



January 31, 2020

By Electronic Filing

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th 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 Mr. Albuquerque:

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%),¹ for the proposed Jupiter 3 gateway operations in the 28 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.²

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/railway at *six* (of 20) proposed sites (*i.e.*, Missoula, Bismarck, Santa Clara, Rapid City, Rifle, and Simi Valley). Accordingly, Hughes requests a limited waiver of Section 25.136(a)(4)(iii) for the proposed 28 GHz operations at these *six* sites.

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

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

² 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), available at <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%.



the requested waiver also is consistent with the Commission's policy objective to ensure compatibility with Upper Microwave Flexible Use Service ("UMFUS") operations.

Specifically, any potential impact on UMFUS operations is *de minimis* at these six sites, given that the contour areas are very lightly populated – *i.e.*, 3 to approximately 782 people, and overlap only 64 to 495 meters of a protected road/railway, as noted in the attached maps. Moreover, at *three* of these sites (*i.e.*, Missoula, Bismarck, and Santa Clara), the proposed Jupiter 3 gateway operations will be collocated with an existing grandfathered Jupiter 2 gateway in the 28 GHz band, and thus will pose no significantly greater interference risk to UMFUS operations. 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/ Jennifer A. Manner

Jennifer A. Manner

Senior Vice President, Regulatory Affairs

Kimberly M. Baum

Vice President, Regulatory Affairs

Attachments

cc: Jose Albuquerque
Kerry Murray
Kathryn Medley

Karl Kensinger
Kal Krautkramer
Paul Blais

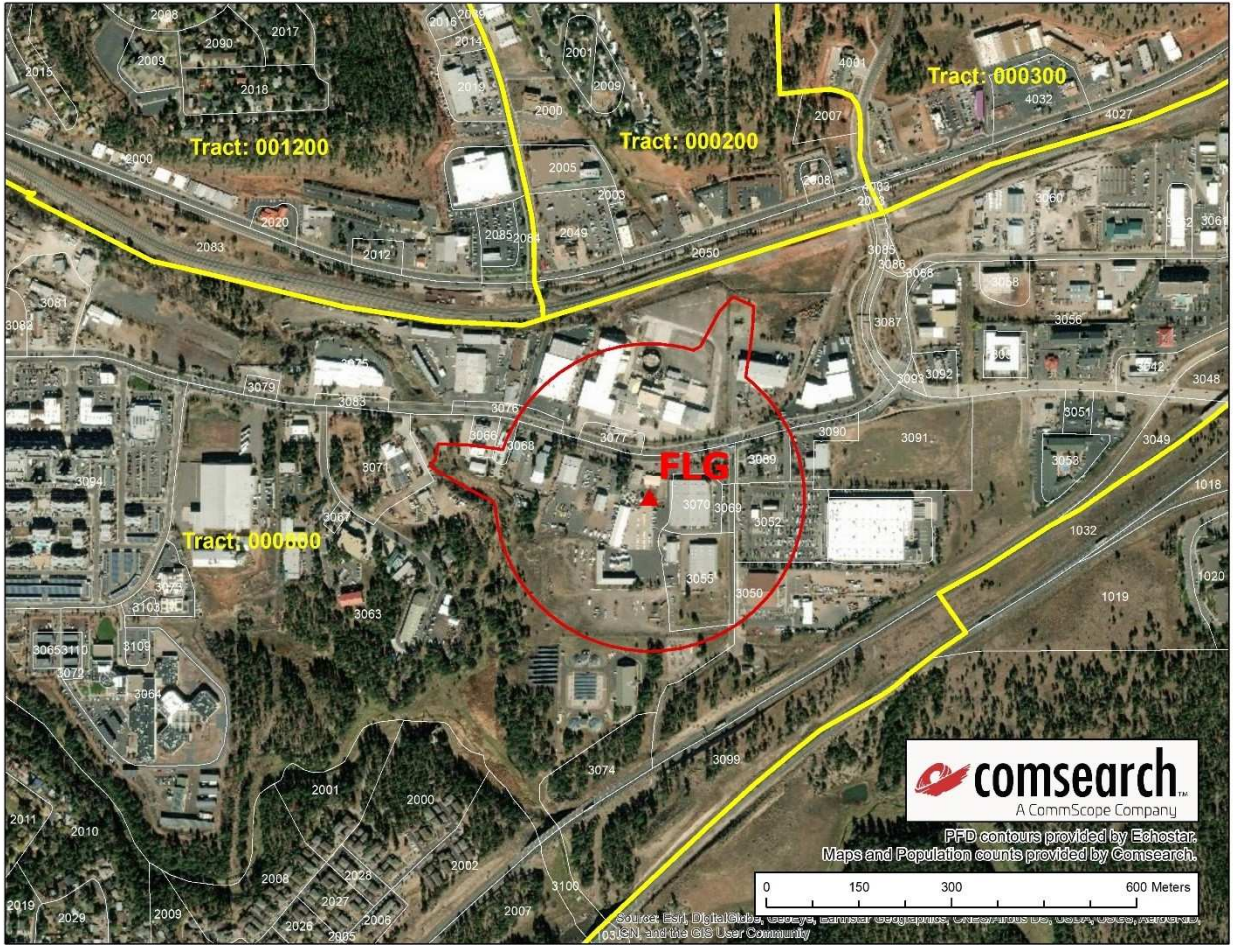
ATTACHMENT

1. Flagstaff, AZ—28 GHz (File No. SES-LIC-20170807-00881; Call Sign E170156)

Coconino County population: 135,817

Permitted population within contour: 450

