MINUTES

MILWAUKIE CITY COUNCIL WORK SESSION

NOVEMBER 9, 2006

Mayor Bernard called the work session to order at 5:31 p.m. in the City Hall Conference Room.

Council Present: Councilors Barnes, Collette, Loomis, and Stone.

Staff Present: City Attorney Gary Firestone, Resource and Economic Development Specialist Alex Campbell, Transportation Liaison Gavin Hales, and Community Services Director JoAnn Herrigel.

Update on Street Maintenance Funding Plan Development

Mr. Campbell understood the decision would be difficult, so he targeted his remarks to some of the more controversial aspects. He briefly reviewed the July 18 discussion. The case that something needed to be done was clear. The City streets were an asset worth $60 million to $70 million. Preventative maintenance was five-times more cost effective than rebuilding after the streets had eroded. It was important to address the problem and establish a program to do it right. Overlaying a degraded street was not a long-term solution, but funding it was a real problem. The street fund purchasing power had decreased about 40% over the past decade.

He would review the basic proposal that was shared with the community this fall, discuss the tradeoffs related to the revenue proposals, report on the outreach efforts, and ask for Council's suggestions for refining the recommendation before the December meeting.

The proposal as outlined in the staff report was the best guess and was a basis for discussion. He felt it would be helpful to structure the outreach discussion by having a concrete proposal for people to wrestle with. Three revenue tools were identified to raise funds for street maintenance. The first was the PGE privilege tax to pay for street lighting. Currently street lighting was paid out of the street fund, so that move would free up approximately $300,000 for maintenance. The other revenue tools were the street utility fee and the gas tax. The street utility fee as proposed would be based on the charge of $0.35 each month per daily trip generated per engineering estimates. Staff had a data set of all the buildings and the land uses to determine where the fee would need to be set to generate $700,000. On the residential side it came out to about $3.35 per single-family household. There were a number of examples in the staff report of the fees for commercial uses. The fee would be calculated on a monthly basis but charged on a bi-monthly basis on the residents' utility bills. The third element was a $0.02 cent per gallon gas tax on gasoline sold within the City. It was clear that the privilege tax was truly a tax that could be used for anything in the City. People typically think of fairness in terms of raising revenue. There was the service basis and the ability to pay, and the privilege tax was more like the ability to pay. The street utility fee and the gas tax legally would be thought of as taxes but actually was tracked by usage.

In the staff report he outlined how much Milwaukie residents would be charged versus non-residents including businesses, governmental agencies, non-profits, and entities of that nature. About 2/3 of the privilege tax would be paid by non-residential users. There were several big power users, and one alone would pay about 1/3 of that tax. About 58% of the street utility fees would fall on the non-residential users.

The other part of the program had to do with the types of projects that would be done to improve the quality of street surfaces in Milwaukie. Preventative maintenance would be the first priority including crack sealing and other treatments. The more expensive and longer-term solutions were overlay projects where old asphalt was ground off and two inches of new asphalt were added. That kind of rehabilitation project added about 10 years of life on a local street. The final category was rebuild projects, which were very expensive. Staff recommended enough money to rebuild and correct the major arterial and collectors in Milwaukie over a 10-year period. Staff learned over the past few months that it was crucial to find more resources for inspection related to the quality of asphalt, construction, and utility cuts.

The big concern on the revenue side was that the privilege tax would be very expensive for large energy users. The utility fee impacted those businesses in town that generated a lot of trips like retail, fast food, and banks. There was also a concern about the fee amount for residential. The School District would be charged approximately $20,000 a year. He was not sure how the gas tax would play out, but there would clearly be an impact on local gas stations. Mr. Campbell distributed a graphic on the outreach including mailings and flyers for the upcoming open house. The key questions were listed in the staff report.

Mayor Bernard requested that as many Councilors attend these open houses as possible to hear people's comments. Clackamas County was the only county in the Metro area that did not have some kind of transportation fee or tax. Consequently there was always an issue with matching funds since the County had little or no money. One of the region wide questions was why did Clackamas County not take care of itself. The biggest weakness to the County road maintenance fee proposal was outreach. He had not heard a lot from the citizens other than that the lighting portion of the fee seemed reasonable.

Councilor Barnes understood it would be approximately $55 annually for a residence if you added up the $1 privilege tax, $40 for the street utility fee, and about $10 for the local gas tax. She suggested putting it in those terms to make it sound less overwhelming. Just give people the bottom line.

Councilor Collette agreed that would be a good approach and make it more clear for the average person in Milwaukie. Let people see how much comes from each of the three initiatives.

Mr. Campbell met with North Clackamas School District Superintendent Ron Naso and Joe Krumm to let them know about the proposal. He did not know if the District would support it, but Mr. Naso did understand the importance of reinvesting in the City. The District had a lot of schools in Milwaukie, so it was important that the population remain strong. The District supported the proposal in principle, and it was unlikely they would oppose it. Precision Castparts would pay a significant portion of the PGE privilege tax, so there was some balance.

Councilor Barnes noted it was important that follow up phone calls were made to ensure people had gotten written materials.

Councilor Stone agreed with Councilor Barnes and asked why this had to happen right before Christmas. It was only a little over a dollar a week if the numbers were accurate. The City was looking at everyone who used the roads to contribute. It was her experience in the past when 32nd Avenue was rebuilt much of the damage was from TriMet buses. Where was TriMet in all of this because they impacted the streets heavily? What would happen if the County implemented a similar fee? Would Milwaukie's fees stay and would there be a cap once maintenance was up to speed? How many years would it take before the need for maintenance fees leveled off?

Mr. Campbell said if the City got another revenue source there would be a strong incentive to for a future Council to hold back on the fee. This Council could make that explicit within any ordinance that was adopted. The other question was what happened over time absent other revenue. Staff was trying to think in terms of 10 years. In 10 years one extreme was that the City repaired almost all of the significant streets in town, but there were still some local streets that needed significant work. The other was that there was a built-in 4.5% inflation assumption, but if inflation were higher purchasing power would be eroded. That decision could be left up to a future Council or there could be something in the ordinance that forced the decision.

Councilor Stone commented on collecting money to have in reserve for street maintenance much like what Council looked at with utility fees. She thought that it should be revenue neutral so there was not an overabundance of funds. She would like to see it used as it came in and not have a slush of funds.

Mr. Campbell noted there were several millions in deferred maintenance.

Councilor Loomis did not like any of the options. People were aware there was a problem. If there was a good campaign and people were told what their money would be spent on then they would accept the idea and vote that way. He always had an issue with the privilege tax from the standpoint that the City took in nearly $1 million in franchise fees from PGE. That money was for PGE's using the right-of-way. He thought the money should come out of that fund. The street utility – the citizens were paying to go from their house to the school. Just tell people what they need to pay and what it is for. This was too confusing. He brought the local gas tax up three or four years ago, and people in this room were not supportive of it. That was when gas was about $1.50 per gallon; now it was $2.30. He would prefer a levy where the citizens had the opportunity to vote. He was convinced they would not say no if the City worked hard. He suggested talking to the people who got the School District bond measure passed because they obviously knew how to get the job done. You need to work at it and communicate the message. The message was pretty easy. The money was for the roads, and these were the roads that were going to be fixed. The money was dedicated to that, and people would support it. This was too confusing. It seemed like the City was not going to let people vote on this, and it was just going to be implemented.

Councilor Barnes commented the District had hundreds if not thousands of volunteers who went door-to-door. Milwaukie did not have that number of volunteers who would go door-to-door to raise taxes for street repair. She would love to see that, but she did not think this was a top priority like schools.

