890,835 during 2009-2010 but taximeter fare revenue rose 14.6% from \$63,153,474 to \$72,403,101 over the same period. This is largely

attributable to a taximeter rate increase that became effective on October 1, 2008 because the total revenue trips and average trip distances were nearly the same. The average taximeter fare increased 13.7% from \$13.02 during 2005-2006 to \$14.80 during 2009-2010 also due to the 2008 taximeter rate hike. The average trip service response time for a large sample is virtually unchanged from 8.47 minutes in December 2005 to 8.57 in December 2009. The average time charge per trip declined from \$1.72 during 2005-2006 and \$1.33 during 2009-2010 or from 3.4 minutes to 2.7 minutes. This decline infers that traffic congestion improved over this period.

## NEED FOR MORE TAXICAB LICENSES

Seattle Taxicab Rule 6.310.500.A specifies that the need for additional taxicab licenses for ambulatory passengers shall be determined by the growth in revenue trips. For the initial license issuance, the average number of revenue trips per taxicab for the most recent year is compared with 7,621 average revenue trips per taxicab during 2005-2006 which was designated as the base year. Average revenue trips per taxicab were 7,422 during 2009-2010 partly due to the addition of 16 temporary dual-licensed wheelchair accessible taxicabs for a 2-year demonstration project.<sup>17</sup> As a result, there is no need to issue additional taxicab licenses in 2010. The need for issuance of wheelchair accessible taxicab (WAT) licenses is computed by the increase in average service response times compared with the 2005-2006 base year. The goal is comparable average service response times for wheelchair and ambulatory passengers after allowing 10 minutes for loading and tie down. The average service response time for ambulatory passengers is 9.42 minutes in 2009-2010. The WAT Demonstration Project estimated that 30 WAT would provide the required 20-minute service response time for wheelchair passengers. As a result, 15 city-only WAT licenses were issued by lottery of the best qualified drivers on November 30, 2009 and 15 additional city-only WAT were issued by lottery on March 1, 2010. Presently, there are 673 Seattle taxicab licenses.

<sup>14</sup> “Stand-and-hail” refers to trips originating as taxicab stand walk ups and taxicabs hailed on the street.

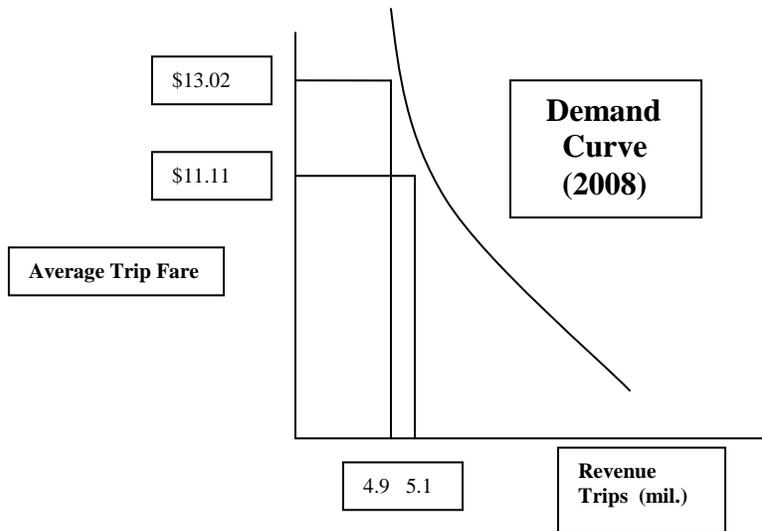
<sup>15</sup> “On-demand” refers to calls for immediate service, “time calls” refers to calls for service at a future time.

<sup>16</sup> See Consumer Affairs Unit *Seattle Taxicab Industry: Revenue and Operating Statistics [Using Taximeter Totalizer Readings] 2004-2005 (1-5-2006)*.

<sup>17</sup> Joint City – County Staff Report. *Wheelchair Accessible Taxicab (WAT) Demonstration Project 2007-2008: Report and Recommendations* (November 24, 2009).

## PRICE ELASTICITY OF DEMAND

The Price Elasticity of Demand (PED) has been calculated to be 0.2472.<sup>18</sup> This means that Demand for taxicab service in Seattle is inelastic. A large increase (+17.19%) in the average fare per trip only resulted in a relatively small decrease (-4.25%) in the quantity of revenue trips demanded. As a result, there was a 12.36% increase in total fare revenue from 2004-2005 to 2005-2006. This is directly attributable to the taximeter rate increase on April 1, 2005 from \$1.80 drop/\$1.80 per mile/\$0.50 per minute to \$2.50 drop/\$2.00 per mile/\$0.50 per minute. On October 1, 2008, the taximeter rate was increased to \$2.50 drop/\$2.50 per mile/\$0.50 per minute in order to incorporate the \$1.00 per trip temporary fuel surcharge into the taximeter rate. No re-calculation of the PED for 2008 has been done comparing 2007-2008 with 2008-2009 (recession) but comparisons have been done between 2006-2007 and 2009-2010. The PED for this period can only be an estimate since the time period is large and includes a severe recession. However, the 2008 PED estimate is also inelastic.



## CONCLUSION

Uncorrected data from taximeter statistics must be used with caution because there are numerous errors that tend to either overstate or understate actual revenue and operating statistics. Since the size of these errors is unknown, it is not possible to apply corrections to the data. Further, the available computer dispatch records are not very helpful to verify taximeter statistics because there is, as yet, no reliable method to count non-dispatched trips (so-called “bingos”) and drivers sometimes don’t use the taximeter. As a result, the revenue and operating statistics obtained from taximeters must not be viewed as exact but only approximate. Finally, taximeter revenue and operating statistics should be used in combination with other information (e.g., taxicab association computer dispatch trip counts and average service response time statistics) to assure more reliability. Despite the errors inherent in the use of taximeter revenue and operating statistics, taximeter revenue and operating statistics remain the best tool available for city officials to assess the need for taximeter rate increases, the need to issue additional taxicab licenses or to decide many other regulatory issues.

