



March 1, 1996

Mr. William F. Caton, Secretary
Federal Communications Commission
1919 M Street, N.W. - Room 222
Washington, D.C. 20554

CTIA

Cellular
Telecommunications
Industry Association
1250 Connecticut
Avenue, N.W.
Suite 200
Washington, D.C. 20036
202-785-0081 Telephone
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Ex Parte Contact: Microwave Relocation -
WT Docket No. 95-157, RM 8643

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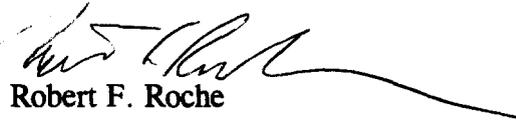
Dear Mr. Caton:

On Friday, March 1, 1996, Mr. Thomas E. Wheeler, President and CEO, CTIA, sent the accompanying letter and attachments regarding microwave relocation to FCC Chairman Reed E. Hundt, Commissioners James H. Quello, Andrew C. Barrett, Rachelle B. Chong, and Susan Ness, and to Michele C. Farquhar, Chief, and Rosalind Allen, Associate Bureau Chief, Wireless Telecommunications Bureau.

Pursuant to Section 1.1206 of the Commission's Rules, an original and one copy of this letter and the attachment are being filed with your office.

If there are any questions in this regard, please contact the undersigned.

Sincerely,


Robert F. Roche

Attachments

No. of Copies rec'd 071
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March 1, 1996

The Honorable Reed E. Hundt
Chairman
Federal Communications Commission
1919 M Street, NW
Room 814
Washington, DC 20554-0001

CTIA

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Thomas E. Wheeler
President / CEO

Re: **Amendment of the Commission's Rules Regarding a Plan
for Sharing the Costs of Microwave Relocation**
(WT Docket No. 95-157, RM 8642)

Dear Mr. Chairman:

We have written to you several times on the subject of microwave relocation and, in particular, the trend which continues to threaten the timely rollout of broadband PCS. As we have detailed in previous letters, certain incumbent microwave operators in the 2 gigahertz (GHz) band are using their status as FCC licensees to make unconscionable demands of the new PCS licensees as a pre-condition to the relocation of their facilities which must occur prior to the offering of PCS.

This further correspondence is a plea for the Commission to act. The continued failure to act in this matter is jeopardizing the fulfillment of the Commission's PCS vision.

As we have also noted, except in the most egregious circumstances, PCS licensees are reluctant to go public with their frustrations over the recalcitrant behavior of microwave incumbents. This reticence is due to their fear of even greater delay in bringing incumbents to the bargaining table or the risk of future retribution in cases where the incumbent is also a governmental body.

Today, it is my unfortunate duty to further report several representative cases in which the microwave incumbents' behavior is so outlandish and irresponsible as to threaten the ability of PCS licensees to begin offering service this year. The enormity of the impact of this situation has compelled one PCS company, a member of CTIA, to risk the potential retribution resulting from public disclosure.

Sprint Spectrum (formerly Sprint Telecommunications Venture or STV) is currently licensed to provide service in twenty-nine MTA markets.¹ Approximately 1,400 microwave links are located within Sprint Spectrum's licensed spectrum bands, making it the MTA licensee with the greatest number of links that may require relocation. By its own estimate, 71 of those links must be relocated to initiate service throughout its markets. Of course, as capacity requirements expand with subscriber growth, additional links will have to be moved, as well.

The attached materials detail the outrageous financial demands of certain microwave incumbents having links in Sprint Spectrum's PCS bands. You will note that the demands of the Union Pacific Railroad exceed even that of the Suffolk County (Long Island) Police Department, the incumbent that Sprint Spectrum was previously willing to identify.² For your convenience the attached information is summarized below.³

<u>Microwave Incumbent</u>	<u># of Links</u>	<u>Est. Fair Cost</u>	<u>Requested Cost</u>	<u>Extortion Delta</u>
Union Oil of California	5	\$1,250,000	\$18,350,982	\$ 17,100,982
Union Pacific Railroad	24	6,000,000	46,250,000	40,250,000
Puget Power	12	3,000,000	7,600,000	4,600,000
Williams Wireless	7	1,750,000	21,380,000	19,630,000
Washington State Patrol	10	2,500,000	2,866,617	366,617
Western Resources	2	500,000	820,136	320,136
BNSF	1	250,000	2,000,000	1,750,000
Guadeloupe Valley Elect. Co-op	2	500,000	1,304,416	804,416
New Jersey Turnpike Authority	4	1,000,000	2,500,000	1,500,000
Detroit Edison	2	500,000	950,400	450,400
Suffolk County Police	2	500,000	22,000,000	21,500,000
Total	71	\$17,750,000	\$126,022,551	\$108,272,551

Per link excess charge:.....\$1,524,965

¹ Sprint Spectrum is licensed to serve the following MTA markets: New York, NY; San Francisco-Oakland-San Jose, CA; Detroit, MI; Dallas-Fort Worth, TX; Boston, MA-Providence, RI; Minneapolis-St. Paul, MN; Miami-Fort Lauderdale, FL; New Orleans-Baton Rouge, LA; St. Louis, MO; Milwaukee, WI; Pittsburgh, PA; Denver, CO; Seattle, WA (excluding Alaska); Louisville-Lexington-Evansville, KY; Phoenix, AZ; Birmingham, AL; Portland, OR; Indianapolis, IN; Des Moines-Quad Cities, IA; San Antonio, TX; Kansas City, KS; Buffalo-Rochester, NY; Salt Lake City, UT; Oklahoma City, OK; Spokane, WA-Billings, MT; Nashville, TN; Wichita, KS; and Tulsa, OK. Its affiliate, American Personal Communications, trading under the Sprint Spectrum brand, serves the Washington, DC-Baltimore, MD MTA.

² See Comments of CTIA in this proceeding, filed December 1, 1995, Exhibit I, at 1.

³ Unlike the attached detailed information from Sprint Spectrum, CTIA has assumed an "estimated fair cost" of \$250,000 per microwave link, the maximum per link amount contained in the Commission's proposed cost sharing plan. As such, in several instances, the summary information underestimates the per link excess charge demanded by the incumbents.

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OFFICE OF SECRETARY

Chairman Hundt
March 1, 1996
Page Three

The \$108 million difference between the estimated fair relocation cost and the sums demanded by the incumbents for these 71 links is clearly unreasonable and, CTIA believes, clear evidence of bad faith on the part of the incumbents. Of course these numbers provide only a partial picture of the kind of abuse PCS providers must confront.

The magnitude of this problem can be illustrated another way. If the average per link excess charge (\$1,524,965) is extrapolated to the C block PCS band, where approximately 1,874 microwave links are found, the amount demanded above the fair estimated relocation cost would come to more than **\$2.8 billion**.⁴ Extrapolating the overage (\$1,524,965) to the D, E, and F PCS bands, where as many as 2,951 microwave links may require relocation, the amount demanded above the fair estimated relocation cost would come to more than **\$4.5 billion**.⁵

These incumbents know that they can take advantage of the Commission's current voluntary negotiation rules by refusing to bargain in earnest or by making financial demands having no relation to the actual costs of relocation. Mr. Chairman, enough is enough! We have previously submitted information which has been "sanitized" to prevent retribution. This instance is merely illustrative and, fortunately, Sprint Spectrum has been willing to "go public."

This behavior is not what the Commission envisioned when it adopted the current rules. Sprint Spectrum has invested more than \$2 billion in the auction alone and will spend untold millions more to build out its markets. How much more will be added to the price tag by the incumbents? How much more must PCS providers "invest" to meet the greedy demands of microwave incumbents when these funds might be used to innovative services to the public?

The Commission must act with dispatch to change the microwave relocation rules to eliminate this kind of irresponsible behavior by parties holding a public trust, *i.e.*, their FCC license. The rules must be changed if the American public is to enjoy the benefits of new wireless competition. CTIA urges the Commission to, post-haste, make the following changes in the microwave relocation rules:

1. Shorten the voluntary negotiation period to one year.

⁴ $\$1,524,965 \times 1,874 = \$2,857,785,000$.

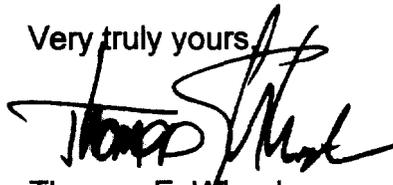
⁵ $\$1,524,965 \times 2,951 = \$4,500,173,211$. Because the D,E and F licensees will have only ten megahertz to work with, a higher percentage of the resident microwave links may have to be relocated to initiate service.

Chairman Hundt
March 1, 1996
Page Four

2. Require "good faith" negotiation during the voluntary period. As an element in the determination of an incumbent's good faith, the incumbent should be required to provide a reasonable justification of its financial and technical demands.
3. To encourage incumbents to negotiate during the voluntary period, recoverable costs during the mandatory negotiation period should be limited to the undepreciated cost of the incumbent licensee's existing system.
4. A determination of an incumbent's failure to negotiate in good faith during the voluntary period should immediately invoke the commencement of the mandatory negotiation period and the incumbent's license should be immediately downgraded to secondary status.

