• Established in 2008 “NYSP2I”
• HQ at RIT
• $4M in annual NYS funding
• Focus on reduction of natural resource consumption (water, raw material, energy) and elimination of waste and toxics
• P2 research, technical assistance, education and outreach
• 15+ full-time staff
Guide NYS and its businesses to a more sustainable food system by providing the information and tools necessary to reduce and recover food resources.
Common Concerns/Challenges

Common roadblocks are not a bad thing

People
- Training
- Customers
- Change

Methods
- Cost
  - New equipment
  - New process

Materials
- Odors/pests
  - Donation liability
  - Contamination

Environment
- Floor space and storage
  - Building layout
  - Hauler/recycler availability
NYSP2I - Walking the walk

- 20+ businesses assisted
  - Single day facility waste audits (7000 lb. food waste measured)
  - Brief assistance support
  - Projects
- 4 state-wide stakeholder meetings held
- 5 plant tours
- 8 Community Grant food related projects
NYSP2I - Talking the talk

• Presented at 5 workshops and conferences
• Launched the Food System Sustainability Clearinghouse
• Created a food waste self-assessment toolbox
• Generated food waste videos for the Ellen MacArthur Disruptive Innovation Festival
Understanding Food Waste

DISRUPTIVE INNOVATION FESTIVAL
How have food businesses been approaching their challenges?
Food Waste Reduction Assistance

Challenge
• Food waste is the single largest contributor to our solid waste stream

Objective
• Help businesses reduce and divert food waste

Work Performed
• Collect data
• Provide recommendations
• Provide implementation assistance

Results (to-date)
• 15 “large generators” assessed
De-packaging Equipment Assessment

Client
• Organics hauler and processor

Challenge
• Quantity and variety of packaged food that can be accepted was limited by current de-packaging equipment

Objective
• Perform a comparative analysis of current and potential de-packaging equipment

Work Performed
• Data collection
• Cost comparison

Results
• 1.8 - 3X higher throughput
• 49%-73% less labor per unit
• Feedstock options increase
Solid Waste Reduction Plan Development

Client
- Brewery (brew, bottle, package, distribute)

Challenge
- Meeting zero waste to landfill requirements set by parent company

Objective
- Develop an implementable Sustainability Plan with a focus on reducing solid waste

Work Performed
- Benchmarking
- Data collection
- Plan with timeline developed

Results (to-date)
- Sustainability team formed
- Implemented 5S recommendations
Supply Chain Evaluation

Client: Foodlink
- Feeding America food bank
- 19M lb. distributed annually

Challenge
- Some donations are unusable
- Disposal burden placed on Foodlink

Solution
- Benchmarked other facilities
- Performed on-site assessment
- Recommended in-house source reduction and diversion opportunities

Results
- Source reduction techniques recommended
- Diversion options evaluated and presented
- Sustainability Action Plan developed
Community Grant Recipient – 2016-2017

• Hudson Valley Regional Council
• Feeding the Hudson Valley Event
What are the food business leaders doing?
Current Work - Waste → Revenue

**Challenge**
- Food waste is a major expense & environmental burden

**Objective**
- Turn a food waste stream into a new saleable product

**Outcome**
- Beet pulp and other processing byproducts dehydrated into powder
- Waste product eliminated
- New product line added, nutrients recycled

“We’re thrilled to launch another product [and] that we’re able to do it in a way that’s making us even more efficient and economical. It’s a win/win for everyone.”

- George Shropshire, VP, Love Beets.

Current Work - Waste → Revenue

Client
- OWARECO, LLC – distributor of food waste dehydration technology

Challenge
- What are the potential end uses for the dehydrated food waste?

Objective
- Determine new end markets for dehydrated food waste

Work Performed
- Dehydrated food waste (7 sources)
- Analyzed nutrient content
- End market research

Results

<table>
<thead>
<tr>
<th>End Use</th>
<th>Compatible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compost</td>
<td>Potential</td>
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<tr>
<td>Fish feed</td>
<td>Yes</td>
</tr>
<tr>
<td>Cattle feed</td>
<td>Yes</td>
</tr>
<tr>
<td>Pyrolysis</td>
<td>Yes</td>
</tr>
<tr>
<td>Pellet fuel</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Current Work - Assessment and Diversion

Challenge

- Food waste is a significant cost. The business unit is also currently lacking a focus on continuous improvement and interested in integrating that into its food waste management model.

Objective

- Evaluation of opportunities to reduce food waste at its source and effectively recover and make use of the remaining food waste.

