

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AUTHORIZING ) RESOLUTION NO. 94-2028  
A TEMPORARY LEASE OF PROPERTY )  
FOR A CELLULAR TELEPHONE ) Introduced by Rena Cusma  
ANTENNA SITE ) Executive Officer

WHEREAS, GTE Mobilnet representatives have approached the Regional Parks and Greenspaces Department to negotiate a long term ground lease for a small cellular telephone facility on the edge of Glendoveer Golf Course; and

WHEREAS, The purpose of the antenna site is to improve the quality of cellular service to the East Multnomah County area; and

WHEREAS, Metro desires to receive rent and GTE Mobilnet desires immediate service improvements during negotiations on a long term lease; and

WHEREAS, The City of Portland has six cellular telephone antenna sites under lease, including a water tower-related site leased to GTE Mobilnet that create a local "market" for these special leases; and

WHEREAS, GTE Mobilnet has agreed to pay Metro the same rate and abide by the same terms as its long term lease with the City of Portland; and

WHEREAS, The cellular antennas operate a very low power that is exempt from Portland's detailed land use requirements for high powered facilities; now, therefore,

BE IT RESOLVED,

1. That the Metro Council hereby authorizes the Executive Officer to execute a temporary ground lease with GTE Mobilnet for a temporary cellular telephone antenna site at Glendoveer Golf Course during negotiations on a long term lease.

2. That the Metro Council hereby authorizes the Executive Officer to exercise Metro rights under the temporary lease as necessary to assure no interference with Glendoveer Golf Course operations and to complete negotiations on a long term lease for Metro Council approval.

ADOPTED by the Metro Council this 8th day of September, 1994.

  
Ed Washington, Deputy Presiding Officer

**ENTITY  
POSITION  
STATEMENT****HUMAN EXPOSURE TO RF EMISSIONS FROM  
CELLULAR RADIO BASE STATION ANTENNAS**

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We recognize public concern for safety of microwave exposure from cellular communications base stations. Guidelines for limiting exposure have been published by the American National Standards Institute, the Institute of Electrical and Electronics Engineers, and other national and international organizations. These guidelines were developed to protect workers and the general population from harmful exposure to radiofrequency electromagnetic fields. Based on present knowledge, prolonged exposure at or below the levels recommended in these guidelines is considered safe for human health. Measurements near typical cellular base stations have shown that exposure levels normally encountered by the public are well below limits recommended by all national and international safety standards. Furthermore, public exposure near cellular base stations is not significantly different from the usual "RF background" levels in urban areas, which are produced by radio and television broadcast stations present in every modern community. Therefore, one can conclude that exposure from properly operating cellular base stations is safe for the general population.

There may be circumstances where workers could be exposed to fields greater than the standards specify. In those cases, generally on rooftops, access can be and should be restricted.

This statement was developed by the Committee on Man and Radiation of the United States Activities Board of The Institute of Electrical and Electronics Engineers, Inc. (IEEE), and represents the considered judgment of a group of U.S. IEEE members with expertise in the subject field. The IEEE United States Activities Board promotes the career and technology policy interests of the 250,000 electrical, electronics, and computer engineers who are U.S. members of the IEEE.

EXHIBIT A  
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## BACKGROUND

The acceptance and use of cellular radios and cellular telephones, which operate in continuous wave mode at carrier frequencies between 825 and 845 MHz (mobile transmitters) and between 870 and 890 MHz (base station transmitters), has increased dramatically during the past few years. To keep up with the demand for available radio channels and to ensure quality of service, there is a continual need for additional cells in many metropolitan areas and their suburbs. The installation of cell site or base station antennas frequently raises concerns about their environmental impact and safety. In addition to commonly asked questions about the aesthetic/visual impact of towers, many communities raise concerns about exposure of the public to radiofrequency energy transmitted by these sites, particularly people who live or work in the vicinity of the antennas.

The cell-site antennas are usually located on towers, either free-standing monopoles or lattice type, ranging in height from 30 to 75 meters. In many cases it is more convenient to locate antennas on the top or side of other existing structures, such as water tanks or buildings. The antenna height is critical; it must be high enough to provide coverage throughout the cell but low enough to preclude interfering with remote cells. Each cell site contains both transmitting and receiving antennas. The number of antennas depends on the service area, e.g., in an extremely high density service area six transmitting antennas, each with up to sixteen radio channels, could be used.

