

Tacoma Wellhead Protection Program

Report

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Tacoma Wellhead Protection Program

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Tacoma Wellhead Protection Program

Chapter 1

Introduction

1.1 Background

The 1986 Amendments to the federal Safe Drinking Water Act required each state to develop a Wellhead Protection Program in accordance with guidance prepared by the U.S. Environmental Protection Agency. In response, the Washington State Department of Health implemented requirements in 1994 for each Group A public water system in the state using wells or springs to prepare a Wellhead Protection Program. Under Washington State Department of Health requirements, a public water system Wellhead Protection Program must, at a minimum, include the following elements:

- A completed Susceptibility Assessment for each well, wellfield, or spring;
- A delineated Wellhead Protection Area for each well, wellfield, or spring;
- An inventory within the delineated Wellhead Protection Area of all potential sources of contamination that may present a threat to a water bearing zone utilized by the well, wellfield, or spring;
- Documentation that the owners/operators of potential contaminant sources identified through the inventory are notified of their facility's or site's presence within a Wellhead Protection Area;
- Documentation that delineation and inventory findings are provided to the appropriate jurisdictional regulatory authorities;
- A contingency plan for providing alternate sources of drinking water in the event that contamination does occur; and
- Coordination with emergency responders for appropriate spill/incident response measures to minimize possible impacts on the well, wellfield, or spring.

Recognizing the need for protecting its ground water resources, Tacoma Water began implementing wellhead protection activities well in advance of the 1994 effective date of Washington State Department of Health requirements. In response to identified contamination risks to its primary wellfield, referred to as the South Tacoma wellfield, Tacoma Water advocated the establishment of the South Tacoma Groundwater Protection District. In 1988, the Tacoma City Council formally established the district through adoption of City of Tacoma Ordinance 24083. This ordinance declared the South Tacoma area (approximately nine square miles) to be environmentally sensitive due to the high potential for contamination of underlying ground water used to provide a portion of the City's drinking water supply. The ordinance put into place strict requirements for businesses that store, use, or dispose of hazardous materials, including the design, usage, and removal of above ground and underground storage tanks. Under the ordinance, the

Tacoma-Pierce County Health Department permits and inspects businesses within the District that have a total volume of more than 220 pounds or approximately 25 gallons of hazardous materials on premises.

Under a grant from the Washington State Department of Ecology, Tacoma Water conducted additional wellhead protection activities in the early 1990s to protect the South Tacoma wellfield. These efforts resulted in development of the South Tacoma Wellhead Protection Program. This program was formulated to provide for monitoring and protection of ground waters supplied by the Shallow, Sea Level, and Deep aquifer zones lying under the South Tacoma area. The South Tacoma Wellhead Protection Program included:

- Delineation of the Wellhead Protection Areas (WHPAs) for each well in the wellfield using the RESSQC analytical model,
- An inventory of potential contaminant sources,
- Recommendations for protection procedures and policies,
- Recommendations for a water quality monitoring program,
- A contingency plan, and
- An implementation plan.

Since at the time the project was conducted the Washington State Department of Health's requirements for Wellhead Protection Programs were still under development, the project succeeded in addressing most, but not all, of the elements of a Wellhead Protection Program that were ultimately mandated by the state.

Upon implementation of the state requirements for Wellhead Protection Programs in 1994, Tacoma Water completed Susceptibility Assessments for all of their wells, including those located outside of the South Tacoma area. The Wellhead Protection Areas included in the Susceptibility Assessments for those wells located outside of the South Tacoma area were delineated using the Calculated Fixed Radius Method. Copies of the Susceptibility Assessments are included in Appendix A.

To more fully comply with the Washington State Department of Health's requirements, Tacoma Water collaborated with the Tacoma-Pierce County Health Department in 2000 to update and expand its Wellhead Protection Program. This Report summarizes activities carried out by the Tacoma-Pierce County Health Department and describes Tacoma Water's Wellhead Protection Program.

Since 2002 Tacoma water has worked with Tacoma -Pierce County Health Department (TPCHD) on the Tacoma Wellhead Program. We meet at a minimum of once a year to review potential contaminant sources, What Contaminants they are finding and what samples are best for detection of contaminants. We also receive a review of data from our sampling results twice a year. With this data we decide on what samples to do and if the measuring wells that we use are in the right places for early detection of contaminants. We discuss time of travel zones for the aquifers such as 6 month, 1 year, 5 year and 10 year time of travels. Tacoma Water is updating its GIS mapping system and plan to include well information such as depth of well and sampling information.

1.2 Development of the Tacoma Wellhead Protection Program

In 2000, Tacoma Water approached the Tacoma-Pierce County Health Department (TPCHD) to request assistance in implementing activities to more fully develop its Wellhead Protection Program. The goal of the resulting project was to bring Tacoma Water into full compliance with Washington State Department of Health's requirements for Wellhead Protection Programs and cover all wells within Tacoma Water's service area.

Tacoma Water assisted the Tacoma-Pierce County Health Department in the development of a scope of work for the project. Prior to completion of the scope of work, staff of Tacoma Water and the Tacoma-Pierce County Health Department met with representatives of the Washington State Department of Health to refine the scope to help ensure compliance with the state requirements for Wellhead Protection Programs. Subsequently, the scope of work was completed, and Tacoma Water and the Tacoma-Pierce County Health Department entered into an interagency agreement in May 2001 for the TPCHD to perform the project. Work on the project was conducted from May 2001 through May 2002.

The project included the following elements:

- Updating the inventory of potential contaminant sources for wells in the South Tacoma wellfield and conducting initial potential contaminant source inventories for other wells in the Tacoma system,
- Notifying owners/operators of contaminant sources identified during the inventories of their facility's or site's presence in a Wellhead Protection Area,
- Notifying appropriate jurisdictional regulatory agencies of the findings of the inventories,
- Developing geographic information system (GIS) generated maps of Tacoma Water's wells and providing copies of such maps to emergency response agencies,
- Developing contingency plans for all wells,
- Evaluating the adequacy of Tacoma Water's current monitoring plan and providing recommendations for improvements, and
- Identifying additional steps that can be taken to improve the level of protection afforded to Tacoma Water's wells.

The results of these tasks are outlined in the following Chapters.

Tacoma Wellhead Protection Program

Chapter 2

Delineation of the Wellhead Protection Areas And Agency Notification

2.1 Delineation of the Wellhead Protection Areas

Tacoma Water's Wellhead Protection Areas were delineated in the mid-1990s as part of a grant project to develop a Wellhead Protection Program for the South Tacoma Wellfield. The South Tacoma Wellfield Wellhead Protection Areas were delineated using the RESSQC analytical computer model (BES 1996). The zones delineated included the one-year time-of-travel, the five-year time-of-travel, the ten-year time-of-travel, and the four-month time-of-travel. The four-month zone was delineated because it is most representative of actual conditions, since this group of wells is generally only used from mid-May to mid-September.

Delineation of the Wellhead Protection Areas for Tacoma Water wells other than the South Tacoma Wellfield utilized the Calculated Fixed Radius Method (DOH 1995). These Wellhead Protection Areas were delineated in the course of completing the Susceptibility Assessment Survey for each well.

Tacoma Water became responsible in 2001 for the area previously served by the Southeast Tacoma Mutual Water System and assumed ownership of the System's wells and infrastructure. Tacoma Water has investigated the capabilities and potential uses of each well and expects to utilize the Southeast Tacoma wells Source 2 (ACM798), Source 6 (AEA465), Source 8 (AEF207), Source 11 (ACN731), and Source 11A (AEA461). The Wellhead Protection Areas for these wells were delineated in the late 1990s utilizing both a computerized analytical model and a process of hydrogeologic analysis and mapping.

2.2 Mapping of the Wellhead Protection Areas

Tacoma Water's wells and associated Wellhead Protection Areas were mapped by the Tacoma-Pierce County Health Department in 2000-01 through a grant from the Washington State Department of Health. The wells were located using a highly accurate Geographic Positioning System (GPS) unit (± 5 meters) and then mapped in Pierce County's Geographic Information System (GIS) *Countyview*. This is a customized version of Arcview and is available to all Pierce County Departments, the Tacoma-Pierce County Health Department, and many of the incorporated towns and cities in Pierce County.

The Wellhead Protection Areas delineated using the Calculated Fixed Radfos Method were incorporated into a GIS layer by placing the appropriate sized buffer around each well. The Wellhead Protection Areas delineated using more sophisticated methods were included by incorporating electronic files provided by the consulting firms who determined the areas.

2.3 Notification of Local Decision Makers

According to the *Washington State Wellhead Protection Program Guidance Manual* (DOH 1995), local decision makers need to be notified of the Wellhead Protection Area boundaries. Entities to notify include local planning and health departments, city/county representatives, and public works programs. Tacoma-Pierce County Health Department and Tacoma Water staff identified possible local agencies that could be notified of the Wellhead Protection Areas and selected to mail a notification letter and the associated maps to the local planning departments, since these are the departments responsible for establishing land use requirements. A letter was also sent to McChord Air Force Base and the Tacoma GIS Department was offered the electronic file containing the Wellhead Protection Areas. A copy of each letter was sent to the respective local public works department. All of the letters and maps were mailed in February 2002. A list of whom received the letter, a copy of each letter, and copies of the maps by jurisdiction are included in Appendix B. The letter was based upon the example letter in the *Washington State Wellhead Protection Program Guidance Manual* but was modified to better meet the needs of Tacoma Water. The maps, which originally were printed in color, depict the ten-year time-of-travel zone for each Wellhead Protection Area falling within the particular jurisdiction.

Tacoma Wellhead Protection Program

Chapter 3

Potential Contaminant Source Inventory

3.1 Development of the Potential Contaminant Source Inventory

The potential contaminant source inventory for the Tacoma Wellhead Protection Program was conducted in the summer and fall of 2001 by the Tacoma-Pierce County Health Department (TPCHD) and Tacoma Water. The first step was to develop two master databases and associated GIS layers of those potential contaminant sources that are in electronic databases. This included using electronic data from Ecology, TPCHD, and other sources. Two databases were developed: one of general potential contaminant sources and the other of the sites that would only pose a concern if they are served by an on-site sewage system. The two databases are included in the enclosed CD.

Following completion of the initial databases, windshield surveys were conducted throughout the ten-year time-of-travel zone for all of the Wellhead Protection Areas except those for the South Tacoma Wellfield and those wells that used to be in the Southeast Tacoma Mutual Water System. For these two Wellhead Protection Areas, the area was plotted into grids and more than 10% of the area was randomly selected in which to conduct windshield surveys. Even though the selection process was random, the resulting area surveyed represented a wide-range of land uses and is thought to provide a good overview of the strengths and weaknesses of the windshield survey approach compared to only using the consolidated electronic databases.

Following completion of the windshield surveys, the information collected was put into the two master databases. In addition, inactive businesses, business changes, and low risk businesses were noted in the databases.

3.2 Summary of the Potential Contaminant Sources Databases

The two databases can be summarized as follows:

Database 1: General Potential Contaminant

Sources

Flags - N = Didn't appear to be an active business during the windshield survey
S = Thought to be served by a sanitary sewer system

There are 4,002 sites in the database.

Examining the potential contaminant sources by Wellhead Protection Area:

- 32 are in the Frederickson Well WHPA
- 19 are in the Gravity Pipeline Wells WHPA
- 3 are in the Portland Ave. Well WHPA
- 1 is in the Prairie Ridge Springs WHPA
- 662 are in the Southeast Tacoma WHPA
- 2,938 are in the South Tacoma WHPA
- 4 are in the Tideflats Well 1 WHPA
- 293 are in the Tideflats Well 2 WHPA
- 42 are in the UP-1 WHPA
- 2 are in the UP-10 WHPA

Not all of the sites pose a great enough risk to warrant receiving a letter. Also, not all of the sites have an address:

- 1,338 sites do not have an address (these are from Ecology databases and only have latitude and longitude. Nearly all of these are old, inactive sites and were not seen in the windshield surveys).

- 716 sites are low risk sites and do not need to receive notification (this includes electricians, plumbers, roofers, window cleaners, drywall companies, upholstery companies, funeral homes, stone work companies, and taxidermy companies. It also includes beauty shops, hotels, nursing homes, etc. that are served by sanitary sewers).

- 27 sites are likely residences (as determined by the windshield surveys).

- 26 sites are likely out of business (as determined by the windshield surveys).

There were 1,922 potential contaminant sources initially identified to receive a notification letter.

Database 2: Potential contaminant sources that are a concern if they are served by an on-site sewage system

There are 870 possible sites in this database.

Examining the potential contaminant sources by Wellhead Protection Area:

- 2 are in the Frederickson Well WHPA
- 13 are in the Gravity Pipeline Wells WHPA
- 1 is in the Prairie Ridge Springs WHPA
- 127 are in the Southeast Tacoma Wells WHPA
- 708 are in the South Tacoma Wells WHPA
- 2 are in the Tideflats Well 2 WHPA
- 0 are in the Tideflats Well 1 WHPA
- 17 are in the UPI Well WHPA
- 0 are in the up-10 Well WHPA

Not all of these sites are actually served by on-site sewage systems or pose a significant risk:

- 1 appears to be out of business
- 729 appear to be in a sewer area

In general, it appears that the Gravity Pipeline WHPA is unsewered, the Prairie Ridge Springs WHPA is unsewered and much of the Southeast Tacoma WHPA is unsewered. The rest of the WHPAs are sewer except for small pockets of areas.

There were 140 potential contaminant sources in Database 2 that were initially identified to receive a notification letter.

3.3 Mailing of the Potential Contaminant Sources Letter

The notification letter for the Potential Contaminant Sources was developed by the Tacoma-Pierce County Health Department with input from Tacoma Water. The letter was based upon the example letter provided in the Washington State Department of Health's *Wellhead Protection Program Guidance Document*, DOH Publication # 331-018. To assist the potential contaminant sources, two common questions and their answers were printed on the back side of the letter. These questions and answers were written by Hazardous Waste Program staff at the Tacoma-Pierce County Health Department.

Selected information from the two databases of Potential Contaminant Sources was then merged into an Excel Spreadsheet to form a master mailing list. The Excel Spreadsheet is also included on the enclosed CD. This list was further reviewed for incomplete addresses, etc. and a final mailing list of 1,988 addresses was developed. The potential contaminant source letter was mailed to the 1,988 potential contaminant sources on April 2, 2002.

A number of recipients of the potential contaminant sources letter phoned the Tacoma-Pierce County Health Department with questions or concerns about the letter. Most of the callers wanted to know if there are specific requirements that they need to follow, some called to say that their business does not handle hazardous materials, some called to say that they are already regulated through the South Tacoma Groundwater Protection District Program, and others called to say that they are already doing an excellent job in protecting the environment.

3.4 Mailing of the Regulatory Agency Notification Letter

The next step regarding the potential contaminant sources was to mail a letter to the regulatory agencies, notifying them that the identified potential contaminant sources are within the Tacoma Wellhead Protection Area. Table 3-1 shows the number of potential contaminant sources by regulatory agency. Some of the agencies don't have regulatory

jurisdiction but rather have programs that can provide assistance to the potential contaminant sources.

**Table 3-1
Number of Potential Contaminant Sources
By Regulatory Agency**

Agency	<u>Number of Sites</u>
No Regulatory Agency -	1,106 Sites
DNR -	1 Site
DOA -	9 Sites
Ecology -	1,374 Sites
PCD -	7 Sites
PCPWU -	2 Sites+
TPCHD -	1,503 Sites*
	4,002 Total Sites

DNR- Washington State Department of Natural Resources

DOA- Washington State Department of Agriculture

Ecology- Washington State Department of Ecology

PCD- Pierce Conservation District

PCPWU- Pierce County Public Works and Utilities

TPCHD- Tacoma-Pierce County Health Department

+ These two sites are Pierce County Public Works and Utilities' property and the PCPWU was notified through the Potential Contaminant Source mailing. Hence, no letter needs to be mailed regarding agency notification.

* The TPCHD does not have regulatory jurisdiction over the great majority of these sites but does have a small quantity hazardous materials education program that may be able to assist these sites in the handling and disposal of hazardous materials. The TPCHD has

regulatory jurisdiction of businesses in the South Tacoma Groundwater Protection District that handle hazardous materials and also has regulatory jurisdiction of small (less than 3,500 gallons per day) on-site sewage systems.

A mailing list, originally compiled in 1995, of the contact staff at each agency was updated and notification letters were written. Since only one potential contaminant source was identified as being regulated by the Washington State Department of Natural Resources, this site was mentioned in the notification letter. Separate lists of potential contaminant sources were developed to accompany the notification letters to the Washington State Department of Agriculture and the Pierce Conservation District. The number of potential contaminant sources regulated or guided by the Washington State Department of Ecology was so great that an electronic list, placed on a floppy disk, was provided along with the notification letter. These letters and accompanying materials were mailed in early May 2002. A copy of the letters, potential contaminant sources lists and the agency notification list are included in Appendix C.

Tacoma Wellhead Protection Program

Chapter 4

Emergency Response Notification

One action under a Wellhead Protection Program is to coordinate with local emergency responders to provide a higher level of protection within the Wellhead Protection Areas. Originally under this task, the Tacoma-Pierce County Health Department and Tacoma Water planned to hold a meeting with emergency responders to inform them of Tacoma Water's Wellhead Protection Areas and to identify alternative response actions that could better protect drinking water supplies. However, after speaking at a meeting of the Pierce County Fire Chiefs and reviewing alternative responses, it was decided instead to not hold a meeting and instead to notify the appropriate Fire Departments about Tacoma Water Wellhead Protection Areas within their jurisdiction. This decision was based upon the lack of knowledge about alternative responses and the lack of interest expressed by at least one Fire Chief about protecting Wellhead Protection Areas over other aquifer recharge areas.

4.1 Identifying the Appropriate Emergency Response Contacts

Overlaying the GIS layer of Tacoma's Wellhead Protection Areas with the GIS layer of Fire Districts (that is in *Countyview*), TPCHD staff identified the Fire Districts within each Wellhead Protection Area along with the appropriate contact for each District. It was decided to focus on the one-year time-of-travel zone since this is the most critical portion of each Wellhead Protection Area.

This work showed that the Wellhead Protection Area one-year time-of-travel zones for University Place Wells 1 and 10 are completely in Pierce County Fire District 3. The Portland Ave Well and the Tideflats Well 1 one-year time-of-travel zones are completely in the Tacoma Fire Department's District. The South Tacoma Wellfield one-year time-of-travel zones includes two Fire Districts; the northern zone is in the Tacoma Fire District and the southern zone is in both the Tacoma Fire District and Pierce County Fire District 2. The Tideflats Well 2 one-year time-of-travel zone is mostly in the Tacoma Fire District but a portion is in Pierce County Fire District 10. However, response within Fire District 10 is covered by the Tacoma Fire Department. The old Southeast Tacoma Mutual Wells, the Frederickson Well, and the Gravity Pipeline Wells one-year-time-of-travel zones are in Pierce County Fire District 6. Approximately half of the Prairie Ridge Springs one-year time-of-travel zone is in Pierce County Fire District 24 and the other half is in Pierce County Fire District 20.

4.2 Notifying the Appropriate Emergency Contacts

Color maps were developed for each of the Fire Districts showing the Tacoma Water Wellhead Protection Areas within their jurisdiction and cover letters were written, addressed to each Fire Chief. The letters and maps were sent to the Fire Districts in March 2002. Appendix D includes a copy of each letter and a black and white copy of each map.

Tacoma Wellhead Protection Program

Chapter 5

Contingency Planning-updated 2015

Tacoma Water is currently in the position such that the loss of any individual well, or even a group of wells, would not pose a significant short-term hardship nor result in loss of service to any portion of the system. Tacoma Water has developed a conjunctive use program involving use of surface and ground water sources. Water from the Green River in King County serves as the principal source of water supply with wells used primarily to meet peak demands and, to a lesser degree, address emergency situations. Tacoma Water currently can divert approximately 150 million gallons per day (MGD) of Green River water through 2 pipelines. We also have water rights for about 60 MGD of well water, for a total supply of 210 MGD. Based upon water use records, the 24-hour peak demand for the system was approximately 118 MGD and occurred in 1998. The four-day peak demand was approximately 112 MGD and also occurred in 1998. Since 1998, water conservation measures have reduced water demands on the system and peak demands have not approached the levels of 1998. Thus, Tacoma Water has adequate capacity to offset the loss of one or more wells.

In addition, Tacoma Water's extensive transmission network is interconnected allowing water to be easily shifted from one portion of the system to another. Tacoma Water's system also includes a number of reservoirs with substantial amounts of storage that could be used to help compensate for the short-term loss of any well or wells within the system. We have about 140 MG of water in 19 reservoirs and standpipes.

However, a catastrophic event could occur that would severely impair Tacoma Water's surface water supplies, which would place a substantial burden on existing wells to meet water demands for the system. In addition, Tacoma Water is cognizant of the need to have adequate supplies of drinking water available to accommodate future growth within its service area that may occur in accordance with comprehensive land use plans developed pursuant to the state's Growth Management Act (Chapter 36.70A RCW). For these reasons it is vitally important to protect the water quality and integrity of Tacoma Water's existing wells.

To assess the potential impact of the loss of any one well or a cluster of wells, Tacoma Water staff met with staff from the Tacoma-Pierce County Health Department in July 2001 to discuss the production potential, water right status, aquifer utilized, and importance of each well in the system. The following is a brief assessment of each source and its importance to the overall system. In addition, the current effort to expand

Tacoma Water's surface water capacity, as well as strategies for addressing short-term and long-term interruptions in the availability of a well or wells are discussed.

5.1 Brief Summary of Each Well

South Tacoma Wellfield

The South Tacoma Wellfield consists of 14 high yield wells located west of Interstate 5 in a north-south axis between approximately Center Street and 34th Street South. A summary of data concerning each well is provided in Table 1.

Tacoma Well 6B (Source Number 19, Ecology Tag Number ABS706): This well draws from the Shallow Aquifer and has a capacity of 4.2 million gallons per day (MGD). This is one of the most important wells for Tacoma Water and is located quite close to another important well, Well 11A.

Tacoma Well 11A (Source Number 24, Ecology Tag Number ABM921): This well draws from the Shallow Aquifer and has a capacity of 8.3 MGD. Together with Well 6A, these wells provide about 17% of the total ground water available to Tacoma Water. Although the loss of these two wells could be made up by using a combination of other wells, Well 6A and Well 11A are the most important wells from a production standpoint, and both wells are rated by the Washington Department of Health (DOH) as having high susceptibility to contamination. Thus, they should receive the majority of the focus for Wellhead Protection activities.

Tacoma Well 9A (Source Number 22, Ecology Tag Number ABS707): This well draws from the Shallow Aquifer and has a capacity of 4.5 MGD. Well 9A is used as an emergency well only due to organoleptic considerations. In addition, this well is somewhat impacted by the Time Oil site contamination.

Tacoma Well 2B (Source Number 15, Ecology Tag Number ABR905): This well draws from the Shallow Aquifer and has a capacity of 2.0 MGD. As with Well 9A, Well 2B is used as an emergency well due to taste and odor considerations. Water from Well 2B is also high in chlorides. A fuel leak that occurred at the nearby Old Nalley's plant could potentially affect Wells 2B and 2C.

Tacoma Well 2C (Source Number 46, Ecology Tag Number AAS246): This well draws from the deep aquifer and has a capacity of 2.9 MGD. This well is an emergency well due to water quality issues. This well is next to 2B.

Tacoma Well 12A (Source Number 25, Ecology Tag Number ABS708): This well draws from the Shallow Aquifer and has a capacity of 4.3 MGD. Well 12A is operated mainly as a blocking well to prevent ground water contamination from the Time Oil site from reaching the other wells in the South Tacoma Wellfield.

Tacoma Well 14A (Source Number 99, Ecology Tag Number ABM930): This well draws from the Sea Level Aquifer and has a capacity of 3.8 MGD. There is a water right for this well but the well has never been used and does not have a pump. This well is available for use if problems arise in other wells.

Tacoma Well 4A (Source Number 17, Ecology Tag Number ABM922): This well draws from the Shallow Aquifer and has a capacity of 0.8 MGD.

Tacoma Well 5A (Source Number 18, Ecology Tag Number ABS705): This well is completed in both the Shallow and the Sea Level Aquifers, but the shallow openings have been sealed off. The well has a capacity of 6.5 MGD and, from a production standpoint, is the third most important well in the South Tacoma Wellfield, after wells 11A and 6A. This is an efficient well with good water quality. Wellhead Protection efforts should also focus on this well, although since it draws from the Sea Level Aquifer and has been assigned only a moderate susceptibility rating by DOH, it should have more natural protection than Wells 11A and 6A.

Tacoma Well 1B (Source Number 14, Ecology Tag Number ABE651): This well is completed in the Sea Level Aquifer and has a capacity of 4.0 MGD. Well 1B is relied upon regularly on a seasonal basis and is very efficient.

Tacoma Well 8B (Source Number 21, Ecology Tag Number ABM920): This well draws from the Sea Level Aquifer and has a capacity of 4.2 MGD. Well 8B is less efficient than Well 1B but is comparable from a production standpoint.

Tacoma Well 13A (Source Number 26, Ecology Tag Number ABM918): This well draws from the Deep Aquifer and has a capacity of 1.1 MGD. Well 13A is seldom used.

Tacoma Well 7B (Source Number 20, Ecology Tag Number ABR904): This well draws from the Sea Level Aquifer and has a capacity of 1.4 MGD. Well 7B is seldom used.

Tacoma Well 10C (Source Number 23, Ecology Tag Number ABM919): This well draws from the Shallow Aquifer and has a capacity of 0.8 MGD. This is an efficient well, but produces a relatively small volume of water. The loss of this well could easily be covered. 10C is also used to provide unfluoridated water at the well site.

Tacoma Well 3A (Source Number 16, Ecology Tag Number ABM917): This well is completed in both the Shallow and the Sea Level Aquifers, but openings in the shallow aquifer have been sealed off. This well has a capacity of 4.1 MGD and is similar in production and efficiency to Well 1B.

When examining clusters of wells, the cluster of greatest importance is the grouping of Wells 6A and 11A. If these two wells were lost for a few weeks, loss in production could be made up using the "next well in line approach" that is currently being employed by Tacoma Water. However, if these wells were lost for a long period of time, then it would be necessary to look at the cost of repairing or providing treatment for the wells compared with putting hardware into Well 14A and using other wells that are usually not in service. The problem would be more of an economic issue than a shortage of supply.

One other cluster of wells that may be worth considering is the group of wells in the south end of the wellfield that are utilizing the Sea Level Aquifer. Wells 3A, 7B, 8B, and 1B are within one mile of each other and have a combined capacity of 13.7 MGD. If Well 5A were also to be included in the cluster (the distance between all the wells is less than two miles), then the combined capacity would be 20.2 MGD. Although the Sea Level Aquifer has better natural protection than the Shallow Aquifer, this is somewhat offset by the fact that most of the Shallow Aquifer wells are farther north and receive greater protection from contaminant source control programs associated with the South Tacoma Ground Water Protection District. Hence, the six-month and one-year time of travel zones for the Sea Level wells is not as intensively managed to prevent pollution from occurring as are those of wells tapping the Shallow Aquifer. The loss of wells 3A, 7A, 8B, 1B, and 5A could still be addressed without developing new wells or obtaining water from neighboring water systems, but would have a substantial detrimental effect on the flexibility that Tacoma Water currently has for producing water in a cost-effective manner.

Wells Outside of the South Tacoma Wellfield

In addition to the South Tacoma Wellfield, Tacoma Water operates a number of other wells in various portions of its service area, including:

- Southeast of the City of Tacoma,
- South of Puyallup near Tacoma Water's gravity pipeline,
- The City of University Place,
- Near the Portland Avenue Reservoir,
- The Frederickson industrial area, and
- The Tacoma Tideflats.

Pertinent information on each of the wells located outside of the South Tacoma Wellfield is provided in Table 2. The wells are discussed individually below.

Southeast Tacoma Mutual Water System Wells: The SE Tacoma wells are Source 2 (ACM798), Source 6 (AEA465), Source 8 (AEF207), Source 11 (ACN731), and Source 11A (AEA461) operate as part of Tacoma Water. These wells are plumbed into the existing system. Tacoma Water has evaluated each of the wells to determine their true potential (SE-2 at 0.5 MGD, SE-6 at 0.9, SE-8 at 0.7, SE-11 at 1.4 and SE-11A at 0.9, for a total of 4.4 MGD). If any or all of these wells are rendered unusable due to contamination, it would not have a significant impact on Tacoma Water's ability to

supply water to the former Southeast Tacoma Mutual service area.

