

ENGINEERING STATEMENT

**Concerning the Application of
Washington State University
To Supplement the Pending Application
BPED960325MD
To Construct a New Non-Commercial FM Station
To Serve Chehalis, WA**

May, 2001

Channel 205C3

0.1 kW H + 1.0 kW V ERP

This engineering statement supports the supplement to the pending application filed by the Washington State University to construct a new non-commercial FM station to serve Chehalis, Washington.

Exhibit S-1 page 2 is a map depicting first and second aural service pursuant to 47 U.S.C. Section 307(b) and the technical parameters proposed by the applicant. The population within the 60 dBu service contour was determined to be 73,229 people¹. The area within the proposed one mV/m contour is 3,151.77 square kilometers. On the original application the area within the proposed one mV/m service contour is listed as 3,114.2 square kilometers². The difference between original application and this amendment's coverage area figure is due to the original application being prepared using Radio-Soft 30 second terrain data, and thus was not as accurate.

The 60 dBu service contours of all existing NCE FM stations that overlap the proposed facility are shown on the map in Exhibit S-1 page 2. Individual maps in Exhibit S-2 show detailed population counts within overlaps. The population in each contour overlap area was calculated using the same method as above. As shown in Exhibit S-1 page 1, the areas of second service or above were then subtracted from the whole, leaving 19,338 people and 1,978.62 sq km receiving first service from the proposed station, or 26.4% of the people residing in the coverage area. As shown in Exhibit S-2 page 1, the areas of first and third service or above were subtracted from the whole, leaving 19,623 people and 644.81 sq km receiving second service from the proposed station, or 26.8% of the people residing in the coverage area.

The WSU proposal's 60 dBu (1 mV/m) service contour provides first and second service to greater than 10 percent (10%=5,889) of the people residing therein, thus WSU's proposal exceeds the percentage requirements of 47 U.S.C. Section 307(b).

Washington State University, an educational institution of the State of Washington, certifies that it qualifies as an established local applicant and that documentation of this classification is attached as Exhibit P-1, and is available in the public file.

Exhibit S-3 lists all current existing authorizations and pending applications, which includes this application.

Shepherd Communications, Inc.

With regard to the Mutually Exclusive application filed by Shepherd Communications, Exhibit S-4 page 2 is a map depicting their 60 dBu service contours of all existing NCE FM stations that overlap Shepherd's proposed facility, including first and second aural service, pursuant to 47 U.S.C. Section 307(b) and the technical parameters proposed by Shepherd. The population within their 60 dBu service contour was determined to be 58,894 people.³ The area within their proposed one mV/m contour is 2,286.77 square kilometers.⁴ On Shepherd's original application the area within their proposed one mV/m service contour is listed as 2,424.6 square kilometers. The difference between original application and the above coverage area figure is believed to be due to the original application being prepared using a 30 second terrain data, and thus was not as accurate.

Individual maps in Exhibit S-5 show detailed population counts within overlaps. The population in each contour overlap area was calculated using the same method as above. As shown in Exhibit S-4 page 1, the areas of second service or above were then subtracted from the whole, leaving 16,495 people and 1,527.81 sq km receiving first service from Shepherd's proposed station. As shown in Exhibit S-5 page 1, the areas of first and third service or above were subtracted from the whole, leaving 10,213 people and 363.46 sq km receiving second service from Shepherd's proposed station.

Calculating the differences between the two applications results in WSU's proposal providing a first noncommercial educational aural service to 2,843 more people and a 451 sq km larger area than Shepherd's proposal. WSU's proposal provides a second noncommercial educational aural service to 9,410 more people and a 281 sq km larger area than Shepherd's proposal.

Because WSU's proposal will provide second noncommercial educational aural service to 9,410 more people and a 281 sq km larger area than Shepherd's proposal, WSU claims victory based on its proposal covering the largest area and

population, and both area and population being 10% greater than Shepherd Communication's, the next best proposal;

¹⁻² Population served based on the most recent (2000) census block data from the United States Census Bureau using the centroid method (PL-94-171).

