APPENDIX 5: RETURN ON INVESTMENT CALCULATOR

Prepared by Zachary & Associates, Inc.

To aid property owners, a GSI Financing Calculator has been developed to illustrate financial constraints. The calculator accounts for the metrics contributing to the DWSD drainage charge credit system, including impervious surface area and volume and peak flow GSI performance. The calculator also considers hard costs (construction), soft costs (design), legal costs, and the costs of financing. The costs of financing reflect the interest rate for loans taken out to install GSI. Additional information in the calculator includes the added values of GSI systems such as estimated increase in property value and energy savings.

This tool can be used to estimate the Return on Investment (ROI) or to quantify the “financial gap” based upon desired terms of ROI given a specific time period or interest rate. Establishing that criteria will yield a value for how much of the project must be financed with grants. This tool is a template to be adjusted as necessary for estimating purposes only.
### Example Calculator

#### Project Information

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td></td>
</tr>
</tbody>
</table>

#### Parcel Information

<table>
<thead>
<tr>
<th>Address</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Parcel Size (acres)</td>
<td>XX</td>
</tr>
<tr>
<td>Assessed Impervious Area (acres)</td>
<td>XX</td>
</tr>
<tr>
<td>Current Rate per acre (monthly)</td>
<td>$661.00</td>
</tr>
</tbody>
</table>

**Monthly Drainage Charge before practice:** $XX

**Annual Drainage Charge before practice:** $XX

#### Property Information

<table>
<thead>
<tr>
<th>Property Value</th>
<th>Annual Energy Costs</th>
<th>Annual Cost of Rent (if applicable)</th>
<th>Annual Retail Profit (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
</tr>
</tbody>
</table>

#### Practice/Improvement Costs

<table>
<thead>
<tr>
<th>Hard Costs</th>
<th>Soft Costs</th>
<th>Legal Costs</th>
<th>Total Project Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
</tr>
</tbody>
</table>

#### Capital

| DWSD 50/50 Capital Partnership Program (<$50k) | $XX |
| Grant(s)                                      | $XX |
| Community Outreach Credit from DWSD           | $XX |
| Private Equity                                | $XX |
| Total Capital                                 | $XX |

#### Loan

<table>
<thead>
<tr>
<th>Principal</th>
<th>Loan Term (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$XX</td>
<td>XX</td>
</tr>
<tr>
<td>Annual Interest Rate</td>
<td>$XX</td>
</tr>
<tr>
<td>Payments per Year</td>
<td>XX</td>
</tr>
</tbody>
</table>

**Monthly Principal and Interest Payments:** $XX

**Annual Principal and Interest Payments:** $XX

#### Added Values of GSI

<table>
<thead>
<tr>
<th>Property Value w/GSI &amp; Trees (+2.5%)</th>
<th>Rental Added Value of GSI (+7%)</th>
<th>Rental Added Value of Green Roof (+16%)</th>
<th>Energy Savings from Mature Trees ($45 ea.)</th>
<th>Total Impact of GSI (+8-10%)</th>
<th>Total Added Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
</tr>
</tbody>
</table>

#### Drainage Expense (During Lifetime of Loan)

<table>
<thead>
<tr>
<th>Drainage Charge</th>
<th>Drainage Charge Credit</th>
<th>Principal and Interest of GSI Practice</th>
<th>Operations and Maintenance</th>
<th>Added Value of GSI</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
</tr>
</tbody>
</table>

#### Drainage Expense (Post Loan Term)

<table>
<thead>
<tr>
<th>Drainage Charge</th>
<th>Drainage Charge Credit</th>
<th>Operations and Maintenance</th>
<th>Added Value of GSI</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
</tr>
</tbody>
</table>

#### Summary

<table>
<thead>
<tr>
<th>Drainage Charge w/o. GSI Credit</th>
<th>Drainage Charge</th>
<th>Drainage Charge w/o. GSI Credit</th>
<th>Operations and Maintenance</th>
<th>Principal and Interest of GSI Practice</th>
<th>Total Drainage Exp w/ GSI Credit (loan term)</th>
<th>Total Drainage Exp w/ GSI Credit (loan term w/o O+M)</th>
<th>Total Drainage Exp w/ GSI Credit (post loan term)</th>
<th>Total Drainage Exp w/ GSI Credit (post loan term w/o O+M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$XX</td>
<td>$XX</td>
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<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
<td>$XX</td>
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</tbody>
</table>

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**Notes:**

- $661 is the current drainage charge rate per impervious acre per month. This rate is subject to change.
- GSI has the potential to increase property and rent values, increase sales, and reduce energy costs.
- These values should be determined by an engineer or landscape architect.
- 4% interest is a likely rate, though it may vary.
- As part of DWSD outreach and public education efforts they will compensate non-profit organizations for information sharing, awareness surveys, testimonials, and hosting events.
- Determined by the lender and the property owner.
- These site characteristics tied to GSI have the potential to increase the value of the property.
- The Real Costs of Green Infrastructure, Dec. 2015
- This calculation estimates $1 per sqft of installed GSI practice for annual maintenance costs.

