



February 11, 2020

*By Electronic Filing*

Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 12<sup>th</sup> St., SW  
Washington, D.C. 20554

Re: HNS Licensee Sub, LLC  
IBFS File Nos. SES-LIC-20170807-00876 through SES-LIC-20170807-00895 &  
SES-AMD-20190221-00282 *et al.*  
Call Signs: E170151 through E170170

Dear Ms. Dortch:

HNS License Sub, LLC (“Hughes”) submits the attached additional information to supplement the Section 25.136 analysis for its proposed Jupiter 3 gateway operations. Specifically, the attachment provides maps showing revised power flux density (“PFD”) contours, consisting of 250-meter (in radius) circles and PFD contours drawn using Recommendation ITU-R P.2108 to account for clutter loss (with an assumed p value of 85%),<sup>1</sup> for the proposed Jupiter 3 gateway operations in the 47 GHz band. These contours are consistent with U.S.-submitted ITU sharing studies that: (i) assumed no clutter loss for transmission distances less than 250 meters; and (ii) applied Recommendation ITU-R P.2108 to estimate clutter loss for transmission distances of 250 meters or greater.<sup>2</sup>

Notably, the attached maps include estimates verifying the population limits of Section 25.136 are met. Additionally, the attached maps show PFD contours overlapping a protected road at *six* (of 20) proposed sites (*i.e.*, Missoula, Bismarck, Santa Clara, Rapid City, Rifle, and Simi Valley). However, with respect to *four* of these sites (*i.e.*, Missoula, Bismarck, Santa Clara, and Rapid City), the attached maps show that the PFD contours for their corresponding original sites/parameters also overlap a protected road. Thus, no significant increase in interference risk to Upper Microwave Flexible Use Service (“UMFUS”) operations results from any minor changes proposed for these *four* sites (or for the 14 sites with no PFD contours overlapping any protected road/railway). Accordingly, Jupiter 3 gateway operations at these *four* sites (in

---

<sup>1</sup> See Recommendation ITU-R P.2108, *Prediction of clutter loss* (June 2017), <https://www.itu.int/rec/R-REC-P.2108/en>.

<sup>2</sup> See, *e.g.*, *Sharing and Compatibility of FSS/MSS/BSS (Space-to-Earth) and IMT Operating in the 37-50.2 GHz Frequency Range* (submitted by the United States to ITU-R Task Group 5/1 on Apr. 25, 2018), <https://www.itu.int/md/R15-TG5.1-C-0313/en>. The sharing studies used a random value of p, ranging from 1 to 100%, resulting in an average p value of 50%.

addition to the 14 sites with non-overlapping contours) qualify for grandfathered status under Section 25.136(d)(3) by virtue of their original filing date.

With respect to the proposed 47 GHz operations at the remaining *two* sites (*i.e.*, Rifle and Simi Valley), Hughes requests a limited waiver of Section 25.136(d)(4)(iii). Grant of the requested waiver will serve the public interest by allowing deployment of gateways required to support the provision of an innovative, advanced broadband delivery system that has the potential to reach millions of underserved consumers across the United States, providing high-capacity broadband services at estimated download speeds of 100 Mbps or more. Grant of the requested waiver also is consistent with the Commission's policy objective to ensure compatibility with UMFUS operations.

Specifically, any potential impact on UMFUS operations at these two sites is *de minimis*, given that the contour areas are very lightly populated – *i.e.*, approximately 30 to 144 people, and overlap only 115 to 465 meters of a protected road, as shown in the attached maps. Further, coordination with UMFUS licensees was completed through Comsearch, and no comments were submitted in response to public notice of the proposed gateway operations.

Please contact the undersigned with any further questions.

Sincerely,

/s/ Kimberly M. Baum

Kimberly M. Baum

Vice President, Regulatory Affairs

Attachment

cc: Jose Albuquerque                      Karl Kensinger  
Kerry Murray                              Kal Krautkramer  
Jay Whaley                                  Paul Blais