Gravity Pipeline Well 1 (Source 12, Ecology Tag Number ACN710) and Gravity Pipeline Well 2 (Source 13, Ecology Tag Number ACN709): Both of these wells draw from the Sea Level Aquifer, with well 1 having a capacity of 4.2 MGD and well 2 having a capacity of 3.8 MGD. These wells are only used at peak times and are pumped into the high pressure of the gravity pipeline. They are not used locally so their loss would be fairly easily made up using the "next most efficient well in line approach."

UP -10 Well (Source Number 8, Ecology Tag Number ABM927): This well, located in the City of University Place, draws from the Sea Level Aquifer and has a capacity of 2.1 MGD. This is an emergency backup well and is not currently in use.

UP -1 Well (Source Number 11, Ecology Tag Number ABM926): This well, also located in the City of University Place, draws from the Shallow Aquifer and has a capacity of 1.6 MGD. This well pumps directly into the distribution system for the local residential area, but the area is also served by the gravity pipeline. The well is only used in the summer on an as needed basis, and the water would fairly easily be made up if the well were lost.

Portland Avenue Well (Source Number 10, Ecology Tag Number ACN711): This well draws from the Deep Aquifer and has a capacity of 1.7 MGD. Water from this well is pumped directly into the Portland Avenue Reservoir. The quality of water from this well is impaired due to moderate concentrations of arsenic. This well is used only at peak times, and the loss of this water could easily be covered.

Fredrickson Well (Currently No Source Number, Ecology Tag Number ACN702): This well draws from the Sea Level Aquifer and has a potential capacity of 1.4 MGD. This well is not currently in use, and there is no pump in the well. The importance of this well has greatly diminished as a result of the recent completion of the second transmission line to Fredrickson (a 24-inch diameter line). As a consequence, its loss would not be significant.

Tideflats Well 1 (Source Number 9, Ecology Tag Number ACN703): This well draws from the Deep Aquifer and has a capacity of 1.0 MGD. This well is an emergency backup well and is not currently in use.

Tideflats Well 2 (No Source Number Yet, Ecology Tag Number ABM929): This well draws from the Deep Aquifer and has a potential capacity of 1.9 MGD. This well is not currently in use and there is no pump in the well.

5.2 Effect of Additional Surface Water Supplies on Contingency Planning

Tacoma Water's existing diversion of the Green River currently can provide approximately 150 MGD of surface water to Tacoma Water's service area.

The completion of constructing a second diversion of the Green River and associated pipelines conveys an additional 65 MGD of surface water to the central and southern Puget Sound region. This water will be apportioned among Tacoma Water and a number of other purveyors within the region. Tacoma Water has available approximately an additional 22 MGD for use within Tacoma Water's service area.

With the construction of the second diversion, the importance of Tacoma Water's wells relative to the overall capacity of the system has diminished. Also, there will be more storage than is currently available. If demand remains relatively static, Tacoma Water expects to use less well water in 2016 than it uses today. It is important to note, however, that the water right for the second diversion is conditioned on the ability to meet established instream flows on the Green River. Operation of the second diversion would be curtailed when flow in the river cannot be maintained at or above minimum instream flows. Thus, during drought years, such as 2015, Tacoma Water's wells would still be a vital part of its water supply system.

5.3 Strategies for Addressing Short-Term Interruptions

In general, Tacoma Water's contingency plan for the short-term loss of a well is to use the next most cost effective well or group of wells in the system. Tacoma Water has identified the costs associated with production from each well and generally uses the wells that are the least expensive to operate on a marginal cost of production basis. If a well is out of service for a short time, Tacoma Water will then use the next most cost effective well to make up the loss. Another tool that may be used to address a short-term loss is to utilize water in one of the many reservoirs.

5.4 Strategies for Addressing Long-Term Interruptions

If a well or multiple wells are lost for an extended period of time, other existing wells may be used, following the approach described above. However, if the loss is too great to cover by the "next most efficient well in line approach," there are four additional tools available:

- 1) Install pumps and begin using the Tideflats Well 2 (ABM929), the Fredrickson Well (ACN702), and/or South Tacoma Well 14A (ABM930). The total potential production from these three wells is 7.1 MGD.
- 2) Treat the polluted water such that it again meets drinking water standards. The cost and feasibility of this tool is highly variable and depends upon the type and extent of contamination. One example is provided in Section 7.3 of the South Tacoma Wellhead Protection Program, Volume 1 (EES 1996).
- 3) Drill new production wells. This tool is discussed in Section 7.4 of the South Tacoma Wellhead Protection Program, Volume 1 (EES 1996).

Well Head Protection Program

Production Well Identification and Data Summary

Updated in 2015

South Tacoma Well Field

Well #	Street Address	DOH, ID #	Susceptibility Rating	Production Capacity (MGD)	Type of Use
1B	3102 S. 63rd St.	S-14	Low	4	Seasonal
2B	3452 S. 35th St.	S-15	Unknown	2	Emergency
2C	3452 S. 35th St.	S-46	Unknown	2.9	Emergency
3A	7815 S. Warner St.	S-16	Low	4.1	Seasonal
4A	3816 S. Tacoma Way	S-17	Low	0.8	Seasonal
5A	3251 S. 56th St.	S-18	Moderate	6.5	Seasonal
6B	4331 S. Tacoma Way	S-44	High	4.2	Seasonal
7B	7402 S. Cedar St.	S-20	Low	1.4	Seasonal
8B	6700 S. Clement St.	S-21	Moderate	4.2	Seasonal
9A	3615 S. Lawrence St.	S-22	Unknown	4.5	Emergency
10C	7440 S. Cedar St.	S-23	High	0.8	Seasonal
11A	4315 S. Tacoma Way	S-24	High	8.3	Seasonal
12A	3542 S. Pine St.	S-25	High	4.3	Seasonal
13A	7420 S. Cedar St.	S-26	Low	1.1	Seasonal

Wells Outside of South Tacoma Well Field

Prairie Springs	13117 Spring Site Rd. E.	S-04	High	0.8	
GPL #1	11302 E. Pipeline Rd.	S-12	Low	4.2	Seasonal
GPL #2	11302 E. Pipeline Rd.	S-13	Low	3.8	Seasonal
UP #1	3516 Crestview Dr. W.	S-11	Moderate	1.6	Seasonal
UP #10	4707 95th Ave. W.	S-08	Unknown	2.1	Emergency
PA #1	3702 E. M St.	S-10	Low	1.7	Seasonal
NF #1	North Fork Well Field	S-06			
NF #2	North Fork Well Field	S-06			
NF #3	North Fork Well Field	S-06			
NF #4	North Fork Well Field	S-06			
NF #5	North Fork Well Field	S-06			
NF #6	North Fork Well Field	S-06			
NF #7	North Fork Well Field	S-06			
Tide Flats #1	1167 Taylor Way	S-09	Unknown	1	Emergency
Treatment Plant	36932 Greenriver Headworks Rd.	S-45	Low		Full Time
SE 2 & 6	1117 90th St. E.	S-27	Low	SE #2-.5 / SE #6-.9	Seasonal
SE 11 & 11A	1190 103rd St. E.	S-36	Low	SE #11-1.4 / SE #11A-.9	Seasonal
SE 8	1614 99th St. E.	S-34	Low	0.7	Seasonal

Tacoma Wellhead Protection Program

Chapter 6

Monitoring Plan Recommendations

Tacoma Water established a water quality monitoring program in South Tacoma in the early 1990s to provide early detection of ground water contamination. The intent of the monitoring program is to identify possible problems in a timely manner that should allow the problem to be addressed before it can impact a drinking water well.

Along with assistance in the development of the Tacoma Wellhead Protection Program, Tacoma Water requested the Tacoma-Pierce County Health Department (TPCHD) to review the monitoring program and provide recommendations to make the program a more effective tool for wellhead protection. TPCHD staff reviewed the monitoring recommendations in the report, *South Tacoma Wellhead Protection Program* (BES 1996), reviewed the current monitoring program schedule, and reviewed results collected. Based upon this review, it appears that the monitoring program in general should provide an early warning system for the South Tacoma drinking water wells. However, the recommendations described below, if implemented, could improve program effectiveness and efficiency.

6.1 Recommended Investigation Needs-updated 2015

Primary Investigation Needs-Updated 2015

- After talking to Pierce County Department of Health we have decided to add tests for Petroleum, Diesel and Gas. These contaminants are the biggest spills they respond to. First results found no problems.
- After talking to Pierce County Department of Health we are taking IOC's at every sampling period instead of every other. This will give us a better baseline for both sampling periods.

Secondary Investigation Needs-updated 2015

- The average nitrate level across Pierce County is slightly under 0.5 mg/L. Continue to monitor closely due to finding of nitrates even though most of Tacoma has been on sewer for years.

6.2 . Recommended Monitoring System Configurational Changes

- The monitoring results for the closest Tacoma Landfill wells and South Tacoma Superfund Site wells should be incorporated, if the information is readily available, into the water quality monitoring program. As a first step, the relationship between the monitoring wells and the production wells should be identified. This would greatly increase the spatial coverage of the monitored area without any additional sampling costs. If the landfill and Superfund well data can be utilized, and if it includes VOC results, then sampling at Monitoring Well 89.5 should not be necessary. If the landfill well data can not be utilized, then 89.5 should continue to be sampled in the spring prior to significant use of the South Tacoma Wellfield and again late in the pumping season.
- It would be helpful to incorporate the routine water quality sampling results collected to meet DOH requirements from the following wells:

Lakewood Well S11 (156' deep)	ABS159
Laurel Lane MH Park SO1 (108' deep)	ACV533
Carriage Court Trailer Ct SO1 (82' deep)	ABS717
Mount Tacoma Trailer Park SO1 (95' deep)	ACN763
Mount Tacoma Trailer Park S02 (105' deep)	AFK815
Mount Tahoma Baptist Church SO1 (depth unknown)	AEF398
- The locations of some of the monitoring wells are not ideal for an early warning system. For example, although Monitoring Well 92.1 is an important well, it is located too close to Wells 11A and 6A to provide sufficient reaction time if problems are identified. On the other hand, Monitoring Well 92.7 appears to be outside of the outwash channel and probably doesn't accurately represent downgradient water quality conditions for the production wells. Water quality sampling of Well 92.7 probably is not necessary.

6.3 Recommended Routine Operational Changes-Updated 2015

- Bacterial sampling for Monitoring Wells 92.2, 92.3, 92.4, and 92.6 could be eliminated since these wells are outside of the one-year time of travel zone for the South Tacoma Wellfield. In general, bacterial contamination of ground water is a concern primarily in the one-year time of travel zone

- When results are received, continue to review to make sure that all values are below the MCLs. If any results are above the MCLs, then a) investigate to determine why, and b) estimate the potential time frame for the contaminant to reach the closest production well. If the well does not belong to Tacoma Water, then Tacoma Water and the Pierce County Department of Health should work with the well owner to identify the source(s) of contamination.
- At the end of each year, continue to run trend analyses for the parameters monitored. If a possible trend is noted, then further investigate.
- The conventional water quality results (temperature, pH, etc.) should continue to be included in the electronic database to make this information readily available for future analyses.
- The monitoring frequency for Monitoring Wells 92.4 and 92.6 could be reduced to every other year for VOCs, conventional parameters, and for nitrates (as per recommendation #2, the bacterial sampling could be eliminated). Neither well has shown a VOC problem in the past and both are approximately two years away (based upon the WHPA delineation) from the nearest production well.

Tacoma Wellhead Protection Program

Chapter 7

Next Steps

The work conducted under the current Wellhead Protection project has brought Tacoma Water into compliance with Washington State Wellhead Protection Program requirements. However, the Tacoma Wellhead Protection Program is an important tool for drinking water protection and needs to continually evolve as further information becomes available. This chapter identifies the necessary steps that Tacoma Water needs to continue to take to keep the Tacoma Wellhead Protection Program in compliance with Washington State Wellhead Protection Program requirements. This chapter also includes recommended steps that Tacoma Water needs to continue to take to improve the Tacoma Wellhead Protection Program along with possible activities that the Tacoma-Pierce County Health Department does perform, when funding is available, to increase the effectiveness of the Tacoma Wellhead Protection Program.

7.1 Necessary Activities for Tacoma Water

There are two basic steps that Tacoma Water needs to accomplish to keep the Tacoma Wellhead Protection Program in compliance with Washington State Wellhead Protection Program requirements. The first step is to consult with the Washington State Department of Health (DOH) to determine which wells, if any, will require more sophisticated delineation (than the Calculated Fixed Radius Method) of their Wellhead Protection Area. One well in particular that may benefit from a more sophisticated, and hence more accurate, delineation method is UP-1, which has been ranked by DOH as being moderately susceptible to contamination. This well is also of concern to the City of University Place since a number of residences in the immediate vicinity are served by on-site sewage systems.

The second step is for Tacoma Water to update the potential contaminant source inventory in 2015 and every two years thereafter. This is accomplished by having Tacoma Water staff conduct windshield surveys. The windshield surveys may be conducted in conjunction with other staff responsibilities, such as meter reading or cross connection inspections. Due to the extremely large size of the ten-year time-of-travel zones for the South Tacoma Wellhead Protection Area and the Southeast Tacoma Mutual Wellhead Protection Area, Tacoma Water may want to consult with DOH on performing a modified potential contaminant source inventory in these areas. One possible approach would be to conduct windshield surveys within the one-year or five-year time-of-travel zone and then do an updated computer scan for potential sources out to the ten-year time-of-travel zone.

7.2 Recommended Next Steps for Tacoma Water-Updated 2015

There are two general steps that Tacoma Water could take to improve the effectiveness of the Tacoma Wellhead Protection Program. The first step would be to continue to implement the monitoring plan recommendations listed in Chapter 6, especially the primary investigation needs and the recommended routine operational changes. The second step would be for Tacoma Water to develop a closer relationship with other City of Tacoma departments and divisions. Tacoma Water could establish yearly meetings with the appropriate departments (Sewer Utility, Stormwater Utility, Solid Waste Utility, Planning Department, and Fire Department) to discuss common issues and activities. This would require minimal effort on the part of Tacoma Water and could help with emergency response coordination, potential contaminant source identification, and land use management in the South Tacoma Wellfield, the Tideflat wells, and the Portland Avenue well Wellhead Protection Areas.

7.3 Possible Activities that Could be Conducted by the Tacoma-Pierce County Health Department

There are a number of tasks that the TPCHD could perform to enhance the Tacoma Wellhead Protection Program. Some tasks would be for a short period, whereas other proposed tasks would need to be ongoing. Additionally, some of the tasks would be of benefit only to the Tacoma Wellhead Protection Program and other tasks could benefit purveyors on a countywide basis. The following summary provides a brief description of several potential tasks.

1) Identify/Coordinate Local Inspection Programs

Several local programs inspect businesses handling hazardous materials. These programs include: City of Tacoma Solid Waste Utility (solid waste inspections), City of Tacoma, Sewer Utility (pretreatment inspections), City of Tacoma Stormwater Utility (re: NPDES stormwater permit), local fire departments (fire code compliance), Pierce County Sewer Utility (pretreatment inspections), Pierce County Water Programs (re: NPDES stormwater permit), and the TPCHD's South Tacoma Groundwater Protection District (hazardous materials/waste)

This task would involve, at a minimum, coordinating several meetings of these programs to identify: (1) businesses inspected by each program; (2) what groundwater protection measures, if any, are incorporated into each inspection program; (3) what groundwater protection measures can be voluntarily incorporated into existing programs; and, (4) businesses within the Tacoma Wellhead Protection Areas that aren't being inspected but, from a groundwater protection perspective, should be. The information gathered would then be reviewed to determine the utility of existing programs and the possible need for additional business outreach efforts.

This would be a one-time task that would provide benefit to many of the purveyors in Pierce County as well as Tacoma Water.

2)Enhanced EnviroStars Program in the Tacoma Wellhead Protection Areas

The TPCHD currently has a very limited EnviroStars Program. EnviroStars is a regional business recognition program; business demonstrating outstanding hazardous materials and hazardous waste management practices receive awards and free marketing. EnviroStar status is confirmed with annual visits.

The program currently provides modest levels of service on a countywide basis, but could be expanded to include focussed efforts within the South Tacoma Groundwater Protection District (STGPD) or throughout the Tacoma Wellhead Protection Areas. Expansion of the program within the STGPD area could include an incentive program such as reducing fees or inspections for businesses qualifying as EnviroStars. This would be an ongoing program and the benefit would be primarily to the Tacoma Wellhead Protection Program, although there would be some benefit to those purveyors whose Wellhead Protection Areas overlap with Tacoma's.

3)Assist Public Education Regarding the Tacoma Wellhead Protection Program

The Washington State Department of Health strongly promotes educational efforts to inform communities about Wellhead Protection. In 1996, Tacoma Water developed and distributed a Wellhead Protection brochure that described the South Tacoma Groundwater Protection District but hasn't developed additional educational efforts.

Under this task, the TPCHD would assist Tacoma Water in educational efforts to promote the Tacoma Wellhead Protection Program. This could include-but not be limited to-developing a display, newspaper articles and advertisements; participating in community events and business outreach; and, providing information for Tacoma Water and TPCHD websites. In addition, the benefits and costs of developing and posting Wellhead Protection signs would be investigated. This would be a one-time task and would provide benefit mainly to Tacoma Water.

4)Abandoned Underground Storage Tank Project

Data demonstrates that leaking underground storage tanks (LUSTs) have caused extensive soil and ground water contamination at locations throughout Pierce County. A reasonable conclusion is that the remaining underground storage tanks (USTs) pose an ongoing threat to groundwater. This task would review historical records, such as phone books, maps, and photographs, to identify properties on which historical USTs are likely located. Sites would be confirmed whenever possible via observation or instrumentation. The owners/operators of confirmed sites would be contacted and referred to the TPCHD's UST or Site Hazardous Assessment (SHA) Program and to Ecology's UST Program. The sites would also be mapped as a GIS layer. This would be a one-time task

and would provide benefit to all of the purveyors in Pierce County (if conducted on a county-wide basis).

5)Coordinate Monitoring to Provide an Early Warning System

In the review of Tacoma Water's Monitoring Program for the South Tacoma Wellfield, it was noted that there are nearby wells of other water systems that could serve as an early warning system to detect contaminants before they reach Tacoma's production wells. This review process could also be conducted for other Tacoma Water wells. The review for each well would consider the direction of ground water flow (if known), the modeled one-year time-of-travel zone, and the aquifer utilized for each well and then determine which, if any, Group A, Group B or individual wells could serve as an early warning for possible contamination of the Tacoma well. Once the early warning wells were identified, the well owners would be contacted and requested to share their water quality data with Tacoma Water (this could also include notifying the purveyors identified for the South Tacoma Wellfield). If any Tacoma wells were identified through the review as providing an early warning benefit to the other purveyors, Tacoma's water quality data would be offered to these purveyors. This is a one- time task and would provide benefit mainly to Tacoma Water.

6)Formulate Possible Alternative Responses to Spills/Fires in Tacoma Wellhead Protection Areas

This task would research the alternative responses to hazardous material spills and to fires, and then develop a list of the responses for possible use in Tacoma Wellhead Protection Areas. Following compilation of the list of alternative responses, a meeting or series of meetings would be held with the appropriate emergency responders to identify those alternative responses that best fit local needs. This would be a one-time task and would provide benefit mostly to Tacoma Water, although other purveyors could also benefit.

7)Maintain and Update the Electronic Database of Potential Contaminant Sources

The Access database of potential contaminant sources provided an excellent starting point for conducting the inventory of potential contaminant sources. This database could be refined and updated to serve as the basis for future inventory work (given the DOH requirement that an inventory of potential contaminant sources be conducted every two years). There are several approaches to accomplishing this work, each with different costs and benefits. One approach would be to purchase an updated electronic yellow pages directory every two years, if available, and combine this information with updates from other reference sources. Another approach, potentially in conjunction with the previous approach, would be to coordinate with business licensing departments and update the database as new business licenses are issued. This task would be ongoing and could probably be conducted on a countywide basis just as easily as looking only at the Tacoma Wellhead Protection Areas.

8) Tacoma-Pierce County Wellhead Protection Committee

In the mid-1990s, local purveyors worked together on a regional approach to Wellhead Protection (Adolfson Associates, Inc. 1996), with the Pierce County Regional Water Association and the City of Tacoma providing funds, along with the Department of Ecology, for the Pierce County Wellhead Protection Implementation Strategies Project. Since that time, Wellhead Protection has been approached in an essentially piecemeal fashion, with each purveyor and each local jurisdiction working independently on their Wellhead Protection Program or their management strategies.

However, there could be significant benefit in continuing with a regional approach- especially on issues such as education/marketing and management of Wellhead Protection Areas. Under this task, a Wellhead Protection Committee would be formed and would meet periodically to coordinate educational and management efforts and, possibly, emergency responder interactions. This would be an ongoing task and would provide benefit to all purveyors in Pierce County.

Tacoma Wellhead Protection Program

Chapter 8

References

Pierce County Wellhead Protection Implementation Strategies Project, Final Report.
Prepared by Adolfson Associates, Inc. for the Tacoma-Pierce County Health Department.
October 1996.

South Tacoma Wellhead Protection Program, Volumes 1 and 2. Prepared by Economic
and Engineering Services, Inc., Carr/Associates, and Adolfson and Associates, Inc. for
Tacoma Water. July 1996.

Washington State Wellhead Protection Program Guidance Document, DOH Publication #
331-018. Washington State Department of Health. April 1995.

Appendix A

Susceptibility Assessments

Well Head Protection Program

Production Well Identification and Data Summary

Updated in 2015

South Tacoma Well Field

Well #	Street Address	DOH, ID #	Susceptibility Rating	Production Capacity (MGD)	Type of Use
1B	3102 S. 63rd St.	S-14	Low	4	Seasonal
2B	3452 S. 35th St.	S-15	Unknown	2	Emergency
2C	3452 S. 35th St.	S-46	Unknown	2.9	Emergency
3A	7815 S. Warner St.	S-16	Low	4.1	Seasonal
4A	3816 S. Tacoma Way	S-17	Low	0.8	Seasonal
5A	3251 S. 56th St.	S-18	Moderate	6.5	Seasonal
6B	4331 S. Tacoma Way	S-44	High	4.2	Seasonal
7B	7402 S. Cedar St.	S-20	Low	1.4	Seasonal
8B	6700 S. Clement St.	S-21	Moderate	4.2	Seasonal
9A	3615 S. Lawrence St.	S-22	Unknown	4.5	Emergency
10C	7440 S. Cedar St.	S-23	High	0.8	Seasonal
11A	4315 S. Tacoma Way	S-24	High	8.3	Seasonal
12A	3542 S. Pine St.	S-25	High	4.3	Seasonal
13A	7420 S. Cedar St.	S-26	Low	1.1	Seasonal

Wells Outside of South Tacoma Well Field

Prairie Springs	13117 Spring Site Rd. E.	S-04	High	0.8	
GPL #1	11302 E. Pipeline Rd.	S-12	Low	4.2	Seasonal
GPL #2	11302 E. Pipeline Rd.	S-13	Low	3.8	Seasonal
UP #1	3516 Crestview Dr. W.	S-11	Moderate	1.6	Seasonal
UP #10	4707 95th Ave. W.	S-08	Unknown	2.1	Emergency
PA #1	3702 E. M St.	S-10	Low	1.7	Seasonal
NF #1	North Fork Well Field	S-06			
NF #2	North Fork Well Field	S-06			
NF #3	North Fork Well Field	S-06			
NF #4	North Fork Well Field	S-06			
NF #5	North Fork Well Field	S-06			
NF #6	North Fork Well Field	S-06			
NF #7	North Fork Well Field	S-06			
Tide Flats #1	1167 Taylor Way	S-09	Unknown	1	Emergency
Treatment Plant	36932 Greenriver Headworks Rd.	S-45	Low		Full Time
SE 2 & 6	1117 90th St. E.	S-27	Low	SE #2-.5 / SE #6-.9	Seasonal
SE 11 & 11A	1190 103rd St. E.	S-36	Low	SE #11-1.4 / SE #11A-.9	Seasonal
SE 8	1614 99th St. E.	S-34	Low	0.7	Seasonal

WELLHEAD PROTECTION

PRODUCTION WELLS IDENTIFICATION

WELL #	STREET ADDRESS	D.O.H., ID#	D.O.E., ID#
1B	3102 S. 63rd Street	S14	ABE651
2B	3452 S. 35th Street	S15	ABR905
3A	7815 S. Warner Street	S16	NONE
4A	3816 S. Tacoma Way	S17	NONE
5A	3251 S. 56th Street	S18	ABS705
6A	4331 S. Tacoma Way	S19	ABS706
7B	7402 S. Cedar Street	S20	ABR904
8B	6700 S. Clement Street	S21	NONE
9A	3615 S. Lawrence Street	S22	ABS707
10C	7440 S. Cedar Street	S23	NONE
11A	4315 S. Tacoma Way	S24	NONE
12A	3542 S. Pine Street	S25	ABS708
13A	7420 S. Cedar Street	S26	NONE
Prairie Ridge		S04	?
GPL#1	11302 E. Pipeline Road	S12	NONE
GPL#2	11302 E. Pipeline Road	S13	NONE
TIDE FLATS	1167 Taylor Way	S09	?
UP-1	3516 Crestview Drive W.	S11	?
UP-10	4707 95th Avenue W.	S08	?
PA-1	3702 E. M Street	S10	NONE
NF-1	North Fork Wells Field	S06	?
NF-2	North Fork Wells Field	S06	?
NF-3	North Fork Wells Field	S06	?
NF-4	North Fork Wells Field	S06	?
NF-5	North Fork Wells Field	S06	?
NF-6	North Fork Wells Field	S06	?
NF-7	North Fork Wells Field	S06	?
DASH POINT #1	2801 53rd Street N.E.	S05	NONE
DASH POINT #2	2801 53rd Street N.E.	S05	NONE
DASH POINT #3	2801 53rd Street N.E.	S05	NONE

Post-It® Fax Note	7671	Date	6/28/96	# of pages	1
To	Mike Cochran	From	KHIS		
Co./Depl.		Co.			
Phone #	546-2871	Phone #	502-8214		
Fax #	591-7663	Fax #	502-7694		

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

IMPORTANT!

Please complete one form for each ground water source
(well, wellfield, spring) used in your water system.
Photocopy as necessary.

Division of Drinking Water
Department of Health

JAN 10 1995

RECEIVED

PART I: System Information

Well owner/manager: City of Tacoma

Water system name: Tacoma Water System

County: Pierce

Water system number: 86800N

Source number: S08

Well depth: 342 (ft.) (From WFI form)

Source name: IOU

WA well identification tag number: _____

_____ well not tagged

Number of connections: 78,000 Population served: 262,500

Township: 20N Range: 02E

Section: 21 1/4 1/4 Section: NE/NW

Latitude/longitude (if available): _____/_____

How was lat./long. determined?

_____ global positioning device _____ survey _____ topographic map
_____ other: _____

* Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: 2 / 10 / 67 month/day/year

last reconstruction: _____ / _____ / _____ month/day/year

_____ information unavailable

342
No Seal
Confined

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 3.34 (gallons) MGY Ave.
Range 0-16.7

How was this determined?

X meter

estimated: _____ pumping rate (_____)

_____ pump capacity (_____)

_____ other: _____

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

6 month ground water travel time :	<u>220</u> (ft)	0.11
1 year ground water travel time :	<u>310</u> (ft)	0.155
5 year ground water travel time:	<u>700</u> (ft)	0.35
10 year ground water travel time:	<u>980</u> (ft)	0.49

Information available on length of screened/open interval?

