

IOWA DEPARTMENT OF HOMELAND SECURITY & EMERGENCY MANAGEMENT

Plan on Virtual 911 Consolidation 2018



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Introduction

The Iowa Department of Homeland Security and Emergency Management respectfully submits this Plan for Consolidation of the Next Generation (NG) 911 network as directed by 2017 Iowa Acts, Senate File 500. The bill directed the Department to:

Develop a plan that identifies the process required to combine the wireline 911 network with the next generation 911 network. The plan shall describe anticipated costs associated with the development, deployment, operation, and maintenance of the combined next generation 911 network, and how the surcharge provided in chapter 34A may support implementation of such plan. The plan shall provide for the combined next generation 911 system to utilize shared services technology for the virtual consolidation of public safety answering point call processing equipment. The plan shall include suggested amendments to chapter 34A that may be needed to allow the implementation of the plan.

This report was preceded by a number of relevant studies which provided direction for the Department's efforts toward achieving the desired cost savings while leveraging the latest technology. The 2013 Iowa Acts House File 644, directed the Department to develop a methodology for determining and collecting comprehensive public safety answering point (PSAP) cost and expense data. This data was used to determine and report on the adequacy of the \$1 surcharge. The **initial report** was published in January 2016.

The data and findings from this cost study led to the 2016 Iowa Acts House File 2439, which directed the Department to study consolidation within the 911 system to achieve operational and cost efficiencies. **This report**, submitted in January 2017, recommended merging the wireline 911 traffic into the wireless next generation 911 network, along with creating a virtual host/remote environment for call processing equipment utilized by the public safety answering points within Iowa.

With those recommendations in hand, the Department, with the assistance of the Department of Administrative Services (DAS), let a request for proposal (RFP) for vendors to provide technological solutions and costs related to merging networks and the creation of a shared services environment. As a result of the RFP, the Iowa Communications Network was provided a Notice of Intent to Award for the network merging portion of the RFP and Zetron was provided a Notice of Intent to Award for the shared services component of the RFP. Contract negotiations are proceeding with both, however, contracts will not be executed until the needed amendments to Iowa Code § 34A are approved.

The Department estimates the State will save \$6.8 million over the course of five years by merging the legacy wireline 911 network into the NG911 network. The Department estimates the State could save \$5 million over three to five years by sharing PSAP 911 call-taking equipment, when 100 percent equipment replacement costs are considered. The Department would pay 100 percent of the costs for the PSAPs wishing to adopt this model. The RFP also provides additional services that could be

utilized by PSAPs. These additional services include computer aided dispatch (CAD), logging recorder, mapping, and emergency medical dispatch (EMD). Cost allocations for the additional services are more challenging to anticipate, and thus expenses cannot be fully defined. The Department anticipates some sort of cost-share model with local PSAPs who opt into these additional shared services. In this model, the Department would host the equipment while the PSAPs would function as remotes off the host. Detailed costs and cost savings will be outlined in the appropriate sections of the report.

In both network merging and shared services, the costs can be absorbed by the Department out of the current 40 percent of the wireless surcharge the Department receives. With the expenses for the combined 911 network and shared services now

the responsibility of the Department, local wireline 911 surcharge is freed up, giving local 911 service boards the flexibility to use the surcharge for new 911-related projects in accordance with Iowa Code § 34A. The Department's proposed legislation does not change the wireline surcharge process or the percentage of wireless surcharge revenue passed through to the local 911 service boards. In the former case, local 911 service boards would still receive the full dollar per wireline subscriber that is directly remitted to the service board. In the latter case, service boards would still receive 60 percent of the total wireless surcharge revenue received by the Department. The Department has the necessary funds required for both efforts through the operating surplus portion of the emergency communications service surcharge fund.

RFP Process

For the RFP, the Department contracted with DAS to help facilitate the process. The process for the evaluation of responses included initial review, demonstration, and final scoring. The evaluation committee was made up of both current and former 911 program managers from the Department, along with local stakeholders. The local stakeholders represented PSAPs of various sizes from all parts of the state who are users of various current call processing equipment (CPE) products. The Department also convened a technical panel to provide expertise during the RFP review and demonstration portions of the RFP