# ATTACHMENT

1. Flagstaff, AZ—47 GHz (File No. SES-LIC-20170807-00881; Call Sign E170156)

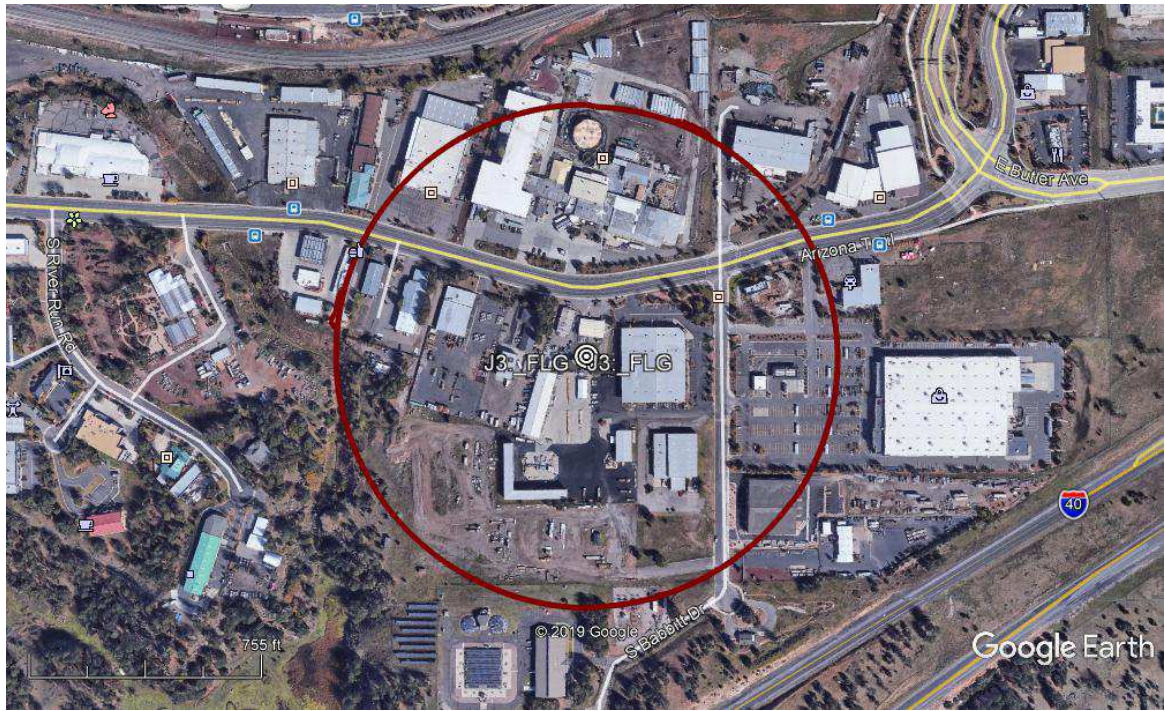
PEA 180 population: 345,454

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Area Percent	Pop Weighted
Coconino	AZ	000800	3069	0	100.00%	0.00
Coconino	AZ	000800	3068	0	50.81%	0.00
Coconino	AZ	000800	3090	0	17.19%	0.00
Coconino	AZ	000800	3075	2	17.10%	0.34
Coconino	AZ	000800	3052	0	71.45%	0.00
Coconino	AZ	000800	3070	0	100.00%	0.00
Coconino	AZ	000800	3055	0	100.00%	0.00
Coconino	AZ	000800	3050	0	4.49%	0.00
Coconino	AZ	000800	3066	0	21.39%	0.00
Coconino	AZ	000800	3063	25	18.72%	4.68
Coconino	AZ	000800	3076	0	40.02%	0.00
Coconino	AZ	000800	3077	0	100.00%	0.00
Coconino	AZ	000800	3089	0	99.89%	0.00
					<b>Total</b>	<b>5.0<sup>1</sup></b>

---

<sup>1</sup> The population coverage estimates by census block for each earth station are assumed to be the same as those previously submitted for the 28 GHz pfd contours. See letter from Jennifer A. Manner, HNS License Sub LLC, to Marlene H. Dortch, Secretary, FCC, IBFS File Nos. SES-LIC-20170807-00876 et al. (Jan. 31, 2020). The 47 GHz pfd contours presented here are nearly the same as, and actually slightly smaller than, the 28 GHz pfd contours. .





2. Boise, ID—47 GHz (File No. SES-LIC-20170807-00880; Call Sign E170155)

PEA 156 population: 392,365

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Shaded Area Percent	Pop Weighted
Ada	ID	002313	1011	795	0.61%	4.85
Ada	ID	002313	1033	0	52.79%	0.00
Ada	ID	002313	1034	0	39.96%	0.00
<b>Total</b>						<b>4.8</b>



3. Bend, OR—47 GHz (File No. SES-LIC-20170807-00876; Call Sign E170151)

PEA 213 population: 289,034

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Area Percent	Pop Weighted
Deschutes	OR	001100	3135	0	26.92%	0.00
Deschutes	OR	001100	3072	0	54.26%	0.00
Deschutes	OR	001100	3069	59	7.17%	4.23
<b>Total</b>						<b>4.2</b>



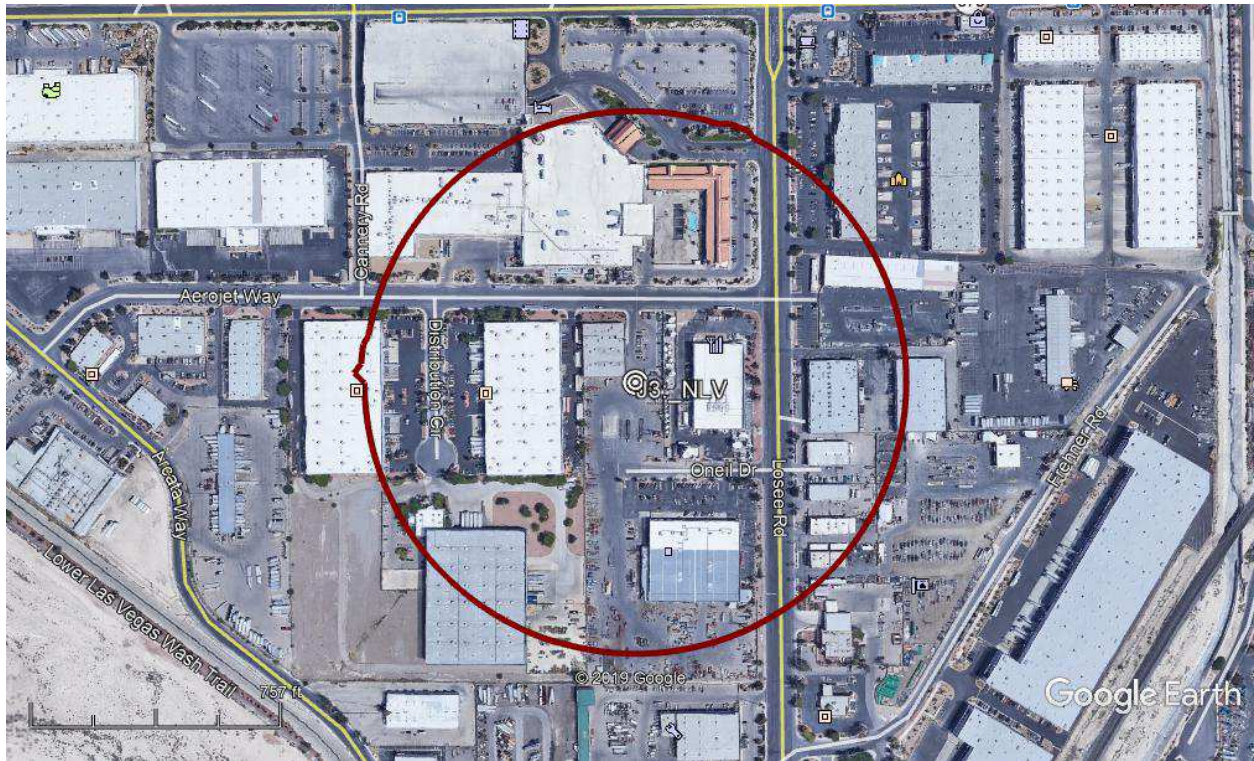


4. North Las Vegas, NV—47 GHz (File No. SES-LIC-20170807-00879; Call Sign E170154)

PEA 26 population: 2,151,455

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Shaded Area Percent	Pop Weighted
Clark	NV	003626	1036	0	17.07%	0.00
Clark	NV	003615	2004	0	26.03%	0.00
Clark	NV	003615	2006	0	41.01%	0.00
					<b>Total</b>	<b>0.0</b>