The maximum total effective radiated power (ERP) of a system would depend on the number of channels authorized at a site. Typically, there are 16 transmitting channels (discrete-frequencies) per cellular antenna. As many as six transmitting antennas (for a total of 96 discrete frequencies) could be used at a given site, but this number is unlikely. Furthermore, all channels would not be expected to be operating simultaneously, thus reducing overall emission levels.

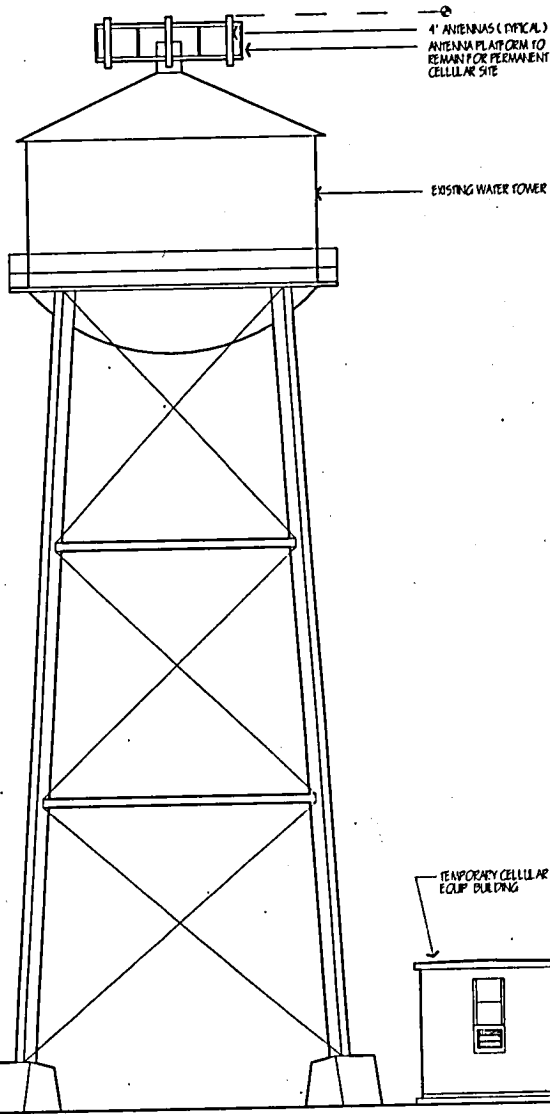
The Federal Communications Commission (FCC) authorizes up to two cellular telephone companies in each service area. Although the FCC permits an ERP up to 500 watts per channel (depending on the geographical area and tower height), the majority of the cell-site in urban and suburban areas operate at ERPs of 100 watts or less per channel. In large cities the cells are small and the ERP is usually 10 watts per channel. The transmitters associated with "microcells," usually located within buildings, railroad stations, etc., operate at ERPs lower than 1 watt. The system is self-limiting in the sense that as the system expands and cells are subdivided, the transmitter power is reduced to prevent interference with remote cells. As with other antennas used for telecommunications the energy from a cell-site antenna is directed toward the horizon in a relatively narrow beam in the vertical plane. As one moves away from the antenna, the power density decreases as the inverse square of the distance, and consequently, the exposure at ground-level in the vicinity of an antenna tower is relatively low compared with the exposure very close to the antenna itself. Measurements made around typical cell-site antenna towers have shown that ground-level power densities are well below limits for the general population recommended by recognized organizations, such as the American National Standards Institute (ANSI-C95.1, 1982), the IEEE (IEEE-C95.1, 1991), the National Council on Radiation Protection and Measurements (NCRP, 1986) and the International Radiation Protection Association (IRPA, 1988), which range from 2.75-2.97

milliwatts per square centimeter ( $\text{mW}/\text{cm}^2$ ) for occupational exposure to  $0.41\text{-}0.45 \text{ mW}/\text{cm}^2$  for general population exposure at cellular radio frequencies of 825-890 MHz.