Councilor Loomis did not think it would be harder to sell. The School District had a much larger area of maybe 100,000 people.

Councilor Stone certainly did not like implementing a tax. This was taxing them again. This was confusing. The City should just have said this was what was going to be needed. This trip generation thing sounded confusing and almost petty. The City needed to get right down to it and say this was what was needed. She agreed with Councilor Loomis. She did not like to see taxes imposed on people, and that was what this felt like. The City did need to look hard at how to fund street maintenance because it was a problem. As long as people knew there was a problem out there and they were convinced of it, which seems like outreach had done, she did not think they would have any issues if it was presented to them in a clear, concise way.

Mayor Bernard used the example of the fire district annexation, which everyone knew was the right thing to do. Until taxes were cut to pay that difference it did not happen. There was a good campaign the first time, and the second time only a handful of people including Mr. Swanson, a few Fire District people, and he campaigned. The only reason it passed was because the information mailers were good.

Councilor Stone suggested a survey in *The Pilot*.

Mr. Campbell noted there was an online survey, but he recommended that the Council not base policy upon that.

Councilor Loomis followed up on the annexation. It passed the second time because it was not clear the first time. It spelled out exactly what would happen. People did not have to be convinced there was a road issue. They drove on the streets everyday.

Mayor Bernard thought the campaign was better, and it was revenue neutral.

Mr. Campbell addressed the utility fee and how it was charged. If it was done on a property tax basis businesses like Albertson's or McDonald's or Safeway that contributed a large proportion of the trips and road surface wear, then they would not be paying their fair share. The intent of the trip generation was to allocate the charges in some way that reflected the use of the streets. He asked for Council direction on continuing forward on a proposal similar to the one being worked on thus far in December.

Councilor Barnes asked why TriMet was not charged.

Mayor Bernard said TriMet was a taxing entity that received funding from businesses.

Mr. Campbell said one way TriMet would be affected would be when it had a permanent address such as a transit center or park-and-ride in town.

Councilor Stone observed that TriMet was using the streets as a transit center right now.

Mr. Campbell replied the City was not charging TriMet any kind of fee.

Councilor Collette asked if there were a fixed residential fee.

Mr. Campbell responded that the fee would be explicit for single- and multi-family residences in the ordinance.

Councilor Collette recommended it be called a street maintenance fee to make it clear that the fee would be used to maintain local streets.

Councilor Loomis asked for a cost per thousand if the Council wanted to put a levy on the ballot.

Councilor Stone wanted the estimated cost of putting the matter on the ballot. She thought that should be explored.

Mr. Firestone said there would need to be a double majority if it were a property tax.

A member of the audience noted that the City allowed overloaded vehicles on its streets and asked if the Council had thought about an ordinance that limited the loads. The Council might also consider a fee for studded tires.

Quiet Zone Research

Mr. Hales reported 31 trains used the Union Pacific mainline each day as it passed through the City. Because of federal regulations each was required to sound its horn at least 16 times in the City limits. The result was a nearly continuous train horn noise as each train passed through. The City continued to receive frequent comments concerning the impact of train horn noise on Milwaukie residents. One such letter described the impact: "in late June we moved from Portland to Milwaukie. By mid-July we were ready to move right back out again. The reason is the incessant train horns." Staff also looked at the impact from a sound engineering perspective. He indicated the impact area on a City map and reviewed some statistics on sound levels. About 4/5 of a mile away from the source, the horn volume reached approximately 65 decibels. This was typical of a residential use next to an airport. At approximately 1/3 of a mile the level reached 75 decibels and considered by FTA generally unacceptable for residential use. 70 decibels was equivalent to the sound volume of a gas lawn mower 100 feet away. The impact at 100-feet from the line reached 104 decibels that was considered unsafe to the human ear if it was heard continuously.

Newly finalized regulations allowed for the establishment of a quiet zone which was a section of rail line in which operators did not sound their horns except in emergencies. The federal ruling required that any new quiet zone include at least one-half mile of rail line and that supplementary safety measures (SSM) be installed at all crossings. SSMs were engineering improvements that reduced the risk of collision by preventing careless movement across the crossing. Milwaukie looked at three SMS types. The first was raised concrete dividers with reflectors separating lanes of traffic at a cost of approximately $100,000 to $125,000. The second was the installation of two additional gates to supplement existing gates in preventing movement across the tracks at approximately $250,000 per crossing. The last option was grade separation. The purpose of the SMSs was to prevent people from weaving between the gates.

In 2005 staff prepared a report that was supplemented by a consultant's report that recommended the City seek funding initially for improvement to the 37th Avenue/Oak Street crossing and later expand the zone to include Harrison and Harmony. The second alternative involved the installation of both four quadrant gates and median barriers at those crossings. Based on the new federal rules and reassessment of quiet zone strategies, staff believed it might be possible to install median barriers at Harrison, 37th, and Oak instead of using the four-quadrant gate solution. The primary benefit was that it costs less. The estimated total cost to implement the quiet zone was between $565,000 and $900,000. These costs were based on a strategy that addressed all four crossings. At present the County was considering grade separation at Harmony Road that would lower the estimated costs by approximately $150,000.

Mayor Bernard suggested adding this to the utility fee because if affected many residents and businesses. He thought Albertson's would be interested because it would significantly reduce the amount of train noise in the area.

Councilor Stone asked how train noise had affected Albertson's business.

Mayor Bernard thought the noise level in the back and in the parking lot was very high.

Councilor Stone thought that would make it too complicated and make the levy fail.

Councilor Collette agreed many people were affected by the horns but was concerned this would complicate the issue. She asked if any funding options had been identified in 2005.

Mr. Hales replied the federal process was the result of long and contentious discussion between various jurisdictions that had implemented quiet zones early on and the railroads. While it gave cities the opportunity to establish zones and clarified that in a way that previous legislation did not made it very easy. However, it also removed the railroad from any financial responsibility. There were no federal grant or support programs for this sort of effort. He spoke with people from the Oregon Department of Transportation (ODOT) rail and while there were grant programs for pedestrian safety improvements there was nothing for quiet zones at present.

Councilor Stone suggested in establishing a quiet zone the crossings would have to be even safer. Could the collision between the car and train have been prevented with something like this? Could it be slanted toward public safety rather than something like an annoyance.

Mr. Hales said that would be worth exploring and the upside with these measures was improved safety.

Councilor Barnes asked if this could be considered a capital improvement project.

Councilor Stone how many complaints had come to the City.

Mr. Hales would have to check with Mr. Swanson in terms of phone calls. A City wide outreach would provide better information. From the people he talked to there was a lot of support, and many did not realize this was an option.

Mr. Firestone added it took several years for the federal regulations to come into effect, and they worked on them for years.

Councilor Collette thought it was also a health issue because of the decibel level, and the City had the responsibility to combine the safety and hearing issues. She felt the Council should take this on.

Councilor Stone thought if hearing loss was an issue then she thought the railroad should bear some responsibility.

Mr. Firestone explained the horns were a federal requirement for safety reasons.

Councilor Barnes asked Mr. Hales to keep a log and ask people how long they have lived here. To some who lived nearby it was a background noise.

Mayor Bernard said many people at the Farmers' Market have made comments, and he thought there would be strong support for a quiet zone in Milwaukie. He would like to hear from people who were concerned.

Councilor Stone asked if there was any data showing that quiet zone methods made crossings safer.

Mr. Hales said as part of the federal program about 40 test studies were done in the northwest. They determined that the risks had gone down substantially using the SSM methods.

