



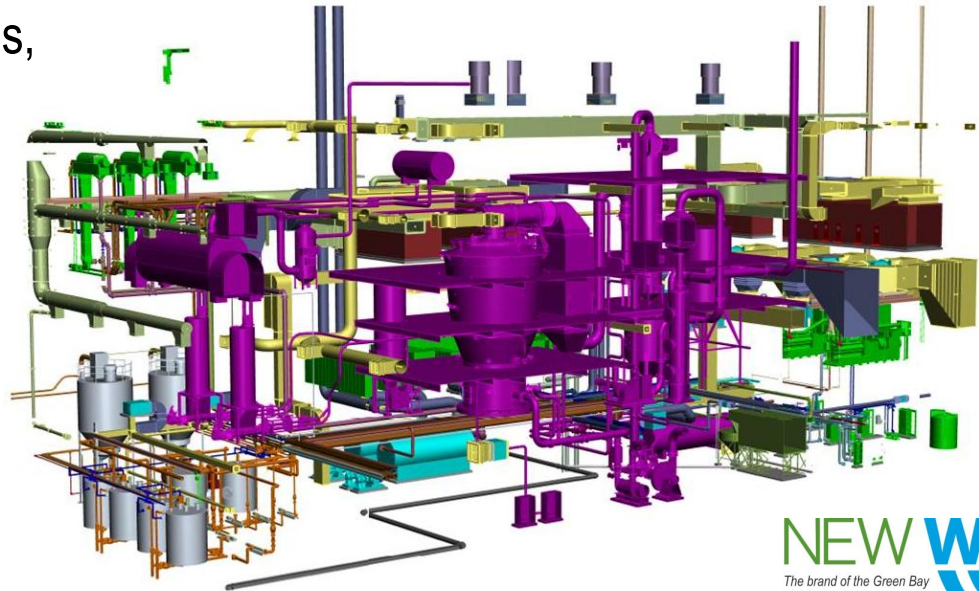
# NEW Water Update

R2E2 Stakeholder Committee  
& Customer Quarterly combined meeting  
December 5, 2014



# Resource Recovery and Electrical Energy: R2E2

- Current **solids handling facility** being replaced due to:
  - Environmental regulations,
  - aging infrastructure, and
  - capacity requirements





# Resource Recovery and Electrical Energy: R2E2

- R2E2 implementation will yield 50% purchased energy savings
- Recovers chemical energy in wastewater to produce methane gas for electrical energy generation and heat recovery
- Recovers thermal energy in wastewater to pre-dry solids to enable incineration without supplemental fuel
- Recovers nutrients from wastewater to produce a beneficial reuse commercial fertilizer product