The maximum exposure levels found near the base of typical cell-site antenna towers are, in fact, lower than all national and international recommended safety limits. These maximum exposure levels occur only at the limited distances close to the base of the tower. For example, data submitted to the FCC showed a maximum measured ground-level power density at the base of a 45 meter tower to be of the order of  $0.00002 \text{ mW}/\text{cm}^2$  per radio channel, corresponding to  $0.002 \text{ mW}/\text{cm}^2$  for a 96 channel, 100 watts ERP per channel, fully implemented system. The antennas were omni-directional colinear arrays. The maximum was found to occur typically at distances between 18 and 25 meters from the base of the tower. At other points within 90 meters the levels were considerably lower; on average less than  $0.0001 \text{ mW}/\text{cm}^2$  for 96 channels. Similar measurements made in the vicinity of higher towers yielded correspondingly lower values. Measurements show that the power density at distances greater than 60 meters from all commonly used directional and omni-directional cell-site antennas is less than  $0.010 \text{ mW}/\text{cm}^2$  including points in the main beam. RF radiation from nearby cellular base stations does not significantly increase the reported "RF background" levels in urban areas (Tell and Mantiply, 1980).

Because of building attenuation, the power density levels inside of nearby buildings at corresponding distances from a cell-site antenna would be from 10 to 100 times smaller than outside (depending on building construction). Thus the maximum levels inside of buildings located near the base of a typical 45 meter cell-site antenna tower will be between  $0.0002$  and  $0.00002 \text{ mW}/\text{cm}^2$ . Measurements made directly in the beam of a roof-mounted omni-directional antenna with sixteen radio channels indicated that the power density was less than  $1 \text{ mW}/\text{cm}^2$  at a distance of 3 meters from the antenna and less than  $0.010 \text{ mW}/\text{cm}^2$  beyond 50 meters. Thus, in certain areas on the rooftop, depending on the proximity to the antenna, the exposure levels can be higher than those allowed by the safety standards. Access to these areas should be restricted. Measurements show that in rooms directly below roof-mounted installations, the power density levels are considerably lower than roof locations, depending on the construction. For typical construction (e.g., wood or cement block) the attenuation is about a factor of 10. The power density behind sector (directional) antennas is hundreds to thousands of times lower than in front, and hence, levels are negligible in rooms directly behind walls where sector antennas are mounted on the sides of buildings.

In conclusion, measurements and calculations have verified that the power densities associated with cellular radio cell-site antennas to which the public may be exposed are not significantly different from "RF background" levels in urban areas which are produced by radio and television broadcast stations present in every modern community, and are well below the limits recommended by national and international safety standards. Based on this comparison, cellular communications base station emissions are safe for the general population. There are circumstances where workers could be exposed to fields greater than the standards specify. In those cases, generally on rooftops, access should be restricted.



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**GTE - GLENDOVEER  
MOBILNET**

GLENDOVEER GOLF COURSE - 14915 N.E. GLISAN  
PORTLAND, OREGON

**SOUTH ELEVATION - TEMPORARY CELLULAR SITE**

PRJ NO. 94-07-20 SHEET NO.  
FILE:  
DATE: 08-22-94  
DRAWN BY:  
SCALE: NONE  
REVISION:

