

*"Sustainability is basically a concept about the interconnectedness of the environment, the economy, and social equity. It is a journey - a path forward - through which we demonstrate responsibility for our future legacy. It is a vision — an aspiration — for a better life for our children and our children's children." —LANL Sustainable Design Guide, Dec 2002*

## **Acknowledgements**

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### **Partners for a sustainable future...**

The success of this Plan will depend upon effective communication and active engagement with each of the stakeholders to harness their interest and energy to turn local solid waste problems into solutions, re-educate the community to think locally and sustainably and restructure solid waste management into sustainable materials management.

New Paltz recognizes community as the key ingredient in its quest for a positive vision of the future. The quality of interactions among all members of the community — businesses, governments, individuals, and organizations — will define the its ability to adapt to an energy-constrained, sustainable future through local and environmental support. By stimulating interest and dialogue in the pressing issues of environmental awareness and sustainability, New Paltz hopes to herald a new paradigm of interactions among all members of the community. New Paltz envisions community collaborations to increase its energy efficiency, re-localize our economy and food sources, develop a greener built environment, reduce its carbon footprint, and expand educational resources. For more information, go to: <http://www.newpaltzreuse.org/news-events/new-paltz-zero-waste-initiative> under Zero Waste Action Plan.

## WHAT IS WASTE?

**Definition.** Waste includes all items that people no longer have any use for; items that the consumer or manufacturer intend to discard. Waste also includes materials that people are required to discard in a manner regulated by state and federal guidelines; for example, because of their hazardous properties. Many items can be considered waste (i.e., household rubbish, sewage sludge, wastes from manufacturing activities, packaging items, discarded cars, electronics, garden refuse, etc.). Thus, our daily activities result in a large variety of different types of waste arising from different sources. Even unused spaced, undeveloped community corridors, multiple means of transportation and from duplication of services can be considered a form of waste.

### 1. INTRODUCTION TO WASTE

By current national estimates per capita waste generation has increased from 2.7 lbs/person/day in the early 1990s to 6.0 lbs/person/day in Ulster County. Today, this equals 1,500 pounds/year/person. With such vast quantities of waste being produced, it is of vital importance that it is managed in such a way that it does not cause any harm to either human health nor to the environment. The waste coming from households, commercial activities (i.e., shops, restaurants, hospitals), industry (i.e., pharmaceutical companies, clothing manufacturers), agriculture (i.e., slurry), construction and demolition projects, and from the generation of energy can be quantified, characterized and managed in such a way that near net zero waste can be achieved.

There are a number of different approaches available for the treatment and management of waste including prevention, minimization, re-use, recycling, and recovery before final disposal. Under New York State Department of Environmental Conservation policy, landfilling is seen as the last resort and should only be used when all the other options have been exhausted. Landfilling is one method of disposal where refuse is buried between layers of dirt in an area lined with thick impermeable plastic and surrounded with a run-off collection system. Only material that cannot be prevented, re-used, recycled or otherwise treated should be landfilled.

Further details on the different types of wastes that are produced and the various treatment options available can be found below.

### 2. WASTE TYPES

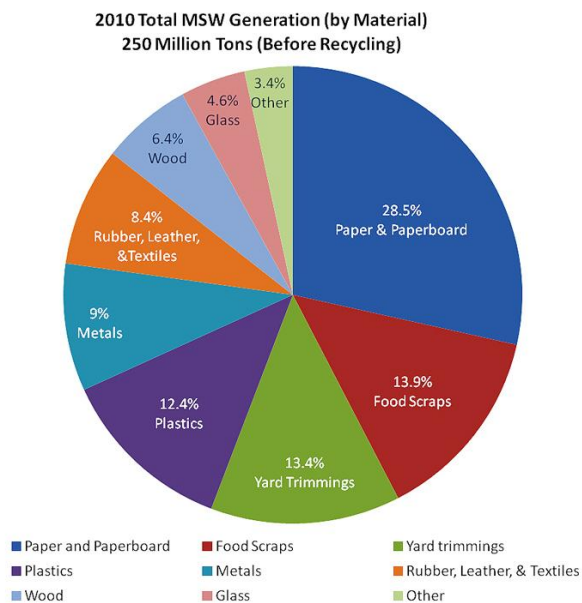
- [Municipal solid waste \(including Household and Commercial\)](#)
- [Industrial waste \(including manufacturing\)](#)
- [Hazardous Waste](#)
- [Construction and Demolition Waste](#)

- [Waste from Electrical and Electronic Equipment \(WEEE\)](#)
- [Biodegradable Municipal solid waste](#)
- [Packaging Waste](#)
- [End-of-Life Vehicles \(ELVs\) and Tires](#)
- [Agricultural Waste](#)

## Municipal Solid Waste (including Household and Commercial)

**Source:** Municipal solid waste (MSW) is generated by households, commercial activities and other sources whose activities are similar to those of households, business and governmental enterprises. It does not include other waste arising from industrial manufacturing activities, construction and demolition processes or agriculture. MSW is quantifiable waste created and measured through current disposal practices involving haulers and disposal.

**Definition:** Municipal solid waste includes residual waste (household junk), bulky waste (furniture/bedding), household hazardous waste, street sweepings and litter collections, raw resource packaging/by-product, and office waste. It is mainly composed of materials that can be reused and/or recycled such as paper, plastic, cardboard, metals, textiles, and organics (food and garden waste). The largest fraction of the MSW waste stream is paper and cardboard at 28% which is generally produced in offices, followed by organic material at 27% primarily generated by retailers, restaurants and other food service companies. (Figure 1.)



EPA - 2010 MSW Composition

## Industrial Waste (*including manufacturing*)

**Source:** Industrial waste including manufacturing is comprised of many different waste streams arising from a wide range of industrial processes. Some of the largest waste generating industrial sectors include: the production of basic metals, food, beverage and tobacco products, wood and wood products and paper and paper by products.

**Definition:** In spite of national and international declarations regarding the reduction of waste from manufacturing industry to introduce cleaner technologies and other waste minimization initiatives that will promote manufacturing practices that are sustainable in the long term, waste levels from the industrial and manufacturing sector continue to rise.

The manufacturing industry could play a central role in the prevention and reduction of waste instead of manufacturing products that become the waste of tomorrow. Manufacturers could achieve waste reduction through sustainable practices such as:

- considering at the design stage the impacts of their products throughout the usable life of each product;
- using manufacturing processes that minimize material and energy usage;
- eliminating or reducing the use of substances or materials hazardous to health or the environment; and
- manufacturing products in such a way that they last longer, offer inexpensive replacement/repair options and may be recycled or reused at the end-of-life stage.

## Hazardous Waste

**Source:** Hazardous waste arises from a wide range of different sources including households, commercial activities and industry.

**Definition:** Hazardous waste is classified as such depending on whether it exhibits particular characteristics. In simpler terms, if it cannot be consumed, you wouldn't want to discard it into your trash (regardless of whether it has the organic certification label) because it's hazardous.

The preferred method for the solid waste portion of hazardous waste is to landfill it. Preferred disposal method for the liquid portion of the hazardous waste stream including pharmaceuticals is incineration. In some cases physical or chemical treatment is used.

