Brandywine Christina Healthy Water Fund
Draft Business Plan
Presented to
The William Penn Foundation
February 2017
The Brandywine Christina

- Two states (DE & PA) – evenly split amongst agriculture, urban and natural lands
- Highly productive small farms in major-metro food-shed
- Drinking water for 600,000 people – Six surface withdrawals
- Majority of watershed “impaired” under CWA: TMDL and MS4s
- Farms yield significant sediment and nutrient reductions
- Meeting the TMDLs in PA and DE will require millions of dollars in investment
Goal

To create an innovative conservation-finance vehicle that will restore the Brandywine-Christina watershed to fishable, swimmable, potable status in an accelerated timeframe.
Objectives

Create an independent business organization that serves as a vehicle for pooling and leveraging capital in the Brandywine-Christina to deliver:

1. Prioritization, strategic concentration, and increased scale of projects with Cluster Partners;
2. Accelerated restoration by advancing capital to farms; and,
3. Sustainable funding source for restoration.
Operations

• An independent business organization.
• Dedicated staff to facilitate partner projects and cultivate sustainable funding streams.
• Governing body to provide guidance and expertise in aligning restoration with beneficiaries.
• Facilitate projects and accelerate scale of implementation that would not have occurred without the activities of the Fund.
Water Fund Business Strategy

Capitalization

**Start Up Phase (0-1yr.)**
- Hire staff
- Develop Fund administration, project implementation process, contracting in consultation with Cluster Partners
- Continuous activity supporting each stage

Deployment

**Proof of Concept (Yrs. 1-3)**
- Deploy capital to restoration activity
- Measure & report impact
- Refine growth strategy based on performance
- Continuous activity adapting to investor and fund growth requirements

Fund Growth

**Mature Phase (Yrs. 4+)**
- Transition to sustainability
- Introduce activities that generate revenue
- Develop and implement pay for performance and environmental bond models
Leveraging Cluster Partner watershed funding

**Without Water Fund**

- **Federal**: 60%
- **State**: 30%
- **Other**: 10%
- **Fund - Philantropic**: 0%

**With Water Fund**

- **Federal**: 60%
- **State**: 30%
- **Other**: 10%
- **Fund - Investor Supported**: 0%

*Barrier to farm restoration, funding shortfall*

*Over time – philanthropic is replaced with investor funds*
Water Fund Services

• Provide verified, maintained, and cost-effective sediment reductions that meet the specific needs of payors:
  – MS4: permit obligations
  – Water providers: operating costs reductions and risk mitigation

• TSS removal and accounting has to align with demand and provide value to water providers
Long Term Projected Market Impact

- Without Water Fund
- With Water Fund
- Projected TSS removed

Year

Farms implementing plans

TSS removed (tons/yr)

Projected TSS removed without Water Fund
Projected TSS removed with Water Fund

Brandywine - Christina Healthy Water Fund
Forecasted Water Fund
Capital and Revenue Projection

Capital (lower bound demand)
Projected revenue ($4/lb)

Year
1 2 3 4 5 6

Dollars ($)
$0 $200,000 $400,000 $600,000 $800,000 $1,000,000 $1,200,000 $1,400,000 $1,600,000 $1,800,000 $2,000,000

Brandywine - Christina Healthy Water Fund
# Projected demand for TSS

<table>
<thead>
<tr>
<th>Payor</th>
<th>Target Pollutant</th>
<th>Quantity Demanded</th>
<th>Price ($/lb)</th>
<th>Risk &amp; Uncertainties</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS4 (PA &amp; DE)</td>
<td>• TSS</td>
<td>• 90 - 230+ tons/yr.</td>
<td>• $4-$5</td>
<td>• Regulatory drivers&lt;br&gt;• Possible demand for TN or TP – issue of stacking&lt;br&gt;• Possible quantity demand</td>
</tr>
<tr>
<td>Water Providers (Private &amp; Public)</td>
<td>• TSS</td>
<td>• 50+ tons/yr.</td>
<td>• $4-$5</td>
<td>• Measuring impact on operating expenses&lt;br&gt;• Allowed recovery through rates&lt;br&gt;• Possible demand for bacteria</td>
</tr>
</tbody>
</table>
Pricing TSS service on MS4 sample urban abatement curve

