## BOARD ACTION/DISCUSSION ITEMS
### NOVEMBER 2013 – DECEMBER 2013

<table>
<thead>
<tr>
<th>PRIORITY*</th>
<th>PROJECT/ISSUE</th>
<th>TYPE OF ACTION</th>
<th>TIMING**</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>Update on LCA/City 537 Plan Study</td>
<td>Status Report</td>
<td>As needed</td>
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<tr>
<td>H</td>
<td>Acquisation/Growth Strategy Activities</td>
<td>Status Report</td>
<td>As needed</td>
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<tr>
<td>H</td>
<td>Jordan Creek Wastewater Plant</td>
<td>Status Report</td>
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### AS NEEDED

<table>
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<th>PROJECT/ISSUE</th>
<th>TYPE OF ACTION</th>
<th>TIMING**</th>
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<tr>
<td>H</td>
<td>Allentown Division- WWTP Motor Control Center Replacement- Design Phase</td>
<td>Approval</td>
<td>Nov (B)</td>
</tr>
<tr>
<td>H</td>
<td>Allentown Division- Steel Tank Rehabilitation &amp; Maintenance Contract</td>
<td>Approval</td>
<td>Nov (W or B)</td>
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### WITHIN 45 DAYS

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<th>PROJECT/ISSUE</th>
<th>TYPE OF ACTION</th>
<th>TIMING**</th>
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</thead>
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<tr>
<td>H</td>
<td>SCARP Program Management PSA</td>
<td>Approval</td>
<td>Dec (B)</td>
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<tr>
<td>H</td>
<td>Lynn Township WWTP- Phase-1 &amp; 2 Upgrades- Additional Design Phase Services</td>
<td>Approval</td>
<td>Dec (B)</td>
</tr>
<tr>
<td>H</td>
<td>Allentown Division- Fuel Tank Installation- Design Phase</td>
<td>Approval</td>
<td>Dec (B)</td>
</tr>
</tbody>
</table>

### WITHIN 75 DAYS

**11/25/13** November Board Meeting

**12/9/13** December Board Meeting

* **H** – High
  **M** – Medium
  **L** – Low

** **(W) – Workshop
  **(B) – Board
  **(W/B) - Either
LEHIGH COUNTY AUTHORITY
WORKSHOP AGENDA
Monday, November 11, 2013 – 12:00 PM

INITIAL ITEMS (Collectively 5 Minutes)

1. Identify items for November Board Meeting
   - Review Board Discussion items, November 2013 – December 2013

ACTION/DISCUSSION ITEMS

1. 2014 Budget Assumptions
   The 2014 Budget Assumptions are attached (green) for discussion at the Workshop.

2. 2014-2023 Preliminary Capital Plan (Approval)
   The 2014 – 2023 Preliminary Capital Plan for the Suburban Division will be presented at the meeting and requires Board approval. The Plan is a separate attachment.

INFORMATION ITEMS

1. LCA/City 537 Plan Study
   The 537 Plan Study Team will present an update to the Board. The update will include the status of the Jordan Creek alternative, conveyance matters, the DRBC, Land Application, and alternatives analysis.

OTHER ITEMS

1. None.
2014 Budget Assumptions

Staffing-

1. **Suburban D&C** - Hire a laborer with goal to obtain WW license to supplement the one (1) operator currently on staff.
2. **Information Technology** – Hire a GIS Technician to assist GIS Manager with data attribution, CAD drawing, employee training and deployment of mobile GIS.
3. **Capital Works** – Hire a CW Specialist.
4. **City Summer Help** - (2) WFP laborers for mowing, trimming, painting and cleaning, (2) Water Distribution laborers to assist in construction and maintenance activities and (2) Sewer Line Maintenance laborers.
5. **Suburban Summer Help** – (3) laborers to perform hydrant and value maintenance.
6. **Promote Project Engineer to Chief Engineer.**
7. **Purchasing Agent** – The additional demands of the City procurement effort should be met with the hiring of a Purchasing Agent. O/S Legal will increase to full time for six months as part of demands of bidding, contract work, etc.
8. **Additional TPO** – In order to reduce overtime, an additional TPO1 will be hired bringing the complement to 19.

Employee Benefits-

1. **Medical Insurance (All Suburban and City non-union)** - LCA’s current annualized cost for non-SEIU union members is $823,000 or $12,100 per person. Based on Benecon’s latest communication LCA will be receiving an 8% decrease in 2014 to $11,200. In addition, LCA received a Pool Dividend Return of almost $200,000 for 2012. We anticipate a similar return for 2013.
2. **Medical insurance (SEIU)** – SEIU’s annualized cost is $943,500 or $13,000 per person. In accordance with the labor agreement the increase is capped at 12%. This would increase LCA’s annual cost to $1,060,000 or $14,500 per person in 2014.
3. **Retiree Medical** – LCA will receive a modest decrease in the coverage for this group. For budget purposes LCA will assume no change in cost. The cost is fully recovered from retirees (21%) and the Trust (79%).
4. **Pension** – LCA’s contribution rate of 9.8% will remain unchanged in 2014.
5. **Unemployment** – LCA is currently “self-insured”. However, if compelled to pay into state and federal funds, or if LCA elects to contribute the 2014 budget will increase $5,000 to $62,000.
Fleet Management –

Research and implement a fleet management system for both city and suburban fleets. Estimate - $34,000 a year.

Education and Training –

Additional funding will be required to provide training for supervisors and managers. 14 of the supers and managers are new to the job so a dedicated training approach is needed in the areas of managing people, budgeting, discipline, conflict resolution, decision-making and team building. Estimate - $25,000.

Employee training on new PLC software. Estimate $10,000.

Human Resources –

Work will be required to match the City system job descriptions to LCA’s format and to develop recruiting strategies for at-risk positions. Estimate - $25,000.

Information Technology –

Deploying a Computerized Maintenance Management System (CMMS) for suburban operations and interfacing it with an upgrade to the current city system.

Implementing a Share Point site that allows for organization-wide application of file sharing, which would enhance SOP’s and policies, as well as project management. Estimate - $45,000.

Conversion of Telog to SCADA at remote system sites. Estimate - $40,000.

Conversion from radio to cellular communication. Estimate $35,000.

Upgrade to new PLC hardware. Estimate $10,000.

Purchase and implementation of Permitting Software to track plan reviews and connection permits.

Knowledge Management –

Funding already approved for this work will be adequate for 2014.

Customer Care –

Proportional increases in printing and postage costs to reflect expansion of customer base and the planned increase of 2 cents in postal rates.

Public Relations –

Budget will be proportionally higher.
LEHIGH COUNTY AUTHORITY
ALLENTOWN, PA
SUBURBAN DIVISION

10-YEAR PRELIMINARY CAPITAL PLAN
2014 – 2023
NOVEMBER 2013
LEHIGH COUNTY AUTHORITY
10-YEAR CAPITAL PLAN
2012 - 2021

INDEX

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INTRODUCTION

The following report presents the Lehigh County Authority's Suburban Division 2014 - 2023 Capital Plan, which includes a total of $151 million for capital projects and equipment purchases. The following table reflects comparative amounts between this year’s and the prior year capital plans.

<table>
<thead>
<tr>
<th></th>
<th>2013–2022</th>
<th>2014–2023</th>
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</thead>
<tbody>
<tr>
<td>Administration</td>
<td>$3,807,800</td>
<td>$3,876,630</td>
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<tr>
<td>Water</td>
<td>17,678,415</td>
<td>17,894,150</td>
</tr>
<tr>
<td>Wastewater</td>
<td>129,005,600</td>
<td>129,218,000</td>
</tr>
<tr>
<td>Total</td>
<td>$150,491,815</td>
<td>$150,988,780</td>
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</table>

The primary purpose of the Capital Plan is to define and prioritize capital needs and to determine the financial impact of constructing new facilities and purchasing equipment to meet those needs. The plan does not reflect a commitment to construct facilities or purchase equipment but rather serves as a long-range planning tool.

The report is segregated into three areas: Administration, Water and Wastewater. Included within each section are a Capital Financing Justification, a Project Summary and individual project detail sheets.

The following general assumptions have been used in developing this report.

1. All projections are in 2013 dollars. Estimates are based on 365 days per year. Annual available revenue is capitalized at 5% for 20 years for most projects. Costs for Projects S-25 and S-14 will be amortized over a 30 year period to ensure affordable rates for the two involved systems.

2. Expected operation and maintenance costs resulting from new projects are included in the justification. Inflationary increases of these additional costs and existing operational costs are not considered and, if encountered, may require future rate increases.

3. Customer growth estimates are based on past experience, condition of the housing market and LCA records of proposed development.

4. Future developer-installed water distribution and collector systems are deeded to LCA at no expense and are not reflected in this capital program unless they are to be upgraded or improved under a specific project.

5. The cost to acquire any additional water or wastewater systems is not included, unless under agreement. While LCA cannot predict which, if any systems will be available for future acquisition, the Authority plans to evaluate such opportunities and determine whether an acquisition is appropriate, as they arise. A $60,000 annual cost has been included for both the water fund and the wastewater fund to investigate the feasibility of acquiring systems. Common rates are utilized in calculating user charge revenues available as incremental net revenues for all water system divisions.

6. For the three I/I Investigation and Remediation projects (S-6, S-17 and S-24) a combination of operating revenues, reserves and borrowed funds will be used to fund the costs. More specifics are contained in the detail sheet for each project.

In justifying the capital additions, the following revenue sources were considered: user charges, assessment and tapping fees, contributions-in-aid of construction, reduced operating costs, capital recovery fees, grants, and operating reserves. The capital financing justification section for each department provides details and explanation.
The Administrative activities of the Authority are funded through charge-backs to the various operating and capital budgets. The only way to finance capital improvements are through reduced operating costs and increased charge-backs.

Project A-1 includes the replacement of mail machines, a folder inserter, copiers and the staff vehicle with costs recovered through charge-backs to other Authority Funds.

Projects A-2 through A-6 are for information technology projects. Water fund operating reserves will be used to finance the projects with partial recovery through charge-backs to Authority wastewater funds.

Project A-8 began in 2011 and established a process for knowledge management documentation and succession planning.
<table>
<thead>
<tr>
<th>Project #</th>
<th>Name or Title of Proposal</th>
<th>Approvals</th>
<th>Project Cost</th>
<th>This Capital Program</th>
<th>Dept Priority</th>
<th>Funding (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Stage (1)</td>
<td>Total Cost</td>
<td>Prior Years (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A - 1</td>
<td>Office Equipment / Vehicle Replacement</td>
<td>A</td>
<td>NA</td>
<td>$ 100,000</td>
<td>-</td>
<td>$ -</td>
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<tr>
<td>A - 3</td>
<td>Computer System Hardware and Software Upgrades</td>
<td>A</td>
<td>N/A</td>
<td>$ 307,250</td>
<td>$ 31,750</td>
<td>$ 55,750</td>
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<tr>
<td>A - 5</td>
<td>SCADA Programming, Hardware Upgrades, Software &amp; Training</td>
<td>A</td>
<td>NA</td>
<td>$ 460,000</td>
<td>-</td>
<td>$ 148,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$ 867,250</td>
<td>$ 31,750</td>
<td>$ 203,750</td>
<td>$ 108,750</td>
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<td>PREVIOUSLY AUTHORIZED (4)</td>
<td></td>
<td></td>
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<tr>
<td>A - 2</td>
<td>GIS Upgrades &amp; Application Develop.</td>
<td>Various</td>
<td>$ 309,000</td>
<td>$ 404,000</td>
<td>$ 250,000</td>
<td>$ 94,000</td>
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<tr>
<td>A - 6</td>
<td>Information Technology Master Plan Update and Implementation</td>
<td>S</td>
<td>$ 151,884</td>
<td>$ 2,709,000</td>
<td>$ 150,000</td>
<td>$ 300,000</td>
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<tr>
<td>A - 8</td>
<td>Knowledge Management/Sharing Program</td>
<td>C</td>
<td>$ 393,800</td>
<td>$ 596,250</td>
<td>$ 358,120</td>
<td>$ 238,130</td>
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<td></td>
<td></td>
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<td>$ 854,884</td>
<td>$ 3,799,250</td>
<td>$ 758,120</td>
<td>$ 632,130</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grand Total</td>
<td></td>
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</table>

(1) A= Annual Item, S= Study/Planning, D= Design, C= Construction / Implementation, P = Pending Approval, E = Entire Project Approved
(2) Includes estimate of expenditures through 2012.
(3) SS = Self-supporting project, Exp = Funded as general system expense, PF = Project partially funded from additional revenues and partially funded as a general system expense.
(4) Approved for stages indicated, other stages approval pending
*Note: Shading indicates new project or revised project scope.
1. Proposal Title: Office Equipment and Staff Vehicle Replacement

2. Location: Operation Ctr

3. Description: Replacement of Postage Meter, copier, folder inserter and Office Vehicle.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
   Equipment and vehicles are routinely replaced every 5 - 6 years to ensure reliability. The vehicle costs includes offset for old vehicle trade-ins.

5. Status of Proposal:
   X Preliminary Estimate
   __ Plans and Specs Completed
   __ Other (Specify)

6. Cost of Land Rights:
   ____________________________ ac. @ __________$/acre
   ____________________________ l.f. @ __________$/lin ft.
   ____________________________ Total: $ ________

7. Status of Land Rights:
   Not Yet Acquired
   __ Partly Acquired
   __ LCA Owned
   X No Land Involved

8. Estimated Costs:
   Engineering (Staff) $ ________
   Land Acquisition $ ________
   Construction/Equip. $ 125,000
   Professional Services $ ________
   Other (Labor) $ ________
   Contingencies $ ________
   Total Project Cost $ 125,000
   Requested in this Capital Program $ 100,000

   Add. Personnel Man-Yrs. $ ________
   Supplies & Equipment $ ________
   Maintenance Svcs $ ________
   Other $ ________
   Sub-Total $ ________

10. Revenue Impact:
    Gain/Loss in Annual Revenue $ ________
    Assessment, Contribution- in-Aid-of-Construction $ ________
    Grants & Other $ ________

11. Source of Funds:
    Source: Oper. Assess., Contr.-in-Aid Reserves
    Prior Years $ ________ $ ________ $ ________ $ ________
    1st Year $ ________ $ ________ $ ________ $ ________
    2nd Year $ ________ $ ________ $ ________ $ ________
    3rd Year $ 30,000 $ 30,000 $ ________ $ ________
    4th Year $ ________ $ ________ $ ________ $ ________
    5th Year $ ________ $ ________ $ ________ $ ________
    6th thru 10th Years $ 64,000 $ 64,000 $ ________ $ ________

12. Departmental Priority Rating:
    High X    Medium    Low    Legally Mandated
Lehigh County Authority
CAPITAL PROGRAMMING PROJECT DETAIL

DEPARTMENT: ADMINISTRATION
Sub-Organizational Unit: Water Capital
Date: 10/15/13

1. Proposal Title: Geographic Information System Upgrades
   And Application Development

2. Location: Operations Ctr

3. Description:
   The mobile application was deployed in 2012 with final operational staff training in 2013 and included the development of additional mobile functionality. Applications on an as needed basis and may include integration of the PA One-Call system and fire hydrant and manhole inspection databases. IT Master Planning efforts may dictate some of the application work.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
   The development and deployment of a mobile GIS application has provided our field personnel with valuable data at their fingertips. The new applications that will be built off of the mobile platform will allow even more data to be viewed in the field and will also allow data to be collected electronically in the field. This will eliminate the need for duplicate data entry and will assist in streamlining some existing processes. The applications developed will also easily integrate into any type of maintenance management system that LCA might eventually deploy.

5. Status of Proposal:
   X Preliminary Estimate
   __ Plans and Specs Completed
   __ Other (Specify)

6. Cost of Land Rights:
   ac. @ $ /acre
   l.f. @ $ /lin ft.
   Total: $ 0

7. Status of Land Rights:
   __ Not Yet Acquired
   __ Partly Acquired
   __ LCA Owned
   X No Land Involved

8. Estimated Costs:
   Engineering (Staff) $ 180,000
   Land Acquisition $ -
   Construction/Equip. $ 94,000
   Professional Services $ 145,000
   Other (Labor) $ 25,000
   Contingencies $ 50,000
   Total Project Cost $ 494,000

   Requested in this Capital Program $ 244,000

   Add. Personnel Man-Hrs. (2,000)
   Personnel Services $ (43,700)
   Supplies & Equipment $ 5,000
   Maintenance Svcs $ -
   Other $ -
   Sub-Total $ (38,700)

   Indirect Operating Costs:
   Overhead Costs $ (78,660)
   Debt Service (5%-20yr.) $ -
   Sub-Total $ (117,360)

10. Revenue Impact:
    Gain/Loss in Annual Revenue $ -
    Assessment, Contribution-
    in-Aid-of-Construction $ -
    Grants & Other $ -

11. Source of Funds:
    | Source            | Oper. Revenues | Assess. Borrowing | Contr.-in-Aid | Reserves |
    |-------------------|---------------|-------------------|--------------|---------|
    | Prior Years       | $ 250,000     | $ 62,500          | $ -          | $ 187,500 |
    | 1st Year          | $ 94,000      | $ 23,500          | $ -          | $ 70,500  |
    | 2nd Year          | $ 80,000      | $ 20,000          | $ -          | $ 60,000  |
    | 3rd Year          | $ 70,000      | $ 17,500          | $ -          | $ 52,500  |
    | 4th Year          | $ -           | $ -               | $ -          | $ -      |
    | 5th Year          | $ -           | $ -               | $ -          | $ -      |
    | 6th thru 10th Years | $ -          | $ -               | $ -          | $ -      |

12. Departmental Priority Rating:
    High X Medium Low Legally Mandated

* The funding for this project will come initially from water fund reserves with chargebacks to wastewater funds representing 25% of costs.
1. Proposal Title: Computer System Hardware & Software Upgrades  
2. Location: Operation Center

3. Description: This project includes the upgrade of the Microsoft Office software, purchase of Human Resources software and server replacements for units older than 6 years.

4. Justification (need, function, selection of time, specific relationship to any long-term work program): Improved efficiencies will assist employees in becoming more productive.