³⁻⁴ This figure was determined using numerical calculus. The distance to the one mV/m signal contour along each of 360 evenly spaced radial azimuths was squared and then the average of the sum of these distances was calculated. The resulting average radius squared was then multiplied by π to determine the area within the contour.

Washington State University
BPED960325MD at Chehalis, WA
First Non-Commercial Service Calculations

| First Non-Commercial Service | Population | Sq km Area |
|------------------------------|---------------|------------|
| WSU Proposed 60 dBu Coverage | 73,229 | 3,151.77 |
| KMUN-FM Overlap | 0 | -6.60 |
| KACS/KCED-FM Overlap | -49,936 | -891.86 |
| KZOE/KJVH-FM Overlap | -3,955 | -274.69 |
| Total WSU First Service | 19,338 | 1,978.62 |

Washington State University
BPED960325MD at Chehalis, WA
Second Non-Commercial Service Calculations

| Second Non-Commercial Service | Population | Sq km Area |
|-------------------------------|---------------|------------|
| WSU Proposed 60 dBu Coverage | 73,229 | 3,151.77 |
| WSU Proposed First Service | -19,338 | -1,978.62 |
| KAOS-FM Overlap | - | -6.54 |
| KCED Overlap | -31,922 | -324.25 |
| KJVH/KZOE-FM Overlap | -2,346 | -197.55 |
| Total WSU Second Service | 19,623 | 644.81 |

Shepherd Communications
BPED960619ME at Chehalis, WA
First Non-Commercial Service Calculations

| First Non-Commercial Service | Population | Sq km Area |
|-----------------------------------|---------------|------------|
| Shepherd Proposed 60 dBu Coverage | 58,894 | 2,286.77 |
| KACS-FM Overlap | -40,543 | -703.33 |
| KZOE-FM Overlap | -1,856 | -55.63 |
| Total Shepherd First Service | 16,495 | 1,527.81 |

