


City of Newark  
Delaware

December 3, 2012

TO: Mayor and City Council

FROM: Carol Houck, City Manager   
Rick Vitelli, Electric Director  
Roy Simonson, Public Works and Water Resources Director  
Wilma Garriz, Interim Finance Director

SUBJECT: Guaranteed Performance Contract – Smart Meter Project and its Financing

BACKGROUND

In 2009 Honeywell performed a feasibility review of our facilities in association with their providing support to Newark in completing our Energy Efficiency Conservation Block Grant (EECBG, also referred to as stimulus funds or American Recovery and Reinvestment Act funds - ARRA) application. This feasibility review, although cursory, resulted in the identification of energy conservation measures to satisfy the requirements of the grant of which three measures were successfully implemented and funded. These measures included energy efficient window replacements and lighting in the Municipal Building and Police Station and LED street lights on Main Street. The number of measures undertaken was directly related to the level of funding Newark received which totaled \$147,800 and Newark managed all aspects of these projects.

This effort was followed in 2010 by the selection of additional energy conservation measures (some that were identified in the earlier feasibility review) that could benefit from available ARRA funds. A large number of measures were determined to be applicable; however, as you are aware, we initiated a contract that was limited to facility improvements including additional lighting, building envelop modifications, controls, and variable frequency drives at our water plants. This effort was completed last fall.

Earlier this year the Water and Wastewater Department determined the need to replace a large number of water meters due to age. This requirement brought a renewed interest in considering the move towards smart meters. Honeywell then supplied additional detail based on their earlier study of our equipment and operations and a smart meter project was deemed feasible. Finally, it was determined that the installation of smart meters for both water and electric customers citywide could provide increased revenue from water sales due to improved accuracy, operational cost savings, and a base for a Wi-Fi mesh throughout the City.

In July of this year the availability of \$2.9 million of the State's remaining ARRA funds for the electric portion of a smart meter project further helped to move the project forward and Mayor and Council authorized staff to:

- Proceed to Closing on the \$2.9 million ARRA funding through DNREC.
- Finalize meter selection through Honeywell's competitive bidding process.
- Participate in efforts to verify water meter accuracy as necessary for a guaranteed performance contract.
- Negotiate a guaranteed performance contract with Honeywell in which the savings fund the costs (including financing costs) to implement the project over a period of 15 years.
- Identify the funding options for the balance of the projects required financing.

All of the above items have been accomplished with favorable results.

Evaluation assistance or decision support, if you will, was deemed appropriate to ensure that the very detailed aspects of this project and its guarantee are in the best interest of our community. Source One was engaged in the fall of this year to assist in our final project review and negotiations. This assistance included validation of the meter testing sampling methodology, review of water savings/increased revenue calculations, project costing data evaluations and negotiations, review of measurement and verification approaches, risk and benefit identification/reconciliation and price negotiations. Source One has now identified the project to provide positive impacts for Newark and along with staff recommends proceeding with the Smart Meter project. A copy of this recommendation is provided for your reference.

### RECOMMENDED PROJECT

In association with all efforts leading up to this recommendation since our first feasibility review in 2009 we are now in a position to confidently recommend proceeding with a Guaranteed Performance Contract for Smart Meters and its associated equipment and requirements as follows:

Honeywell will provide a comprehensive guaranteed energy performance project that includes design, engineering, installation, and project management of a Smart Meter Project through the implementation of an Advanced Metering Infrastructure (AMI) system for the City. The individual components include: smart electric meters, smart water meters, wireless mesh network, security cameras, a customer web portal and in-vehicle (iPad) tablet deployment. This project will allow Newark to generate timely, accurate usage and billing information for residents and businesses as well as eliminate the need for meter readers to visit properties every month. We will also be able to perform monthly water meter reads versus the quarterly billing we currently provide. The system also enables a platform for growth that includes future energy management strategies such as demand response, which can help to reduce the need for the development of additional and costly generation capacity.

## Scope of Work Detail:

### 1) Automated Metering Infrastructure (AMI) for Water and Electric Meters

Honeywell will supply and install an Elster EnergyAxis Advanced Metering Infrastructure meter reading solution. The Elster EnergyAxis (EA) radio frequency AMI system will include remote meter reading capabilities for our 9,978 water meters and 11,768 electric meters. Both the electric and water meters are equipped with an EA transmission device which broadcasts meter reading data via a mesh network. This data “hops” to a centralized aggregation point in the network (Gatekeepers). The Gatekeepers will transmit the meter reading data via a direct-wired connection to a Tropos gateway. The Tropos network then transmits the meter reading data to the server.

