Funding Reclaimed Water Projects Through Florida’s State Revolving Fund Programs

Presented by Tim Banks P.E.
In the Beginning

- Reuse in Florida began in the 60s in Tallahassee
- Followed by St. Petersburg in the 70s
- Then Conserv II in the 80s
Recent Reuse Projects

- Agricultural
- Golf Course
- Nurseries
- Cooling Water for Power Plants
- Industrial
- Residential
Chapter 62-610 – Reuse Rule Summary

- Establishes permitting requirements for reuse systems:
  - Slow-rate restricted access (e.g. sprayfields);
  - Public access (irrigation of golf courses, residential properties, and edible crops; toilet flushing; fire protection, etc.);
  - Rapid-rate (e.g. RIBs and absorption fields);
  - Ground water recharge and indirect potable reuse; and
  - Industrial uses (e.g. cooling towers).

- Requirements are established for:
  - Treatment
  - Groundwater Monitoring
  - Storage
  - Hydraulic Loading Rates
  - Operator Staffing
  - Setback Distances
  - Reliability
  - Minimum System Size
  - Operating Protocols
  - Pathogen Monitoring
  - Cross-connection Control
  - Continuous Monitoring
Cape Coral

- Wastewater Collection
- Reuse Distribution
- Drinking Water Distribution
- Approximately $269 million total cost
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City of Cape Coral

Reuse
Supplementation & Expansion

2017 Utility of the Future Recipient

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Utilities Director

Kevin L. Higginson, P.E.
Utilities Extension Manager
Cape Coral

- Southwest Florida Coastal City
- 3rd Largest FL City in Land Area
- 10th Largest FL City in Population
- Peninsula Surrounded by Saltwater
- Longest Canal System in Florida
- 2000 Population - 102,286
- 2010 Population - 154,305
  (Source BEBR)
- Build-out Population Est. - 400,000
Cape Coral Reuse Program Considerations

- Recognition of limited water resource availability
- Early focus on “total water management”
- Consideration of all water sources and all water demands
- Elimination of wastewater surface water discharges
- Up to 50% municipal demand used for irrigation of lawns
- 400 miles of canals seen as a resource (but not to drink)
- Pre-platted residential community
- Minimal industry and agriculture base
Cape Coral Reuse Program Components

- Separation of inside and outside water uses
- RO treated brackish groundwater reserved for potable uses
- Reuse of treated wastewater for residential/commercial irrigation
- Stormwater harvesting of canals to supplement reuse
- 3 pipes to every house – W / WW / IQ
- Demand management - 2 days per week watering restriction
Results

- Continued recognition for progressive water management program
- 100% Alternative Water Supply
- 100% reuse of municipal wastewater
- Effective and robust stormwater harvesting program
- Delivery of >40 MGD Irrigation water during dry season
- Major reductions in stormwater discharges to estuaries
- No utility rate increase since 2013, no increases forecast until 2027
Financial Plan Parameters

Fund Annual O&M, Debt Service, Capital Improvements, and System R&R

Maintain Sufficient Operating Reserves
- Target: 6-month operating reserve
- Cover disruptions in revenue or unforeseen expenditures

Maintain Sufficient Debt Service Coverage
- Target: net revenues at least 1.5X annual senior debt service
- Goal: No additional long-term borrowing outside of UEP in next 10 years

Financially healthy per rating agencies
National Industry Cost Trends

Cumulative % Increase (2011-2020)

- Cape Coral: 17%
- U.S. CPI Water & Sewerage: 53%
2020 Residential Monthly Utility Bill Comparison

Combined Water, Wastewater & Irrigation/Reclaimed Bill Survey
Water & Wastewater @ 4,000 Gallons Per Month
Irrigation or Reclaimed (where available) @ 20,000 Gallons Per Month

- Fort Myers
- Charlotte County
- North Port
- Venice
- North Fort Myers Utility, Inc.
- Lee County
- Punta Gorda
- Bonita Springs Utilities, Inc.
- Collier County
- Naples
- Cape Coral

- Wastewater
- Water
- Irrigation
- Reclaimed
Future Plans

▪ Partnered with FGUA and City of Ft. Myers for reuse interconnects
  ▪ City will receive up to 18 mgd of treated effluent for irrigation use
▪ Integrated Water Resource Management Program
▪ ASR storage being considered for excess reclaim and canal water
▪ Increased conservation measures and public education and awareness
▪ Continued Aggressive Utilities Extension Program (UEP) will add between 8,000 to 9,000 additional reuse customers by 2023
Utilities Extension Project (UEP)