Shepherd AP205

BPED960619ME

Latitude: 46-33-18 N

Longitude: 123-03-25 W

Power: 0.54 kW

Channel: 205

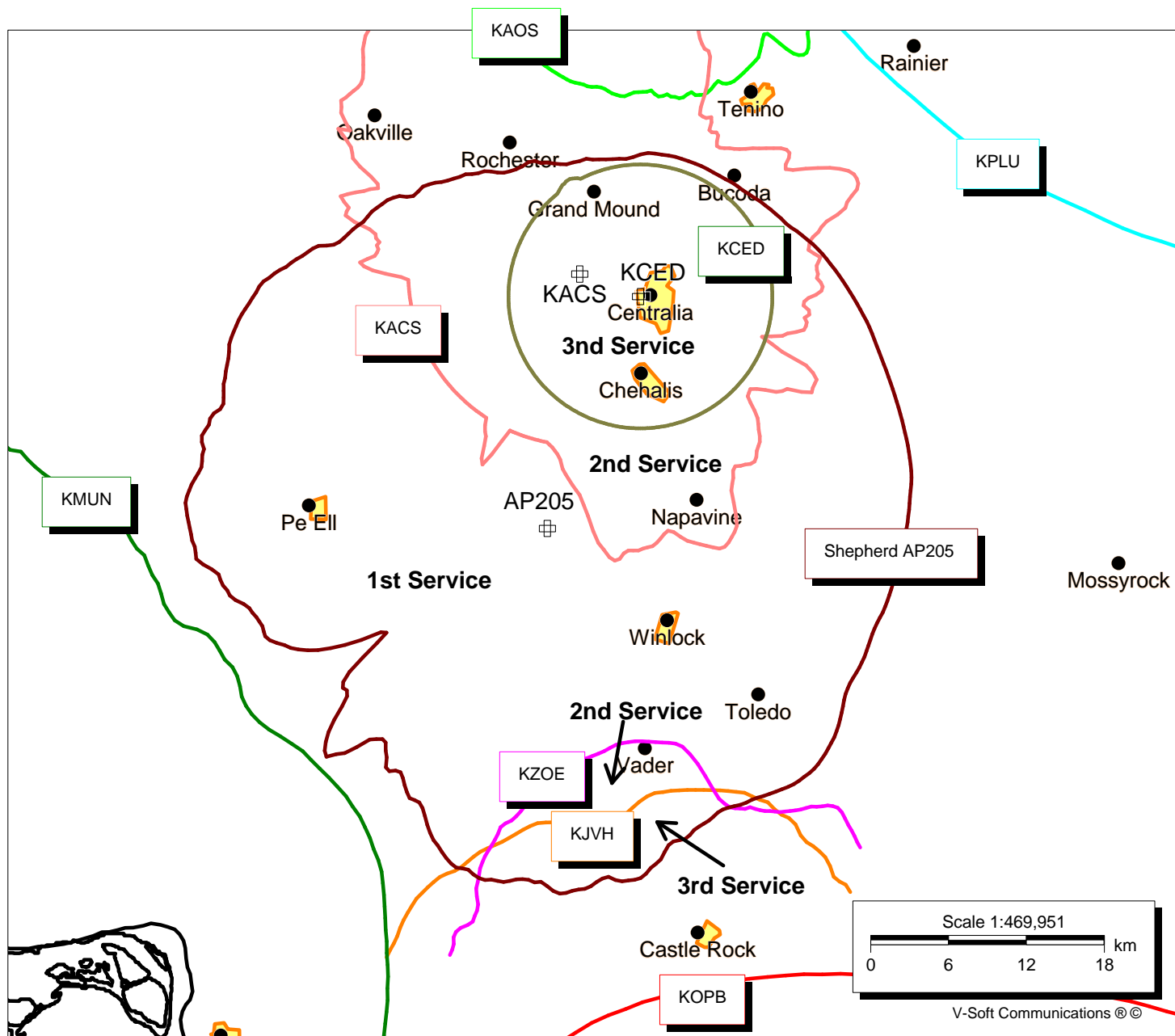
Frequency: 88.9 MHz

AMSL Height: 472.0 m

Elevation: 431.2 m

Horiz. Pattern: Directional

- KPLU
- KAOS
- KJVH
- KACS
- KZOE
- KCED
- KOPB
- KMUN
- AP205



V-Soft Communications Population Report

Contour Parameters:

Type: FCC Contour

F(50-50) Cutoff: 60.00 dBu

Population Database: 2000 US Census

Transmitter Information:

Shepherd Communications, Inc.