Mr. Campbell noted this was an issue in the redevelopment of both the Murphy and MacFarlane sites.

Councilor Loomis asked if the problem was with the horns or the track.

Mr. Campbell replied it was probably both. The zoning on each property currently required a substantial residential component.

Mayor Bernard announced the City Council would meet in executive session pursuant to ORS 192.660(2)(h) to consult with legal counsel concerning legal rights and duties regarding current litigation or litigation likely to be filed.

Mayor Bernard adjourned the work session at 6:33 p.m.

Pat DuVal

Pat DuVal, Recorder

AGENDA

WORK SESSION
MILWAUKIE CITY COUNCIL

NOVEMBER 9, 2006

MILWAUKIE CITY HALL
Second Floor Conference Room
10722 SE Main Street

A light dinner will be served.

WORK SESSION – 5:30 p.m.

Discussion Items:

	Time	Topic	Presenter
1.	5:30 p.m.	Update on Street Maintenance Funding Plan Development	Alex Campbell
2.	6:00 p.m.	Quiet Zone Research	Gavin Hales
3.	6:30 p.m.	Adjourn Work Session	

EXECUTIVE SESSION 6:30 p.m.

The Milwaukie City Council will go into Executive Session pursuant to ORS 192.660(2)(h) for consultation with counsel concerning legal rights and duties regarding current litigation or litigation likely to be filed. All discussions are confidential and those present may disclose nothing from the Session. Representatives of the news media are allowed to attend Executive Sessions as provided by ORS 192.660(3) but must not disclose any information discussed. No Executive Session may be held for the purpose of taking any final action or making any final decision. Executive Sessions are closed to the public.

Public Notice

- The Council may vote in work session on non-legislative issues.
- The time listed for each discussion item is approximate. The actual time at which each item is considered may change due to the length of time devoted to the one previous to it.
- For assistance/service per the Americans with Disabilities Act (ADA) please dial TDD (503) 786-7555.
- The Council requests that all pagers and cell phones be either set on silent mode or turned off during the meeting.

To: Mayor and City Council

Through: Mike Swanson, City Manager
Kenny Asher, Community Development and Public Works Director.

From: Gavin Hales, Transportation Liaison

Subject: Quiet Zone Research

Date: October 17th, 2006 For November 9th, 2006 Work Session.

Action Requested
None. This report is for information purposes only.

Background
The city continues to receive frequent comments concerning the impact of train horns on Milwaukie residents. In August 2006, staff at the direction of the City Manager, began to reassess the current options available for establishing a Quiet Zone in Milwaukie.

Thirty-one trains utilize the Union Pacific mainline each day as it passes through the City of Milwaukie. Each of these trains is required by federal law to sound its horn in a four part sequence of two long blasts, followed by one short, and one long, 15-20 seconds[1] prior to arrival at each of Milwaukie's four at-grade rail crossings. Horns are sounded at a minimum volume of 96 dB(A) and a maximum of 110 dB(A).

Staff received a letter from one citizen in August of this year expressing real concern about the issue. "In late June of this year we moved from the west Portland area to Milwaukie. By mid-July, we were ready to put the house up for sale and move right back out again. The reason is the incessant train horns, which, even though we are the better part of ¾ of a mile from the crossings,

[1] For Milwaukie at an approximate distance of 1/4 mile from the crossing.

sound like they are running through our living room. What would otherwise be a wonderful home is made quiet unpleasant[2]."

The Final Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings provides an opportunity for Milwaukie to eliminate train horn noise by establishing a "Quiet Zone." A Quiet Zone "is a section of a rail line at least one half mile in length that contains one or more consecutive public highway-rail grade crossings at which locomotive horns are not routinely sounded[3]". In Milwaukie, establishing a Quiet Zone would require the installation of Supplementary Safety Measures (SSMs) at the Harrison, Oak, 37th and Harmony Road crossings of the Union Pacific mainline. An SSM is an engineering improvement that reduces the risk of collision at a crossing by preventing careless movement across it.

In October 2004- April 2005 staff prepared a report entitled "Quiet Zone Implementation Strategy" which discussed options available to eliminate train horn noise in the city. The report was supported by a consultant study that outlined a crossing-by-crossing set of alternatives based on proposed federal rules[4] and the findings of an on-site inspection team. The team was comprised of John Trumbull (Union Pacific Railroad), Bill Burgel (HDR, Inc), and Mike Webb (HDR, Inc.)

Staff recommended that the city seek funding to establish a zone initially including the SE 37th and SE Oak St. crossings. The zone was to be later expanded to include the Harrison and Harmony crossings as grade separations were considered. Council decided not to pursue staff's recommendations due to concerns about cost.

In the past few months, staff has examined the newly adopted Quiet Zone legislation, reassessed potential costs, and talked to other jurisdictions about Quiet Zone implementation.

The federally approved SSMs available to the city as part of a Quiet Zone implementation strategy (ranked from lowest to highest in approximate order of cost) include:

- Raised concrete dividers with reflectors separating lanes of traffic at a cost of approximately $100,000 to $125,000 per crossing.

[2] Letter to Mayor Bernard and the City Council, from Todd Schwartz, 8/7/06.
[3] Federal Railroad Administration's definition.
[4] The proposed federal rules have subsequently been amended and finalized.

- Installation of two additional gates to supplement existing gates in preventing movement across the tracks at a cost of approximately $250,000 per crossing.
- Grade separation at an unknown cost greatly exceeding these.

A Quiet Zone implementation strategy would likely include some combination of these measures. Staff estimates the total cost of a Quiet Zone implementation strategy for Milwaukie at between $565,000 and $900,000. These cost estimates include the installation of improvements at Harmony Road. Note: Clackamas County is considering improvements to Harmony Road that may include grade separation over the Union Pacific Mainline. The cost of a Quiet Zone implementation strategy would be reduced by between $125,000 and $150,000 if the county pursues this option although timing may be an issue.

Staff has also researched attempts by other jurisdictions to implement Quiet Zone's. Conversations with officials from Vancouver, Yakima, and Mukilteo, Washington; indicated the need to clearly define an impact area. Based on research undertaken for the city of Vancouver by Michael Minor and Assoc., (a sound engineering firm,) staff has estimated sound levels of 75 decibels for residents within 1600 feet of the line, and levels of 65 decibels for residents at 4200 feet (see attachment 1). Beyond this distance volumes fall to levels considered normally acceptable for residential land uses. (For a complete explanation of the "sound-shed" see attachment 2.)

Concurrence
None. This report is for information purposes only.

Fiscal Impact
None. This report is for information purposes only.

Work Load Impacts
None. This report is for information purposes only.

Alternatives
None. This report is for information purposes only.

Attachments
1. Train Horn Estimated Impact Area Map
2. Sound-Shed Report

Attachment 2

Quiet Zone Sound-Shed

Gavin Hales
Sept 22nd, 2006

Definitions:

1. Decibels (dBA)= "A decibel is a RELATIONSHIP between two values of POWER. Decibels are designed for talking about numbers of greatly different magnitude, such as 23 vs. 4,700,000,000,000. For convenience, we find the RATIO between the two numbers and convert that into a logarithm. This gives a number like 11.3. As long as we are going for simplicity, we might as well get rid of the decimal, so we multiply the number times ten. If we measured one value as 23 horsepower and another as 4.7 trillion horsepower, we say that one is 113dB greater than the other." Peter Elsea, University of California Santa Cruz, 1996.