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
					Total	5.0

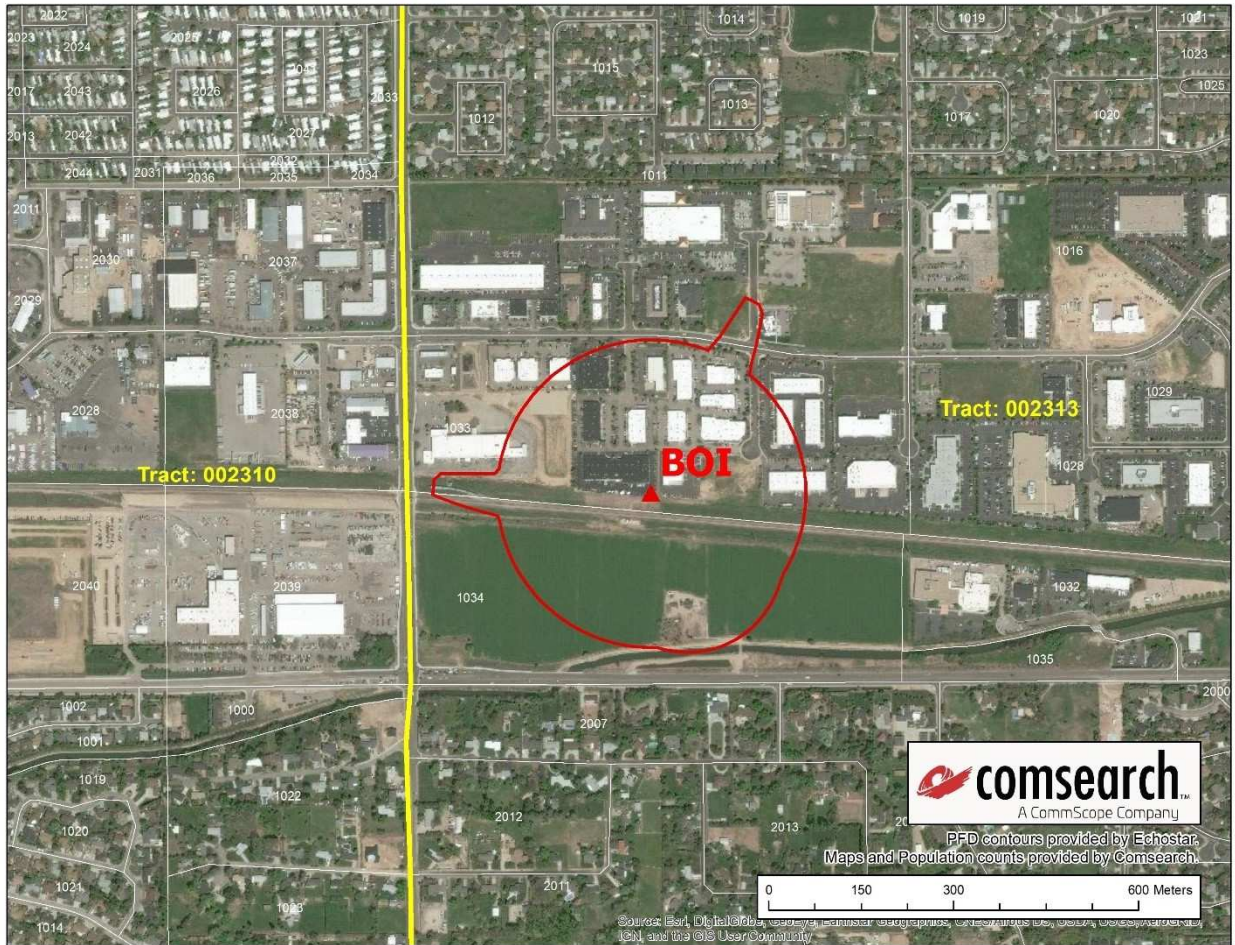


2. Boise, ID—28 GHz (File No. SES-LIC-20170807-00880; Call Sign E170155)

Ada County population: 409,239

Permitted population within contour: 450

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
Total						4.8



3. Bend, OR—28 GHz (File No. SES-LIC-20170807-00876; Call Sign E170151)

Deschutes County population: 163,141

Permitted population within contour: 450

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
Total						4.2

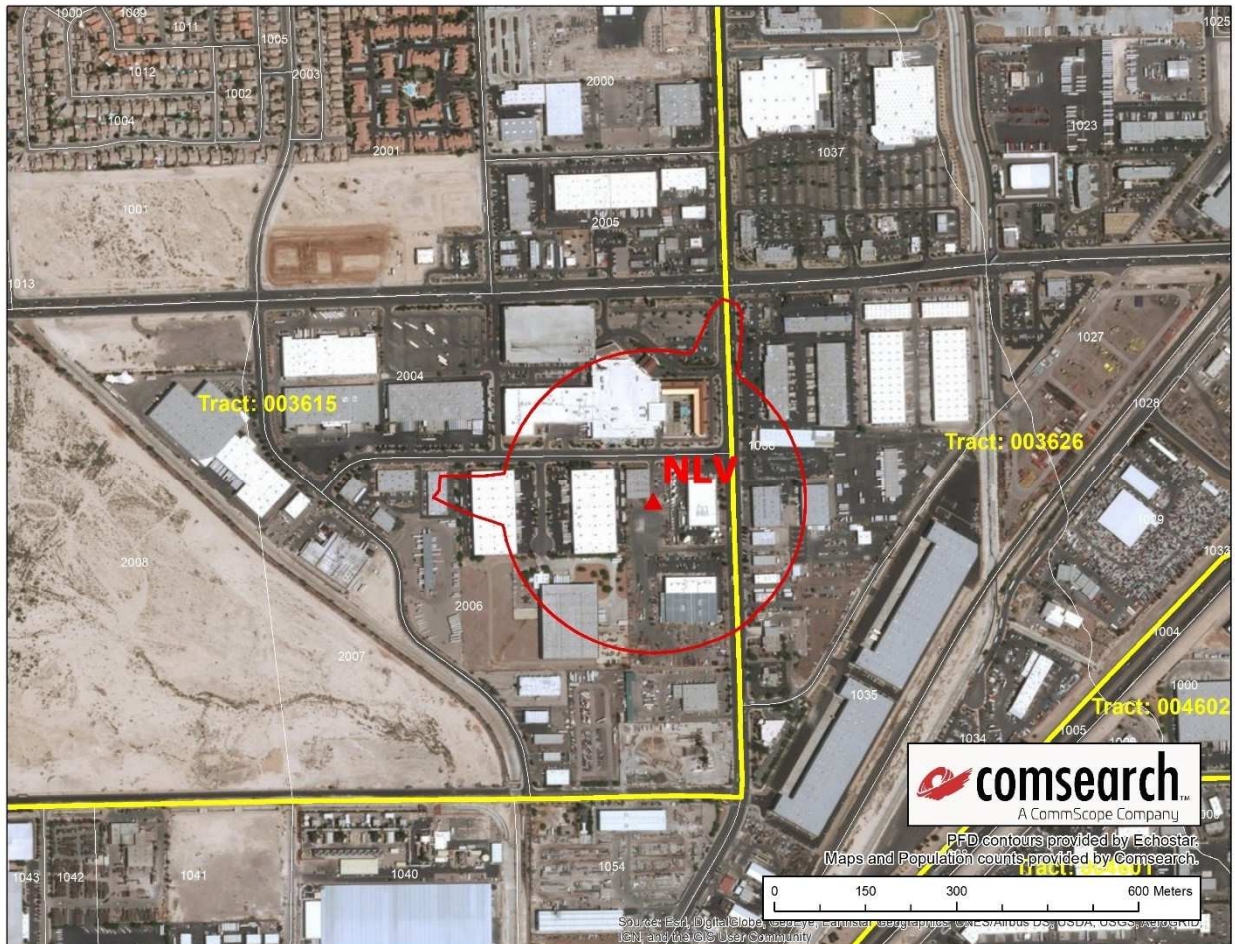


4. North Las Vegas, NV—28 GHz (File No. SES-LIC-20170807-00879; Call Sign E170154)

Clark County population: 2,003,613

Permitted population within contour: 2003

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
Total						0.0



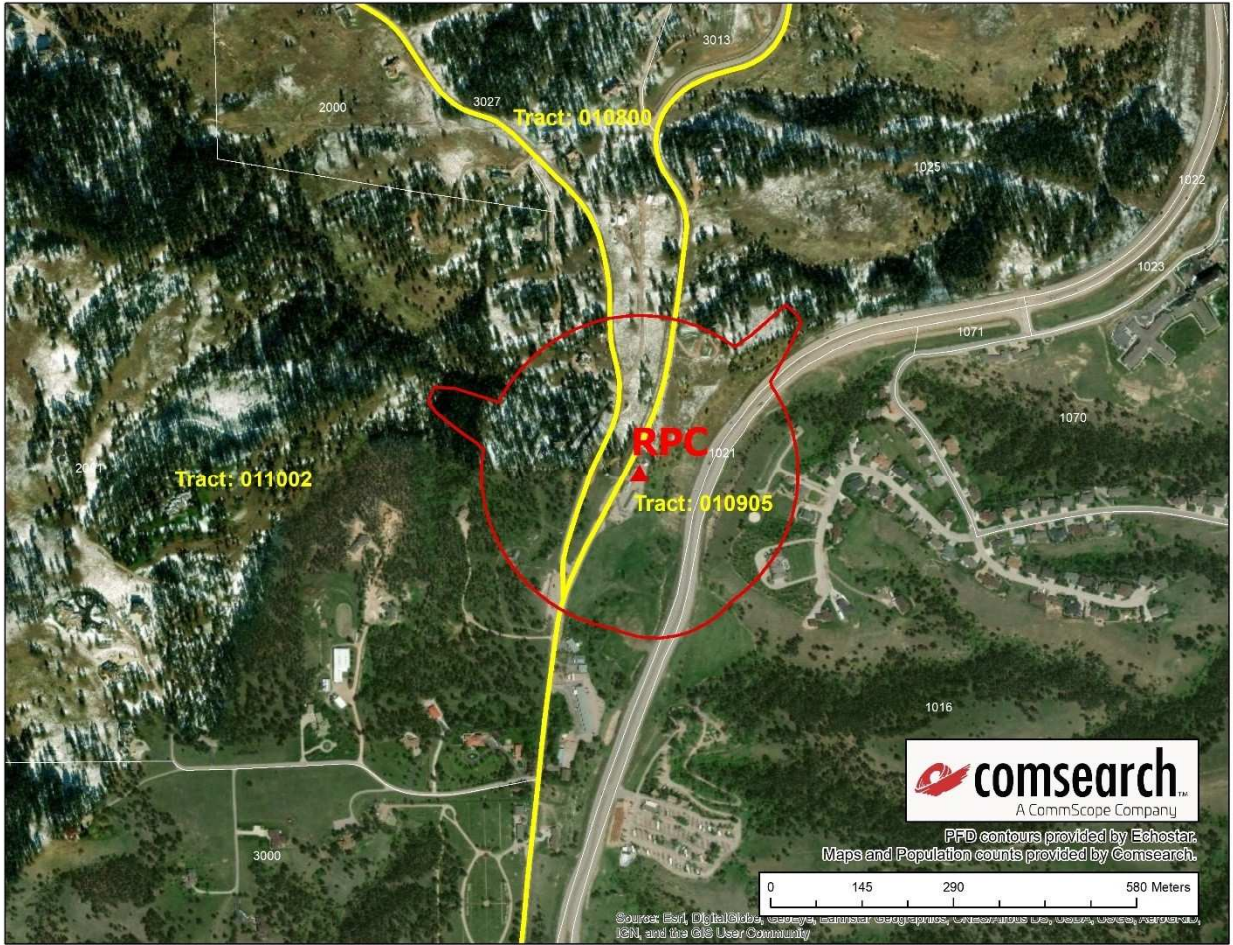
5. Rapid City, SD—28 GHz (File No. SES-LIC-20170807-00882; Call Sign E170157)

The pfd contour covers approximately 443 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/#>).