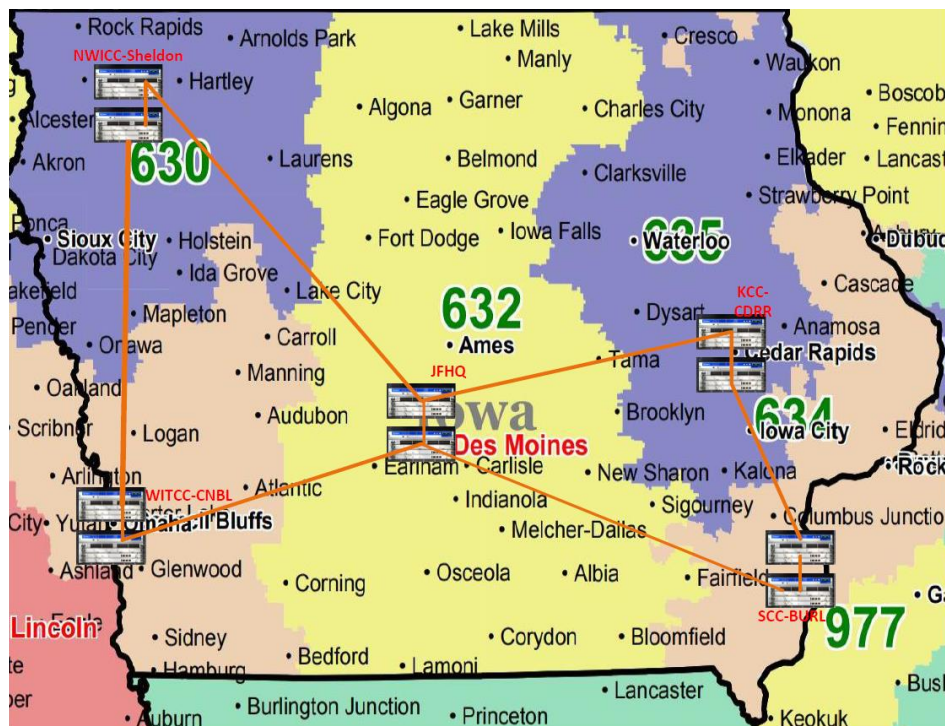
review. The technical panel did not participate in final scoring of the RFP. The Department also contracted with Federal Engineering/LR Kimball, an industry consulting firm, to review and evaluate the proposals as well as the evaluation committee's scoring. Technical scores were weighted 70 percent of the total score while the cost proposals were weighted at 30 percent. There were two proposals that solely bid for the network merging portion of the RFP. There were two proposals that solely bid for the shared services portion of the RFP. There were four proposals by vendors bidding on both components.

Network Merging

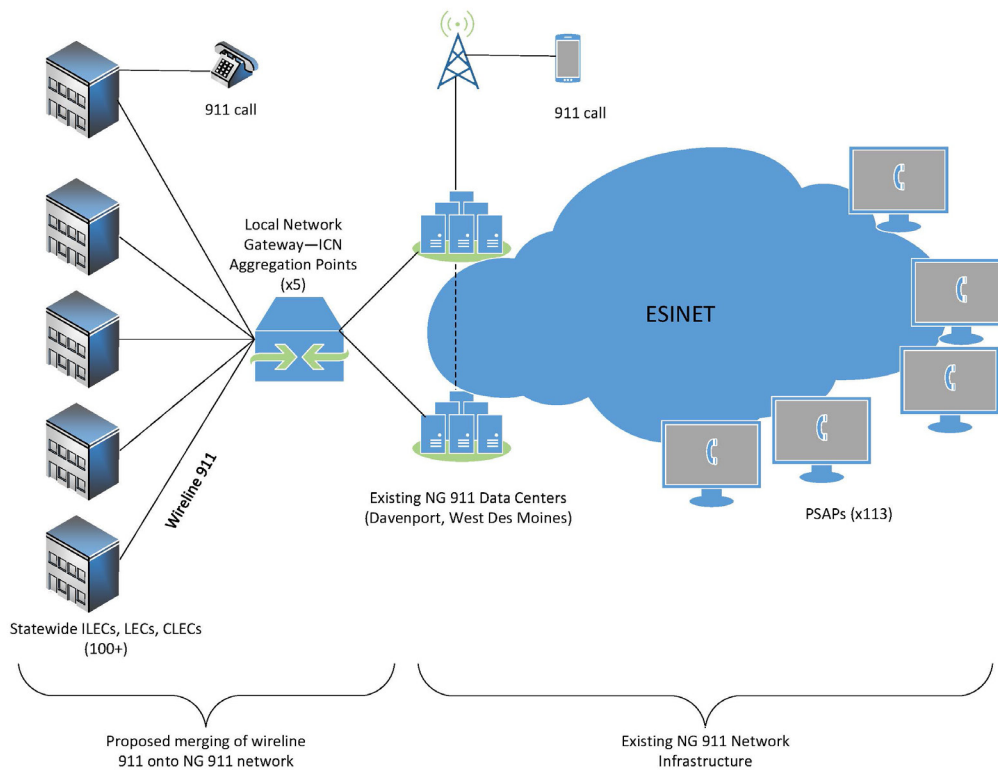
The network merging portion of the RFP was awarded to the ICN. The ICN proposed using five existing facilities within the state where wireline 911 traffic will be aggregated, converted to an Internet Protocol (IP) call, and transported to the NG911 network for call delivery to the appropriate PSAP for call answering and dispatching. Call flow is performed in milliseconds, with no human interaction in between the 911 caller and the local telecommunicator answering the call. The ICN would be a stand-alone, dedicated multiprotocol label switching (MPLS) network. The ICN would coordinate and reimburse local telcos for their actual costs associated with the migration of the local wireline traffic to the aggregation points and delivery to the NG911 network at a total, one-time cost of \$986,522.31.