While most microwave incumbents are behaving responsibly, the Commission must eliminate the ability of a few mercenary incumbents to thwart nationwide PCS in its infancy.

Very truly yours,



Thomas E. Wheeler

cc: Commissioner James H. Quello
Commissioner Andrew C. Barrett
Commissioner Rachelle B. Chong
Commissioner Susan Ness
Michele Farquhar
Rosalind Allen

Microwave Relocation - Bad Actor Form

2/23/96

Incumbent Name: **Union Oil of Californial (Unocal)**

Market / MTA: **San Francisco, LA**

Market freq. block: **A**

Number of paths required for initial system: **5**
Estimated comparable cost per path: **\$155,000**
Total estimated comparable cost: **\$775,000**

Number of paths requested by incumbent for relo: **27**
A paths: **14**
B paths: **7**
C - F paths: **3**
Non PCS paths: **3**
Per path cost requested by the incumbent: **\$679,666**
Additional payments requested by the incumbent:
Total requested relocation cost by the incumbent: **\$18,350,982**

Chain of events:

<u>Date</u>	<u>Action</u>
8/15/95	Keller and Heckman announced their legal services for the Union Oil Company of California and requested joint development of a comprehensive relocation plan.
10/17/95	PCS licensees STV, Cox and PBMS presented a joint proposal for systemic relocation at \$154K/path covering a digital relocation.
12/15/95	The VP of Union Oil responded to PBMS, Cox and STV requesting \$18,000,000 (\$600,000/path).
1/15/96	STV, Cox and PBMS sent an offer of \$200,000/path for 27 paths to the incumbent.
2/19/96	A meeting between senior executives in PBMS and Union Oil was cancelled.
2/23/96	The incumbent has not responded to the latest proposal from the three licensees.

Additional Comments:

Union Oil has paths that are critical for San Francisco [REDACTED]
PBMS is willing to pick up many of the paths but the incumbent hasn't begun to reach reasonable terms.

**Presentation To
"UNOCAL"**

October 17, 1995

**Columbia Spectrum
Cox Communication
Pacific Bell Mobile Services**

Goals and Objectives

- Relocate your Microwave links out of the 1.9 GHz₂ Band which have potential for interference with PCS Emerging Technology.
- Existing System in highly reliable and critical to Unocal's operation.
- Path Description (see Attachment "A")

Interference Analysis

- Interference analysis has been conducted in accordance with the Telecommunications Industry Association (TIA) Bulletin 10F. This bulletin establishes interference criteria for the deployment of PSC Spectrum systems. The analysis indicated that interference from our system would significantly reduce throughput of your baseband traffic. The FCC is aware that we will cause some interference. We are mandated to negotiate with all incumbents to eliminate the interference. In the case of Unocal, we will impact approximately one-fourth of the traffic carried by your system on the Links which have interference.

Relocation Management

- Letter from Vendor addressing Product Support

Benefits

- Voluntary time is approaching expiration.
- PSC Licenses are requesting new guide lines from FCC and Congress. The new guide lines shorten the voluntary interval and in the mandatory period the link values will go from the replacement value to a depreciated value.
- Tax Certification
- Potential for PCS Partnership upon completion of Relocation.

Cost Analysis - (Like for Like Upgrades)

	<u>Analog (K)</u>	<u>Digital (K)</u>
• Radio (Link)	77.8	82.0
• Antenna	9.9	9.9
• Wave Guide	5.0	5.0
• Dehydrators	1.9	1.9
• Nuts & Bolts/Rack	3.4	3.4
• Installation	52.0	52.0
• Replacement Cost*	<u>\$150.0K</u>	<u>\$154.2K</u>

- Link Cost \times # of Links / Total Links = Value per Link
 - $\{150K \times 24 \text{ Links with interference} = 3.6M\}$
 - $\{3.6M \div 27\} = 133.3K \text{ Avg. Value per Link}$

"UNOCAL"

Link Description									
Link	Xmt. Freq.	Site Name	Receive Site	Block	Link	Xmt. Freq.	Site Name	Receive Site	Block
1	1885.0	Santa Maria Refn.	Cuesta Grade	BE	1	1985.1	Cuesta Grade	Santa Maria Refn.	C
2	1875.0	West Mountain	Santa Paula	B	2	1915.1	Santa Paula	West Mountain	U
3	1885.0	Bakersfield	McKittrick Summit	BE	3	1985.1	McKittrick Summit	Bakersfield	BE
4	1875.0	Coalinga Pump	Joaquin Ridge	B	4	1915.1	Joaquin Ridge	Coalinga Pump	U
5	1915.0	Dominguez Hills	L. A. Terminal	U	5	1955.1	L. A. Terminal	Dominguez Hills	B
6	1905.0	Richmond Terminal	San Fran. CCC	C	6	1985.1	San Fran. CCC	Richmond Terminal	BE
7	1885.0	Union Island	Mount Vaca	BE	7	1945.0	Mount Vaca	Union Island	A,D
8	1875.0	Brea S&T	Stearns	B	8	1935.0	Stearns	Brea S&T	A
9	1885.0	Union Island	Mount Oso	BE	9	1935.0	Mount Oso	Union Island	A
10	1855.0	Santa Maria Refn.	Orcutt Hill	A	10	1935.0	Orcutt Hill	Santa Maria Refn.	A
11	1855.0	Cuesta Grade	San Luis Obispo	A	11	1905.0	San Luis Obispo	Cuesta Grade	C
12	1855.0	Frazier Mountain	Santa Ynez	A	12	1905.0	Santa Ynez	Frazier Mountain	C
13	1865.0	L. A. Refinery	Dominguez Hills	A,D	13	1905.1	Dominguez Hills	L.A. Refinery	C
14	1865.0	Torrey Hill	Santa Paula	A,D	14	1975.1	Santa Paula	Torrey Hill	C,F
15	1855.0	Torrey Hill	Oat Mountain	A	15	1895.1	Oat Mountain	Torrey Hill	C,F
16	1945.0	UOC	Oat Mountain	A,D	16	1985.0	Oat Mountain	UOC	C
17	1945.0	Frazier Mountain	Oat Mountain	A,D	17	1985.0	Oat Mountain	Frazier Mountain	C
18	1895.0	Santa Ynez	Orcutt Hill	C,F	18	1945.1	Orcutt Hill	Santa Ynez	A,D
19	1865.0	Santa Fe Springs	Stearns	A,D	19	1945.1	Stearns	Santa Fe Springs	A,D
20	1865.0	Orcutt Office	Orcutt Hill	A,D	20	1925.1	Orcutt Hills	Orcutt Office	U
21	1945.0	West Mountain	Ventura	A,D	21	1985.1	Ventura	West Mountain	C
22	1855.0	McKittrick Summit	Joaquin Ridge	A	22	1935.0	Joaquin Ridge	McKittrick Summit	A
23	1865.0	Panoche	Joaquin Ridge	A,D	23	1905.1	Joaquin Ridge	Panoche	C
24	1855.0	Panoche	Mount Oso	A	24	1945.0	Mount Oso	Panoche	A,D
25	1895.0	Frazier mt.	McKittrick Summit	C,F	25	1975.1	McKittrick Summit	Frazier Mt.	C,F
26	1925.0	San Fran. Refinery	Richmond Terminal	U	26	1985.1	Richmond Terminal	San Fran. Refinery	C
27	1925.0	Dominguez Hills	Santa Fe Springs	U	27	1975.1	Santa Fe Springs	Dominguez Hills	C,F

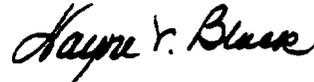
Mr. Thomas Lusk
August 15, 1995
Page Two

KELLER AND HECKMAN

employ its current 2 GHz assignments. A letter similar to this is being directed to Mr. Roger Downes at Cox, and to Mr. Mike Patrick at Pacific Bell Mobile Services, with an invitation to meet jointly if each is desirous of pursuing this goal.

I look forward to your early response.

Very truly yours,

A handwritten signature in cursive script that reads "Wayne V. Black".

Wayne V. Black

Microwave Relocation - Bad Actor Form

2/23/96

Incumbent Name: **Union Pacific Railroad**
(Missouri Pacific & Chicago NW Railway)

Market / MTA: Seattle, Portland, San Francisco
Spokane, Salt Lake City, Minneapolis
Kansas City, Omaha, St. Louis, Tulsa
Des Moines, Denver, Dallas
New Orleans, San Antonio

Market freq. block: A - B

Number of paths required for initial system:	24	Number of paths requested by incumbent for relo:	185
Estimated comparable cost per path:	\$165,000	A paths:	54
		B paths:	55
Total estimated comparable cost:	\$3,960,000	C - F paths:	76
		Non PCS paths:	0
		Per path cost requested by the incumbent:	\$250,000
		Additional payments requested by the incumbent:	
		Total requested relocation cost by the incumbent:	\$46,250,000

Chain of events:

<u>Date</u>	<u>Action</u>
10/26/95	STV met with UP to initially discuss microwave relocation and site leasing.
11/1/95	STV worked with UP to obtain a letter permitting coordination among other PCS licensees.
12/14/95	STV proposed to pay for all 55 STV Co-Channel paths and a pro-rata share of 76 BTA-block paths.
1/5/96	STV/CSM coordinated a meeting with UP and PCS licensees.
1/16/96	UP refused to attend, along with many of the other licensees.
2/9/96	UP has not responded with any comments or requests to STV's December 14, 1995 proposal.
2/9/96	STV is preparing an alternate proposal to meet launch objectives.