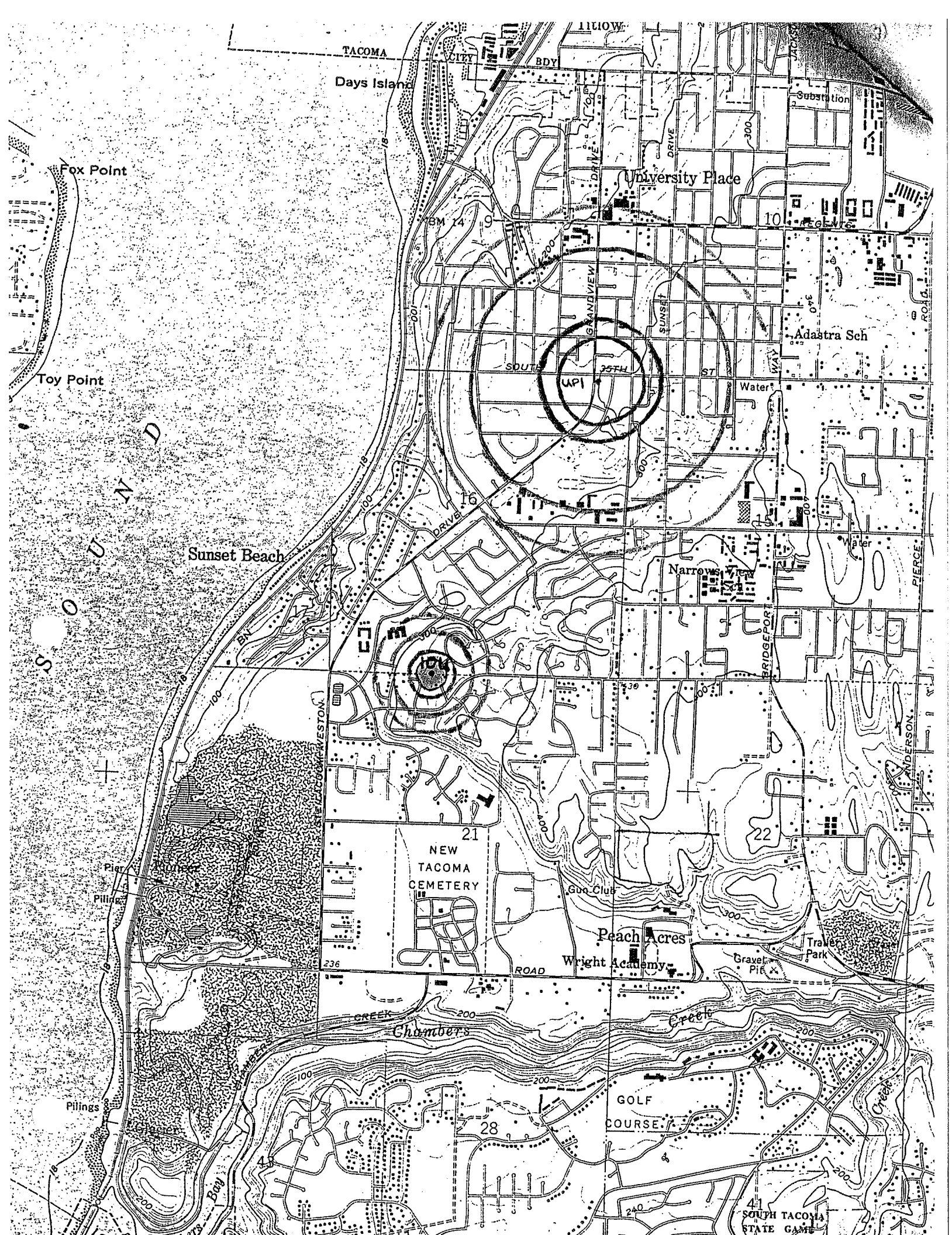
X YES NO

Length of screened/open interval: 14 (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? YES / (NO) (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / (NO) (mark and identify on map).

Comments: _____



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All Rights Reserved

THE

CURR

CURR

[illegible]

1

102

**Ground Water Contamination
Susceptibility Assessment Survey Form**
Version 2.1

IMPORTANT!

Please complete one form for each ground water source
(well, wellfield, spring) used in your water system.
Photocopy as necessary.

Department of Health
Division of Drinking Water

JAN 10 1995

RECEIVED

PART I: System Information

Well owner/manager : City of Tacoma

Water system name : Tacoma Water System

County: Pierce

Water system number: 86800N

Source number: S11

Well depth: 180 (ft.) (From WFI form)

Source name: U.P. No. 1 (University Place Well)

Q3

WA well identification tag number: _____

☒ well not tagged

Number of connections: 78,000 Population served: 262,500

Township: 20N Range: 02E

Section: 16 1/4 1/4 Section: NE/NE

Latitude/longitude (if available): _____/_____

How was lat./long. determined?

_____ global positioning device _____ survey _____ topographic map
_____ other: _____

* Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: 4 / 30 / 86 month/day/year

last reconstruction: _____ / _____ / _____ month/day/year

_____ information unavailable

180'
not Conf.
18' seal
16' open

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 40.306 ^{MG} (gallons) Average
Range 0-77 MGY

How was this determined?

X meter

___ estimated: ___ pumping rate (_____)

___ pump capacity (_____)

___ other: _____

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

6 month ground water travel time :	<u>700</u> (ft)	0.35
1 year ground water travel time :	<u>980</u> (ft)	0.49
5 year ground water travel time:	<u>2200</u> (ft)	1.1
10 year ground water travel time:	<u>3110</u> (ft)	1.55

Information available on length of screened/open interval?

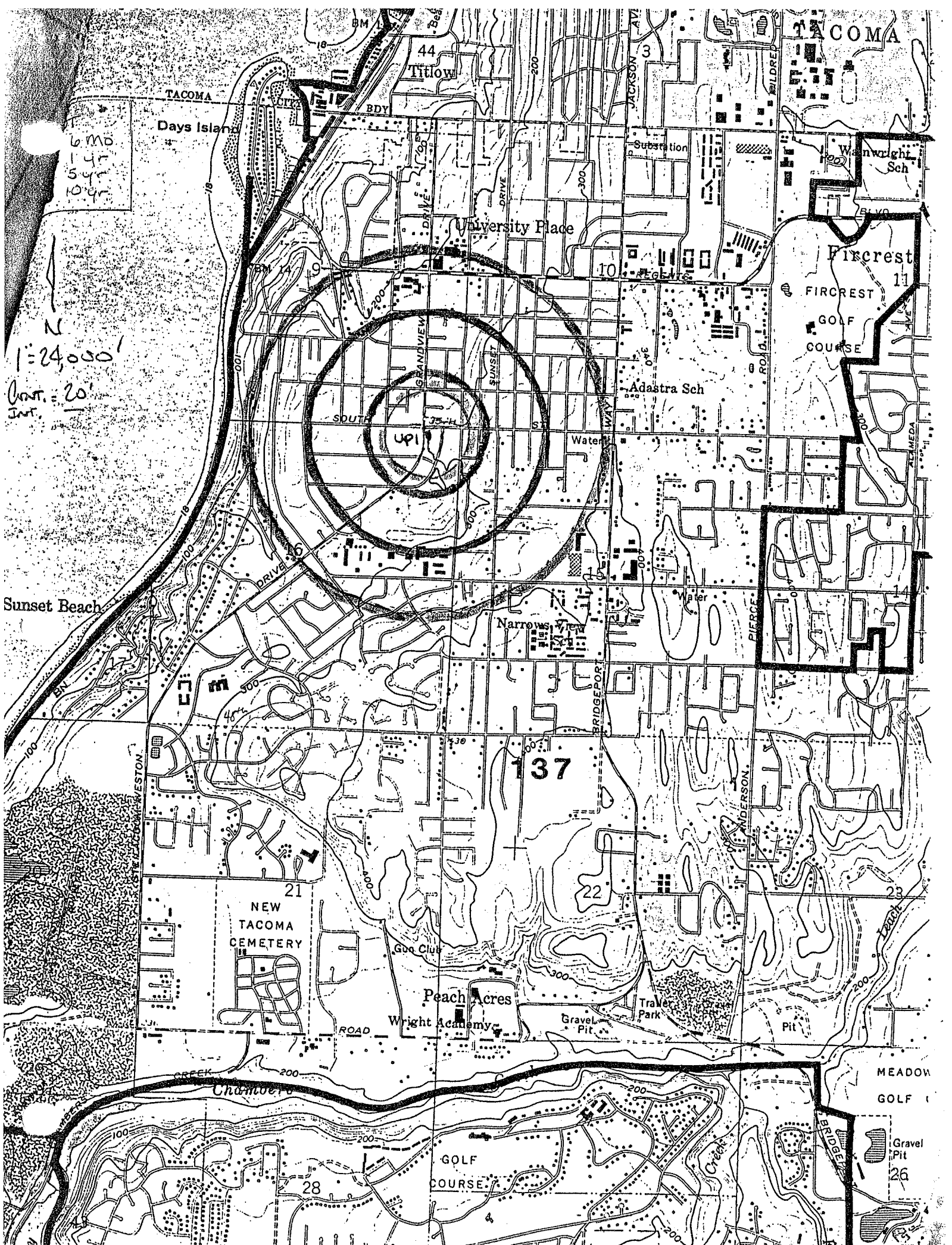
X YES ___ NO

Length of screened/open interval: 16 (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? YES / (NO) (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / (NO) (mark and identify on map).

Comments: _____



6 MD
1 yr
5 yr
10 yr

N
1:24,000
Cont. = 20'
Int.

Sunset Beach

STEEL CUM WESTON

NEW TACOMA CEMETERY

Peach Acres

Wright Academy

Chambers Creek

GOLF COURSE

MEADOW GOLF

Gravel Pit

Pit

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

Division of Drinking Water

JAN 10 1995

RECEIVED

IMPORTANT!

Please complete one form for each ground water source
(well, wellfield, spring) used in your water system.
Photocopy as necessary.

PART I: System Information

Well owner/manager : City of Tacoma

Water system name : Tacoma Water System

County: Pierce

Water system number: 86800N

Source number: S09

Well depth: 775 (ft.) (From WFI form)

Source name: Tideflats

WA well identification tag number: _____

_____ well not tagged

Number of connections: 78,000 Population served: 262,500

Township: 21N Range: 03E

Section: 26 1/4 1/4 Section: SW/SW

Latitude/longitude (if available): _____/_____

How was lat./long. determined?

_____ global positioning device _____ survey _____ topographic map
_____ other: _____

* Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: ____ / ____ / 27 month/day/year

last reconstruction: ____ / ____ / ____ month/day/year

_____ information unavailable

775' Confined
450' open
no seal?

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 31.46 (gallons) MGY Average
Range: 0-116 MGY

How was this determined?

X meter

___ estimated: ___ pumping rate (_____)

___ pump capacity (_____)

___ other: _____

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

6 month ground water travel time :	<u>160</u> (ft)	0.08 ✓
1 year ground water travel time :	<u>230</u> (ft)	0.115
5 year ground water travel time:	<u>510</u> (ft)	0.255
10 year ground water travel time:	<u>720</u> (ft)	0.36

Information available on length of screened/open interval?

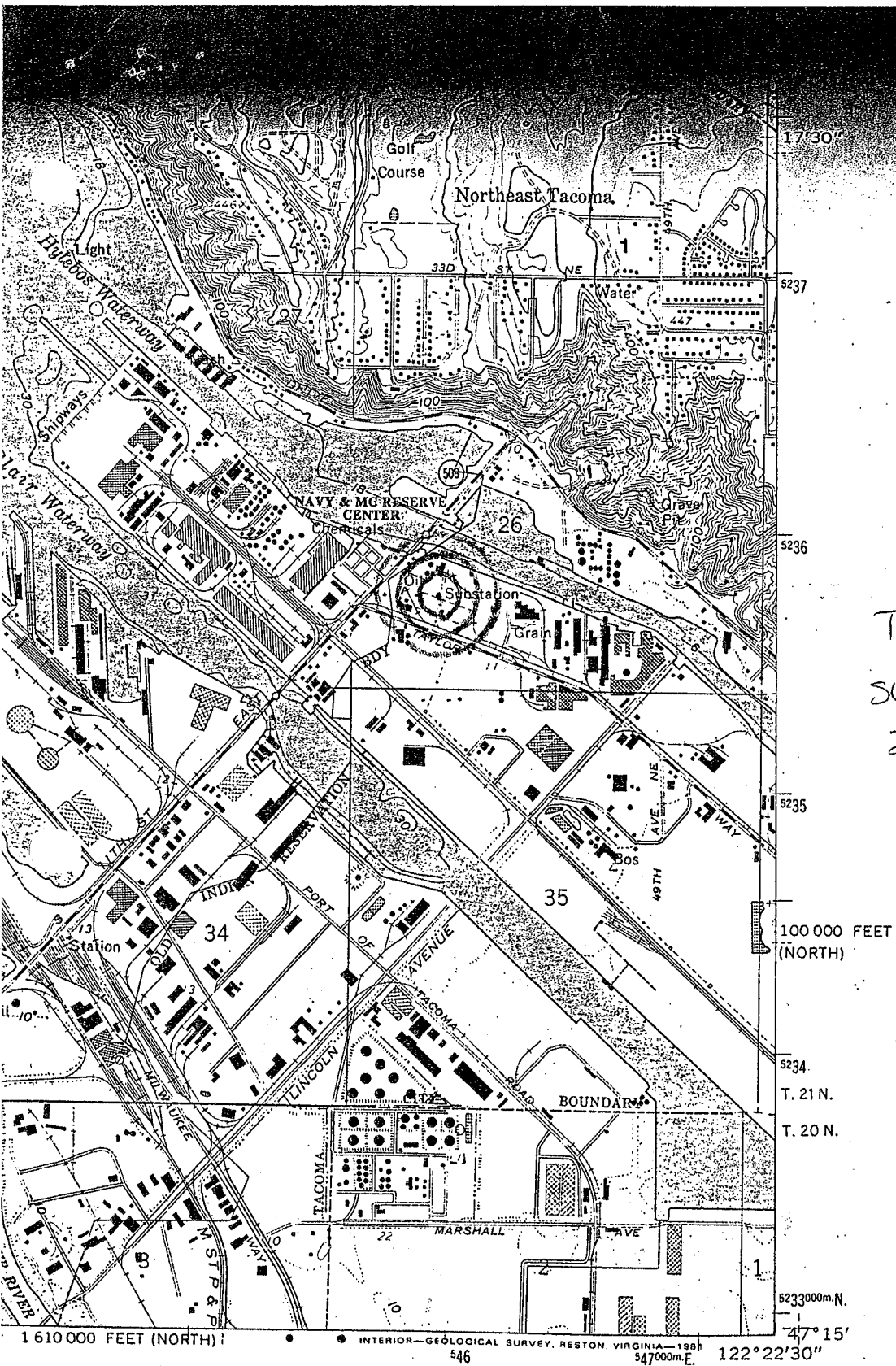
X YES ___ NO

Length of screened/open interval: 156 (ft) ✓

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? YES / (NO) (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / (NO) (mark and identify on map).

Comments: _____



TF
 SWSW 26
 21N 03E
 1201 Taylor Way

1 610 000 FEET (NORTH)

ROAD CLASSIFICATION

Heavy-duty	—————	Light-duty	- - - - -
Medium-duty	- - - - -	Unimproved dirt

○ State Route

■ WASHINGTON

QUADRANGLE LOCATION

TACOMA NORTH, WASH.
 N4715—W12222.5/7.5

1961

Revisions shown in purple and woodland compiled from aerial photographs taken 1978 and other sources. This information not field checked. Map edited 1981

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

IMPORTANT!

Please complete one form for each ground water source
(well, wellfield, spring) used in your water system.
Photocopy as necessary.

RECEIVED
JAN 10 1995
Department of Health
Division of Drinking Water

PART I: System Information

Well owner/manager: City of Tacoma

Water system name: Tacoma Water System

County: Pierce

Water system number: 86800N

Source number: S10

Well depth: 655 (ft.) (From WFI form)

Source name: Portland Ave. Well

WA well identification tag number: _____

_____ well not tagged

Number of connections: 78,000 Population served: 262,500

Township: 20N Range: 03E

Section: 15 1/4 1/4 Section: SE/NW

Latitude/longitude (if available): _____/_____

How was lat./long. determined?

_____ global positioning device _____ survey _____ topographic map
_____ other: _____

* Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: 5 / 20 / 86 month/day/year

last reconstruction: _____ / _____ / _____ month/day/year

_____ information unavailable

655
Confirmed
18 Seal

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 73.67 (gallons) MGY Ave.

Range - 0-110 MGY

How was this determined?

☒ meter

___ estimated: ___ pumping rate (_____)

___ pump capacity (_____)

___ other: _____

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

6 month ground water travel time : 310 (ft) 0.155 ✓

1 year ground water travel time : 440 (ft) 0.22

5 year ground water travel time: 980 (ft) 0.49

10 year ground water travel time: 1390 (ft) 0.695

Information available on length of screened/open interval?

☒ YES ___ NO

Length of screened/open interval: 41 (ft) ✓

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? ☒ YES / NO (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / ☒ NO (mark and identify on map).

Comments: Portland Avenue Reservoir, 50 MG capacity

~~Department of Health
Division of Drinking Water~~

JAN 10 1995

RECEIVED
JAN 10 1995

Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

Well owner/manager : City of Tacoma

Water system name : Tacoma Water System

County: Pierce

Water system number: 86800N Source number: S12

Well depth: 333 (ft.) (From WFI form)

Source name: GPL No. 1 (Gravity Pipeline Well No. 1)

WA well identification tag number: _____

X well not tagged

Number of connections: 78,000 Population served: 262,500

Township: 19N Range: 04

Section: 08 1/4 1/4 Section: NE/NE

Latitude/longitude (if available): _____

How was lat./long. determined?

_____ global positioning device _____ survey _____ topographic map
other: _____

* Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

333
Confined
Sealed

1) Date well originally constructed: 3 / 8 / 63 month/day/year

last reconstruction: ____ / ____ / ____ month/day/year

_____ information unavailable

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 164.01 MG (gallons) Average ☒

How was this determined? Range 24-331 MGY

☒ meter

___ estimated: ___ pumping rate (_____)

___ pump capacity (_____)

___ other: _____

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

	(see Instruction Packet)	On Map
6 month ground water travel time :	<u>620</u> (ft)	0.31 <input checked="" type="checkbox"/>
1 year ground water travel time :	<u>880</u> (ft)	0.44
5 year ground water travel time:	<u>1970</u> (ft)	0.985
10 year ground water travel time:	<u>2780</u> (ft)	1.39

Information available on length of screened/open interval?

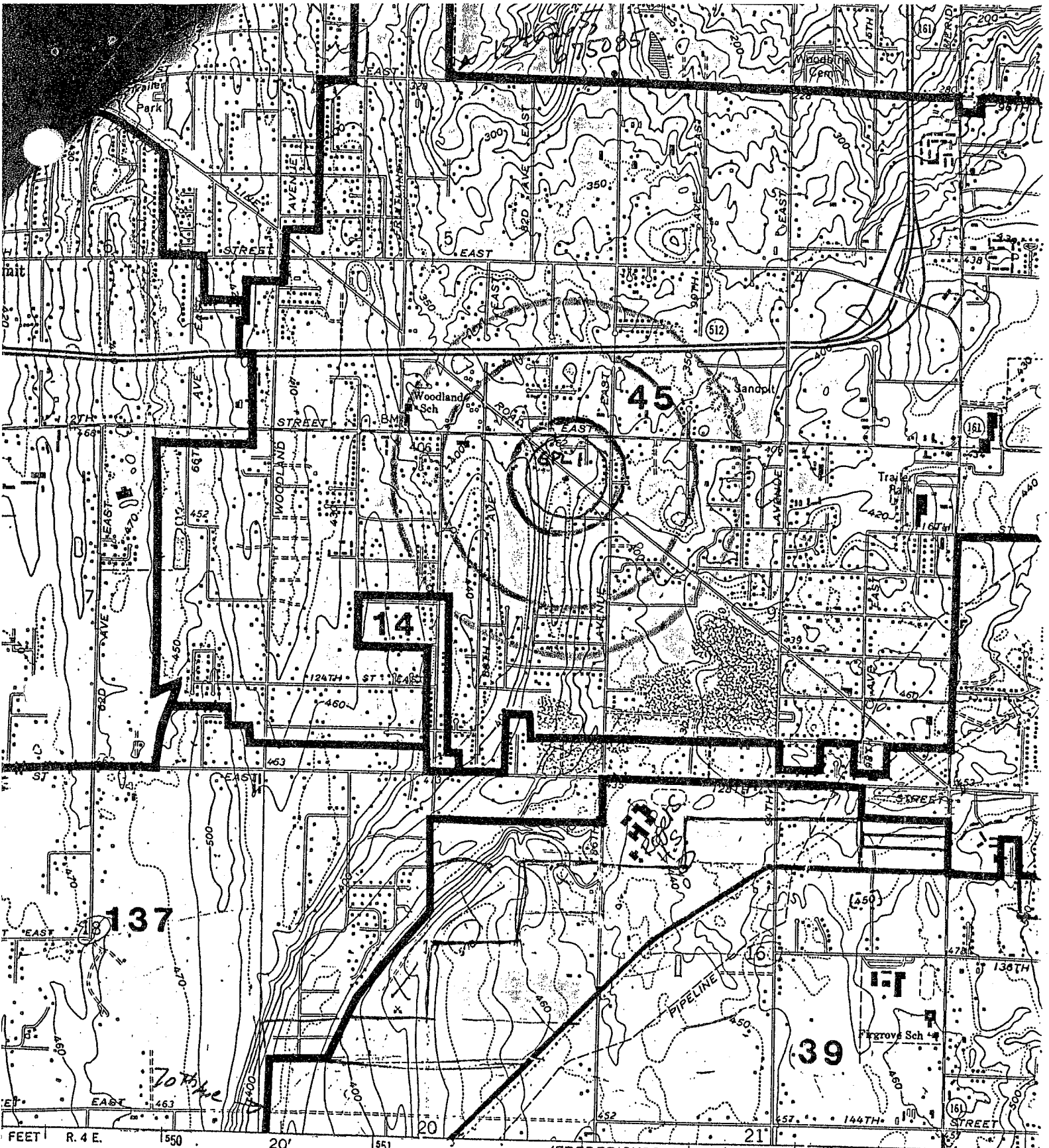
☒ YES ___ NO

Length of screened/open interval: 33 (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? YES / ☒ NO (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / ☒ NO (mark and identify on map).

Comments: _____



al Survey

SCALE 1:24000 GPL#1

1578 III SE

17'30" 1554

GRAHAM 5.3 MI
EATONVILLE 16

1 MILE

1 KILOMETER

CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 10-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

UTM GRID AND 1981 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

2000 ft/in

Well.

11302 E. Pipeline Rd

TOT

6mo

1yr

5yr

10yr

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

Department of Health
Division of Drinking Water

JAN 10 1995

RECEIVED

IMPORTANT!

Please complete one form for each ground water source
(well, wellfield, spring) used in your water system.
Photocopy as necessary.

PART I: System Information

Well owner/manager: City of Tacoma

Water system name: Tacoma Water System

County: Pierce

Water system number: 86800N Source number: S13

Well depth: 333 (ft.) (From WFI form)

Source name: GPL #2

WA well identification tag number: _____

☒ well not tagged

Number of connections: _____ Population served: _____

Township: 19N Range: 04E

Section: 08 1/4 1/4 Section: NE/NE

Latitude/longitude (if available): _____

How was lat./long. determined?

_____ global positioning device _____ survey _____ topographic map
_____ other: _____

* Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: 3 / 8 / 63 month/day/year

last reconstruction: _____ / _____ / _____ month/day/year

_____ information unavailable

333
not confirmed
18' seal
50 OK
305 open

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 111.2 (gallons) MGY

Range: 2.5 - 192 MGY

How was this determined?

X meter

___ estimated: ___ pumping rate (_____)

___ pump capacity (_____)

___ other: _____

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

On Map

6 month ground water travel time : 440 (ft)

0.22

1 year ground water travel time : 620 (ft)

0.31

5 year ground water travel time: 1390 (ft)

0.695

10 year ground water travel time: 1970 (ft)

0.985

Information available on length of screened/open interval?

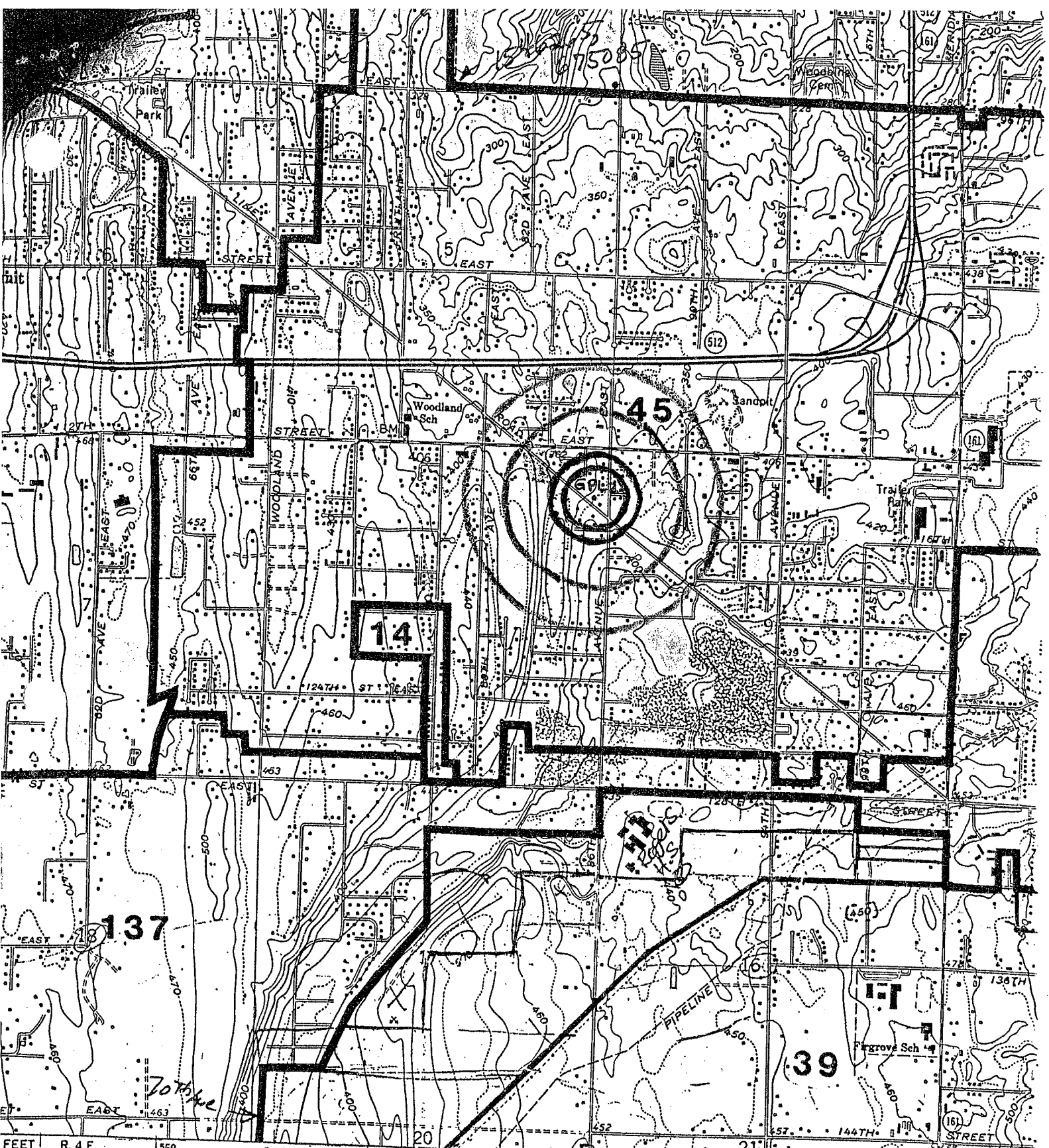
X YES ___ NO

Length of screened/open interval: 45 (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? YES / NO (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / NO (mark and identify on map).

Comments: _____



Survey

SCALE 1:24000 GPL#2

CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 10-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

UTM GRID AND 1981 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

2000 ft/in

Well.

11302 E. Pipeline Rd

TOT
6mo
1yr
5yr
10yr

1 MILE
1 KILOMETER

0°30' 9 MILS
20°30' 364 MILS

GN
MN

137
14
39
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Additional Map

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

Department of Health
Division of Drinking Water

JAN 10 1995

RECEIVED

IMPORTANT

Please complete one form for each ground water source
(well, wellfield, spring) used in your water system.
Photocopy as necessary.

PART I: System Information

Well owner/manager : City of Tacoma
Water system name : Tacoma Water System
County: Pierce
Water system number: 86800N Source number: SO4
Well depth: Spring (ft.) (From WFI form)
Source name: Prairie Ridge Springs
WA well identification tag number: _____
_____ well not tagged
Number of connections: 78,000 Population served: 262,500
Township: 19N Range: 05E
Section: 14 1/4 1/4 Section: SE/NE
Latitude/longitude (if available): _____
How was lat./long. determined?
_____ global positioning device _____ survey _____ topographic map
_____ other: _____

*Requesting
Emergency
Status
3-11
not given*

* Please refer to Assistance Packet for details and explanations of all questions in Parts II through V

PART II: Well Construction and Source Information

1) Date well originally constructed: 1 / 1 / 67 month/day/year
last reconstruction: _____ / _____ / _____ month/day/year
_____ information unavailable

*0 depth (Spring)
not confirmed
Seal ?*

PART IV: Mapping Your Ground Water Resource

MG

1) Annual volume of water pumped: 14.9 (gallons) (1992)

How was this determined?