Although hazardous waste represents a small portion of all waste generated, it is significant in that it is toxic and can present a potential risk to both human health and the environment. Specifically, surface and ground waters can become so polluted that it can render wells, aquifers, and reservoirs un-consumable and destroy local ecosystems.

Hazardous waste is typically the subject of special legislation and requires special management arrangements to ensure that it is kept separate from and treated differently than non-hazardous waste.

## Construction and Demolition Waste

**Source:** Construction and demolition waste arises from activities such as the construction of buildings and civil infrastructure (Highways and Bridges). Demolition debris includes total or partial demolition of buildings and civil infrastructure including road planning and maintenance. Some countries even consider materials from land leveling or grading construction and demolition waste.

**Definition:** Construction and demolition waste arising from the demolition and renovation of old buildings makes up a large proportion of the total solid waste stream. It is made up of numerous materials including concrete, bricks, wood, glass, metals, plastic, solvents, asbestos and excavated soil, many of which could be recycled in one way or another. (NOTE: Best practices are grinding concrete, bricks and asphalt for use in subsurface applications for roadways.)

The main methods used to treat and dispose of construction and demolition waste include landfill, incineration and recycling with some countries obtaining recycling rates as high as 80%. Construction activity is seen as a key indicator of growth and prosperity. However, construction and demolition waste instead of being a burden on society and the environment could become a reusable resource.

Management of construction and demolition waste has been identified as a priority under the Environmental Protection Agency Zero Waste initiative due to the very large volume of construction and demolition waste produced which can use up valuable space in landfills. This means that particular attention will be paid to policies and measures to ensure increased recycling of construction and demolition waste and/or deconstruction practices. In addition, if not separated at source, C&D may also contain small amounts of hazardous waste. However, it also has a high resource value and the technology for the separation and recovery of construction and demolition waste is well established, readily accessible and in general inexpensive. Most importantly, there is a reuse market for aggregates derived from construction and demolition waste which can be used as a subsurface in road repair/construction, drainage material and for materials salvaged through deconstruction programs.

## Waste from Electrical and Electronic Waste (EWaste)

**Source:** The production of electrical and electronic equipment (EWaste) is one of the fastest growing manufacturing activities globally. This development has resulted in an increase of waste electric and electronic equipment. Rapid economic growth, coupled with urbanization and growing demand for consumer goods, has increased both the consumption of EWaste and its production which can be a source of hazardous wastes that pose a risk to the environment and to sustainable economic growth.

**Definition:** To address potential environmental problems that could stem from improper management of E-Waste, NYSDEC passed legislation to improve the reuse, recycling and other forms of material recovery from E-Waste. The State goal is to reduce the amount and types of materials disposed in landfills. The law became effective and mandated implementation began April 1, 2011. Recycling of waste electric and electronic equipment is important not only to reduce the amount of waste requiring treatment, but also to promote the recovery of valuable materials. E-Waste is diverse and complex with respect to the materials and components used and waste streams from the manufacturing processes. Characterization of these wastes is of paramount importance for developing a cost-effective and environmentally sound recycling system. The quantity of lead, copper, nickel and other metals that could be captured and safely diverted to reduce the need for mining precious metals is of great environmental importance.

### **Biodegradable Municipal Solid Waste (Organics)**

**Source:** Biodegradable Municipal solid waste including food waste is waste from households and commercial activities that is capable of undergoing biological decomposition with proper aeration, ratio of carbon and nitrogen and moisture content. Organics is food, garden and yard waste, uncoated paper and cardboard are all classified as biodegradable municipal solid waste produced in retail, restaurants and other food service activities.

**Definition:** A range of options are used to treat organics. Alternatives to landfilling include composting, mechanical-biological pre-treatment recycling and incineration (with and without energy recovery). This waste has been targeted by the EPA as one of the easiest portions of the solid waste stream to address, and one that will have the largest impact on waste reduction. The composting process also has add on rewards because the end product is usable soils, and during the decomposition process energy in the form of methane and/or ethanol is produced which can be used to create electricity.

### **Packaging Waste**

**Source:** Packaging waste can arise from a wide range of sources including supermarkets, retail outlets, manufacturing industries, households, hotels, hospitals, restaurants and transport companies. This waste has increased due to extensive corporate branding and consumer marketing.

**Definition:** Packaging is defined as any material which is used to contain, protect, handle, deliver and present goods. Items such as glass bottles, plastic containers, Styrofoam<sup>®</sup>, aluminum cans, food wrappers, timber pallets and drums are all classified as packaging and represents up to 17% of the municipal solid waste stream. It is a creation of manufacturer's marketing, public consumption demands and trending away from local purchasing. As it has a relatively short life, it soon becomes a waste that must be managed using number of different methods. These included reuse, recycling (mechanical, chemical and feedstock), composting, thermal treatment and landfill.

Packaging and packaging waste can have a number of detrimental impacts on the environment. One impact is the extraction of the raw materials used for manufacturing the packaging itself, environmental contamination associated with the manufacturing processes, the collection of packaging waste to limit litter and its subsequent treatment or disposal. In addition, packaging may contain some hazardous substances i.e., PVC and heavy metals which may pose a risk to the environment. If landfilled, take decades to decompose. Direct legislation is the most effective means to deal with this component of the solid waste stream, but it is a controversial subject when enactment bills hit the legislative floor based on personal and environmental values.

## End-of-Life Vehicles (ELVs) and Tires

**Definition:** End-of-Life Vehicles (ELVs) are cars and light trucks that are considered waste and that must be disposed of. The legal definition of “end-of-life vehicles” within the US is:

*“End-of-Life Vehicle Solutions or ELVS means “an entity established under the National Vehicle Mercury Switch Recovery Program for the collection, recycling and disposal of elemental mercury from automotive switches.” According to 49 CFR 599.102 [Title 49 – Transportation; Subtitle B -- Other Regulations Relating to Transportation; Chapter V -- National Highway Traffic Safety Administration, Department of Transportation; Part 599-- Requirements and Procedures for Consumer Assistance to Recycle and Save Act Program; Subpart A—General.*

**Source:** The **ELV** directives for the collection of **end-of-life** vehicles and vehicle **tires** have been in effect for decades. Due to the weight of a vehicle and regulations regarding disposition (i.e. registering, insuring, etc.) ELVs have been taken to scrap yards since the inception of junk yards for scrap. Tire collections took a bit longer and were for some time unregulated. Once it was realized that tires were a health and fire hazard, regulations for handling and storing them were written. NYSDEC requires a permit for companies managing this waste and New York state has enacted a Product Stewardship program to ensure they are properly handled by imposing a fee on each tire purchased.

## Agricultural Waste

**Source:** Agricultural waste is composed of organic wastes (animal excreta in the form of slurries and farmyard manures, spent mushroom compost, soiled water and silage effluent) and waste such as plastic, scrap machinery, fencing, pesticides, waste oils and veterinary medicines.

**Definition:** Agricultural waste, under a Zero Waste initiative, is for the most part recyclable through a best practices policy. Because of the manner of operations, most agricultural material can be managed on site and sustainably. Manure can be composted, organics can be used as animal feed, and materials can be repurposed for repair of accessory buildings.