Additional Comments:

[REDACTED]

- Beyond initial launch, UP impacts PCS coverage in 15 MTA's.

[REDACTED]

D-R-A-F-T

Mr. Kenneth P. Cashman
Sprint Telecommunications Venture
9221 Ward Parkway
Kansas City, MO 64131

November 30, 1995

Dear Ken:

SUBJECT: Microwave System Relocation

As you are aware, Union Pacific Railroad ("Union Pacific") currently operates a large microwave system across several major trading areas ("MTA's") in multiple frequency bands, including the 1850 - 1990 MHz radio band (the "2 GHz Band"). As a result of the orders of the Federal Communications Commission, a great number of paths in the system may be subject to interference protection and relocation to alternate frequencies or media. Furthermore, the responsibility for non-interference and relocation rests with multiple PCS licensees, including affiliates of Sprint Telecommunications Venture ("STV").

Significant benefits may be achieved if the PCS licensees work together to effect a non-interference and relocation solution for Union Pacific's 2 GHz Band paths. We recognize that such coordination among PCS licensees may be permissible for some topics but not for others. If you think that it would be appropriate, you may wish to contact other PCS licensees with respect to aspects of this issue which do not present you with significant risks of legal liability.

Sincerely yours,

G. LYNN ANDREWS
AVP Telecommunications

Sprint Telecommunications Venture
9221 Ward Parkway, Kansas City, Missouri 64114

December 14, 1995

G. Lynn Andrews
AVP Telecommunications
Union Pacific Railroad
1416 Dodge St., Rm 235
Omaha, NE 66179
(402) 271-2253

Dear Mr. Andrews,

In response to the meeting between Union Pacific and Sprint Telecommunications Venture (STV) on 10/26/95, STV has prepared the following proposal for microwave relocation of Union Pacific's paths from the PCS spectrum. This proposal is based upon engineering quotes obtained for a digital system upgrade with Alcatel radios of equal or greater capacity than the current system configuration. STV understands that Union Pacific desires a systemic solution, and we have prepared such a solution. STV's business plan does not support unilaterally financing a complete microwave network relocation. Our plan allows Union Pacific, and its affiliates Missouri Pacific Railroad and Chicago Northwestern Railway, to affect a systemic network relocation by apportioning the responsibility of each path in the network to one or more PCS licensees based upon the attached *PCS Licensee Relocation Responsibility* spreadsheet.

This spreadsheet details all 185 paths that Union Pacific and its affiliates have in the 1.9 GHz PCS frequency band. It assigns the percentage responsibility for each licensee, based upon the PCS provider's MTA license and the frequency block assignment (A, A/D, D/B, B, B/E, E/F, F/C, C, C/UL, UL, and UL/A). There are nine (9) PCS licensees sharing common frequencies with current Union Pacific microwave paths. These licensees include: American Portable Telecommunications (APT), AT&T Wireless PCS Inc., GTE Macro Communications Corp., Pacific Telesis Mobile Services (PBMS), Poka Lambro Telephone Cooperative, Inc., PCS PrimeCo, LP., WirelessCo, LP. (STV), Southwestern Bell Mobile Systems, Inc. (SWBMS), and Western PCS Corporation (Western Wireless).

STV has made four key concessions without the benefit of any system specific information:

- Included All 55 co-channel paths (critical and non-critical)
- Added 75 BTA-Block or Unlicensed paths for systemic relocation
- Obtained special pricing for a digital system upgrade with equal or greater capacity
- Padded the baseline cost with \$20,000 per path for tower upgrades, additional expenses or premium overhead.

The average cost of Alcatel digital radios quoted for STV's special pricing of Union Pacific's paths is \$143,357. Added to this equipment cost is a \$20,000 per path provisioned for possible tower modification or other expenses Union Pacific sees fit, bringing the total baseline cost to \$163,357/path. STV has 55 co-channel paths with Union Pacific, for which STV will pay 100% of the baseline cost unless cost sharing with another licensee. STV will agree to pay 50% of the baseline cost for 75 additional BTA-Block or Unlicensed PCS paths. This allows STV to contribute to the systemic relocation requested by Union Pacific. STV looks forward to the opportunity to proceed with Union Pacific on microwave relocation efforts.

The information in this correspondence should be considered proprietary, and, not releasable outside Union Pacific, STV and CSM, until more formal agreements are in place. Please refer any questions to STV's primary negotiator Tom Leddo, with CSM at (713) 974-0414, or secondary contact Ken Cashman at (816) 276-2116.

Regards,



Kenneth P. Cashman
Microwave Relocation Engineer

enclosure: PCS Relocation Responsibility Spreadsheet

cc: Oliver Valente
Paul Jablonski
Bob Stedman
Tony Sabatino
Don Mueller
Dave Kleinbeck
Tom Leddo

PCS LICENSEE RELOCATION RESPONSIBILITY CHART
UNION PACIFIC RAILROAD 1.9 GHz Paths
(Missouri Pacific Railroad, Chicago Northwestern Railway Co.)