Once fully built, the recurring cost of maintaining the wireline interface into the NG911 network would be \$1,261,811.80 annually. Currently, cost data shows that statewide, PSAPs pay an average of \$2.8 million dollars a year, or \$13.9 million over five years, for the same service. Even including initial design costs over five years, the State could realize an estimated cost savings of \$6.6 million.

A presentation by the ICN providing details on this proposal is available at the 39:30 minute mark in the following YouTube link: <https://www.youtube.com/watch?v=NXo8IHxI9hI>.



Merging of the wireline traffic for conversion to NG911 network.



Merging of wireline 911 on to NG911 infrastructure

Shared Services

Call Processing Equipment

Fully understanding the concept of “shared services” can be challenging. To help visualize this approach, imagine a workplace with 100 employees where every individual computer was directly connected to a printer. That would be seen as foolish because the purchase, maintenance, and upkeep of 100 printers would not be cost effective and because printers can so easily be networked and shared. By the same token, 911 equipment can also be shared. Shared services harness the full capabilities of technology, so not every PSAP needs to have stand-alone call taking equipment in their server rooms. All 113 PSAPs could technically run off one or two CPEs.

Each of these pieces of equipment cost between \$100,000 and \$200,000 to purchase and have ongoing maintenance and upgrade fees associated over the cost of their five- to seven-year lifespan. Currently, there are approximately 100 CPEs in Iowa’s 113 PSAPs. The PSAPs are able to choose between six products sold by eight vendors in the state. This plan does not prohibit those vendors and products from being sold; it simply incentivizes the shared service option. Efficiencies can be gained in costs and maintenance, upkeep of the new environment would be streamlined, and the technological footprint in the PSAP server rooms would be greatly reduced.

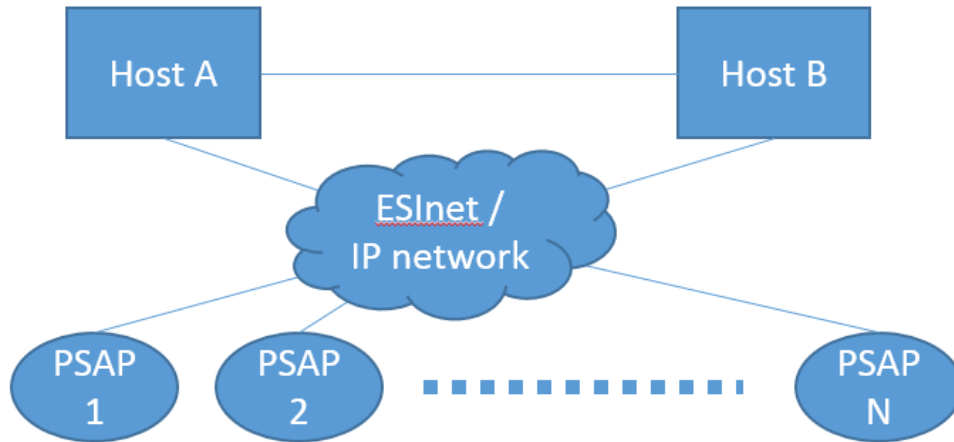


Diagram of a shared services environment.