Pennington County population: 104,574

Permitted population within contour: 450

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
					Total	44.5

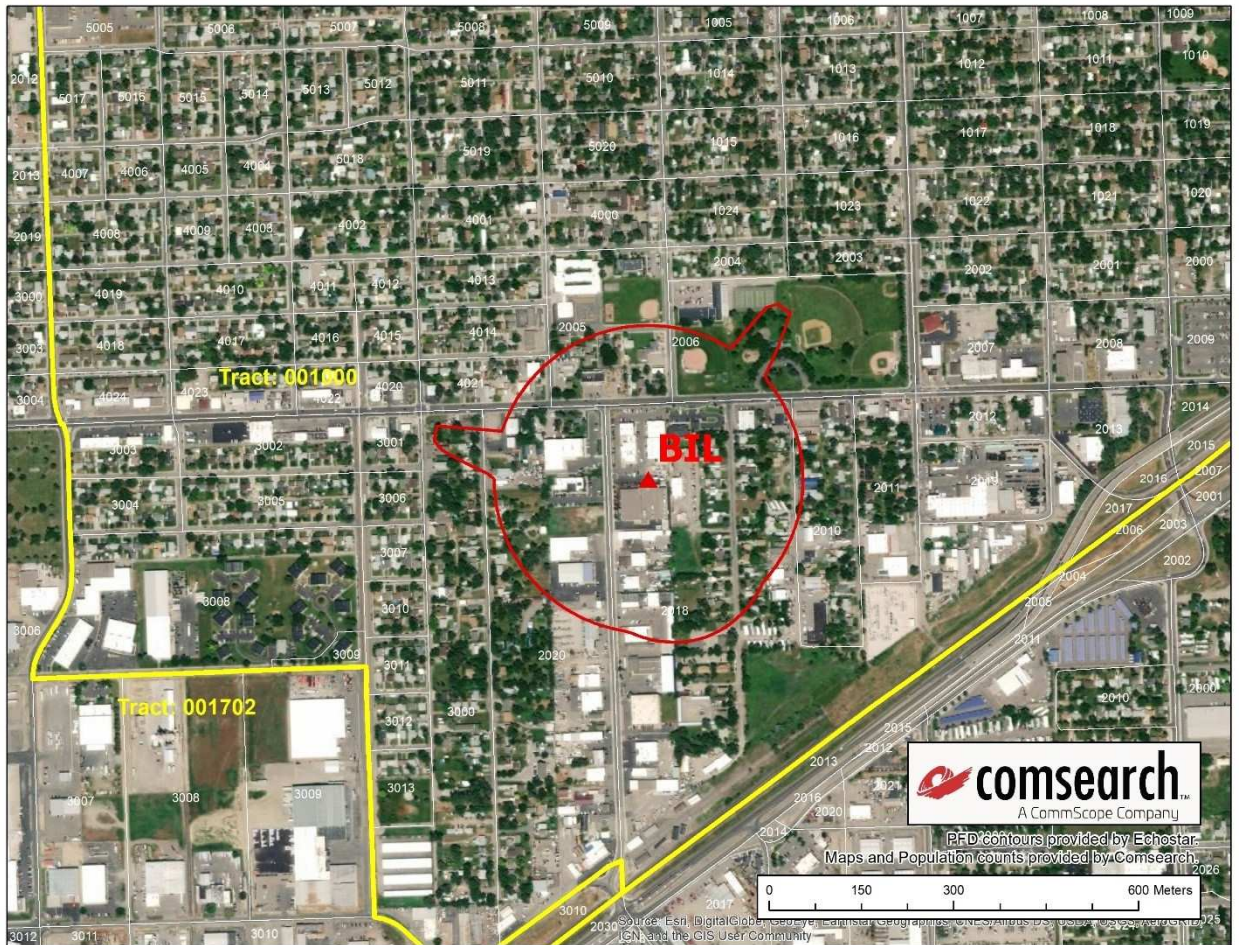


6. Billings, MT—28 GHz (File No. SES-LIC-20170807-00883; Call Sign E170158)

Yellowstone County population: 151,965

Permitted population within contour: 450

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
Total						192.2

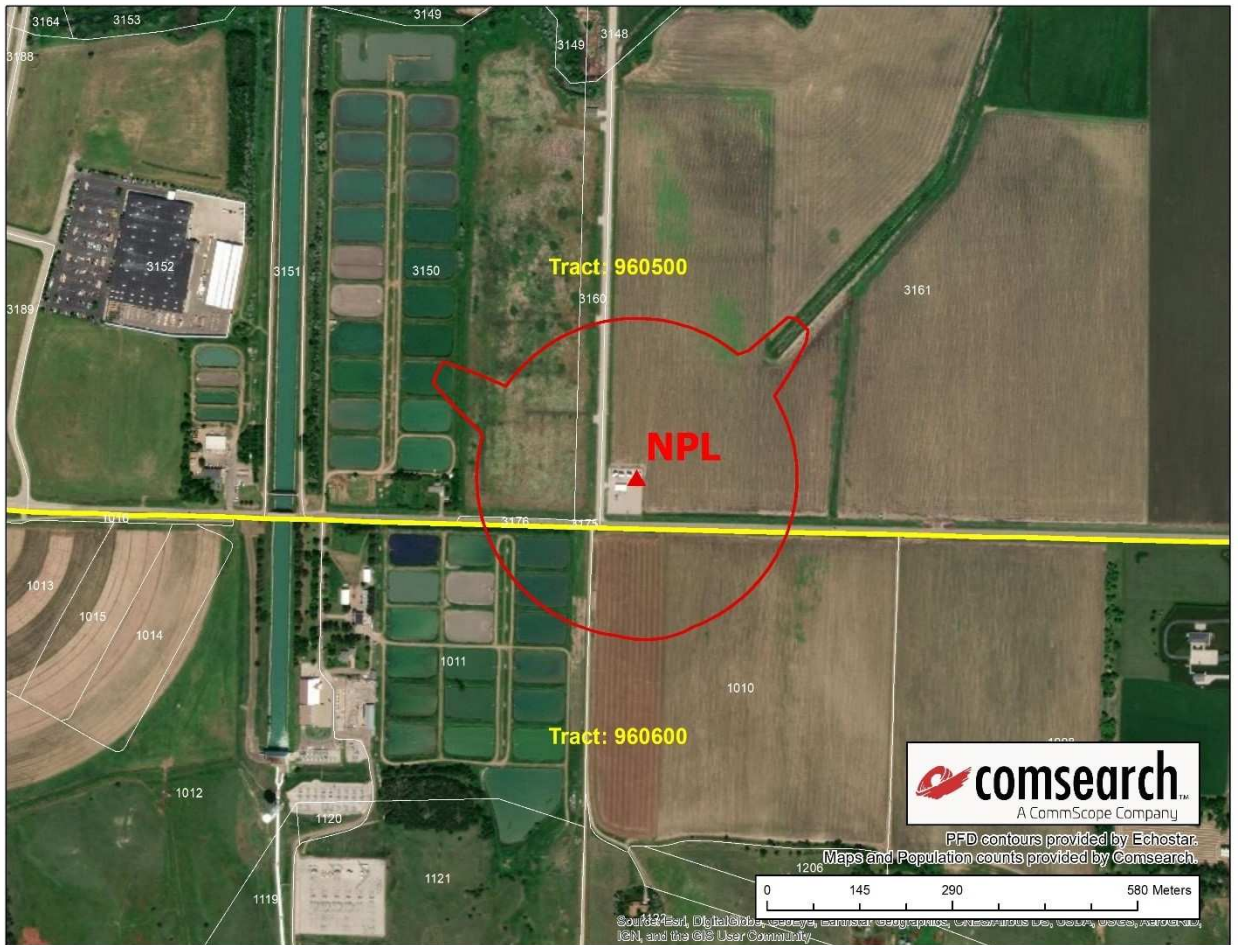


7. North Platte, NE—28 GHz (File No. SES-LIC-20170807-00883; Call Sign E170158)

Lincoln County population: 36,054

Permitted population within contour: 450

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
Total						0.3

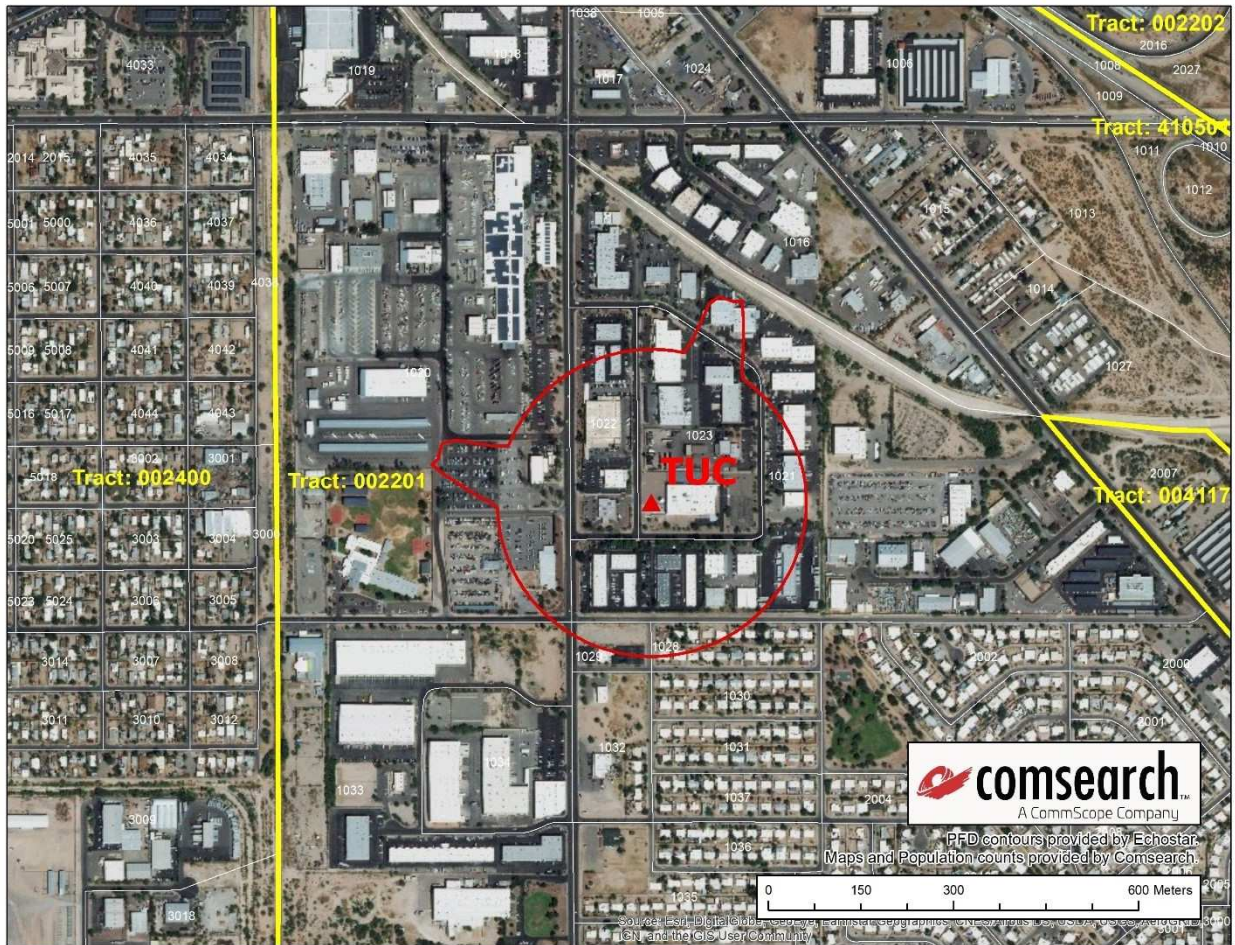