2 of 5 EXHIBIT A  
PAGE 4 OF 5

48" FIR  
337.87  
TOP=448.41

48" FIR  
337.05  
TOP=456.39

16" FIR  
335.46  
48" FIR  
336.06  
TOP=469.16

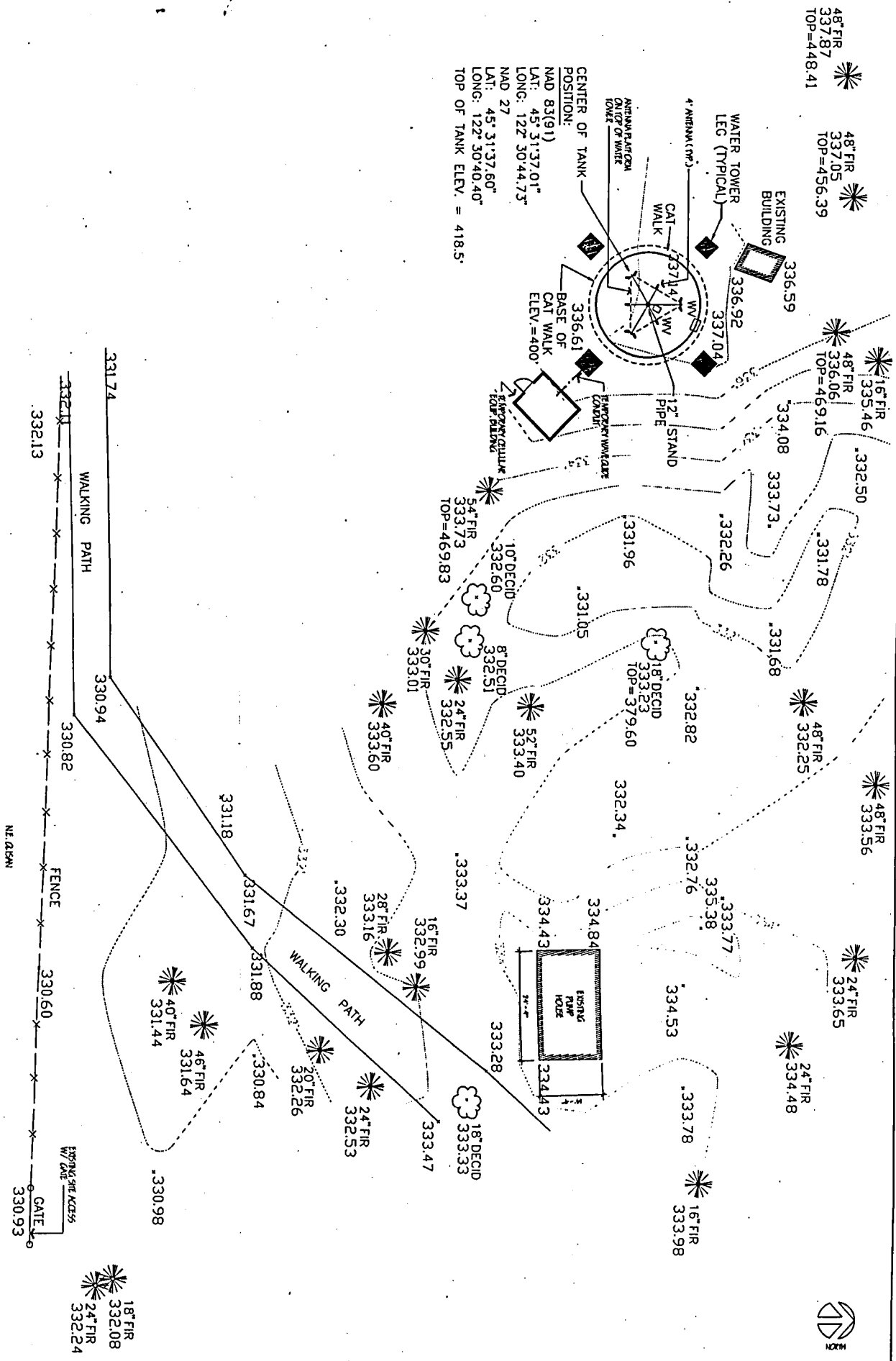
48" FIR  
333.56

24" FIR  
333.65

24" FIR  
334.48

16" FIR  
333.98

CENTER OF TANK POSITION:  
NAD 83(91)  
LAT: 45° 31' 37.01"  
LONG: 122° 30' 44.73"  
NAD 27  
LAT: 45° 31' 37.60"  
LONG: 122° 30' 40.40"  
TOP OF TANK ELEV. = 418.5'



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**GTE - GLENDOVER MOBILENET**  
 GLENDOVER GOLF COURSE - 1615 N.E. GLISAN  
 PORTLAND, OREGON  
**TEMPORARY SITE PLAN**

PKJ NO: 94-07-20	SHEET NO:
FILE:	1 of 5
DATE: 08-22-94	
DRAWN BY:	
SCALE: NONE	
REVISION:	

## **GREENSPACES AND REGIONAL PARKS STAFF REPORT**

### **RESOLUTION NO. 94-2028 FOR THE PURPOSE OF AUTHORIZING A TEMPORARY LEASE OF PROPERTY FOR A CELLULAR TELEPHONE ANTENNA SITE**

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**Date: August 30, 1994**

**Presented by:  
Charlie Ciecko, Director of Parks  
and Greenspaces**

#### **FACTUAL BACKGROUND AND ANALYSIS**

GTE Mobilnet has approached the Regional Parks and Greenspaces Department to negotiate a ground lease for a cellular phone facility to be attached to an existing water tank on the edge of the Glendoveer Golf Course near S.E. 148th Avenue and Glisan Street in Portland. This is an unused portion of the golf course near the property's fence line adjacent to S.E. 148th Avenue. This corner contains the water tank used to store pumped well water for use on the golf course facility. Coincidentally, the tank is in need of maintenance in the form of a very expensive long-term paint job.