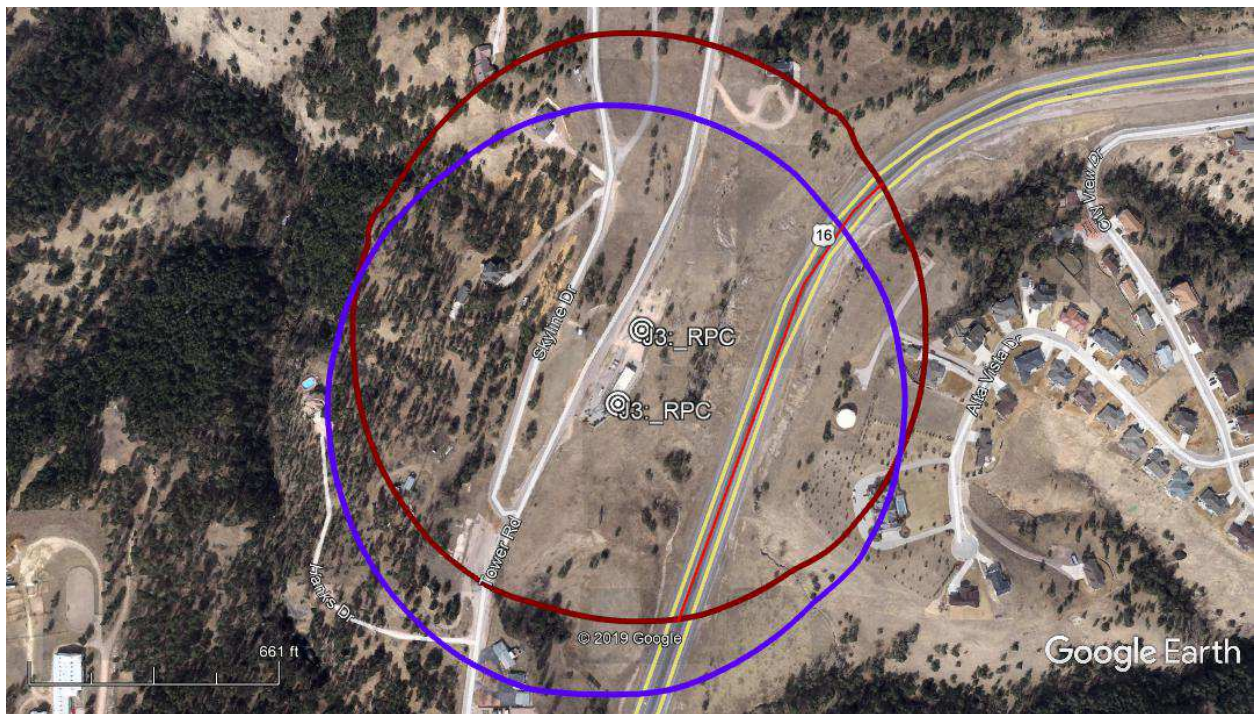
5. Rapid City, SD—47 GHz (File No. SES-LIC-20170807-00882; Call Sign E170157)

The amended (red) pfd contour covers approximately 427 m of Highway 16, which is a highway classified by the U.S. Department of Transportation under the categories Interstate, Other Freeways and Expressways, or Other Principal Arterial according to information contained on the U.S. Department of Transportation Federal Highway Administration website (<https://hepgis.fhwa.dot.gov/fhwagis/#>). The original (blue) pfd contour covers approximately 441 m of Highway 16.

PEA 276 population: 183,639

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Area Percent	Pop Weighted
Pennington	SD	011002	2001	1089	2.86%	31.19
Pennington	SD	010905	1025	15	12.47%	1.87
Pennington	SD	010800	3027	16	8.55%	1.37
Pennington	SD	010905	1021	0	17.40%	0.00
Pennington	SD	010905	1016	726	1.39%	10.09
<b>Total</b>						<b>44.5</b>

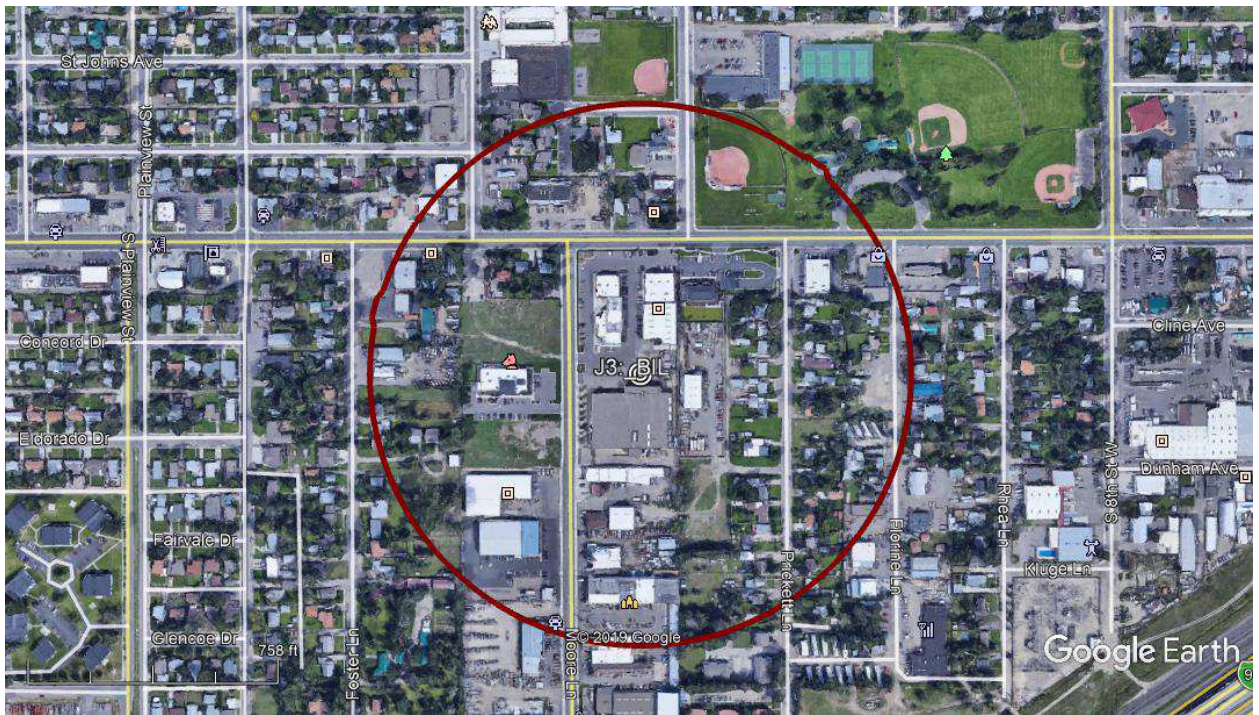


6. Billings, MT—47 GHz (File No. SES-LIC-20170807-00883; Call Sign E170158)

PEA 190 population: 324,077

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Shaded Area Percent	Pop Weighted
Yellowstone	MT	001000	2010	70	3.87%	2.71
Yellowstone	MT	001000	2006	0	25.41%	0.00
Yellowstone	MT	001000	3000	204	3.74%	7.63
Yellowstone	MT	001000	2005	103	45.02%	46.37
Yellowstone	MT	001000	2020	113	34.63%	39.14
Yellowstone	MT	001000	4021	24	15.41%	3.70
Yellowstone	MT	001000	2018	251	36.91%	92.65
<b>Total</b>						<b>192.2</b>