The EA meter reading software resides on a project specific server located at the Municipal building. The mesh AMI system will be comprised of sixteen (16) gatekeepers and thirty-one (31) repeaters. This allows for out of town water customer readings to reach the wireless mesh network. The repeaters and gatekeepers will be furnished by Honeywell and installed by our Electric Department personnel. In addition, each installed electric meter can function as a repeater.

#### A. Water Meters

This project includes the replacement of our existing analog water meters with 9,978 Sensus Meters (iPerl, Omni) to improve the accuracy of our meter reading system by eliminating errors inherent in the old meters along with eliminating misreads and re-reads. With this upgraded meter, leaks are detected and found faster, which reduces water loss and the resulting lengthy investigations and negotiations with customers over disputed bills. Leak detection is a component of sound water utility conservation measures. Additionally, while remote turn on an off will not be available for water meters we will be able to perform remote ending and starting meter reads.

#### B. Electric Meters

Our project includes the replacement of our existing electric meters with 11,768 Elster smart meters that allows for the elimination of misreads and re-reads. Remote turn off and on capabilities will be gained for some meters providing operational efficiencies. Additionally, in the future, Newark can consider demand response programs.

#### C. Water and Electric Meter Installation

The following details the steps that will be taken during installation of the water and electric meters. This process will ensure minimal disruption to our residents/customers and a smooth transition to the new system.

##### Water Meter:

- a. Schedule an appointment to change the water meter. Up to three notices will be sent requesting access to install the new meter.
- b. Arriving within the two-hour appointment window to replace the meter.
- c. Turning off the water using an indoor valve and removing the existing meter.

- d. Installing a new meter with new washers/gaskets.
- e. Installing an EA water module.
- f. Collecting an old meter reading and tagging the old meter before storage to allow retrieval if necessary. Old meters will be stored such that it is possible to retrieve a given meter in the event the City needs to verify an old meter reading.
- g. Pictures of the old meter and its reading and the new meter will be taken and posted on the project web portal.
- h. Collection of required installation data for upload into the City's billing system.
- i. Coordination with City to facilitate upload of installation data.

#### Electric Meter:

- a. A mailing will be sent to all customers informing them that their electric meter will be replaced and that there will be a temporary interruption in power. Service locations that have critical electric needs will be provided the opportunity to call a toll-free number to schedule an appointment.
- b. Customers who do not call for an appointment will be changed without further notifications. There is no need for them to be home for the change out to occur.
- c. Existing meters will be removed and the meter box and wiring will be visually inspected for signs of damage. Honeywell will follow the prescribed inspection procedure as furnished by the City. If a hazardous condition is found, the meter will not be replaced until after the homeowner is notified and the homeowner has the problem repaired.
- d. New electric meters will be mounted using the same existing socket connection.
- e. A lockout tag will be installed after meter installation.
- f. Picture of the old meter and new meter after installation will be taken and posted on the project web portal.
- g. Collection of required installation data for upload into the City's billing system.
- h. Coordination with City to facilitate upload of installation data.

## 2) Wireless Mesh Network

Honeywell will implement a Wireless Mesh network for Newark that will be used by the City for various private municipal wireless applications including public safety, and AMI backhaul. This project includes seven additional security cameras and fifty-two (52) mobile routers.