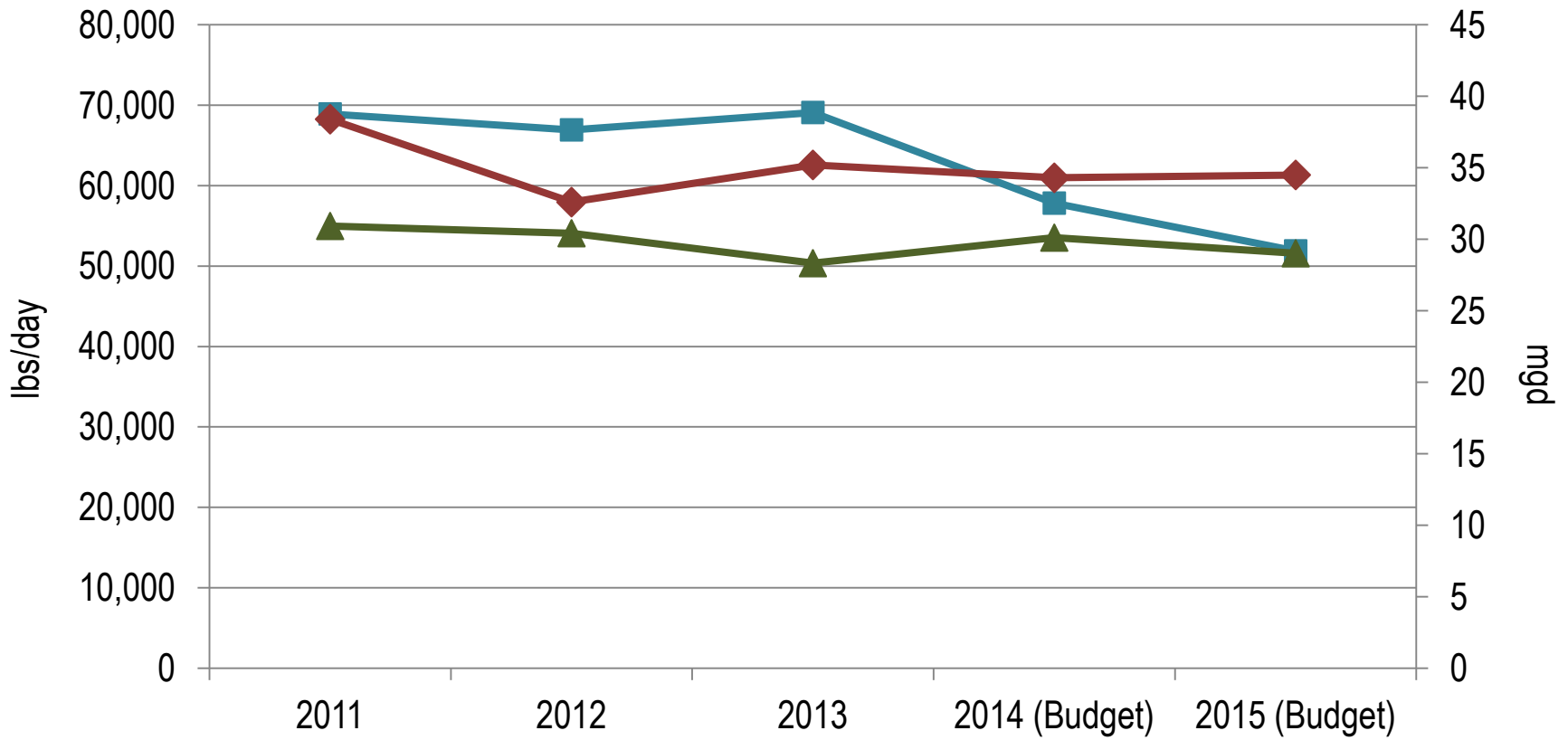
# NEW Water 2015 Budget Drivers



- Loss of 10% of BOD loading
- Continue to build funding capacity for R2E2 project debt
- Fund other essential capital projects
- Implement adaptive management pilot
- Accommodate PSC Fox River Fiber decision