7. North Platte, NE—47 GHz (File No. SES-LIC-20170807-00883; Call Sign E170158)

PEA 374 population: 61,592

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Area Percent	Pop Weighted
Lincoln	NE	960500	3161	0	7.25%	0.00
Lincoln	NE	960600	1010	0	17.47%	0.00
Lincoln	NE	960500	3150	2	12.58%	0.25
Lincoln	NE	960500	3175	0	100.00%	0.00
Lincoln	NE	960500	3160	0	44.02%	0.00
Lincoln	NE	960500	3176	0	78.01%	0.00
Lincoln	NE	960600	1011	0	10.32%	0.00
<b>Total</b>						<b>0.3</b>





8. Tucson, AZ—47 GHz (File No. SES-LIC-20170807-00887; Call Sign E170162)

PEA 53 population: 993,144

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Area Percent	Pop Weighted
Pima	AZ	002201	1022	0	78.03%	0.00
Pima	AZ	002201	1020	0	11.18%	0.00
Pima	AZ	002201	1033	0	0.09%	0.00
Pima	AZ	002201	1021	15	19.23%	2.88
Pima	AZ	002201	1029	0	54.57%	0.00
Pima	AZ	002201	1023	0	90.60%	0.00
Pima	AZ	002201	1028	61	27.27%	16.63
<b>Total</b>						<b>19.5</b>

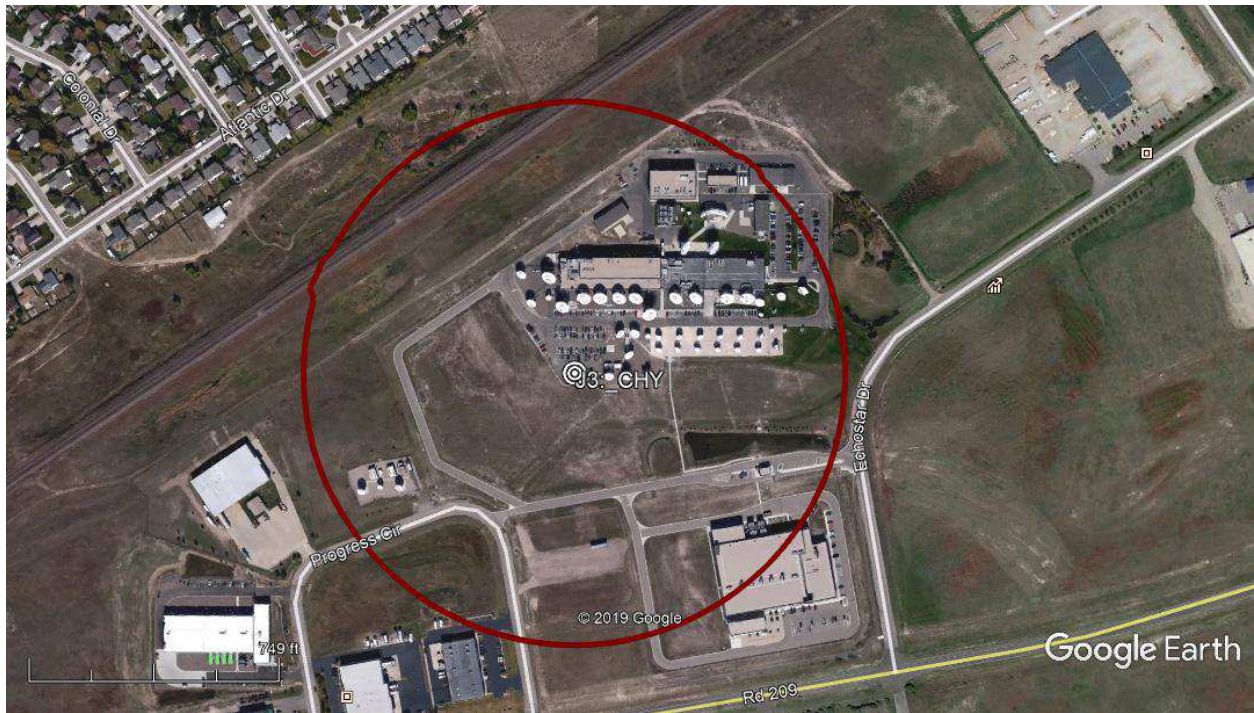


9. Cheyenne, WY—47 GHz (File No. SES-LIC-20170807-00889; Call Sign E170164)

PEA 257 population: 213,445

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Area Percent	Pop Weighted
Laramie	WY	002000	1135	0	25.26%	0.00
Laramie	WY	002000	1131	0	31.50%	0.00
Laramie	WY	000501	1007	53	0.06%	0.03
Laramie	WY	000501	1004	2	1.80%	0.04
Laramie	WY	002000	1143	0	30.40%	0.00
<b>Total</b>						<b>0.1</b>