### A. Service Area

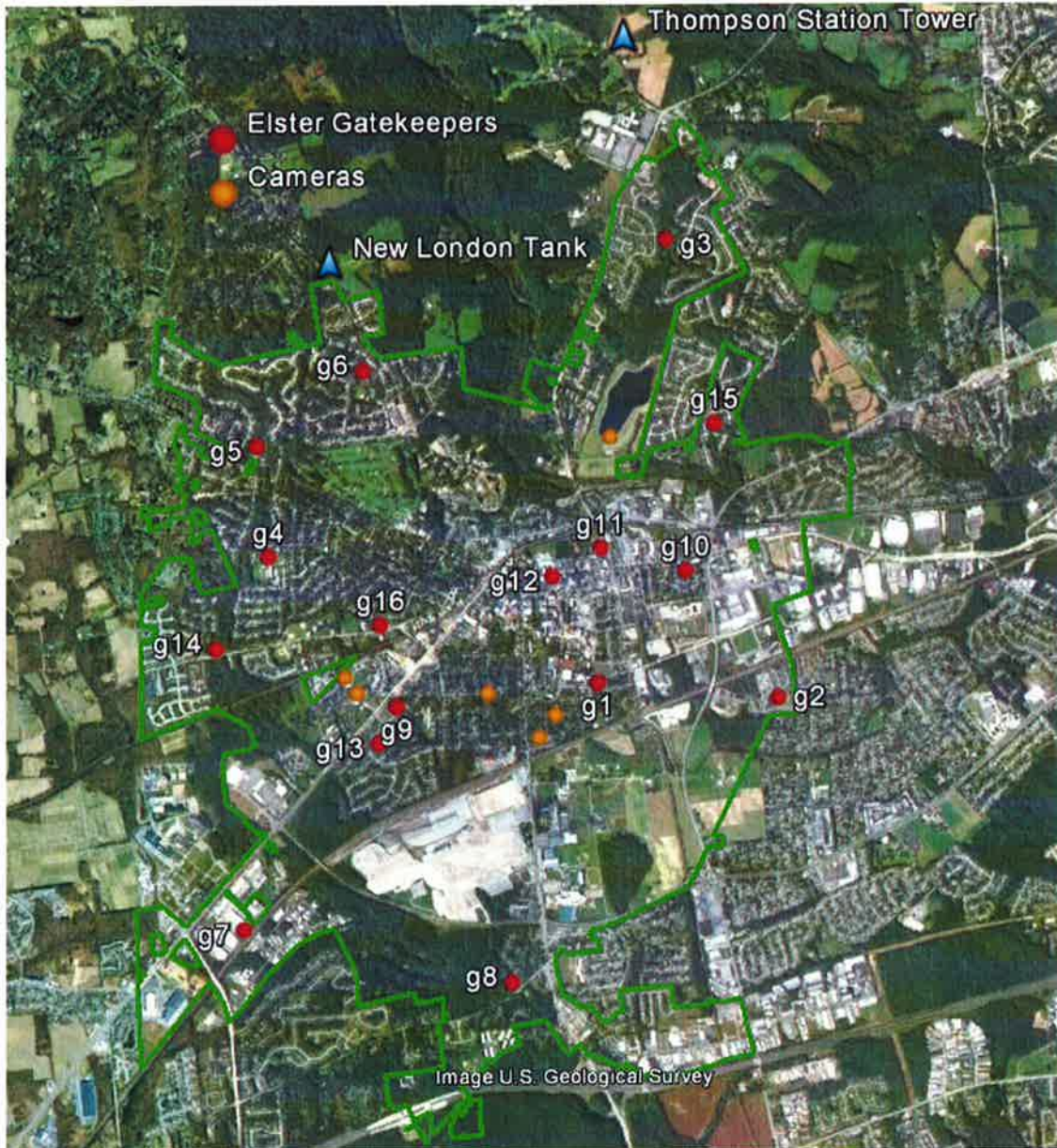
The coverage area is 9.5 square miles within the City boundaries of Newark.

The applications are:

- Backhaul connectivity for Elster Gatekeepers as spaced throughout the service territory.
- Backhaul coverage for CCTV cameras identified by Newark Police Department.
- Mobile data coverage on city streets for City vehicles equipped with Mobile Routers to service tablets or laptops.



