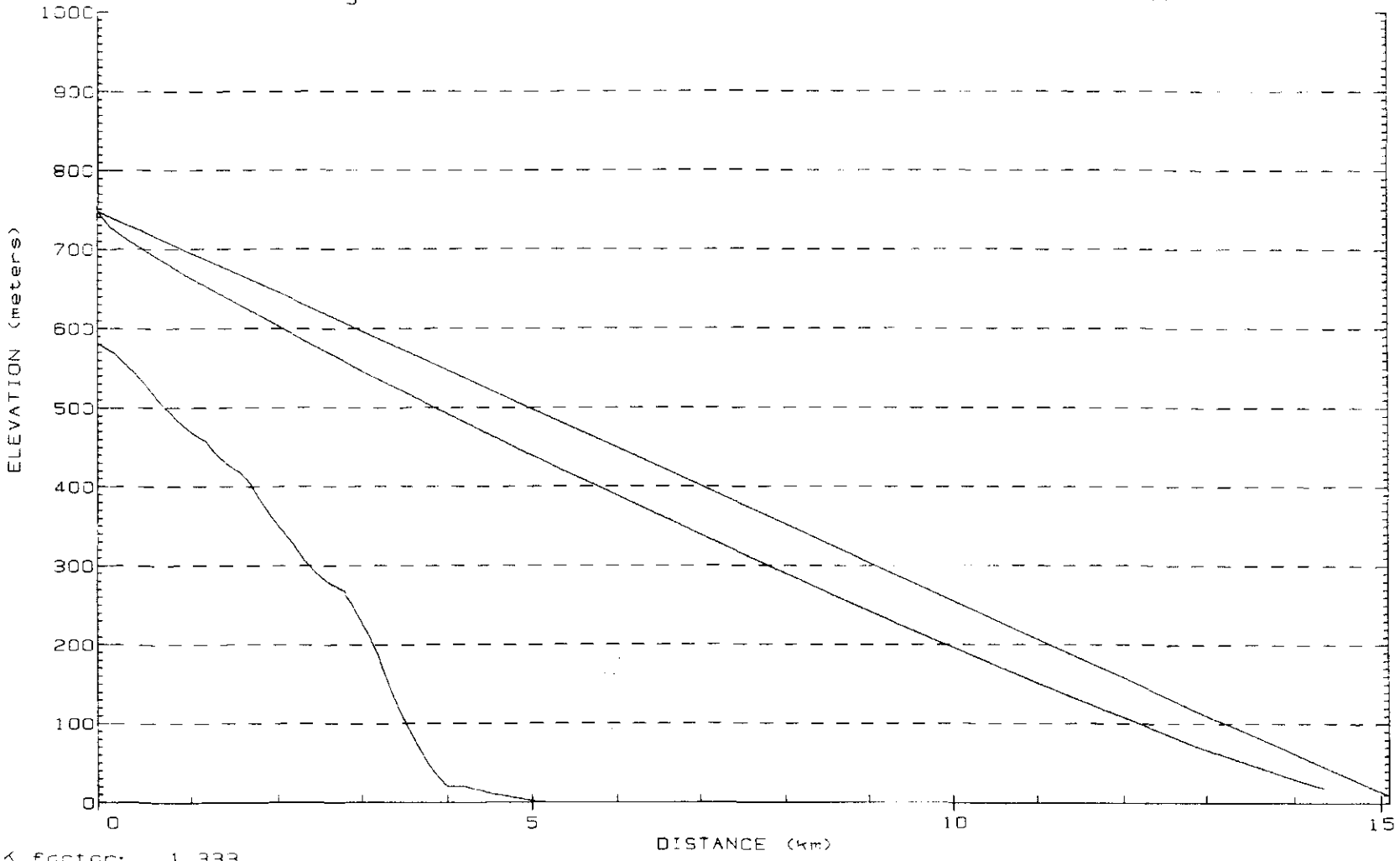
Site: MT CONSTITUTION
N 48 40 48 W 122 50 24
Ant. Elev. (AMSL): 748.0 m
Path azimuth: 321.98 degs.

Frequency: 104.1 MHz
Path Length: 15.1 km
Total Path Loss: 95.4 dB
Excess Path Loss: .0 dB

Site: STUDY POINT 3
N 48 47 12 W 122 58 0
Ant. Elev. (AMSL): 9.5 m
Path azimuth: 141.88 degs.