There a number of potential environmental impacts associated with agricultural waste if it is not properly managed. For instance, the run-off of nutrients from animal manure and leaching pesticides into surface waters can cause over enrichment of the water body and growth of fungi. Leaking and improper storage of agricultural waste can also pose a serious threat to the environment should the waste reach surrounding ground water networks supplying wells and/or municipal systems causing coliform contamination. Farming activities can give rise to emissions of ammonia and methane which can cause acidification and contribute to greenhouse gas emissions.

There is also contamination of surface waters through improper handling in produce processing. By-products such as pomace (residual parts of the fruit after juicing) can cause alkaline changes. Some agricultural operations use this residual material for animal feed, composting or fertilizer. However, if left in unmanaged piles, it can cause water contamination and growth of algal flora.

### 3. WASTE HANDLING

- [Prevention and Minimization](#)
- [Re-use](#)
- [Recycling](#)
- [ReUse Mid Stream Wastes](#)
- [Recycle Down Stream Wastes](#)
- [Energy Recovery](#)
- [Landfill](#)

#### Prevention and Minimization

**Source:** All generators of solid waste are included in this category and is the preferred method for sustainable materials management practices by both the EPA and NYSDEC. Prevention can take the form of reducing the quantities of materials used in a process or reducing the quantity of harmful materials which may be contained in a product. Prevention can also include the reuse/diversion of products.

**Definition:** Prevention means eliminating or reducing the quantity of waste which is produced in the first place, thus reducing the quantity of waste which must be managed. Minimization includes any process or activity that avoids, reduces or eliminates waste at its source or results in re-use or recycling. It can be difficult to draw a clear distinction between the terms "Prevention" and "Minimization".

Prevention is the most desirable waste management option as it eliminates the need for handling, transporting, recycling or disposal of solid waste. It provides the highest level of environmental



protection by optimizing the use of resources and by removing a potential source of pollution. Both the EPA Sustainable Materials Management and NYSDEC Beyond Waste endorse waste prevention through diversion and reuse.

Although most waste prevention and minimization measures can be applied at all stages in the life-cycle of a product including: the production process, marketing, distribution, or utilization stages (using the entire product up), discarding the product at the end-of life stage, there should be an aggressive public campaign to alter consumption habits. Educating consumers on bulk purchasing, tangible goods verses disposable items, participation in CSAs, etc will not only reduce municipal solid waste but alter commercial marketing/production methods, and promote sustainable consumer practices.

By examining each stage in the life cycle of a product, it may be possible that the quantities of waste produced at each stage can be reduced. During the design stage of a product, consideration can be given to the types of materials to be used, the quantity of materials and the recyclability of the product once it reaches its end of life. The use of efficient processes in terms of energy and material requirements during the manufacture of a product are other important considerations. Consideration can also be given to minimizing the packaging by product.

## ReUse

**Source:** Re-use avoids discarding a material to a waste stream when its initial use has concluded. Reuse is preferable to recycling as the item is reused or repurposed without going through a detailed treatment process thus helping to save on energy and material usage. It is a method of sustainable materials management that can be used by all solid waste generators.

**Definition:** Re-use means the use of a product on more than one occasion, either for the same purpose or for a different purpose, without the need for reprocessing. It is preferable that a product be re-used in the same state i.e., returnable pallets, using an empty glass jar for storing items and using second hand clothes.

## Recycling

**Source:** Recycling is generated by both consumers and manufacturers. Many different materials can be recycled. Waste materials can either be recycled for use in products similar to their original use (i.e., paper recycling) or can be recycled into a product which is different that the original use (i.e., recycling plastic bottles into fleece jackets or using construction and demolition waste as road aggregate).

**Definition:** Recycling involves the treatment or reprocessing of a discarded waste material to make it suitable for subsequent re-use either. It benefits the environment by reducing the use of virgin materials. It includes recycling of organic wastes but excludes energy recovery.

Composting is also considered recycling. Yard waste (brush and yard clippings) has been banned from landfilling for years due to the production of methane gas resultant of decomposition. New York State Organics Council is currently working on legislation to ban food waste by the Year 2018.

In New Paltz up to 28% of the waste stream in the form of bottles, cans, glass, plastic, paper and cardboard is recycled. Another 27% is recycled by composting yard waste, and removing other materials such as waste oil, electronics, and scrap metal.

### **ReUse Mid-Stream Wastes – “Discarded Reusables or Rescued Materials”**

Generally, the definition of mid-stream wastes are the unusable by-product of industry typically involving oil and/or natural gas industries (waste water, lye from bio-fuel, etc) For the purpose of municipal zero waste, mid-stream waste is generated locally by every household, school, business, and governmental office, through material wasting inefficiencies (purchasing too much product/duplication of services), excess packaging, and unnecessary product discard. If the waste generated at this level is not addressed, it becomes a financial burden to local government in the form of down-stream collection costs. Moving discards into a variety of reuse options eliminates waste collection costs and is the “heart of waste prevention”, saving local government and tax-payer money from unnecessary disposal expenses. The biggest roadblock for diversion in this category is liability concerns even though there are State and federal “Good Samaritan” laws.

### **Recycle Down-Stream Wastes – “End of Pipe Diversion”**

Down-stream wastes are generated locally by every household, school, business, and governmental office, with the intent to dispose of unwanted packaging, products, and other wastes created. Wastes at this level must be collected, processed and sent to a final disposal facility. Down-stream captured wastes are a direct financial burden to the local government for collection and processing, and include landfilling, green waste composting, recycling and disposal of household hazardous wastes. If wastes must be handled down-stream, the best options involve the support and expansion of existing recycling collection programs, composting opportunities (food collection programs, home and work on-site composting) and the reduction of toxin disposal through education, reuse and Household Hazardous Waste collection programs. Thus, a comprehensive Zero-Waste Plan addresses what actions local consumers, businesses, and government can take to reduce the impact of down-stream wastes (created at the local level) through more aggressive tactics in “rethink, reduce, reuse, recycle and compost”.

## Energy Recovery

**Definition:** Energy Recovery includes any technique or method of minimizing the input of energy to an overall system by the exchange of energy from one sub-system of the overall system with another. The energy can be in any form in either subsystem, but most energy recovery systems exchange thermal energy in either sensible or latent form.<sup>1</sup>

**Source:** Energy recovery can be a natural process done during the decomposition stage of food waste or manure composting facility. Of course, there are many other sources for recovery of renewable energy such as solar, wind, and water, however, under solid waste energy recovery would be energy processed while processing waste. Energy in the form of bio-fuels and ethanol can also be recovered during the processing of vegetable oil and other organics.

## Landfill

**Definition:** A disposal site where solid waste is dumped on a liner and covered daily with a layer of dirt and other materials in such a way as to reduce contamination of the surrounding land. Modern landfills are often lined with layers of absorbent material and sheets of plastic to keep pollutants from leaking into the soil and water. Also called *sanitary landfills*, each disposal cell required permitting under NYSDEC Part 360 regulations and includes going through the SEQRA process.