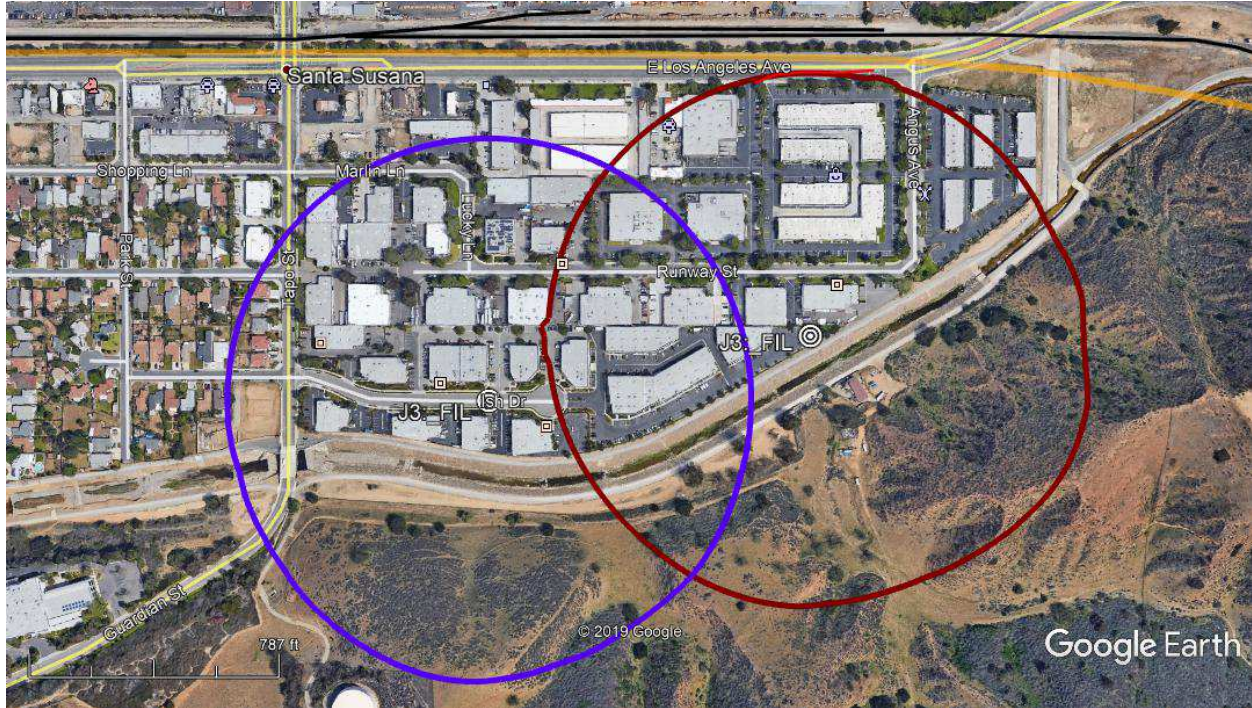
10. Simi Valley, CA—47 GHz (File No. SES-LIC-20170807-00888; Call Sign E170163)

The amended (red) pfd contour covers approximately 115 m of Los Angeles Avenue, which is a highway classified by the U.S. Department of Transportation under the categories Interstate, Other Freeways and Expressways, or Other Principal Arterial according to information contained on the U.S. Department of Transportation Federal Highway Administration website (<https://hepgis.fhwa.dot.gov/fhwagis/#>). The original (blue) contour does not cover a protected highway.

PEA 2 population: 19,410,169

Permitted population within contour: 19,410

County	State	Census Tract	Census Block	Block Pop	Area Percent	Pop Weighted
Ventura	CA	008201	2037	0	10.68%	0.00
Ventura	CA	007512	1020	443	6.65%	29.45
Ventura	CA	008002	3003	0	53.56%	0.00
Ventura	CA	007512	1021	0	53.04%	0.00
Ventura	CA	008002	3002	0	48.43%	0.00
Ventura	CA	008201	2036	0	2.66%	0.00
Ventura	CA	007512	1024	0	41.08%	0.00
<b>Total</b>						<b>29.5</b>





11. Quincy, WA—47 GHz (File No. SES-LIC-20170807-00878; Call Sign E170153)

PEA 206 population: 300,767

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Area Percent	Pop Weighted
Grant	WA	010500	1096	0	18.15%	0.00
<b>Total</b>						<b>0.0</b>

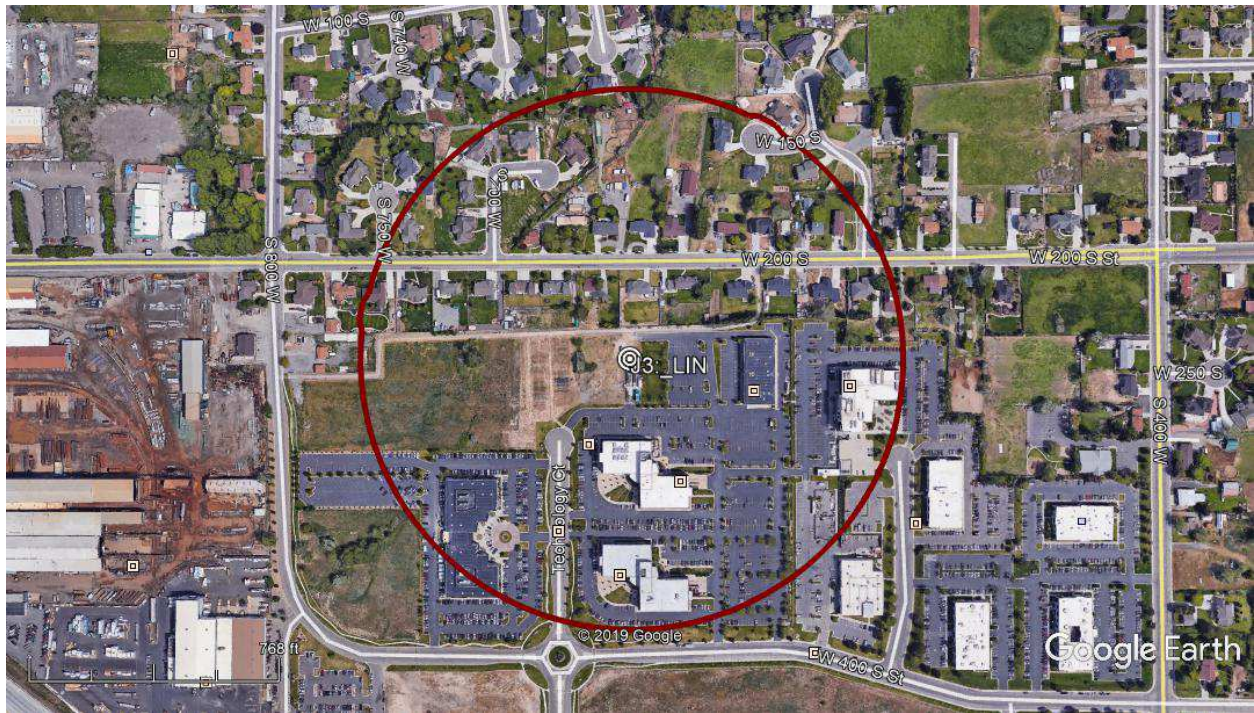


12. Lindon, UT—47 GHz (File No. SES-LIC-20170807-00890; Call Sign E170165)

PEA 27 population: 2,142,152

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Area Percent	Pop Weighted
Utah	UT	000601	2017	116	19.39%	22.50
Utah	UT	000601	2013	0	0.45%	0.00
Utah	UT	000601	2018	69	48.12%	33.20
Utah	UT	000601	2016	21	54.03%	11.35
Utah	UT	000601	2008	172	28.86%	49.64
<b>Total</b>						<b>116.7</b>