☒ meter

___ estimated: ___ pumping rate (_____)

___ pump capacity (_____)

___ other: _____

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

On Map:

6 month ground water travel time :	<u>310</u> (ft)	0.155 in.
1 year ground water travel time :	<u>440</u> (ft)	0.22 in.
5 year ground water travel time:	<u>980</u> (ft)	0.49 in.
10 year ground water travel time:	<u>1390</u> (ft)	0.695

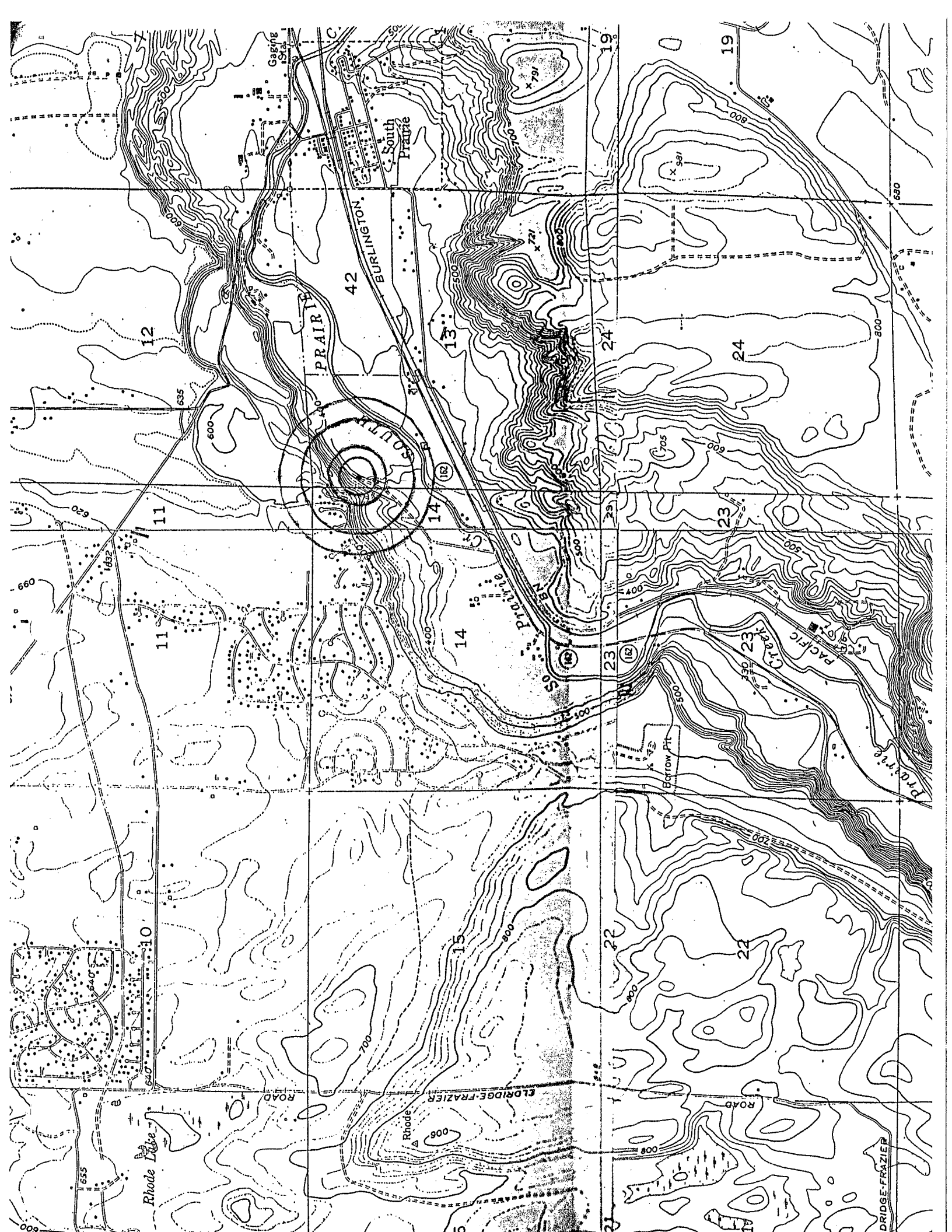
Information available on length of screened/open interval?

___ YES ☒ NO

Length of screened/open interval: 10 feet (ft)

- 3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? ☒ YES / NO (mark and identify on map).
- 4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / ☒ NO (mark and identify on map).

Comments: _____



Appendix B

Wellhead Protection Area Information

Tacoma-Pierce County Health Department

**Tacoma Wellhead Protection Program
Notification of Local Decision Makers
About the Wellhead Protection Areas**

May 2002-Updated December 2015

Based upon the *Washington State Wellhead Protection Program Guidance Manual* (DOH 1995), local decision makers must be notified of the wellhead protection area boundaries. TPCHD and Tacoma Water Division staff selected to mail the letter and the associated map(s) to the local planning departments and to cc the respective public works departments. For the City of Tacoma's Wellhead Protection Program, the following representatives/departments were notified:

Tacoma-Pierce County Health Department (All the Wellhead Protection Areas [WHPAs])

The TPCHD was notified at the beginning of the program in that they developed the map with all of Tacoma's WHPAs.

City of Tacoma (South Tacoma, Portland Ave Well, Tideflats Well #1 and Well #2 WHPAs)

Planning and Development
Services

Peter Huffman, Division Manager
City of Tacoma Building and Land Services Division
747 Market Street, Rm 345
Tacoma, WA 98402

Public Works Department
Kurtis Kingsolver, Director
Tacoma Public Works Department
747 Market Street, Rm 420
Tacoma, WA 98402

City of Fife (Tideflats Well # 2 WHPA)

Community Development
Steve Friddle, Community Development Director
City of Fife Community Development

5411 23rd St. E.
Fife, WA 98424

Public Works Department
Russell Blount, Public Works Director
Fife Public Works Department
3725 Pacific Hwy E.
Fife, WA 98402

The City of Fife has access to the *Countyview* GIS System

Town of Fircrest (South Tacoma WHPA)

Building/Planning Department
Angelic Stahlnecker, Director
Fircrest Building/Planning Department
115 Ramsdell Street
Fircrest, WA 98466

Public Utilities Department
Jerry Wakefield, P.E. - Director
Public Utilities Department
115 Ramsdell Street
Fircrest, WA 98466

The Town of Fircrest has access to the *Countyview* GIS System

City of University Place (UP-1 and UP-10 WHPAs)

Planning Department
David Swindale, Planning Department Manager
City of University Place
3715 Bridgeport Way West
University Place, WA 98466-1816

Public Works/Engineering Department
Gary Cooper, Public Works Director
City of University Place
3715 Bridgeport Way West
University Place, WA 98466-1816

The City of University Place has access to the *Countyview* GIS System

City of Lakewood (South Tacoma WHPA)

Community Development/Planning Department
David Bugher, Director
Community Development/Planning Department City
of Lakewood
6000 Main Street SW
Lakewood, WA 98499

Public Works Department
Don Wickstrom, City Engineer
6000 Main Street SW
Lakewood, WA 98499

City of Puyallup (Pipeline Wells #1 and #2 WHPA)

Community Development Department
Tom Utterback, Community Development Director
Community Development Department
City of Puyallup
333 S. Meridian
Puyallup, WA 98371

Public Works Department
Rob Andreotti, Public Works Director
City of Puyallup
333 S. Meridian
Puyallup, WA 98371

The City of Puyallup has access to the *Countyview* GIS system

Pierce County (South Tacoma Wellfield, Pipeline Wells #1 and #2, Prairie Ridge Springs, former Southeast Tacoma Mutual Wells, and Fredrickson Well WHPAs)

Planning Department
Dennis Hanberg - Director
Pierce County Planning and Land Services
Public Services Building
2401 South 35th
Tacoma, WA 98409-7485

Public Works Department
Brian Ziegler Public Works and Utilities Director
2702 S. 42nd St. Suite 201
Tacoma, WA 98409

McChord Air Force Base (South Tacoma WHPA)

Environmental Services Manager

Michael Grenko, Chief, Environmental Management Flight

McChord Air Force Base

62 CES/CEVN

555 A Street

McChord AFB, WA 98438-1325



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

February 28, 2002

Community Development Department
Tom Utterback, Community Development Director
City of Puyallup
330 3rd Street Southwest
Puyallup, WA 98371

Dear Mr. Utterback:

This letter is to inform you that a portion of Tacoma Water Wellhead Protection Area lies within your jurisdictional boundaries. A Wellhead Protection Area is the land area overlying a ground water aquifer that contributes water to a drinking water well. Tacoma Water has delineated the boundaries of its Wellhead Protection Areas using methodologies prescribed by the Washington State Department of Health. The enclosed map identifies the portion of Tacoma Water's Wellhead Protection Area that lies within your jurisdictional boundaries. The mapped Wellhead Protection Areas are also available for viewing in Pierce County's GIS system, *Countyview*.

Tacoma Water provides water to more than 300,000 people and relies to a considerable extent on local ground waters that supply the Water Division's wells. Federal and state regulations require that larger public water systems, including Tacoma Water, develop Wellhead Protection Programs to protect their drinking water wells. A Wellhead Protection Program is intended to prevent ground water contamination from the land overlying ground waters used for drinking water supplies. The state's public water system regulations (Chapter 246-290 WAC) require Tacoma Water to notify jurisdictional land use authorities of the location of its Wellhead Protection Areas; this letter satisfies that requirement. Tacoma Water asks that you please consider the protection of our drinking water resources as you further develop and refine your land use management plans, development regulations, and zoning codes.

If you have any questions about the Tacoma Wellhead Protection Area within your jurisdiction or any other aspect of our Wellhead Protection Program, please call either Al Medak, Water Quality Manager with Tacoma Water at 502-8210, or Ray Hanowell, Environmental Health Specialist II with the Tacoma-Pierce County Health Department at 798-2845. Thank you for your assistance in protecting our valuable drinking water resources.

Sincerely,

Kenneth J. Merry, P.E.
Water Superintendent
Tacoma Water

cc: Public Works Director
Al Medak, Tacoma Water
Ray Hanowell, TPCHD



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

February 28, 2002

Community Development/Planning Department
David Bugher, Director
City of Lakewood
6000 Main Street Southwest
Lakewood WA 98499

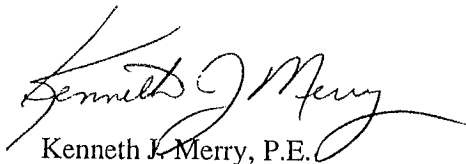
Dear Mr. Bugher:

This letter is to inform you that a portion of Tacoma Water Wellhead Protection Area lies within your jurisdictional boundaries. A Wellhead Protection Area is the land area overlying a ground water aquifer that contributes water to a drinking water well. Tacoma Water has delineated the boundaries of its Wellhead Protection Areas using methodologies prescribed by the Washington State Department of Health. The enclosed map identifies the portion of Tacoma Water's Wellhead Protection Area that lies within your jurisdictional boundaries. The mapped Wellhead Protection Areas are also available for viewing in Pierce County's GIS system, *Countyview*.

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Sincerely,



Kenneth J. Merry, P.E.
Water Superintendent
Tacoma Water

cc: Public Works Director
Al Medak, Tacoma Water
Ray Hanowell, TPCHD



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

February 28, 2002

Planning Department
David Swindale, Planning Department Manager
City of University Place
3715 Bridgeport Way West
University Place, WA 98466-1816

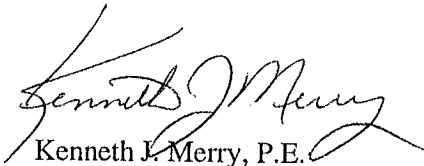
Dear Mr. Swindale:

This letter is to inform you that a portion of Tacoma Water Wellhead Protection Area lies within your jurisdictional boundaries. A Wellhead Protection Area is the land area overlying a ground water aquifer that contributes water to a drinking water well. Tacoma Water has delineated the boundaries of its Wellhead Protection Areas using methodologies prescribed by the Washington State Department of Health. The enclosed map identifies the portion of Tacoma Water's Wellhead Protection Area that lies within your jurisdictional boundaries. The mapped Wellhead Protection Areas are also available for viewing in Pierce County's GIS system, *Countyview*.

Tacoma Water provides water to more than 300,000 people and relies to a considerable extent on local ground waters that supply the Water Division's wells. Federal and state regulations require that larger public water systems, including Tacoma Water, develop Wellhead Protection Programs to protect their drinking water wells. A Wellhead Protection Program is intended to prevent ground water contamination from the land overlying ground waters used for drinking water supplies. The state's public water system regulations (Chapter 246-290 WAC) require Tacoma Water to notify jurisdictional land use authorities of the location of its Wellhead Protection Areas; this letter satisfies that requirement. Tacoma Water asks that you please consider the protection of our drinking water resources as you further develop and refine your land use management plans, development regulations, and zoning codes.

If you have any questions about the Tacoma Wellhead Protection Area within your jurisdiction or any other aspect of our Wellhead Protection Program, please call either Al Medak, Water Quality Manager with Tacoma Water at 502-8210, or Ray Hanowell, Environmental Health Specialist II with the Tacoma-Pierce County Health Department at 798-2845. Thank you for your assistance in protecting our valuable drinking water resources.

Sincerely,



Kenneth J. Merry, P.E.
Water Superintendent
Tacoma Water

cc: Public Works Director
Al Medak, Tacoma Water
Ray Hanowell, TPCHD



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

February 28, 2002

Building/Planning Department
Jess Boers, Director
Fircrest Building/Planning Department
115 Ramsdell Street
Fircrest, WA 98466

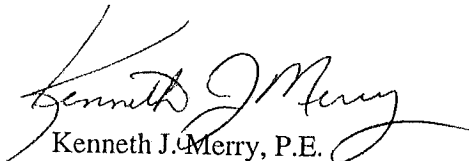
Dear Mr. Boers:

This letter is to inform you that a portion of Tacoma Water Wellhead Protection Area lies within your jurisdictional boundaries. A Wellhead Protection Area is the land area overlying a ground water aquifer that contributes water to a drinking water well. Tacoma Water has delineated the boundaries of its Wellhead Protection Areas using methodologies prescribed by the Washington State Department of Health. The enclosed map identifies the portion of Tacoma Water's Wellhead Protection Area that lies within your jurisdictional boundaries. The mapped Wellhead Protection Areas are also available for viewing in Pierce County's GIS system, *Countyview*.

Tacoma Water provides water to more than 300,000 people and relies to a considerable extent on local ground waters that supply the Water Division's wells. Federal and state regulations require that larger public water systems, including Tacoma Water, develop Wellhead Protection Programs to protect their drinking water wells. A Wellhead Protection Program is intended to prevent ground water contamination from the land overlying ground waters used for drinking water supplies. The state's public water system regulations (Chapter 246-290 WAC) require Tacoma Water to notify jurisdictional land use authorities of the location of its Wellhead Protection Areas; this letter satisfies that requirement. Tacoma Water asks that you please consider the protection of our drinking water resources as you further develop and refine your land use management plans, development regulations, and zoning codes.

If you have any questions about the Tacoma Wellhead Protection Area within your jurisdiction or any other aspect of our Wellhead Protection Program, please call either Al Medak, Water Quality Manager with Tacoma Water at 502-8210, or Ray Hanowell, Environmental Health Specialist II with the Tacoma-Pierce County Health Department at 798-2845. Thank you for your assistance in protecting our valuable drinking water resources.

Sincerely,


Kenneth J. Merry, P.E.
Water Superintendent
Tacoma Water

cc: Public Works Director
Al Medak, Tacoma Water
Ray Hanowell, TPCHD



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

February 28, 2002

Community Development
Steve Worthington, Community Development Director
City of Fife Community Development
5411 23rd Street East
Fife, WA 98424

Dear Mr. Worthington:

This letter is to inform you that a portion of Tacoma Water Wellhead Protection Area lies within your jurisdictional boundaries. A Wellhead Protection Area is the land area overlying a ground water aquifer that contributes water to a drinking water well. Tacoma Water has delineated the boundaries of its Wellhead Protection Areas using methodologies prescribed by the Washington State Department of Health. The enclosed map identifies the portion of Tacoma Water's Wellhead Protection Area that lies within your jurisdictional boundaries. The mapped Wellhead Protection Areas are also available for viewing in Pierce County's GIS system, *Countyview*.

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Sincerely,

Kenneth J. Merry, P.E.
Water Superintendent
Tacoma Water

cc: Public Works Director
Al Medak, Tacoma Water
Ray Hanowell, TPCHD



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

February 28, 2002

Building and Land Services Division
Gary Pedersen, Division Manager
City of Tacoma Building and Land Services Division
747 Market Street, Rm 345
Tacoma, WA 98402

Dear Mr. ^{Gary}Pedersen:

This letter is to inform you that a portion of Tacoma Water Wellhead Protection Area lies within your jurisdictional boundaries. A Wellhead Protection Area is the land area overlying a ground water aquifer that contributes water to a drinking water well. Tacoma Water has delineated the boundaries of its Wellhead Protection Areas using methodologies prescribed by the Washington State Department of Health. The enclosed map identifies the portion of Tacoma Water's Wellhead Protection Area that lies within your jurisdictional boundaries. The mapped Wellhead Protection Areas are also available for viewing in Pierce County's GIS system, *Countyview*.

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Sincerely,

Kenneth J. Merry, P.E.
Water Superintendent
Tacoma Water

cc: Public Works Director
Al Medak, Tacoma Water
Ray Hanowell, TPCHD

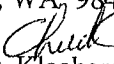


3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

February 28, 2002

Planning Department
Chuck Kleeberg, Director
Pierce County Planning and Land Services
Public Services Building
2401 35th Street South
Tacoma, WA, 98409-7485


Dear  Mr. Kleeberg:

This letter is to inform you that a portion of Tacoma Water Wellhead Protection Area lies within your jurisdictional boundaries. A Wellhead Protection Area is the land area overlying a ground water aquifer that contributes water to a drinking water well. Tacoma Water has delineated the boundaries of its Wellhead Protection Areas using methodologies prescribed by the Washington State Department of Health. The enclosed map identifies the portion of Tacoma Water's Wellhead Protection Area that lies within your jurisdictional boundaries. The mapped Wellhead Protection Areas are also available for viewing in Pierce County's GIS system, *Countyview*.

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Sincerely,



Kenneth J. Merry, P.E.
Water Superintendent
Tacoma Water

cc: Public Works Director
Al Medak, Tacoma Water
Ray Hanowell, TPCHD



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

February 28, 2002

Environmental Services Manager
Michael Grenko, Chief, Environmental Management Flight
McChord Air Force Base
62 CES/CEVN
555 A Street
McChord AFB, WA 98438-1325

RECEIVED

MAR 05 2002

Tacoma-Pierce County
Health Dept.

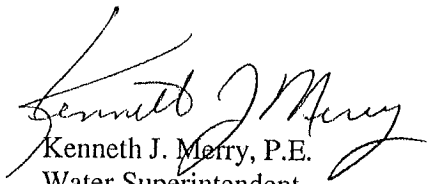
Dear Mr. Grenko:

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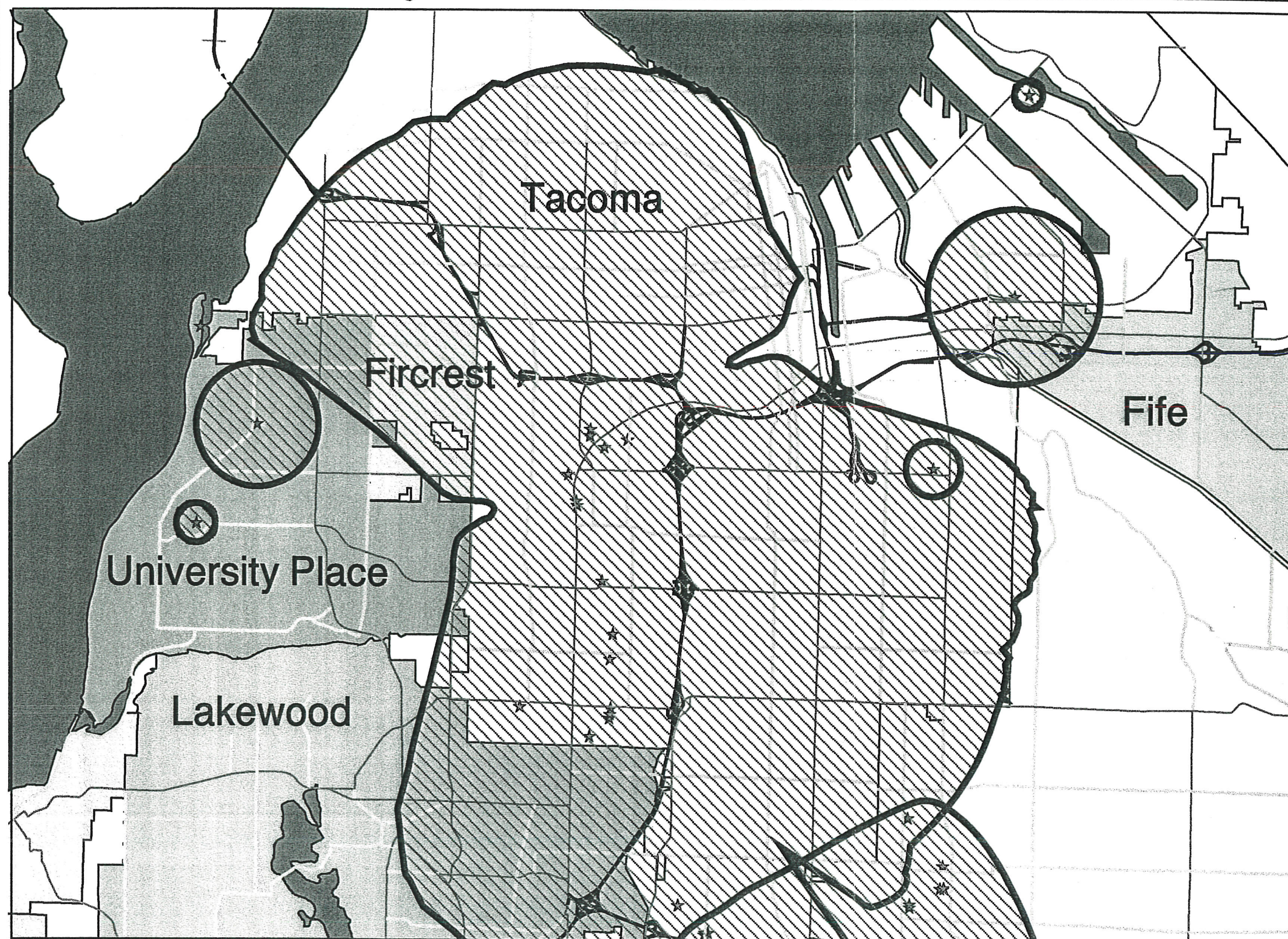
Sincerely,


Kenneth J. Merry, P.E.
Water Superintendent
Tacoma Water

cc: Al Medak, Tacoma Water
Ray Hanowell, TPCHD

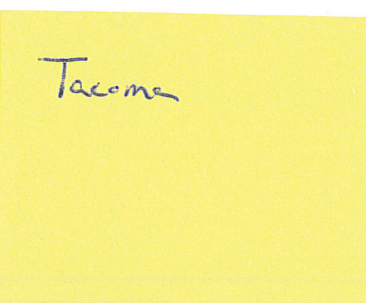
Tacoma Ten-Year Wellhead Protection Zones Within the City of Tacoma

November 2001

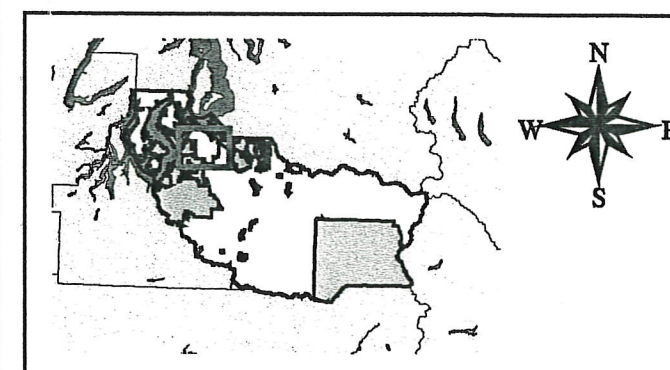


MAP LEGEND

-  10-yr Tacoma WHPZ
-  Tacoma Wells

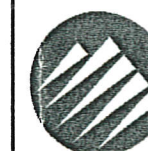


Scale 1:67564



**Tacoma-Pierce County
Health Department**

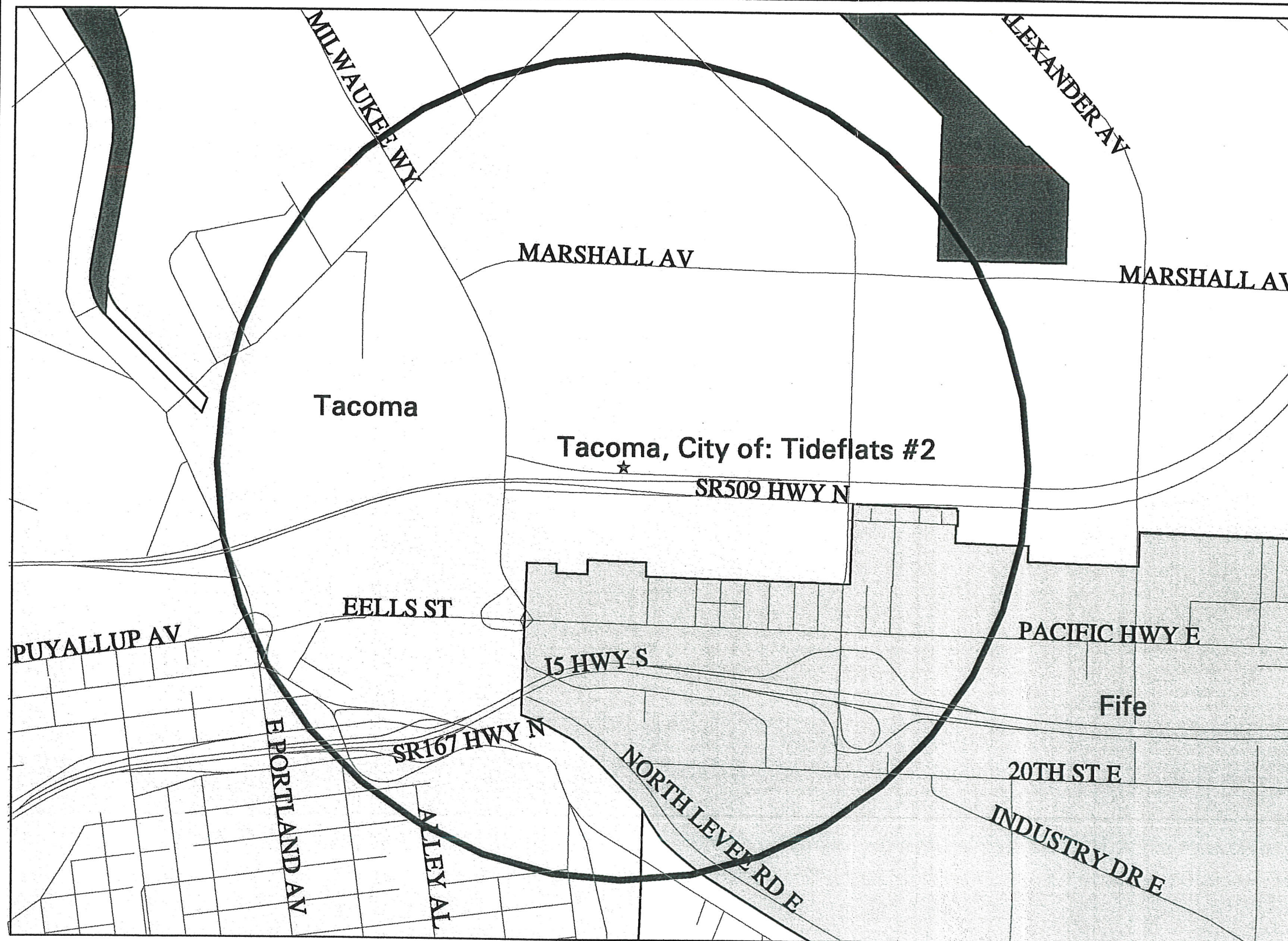
All geographic information on this map should be
considered under revision and each user should
recognize the limitations on use of this data.