Borrowing on the City of Portland's extensive experience with these cellular phone sites, we are in the process of negotiating a permanent agreement blending GTE's proposal with Portland's September 1992 lease of a similar water tank site to GTE. The Portland agreement calls for a 20 year lease with CPI cost of living adjustments to the price each year. GTE is seeking a similar five year lease with three five year renewals at their option.

As indicated by GTE's safety information attached, the cellular antennas operate at very low power and are not similar to high powered radio and television broadcast facilities. The Office of General Counsel has confirmed that Portland has detailed regulations of high powered radio and television facilities and has created a special zoning district around the Healy Heights to protect the public. However, under these detailed regulations, cellular telephone antennas are within the low power exemptions to those regulations.

GTE desires to immediately improve the service in the East County area. It has entered into temporary arrangements during the negotiation of long term ground leases with the City of Portland in the past. Borrowing from Portland's experience with six existing cellular telephone antennas, including a temporary license during the negotiation of a long term lease, this proposed temporary lease could begin upon full Metro Council approval. The temporary and permanent leases are being negotiated on the basis of full equity with the agreements made by GTE with the City of Portland. This means that the rent, at \$1,414 per month, is the same rate that GTE is paying Portland for the "Patton Tank" site. Also, paragraph six of this letter agreement for the temporary lease incorporates by reference the full 12 page agreement terms for that existing Portland agreement.

Staff Report  
August 30, 1994

As the attached vicinity map indicates, GTE's temporary facility can be moved through an existing gate in the cyclone fence to gain access to the water tank. Neither the access nor the temporary facility will interfere with GSR's use of the property, golf play or the existing jogging trail. However, GSR has indicated a desire to share in the rent revenues which the current GSR agreement does not require.

A GTE representative will be present at the Council committee meeting to answer questions about both the temporary and planned antenna sites.

Executive Officer's Recommendation:

The Executive Officer recommends adoption of Resolution 94-2028.

KLA  
R-O 1179



## REGIONAL FACILITIES COMMITTEE REPORT

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### RESOLUTION NO. 94-2028, AUTHORIZING A TEMPORARY LEASE OF PROPERTY FOR A CELLULAR TELEPHONE ANTENNA SITE

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Date: September 8, 1994

Presented by: Councilor Moore

**COMMITTEE RECOMMENDATION:** At its September 7, 1994 meeting the Regional Facilities Committee voted 3-0 to recommend Council adoption of Resolution No. 94-2028. Voting were Councilors Hansen, McFarland, and Moore. Councilors Gates and Washington were absent.

**COMMITTEE DISCUSSION/ISSUES:** Regional Parks & Greenspaces Director Charlie Ciecko presented the staff report. He summarized the terms of the resolution, which would provide for a temporary lease of space atop a water tower at Glendoveer Golf Course for GTE Mobilnet's use for an antenna. The lease will produce approximately \$1,400 per month in revenue.

In response to a question from Councilor Moore, Mr. Ciecko said the revenue from the lease will go to the Regional Parks & Expo Fund. He added that there is an issue with Glisan Street Recreation (GSR), operators of Glendoveer, about whether GSR is entitled to a portion of the revenues under the terms of their contract. The contract stipulates that GSR is responsible for maintenance of the water tower which is to be the site of the antenna. Mr. Ciecko said the final lease would incorporate the resolution of the issue with GSR.

Councilor McFarland asked whether Metro would receive any reduction in mobile phone costs as part of the agreement. Mr. Ciecko said Metro does not now utilize mobile telephones, but that anticipated increases in costs for use of radios at parks facilities might lead to use of mobile phones; the proposed agreement with GTE Mobilnet does not include price reductions for such use.

Senior Assistant Counsel Larry Shaw spoke to the issue regarding Glisan Street Recreation. He said the issue now is focused on insurance for the water tower, and suggested that Metro might want to choose to be responsible for that insurance instead of GSR in order to avoid issues of cost and revenue sharing.

Councilor Hansen asked when a final lease agreement is expected to be done. Mr. Shaw said it would be soon, probably within the next month. The temporary lease is primarily to allow lease payments to start coming as soon as possible.

Councilor Moore encouraged Mr. Ciecko to coordinate with Metro's earthquake preparedness staff to review the safety of the water tower.