8. Tucson, AZ—28 GHz (File No. SES-LIC-20170807-00887; Call Sign E170162)

Pima County population: 993,144

Permitted population within contour: 993

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
Total						19.5

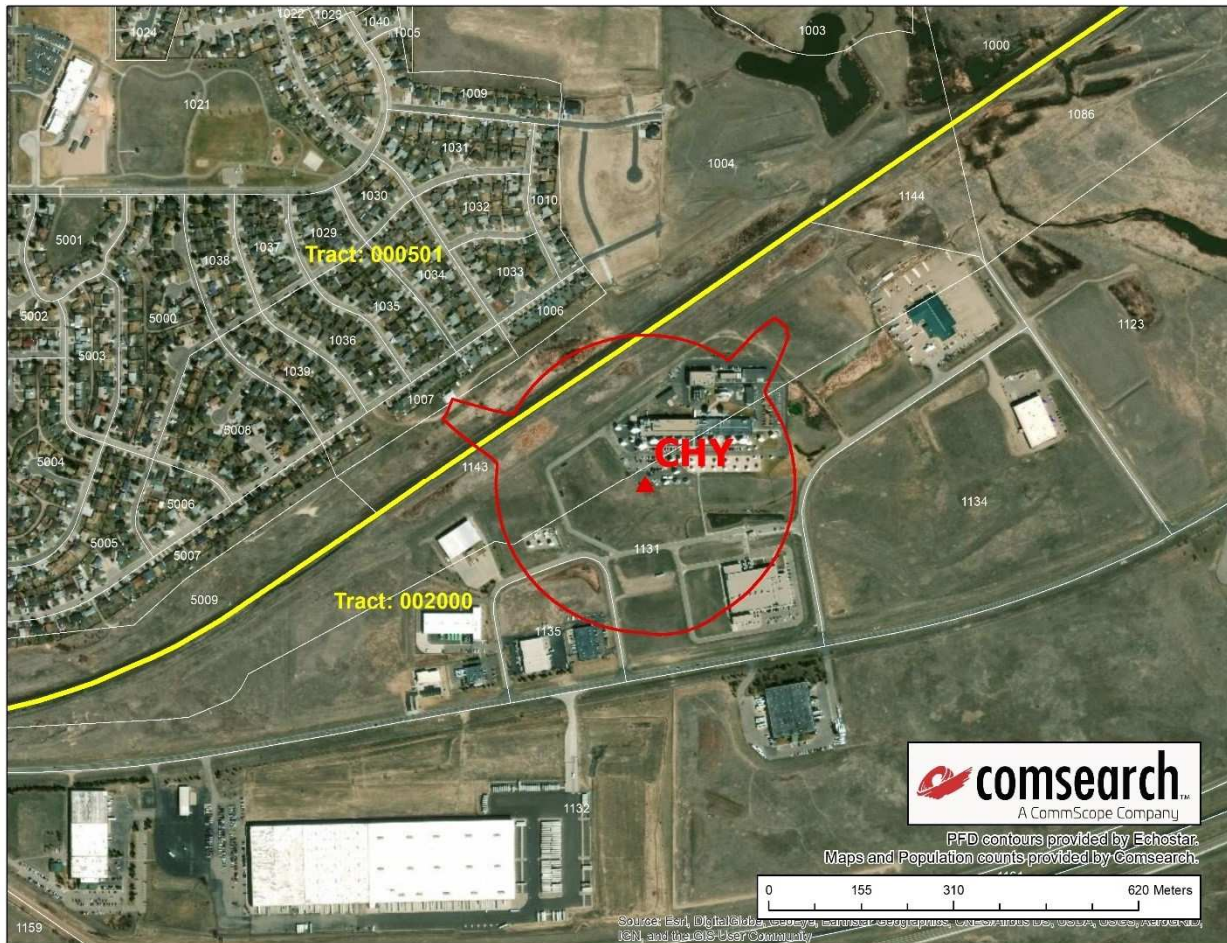


9. Cheyenne, WY—28 GHz (File No. SES-LIC-20170807-00889; Call Sign E170164)

Laramie County population: 94,412

Permitted population within contour: 450

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
Total						0.1



10. Simi Valley, CA—28 GHz (File No. SES-LIC-20170807-00888; Call Sign E170163)

The pfd contour covers approximately 74 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 pfd contour also covers approximately 64 m of a passenger railroad.