Pierce County
Geographic Information Services

Tacoma Ten-Year Wellhead Protection Zones Within Tacoma and Fife Boundaries

August 2001



MAP LEGEND

Tacoma Wells

★ Southeast Tacoma

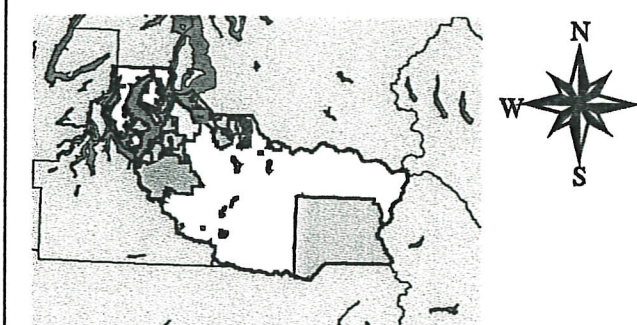
★ Tacoma

□ 10-yr Tacoma WHPZ

— Roads - All*

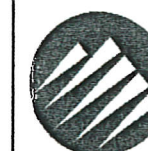


Scale 1:14418



Tacoma-Pierce County
Health Department

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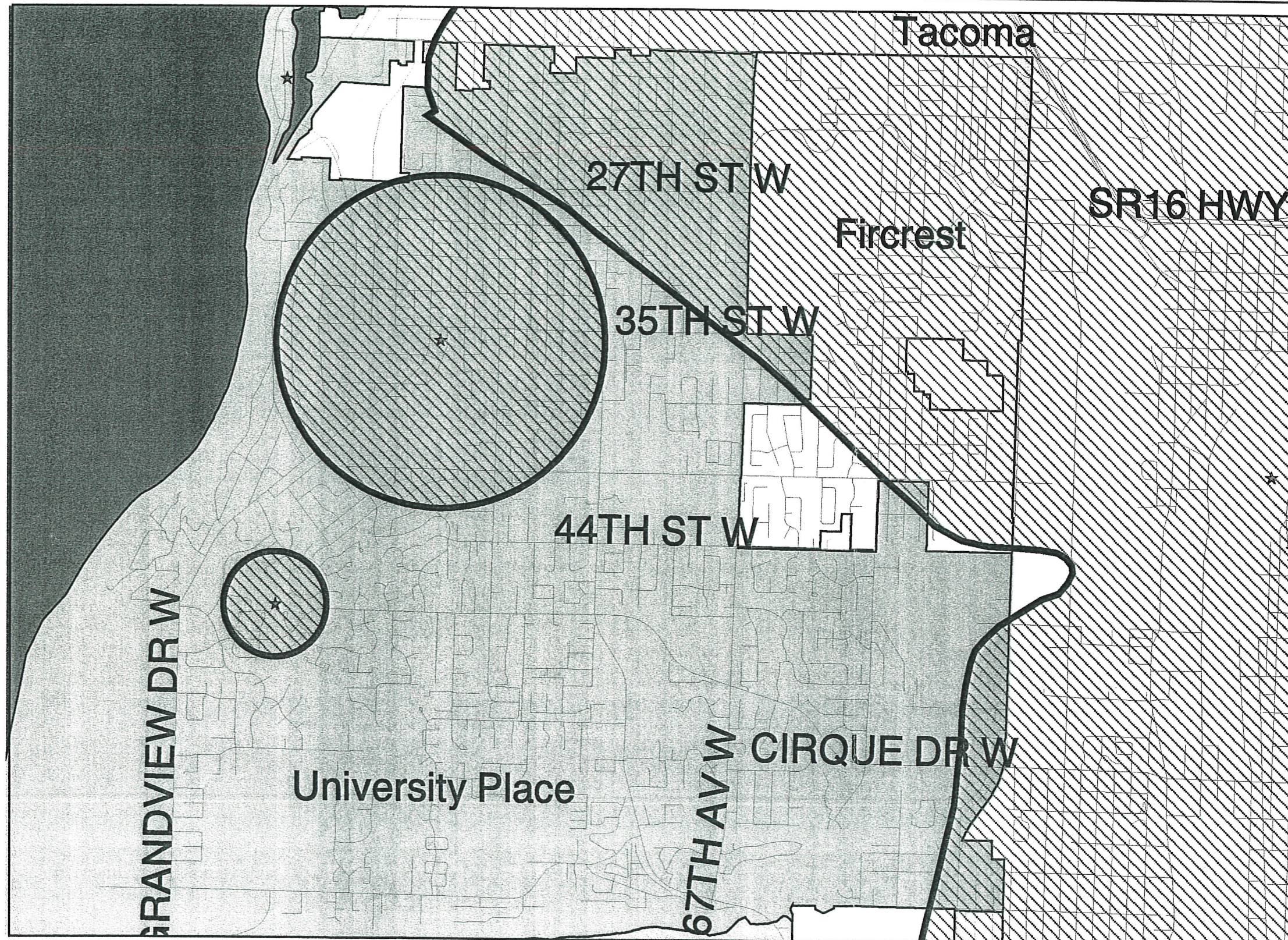


Pierce County

Geographic Information Services

Tacoma Ten-Year Wellhead Protection Zones Within University Place and Fircrest Boundaries

November 2001

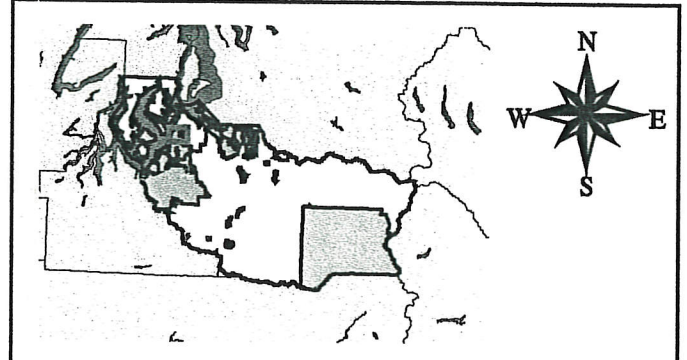



MAP LEGEND

-  10-yr Tacoma WHPZ
-  Tacoma Wells
-  Roads - All*

Fircrest


Scale 1:25236





**Tacoma-Pierce County
Health Department**

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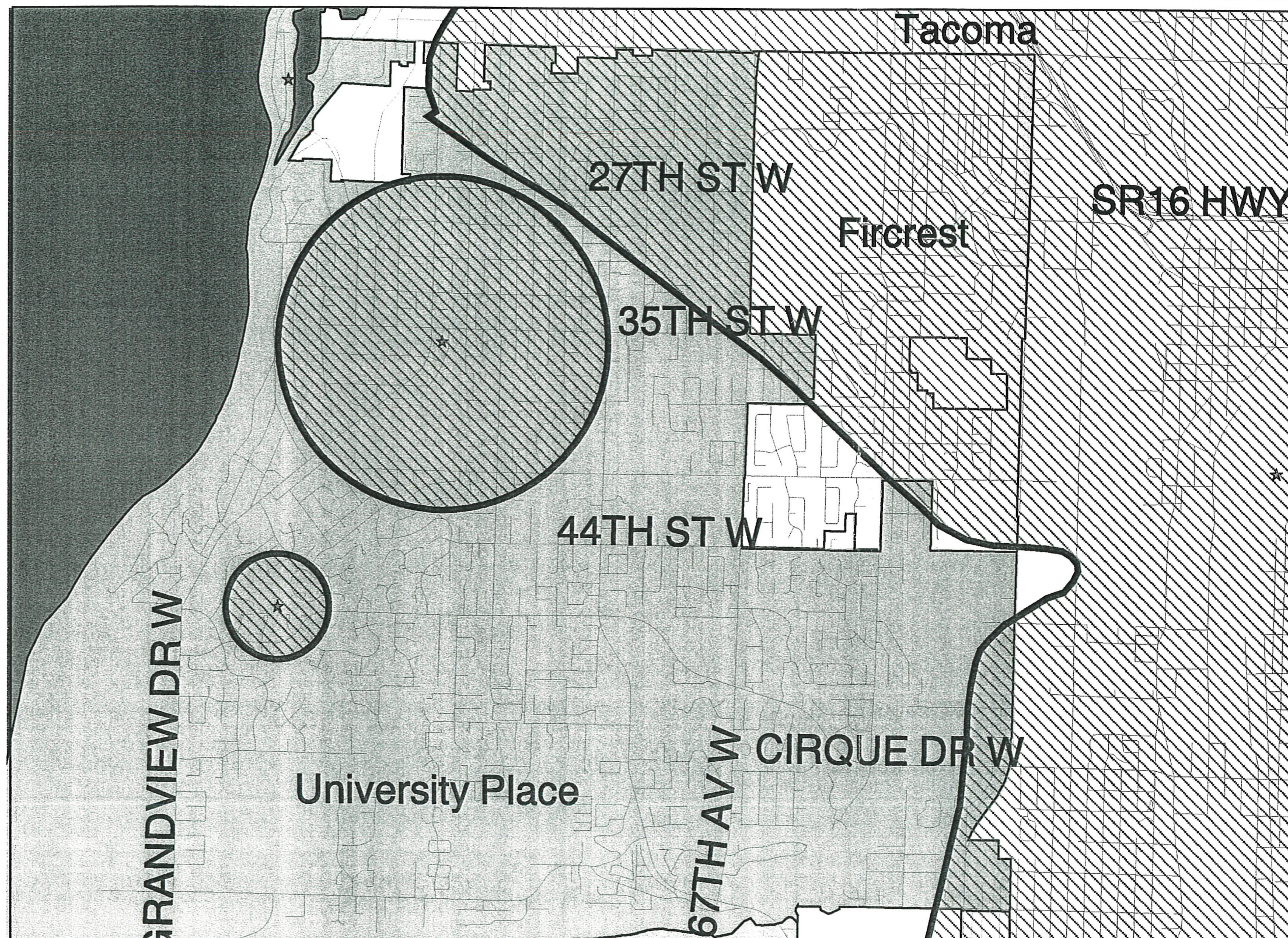


Pierce County

Geographic Information Services

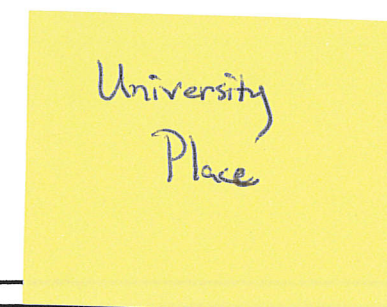
Tacoma Ten-Year Wellhead Protection Zones Within University Place and Fircrest Boundaries

November 2001

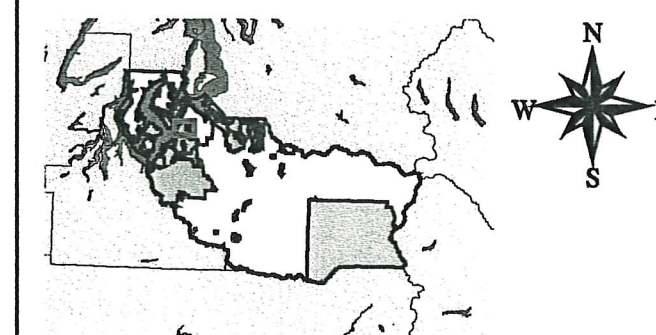


MAP LEGEND

- 10-yr Tacoma WHPZ
- Tacoma Wells
- Roads - All*



Scale 1:25236



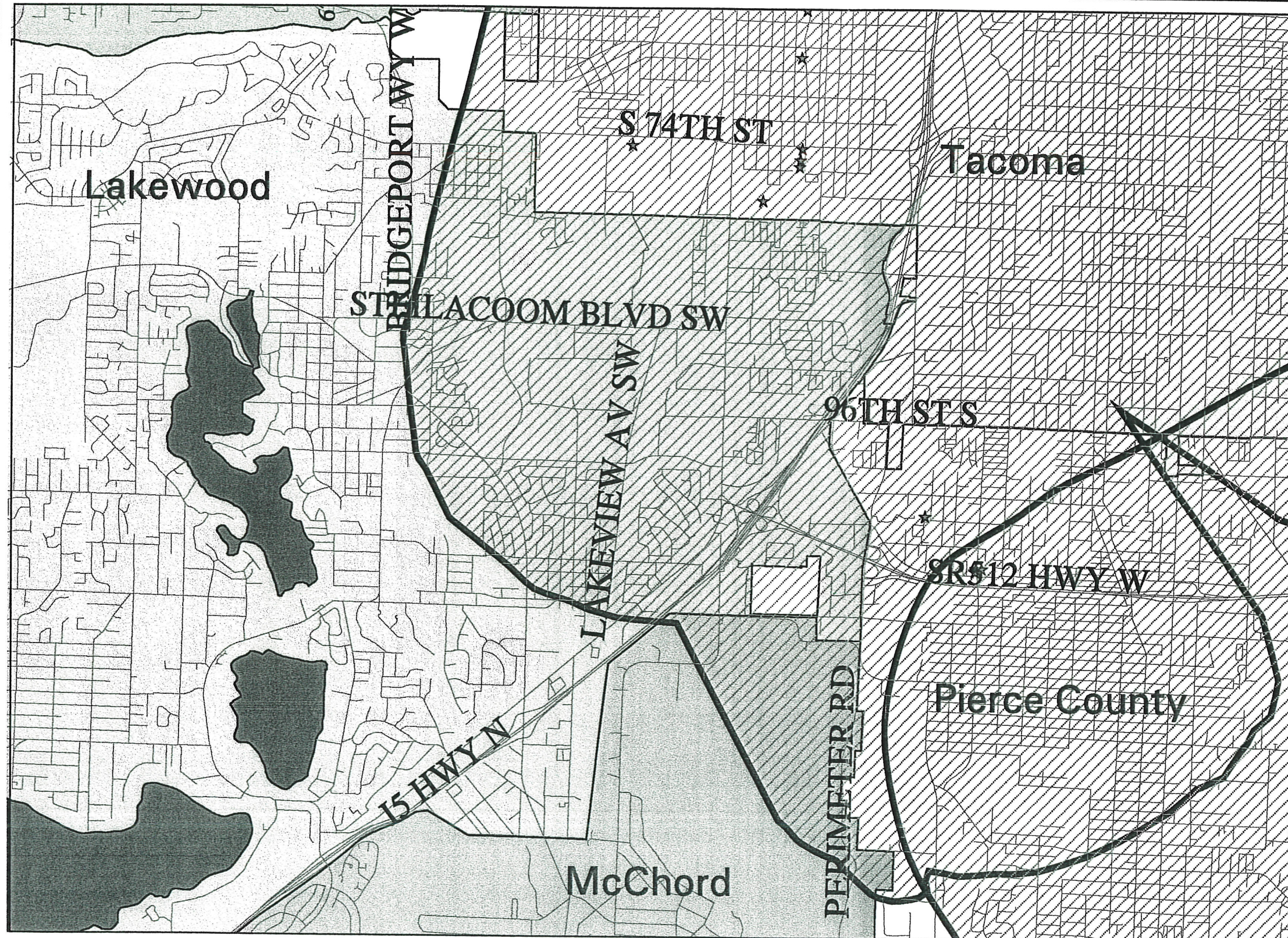
Tacoma-Pierce County
Health Department

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Pierce County
Geographic Information Services

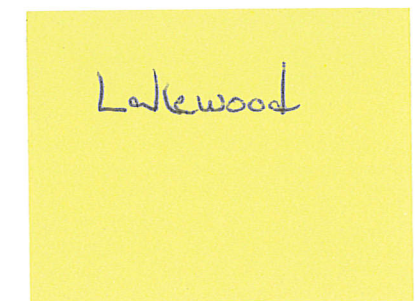
Tacoma Ten-Year Wellhead Protection Zones Within Lakewood and McChord Boundaries

August 2001

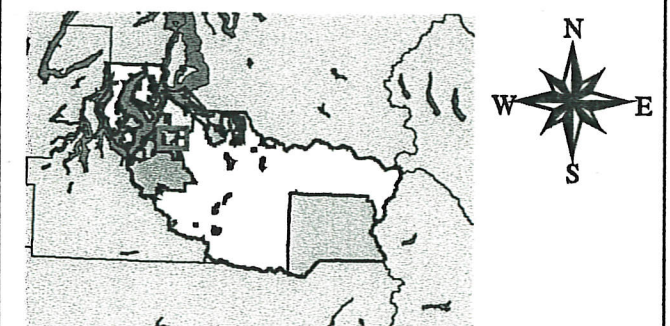


MAP LEGEND

- ★ Tacoma Wells
- Roads - All*
-  10-yr Tacoma WHPZ

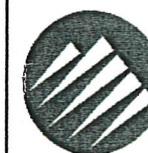


Scale 1:35936



**Tacoma-Pierce County
Health Department**

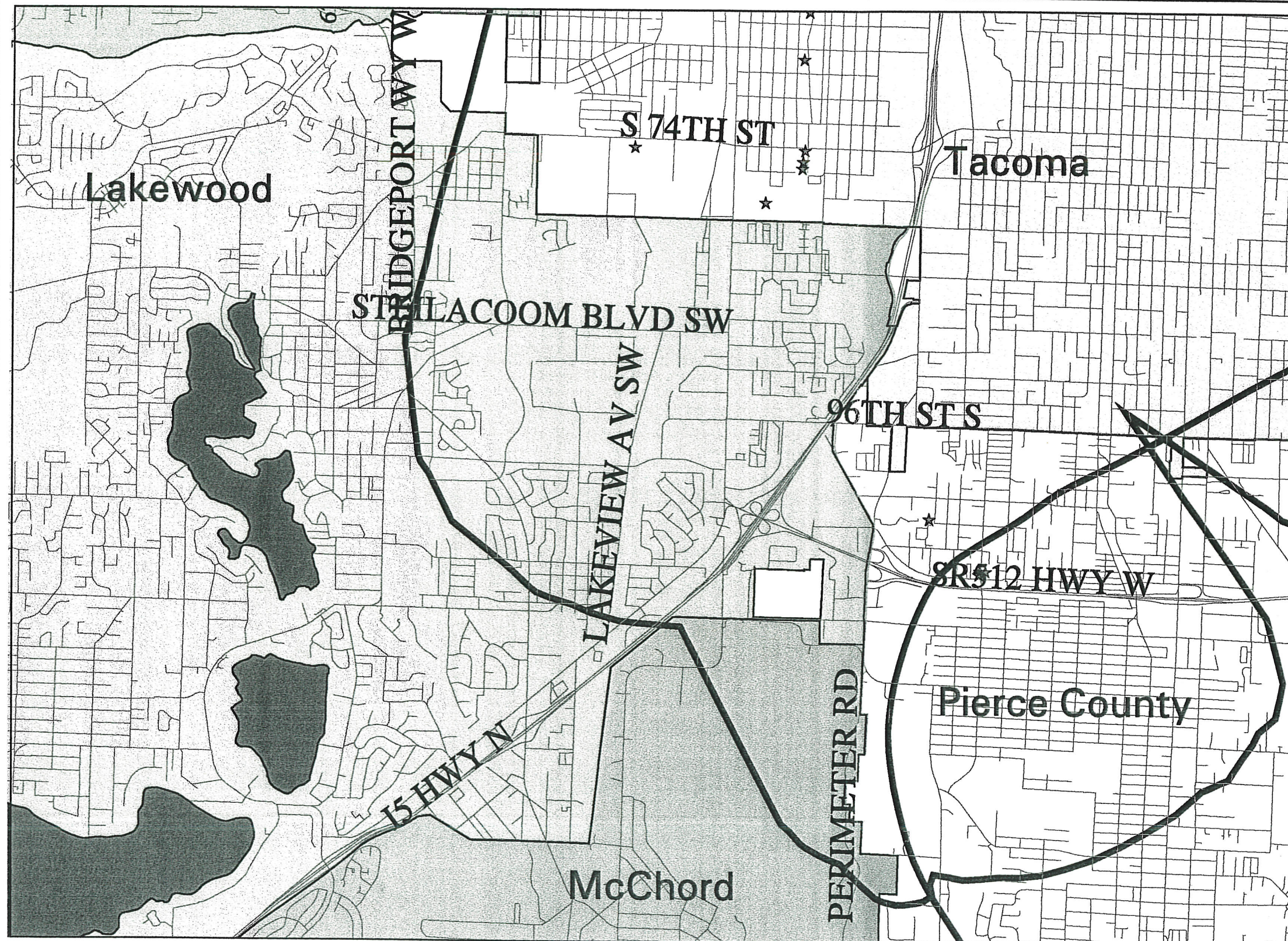
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Pierce County
Geographic Information Services

Tacoma Ten-Year Wellhead Protection Zones Within Lakewood and McChord Boundaries

August 2001

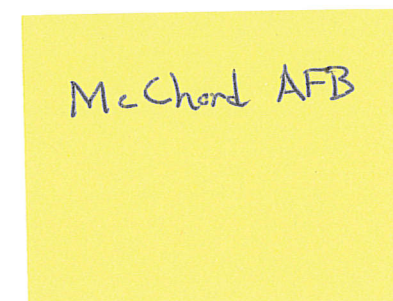


MAP LEGEND

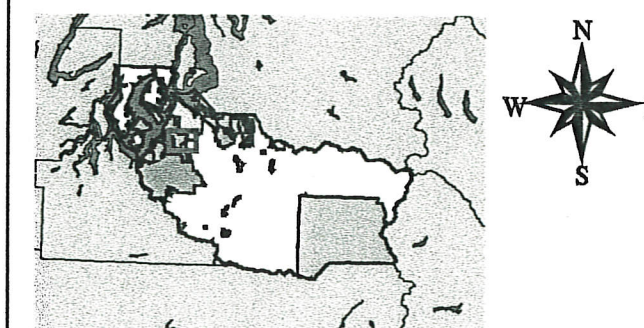
Tacoma Wells

- ★ Southeast Tacoma
- ★ Tacoma

- 10-yr Tacoma WHPZ
- ~ Roads - All*

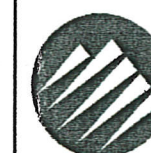


Scale 1:35936



**Tacoma-Pierce County
Health Department**

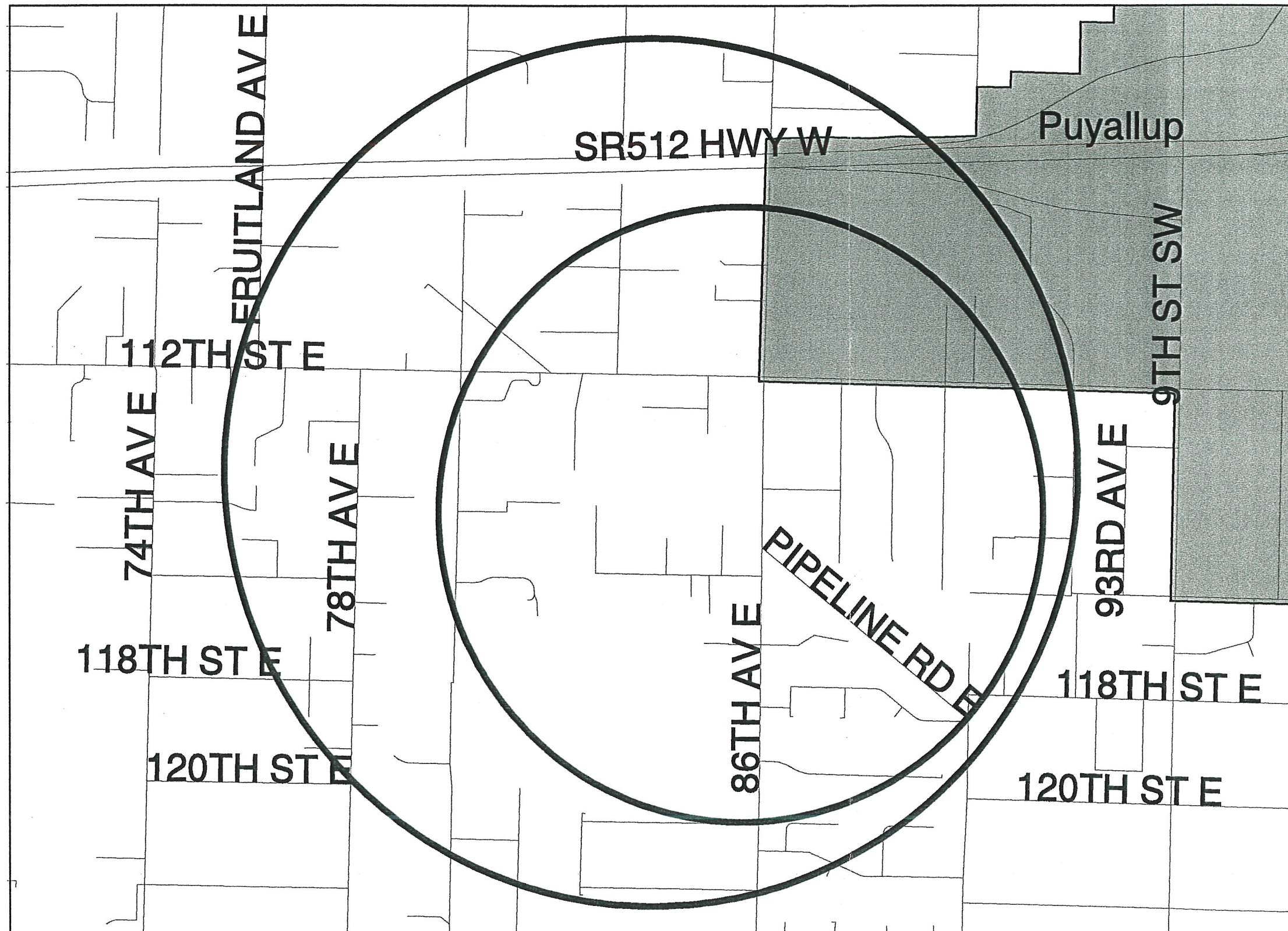
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Pierce County
Geographic Information Services

Tacoma Ten-Year Wellhead Protection Zones Within Puyallup City Boundaries

August 2001



MAP LEGEND

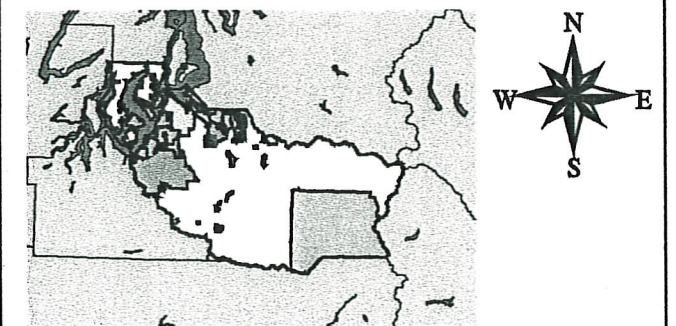
Tacoma Wells

- ★ Southeast Tacoma
- ★ Tacoma

10-yr Tacoma WHPZ
Roads - All*

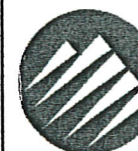


Scale 1:8666



**Tacoma-Pierce County
Health Department**

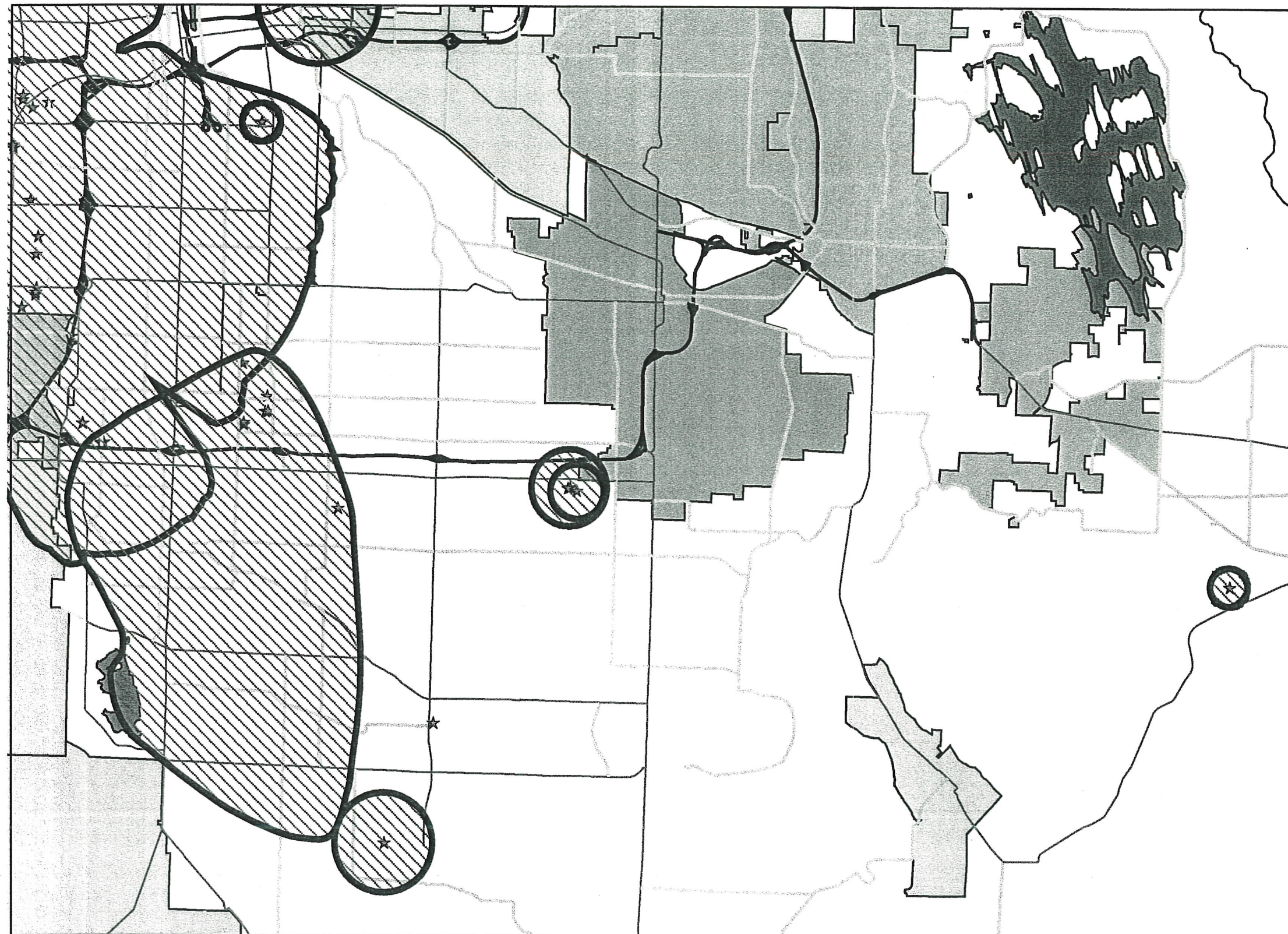
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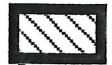






Pierce County
Geographic Information Services

Tacoma Ten-Year Wellhead Protection Zones Within Unincorporated Pierce County

November 2001

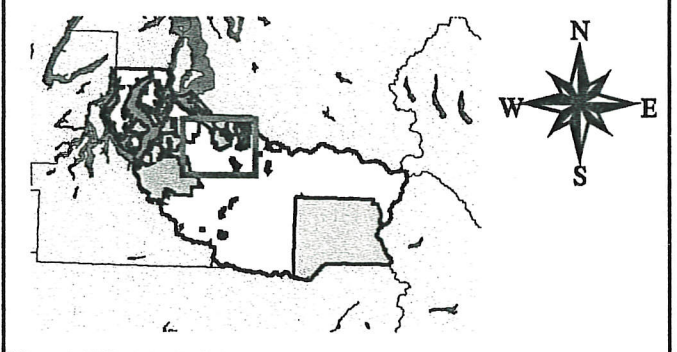


MAP LEGEND

-  10-yr Tacoma WHPZ
-  Arterials*
-  Limited Access
-  Principle Road
-  Major Road
-  Collector Road
-  Tacoma Wells

Unincorporated
Pierce County

Scale 1:57,455



**Tacoma-Pierce County
Health Department**

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Pierce County

Geographic Information Services

Appendix C

Potential Contaminant Source Information



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

March 20, 2002

Dear Owner/Operator:

To protect the drinking water supply for the customers of Tacoma Water, we are developing a Wellhead Protection Program as required by Washington State (WAC 246-290-135). As part of the Wellhead Protection Program, we mapped the area overlying the short-term recharge zone of our drinking water supply wells. This area is called our Wellhead Protection Area.