2. Day/ Night Equivalent Level (Ldn)= "The equivalent sound level for a 24 hour period that incorporates a +10dB penalty for all sound occurring between 2200 and 0700 hours." FTA, 1995.

Sample Decibel Levels:

AASHTO[1] samples:
Food blender at 3 feet: 87 dBA
Person shouting at 3 feet: 78 dBA
Gas lawn Mower at 100 feet: 70 dBA
Normal speech at 3 feet: 65 dBA

FTA samples: Day/ Night Equivalent Level (Ldn)
45 Rural area with no major roads nearby
50 Quiet suburban residential neighborhood, not close to major roads, little nighttime activity
55 Typical quiet suburban residential area
60 Residential area with some traffic nearby. Typical of many residential areas
65 Relatively noisy residential area. Usually a major road or airport is nearby. Considered normally acceptable for residential land use.
70 Noisy residential area. Close to a major freeway, close to the end of an airport runway.
75 Generally considered unacceptable for residential use. Strongly affected by major transportation source.
80 Very noisy area. Unusual except in rare circumstances

"An increase of 10 dBA in sound level will nearly double the loudness as rated subjectively by typical observers…A decrease of 10 dBA will appear to an observer to be a halving of the apparent loudness. For example, a noise of 70 dBA will sound only half as loud as 80 dBA, assuming the same frequency composition and other things being equal." –Michael Minor and Associates, 2005.

"In air, sound pressure levels above 85 dB are considered harmful, while 95 dB is considered unsafe for prolonged periods and 120 dB causes an immediate perforation of the ear drum (tympanic membrane)." –Wikipedia

How loud are train horns?

"Maximum noise levels from locomotive warning horns generally range from 104 to 108 dBA Lmax at 100 feet. Assuming the typical maximum sound levels of 104 and 108 dBA, typical maximum horn noise levels were calculated to a distance of 2000 feet from the source and

[1] American Association of State Highway and Transportation Officials.

plotted on a graph. The calculations assume the noise from the horn would reduce at the nominal rate of 6 dBA per doubling of distance. For example, a 108 dBA sound level at 100 feet would reduce by 6 dBA to 102 dBA at twice the distance (200 feet)." –Michael Minor and Assoc Sound Study for the City of Vancouver Washington, May, 2005.

The graphic below displays the approximate sound shed of a typically train horn while the train is in motion.

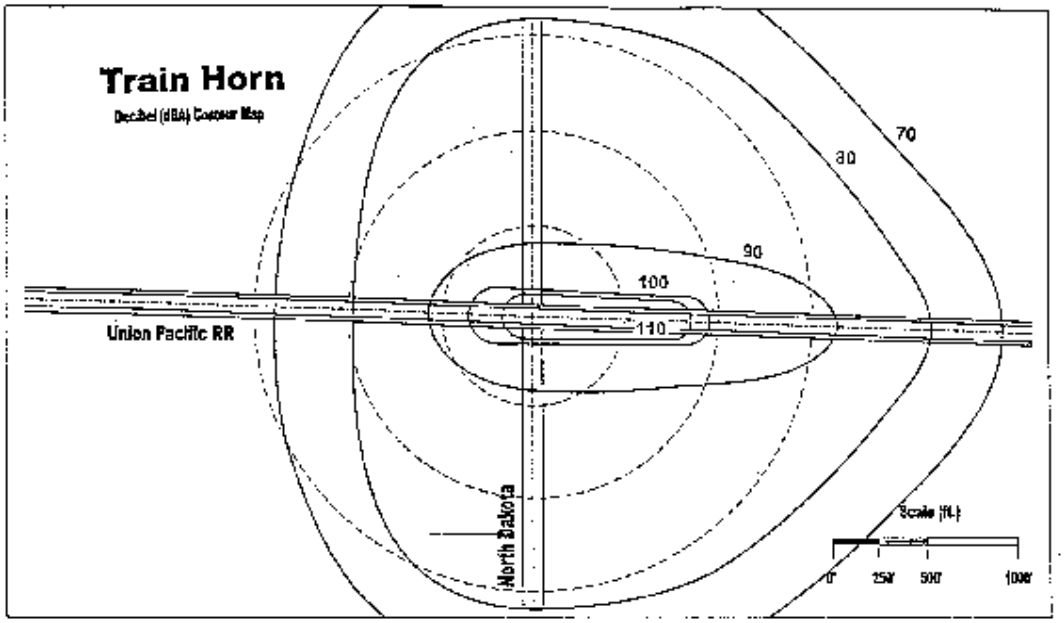


Figure 1

Conclusion: Without actually measuring the train horn volumes in Milwaukie it is difficult to determine a precise Sound-Shed. Given Michael Minor's assumptions about train horn volumes, and his statistic on doubling distances, it is reasonable however to assume a sound shed of 1600 ft or more from any point where a train horn is sounded. This would be the distance at which the sound levels would fall below what is considered harmful to the human ear (85dB). The area affected above what is considered acceptable for normal residential land use (65dB), however would extend a much greater distance (12,800ft) if not blocked or muted. For the purposes of this report we have assumed a 10dB buffering due to structures and elevation. See the attached map for a representation of Milwaukie's Sound Shed.

References:

1. Evaluation of an Automated Horn Warning System at Three Highway-Railroad Grade Crossings in Ames, Iowa by **Steve J. Gent, P.E.** Research Coordinator, Iowa Department of Transportation, 800 Lincoln Way, Ames, Iowa 50010

2. Guide on Evaluation and Attenuation of Traffic Noise, AASHTO, 1987.

3. http://www.nonoise.org/library/envarticle/index.htm

4. **Railroad Horn Quiet Zone Sound Study**: *SE Beach Drive and SE Chelsea Avenue Crossings SE 139th Avenue, SE 148th Avenue and SE 164th Avenue Crossings,*May 2005 *Prepared for:* The City of Vancouver, Washington, *Prepared by:*Michael Minor & Associates, Portland, Oregon

Springer, Carl D.