Ventura County population: 835,790

Permitted population within contour: 835

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
Total						29.5

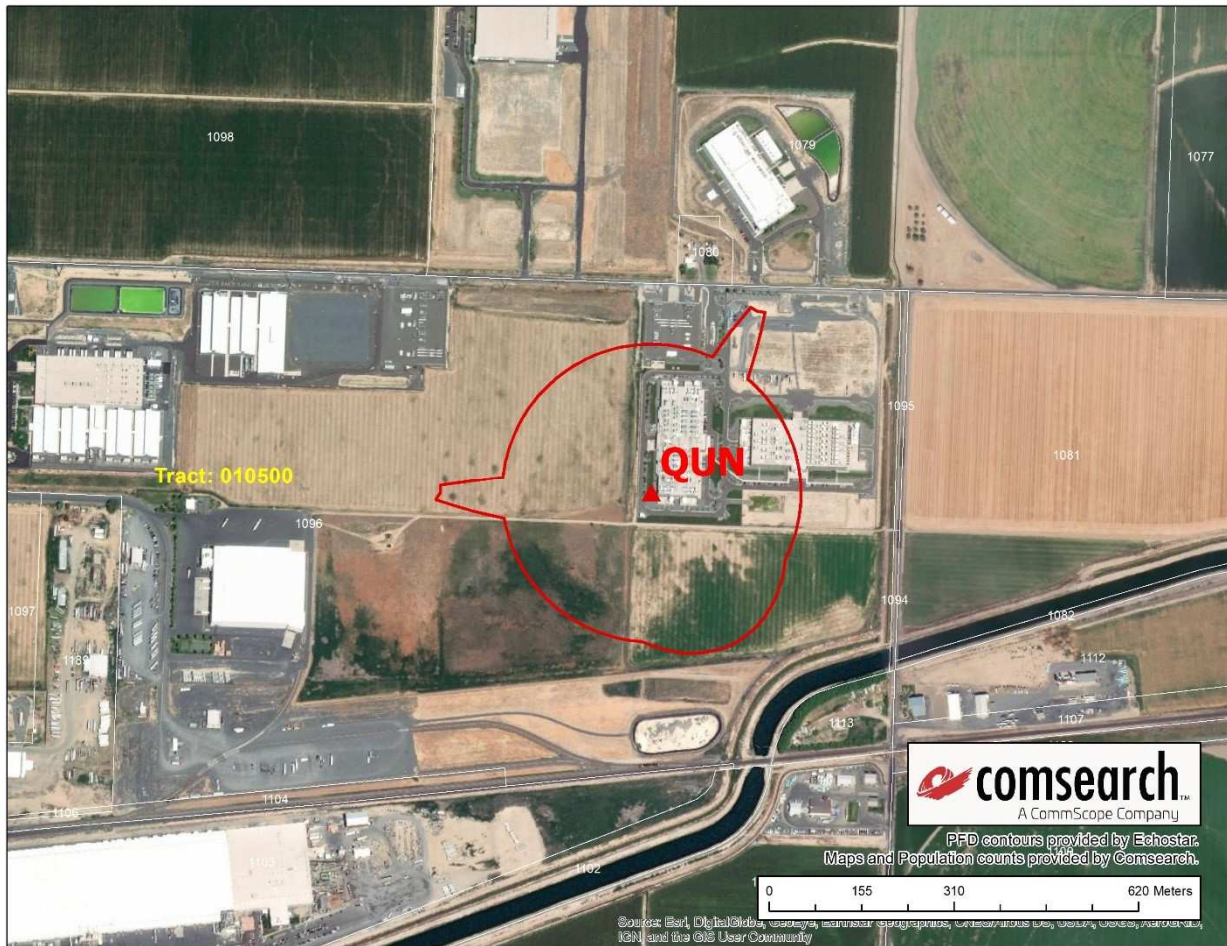


11. Quincy, WA—28 GHz (File No. SES-LIC-20170807-00878; Call Sign E170153)

Grant County population: 91,458

Permitted population within contour: 450

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

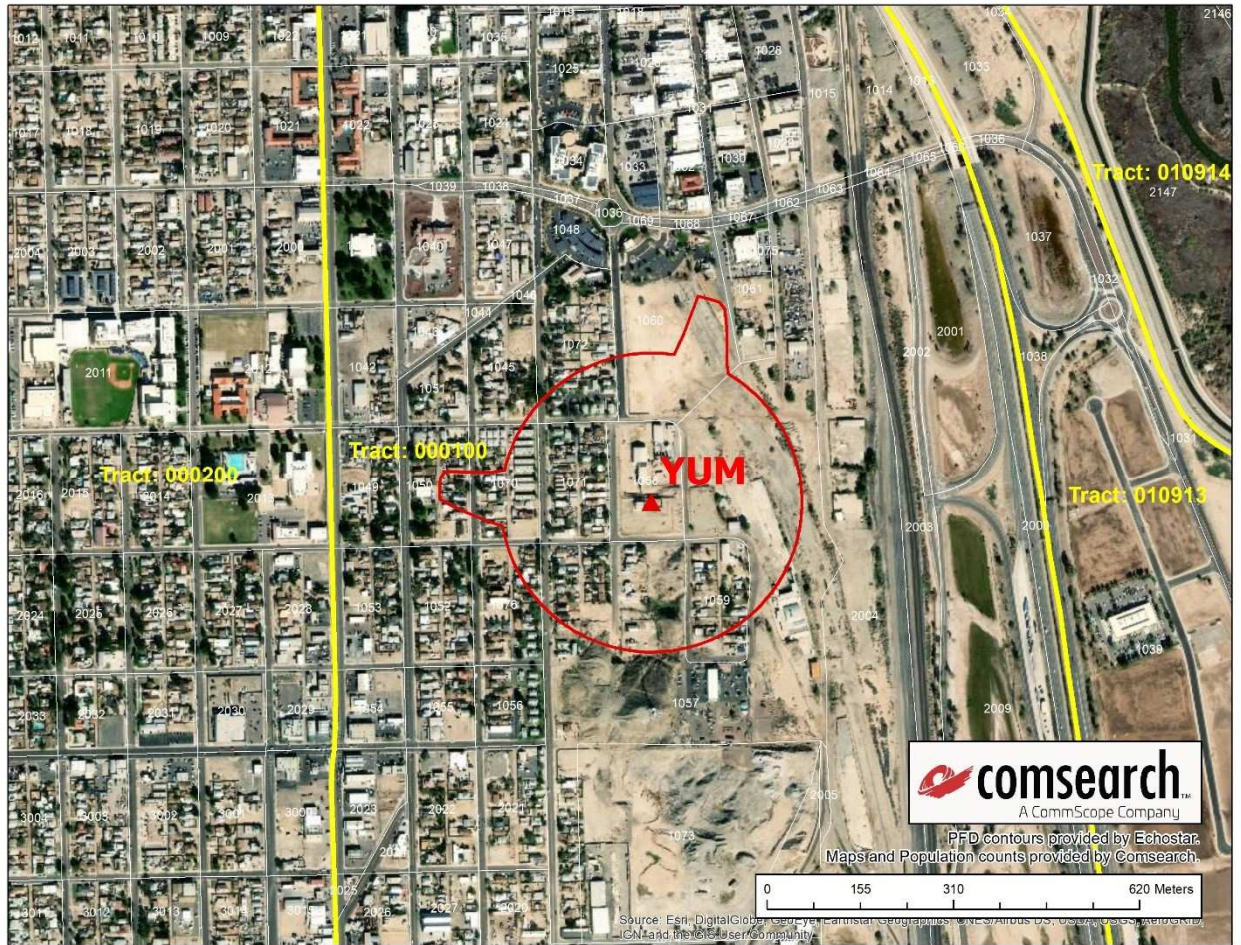


13. Yuma, AZ—28 GHz (File No. SES-LIC-20170807-00892; Call Sign E170167)

Yuma County population: 201,453

Permitted population within contour: 450

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