Following the mapping of the Wellhead Protection Area, we conducted an inventory of potential sources of ground water contamination within the area and identified your business/farm/facility as a potential source of pollution. Please keep in mind that we have taken a conservative approach to the inventory and that many of the businesses/farms/facilities likely aren't sources of pollution.

We hope that by informing you of your location in our Wellhead Protection Area, you will take extra care to make sure that your activities do not harm our drinking water quality. On the reverse side of this letter is some information that may be of assistance to you.

For further information, please call either Ray Hanowell, Environmental Health Specialist II with the Tacoma-Pierce County Health Department, at (253) 798-2845, or me, at (253) 502-8210. Thank you for your help in protecting our valuable drinking water supply.

Sincerely,

Alan T. Medak
Water Quality Manager
Tacoma Water

cc: Ray Hanowell, TPCHD

FREQUENTLY ASKED QUESTIONS

1) ***How can I reduce my use of hazardous materials and properly dispose of the materials I do use?***

There are almost always things that we can do to either use less of our hazardous products, or switch to less toxic or non-toxic products. The TPCHD or the Department of Ecology can provide you with examples or suggestions. Pollution prevention doesn't always cost more—many businesses have been able to save money by changing products or how they use the products. In addition, you can create a safer workplace by reducing how many hazardous substances your employees are exposed to.

Proper hazardous waste disposal can be a challenge, but there are a number of resources to assist you. Call the Hazardous Waste Line at the TPCHD (800 287-6429) for help in determining if a waste is hazardous, how to dispose of it properly, and assistance in locating alternatives. You may also want to check the following resources for information on handling specific types of hazardous waste:

<http://www.metrokc.gov/hazwaste/yb/> (waste disposal directory from King County)

<http://www.ecy.wa.gov/apps/hwtr/hwsd/default.htm> (waste disposal directory from the Department of Ecology).

2) ***How do I find a company to handle my hazardous waste?***

There are a number of companies that manage hazardous wastes. Some are full-service, while others specialize in a particular waste stream. Places to look include the telephone book ('Waste Disposal – Hazardous'), the internet resources listed above, or the Hazardous Waste Line at TPCHD (800-287-6429). Call other companies and ask who they use for their hazardous waste. However you do it, make sure that you check references, get a copy of the company's insurance certificate, and paperwork documenting where the waste goes. If you can establish an ongoing relationship with a vendor, if possible take the time to visit their site and see how they will be handling your waste. Remember, it is always your hazardous waste- even after you pay a company to take it!

**Tacoma Wellhead Protection Program
Summary of Potential Contaminant Sources
To be Included in the Agency Notification Process**

April 2002

<u>Agency</u>	<u>Number of Sites</u>
No Regulatory Agency -	1,106 Sites
DNR -	1 Site
DOA -	9 Sites
Ecology -	1,374 Sites
PCD -	7 Sites
PCPWU -	2 Sites+
TPCHD -	1,503 Sites*
	4,002 Total Sites

DNR- Washington State Department of Natural Resources

DOA- Washington State Department of Agriculture

Ecology- Washington State Department of Ecology

PCD- Pierce Conservation District

PCPWU- Pierce County Public Works and Utilities

TPCHD- Tacoma-Pierce County Health Department

+ These two sites are Pierce County Public Works and Utilities' property and the PCPWU was notified through the Potential Contaminant Source mailing. Hence, no letter needs to be mailed regarding agency notification.

* The TPCHD does not have regulatory jurisdiction over the great majority of these sites but rather has a small quantity hazardous materials education program that may be able to assist these sites in handling and disposal of hazardous materials. The TPCHD only has regulatory jurisdiction over those businesses in the South Tacoma Groundwater Protection District.

**Tacoma-Pierce County Health Department
Wellhead Protection Program
Agency Notification List
Updated January 2002-
Updated December 2015**

Washington State Department of Agriculture (DOA)

Pesticide Applicators
Silviculture Application Areas

Contact: Attn: Brent Barns-
 Asst. Director
 WA Department of Agriculture
 PO Box 42560
 Olympia, WA 98504-2589

Washington State Department of Ecology (ECOLOGY)

Airport -if RCRA regulated
Animal feedlot (need) to differentiate from "agricultural, livestock -confined")
Asphalt Plant -if RCRA regulated
Autorepair, auto salvage -if RCRA regulated
Boat yard/boat repair -if RCRA regulated
Car/truck dealer -if RCRA regulated
Chemical manufacturing -
Dry cleaners -if RCRA regulated
Electroplating -if RCRA regulated
Food processing plant - if NPDES permit or SWD permit required or if RCRA regulated
Furniture manufacture or repair -if RCRA regulated
Paint and sign shops -if RCRA regulated
Printing establishment -if RCRA regulated
Roofing/sheet metal facilities -if RCRA regulated
Service stations
Underground storage tanks
Vehicle/truck storage -if RCRA regulated
Wood products -if RCRA regulated
Other facilities w/hazardous materials -if RCRA regulated

Contact: Heather Bartlett
 Water Quality Program
 WA Department of Ecology
 PO Box 47600
 Olympia, WA 98504-7600

Washington State Department of Natural Resources (DNR)

Mines/gravel pits – mines with working faces of more than three acres

Contact: John Bromley
Geological and Earth Resources
1111 Washington St. SE
Olympia, WA 98504-7007

Washington State Department of Transportation (DOT)

Highway transportation corridors (pesticide spraying) - state highways and interstate highways.

Contact: Environmental Services
WA Department of Transportation
P.O. Box 47331
Olympia, WA 98504-7331

Pierce Conservation District (PCD)

Agricultural, crops
Agricultural (open pasture), livestock
Agricultural (confined), livestock
Animal waste spreading

Contact: Isabel Ragland
Water Quality Monitoring
Program
P.O. Box 1057
Puyallup, WA 98371

Pierce County Office of Fire Prevention (PCFP)

Aboveground tanks – except home heating oil

Contact: Lowell Porter
Pierce County Fire Prevention
2401 South 35th Street
Tacoma, WA 98409-7494

Pierce County Planning and Land Services (PALS)

Mines/gravel pits – all mines (see also DNR)

Contact: Dennis Hanberg
Pierce County Planning and Land Services
2401 South 35th Street
Tacoma, WA 98409-7490

Pierce County Public Works and Utilities Department (PCPWU)

Highway transportation corridors -county roads only

Contact: Jay Simons-Operations and Maintenance Supervisor
Pierce County Public Works and Utilities Department
2702 S. 42nd St. Suite 201
Tacoma, WA 98409-7322

Pierce County Public Works and Utilities, Water Programs (PCWP)

Stormwater drywell/infiltration

Contact: Dan Wrye
Pierce County Water Programs
2702 S. 42nd St.
Tacoma, WA 98409

Tacoma-Pierce County Health Department (TPCHD)

Abandoned wells
Airport
Auto repair, auto salvage
Boat yard/boat repair
Car/truck dealer
Car wash
Dry cleaners
Electroplating
Furniture manufacture or repair
Landfills
Landscape supplier
Nurseries
Paint and sign shops
Paint, retail sales - if mixing and repackaging
Photo processing
Printing establishment
Rendering plant - if surface impoundment at plant
Roofing/sheet metal facilities
On-site sewage systems*
Sewage plant biosolids disposal
Vehicle/truck storage
Water well
Wood products
Other facilities with hazardous materials

Contact: Ray Hanowell
Tacoma-Pierce County Health Department
3629 South D Street, MS 021
Tacoma, WA 98418-6813

Sources with responsible jurisdictional authority

Cemetery

Golf courses

Parks and recreation areas

Railroad right-of-ways

- * Depending on the capacity as determined by daily point flow, on-site sewage systems may be governed by the TPCHD, the Washington State Department of Health, or Ecology. TPCHD will act as a notification clearinghouse for on-site sewage systems.



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

RECEIVED

MAY 28 2002

Tacoma-Pierce County
Health Dept.

May 21, 2002

Bill Lingley
Geological and Earth Resources
WA Department of Natural Resources
PO Box 47007
Olympia, WA 98504-7007

Dear Mr. Lingley:

To protect the drinking water supply for the customers of Tacoma Water we are completing our Wellhead Protection Program in accordance with Washington State requirements (WAC 246-290-135). As part of the Wellhead Protection Program, we mapped the area overlying the short-term recharge zone of our drinking water wells and identified the potential contaminant sources within this area. The area overlying the short-term recharge zone is called our Wellhead Protection Area.

Washington State requires (WAC 246-290-135) that the regulatory agency with jurisdiction over each contaminant source be notified of the potential contaminant sources within the Wellhead Protection Area. This letter is to inform you that Randles Sand & Gravel, at 9315 Canyon Road E., Puyallup, WA 98371, is located within our Wellhead Protection Area.

Although we do not anticipate there being a pollution problem, we hope that informing you of this potential contaminant source in our Wellhead Protection Area will result in an increase in precautions to protect the quality of our drinking water. For further information, please call either Ray Hanowell, Environmental Health Specialist II with the Tacoma-Pierce County Health Department, at (253) 798-2845, or me, at (253) 502-8210. Thank you for your assistance in protecting our valuable drinking water supply.

Sincerely,

Alan T. Medak
Water Quality Manager



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

RECEIVED

MAY 28 2002

Tacoma-Pierce County
Health Dept.

May 21, 2002

Laurie Morgan
Water Quality Program
WA Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Dear Ms. Morgan:

To protect the drinking water supply for the customers of Tacoma Water, we are completing our Wellhead Protection Program in accordance with Washington State requirements (WAC 246-290-135). As part of the Wellhead Protection Program, we mapped the area overlying the short-term recharge zone of our drinking water wells and identified the potential contaminant sources within this area. The area overlying the short-term recharge zone is called our Wellhead Protection Area.

Washington State requires (WAC 246-290-135) that the regulatory agency with jurisdiction over each contaminant source be notified of the potential contaminant sources within the Wellhead Protection Area. This letter is to inform you that the potential contaminant sources listed on the enclosed 3.5 inch Floppy Disk are located within our Wellhead Protection Area. The file on the Floppy is an Access database and the Ecology-regulated businesses/sites are identified by the word "Ecology" in the "Regulator" column.

Although we do not anticipate there being a pollution problem, we hope that informing you of these potential contaminant sources in our Wellhead Protection Area will result in an increase in precautions to protect the quality of our drinking water. For further information, please call either Ray Hanowell, Environmental Health Specialist II with the Tacoma-Pierce County Health Department, at (253) 798-2845, or me, at (253) 502-8210. Thank you for your assistance in protecting our valuable drinking water supply.

Sincerely,

Alan T. Medak
Water Quality Manager

Enclosure



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

RECEIVED

MAY 28 2002

Tacoma-Pierce County
Health Dept.

May 21, 2002

Monty Mahan
Pierce Conservation District
Puyallup Executive Park
1011 East Main, Suite 106
Puyallup, WA 98372

Dear Mr. Mahan:

To protect the drinking water supply for the customers of Tacoma Water, we are completing our Wellhead Protection Program in accordance with Washington State requirements (WAC 246-290-135). As part of the Wellhead Protection Program, we mapped the area overlying the short-term recharge zone of our drinking water wells and identified the potential contaminant sources within this area. The area overlying the short-term recharge zone is called our Wellhead Protection Area.

Washington State requires (WAC 246-290-135) that the regulatory agency with jurisdiction over each contaminant source be notified of the potential contaminant sources within the Wellhead Protection Area. We recognize that your agency has no regulatory authority over the identified potential contaminant sources but understand that you may be able to provide technical assistance to these farms and businesses to prevent groundwater contamination. This letter is to inform you that the farms/businesses on the enclosed list are located within our Wellhead Protection Area.

Although we do not anticipate there being a pollution problem, we hope that informing you of these potential contaminant sources in our Wellhead Protection may allow you to give higher priority to these sites if they request your assistance. For further information, please call either Ray Hanowell, Environmental Health Specialist II with the Tacoma-Pierce County Health Department, at (253) 798-2845, or me, at (253) 502-8210. Thank you for your help in protecting our valuable drinking water supply.

Sincerely,

Alan T. Medak
Water Quality Manager

Enclosure

Tacoma Wellhead Protection Program

Potential Contaminant Sources that may be Advised by the Pierce Conservation District

The following businesses are located within the Tacoma Water Division's Wellhead Protection Area:

Cairjac Country Kennels, 11812 8th Ave E, Tacoma, WA 98445-3040

Top Dog K-9 Service, 2519 104th St E, Tacoma, WA 98445-5311

Brookwood Equestrian Center, 4850 S Washington St, Tacoma, WA 98409-2827

Rainbow Ridge Ranch, 18407 40th Ave E, Tacoma, WA 98446

Gillshire Kennels, 2519 128th St E, Tacoma, WA 98445-3627

Serenity Farm, 4524 200th St E, Spanaway, WA 98387

Waymans House Kennels, 416 115th St S, Tacoma, WA 98444-5310



TACOMA WATER

3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

RECEIVED
MAY 28 2002
Tacoma-Pierce County
Health Dept.

May 21, 2002

Kirk Cook
Pesticide Management
WA Department of Agriculture
PO Box 42589
Olympia, WA 98504-2589

Dear Mr. Cook:

To protect the drinking water supply for the customers of Tacoma Water, we are completing our Wellhead Protection Program in accordance with Washington State requirements (WAC 246-290-135). As part of the Wellhead Protection Program, we mapped the area overlying the short-term recharge zone of our drinking water wells and identified the potential contaminant sources within this area. The area overlying the short-term recharge zone is called our Wellhead Protection Area.

Washington State requires (WAC 246-290-135) that the regulatory agency with jurisdiction over each contaminant source be notified of the potential contaminant sources within the Wellhead Protection Area. This letter is to inform you that the businesses/sites on the enclosed list are located within our Wellhead Protection Area.

Although we do not anticipate there being a pollution problem, we hope that informing you of these potential contaminant sources in our Wellhead Protection Area will result in an increase in precautions to protect the quality of our drinking water. For further information, please call either Ray Hanowell, Environmental Health Specialist II with the Tacoma-Pierce County Health Department, at (253) 798-2845, or me, at (253) 502-8210. Thank you for your assistance in protecting our valuable drinking water supply.

Sincerely,

Alan T. Medak
Water Quality Manager

Enclosure

Tacoma Wellhead Protection Program

Potential Contaminant Sources that are Regulated by the Washington State Department of Agriculture

The following businesses are located within the Tacoma Water Division's Wellhead Protection Area:

American Pest Management, 4066 S. Center St., Tacoma, WA 98409-2315

County Pest Control, 10714 80th Ave. E., Puyallup, WA 98373-3967

Affordable Pest Control, 5425 Pacific Ave., Tacoma, WA 98408-7639

Long Pest Control, Inc., 3001 Bridgeport Way, Tacoma, WA 98466-4616

D&T Exterminators, 8623 S Yakima Ave., Tacoma, WA 98444-4475

Veterans Pest Exterminators, 509 N Yakima Ave., Tacoma, WA 98403-2336

Redi-National Pest Eliminators, 3718 Pacific Hwy E., Tacoma, WA 98424-1136

Terminix International, 10027 S Tacoma Way, Lakewood, WA 98499-4668

All Seasons Pest Control, 225 174th St S, Spanaway, WA 98387-8705

Appendix D

Emergency Response Information



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

March 6, 2002

Ron Stephens, Assistant Fire Chief
Tacoma Fire Department
901 S. Fawcett,
Tacoma, WA 98402

Dear: Mr. Stephens,

This letter is to inform you that a portion of the Tacoma Water Wellhead Protection Area lies within your district boundaries. A Wellhead Protection Area is the land area overlying a ground water aquifer that contributes water to a public water system drinking water well. Tacoma Water has delineated the boundaries of its Wellhead Protection Areas using methodologies prescribed by the Washington State Department of Health.

The one-year time-of-travel zone is an extremely important area to protect and as such we are requesting that you take this into consideration when responding to an incident that could potentially pollute ground water. The enclosed map identifies the one-year time-of-travel zone of that portion of the Tacoma Water Wellhead Protection Area that lies within your district boundaries. The mapped Wellhead Protection Areas for the larger public water systems, including those for the Tacoma Water, are also available for viewing in Pierce County's GIS system, *Countyview*.

Tacoma Water provides water to more than 300,000 people and relies to a considerable extent on local ground waters that supply the water system's wells. Tacoma Water asks that you please consider the protection of our drinking water resources as you respond to spills and fires. If there is a fire or spill in the Wellhead Protection Area that you think has the potential to contaminate ground water, can you please contact Tacoma Water along with your other regular contacts? Our Water Control Center's 24-hour phone number is (253) 502-8344.

If you have any questions about the Tacoma Wellhead Protection Area within your district or any other aspect of our Wellhead Protection Program, please call either Ray Hanowell, Environmental Health Specialist II with the Tacoma-Pierce County Health Department, at (253) 798-2845, or myself. I can be reached by phone at (253) 502-8210 or by email at amedak@ci.tacoma.wa.us. Thank you for your assistance in protecting our valuable drinking water resources.

Sincerely,

Al Medak, P.E.
Water Quality Manager
Tacoma Water Division

cc: **Ray Hanowell**, TPCHD
Dave Sherman, Water Supply

RECEIVED

MAR 07 2002

Tacoma-Pierce County
Health Dept.



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

March 6, 2002

Paul Webb, Fire Chief
Pierce County Fire District 2
5000 Steilacoom Blvd SW,
Lakewood, WA 98499

Dear: Mr. Webb,

This letter is to inform you that a portion of the Tacoma Water Wellhead Protection Area lies within your district boundaries. A Wellhead Protection Area is the land area overlying a ground water aquifer that contributes water to a public water system drinking water well. Tacoma Water has delineated the boundaries of its Wellhead Protection Areas using methodologies prescribed by the Washington State Department of Health.

The one-year time-of-travel zone is an extremely important area to protect and as such we are requesting that you take this into consideration when responding to an incident that could potentially pollute ground water. The enclosed map identifies the one-year time-of-travel zone of that portion of the Tacoma Water Wellhead Protection Area that lies within your district boundaries. The mapped Wellhead Protection Areas for the larger public water systems, including those for the Tacoma Water, are also available for viewing in Pierce County's GIS system, *Countyview*.

Tacoma Water provides water to more than 300,000 people and relies to a considerable extent on local ground waters that supply the water system's wells. Tacoma Water asks that you please consider the protection of our drinking water resources as you respond to spills and fires. If there is a fire or spill in the Wellhead Protection Area that you think has the potential to contaminate ground water, can you please contact Tacoma Water along with your other regular contacts? Our Water Control Center's 24-hour phone number is (253) 502-8344.

If you have any questions about the Tacoma Wellhead Protection Area within your district or any other aspect of our Wellhead Protection Program, please call either Ray Hanowell, Environmental Health Specialist II with the Tacoma-Pierce County Health Department, at (253) 798-2845, or myself. I can be reached by phone at (253) 502-8210 or by email at amedak@ci.tacoma.wa.us. Thank you for your assistance in protecting our valuable drinking water resources.

Sincerely,

Al Medak, P.E.
Water Quality Manager
Tacoma Water Division

cc: **Ray Hanowell, TPCHD**
Dave Sherman, Water Supply

RECEIVED

MAR 07 2002

Tacoma-Pierce County
Health Dept.



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

March 6, 2002

William Bush, Fire Chief
Pierce County Fire District 3
7907 40th St W,
University Place, WA 98466

Dear: Mr. Bush,

This letter is to inform you that a portion of the Tacoma Water Wellhead Protection Area lies within your district boundaries. A Wellhead Protection Area is the land area overlying a ground water aquifer that contributes water to a public water system drinking water well. Tacoma Water has delineated the boundaries of its Wellhead Protection Areas using methodologies prescribed by the Washington State Department of Health.

The one-year time-of-travel zone is an extremely important area to protect and as such we are requesting that you take this into consideration when responding to an incident that could potentially pollute ground water. The enclosed map identifies the one-year time-of-travel zone of that portion of the Tacoma Water Wellhead Protection Area that lies within your district boundaries. The mapped Wellhead Protection Areas for the larger public water systems, including those for the Tacoma Water, are also available for viewing in Pierce County's GIS system, *Countyview*.

Tacoma Water provides water to more than 300,000 people and relies to a considerable extent on local ground waters that supply the water system's wells. Tacoma Water asks that you please consider the protection of our drinking water resources as you respond to spills and fires. If there is a fire or spill in the Wellhead Protection Area that you think has the potential to contaminate ground water, can you please contact Tacoma Water along with your other regular contacts? Our Water Control Center's 24-hour phone number is (253) 502-8344.

If you have any questions about the Tacoma Wellhead Protection Area within your district or any other aspect of our Wellhead Protection Program, please call either Ray Hanowell, Environmental Health Specialist II with the Tacoma-Pierce County Health Department, at (253) 798-2845, or myself. I can be reached by phone at (253) 502-8210 or by email at amedak@ci.tacoma.wa.us. Thank you for your assistance in protecting our valuable drinking water resources.

Sincerely,

Al Medak, P.E.
Water Quality Manager
Tacoma Water Division

cc: **Ray Hanowell**, TPCHD
Dave Sherman, Water Supply

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MAR 07 2002

Tacoma-Pierce County
Health Dept.



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

March 6, 2002

Fire Chief Tucker
Pierce County Fire District 6
17520 22nd Ave E,
Tacoma, WA 98445

Dear: Mr. Tucker,

This letter is to inform you that a portion of the Tacoma Water Wellhead Protection Area lies within your district boundaries. A Wellhead Protection Area is the land area overlying a ground water aquifer that contributes water to a public water system drinking water well. Tacoma Water has delineated the boundaries of its Wellhead Protection Areas using methodologies prescribed by the Washington State Department of Health.

The one-year time-of-travel zone is an extremely important area to protect and as such we are requesting that you take this into consideration when responding to an incident that could potentially pollute ground water. The enclosed map identifies the one-year time-of-travel zone of that portion of the Tacoma Water Wellhead Protection Area that lies within your district boundaries. The mapped Wellhead Protection Areas for the larger public water systems, including those for the Tacoma Water, are also available for viewing in Pierce County's GIS system, *Countyview*.

Tacoma Water provides water to more than 300,000 people and relies to a considerable extent on local ground waters that supply the water system's wells. Tacoma Water asks that you please consider the protection of our drinking water resources as you respond to spills and fires. If there is a fire or spill in the Wellhead Protection Area that you think has the potential to contaminate ground water, can you please contact Tacoma Water along with your other regular contacts? Our Water Control Center's 24-hour phone number is (253) 502-8344.

If you have any questions about the Tacoma Wellhead Protection Area within your district or any other aspect of our Wellhead Protection Program, please call either Ray Hanowell, Environmental Health Specialist II with the Tacoma-Pierce County Health Department, at (253) 798-2845, or myself. I can be reached by phone at (253) 502-8210 or by email at amedak@ci.tacoma.wa.us. Thank you for your assistance in protecting our valuable drinking water resources.

Sincerely,

Al Medak, P.E.
Water Quality Manager
Tacoma Water Division

cc: **Ray Hanowell, TPCHD**
Dave Sherman, Water Supply

RECEIVED

MAR 07 2002

Tacoma-Pierce County
Health Dept.



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

March 6, 2002

Dan Packer, Fire Chief
Pierce County Fire District 24
18421 Old Buckley Hwy,
Bonney Lake, WA 98390

Dear: Mr. Packer,

This letter is to inform you that a portion of the Tacoma Water Wellhead Protection Area lies within your district boundaries. A Wellhead Protection Area is the land area overlying a ground water aquifer that contributes water to a public water system drinking water well. Tacoma Water has delineated the boundaries of its Wellhead Protection Areas using methodologies prescribed by the Washington State Department of Health.

The one-year time-of-travel zone is an extremely important area to protect and as such we are requesting that you take this into consideration when responding to an incident that could potentially pollute ground water. The enclosed map identifies the one-year time-of-travel zone of that portion of the Tacoma Water Wellhead Protection Area that lies within your district boundaries. The mapped Wellhead Protection Areas for the larger public water systems, including those for the Tacoma Water, are also available for viewing in Pierce County's GIS system, *Countyview*.

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Sincerely,

Al Medak, P.E.
Water Quality Manager
Tacoma Water Division

cc: Ray Hanowell, TPCHD
Dave Sherman, Water Supply

RECEIVED

MAR 07 2002

Tacoma-Pierce County
Health Dept.



3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

March 6, 2002

Jake Doty, Fire Chief
Pierce County Fire District 20
PO Box 258,
South Prairie, WA 98385

Dear: Mr. Doty,

This letter is to inform you that a portion of the Tacoma Water Wellhead Protection Area lies within your district boundaries. A Wellhead Protection Area is the land area overlying a ground water aquifer that contributes water to a public water system drinking water well. Tacoma Water has delineated the boundaries of its Wellhead Protection Areas using methodologies prescribed by the Washington State Department of Health.