2/23/96

CALLSIGN_1	CALLSIGN_2	SITE_NAME1	SITE_NAME2	FREQ1_1	FREQ2_1	Freq1_1Bkt	Freq2_1Bkt	STV License	MTA 1	MTA 2	APT	AT&T	GTE	PBMS	Poka	PrimeCo	STV	SWBMS	Western Wireless
WH1973	WH1974	KIRKWOOD *	PACIFIC *	1965.0000	1885.0000	B/E	B/E	B	19	19	0%	0%	0%	0%	0%	0%	100%	0%	0%
WH1976	WH1977	AMERICUS *	HOLTS SUMMI*	1885.0000	1965.0000	B/E	B/E	B	19	19	0%	0%	0%	0%	0%	0%	100%	0%	0%
WBX388	WBX387	WOLCOTT *	NEFF YARD *	1935.0000	1855.0000	A	A	A	34	34	0%	0%	0%	0%	0%	0%	100%	0%	0%
WH1981	WH1980	MONTERRAT *	SEDALIA *	1865.0000	1945.0000	A/D	A/D	A	34	34	0%	0%	0%	0%	0%	0%	100%	0%	0%
WJK31	WJK29	PLEASANT HI*	BUTLER *	1885.0000	1935.0000	B/E	A	A	34	34	50%	0%	0%	0%	0%	0%	50%	0%	0%
KAZ43	KAZ42	PONCA HILLS*	OMAHA *	1955.0000	1885.0000	B	B/E	B	45	45	0%	0%	0%	0%	0%	0%	100%	0%	0%
KAZ45	KAZ46	MAPLE HILL *	BELLWOOD *	1895.0000	1955.0000	F/C	B	B	45	45	0%	0%	0%	0%	0%	0%	100%	0%	0%
KAZ47	KAZ46	GENOA *	BELLWOOD *	1875.0000	1935.0000	B	A	B	45	45	0%	50%	0%	0%	0%	0%	50%	0%	0%
KAZ48	KAZ49	CENTRAL CIT*	GRAND ISLAN*	1895.0000	1955.0000	F/C	B	B	45	45	0%	0%	0%	0%	0%	0%	100%	0%	0%
KAZ49	WSP88	GRAND ISLAN*	HANSEN *	1925.0000	1875.0000	UL	B	B	45	45	0%	0%	0%	0%	0%	0%	100%	0%	0%
KBA35	KBA34	NORTH PLATT*	BRADY *	1855.0000	1965.0000	A	B/E	B	45	45	0%	50%	0%	0%	0%	0%	50%	0%	0%
KBA39	KBA38	CHAPPELL *	JULESBURG *	1885.0000	1965.0000	B/E	B/E	B/A	45	22	0%	0%	50%	0%	0%	0%	50%	0%	0%
KTM64	KBA33	GOTHENBURG *	JOHNSON *	1965.0000	1905.0000	B/E	C	B	45	45	0%	0%	0%	0%	0%	0%	100%	0%	0%
WEG305	WEG306	SUTHERLAND *	OGALLALA *	1955.0000	1875.0000	B	B	B	45	45	0%	0%	0%	0%	0%	0%	100%	0%	0%
WSP91	WSP92	DAVENPORT *	BELVIDERE *	1955.0000	1875.0000	B	B	B	45	45	0%	0%	0%	0%	0%	0%	100%	0%	0%
WSP93	WSP94	DAYKIN *	FAIRBURY *	1965.0000	1885.0000	B/E	B/E	B	45	45	0%	0%	0%	0%	0%	0%	100%	0%	0%
WSP95	KTM76	STEEL CITY *	MARYSVILLE *	1955.0000	1875.0000	B	B	B/A	45	34	0%	50%	0%	0%	0%	0%	50%	0%	0%
WJZ48	WJZ54	BUNKIE *	MELVILLE *	1935.0000	1855.0000	A	A	A	17	17	0%	0%	0%	0%	0%	0%	100%	0%	0%
WJZ53	WJZ49	LIVONIA *	ADDIS *	1935.0000	1855.0000	A	A	A	17	17	0%	0%	0%	0%	0%	0%	100%	0%	0%
WEH257	WJK31	LEE'S SUMMI*	PLEASANT HL*	1975.0000	1895.0000	F/C	F/C	A	34	34	50%	0%	0%	0%	0%	0%	50%	0%	0%
WJK26	WJK28	KINCAID *	YATES CENTE*	1935.0000	1855.0000	A	A	A/B	34	46	0%	50%	0%	0%	0%	0%	50%	0%	0%
KTM83	KAU45	UP OFFICE *	AGRENTINE *	1895.0000	1975.0000	F/C	F/C	A	34	34	50%	0%	0%	0%	0%	0%	50%	0%	0%
KBA31	KBA32	GIBBON *	ALFALFA CNT*	1895.0000	1875.0000	F/C	F/C	B	45	45	0%	50%	0%	0%	0%	0%	50%	0%	0%
KBA36	KBA35	SUTHERLAND *	NORTH PLATT*	1985.0000	1895.0000	C	F/C	B	45	45	0%	50%	0%	0%	0%	0%	50%	0%	0%
KBA37	KBA38	OGALLALA *	JULESBURG *	1865.0000	1945.0000	A/D	A/D	B/A	45	22	0%	50%	0%	0%	0%	0%	50%	0%	0%
WEG307	WEG306	LEMOYNE *	OGALLALA *	1975.0000	1895.0000	F/C	F/C	B	45	45	0%	50%	0%	0%	0%	0%	50%	0%	0%
WNEP921	WH1758	WASECA	CLARKS GROV	1945.0000	1865.0000	A/D	A/D	A	12	12	0%	0%	0%	0%	0%	0%	100%	0%	0%
KSB25	KIC58	WALKER	CEDAR RAPID	1885.0000	1965.0000	B/E	B/E	B	32	32	0%	0%	0%	0%	0%	0%	100%	0%	0%
WEG984	WEG982	COVE SPRING*	PALESTINE *	1885.0000	1865.0000	B/E	B/E	B	7	7	0%	0%	0%	0%	0%	0%	100%	0%	0%
WEG986	WEG984	ELKHART *	CROCKETT *	1885.0000	1965.0000	B/E	B/E	B	7	14	0%	0%	0%	0%	0%	50%	50%	0%	0%
WEG990	WEG987	LONGVIEW *	SE KILGORE *	1955.0000	1875.0000	B	B	B	7	7	0%	0%	0%	0%	0%	0%	100%	0%	0%
WEG991	WEG990	HALLSVILLE *	LONGVIEW *	1885.0000	1965.0000	B/E	B/E	B	7	7	0%	0%	0%	0%	0%	0%	100%	0%	0%
WEG992	WEG986	PALESTINE *	ELKHART *	1955.0000	1875.0000	B	B	B	7	7	0%	0%	0%	0%	0%	0%	100%	0%	0%
WK73	WEG991	SCOTTSVILLE*	HALLSVILLE *	1955.0000	1875.0000	B	B	B	7	7	0%	0%	0%	0%	0%	0%	100%	0%	0%
WKO35	WEG984	TYLER *	COVE SPRING*	1955.0000	1875.0000	B	B	B	7	7	0%	0%	0%	0%	0%	0%	100%	0%	0%
WGP46	WGP45	ODEM DEPOT *	MOPAC FRT O*	1865.0000	1965.0000	A/D	B/E	A	33	33	0%	0%	0%	0%	0%	50%	50%	0%	0%
KDB94	KGW21	OROVILLE *	SUTTER BTTE*	1945.0000	1865.0000	A/D	A/D	A	4	4	0%	0%	0%	0%	0%	0%	100%	0%	0%
WNEY901	WBU35	CORA *	GORHAM *	1965.0000	1885.0000	B/E	B/E	B	19	19	0%	0%	0%	0%	0%	0%	100%	0%	0%
KBA40	KBA39	E BROWNSON *	CHAPPELL *	1935.0000	1855.0000	A	A	A/B	22	45	0%	50%	0%	0%	0%	0%	50%	0%	0%
KBA41	WGT27	OLIVER *	PINE BLUFFS*	1935.0000	1855.0000	A	A	A	22	22	0%	0%	0%	0%	0%	0%	100%	0%	0%
KBA44	KBA43	PILOT KNOB *	CHEYENNE *	1965.0000	1865.0000	B/E	A/D	A	22	22	0%	0%	50%	0%	0%	0%	50%	0%	0%
KBY35	KBR88	HANNA *	SO RAWLINS *	1865.0000	1825.0000	A/D	UL	A	22	22	0%	0%	0%	0%	0%	0%	100%	0%	0%
WEG308	WEG307	OSHKOSH *	LEMOYNE *	1865.0000	1945.0000	A/D	A/D	A/B	22	45	0%	50%	0%	0%	0%	0%	50%	0%	0%
WEG311	WEG310	MELBETA *	NORTHPORT *	1945.0000	1865.0000	A/D	A/D	A	22	22	0%	0%	0%	0%	0%	0%	100%	0%	0%
WEG312	WEG311	SCOTTSBLUFF*	MELBETA *	1855.0000	1835.0000	A	A	A	22	22	0%	0%	0%	0%	0%	0%	100%	0%	0%
WAL548	KTM45	FIFE HEIGHT*	CAPITOL PK *	1955.0000	1895.0000	B	F/C	B	24	24	0%	0%	0%	0%	0%	0%	100%	0%	0%
KPE47	WAM32	KELSO *	SKAPPOOSE *	1955.0000	1875.0000	B	B	B	30	30	0%	0%	0%	0%	0%	0%	100%	0%	0%
KSN28	KSN27	ROOSEVELT *	HAYSTACK BT*	1885.0000	1965.0000	B/E	B/E	B	30	30	0%	0%	0%	0%	0%	0%	100%	0%	0%
KSN29	KSN25	MT SKAMANIA*	HOOD RIVER *	1965.0000	1885.0000	B/E	B/E	B	30	30	0%	0%	0%	0%	0%	0%	100%	0%	0%
WAM32	WAM33	ROCKY POINT*	ALBINA YARD*	1885.0000	1965.0000	B/E	B/E	B	30	30	0%	0%	0%	0%	0%	0%	100%	0%	0%

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UNION PACIFIC RAILROAD 1.9 GHz Paths
(Missouri Pacific Railroad, Chicago Northwestern Railway Co.)