5. Status of Proposal:
   - Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)
   - Contracted

6. Cost of Land Rights:
   - Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)
   - Contracted

7. Status of Land Rights:
   - Not Yet Acquired
   - Partly Acquired
   - LCA Owned
   - No Land Involved

8. Estimated Costs:
   - Staff Training
   - Land Acquisition
   - Computer Hardware
   - Vendor Svcs & Software
   - Other
   - Misc. Services
   - Contingencies (15%)
   - Total Project Cost
   - Requested in this Capital Program

   - Add. Personnel Man-Yrs.
   - Indirect Operating Costs:
     - Overhead Costs
     - Debt Service (5%-20yr.)
     - Sub-Total
   - Total Operating Costs

10. Revenue Impact:
    - Gain/Loss in Annual Revenue
    - Assessment, Contribution-
in-Aid-of-Construction
    - Grants & Other

11. Source of Funds:
    | Oper. Revenues | Assess., Borrowing | Contr.-in-Aid | Reserves |
    |----------------|--------------------|---------------|----------|
    | Prior Years $31,750 | $31,750 | $ | $ |
    | 1st Year $55,750 | $55,750 | $ | $ |
    | 2nd Year $28,750 | $28,750 | $ | $ |
    | 3rd Year $8,750 | $8,750 | $ | $ |
    | 4th Year $33,750 | $33,750 | $ | $ |
    | 5th Year $8,750 | $8,750 | $ | $ |
    | 6th thru 10th Years $139,750 | $139,750 | $ | $ |

12. Departmental Priority Rating: High X Medium Low Legally Mandated

* The funding for this project will come initially from water fund revenues with chargebacks to wastewater funds representing 25% of costs.
1. Proposal Title: Supervisory Control and Data Acquisition (SCADA) Programming, Hardware Upgrades, Software & Training

2. Location: Programming, Hardware Upgrades, Software & Training

3. Description: This annual on-going project includes both programming and hardware enhancements to the SCADA system to provide reliable telemetry and effective/pro-active/flexible control of our facilities. It also includes upgrade to SCADA & Telog communications, radio replacement of Telco lines to reduce monthly Telco charges to resolve on-going communication problems with critical facilities. Training on the Historian software package is also included.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
The SCADA system currently provides real-time data and control for CLD water facilities and WLI related wastewater facilities and must be updated. The Telog system provides real-time data (no-control) for satellite water and wastewater systems. Both are necessary to allow efficient operation of the water and wastewater system facilities.

5. Status of Proposal:
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   - Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

7. Status of Land Rights:
   - Not Yet Acquired
   - Partly Acquired
   - LCA Owned
   - No Land Involved
   - Sub-Total

8. Estimated Costs:
   - Engineering (Staff) $28,000
   - Land Acquisition $87,000
   - Professional Services $302,000
   - Other (Labor) $7,000
   - Contingencies $36,000
   - Total Project Cost $460,000

   - Add. Personnel Man-Hrs. (400)
   - Personnel Services $(8,672)
   - Supplies & Equipment $
   - Maintenance Svcs $
   - Other $
   - Sub-Total $(8,672)

10. Revenue Impact:
    - Gain/Loss in Annual Revenue $
    - Assessment, Contribution-in-Aid-Of-Construction $
    - Grants & Other $

11. Source of Funds:
    | Need | Revenues * | Borrowing | Assess., in Aid-of-Construction |
    |------|------------|-----------|--------------------------------|
    | Prior Years $ | $ | $ | $ |
    | 1st Year $148,000 | $29,600 | $ | $118,400 |
    | 2nd Year $80,000 | $16,000 | $ | $64,000 |
    | 3rd Year $29,000 | $5,800 | $ | $23,200 |
    | 4th Year $29,000 | $5,800 | $ | $23,200 |
    | 5th Year $29,000 | $5,800 | $ | $23,200 |
    | 6th thru 10th Years $145,000 | $29,000 | $ | $116,000 |

12. Departmental Priority Rating:
    - High X Medium Low Legally Mandated

* The funding for this project will come from water fund reserves with chargebacks to wastewater funds representing 20% of costs.
1. Proposal Title: Information Technology Master Plan Update and Implementation

2. Location: Main Office

3. Description:
This project provides funds for the update of the 8-year old LCA IT Master Plan (completed in early 2012) and the implementation of the recommendations cited; and may also include other work deemed beneficial to LCA.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
The update identified needs in both technology and LCA's business/organization. In addition, IT will be a strategic and significant part of LCA's transition to the future as LCA begins a major knowledge transfer to the next generation of employees.

5. Status of Proposal:
- Preliminary Estimate
- Plans and Specs Completed
- Other (Specify)

6. Cost of Land Rights:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary Estimate</td>
<td>ac. @ $</td>
</tr>
<tr>
<td>Plans and Specs Completed</td>
<td>$</td>
</tr>
<tr>
<td>Total:</td>
<td>$</td>
</tr>
</tbody>
</table>

7. Status of Land Rights:
- Not Yet Acquired
- Partly Acquired
- LCA Owned
- No Land Involved

8. Estimated Costs:

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Staff</td>
<td>$510,000</td>
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<tr>
<td>Land Acquisition</td>
<td>$-</td>
</tr>
<tr>
<td>Construction/Equip.</td>
<td>$680,000</td>
</tr>
<tr>
<td>Professional Services</td>
<td>$1,077,000</td>
</tr>
<tr>
<td>Other</td>
<td>$17,000</td>
</tr>
<tr>
<td>Contingencies</td>
<td>$425,000</td>
</tr>
<tr>
<td>Total Project Cost</td>
<td>$2,709,000</td>
</tr>
</tbody>
</table>

- Requested in this Capital Program: $2,559,000


<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add. Personnel Man-Hrs.</td>
<td>$19,665</td>
</tr>
<tr>
<td>Supplies &amp; Equipment</td>
<td>$10,000</td>
</tr>
<tr>
<td>Maintenance Svcs</td>
<td>$-</td>
</tr>
<tr>
<td>Other</td>
<td>$-</td>
</tr>
<tr>
<td>Total:</td>
<td>$29,665</td>
</tr>
</tbody>
</table>

- Indirect Operating Costs:
  - Overhead Costs: $35,397
  - Debt Service (5%-20yr.): $-
  - Sub-Total: $35,397

- Total Operating Costs: $65,062

10. Revenue Impact:

- Gain/Loss in Annual Revenue
- Assessment, Contribution-in-Aid-of-Construction
- Grants & Other

11. Source of Funds:

<table>
<thead>
<tr>
<th>Source</th>
<th>Prior Years</th>
<th>1st Year</th>
<th>2nd Year</th>
<th>3rd Year</th>
<th>4th Year</th>
<th>5th Year</th>
<th>6th thru 10th Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need</td>
<td>$150,000</td>
<td>$300,000</td>
<td>$150,000</td>
<td>$500,000</td>
<td>$450,000</td>
<td>$450,000</td>
<td>$359,000</td>
</tr>
<tr>
<td>Revenues *</td>
<td>$37,500</td>
<td>$175,000</td>
<td>$125,000</td>
<td>$125,000</td>
<td>$112,500</td>
<td>$112,500</td>
<td>$89,750</td>
</tr>
<tr>
<td>Borrowing</td>
<td>$-</td>
<td>$-</td>
<td>$-</td>
<td>$-</td>
<td>$-</td>
<td>$-</td>
<td>$-</td>
</tr>
<tr>
<td>Assess., Contr.-in-Aid</td>
<td>$-</td>
<td>$-</td>
<td>$-</td>
<td>$-</td>
<td>$-</td>
<td>$-</td>
<td>$-</td>
</tr>
<tr>
<td>Reserves</td>
<td>$112,500</td>
<td>$125,000</td>
<td>$375,000</td>
<td>$375,000</td>
<td>$337,500</td>
<td>$337,500</td>
<td>$269,250</td>
</tr>
</tbody>
</table>

12. Departmental Priority Rating:

- High X
- Medium
- Low
- Legally Mandated

8
1. Proposal Title: Knowledge Management - Knowledge Sharing Program

2. Location: Main Office

3. Description:
   This project is meant to provide funds for the development of final plans and implementation of the recommendations from the Knowledge Management needs assessment work completed in prior years. Additional work will be required in 2014 and beyond to address changing needs of the expanded workforce following the Allentown system lease.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
   A Knowledge Management program will include a structured method to begin capturing knowledge held by long-tenured employees and making that knowledge available for sharing with existing or future employees. Due to LCA's historical mode of operations, which relies on employee knowledge versus written procedures, LCA's operating, business and compliance performance is at risk until knowledge is captured via SOPs, process maps, team-building and mentoring, and IT systems. A skill-based pay system will also promote knowledge-sharing via incentivizing employees to obtain additional skills.

5. Status of Proposal:
   Preliminary Estimate
   Plans and Specs Completed
   Other (Specify) contracted in 2012

6. Cost of Land Rights:
   Preliminary Estimate ac. ☒ @ ___________ /acre
   Plans and Specs Completed l.f. ☒ @ ___________ /lin ft.
   Total: $ -

7. Status of Land Rights:
   Not Yet Acquired
   Partly Acquired
   LCA Owned ☒
   No Land Involved

8. Estimated Costs:
   Staff $ 190,500
   Land Acquisition $ 
   Construction/Equip. $ 
   Professional Services $ 375,750
   Other (Labor) $ 
   Contingencies $ 30,000
   Total Project Cost $ 596,250
   Total Operating Costs $ -

   Add. Personnel Man-Hrs. $ -
   Indirect Operating Costs:
   Overhead Costs $ -
   Debt Service (5%-20yr.) $ -
   Sub-Total $ -

10. Revenue Impact:
   Gain/Loss in Annual Revenue $ 
   Assessment, Contribution-in-Aid-of-Construction $ -
   Grants & Other $ 

11. Source of Funds:
   Prior Years $ 358,120
   1st Year $ 238,130
   2nd Year $ 
   3rd Year $ 
   4th Year $ 
   5th Year $ 
   6th thru 10th Years $ 
   Total Project Cost $ 596,250
   Total Operating Costs $ -
   Total Project Cost $ 596,250

12. Departmental Priority Rating:
   High ☒ Medium ___ Low ___ Legally Mandated _______

* The funding for this project will come initially from water fund reserves and borrowed funds with chargebacks to wastewater funds representing 25% of costs.
WATER
CAPITAL FINANCING JUSTIFICATION

Capital additions to the Water System are justified by using six revenue sources: user charges; assessments or distribution tapping fees; supply tapping fees; contributions-in-aid of construction; reimbursements from the wastewater funds; and grants. By capitalizing user charges and reduced operating costs, a capital additions justification can be derived.

For purposes of this presentation, we have grouped developer contributions and grants as "construction contributions." Reimbursements from the wastewater fund and the City of Allentown systems are included under Operating Revenues.

We have assumed revenues based on the existing water rates, with incremental net revenues (gross revenues less operating expenses) available for debt service. Under current conditions, we estimate that 70 percent of user charge revenue is available as incremental net revenue. This available amount has been capitalized to determine additional borrowing capacity.

The Water Capital Plan is separated by service area with the following assumptions used to develop this report:

1. Additional customer estimates are based on past average experience and LCA records of proposed development.

2. Average annual residential usage and gross revenue at current rates:

<table>
<thead>
<tr>
<th>Usage (gals)</th>
<th>Gross Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFR – Central Lehigh Division</td>
<td>34,060</td>
</tr>
<tr>
<td>MFR – North Whitehall &amp; Washington Township Divisions</td>
<td>28,250</td>
</tr>
<tr>
<td>3/4&quot; – Central Lehigh Division</td>
<td>60,145</td>
</tr>
<tr>
<td>3/4&quot; – North Whitehall Division</td>
<td>58,440</td>
</tr>
<tr>
<td>3/4&quot; – Washington Township Division</td>
<td>49,940</td>
</tr>
</tbody>
</table>

   The specific number of connections within each division is not separately shown, but growth in each division is used in calculating the capitalized revenues.

3. New commercial/industrial revenue is derived from the additional estimated customer usage, billed at current rate schedules.
PART I - USER CHARGES

This section considers incremental revenues expected from new customer growth during the next ten years. 70% of such revenues would be available to pay for additional debt service incurred through new project financing. Capitalized revenues from residential and commercial new connections, fire service connections and miscellaneous revenues are shown in Part IV.

RESIDENTIAL NEW CONNECTIONS

The chart below shows the actual and projected number of Multi-Family Apartments (MFA) and Single-Family (SF) residential connections to the Water System. New customers resulting from acquisitions are included as follows:

![Summary of Residential Growth](image)

In 2013 the housing market began to show signs of improvement. Future growth is expected to be modest.
COMMERCIAL/INDUSTRIAL NEW CONNECTIONS

Actual connections from 2009 through 2012 and projections for 2013 through 2023 are shown below by meter size. As shown in the following chart, projections for future connections are trended slightly upward but are not expected to show a significant movement.

In addition to the new commercial connections shown in the chart above, Coca-Cola has indicated that their facility will increase water usage by approximately 173,000 gallons per day of water to meet expansion plans and Ocean Spray, which is expected to begin production in the first quarter of 2014, will ultimately need about 1 million gallons per day. No additional large industrial usage above current levels is projected.
FIRE SERVICES

The following table includes actual and projected public fire hydrant additions and private fire services resulting from new commercial/industrial connections.

<table>
<thead>
<tr>
<th>Year</th>
<th>Public Fire Hydrants</th>
<th>Private Fire Services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3/4&quot;</td>
<td>2 1/2&quot;</td>
</tr>
<tr>
<td>2009</td>
<td>20</td>
<td>-</td>
</tr>
<tr>
<td>2010</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>2011</td>
<td>5</td>
<td>72</td>
</tr>
<tr>
<td>2012</td>
<td>14</td>
<td>74</td>
</tr>
<tr>
<td>2013</td>
<td>Est</td>
<td>5</td>
</tr>
<tr>
<td>2014</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td>2015</td>
<td>11</td>
<td>125</td>
</tr>
<tr>
<td>2016</td>
<td>14</td>
<td>125</td>
</tr>
<tr>
<td>2017</td>
<td>12</td>
<td>125</td>
</tr>
<tr>
<td>2018</td>
<td>13</td>
<td>125</td>
</tr>
<tr>
<td>2019</td>
<td>14</td>
<td>125</td>
</tr>
<tr>
<td>2020</td>
<td>14</td>
<td>125</td>
</tr>
<tr>
<td>2021</td>
<td>14</td>
<td>125</td>
</tr>
<tr>
<td>2022</td>
<td>14</td>
<td>125</td>
</tr>
<tr>
<td>2023</td>
<td>13</td>
<td>125</td>
</tr>
</tbody>
</table>
CAPITAL FINANCING JUSTIFICATION

PART II – TAPPING FEES

Both the Supply and Distribution Tapping fees reflect a onetime payment available to justify capital projects, which are designed to meet future needs. With the exception of Clearview Manor, Madison Park North, and Crestwood subdivisions, all new customer connections will be contributing a supply tapping fee. The capacity fee table below is based on the number of new residential and industrial/commercial customers less new connections within the developments exempted from the fees by agreement. Distribution tapping fee estimates are derived from recent historical trend and anticipated payments.

<table>
<thead>
<tr>
<th>Year</th>
<th>Supply Tapping Fees</th>
<th>Special and Distribution Tapping Fees</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>$459,285</td>
<td>$70,970</td>
</tr>
<tr>
<td>2010</td>
<td>197,895</td>
<td>15,504</td>
</tr>
<tr>
<td>2011</td>
<td>122,935</td>
<td>27,211</td>
</tr>
<tr>
<td>2012</td>
<td>208,424</td>
<td>44,000</td>
</tr>
<tr>
<td>2013 Est</td>
<td>170,000</td>
<td>20,000</td>
</tr>
<tr>
<td>2014</td>
<td>223,570</td>
<td>20,000</td>
</tr>
<tr>
<td>2015</td>
<td>223,775</td>
<td>20,000</td>
</tr>
<tr>
<td>2016</td>
<td>231,445</td>
<td>25,000</td>
</tr>
<tr>
<td>2017</td>
<td>213,730</td>
<td>25,000</td>
</tr>
<tr>
<td>2018</td>
<td>219,765</td>
<td>25,000</td>
</tr>
<tr>
<td>2019</td>
<td>254,425</td>
<td>25,000</td>
</tr>
<tr>
<td>2020</td>
<td>232,865</td>
<td>25,000</td>
</tr>
<tr>
<td>2021</td>
<td>239,780</td>
<td>25,000</td>
</tr>
<tr>
<td>2022</td>
<td>256,135</td>
<td>25,000</td>
</tr>
<tr>
<td>2023</td>
<td>255,655</td>
<td>25,000</td>
</tr>
</tbody>
</table>

PART III - CONSTRUCTION CONTRIBUTION

The background of these estimates can be obtained by summing the contributions from Project Detail Reports, W-1, W-2, W-10, W-15 and W-47. In addition, since the water fund will be initially paying for various studies and computerization efforts (A-2, A-3, A-5, A-6 and A-8) which also benefit the wastewater fund, a 25% reimbursement will be made to the water fund from the wastewater fund.
The following calculations indicate whether current revenues are sufficient to meet current annual debt service expenses. The revenues and expenses are for all water divisions.

### PART IV – TOTAL CAPITAL FINANCING JUSTIFICATION

<table>
<thead>
<tr>
<th>Year</th>
<th>Commercial Connections</th>
<th>Commercial Revenues</th>
<th>Fire Service Connections</th>
<th>Fire Service Revenues</th>
<th>Tapping Fees</th>
<th>Construction Contributions</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>2,382,847</td>
<td>162,811</td>
<td>243,775</td>
<td>522,800</td>
<td>3,312,033</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>1,919,436</td>
<td>194,538</td>
<td>256,445</td>
<td>385,300</td>
<td>2,755,719</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>675,364</td>
<td>132,832</td>
<td>238,730</td>
<td>695,050</td>
<td>1,741,960</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>763,153</td>
<td>154,445</td>
<td>244,785</td>
<td>343,500</td>
<td>1,505,844</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>828,266</td>
<td>142,508</td>
<td>279,425</td>
<td>300,090</td>
<td>1,559,199</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>674,338</td>
<td>192,045</td>
<td>257,865</td>
<td>309,000</td>
<td>1,433,248</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2021</td>
<td>676,061</td>
<td>140,015</td>
<td>264,780</td>
<td>309,000</td>
<td>1,389,856</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2022</td>
<td>888,315</td>
<td>158,927</td>
<td>281,135</td>
<td>309,000</td>
<td>1,637,377</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2023</td>
<td>891,297</td>
<td>151,114</td>
<td>255,655</td>
<td>309,000</td>
<td>1,607,066</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$13,484,645</td>
<td>$1,602,431</td>
<td>$2,556,145</td>
<td>$3,856,185</td>
<td>$21,509,406</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### PART V – OUTSTANDING DEBT JUSTIFICATION

The following calculations indicate whether current revenues are sufficient to meet current annual debt service expenses. The revenues and expenses are for all water divisions.