The two host CPE sites are currently planned to be housed in data centers located in Marshalltown and Johnston. PSAPs who wish to have their recurring and nonrecurring costs related to CPE covered by the Department would request access to the system through the 911 program manager. For the PSAPs currently not using Zetron, the screen layout may look different, but the functionality would be the same. Even then, call taker screen layouts are customizable by PSAP. For the 30 PSAPs already using the Zetron call-handling system, migration to the new environment would result in the local call taker experiencing no change whatsoever. All costs, nonrecurring, recurring, and connectivity between host and remote, will be the responsibility of the Department for those PSAPs choosing to participate in the shared services.

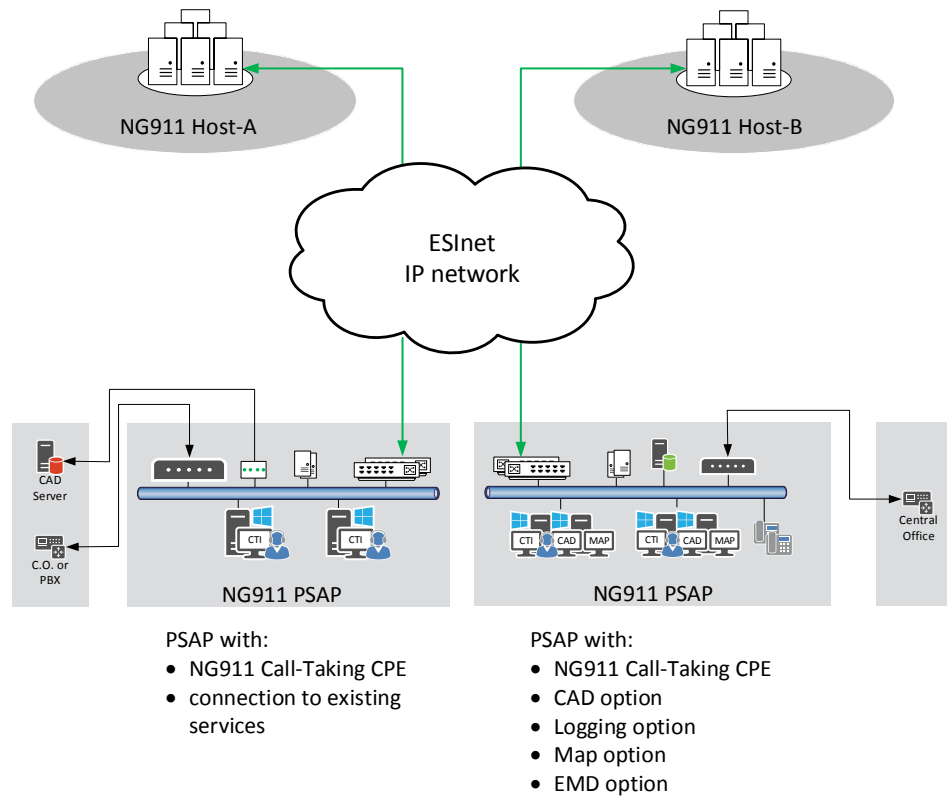
The Department does not plan to make adoption mandatory for PSAPs with new technology of their own, or for those who desire to switch. However, for those PSAPs choosing to maintain their own CPE, all related costs will still be the responsibility of the local service board.

The purchase of the host equipment is fixed at \$186,107.60. Annual costs for the host sites are \$27,000.

The remote CPE purchase price for the Department is based on the number of call taker seats at a PSAP choosing to adopt the shared service model (Attachment A). Additional discounts are provided for the existing 30 PSAPs already using Zetron (Attachment B). Based on the estimated number of call taker seats and PSAPs in the state, even if all 113 PSAPs opt into the shared services model for CPE, the Department estimates that the state could save a potential \$3.8-5 million over five years when the cost of equipment replacement is factored in.

Throughout the process, a significant concern expressed to the Department by local PSAPs was the ability to integrate administrative lines into the CPE. Zetron's call handling solution does allow for integrating administrative lines, and also allows for those lines to remain separate should a PSAP choose.

- Host Servers:
- NG911 Call-Taking
 - CAD
 - Map
 - Logging
 - EMD



Additional Service Options

Through the RFP process, the Department asked vendors to also propose solutions for additional PSAP services, such as computer aided dispatch (CAD), logging recorder, mapping, and emergency medical dispatch (EMD). The Zetron response incorporated that functionality through Zetron Max CAD (includes mobile CAD), Eventide logging recorder, and PowerPhone EMD.