2/23/96

KBR85	KBR84	BIG MTN *	MAGNA *	1875.0000	1975.0000	B	F/C	B	36	36	0%	0%	0%	0%	0%	0%	100%	0%	0%	
KBR86	KBR84	SLC DEPOT *	MAGNA *	1885.0000	1945.0000	B/E	A/D	B	36	36	0%	0%	0%	0%	0%	0%	50%	0%	50%	
KDP69	KDP70	GARLAND *	WILLARD *	1885.0000	1965.0000	B/E	B/E	B	36	36	0%	0%	0%	0%	0%	0%	100%	0%	0%	
KDP72	KDP66	TRAIL CREEK*	BONNEVL PEA*	1975.0000	1885.0000	F/C	B/E	B	36	36	0%	0%	0%	0%	0%	0%	100%	0%	0%	
KDP72	KDP71	TRAIL CREEK*	POCATELLO *	1955.0000	1855.0000	C	C	B	36	36	0%	0%	0%	0%	0%	0%	50%	0%	50%	
KVM47	KBR85	MEDICINE BT*	BIG MTN *	1965.0000	1885.0000	B/E	B/E	B	36	36	0%	0%	0%	0%	0%	0%	100%	0%	0%	
WAT690	WAT689	SODA SPRING*	FISH CREEK *	1885.0000	1965.0000	B/E	B/E	B	36	36	0%	0%	0%	0%	0%	0%	100%	0%	0%	
WAT691	WAT692	GEORGETOWN*	MONTPELIER *	1965.0000	1885.0000	B/E	B/E	B	36	36	0%	0%	0%	0%	0%	0%	100%	0%	0%	
KYR40	WAV92	JOE BUTTE *	WALLA WALLA*	1955.0000	1875.0000	B	B	B	42	42	0%	0%	0%	0%	0%	0%	100%	0%	0%	
WAV95	KYR42	STEPTOE BTE*	POMEROY *	1875.0000	1955.0000	B	B	B	42	42	0%	0%	0%	0%	0%	0%	100%	0%	0%	
WAV97	WAV96	SPOKANE *	MICA PEAK *	1895.0000	1955.0000	F/C	B	B	42	42	0%	0%	0%	0%	0%	0%	100%	0%	0%	
WJK28	WJK24	YATES CENTER	THAYER *	1885.0000	1965.0000	B/E	B/E	B/A	46	34	50%	0%	0%	0%	0%	0%	50%	0%	0%	
WIK73	WQ22	SCOTTSVILLE*	MARSHALL *	1975.0000	1895.0000	F/C	F/C	B	7	7	0%	0%	0%	0%	0%	0%	50%	50%	0%	
WIK74	WQ25	MOPAC YARDS*	HALL SUMMIT*	1895.0000	1975.0000	F/C	F/C	B	7	7	0%	0%	0%	0%	0%	0%	50%	50%	0%	
WQ24	WQ23	GALBRAITH S*	ALEXANDRIA *	1935.0000	1855.0000	A	A	B	7	17	0%	0%	0%	0%	0%	0%	50%	50%	0%	
WQ26	WQ24	NATCHITOCHÉ*	GALBRAITH S*	1895.0000	1975.0000	F/C	F/C	B	7	7	0%	0%	0%	0%	0%	0%	50%	50%	0%	
WKO35	WEG987	TYLER *	SE KILGORE *	1975.0000	1895.0000	F/C	F/C	B	7	7	0%	0%	0%	0%	0%	0%	50%	50%	0%	
WNEW344	WH704	DENISON *	SHERMAN *	1975.0000	1915.0000	F/C	UL	B	7	7	0%	0%	0%	0%	0%	0%	50%	50%	0%	
WNEW345	WNEV344	DURANT *	DENISON *	1905.0000	1985.0000	C	C	B	7	7	0%	0%	0%	0%	0%	0%	50%	50%	0%	
WQ23	WJZ48	ALEXANDRIA *	BUNKIE *	1895.0000	1975.0000	F/C	F/C	A	17	17	0%	0%	0%	0%	0%	0%	50%	50%	0%	
WJZ49	WJZ51	ADDIS *	DONALDSONVL*	1895.0000	1975.0000	F/C	F/C	A	17	17	0%	0%	0%	0%	0%	0%	50%	50%	0%	
WBU34	WBU35	BUSH *	GORHAM *	1985.0000	1905.0000	C	C	B	19	19	0%	50%	0%	0%	0%	0%	0%	50%	0%	0%
WBU36	WBU34	BENTON *	BUSH *	1895.0000	1975.0000	F/C	F/C	B	19	19	0%	50%	0%	0%	0%	0%	0%	50%	0%	0%
WH972	WH973	210 N 13TH *	KIRKWOOD *	1905.0000	1985.0000	C	C	B	19	19	0%	50%	0%	0%	0%	0%	0%	50%	0%	0%
KYU66	KYU55	RAYMONDVILL*	HARLINGEN *	1975.0000	1895.0000	F/C	F/C	A	33	33	0%	0%	0%	0%	0%	0%	50%	50%	0%	
KYV97	KYU66	NORIAS *	RAYMONDVILL*	1905.0000	1985.0000	C	C	A	33	33	0%	0%	0%	0%	0%	0%	50%	50%	0%	
KYX33	KYX34	KINGSVILLE *	MIFFLIN *	1905.0000	1985.0000	C	C	A	33	33	0%	0%	0%	0%	0%	0%	50%	50%	0%	
KYX34	KYV97	MIFFLIN *	NORIAS *	1975.0000	1895.0000	F/C	F/C	A	33	33	0%	0%	0%	0%	0%	0%	50%	50%	0%	
KYX47	KYX33	ROBSTOWN *	KINGSVILLE *	1975.0000	1895.0000	F/C	F/C	A	33	33	0%	0%	0%	0%	0%	0%	50%	50%	0%	
WGP46	KYX47	ODEM DEPOT*	ROBSTOWN *	1925.0000	1985.0000	UL	C	A	33	33	0%	0%	0%	0%	0%	0%	50%	50%	0%	
WEH387	WEH288	NEFF YARD *	PACIFIC AVE*	1985.0000	1905.0000	C	C	A	34	34	50%	0%	0%	0%	0%	0%	0%	50%	0%	0%
WEH288	WJK27	LOUISBURG *	OSAWATOMIE *	1985.0000	1905.0000	C	C	A	34	34	50%	0%	0%	0%	0%	0%	0%	50%	0%	0%
WH979	WH977	CLARKSBURG *	HOLTS SUMMI*	1885.0000	1875.0000	F/C	F/C	A/B	34	19	25%	25%	0%	0%	0%	0%	0%	50%	0%	0%
WJK24	WJK25	THAYER *	COFFEYVILLE*	1975.0000	1895.0000	F/C	F/C	A/B	34	48	25%	0%	0%	0%	0%	0%	0%	50%	25%	0%
WJK31	WH982	PLEASANT HL*	KINGSVILLE *	1905.0000	1985.0000	C	C	A	34	34	50%	0%	0%	0%	0%	0%	0%	50%	0%	0%
KBA40	KTR84	E BROWNSON *	SIDNEY *	1985.0000	1905.0000	C	C	A	22	22	0%	0%	0%	50%	0%	0%	0%	50%	0%	0%
KBA41	WGT46	OLIVER *	JACINTO *	1975.0000	1895.0000	F/C	F/C	A	22	22	0%	0%	50%	0%	0%	0%	0%	50%	0%	0%
KBA43	KBA42	CHEYENNE *	CAMPSTOOL *	1905.0000	1985.0000	C	C	A	22	22	0%	0%	50%	0%	0%	0%	0%	50%	0%	0%
KBA45	KBA44	LARAMIE *	PILOT KNOB *	1905.0000	1985.0000	C	C	A	22	22	0%	0%	50%	0%	0%	0%	0%	50%	0%	0%
KBY29	KBY28	BITTER CRK *	ROCK SPRING*	1985.0000	1905.0000	C	C	A	22	22	0%	0%	50%	0%	0%	0%	0%	50%	0%	0%
KBY31	KBY29	CRESTON *	BITTER CRK *	1895.0000	1975.0000	F/C	F/C	A	22	22	0%	0%	50%	0%	0%	0%	0%	50%	0%	0%
KBY34	KBY30	S GREEN RVR*	CHURCH BTE *	1975.0000	1895.0000	F/C	F/C	A	22	36	0%	0%	25%	0%	0%	0%	0%	50%	0%	25%
KTR83	KBA38	JULESBURG *	JULESBURG *	1905.0000	1985.0000	C	C	A	22	22	0%	0%	50%	0%	0%	0%	0%	50%	0%	0%
KTR85	KBR88	RAWLINS *	SO RAWLINS *	1905.0000	1985.0000	C	C	A	22	22	0%	0%	50%	0%	0%	0%	0%	50%	0%	0%
WAY90	KBY34	COMMUN OFC *	S GREEN RVR*	1905.0000	1985.0000	C	C	A	22	22	0%	0%	50%	0%	0%	0%	0%	50%	0%	0%
WBG33	KBY36	ROCK RIVER *	HARPER *	1985.0000	1905.0000	C	C	A	22	22	0%	0%	50%	0%	0%	0%	0%	50%	0%	0%
WED589	WED580P	KEMMERER *	OYSTER RG P*	1895.0000	1975.0000	F/C	F/C	A	22	22	0%	0%	50%	0%	0%	0%	0%	50%	0%	0%
WEG309	WEG308	LISCO *	OSHKOSH *	1985.0000	1905.0000	C	C	A	22	22	0%	0%	50%	0%	0%	0%	0%	50%	0%	0%
WEG310	WEG309	NORTHPORT *	LISCO *	1895.0000	1975.0000	F/C	F/C	A	22	22	0%	0%	50%	0%	0%	0%	0%	50%	0%	0%
WEG312	WEG313	SCOTTSBLUFF*	SO MORRILL *	1895.0000	1975.0000	F/C	F/C	A	22	22	0%	0%	50%	0%	0%	0%	0%	50%	0%	0%
WAL549	WAL548	MCMICKEN HE*	FIFE HEIGHT*	1915.0000	1975.0000	UL	F/C	B	24	24	0%	0%	50%	0%	0%	0%	0%	50%	0%	0%
KSN27	KDP81	HAYSTACK BT*	THE DALLES *	1985.0000	1905.0000	C	C	B	30	30	0%	0%	0%	0%	0%	0%	0%	50%	0%	50%

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UNION PACIFIC RAILROAD 1.9 GHz Paths
(Missouri Pacific Railroad, Chicago Northwestern Railway Co.)