Define ● Measure ● Analyze ● Improve ● Control
How do businesses get started?
Food Waste Tool Box - Clearinghouse

- Self-assessment tools
- Food waste estimator tool
- Organic resource locator
- Best practices (reduction/diversion)
- Source separation guidance
- Food donation guidance

https://www.rit.edu/affiliate/nysp2i/food/

Sustainable Future

Our food system is intertwined with so many aspects of the environment, society and economy. Working toward a sustainable food system is working toward a sustainable future.

Is food retail or service a part of your operation? Do you generate food waste?

The first thing to realize is that food waste is actually a valuable resource when handled appropriately. This website is here to help you successfully utilize that resource by preventing and diverting your food waste.
Clearinghouse Step-by-Step Guide

Step 1: Estimate your food waste quantities

First you need to get an idea of how much food waste is being generated at your business.

- You can use food waste estimation tools to get an idea of how much food waste you might be generating based on averaged data from similar businesses.
- To obtain more accurate data, consider conducting a food waste audit. This will give you a more accurate picture of your generation rates.
Food Waste Estimator

Pick A Category

Colleges and Universities - Residential
Colleges and Universities – Non-Residential
Correctional Facilities
Distribution and Wholesale
Elementary and Secondary Schools

Hospitals

Lodging and Hotels
Nursing Homes
Restaurants
Supermarkets and Grocery Stores
Venues and Events
Venues and Events (Large Venues)

Food Waste Generation Factor

23.94 lb/bed/week

Input Field

Number of Beds

150

3,591.00 lb/week

1.80 tons/week
Step 2: Identify the types of food waste generated and your waste generation points

Knowing the type of food waste generated at your business will go a long way in helping to either focus your reduction efforts or choose a diversion method.

- The type of business you run will likely give you a good idea of what type of food waste you’re generating. For example, a restaurant may have mostly prep waste and plate waste. A grocery store, on the other hand, may have packaged food, produce, prep waste and plate waste.
- Conducting a food waste audit is a great way to get an accurate picture of the type of food you’re generating. Once you get a clearer picture of the amount and type of waste you’re generating, you can target your efforts.
Why do an audit assessment?

- **Continuous improvement** – measure progress and set goals.
- **Operating costs** – purchase less food, spend fewer hours handling food that isn’t sold
- **Disposal costs** – reducing waste cuts disposal costs
- **Worker safety and sanitation** – separated food waste can reduce lifting and double-handling, and will improve the sanitation of the on-site dumpster when diverted from landfill.
- **Feed hungry New Yorkers** – donating surplus food supports local food banks and pantries.
- **Support the community** – reduce landfill space demand when food waste is donated or recycled.

**Audit**: “examine (accounts, records, etc.) for purposes of verification”

**Assess**: “to estimate or judge the value, character, etc., of”

Dictionary.com
What is an audit assessment?

Audit: “examine (accounts, records, etc.) for purposes of verification”
Assess: “to estimate or judge the value, character, etc., of”

Consider: What are your goals? How much time/budget do you have?

- Look in the trash (periodic)
- Perform an assessment - NYSP2I tool box (1 day)
- Document (manually) what is being thrown out and why (ongoing)
- Management tracking system with analysis capabilities (ongoing)

Involvement
Like with anything else, the more investment here, the greater the likelihood of a successful outcome.

**Straightforward planning**, our experience was more challenging because we were outsiders.

We have included guiding questions to answer and best practices to follow in assessment documentation.

Pre-Assessment - Planning
More detail – more visibility to opportunities

Photos tell a lot

Considerations – loss reason, communication, sampling, handling of packaged food and donate-able goods
Typical Root Causes

Processing

Retail

Distribution

Food Service
Post-Assessment – Checking/Improving

Download template and enter data → Review and analyze results → Document improvement plan & communicate it → Record results in NYSP2I data log

Post-Assessment

Data by department

What does this data tell you?

<table>
<thead>
<tr>
<th>prepared</th>
<th>Source Location</th>
<th>Food Weight (lbs/day)</th>
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<tr>
<td></td>
<td>plate waste</td>
<td>32.0</td>
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<td></td>
<td>Fries, chicken</td>
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<td></td>
<td>fingers, wings</td>
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<td></td>
<td>subs</td>
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<td></td>
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<td></td>
<td>Chicken fingers</td>
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<td>French fries</td>
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<td>surplus</td>
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<tr>
<td></td>
<td>Rotisserie</td>
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<td></td>
<td>chicken</td>
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<td>expired</td>
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<td></td>
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<tr>
<td></td>
<td>pancakes from</td>
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<td></td>
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<td></td>
<td>rinds from cut</td>
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<td></td>
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<td></td>
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<tr>
<td></td>
<td>Total</td>
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</table>
Post-Assessment – Checking/Improving

What does this data tell you?