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Sincerely,

Al Medak, P.E.
Water Quality Manager
Tacoma Water Division

cc: Ray Hanowell, TPCHD
Dave Sherman, Water Supply

RECEIVED

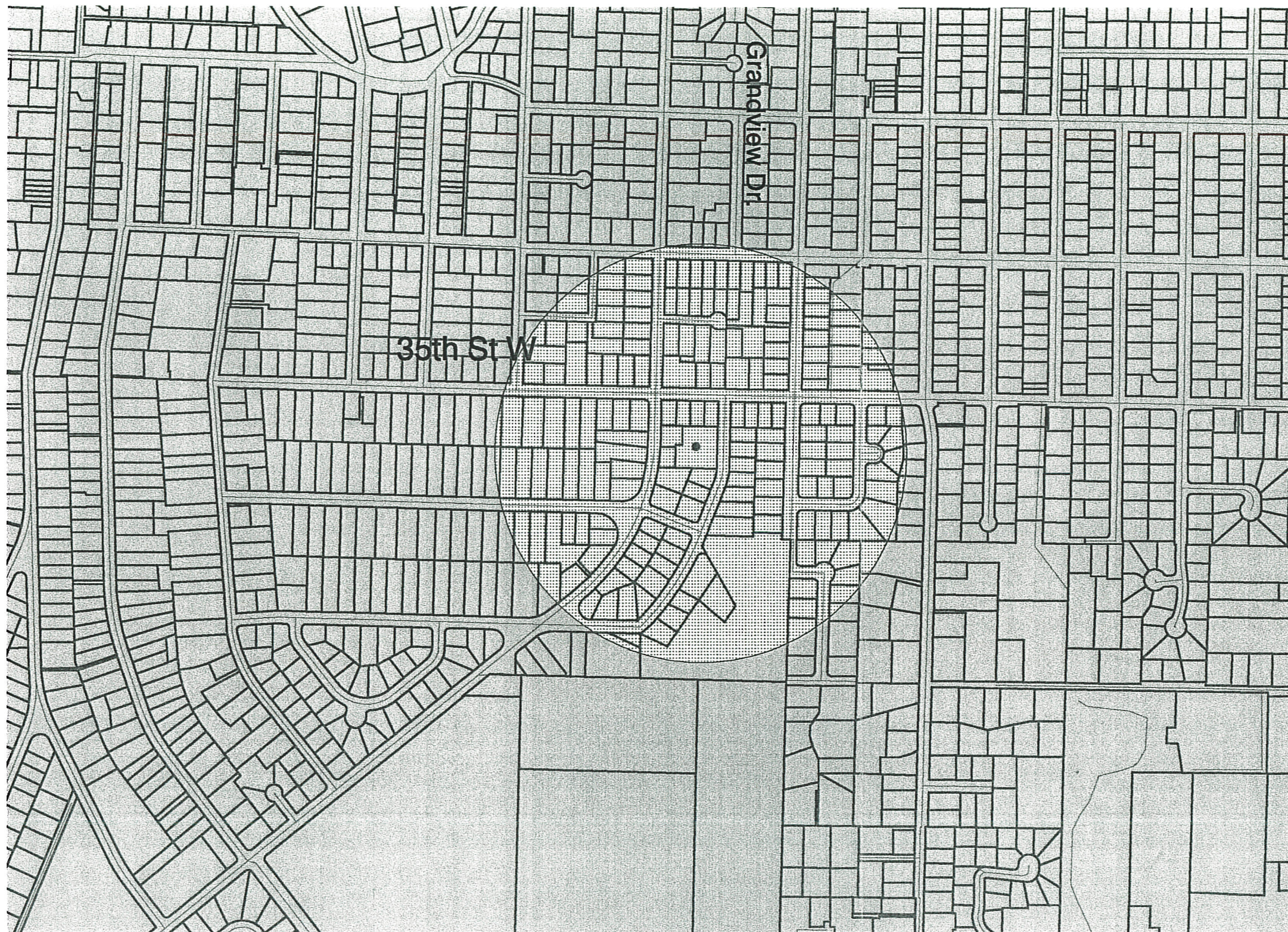
MAR 07 2002

Tacoma-Pierce County
Health Dept.

Pierce County
Fire District 3

Well UP-1 WHPA

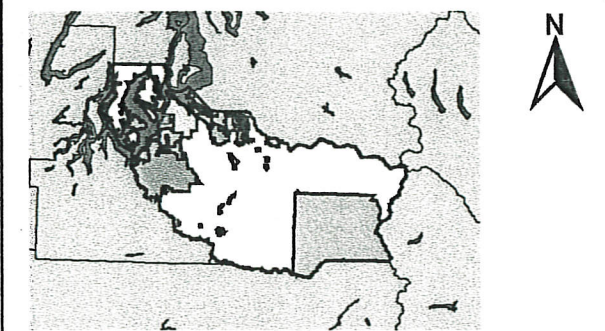
One-Year Time-of-Travel Zone



MAP LEGEND

- Tax Parcels*
- Fire Districts
- Roads - All*
- Wells - Group A
- Tac_whpz_all_1yr.shp

Scale 1:6472



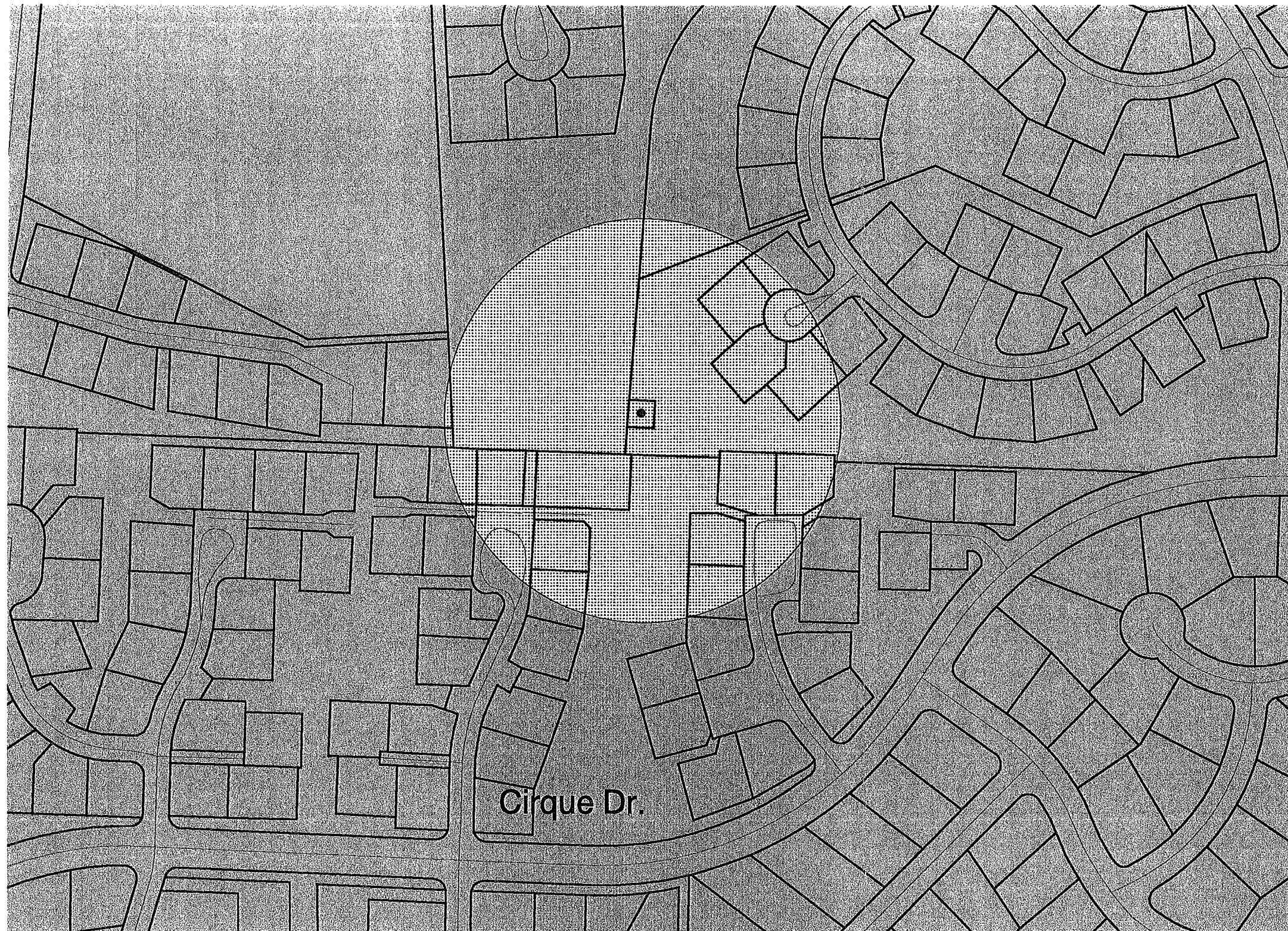
TPCHD

16:07 Jan 15, 2002

Well UP-10 WHPA

One-Year Time-of-Travel Zone

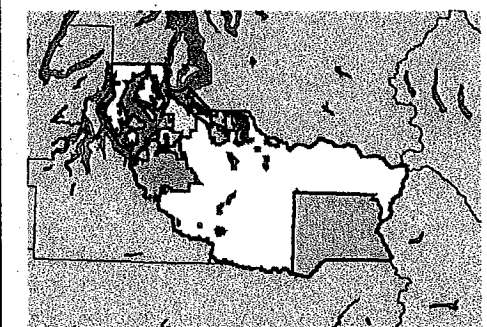
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MAP LEGEND

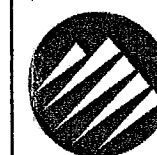
-  Tax Parcels*
-  Fire Districts
-  Roads - All*
-  Wells - Group A
-  Tac_whpz_all_1yr.shp

Scale 1:2121



TPCHD

15:42 Jan 15, 2002



Pierce County
Geographic Information Services

South Tacoma Wellfield North
One-Year Time of Travel

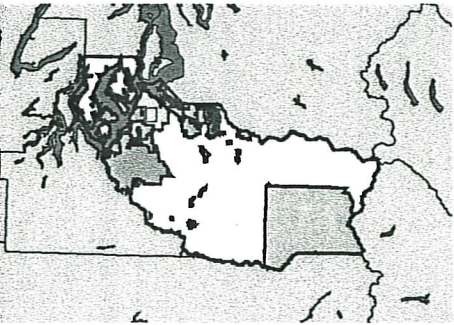
Tacoma
Fire
Dept.



MAP LEGEND

- Wells - Group A
- ~ Roads - All*
Arterials*
- ~ Limited Access
- ~ Principle Road
- ~ Major Road
- ~ Collector Road
- Tac_whpz_all_1yr.shp
- Fire Districts

Scale 1:24207



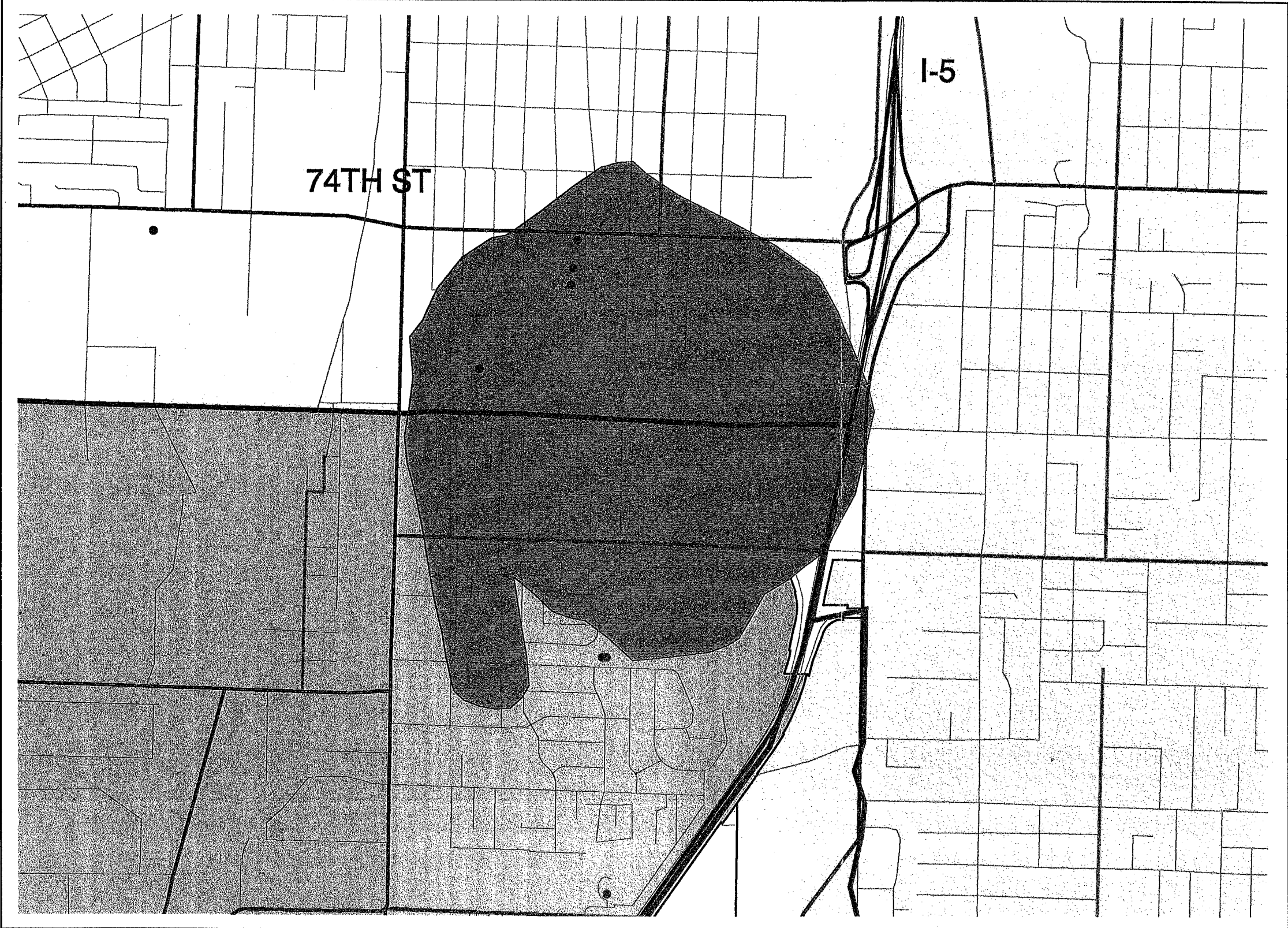
TPCHD

13:58 Jan 8, 2002



Pierce County
Geographic Information Services

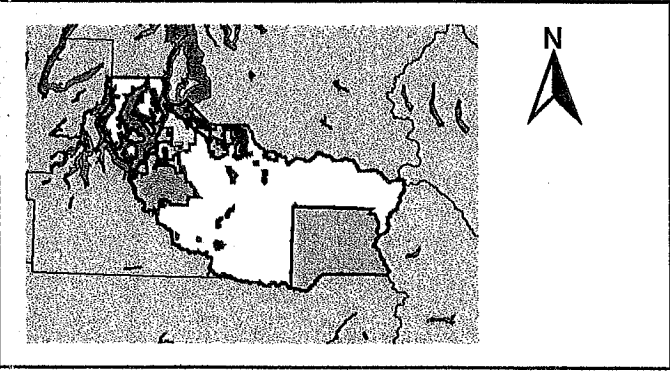
South Tacoma Wellfield, South
One-Year Time-of-Travel



MAP LEGEND


- Wells - Group A
- Roads - All*
- ▭ Fire Districts
- Arterials*
- Limited Access
- Principle Road
- Major Road
- Collector Road
- ▬ Tac_whpz_all_1yr.shp

Scale 1:14327



TPCHD

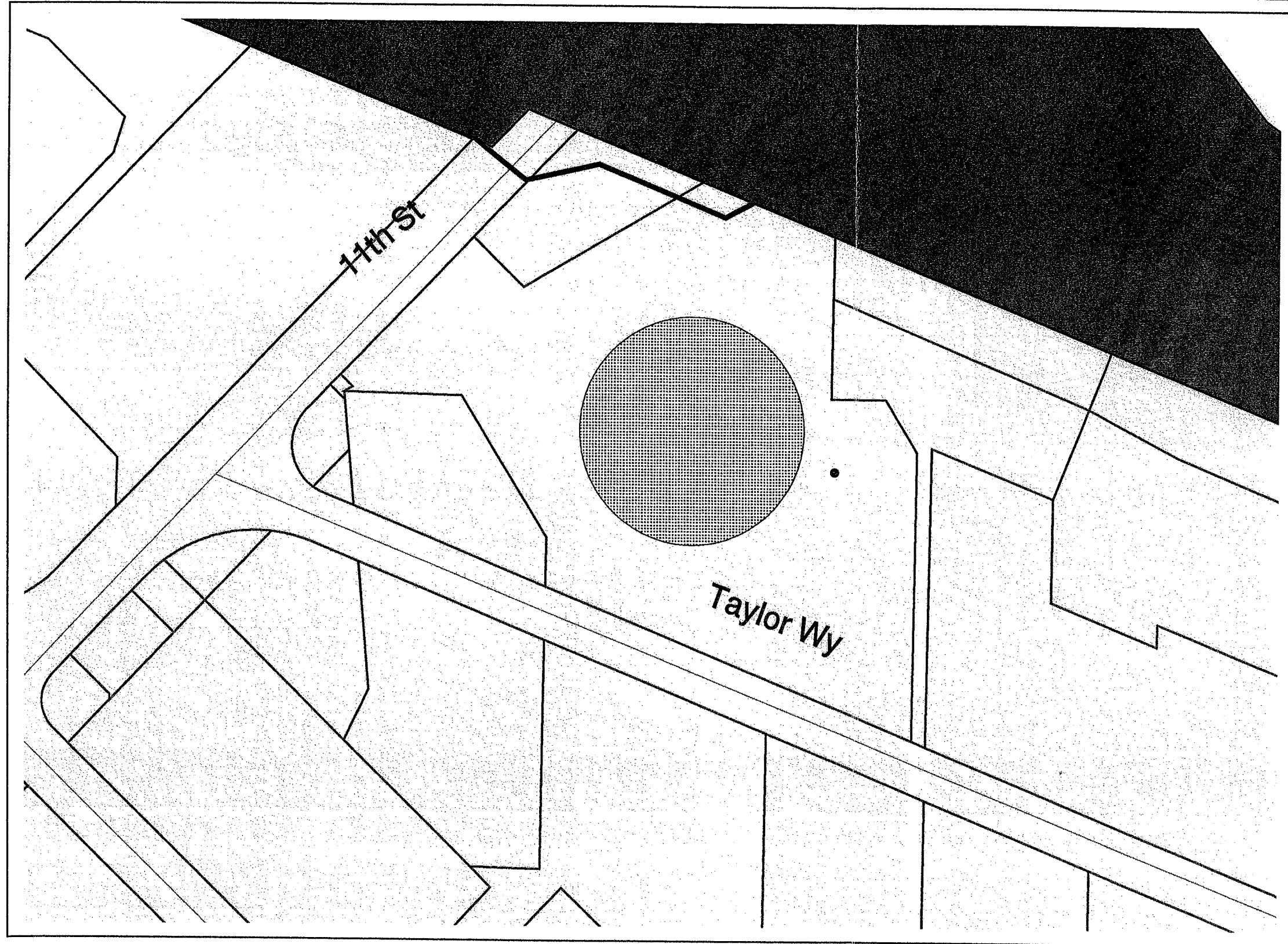
14:07 Jan 8, 2002

 **Pierce County**
Geographic Information Services

Tideflats Well 1 WHPA

One-Year Time-of-Travel Zone

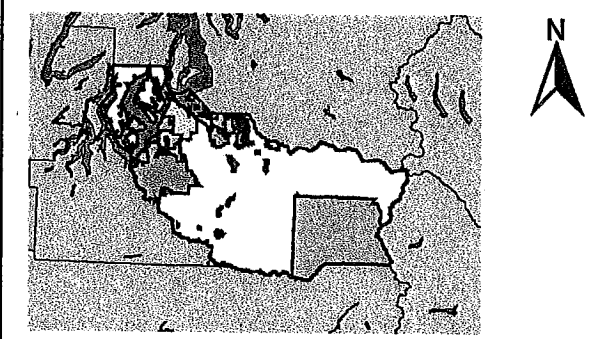
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MAP LEGEND

- Fire Districts
- Wells - Group A
- Roads - All*
- Tac whpz_all_1yr.shp
- Tax Parcels*

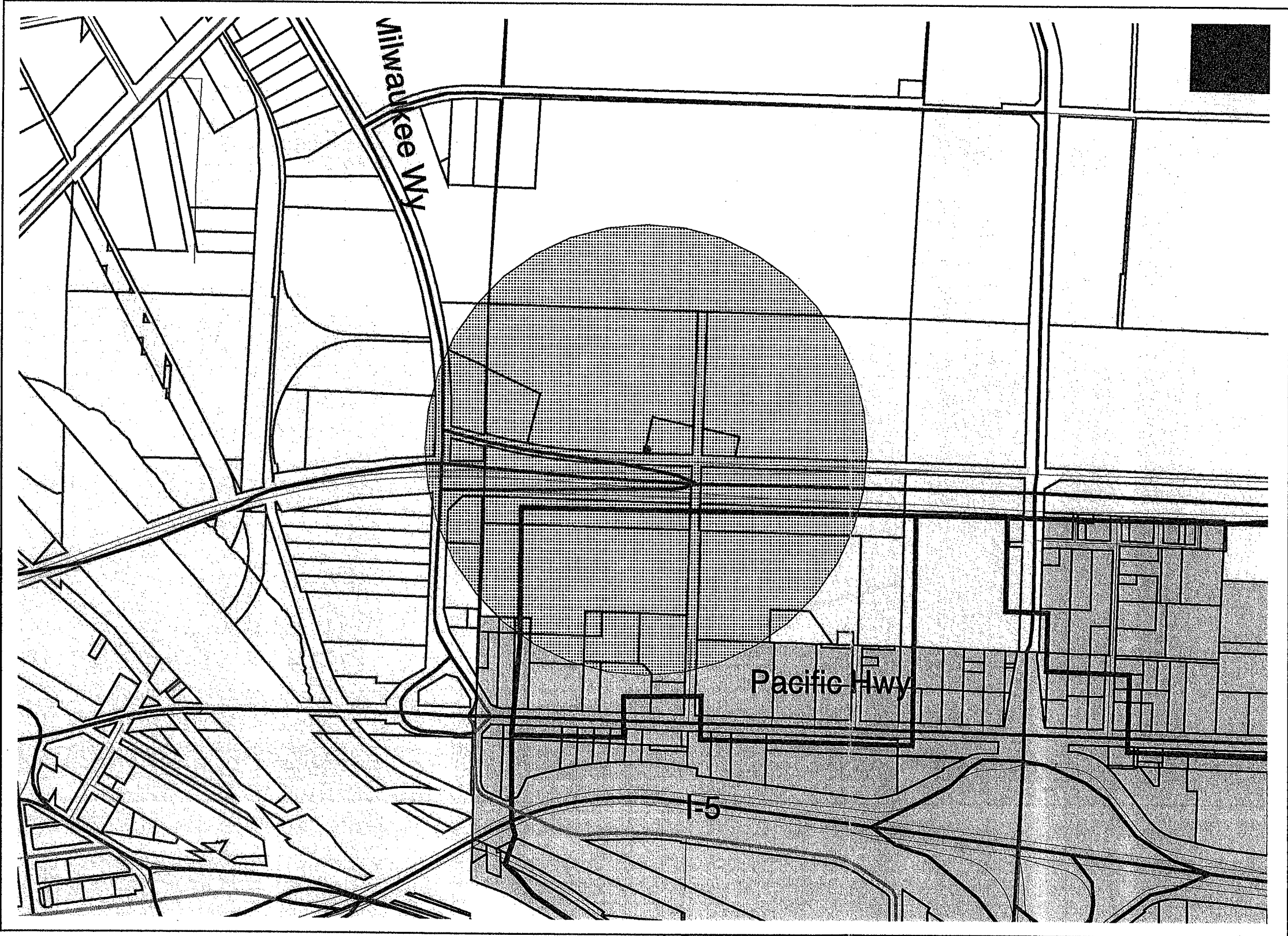
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TPCHD

10:19 Jan 11, 2002

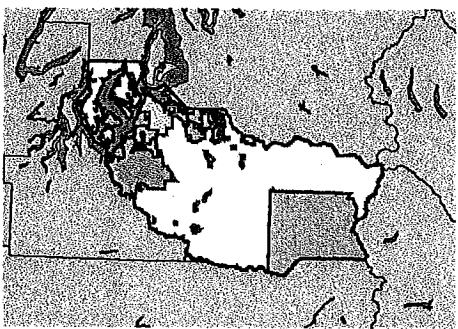
Tideflats Well 2 WHPA
One-Year Time-of-Travel Zone



MAP LEGEND

- Arterials*
- ~ Limited Access
 - ~ Principle Road
 - ~ Major Road
 - ~ Collector Road
 - ▭ Fire Districts
 - ▭ Tax Parcels*
 - Wells - Group A
 - ~ Roads - All*
 - ▨ Tac_whpz_all_1yr.shp

Scale 1:8270



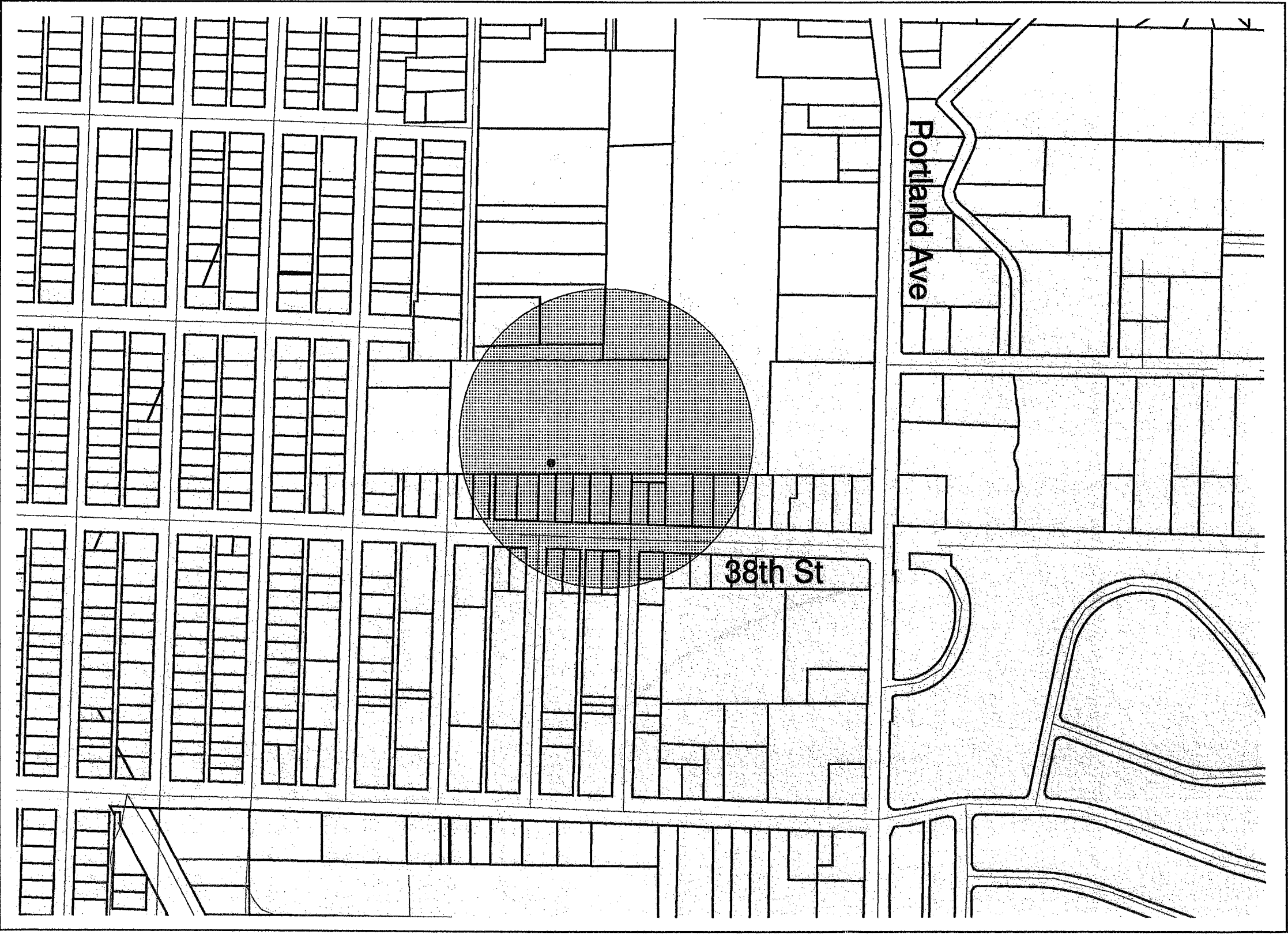
TPCHD

11:34 Jan 11, 2002



Pierce County
Geographic Information Services

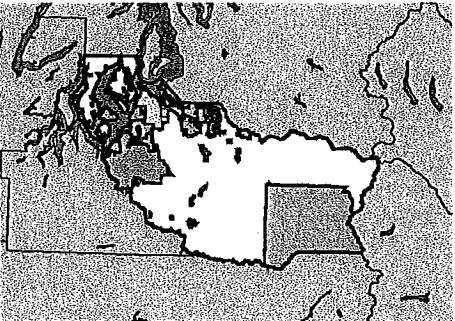
Portland Ave Well WHPA
One-Year Time-of-Travel Zone



