



Rexburg Region Maps and Broadband Cost Estimates

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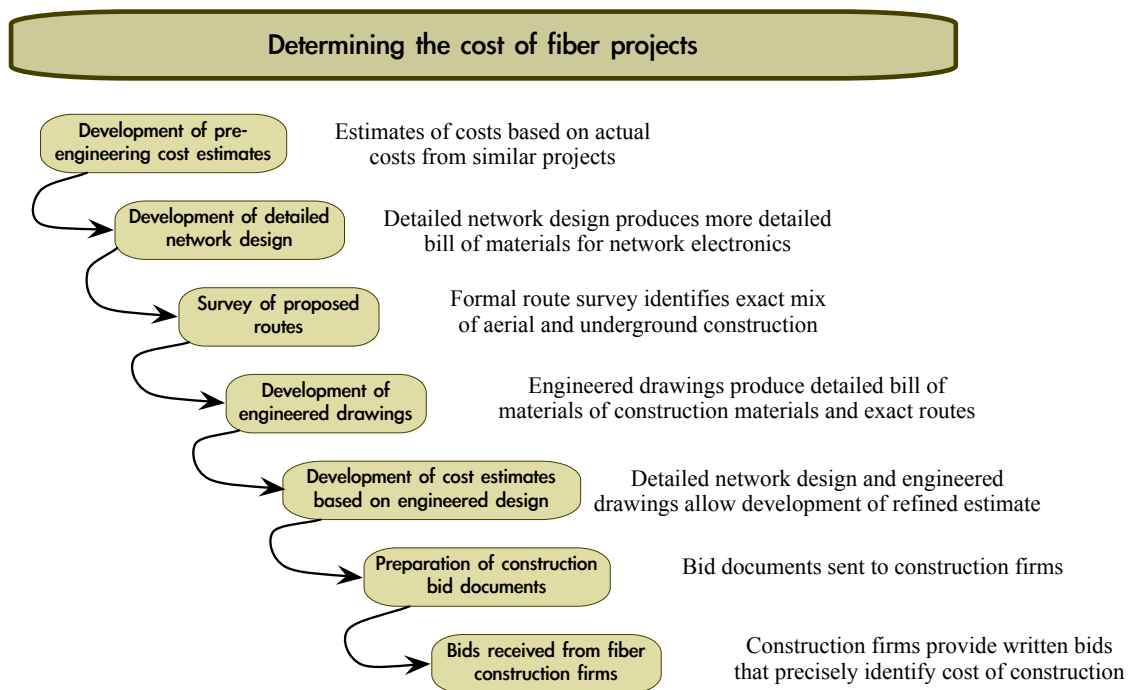
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Pre-Engineering Construction Estimates

Pre-engineering cost estimates provide an early look at the cost of build out; these estimates do not include formal pole surveys or the significant expense of route engineering. Even after route surveys are performed, and engineered route blueprints are developed, the true cost of construction is not known until the construction bid documents are prepared and bids are received. The diagram below illustrates the process of establishing the exact cost of a fiber or wireless project.



It is important to note that the fiber construction costs in this report are estimates for build outs in Rexburg. Cost savings for multi-town build outs could be substantial, especially in the network equipment, outside plant materials (e.g. fiber cable), and construction labor.

When preparing cost estimates, it is good practice to use conservative cost estimates (i.e. higher cost estimates) to ensure that the funds are adequate to complete the project, as there is usually no additional funds if actual construction or materials costs turn out to be higher than the estimates. It is always more desirable to have the actual cost of the project be under the estimated cost rather than over the estimated cost.

Two complete estimates have been prepared for the region. One estimate shows fiber being installed to four separate areas of Rexburg, ID. This estimate includes two tables for each area; one table shows a detailed description of the fiber construction, including drop construction, throughout that area, and one table shows a detailed description of the shelter/cabinet and network equipment needed in that area. There is a map with this estimate showing the locations of each of the four areas with the proposed fiber routes shown. The second estimate is for the installation of a wireless link from Sugar City, ID to Teton, ID to Newdale, ID. This is a typical wireless link from existing fiber in the region to a town and could be applied to other locations throughout the region. The majority of the towns could be reached with a two or three tower wireless link.

The fiber construction cost estimate for installation throughout the City of Rexburg is based on 100% underground construction. The initial construction cost of this might be higher than aerial installation but it provides a lower cost for operation because there are no pole use fees or cable moving costs when a pole is replaced in the future. The cost of underground construction can actually be lower than aerial installation depending on the amount of make ready needed in a certain area.

The detailed cost estimates include a range of costs based on previous purchases and past experience with equipment vendors and contractors. This range depicts the average cost of the service or equipment and the optimism factor picks out the estimated cost from the range. The optimism factor is a number that shows the approximation of which end of the range the actual cost will be, lower or higher. These estimates are based on the routes shown in the maps for each area of Rexburg.

The detailed cost estimates show the hardware and other equipment that usually is purchased by the construction contractor and is part of their overall bid price.

Some construction cost estimates include only the cost of construction labor and materials (e.g. fiber cable, attachment hardware, and splice enclosures). But a different cost estimate may include other necessary and essential costs, like project management, engineering, and network equipment. In other words, two cost estimates with the same aerial/underground and make-ready assumptions could still vary widely if one includes all necessary costs needed to produce a functional, working network and the other estimate includes only the construction costs.

The cost estimates below show allowances for contingencies, engineering, project management, network integration, testing, and permitting fees. The cost estimates also include the cost of drops (the access fiber), based on a 30% take rate, from the backbone fiber network to businesses or residents along the backbone network.

It is only correct to compare the costs of two estimates if you can reliably determine that the underlying assumptions and costs are the same for both estimates.

In other words, the percentage of aerial construction, the amount of make-ready, inclusion of engineering and equipment costs, and the inclusion of drops all must be the same. Two estimates of construction costs for the same area may appear to be widely divergent, but one estimate may include only direct labor and material costs, all aerial construction, no drops, no network equipment or design and engineering costs, and no make-ready fees.

Note that an estimate like this would be very low but would not be a functional network and no residences or businesses would actually be connected to the fiber. The other estimate may include all the necessary costs needed to actually connect customers, including reasonable make-ready costs, some underground construction, network electronics, drop fiber cables to businesses or residents, and other costs like network design and engineering.

Estimates for construction materials and network equipment vary largely based on the amount of materials or equipment purchased. Small purchases of network electronics generally receive little or no price discount, but for larger purchases, discounts can be substantial (e.g. a range of 10% to 40% off list). Construction materials purchased in large lots also receive more discounts. Our pre-engineering estimates are conservative, with prices for materials and equipment generally using list prices or prices that we have previously seen from vendors on other similar sized projects. Labor costs are based on prices from other construction projects and knowledge of local conditions. Cost of labor can vary widely based on the time of year, the overall size of the job, the local economy, and the national economy.

In each construction area in Rexburg and at any tower locations there will be at least one small equipment shelter or cabinet. An analysis of three towns (Sugar City, Teton, and Newdale, ID) has been completed to compare the expected costs of a wireless link from existing fiber. These links were selected by Design Nine as typical of the towns in the region. All of the study area towns in the region can be reached with either a two or three tower wireless link from existing fiber. Sugar City to Teton to Newdale is a typical three tower wireless link and would represent the estimated cost to complete other three tower wireless links. Other three tower wireless links would include Rexburg to Burton to Hibbard, and Thornton to Lyman to Archer. Sugar City to Teton is a typical two tower wireless link and would represent the estimated cost to complete other two tower wireless links. Other two tower wireless links would include St. Anthony to Parker, and Driggs to Alta.

While it is desirable to be able to make a complete build out that has fiber passing by every residence and business in Rexburg, Design Nine has provided cost estimates showing fiber passing the majority of residences and businesses within an area of Rexburg.

Note that all costs are estimates based on current market prices for materials and construction costs are based on typical prices paid in past projects. Actual construction and materials costs may vary.

Both the estimates for fiber construction and wireless installation include a summary table with estimated costs for each area or wireless link, contingencies, engineering, project management, network integration, testing, and permitting fees. From all of these factors the estimated project total is calculated for each summary table.



Project Summary

The “Project Total” estimates in this report include estimates of the costs in the categories described below. All of these activities and efforts are generally required to produce a working network. As noted in the previous section, some firms may provide cost estimates that only include two categories: Outside Plant Construction Materials and Outside Plant Construction Labor. And also as previously noted, even two estimates of just direct construction costs (materials and labor) may vary widely if one estimate includes drops and one estimate does not.

ITEM/PROJECT

The Project Summary table shows the estimated costs for each area or wireless link. It also includes the estimated costs for shelter/cabinet and network equipment for each area or wireless link.

CONTINGENCIES

The Contingency category is included and calculated as a percentage of the construction subtotal estimated cost (e.g. 10% of subtotal cost) to provide flexibility in managing the overall budget. Equipment costs can and do change between the time an estimate is made and construction commences. Labor costs can vary depending upon the time of year the work starts, the state of the local economy, and the state of the national economy.

NETWORK DESIGN AND ENGINEERING

This work include a full design of the outside plant network, cabinet and shelter specifications, and extensive detail (blueprints) that specifies how all fiber cable, wireless towers, and network equipment is to be installed. These documents have to be completed prior to bidding out any construction work, and are usually included as part of a construction bid package. The detail includes fiber optic cable route determination and size determination, active and passive network equipment selection and placement planning, splicing layouts and documentation, network configuration planning, and all engineering necessary to complete construction.

PROJECT MANAGEMENT

Project management for a telecom build requires thorough and detailed planning, experience in procuring construction materials for a telecom project, and the ability to oversee and convey project information to contractors through the duration of the project, including construction inspection work (ensuring construction contractors have done their job properly).