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Expected Debt (31 December 2012)</td>
<td>$34,018,940</td>
</tr>
<tr>
<td>Annual Debt Service</td>
<td>$2,973,555</td>
</tr>
<tr>
<td>Including 15% coverage (2012)</td>
<td></td>
</tr>
<tr>
<td>Estimated Annual Revenue 2012</td>
<td></td>
</tr>
<tr>
<td>Large Industrial</td>
<td>$790,000</td>
</tr>
<tr>
<td>Other Non-Residential</td>
<td>2,250,000</td>
</tr>
<tr>
<td>Residential</td>
<td>3,230,000</td>
</tr>
<tr>
<td>Fire Service</td>
<td>960,000</td>
</tr>
<tr>
<td>Interest Income &amp; Other</td>
<td>110,000</td>
</tr>
<tr>
<td>Rental Income</td>
<td>119,000</td>
</tr>
<tr>
<td>Total Estimated Revenue</td>
<td>$7,459,000</td>
</tr>
<tr>
<td>Less Estimated Operating Expenses</td>
<td>(2,800,000)</td>
</tr>
<tr>
<td>Total Available for Debt Service</td>
<td>4,659,000</td>
</tr>
<tr>
<td>Total Surplus</td>
<td>$1,685,445</td>
</tr>
</tbody>
</table>
The following table shows the Authority’s water system debt and other pertinent information.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Principal Outstanding</th>
<th>Interest Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bonds:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008 Bonds</td>
<td>$ 9,735,000</td>
<td>3.55 % until 11/1/15, then variable</td>
</tr>
<tr>
<td>2010 Series A</td>
<td>11,590,000</td>
<td>3.7584%</td>
</tr>
<tr>
<td>2010 Series AA</td>
<td>7,780,000</td>
<td>2.55%</td>
</tr>
<tr>
<td>2011 Bonds</td>
<td>1,069,942</td>
<td>2.75%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$ 30,174,942</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007 Pennworks Loan</td>
<td>2,465,344</td>
<td>2%</td>
</tr>
<tr>
<td>2011 Pennvest Loan-Meter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Replacement Phase 2</td>
<td>1,378,656</td>
<td>1% first 5 yrs, 1.51% next 15 yrs</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$ 3,844,000</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>$ 34,018,942</strong></td>
<td></td>
</tr>
</tbody>
</table>

We expect to have approximately $5,300,000 of operating reserves available and an estimated $5,000,000 of 2010 Construction fund monies and capital reserves to pay future capital costs.

**PART VI – CONCLUSION**

The following table provides a summary of sources and use of funds for the 10-year capital plan:

<table>
<thead>
<tr>
<th>Sources of Funds:</th>
<th>$21,509,406</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues Justified (Part IV)</td>
<td></td>
</tr>
<tr>
<td>Available Reserves and Construction Funds</td>
<td>10,333,000</td>
</tr>
<tr>
<td><strong>Total Sources</strong></td>
<td><strong>$31,842,406</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Use of Funds:</th>
<th>$21,770,780</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Capital Costs</td>
<td>$17,894,150</td>
</tr>
<tr>
<td>Projects (A-2 through A-8)</td>
<td>3,876,630</td>
</tr>
<tr>
<td><strong>Total Use of Funds</strong></td>
<td><strong>$21,770,780</strong></td>
</tr>
</tbody>
</table>

As shown above, total revenue sources significantly exceed total use of funds. Although additional debt service for future debt borrowings is expected to be needed by 2016, the Capital Plan is fully justified by new revenues and should not result in a rate increase.
## LEHIGH COUNTY AUTHORITY
### WATER
#### 2014-2023 CAPITAL PROGRAM

<table>
<thead>
<tr>
<th>Project #</th>
<th>Name or Title of Proposal</th>
<th>Approvals</th>
<th>Project Cost</th>
<th>This Capital Program</th>
<th>Dept. Priority</th>
<th>Funding (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stage (1)</td>
<td>Amount</td>
<td>Total Cost (2)</td>
<td>Prior Years’</td>
<td>2014</td>
<td>2015</td>
</tr>
<tr>
<td>W-1</td>
<td>A</td>
<td>NA</td>
<td>$1,475,000</td>
<td>$ -</td>
<td>$115,000</td>
<td>$125,000</td>
</tr>
<tr>
<td>W-2</td>
<td>A</td>
<td>NA</td>
<td>1,600,000</td>
<td>-</td>
<td>100,000</td>
<td>100,000</td>
</tr>
<tr>
<td>W-3</td>
<td>A</td>
<td>NA</td>
<td>950,000</td>
<td>-</td>
<td>75,000</td>
<td>75,000</td>
</tr>
<tr>
<td>W-8</td>
<td>A</td>
<td>NA</td>
<td>620,000</td>
<td>-</td>
<td>62,000</td>
<td>62,000</td>
</tr>
<tr>
<td>W-10</td>
<td>A</td>
<td>Partial-D</td>
<td>2,960,000</td>
<td>-</td>
<td>500,000</td>
<td>400,000</td>
</tr>
<tr>
<td>W-12</td>
<td>A</td>
<td>NA</td>
<td>370,000</td>
<td>-</td>
<td>60,000</td>
<td>60,000</td>
</tr>
<tr>
<td>W-33</td>
<td>A</td>
<td>NA</td>
<td>1,794,000</td>
<td>-</td>
<td>168,000</td>
<td>171,000</td>
</tr>
</tbody>
</table>

Subtotal Annual: $10,489,000

**PREVIOUSLY AUTHORIZED (4)**

| W-19 | Water Facility Emergency Power Capability | C | 1,624,717 | 1,624,500 | 1,449,500 | 175,000 | - | - | - | - | - | 1,750,000 |
| W-44 | Lynn Water Company Improvements | Various | 75,000 | 124,000 | 44,000 | 80,000 | - | - | - | - | - | 180,000 |
| W-27 | Aradale Pump Station Improvements | C | 1,166,750 | 1,166,750 | 200,000 | - | 966,750 | - | - | - | - | 966,750 |
| W-46 | Water System Hydraulic Model | C | 28,580 | 28,400 | 20,810 | - | 75,900 | - | - | - | - | 75,900 |
| W-51 | Route 309 Crossing at Sand Spring Road | Various | 46,200 | 190,000 | 35,000 | - | 155,000 | - | - | - | - | 155,000 |

Subtotal Previously Authorized: $3,389,250

**PENDING AUTHORIZATION**

| W-6 | CLD/LCA/COA Driven General System Improvements | P | 425,000 | - | - | 100,000 | 150,000 | 100,000 | 75,000 | - | - | 425,000 |
| W-7 | Tautletown Transmission Main - Seg 2 | P | 752,000 | - | - | 500,000 | 252,000 | - | - | - | - | 752,000 |
| W-15 | LCABorough of Emmaus Interconnection | P | 819,000 | - | - | 25,000 | 85,000 | 709,000 | - | - | - | - | 819,000 |
| W-18 | Water System Master Plan Update | P | 285,000 | - | - | 140,000 | 102,000 | 43,000 | - | - | - | 285,000 |
| W-25 | Hydro-Pneumatic Pump Station Upgrades (Rte Lakes of Lynn and Bush Area) | P | 495,500 | 1,000 | 160,000 | 334,500 | - | - | - | - | - | 495,500 |
| W-37 | Additional Water Supply for Upper Millford Division | P | 726,000 | - | - | 120,000 | 450,000 | 160,000 | - | - | - | 726,000 |
| W-38 | Water System Energy Efficiency Upgrades | P | 383,000 | - | 100,000 | 150,000 | 135,000 | - | - | - | - | 383,000 |
| W-46 | LCABorough of Macungie Emergency Interconnection | P | 140,000 | - | - | - | 140,000 | - | - | - | - | 140,000 |
| W-47 | Regional Ground Water Model - Contribution | P | 105,000 | - | - | - | - | - | - | - | - | 105,000 |
| W-48 | Crestwood - New Alternate Water Supply | P | 184,500 | 2,000 | 182,500 | - | - | - | - | - | - | 182,500 |
| W-49 | CLD Auxiliary Pump Station & Main Extension Lower to Upper System | P | 933,500 | 5,000 | 125,000 | 83,500 | - | - | - | - | - | 943,000 |
| W-50 | Schantz Spring/Minesite Rd Main Extension | P | 220,000 | - | - | 175,000 | 220,000 | - | - | - | - | 220,000 |
| W-53 | Non-residential Water Meter Replacement | P | 470,000 | - | - | 265,000 | 205,000 | - | - | - | - | 470,000 |

Subtotal Pending Authorization: $5,960,500

**Grand Total**

$19,838,750 $1,944,000 $3,492,250 $3,856,900 $1,956,000 $2,394,000 $1,346,000 $4,850,000 $17,994,150

(1) As Annual item, S= Study/Planning, D= Design, C= Construction / Implementation, P= Pending Approval, E= Entire Project Approved
(2) Includes estimate of expenditures through 2012
(3) SS = Self-supporting project, Exp = Funded as general system expense, PF = Project partially funded from additional revenues and partially funded as a general system expense.
(4) Approved for stages indicated, other stages approval pending

Note: Shading indicates new project or revised project scope.
1. Proposal Title: Water Meter Installations

2. Location: All Service Areas

3. Description: All new water customers must be metered. Meters through 2" are installed by LCA; larger than 2" are installed by customer after receiving LCA approval. In addition, backflow assemblies, up to 1" are installed by LCA at new connections. Also includes funds annually to cover routine meter, mxu and backflow replacements.

4. Justification (need, function, selection of time, specific relationship to any long-term work program): All metering & backflow expenses for new installations are recovered through customer-paid standard fees.

5. Status of Proposal:
   - Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   - ac. @ /acre
   - l.f. @ /lin ft.
   - Total: $0

7. Status of Land Rights:
   - Not Yet Acquired
   - Partly Acquired
   - LCA Owned
   - X No Land Involved

8. Estimated Costs:
   - Engineering (Staff) $
   - Land Acquisition $
   - Meters/Equipment $1,115,000
   - Professional Services $
   - Other (Labor) $360,000
   - Contingencies $
   - Total Project Cost $1,475,000

   - Add. Personnel Man-Yrs.
   - Supplies & Equipment $ 
   - Maintenance Svcs $ 
   - Other $ 
   - Sub-Total $

10. Revenue Impact:
    - Gain/Loss in Annual Revenue $
    - Assessment, Contribution-in-Aid-of-Construction $1,250,000
    - Grants & Other $

11. Source of Funds:
    - Need
    - Revenues
    - Borrowing
    - Asses.
    - Contr.-in-Aid
    - Reserves

12. Departmental Priority Rating:
    - High
    - Medium
    - Low
    - Legally Mandated
1. Proposal Title: Distribution Mains - Development & Service Connections

2. Location: CLD

3. Description: Plan review and construction inspection of extensions and connections to the water system. Also included are general planning expenses.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
   To assure that development water lines and service connections to the LCA water system are designed and constructed according to LCA specifications.

5. Status of Proposal:
   - [X] Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   ac. @ ____/acre
   i.f. @ ____/lin ft.
   Total: $ ____________

7. Status of Land Rights:
   - Not Yet Acquired
   - Partly Acquired
   - LCA Owned
   - No Land Involved

8. Estimated Costs:
   - Engineering (Staff) $ 1,600,000
   - Land Acquisition $ ____________
   - Construction/Equip. $ ____________
   - Professional Services $ ____________
   - Other (Labor) $ ____________
   - Contingencies $ ____________
   - Total Project Cost $ 1,600,000

   - Add. Personnel Man-Hrs.
   - Personnel Services $ ____________
   - Supplies & Equipment $ ____________
   - Maintenance Svcs $ ____________
   - Other $ ____________
   - Sub-Total $ ____________

   Indirect Operating Costs:
   - Overhead Costs $ ____________
   - Debt Service (5%-20yr.) $ ____________
   - Total Operating Costs $ ____________

10. Revenue Impact:
    - Gain/Loss in Annual Revenue $ ____________
    - Assessment, Contribution-in-Aid-of-Construction $ 1,075,000
    - Grants & Other $ ____________

11. Source of Funds:
    Source
          | Oper. Revenues | Borrowing | Assess., Contr.-in-Aid | Reserves
    Prior Years $ ____________ | $ ____________ | $ ____________ | $ ____________ | $ ____________
    1st Year $ 100,000 | $ ____________ | $ 75,000 | $ ____________ | 25,000
    2nd Year $ 100,000 | $ ____________ | $ 75,000 | $ ____________ | 25,000
    3rd Year $ 100,000 | $ ____________ | $ 75,000 | $ ____________ | 25,000
    4th Year $ 150,000 | $ ____________ | $ 100,000 | $ ____________ | 50,000
    5th Year $ 150,000 | $ ____________ | $ 100,000 | $ ____________ | 50,000
    6th thru 10th Years $ 1,000,000 | $ ____________ | $ 650,000 | $ ____________ | 350,000

12. Departmental Priority Rating:
    - High [X]
    - Medium
    - Low
    - Legally Mandated
**Lehigh County Authority**

**CAPITAL PROGRAMMING PROJECT DETAIL**

<table>
<thead>
<tr>
<th>DEPARTMENT:</th>
<th>CAPITAL WORKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Organizational Unit:</td>
<td>Water Capital</td>
</tr>
<tr>
<td>Preparer:</td>
<td>ELH</td>
</tr>
<tr>
<td>Date:</td>
<td>10/10/13</td>
</tr>
</tbody>
</table>

1. **Proposal Title:** Distribution Mains - Upsizing / Contribution

2. **Location:** CLD and other systems

3. **Description:**
   Contribute to developer-installed systems to provide sizes indicated in the Water Master Plan, as amended; or the extension of water mains to serve a development.

4. **Justification (need, function, selection of time, specific relationship to any long-term work program):**
   To economically provide proper pipe capacities and extensions to meet future service needs.

5. **Status of Proposal:**
   - X Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. **Cost of Land Rights:**
   - Preliminary Estimate ac. @ /acre
   - Plans and Specs Completed l.f. @ /lin ft.
   - Total: $ 0

7. **Status of Land Rights:**
   - Not Yet Acquired
   - Partly Acquired
   - LCA Owned
   - X No Land Involved
   - Sub-Total $ -

8. **Estimated Costs:**
   - Engineering (Staff) $ 100,000
   - Land Acquisition $ 
   - Construction $ 860,000
   - Professional Services $ 
   - Other (Labor) $
   - Contingencies $
   - Total Project Cost $ 960,000
   - Requested in this Capital Program $ 950,000

9. **Annual Oper. Cost Impact:**
   - Incr./(Decr.)
   - Add. Personnel Man-Hrs. $
   - Personnel Services $
   - Supplies & Equipment $
   - Maintenance Svcs $
   - Other $
   - Sub-Total $
   - Indirect Operating Costs:
     - Overhead Costs $
     - Debt Service (5%-20yr.) $ 76,230
     - Total Sub-Total $ 76,230
   - Total Operating Costs $ 76,230

10. **Revenue Impact:**
    - Gain/Loss in Annual Revenue $
    - Assessment, Contribution-in-Aid-of-Construction $
    - Grants & Other $

11. **Source of Funds:**
    | Source |
    |-------------------|-------------------|-------------------|-------------------|-------------------|
    | Oper. Revenues | Borrowing | Assess., Contr.-in-Aid | Reserves |
    | Need | $ | $ | $ | $ |
    | Prior Years | $ | $ | $ | $ |
    | 1st Year | $ 75,000 | $ | $ 75,000 | $ |
    | 2nd Year | $ 75,000 | $ | $ 75,000 | $ |
    | 3rd Year | $ 100,000 | $ | $ 100,000 | $ |
    | 4th Year | $ 100,000 | $ | $ 100,000 | $ |
    | 5th Year | $ 100,000 | $ | $ 100,000 | $ |
    | 6th thru 10th Years | $ 500,000 | $ | $ 500,000 | $ |

12. **Departmental Priority Rating:**
    - High X
    - Medium
    - Low
    - Legally Mandated

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Lehigh County Authority
CAPITAL PROGRAMMING PROJECT DETAIL

DEPARTMENT: CAPITAL WORKS
Sub-Organizational Unit: Water Capital
Date: 8/15/13

1. Proposal Title: CLD- LCA/COA Driven General System Improvements
2. Location: UMT

3. Description:
Improvements to the Central Lehigh Division to maximize water supplies from the City of Allentown (COA) interconnection. This project will include distribution system improvements, chlorine injection stations as well as power activated valves and metring at the reservoirs.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
With the completion of the COA, Phase 2 interconnect with the City system, significant flows of up to 7-MGD will be entering the distribution system from another location and a new direction. To maximize the benefits of these flows throughout the system, improvements to tie loops, add disinfection and control rate of fill and draw at the reservoirs may be necessary. These improvements will help flows, maintain water quality and pressure.

5. Status of Proposal:
- Preliminary Estimate
- Plans and Specs Completed
- Other ( Specify)

6. Cost of Land Rights:
- 2 ac. @ $15,000 /acre
- 1500 l.f. @ $2.00 /lin ft.
- Total: $33,000

7. Status of Land Rights:
- Not Yet Acquired
- Partly Acquired
- LCA Owned
- No Land Involved

8. Estimated Costs:
- Engineering (Staff) $28,000
- Land Acquisition $33,000
- Construction/Equip. $264,000
- Professional Services $68,000
- Other (Labor) $32,000
- Total Project Cost $425,000

- Add. Personnel Man-Hrs. 150
- Personnel Services $3,416
- Supplies & Equipment $1,500
- Maintenance Svcs $500
- Other $0
- Sub-Total $5,416

Indirect Operating Costs:
- Overhead Costs $6,148
- Debt Service (5%-20yr.) $34,103
- Sub-Total $40,251
- Total Operating Costs $45,667

10. Revenue Impact:
- Gain/Loss in Annual Revenue $0
- Assessment, Contribution-in-Aid-of-Construction $0
- Grants & Other $0

11. Source of Funds:

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<thead>
<tr>
<th>Source</th>
<th>Need</th>
<th>Oper. Revenues</th>
<th>Borrowing</th>
<th>Assess., Contr.-in-Aid-of-Construction</th>
<th>Reserves</th>
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<tbody>
<tr>
<td>Prior Years</td>
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<td>4th Year</td>
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<tr>
<td>5th Year</td>
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<td>6th thru 10th Years</td>
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12. Departmental Priority Rating:
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<th>High</th>
<th>Medium</th>
<th>Low</th>
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<td>X</td>
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21
1. Proposal Title: Trexlertown Transmission Main - Segment 2

2. Location: CLD

3. Description: Construction of approximately 2000 LF. of 16" transmission mains, from the existing 20" main along Rt. 100, @ K & H Window World, to the existing 16" main in the alley, South of Rt. 222 and West of the railroad tracks.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
The project will complete an important transmission loop which will enhance system performance and reliability, and provide public fire protection to the properties close to the route. Properties along the route would not be assessed and would not be required to connect. Properties that want to connect will pay the standard Capital Recovery and Meter Fees.

5. Status of Proposal:
   - Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   - Preliminary Estimate ac. @ /acre
   - Plans and Specs Completed 1,700 l.f. @ $20.00 /lin ft.
   - Total: $34,000

7. Status of Land Rights:
   - Not Yet Acquired
   - Partly Acquired
   - LCA Owned
   - No Land Involved

8. Estimated Costs:
   - Engineering (Staff) $140,000
   - Land Acquisition $35,000
   - Construction/Equip. $465,000
   - Professional Services $47,000
   - Other $3,600
   - Contingencies $65,000
   - Total Project Cost $752,000
   - Requested in this Capital Program $752,000

   - Add. Personnel Man-Hrs. 10
   - Personnel Services $228
   - Supplies & Equipment $200
   - Maintenance Svcs $100
   - Other $528
   - Sub-Total Indirect Operating Costs $528

   - Debt Service (5%-20yr.) $60,342
   - Total Operating Costs $61,280

10. Revenue Impact:
    - Gain/Loss in Annual Revenue * $800
    - Assessment, Contribution-in-Aid-of-Construction $-
    - Grants & Other $-

11. Source of Funds:
    - Need Oper. Revenues Borrowing Assess., Contr.-in-Aid Reserves
    - Prior Years
    - 1st Year
    - 2nd Year $500,000 $500,000
    - 3rd Year $252,000 $252,000
    - 4th Year
    - 5th Year
    - 6th thru 10th Years

12. Departmental Priority Rating: 22
1. **Proposal Title:** Water Company Acquisitions

2. **Location:** All

3. **Description:** $60,000 annually is included for involvement in actively pursuing water system acquisitions. In addition, $2,000 annually is allocated for payments made to the former owners of the Clearview Manor, Crestwood, Green Hills and Lynn Water Company as new customers connect to those systems.