MAP LEGEND

- Tax Parcels*
- Fire Districts
- Roads - All*
- Wells - Group A
- Tac_whpz_all_1yr.shp

Scale 1:3937



TPCHD

15:10 Jan 15, 2002

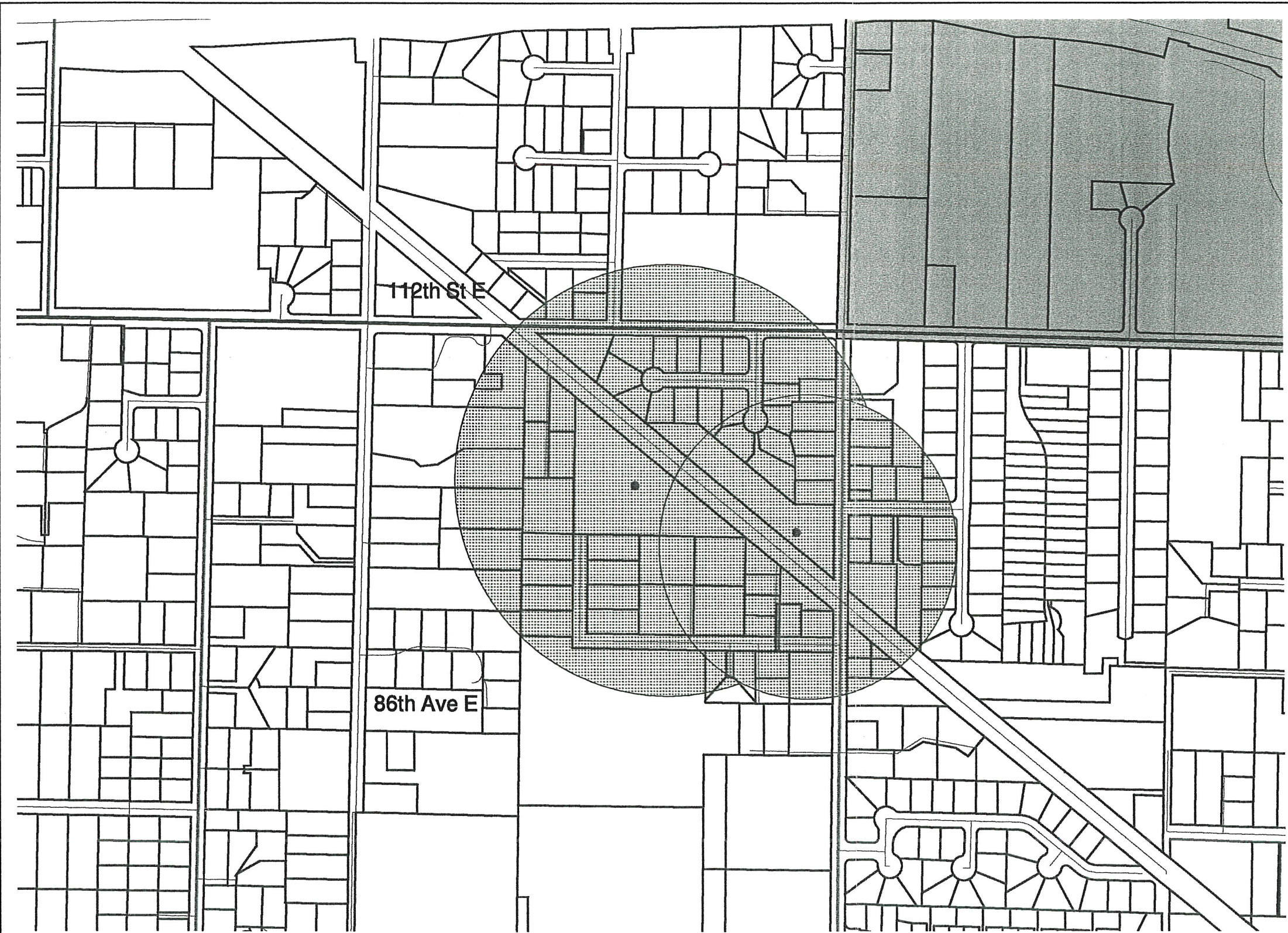


Pierce County
Geographic Information Services

Fire District 6

Gravity Pipeline Wells WHPA

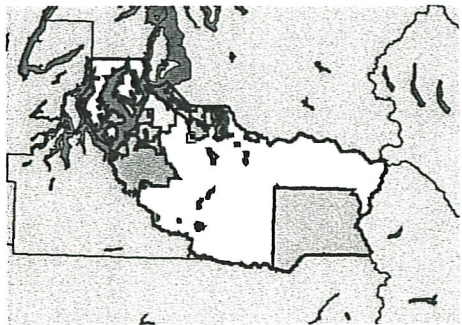
One-Year Time-of-Travel Zone



MAP LEGEND

- Wells - Group A
- ▭ Fire Districts
- ~ Roads - All*
- ▭ Tax Parcels*
- Arterials*
- ~ Limited Access
- ~ Principle Road
- ~ Major Road
- ~ Collector Road
- ▨ Tac_whpz_all_1yr.shp

Scale 1:5539



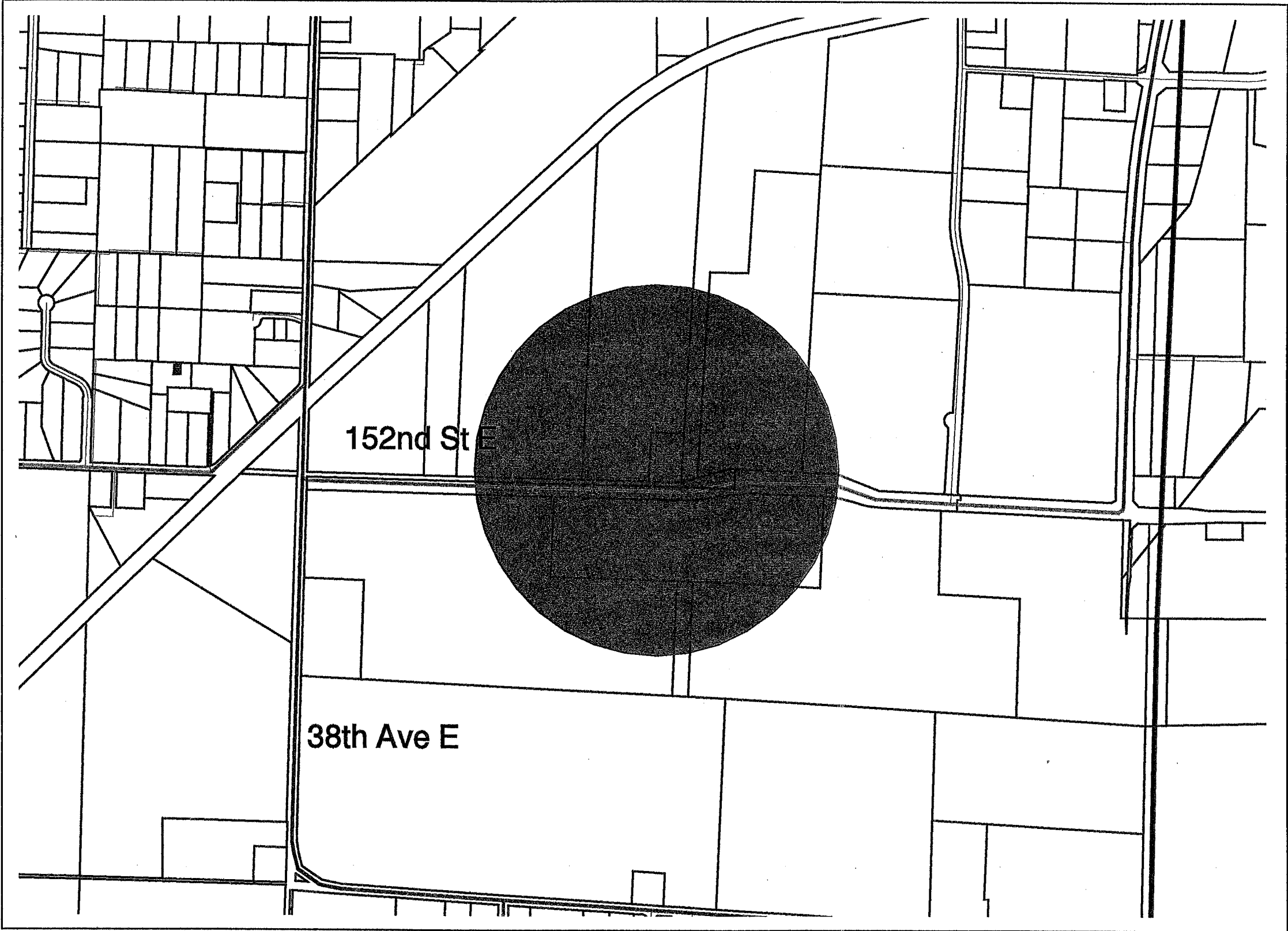
TPCHD

13:14 Jan 9, 2002



Pierce County
Geographic Information Services

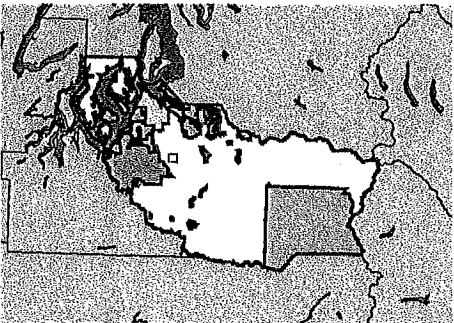
Frederickson Well WHPA
One-Year Time-of-Travel Zone



MAP LEGEND

- Wells - Group A
- ▭ Fire Districts
- ▬ Roads - All*
- ▭ Tax Parcels*
- ▬ Arterials*
- ▬ Limited Access
- ▬ Principle Road
- ▬ Major Road
- ▬ Collector Road
- Tac_whpz_all_1yr.shp

Scale 1:8219



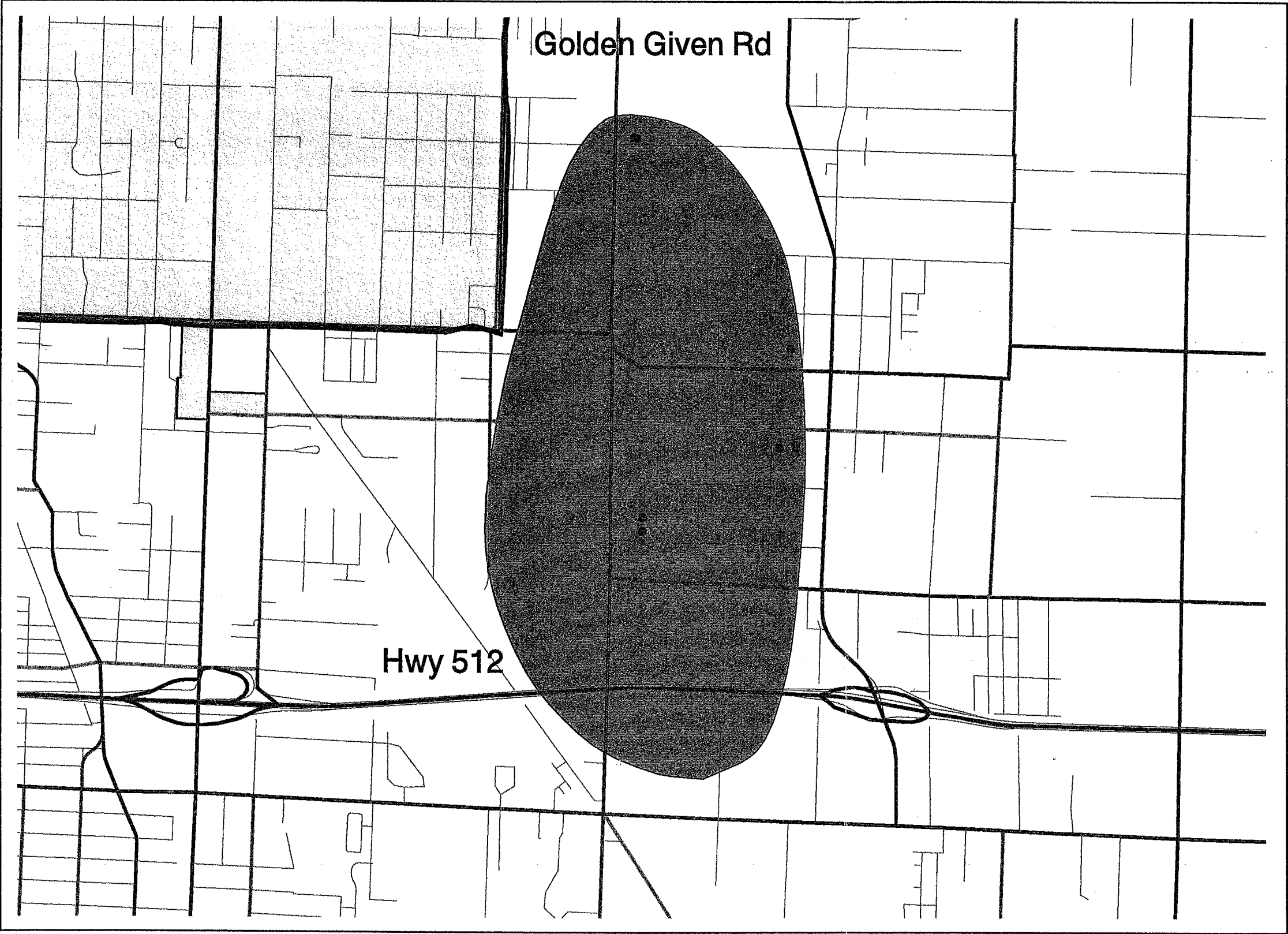
TPCHD

13:04 Jan 9, 2002



Pierce County
Geographic Information Services

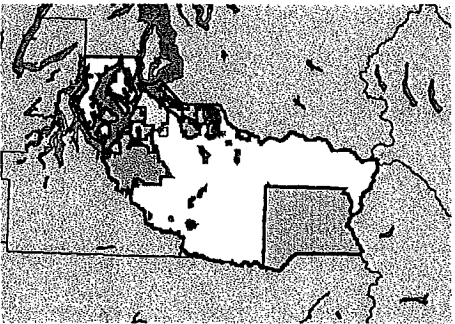
Southeast Tacoma WHPA
One-Year Time-of-Travel



MAP LEGEND

- Wells - Group A
- ∩ Roads - All*
- Fire Districts
- Arterials*
- ∩ Limited Access
- ∩ Principle Road
- ∩ Major Road
- ∩ Collector Road
- Tac_whpz_all_1yr.shp

Scale 1:15155



TPCHD

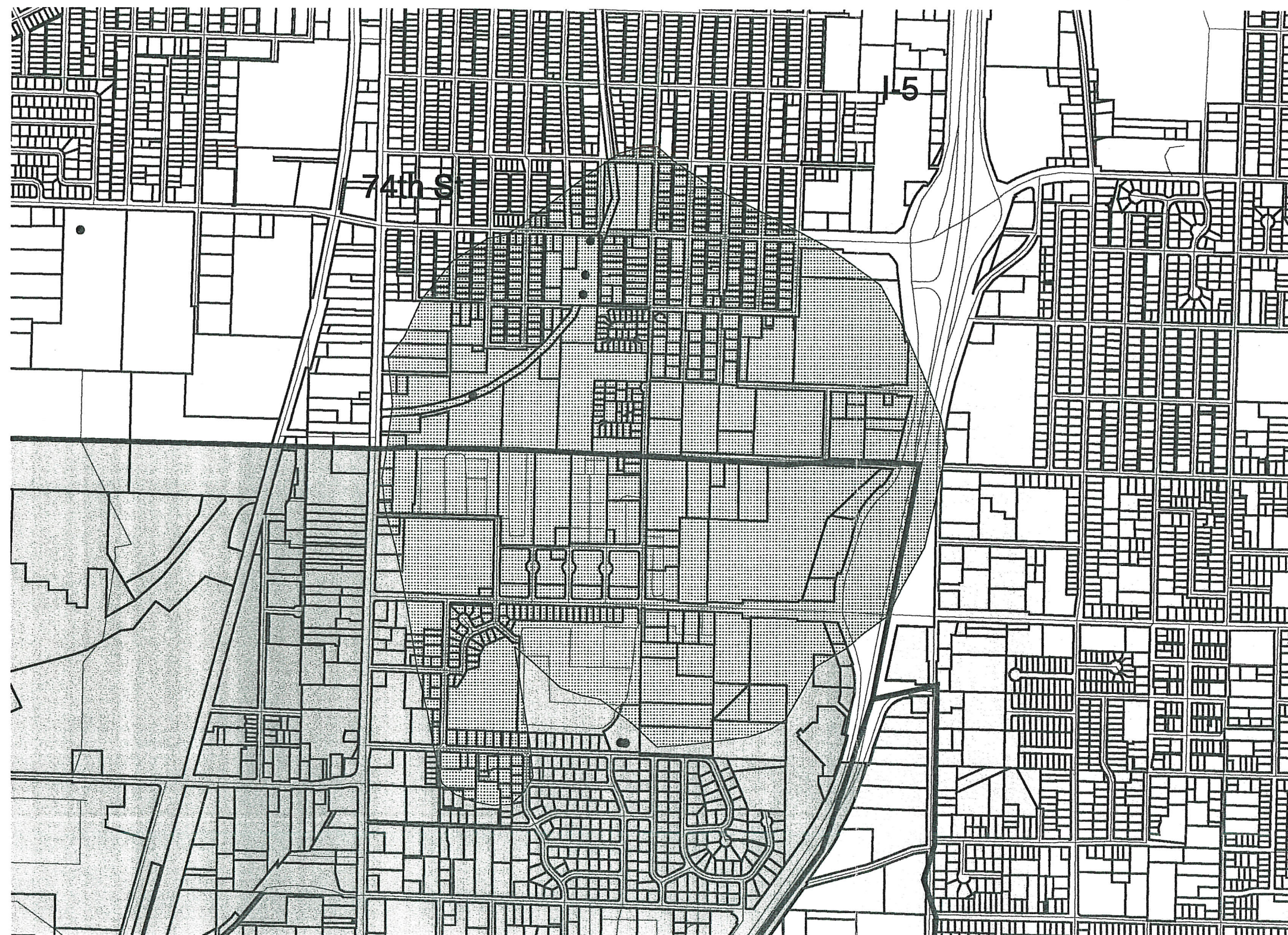
14:23 Jan 8, 2002



Pierce County
Geographic Information Services

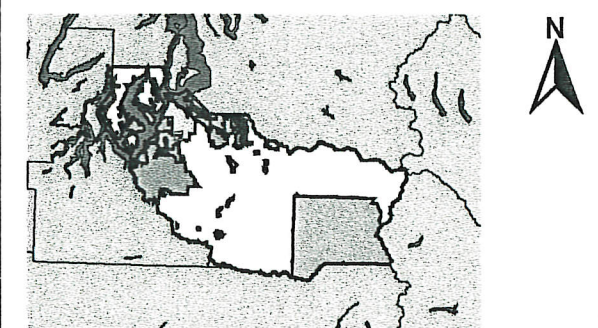
South Tacoma Wellfield, South One-Year Time-of-Travel Zone

Fire District 2



- Tax Parcels*
- Fire Districts
- Roads - All*
- Wells - Group A
- Tac_whpz_all_1yr.shp

Scale 1:12288



TPCHD

14:42 Jan 15, 2002

Prairie Ridge Springs WHPA

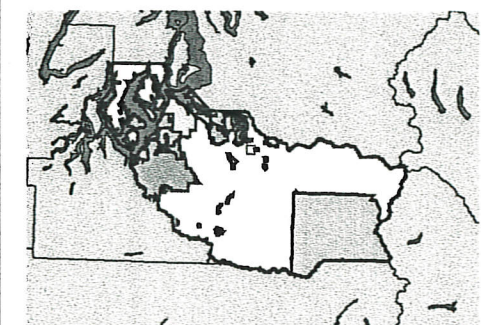
One-Year Time-of-Travel Zone

Fire District
24



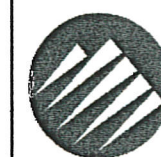
- Wells - Group A
- Fire Districts
- ~ Roads - All*
- Tax Parcels*
- Arterials*
- ~ Limited Access
- ~ Principle Road
- ~ Major Road
- ~ Collector Road
- ▨ Tac_whpz_all_1yr.shp

Scale 1:7040



TPCHD

13:27 Jan 9, 2002



Pierce County
Geographic Information Services

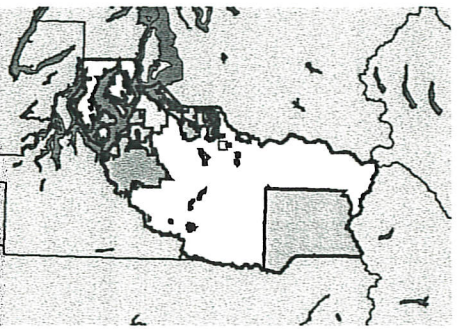
Prairie Ridge Springs WHPA
One-Year Time-of-Travel Zone

Fine District
20



- Wells - Group A
- Fire Districts
- ~ Roads - All*
- Tax Parcels*
- Arterials*
- ~ Limited Access
- ~ Principle Road
- ~ Major Road
- ~ Collector Road
- ▨ Tac_whpz_all_1yr.shp

Scale 1:7040



TPCHD

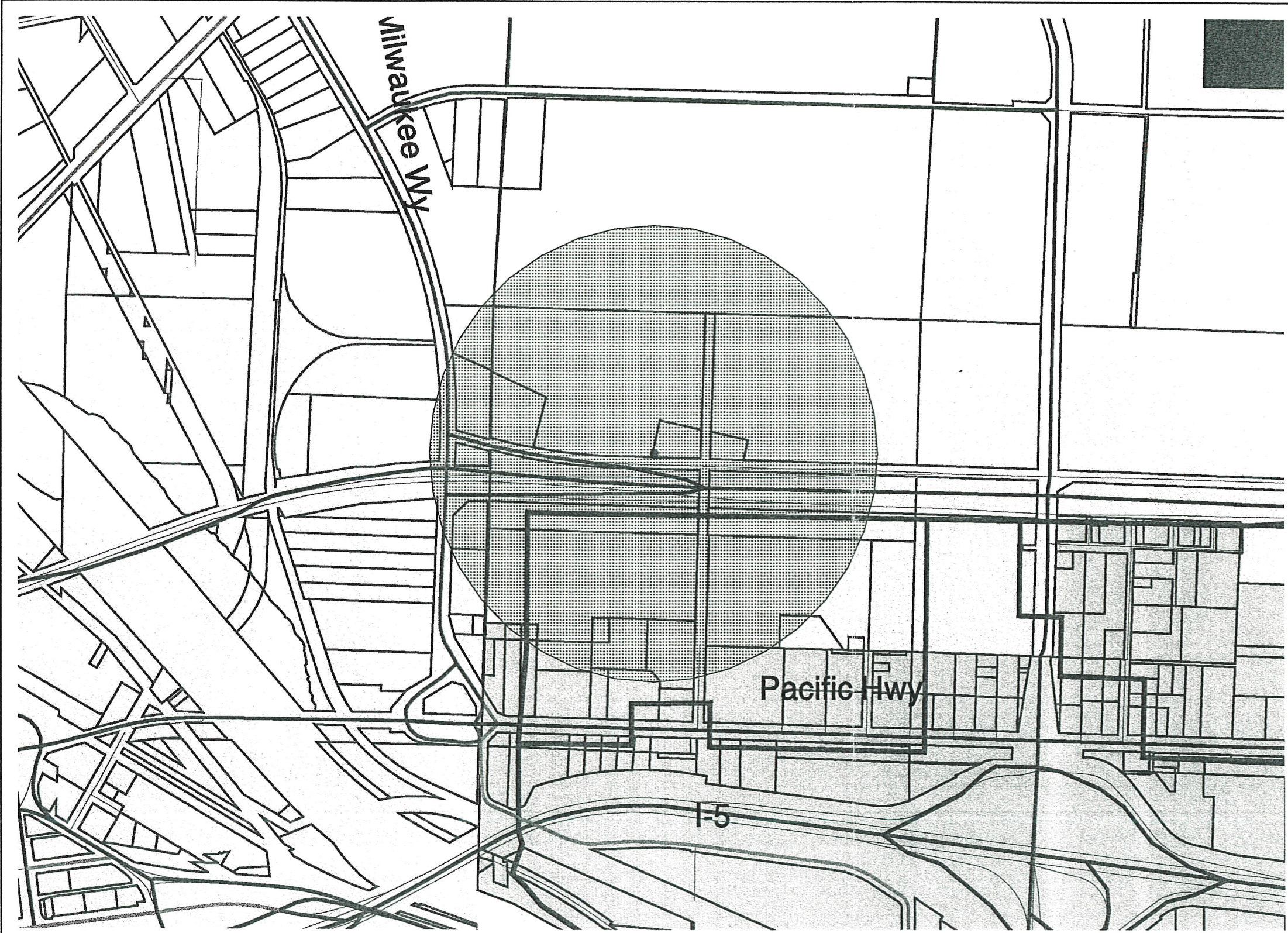
13:27 Jan 9, 2002



Pierce County
Geographic Information Services

Tideflats Well 2 WHPA
One-Year Time-of-Travel Zone

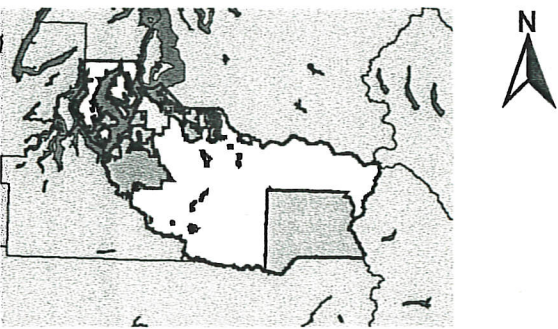
Fine District
10
(Tacoma Fine Dept.)



MAP LEGEND

- Arterials***
- ~ Limited Access
 - ~ Principle Road
 - ~ Major Road
 - ~ Collector Road
- Fire Districts**
- Tax Parcels***
- Wells - Group A**
- Roads - All***
- Tac_whpz_all_1yr.shp**

Scale 1:8270



TPCHD

11:34 Jan 11, 2002

Appendix E

Miscellaneous Information

Tacoma Wellhead Protection Program

Comparison of the Wellhead Protection Areas with The Water Service Areas December 2001

A water system's Wellhead Protection Area (WHPA) is a different geographical area than the system's service area. For this reason, a purveyor can not just mail Wellhead Protection educational materials to the system's customers and expect the WHPA to be protected. Also, the WHPA for a purveyor likely overlaps with the WHPA and/or the service area of other purveyors. To identify where coordination could occur with other purveyors the Tacoma Water Division's WHPAs were compared with their service area.

Tacoma WHPA (South Tacoma) – Approximately 80% of the WHPA is served by the Tacoma Water Division. The remainder is served by Fircrest, Lakewood, McChord Air Force Base, Parkland, Summit, Carriage Court Trailer Court, Laurel Land Mobile Home Park, Mount Tacoma Trailer Park, and Victory Motel. The largest portion of this remainder is served by Parkland Light and Water (roughly 12% of the total WHPA).

SE Tacoma WHPA (the old Southeast Tacoma Mutual WHPA) – About 30% of this WHPA is served by the Tacoma Water Division. The remainder is served by Parkland (about 30%), Spanaway (about 30%), Summit, Our Lady Queen of Heaven, Marymount, Little Park Restaurant, Redwood Motel, Spanaway One Acre Ranchettes, Spanaway Assembly of God, Water Enterprises Northwest, Inc., and Little Lake Mobile Home Park.

Frederickson WHPA – About 80% of this WHPA is served by the Tacoma Water Division. The far western and the southern areas are served by a number of systems, including: Water Enterprises Northwest, Inc., Southwood Water System, Bethel Water Company, and Country Acres Water Company.

Tideflats 1 WHPA – All of this WHPA is served by the Tacoma Water Division.

Tideflats 2 WHPA – About 75% of this WHPA is served by the Tacoma Water Division. The remaining 25% is served by Fife.

UP-1 WHPA – All of this WHPA is served by the Tacoma Water Division.

UP-10 WHPA – All of this WHPA is served by the Tacoma Water Division.

Portland Ave WHPA – All of this WHPA is served by the Tacoma Water Division.

Gravity Pipeline WHPA – All but a tiny portion of this WHPA is served by Fruitland Water. The tiny portion is served by Andrian Road Water Association.

South Prairie WHPA – About 80% of this WHPA is served by the Tacoma Water Division. The remaining area is not served by a Group A water system.