2/23/98

KTM65	KTM66	LINN *	MILTONVALE *	1985.0000	1905.0000	C	C	A	34	46	25%	25%	0%	0%	0%	0%	50%	0%	0%
KTM76	KTM65	MARYSVILLE *	LINN *	1895.0000	1975.0000	F/C	F/C	A	34	34	50%	0%	0%	0%	0%	0%	50%	0%	0%
KTM77	KTM76	MARYSVL DEP*	MARYSVILLE *	1985.0000	1905.0000	C	C	A	34	34	50%	0%	0%	0%	0%	0%	50%	0%	0%
KDP70	WAV91	WLLARD *	OGDEN *	1985.0000	1905.0000	C	C	B	36	36	0%	0%	0%	0%	0%	0%	50%	0%	50%
KDP74	WCE331	KIMAMA BTTE*	5TH & SCOTT*	1905.0000	1985.0000	C	C	B	36	36	0%	0%	0%	0%	0%	0%	50%	0%	50%
KDP84	KDP78	SQUAW BUTTE*	NAMPA *	1985.0000	1905.0000	C	C	B	36	36	0%	0%	0%	0%	0%	0%	50%	0%	50%
KVM47	WGT45	MEDICINE BT*	EVANSTON *	1985.0000	1905.0000	C	C	B	36	36	0%	0%	0%	0%	0%	0%	50%	0%	50%
WAT688	KDP67	MCCAMMON *	ELKHORN *	1895.0000	1985.0000	F/C	C	B	36	36	0%	0%	0%	0%	0%	0%	50%	0%	50%
WAT692	WED590	MONTPELIER *	LAKETOWN *	1905.0000	1985.0000	C	C	B	36	36	0%	0%	0%	0%	0%	0%	50%	0%	50%
WBF62	WBF61	MENAN BUTTE*	IDAHO FALLS*	1905.0000	1985.0000	C	C	B	36	36	0%	0%	0%	0%	0%	0%	50%	0%	50%
WBU980	WBF62	MONIDA *	MENAN BUTTE*	1985.0000	1905.0000	C	C	B	36	36	0%	0%	0%	0%	0%	0%	50%	0%	50%
WED590	WED589P	LAKETOWN *	OYSTER RG P*	1975.0000	1895.0000	F/C	F/C	B	36	22	0%	0%	25%	0%	0%	0%	50%	0%	25%
WIA227	KDP74	SHOSHONE *	KIMAMA BTTE*	1985.0000	1905.0000	C	C	B	36	36	0%	0%	0%	0%	0%	0%	50%	0%	50%
KSN24	KSN28	HINKLE *	ROOSEVELT *	1905.0000	1985.0000	C	C	B	42	30	0%	0%	0%	0%	25%	0%	50%	0%	25%
KYR41	KYR40	ALTO *	JOE BUTTE *	1905.0000	1985.0000	C	C	B	42	42	0%	0%	0%	0%	50%	0%	50%	0%	0%
KZF70	KYR42	STOUT RANCH*	POMEROY *	1895.0000	1975.0000	F/C	F/C	B	42	42	0%	0%	0%	0%	50%	0%	50%	0%	0%
WAV96	WAV95	MICA PEAK *	STEPTOE BTE*	1985.0000	1905.0000	C	C	B	42	42	0%	0%	0%	0%	50%	0%	50%	0%	0%
WBU981	WBU980	RED ROCK *	MONIDA *	1895.0000	1975.0000	F/C	F/C	B	42	36	0%	0%	0%	0%	25%	0%	50%	0%	25%
WBU982	WBU981	DILLON *	RED ROCK *	1985.0000	1905.0000	C	C	B	42	42	0%	0%	0%	0%	50%	0%	50%	0%	0%
WBU983	WBU982	FEELY SIDN*	DILLON *	1895.0000	1975.0000	F/C	F/C	B	42	42	0%	0%	0%	0%	50%	0%	50%	0%	0%
WBU984	WBU983	SILVER BOW *	FEELY SIDN*	1985.0000	1905.0000	C	C	B	42	42	0%	0%	0%	0%	50%	0%	50%	0%	0%
KAZ43	KAZ44	PONCA HILLS*	ELK CITY *	1985.0000	1905.0000	C	C	B	45	45	0%	50%	0%	0%	0%	0%	50%	0%	0%
KAZ47	KAZ48	GENOA *	CENTRAL CIT*	1985.0000	1905.0000	C	C	B	45	45	0%	50%	0%	0%	0%	0%	50%	0%	0%
KBA32	KBA33	ALFLAFA CNT*	JOHNSON *	1985.0000	1925.0000	C	UL	B	45	45	0%	50%	0%	0%	0%	0%	50%	0%	0%
WAV949	KAZ46	12TH STREET*	BELLWOOD *	1905.0000	1985.0000	C	B	B	45	45	0%	50%	0%	0%	0%	0%	50%	0%	0%
WDQ33	KHY23	OMAHA *	GLENWOOD *	1905.0000	1885.0000	C	C	B	45	45	0%	50%	0%	0%	0%	0%	50%	0%	0%
WSP90	WSP91	FAIRFIELD *	DAVENPORT *	1905.0000	1985.0000	C	C	B	45	45	0%	50%	0%	0%	0%	0%	50%	0%	0%
KTM66	KTM67	MILTONVALE *	NEW CAMBRIA*	1895.0000	1975.0000	F/C	F/C	B	48	48	0%	50%	0%	0%	0%	0%	50%	0%	0%
KTM67	KTM68	NEW CAMBRIA*	SALINA *	1985.0000	1905.0000	C	C	B	48	48	0%	50%	0%	0%	0%	0%	50%	0%	0%
WNE5849	KYT55	CNW DEPOT	MILLER RD	1945.0000	1885.0000	A/D	A/D	N/A	3	3	0%	100%	0%	0%	0%	0%	0%	0%	0%
KIC58	KIB70	CEDAR RAPID	EDGEWOOD RD	1945.0000	1885.0000	A/D	A/D	B	32	32	0%	0%	0%	0%	0%	0%	0%	0%	100%
WIK73	WIK74	SCOTTSVILLE*	MOPAC YARDS*	1935.0000	1855.0000	A	A	B	7	7	0%	0%	0%	0%	0%	0%	100%	0%	0%
WIQ25	WIQ26	HALL SUMMIT*	NATCHITOCHÉ*	1935.0000	1855.0000	A	A	B	7	7	0%	0%	0%	0%	0%	0%	100%	0%	0%
WEG985	WEG988	TRINITY *	PHELPS *	1885.0000	1985.0000	B/E	B/E	N/A	14	14	0%	0%	0%	0%	0%	0%	100%	0%	0%
WEG988	WEG993	PHELPS *	WALKER *	1955.0000	N/A	B	Invalid	N/A	14	14	0%	0%	0%	0%	0%	0%	100%	0%	0%
WEG988	WEH321	PHELPS *	NEW WAVERLY*	1975.0000	1895.0000	F/C	F/C	N/A	14	14	50%	0%	0%	0%	0%	0%	50%	0%	0%
WEG994	WEG985	CROCKETT *	TRINITY *	1975.0000	1895.0000	F/C	F/C	N/A	14	14	50%	0%	0%	0%	0%	0%	50%	0%	0%
WEH320	WEH322	CONROE *	SPRING STN *	1985.0000	1885.0000	B/E	B/E	N/A	14	14	0%	0%	0%	0%	0%	0%	100%	0%	0%
WEH321	WEH320	NEW WAVERLY*	CONROE *	1885.0000	1945.0000	A/D	A/D	N/A	14	14	100%	0%	0%	0%	0%	0%	0%	0%	0%
WEH322	WEG989	SPRING STN *	SPRING *	1855.0000	1935.0000	A	A	N/A	14	14	100%	0%	0%	0%	0%	0%	0%	0%	0%
WJZ51	WJZ52	DONALDSONVL*	EDGARD *	1985.0000	1885.0000	B/E	B/E	A	17	17	0%	0%	0%	0%	0%	0%	100%	0%	0%
WJZ52	WJZ50	EDGARD *	BRIDGE CITY*	1895.0000	1955.0000	F/C	B	A	17	17	0%	0%	0%	0%	0%	0%	100%	0%	0%
WJZ54	WJZ53	MELVILLE *	LIVONIA *	1885.0000	1975.0000	B/E	F/C	A	17	17	0%	0%	0%	0%	0%	0%	100%	0%	0%
WH975	WH974	WARRENTON *	PACIFIC *	1945.0000	1885.0000	A/D	A/D	B	19	19	0%	100%	0%	0%	0%	0%	0%	0%	0%
WH976	WH975	AMERICUS *	WARRENTON *	1855.0000	1935.0000	A	A	B	19	19	0%	100%	0%	0%	0%	0%	0%	0%	0%
WNEY900	WNEY901	CHESTER *	CORA *	1855.0000	1935.0000	A	A	B	19	19	0%	100%	0%	0%	0%	0%	0%	0%	0%
WNEY903	WNEY902	CHESTER *	POPLAR *	1855.0000	1935.0000	A	A	B	19	19	0%	100%	0%	0%	0%	0%	0%	0%	0%
WNTR350	WH972	LUTHER YARD*	210 N 13TH*	1945.0000	1885.0000	A/D	A/D	B	19	19	0%	100%	0%	0%	0%	0%	0%	0%	0%
WEH256	WEH257	PACIFIC AVE*	LEE'S SUMMI*	1875.0000	1955.0000	B	B	A	34	34	100%	0%	0%	0%	0%	0%	0%	0%	0%
WH980	WH979	SEDALIA *	CLARKSBURG*	1955.0000	1875.0000	B	B	A	34	34	100%	0%	0%	0%	0%	0%	0%	0%	0%
WH981	WH982	MONTERRAT *	KINGSVILLE *	1885.0000	1965.0000	B/E	B/E	A	34	34	100%	0%	0%	0%	0%	0%	0%	0%	0%
WJK27	WJK26	OSAWATOMIE *	KINCAID *	1885.0000	1965.0000	B/E	B/E	A	34	34	100%	0%	0%	0%	0%	0%	0%	0%	0%

PCS LICENSEE RELOCATION RESPONSIBILITY CHART
UNION PACIFIC RAILROAD 1.9 GHz Paths
(Missouri Pacific Railroad, Chicago Northwestern Railway Co.)