**Source:** Waste in Ulster County is currently being shipped out to sanitary landfills located more than four hours away. In order to site a landfill in Ulster County it would cost millions in engineering studies, public hearings, NYSDEC approval and final construction of disposal cells. Reduction, reuse and recycling can effectively pull valuable commodities out of the solid waste stream before they are needlessly buried.

## VI. ZERO WASTE SUB-COMMITTEES

### 1. Compliance and Enforcement

Compliance and Enforcement was second most frequently voiced concerns at all three of the interactive workshops held in 2012 to collect public input. (Composting and organic waste management was number one) Although there have been local, state and federal rules and

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<sup>1</sup> Wikipedia: Energy Recovery [http://en.wikipedia.org/wiki/Energy\\_recovery](http://en.wikipedia.org/wiki/Energy_recovery)

regulations mandating source separation laws (Attachment “A”) since 1991, only a third of waste generators are diligent about separating recyclable materials out of the garbage.

Prior to the first meeting of the Zero Waste Compliance and Enforcement Committee, a meeting was scheduled with the local solid waste authority’s Recycling Coordinator/Compliance Enforcement Officer on April 17, 2012. New Paltz Recycling staff planned to send all local multi-family dwellings and businesses a letter explaining recycling laws and educational material. However, in the spirit of Zero Waste, it was suggested that site visits be conducted rather than a bulk mailing, and a list of non-compliant properties be forwarded to the Compliance Enforcement Officer. An official letter would be sent out and an appointment for a site inspection by the Compliance Enforcement Officer would be conducted to encourage non-compliant multi-family dwellings to establish a recycling program.



At the first meeting of the Zero Waste Compliance and Enforcement Committee in May 2012 , it was decided that a physical inspection of recycling containers could be conducted on all local multi-family dwellings by having volunteers divide up the task. (Attachment “B” May minutes). The New Paltz Assessor’s office provided an excel file with addresses and property owners that was revised so haulers’ information, recycling compliance and comments could be noted while a visual inspection was being performed. Once the inspections were completed, a list of non-compliant

multi-family dwellings was sent to the Ulster County Solid Waste Authority so violation letters could be sent out with followup site visits conducted by the Compliance Enforcement Officer. The committee intends to use the same process for businesses and do periodic spot checks to ensure that recycling programs are continued.

The Village of New Paltz amended it’s recycling law in May of 2012 to include recycling enforcement policies (Attachment “C” – 2012 Revised Village of New Paltz Recycling Law). The revisions are focused on the hauler providing recycling pickup with trash collection services but put a process in place for enforcement and penalties.

Ongoing education, outreach and enforcement is critical for a successful zero waste program. Development and/or revision of recycling laws (or any new zero waste laws including sustainability that are created from this program) should be reviewed minimally on an annual basis to determine if any changes are needed as demographics change and new markets and/or technologies are developed.

## 2. Recycling, ReUse and Education

New Paltz Zero Waste Initiative can, through public input and recommendations, provide a roadmap to create a comprehensive recycling education program and a course of action that addresses end-of-

life materials. It takes resources to manufacture and transport all products, even those made from recycled materials, so promoting locally made or grown, package free items will be a priority. It is better to buy a green product than not, but buying nothing at all is better than buying green. There are of course exceptions. A perfect example is an old appliance or vehicle which is extremely energy inefficient. Buying new, more energy efficient models, such as **Energy Star** appliances, would most likely save resources in the long term.

A great way to cut back on the millions of tons of garbage and waste that humans produce every year is to practice the three R's: Reduce, Reuse, and Recycle. These little actions, if practiced by all of us, can make a big difference in improving the environment and making the earth a healthier and more beautiful place. Preferable, consumers will use these practices at the upstream origination to immediately reduce waste before it enters the household.

Continuing increases in per capita solid waste generation and energy consumption created by the generational need for instant gratification and new technology is re-directing earlier initiatives away from waste reduction. New products are obsolete before the manufacturer's warranty expires and cost of repairs is generally much higher than it would be to purchase a brand new item. In other words, durable goods aren't so durable anymore. Packaging and containers have changed significantly since the 1990's from glass and cardboard to eye catching advertising printed on plastics. Nothing has surpassed this decades' evolution as the emergence of plastic, single use water bottles and plastic film shopping bags. Plastic packaging continues to change as fewer Styrofoam trays are appearing at the Recycling and Reuse Center, and rigid plastic is being used for meats and produce.

Integrating a strong education program into the school system would provide a strong foundation for ongoing zero waste practices for future generations. It's a matter of working environmental programs into the math and science curriculum and meeting New York State Educational (NYSED) requirements. For instance, worm composting can provide a method to dispose of snack food waste in the K-4 classroom while meeting science curricula for observation, measuring, and developing technical solutions for the perfect compost. It would meet the 5-6 grade earth science requirements as well. By incorporating class projects such as composting and gardening to meet career development requirements and utilizing reusable materials for art projects, zero waste activities could easily be incorporated into the schools while reducing operating costs. As part of this initiative, several New Paltz teachers have agreed to do worm composting in their classroom. New Paltz Recycling Center has provided 18 gallon container "kits" with shredded paper, worms, and dirt (all

rescued or retrieved from the Recycling Center) and an educator will do a preliminary class talk on the project.

At the University level, SUNY New Paltz has a very active Recycling Club and Environmental Task Force. For the past several years students and volunteers collect items such as clothing, shoes, non-perishable food, electronics, and room furnishings from each of the



fourteen dorms on campus at the end of the year. Items collected are then sorted and made available to the community at no charge. The annual event diverts more than four tons from the waste stream by partnering with the United Methodist Church on Main Street in the Village of New Paltz.

Special events will provide a larger, more diversified venue for further education and outreach. The Zero Waste Committee is committed to establishing a protocol for event recycling. Members of the Zero Waste Committee discussed creating signage that can be reused at public gatherings and a list of vendors that sell compostable dinnerware so future events would be zero waste events. There was also discussion on creating “mess kits” for people who forget to bring their own plates and silverware to events that have food vendors. The committee thought having strolling “characters” such as the Cat In the Hat® and Recycling Fairies wearing costumes made from rescued material. These “characters” will be available to answer Zero Waste questions and monitor the recycling staging areas which will have three bins: a black trash bin, a green compost bins, and blue recycling bins. The intention is to create a protocol for future event planning and draft an Event Recycling Law that would be required for any public gathering while making it a fun learning experience.

The Ulster County Fairground is located in New Paltz and hosts events attended by thousands of people including the annual County Fair. New Paltz had a booth to provide one-on-one education and hands on reuse projects to get people excited about sustainability and zero waste. Volunteers spent five days encouraging people to consider waste reduction and reuse.

At the 2012 Fourth of July celebration thirty recycling bins were placed; one next to every trash container. After the event, the recycling bins were collected and taken to the New Paltz Recycling center for sorting. Similarly at the Village 125<sup>th</sup> Anniversary celebration August 5<sup>th</sup>, 2012 recycling and compost buckets were placed next to each trash bin at the event. Fifteen bags of recycling and six gallon containers of compostable material (i.e. paper plates, leftover food) were collected and brought to the New Paltz Recycling Center. It was noted that most of the compostable waste collected was soiled paper products and had some minor contamination – aluminum foil which is recycled at the New Paltz Recycling and ReUse Center.