**Taximeter Operating Statistics 2009-2010 (8-31-2010)**

<sup>18</sup> Bruce Schaller, President of Schaller Consulting, suggested that some of the 2.2% decline in total (odometer) miles from 52,722,475 (2004-2005) to 51,584,952 (2005-2006) may have been due to the “wage effect” where drivers cut back on driving hours because they are earning more money per hour. For instance, the revenue per (total) mile rose during this period from \$1.066 to \$1.224. According to Bruce, *some* of the decline in total revenue trips from 5,117,889 (2004-2005) to 4,900,315 (2005-2006) may have been the result of the “wage effect” and not a decrease in quantity demanded due to higher average trip fares. As a result, the price elasticity of demand calculation, which is based upon the change in total revenue trips, may overstate the true sensitivity of demand to trip fares (price). Therefore, he suggested that the price elasticity computed using revenue per (total) mile may be a better measure of demand. PED (revenue per mile) = 0.8621 which is higher but still inelastic (PED < 1). The PED was not recalculated for the 2008 taximeter rate hike. However, comparison of 2009-2010 with 2006-2007 shows that, after a 12.9% taximeter rate hike, total revenue trips declined by 7.3% but total fare revenue increased by 4.8%. The PED (revenue trips) is inelastic and estimated to be 0.5659. The PED (revenue per mile) is also inelastic and estimated to be 0.6744.

# SUMMARY OF TAXIMETER OPERATING STATISTICS CITY OF SEATTLE

2004-2005, 2005-2006, 2006-2007 and 2009-1020

OPERATING STATISTICS <sup>1</sup>		2004-2005 <sup>2</sup>	2005-2006 <sup>3</sup>	2006-2007 <sup>4</sup>	2009-2010 <sup>5</sup>
Taxicab Fleet		643	643	651	659
Total	Odometer Miles	52,722,475	51,584,952 (-2.2%)	55,118,743 (+6.9%)	53,124,959 (-3.6%)
	Revenue Trips	5,117,889	4,900,315 (-4.3%)	5,273,527 (+7.6%)	4,890,835 (-7.3%)
	Revenue Miles	21,439,689	21,886,078 (+2.1%)	23,549,563 (+7.6%)	21,336,913 (-9.4%)
	Taximeter Fares	\$ 56,208,460	\$ 63,153,474 (+12.4%)	\$ 69,114,856 (+9.4%)	\$ 72,403,101 (+4.8%)
Average	Odometer Miles	81,995	80,225	84,668	80,615
	Revenue Trips	7,959	7,621	8,101	7,422
	Revenue Miles	33,343	34,037	36,174	32,378
	Taximeter Fares	\$ 87,416	\$ 98,217	\$ 106,167	\$ 109,868
Daily	Odometer Miles	224	220	232	221
	Revenue Trips	21.9	20.8	22.2	20.3
	Revenue Miles	91	93	99	89
	Taximeter Fares	\$ 239	\$ 269	\$ 291	\$ 301
Average	Trip Distance	4.3mi.	4.5 mi.	4.5 mi.	4.4 mi.
	Taximeter Fare	\$ 11.11	\$ 13.02 (+17.2%)	\$ 13.11 (+0.7%)	\$ 14.80 (+12.9%)
	Revenue Miles	40%	42%	43%	40%
	Drop Charge	16%	19%	19%	17%
	Distance Charge	67%	64%	67%	74%
	Time Charge	17%	17%	14%	9%

January 1, 1997 Taximeter Rate: \$1.80 drop, \$0.20 per 1/9 mile, \$0.20 per 24 sec

April 1, 2005 Taximeter Rate: \$2.50 drop, \$0.20 per 1/10 mile, \$0.20 per 24 sec

October 1, 2008 Taximeter Rate: \$2.50 drop, \$0.25 per 1/10 mile, \$0.25 per 30 sec

<sup>1</sup> Based on annualized figures and weighted averages.

<sup>2</sup> Sample size 2004-2005 (46%).

<sup>3</sup> Sample size 2005-2006 (12%). Small sample size due to replacement of taximeters. New taxicab ordinance (SMC 6.310.320L) required that receipt-issuing taximeters be installed not later than June 30, 2006.

<sup>4</sup> Sample size 2006-2007 (45%). Counts of total affiliated city/dual taxicabs as of July 27, 2007: Farwest - 72 (city-17, dual-55, county-26), North End - 18 (dual-18), Northwest - 19 (city-16, dual-3), Orange - 181 (city-107, dual-74), and Yellow - 361 (city-200, dual-161, county-7). Sample: Farwest - 49/72 (68%), North End - 5/18 (28%), Northwest - 5/19 (26%), Orange - 81/181 (45%), and Yellow - 153/361 (42%).

<sup>5</sup> Sample size 2009-2010 (34%). Counts of total affiliated city/dual taxicabs as of August 11, 2010: Farwest - 77 (city-30, dual-47, county-26), Green Cab (county-35), North End - 16 (dual-16), Orange - 144 (city-107, dual-37), STITA- 50 (dual-50, county-166), and Yellow - 372 (city-203, dual-169, county-7). Includes 16 temporary dual WAT (2007-2008 demonstration project).