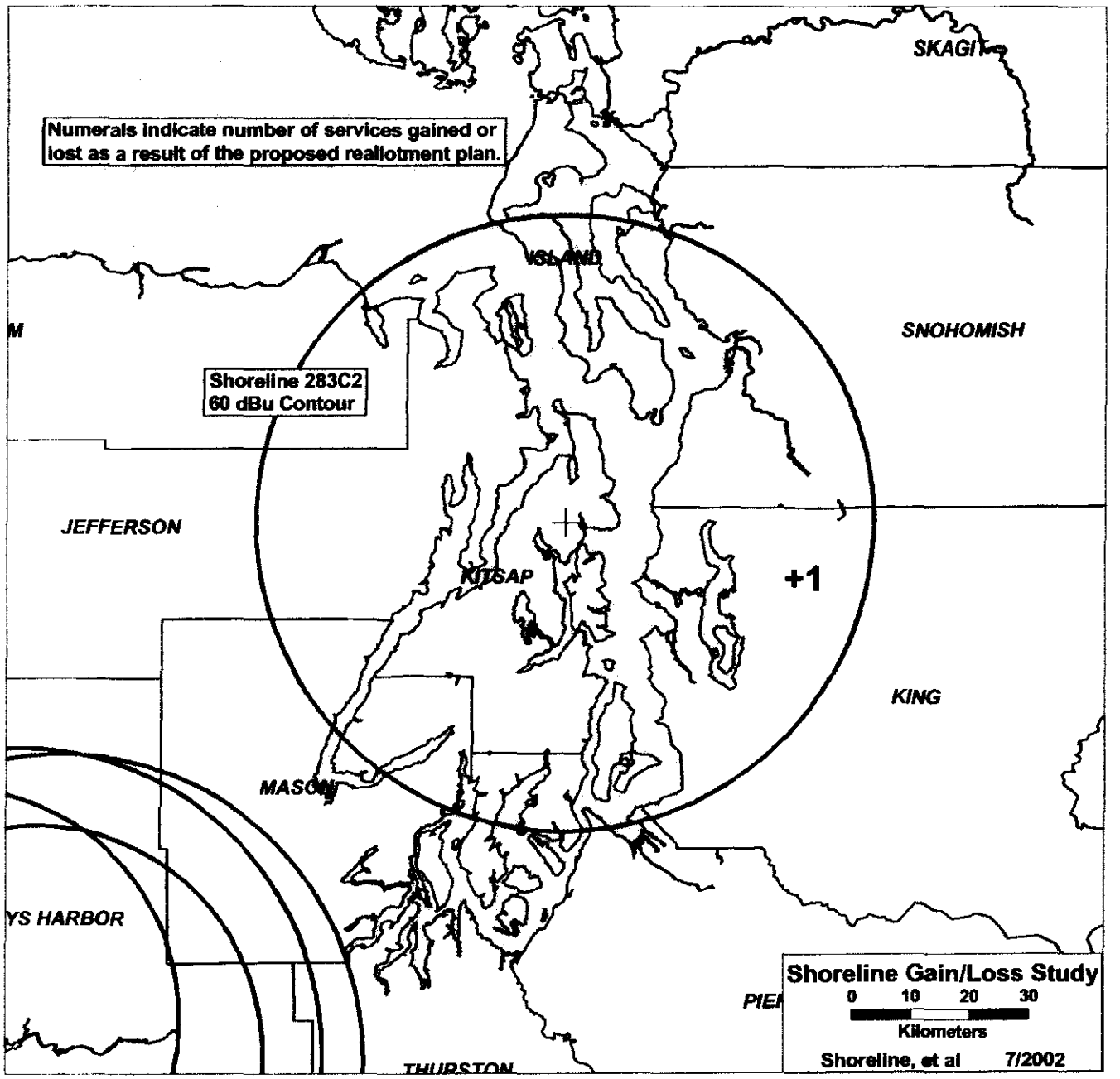


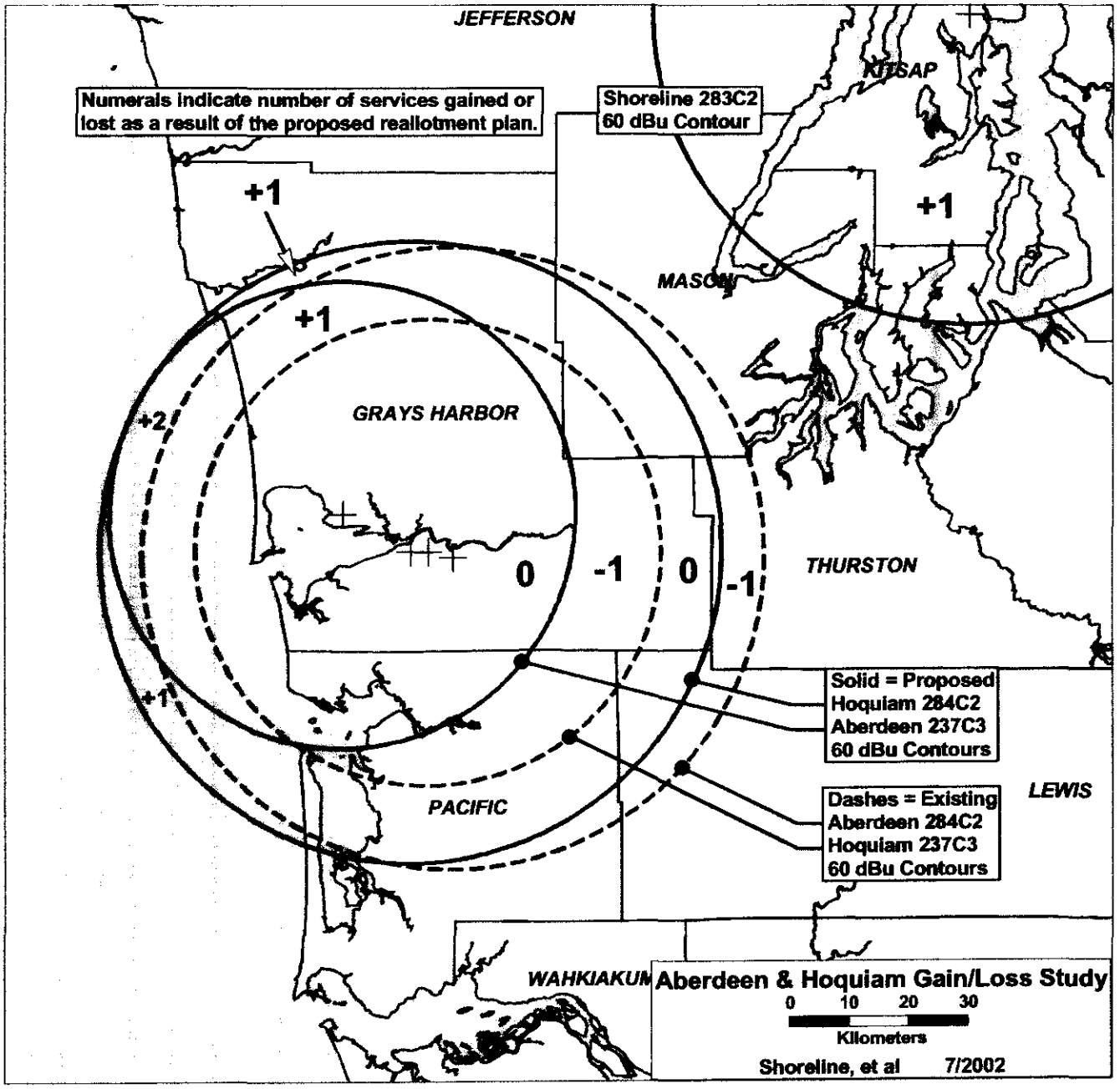
K factor: 1.333
Fresnel Zone: .60
30 Second Database
Rain loss: .0 dB
Urban loss: .0 dB
Foliage loss: .0 dB

Hatfield & Dawson
Consulting Engineers

Exhibit 4

Gain and Loss Area Study Maps


Numerals indicate number of services gained or lost as a result of the proposed reallotment plan.
Shoreline 283C2
60 dBu Contour
SKAGIT
ISLAND
SNOHOMISH
JEFFERSON
KITSAP
+1
KING
MASON
YS HARBOR
THURSTON
Shoreline Gain/Loss Study
0 10 20 30
Kilometers
Shoreline, et al 7/2002


JEFFERSON
KITSAP
Numerals indicate number of services gained or lost as a result of the proposed reallotment plan.
Shoreline 283C2
60 dBu Contour
+1
+1
MASON
+1
+2
GRAYS HARBOR
0
-1
0
-1
THURSTON
+1
Solid = Proposed
Hoquiam 284C2
Aberdeen 237C3
60 dBu Contours
PACIFIC
Dashes = Existing
Aberdeen 284C2
Hoquiam 237C3
60 dBu Contours
LEWIS
WAHKIAKUM
Aberdeen & Hoquiam Gain/Loss Study
0 10 20 30
Kilometers
Shoreline, et al 7/2002