ATTACHMENT 2

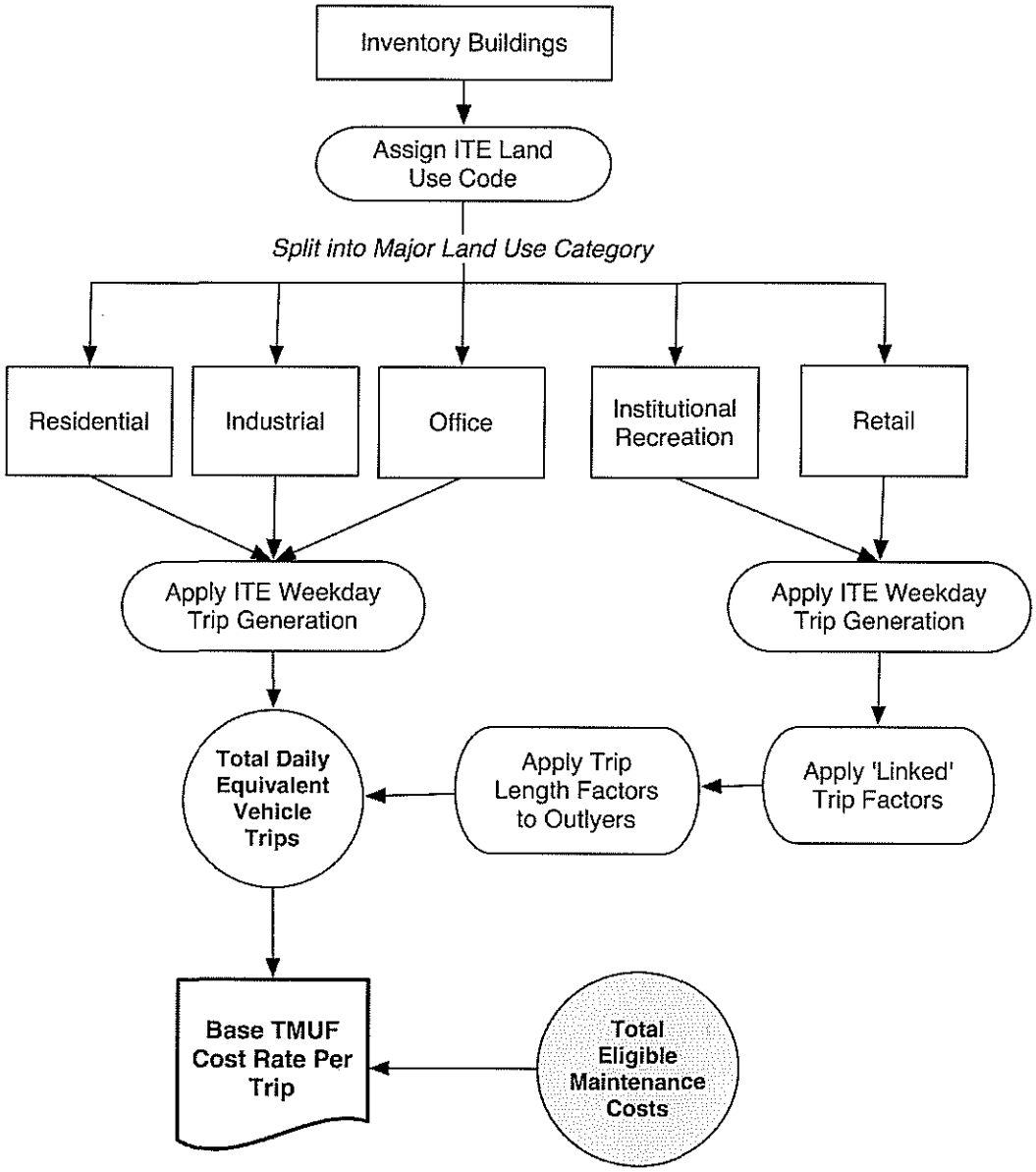
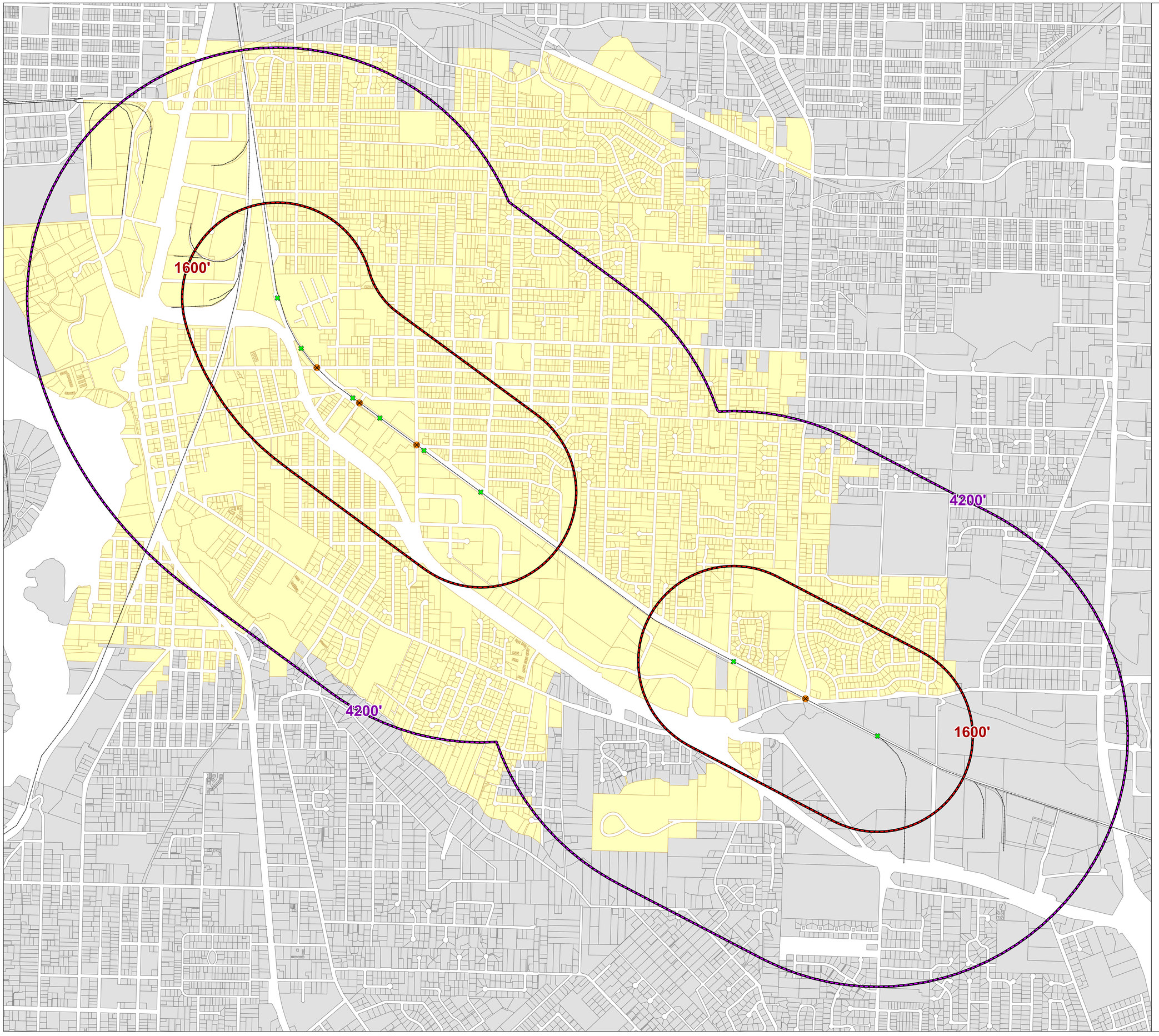


FIGURE 1: Parcel Level Trip Generation Process *DKS Associates*

Train Horn Estimated Impact Area



Whistle Point

RR Xing

65 Decibel

75 Decibel

RR Line

Milwaukie Tax Lots

Other Tax Lots

Data Sources: City of Milwaukie GIS
Clackamas County GIS
Metro Data Resource Center

Date: September 29, 2006

The information depicted on this map is for general reference only. The City of Milwaukie cannot accept any responsibility for errors, omissions or positional accuracy. There are no warranties, expressed or implied, including the warranty of merchantability or fitness for a particular purpose, accompanying this product. However, notification of errors would be appreciated.

GIS Coordinator
City of Milwaukie
3200 SE Harrison Street
Milwaukie, OR 97222
(503) 786-7498

CITY OF MILWAUKIE

0 400 800 1,600 2,400 3,200 Feet

Springer, Carl D.