NETWORK INTEGRATION AND TESTING

Some configuring and testing will take place after the network is built and before it is ready for use. In a dark network this involves labeling and documenting the routes of individual fiber strands, and testing of any other features of the network such as generators, air conditioners, and locks. In an active network the testing and integration includes integration requirements for a dark fiber network plus the configuring and installation of switches, routers, and other

network equipment. Work in this category requires a skilled professional who is familiar with the network architecture and the business model (e.g. open access).

PERMITTING FEES AND COSTS

Some costs will be incurred based on the permitting requirements of the project. If shelters/cabinets are able to be placed on town properties at no charge, the cost of leases will be lower. If cabinets or shelters have to be placed on private property, the cost of the land or long term leases will increase. Some property owners prefer to receive ten or twenty years of lease payments up front, which can make this cost unpredictable. The cost of permits needed for crossing wetlands, streams, other sensitive areas, and DOT permits are also included in this category. Formal leases and negotiated lease payments are more desirable than providing some form of free access to services.

Rexburg Cost Estimate

Rexburg, Idaho - Project Summary

#	ITEM/PROJECT	Total
1	Downtown Rexburg	\$248,194.04
2	Rexburg Colocation Facility & Core Network Equipment	\$194,685.00
3	Residential Area Fiber Extension	\$1,110,331.36
4	Residential Area Shelter & Equipment	\$145,110.00
5	Business Park Fiber Extension	\$203,993.25
6	Business Park Shelter & Equipment	\$58,322.50
7	Hospital Area Fiber Extension	\$38,794.50
8	Hospital Shelter and Equipment	\$52,247.50
9	Construction Subtotal	\$2,051,678.15
10	Contingencies	\$205,167.82
11	Engineering, Project Management, Network Integration, Testing	\$410,335.63
12	Permitting Fees and Costs	\$102,583.91
13	Other Costs Subtotal	\$718,087.35
14	Project Total	\$2,769,765.50
15	Notes/Assumptions:	

Downtown Rexburg Fiber

V1	VARIABLE	VALUE	NOTES
V2	Aerial Construction percentage	0.00%	
V3	Trenching percentage	10.00%	
V4	Boring percentage	35.00%	
V5	Direct Bury percentage	55.00%	
V6	Linear construction length	18,087 feet	Length of segment in feet.
V7	Conduit Exists	0 feet	
V8	Utility poles	0 poles	
V9	Handholes	30	Number of handholes for the segment.
V10	FOSCs	15	
V11	Optimism	5	0-10 scale used in Best Estimate column (10 is best)
V12	Buildings Passed	120	
V13	Take Rate	30.00%	
V14	Drop Construction	36	

#	ITEM/PROJECT	UNITS	COST(LOW)	COST(HIGH)	TOTAL (LOW)	TOTAL (HIGH)	BEST ESTIMATE (WEIGHTED AVERAGE)
1	Generic 1.5" Conduit	2 18,087	\$0.40	\$0.60	\$14,469.60	\$21,704.40	\$18,087.00
2	Buried Fiber Marker Posts/Medallions	37	\$10.00	\$14.00	\$370.00	\$518.00	\$444.00
3	144 Strand Loose Tube FOC (144ct average)	18,087	\$1.20	\$1.50	\$21,704.40	\$27,130.50	\$24,417.45
4	Slack Fiber (50' - hand hole)	1,507	\$1.20	\$1.50	\$1,808.70	\$2,260.88	\$2,034.79
5	Trace Wire - Insulated 12AWG or Better	18,087	\$0.25	\$0.55	\$4,521.75	\$9,947.85	\$7,234.80
6	Muletape 1250P (3000ft reel) or equivalent	7	\$139.00	\$179.00	\$973.00	\$1,253.00	\$1,113.00
7	Handhole - 17x30x24 Concrete Polymer	30	\$150.00	\$300.00	\$4,521.75	\$9,043.50	\$6,782.63
8	Handhole Lid - Traffic Rated	30	\$100.00	\$200.00	\$3,014.50	\$6,029.00	\$4,521.75
9	Handhole Installation Materials (Gravel, Straw, etc.)	30	\$15.00	\$20.00	\$452.18	\$602.90	\$527.54
10	FOSC - 144 Count w/ Trays	15	\$125.00	\$250.00	\$1,884.06	\$3,768.13	\$2,826.09
11							
12	Aerial Cable Placement	0	\$2.50	\$8.00	\$0.00	\$0.00	\$0.00
13	Make Ready Heavy	0	\$450.00	\$1,000.00	\$0.00	\$0.00	\$0.00
14	Make Ready Light	0	\$200.00	\$450.00	\$0.00	\$0.00	\$0.00
15	Pole Replacement	0	\$1,200.00	\$2,400.00	\$0.00	\$0.00	\$0.00
16	Trenching	1,809	\$8.50	\$11.00	\$15,376.50	\$19,899.00	\$17,637.75
17	Boring (Road Crossings)	6,331	\$11.00	\$14.00	\$69,641.00	\$88,634.00	\$79,137.50
18	Direct Bury / Vibratory Plow	9,948	\$3.00	\$5.50	\$29,844.00	\$54,714.00	\$42,279.00
19	17x30x24 Handhole Installation	30	\$200.00	\$375.00	\$6,029.00	\$11,304.38	\$8,666.69
20	FOSC Assembly and Installation	15	\$100.00	\$150.00	\$1,507.25	\$2,260.88	\$1,884.06
21	Drop Construction - Per Drop Includes Materials	36	\$500.00	\$800.00	\$18,000.00	\$28,800.00	\$23,400.00
22	Splicing - Per Splice	360	\$15.00	\$25.00	\$5,400.00	\$9,000.00	\$7,200.00
27	Total:				\$199,517.69	\$296,870.40	\$248,194.04
28							
29	Notes/Assumptions:						

S1	ITEM	VALUE
S2	Total Materials	\$67,989.04
S3	Total Labor	\$180,205.00
S4	Segment Construction Only Total	\$248,194.04

Core Equipment & Pre-Fab Shelter

V1	VARIABLE	VALUE	NOTES
V2	Buildings Connected	36	
V3	Optimism	5	0-10 scale used in Best Estimate column (10 is best)

I	ITEM/PROJECT	UNITS	COST(LOW)	COST(HIGH)	TOTAL (LOW)	TOTAL (HIGH)	BEST ESTIMATE (WEIGHTED AVERAGE)
2	Core Routing Equipment (Colo)	1	\$90,000.00	\$100,000.00	\$90,000.00	\$100,000.00	\$95,000.00
3	Equipment Rack	8	\$175.00	\$275.00	\$1,400.00	\$2,200.00	\$1,800.00
4	Patch Panels	2	\$800.00	\$1,250.00	\$1,600.00	\$2,500.00	\$2,050.00
5	Access Equipment	2	\$3,500.00	\$5,000.00	\$7,000.00	\$10,000.00	\$8,500.00
6	Access Optics	18	\$150.00	\$200.00	\$2,700.00	\$3,600.00	\$3,150.00
7	Backup Power Supplies	1	\$260.00	\$310.00	\$260.00	\$310.00	\$285.00
8	10G Optics	18	\$600.00	\$750.00	\$10,800.00	\$13,500.00	\$12,150.00
9	Customer Premise Equipment	36	\$200.00	\$300.00	\$7,200.00	\$10,800.00	\$9,000.00
10					\$120,960.00	\$142,910.00	\$131,935.00
11	Pre-fabricated concrete shelter (8'x16')	1	\$25,000.00	\$35,000.00	\$25,000.00	\$35,000.00	\$30,000.00
12	Shipping and crane rental	1	\$4,500.00	\$6,000.00	\$4,500.00	\$6,000.00	\$5,250.00
13	Shelter construction (labor + materials)	1	\$10,000.00	\$15,000.00	\$10,000.00	\$15,000.00	\$12,500.00
14	Generator foundation (labor + materials)	1	\$2,000.00	\$3,500.00	\$2,000.00	\$3,500.00	\$2,750.00
15	12kW Generator	1	\$7,500.00	\$9,500.00	\$7,500.00	\$9,500.00	\$8,500.00
16	36x48x36 inch telecom vault	1	\$450.00	\$750.00	\$450.00	\$750.00	\$600.00
17	36x48 inch telecom vault lid (split, heavy duty)	1	\$300.00	\$500.00	\$300.00	\$500.00	\$400.00
18	Vault installation	1	\$500.00	\$1,000.00	\$500.00	\$1,000.00	\$750.00
19	Shelter signage and landscaping	1	\$1,500.00	\$2,500.00	\$1,500.00	\$2,500.00	\$2,000.00
20					\$51,750.00	\$73,750.00	\$62,750.00
21							
22	Notes/Assumptions:						

S1	ITEM	VALUE
S2	Core Equipment & Pre-fab shelters	\$194,685.00

Residential Area Extension

V#	VARIABLE	VALUE	NOTES
V2	Aerial Construction percentage	0.00%	
V3	Trenching percentage	10.00%	
V4	Boring percentage	25.00%	
V5	Direct Bury percentage	65.00%	
V6	Linear construction length	87,057 feet	Length of segment in feet.
V7	Conduit Exists	0 feet	
V8	Utility poles	0 poles	
V9	Handholes	145	Number of handholes for the segment.
V10	FOSCs	73	
V11	Optimism	5	0-10 scale used in Best Estimate column (10 is best)
V12	Buildings Passed	625	
V13	Take Rate	30.00%	
V14	Drop Construction	188	