Call Letters: AP205

File Number: BPED960619ME

Latitude: 46-33-18 N

Longitude: 123-03-25 W

Power: 0.54 kW

Channel: 205

Frequency: 88.9 MHz

AMSL Height: 472.0 m

Elevation: 431.2 m

Horiz. Antenna Pattern: Directional

Vert. Elevation Pattern: No

Total Population Within Contour: 58,894

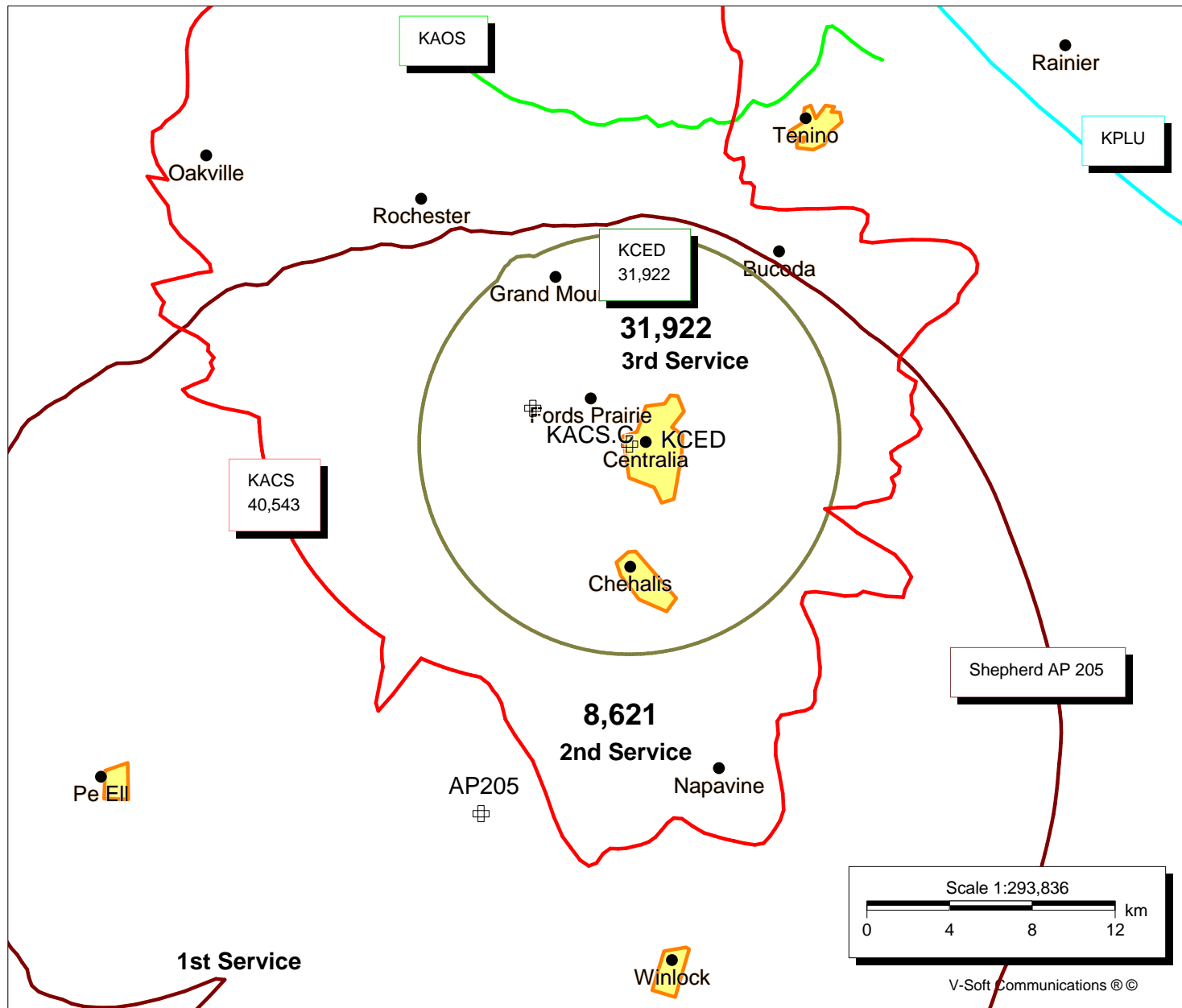
Total Area Within Contour: 2286.77 sq. km

Shepherd Communications
BPED960619ME at Chehalis, WA
Second Non-Commercial Service Calculations

| Second Non-Commercial Service | Population Sq km Area | |
|-----------------------------------|-----------------------|-----------|
| Shepherd Proposed 60 dBu Coverage | 58,894 | 2,286.77 |
| Shepherd Proposed First Service | -16,495 | -1,527.81 |
| KCED Overlap | -31,922 | -323.98 |
| KJVH Overlap | -264 | -71.52 |
| Total Shepherd Second Service | 10,213 | 363.46 |

Shepherd AP205
 BPED960619ME
 Latitude: 46-33-18 N
 Longitude: 123-03-25 W
 Power: 0.54 kW
 Channel: 205
 Frequency: 88.9 MHz
 AMSL Height: 472.0 m
 Elevation: 431.2 m
 Horiz. Pattern: Directional

- KPLU
- KAOS
- KJVH
- KZOE
- KCED
- KOPB
- KMUN
- AP205
- KACS.C



AP205 Shepherd

BPED960619ME

Latitude: 46-33-18 N

Longitude: 123-03-25 W

Power: 0.54 kW

Channel: 205

Frequency: 88.9 MHz

AMSL Height: 472.0 m

Elevation: 431.2 m

Horiz. Pattern: Directional

- | | |
|---|-------|
|  | KPLU |
|  | KAOS |
|  | KJVH |
|  | KACS |
|  | KZOE |
|  | KCED |
|  | KOPB |
|  | KMUN |
|  | AP205 |