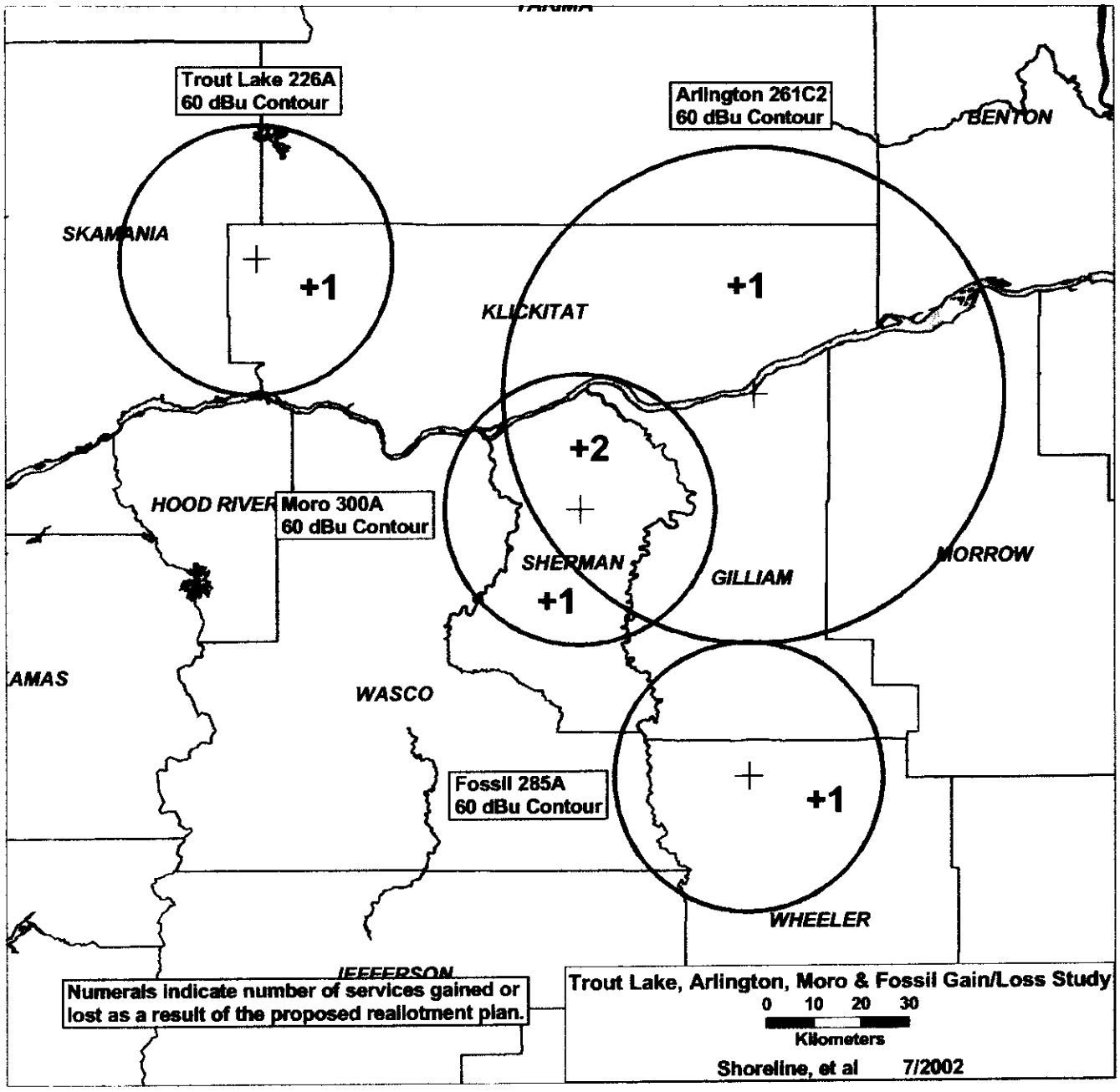
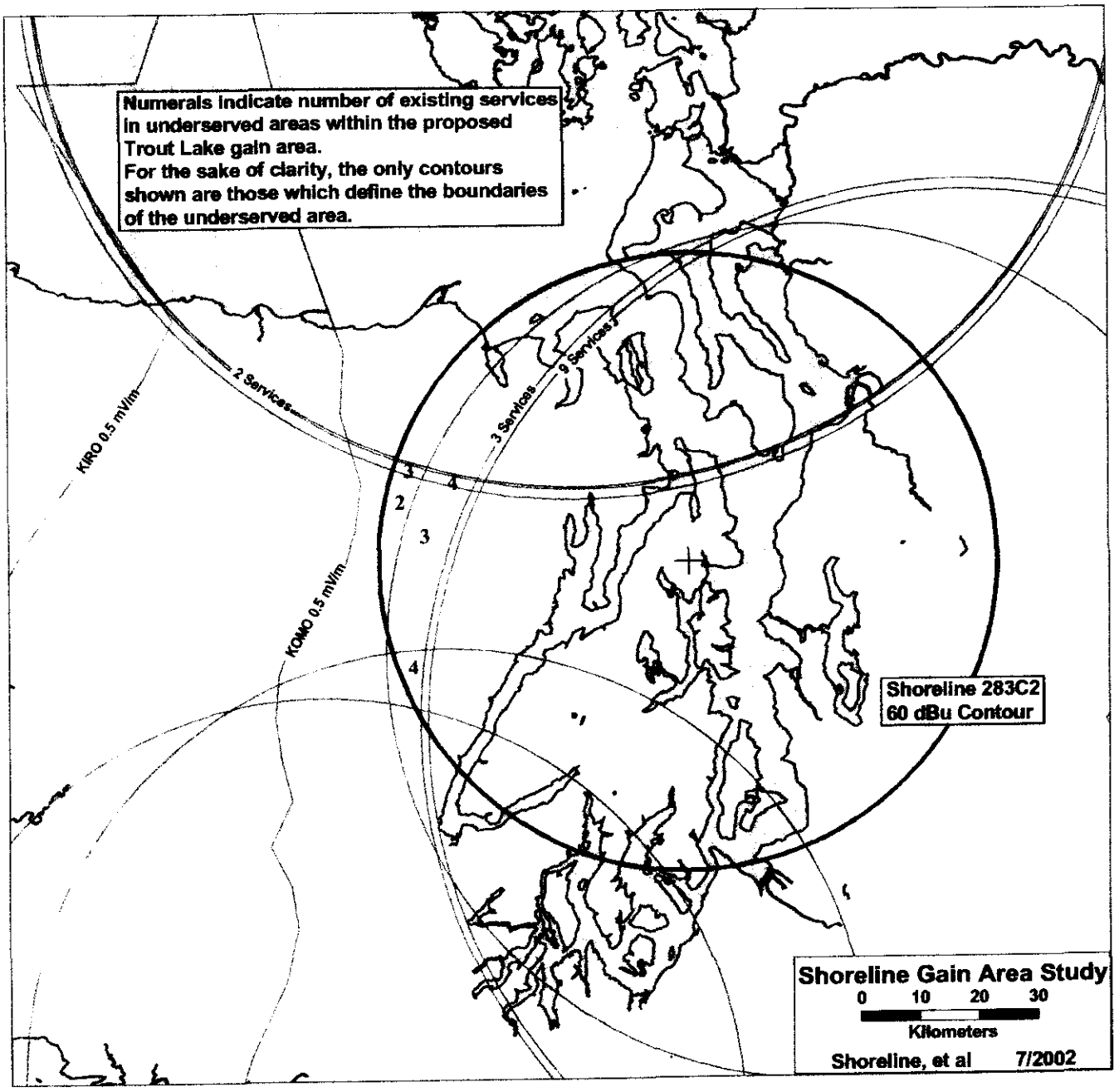

Trout Lake 226A
60 dBu Contour
Arlington 261C2
60 dBu Contour
BENTON
SKAMANIA
+1
+1
KLICKITAT
+2
HOOD RIVER
Moro 300A
60 dBu Contour
SHERMAN
+1
GILLIAM
MORROW
AMAS
WASCO
Fossil 285A
60 dBu Contour
+1
WHEELER
Numerals indicate number of services gained or lost as a result of the proposed reallotment plan.
Trout Lake, Arlington, Moro & Fossil Gain/Loss Study
0 10 20 30
Kilometers
Shoreline, et al 7/2002