4. **Justification (need, function, selection of time, specific relationship to any long-term work program):** Payments are required by terms of the acquisition agreements.

5. **Status of Proposal:**
   - X Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. **Cost of Land Rights:**
   - ac. @ /acre
   - l.f. @ /lin ft.
   - Total: $ 0

7. **Status of Land Rights:**
   - Not Yet Acquired
   - Partly Acquired
   - X LCA Owned
   - No Land Involved

8. **Estimated Costs:**
   - Engineering (Staff) $ 550,000
   - System Acquisition $ 
   - Construction/Equip. $ 
   - Professional Services $ 50,000
   - Other (Connection Fees) $ 20,000
   - Contingencies $ 
   - Total Project Cost $ 620,000

   Requested in this Capital Program $ 620,000

   - Add. Personnel Man-Hrs. $ -
   - Personnel Services $ -
   - Supplies & Equipment $ -
   - Maintenance Svcs $ -
   - Other $ -
   - Sub-Total $ -

10. **Indirect Operating Costs:**
    - Overhead Costs $ -
    - Debt Service (5%-20yr.) $ -
    - Sub-Total $ -

11. **Total Operating Costs** $ -

12. **Revenue Impact:**
    - Gain/Loss in Annual Revenue $ 64,300
    - Assessment, Contribution-in-Aid-of-Construction $ -
    - Grants & Other $ -

13. **Source of Funds:**
    - Prior Years $ 62,000
    - 1st Year $ 62,000
    - 2nd Year $ 62,000
    - 3rd Year $ 62,000
    - 4th Year $ 62,000
    - 5th Year $ 62,000
    - 6th thru 10th Years $ 310,000

14. **Departmental Priority Rating:**
    - High X Medium Low Legally Mandated
Lehigh County Authority

CAPITAL PROGRAMMING PROJECT DETAIL

DEPARTMENT: OPERATIONS
Sub-Organizational Unit: Water Capital
Date: 10/13/15

1. Proposal Title: Mobile Equipment

2. Location: N/A

3. Description:
   - 2014: 1 Cargo Van & 1 Utility Tk
   - 2015: 1 Pick-up & 1 Dump Tk 5T
   - 2016: 1 Utility Tk. & 1 SUV
   - 2018: Undefined
   - 2019-2023: Undefined

4. Justification (need, function, selection of time, specific relationship to any long-term work program):

   Vehicles are replacements. Aged vehicles will be traded in or sold to the highest bidder.

5. Status of Proposal:
   - X Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   - Plans and Specs Completed
   - Total: l.f. @ /lin ft.
   - $ 0

7. Status of Land Rights:
   - Not Yet Acquired
   - Partly Acquired
   - LCA Owned
   - X No Land Involved

8. Estimated Costs:
   - Engineering (Staff) $ 2,500
   - Construction/Equip. $ 717,500
   - Professional Services $
   - Other (Labor) $
   - Contingencies $
   - Total Project Cost $ 720,000
   - Requested in this Capital Program $ 720,000

   - Personnel Services
   - Supplies & Equipment $ -
   - Maintenance Svcs $
   - Other $
   - Sub-Total $
   - Indirect Operating Costs:
     - Overhead Costs $
     - Debt Service (5%-20yr.) $
     - Sub-Total $
     - Total Operating Costs $

10. Gain/Loss in Annual Revenue
    - Assessment, Contribution-in-Aid-of-Construction $ 81,000
    - Grants & Other $ 81,000

11. Source of Funds:
    - Oper. Revenues
    - Borrowing
    - Assess., Contr.-in-Aid*
    - Reserves
    - Prior Years $ 60,000
    - 1st Year $ 60,000
    - 2nd Year $ 85,000
    - 3rd Year $ 105,000
    - 4th Year $ 35,000
    - 5th Year $ 35,000
    - 6th thru 10th Years $ 400,000

12. Departmental Priority Rating:
    - High X
    - Medium
    - Low
    - Legally Mandated

24
1. Proposal Title: Main Replacement Projects

2. Location: Suburban Divs.

3. Description: Replacement of cast iron (CI) mains in water systems that may experience high failure rates.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
   Replacing CI mains will reduce the frequency of breaks in the system thereby saving the Authority repair costs, customer outages and reducing the potential for damage which can occur to private property.
   This plan and the funding will provide for future projects on an as-needed basis.

5. Status of Proposal:
   Preliminary Estimate
   Plans and Specs Completed
   X Other (Specify)

6. Cost of Land Rights:
   Preliminary Estimate
   Plans and Specs Completed
   X Other (Specify)

7. Status of Land Rights:
   Not Yet Acquired
   Partly Acquired
   LCA Owned
   X No Land Involved

8. Estimated Costs:
   Engineering (Staff) $ 415,000
   Land Acquisition $ -
   Construction/Equip. $ 2,040,000
   Professional Services $ 120,000
   Other (Labor) $ -
   Contingencies $ 385,000
   Total Project Cost $ 2,960,000
   Requested in this Capital Program $ 2,960,000

   Add. Personnel Man-Hrs. (50)
   Personnel Services $ (1,139)
   Supplies & Equipment $ (400)
   Maintenance Svcs $ (2,000)
   Other $ (1,450)
   Sub-Total $ (4,989)

10. Revenue Impact:
    Gain/Loss in Annual Revenue $ -
    Assessment, Contribution-in-Aid-of-Construction $ -
    Grants & Other $ -

11. Source of Funds:
    Source
    Need
    Revenues
    Borrowing
    Contr.-in-Aid
    Reserves
    Prior Years $ -
    1st Year $ 500,000 $ -
    2nd Year $ 500,000 $ -
    3rd Year $ 400,000 $ -
    4th Year $ 400,000 $ -
    5th Year $ 400,000 $ -
    6th thru 10th Years $ 760,000 $ -
Lehigh County Authority

CAPITAL PROGRAMMING PROJECT DETAIL

DEPARTMENT: Capital Works
Sub-Organizational Unit: Water Capital
Date: 10/14/13

1. Proposal Title: LCA / Borough of Emmaus Interconnection
2. Location: CLD

3. Description: Construction of approximately 2,000 linear-feet of 12-inch diameter water main and a two-way meter pit to connect the Central Lehigh Division to the Borough of Emmaus's water system.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
Interconnections as supported by the LCA Strategic Plan provide added reliability and redundancy in water supply for both systems. Per the agreement the parties will equally share the cost of the interconnection.

5. Status of Proposal:
   - Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   - Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

7. Status of Land Rights:
   - Partly Acquired
   - LCA Owned
   - No Land Involved

8. Estimated Costs:
   - Engineering (Staff) $ 75,000
   - Land Acquisition $ 42,000
   - Construction/Equip. $ 540,000
   - Professional Services $ 62,000
   - Other (Labor) $
   - Contingencies $ 100,000

   - Add. Personnel Man-Hrs. 10
   - Personnel Services $ 219
   - Supplies & Equipment $
   - Maintenance Svcs Digital $
   - Other $

10. Revenue Impact:
    - Gain/Loss in Annual Revenue $
    - Assessment, Contribution-in-Aid-of-Construction $ 409,500
    - Grants & Other $

11. Source of Funds:
    - Need
    - Revenues
    - Borrowing
    - Assess., Contr.-in-Aid
    - Reserves

12. Departmental Priority Rating:
    - High
    - Medium
    - Low X
    - Legally Mandated
1. Proposal Title: Water System Master Plans

2. Location: CLD, NWD

3. Description:

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
   It has been 18 years since the Master Plan for Water System development in the CLD was updated. This update, along with the development of a Master Plan for Water System development in the NWD, will provide for the orderly improvement and expansion of the water systems to meet the distribution, storage, supply, and treatment needs of the service areas in an economical and efficient manner. The recently completed CLD model will be utilized by the selected consultant for some of the analysis.

5. Status of Proposal:
   X Preliminary Estimate
   ___ Plans and Specs Completed
   ___ Other (Specify) ______

6. Cost of Land Rights:
   ac. @ __________/acre
   l.f. @ __________/lin ft.
   Total: $ __________

7. Status of Land Rights:
   ___ Not Yet Acquired
   ___ Partly Acquired
   X LCA Owned
   ___ No Land Involved

8. Estimated Costs:
   Engineering (Staff) $ 73,000
   Land Acquisition $ ______
   Construction/Equip. $ ______
   Professional Services $ 180,000
   Other (Misc.) $ 6,000
   Contingencies $ 26,000
   Total Project Cost $ 285,000
   Requested in this Capital Program $ 285,000

   Add. Personnel Man-Hrs. 
   Personnel Services $ ______
   Supplies & Equipment $ ______
   Maintenance Svcs $ ______
   Other $ ______
   Sub-Total $ ______
   Indirect Operating Costs:
   Overhead Costs $ ______
   Debt Service (5%-20yr.) $ ______
   Sub-Total $ ______
   Total Operating Costs $ ______

10. Revenue Impact:
    Gain/Loss in Annual Revenue $ ______
    Assessment, Contribution-in-Aid-of-Construction $ ______
    Grants & Other $ ______

11. Source of Funds:
    Oper. Assess.,
    Need Revenues Borrowing Contr.-in-Aid Reserves
    Prior Years $ ______ $ ______ $ ______ $ ______ $ ______
    1st Year $ ______ $ ______ $ ______ $ ______ $ ______
    2nd Year $ 140,000 $ ______ $ ______ $ ______ $ 140,000
    3rd Year $ 102,000 $ ______ $ ______ $ ______ $ 102,000
    4th Year $ 43,000 $ ______ $ ______ $ ______ $ 43,000
    5th Year $ ______ $ ______ $ ______ $ ______ $ ______
    6th thru 10th Years $ ______ $ ______ $ ______ $ ______ $ ______

12. Departmental Priority Rating:
    High ______ Medium X Low ______ Legally Mandated ______
1. Proposal Title: Water Facility Emergency Power Capability

2. Location: Varies

3. Description: Includes the purchase of 2 mobile generators (completed in 2008). Fixed generator and automatic transfer switches with plug-ins will be installed at the primary facility in eight satellite systems & two WTPs (to be complete by mid-Nov 2013) and at LCA's Office Operations Center (to be complete by Mar-2014). The project also reconfigured the electrical connection for a trailer mounted generator at the Heidelberg Heights WTP (completed in 2010) to allow it to be utilized at other sites in the event of an emergency.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
Will provide the means to run well stations and wastewater treatment plants, to sustain water and wastewater service service in the event of long term local or regional power outages; and maintain a fully functional Operations Center.

5. Status of Proposal:
   - X Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   - ac. @ ___________ /acre
   - l.f. @ $ 20.00 /lin ft.
   - Total: $ 0

   - Add. Personnel Man-Hrs. 50
   - Personnel Services $ 1,093
   - Supplies & Equipment $ 2,000
   - Maintenance Svcs $ 4,000
   - Other $ 100
   - Sub-Total $ 7,193

10. Revenue Impact:
   - Gain/Loss in Annual Revenue * $ 800
   - Assessment, Contribution-in-Aid-of-Construction $ -
   - Grants & Other $ 0

11. Source of Funds:

12. Departmental Priority Rating:
   - High X
   - Medium
   - Low
   - Legally Mandated
Lehigh County Authority

CAPITAL PROGRAMMING PROJECT DETAIL

DEPARTMENT: CAPITAL WORKS
Sub-Organizational Unit: Water Capital
Date: 10/14/13

1. Proposal Title: Hydro-Pneumatic Pump Station Upgrades
2. Location: PLD, UMCD

3. Description: Includes the equipment necessary to convert the hydro-pneumatic operated equipment to a variable frequency drive-controlled double pumping system. The project also allocates funding for some electrical upgrades. Extensive upgrades are out-of-scope.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
Currently, Pine Lakes of Lynn and the Upper Milford Central Division (UMCD) are the only two hydro-pneumatic systems that LCA operates and both have proven to be problematic over time. The upgrades will enhance the reliability of service.

Note: Depending upon the outcome of the UMCD Radon Study (currently underway) proportional share of funding allocated in this project for UMCD double pumping will be reallocated to a new project offering the best solution to provide water that will meet future EPA requirements.

5. Status of Proposal:
   - X Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   - ac. @ /acre
   - l.f. @ /lin ft.
   - Total: $

7. Status of Land Rights:
   - Not Yet Acquired
   - Partly Acquired
   - LCA Owned
   - X No Land Involved

8. Estimated Costs:
   - Engineering (Staff) $ 75,000
   - Land Acquisition $
   - Construction/Equip. $ 260,000
   - Professional Services $ 110,000
   - Other (permits/misc.) $ 6,500
   - Contingencies $ 44,000
   - Total Project Cost $ 495,500
   - Requested in this Capital Program $ 494,500

   - Add. Personnel Man-Hrs. (300)
     - Personnel Services $ (6,831)
     - Supplies & Equipment $
     - Maintenance Svcs $
     - Other $ (1,050)
     - Sub-Total $ (7,881)
   - Indirect Operating Costs:
     - Overhead Costs $ (12,296)
     - Debt Service (5%-20yr.) $ 39,760
     - Sub-Total $ 27,464
   - Total Operating Costs $ 19,583

10. Revenue Impact:
    - Gain/Loss in Annual Revenue $
    - Assessment, Contribution-in-Aid-of-Construction $ -
    - Grants & Other $

11. Source of Funds:

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<thead>
<tr>
<th>Source</th>
<th>Oper. Revenues</th>
<th>Borrowing</th>
<th>Assess., Contr.-in-Aid</th>
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<td>6th thru 10th Years</td>
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</table>

12. Departmental Priority Rating:
   - High X Medium Low Legally Mandated
1. Proposal Title: Arcadia Pumping Station Improvements

2. Location: AWD

3. Description: Includes re-piping the station, replacing distribution pumps with variable frequency drives (VFD), emergency generator, SCADA control, PH adjustment system and a redundant fire pump to meet future needs.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
   The pump station was designed to serve only the Arcadia West Industrial Park. Given projected expansion of the system to serve the Hillwood Project, the Northwestern Elementary School Expansion, the Gateway View development and various existing commercial properties along Route 873, a full evaluation and upgrade of the station will be required.

5. Status of Proposal:
   - Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   - ac. @ ___________ /acre
   - l.f. @ ___________ /lin ft.
   - Total: $ ___________

7. Status of Land Rights:
   - Not Yet Acquired
   - Partly Acquired
   - LCA Owned
   - X No Land Involved

8. Estimated Costs:
   - Engineering (Staff) $ 135,000
   - Land Acquisition $ ___________
   - Construction/Equip. $ 768,000
   - Professional Services $ 165,000
   - Other (Misc.) $ 18,500
   - Contingencies $ 80,250
   - Total Project Cost $ 1,166,750

   - Add. Personnel Man-Hrs. $ ___________
   - Supplies & Equipment $ 1,000
   - Maintenance Svcs $ 2,000
   - Other (electric) $ 8,000
   - Total: $ 11,000

10. Revenue Impact:
   - Gain/Loss in Annual Revenue $ ___________
   - Assess., Contribution-in-Aid-of-Construction $ ___________
   - Grants & Other $ ___________

11. Source of Funds:
    - Need
    - Oper. Revenues: $ 200,000
    - Borrowing: $ 200,000
    - Assess., Contr.-in-Aid: $ 966,750
    - Reserves: $ ___________

12. Departmental Priority Rating:
    - High X
    - Medium
    - Low
    - Legally Mandated
1. Proposal Title: Other Equipment
2. Location:
3. Description: Individual equipment items greater than $5,000.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
Replacement and new equipment is required from time to time to maintain and improve service integrity and reliability. Items include electric and electronic equipment, pumping equipment, leak detection equipment and other equipment as needed.

5. Status of Proposal:
   - Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   - ac. @ /acre
   - l.f. @ /lin ft.
   - Total: $ 0

   - Add. Personnel Man-Hrs.
   - Supplies & Equipment
   - Maintenance Svcs
   - Other
   - Sub-Total

8. Estimated Costs:
   - Engineering (Staff) $ 
   - Land Acquisition $ 
   - Construction/Equip. $ 370,000
   - Professional Services $ 
   - Other (Labor) $ 
   - Contingencies $ 
   - Total Project Cost $ 370,000

10. Revenue Impact:
   - Gain/Loss in Annual Revenue $ 
   - Assessment, Contribution-in-Aid-of-Construction $ 
   - Grants & Other $ 

11. Source of Funds:
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<tr>
<th>Source</th>
<th>Oper.</th>
<th>Assess.,</th>
<th>Borrowing</th>
<th>Contr.-in-Aid</th>
<th>Reserves</th>
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<td>6th thru 10th Years</td>
<td>$ 150,000</td>
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<td>$ 150,000</td>
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12. Departmental Priority Rating:
   - High X
   - Medium
   - Low
   - Legally Mandated
Lehigh County Authority
CAPITAL PROGRAMMING PROJECT DETAIL

DEPARTMENT: OPERATIONS
Sub-Organizational Unit: Water Capital
Date: 10/13/13

1. Proposal Title: Reservoir Rehabilitation Contract
2. Location: UMT, NWT
3. Description: To contract with a national tank maintenance firm for inspection, maintenance and rehabilitation services for five above ground steel water tanks.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
The reservoirs are in need of regular inspection, maintenance and rehabilitation as they age. The contracted firm will be responsible for these continuous ongoing services for as long as LCA deems the costs to be justifiable. This arrangement takes the work load off of existing staff, both Operational and Capital Works, in planning and implementing these critical programs.