#	ITEM/PROJECT	UNITS	COST(LOW)	COST(HIGH)	TOTAL (LOW)	TOTAL (HIGH)	BEST ESTIMATE (WEIGHTED AVERAGE)
1	Generic 1.5" Conduit	2 87,057	\$0.40	\$0.60	\$69,645.60	\$104,468.40	\$87,057.00
2	Buried Fiber Marker Posts/Medallions	175	\$10.00	\$14.00	\$1,750.00	\$2,450.00	\$2,100.00
3	144 Strand Loose Tube FOC (144ct average)	87,057	\$1.20	\$1.50	\$104,468.40	\$130,585.50	\$117,526.95
4	Slack Fiber (50' - hand hole)	7,255	\$1.20	\$1.50	\$8,705.70	\$10,882.13	\$9,793.91
5	Trace Wire - Insulated 12AWG or Better	87,057	\$0.25	\$0.55	\$21,764.25	\$47,881.35	\$34,822.80
6	Muletape 1250P (3000ft reel) or equivalent	30	\$139.00	\$179.00	\$4,170.00	\$5,370.00	\$4,770.00
7	Handhole - 17x30x24 Concrete Polymer	145	\$150.00	\$300.00	\$21,764.25	\$43,528.50	\$32,646.38
8	Handhole Lid - Traffic Rated	145	\$100.00	\$200.00	\$14,509.50	\$29,019.00	\$21,764.25
9	Handhole Installation Materials (Gravel, Straw, etc.)	145	\$15.00	\$20.00	\$2,176.43	\$2,901.90	\$2,539.16
10	FOSC - 144 Count w/ Trays	73	\$125.00	\$250.00	\$9,068.44	\$18,136.88	\$13,602.66
11							
12	Aerial Cable Placement	0	\$2.50	\$8.00	\$0.00	\$0.00	\$0.00
13	Make Ready Heavy	0	\$450.00	\$1,000.00	\$0.00	\$0.00	\$0.00
14	Make Ready Light	0	\$200.00	\$450.00	\$0.00	\$0.00	\$0.00
15	Pole Replacement	0	\$1,200.00	\$2,400.00	\$0.00	\$0.00	\$0.00
16	Trenching	8,706	\$8.50	\$11.00	\$74,001.00	\$95,766.00	\$84,883.50
17	Boring (Road Crossings)	21,765	\$11.00	\$14.00	\$239,415.00	\$304,710.00	\$272,062.50
18	Direct Bury / Vibratory Plow	56,588	\$3.00	\$5.50	\$169,764.00	\$311,234.00	\$240,499.00
19	17x30x24 Handhole Installation	145	\$200.00	\$375.00	\$29,019.00	\$54,410.63	\$41,714.81
20	FOSC Assembly and Installation	73	\$100.00	\$150.00	\$7,254.75	\$10,882.13	\$9,068.44
21	Drop Construction - Per Drop Includes Materials	188	\$500.00	\$800.00	\$94,000.00	\$150,400.00	\$122,200.00
22	Splicing - Per Splice	664	\$15.00	\$25.00	\$9,960.00	\$16,600.00	\$13,280.00
27	Total:				\$881,436.31	\$1,339,226.40	\$1,110,331.36
28							
29	Notes/Assumptions:						

S#	ITEM	VALUE
S2	Total Materials	\$326,623.11
S3	Total Labor	\$783,708.25
S4	Segment Construction Only Total	\$1,110,331.36

Residential Area Shelter & Equipment

	VARIABLE	VALUE	NOTES
V1			
V2	Buildings Connected	180	
V3	Optimism	5	0-10 scale used in Best Estimate column (10 is best)

	ITEM/PROJECT	UNITS	COST(LOW)	COST(HIGH)	TOTAL (LOW)	TOTAL (HIGH)	BEST ESTIMATE (WEIGHTED AVERAGE)
2	Equipment Rack	0	\$175.00	\$275.00	\$0.00	\$0.00	\$0.00
3	Patch Panels	2	\$800.00	\$1,250.00	\$1,600.00	\$2,500.00	\$2,050.00
4	Access Equipment	8	\$3,500.00	\$5,000.00	\$28,000.00	\$40,000.00	\$34,000.00
5	Access Optics	90	\$150.00	\$200.00	\$13,500.00	\$18,000.00	\$15,750.00
6	Backup Power Supplies	1	\$260.00	\$310.00	\$260.00	\$310.00	\$285.00
7	10G Optics	4	\$600.00	\$750.00	\$2,400.00	\$3,000.00	\$2,700.00
9	Customer Premise Equipment	180	\$200.00	\$300.00	\$36,000.00	\$54,000.00	\$45,000.00
9					\$81,760.00	\$117,810.00	\$99,785.00
10	Pre-fabricated concrete shelter (6'x8')	1	\$19,000.00	\$22,000.00	\$19,000.00	\$22,000.00	\$20,500.00
11	Shipping and crane rental	1	\$1,500.00	\$2,500.00	\$1,500.00	\$2,500.00	\$2,000.00
12	Shelter construction (labor + materials)	1	\$8,000.00	\$13,500.00	\$8,000.00	\$13,500.00	\$10,750.00
13	Generator foundation (labor + materials)	1	\$1,000.00	\$1,750.00	\$1,000.00	\$1,750.00	\$1,375.00
14	7kW Generator	1	\$3,000.00	\$4,000.00	\$3,000.00	\$4,000.00	\$3,500.00
15	36x48x36 inch telecom vault	1	\$450.00	\$750.00	\$450.00	\$750.00	\$600.00
16	36x48 inch telecom vault lid (split, heavy duty)	1	\$300.00	\$500.00	\$300.00	\$500.00	\$400.00
17	Vault installation	1	\$2,000.00	\$3,500.00	\$2,000.00	\$3,500.00	\$2,750.00
18	Shelter signage and landscaping	1	\$500.00	\$1,000.00	\$500.00	\$1,000.00	\$750.00
19					\$35,750.00	\$49,500.00	\$42,625.00
20							
21	Notes/Assumptions:						

	ITEM	VALUE
S1		
S2	Core Equipment & Pre-fab shelters	\$142,410.00

Business Park Extension

V1	VARIABLE	VALUE	NOTES
V2	Aerial Construction percentage	0.00%	
V3	Trenching percentage	10.00%	
V4	Boring percentage	25.00%	
V5	Direct Bury percentage	65.00%	
V6	Linear construction length	16,280 feet	Length of segment in feet.
V7	Conduit Exists	0 feet	
V8	Utility poles	0 poles	
V9	Handholes	27	Number of handholes for the segment.
V10	FOSCs	14	
V11	Optimism	5	0-10 scale used in Best Estimate column (10 is best)
V12	Buildings Passed	75	
V13	Take Rate	30.00%	
V14	Drop Construction	23	

#	ITEM/PROJECT	UNITS	COST(LOW)	COST(HIGH)	TOTAL (LOW)	TOTAL (HIGH)	BEST ESTIMATE (WEIGHTED AVERAGE)
1	Generic 1.5" Conduit	2 16,280	\$0.40	\$0.60	\$13,024.00	\$19,536.00	\$16,280.00
2	Buried Fiber Marker Posts/Medallions	33	\$10.00	\$14.00	\$330.00	\$462.00	\$396.00
3	144 Strand Loose Tube FOC (144ct average)	16,280	\$1.20	\$1.50	\$19,536.00	\$24,420.00	\$21,978.00
4	Slack Fiber (50' - hand hole)	1,357	\$1.20	\$1.50	\$1,628.00	\$2,035.00	\$1,831.50
5	Trace Wire - Insulated 12AWG or Better	16,280	\$0.25	\$0.55	\$4,070.00	\$8,954.00	\$6,512.00
6	Muletape 1250P (3000ft reel) or equivalent	6	\$139.00	\$179.00	\$834.00	\$1,074.00	\$954.00
7	Handhole - 17x30x24 Concrete Polymer	27	\$150.00	\$300.00	\$4,070.00	\$8,140.00	\$6,105.00
8	Handhole Lid - Traffic Rated	27	\$100.00	\$200.00	\$2,713.33	\$5,426.67	\$4,070.00
9	Handhole Installation Materials (Gravel, Straw, etc.)	27	\$15.00	\$20.00	\$407.00	\$542.67	\$474.83
10	FOSC - 144 Count w/ Trays	14	\$125.00	\$250.00	\$1,695.83	\$3,391.67	\$2,543.75
11							
12	Aerial Cable Placement	0	\$2.50	\$8.00	\$0.00	\$0.00	\$0.00
13	Make Ready Heavy	0	\$450.00	\$1,000.00	\$0.00	\$0.00	\$0.00
14	Make Ready Light	0	\$200.00	\$450.00	\$0.00	\$0.00	\$0.00
15	Pole Replacement	0	\$1,200.00	\$2,400.00	\$0.00	\$0.00	\$0.00
16	Trenching	1,628	\$8.50	\$11.00	\$13,838.00	\$17,908.00	\$15,873.00
17	Boring (Road Crossings)	4,070	\$11.00	\$14.00	\$44,770.00	\$56,980.00	\$50,875.00
18	Direct Bury / Vibratory Plow	10,582	\$3.00	\$5.50	\$31,746.00	\$58,201.00	\$44,973.50
19	17x30x24 Handhole Installation	27	\$200.00	\$375.00	\$5,426.67	\$10,175.00	\$7,800.83
20	FOSC Assembly and Installation	14	\$100.00	\$150.00	\$1,356.67	\$2,035.00	\$1,695.83
21	Drop Construction - Per Drop Includes Materials	23	\$500.00	\$800.00	\$11,500.00	\$18,400.00	\$14,950.00
22	Splicing - Per Splice	334	\$15.00	\$25.00	\$5,010.00	\$8,350.00	\$6,680.00
27	Total:				\$161,955.50	\$246,031.00	\$203,993.25
28							
29	Notes/Assumptions:						

S1	ITEM	VALUE
S2	Total Materials	\$61,145.08
S3	Total Labor	\$142,848.17
S4	Segment Construction Only Total	\$203,993.25

Business Park Shelter & Equipment

V1	VARIABLE	VALUE	NOTES
V2	Buildings Connected	19	
V3	Optimism	5	0-10 scale used in Best Estimate column (10 is best)