Exhibit 5

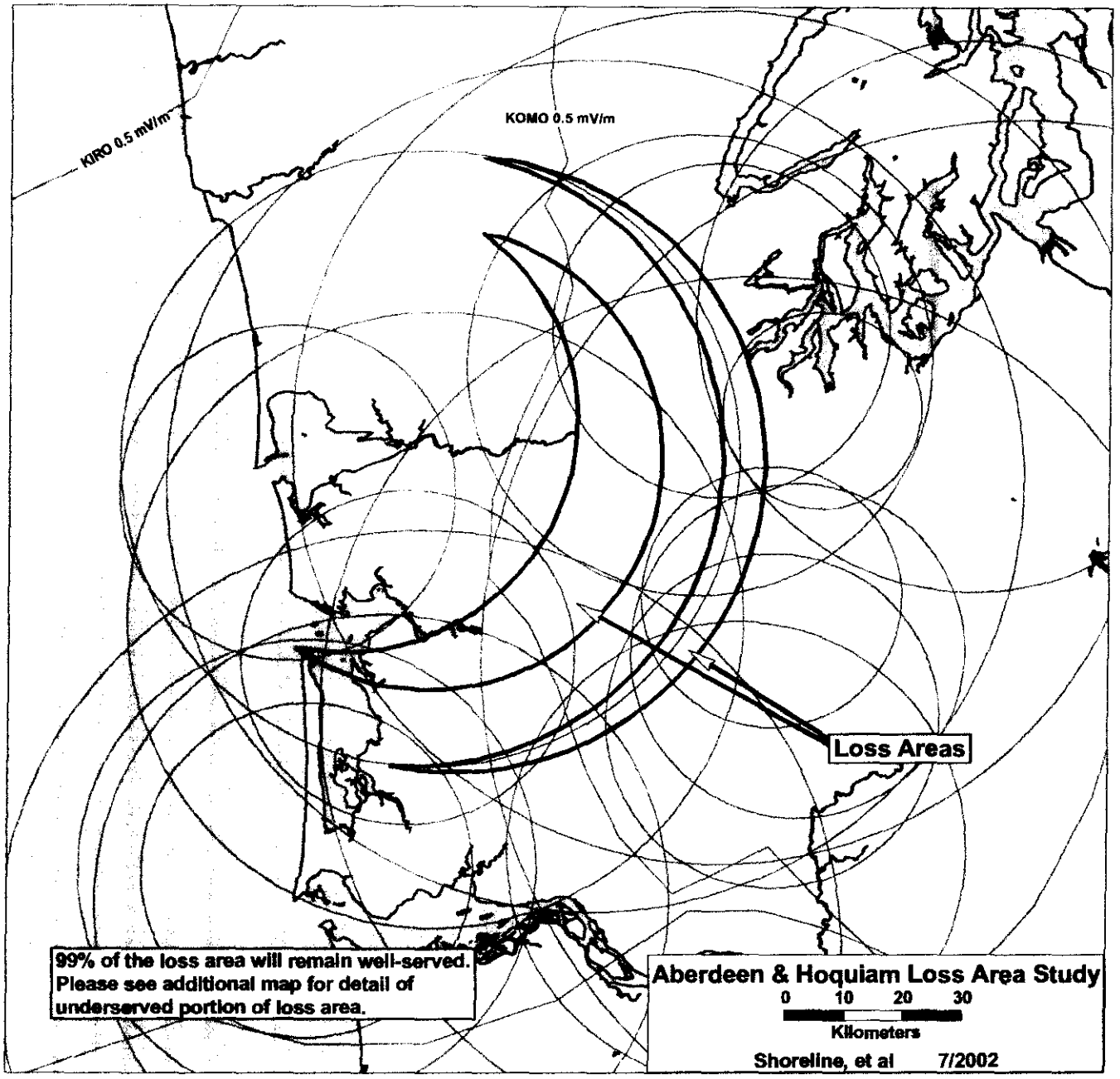
White, Gray and Underserved Area Study Maps

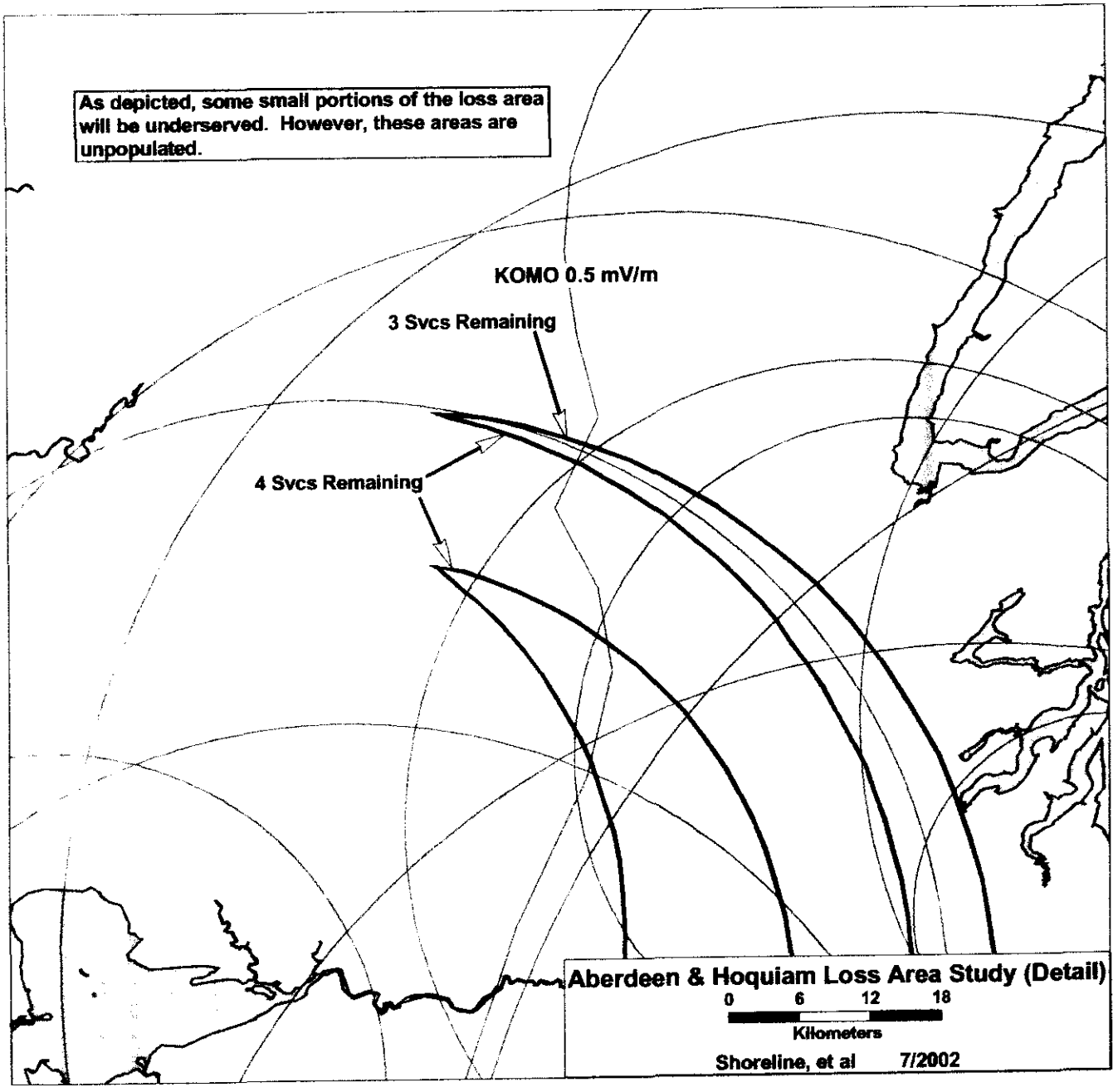

Numerals indicate number of existing services in underserved areas within the proposed Trout Lake gain area.
For the sake of clarity, the only contours shown are those which define the boundaries of the underserved area.
2 Services
3 Services
9 Services
KIRO 0.5 mV/m
KOMO 0.5 mV/m
1
2
3
4
4
Shoreline 283C2
60 dBu Contour
Shoreline Gain Area Study
0 10 20 30
Kilometers
Shoreline, et al 7/2002