The goal of this process has been to streamline and achieve cost savings through sharing of CPE. As such, the Department plans to make adoption of CPE a prerequisite toward cost sharing with with local service boards for the additional services. Should a PSAP opt into the shared CPE, the Department would also cost share the additional

services if the PSAP is interested. Again, nothing would be expected of the PSAP who only wishes to pursue the shared CPE but not the shared additional service options. The Department would also allow PSAPs not interested in CPE to utilize the contract and purchase directly with Zetron from the additional services. However, in this case, the cost responsibility would be borne totally by the local 911 service board rather than cost sharing with the Department (Attachment A).

A presentation by Zetron providing details on this proposal is available at the 13:30 minute mark in the following YouTube link: <https://www.youtube.com/watch?v=qbMpKH8co3E&t=2s>.

Conclusion

The Department believes the changes detailed in the Plan for Consolidation Report allow for the greatest local flexibility and require minimal changes to the critical jobs local telecommunicators perform, while still saving the state a significant amount of money. While hard to quantify or qualify, the Department believes the proliferation of shared services will ultimately lead local decision makers on a path toward physical consolidation. This decision will only be made when they are of the belief that all 911 calls can be handled and dispatched seamlessly and with no degradation of response time or familiarity with the area. In effect, the plan gives local PSAPs the tools needed to make the decision on physical consolidation easier.

In the meantime, the plan saves the state a potential \$10-12 million over five years—money directly saved at the local level while experiencing no change from surcharge revenues. Wireless Next Generation 911 has already saved millions of dollars due to newer technology that costs less. To leverage the full benefits of Next Generation 911, the state needs to move to full implementation of Next Generation 911, detailed throughout the report. The Department looks forward to working with the Legislature on adopting **amendment language to Iowa Code § 34A**.