5. Status of Proposal:
   X Preliminary Estimate
   ___ Plans and Specs Completed
   ___ Other (Specify)

6. Cost of Land Rights:
   Preliminary Estimate
   ac. @ /acre
   Total: $ 0

7. Status of Land Rights:
   X No Land Involved
   ___ LCA Owned
   ___ Partly Acquired
   ___ Not Yet Acquired
   ___ Other (Specify)

8. Estimated Costs:
   Engineering (Staff) $ 30,000
   Land Acquisition
   Construction/Equip. $ 1,764,000
   Professional Services
   Other (Labor)
   Contingencies
   Total Project Cost $ 1,794,000
   Requested in this Capital Program $ 1,794,000

   Add. Personnel Man-Hrs. (1,250)
   Personnel Services $ (27,313)
   Supplies & Equipment $ (6,000)
   Maintenance Svcs
   Other
   Sub-Total $ (33,313)
   Indirect Operating Costs:
   Overhead Costs $ (49,163)
   Debt Service (5%-20yr.) $ -
   Sub-Total $ (49,163)
   Total Operating Costs $ (82,475)

10. Revenue Impact:
    Gain/Loss in Annual Revenue $ 
    Assessment, Contribution-in-Aid-of-Construction $ -
    Grants & Other $ 

11. Source of Funds:
    Source
    Need
    Revenues
    Borrowing
    CONTR.-IN-AID
    Reserves
    Prior Years
    1st Year $ 168,000
    2nd Year $ 171,000
    3rd Year $ 175,000
    4th Year $ 180,000
    5th Year $ 200,000
    6th thru 10th Years $ 900,000

12. Departmental Priority Rating:
    High X Medium Low Legally Mandated
1. Proposal Title: Additional Water Supply for Upper Milford Division

2. Location: Upper Milford Twp.

3. Description: Three viable options were considered, connection to the CLD system, connection to the Emmaus system; both of which would require a water pressure booster pumping station; and development of new ground water supply (wells). Development of new ground water supply is reflected in this project detail sheet.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
When the customers in the proposed Estates at Maple Ridge development are added to this system, the supplies will no longer have reserve capacity above the projected peak day demands.

5. Status of Proposal:

- Preliminary Estimate
- Plans and Specs Completed
- Other (Specify)

6. Cost of Land Rights:

- Preliminary Estimate
- Plans and Specs Completed
- Other (Specify)

7. Status of Land Rights:

- Not Yet Acquired
- Partly Acquired
- LCA Owned
- No Land Involved

8. Estimated Costs:

- Engineering (Staff) $50,000
- Land Acquisition $20,000
- Construction/Equip. $498,000
- Professional Services $78,000
- Other (Labor) $80,000
- Total Project Cost $726,000
- Requested in this Capital Program $726,000


- Add. Personnel Man-Hrs. 100
- Personnel Services $2,277
- Supplies & Equipment $4,000
- Maintenance Svcs $1,000
- Other $1,500
- Sub-Total $8,777

Indirect Operating Costs:

- Overhead Costs $4,100
- Debt Service (5%-20yr.) $58,256
- Sub-Total $62,356

Total Operating Costs $71,133

10. Revenue Impact:

- Gain/Loss in Annual Revenue $-
- Assessment, Contribution-in-Aid-of-Construction $-
- Grants & Other $-

11. Source of Funds:

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<thead>
<tr>
<th>Source</th>
<th>Oper. Need</th>
<th>Asses. Revenues</th>
<th>Borrowing</th>
<th>Contr.-in-Aid</th>
<th>Reserves</th>
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<td>3rd Year</td>
<td>$120,000</td>
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</table>
1. Proposal Title: Water System Operational & Energy Efficiency Upgrades
2. Location: UMT/LMT

3. Description:
This project reserves funding for the installation of Variable Frequency Drive (VFD) units and if needed energy efficient motors, primarily for double pumping facilities at four well stations in the CLD and seven others in the satellite water systems. Associated SCADA hardware and programming is included for the CLD facilities and a pump motor replacement.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
VFD units will allow pump motors to be run at variable speeds on an as needed basis that is more efficient than the current full-on or off control. In addition, the current practice of manually throttling down valves to limit pump output, which creates maintenance issues and wastes energy will be eliminated with VFD control.

5. Status of Proposal:
   - X Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   - ac. @ /acre
   - f. @ /lin ft.
   - Total: $ -

7. Status of Land Rights:
   - Not Yet Acquired
   - Partly Acquired
   - X LCA Owned
   - No Land Involved

8. Estimated Costs:
   - Engineering (Staff) $ 35,000
   - Land Acquisition $ 210,000
   - Construction/Equip. $ 70,000
   - Professional Services $ 45,000
   - Other (Labor) $ 25,000
   - Total Project Cost $ 385,000
   - Requested in this Capital Program $ 385,000

   - Add. Personnel Man-Hrs. (20)
   - Personnel Services $ (437)
   - Supplies & Equipment $ (1,000)
   - Maintenance Svcs $ (8,500)
   - Other $ (9,937)

10. Revenue Impact:
    - Gain/Loss in Annual Revenue $ -
    - Assessment, Contribution in-Aid-of-Construction $ -
    - Grants & Other $ -

11. Source of Funds:

12. Departmental Priority Rating:
   - High _______
   - Medium X
   - Low _______
   - Legally Mandated _______
**Proposed Title:** Lynn Water Company Improvements  
**Location:** Lynn Twp

**Description:** The project consists of installing customer metering equipment and well station upgrades consisting of telemetry monitoring equipment, security features, pressure tanks and new distribution pumps with VFD controllers. Everything except the new distribution pumps with VFD controllers was completed in prior years.

**Justification (need, function, selection of time, specific relationship to any long-term work program):**
The LWC acquired by LCA in July 2010 provides water service to 116 customers with the potential of 76 additional customers from an approved adjacent subdivision. The planned improvements will provide a higher level of service, reliability and allow for accurate billing.

**Status of Proposal:**
- Preliminary Estimate
- Plans and Specs Completed
- Other (Specify)

**Status of Land Rights:**
- Not Yet Acquired
- Partly Acquired
- LCA Owned
- No Land Involved

**Estimated Costs:**
- Engineering (Staff) $32,000
- Land Acquisition $0
- Construction/Equip. $76,000
- Professional Services $7,500
- Other (Permit) $1,000
- Contingencies $7,500

**Total Project Cost:** $124,000

**Requested in this Capital Program:** $80,000

**Source of Funds:**

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<th>Year</th>
<th>Need</th>
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<td>6th thru 10th Years</td>
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**Departmental Priority Rating:**
- High
- Medium
- Low
- Legally Mandated
1. Proposal Title: Water System Hydraulic Model
2. Location: CLD, NWD

3. Description:
Develop a calibrated all-pipe, hydraulic model of the Central Lehigh Division (CLD) and North Whitehall Division (NWD) water systems. The models will assist in evaluating the impact of larger users and fire flows in both systems, in evaluating an Allentown supply on the CLD system, and to plan for the orderly staging of improvements in the two systems to meet projected needs through the year 2040.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
The existing water model cannot be further expanded. Newer models provide a dynamic, detailed description of the system that can be integrated with LCA’s MUNIS, SCADA and GIS systems to utilize current data and to provide enhanced graphical output of display for analysis and planning purposes. The CLD model was completed in the prior years of the project. The NWD model will be completed in the second project year. After completing additional training in use of the CLD model, more of the NWD modeling may be attempted in-house.

5. Status of Proposal:
- Preliminary Estimate
- Plans and Specs Completed
- Other (Specify)

6. Cost of Land Rights:
- ac. @ /acre
- l.f. @ /lin ft.
- Total: $ -

7. Status of Land Rights:
- Not Yet Acquired
- Partly Acquired
- LCA Owned
- No Land Involved

8. Estimated Costs:
- Engineering (Staff) $ 96,000
- Land Acquisition $ 13,000
- Software $ 161,000
- Other (Misc.) $ 7,000
- Contingencies $ 7,000
- Total Project Cost $ 284,000
- Requested in this Capital Program $ 75,900

- Personnel Services $ -
- Supplies & Equipment $ -
- Maintenance Services $ -
- Other $ -
- Sub-Total $ -

10. Revenue Impact:
- Gain/Loss in Annual Revenue $ -
- Assessment, Contribution-in-Aid-of-Construction $ -
- Other $ -

11. Source of Funds:

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<th>Source</th>
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<td>6th thru 10th Years</td>
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12. Departmental Priority Rating:
- High
- Medium X
- Low
- Legally Mandated
1. Proposal Title: LCA/ Borough of Macungie Emergency Interconnection
2. Location: CLD

3. Description: The project consists of approximately ~100 l.f of 8" diameter water main and concrete meter vault containing a two-way meter, pressure reducing /sustaining valve and associated valves and piping.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
Inter-municipal two-way water system emergency interconnections provide added reliability of varying degrees to both systems in the event of a catastrophic event or a short term supply deficiency. In addition, the LCA Strategic Plan promotes interconnection with neighboring water system within one-half mile.

5. Status of Proposal:
- X Preliminary Estimate
- Plans and Specs Completed
- Other (Specify)

6. Cost of Land Rights:
   - Preliminary Estimate ac. @ /acre
   - Plans and Specs Completed l.f. @ /lin ft.
   - Total: $ -

7. Status of Land Rights:
- Not Yet Acquired
- Partly Acquired
- LCA Owned
- X No Land Involved

8. Estimated Costs:
   - Engineering (Staff) $ 17,000
   - Land Acquisition $ -
   - Construction/Equip. $ 77,000
   - Professional Services $ 26,000
   - Other (Misc) $ 5,000
   - Contingencies $ 15,000
   - Total Project Cost $ 140,000
   - Requested in this Capital Program $ 140,000

   - Add. Personnel Man-Hrs. 10
   - Personnel Services $ 219
   - Supplies & Equipment $ -
   - Maintenance Svs $ -
   - Other $ -
   - Total: $ 219
   - Indirect Operating Costs:
     - Overhead Costs $ 393
     - Debt Service (5%-20yr.) $ 11,234
     - Total Operating Costs $ 11,627
   - Gain/Loss in Annual Revenue $ -

10. Revenue Impact:
    - Assessment, Contribution-in-Aid-of-Construction $ -
    - Grants & Other $ -

11. Source of Funds:
    - Prior Years
    - 1st Year
    - 2nd Year
    - 3rd Year
    - 4th Year $ 140,000
    - 5th Year
    - 6th thru 10th Years

12. Departmental Priority Rating:
    - High _____ Medium _____ Low X Legally Mandated _____

Date: 10/14/13
1. Proposal Title: Regional Ground Water Model - Contribution

2. Location: CLD

3. Description: LCA, the City of Allentown and other municipalities are participating in the DEP Source Water Protection Program. The DEP consultant has developed a regional Ground Water (GW) Model, however there are limited GW monitoring locations and the data is old. Rather than duplicating efforts, it is recommended that LCA make a contribution along with other entities that would benefit from a GW model, to develop and maintain GW monitoring sites for on-going data collection.

4. Justification (need, function, selection of time, specific relationship to any long-term work program): Having access to an accurate GW Model would help entities such as LCA better manage the resource and protect the environment. In addition, the GW Model can be used to determine if the Little Lehigh Creek basin is a Critical Water Planning area. Absent any new information to the contrary, DEP may designate it as such based upon the current information.

5. Status of Proposal:
   - X Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   - ac. @ /acre
   - l.f. @ /lin ft.
   - Total: $

7. Status of Land Rights:
   - Not Yet Acquired
   - Partly Acquired
   - LCA Owned
   - X, No Land Involved

8. Estimated Costs:
   - Engineering (Staff) $ 5,000
   - Land Acquisition $ -
   - Construction/Equip. $
   - Professional Services $
   - Other (Contribution) $ 100,000
   - Contingencies $
   - Total Project Cost $ 105,000
   - Requested in this Capital Program $ 105,000

   - Add. Personnel Man-Hrs. $ -
   - Personnel Services $ -
   - Supplies & Equipment $ -
   - Maintenance Svcs $ -
   - Other $ -
   - Sub-Total $ -

   - Indirect Operating Costs:
     - Overhead Costs $ -
     - Debt Service (5%-20yr.) $ -
     - Sub-Total $ -
   - Total Operating Costs $ -

10. Revenue Impact:
    - Gain/Loss in Annual Revenue $ -
    - Assessment, Contribution-in-Aid-of-Construction $ 75,000
    - Grants & Other $ -

11. Source of Funds:
    Source | Oper. Revenues | Borrowing | Assess., Contr.-in-Aid | Reserves
    Prior Years | $ | $ | $ | $
    1st Year | $ | $ | $ | $
    2nd Year | $ 105,000 | $ | $ 75,000 | $
    3rd Year | $ | $ | $ | $
    4th Year | $ | $ | $ | $
    5th Year | $ | $ | $ | $
    6th thru 10th Years | $ | $ | $ | $

12. Departmental Priority Rating:
    High __________ Med [%] _______ Low X _______ Legally Mandated ________
1. Proposal Title: Crestwood-New/Alternate Water Supply

2. Location: NWD

3. Description: The project consists of approximately 600 ft. of 6-inch diameter water main that will connect to the main NWD system at the intersection of Rt. 873 & Crestwood Drive and extend along Crestwood Drive to the LCA well station. Piping and control valve modifications will be necessary within the well station to control the water supply. The existing wells will be put in a DEP reserve status and will not be used.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
During prolonged periods of hot weather, the capacity of the current well supply line is inadequate to meet high volume lawn watering and water restrictions must be implemented. In addition, the current wells have a high manganese content which requires frequent system flushing. At times the manganese clogs meters and service lines and is the cause for many customer complaints.

5. Status of Proposal:
- Preliminary Estimate
- Plans and Specs Completed
- Other (Specify)

6. Cost of Land Rights:
- ac. @ /acre
- l.f. @ /lin ft.
- Total: $

7. Status of Land Rights:
- Not Yet Acquired
- Partially Acquired
- LCA Owned
- X No Land Involved

8. Estimated Costs:
- Engineering (Staff) $47,000
- Land Acquisition $5,500
- Construction/Equip. $98,000
- Professional Services $8,500
- Other (Permits) $2,500
- Contingencies $23,000
- Total Project Cost $184,500
- Requested in this Capital Program $182,500

- Add. Personnel Man-Hrs.
- Personnel Services $-
- Supplies & Equipment $-
- Maintenance Svcs $-
- Other $2,400
- Sub-Total $2,400

Indirect Operating Costs:
- Overhead Costs $-
- Debt Service (5%-20yr.) $14,805
- Total Operating Costs $17,205

10. Revenue Impact:
- Gain/Loss in Annual Revenue $
- Assessment, Contribution-in-Aid-of-Construction $-
- Grants & Other $

11. Source of Funds:

<table>
<thead>
<tr>
<th>Source</th>
<th>Oper. Revenues</th>
<th>Borrowing</th>
<th>Assess., Contr.-in-Aid</th>
<th>Reserves</th>
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<td>6th thru 10th Years</td>
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12. Departmental Priority Rating:
- High
- Medium X
- Low
- Legally Mandated
1. **Proposal Title:** CLD Auxiliary Pumping Station and Main Extension - Lower to Upper System

2. **Location:** CLD

3. **Description:** The project consists of a pre-packaged 3 pump 2 MGD water booster pump station and approximately 1,600 linear-feet of 12-inch diameter interconnecting main extending from the intersection of Cetronia and Werley Roads. North along Werley, connecting to the existing main near Laurel Field in Upper Macungie Township. It is envisioned that the pump station will be located on a small permanent easement yet to be obtained.

4. **Justification (need, function, selection of time, specific relationship to any long-term work program):**
   - The CLD system is divided into two primary gravity service elevations the upper system (US) and lower systems (LS).
   - Currently water can transferred down from the US to the LS, but there are no facilities that can pump water from the LS to the US.
   - The proposed auxiliary pump station will provide added reliability and a higher level of service to the US. In addition, it will provide flexibility for utilizing water purchased from the City of Allentown.

5. **Status of Proposal:**
   - Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. **Cost of Land Rights:**
   - 0.083 ac. @ $43,560.00 /acre
   - 1500 l.f. @ $15.60 /lin ft.
   - Total: $26,998

7. **Status of Land Rights:**
   - X Not Yet Acquired
   - Not Yet Acquired
   - Partly Acquired
   - LCA Owned
   - No Land Involved

8. **Estimated Costs:**
   - Engineering (Staff) $130,000
   - Land Acquisition $30,000
   - Construction/Equip. $625,000
   - Professional Services $55,000
   - Other (Permits) $8,500
   - Contingencies $105,000
   - Total Project Cost $953,500

9. **Annual Oper. Cost Impact:**
   - Add. Personnel Man-Hrs.
   - Personnel Services $-
   - Supplies & Equipment $-
   - Maintenance Svcs $-
   - Other $-
   - Sub-Total $-

10. **Revenue Impact:**
    - Gain/Loss in Annual Revenue $-
    - Assessment, Contribution-in-Aid-of-Construction $-
    - Grants & Other $-

11. **Source of Funds:**
    - Source
      - Oper. Need
      - Revenues
      - Borrowing
      - Contr.-in-Aid
      - Reserves
    - Prior Years $5,000 $5,000 $-
    - 1st Year $125,000 $125,000 $-
    - 2nd Year $823,500 $823,500 $-
    - 3rd Year $-
    - 4th Year $-
    - 5th Year $-
    - 6th thru 10th Years $-

12. **Departmental Priority Rating:**
    - High
    - Medium X
    - Low
    - Legally Mandated
1. Proposal Title: Schantz / Minesite Main Extension
2. Location: CLD

3. Description: Construction of approximately 630 LF. of 12” transmission main from the existing 12” main along Schantz Rd, at Dunkin Donuts, to the existing 12” main in Shuler st, just south of Hamilton blvd.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
The project will complete an important transmission loop which will enhance system performance and reliability. It will also enhance the distribution of water purchased from the city of Allentown.

5. Status of Proposal:
   - X Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   - ac. @ $/acre
   - 1,700 l.f. @ $20.00 /lin ft.
   - Total: $34000

7. Status of Land Rights:
   - X Not Yet Acquired
   - Partly Acquired
   - LCA Owned
   - No Land Involved

8. Estimated Costs:
   - Engineering (Staff) $37,000
   - Land Acquisition $8,000
   - Construction/Equip. $140,000
   - Professional Services $13,000
   - Other $22,000
   - Total Project Cost $220,000

   - Add. Personnel Man-Hrs.
   - Supplies & Equipment
   - Maintenance Svcs
   - Other
   - Sub-Total

   - Indirect Operating Costs:
     - Overhead Costs
     - Debt Service (5%-20yr.) $17,653
   - Total Operating Costs $17,653

10. Revenue Impact:
    - Gain/Loss in Annual Revenue
    - Assessment, Contribution-
      in-Aid-of-Construction
    - Grants & Other

11. Source of Funds:
    - Oper. Need
    - Borrowing
    - Assess., Contr.-in-Aid
    - Reserves
    - Prior Years
    - 1st Year
    - 2nd Year $220,000
    - 3rd Year
    - 4th Year
    - 5th Year
    - 6th thru 10th Years

12. Departmental Priority Rating:
    - High
    - Medium X
    - Low
    - Legally Mandated
Lehigh County Authority
CAPITAL PROGRAMMING PROJECT DETAIL

DEPARTMENT: CAPITAL WORKS
Sub-Organizational Unit: Water Capital
Date: 8/15/13

1. Proposal Title: Route 309 Crossing @ Sand Spring Road
2. Location: NWD

3. Description:
Construction of approximately 500 LF. of 12" transmission main, from the existing 8" main located on PPL property behind 4511 Route 309, to Lehigh Community College property, south of Sand Spring Road. The project will extend water service to the west side of Route 309, leading to the future expansion of the NWD water service area in a highly populated area. At the current time there is an opportunity to cross Pa Route 309 with a significant cost savings as PennDot completed a project in project 2013 that where a casing across RT 309 was installed at LCA's request and expense less than in normal circumstances. Now that the PennDot project is complete LCA is allowed to construct the remaining segment of the main extension.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
The project will extend water service to the west side of Route 309, leading to the future expansion of the NWD water service area in a highly populated area. At the current time there is an opportunity to cross Pa Route 309 with a significant cost savings as PennDot completed a project in project 2013 that where a casing across RT 309 was installed at LCA's request and expense less than in normal circumstances. Now that the PennDot project is complete LCA is allowed to construct the remaining segment of the main extension.