Facilities Providing Service to the Shoreline Gain Area

KIRO-AM	710 kHz	Seattle (Class A)*
KOMO-AM	1000 kHz	Seattle (Class A)*
(numerous other AM stations)		
KPLU-FM	203C	Tacoma*
KNHC-FM	208C2	Seattle
KGRG-FM	210A	Auburn
KGHP-FM	210A	Gig Harbor
KUPS-FM	211A	Tacoma
KEXP-FM	212A	Seattle
KSER-FM	214A	Everett
KVTI-FM	215C1	Tacoma
KBCS-FM	217C3	Bellevue
KBTC-FM	219C3	Tacoma
KLSY-FM	223C	Bellevue*
KISM-FM	225C	Bellingham*
KUBE-FM	227C	Seattle
KMPS-FM	231C	Seattle*
KRXY-FM	233A	Shelton
KUOW-FM	235C1	Seattle*
KJR-FM	239C	Seattle
KXXO-FM	241C	Olympia
KYPT-FM	243C	Seattle
KGY-FM	245C3	McCleary
KBSG-FM	247C	Tacoma*
KFMY-FM	249C1	Raymond*
KING-FM	251C	Seattle*
KWJZ-FM	255C	Seattle*
KAYO-FM	257C1	Elma*
KISW-FM	260C	Seattle*
KQBZ-FM	264C	Seattle*
KPLZ-FM	268C	Seattle
KZOK-FM	273C	Seattle*
KMTT-FM	279C	Tacoma*
KAFE-FM	282C/281C	Bellingham*
KCMS-FM	287C1	Edmonds
KBKS-FM	291C	Tacoma*
KWPZ-FM	293C	Lynden*
KRWM-FM	295C1	Bremerton
KNDD-FM	299C	Seattle*

(For the sake of clarity, only those stations marked with an asterisk are shown on the attached map exhibit)

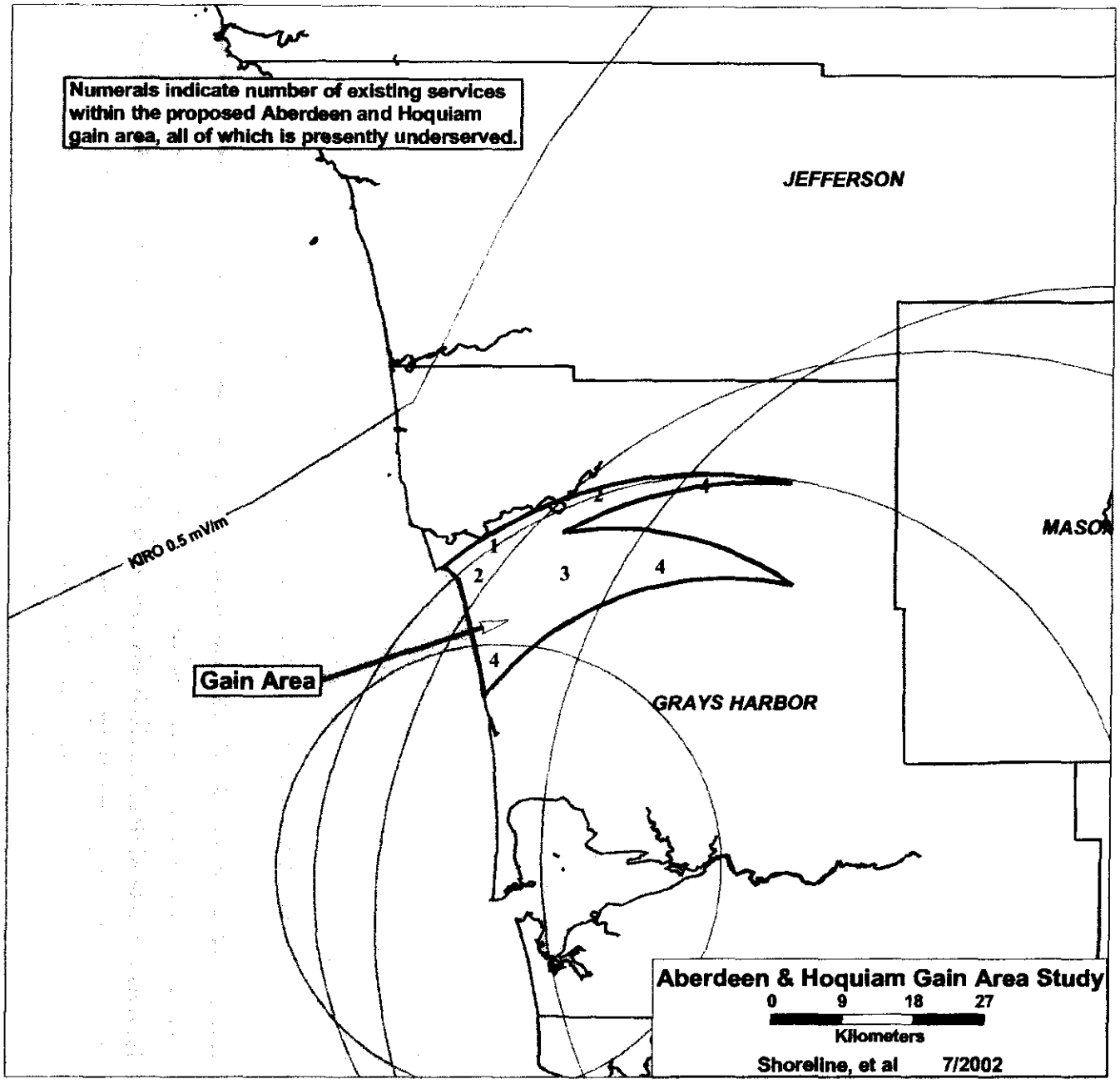

KIRO 0.5 mV/m
KOMO 0.5 mV/m
Loss Areas
99% of the loss area will remain well-served.
Please see additional map for detail of
underserved portion of loss area.
Aberdeen & Hoquiam Loss Area Study
0 10 20 30
Kilometers
Shoreline, et al 7/2002


As depicted, some small portions of the loss area will be underserved. However, these areas are unpopulated.
KOMO 0.5 mV/m
3 Svcs Remaining
4 Svcs Remaining
Aberdeen & Hoquiam Loss Area Study (Detail)
0 6 12 18
Kilometers
Shoreline, et al 7/2002