## City Map 1- Service Area

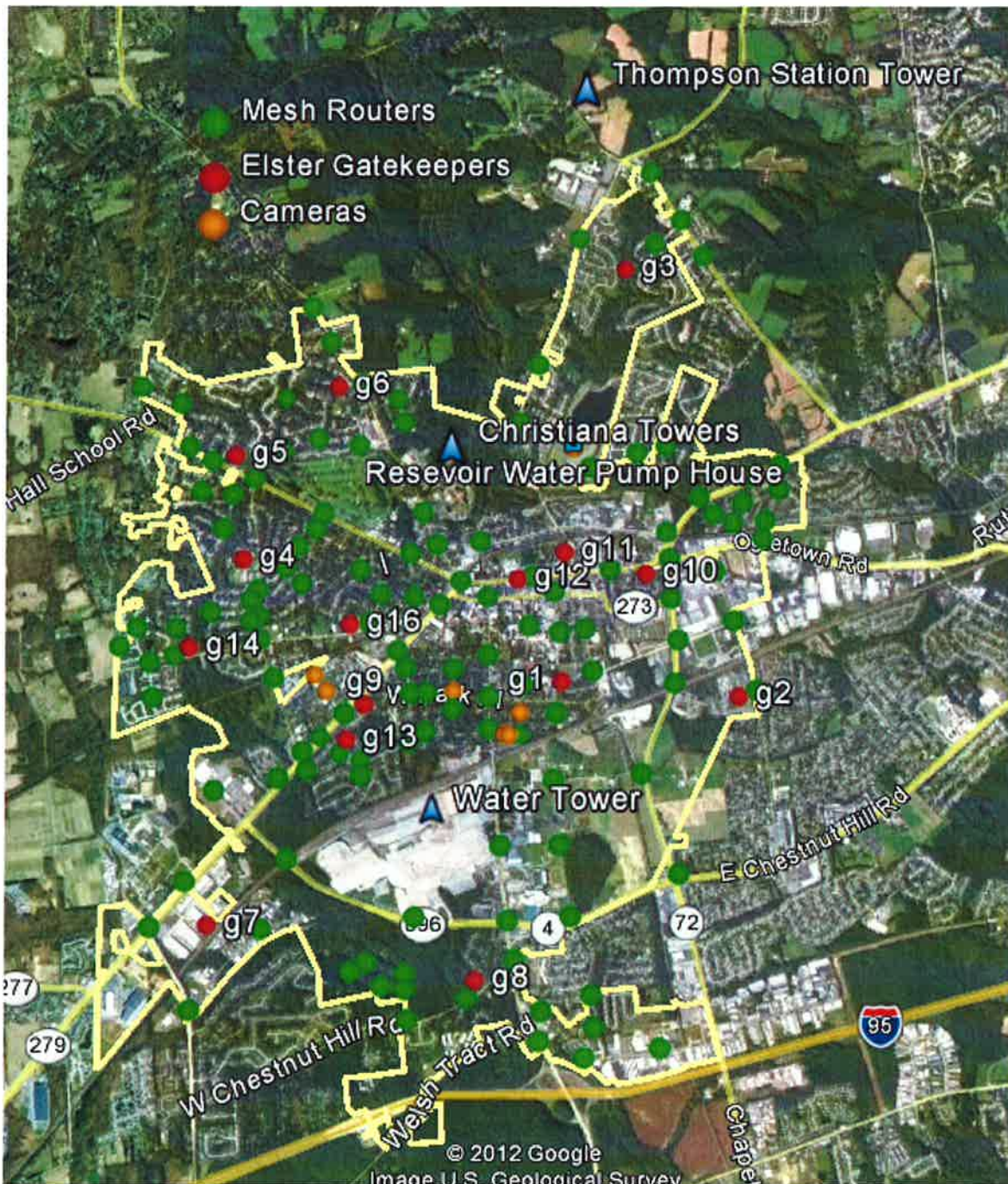


### B. System Design

The network design includes deploying Tropos routers throughout the service area to provide a wireless mesh distribution area network to backhaul the AMI system. The total fixed router count is 220 routers with a minimum of 22 Tropos outdoor mesh routers functioning as gateways for the mesh.



City Map 2 - Conceptual layout showing anticipated Mesh Router, Gatekeeper (AMI Elster) and Camera locations.



### 3) Customer Web Portal (Meter Data Management System)

Honeywell, through MeterSense Solutions, will install a meter data management system with a web portal that delivers utility information directly to our residents and business owners. Newark's customers will be able to log on to a secure website to access their bill,

payment and consumption histories, log service calls, review and pay accounts. In addition, not only will it serve our utility customers, it will improve City operations.

#### 4. Financial Summary

The total cost of the project is \$11,749,309 (including contingency). Our contract with Honeywell will be backed by a meter accuracy guarantee with a projected value of \$1,021,094 per year associated with more accurate measurement and billing for water consumption. There is a projected operational savings of \$5,201,000 leading to a projected cash flow of \$2.8 million over the life of the project (using the mid case scenario). As previously approved by Mayor and Council, \$2,851,935 of ARRA financing at 1.99% has been secured and will be applied to the electric meter portion of the project. The remaining amount needed for the project is \$8,897,374 to be funded through a Tax Exempt Lease Purchase with Banc of America Public Capital Corp at the interest rate of 2.20%. Please refer to the attached Project Financing spreadsheet for full detail.