I	ITEM/PROJECT	UNITS	COST(LOW)	COST(HIGH)	TOTAL (LOW)	TOTAL (HIGH)	BEST ESTIMATE (WEIGHTED AVERAGE)
2	Equipment Rack	0	\$175.00	\$275.00	\$0.00	\$0.00	\$0.00
3	Patch Panels	2	\$800.00	\$1,250.00	\$1,600.00	\$2,500.00	\$2,050.00
4	Access Equipment	1	\$3,500.00	\$5,000.00	\$3,500.00	\$5,000.00	\$4,250.00
5	Access Optics	10	\$150.00	\$200.00	\$1,425.00	\$1,900.00	\$1,662.50
6	Backup Power Supplies	1	\$260.00	\$310.00	\$260.00	\$310.00	\$285.00
7	10G Optics	2	\$600.00	\$750.00	\$1,200.00	\$1,500.00	\$1,350.00
8	Customer Premise Equipment	19	\$200.00	\$300.00	\$3,800.00	\$5,700.00	\$4,750.00
9					\$11,785.00	\$16,910.00	\$14,347.50
10	Pre-fabricated concrete shelter (6'x8')	1	\$19,000.00	\$22,000.00	\$19,000.00	\$22,000.00	\$20,500.00
11	Shipping and crane rental	1	\$1,500.00	\$2,500.00	\$1,500.00	\$2,500.00	\$2,000.00
12	Shelter construction (labor + materials)	1	\$8,000.00	\$13,500.00	\$8,000.00	\$13,500.00	\$10,750.00
13	Generator foundation (labor + materials)	1	\$1,000.00	\$1,750.00	\$1,000.00	\$1,750.00	\$1,375.00
14	7kW Generator	1	\$3,000.00	\$4,000.00	\$3,000.00	\$4,000.00	\$3,500.00
15	36x48x36 inch telecom vault	1	\$450.00	\$750.00	\$450.00	\$750.00	\$600.00
16	36x48 inch telecom vault lid (split, heavy duty)	1	\$300.00	\$500.00	\$300.00	\$500.00	\$400.00
17	Vault installation	1	\$2,000.00	\$3,500.00	\$2,000.00	\$3,500.00	\$2,750.00
18	Shelter signage and landscaping	1	\$500.00	\$1,000.00	\$500.00	\$1,000.00	\$750.00
19					\$35,750.00	\$49,500.00	\$42,625.00
20							
21	Notes/Assumptions:						

S1	ITEM	VALUE
S2	Core Equipment & Pre-fab shelters	\$56,972.50

Madison Memorial Hospital Area Extension

V#	VARIABLE	VALUE	NOTES
V2	Aerial Construction percentage	0.00%	
V3	Trenching percentage	10.00%	
V4	Boring percentage	25.00%	
V5	Direct Bury percentage	65.00%	
V6	Linear construction length	2,640 feet	Length of segment in feet.
V7	Conduit Exists	0 feet	
V8	Utility poles	0 poles	
V9	Handholes	4	Number of handholes for the segment.
V10	FOSCs	2	
V11	Optimism	5	0-10 scale used in Best Estimate column (10 is best)
V12	Buildings Passed	15	
V13	Take Rate	30.00%	
V14	Drop Construction	5	

#	ITEM/PROJECT	UNITS	COST(LOW)	COST(HIGH)	TOTAL (LOW)	TOTAL (HIGH)	BEST ESTIMATE (WEIGHTED AVERAGE)
1	Generic 1.5" Conduit	2, 2,640	\$0.40	\$0.60	\$2,112.00	\$3,168.00	\$2,640.00
2	Buried Fiber Marker Posts/Medallions	6	\$10.00	\$14.00	\$60.00	\$84.00	\$72.00
3	144 Strand Loose Tube FOC (144ct average)	2,640	\$1.20	\$1.50	\$3,168.00	\$3,960.00	\$3,564.00
4	Slack Fiber (50' - hand hole)	220	\$1.20	\$1.50	\$264.00	\$330.00	\$297.00
5	Trace Wire - Insulated 12AWG or Better	2,640	\$0.25	\$0.55	\$660.00	\$1,452.00	\$1,056.00
6	Muletape 1250P (3000ft reel) or equivalent	1	\$139.00	\$179.00	\$139.00	\$179.00	\$159.00
7	Handhole - 17x30x24 Concrete Polymer	4	\$150.00	\$300.00	\$660.00	\$1,320.00	\$990.00
8	Handhole Lid - Traffic Rated	4	\$100.00	\$200.00	\$440.00	\$880.00	\$660.00
9	Handhole Installation Materials (Gravel, Straw, etc.)	4	\$15.00	\$20.00	\$66.00	\$88.00	\$77.00
10	FOSC - 144 Count w/ Trays	2	\$125.00	\$250.00	\$275.00	\$550.00	\$412.50
11							
12	Aerial Cable Placement	0	\$2.50	\$8.00	\$0.00	\$0.00	\$0.00
13	Make Ready Heavy	0	\$450.00	\$1,000.00	\$0.00	\$0.00	\$0.00
14	Make Ready Light	0	\$200.00	\$450.00	\$0.00	\$0.00	\$0.00
15	Pole Replacement	0	\$1,200.00	\$2,400.00	\$0.00	\$0.00	\$0.00
16	Trenching	264	\$8.50	\$11.00	\$2,244.00	\$2,904.00	\$2,574.00
17	Boring (Road Crossings)	660	\$11.00	\$14.00	\$7,260.00	\$9,240.00	\$8,250.00
18	Direct Bury / Vibratory Plow	1,716	\$3.00	\$5.50	\$5,148.00	\$9,438.00	\$7,293.00
19	17x30x24 Handhole Installation	4	\$200.00	\$375.00	\$880.00	\$1,650.00	\$1,265.00
20	FOSC Assembly and Installation	2	\$100.00	\$150.00	\$220.00	\$330.00	\$275.00
21	Drop Construction - Per Drop Includes Materials	5	\$500.00	\$800.00	\$2,500.00	\$4,000.00	\$3,250.00
22	Splicing - Per Splice	298	\$15.00	\$25.00	\$4,470.00	\$7,450.00	\$5,960.00
27	Total:				\$30,566.00	\$47,023.00	\$38,794.50
28							
29	Notes/Assumptions:						

S#	ITEM	VALUE
S2	Total Materials	\$9,927.50
S3	Total Labor	\$28,867.00
S4	Segment Construction Only Total	\$38,794.50

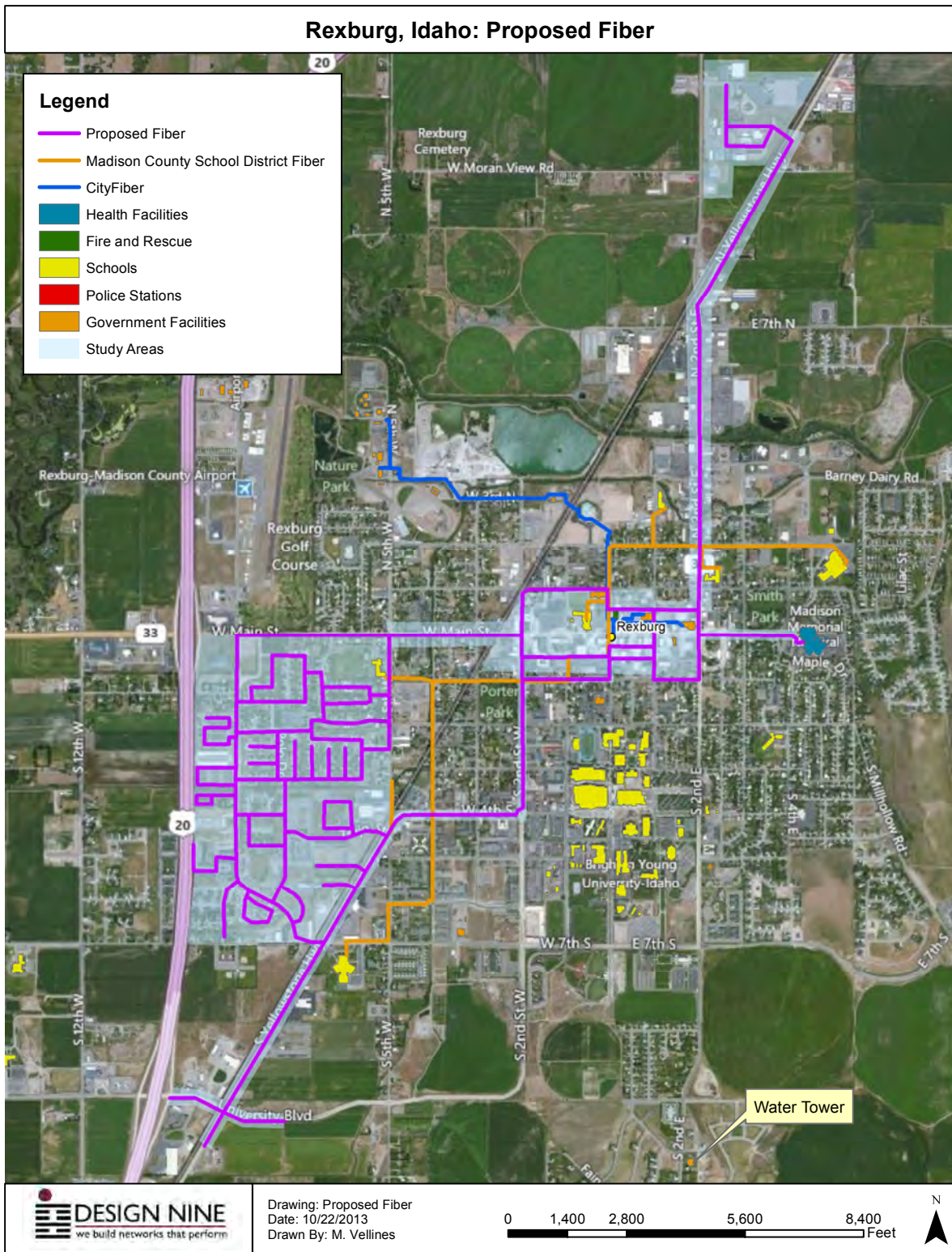
Madison Memorial Hospital Shelter & Equipment