Table 4: Adjusted Weekday Trip Generation Rates by ITE Category (Sorted by Tiers)

ITE Code	Description	Land Use Unit	Tier	Tier Trip Rate	Adj. ITE Rate	Rate Ratio
Non-Residential Uses						
413	State Park	Acre	0	0.75	0.65	0.87
520	Elementary School	Student	0	0.75	0.51	0.68
521	Private School (K-12)	Student	0	0.75	0.65	0.87
522	Middle School	Student	0	0.75	0.73	0.97
591	Lodge/Fraternal Organization	Member	0	0.75	0.29	0.39
120	General Heavy Industrial	KSF	1	2	1.50	0.75
151	Mini-Warehouse	KSF	1	2	2.50	1.25
411	City Park	Acre	1	2	1.59	0.80
530	High School	Student	1	2	1.79	0.90
540	Junior/Community College	Student	1	2	1.54	0.77
550	University/College	Student	1	2	2.38	1.19
890	Furniture Store	KSF	1	2	2.38	1.19
140	Manufacturing	KSF	2	4	3.82	0.96
150	Warehouse	KSF	2	4	4.96	1.24
170	Utilities	KSF	2	4	5.00	1.25
412	County Park	Acre	2	4	3.42	0.86
560	Church	KSF	2	4	4.56	1.14
620	Nursing Home	KSF	2	4	3.60	0.90
110	General Light Industrial	KSF	3	8	6.97	0.87
130	Industrial Park	KSF	3	8	6.96	0.87
320	Motel	Room	3	8	8.45	1.06
430	Golf Course	Acre	3	8	7.56	0.95
710	General Office	KSF	3	8	11.01	1.38
715	Single Tenant Office Building	KSF	3	8	11.57	1.45
750	Office Park	KSF	3	8	11.42	1.43
760	Research & Development Center	KSF	3	8	8.11	1.01
836	Drinking Place	KSF	3	8	10.50	1.31
22	General Aviation Airport	Employee	4	16	14.24	0.89
310	Hotel	Room	4	16	12.35	0.77
432	Golf Driving Range	Tees	4	16	12.50	0.78
566	Cemetery	Acre	4	16	18.92	1.18
610	Hospital	KSF	4	16	16.78	1.05
770	Business Park	KSF	4	16	12.76	0.80
818	Nursery (Wholesale)	KSF	4	16	21.00	1.31
840	Automobile Care Center	KSF	4	16	21.00	1.31
847	Self-Service Car Wash	Wash Stall	4	16	21.00	1.31
848	Tire Store	KSF	4	16	17.91	1.12
849	Wholesale Tire Store	KSF	4	16	14.25	0.89
861	Discount Club	KSF	4	16	21.74	1.36
870	Apparel Store	KSF	4	16	21.00	1.31

ITE Code	Description	Land Use Unit	Tier	Tier Trip Rate	Adj. ITE Rate	Rate Ratio
420	Marina	Acre	5	32	31.40	0.98
491	Tennis Courts	Courts	5	32	31.04	0.97
492	Racquet Club	Courts	5	32	40.53	1.27
493	Health Club	KSF	5	32	40.00	1.25
494	Bowling Alley	KSF	5	32	33.33	1.04
495	Recreational Community Center	KSF	5	32	45.00	1.41
565	Day Care	KSF	5	32	39.63	1.24
590	Library	KSF	5	32	27.00	0.84
630	Clinic	KSF	5	32	31.45	0.98
720	Medical-Dental Office Building	KSF	5	32	36.13	1.13
812	Building Materials & Lumber	KSF	5	32	27.80	0.87
813	Discount Super Store	KSF	5	32	32.87	1.03
814	Specialty Retail	KSF	5	32	28.47	0.89
815	Discount Store	KSF	5	32	47.00	1.47
816	Hardware/Paint Store	KSF	5	32	35.90	1.12
817	Nursery/Garden Center	KSF	5	32	25.26	0.79
820	Shopping Center	KSF	5	32	28.33	0.89
832	High Turnover Sit-Down Rest.	KSF	5	32	37.15	1.16
837	Quick Lubrication Vehicle Stop	Service Position	5	32	35.00	1.09
841	New Car Sales	KSF	5	32	26.25	0.82
845	Gas/Service Station with Convenience Market	Fueling Positions	5	32	35.81	1.12
850	Supermarket	KSF	5	32	35.68	1.12
862	Home Improvement Superstore	KSF	5	32	24.54	0.77
863	Electronics Superstore	KSF	5	32	31.53	0.99
844A	Fuel Pumps with Grocery Store	Fueling Positions	5	32	31.88	1.00
24	Airport Facilities	Employee	6	64	56.96	0.89
730	Government Office Building	KSF	6	64	68.93	1.08
831	Quality Restaurant	KSF	6	64	50.37	0.79
844	Gas Station	Fueling Positions	6	64	48.88	0.76
846	Gas/Service Station with Convenience Market, Car Wash	Fueling Positions	6	64	53.49	0.84
854	Discount Supermarket	KSF	6	64	70.00	1.09
732	United States Post Office	KSF	7	128	108.19	0.85
833	Fast Food w/o Drive-Thru	KSF	7	128	125.00	0.98
834	Fast Food With Drive-Thru	KSF	7	128	124.03	0.97
851	Convenience Market	KSF	7	128	125.46	0.98
911	Walk-In Bank	KSF	7	128	109.54	0.86
912	Drive-In Bank	KSF	7	128	140.56	1.10
435	Multipurpose Recreational Facility	Acre	8	256	203.36	0.79
444	Movie Theater with Matinee	Screens	9	512	440.00	0.86
Residential Uses						
210	SF Detached	DU	10	9.57	9.57	1.00

ITE Code	Description	Land Use Unit	Tier	Tier Trip Rate	Adj. ITE Rate	Rate Ratio
231	Low-Rise Residential Condo/Townhouse	DU	10	9.57	9.01	0.94
220	Apartment	DU	11	6	6.63	1.11
221	Low-Rise Apartment	DU	11	6	6.59	1.10
230	Condo/Townhouse	DU	11	6	5.56	0.93
240	Mobile Home	DU	12	4	4.81	1.20
253	Elderly Housing	DU	12	4	3.48	0.87
252	Congregate Care	DU	13	2	2.15	1.08

Street Utility Fee: Projected Fees ($700,000 in Revenue Per Year)

ATTACHMENT 4

	Utility Payer (Examples)	*Unit*	*# of units*	*Trips Per Unit*	*Daily Trips*	Monthly Bill	Monthly Bill Split 50/50 (Resid/Non-Resid)
Detached Resid.	Single family residence	dwelling	1	9.57	10	3.35	4.00
Multi-Family Residential	Duplex	dwelling	2	6	12	4.20	5.00
	Crystal Lake Apts.	dwelling	150	6	900	$315	$375
Elem/Middle School; Lodge	Milwaukie Elementary	students	348	0.75	261	$90	$80
	Rowe Middle	students	633	0.75	475	$170	$150
Heavy Industrial; High School	Precision Castparts	k sq feet	160	2	320	$110	$95
	Milwaukie High	students	1393	2	2,786	$980	$845
Manufacturing; Warehouse; Church	Milwaukie First Baptist	k sq feet	28	4	112	$40	$35
	Holman Distrib Ctr	k sq feet	195	4	780	$270	$235
	Rudie Wilhelm (Mailwell)	k sq feet	264	4	1,056	$370	$320
Light Industrial; Office	Attorney Offices	k sq feet	2	8	12	$4	$4
	Key Bank of Oregon	k sq feet	34	8	272	$100	$85
	4607 SE Intl. Way	k sq feet	254	8	2,032	$710	$610
Hospital; Business Park; Auto Care	New Haven Auto	k sq feet	8	16	125	$40	$35
	Lincoln Bus Ctr (4287)	k sq feet	37	16	592	$210	$180
	Providence Hospital	k sq feet	134	16	2,144	$750	$650
Recreation Facility; Special Retail; Supermarket	Wichita Hardware	k sq feet	7	32	234	$80	$70
	Milwaukie Bowl	k sq feet	17	32	544	$190	$165
	Mill End Store	k sq feet	74	32	2,368	$830	$715
Govt Office; Restaurant; Gas Station	JD's Café & Pub	k sq feet	4	64	237	$80	$70
	McGrath's Fish House	k sq feet	7	64	448	$160	$140
	Clack Co Corrections	k sq feet	30	64	1,920	$670	$580
Fast Food; Convenience Store; Bank	Mike's Drive-In	k sq feet	1	128	102	$40	$35
	7-Eleven	k sq feet	3	128	333	$120	$100
	U.S. National Bank	k sq feet	7	128	947	$330	$285

k sq feet = thousand square feet of building space

Top Payers

ATTACHMENT 5

Gas Tax	Privilege Tax	Utility Fee
2 Cents per gallon sold	1.5% of PGE bill	Estimate of daily trips generated