13. Yuma, AZ—47 GHz (File No. SES-LIC-20170807-00892; Call Sign E170167)

PEA 157 population: 390,768

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Area Percent	Pop Weighted
Yuma	AZ	000100	1060	7	40.54%	2.84
Yuma	AZ	000100	1059	37	79.20%	29.30
Yuma	AZ	000100	1070	72	65.86%	47.42
Yuma	AZ	000100	1050	98	12.53%	12.28
Yuma	AZ	000100	1076	69	14.62%	10.09
Yuma	AZ	000100	1045	46	1.67%	0.77
Yuma	AZ	000100	1057	141	38.22%	53.88
Yuma	AZ	000100	1072	95	30.12%	28.62
Yuma	AZ	000100	1071	115	100.00%	115.00
Yuma	AZ	000100	1058	0	100.00%	0.00
<b>Total</b>						<b>300.2</b>





14. Reno, NV—47 GHz (File No. SES-LIC-20170807-00885; Call Sign E170160)

PEA 76 population: 786,501

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Area Percent	Pop Weighted
Storey	NV	970200	1408	0	3.48%	0.00
Storey	NV	970200	1222	0	88.98%	0.00
Storey	NV	970200	1220	0	0.53%	0.00
<b>Total</b>						<b>0.0</b>

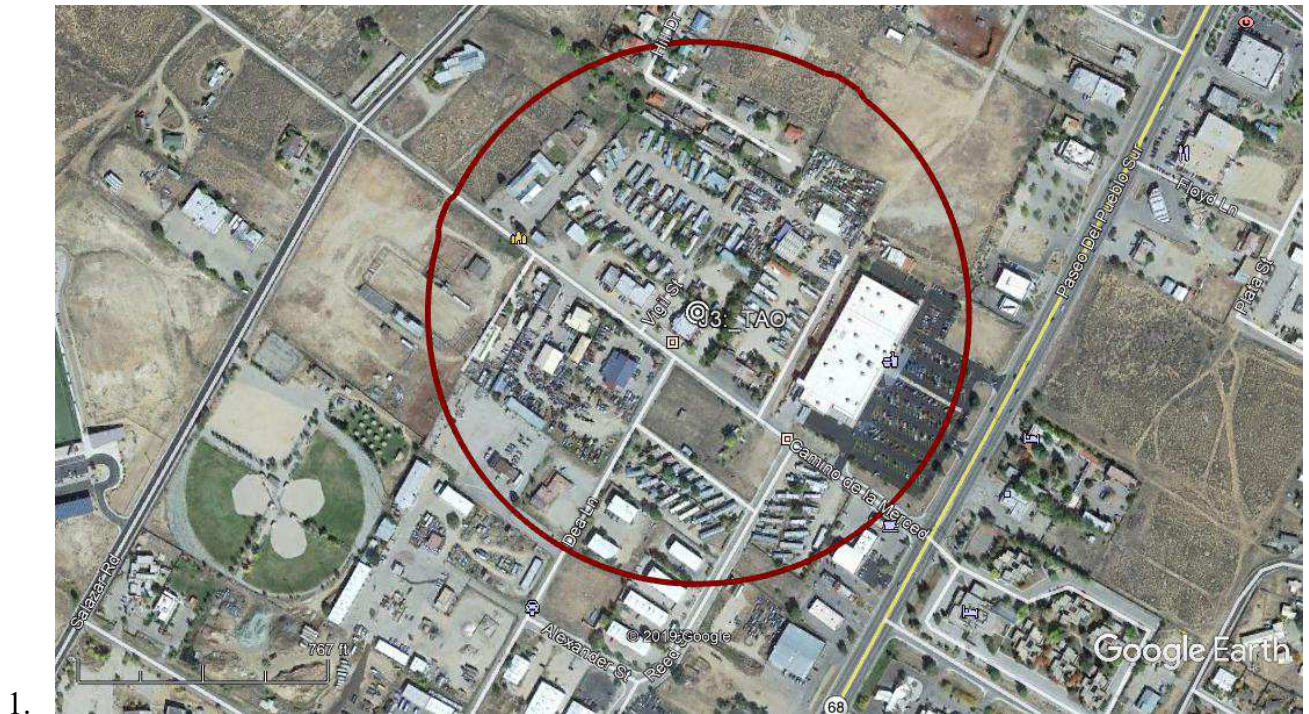


15. Taos, NM—47 GHz (File No. SES-LIC-20170807-00884; Call Sign E170159)

PEA 357 population: 73,183

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Area Percent	Pop Weighted
Taos	NM	952600	4069	210	48.54%	101.93
Taos	NM	952600	4070	41	100.00%	41.00
Taos	NM	952600	4079	7	42.69%	2.99
Taos	NM	952600	4073	51	29.91%	15.26
Taos	NM	952600	4072	0	41.48%	0.00
Taos	NM	952600	4129	0	58.20%	0.00
Taos	NM	952600	4075	18	26.65%	4.80
Taos	NM	952600	4074	5	100.00%	5.00
Taos	NM	952600	4080	37	100.00%	37.00
<b>Total</b>						<b>208.0</b>