Please note that although the costs associated with continuing measurement and verification are continued throughout the term of the project's funding it is common for this to be withdrawn earlier (average is 3 to 5 years). If a determination is made in future years to do so, based on our experience, additional savings could be realized.

#### RECOMMENDATION

In accordance with our continued and progressive involvement with Honeywell since 2009 and associated with earlier guaranteed performance contracting and facility energy audits and improvements the use of formal bidding was not practical per our Code and it is, therefore, recommended that Mayor and Council waive the requirement and authorize the City Manager to:

- Enter into a Smart Meter Guaranteed Performance Contract with Honeywell totaling \$11,495,735 in accordance with the guaranteed savings of \$1,021,094 to perform the scope of work presented above and in the full contractual documents as outlined on the following page and;
- Enter into a tax exempt lease purchase with Banc of America Public Capital Corp for the total cost of \$8,897,374 (which includes a financed contingency) at the interest rate of 2.2% (if we close on the lease by December 21, 2012) in accordance with the terms outlined in the attached Project Financing spreadsheet and the attached Authorizing Resolution.

**The following makes up the full contract with Honeywell:**

**Agreement:**

General Provisions  
Honeywell's Responsibilities  
Newark's Responsibilities  
Subcontracts  
Installation and Acceptance  
Price and Payment  
Changes in the Project  
Insurance, Indemnity, Waiver of Subrogation and Limitation of Liability  
Termination of the Agreement  
Assignment and Governing Law  
Miscellaneous Provisions  
Arbitration

**Attachments:**

- A. The Scope of Work
- B. Software License Agreement
- C. The Installation Schedule
- D. Support Services
- E. Payment Schedule
- F. Performance Guarantee
- G. Schedule of Savings
- H. Reserved
- I. Opinion of Counsel
- J. Project Acceptance

**Exhibits:**

A-1, 1-2, A-3, A-4, A-5, G-1, G-2, H-7, H-8, And H-9



**City of Newark - Honeywell AMI Performance Contract  
Financial Cashflow Model for 15 Year Guaranteed Savings Program**

Term (Years)	ARRA - 10yr; BoA- 15yr	<b>Honeywell Project Cost</b>	\$ 11,495,735
Finance Rate	ARRA- 1.99%; BoA- 2.2%	<b>Financed Contingency</b>	\$ 253,574
General Inflation	3%	<b>Financed Amount</b>	\$ 11,749,309
Year One Stipulated Benefit (Capex)	NA	<b>Net Present Value of Cash Flow, Mid Case:</b> \$1,808,413	
Rate Increase	0%	<b>Discount Rate:</b> 4%	