# Flows and Loads

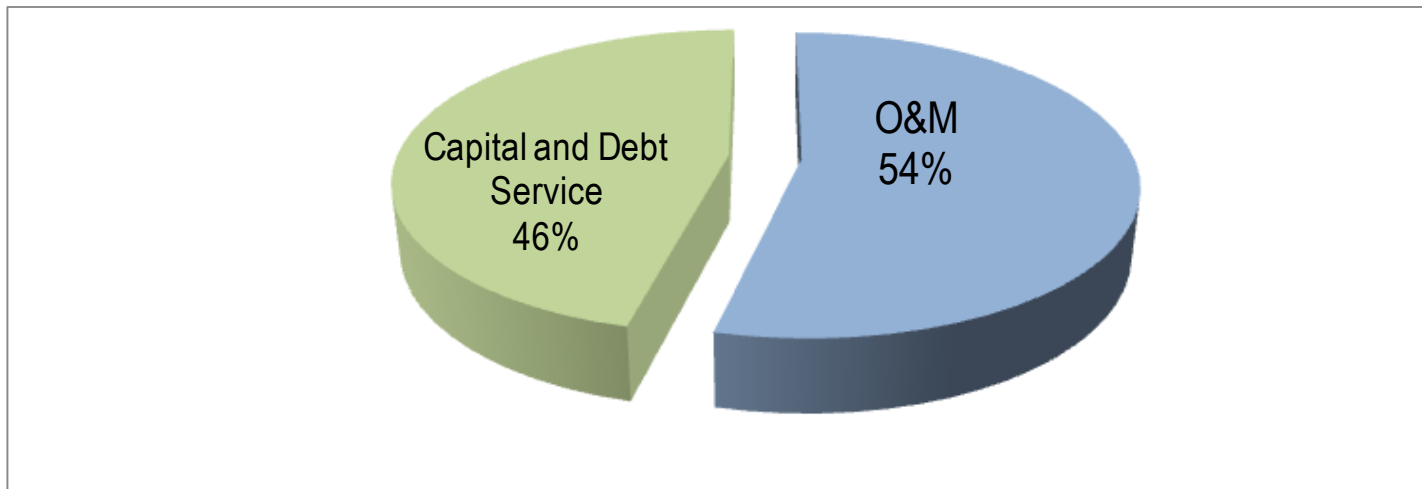






# 2015 Proposed Expenses

Budget Category	2014 Budget	2014 Projected	2015 Budget
Operations & Maintenance (O&M)	\$19,468,874	\$18,654,913	\$19,014,538
Debt Service and Annual Capital	\$14,298,621	\$14,134,667	\$16,312,247
Total Expenses	\$33,767,495	\$32,789,578	\$35,326,785





# Municipal Rate

Parameter	2014 Rate	2015 Rate	% Change
Total Combined Rate (1,000 gals)	\$2.6362	\$2.8973	9.9%
Volume (1,000 gals)	\$0.7633	\$0.8045	5.4%
Biochemical Oxygen Demand (lbs)	\$0.3347	\$0.3933	17.5%
Suspended Solids (lbs)	\$0.2987	\$0.3482	16.6%
Phosphorus (lbs)	\$0.6212	\$0.5677	-8.7%
Total Kjeldahl Nitrogen (lbs)	\$0.6874	\$0.6536	-4.9%
Fixed Charge	\$0.4676	\$0.5266	12.6%