5. Status of Proposal:
- Preliminary Estimate
- Plans and Specs Completed
- Other (Specify)

6. Cost of Land Rights:
- Preliminary Estimate: 450 l.f. @ $20.00 /lin ft.
- Total: $9000

7. Status of Land Rights:
- Not Yet Acquired
- Partially Acquired
- LCA Owned
- No Land Involved

8. Estimated Costs:
- Engineering (Staff): $30,000
- Land Acquisition: $12,000
- Construction/Equip.: $123,000
- Professional Services: $10,000
- Other: $0
- Contingencies: $15,000
- Total Project Cost: $190,000

- Add. Personnel Man-Hrs.
- Personnel Services: $-
- Supplies & Equipment: $-
- Maintenance Svcs: $-
- Other: $-
- Sub-Total: $-

Indirect Operating Costs:
- Overhead Costs: $-
- Debt Service (5%-20yr.): $15,246
- Total Operating Costs: $15,246

10. Revenue Impact:
- Gain/Loss in Annual Revenue: $-
- Assessment, Contribution-in-Aid-of-Construction: $-
- Grants & Other: $-

11. Source of Funds:

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<tr>
<th>Source</th>
<th>Need</th>
<th>Oper. Revenues</th>
<th>Borrowing</th>
<th>Assess., Contr.-in-Aid</th>
<th>Reserves</th>
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<td>6th thru 10th Years</td>
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12. Departmental Priority Rating:
- High
- Medium X
- Low
- Legally Mandated
1. Proposal Title: Non-Residential Water Meter Replacement Project  
2. Location: All Systems

3. Description: Update compatible non-residential water meters that have not exceeded their useful life to radio read (RR) equipment. Replace non-residential water meters that are 2” and smaller and 15 years and older with new RR type. We recommend that Operations budget to test approximately 21 larger meters to ensure calibration standards. Customers not having proper backflow safeguards would be addressed in a separate retrofit project.

4. Justification (need, function, selection of time, specific relationship to any long-term work program): Approximately 220 newer meters will be upgraded to RR capability and 410 older meters that have reached the end of their useful lives will be replaced with RR compatible equipment. Upgrades to equipment that allows RR will increase meter reading accuracy and efficiency that will allow operators to focus efforts in more technical areas. New meters have a low flow accuracy more than 4 times greater than older meters and accurately cover a wider range of flow.

5. Status of Proposal:  
   - Preliminary Estimate [X]  
   - Plans and Specs Completed  
   - Other (Specify)

6. Cost of Land Rights:  
   - Preliminary Estimate/ac. @ ______ /acre  
   - Plans and Specs Completed/l.f. @ ______ /lin ft.  
   - Total: $ 0

7. Status of Land Rights:  
   - Not Yet Acquired  
   - Partly Acquired  
   - LCA Owned  
   - No Land Involved [X]

8. Estimated Costs:  
   - Engineering (Staff) $ 85,000  
   - Land Acquisition $  
   - Construction/Equip. $ 340,000  
   - Professional Services $  
   - Other (Misc.) $ 3,000  
   - Contingencies $ 42,000  
   - Total Project Cost $ 470,000

   - Requested in this  
     - Capital Program $ 470,000

   - Add. Personnel Man-Hrs. (40) $ (874)  
   - Supplies & Equipment $  
   - Maintenance Svcs $  
   - Other $  
   - Sub-Total $ (874)

   - Indirect Operating Costs:  
     - Overhead Costs $ (1,573)  
     - Debt Service (1.38%-20yr.) $ -  
     - Sub-Total $ (1,573)

   - Total Operating Costs $ (2,447)

10. Revenue Impact:  
    - Gain/Loss in Annual Revenue $  
    - Assessment, Contribution-in-Aid-of-Construction $ -  
    - Grants & Other $  

11. Source of Funds:  
    - Source
      - Oper. Revenues $  
      - Borrowing $  
      - Assess., Contr.-in-Aid $  
      - Reserves $  
    - Prior Years $  
    - 1st Year $ 265,000 $ $ $  
    - 2nd Year $ 205,000 $ $ $  
    - 3rd Year $  
    - 4th Year $  
    - 5th Year $  
    - 6th thru 10th Years $  

12. Departmental Priority Rating:  
    - High _____  Medium [X]  Low _____  Legally Mandated ________

43
WASTEWATER
This Capital Plan includes 13 construction projects, equipment purchases, a wastewater capacity planning and expansion project study, a project for acquisition planning and three investigation/remediation efforts. Capital additions to the wastewater system in this ten-year plan are justified from three revenue sources: user charges, grants and capital recovery fees. Because each wastewater system has its own rate structure, a justification is shown for each system, where applicable. A justification for projects either not specific to a system or for a system to be established as a result of the project, is listed under other projects.

The impact on pertinent wastewater funds from various projects is as follows:

**WESTERN LEHIGH INTERCEPTOR SYSTEM**

Costs of Projects S-1, S-5, S-10, and S-27 will be funded through a combination of reserves and borrowed funds, which will be minimized through the use of capital recovery fees collected from new customers. The impact of these projects for costs expended through 2015 is estimated to increase rates by 2.7% beginning in 2017. The increase equates to a $6.03 annual charge to the typical residential customer. It is expected that costs expended for Projects S-3 (Central Lehigh County Wastewater Capacity Planning/Expansion) and S-24 (Signatory I and I Investigation/Remediation) will be totally funded by a combination of capital recovery fees and reserve funds through 2015. Costs incurred thereafter will be borne by users of the system.

**LITTLE LEHIGH RELIEF INTERCEPTOR SYSTEM**

Projects S-15 and S-23 will be funded through borrowed funds. The impact of this project is estimated to increase rates by $.08 per thousand gallons or 46.9% beginning in 2017, which equates to a $6.41 annual charge to the typical residential customer.

**COMMON RATE COLLECTOR SYSTEMS**

Projects S-6, S-7 and S-17 will be funded through a combination of reserves, capital recovery fees and borrowed funds for the Common Rate systems (Upper Milford, Weisenberg-Point West, Wynnewood Terrace, Heidelberg Heights and Sand Spring). The annual impact of the additional expenditures plus additional operating costs will increase rates by approximately $62 per EDU by year 2017. In addition, Project S-13 will be constructed only if intervening land along the route is developing to justify the cost of the project. It is assumed that approximately 60% of the project cost will be funded using new connection fees. The project will also eliminate the need for the Sand Spring wastewater treatment plant and should result in operational cost savings.

**WESTERN WEISENBERG WASTEWATER SYSTEM**

Project S-16 will be funded through a combination of capital recovery fees and borrowed funds. Costs will be borne by users of the system.
LCA WASTEWATER PLANT

Reserves are expected to finance the ongoing capital improvements (S-22) to the plant. Project S-26 will be funded through borrowed funds, but energy savings will result in an estimated 6-10 year payback period. Any additional costs will be borne by users of the system.

OTHER PROJECTS

S-9 SEWER COMPANY ACQUISITION

Costs related to investigating and negotiating purchases of sewer systems will be recovered through user charges to systems where LCA provides direct retail service.

S-14 JORDAN CREEK WASTEWATER SYSTEM

This project is currently seeking regulatory approvals. A combination of capital recovery fees and borrowed funds will be used to finance the project. All costs will be borne by users of the system.

S-25 LYNN TOWNSHIP WTP EXPANSION

Potential system growth is the driver for this project but if the housing market remains sluggish, expansion will be deferred until needed. Also, the removal of system I/I may further delay this effort. All costs incurred will be borne by users of the system.
<table>
<thead>
<tr>
<th>Project #</th>
<th>Name or Title of Proposal</th>
<th>Approvals</th>
<th>Project Cost</th>
<th>This Capital Program</th>
<th>Dept. Priority</th>
<th>Funding (3)</th>
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<td></td>
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<td>Stage (1)</td>
<td>Amount</td>
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<td>S - 5</td>
<td>Mobile Equipment</td>
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<td>S - 1</td>
<td>Western Lehigh Interceptor Rehabilitation</td>
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<td>Central Lehigh Valley Wastewater Capacity Planning &amp; Expansion</td>
<td>Various</td>
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<td>Wynnewood Terrace Sewer System Improvements P</td>
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<td>S - 14</td>
<td>Jordan Creek Wastewater Treatment Plant D</td>
<td>584,300</td>
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<td>S - 17</td>
<td>Spring Creek Pump Station Renewal Improvements</td>
<td>Various</td>
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<td>S - 24</td>
<td>Signatory I &amp; II Investigation/Remediation Program</td>
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<td>LCA WTP Biogas Energy Related Improvements Various</td>
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<td>Buckeye Road Sewer Extension P</td>
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<td>S - 6</td>
<td>Wynnewood Infiltration &amp; Inflow Investigation &amp; Remediation Program P</td>
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<td>S - 13</td>
<td>Sand Spring Wastewater System Improvements P</td>
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<td>S - 17</td>
<td>Heidelberg Heights Infiltration &amp; Inflow Investigation &amp; Remediation Program P</td>
<td>527,000</td>
<td>-</td>
<td>-</td>
<td>185,000</td>
<td>160,000</td>
</tr>
<tr>
<td>S - 23</td>
<td>Park Pump Station Force Main Upgrade P</td>
<td>1,100,000</td>
<td>-</td>
<td>25,000</td>
<td>150,000</td>
<td>1,015,000</td>
</tr>
<tr>
<td>S - 25</td>
<td>Lynn Twp WTP Upgrades &amp; Exploration P</td>
<td>3,500,000</td>
<td>36,000</td>
<td>750,000</td>
<td>300,000</td>
<td>2,000,000</td>
</tr>
<tr>
<td>S - 27</td>
<td>Spring Creek Pump Station Upgrades P</td>
<td>281,000</td>
<td>3,000</td>
<td>278,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Subtotal Pending Authorization</strong></td>
<td></td>
<td></td>
<td></td>
<td>9,063,000</td>
<td>590,000</td>
<td>1,270,000</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td></td>
<td></td>
<td></td>
<td>$140,074,500</td>
<td>$10,896,500</td>
<td>$6,263,000</td>
</tr>
</tbody>
</table>

(1) As Annual Item, S= Study/Planning, D= Design, C= Construction / Implementation, P= Pending Approval, E= Entire Project Approved
(2) Includes estimate of expenditures through 2012.
(3) SS = Self-supporting project, Exp = Funded as general system expense, PF = Project partially funded from additional revenues and partially funded as a general system expense.
(4) Approved for stages indicated, other stages approval pending

Note: Shading indicates new project or revised project scope.
1. Proposal Title: Western Lehigh Interceptor Rehabilitation

2. Location: Lower Macungie Twp.,

3. Description:
The initial work (2007-2008) included cured-in-place structural lining of 3,680 LF of 20-inch diameter ductile iron and 578 LF of 24-inch diameter concrete sewer pipes, and seven cured-in-place point repairs. A project planned to install liner in approximately 18,000 LF of 36" reinforced concrete pipe where internal corrosion may have an impact on the pipe is being evaluated.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
In 2004 we began a program of internal inspections of the main stem of the Western Lehigh Interceptor. Rehabilitation projects reflect our consulting engineer's recommendations which stemmed from the inspections. Defects in reinforced concrete pipe are being repaired with spot liner sections, or by lining the entire manhole run where that is judged more cost-effective. Rehabilitation of the existing interceptor pipe in this area is consistent with all the Authority's alternatives for creating additional treatment capacity.

5. Status of Proposal:
- Preliminary Estimate
- Plans and Specs Completed
- Other (Specify)

6. Cost of Land Rights:
- ac. @ $ ______/acre
- l.f. @ $ ______/lin ft.
- Total: $ 487,600

7. Status of Land Rights:
- Not Yet Acquired
- Partly Acquired
- LCA Owned
- No Land Involved

8. Estimated Costs:
- Engineering (Staff) $ 340,000
- Land Acquisition $ 500,000
- Construction/Equipment $ 6,900,000
- Professional Services $ 1,029,000
- Other (Labor) $ 975,000
- Contingencies $ 975,000
- Total Project Cost $ 9,735,000

- Add. Personnel Man-Hrs. $ -
- Supplies & Equipment $ -
- Maintenance Services $ -
- Other $ -
- Sub-Total $ -

10. Revenue Impact:
- Gain/Loss in Annual Revenue $ -
- Sub-Total $ 213,440

11. Source of Funds:
- Prior Years $ 785,000
- 1st Year $ 500,000
- 2nd Year $ 1,000,000
- 3rd Year $ 3,000,000
- 4th Year $ 3,000,000
- 5th Year $ 1,450,000
- 6th thru 10th Years $ -
- Beyond 10 Years $ -

12. Departmental Priority Rating:
- High
- Medium X
- Low
- Legally Mandated
1. Proposal Title: Central Lehigh County Wastewater Capacity Planning/Expansion

2. Location: W. Lehigh Cty Service Area

3. Description: Planning for additional treatment capacity for WLI service area and construction of selected alternative. This project is needed for future wastewater treatment capacity and covers either expanding the KIWWTP from 40 to 44 mgd or converting the LCA WTP the pretreatment plant to a full treatment facility, which includes discharge pumping and piping. This project includes planning, design and construction. Cost estimates are based on the 2011 Malcolm Pirnie report "Updated Cost summary for Wastewater Capacity." The costs were updated to reflect new DRBC and DEP requirements.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
The City of Allentown does not currently have enough available wastewater treatment allocation to meet LCA’s future needs. To meet wastewater treatment needs, the best available options must be investigated. Although some recovery of capacity will occur through Inflow/Infiltration removal, the City of Allentown has no wastewater allocation remaining for sale. Updating the 537 Plan is the primary cost factor for planning. Capital costs will be recovered through a combination of increased user fees and capital recovery fees to new customer.

5. Status of Proposal:
   X Preliminary Estimate
   ___ Plans and Specs Completed
   ___ Other (Specify)

6. Cost of Land Rights:
   Preliminary Estimate
   ___ ac. @ /acre
   ___ l.f. @ /lin ft.
   Total: $ -

7. Status of Land Rights:
   ___ Not Yet Acquired
   ___ Partly Acquired
   X LCA Owned
   ___ No Land Involved

8. Estimated Costs:
   Engineering (Staff) $ 1,150,000
   Land Acquisition $
   Construction/Equipment $ 66,130,000
   Professional Services $ 13,226,000
   Other $
   Contingencies $
   Total Project Cost $ 80,506,000

   Requested in this Capital Program $ 79,799,500

   Add. Personnel Man-Hrs. $
   Supplies & Equipment $
   Maintenance Services $
   Other $
   Sub-Total $

   Indirect Operating Costs:
   Overhead Costs $
   Debt Service (5%-20yr.) $ 5,500,650
   Total Operating Costs $ 5,500,650

10. Revenue Impact:
    Gain/Loss in Annual Revenue $

    Assessment, Contribution-in-Aid-of-Construction $ 7,449,200
    Other $

11. Source of Funds:
    Oper. Need Source
    Revenues Borrowing Assess., Contr.-in-Aid (A) Reserves *
    Prior Years $ 700,000 $ $ $ 700,000
    1st Year $ 500,000 $ $ - $ 701,550 $ (201,550)
    2nd Year $ 1,050,000 $ $ $ 701,550 $ 348,450
    3rd Year $ 4,000,000 $ $ $ 655,285 $ 3,344,715
    4th Year $ 19,000,000 $ $ 17,995,110 $ 696,505 $ 308,385
    5th Year $ 30,857,500 $ $ 30,160,995 $ 696,505 $ -
    6th thru 10th Years $ 24,392,000 $ $ 20,394,195 $ 3,997,805 $ -

12. Departmental Priority Rating:
    High X Medium Low Legally Mandated

* Wastewater capacity reserves are expected to be $3,800,000 at year-end 2013.
(A) Estimated Capital recovery fees from new connections.
1. Proposal Title: Buckeye Road Sewer Extension
2. Location: Upper Milford Twp
3. Description: Construction of 2,600 L.F. of 8” PVC sewer main with appurtenances to serve 28 properties (+/-28 EDU’s) along Buckeye Road, adjacent to the Route 29 Corridor.
4. Justification (need, function, selection of time, specific relationship to any long-term work program):
Public wastewater service is needed to protect local groundwater from failing on-lot septic systems. This project must be authorized by the Upper Milford Township Supervisors.
5. Status of Proposal:
X Preliminary Estimate
___ Plans and Specs Completed
___ Other (Specify)
6. Cost of Land Rights:

<table>
<thead>
<tr>
<th>ac.</th>
<th>@ $</th>
<th>/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.500</td>
<td>20</td>
<td>$50,000</td>
</tr>
</tbody>
</table>
7. Status of Land Rights:
X No Land Involved
___ Partly Acquired
___ Not Yet Acquired
8. Estimated Costs:

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering (Staff)</td>
<td>$107,000</td>
</tr>
<tr>
<td>Land Acquisition</td>
<td>$51,000</td>
</tr>
<tr>
<td>Construction/Equipment</td>
<td>$349,000</td>
</tr>
<tr>
<td>Professional Services</td>
<td>$53,000</td>
</tr>
<tr>
<td>Other (allocation)</td>
<td>$54,000</td>
</tr>
<tr>
<td>Contingencies</td>
<td>$56,000</td>
</tr>
<tr>
<td>Total Project Cost</td>
<td>$670,000</td>
</tr>
</tbody>
</table>

| Add. Personnel Man-Hrs. | 25 |
| Supplies & Equipment | $100 |
| Maintenance Services | $200 |
| Other | $4,100 |
| Total Sub-Total | $4,946 |
10. Revenue Impact:

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain/Loss in Annual Revenue</td>
<td>$</td>
</tr>
<tr>
<td>Assessment, Contribution-in-Aid-of-Construction</td>
<td>$670,000</td>
</tr>
<tr>
<td>Other</td>
<td>$</td>
</tr>
</tbody>
</table>

11. Source of Funds:

<table>
<thead>
<tr>
<th>Source</th>
<th>Need</th>
<th>Revenues</th>
<th>Borrowing</th>
<th>Assess., Contr.-in-Aid (A)</th>
<th>Reserves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior Years</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>1st Year</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>2nd Year</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>3rd Year</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>4th Year</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>5th Year</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>6th thru 10th Years</td>
<td>$670,000</td>
<td>$</td>
<td>$</td>
<td>$670,000</td>
<td></td>
</tr>
</tbody>
</table>
12. Departmental Priority Rating:

High ________ Medium ________ Low X ________ Legally Mandated ________
### 1. Proposal Title:
Mobile Equipment

### 3. Description:
<table>
<thead>
<tr>
<th>Year</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>1</td>
<td>Full Size Pick-up Truck</td>
</tr>
<tr>
<td>2015</td>
<td>1</td>
<td>Full Size Pick-up Truck</td>
</tr>
<tr>
<td>2016</td>
<td>1</td>
<td>Full Size Pick-up Truck</td>
</tr>
<tr>
<td>2017</td>
<td>1</td>
<td>Full Size Pick-up Truck</td>
</tr>
<tr>
<td>2018</td>
<td>1</td>
<td>Full Size Pick-up Truck</td>
</tr>
<tr>
<td>2019</td>
<td></td>
<td>Undefinced</td>
</tr>
<tr>
<td>2020</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2021</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2022</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4. Justification (need, function, selection of time, specific relationship to any long-term work program):
The pickup trucks are replacements for older equipment which will be traded in.