V1	VARIABLE	VALUE	NOTES
V2	Buildings Connected	5	
V3	Optimism	5	0-10 scale used in Best Estimate column (10 is best)

I	ITEM/PROJECT	UNITS	COST(LOW)	COST(HIGH)	TOTAL (LOW)	TOTAL (HIGH)	BEST ESTIMATE (WEIGHTED AVERAGE)
2	Equipment Rack	0	\$175.00	\$275.00	\$0.00	\$0.00	\$0.00
3	Patch Panels	2	\$800.00	\$1,250.00	\$1,600.00	\$2,500.00	\$2,050.00
4	Access Equipment	1	\$3,500.00	\$5,000.00	\$3,500.00	\$5,000.00	\$4,250.00
5	Access Optics	3	\$150.00	\$200.00	\$375.00	\$500.00	\$437.50
6	Backup Power Supplies	1	\$260.00	\$310.00	\$260.00	\$310.00	\$285.00
7	10G Optics	2	\$600.00	\$750.00	\$1,200.00	\$1,500.00	\$1,350.00
8	Customer Premise Equipment	5	\$200.00	\$300.00	\$1,000.00	\$1,500.00	\$1,250.00
9					\$7,935.00	\$11,310.00	\$9,622.50
10	Pre-fabricated concrete shelter (6'x8')	1	\$19,000.00	\$22,000.00	\$19,000.00	\$22,000.00	\$20,500.00
11	Shipping and crane rental	1	\$1,500.00	\$2,500.00	\$1,500.00	\$2,500.00	\$2,000.00
12	Shelter construction (labor + materials)	1	\$8,000.00	\$13,500.00	\$8,000.00	\$13,500.00	\$10,750.00
13	Generator foundation (labor + materials)	1	\$1,000.00	\$1,750.00	\$1,000.00	\$1,750.00	\$1,375.00
14	7kW Generator	1	\$3,000.00	\$4,000.00	\$3,000.00	\$4,000.00	\$3,500.00
15	36x48x36 inch telecom vault	1	\$450.00	\$750.00	\$450.00	\$750.00	\$600.00
16	36x48 inch telecom vault lid (split, heavy duty)	1	\$300.00	\$500.00	\$300.00	\$500.00	\$400.00
17	Vault installation	1	\$2,000.00	\$3,500.00	\$2,000.00	\$3,500.00	\$2,750.00
18	Shelter signage and landscaping	1	\$500.00	\$1,000.00	\$500.00	\$1,000.00	\$750.00
19					\$35,750.00	\$49,500.00	\$42,625.00
20							
21	Notes/Assumptions:						

S1	ITEM	VALUE
S2	Core Equipment & Pre-fab shelters	\$52,247.50

Rexburg Map



Wireless Cost Estimate

Rexburg, Idaho - Project Summary

#	ITEM/PROJECT	Total
1	Sugar City to Teton, ID Wireless Link	\$162,650.00
2	Teton to Newdale, ID Wireless Link	\$88,075.00
3	Construction Subtotal	\$250,725.00
4	Contingencies	\$25,072.50
5	Engineering, Project Management, Network Integration, Testing	\$50,145.00
6	Permitting Fees and Costs	\$12,536.25
7	Other Costs Subtotal	\$87,753.75
8	Project Total	\$338,478.75
9	<p>Notes/Assumptions:</p> <p>The list of potential wireless links are:</p> <ul style="list-style-type: none"> 3 tower link - Sugar City to Teton to Newdale; 3 tower link - Rexburg to Burton to Hibbard; 3 tower link - Thornton to Lyman to Archer; 2 tower link - St. Anthony to Parker; and 2 tower link - Driggs to Alta. <p>A 3 tower wireless link cost would be equivalent to both estimates above A 2 tower wireless link cost would be equivalent to the Sugar City to Teton estimate above</p>	

Sugar City to Teton, ID Wireless

V1	VARIABLE	VALUE	NOTES
V2	Optimism	5	0-10 scale used in Best Estimate column (10 is best)
V3	Potential Connections		
V4	Take Rate		
V5	Drop Construction	0	

#	ITEM/PROJECT	UNITS	COST(LOW)	COST(HIGH)	TOTAL (LOW)	TOTAL (HIGH)	BEST ESTIMATE (WEIGHTED AVERAGE)
1	120° Wireless Sector (Radio & Antenna)	12	\$180.00	\$220.00	\$2,160.00	\$2,640.00	\$2,400.00
2	Licensed Wireless Point to Point (Radio and Antenna)	2	\$5,500.00	\$8,000.00	\$11,000.00	\$16,000.00	\$13,500.00
3	Outdoor Cat5e (Spool)	10	\$150.00	\$250.00	\$1,500.00	\$2,500.00	\$2,000.00
4	Hardware and Installation Materials	10	\$250.00	\$500.00	\$2,500.00	\$5,000.00	\$3,750.00
5	7 kW Generator (Liquid Propane)	2	\$3,000.00	\$4,000.00	\$6,000.00	\$8,000.00	\$7,000.00
6	Small Telecom Cabinet	2	\$3,500.00	\$4,500.00	\$7,000.00	\$9,000.00	\$8,000.00
7	Tower Site Router	2	\$350.00	\$450.00	\$700.00	\$900.00	\$800.00
8	Backup Power Supplies (UPS)	2	\$650.00	\$850.00	\$1,300.00	\$1,700.00	\$1,500.00
9	Customer Premise Equipment (CPE)	50	\$300.00	\$400.00	\$15,000.00	\$20,000.00	\$17,500.00
10	Equipment Installation Labor (Hours)	40	\$300.00	\$400.00	\$12,000.00	\$16,000.00	\$14,000.00
11	Tower Mounting Hardware	2	\$6,000.00	\$8,000.00	\$12,000.00	\$16,000.00	\$14,000.00
12	Ice Protection	2	\$2,000.00	\$3,000.00	\$4,000.00	\$6,000.00	\$5,000.00
13	Power Meter Base	2	\$500.00	\$700.00	\$1,000.00	\$1,400.00	\$1,200.00
14	120' Guyed Tower Construction (Materials & Labor)	2	\$19,000.00	\$23,000.00	\$38,000.00	\$46,000.00	\$42,000.00
15	Road Installation	2	\$12,000.00	\$18,000.00	\$24,000.00	\$36,000.00	\$30,000.00
16					\$0.00	\$0.00	\$0.00
17					\$0.00	\$0.00	\$0.00
18					\$0.00	\$0.00	\$0.00
19					\$0.00	\$0.00	\$0.00
20					\$0.00	\$0.00	\$0.00
21					\$0.00	\$0.00	\$0.00
22					\$0.00	\$0.00	\$0.00
23					\$0.00	\$0.00	\$0.00
24					\$0.00	\$0.00	\$0.00
25					\$0.00	\$0.00	\$0.00
26					\$0.00	\$0.00	\$0.00
27	Total:				\$138,160.00	\$187,140.00	\$162,650.00
28							
29	Notes/Assumptions: Estimate based on installing two towers, one in Sugar City and one in Teton, ID.						

S1	ITEM	VALUE
S4	Segment Construction Only Total	\$162,650.00

Teton to Newdale, ID Wireless

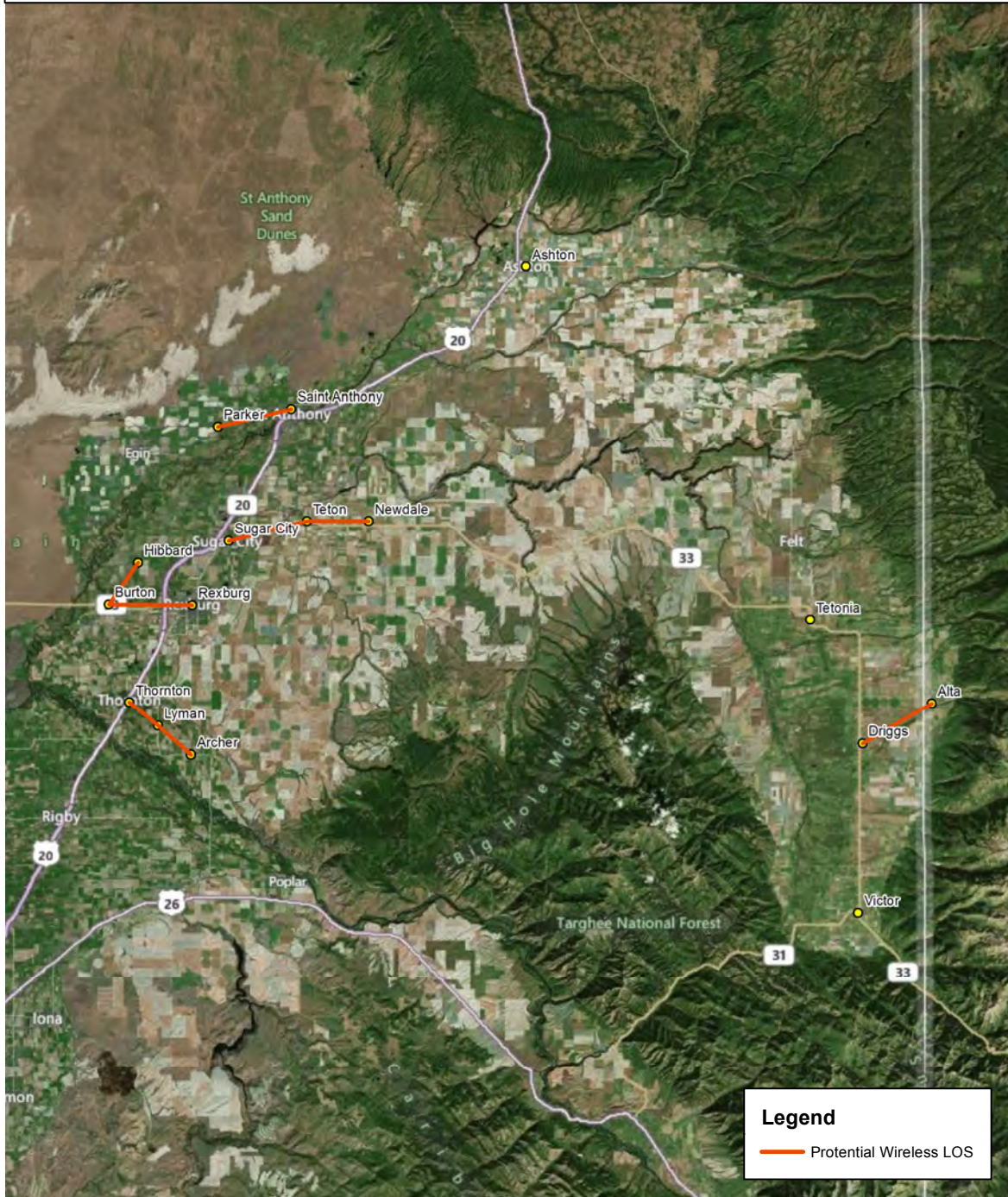
V1	VARIABLE	VALUE	NOTES
V2	Optimism	5	0-10 scale used in Best Estimate column (10 is best)
V3	Potential Connections		
V4	Take Rate		
V5	Drop Construction	0	