# The Fox River Contributes 1/3 of All Nutrients to Lake Michigan

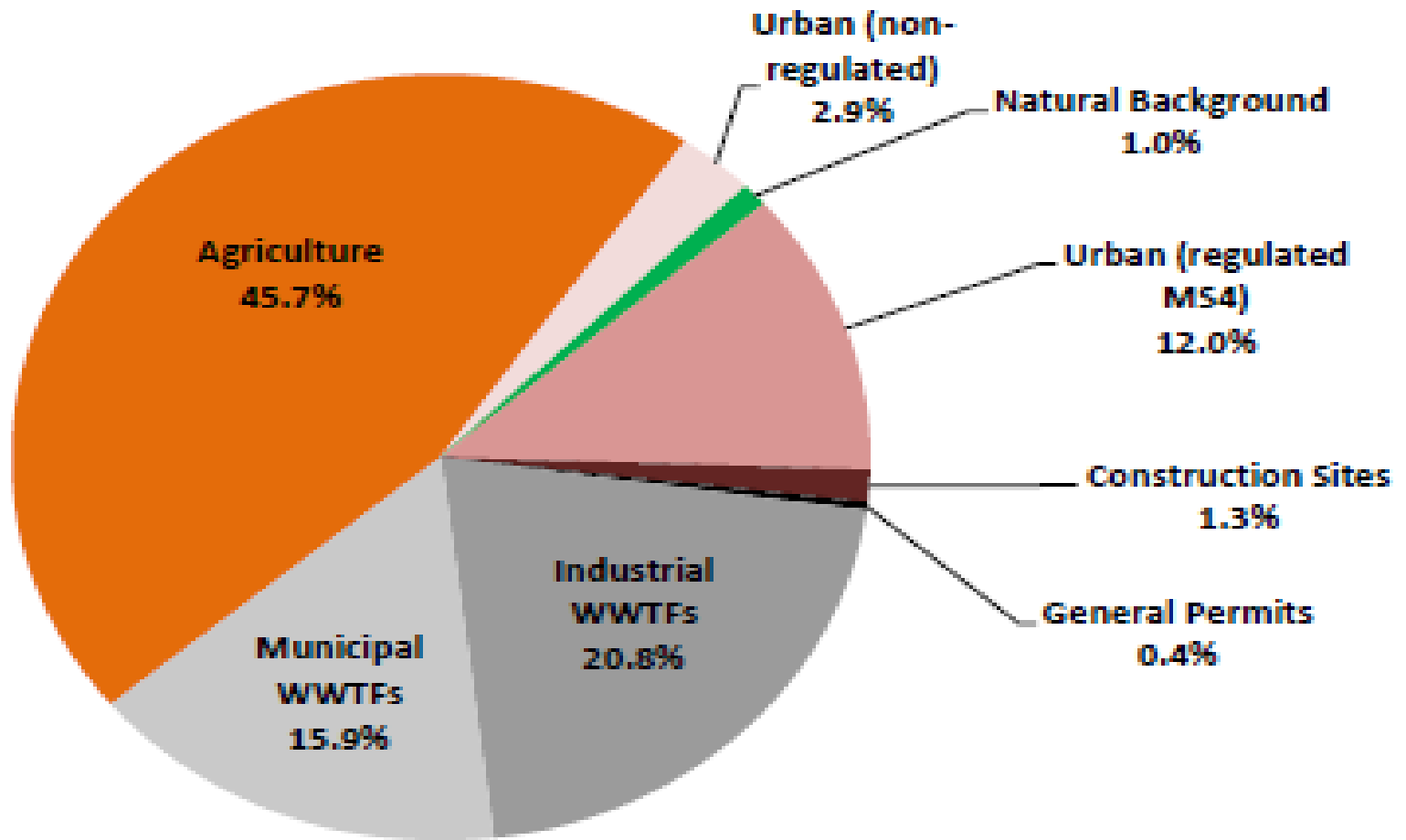


Photo credit: Steve Seilo ([www.photodynamix.com](http://www.photodynamix.com))





# Sources of Phosphorus in Lower Fox River (LFR) Basin




(Data Source: Total Maximum Daily Load - **TMDL**  
Watershed Plan for Lower Fox River March 2012)



# Economics of Phosphorus (P)

## Lower Fox River TMDL Estimated Capital Costs:

	<u>Estimated Costs</u>	<u>Sources P TMDL</u>
Municipal WWTF's:	\$400 – \$500 million	87,160 lbs/yr
<b>NEW Water:</b> (capital costs 2010 and 2025)	<b>(\$223 - \$394 million)</b>  (included as part of total)	<b>26,059 lbs/yr</b>
MS4's storm water: (2013 FWWA Conference)	\$200 - \$400 million	65,829 lbs/yr
Industrial WWTF's:	\$200 million ??	114,429 lbs/ yr
Agriculture	\$ ???	<b>251,382 lbs/yr</b>

**Total: \$800 Million - \$1.1 Billion**

**Note:** Brown County LWCD \$45 million dollars on all Agriculture BMP's, Staff, and Programs from 1983-2012.



# NEW Water WPDES Permit Timeline

2015 - Operations & Needs Report is due.

2016 - Alternatives evaluation update.

2017 - Alternatives evaluation plan draft.

2018 - Alternatives evaluation plan final.  
**Adaptive Management or Treatment.**

2018 - Begin plan, apply for new permit.

2019- 2022 – Design and Construct to meet new permit limits if treatment is selected.

If Adaptive Management is selected, annual watershed reports are due.