### 5. Status of Proposal:
- [X] Preliminary Estimate
- ___ Plans and Specs Completed
- ___ Other (Specify)

### 6. Cost of Land Rights:

<table>
<thead>
<tr>
<th>Plans and Specs</th>
<th>@ /acre</th>
<th>Total: $</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 7. Status of Land Rights:
- ___ Not Yet Acquired
- ___ Partly Acquired
- ___ LCA Owned
- [X] No Land Involved

### 8. Estimated Costs:

<table>
<thead>
<tr>
<th>Type</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering (Staff)</td>
<td>$2,500</td>
</tr>
<tr>
<td>Land Acquisition</td>
<td>$</td>
</tr>
<tr>
<td>Construction/Equipment</td>
<td>$252,000</td>
</tr>
<tr>
<td>Professional Services</td>
<td>$</td>
</tr>
<tr>
<td>Other (Labor)</td>
<td>$</td>
</tr>
<tr>
<td>Contingencies</td>
<td>$</td>
</tr>
<tr>
<td><strong>Total Project Cost</strong></td>
<td><strong>$254,500</strong></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel Services</td>
<td>$</td>
</tr>
<tr>
<td>Supplies &amp; Equipment</td>
<td>$</td>
</tr>
<tr>
<td>Maintenance Services</td>
<td>$</td>
</tr>
<tr>
<td>Other</td>
<td>$</td>
</tr>
<tr>
<td><strong>Sub-Total</strong></td>
<td><strong>$</strong></td>
</tr>
</tbody>
</table>

### 10. Revenue Impact:

<table>
<thead>
<tr>
<th>Revenue Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain/Loss in Annual Revenue</td>
<td>$</td>
</tr>
<tr>
<td>Assessment, Contribution</td>
<td>$27,500</td>
</tr>
<tr>
<td>in-Aid-of-Construction</td>
<td>$</td>
</tr>
<tr>
<td>Other</td>
<td>$</td>
</tr>
</tbody>
</table>

### 11. Source of Funds:

<table>
<thead>
<tr>
<th>Source</th>
<th>Oper. Revenues</th>
<th>Borrowing</th>
<th>Assess., Contr.-in-Aid</th>
<th>Reserves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior Years</td>
<td></td>
<td>$</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>1st Year</td>
<td></td>
<td>$</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>2nd Year</td>
<td></td>
<td>$29,500</td>
<td>$26,000</td>
<td>$3,500</td>
</tr>
<tr>
<td>3rd Year</td>
<td></td>
<td>$30,500</td>
<td>$27,500</td>
<td>$3,000</td>
</tr>
<tr>
<td>4th Year</td>
<td></td>
<td>$31,500</td>
<td>$28,500</td>
<td>$3,000</td>
</tr>
<tr>
<td>5th Year</td>
<td></td>
<td>$32,500</td>
<td>$29,500</td>
<td>$3,000</td>
</tr>
<tr>
<td>6th thru 10th Years</td>
<td></td>
<td>$130,500</td>
<td>$115,500</td>
<td>$15,000</td>
</tr>
</tbody>
</table>

### 12. Departmental Priority Rating:
- High [X]
- Medium
- Low

- Legally Mandated
Lehigh County Authority

CAPITAL PROGRAMMING PROJECT DETAIL

DEPARTMENT: OPERATIONS
Sub-Organizational Unit: Wastewater Capital

Project: S-6
Preparer: LMB
Date: 10/15/13

1. Proposal Title: Wynnewood Infiltration & Inflow Investigation and Remediation
2. Location: NWT

3. Description: Includes flow monitoring, SSES work in areas identified and some funding for remediation measures. The investigatory and planning work ~$ 175,000 will be amortized over 20 years and paid through the user rates. 80% of the remediation measures ~$400,000 will be capitalized over 20-years, where the remaining 20% of the remediation measures ~$100,000 will be amortized over 20 years and paid through the user rates.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
During wet-weather events flows into the WTP exceed permitted capacity. Removal of I&I will re-claim capacity for utilization by potential new customers.

5. Status of Proposal:
   X Preliminary Estimate
   ___ Plans and Specs Completed
   ___ Other (Specify)

6. Cost of Land Rights:
   ac. @ /acre
   l.f. @ /lin ft.

7. Status of Land Rights:
   ___ Not Yet Acquired
   ___ Partly Acquired
   ___ LCA Owned
   X No Land Involved

8. Estimated Costs:
   Engineering (Staff) $ 80,000
   Land Acquisition $ 340,000
   Construction/Equipment $ 170,000
   Professional Services $ 85,000
   Total Project Cost $ 675,000
   Requested in this Capital Program $ 655,000

   Add. Personnel Man-Yrs. (60)
   Personnel Services $ (1,311)
   Supplies & Equipment $ (50)
   Maintenance Services $ (50)
   Other $ (50)
   Sub-Total $ (1,411)

10. Revenue Impact:
    Gain/Loss in Annual Revenue $ 655,000

11. Source of Funds:
    Oper. Revenues Borrowing Assess., Contr.-in-Aid Reserves
    Need $ 20,000 $ 225,000 $ 225,000 $ 20,000
    1st Year $ 200,000 $ 200,000 $ 200,000 $ 200,000
    2nd Year $ 130,000 $ 130,000 $ 130,000 $ 130,000
    3rd Year $ 100,000 $ 100,000 $ 100,000 $ 100,000
    4th Year $ 100,000 $ 100,000 $ 100,000 $ 100,000
    5th Year $ 100,000 $ 100,000 $ 100,000 $ 100,000
    6th thru 10th Years $ 6th thru 10th Years $ 6th thru 10th Years $ 6th thru 10th Years
    Beyond 10 Years $ Beyond 10 Years $ Beyond 10 Years $ Beyond 10 Years

12. Departmental Priority Rating:
    High ______ Medium X Low ______ Legally Mandated ______

51
1. **Proposal Title:** Wynnewood Terrace Sewer System Improvements

2. **Location:** North Whitehall Twp.

3. **Description:**
   Design and construction of improvements in the existing collection system and at the wastewater treatment plant, acquired in July, 2003. Replacement of the primary pumping station is anticipated for 2014, as is replacement of the existing force main. Additional system improvements, if justified, will be executed in 2015-2017.

4. **Justification (need, function, selection of time, specific relationship to any long-term work program):**
   Replacement of the main pumping station is necessary to assure reliability and maintain safety. The force main is to be replaced to minimize the potential for breaks and allow easy access for maintenance.

5. **Status of Proposal:**
   - Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. **Cost of Land Rights:**
   - 0.5 ac. @ $10,000 /acre
   - l.f. @ $10,000 /lin ft.
   - Total: $10,000

7. **Status of Land Rights:**
   - Not Yet Acquired
   - Party Acquired
   - LCA Owned
   - No Land Involved

8. **Estimated Costs:**
   - Engineering (Staff) $87,000
   - Land Acquisition $10,000
   - Construction/Equipment $865,000
   - Professional Services $132,000
   - Other (Labor) $88,000
   - Contingencies $1,182,000
   - Total Project Cost $1,097,000

   - Add. Personnel Man-Hrs. $100
   - Supplies & Equipment $5,000
   - Maintenance Services $5,000
   - Other $5,000
   - Sub-Total $5,100
   - Indirect Operating Costs:
     - Overhead Costs $153
     - Debt Service (5%-20yr.) $142,070
     - Sub-Total $141,917
   - Total Operating Costs $136,817

10. **Revenue Impact:**
    - Gain/Loss in Annual Revenue $52
    - Assessment, Contribution-in-Aid-of-Construction $52
    - Other $52

11. **Source of Funds:**
    - Source
      | Source       | Need | Revenues | Borrowing | Assess., Contr.-in-Aid | Reserves |
      |--------------|------|----------|-----------|------------------------|----------|
      | Prior Years  | $85,000 | $ | | | $85,000 |
      | 1st Year     | $556,000 | $ | $556,000 | $ | $ |
      | 2nd Year     | $50,000 | $ | $50,000 | $ | $ |
      | 3rd Year     | $100,000 | $ | $100,000 | $ | $ |
      | 4th Year     | $391,000 | $ | $391,000 | $ | $ |
      | 5th Year     | $ | $ | $ | $ | $ |
      | 6th thru 10th Years | $ | $ | $ | $ | $ |
      | Beyond 10 Years | $ | $ | $ | $ | $ |

12. **Departmental Priority Rating:**
    - High X Medium Low Legally Mandated
1. Proposal Title: Sewer Company Acquisitions
2. Location: 
3. Description: Includes staff involvement and consultant costs in actively pursuing system acquisitions

4. Justification (need, function, selection of time, specific relationship to any long-term work program): Additional customer growth will provide economies of scale.

5. Status of Proposal:
   - Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   - ac. @ \$/acre
   - l.f. @ \$/lin ft.
   - Total: \$

7. Status of Land Rights:
   - Not Yet Acquired
   - Partly Acquired
   - LCA Owned
   - No Land Involved

8. Estimated Costs:
   - Engineering (Staff) $550,000
   - Land Acquisition $
   - Construction/Equipment $
   - Professional Services $50,000
   - Other (Labor) $
   - Contingencies $
   - Total Project Cost $600,000

   - Add. Personnel Man-Hrs. $-
   - Personnel Services $-
   - Supplies & Equipment $-
   - Maintenance Services $-
   - Other $-
   - Sub-Total $-

   Indirect Operating Costs:
   - Overhead Costs $-
   - Debt Service (5%-20yr.) $-
   - Sub-Total $-

   Total Operating Costs $-

10. Revenue Impact:
    - Gain/Loss in Annual Revenue $
    - Assessment, Contribution-in-Aid-of-Construction $-
    - Other $

11. Source of Funds:
    Source
    | Prior Years | 1st Year | 2nd Year | 3rd Year | 4th Year | 5th Year | 6th thru 10th Years |
    | $ | $ | $ | $ | $ | $ | $ |
    | Need | Revenues | Borrowing | Contr.-in-Aid | Reserves |
    | $ | $ | $ | $ | $ |
    | $60,000 | $60,000 | $60,000 | $60,000 | $60,000 | $60,000 |

12. Departmental Priority Rating:
    - High
    - Medium X
    - Low
    - Legally Mandated
Lehigh County Authority
CAPITAL PROGRAMMING PROJECT DETAIL

DEPARTMENT: Operations
Sub-Organizational Unit: Wastewater Capital
Date: 10/15/13

1. Proposal Title: Other Equipment
2. Location: WLI and LLRI, Ph 1
3. Description: Individual equipment items greater than $5,000.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
Replacement equipment is required from time to time to maintain service integrity. Items include valves, sampling equipment, electric and electronic equipment, I/I equipment and other equipment as needed.

5. Status of Proposal:
- X Preliminary Estimate
- Plans and Specs Completed
- Other (Specify)

6. Cost of Land Rights:
- X Preliminary Estimate @ $/acre
- Plans and Specs Completed @ $/lin ft.
Total: $

7. Status of Land Rights:
- Not Yet Acquired
- Partly Acquired
- LCA Owned
- X No Land Involved

8. Estimated Costs:
- Engineering (Staff) $230,000
- Land Acquisition $0
- Construction/Equipment $230,000
- Professional Services $0
- Other (Labor) $0
- Contingencies $0
Total Project Cost $230,000

- Add. Personnel Man-Hrs. $0
- Personnel Services $0
- Supplies & Equipment $0
- Maintenance Services $0
- Other $0
Sub-Total $0

10. Revenue Impact:
- Gain/Loss in Annual Revenue $0
- Assessment, Contribution-in-Aid-of-Construction $0
- Other $0

11. Source of Funds:

<table>
<thead>
<tr>
<th>Source</th>
<th>Oper. Revenues</th>
<th>Assess., Borrowing</th>
<th>Contr.-in-Aid of Construction</th>
<th>Reserves</th>
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12. Departmental Priority Rating:
- High X
- Medium
- Low
- Legally Mandated

54
1. Proposal Title: Sand Springs Wastewater System Improvements  
2. Location: North Whitehall Twp.

3. Description:  
Construction of a wastewater pumping station at the site of the Sand Spring wastewater treatment plant and approximately 6,200 LF of force main to deliver the wastewater from Sand Spring to the proposed regional Jordan Creek wastewater plant.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):  
The multi-municipal Northern Lehigh Wastewater Study encourages the use of the central treatment plant, which is proposed to be built at the Kids Peace campus. Existing package-type treatment plants in the Jordan and Coplay Creek basins are to be abandoned when feasible. Approximately 60% of the project costs are expected to be recovered from capital recovery fees charged to new connections.  
Note: This Project will move forward only if required for new development.

5. Status of Proposal:  
- _X_ Preliminary Estimate
- ___ Plans and Specs Completed
- ___ Other (Specify)

6. Cost of Land Rights:  
- ac. @ $ /acre
- 6,100 l.f. @ $ /lin ft.
- Total: $ 30,500

7. Status of Land Rights:  
- _X_ Partly Acquired
- ___ Not Yet Acquired
- ___ LCA Owned
- ___ No Land Involved

8. Estimated Costs:  
- Engineering (Staff) $100,000
- Land Acquisition $35,000
- Construction/Equipment $765,000
- Professional Services $135,000
- Other (Labor) $185,000
- Total Project Cost $1,220,000
- Requested in this Capital Program $1,220,000

- Add. Personnel Man-Hrs. (350) $ (7,648)
- Supplies & Equipment $ (11,000)
- Maintenance Services $ (9,000)
- Sub-Total $ (27,648)

10. Revenue Impact:  
- Gain/Loss in Annual Revenue $ 1,220,000
- Assessment, Contribution-in-Aid-of-Construction $ 705,000
- Other $ 

11. Source of Funds:  
- Prior Years $ 
- 1st Year $ 
- 2nd Year $ 
- 3rd Year $ 
- 4th Year $150,000  
- 5th Year $270,000  
- 6th thru 10th Years $800,000  

12. Departmental Priority Rating:  
- High ______  
- Medium ______  
- Low ___  
- Legally Mandated _______
1. Proposal Title: Jordan Creek Wastewater System  
2. Location: North Whitehall Twp.

3. Description:  
Acquisition of a site at the KidsPeace campus and construction of a 200,000 gpd wastewater treatment plant, a pumping station and other facilities necessary to provide wastewater service to KidsPeace and other properties in the Jordan Creek watershed.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):  
The multi-municipal Northern Lehigh Wastewater Study recommends construction of a regional sewer plant in the Jordan Creek watershed to avoid continued proliferation of package-type treatment plants and potential groundwater contamination from the eventual failure of on-lot systems.

5. Status of Proposal:  
- Preliminary Estimate
- Plans and Specs Completed
- Other (Specify)

6. Cost of Land Rights:  
5.1 ac. @ $75,500 /acre  
Total: $385,050

7. Status of Land Rights:  
- Not Yet Acquired
- Partly Acquired
- LCA Owned
- No Land Involved

8. Estimated Costs:  
- Engineering (Staff) $475,000
- Land Acquisition $385,000
- Construction/Equip. $4,535,000
- Professional Services $1,125,000
- Permits and Misc. $40,000
- Contingencies $495,000
- Total Project Cost $7,055,000
- Requested in this Capital Program $6,730,000

Add. Personnel Man-Hrs. 1,000
Personnel Services $21,850
Supplies & Equipment $21,740
Maintenance Services $48,050
Other (Utilities, Lab Services) $38,060
Sub-Total $129,700
Indirect Operating Costs:
Overhead Costs $33,431
Debt Service (5%-30yr.) $371,790
Sub-Total $405,221
Total Operating Costs $534,921

10. Revenue Impact:  
Gain/Loss in Annual Revenue $2,180,140
Assessment, Contribution-in-Aid-of-Construction $2,180,140
Other $0

11. Source of Funds:  

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<thead>
<tr>
<th>Source</th>
<th>Need</th>
<th>Oper. Revenues</th>
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12. Departmental Priority Rating:  
- High X
- Medium
- Low
- Legally Mandated

Lehigh County Authority  
CAPITAL PROGRAMMING PROJECT DETAIL  
DEPARTMENT: Capital Works  
Sub-Organizational Unit: Wastewater Capital  
Preparer: FJL  
Date: 10/13/13
1. Proposal Title: Park Pump Station Renovations & Improvements  
2. Location: City of Allentown

3. Description: 
The facility is in need of infrastructure repairs, improvements and upgrades. Among the items included is a full SCADA upgrade to allow remote operation of the facility, completing installation of a new fuel storage tank, replacing the influent sluice gate and hydraulic operator, upgrade to VFD pump motor control, possibly replacing the 400 HP pump motors, the recently completed comminutor replacement and numerous other small items.

4. Justification (need, function, selection of time, specific relationship to any long-term work program): 
The Park Pump Station is an integral component of the sewerage network in the region, serving ten municipalities. Its operation also significantly impacts the operation of Allentown's wastewater treatment plant at Kline's Island. The improvements are needed to keep the facility viable into the foreseeable future most and will enhance the operating capabilities after 24 years of being in service.

5. Status of Proposal: 
   - X Preliminary Estimate
   - ___ Plans and Specs Completed
   - ___ Other (Specify)

6. Cost of Land Rights: 
   Preliminary Estimate ac. @ $/acre
   Plans and Specs Completed l.f. @ $/lin ft.
   Total: $

7. Status of Land Rights: 
   - ___ Not Yet Acquired
   - ___ Partly Acquired
   - ___ LCA Owned
   - X No Land Involved

8. Estimated Costs: 
   - Engineering (CW& OP) $155,000
   - Land Acquisition $-
   - Construction/Equipment $1,480,000
   - Professional Services $300,000
   - Other $12,000
   - Contingencies $310,000
   - Total Project Cost $2,257,000
   - Requested in this Capital Program $2,032,000

   - Add. Personnel Man-Hrs. (100)
   - Personnel Services $ (2,185)
   - Supplies & Equipment $
   - Maintenance Services $
   - Other $ (13,000)
   - Sub-Total $ (15,185)

   Indirect Operating Costs:
   - Overhead Costs $ (3,933)
   - Debt Service (5%-20yr.) $163,050
   - Sub-Total $159,117
   - Total Operating Costs $143,932

10. Revenue Impact: 
   - Gain/Loss in Annual Revenue $
   - Assessment, Contribution-in-Aid-of-Construction $-
   - Other $

11. Source of Funds: 
<table>
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<tr>
<th>Need</th>
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<tr>
<td>6th thru 10th Years</td>
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12. Departmental Priority Rating: 
   - High X
   - Medium
   - Low
   - Legally Mandated
1. Proposal Title: Heidelberg Heights Infiltration & Inflow Investigation and Remediation.