#	ITEM/PROJECT	UNITS	COST(LOW)	COST(HIGH)	TOTAL (LOW)	TOTAL (HIGH)	BEST ESTIMATE (WEIGHTED AVERAGE)
1	120° Wireless Sector (Radio & Antenna)	6	\$180.00	\$220.00	\$1,080.00	\$1,320.00	\$1,200.00
2	Licensed Wireless Point to Point (Radio and Antenna)	2	\$5,500.00	\$8,000.00	\$11,000.00	\$16,000.00	\$13,500.00
3	Outdoor Cat5e (Spool)	5	\$150.00	\$250.00	\$750.00	\$1,250.00	\$1,000.00
4	Hardware and Installation Materials	5	\$250.00	\$500.00	\$1,250.00	\$2,500.00	\$1,875.00
5	7 kW Generator (Liquid Propane)	1	\$3,000.00	\$4,000.00	\$3,000.00	\$4,000.00	\$3,500.00
6	Small Telecom Cabinet	1	\$3,500.00	\$4,500.00	\$3,500.00	\$4,500.00	\$4,000.00
7	Tower Site Router	1	\$350.00	\$450.00	\$350.00	\$450.00	\$400.00
8	Backup Power Supplies (UPS)	1	\$650.00	\$850.00	\$650.00	\$850.00	\$750.00
9	Customer Premise Equipment (CPE)	25	\$300.00	\$400.00	\$7,500.00	\$10,000.00	\$8,750.00
10	Equipment Installation Labor (Hours)	20	\$300.00	\$400.00	\$6,000.00	\$8,000.00	\$7,000.00
11	Tower Mounting Hardware	1	\$6,000.00	\$8,000.00	\$6,000.00	\$8,000.00	\$7,000.00
12	Ice Protection	1	\$2,000.00	\$3,000.00	\$2,000.00	\$3,000.00	\$2,500.00
13	Power Meter Base	1	\$500.00	\$700.00	\$500.00	\$700.00	\$600.00
14	120' Guyed Tower Construction (Materials & Labor)	1	\$19,000.00	\$23,000.00	\$19,000.00	\$23,000.00	\$21,000.00
15	Road Installation	1	\$12,000.00	\$18,000.00	\$12,000.00	\$18,000.00	\$15,000.00
16					\$0.00	\$0.00	\$0.00
17					\$0.00	\$0.00	\$0.00
18					\$0.00	\$0.00	\$0.00
19					\$0.00	\$0.00	\$0.00
20					\$0.00	\$0.00	\$0.00
21					\$0.00	\$0.00	\$0.00
22					\$0.00	\$0.00	\$0.00
23					\$0.00	\$0.00	\$0.00
24					\$0.00	\$0.00	\$0.00
25					\$0.00	\$0.00	\$0.00
26					\$0.00	\$0.00	\$0.00
27	Total:				\$74,580.00	\$101,570.00	\$88,075.00
28							
29	Notes/Assumptions: Estimate based on construction of Teton, ID wireless link already installed.						

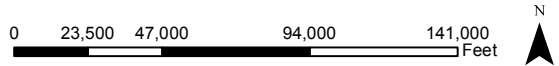
S1	ITEM	VALUE
S4	Segment Construction Only Total	\$88,075.00

Wireless Map

Rexburg, Idaho: Potential Wireless Links



Drawing: Potential Wireless Links
Date: 8/6/2013
Drawn By: M. Vellines

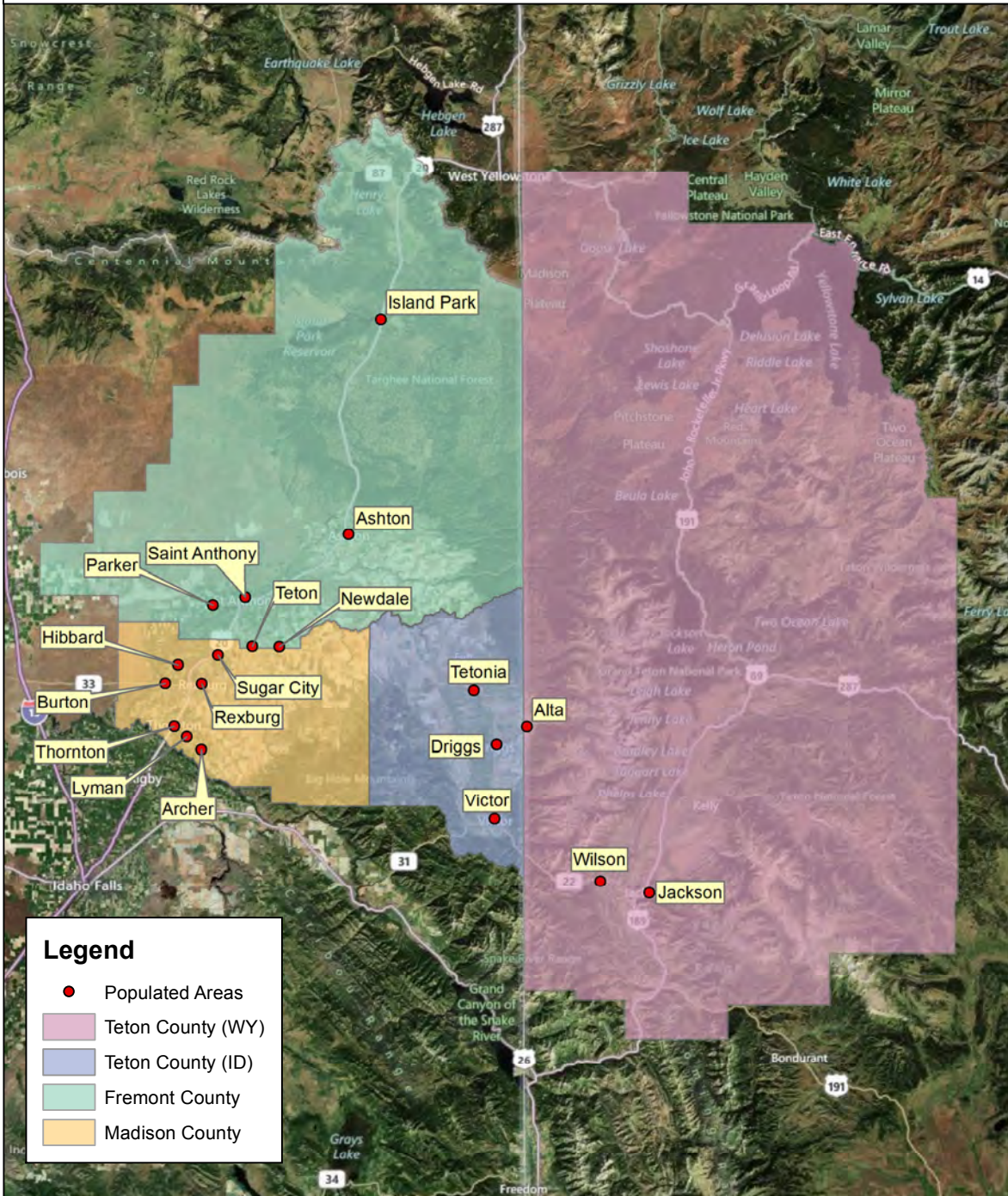


Region Maps

The maps listed below follow this list in the report and represent the region mapping. These maps show the locations of the Counties involved in this study as well as the towns and cities that have been evaluated.