- Citywide project constructed in phases
- Extension of potable water, sewer and irrigation infrastructure
- Environmental and economic benefits
- Eliminates individual potable water wells and septic systems
- Improves quality and reliability of service
- Expands customer base
- Mitigates need for future rate increases
**UEP Phasing**

- Recent phases include Southwest 6/7, North 2 and North 1
- Southwest 6&7 complete (6,700 parcels)
- North 2 nearing completion (8,900 parcels)
- North 1 in design phase (7,400 parcels)
- 12- to 18-month design, bidding and assessment
- 24- to 30-month construction and plumber’s connections
Utilities Extension Project (UEP)

- Primary funding source is Special Assessments
- Other City funding for paving and stormwater improvements
- Assessments paid in full or in annual installments on tax bill
- Financing through SRF Clean Water and Drinking Water loans
- Loans repaid with assessment revenues
UEP Assessment History

Average Combined W-S-I Assessments $12,663

Costs do not include the $6,750 CFEC

Total Assessment Per 10,000 SF (All 3 Utilities)
North 2 Estimated Costs

$184 M – Utilities Construction

$16 M – Facilities Construction (2 MPS, 1 CPS)

$26 M – Storm Drains, Roads, Fiber Optics

$226 M – Total Construction Cost

$11 M – Construction Contingency

$17 M – Construction Engineering and Inspection

$15 M – Design, Survey, and Admin

$269 M – Total Cost
North 2 Funding Sources

$138.4 M – Water-Sewer-Irrigation Line Extension Assessments
$100.5 M – Capital Facility Expansion Charge (CFEC) Assessments
$14.3 M – Transportation (Gas Tax)
$11.1 M – Stormwater (Stormwater Utility)
$4.7 M – Water & Sewer (Utility Rates)
$269 M – Total Project Cost
North 2 Financing

- Clean Water (CW) SRF Loan = $136.0M – Funds Wastewater
- Drinking Water (DW) SRF Loan = $106.5M – Funds Potable & Irrigation Water
- 20 Year SRF loan financing rates presently < 2 %
- Cash flow considerations due to 5-year SRF loan disbursement period
- First SRF Loan payment due 6 months after completion of Construction
## North 2 Assessments

<table>
<thead>
<tr>
<th>Water and Irrigation Distribution and Wastewater Collection</th>
<th>Estimated Water</th>
<th>Estimated Sewer</th>
<th>Estimated Irrigation</th>
<th>Estimated Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment Component Costs</td>
<td>$29,824,340</td>
<td>$82,648,392</td>
<td>$25,956,786</td>
<td>$138,429,518</td>
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<tr>
<td>Land Area Assessment Per 1 EP = 10,000 SF</td>
<td>$3,021</td>
<td>$7,457</td>
<td>$2,154</td>
<td>$12,632</td>
</tr>
<tr>
<td>Capital Facility Expansion Charge</td>
<td>Estimated Water</td>
<td>Estimated Sewer</td>
<td>Estimated Irrigation</td>
<td>Estimated Total</td>
</tr>
<tr>
<td>Assessment Component Costs</td>
<td>$10,792,079</td>
<td>$26,821,305</td>
<td>$19,540,585</td>
<td>$57,153,969</td>
</tr>
<tr>
<td>System Demand Units Per 1 ERU (5/8” meter, receiving all three utilities)</td>
<td>$1,320</td>
<td>$3,112</td>
<td>$2,318</td>
<td>$6,750</td>
</tr>
</tbody>
</table>
## North 2 Assessments

<table>
<thead>
<tr>
<th>Assessment Amount After 8/1/18</th>
<th>Estimated Water</th>
<th>Estimated Sewer</th>
<th>Estimated Irrigation</th>
<th>Estimated Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equivalent Parcel (1 EP = 10,000 SF)</td>
<td>$3,346</td>
<td>$8,245</td>
<td>$2,385</td>
<td>$13,976</td>
</tr>
<tr>
<td>CFEC (1 ERU) (NO 20% PREPAYMENT DISCOUNT)</td>
<td>$1,320</td>
<td>$3,112</td>
<td>$2,318</td>
<td>$6,750</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Estimated Annual Installment Amounts - All 3 Utilities</th>
<th>Years 1-6 Annual Amount *</th>
<th>Years 7-20 Annual Amount *</th>
<th>Estimated Total Paid Over Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP Interest Rate: 5.0%</td>
<td>$1,202</td>
<td>$1,202</td>
<td>$24,040</td>
</tr>
<tr>
<td>CFEC Interest Rate: 4.08%</td>
<td>$1,383</td>
<td>N/A</td>
<td>$8,298</td>
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</tbody>
</table>

*Annual payment includes principal, interest, collection costs and statutory discount recovery costs.

1. A Hardship Program is available based on income qualification and must qualify annually.