2. Location: Heidelberg Twp

3. Description: Includes flow monitoring, SSES work in areas identified and some funding for remediation measures. The investigatory and planning work ~$115,000 will be amortized over 20 years and paid through the user rates. 80% of the remediation measures ~$338,000 will be capitalized over 20-years, where remaining 20% of the remediation measures ~$84,000 will be amortized over 20 years and paid through the user rates.

4. Justification (need, function, selection of time, specific relationship to any long-term work program): During wet-weather events, flows into the WTP are 3 to 4 times the plants capacity causing operation problems.

5. Status of Proposal:
   - Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   - ac. @ /acre
   - l.f. @ /lin ft.
   - Total: $

   - Add. Personnel Man-Hrs. (100)
   - Personnel Services $ (2,185)
   - Supplies & Equipment $ (150)
   - Maintenance Services $
   - Other $ (100)
   - Sub-Total $ (2,435)

8. Estimated Costs:
   - Engineering (Staff) $ 60,000
   - Land Acquisition $
   - Construction/Equipment $ 273,000
   - Professional Services $ 136,000
   - Other (Labor) $
   - Contingencies $ 68,000
   - Total Project Cost $ 537,000
   - Requested in this Capital Program $ 527,000

10. Revenue Impact:
    - Gain/Loss in Annual Revenue $
    - Assessment, Contribution- in-Aid-of-Construction $
    - Other $

11. Source of Funds:
    | Source          | Oper. Assess., | Borrowing | Contr.-in-Aid | Reserves |
    |-----------------|---------------|-----------|---------------|---------|
    | Prior Years     | $             | $         | $             | $       |
    | 1st Year        | $             | $         | $             | $       |
    | 2nd Year        | $ 185,000     | $         | $ 185,000     | $       |
    | 3rd Year        | $ 180,000     | $         | $ 180,000     | $       |
    | 4th Year        | $ 162,000     | $         | $ 162,000     | $       |
    | 5th Year        | $             | $         | $             | $       |
    | 6th thru 10th Years | $             | $         | $             | $       |

12. Departmental Priority Rating:
    - High
    - Medium X
    - Low
    - Legally Mandated
1. Description: A 40,000 gpd wastewater treatment plant is proposed to be built at Arcadia West to replace the existing plant. The new plant will serve the Arcadia west Industrial Park and other properties in the new Smithville area of Weisenberg Township. 30% of the plants capacity will be allocated to the West Hills Business Center, a proposed industrial park. In turn, the West Hills developer will contribute 30% of the capital cost.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
The existing treatment plant at Arcadia West IP is inadequate to treat the wastewater from the properties in that development, which is only 2/3 occupied. The plant would need to be expanded to admit flows from other properties where the township supervisors have approved public sewer service. Partnering with a developer to replace the existing plant is the best way to establish reliable wastewater treatment for the area.

5. Status of Proposal:

    Preliminary Estimate
    Plans and Specs Completed
    Other (Specify)

6. Cost of Land Rights:

    ac. @ ______ /acre
    l.f. @ ______ /lin ft.
    Total: $_

7. Status of Land Rights:

    LCA Owned
    X Not Yet Acquired
    Partly Acquired
    No Land Involved

8. Estimated Costs:

    Engineering (Staff) $ 275,100
    Land Acquisition $ -
    Construction/Equipment $ 2,529,000
    Professional Services $ 436,900
    Other $ 79,500
    Contingencies $ 126,000
    Total Project Cost $ 3,448,500
    Requested in this Capital Program $ 469,000


    Add. Personnel Man-Hrs.
    Personnel Services $ -
    Supplies & Equipment $ -
    Maintenance Services $ 15,919
    Other (Utilities) $ 9,599
    Sub-Total $ 25,518

    Indirect Operating Costs:
    Overhead Costs $ -
    Debt Service (1.5%-20yr.) $ 187,710
    Sub-Total $ 187,710
    Total Operating Costs $ 213,228

10. Revenue Impact:

    Gain/Loss in Annual Revenue $ 466,552
    Assessment, Contribution-in-Aid-of-Construction $ 2,659,000
    Other $ -

11. Source of Funds:

    | Oper. | Assess. |
    |-------|---------|
    | Need | Revenues | Borrowing | Contr.-in-Aid (A) | Reserves |
    | Prior Years | $ 2,977,500 | $ | $ 824,000 | $ 195,000 | $ |
    | 1st Year | $ 469,000 | $ | $ 2,398,800 | $ 28,700 | $ |
    | 2nd Year | $ | $ | $ 388,700 | $ | $ |
    | 3rd Year | $ | $ | $ 283,700 | $ | $ |
    | 4th Year | $ | $ | $ 368,700 | $ | $ |
    | 5th Year | $ | $ | $ 28,700 | $ | $ |
    | 6th thru 10th Years | $ | $ | $ 143,500 | $ | $ |
    | Beyond 10 Years | $ | $ | $ 1,222,000 | $ | $ |

12. Departmental Priority Rating:

    High X   Medium   Low   Legally Mandated
1. Proposal Title: Wastewater Treatment Plant Improvements

2. Location: UMT

3. Description: This capital project is a comprehensive phased multi-year program to address the continued reliability and functionality of the LCA Wastewater Treatment Plant. Program components include addressing the cryogenic system, aeration units, HVAC, anaerobic digestion system, headwork’s, dewatering systems, odor control and facility structures, such as roofs and doors. The program also includes studies of instrumentation and control.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
   Capital improvements for the facility have been underfunded for years. The lack of expenditures, the corrosive environment, the 24/7 operation since 1990; all necessitate repairs, replacements and upgrades throughout the facility. The Capital Plan endeavors to re-establish the reliability and structural integrity of the physical plant, unit processes and components of both.

5. Status of Proposal:
   - Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   - Preliminary Estimate ac. @ /acre
   - Plans and Specs Completed l.f. @ /lin ft.
   - Total: $ -

7. Status of Land Rights:
   - Not Yet Acquired
   - Partly Acquired
   - LCA Owned
   - No Land Involved

8. Estimated Costs:
   - Engineering (Staff) $ 400,000
   - Land Acquisition $ -
   - Construction/Equipment $ 8,700,000
   - Professional Services $ 1,000,000
   - Other (Labor) $ -
   - Contingencies $ 1,100,000
   - Total Project Cost $ 11,200,000

   - Add. Personnel Man-Hrs.
   - Personnel Services $ -
   - Supplies & Equipment $ -
   - Maintenance Services $ -
   - Other $ -
   - Sub-Total $ -

10. Revenue Impact:
    - Gain/Loss in Annual Revenue $ -
    - Assessment, Contribution-in-Aid-of-Construction $ -
    - Other $ -

11. Source of Funds:
    - Prior Years $ 1,400,000
    - 1st Year $ 650,000
    - 2nd Year $ 800,000
    - 3rd Year $ 800,000
    - 4th Year $ 800,000
    - 5th Year $ 800,000
    - 6th thru 10th Years $ 5,950,000
    - Total Project Cost $ 11,200,000

12. Departmental Priority Rating:
    - High X
    - Medium
    - Low
    - Legally Mandated

[60]
Lehigh County Authority
CAPITAL PROGRAMMING PROJECT DETAIL

DEPARTMENT: Capital Works
Sub-Organizational Unit: Wastewater Capital
Date: 10/15/13

1. Proposal Title: Park PS Force Main Upgrade
2. Location: City of Allentown

3. Description:
The project consists of: Year 1 - using the new interceptor hydraulic model in a study to determine the future design capacity for the Park Pumping Station; Year 2 - installing a parallel 24" force main for the initial 2,300 linear feet downstream of the Park Pumping Station (assumes that this project continues to be needed after the study). Future work will be planned and constructed as the needs require.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
The Park Pumping Station currently discharges approximately 20 MGD, but was designed with a capacity of 24 MGD. The first section of the discharge force main was planned to be upgraded with the next expansion of pump station capacity to 32 MGD. By accelerating this portion of the project, the pumping station's output will increase, reducing overflows in the Little Lehigh Parkway in the interim.

5. Status of Proposal:
   X Preliminary Estimate
   ___ Plans and Specs Completed
   ___ Other (Specify)

6. Cost of Land Rights:
   Preliminary Estimate
   ac. @ /acre
   l.f. @ /lin ft.
   Total: $ NA

7. Status of Land Rights:
   Not Yet Acquired
   ___ Partly Acquired
   X LCA Owned
   ___ No Land Involved

8. Estimated Costs:
   Engineering (Staff) $ 100,000
   Land Acquisition $ 735,000
   Construction/Equipment $ 175,000
   Professional Services $ 8,500
   Other (Labor) $ 180,000
   Total Project Cost $ 1,190,000
   Requested in this Capital Program $ 1,190,000

   Add. Personnel Man-Hrs. $ 50

10. Revenue Impact:
    Gain/Loss in Annual Revenue $ 
    Assessment, Contribution-in-Aid-of-Construction $ 
    Other $ 

11. Source of Funds:

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<th>Source</th>
<th>Oper. Revenues</th>
<th>Assess. Contr.-in-Aid</th>
<th>Reserves</th>
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<td>Beyond 10 Years</td>
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12. Departmental Priority Rating:
   High _______ Medium X______ Low _______ Legally Mandated ________

114010
1. Proposal Title: Signatory I & I Investigation/Remediation Program
2. Location: LCA & Signatory Systems

3. Description: The project includes flow monitoring of the entire LCA system including the Signatory collector systems (completed), additional flow monitoring, SSES work, current and future LOS evaluation, capital improvements plan and remediation measures. The investigatory and planning work (~$3,267,000) will be amortized over 20 years with 60% being paid through user rates and the remainder by reserves. 80% of the remediation measures ~$5,672,000 will be capitalized over 20-years, where remaining 20% of the remediation measures ~$1,343,000 will be amortized over 20 years and paid through the user rates.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
The City and all City Signatories are under an EPA Order to eliminate SSOs within the sanitary sewer system. In addition, LCA and the LCA Signatories, are required by DEP to reduce I & I within the system in order to allow new connections. To reduce I & I in the LCA system, I & I investigation is necessary and is the first step in I & I removal. Flow monitoring data will be utilized to locate and quantify I & I, identify SSOs, calculate signatory surcharges, and system modeling. The project also includes WLI System Optimization Project and Future Rehabilitation.

5. Status of Proposal:
- Preliminary Estimate
- Plans and Specs Completed
- Other (Specify)

6. Cost of Land Rights:
   - ac. @ $/acre
   - ft. @ $/ft
   - Total: $

7. Status of Land Rights:
   - Not Yet Acquired
   - Partly Acquired
   - LCA Owned
   - No Land Involved

8. Estimated Costs:
   - Engineering (Staff) $500,000
   - Land Acquisition $6,209,000
   - Construction/Equipment $2,770,000
   - Professional Services $72,000
   - Contingencies $731,000
   - Total Project Cost $10,282,000
   - Requested in this Capital Program $7,282,000

   - Add. Personnel Man-Hrs.
   - Personnel Services $-
   - Supplies & Equipment $-
   - Maintenance Services $-
   - Other $-
   - Sub-Total $
   - Indirect Operating Costs:
     - Overhead Costs $-
     - Debt Service (5%-20yr.) $426,790
     - Sub-Total $426,790
     - Total Operating Costs $426,790

10. Revenue Impact:
    - Gain/Loss in Annual Revenue $
    - Assessment, Contribution-
in-Aid-of-Construction $-
    - Other $

11. Source of Funds:

12. Departmental Priority Rating:
   - High X
   - Medium
   - Low
   - Legally Mandated
Lehigh County Authority
CAPITAL PROGRAMMING PROJECT DETAIL

DEPARTMENT: CAPITAL WORKS
Sub-Organizational Unit: Wastewater Capital
Date: 10/15/13

1. Proposal Title: Lynn Township Wastewater Treatment Plant Upgrades & Expansion
2. Location: Lynn Twp.

3. Description: The Project is envisioned to be executed in two phases; Phase-1 includes disinfection facility and influent chamber upgrades and is expected to be complete in 2014. Phase-2 is the expansion of the WTP capacity from 80,000 GPD to 160,000 GPD. The WTP Upgrades & Expansion was designed and permitted by Gannett Fleming the LTSA engineer prior to the LCA acquisition of the system.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
For Phase 1, the upgrades are required to improve WTP operation. For Phase-2, the WTP expansion addressed in the Townships Act 537 Plan is driven by projected growth and system infiltration and inflow (I/I) issues, however we are reevaluating certain assumptions regarding the sizing of the WTP. Timing of the WTP expansion will be dependent upon I/I remediation efforts and growth.

5. Status of Proposal:
X Preliminary Estimate
Plans and Specs Completed
Other (Specify)

6. Cost of Land Rights:
ac. @ /acre
l.f. @ /lin ft.
Total: $ -

7. Status of Land Rights:
Not Yet Acquired
Partly Acquired
LCA Owned
X No Land Involved

8. Estimated Costs:
Engineering (Staff) $ 245,000
Land Acquisition $ -
Construction/Equip. $ 2,570,000
Professional Services $ 250,000
Other $ -
Contingencies $ 435,000
Total Project Cost $ 3,500,000
Requested in this Capital Program $ 3,464,000

Add. Personnel Man-Hrs.
Personnel Services $ -
Supplies & Equipment $ -
Maintenance Svcs $ -
Other $ 80,000
Sub-Total $ 80,000
Indirect Operating Costs:
Overhead Costs $ -
Debt Service (5%-30yr.) $ 227,680
Total Operating Costs $ 307,680

10. Revenue Impact:
Gain/Loss in Annual Revenue $ -
Assessment, Contribution-in-Aid-of-Construction $ -
Grants & Other $ -

11. Source of Funds:

12. Departmental Priority Rating:
High X Medium Low Legally Mandated

Note: Capital Recovery fees charged to new connections will help to fund the project but are unknown at this time.
1. Proposal Title: LCA WTP- Bio-gas Energy Related Improvements
2. Location: LCA TP

3. Description: The Project is composed of an energy/bio-gas study completed in 2011 and two phases of energy saving improvements. Phase-1 includes the construction of a Truck Waste Receiving Station (complete by end of 2013) and replacement of the Digester Mixers, will be completed in mid-2014 and will increase biogas production and achieve operational savings. Phase 2 is the construction of a on-site co-generation, heat recovery (CHP) system w/ bio-gas storage, design to start in 2014

4. Justification (need, function, selection of time, specific relationship to any long-term work program): The project will utilize the biogas produced at the WTP to generate on-site approximately 75% of the WTP electrical needs. In addition, heat will be recovered from the generator and used to heat the digesters. Finally there will cost saving in other WTP operational areas such as solids disposal and reduced High Purity Oxygen production.

5. Status of Proposal:
   - Preliminary Estimate
   - Plans and Specs Completed
   - Other (Specify)

6. Cost of Land Rights:
   - Preliminary Estimate ac. @
   - Plans and Specs Completed l.f. @
   - Total:

7. Status of Land Rights:
   - Not Yet Acquired
   - Partly Acquired
   - LCA Owned
   - X No Land Involved

8. Estimated Costs:
   - Engineering (Staff) $250,000
   - Land Acquisition $0
   - Construction/Equip. $3,740,000
   - Professional Services $530,000
   - Other $60,000
   - Contingencies $690,000
   - Total Project Cost $5,270,000

   - Add. Personnel Man-Hrs. $-
   - Supplies & Equipment $-
   - Maintenance Svcs $-
   - Other $ (879,000)
   - Sub-Total $ (879,000)

10. Indirect Operating Costs:
    - Overhead Costs $-
    - Debt Service (5%-20yr.) $422,878
    - Total Operating Costs $422,878
    - Sub-Total $422,878

11. Source of Funds:
    - Requested in this Capital Program $3,970,000

12. Departmental Priority Rating:
    - High X Medium Low

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Lehigh County Authority
CAPITAL PROGRAMMING PROJECT DETAIL
Project: S-26
Preparer: FJL
DEPARTMENT: CAPITAL WORKS
Sub-Organizational Unit: Wastewater Capital
Date: 10/15/13

745 64
1. Proposal Title: Spring Creek Pump Station Upgrades
2. Location: Lower Macingie

3. Description: The Project includes installing two new motor operators with SCADA control for the 30" weir slide gates. The work includes installation of local, remote and SCADA control. Currently these side gates are manually operated.

4. Justification (need, function, selection of time, specific relationship to any long-term work program):
   Automating the side gates will allow remote operation to maximize the pump station capabilities prior to and during wet weather events. Under the current situation, we cannot access the station when the area floods.

5. Status of Proposal:
   X Preliminary Estimate
   □ Plans and Specs Completed
   □ Other (Specify)

6. Cost of Land Rights:
   ac. @ _______ /acre
   l.f. @ _______ /lin ft.
   Total: $ ______

7. Status of Land Rights:
   □ Not Yet Acquired
   □ Partly Acquired
   □ LCA Owned
   X No Land Involved
   Personnel Services $ (2,185)
   Supplies & Equipment $ 5,000
   Maintenance Svcs $ 1,800
   Other $ ______
   Sub-Total $ 4,615

8. Estimated Costs:
   Engineering (Staff) $ 36,000
   Land Acquisition $ ______
   Construction/Equip. $ 180,000
   Professional Services $ 36,000
   Other $ ______
   Contingencies $ 32,000
   Total Project Cost $ 284,000
   Requested in this Capital Program $ 281,000

   Add. Personnel Man-Hrs. (100)
   Supplies & Equipment $ 5,000
   Maintenance Svcs $ 1,800
   Other $ ______
   Sub-Total $ 4,615
   Indirect Operating Costs: Overhead Costs $ (3,933)
   Debt Service (5%-20yr.) $ -
   Sub-Total $ (3,933)
   Total Operating Costs $ 682

10. Revenue Impact:
    Gain/Loss in Annual Revenue $ ______
    Assessment, Contribution-
in-Aid-of-Construction $ 281,000
    Grants & Other $ ______

11. Source of Funds:
   Oper. Asses. Borrowing
    Need Revenues Borrowing Contr.-in-Aid (A) Reserves
    Prior Years $ 3,000 $ $ $ 3,000 $
    1st Year $ 278,000 $ $ $ 278,000 $
    2nd Year $ $ $ $ $
    3rd Year $ $ $ $ $
    4th Year $ $ $ $ $
    5th Year $ $ $ $ $
    6th thru 10th Years $ $ $ $ $

12. Departmental Priority Rating:
    High _____ Medium X Low ____ Legally Mandated ______

(A) Represents use of Western Lehigh Interceptor Capital Recovery fees.
APPENDIX