	2013 Year 0 Construction Period	Term of Financing Program - 15 Years																15 year Total
		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028		
<b>Project Benefits</b>																		
98% Guaranteed meter accuracy projected Revenue Increase		\$ 1,021,094	\$ 1,021,094	\$ 1,021,094	\$ 1,021,094	\$ 1,021,094	\$ 1,021,094	\$ 1,021,094	\$ 1,021,094	\$ 1,021,094	\$ 1,021,094	\$ 1,021,094	\$ 1,021,094	\$ 1,021,094	\$ 1,021,094	\$ 1,021,094	\$ 1,021,094	\$ 15,316,410
100% meter accuracy projected Revenue Increase	\$ 294,248	\$ 287,502	\$ 287,502	\$ 287,502	\$ 287,502	\$ 287,502	\$ 287,502	\$ 287,502	\$ 287,502	\$ 287,502	\$ 287,502	\$ 287,502	\$ 287,502	\$ 287,502	\$ 287,502	\$ 287,502	\$ 287,502	\$ 4,606,778
Sewer Revenue Increase (corresponding to Line 44, Cost increase for Sewer)		\$ -	\$ 5,466	\$ 11,096	\$ 16,895	\$ 22,868	\$ 29,021	\$ 35,357	\$ 41,884	\$ 48,607	\$ 55,531	\$ 62,663	\$ 70,009	\$ 77,576	\$ 85,369	\$ 93,396	\$ 93,396	\$ 655,740
Internal City Savings (O&M cost avoidance)		\$ 279,640	\$ 288,029	\$ 296,670	\$ 305,570	\$ 314,737	\$ 324,179	\$ 333,905	\$ 343,922	\$ 354,240	\$ 364,867	\$ 375,813	\$ 387,087	\$ 398,700	\$ 410,661	\$ 422,981	\$ 422,981	\$ 5,201,000
<b>Projected Annual Benefit</b>	<b>\$ 294,248</b>	<b>\$ 1,588,236</b>	<b>\$ 1,602,091</b>	<b>\$ 1,616,362</b>	<b>\$ 1,631,062</b>	<b>\$ 1,646,202</b>	<b>\$ 1,661,796</b>	<b>\$ 1,677,858</b>	<b>\$ 1,694,402</b>	<b>\$ 1,711,442</b>	<b>\$ 1,728,994</b>	<b>\$ 1,747,072</b>	<b>\$ 1,765,692</b>	<b>\$ 1,784,872</b>	<b>\$ 1,804,626</b>	<b>\$ 1,824,973</b>	<b>\$ 1,824,973</b>	<b>\$ 25,779,928</b>
<b>Project Expenditures</b>																		
Annual Payment- ARRA Financing	\$ 171,420	\$ 342,839	\$ 342,839	\$ 342,839	\$ 342,839	\$ 342,839	\$ 342,839	\$ 342,839	\$ 342,839	\$ 342,839	\$ 342,839	\$ 171,420	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,428,391
Annual Payment - Bank Financing		\$ 703,308	\$ 703,308	\$ 703,308	\$ 703,308	\$ 703,308	\$ 703,308	\$ 703,308	\$ 703,308	\$ 703,308	\$ 703,308	\$ 703,308	\$ 703,308	\$ 703,308	\$ 703,308	\$ 703,308	\$ 703,308	\$ 10,549,620
Annual Costs for Honeywell M&V		\$ 53,730	\$ 55,342	\$ 57,002	\$ 58,712	\$ 60,474	\$ 62,288	\$ 64,156	\$ 66,081	\$ 68,064	\$ 70,105	\$ 72,209	\$ 74,375	\$ 76,606	\$ 78,904	\$ 81,271	\$ 81,271	\$ 999,320
<b>Annual Subtotal for Debt &amp; Honeywell Services</b>	<b>\$ 171,420</b>	<b>\$ 1,099,877</b>	<b>\$ 1,101,489</b>	<b>\$ 1,103,149</b>	<b>\$ 1,104,859</b>	<b>\$ 1,106,621</b>	<b>\$ 1,108,435</b>	<b>\$ 1,110,303</b>	<b>\$ 1,112,228</b>	<b>\$ 1,114,211</b>	<b>\$ 944,833</b>	<b>\$ 775,517</b>	<b>\$ 777,683</b>	<b>\$ 779,914</b>	<b>\$ 782,212</b>	<b>\$ 784,579</b>	<b>\$ 14,977,331</b>	
Electric Department (install, maintain)	\$ 118,800	\$ 20,627	\$ 21,246	\$ 21,884	\$ 22,540	\$ 23,216	\$ 23,913	\$ 24,630	\$ 25,369	\$ 26,130	\$ 26,914	\$ 27,721	\$ 28,553	\$ 29,410	\$ 30,292	\$ 31,201	\$ 31,201	\$ 502,446