Ave. cost of TSS removal: ~$13/lb

Water Fund supplies the “last 20-25%” at cost below MS4’s average cost.
## Water Fund Investors: Road Map

<table>
<thead>
<tr>
<th></th>
<th>Start Up Phase</th>
<th>Proof of Concept</th>
<th>Mature Phase</th>
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</thead>
</table>
| **Target Investors** | • William Penn  
• City of Newark  
• Suez*  
• City of Wilmington*  
• DuPont | • William Penn  
• USDA – NRCS  
• Partner stacking | • Impact investors  
• State revolving funds  
• Foundations |
| **ROI**       | • No return promised                               | • Environmental ROI                  | • Financial ROI                              |
| **Timing**    | • Yr 0 - 1                                         | • Yr 1 - 3                           | • Yr 3 & 4+                                  |
| **Capital Needed** | • Committed: $50,000  
• Seeking: $240,000 | • Seeking: $3.4 million to launch mature phase |                                             |

* Preliminary discussions indicate up to $60,000 combined
## Services: performance targets

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
<th>Annual TSS Reductions</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 1</td>
<td>1 farm</td>
<td>• 50 acres treated</td>
<td>• Identify pipeline</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 2.25+ tons</td>
<td>• Establish prioritization process</td>
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<td></td>
<td></td>
<td></td>
<td>• Develop contracting templates</td>
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<td></td>
</tr>
<tr>
<td>2 - 3</td>
<td>3-18 farms</td>
<td>• 200+ acres treated</td>
<td>• Address regulatory barriers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 25+ tons</td>
<td>• Cultivate payor base</td>
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<tr>
<td>4+</td>
<td>Manage 42-70 farms</td>
<td>• 2,100 – 3,500 acres treated</td>
<td>• Financially sustainable by Yr. 5, with investors &amp; payors</td>
</tr>
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<td>• Deliver 75 – 90 tons of TSS removal/yr.</td>
<td>• Generating annual revenue stream of $450,000-$600,000</td>
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</table>
Brandywine-Christina Healthy Water Fund

White Clay Creek Upstream of City of Newark Drinking Water Intake
Showing Farmland and Associated Impaired Stream Segments

Map produced by the University of Delaware Water Resources Center, Nov. 2016
Brandywine-Christina Healthy Water Fund

White Clay Creek
Upstream of City of Newark
Drinking Water Intake

Annual Cost to TMDL Target by Impairment

Map produced by the University of Delaware Water Resources Center, Nov. 2010

Brandywine-Christina Healthy Water Fund
INVESTORS

Financial ROI
*Impact capital
*PennVest/SRF
*USDA Rural Dev.
*Foundations (PRI)

Environmental ROI
*William Penn
*Foundations
*USDA/NRCS/RCCP
*Water Providers

PAYORS
• Water Providers – DE
• Water Providers – PA
• MS4 – DE
• MS4 – PA

SERVICE PROVIDERS
• Water Quality improvements (nutrients, sediments, bacteria, volume)
• Acres Preserved & Managed

RETURN ($ + impact) → INVESTMENT ($) → WATER FUND

Future sources of funding – based on fee for service

Different types of investors with different desired returns

Reflects Fund prioritization & is adaptive over time

Purchase pollution reductions

Farm restoration with Cluster Partners
Challenges

Water Fund faces three challenges to effective and successful implementation:

1. Sufficient capitalization to adequately resource activities and staff.
2. Providing recognized, streamlined, and efficient process to partners.
3. Navigating regulatory uncertainties to generate sustained revenue.
Concluding Remarks

• Independent business structure to attract investment capital
• Proof of concept phase will provide scalable process
• Capital in year 3 will build inventory for full scale implementation
• Projected financial sustainability achieved
  – Transition from grant to investor capital
  – Established revenue stream
Thank you

Questions?