One of the paragraphs for future Event Recycling laws will address filing a Recycling Action Plan as part of an event application. Preferably the applicant will have or can be provided with a blue and green to bin system with signage as a standard practice before an event permit is approved.

The New Paltz Recycling Center has expanded to include a new 2,000 square foot steel building for materials diverted from the waste stream. The ReUse Center will provide opportunities for unwanted household items, electronics, residual construction material and discontinued manufacturer’s products. The Zero Waste and waste reduction program was implemented in 2011 and reduced the New Paltz waste stream by over 60 tons or 15%. In 2012, the diversion program continued to reduce

the solid waste transferred out by another one-hundred and one tons; twenty percent less than 2011 solid waste out. This program offers a low cost alternative to buying new material.

Waste Reduction ideas continue as there is a proposal to add a Tool Share and library to the Recycling and ReUse Center program. The Tool Share program is a means to remove old, broken, discarded hand tools from the waste stream; train people to fix them and use them safely; and, provide a source for borrowing tools rather than purchasing them for limited use. New Paltz intends to be part of the Mid-Hudson Tool Share networking system. (See Attachment R – Tool Share Network)



Another idea that has recently taken hold in New Paltz is Repair Cafés. The concept café, originating in Holland, is the brainchild of former journalist Martine Postma. People tend to throw away too many things, even the ones that can be easily fixed. Moreover, in modern times people have lost the ability to fix simple things. So as an environmental initiative, the Repair Café was created, with the intent of bringing together the people who can fix things, and those that need them fixed.

### 3. Gardens, Composting and BioFuels

Another concern raised in each of three Zero Waste interactive workshops held was organic waste management and composting, in particular food waste. Food and yard waste make up approximately 30% of the solid waste stream. It is also the easiest component of the waste stream to manage.

Soon after the first workshop on January 18, 2012, a meeting was scheduled to discuss composting of SUNY New Paltz dining hall waste. (Attachment "D" – February 3, 2012 SUNY Food Waste Meeting) SUNY already had an established food waste program, however, the compost facility their contracted hauler was delivering it to was located one and ½ hours from New Paltz. The meeting was arranged by a SUNY professor involved with the campus Environmental Task Force who wanted to continue the food waste composting program but at a local level to reduce their carbon footprint. The meeting was on SUNY campus at the Hasbrouck Dining Hall which included a tour of dining hall and food waste collection area. Representatives from: EPA, Region III NYSDEC, CAS (Campus Auxiliary Services); Sodexo (food service contractor); SUNY Campus Recycling Coordinator; Environmental Task Force (ETF); New Paltz Town and Village attended.

NYSDEC representatives were eager to establish a pilot program with a locally registered food waste composting facility able to accept up to 1,000 cubic yards of material. This pilot could promote creation of similar composting facilities throughout the area giving farms, CSAs, etc an organized approach to manage the organic component of the waste stream and create viable end-products. NYSDEC representatives recommended that the Recycling Center wait until the end of the school year so food waste quantities would be minimal allowing staff time to establish composting techniques. A pre-registration site visit of the Recycling Center was conducted by two NYSDEC representatives who

made recommendations regarding the compost area location. The registration was filed with NYSDEC for review and an approval letter was received by the Recycling Center in early May. (See Attachment “E” – NYSDEC Organic Waste Composting Application and Approval Letter) During the registration review process, a compost operation manual with forms was written (Appendix “F” – Commercial Food Waste Composting Manual) while Recycling and Highway staff constructed the composting area. New Paltz was the first registered food waste composting facility to open in the region and accepting its first load of SUNY dining hall food waste was accepted on June 8, 2012.

Also discussed at the February 3, 2012 meeting was unused prepared food, and undesirable produce that could be donated to local food pantries and soup kitchens. There are successful national programs such as [foodrunners.org](http://foodrunners.org) that collect unused food from restaurants and food service companies using volunteers and are covered under state and federal Good Samaritan Laws. SUNY New Paltz is offering a stipend to a student willing to deliver trays of dining hall food to a local soup kitchen. *(Members of the local Food Not Bombs group are interested in expanding on collecting unused food and produce before it gets thrown away and have established a loose network of local restaurants and retailers that leave it out for them.)*

In addition to commercial food waste composting, other elements of the organic waste stream are being addressed. In order to promote backyard composting, two hundred bins were purchased for residential distribution to reduce outgoing household waste and manage yard waste. Over half have been distributed and Recycling Center users are offering testimonials of noticeable reduction\* of their household waste; not to mention the wonderful compost they are created.



In April 2012, two members of local CSAs reached out to Recycling staff about meeting regarding garden, composting and bio-fuel. On April 20, 2012 the first meeting of the Gardens, Compost and Bio-Fuels Sub-Committee was held. (See Attachment “G “ – April 20, 2012 Minutes of the Gardens, Composting and Bio-Fuels Committee) to discuss topics such as Food Not Lawns, Bio-Char, collecting vegetable oil, and ethanol production.

As a follow up to this meeting, NYSDEC representatives were contacted to make inquiries on accepting vegetable oil and processing for bio-fuels. Recycling Staff was informed that as long as the vegetable oil was cold filtered and not processed, a storage collection unit could be place on site under the current bulk storage permit. Any processing including hot-filtering, additives resulting in by-products or ethanol production would require detailed engineer reports and NYSDEC permits. A



week later a 200 gallon plastic water tank was rescued before it was thrown out to use for vegetable oil collection.<sup>2</sup>

On June 2, 2012, members of the Gardens, Composting and Bio-Fuels Committee hosted the First Annual Zero Waste Day sponsored by New Paltz; EcoFootprint; Ulster County Tool Share; New Paltz Climate Action Coalition and vocals provided by local bands was held. (See Attachment “ H”- 2012 Zero Waste Day) Participants were able to enjoy locally grown, fresh herbal teas, see diesel engines converted to run on vegetable oil, create projects from rescued materials, learn about worm and no worm composting, bio-char and learn about safer alternatives to household and garden chemicals. The first of a series of educational You Tube videos by EcoFootprint was also created.

<http://www.youtube.com/watch?v=4B7mf9ti72I> . Volunteers from this committee visited the Recycling center several times over the course of two months to create demonstration gardens with edible plants and set up examples of backyard compost areas. At summer’s end 2012 the first garden produced purple potatoes grown in tires and tomatoes planted in raised beds constructed with rescued lumber.