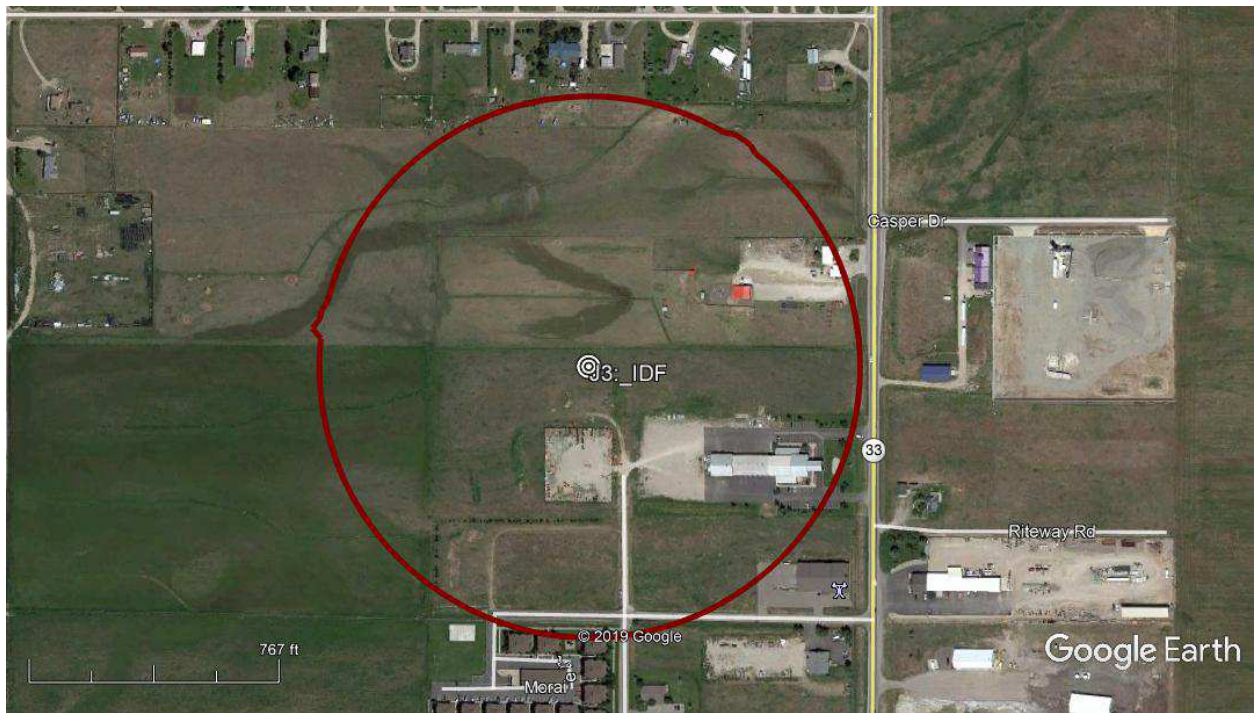


16. Driggs, ID—47 GHz (File No. SES-LIC-20170807-00886; Call Sign E170161)

PEA 187 population: 328,567

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Area Percent	Pop Weighted
Teton	ID	960100	2030	36	22.22%	8.00
Teton	ID	960100	2031	50	39.20%	19.60
Teton	ID	960100	2186	44	2.94%	1.29
<b>Total</b>						<b>28.9</b>



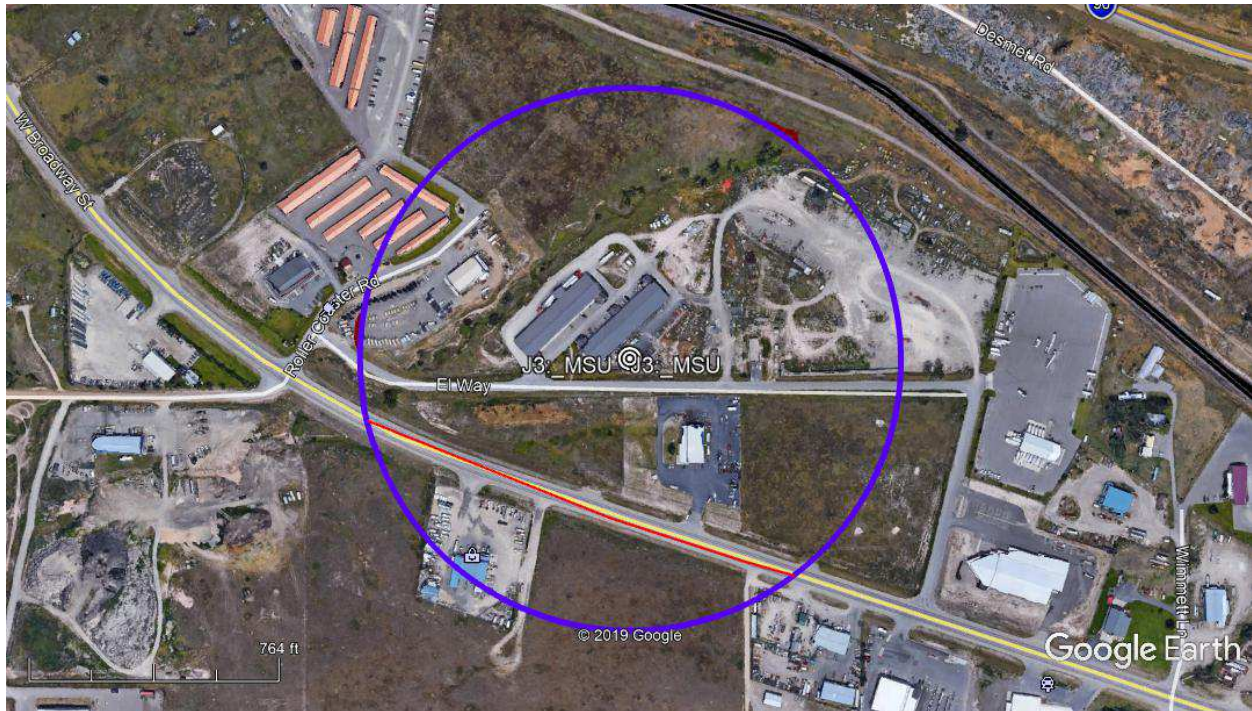
17. Missoula, MT—47 GHz (File No. SES-LIC-20170807-00893; Call Sign E170168)

The amended pfd contour (red) covers approximately 420 m of W Broadway Street, which is a highway classified by the U.S. Department of Transportation under the categories Interstate, Other Freeways and Expressways, or Other Principal Arterial according to information contained on the U.S. Department of Transportation Federal Highway Administration website (<https://hepgis.fhwa.dot.gov/fhwagis/#>). The original (blue) pfd contour covers the same amount of W Broadway Street.

PEA 158 population: 378,009

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Area Percent	Pop Weighted
Missoula	MT	001600	1100	0	0.44%	0.00
Missoula	MT	001600	1099	8	41.66%	3.33
Missoula	MT	001600	1104	0	20.81%	0.00
<b>Total</b>						<b>3.3</b>





18. Bismarck, ND—47 GHz (File No. SES-LIC-20170807-00894; Call Sign E170169)

The amended (red) pfd contour covers approximately 487 m of 43rd Avenue, which is a highway classified by the U.S. Department of Transportation under the categories Interstate, Other Freeways and Expressways, or Other Principal Arterial according to information contained on the U.S. Department of Transportation Federal Highway Administration website (<https://hepgis.fhwa.dot.gov/fhwagis/#>). The original (blue) pfd contour covers 462 m of 43rd Avenue.