Electric Department (DPL monthly charges)		\$ 14,880	\$ 15,326	\$ 15,786	\$ 16,260	\$ 16,748	\$ 17,250	\$ 17,767	\$ 18,301	\$ 18,850	\$ 19,415	\$ 19,997	\$ 20,597	\$ 21,215	\$ 21,852	\$ 22,507	\$ 22,507	\$ 276,752
Water Department (M&V support only)		\$ 700	\$ 721	\$ 743	\$ 765	\$ 788	\$ 811	\$ 836	\$ 861	\$ 887	\$ 913	\$ 941	\$ 969	\$ 998	\$ 1,028	\$ 1,059	\$ 1,059	\$ 13,019
Water Department - Cost increase for County Sewer		\$ 182,205	\$ 187,671	\$ 193,301	\$ 199,100	\$ 205,073	\$ 211,226	\$ 217,562	\$ 224,089	\$ 230,812	\$ 237,736	\$ 244,868	\$ 252,214	\$ 259,781	\$ 267,574	\$ 275,601	\$ 275,601	\$ 3,388,815
IT Department (maintain)		\$ 1,898	\$ 1,954	\$ 2,013	\$ 2,073	\$ 2,136	\$ 2,200	\$ 2,266	\$ 2,334	\$ 2,404	\$ 2,476	\$ 2,550	\$ 2,627	\$ 2,705	\$ 2,787	\$ 2,870	\$ 2,870	\$ 35,291
Software Licenses & Support		\$ 160,052	\$ 164,854	\$ 169,799	\$ 174,893	\$ 180,140	\$ 185,544	\$ 191,110	\$ 196,844	\$ 202,749	\$ 208,832	\$ 215,097	\$ 221,549	\$ 228,196	\$ 235,042	\$ 235,042	\$ 2,734,700	
<b>Annual Subtotal for Newark Other Costs</b>	<b>\$ 118,800</b>	<b>\$ 220,310</b>	<b>\$ 386,971</b>	<b>\$ 398,580</b>	<b>\$ 410,538</b>	<b>\$ 422,854</b>	<b>\$ 435,539</b>	<b>\$ 448,606</b>	<b>\$ 462,064</b>	<b>\$ 475,926</b>	<b>\$ 490,203</b>	<b>\$ 504,910</b>	<b>\$ 520,057</b>	<b>\$ 535,659</b>	<b>\$ 551,728</b>	<b>\$ 568,280</b>	<b>\$ 6,951,024</b>	
<b>Total Annual Cost (applies to each case)</b>	<b>\$ 290,220</b>	<b>\$ 1,320,187</b>	<b>\$ 1,488,460</b>	<b>\$ 1,501,729</b>	<b>\$ 1,515,397</b>	<b>\$ 1,529,474</b>	<b>\$ 1,543,974</b>	<b>\$ 1,558,909</b>	<b>\$ 1,574,292</b>	<b>\$ 1,590,136</b>	<b>\$ 1,435,037</b>	<b>\$ 1,280,426</b>	<b>\$ 1,297,740</b>	<b>\$ 1,315,573</b>	<b>\$ 1,333,941</b>	<b>\$ 1,352,860</b>	<b>\$ 21,928,355</b>	
Cash Flow Position, Worst Case, 98% Accuracy	\$ 4,028	\$ (19,453)	\$ (173,871)	\$ (172,869)	\$ (171,837)	\$ (170,775)	\$ (169,680)	\$ (168,553)	\$ (167,392)	\$ (166,196)	\$ 6,455	\$ 179,144	\$ 180,451	\$ 181,797	\$ 183,183	\$ 184,611	\$ (460,958)	
<b>Cash Flow Position, Mid Case, with Safety Factor</b>	<b>\$ 4,028</b>	<b>\$ 202,619</b>	<b>\$ 47,928</b>	<b>\$ 48,648</b>	<b>\$ 49,390</b>	<b>\$ 50,154</b>	<b>\$ 50,941</b>	<b>\$ 51,751</b>	<b>\$ 52,586</b>	<b>\$ 53,446</b>	<b>\$ 225,751</b>	<b>\$ 398,083</b>	<b>\$ 399,023</b>	<b>\$ 399,990</b>	<b>\$ 400,987</b>	<b>\$ 402,014</b>	<b>\$ 2,837,339</b>	
Cash Flow Position, Best Case, 100% Accuracy	\$ 4,028	\$ 268,049	\$ 113,631	\$ 114,633	\$ 115,665	\$ 116,727	\$ 117,822	\$ 118,949	\$ 120,110	\$ 121,306	\$ 293,957	\$ 466,646	\$ 467,953	\$ 469,299	\$ 470,685	\$ 472,113	\$ 3,851,573	
5% Safety Factor, applied to base & incremental revenue increase	(applies to Mid Case only)	\$ (65,430)	\$ (65,703)	\$ (65,985)	\$ (66,275)	\$ (66,573)	\$ (66,881)	\$ (67,198)	\$ (67,524)	\$ (67,860)	\$ (68,206)	\$ (68,563)	\$ (68,930)	\$ (69,309)	\$ (69,698)	\$ (70,100)	\$ (1,014,234)	