Total						300.2

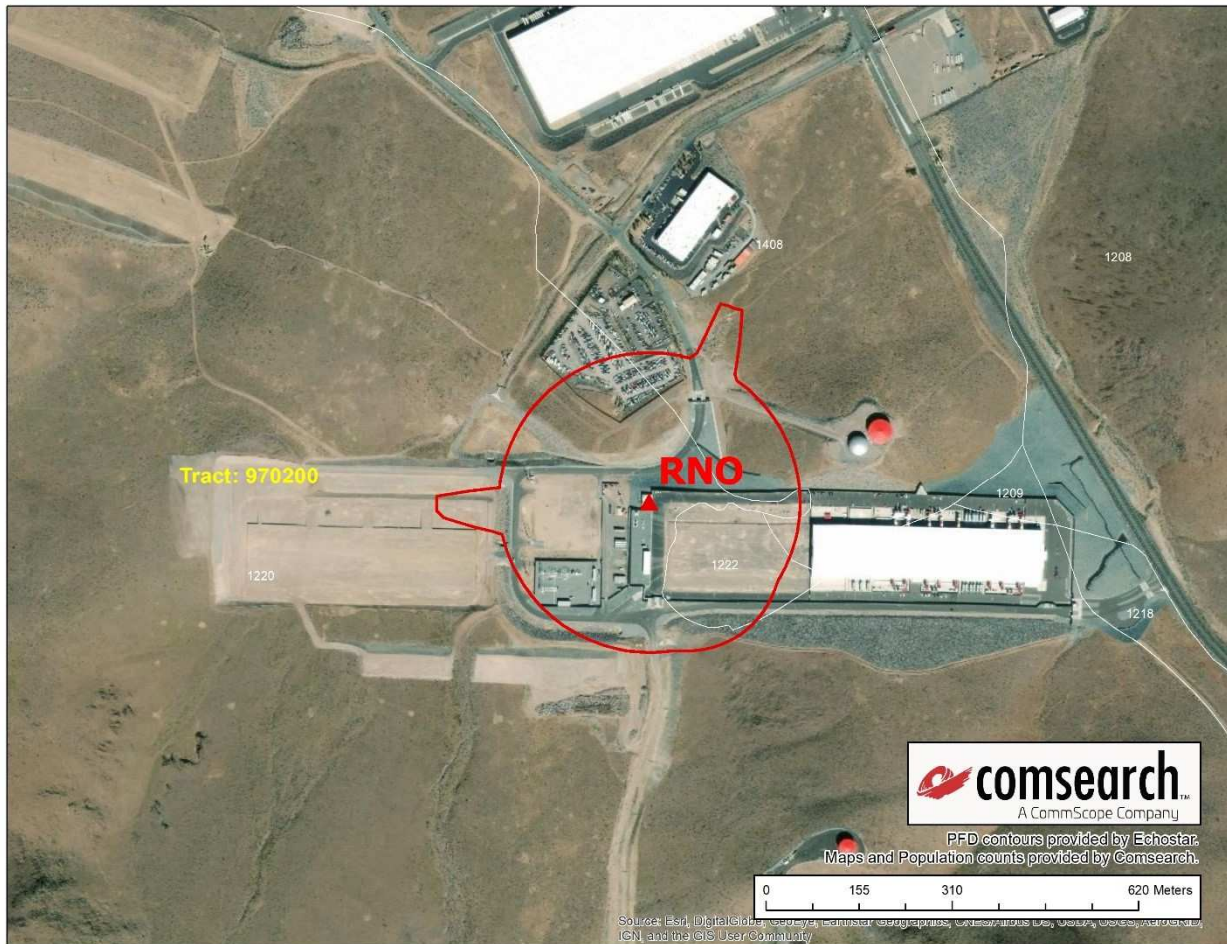


14. Reno, NV—28 GHz (File No. SES-LIC-20170807-00885; Call Sign E170160)

Storey County population: 3,934

Permitted population within contour: 295

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
Total						0.0

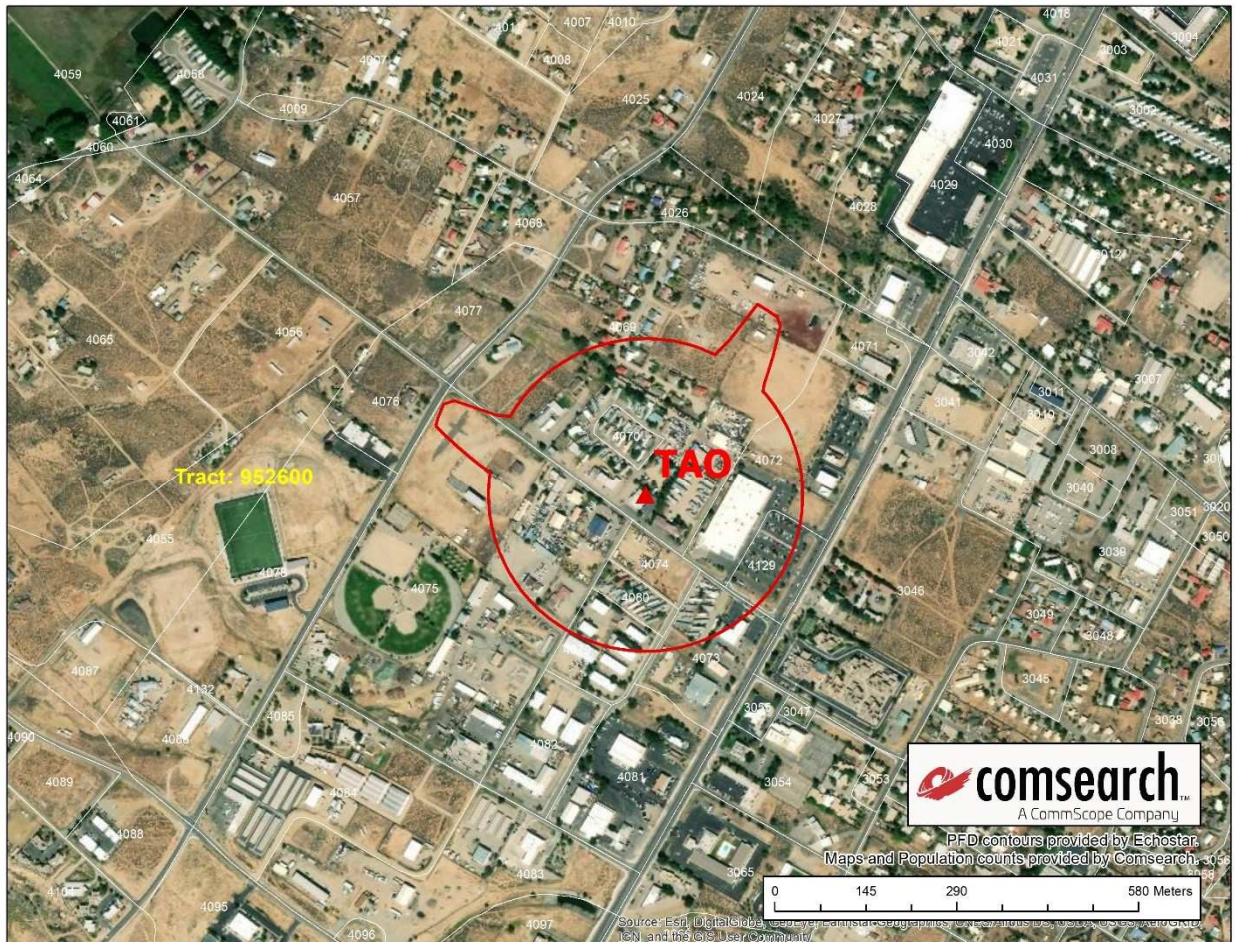


15. Taos, NM—28 GHz (File No. SES-LIC-20170807-00884; Call Sign E170159)

Taos County population: 32,956

Permitted population within contour: 450

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
Total						208.0



Driggs, ID—28 GHz (File No. SES-LIC-20170807-00886; Call Sign E170161)