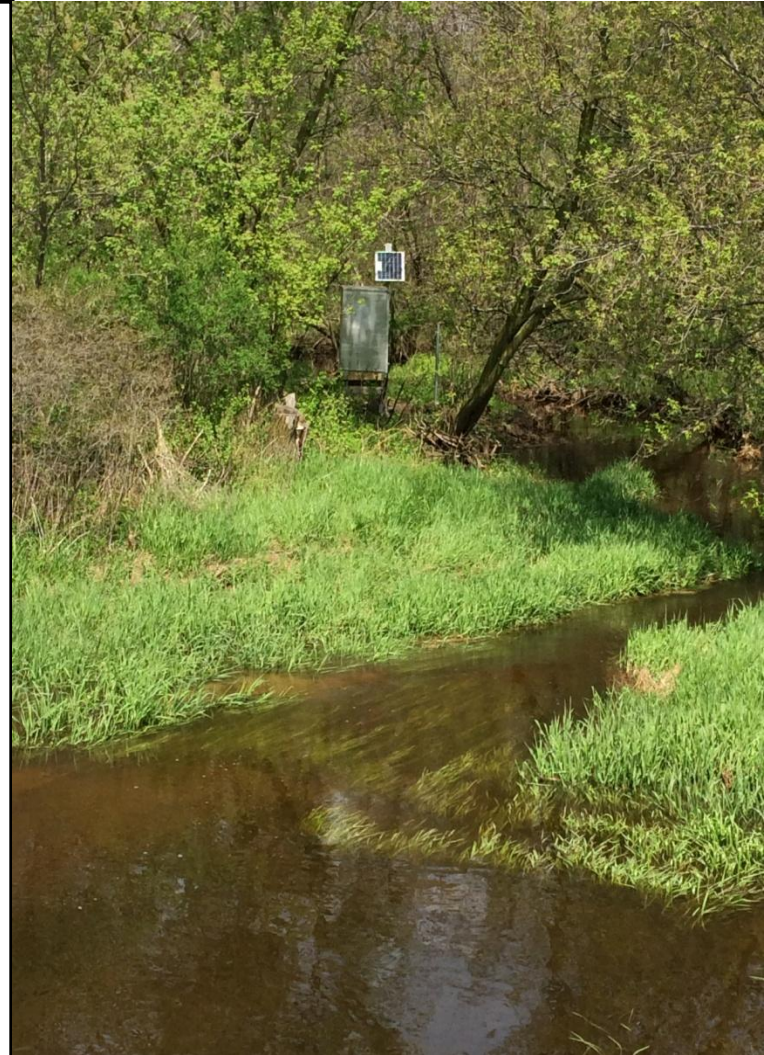






# Silver Creek Pilot Project 2013 -2018

- Partnerships – Oneida Tribe.
- Stream Monitoring.
- Inventory of watershed.
- Implementation.
- Project evaluation.



<http://www.newwater.us/projects/silver-creek-project>





# Some Questions to Answer in the Pilot

- Can we demonstrate AM in a 4 yr pilot?
- Will the Pilot result in water quality improvement?
- What does compliance mean?
- Can we demonstrate AM in 20 years for permit compliance?
- What will it cost?
- Can AM be a viable permit compliance approach?
- Is this the best approach for our ratepayers?
- Are there willing stakeholders and landowners/growers?
- What barriers exist to full scale implementation? Can they be overcome?



# Plans for 2015 - The Year of Planning

- Finish soil sampling and analyze data
- Stakeholder and landowner/grower meetings
- Stakeholder commitments and work planning
- Nutrient Management Plans
- Field walks and Conservation Plans
- Enrollment into programs and identify cost share needs
- Implement some best management practices (BMPs)
  - Cover crops, Residue, No-till, Manure and fertilizer application, Hay



# Questions

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*Photo by Mark Godfrey / The Nature Conservancy*



# R2E2 Update

Stakeholder Committee

December 5, 2014







# Agenda

- R2E2 Updates Since Last Meeting
  - 60% design workshops
  - Project scope reductions and increases
  - Construction Cost estimate
- Fluidized Bed Incinerator
  - 90% Workshop and Model
  - Contract 34 Package
- Contract 33 Primary Switchgear and Utility Relocation
  - Construction Status
- Schedule—What's next?
  - Major equipment pre-purchase and pre-select
  - Final design
  - Construction
- Open Discussion



# Design Workshops

- All 60% workshops complete
- Two of three 90% P&ID workshops conducted – final scheduled for next week
- Nutrient Recovery System Workshop to be scheduled January



# Project Scope Reductions/Increases

- Cost reductions incorporated into documents:
  - Deductive bid item for Anaerobic basin improvements
  - Use of existing tank and outlet piping for Nutrient Recovery
  - Re-purposing existing pipe for new services
- Additive scope items were incorporated this period:
  - Thickening centrifuge
  - Adjustable frequency drives on Primary Sludge pumps
  - Density meter on FBI feed