Top 5 Non-Residential Payers

	Annual Cost		Annual Cost		Annual Cost
Chevron (Oak St.)	$24,000	Business A	$108,000	9800 SE McBrod	$12,800
Arco Gas Station (McL)	$24,000	Business B	$26,600	Milwaukie High	$11,400
76 Gas Station (Harrison)	$17,500	Government A	$21,000	Mill End Store	$9,800
Astro Gas Station (McL)	$17,500	Business C	$9,800	King Rd Super Center	$9,600
Arco Gas Station (42nd)	$11,750	Government B	$9,300	Providence Hospital	$8,800

Residential costs

Single-family home	$10	Single-family home	$14	Single-family home	$40
Apartment unit	$10	Apartment unit	$10	Apartment unit	$25

Revenue Estimate

$150,000 to $200,000	$300,000	$700,000

Estimate based on $.02 per gallon tax, assuming that 1 of 2 cents can be passed through to customers. Assumes a typical household drives 20,000 miles per year, with a 20 MPG vehicle, purchasing all gas within city limits.	Data provided by PGE. Names withheld to preserve confidentiality. Assumes charging full 1.5% rate available.	Based on "straight trip" methodology: The method described in the staff report, without any adjustment made to balance residential and non-residential burden.

Top Payers

ATTACHMENT 5

ELECTRIC FRANCHISE/LICENSE FEE RATES & REVENUE

City	Electric Provider	Fee/Tax Type	Fee/Tax Rate (%)	Fee/Tax Revenue ($)			
				2003-04	2002-03	2001-02	2000-01
Adrian	Idaho Power	Privilege Tax	3.5	4,948	4,769	3,010	5,084
Albany	Consumers Power	Privilege Tax	5	76,632	76,535	70,339	58,485
	PacifiCorp (aka PPL)	Privilege Tax	5	1,335,284	1,316,572	1,266,762	1,194,736
Arlington	Pacific Power & Light	Franchise Fee	7	15,894	115,225	14,439	15,138
Ashland	City of Ashland	Franchise Fee	10	1,042,062	914,643	865,109	833,007
Astoria	Pacific Power & Light	Franchise Fee	3.5	202,110	196,750	197,003	198,507
Aumsville	PacifiCorp (aka PPL)	Franchise Fee	7	80,513	78,079*	36,968	30,980
Bay City	Tillamook PUD	Franchise Fee	2	19,842	20,042	19,055	15,600
Beaverton	Portland General Electric	Franchise Fee	3.5	1,915,595	2,104,099	2,125,624	1,515,111
Bend	Central Electric Co-op	Franchise Fee	5	134,197	128,982	120,467	127,245
	Pacific Power & Light	Franchise Fee	5	1,794,895	1,743,950	1,667,230	1,991,823
Boardman	Umatilla Electric Co-op	Franchise Fee	3	66,585	55,509	57,103	41,666
Brownsville	Pacific Power & Light	Franchise Fee	5	31,132	30,264	29,773	N/A
Cannon Beach	PacifiCorp (aka PPL)	Franchise Fee	3.5	61,600	61,872	59,451	60,787
Carlton	Portland General Electric	Franchise Fee	3.5	33,398	35,903	28,904	26,715
Cave Junction	Pacific Power & Light	Franchise Fee	3.5	45,254	43,906	44,015	41,207
Clatskanie	Clatskanie PUD	Franchise Fee	5	46,804	39,139	40,554	37,225
Columbia City	Columbia River PUD	Franchise Fee	4	30,578	30,874	30,719	15,806
Corvallis	Consumers Power	Franchise Fee	5	150,737	145,476	133,127	111,157
	Pacific Power & Light	Franchise Fee	5	1,638,599	1,641,191	1,564,279	1,635,737
Cottage Grove	Emerald PUD	Franchise Fee	3.5	4,218	4,258	3,985	3,253
	Pacific Power & Light	Franchise Fee	3.5	157,728	157,792	151,238	150,405
Dayville	Oregon Trail Electric Co-op	Franchise Fee	Not Available	2,647	5,040	4,404	4,073
Depoe Bay	Central Lincoln PUD	Franchise Fee	3.5**	31,983	30,888	30,321	29,403
Dufur	Northern Wasco Co. PUD	Franchise Fee	3.5	12,282	11,325	12,052	11,574
Dundee	Portland General Electric	Franchise Fee	3.5	46,925	46,589	37,642	34,799

* Fee increased from previous year.

** 3/4% for revenue from industrial customers.

City	Electric Provider	Fee/Tax Type	Fee/Tax Rate (%)	Fee/Tax Revenue ($)			
				2003-04	2002-03	2001-02	2000-01
Dunes City	Central Lincoln PUD	Franchise Fee	3.5	27,590	23,940	24,679	23,462
Durham	Portland General Electric	Franchise Fee	5	38,853*	32,500*	30,736	29,106
Elgin	Oregon Trail Electric Co-op	Franchise Fee	4.5	43,500	41,900	39,300	35,500
Estacada	Portland General Electric	Franchise Fee	4	79,162	87,348	70,573	66,125
Fairview	Portland General Electric	Franchise Fee	3.5	146,481	150,730	162,741	90,773
Florence	Central Lincoln PUD	Franchise Fee	3.5	183,839	170,431	173,487	164,456
Gates	Pacific Power & Light	Franchise Fee	3.5	6,628	6,628	6,628	Not Available
Gladstone	Portland General Electric	Franchise Fee	3.5	192,945	174,718	199,212	156,468
Glendale	PacifiCorp (aka PPL)	Franchise Fee	3.5	16,145	17,673	16,560	N/A
Gold Beach	Coos Curry Electric Co-op	Franchise Fee	In-Kind	N/A	N/A	N/A	N/A
Grants Pass	Pacific Power & Light	Franchise Fee	5	921,416	913,166	841,104	772,218
Gresham	Portland General Electric	Privilege Tax Utility License	1.1 3.9	626,082 2,667,028	578,071 2,867,755	2,805,868 2,336,396	470,849 1,864,989
Halsey	Pacific Power & Light	Franchise Fee	3.5	14,102	14,429	13,872	13,322
Heppner	Columbia Basin Elec. Co-op	Franchise Fee	2	43,302	39,244*	17,445	17,915
Hermiston	Umatilla Electric Co-op	Franchise Fee	3	160,400	141,200	118,400	99,200
Idanha	Consumers Power	Franchise Fee	5	5,970	5,160	4,809	4,499
Island City	Oregon Trail Electric Co-op	Franchise Fee	5	548,738	47,678	45,402	38,262
Jacksonville	Pacific Power & Light	Franchise Fee	3.5	49,300	Not Available		
Jefferson	PacifiCorp (aka PPL)	Franchise Fee	5	46,127	45,580	46,105	32,216
John Day	Oregon Trail Electric Co-op	Franchise Fee	5	81,691	81,665	69,824	67,273
Jordan Valley	Idaho Power	Franchise Fee	3	4,729	5,122	5,063	5,421
Joseph	PacifiCorp (aka PPL)	Franchise Fee	3.5	28,276	29,303	27,838	28,202
La Grande	Oregon Trail Electric Co-op	Franchise Fee	5	405,000	404,140	360,182	332,972
Lafayette	Portland General Electric	Franchise Fee	3.5	37,426	38,499	30,695	29,398
Lincoln City	Pacific Power & Light	Franchise Fee	3.5	232,837	226,087	227,384	222,530
Lowell	Emerald PUD	Franchise Fee	3.5	11,000	10,045	9,750	7,565
	Lane Electric	Franchise Fee	3	3,462	3,462	3,158	2,363
Lyons	PacifiCorp (aka PPL)	Franchise Fee	3.5	24,229	21,822	22,647	25,844