- Overall Region Map
- Teton County (WY)
- Teton County (ID)
- Fremont County
- Madison County
- City and School District Fiber Map

Rexburg

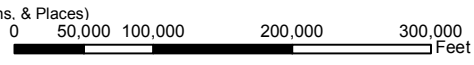


Legend

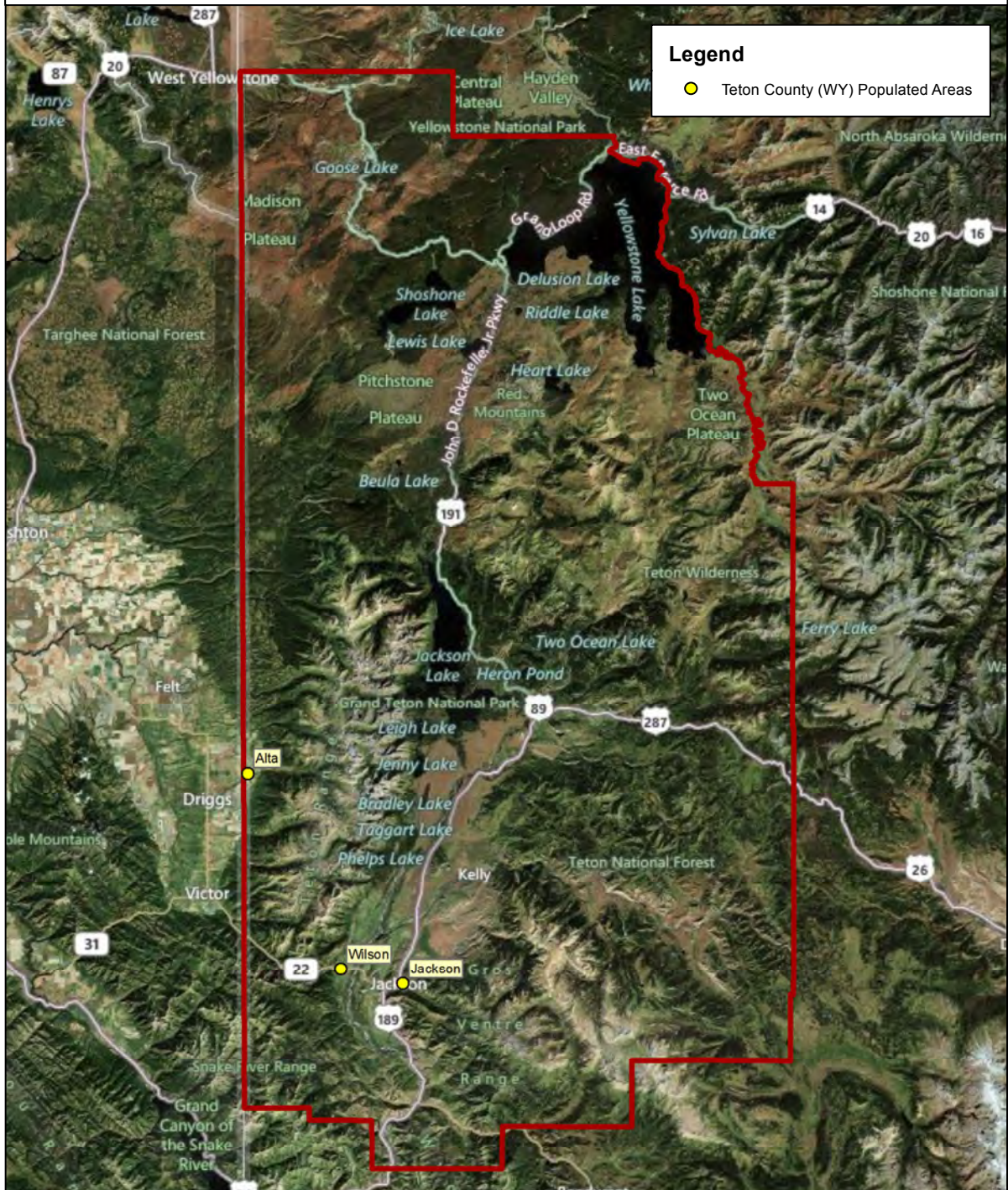
- Populated Areas
- Teton County (WY)
- Teton County (ID)
- Fremont County
- Madison County



Drawing: Populated Areas (Cities, Towns, & Places)
 Date: 3/1/2013
 Drawn By: M. Vellines



Teton County (WY)



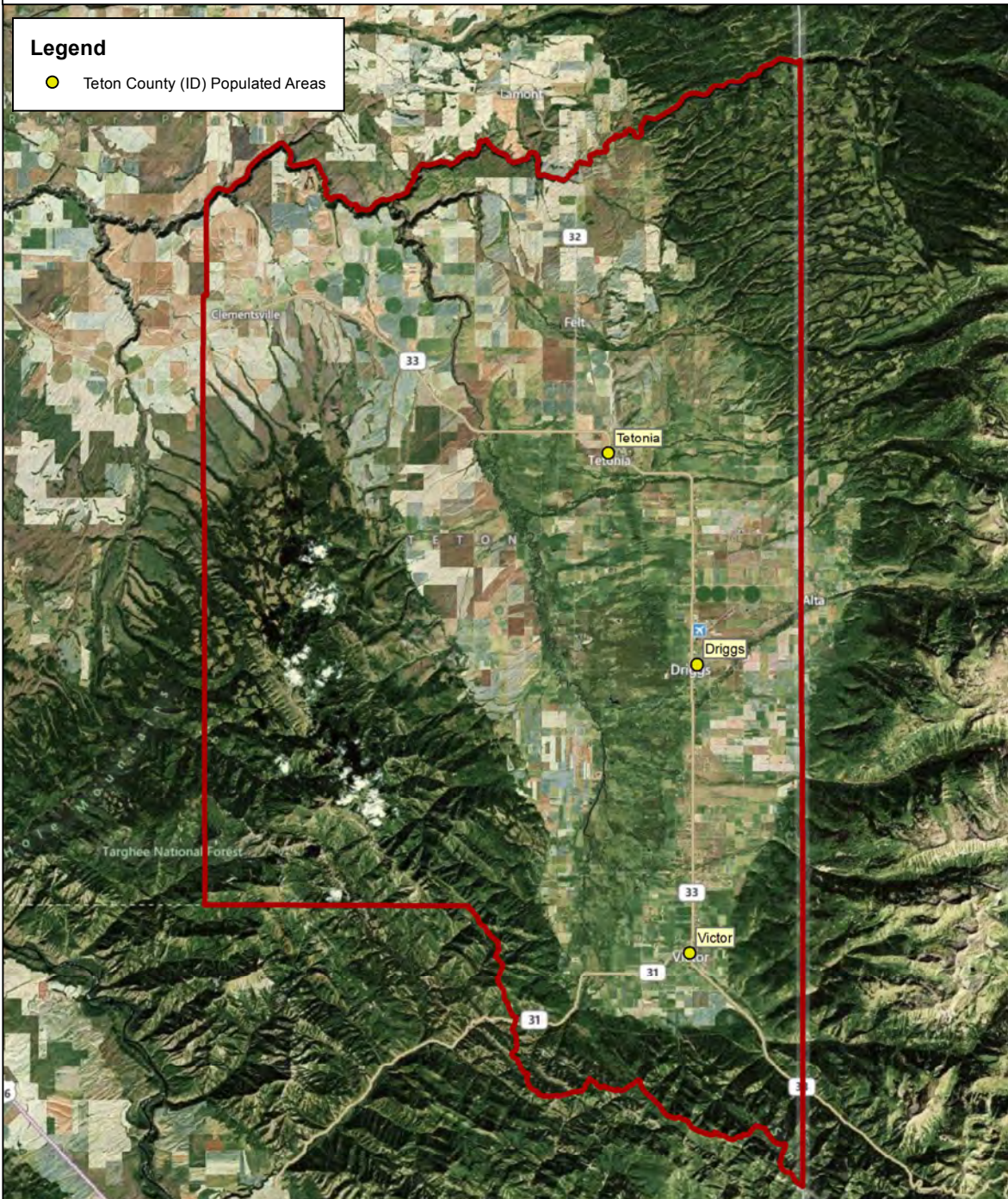
Legend
 ● Teton County (WY) Populated Areas

	<p>Drawing: Populated Areas (Cities, Towns, & Places) Date: 3/1/2013 Drawn By: M. Vellines</p> <p style="text-align: right;">0 42,000 84,000 168,000 252,000 Feet</p> <div style="text-align: right;"> </div>
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Teton County (ID)

Legend

● Teton County (ID) Populated Areas



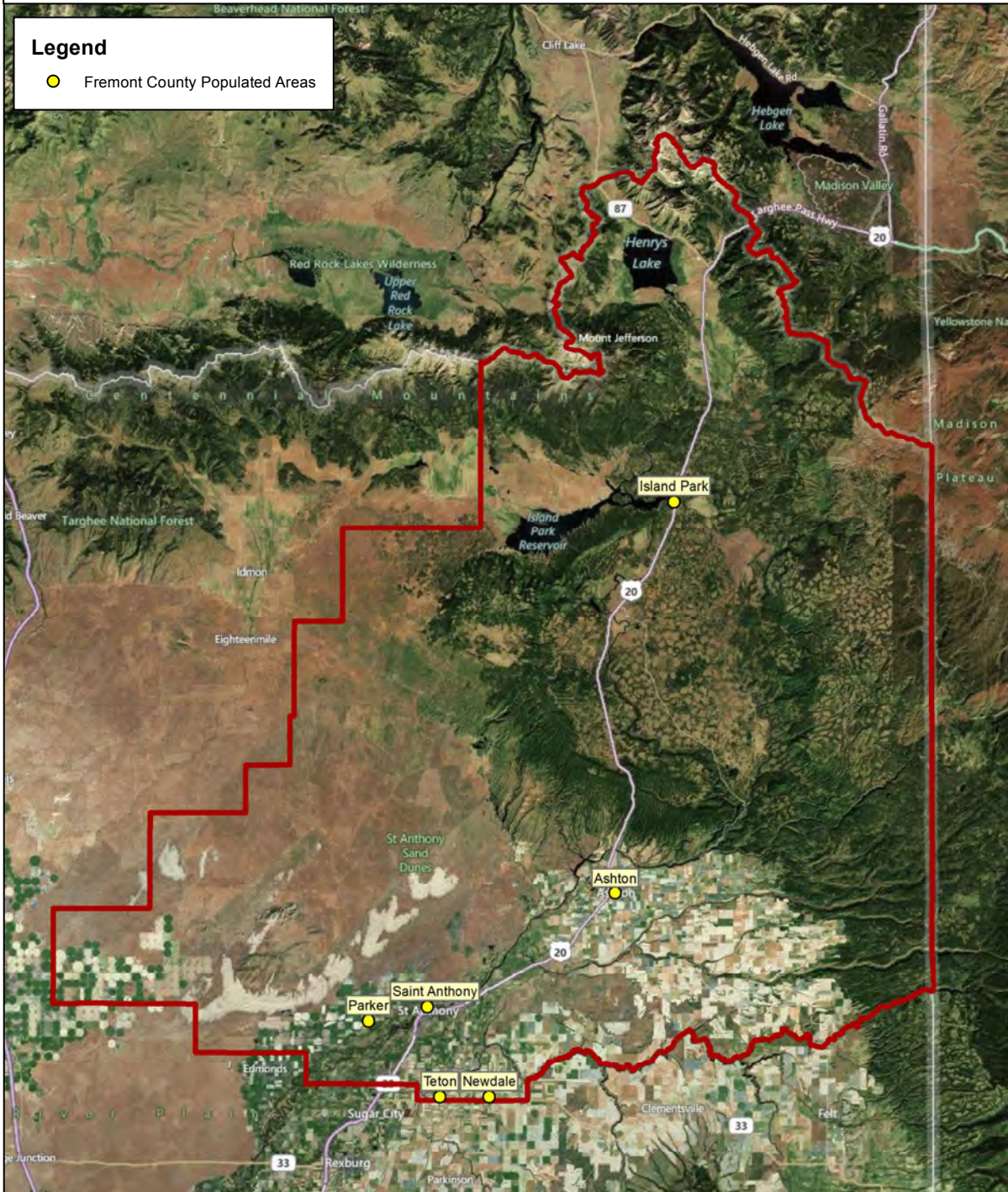
Drawing: Populated Areas (Cities, Towns, & Places)
Date: 3/1/2013
Drawn By: M. Vellines