Volunteers have come forward to collection, cold filtering vegetable and permaculture. People from attended permaculture workshops gardening, Compost 101 and containerized gardening. There was a proposal for an ethanol and/or butanol demonstration program, however, the NYSDEC and DEA have strict regulations on ethanol production. An informal collection area for used vegetable has been created at the Recycling and ReUse center for residential drop off.

assist in managing vegetable oil oil and for training in tool repair four surrounding counties have including window/vertical

\* 2012 Outgoing waste was reduced by 101 tons or 25% from 2011 by expanding and enhancing diversion programs

#### 4. Sub-Urban Planning and Financing

A committee meeting was held on April 20, 2012 opening with discussion and questions. (Attachment “I” – April 20, 2012 Meeting of the Sub-Urban Planning and Financing Committee) Specifically attendees asked about the goals of the committee and the history of New Paltz specifically planning, zoning, and the comprehensive plan. In attendance: A RUPCO (Rural Ulster Preservation Company) representative, an engineer from Fiddlehead Crosier Advisors, LLC and the Town Recycling Coordinator. It was suggested that getting a “snap shot” of the zoning codes

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<sup>2</sup> The most remarkable part of the Zero Waste Initiative is that the costs to implement programs have been minimal. Operating a Recycling Center has proven to be a financial advantage.

(subdivision, cluster developments, adaptive reuse, historic preservation, pocket planning, etc), open space inventory, laws (i.e. wetlands, floodplain), and vacant/unused or gray space for plan development would be very helpful in creating and updating a comprehensive development plan. The information should include cluster development, community expansion trend, and preservation of habitat and natural features. Changes since the last approved Master Comprehensive Plan should be included in the snap shot too: demographics, economics, and politics. An inventory of the infrastructure would be needed as well: sewer plants, recycling center, highway departments, police department, fire and rescue, community center, SUNY College, school system, etc.)

The committee felt that recommendations for creation of a Zero Waste Action Plan needs to be done in phases as a sensible approach to receive community acceptance. The first project is to build confidence in the community – they should resonate with community thinking. There was discussion on creating a synergy between non-traditional views of waste whether man-made or natural and look as it does in its native/natural environment. Storm water, gray water and green rooftops should be included. For instance, Toronto law now requires that industrial buildings dedicate a certain portion of their roofs to be green. This committee can review land use patterns and the way the community functions as a whole to create a sustainable plan.

It was decided that for the purpose of defining this committee’s mission waste should be to map and define unused developed space (gray space and green roofs). The committee would like to repair sprawl, review infilling, and address corridor development (transit oriented). It was suggested that three dimensional zoning be created (layers from the ground up) advocating mixed use to lesson stress on the infrastructure (Stores with rental space over them) The overlays should be as follows:

- GIS map overlay: opportunity to target specific densities to improve their sustainability (i.e. cluster of 1960-70 homes that are all electric)
- Infill development overlay: especially in and around the urban core with a water and sewer infrastructure and transportation network including areas where it can be created with the largest community impact at a minimal financial cost.
- A list of abandoned, burnt out, vacant, foreclosed properties

It was also mentioned that the Town of Woodstock has an overlay map titled “Opportunities To Improve Diversity In The Community” which may be a valuable tool for New Paltz to create a similar map.

Neither the Town or Village Building Inspectors or Assessors office have an existing list of vacant buildings and one will have to be created by conducting a property to property survey. This may be a project for volunteers in the near future. Development of a sustainable suburban and urban plan will be a three to five year goal since the overlays needed for a study are not available and have to be created.

## 5. Alternative Energy

Several Alternative Energy committee meetings were held with representatives from public sector funding and private sector consultants in attendance. (Attachments “J”, “K” and “L” – Minutes of the Alternative Energy Committee) The first meeting was held on February 7, 2012 to open up discussions on wind power and the potential for pilot projects on municipally owned buildings. It was discussed that in order to have efficient wind turbine energy, winds would have to be a minimum of a steady 6-7 meters per second (11-12 mph). Wind speeds in the New Paltz area tend to average 3-5 mph, which are considered insufficient to sustain wind turbines. It was suggested that a wind turbine representative should be solicited to install one turbine as a test which would create good PR and offer educational opportunities. The Hudson Valley region lends itself to solar power opportunities.

A preliminary program will be to educate staff on reducing energy usage by powering down computer monitors and turning off lights when they leave a room. Upgrading T12 fixtures to T8 and installing CFLs where appropriate and using LED lighting whenever possible.

A spreadsheet was prepared for the next meeting detailing Town kilowatt usage and costs for all municipally and school owned buildings as a benchmark tool. At the second meeting on February 14, 2012 a NYSEDA (New York State Energy Research and Development Authority) was also in attendance to discuss possible funding opportunities. The electrical usage spread sheet was reviewed and there was discussion on methods to reduce costs. One of the highest electric bills was for street lighting. A study had been conducted in 2011 by the Town Environmental Conservation Board (EnCB) with recommendations for removing and changing certain light fixtures. (Attachment “M” – May 2011 Street Lighting and Safety Report). The Town Board subsequently followed up with the utility company Central Hudson Gas and Electric and went into contract with them to phase out mercury vapor lights for high pressure sodium lamps and remove underutilized street lights.

The Alternative committee also conducted a tour of the Town Hall to do an audit of lighting fixtures and heating mechanisms which disclosed a highly inefficient building envelop. The committee will recommend changes that are eligible for up to 75% reimbursement under flextech grants programs and continue to look for grant funding opportunities as seed monies to implement solar/wind programs. One such project includes solar tracking trees that generate electricity to be net metered back into the grid but also have electric vehicle (EV) charging stations. New Paltz has two park and rides directly off major thoroughfares making it feasible to install Level II EV charging stations. One municipal parking area, privately owned and leased by the Village is located on Rte 32 N across from Stewart’s; and the other is located at the NYS Thruway exit for New Paltz (exit #18) owned and administered by the NYS Thruway Authority.

## 6. Green Businesses in Action

The first Zero Waste fact finding workshop was held November 2011 at the national registered historic hotel Mohonk Mountainhouse. In attendance was a representative from EPA Region II, the New Paltz Town Supervisor elect, Mohonk Property Management Director and the Town Recycling Coordinator. The discussion included information on the EPA Zero Waste Initiative Pilot project and Mohonk's Green story. Mohonk is able to maintain an historic site by using sustainable practices while being fiscally prudent. Mohonk opens it's property to education opportunities on composting, gardening, and reusing resources. To run a successful program, the process has to be comprehensive with clear, distinct instructions including signage. For instance, food waste generated in the kitchen is collected by placing containers by the prep stations. All sous chefs are instructed on the food waste collection process during employee training. The maintenance staff empties the containers at a nearby holding area into collection containers with "fill to here" lines drawn on them. If they are too full, then they are too heavy to move. Directional signage is prominently displayed throughout the maintenance areas. Additionally, the Property Manager understands the solid waste system and negotiated with the hauler for cost reductions based on commodities generated on-site such as cardboard. A tour of the site was conducted after the workshop that included a typical guest room and the compost facility where 380 tons of material is managed annually.

In April following the March 29, 2012 interactive workshop at SUNY New Paltz, the Green Businesses in Action committee met to discuss how to engage businesses in zero waste practices. Several issues were raised including waste and recycling hauling fees, purchasing sustainable and green products at a cost that could be reasonably passed on to customers, and the creation of a data bank so information on vendors, disposal options, etc. would be readily available. A follow up meeting two weeks later included a representative from a national waste hauling company who suggested that education and outreach through the haulers would have the greatest impact for a Zero Waste



Program. It was also brought up that at the January workshop at Town Hall, a comment was made that many local residents don't have transportation to take recycling to the Town Drop-Off Center and thought a community collection container would increase participation. There are other states including Wisconsin and Montana that have large recycling containers placed in convenient locations to collect materials. This idea could be incorporated into a plaza or shopping mall as part of a move toward creating eco-parks.