Facilities Providing Service to the Aberdeen & Hoquiam Loss Area

KIRO-AM	710 kHz	Seattle (Class A)
KOMO-AM	1000 kHz	Seattle (Class A)
KAOS-FM	207A	Olympia
KACS-FM	213A	Chehalis
KVTI-FM	215C1	Tacoma
KMUN-FM	220C2	Astoria
KAST-FM	225C1	Astoria
KAQX-FM	232A	Long Beach
KRXY-FM	233A	Shelton
KITI-FM	236A	Winlock
KXXO-FM	241C	Olympia
KGY-FM	245C3	McCleary
KFMY-FM	249C1	Raymond
KAYO-FM	247C1	Elma
Vacant	267A	Westport
KSWW-FM	271C2	Montesano
KMNT-FM	275C	Centralia
KVAS-FM	280C3	Ilwaco
Vacant	282A	Chehalis
KJET-FM	289C2	South Bend
KRQT-FM	296C3	Castle Rock
Vacant	300A	South Bend

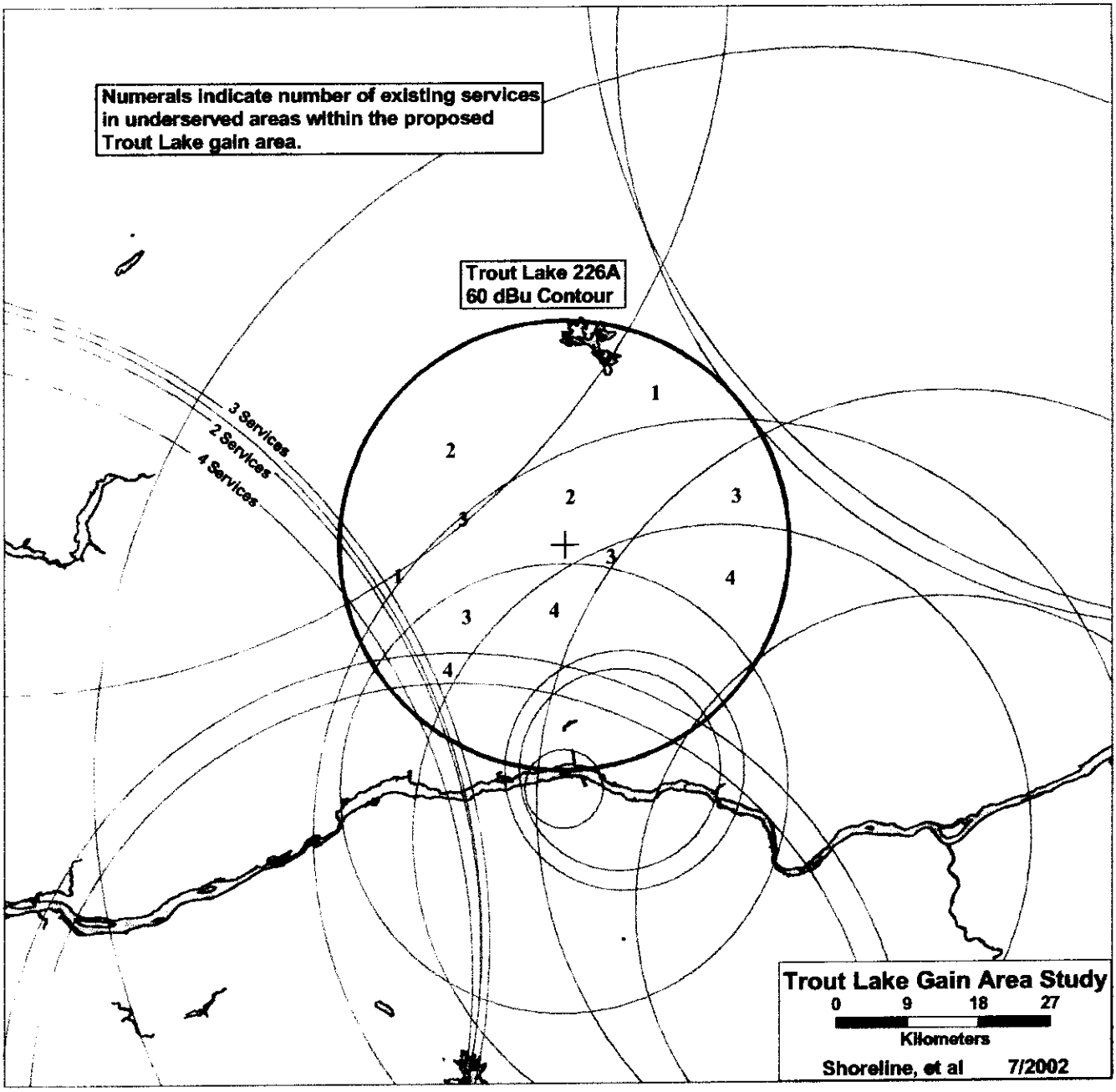
(All of these contours are shown on the attached map exhibit)


Numerals indicate number of existing services within the proposed Aberdeen and Hoquiam gain area, all of which is presently underserved.
JEFFERSON
MASON
GRAYS HARBOR
KIRO 0.5 mV/m
Gain Area
1
2
3
4
4
4
Aberdeen & Hoquiam Gain Area Study
0 9 18 27
Kilometers
Shoreline, et al 7/2002

Facilities Providing Service to the Aberdeen & Hoquiam Gain Area

KIRO-AM	710 kHz	Seattle (Class A)
Vacant	228A	Ocean Shores
KFMY-FM	249C1	Raymond
KAYO-FM	257C1	Elma
KSWW-FM	271C2	Montesano