Fremont County

Legend

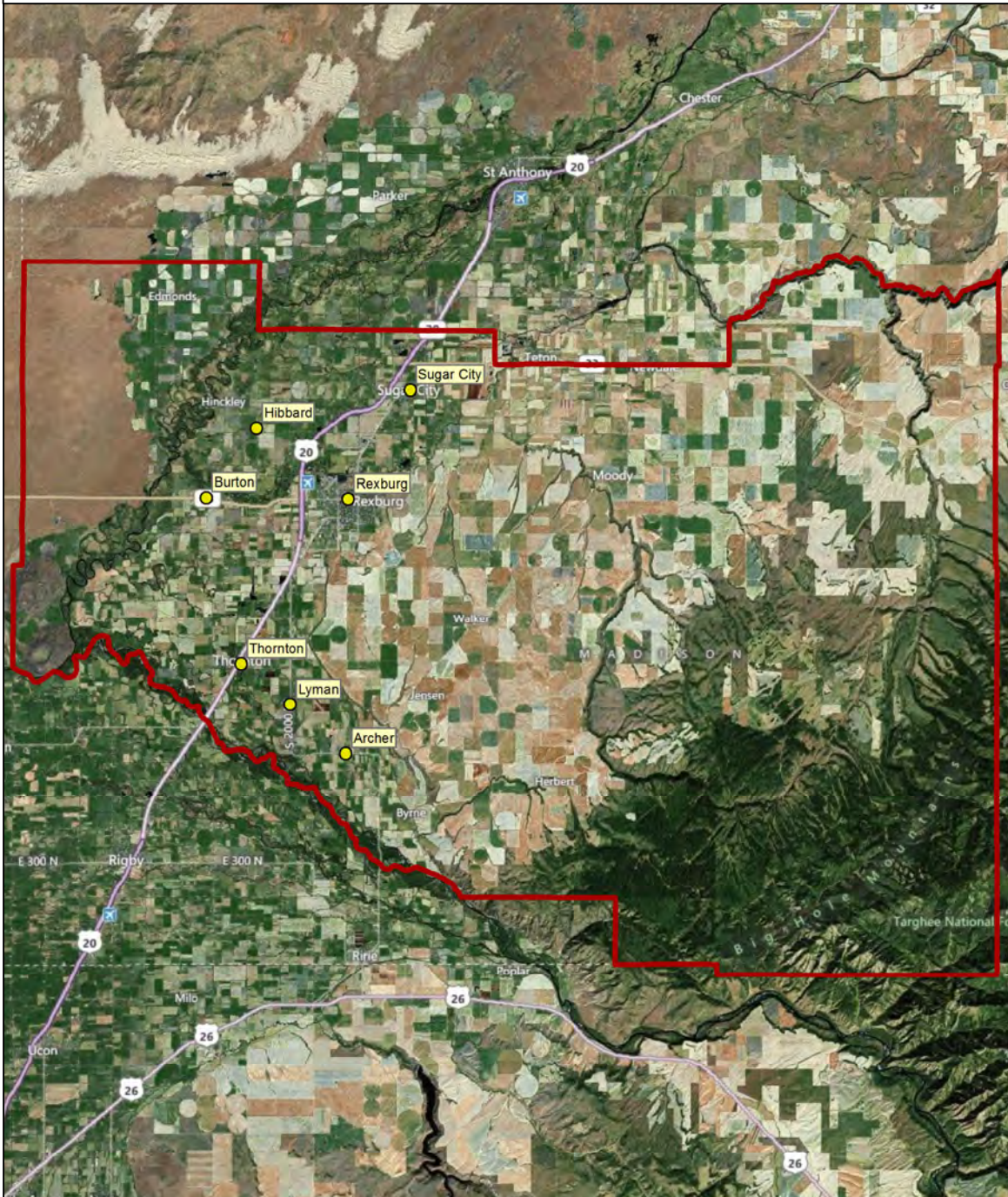
- Fremont County Populated Areas



Drawing: Populated Areas (Cities, Towns, & Places)
Date: 3/1/2013
Drawn By: M. Vellines



Madison County



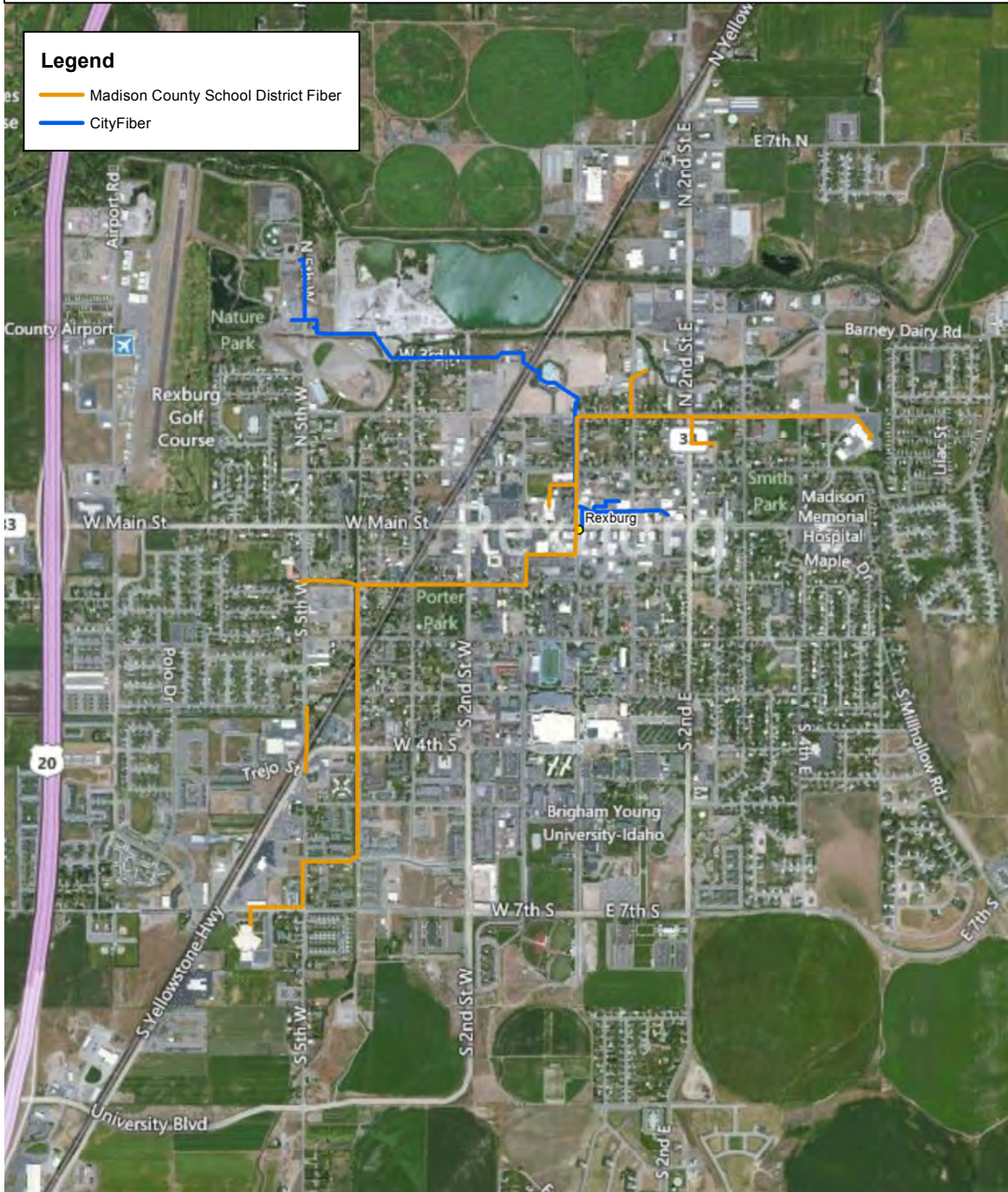
Drawing: Populated Areas (Cities, Towns, & Places)
Date: 3/1/2013
Drawn By: M. Vellines



Rexburg, Idaho: City & School District Fiber

Legend

- Madison County School District Fiber
- CityFiber



Drawing: City & School District Fiber
Date: 10/24/2013
Drawn By: M. Vellines