Attachment A

Pricing by Workstations

Alt Pricing by Workstations

Zetron

Number	REMOTE SITE CONNECTIVITY		CAD		LOGGING RECORDER		MAPPING		EMGY MED DISPATCH		OTHER Applicable Services/function	TOTAL PSAP COST
	Annual	NRC	Annual	NRC	Annual	NRC	Annual	NRC	Annual	NRC		
1	\$6,075.00	\$41,872.05	\$2,689.72	\$39,341.70	\$1,000.00	\$1,482.30	\$848.10	\$14,828.40	\$2,827.00	\$37,921.40		\$ 148,885.67
2	\$11,050.00	\$56,085.75	\$5,379.44	\$53,886.60	\$1,000.00	\$1,482.30	\$1,696.21	\$17,398.80	\$3,574.74	\$45,068.52		\$ 196,622.36
3	\$15,525.00	\$69,624.87	\$8,069.16	\$67,945.73	\$1,000.00	\$1,482.30	\$2,544.31	\$21,803.63	\$4,332.19	\$52,322.48		\$ 244,649.66
4	\$20,000.00	\$82,731.24	\$10,758.88	\$81,681.00	\$1,000.00	\$1,482.30	\$3,392.42	\$24,168.90	\$5,076.86	\$59,371.11		\$ 289,662.70
5	\$24,475.00	\$95,404.86	\$13,448.60	\$95,092.43	\$1,000.00	\$1,482.30	\$4,240.52	\$28,409.63	\$5,880.48	\$67,468.04		\$ 336,901.85
6	\$28,950.00	\$107,645.73	\$16,138.32	\$109,998.00	\$1,000.00	\$1,482.30	\$5,088.62	\$30,610.80	\$6,547.44	\$74,365.86		\$ 380,927.07
7	\$33,425.00	\$119,453.85	\$18,828.04	\$121,861.73	\$1,000.00	\$1,482.30	\$5,936.73	\$34,687.43	\$7,296.66	\$81,719.65		\$ 425,691.38
8	\$37,900.00	\$130,829.22	\$21,517.76	\$134,301.60	\$1,000.00	\$1,482.30	\$6,784.83	\$36,724.50	\$8,079.10	\$88,440.47		\$ 467,059.79
9	\$42,375.00	\$141,771.84	\$24,207.48	\$146,417.63	\$1,000.00	\$2,964.60	\$7,632.94	\$40,637.03	\$8,760.07	\$95,450.46		\$ 511,217.04
10	\$46,850.00	\$158,356.71	\$26,897.20	\$158,209.80	\$1,000.00	\$2,964.60	\$8,481.04	\$42,510.00	\$8,745.43	\$102,067.56		\$ 556,082.34
11	\$51,325.00	\$168,433.83	\$29,586.92	\$170,596.13	\$1,000.00	\$2,964.60	\$9,329.14	\$46,258.43	\$9,414.81	\$108,931.98		\$ 597,840.83
12	\$55,800.00	\$178,078.20	\$32,276.64	\$181,740.60	\$1,000.00	\$2,964.60	\$10,177.25	\$47,967.30	\$10,084.29	\$115,785.01		\$ 635,873.90
13	\$60,275.00	\$187,289.82	\$34,966.36	\$192,561.23	\$1,000.00	\$2,964.60	\$11,025.35	\$51,551.63	\$10,489.40	\$117,205.66		\$ 669,329.04
14	\$64,750.00	\$196,068.69	\$37,656.08	\$203,058.00	\$1,000.00	\$2,964.60	\$11,873.46	\$53,095.40	\$11,130.41	\$123,621.16		\$ 705,218.80
15	\$69,225.00	\$204,414.81	\$40,345.80	\$213,230.93	\$1,000.00	\$2,964.60	\$12,721.56	\$56,516.63	\$11,291.12	\$124,753.39		\$ 736,463.84
16	\$73,700.00	\$212,328.18	\$43,035.52	\$223,998.00	\$1,000.00	\$2,964.60	\$13,569.66	\$57,897.30	\$11,910.00	\$130,921.76		\$ 771,325.02
17	\$78,175.00	\$219,808.80	\$45,725.24	\$233,523.23	\$1,000.00	\$4,446.90	\$14,417.77	\$61,153.43	\$12,528.29	\$136,506.73		\$ 807,285.38
18	\$82,650.00	\$226,856.67	\$48,414.96	\$242,724.60	\$1,000.00	\$4,446.90	\$15,265.87	\$62,370.00	\$13,045.68	\$142,071.08		\$ 838,845.76
19	\$87,125.00	\$233,471.79	\$51,104.68	\$251,602.13	\$1,000.00	\$4,446.90	\$16,113.98	\$65,462.03	\$15,216.19	\$147,640.17		\$ 873,182.86
20	\$91,600.00	\$239,654.16	\$53,794.40	\$260,155.80	\$1,000.00	\$4,446.90	\$16,962.08	\$66,514.50	\$14,366.74	\$153,091.46		\$ 901,586.04
CPE Host sites (Itemize by cost)												
	\$ 27,000.00	\$ 186,107.60	\$ 9,299.08	\$ 97,562.55	\$ 22,129.39	\$ 138,722.70	\$ 3,497.40	\$ 69,612.95				
Total Cost	\$ 1,008,250.00	\$ 3,256,288.67	\$ 574,140.28	\$ 3,278,589.38	\$ 42,129.39	\$ 192,085.50	\$ 181,599.24	\$ 930,179.68	\$ 180,596.92	\$ 2,004,723.95	\$ -	\$ -
Section Total	\$4,264,538.67		\$3,852,729.66		\$234,214.89		\$1,111,778.92		\$2,185,320.87		\$0.00	

Sums on the row above are additive and do not reflect Zetron's price to Iowa but rather represent the sums of the cells for each category.

Attachment B

Pricing for Zetron PSAPs

Zetron

Alt Pricing for Zetron PSAPs

Costs per number of workstations at PSAP		CPE	
	Recurring Annually = Annual	REMOTE SITE CONNECTIVITY	
Number	Non Recurring = NRC	Annual	NRC
1		\$6,075.00	\$17,469.00
2		\$11,050.00	\$24,430.50
3		\$15,525.00	\$31,392.00
4		\$20,000.00	\$38,353.50
5		\$24,475.00	\$45,315.00
6		\$28,950.00	\$52,276.50
7		\$33,425.00	\$59,238.00
8		\$37,900.00	\$66,199.50
9		\$42,375.00	\$73,161.00
10		\$46,850.00	\$80,122.50
11		\$51,325.00	\$87,084.00
12		\$55,800.00	\$94,045.50
13		\$60,275.00	\$101,007.00
14		\$64,750.00	\$107,968.50
15		\$69,225.00	\$114,930.00
16		\$73,700.00	\$121,891.50
17		\$78,175.00	\$128,853.00
18		\$82,650.00	\$135,814.50
19		\$87,125.00	\$142,776.00
20		\$91,600.00	\$149,737.50