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**Example:**

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- The Real Costs of Green Infrastructure, Dec. 2015
- This calculation estimates $1 per sqft of installed GSI practice for annual maintenance costs.
**Grandmont Rosedale Development Corporation**

**Project Description**

**Parcel Information**
- **Address:** 19500 Grand River Ave, Detroit, MI 48223
- **GRDC (impervious acres):** 0.25
- **Liquor Store (impervious acres):** 0.15
- **Assessed Impervious Area (acres):** 0.40
- **Current Rate per acre (monthly):** $661.00

**Property Information**
- **Property Value:** $XX
- **Annual Energy Costs:** $XX
- **Annual Cost of Rent (if applicable):** $XX
- **Annual Retail Profit (if applicable):** $XX

**Practice Goals Metrics**
- **GRDC Total Anticipated Site Credit (≤80):** 41.6%
- **Liquor Store Total Anticipated Site Credit (≤80):** 47.1%

**Costs of Practice/Improvements**
- **Hard Costs:** $47,768.00
- **Soft Costs:** $3,820.00
- **Legal Costs:** $XX
- **Total Project Cost:** $51,548.00

**Capital**
- **DWSD/DGID Capital Partnership Program (≤$50k):** $25,784.00
- **Grant(s):** $XX
- **Community Outreach Credit from DWSD:** $XX
- **Private Equity:** $XX
- **Total Capital:** $25,784.00

**Loan Terms**
- **Principal:** $25,783.92
- **Loan Term (years):** 10
- **Annual Interest Rate:** 0.04
- **Payments per Year:** 12

**Monthly Principal and Interest Payments:** $261.05

**Added Values of GSI**
- **Property Value w/ GSI & Trees (+2-5%):** $XX
- **Rental Added Value of GSI (+7%):** $XX
- **Rental Added Value of Green Roof (+16%):** $XX
- **Energy Savings from Mature Trees ($45 ea.):** -$225.00
- **Retail Impact of GSI (+8-10%):** $XX
- **Total Added Values:** -$225.00

**Drainage Expense (During Lifetime of Loan)**
- **GRDC Drainage Charge:** $165.25
- **Liquor Store Drainage Charge:** $99.15
- **Total Drainage Charge:** $264.40
- **GRDC Drainage Charge Credit:** -$68.74
- **Liquor Store Drainage Charge Credit:** -$46.70
- **Total Drainage Charge Credit:** -$115.44
- **Operations and Maintenance:** $159.75
- **Added Value of GSI:** -$18.75
- **Total:** $289.96

**Drainage Expense (Post Loan Term)**
- **GRDC Drainage Charge:** $165.25
- **Liquor Store Drainage Charge:** $99.15
- **Total Drainage Charge:** $264.40
- **GRDC Drainage Charge Credit:** -$68.74
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**Summary**
- **GRDC Drainage Charge w/o GSI Credit:** $165.25
- **Liquor Store Drainage Charge w/o GSI Credit:** $99.15
- **Total Drainage Charge w/o GSI Credit:** $264.40
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**Credits determined by livingLAB detailed in Bridging High & Low Density Neighborhoods with Green Stormwater Infrastructure**

**Costs estimated by livingLAB detailed in Bridging High & Low Density Neighborhoods with Green Stormwater Infrastructure**
SUMMARY

SDBA Drainage Charge w/o. GSI Credit
$284.23  $3,410.76
Theater Drainage Charge w/o. GSI Credit
$264.40  $3,172.80
Vacant Lot Charge w/o. GSI Credit
$52.88  $634.56
Total Drainage Charge w/o. GSI Credit
$601.51  $7,218.12

SDBA Drainage Charge Credit
-$84.13  -$1,009.58
Theater Drainage Charge Credit
-$76.15  -$913.77
Vacant Lot Charge Credit
-$15.65  -$187.83
Total Drainage Charge Credit
-$175.93  -$2,111.18

SDBA Drainage Charge w. GSI Credit
$200.10  $2,401.18
Theater Drainage Charge w. GSI Credit
$188.25  $2,259.03
Vacant Lot Drainage Charge w. GSI Credit
$37.23  $446.73
Total Drainage Charge w. GSI Credit
$425.58  $5,106.94

Operations and Maintenance
$166.67  $2,000.00
Principal and Interest of GSI Practice
$659.60  $7,915.16

Total Drainage Charge w. GSI Credit (loan term)
$1,251.84  $15,022.10

Total Added Value of GSI
-$22.50  -$270.00

Total Drainage Expense w GSI Credit (loan term)
$1,229.34  $14,752.10

Total Drainage Expense w GSI Credit (loan term w/o O+M)
$1,062.67  $12,752.10

Total Drainage Expense w GSI Credit (post loan term)
$569.74  $6,836.94

Total Drainage Expense w GSI Credit (post loan term w/0 O+M)
$403.08  $4,836.94

MONTHLY  ANNUAL
SDBA  $284.23  $3,410.76
Theater  $264.40  $3,172.80
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DRAINAGE EXPENSE (post loan term)

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$284.23  $3,410.76
Theater Drainage Charge
$264.40  $3,172.80
Vacant Lot Drainage Charge
$52.88  $634.56
Total Drainage Charge
$569.74  $6,836.94

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Example calculator: Southwest Detroit Business Association