* Fee increased from previous year.

City	Electric Provider	Fee/Tax Type	Fee/Tax Rate (%)	Fee/Tax Revenue ($)			
				2003-04	2002-03	2001-02	2000-01
Madras	Pacific Power & Light	Franchise Fee	5	214,119	162,460	145,917	155,642
Malin	PacifiCorp (aka PPL)	Franchise Fee	5	13,019	13,119	12,414	Not Available
Medford	PacifiCorp (aka PPL)	Franchise Fee	5	2,153,000	2,180,000	2,050,000	1,991,000
Mill City	Pacific Power & Light	Franchise Fee	3.5	26,018	24,893	25,057	24,858
Millersburg	PacifiCorp (aka PPL)	Franchise Fee	5	523,973	486,112	551,473	1,813,560
Milwaukie	Portland General Electric	Franchise Fee	3.5	664,657	728,334	725,046	535,691
Mosier	PacifiCorp (aka PPL)	Franchise Fee	3.5	7,822	7,609	7,049	7,226
Mt. Angel	Portland General Electric	Franchise Fee	3.5	62,874	65,168	55,080	Not Available
Myrtle Point	Pacific Power & Light	Franchise Fee	5	6,800	72,668	71,971	72,708
North Bend	Pacific Power & Light	Franchise Fee	5	316,510	317,416	321,685	313,105
Oakridge	Lane Electric	Franchise Fee	4	89,399	86,810	85,014	32,280
Pendleton	Pacific Power & Light	Franchise Fee	5	545,043	535,534	509,874	504,246
	Umatilla Electric Co-op	Franchise Fee	5	2,346	2,765	2,959	2,064
Philomath	Consumers Power	Franchise Fee	5	34,166	32,688	29,787	22,819
	PacifiCorp (aka PPL)	Franchise Fee	5	95,027	93,768	102,151	101,822
Pilot Rock	Pacific Power & Light	Franchise Fee	3.5	39,373	40,871	41,098	43,888
Portland	Pacific Power & Light	Franchise Fee	5	5,353,749	5,331,346	5,497,180	4,605,632
	Portland General Electric	Franchise Fee	5	15,902,451	16,880,164	15,618,642	13,298,073
Prairie City	Oregon Trail Electric Co-op	Franchise Fee	3	18,223	18,971	16,382	15,600
Prineville	Pacific Power & Light	Franchise Fee	5	270,289	269,811	258,667	252,924
Redmond	Central Electric Co-op	Franchise Fee	5	25,100	22,083	17,320	20,500
	Pacific Power & Light	Franchise Fee	7	734,300	712,838	499,837	473,100
Reedsport	Central Lincoln PUD	Franchise Fee	3.5	94,828	82,815	84,572	80,703
Richland	Idaho Power	Franchise Fee	3	3,500	3,046	3,604	3,500
Riddle	Pacific Power & Light	Franchise Fee	3.5	17,548	16,582	16,600*	16,757
Rockaway Beach	Tillamook PUD	Franchise Fee	2	29,454	29,215	28,696	24,138
Rogue River	Pacific Power & Light	Franchise Fee	5	48,210*	48,931	49,711	46,344
Roseburg	Pacific Power & Light	Franchise Fee	5	759,683	750,258*	493,847	425,770

* Fee increased from previous year.

City	Electric Provider	Fee/Tax Type	Fee/Tax Rate (%)	Fee/Tax Revenue ($)			
				2003-04	2002-03	2001-02	2000-01
Salem	Portland General Electric	Franchise Fee	5	4,216,751	4,410,200	4,023,610	3,224,293
	Salem Electric Co-op	Franchise Fee	5	886,776	906,590	768,874	758,415
Sandy	Portland General Electric	Franchise Fee	3.5	144,258	149,844	124,799	101,131
Scio	Pacific Power & Light	Franchise Fee	3.5	12,859	12,226	12,838	12,409
Silverton	Portland General Electric	Franchise Fee	3.5	199,428	170,365	133,620	123,361
Sisters	Central Electric Co-op	Franchise Fee	5	99,579	108,520	82,444	66,943
St. Helens	Columbia River PUD	Franchise Fee	6	289,587	274,047	239,769	145,815
	Portland General Electric	Franchise Fee	5	2,037	2,145	1,611	147,297
St. Paul	Portland General Electric	Franchise Fee	3	11,130	11,798	7,870	7,843
Stayton	Pacific Power & Light	Franchise Fee	5	281,966	265,968*	205,470	171,751
Sweet Home	Pacific Power & Light	Franchise Fee	5	224,444	219,005	210,792	193,417
Talent	Pacific Power & Light	Franchise Fee	5	115,981	116,171	110,974	107,883
The Dalles	Northern Wasco Co. PUD	Franchise Fee	3	231,690	217,277	224,061	214,654
Tigard	Portland General Electric	Franchise Fee	3.5	1,262,718	1,360,266	1,015,766	931,816
Troutdale	Portland General Electric	Franchise Fee Privilege Tax	3.5 1.5	299,983 128,641	312,424 130,807	252,736 109,232	221,830 93,690
Umatilla	Pacific Power & Light	Franchise Fee	3.5	84,146	79,442	74,742	70,029
	Umatilla Electric Co-op	Franchise Fee	5	23,574	22,407	20,939	19,752
Union	Oregon Trail Electric Co-op	Franchise Fee	3.5	44,290	34,015	30,535	35,395
Warrenton	PacifiCorp (aka PPL)	Franchise Fee	5	213,842	209,434	183,934	152,292
Weston	PacifiCorp (aka PPL)	Franchise Fee City Tax	3.5 1.5	17,574 5,083	16,719 N/A	19,057 N/A	18,713 N/A
Wheeler	Tillamook PUD	Franchise Fee	2	6,272	7,234	5,981	5,065
Wilsonville	Portland General Electric	Franchise Fee	3.5	670,732	707,348	565,971	465,151
Wood Village	Portland General Electric	Franchise Fee	3.5	84,826	94,846	72,424	62,355
Woodburn	Portland General Electric	Franchise Fee Privilege Tax	3.5 1.5	427,325 175,814	447,883 183,844	448,429 132,176	Not Available
Yachats	Central Lincoln PUD	Franchise Fee	3.5	25,316	23,474	23,708	22,271
Yoncalla	Douglas Electric Co-op	Franchise Fee	3.5	20,665	19,116	16,385*	13,354

* Fee increased from previous year.