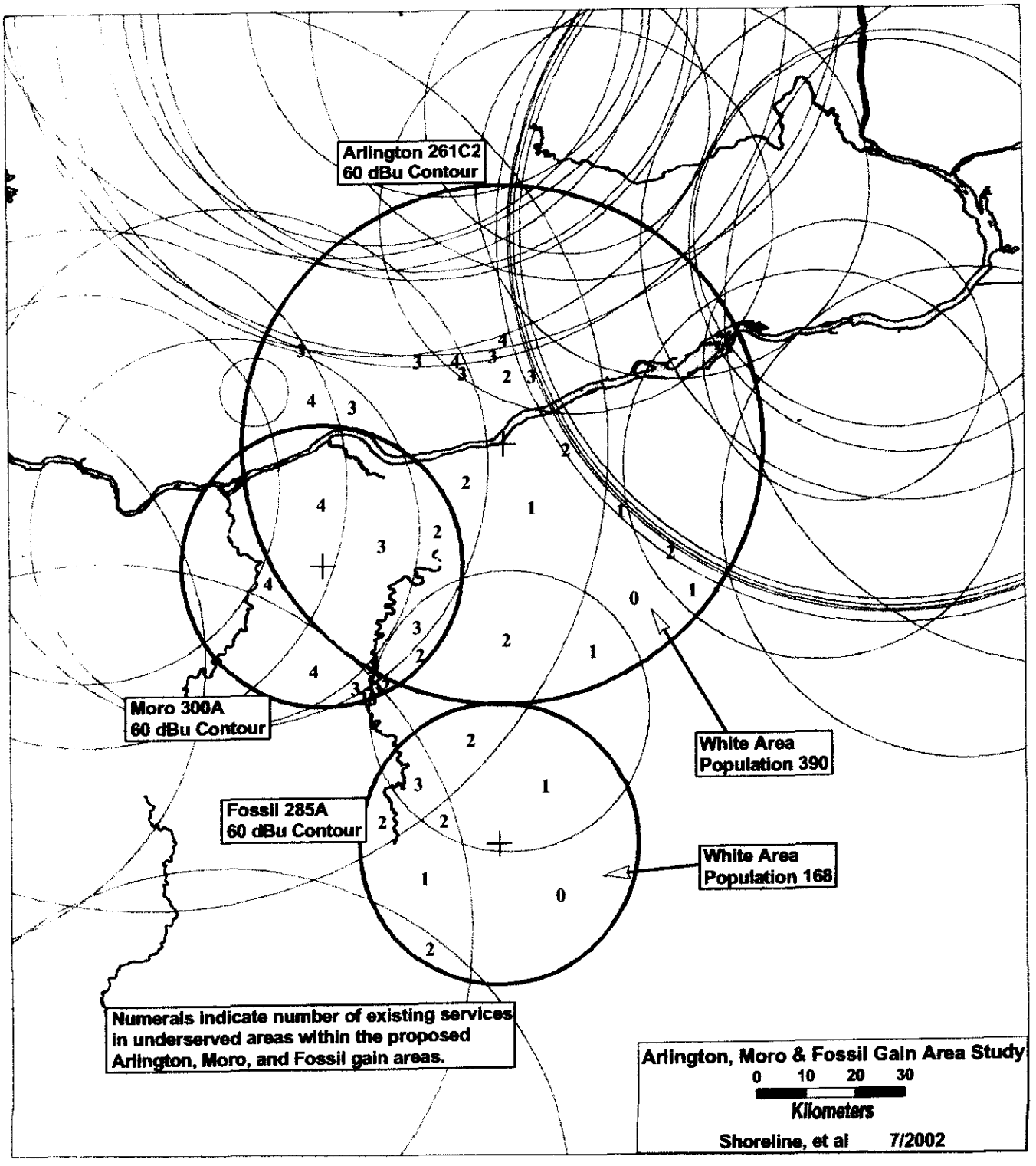
(All of these contours are shown on the attached map exhibit)


Numerals indicate number of existing services in underserved areas within the proposed Trout Lake gain area.
Trout Lake 226A
60 dBu Contour
3 Services
2 Services
4 Services
1
2
2
3
3
1
4
3
4
4
Trout Lake Gain Area Study
0
9
18
27
Kilometers
Shoreline, et al
7/2002

Facilities Providing Service to the Trout Lake Gain Area

KIHR-AM	1340 kHz	Hood River (NIF = 26.5 mV/m)
KLVP-FM	204C1	Cherryville
KBNO-FM	207A	White Salmon
New CP	208C1	Pine Grove
KQHR-FM	211A	Hood River
KOPB-FM	218C	Portland
KGON-FM	222C	Portland
KMSW-FM	224C3	The Dalles
KPDQ-FM	229C	Portland
KATS-FM	233C1	Yakima
KXJM-FM	238C	Portland
KXXO-FM	241C	Olympia
KKSN-FM	246C	Portland
KACI-FM	249C2	The Dalles
KKRZ-FM	262C	Portland
KUFO-FM	266C	Portland
Vacant	268C3	The Dalles
KINK-FM	270C	Portland
KYYT-FM	272C2	Goldendale
KKCW-FM	277C	Beaverton
KMCQ-FM	283C	The Dalles
KCGB-FM	288A	Hood River
KLTH-FM	294C	Lake Oswego
KFFM-FM	297C	Yakima

(All of these contours are shown on the attached map exhibit)


Arlington 261C2
60 dBu Contour
Moro 300A
60 dBu Contour
Fossil 285A
60 dBu Contour
White Area
Population 390
White Area
Population 168
Numerals indicate number of existing services in underserved areas within the proposed Arlington, Moro, and Fossil gain areas.
Arlington, Moro & Fossil Gain Area Study
0 10 20 30
Kilometers
Shoreline, et al 7/2002

Facilities Providing Service to the Arlington, Moro & Fossil Gain Area

KLCK-AM	1400 kHz	Goldendale (NIF = 25.3 mV/m)
KFAE-FM	206C	Richland
KSOH-FM	208C2	Wapato
KOLU-FM	211C2	Pasco
KRBM-FM	215C2	Pendleton
KYPL-FM	216C1	Yakima
KDNA-FM	220C1	Yakima
KMSW-FM	224C3	The Dalles
KDBL-FM	225C2	Toppenish
Vacant	288A	Condon
KATS-FM	233C1	Yakima
KIOK-FM	235C	Richland
KJMZ-FM	236C1	Prineville
Vacant	241C3	Stanfield
KRCO-FM	243C	Warm Springs
KZTB-FM	244A	Sunnyside
KACI-FM	249C2	The Dalles
KEYW-FM	252C2	Pasco
KLES-FM	254C3	Mabton
KUJ-FM	256C1	Walla Walla
KHHK-FM	259C3	Yakima
KQFM-FM	263A	Hermiston
KARY-FM	265C2	Grandview
KGDN-FM	267C3	Pasco
Vacant	268C3	The Dalles
KMNA-FM	269C3	Prosser
KYYT-FM	272C2	Goldendale
KORD-FM	274C	Richland
KXDD-FM	281C1	Yakima
KMCQ-FM	283C	The Dalles
KONA-FM	287C	Kennewick
KRSE-FM	289C1	Yakima
KEGX-FM	293C	Richland
KFFM-FM	297C	Yakima

(All of these contours are shown on the attached map exhibit)