2/23/86

WJK29	WJK30	BUTLER *	NEVADA *	1965.000	1915.000	B/E	UL	A	34	34	100%	0%	0%	0%	0%	0%	0%	0%	0%
WJK31	WEH258	PLEASANT HL *	LOUISBURG *	1875.000	1955.000	B	B	A	34	34	100%	0%	0%	0%	0%	0%	0%	0%	0%
KGW20P	KGW22	QUINCY PR *	CLAREMONT *	1885.000	1865.000	B/E	B/E	A	4	4	0%	0%	0%	100%	0%	0%	0%	0%	0%
KGW22P	KGW20	QUINCY PR *	W PACIFIC *	1965.000	1885.000	B/E	B/E	A	4	4	0%	0%	0%	100%	0%	0%	0%	0%	0%
KBR88	KBY31	SO RAWLINS *	CRESTON *	1955.000	1875.000	B	B	A	22	22	0%	0%	100%	0%	0%	0%	0%	0%	0%
KBY28	KBY34	ROCK SPRING *	S GREEN RVR *	1875.000	1955.000	B	B	A	22	22	0%	0%	100%	0%	0%	0%	0%	0%	0%
KBY35	KBY36	HANNA *	HARPER *	1965.000	1885.000	B/E	B/E	A	22	22	0%	0%	100%	0%	0%	0%	0%	0%	0%
KBY36	KBA44	HARPER *	PILOT KNOB *	1875.000	1955.000	B	B	A	22	22	0%	0%	100%	0%	0%	0%	0%	0%	0%
WGT27	KBA42	PINE BLUFFS *	CAMPSTOOL *	1875.000	1955.000	B	B	A	22	22	0%	0%	100%	0%	0%	0%	0%	0%	0%
WGT46	KBA40	JACINTO *	E BROWNSON *	1875.000	1955.000	B	B	A	22	22	0%	0%	100%	0%	0%	0%	0%	0%	0%
KTN45	KPE47	CAPITOL PK *	KELSO *	1865.000	1945.000	A/D	A/D	B	24	30	0%	0%	50%	0%	0%	0%	0%	0%	50%
KSN25	KSN27	HOOD RIVER *	HAYSTACK BT *	1865.000	1945.000	A/D	A/D	B	30	30	0%	0%	0%	0%	0%	0%	0%	0%	100%
KBY30	KVM47	CHURCH BUTT *	MEDICINE BT *	1855.000	1925.000	A	UL	B	36	36	0%	0%	0%	0%	0%	0%	0%	0%	100%
KDP66	KDP87	BONNEVL PEA *	ELKHORN *	1865.000	1925.000	A/D	UL	B	36	36	0%	0%	0%	0%	0%	0%	0%	0%	100%
KDP67	KDP89	ELKHORN *	GARLAND *	1935.000	1855.000	A	A	B	36	36	0%	0%	0%	0%	0%	0%	0%	0%	100%
WAT688	WAT689	MCCAMMON *	FISH CREEK *	1865.000	1945.000	A/D	A/D	B	36	36	0%	0%	0%	0%	0%	0%	0%	0%	100%
WAT690	WAT691	SODA SPRING *	GEORGETOWN *	1865.000	1945.000	A/D	A/D	B	36	36	0%	0%	0%	0%	0%	0%	0%	0%	100%
WBF62	KDP72	MENAN BUTTE *	TRAIL CREEK *	1865.000	1945.000	A/D	A/D	B	36	36	0%	0%	0%	0%	0%	0%	0%	0%	100%
KYR40	KSN24	JOE BUTTE *	HINKLE *	1945.000	1865.000	A/D	A/D	B	42	42	0%	0%	0%	0%	100%	0%	0%	0%	0%
KYR41	KYR42	ALTO *	POMEROY *	1855.000	1935.000	A	A	B	42	42	0%	0%	0%	0%	100%	0%	0%	0%	0%
KZF70	KYR43P	STOUT RANCH *	STOUT RCH P *	1855.000	1935.000	A	A	B	42	42	0%	0%	0%	0%	100%	0%	0%	0%	0%
KZF70P	KYR43	STOUT RCH P *	325 MILL RD *	1855.000	1935.000	A	A	B	42	42	0%	0%	0%	0%	100%	0%	0%	0%	0%
KAZ45	KAZ44	MAPLE HILL *	ELK CITY *	1925.000	1865.000	UL	A/D	B	45	45	0%	100%	0%	0%	0%	0%	0%	0%	0%
KAZ49	KBA31	GRAND ISLAN *	GIBBON *	1845.000	1865.000	A/D	A/D	B	45	45	0%	100%	0%	0%	0%	0%	0%	0%	0%
KBA34	KTM64	BRADY *	GOTHENBURG *	1925.000	1865.000	UL	A/D	B	45	45	0%	100%	0%	0%	0%	0%	0%	0%	0%
KBA36	KBA37	SUTHERLAND *	OGALLALA *	1935.000	1855.000	A	A	B	45	45	0%	100%	0%	0%	0%	0%	0%	0%	0%
WEG305	WEG304	SUTHERLAND *	NORTH PLATT *	1945.000	1865.000	A/D	A/D	B	45	45	0%	100%	0%	0%	0%	0%	0%	0%	0%
WSP88	WSP89	HANSEN *	HASTINGS *	1855.000	1935.000	A	A	B	45	45	0%	100%	0%	0%	0%	0%	0%	0%	0%
WSP89	WSP90	HASTINGS *	FAIRFIELD *	1945.000	1865.000	A/D	A/D	B	45	45	0%	100%	0%	0%	0%	0%	0%	0%	0%
WSP92	WSP93	BELVIDERE *	DAYKIN *	1855.000	1935.000	A	A	B	45	45	0%	100%	0%	0%	0%	0%	0%	0%	0%
WSP94	WSP95	FAIRBURY *	STEEL CITY *	1855.000	1935.000	A	A	B	45	45	0%	100%	0%	0%	0%	0%	0%	0%	0%

Microwave Relocation - Bad Actor Form

2/21/96

Incumbent Name **Williams Wireless, Inc. (WWI)**

Market / MTA

New York, Dallas, Philadelphia, Baltimore, Atlanta

New Orleans, Denver, Louisville, Birmingham, San Antonio

Nashville, Omaha, Wichita

Market freq. block:

1B, 7B, 9B, 10A, 17A, 22A, 26B, 29A, 33A, 43A, 45B, 46B

Number of paths required for initial system 7
Estimated comparable cost per path \$200,000
Total estimated comparable cost \$1,400,000

Number of paths requested by incumbent for relo: 48.7

A paths: 17
B paths: 21
C - F paths: 10.7 (pro-rated)
Non PCS paths:

Per path cost requested by the incumbent: \$450,000 (A/B)

Additional payments requested by the incumbent: \$400,000 (C-F)

Total requested relocation cost by the incumbent: \$21,380,000

Microwave Relocation - Bad Actor Form

2/21/96

Incumbent Name **Williams Wireless, Inc. (WMI)**

Market / MTA: New York, Dallas, Philadelphia, Baltimore, Atlanta
 New Orleans, Denver, Louisville, Birmingham, San Antonio
 Nashville, Omaha, Wichita
 Market freq. block: 1B, 7B, 9B, 10A, 17A, 22A, 26B, 29A, 33A, 43A, 45B, 46B

Number of paths required for initial system:	7	Number of paths requested by incumbent for relo:	48.7
Estimated comparable cost per path:	\$200,000	A paths:	17
		B paths:	21
Total estimated comparable cost:	\$1,400,000	C - F paths:	10.7 (pro-rated)
		Non PCS paths:	
		Per path cost requested by the incumbent:	\$450,000 (A/B)
		Additional payments requested by the incumbent:	\$400,000 (C-F)
		Total requested relocation cost by the incumbent:	\$21,380,000

Chain of events:

<u>Date</u>	<u>Action</u>
11/7/95	STV receives a Coordinated PCS Relocation Plan, total cost for relo of STV paths = \$21,915,000
12/13/95	STV counter offers with \$9,265,048. Offer based on comparable 2GHz digital radios
12/14/95	Jim Cunningham of WMI sends letter allowing PCS licensees to collectively coordinate a relocation plan
1/2/96	WMI responds to STV counter-proposal dated 12/13/96. keeps price per 'A/B' path at \$450,00, lowers 'C-F' paths to \$400,000
1/8/96	Fax sent to Jon Chambers outlining WMI demands
1/23/96	STV hosts a meeting to formulate a coordinated relocation proposal attended by all PCS Licensees impacted by WMI.
2/7/96	STV submits a draft WMI proposal to PCS Licensees for comments. Draft outlines \$35,750,012 offer based on criteria from 1/23/96 meeting

Additional Comments:

2/7/96 draft requests PCS Licensees to respond with comments by 2/19/96 and proposes a follow-up meeting 2/26/96.
 WMI requests free off-peak PCS service as part of relocation agreement.