Teton County population: 10,212

Permitted population within contour: 450

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
Total						28.9



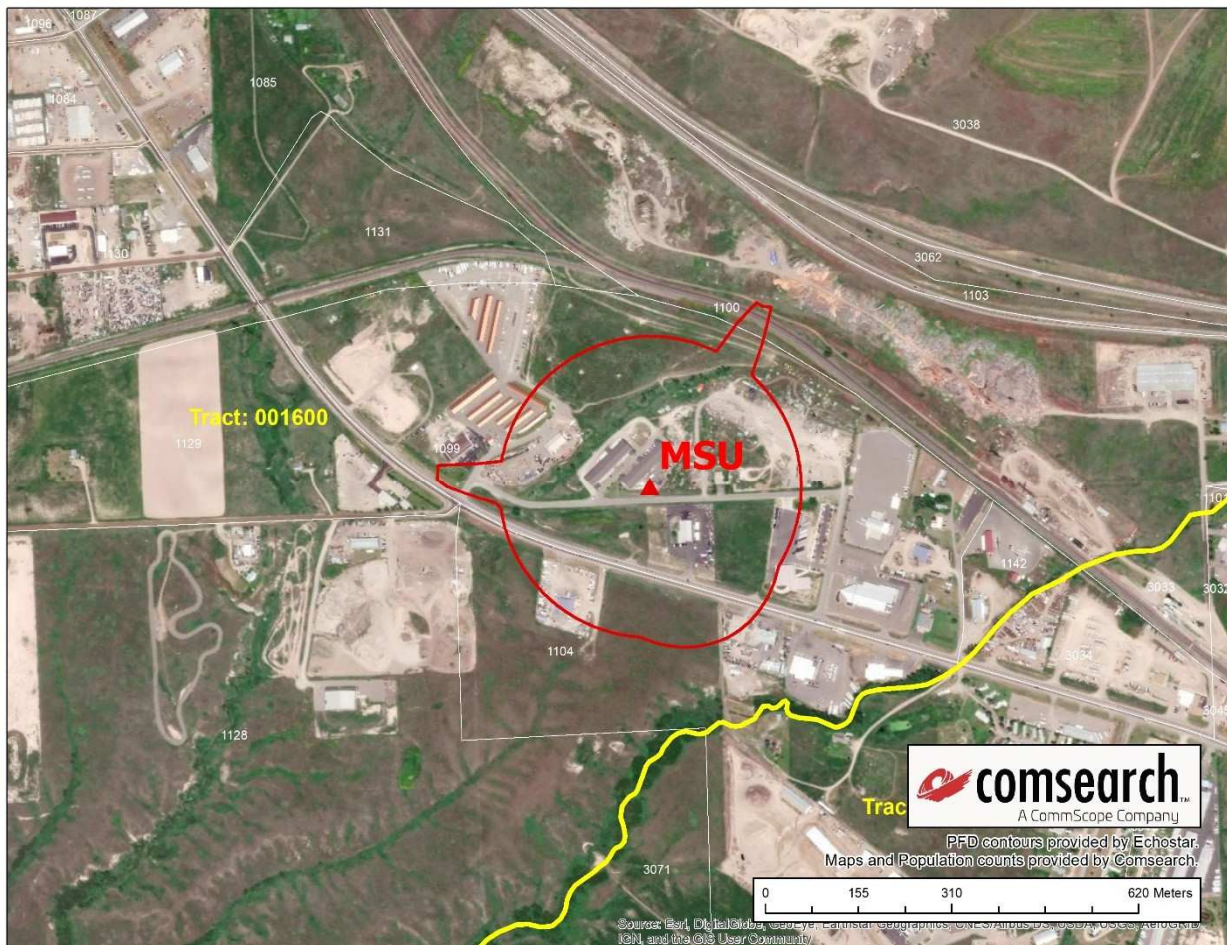
17. Missoula, MT—28 GHz (File No. SES-LIC-20170807-00893; Call Sign E170168)

The pfd contour covers approximately 453 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/#>).

Missoula County population: 111,011

Permitted population within contour: 450

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
Total						3.3



18. Bismarck, ND—28 GHz (File No. SES-LIC-20170807-00894; Call Sign E170169)

The pfd contour covers approximately 495 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/#>).

Burleigh County population: 86,111

Permitted population within contour: 450

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				Total	47.8



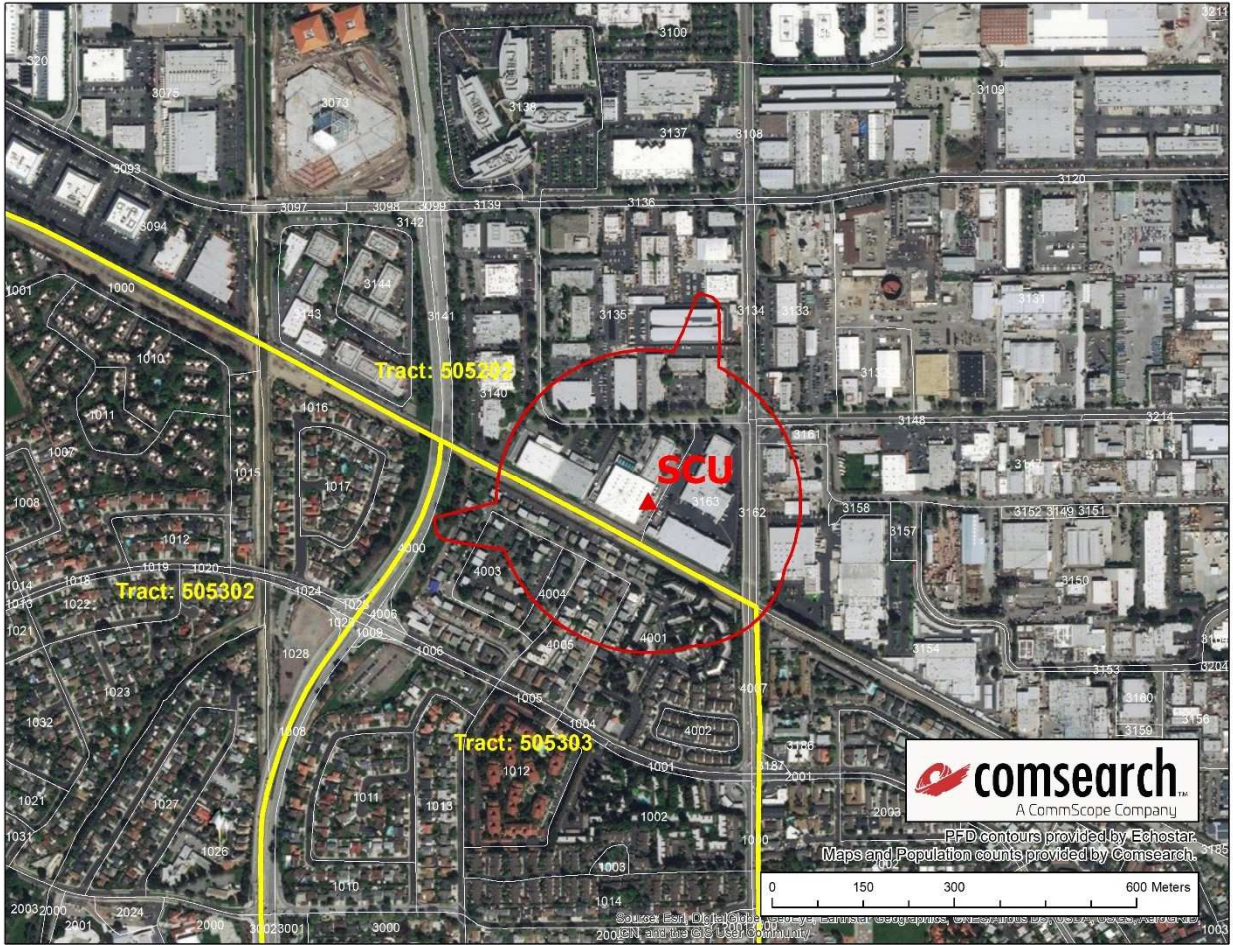
19. Santa Clara, CA—28 GHz (File No. SES-LIC-20170807-00877; Call Sign E170152)

The pfd contour covers approximately 387 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/#>).

Santa Clara County population: 1,841,569

Permitted population within contour: 1841

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
					Total	781.7



20. Rifle, CO—28 GHz (File No. SES-LIC-20170807-00891; Call Sign E170166)

The pfd contour covers approximately 473 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/#>).

Garfield County population: 56,684

Permitted population within contour: 450

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
Total						143.9