# Cost Estimate

The team continues to look for ways to manage costs within budget. Below is a summary of cost progression:

- Facility Plan = \$147,000,000 in 2011 dollars
- BODR (increased FBI and dryer sizing, dropped steam turbine)
  - \$124,000,000 in 2011 dollars
  - \$144,000,000 in 2016 dollars (midpoint of construction)
- The 60% estimate was \$146,000,000 in 2016 dollars
- The 90% estimate is \$149,000,000 in 2016 dollars





# Fluidized Bed Incinerator Procurement

- Fluidized Bed Incinerator (FBI) model update and 90% design workshop was held October 15, 2014
- Model changes incorporated and will be frozen next week
- Deliverable for Contract 34:
  - Draft submitted October 2014
  - Final submittal meeting December 17, 2014
- Deductive and additive change orders are being negotiated net change <\$100,000



# Primary Switchgear and Utility Relocation (Contract 33)

- Initial contract to transition GBF electrical supply into new switchgear, relocate utilities and access roads, and construct new storage building
  - Construction is essentially complete on primary switchgear and storage buildings
  - Primary switchgear equipment delivered and installed
  - WPS connections this week, and on-site terminations 30% complete
  - Switchover scheduled for January and February with training to follow
  - Contract Completion on schedule for July 15, 2015



# Primary Switchgear and Utility Relocation



WPS strings power cable on pole for 137 feed



# Primary Switchgear and Utility Relocation



**Metcon continues erection of Storage Bldg.**





# Primary Switchgear and Utility Relocation



#1 Switchgear bank



# Primary Switchgear and Utility Relocation



**Second section of switchgear #1 in transit**



# Primary Switchgear and Utility Relocation



NEI positions power cables in cable trays Cable Vault #1





# Primary Switchgear and Utility Relocation



**Miron completes sheathing of Switchgear Bldg.**





# Primary Switchgear and Utility Relocation



**Performance Insulation continues duct insulation in switchgear room #2**



# Primary Switchgear and Utility Relocation





# Primary Switchgear and Utility Relocation



NEI installs batteries in battery storage rooms





# Primary Switchgear and Utility Relocation



**Sommers pours concrete landscape curbing around Switchgear Bldg.**





# Primary Switchgear and Utility Relocation



**Binder course on Central Access road**



# Procurement Schedule

- Pre-selection documents to qualified vendors:
  - Co-gen package: Issued Dec. 2013; Proposals Due Jan. 2014
    - Pre-selection of Caterpillar was recommended and approved
  - Centrifuge package: Issued Dec. 2013; Proposals Due Jan. 2014
    - Pre-selection of Centrysis was recommended and approved
  - Nutrient Recovery request for proposals (RFP):
    - Two proposals received September 26, 2014
    - Pre-selection of Multiform Harvest recommended and approved



# Nutrient Recovery

- Two vendors submitted proposals:
  - Multiform Harvest:
    - Capital \$2.375 million, 20-year life cycle \$8.132 million
    - Fertilizer purchase \$375/dry ton
  - Ostara:
    - Capital cost \$5.225 million, 20-year life cycle \$12.767 million
    - Fertilizer purchase \$300/dry ton
  - Multiform Harvest selected and letter of intent executed



# Design Schedule (Contract 34)

- Design completion has pushed to Spring 2015 because of Nutrient Recovery vendor selection process
  - 90% package (less Nutrient Recovery) to be posted December 15, 2014
  - Final documents (less Nutrient Recovery) February 2015
  - Nutrient Recovery design workshop January 2015
  - Nutrient Recovery final documents April 2015
- Contractor pre-qualification December 2014
- Bid late Spring 2015 with construction to start Summer 2015 and substantial completion Summer of 2018
- Digester and Solids Facility fly-through





# Open Discussion



# Schedule – What's Next

- Post today's presentation on website
  - Continue to update our customers through external newsletter and website
- Next Customer Meeting
  - Spring 2015



# R2E2 Update

Thank you for coming!