**Pre-Consumer vs. Post Consumer**

- Post-Consumer: 218 lbs. (40%)
- Pre-Consumer: 329 lbs. (60%)

**Post-Consumer Waste by Area**

- Patient: 165.5 lbs. (76%)
- Resident Lunch: 1.4 lbs. (1%)
- Daycare: 4 lbs. (2%)
- Coffee Bar: 14.2 lbs. (6%)
- Café: 33 lbs. (15%)

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Post-Assessment – Checking/Improving

• What you do with the data is just as important as conducting the assessment

• Follow the Clearinghouse Step-by-Step guide for direction

Clearinghouse Step-by-Step Guide

---

Step 3: Consider your options

When considering your options, the **food recovery hierarchy** should be followed as much as possible. The most benefit, both **economic and environmental**, will always be found by preventing waste from happening in the first place. However, many businesses choose to start diverting first before moving to source reduction efforts, because diversion techniques are typically easier to implement. Various factors are involved with choosing a diversion method; such as type of food waste, distance from a waste processing facility, and cost of disposal.
Improvement Options

- **Source Reduction**
  - Includes both tangible and behavioral opportunities
  - Tray-less dining, flexible menu planning, customer/employee education

- **Donation**
  - Overproduced/cosmetically damaged foods
  - Requires proper handling and hauling
  - Tax incentives

- **Diversion**
  - Options: animal feed, anaerobic digestion, composting, etc.
  - Considerations: availability, travel distance, food acceptance, contamination limits

**Takeaways:**

- tradeoff between economic, environmental, social
- data driven decision making
- not all food waste is created equal, some streams are better suited for one pathway over another

For more information:
https://www.rit.edu/affiliate/nysp2i/food/diversion-overview
Clearinghouse Step-by-Step Guide

Step 4: Locate your nearest diversion facility

You should now have a good idea of what the different options are for reducing and diverting food waste. Source reduction efforts will take place in-house, but if you decide that diversion is a good fit at your business you'll need to locate a facility to work with. An important factor in choosing a diversion method is travel distance. In the future, when waste processing facilities are more widely distributed, choosing the diversion method would be less affected by location and more determined by the type of waste and the desired outcome. Click on the map below to find the nearest food waste recycling facility to you.
Organic Resource Locator

Set Parameters

Search and Download

1. Choose Layer:
   - CAFO
   - Event Venues & Resorts
   - Food Processors
   - Restaurants
   - Institutions
   - Retail
   - big box
   - convenience stores
   - supermarkets
   - Anaerobic Digesters
   - RUD
   - Compost Sites
   - Food Banks
   - Grease Trap Waste

2. Choose Search Radius:
   - 20 Miles

3. Enter an Address:
   - Rochester, NY

4. Download Search Results:
   - [Hyperlink]
Organic Resource Locator

Clickable Icons
Organic Resource Locator

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</tr>
</tbody>
</table>

Excel Output
Clearinghouse Step-by-Step Guide

Step 5: Start source separating your food waste

Behind all successful food waste diversion is an organized system of collecting food waste. The diversion facility you work with will likely have recommendations on what type of collection bins to use and may even provide them. Obtaining the bins is the first step, to source separation, but you’ll have to work internally to set up a system that works for your business. Read more about how to do this on the source separation page.
**Food Waste Tool Box – On the Horizon**

**NYS FOOD SYSTEM SUSTAINABILITY CLEARINGHOUSE**

**Sustainable Future**
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READ MORE >

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https://www.rit.edu/affiliate/nysp2i/food/

- Working with your hauler
- Food donation guide
- Assessment upload
- Success stories
- Improved ORL features
- Info for food recyclers
Next Steps for Businesses

You can start today!

• Gather information about your food waste
  • Estimate your waste
  • Start source separating
  • Talk to your employees
• Call your hauler
• Follow best practices
• Take advantage of available resources

resources: http://viewpoints.io/entry/saluting-innovation-low-hanging-fruit
Questions?

Contact us at:
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Rochester Institute of Technology
111 Lomb Memorial Drive, Bldg. 78-2000
Rochester, NY 14623

Phone: (585)475-2512
Email: nysp2i@rit.edu
Web: www.rit.edu/affiliate/nysp2i/
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