On June 21, 2012 the Green Businesses in Action committee held a "Gr\$\$n Your Business" breakfast meeting sponsored by Mohonk and New Paltz. Over thirty people attended to hear speakers tell their green business stories. A green business advisor explained the "New Economy" and is sponsor of the mid-Hudson chapter of BALLE (Business Alliance for Local Living Economies); the Compliance Officer from the Ulster County solid waste management authority; and EPA Region II

representative who reviewed the Zero Waste pilot project. A flipchart with comments and suggestions was maintained during the meeting. A new suggestion was added to the Zero waste

Action Plan to “create a bulk buying co-op for green and sustainable products to further reduce the cost for businesses to purchase these products/services”.

A “green” hospitality organization that attended the June 21<sup>st</sup> workshop has offered to share information on a program started in neighboring Sullivan County with small restaurants using the same compost bins (like the Earth Machine bins purchased by New Paltz) to manage food waste. In one instance, material was composting within ten feet of diners. The end-product is used in containerized gardens where fresh herbs are grown for menu items.

## 7. Zero Waste in Government

The process of consolidation takes years. Aside from the technical, operational and legislative challenges, consolidation activities must involve a large and open conversation between citizens of the region, businesses and government officials. Our present economic crisis and mission to be a Zero Waste community in every sense of the word may be useful in accelerating the dialogue, but consolidation of services can best be achieved through careful, thoughtful deliberation, intentional and strategic action, periodic decision-points for public votes, and a recognition of and respect for the many individual interests involved.

The creation of a multi-sector, multi-government task force to move this initiative forward is an ideal means to tap the experience of the business community, the knowledge of higher education, the passion of citizens countywide, and the interests of the local governments. Once recommended policies are in place and/or issues have arisen that need to be addressed, formal actions will be taken by local governing boards to incorporate policies and procedures into government operations.



On August 23, 2012 a presentation was given to Town, Village and School Board officials for state funding opportunities for municipalities actively working on consolidating or creating coterminous liaisons for the benefit of the taxpayers.

Minimally, the Town Supervisor has mandated that Department heads contact the ReUse Center to utilize material rescued from the refuse stream in order to offset office supplies and equipment costs for their departments. For example, the Youth Center can use art supplies; the Recreation Department is in need of lawn maintenance equipment which comes in during the Spring, and the Police Department had significant cost savings in shelving and file labels. Rather than purchase new materials and/or items, there is a virtual endless resource at the ReUse Center which will reduce budget lines and maintain New Paltz’s goal to become a Zero Waste community.



## ZERO

### WASTE ACTION PLAN

#### Zero Waste Action Plan – Consumer, Business and Government Responsibility

A comprehensive Zero-Waste Plan addresses the actions local consumers, businesses, and government can take to reduce the impact of pre-stream, mid-stream and downstream wastes created at the local level through more aggressive reuse and conservation measures. To be a truly environmentally friendly and sustainable community, it is necessary to develop a Zero Waste action plan that encompasses all aspects of community, business and government functions. To have truly successful program, every community member needs to participate and take on responsibilities. The community as a whole will then reap the environmental, economic and social benefits of living a sustainable lifestyle.

#### 1. Single and Multi-Family Consumer Responsibility

Waste Reduction – less packaging, buying local

Residents will be encouraged to use re-usable shopping bags, purchase in bulk, stop waste mail and contact companies to complain about excessive packaging and/or stop purchasing from companies that use excessive packaging. Pre-consumer consideration of purchases will promote mid-stream materials management by reducing the amount of trash before it enters the household. Consumers will also be encouraged to buy locally utilizing CSA's and bulk-buying/purchasing co-ops to promote sustainability and improve the local economy..

Smart Buying – less “consumerism”, buying durable goods (Pure reduction of consumption)

Consumer purchases of durable goods will be promoted to consider longevity (durability of item), reliability, warranties and repair/upgrade of a product prior to purchase which will reduce waste and have economic benefits.

There is lesser negative environmental impact by shopping at farmers markets as it reduces upstream long distance shipping, packaging, and supports local jobs/economy).

Consumers will be encouraged to resist impulse buying which causes wasteful spending and ultimately ends up with more material in the garbage.

#### Living Green – less toxics use in the home

Residents will be educated on safer alternatives to toxic cleaners and other household items. Purchasing “Green” alternative cleaners such as vinegar, baking soda, castile soap, eco-friendly products (shampoos, conditioners, body washes, etc. with no silica), and eliminating the purchase of items that can potentially pollute surface and ground waters will reduce toxicity of the waste stream. This will be particularly important to wetland areas and watersheds.

#### Implement ReUse in the home.

Initiate purchasing campaign of durable re-usable items (i.e. re-sealable kitchen containers for food storage instead of plastic wrap). Educate on repurposing/repairing items and maintain items. Have a wider and more organized use of yard sales and encourage donating usable materials to fundraisers and/or not-for-profits. Promote the Annual southern Ulster County yard sale on Memorial weekend and the Great Community Giveaway from the SUNY New Paltz cleanout. Encourage clothing swaps, tool shares and repair cafes.

#### Source Reduction including recycling and backyard composting.

Composting is recycling organic materials. Whether it’s converting wood pallets to landscape mulch or transforming leaves and grass to humus-rich compost, recycling of organic “wastes” makes sense and creates products of real value. Compost is widely used as a soil amendment in residential and commercial landscape and garden beds for its ability to improve soil health and fertility.

#### Energy improvements including consumption reduction and efficiency upgrades.

Consumers will be educated on simple ways to reduce energy consumption. Information will be made available on programs for efficiency upgrades and tax incentives once the upgrades have been completed.

#### Carbon footprint

Encourage everyone to think about their lifestyle decisions and find opportunities to reduce their climate impact. Statically, forty percent of someone’s carbon footprint is through direct energy use; sixty percent is through indirect use – consumption of goods and services. These can be reduced by using prior recommendations of buying local, reducing energy use in home, car and office, etc.

## 2. Commercial, Manufacturer and Retailer Responsibility

Promote Extended Producer Responsibility (EPR) work with a statewide alliance to bring manufacturers, retailers, and local governments together in cooperation.

- Take-it-Back programs;
- Product stewardship incentives to reuse or or recycle discarded toxic products such as the recent law for electronics;
- Packaging legislation to reduce unnecessary packing used solely for marketing and consumer branding purposes.

Encourage manufacturers and retailers to create sustainable products

- “Design-for-reuse/recycling” to gain better longevity and usefulness of the products produced.

Create waste reduction plans for businesses and a list of retailers/vendors that participate in the waste reduction programs.

- Have compostable dinnerware and/or rebates for customers using their own containers so they will be included in the data resource guide and as an exhibit for the New Paltz recycling law.

- Create a backyard composting program that is suitable for small quantity generating restaurants and use the end-product to grow herbs for menu items.