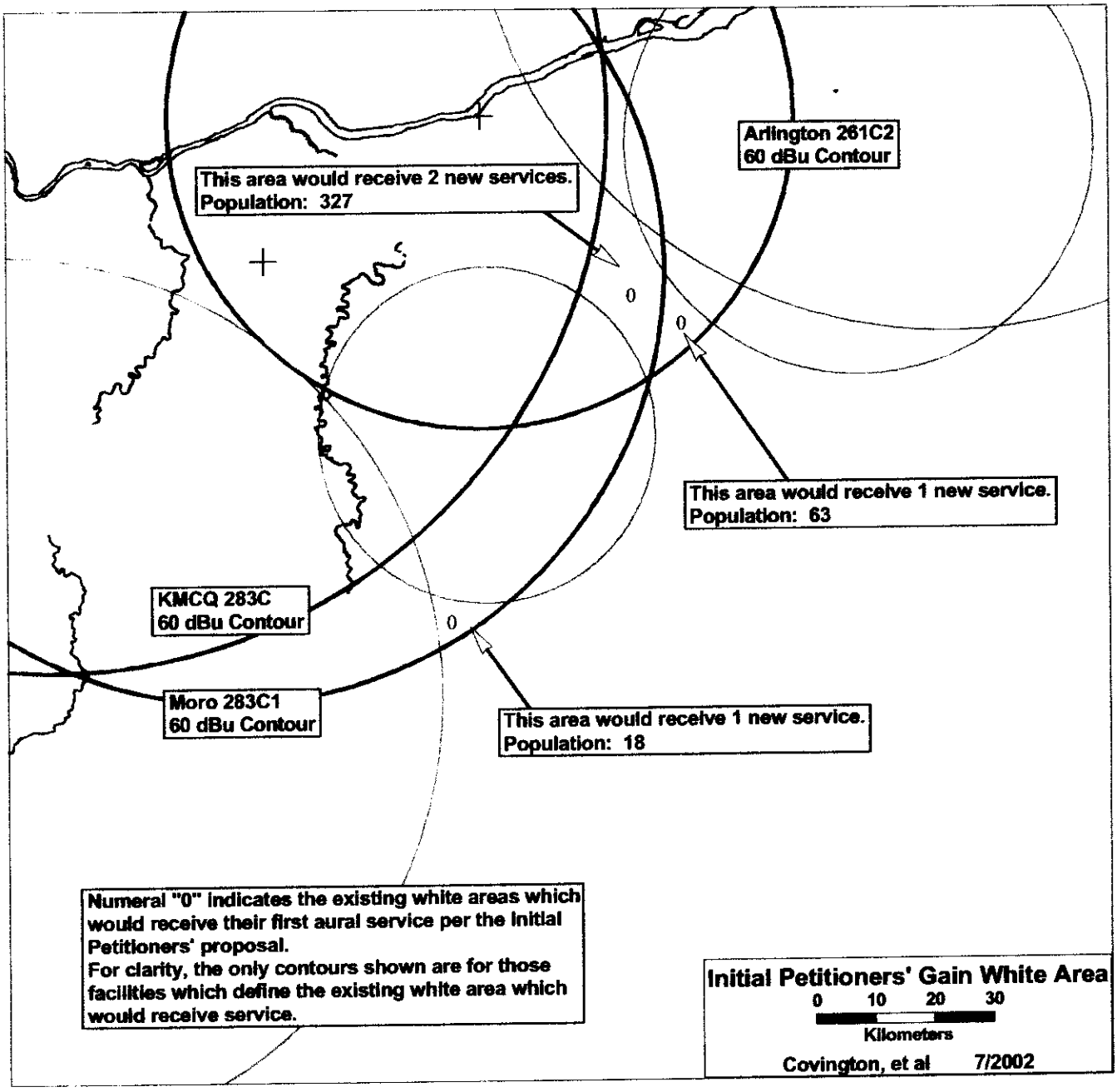

Arlington 261C2
60 dBu Contour
This area would receive 2 new services.
Population: 327
0
0
This area would receive 1 new service.
Population: 63
KMCQ 283C
60 dBu Contour
0
Moro 283C1
60 dBu Contour
This area would receive 1 new service.
Population: 18
Numeral "0" indicates the existing white areas which would receive their first aural service per the initial Petitioners' proposal.
For clarity, the only contours shown are for those facilities which define the existing white area which would receive service.
Initial Petitioners' Gain White Area
0 10 20 30
Kilometers
Covington, et al 7/2002

Exhibit B

Distance Between
Shoreline Community Reference Point
And
Seattle Community Reference Point

Audio Division

Distance, Bearing Between Two Sets of Coordinates

(202)-418-2700

Find Distance and Azimuths Between 2 Sets of Coordinates -- Results

Distance between

N Latitude 47 45 21.00, W Longitude 122 20 25.00 (Point 1)

and N Latitude 47 36 22.00, W Longitude 122 19 51.00 (Point 2)

16.662 kilometers; 10.353 miles

Azimuth from point 1 to point 2 = 177.56°
Azimuth from point 2 to point 1 = 357.57°

Another Distance Computation?

Use Sprong to find the terminal or end coordinates, given a bearing and a distance.

This program is located at http://www.fcc.gov/fcc-bin/audio/distance.html

Please send comments via standard mail to the Federal Communications Commission, Consumer and Governmental Affairs Bureau, 445 12th Street, S.W., Washington, D.C., 20554. Questions can also be answered by calling the FCC's National Call Center, toll free, at 1-888-Call FCC (1-888-225-5322).

Federal Communications Commission
445 12th Street SW
Washington, DC 20554
More FCC Contact Information...

Phone: 888-CALL-FCC (225-5322)
TTY: 888-TELL-FCC (835-5322)
Fax: 202-418-0232
E-mail: fccinfo@fcc.gov

Exhibit C

Distance Between
Proposed Special Reference Point
For Shoreline Allotment
And
Seattle Community Reference Point

Audio Division

Distance, Bearing Between Two Sets of Coordinates

(202)-418-2700

Find Distance and Azimuths Between 2 Sets of Coordinates -- Results

Distance between

N Latitude 47 45 15.00, W Longitude 122 35 27.00 (Point 1)

and N Latitude 47 36 22.00, W Longitude 122 19 51.00 (Point 2)

25.537 kilometers; 15.868 miles

Azimuth from point 1 to point 2 = 130.13°
Azimuth from point 2 to point 1 = 310.32°

Another Distance Computation?

Use Sprong to find the terminal or end coordinates, given a bearing and a distance.

This program is located at http://www.fcc.gov/fcc-bin/audio/distance.html

Please send comments via standard mail to the Federal Communications Commission, Consumer and Governmental Affairs Bureau, 445 12th Street, S.W., Washington, D.C., 20554. Questions can also be answered by calling the FCC's National Call Center, toll free, at 1-888-Call FCC (1-888-225-5322).

Federal Communications Commission
445 12th Street SW
Washington, DC 20554
More FCC Contact Information...

Phone: 888-CALL-FCC (225-5322)
TTY: 888-TELL-FCC (835-5322)
Fax: 202-418-0232
E-mail: fccinfo@fcc.gov

- Web Policies & Privacy Statement
- Required Browser Plug-ins
- Customer Service Standards
- Freedom of Information Act

Exhibit D

Distance Between
Shoreline Community Reference Point
And
Bremerton Community Reference Point

Audio Division

Distance, Bearing Between Two Sets of Coordinates

(202)-418-2700

Find Distance and Azimuths Between 2 Sets of Coordinates -- Results

Distance between

N Latitude 47 45 21.00, W Longitude 122 20 25.00 (Point 1)

and N Latitude 47 34 3.00, W Longitude 122 37 52.00 (Point 2)

30.261 kilometers; 18.803 miles

Azimuth from point 1 to point 2 = 226.23°
Azimuth from point 2 to point 1 = 46.02°

Another Distance Computation?

Use Sprong to find the terminal or end coordinates, given a bearing and a distance.

This program is located at http://www.fcc.gov/fcc-bin/audio/distance.html

Please send comments via standard mail to the Federal Communications Commission, Consumer and Governmental Affairs Bureau, 445 12th Street, S.W., Washington, D.C., 20554. Questions can also be answered by calling the FCC's National Call Center, toll free, at 1-888-Call FCC (1-888-225-5322).

Federal Communications Commission
445 12th Street SW
Washington, DC 20554
More FCC Contact Information...

Phone: 888-CALL-FCC (225-5322)
TTY: 888-TELL-FCC (835-5322)
Fax: 202-418-0232
E-mail: fccinfo@fcc.gov

- Web Policies & Privacy Statement
- Required Browser Plug-ins
- Customer Service Standards
- Freedom of Information Act

Exhibit E

Map Depicting
Geographical Relationship of
Shoreline, Washington
And
Bremerton, Washington