PEA 325 population: 108,779

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Shaded Area Percent	Pop Weighted
Burleigh	ND	011105	1174	2	100.00%	2.00
Burleigh	ND	011105	1146	0	23.12%	0.00
Burleigh	ND	011101	3010	0	7.41%	0.00
Burleigh	ND	011101	3005	0	12.04%	0.00
Burleigh	ND	011101	3009	2	100.00%	2.00
Burleigh	ND	011105	1161	6	7.00%	0.42
Burleigh	ND	011101	3006	127	34.14%	43.35
Burleigh	ND	011105	1136	0	3.16%	0.00
Burleigh	ND				<b>Total</b>	<b>47.8</b>



19. Santa Clara, CA—47 GHz (File No. SES-LIC-20170807-00877; Call Sign E170152)

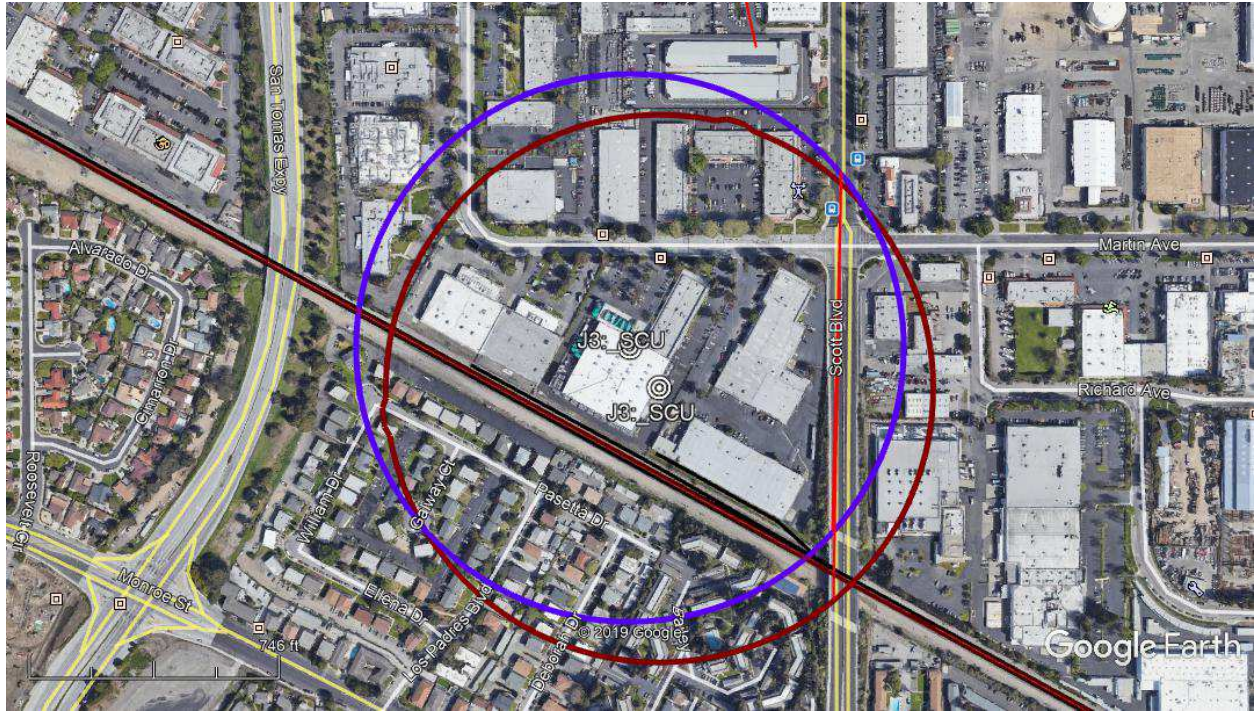
The amended (red) pfd contour covers approximately 374 m of Scott Blvd, which is a highway classified by the U.S. Department of Transportation under the categories Interstate, Other Freeways and Expressways, or Other Principal Arterial according to information contained on the U.S. Department of Transportation Federal Highway Administration website (<https://hepgis.fhwa.dot.gov/fhwagis/#>). The original (blue) pfd contour covers approximately 328 m of Scott Blvd.

PEA 4 population: 9,027,937

Permitted population within contour: 9,027

County	State	Census Tract	Census Block	Block Pop	Shaded Area Percent	Pop Weighted
Santa Clara	CA	505202	3133	0	1.53%	0.00
Santa Clara	CA	505303	4005	368	43.28%	159.28
Santa Clara	CA	505303	4003	351	44.87%	157.49
Santa Clara	CA	505303	4004	119	70.10%	83.41
Santa Clara	CA	505202	3161	0	38.17%	0.00
Santa Clara	CA	505202	3140	0	41.88%	0.00
Santa Clara	CA	505202	3135	1	32.56%	0.33
Santa Clara	CA	505202	3148	0	8.12%	0.00
Santa Clara	CA	505303	4001	991	37.23%	368.92
Santa Clara	CA	505202	3163	0	100.00%	0.00
Santa Clara	CA	505202	3186	978	0.13%	1.29
Santa Clara	CA	505202	3134	0	12.89%	0.00
Santa Clara	CA	505202	3162	0	100.00%	0.00
Santa Clara	CA	505303	4007	4	10.22%	0.41
Santa Clara	CA	505202	3154	109	9.66%	10.53
					<b>Total</b>	<b>781.7</b>





20. Rifle, CO—47 GHz (File No. SES-LIC-20170807-00891; Call Sign E170166)

The amended (red) pfd contour covers approximately 465 m of Government Road/Rifle Bypass, which is a highway classified by the U.S. Department of Transportation under the categories Interstate, Other Freeways and Expressways, or Other Principal Arterial according to information contained on the U.S. Department of Transportation Federal Highway Administration website (<https://hepgis.fhwa.dot.gov/fhwagis/#>). The original (blue) pfd contour does not cover a protected highway.

PEA 102 population: 562,340

Permitted population within contour: 2,250

County	State	Census Tract	Census Block	Block Pop	Area Percent	Pop Weighted
Garfield	CO	952002	6005	0	49.42%	0.00
Garfield	CO	952002	6001	0	100.00%	0.00
Garfield	CO	952002	6003	0	100.00%	0.00
Garfield	CO	952002	6007	1	89.14%	0.89
Garfield	CO	952001	2047	0	1.51%	0.00
Garfield	CO	952001	2038	25	6.61%	1.65
Garfield	CO	952002	6000	0	84.69%	0.00
Garfield	CO	952001	2034	95	60.30%	57.29
Garfield	CO	952002	6004	0	100.00%	0.00
Garfield	CO	952002	6008	0	100.00%	0.00
Garfield	CO	952001	2064	48	1.60%	0.77
Garfield	CO	952002	1056	2	100.00%	2.00
Garfield	CO	952002	6006	0	12.80%	0.00
Garfield	CO	952001	2040	49	30.36%	14.88
Garfield	CO	952001	2072	75	51.53%	38.65
Garfield	CO	952001	2076	39	39.52%	15.41
Garfield	CO	952002	1055	11	27.32%	3.01
Garfield	CO	952001	2073	55	16.54%	9.09
Garfield	CO	952001	2036	153	0.14%	0.22
Garfield	CO	952002	6002	0	100.00%	0.00
<b>Total</b>						<b>143.9</b>