COORDINATED PCS RELOCATION PLAN

November 7, 1995

This Proposal is being presented by Williams Wireless, Inc. to the following PCS licensees:

	% of Total A and B Links
Sprint Telecommunications Ventures (WirelessCo)	39%
AT&T Wireless PCS	17%
PowerTel PCS Partners	13%
American Portable Telecommunications	10%
PCS PrimeCo, L.P.	9%
Omnipoint	3%
SouthWestern Bell Mobile	4%
GTE Macro Communications	3%
BellSouth Personal Communications	1%
PhillieCo, L.P.	1%

1. Description of Williams Wireless, Inc.

Williams Wireless, Inc. (WWI) is a wholly owned subsidiary of The Williams Companies, Inc. (TWC), Tulsa, Oklahoma. The Williams Companies owns Transcontinental Gas Pipeline Company (Transco), Texas Gas Transmission Company (Texas Gas) and Williams Natural Gas (WNG) company, among other companies. Williams Wireless owns the 2 GHz analog microwave system which operates along these pipeline systems.

2. An overview of frequencies, operations and locations

WWI's four thousand mile 2 GHz microwave backbone is operated by WNG, Texas Gas, and Transco. It consists of 132 microwave links, all of which operate in either the 'A', 'B' or 'C' frequency blocks. WWI recently vacated, by agreement with APC, the 2 GHz band for 4 of these links, leaving 128 links remaining to be cleared.

Of these 128 links:

- 54 links are in the 'A' Block,
- 44 links are in the 'B' block,
- 30 links are in the 'C' block,
- in 39 links, one of the 'A' or 'C' paths also operates in the U block.
- in 39 links, one of the 'A' or 'B' paths also operates in the D or E block.
- 50 spurs operate in the 2.1 GHz band not under consideration at this time.

WWI's microwave system controls the operation of TWC's natural gas pipelines. Gas pressures and flow volumes are monitored and controlled by data transmissions at hundreds of points along the microwave system. In most cases, no other communication source is available. In addition, voice communications over the system is used to coordinate extensive pipeline control operations.

The Transco pipeline extends from San Antonio to New York City. Its portion of Williams Wireless' microwave system passes through the gulf states and up the east coast. Texas Gas' pipeline runs north from New Orleans into Indiana. WNG's system operates throughout Oklahoma, Kansas and Missouri, with one segment extending into Wyoming. A summary map is attached.

Today, this network is extremely reliable. In our communications designs, we assume that even a brief interruption in communications could lead to a loss of control of critical pipeline pressures and flow volumes which is unacceptable because of safety and service reliability concerns.

3. Why we need a Coordinated Relocation Plan

FCC regulations state that PCS licensees must compensate Williams Wireless for relocating all links affected by PCS operations. It is inevitable that a sizable number of links in our microwave backbone will be affected as you deploy your PCS system. Recognizing your responsibilities to us as a primary license holder, many of you have already contacted us and shared your needs and desired schedule for band clearing. In response to these discussions we want you to know that we are willing to accomplish this relocation as expeditiously as possible and for a reasonable cost in view of its impact on our pipeline operations and our business plans.

Our concern is the timing and coordination of replacement. We are confronted with conflicting priorities and schedules which result from dealing with ten separate PCS licensees in the 'A' and 'B' blocks. Exacerbating this problem is the late entry of the 'C' block licensees who we imagine will have an even greater range of interests, priorities and schedules. Of further concern to us, it appears many licensees want to do link-by-link replacement, to be performed over an extended period of time. In response to this, our position is that a lengthy, piecemeal and uncoordinated relocation process could pose significant safety risk to our employees, customers and adjacent land owners. This is something we can not allow to happen. Thus, while we want to clear the band in the areas that affect you the most, we want to go one step farther and clear the band along our entire microwave system immediately at one time. To accommodate both our needs, we have determined that it is necessary to develop a coordinated total relocation plan for consideration by all PCS licensees who impact our system.

4. The problems caused by a lengthy, piecemeal and uncoordinated relocation process

The FCC, in recent meetings, confirmed that PCS licensees must deal fairly with incumbents with large national microwave systems, such as ours, to keep the integrity of the whole system intact. In fact, the FCC justified cost-sharing between PCS licensees on the basis of the possible need to do full system replacements before all affected licensees had been identified.

A selected link-by-link replacement raises many technical and operational concerns for us. We anticipate that communication failures will increase noticeably if a piecemeal replacement approach is followed. In a microwave network as large and complex as WWI's, if multiple technologies, different frequency links, dissimilar vendor equipment and disparate test devices are employed in the same system it creates an overly complex mosaic of hybrid technology which will increase points of failure and decrease reliability and operability of the system. We are also concerned that an extended link by link replacement process will continuously destabilize the integrity of the network, reduce its manageability, impair throughput and increase operational cost.

Since any communication system failure could pose serious safety risks, our responsibilities to our customers, employees and adjacent land owners preclude us from taking any course of action that could decrease the integrity and high reliability of our network in any way. Our pipeline communication systems have enabled us to develop a long history of safe and reliable transportation of natural gas throughout the country. To maintain the safety of the existing system while creating a new, equally safe system, we must perform the relocation of the entire system at one time and in the most coordinated and manageable manner possible. We think the plan presented here avoids the concerns we have outlined while meeting your requirements for band clearing.

5. Terms of our proposed Coordinated Relocation Plan

We believe our proposed Coordinated Relocation Plan avoids the operational hazards resulting from a lengthy piecemeal replacement approach. Under this plan, we intend to relocate the entire 128 link microwave system at one time, as a single unit. We will keep the existing 2 GHz system intact while we build, parallel test, and stabilize the replacement network. Our replacement system will be either digital microwave or fiber optics. The replacement system will be built in its entirety and thoroughly tested before we shut down any one link in the 2 GHz network. We can not begin the project until a coordinated agreement is complete with all PCS licensees. Once we can reach a reimbursement with licensees, we are willing to begin our replacement project as soon as possible.

We would like to negotiate a "cash and capacity" settlement with all licensees. We will assume responsibility for engineering and building our own replacement system. The cash settlement gives us the flexibility to meet our communications requirements in our own way and frees your engineering resources to concentrate on building your own infrastructure. As an added benefit to you, we are willing to waive our rights to be re-relocated back to the 2 GHz band within 12 months after replacement if our alternative facilities prove to be inadequate. As an incentive to move quickly, we are requesting off-peak capacity on your networks. We intend to develop non-real time data gathering systems which will operate from midnight to 5 am. In addition, we would like to have most favored customer status for day time usage.

We are confident that, if we can conclude negotiations for all links before the end of the year, we can vacate the band used along Transco's and Texas Gas' pipelines before the end of 1996 and the band used by WNG in early 1997. In our discussions with several licensees, it appears that this time frame would fit the initial in-service schedules for most of you. This schedule assumes we have concluded reimbursement agreements with all ten PCS licenses before the end of 1995.

We have proposed a price to you in an attachment. This price is based on an average link replacement cost derived from the full cost of replacing our communication systems. It is the lowest possible price we can offer which allows for the lowest risk to us in relocation. In view of the impact this project has on our company, and our willingness to move quickly, we believe it is a reasonable price. I wish to emphasize that we are seeking reimbursement sufficient to replace all links in the 'A', 'B' and 'C' blocks before we begin to rebuild our system. We do not intend for our shareholders or our ratepayers to pay for any part of the replacement.

In a related manner, we do not believe it is fair that any PCS licensee be asked to provide a free-ride to any other PCS licensee, in particular the unidentified 'C' licensees. So, we are proposing an element in our plan that will encourage cooperation with all licensees to insure that everyone pays their fair share and only their fair share. This relates directly to the 30 links in the 'C' block. We must include reimbursement for those links in our final compensation agreement before we can begin the relocation of our system. The 'C' licensees, of course, will not be identified until the auctions in December, and may not be ready to become part of the negotiations for months. If we wait to begin our system replacement until after the 'C' licensees are ready, we will be unable to clear the band in the time frame you may desire. Our plan for bridging this obstacle is outlined in the next section.

6. Proceeding with full system replacement before all licensees are included in the Plan

We are willing to start our replacement project even before all effected PCS licensees agree to participate in our Plan, but only if a mechanism is established which assures us of eventual reimbursement. Assurance is needed for the 'C' block links in particular, since the delayed auctions will not allow them to be represented in our coordinated plan at this point. The assurance we require before we can proceed with total system replacement is that those PCS licensees who do agree with and are