- Participate in a small scale registered food waste composting program that can be duplicated locally to manage organics.

- Participate in a Food Not Lawn program to encourage residents and other businesses to create gardens on site and to use edible landscaping.

- Create a network for local food artisans to purchase locally grown produce and meats in bulk for maximum pricing.

- Encourage businesses to manage a visible “weighting” to get estimates of purchases so vendors can provide the best pricing possible for sustainable materials.

Encourage and support local sustainable development practices and recognize local “green” businesses

- Develop/Implement a Green Purchasing Policy and Bulk Purchasing Cooperative creating a bulk buying cooperative to reduce the purchasing costs of green and sustainable products or;

- Become part of a cooperative purchasing agreement for discounted prices on sustainable bulk purchases that can be passed along to the consumer. Reduce packaging and/or provide reusable



materials (i.e. offer refillable containers, provide incentives for bringing your own container or reusable bag.) Requisition of a warehouse through in-kind services or purchase and creation of a logistics job would be important to the success of this program.

Seek and/or encourage the development of other new “green” businesses:

- a) Promote the establishment of Green Teams within local businesses. This could be a team within a large business or part of an HOA (Home Owners Association) type concept but performed within a retail plaza or mall setting;
- b) Seek new economic growth by attracting new “green” businesses through the local or County Chamber of Commerce, Ulster County Development Corporation, Industrial Development Corporation, local legislation, public demand, etc.
- c) Sponsor an annual Business Zero Waste Workshop, with featured speakers from various zero-waste based businesses demonstrating the “how-to’s” toward Zero Waste.
- d) Expand business recognition program to demonstrate zero-waste activity within the local business community.
- e) Create an Eco-Park comprised of green businesses which would include recycling depots where materials could be marketed for the good of the group.
- f) Implement local Waste Wise Programs for businesses
- g) Actively encourage cooperative education campaigns with local “green” organizations (See Table Local Green Organizations).
- h) Educate local producers about the “71 ton multiplier” of upstream wastes. (“71 ton multiplier” - source: USEPA 2006; Appendices)

Whether it’s converting wood pallets into livingroom tables or diverted restaurant scraps to a livestock farmer, all aspects of materials management improve the overall economic and environmental health of the community.

### **3. Local Government – Green Policies and Procedures**

- Improving local resiliency by developing methods to support local agriculture through creation of buying cooperatives that can be utilized by local food artisans;
- Press releases to educate and inform the public;
- Create a funding library;

- Sponsor quarterly Municipal Recycling Coordinator (MRC) meetings Rain barrel sale;
- Building code restrictions for gray water, electrical vehicle charging stations and photovoltaic systems;
- Bicycle share program information;
- Create a Steering Committee for program, events and new policies;
- Re-convene Zero Waste committees;
- Continue outreach and program expansion for Recycling and ReUse Center;
- Use of Interns
  - o Natural Resource Inventory
  - o Swales and waste water policies RE: municipal access for maintenance
  - o Risk assessment for public acceptance
  - o Community asset mapping
  - o Overlay maps including spaces for green roofs and seasonal vending
- “Stone Soup: Recipe for a Neighborhood”- Introducing neighbors to each other through block parties or other venues. Part of the process is to create a community asset list, engage neighbors in their micro-community concerns, etc.

Promote “Living Green” through municipal-wide environmental policies:

- Governmental recycling programs, sustainable purchasing practices, shared services, and eliminate duplication of services.
- Adopt an environmentally preferred purchasing policy.
- Adopt a recycling and compliance enforcement law.
- Draft and pass a law for event recycling
- Draft and pass law for removing organics from the solid waste stream
- Create an energy policy that includes upgrades to inefficient buildings, sets personnel procedures in place for office and equipment energy savings and has long term goals for alternative energy programs.<sup>3</sup>

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<sup>3</sup> As of 2013 NYSERDA has FlexTech programs for replacement of inefficient office machines and lighting.

Establish a timeline for every municipally owned building to have some portion of its electricity self generated (i.e. solar or wind)

Continue municipal building upgrades to reduce energy use and build community gardens instead of maintaining lawns

Establish Research and Development or Steering committee to work with Town and Village environmental committees for ongoing research on program development including solar, wind, biofuel, etc.

Create a Data Resource Guide: Compile a database of vendors, green organizations, collection sites, regulatory agencies and associations that is accessible for anyone seeking information (i.e. battery/fluorescent tubes drop-off locations, sharps collection, etc.)

Develop/Implement an Integrated Pest Management Plan for municipal workers to use.

Develop a municipal buy-recycled environmental purchasing policy that can be adopted by consumers and businesses.

Support a public and government education campaign.

Encourages residents and government to “re-think” their purchasing habits, utilize their buying power to purchase greener local products and “re-think” sustainable materials management.

Research the effects and distribution of Styrofoam and plastic bags. Promote legislation for banning these materials.

Network with businesses utilizing these packaging materials and research alternatives.

Develop and implement a ban if not recyclable or a marketing campaign to reduce use of the material (i.e. packaging such as plastic bags should be requested by consumer; not automatically provided.)

Study the life-cycle effects of non-recyclables by soliciting green businesses to share their stories and data, and encourage the discontinued use where possible. (i.e., plastic bags, consumer rubber products, Styrofoam.)

Investigate emerging waste reduction technologies and alternatives.

Apply for grants to “seed” new programs.

Establish an economic incentives program to attract “green” businesses.

Become more involved in the promotion and use of the EDZ business grant/loan program provided by the state.

Sponsor an annual Business Zero Waste Workshop, with featured speakers from various zero-waste based businesses demonstrating the “how-to’s” toward Zero Waste.

Link businesses to available technical resources that can advise on the environmental and budgetary benefits of product redesign.

Establish an on-line reuse depot, for the exchange and reuse of municipally purchased items.

Design a Zero-waste business park within the Economic Development framework of the Town and/or Village. Such a business park produces its own energy, and consumes any generated waste through proper business pairings, creating a net energy gain and generation of zero landfilled waste.

Actively utilize the resources offered through the EDZ program to attract new green-businesses to the New Paltz area increasing new jobs and economic health.

Develop an education campaign to inform businesses of the value and availability of waste exchange networks.

Participate in business forums to discuss the redesign of products so as to encourage reuse and/or recycling.

Research business waste flows that can be reused or recycled.

Establish a local on-line database of reuse/recyclable opportunities.

Post a website page dedicated toward promoting secondary reuse and environmental purchase policies.

Establish rules for waste haulers providing collection services in New Paltz and educate them on the Zero Waste Plan, including the adoption of hauling rules.

Audit the recycling and green waste collected within the municipality and delivered to the various receiving facilities to identify residual trash components. Audit residential, commercial and multi-family waste streams to better determine the percentage of trash residuals from each source. Design a public education campaign to reduce waste.

Develop value-based themed advertising to promote better sorting and reduced contamination.

Develop homeowner information regarding back-yard composting and its benefits to gardening. Encourage stronger visibility and participation from local experts (i.e., Master Gardener program).

## **ZERO WASTE ACTION PLAN GOALS AND IMPLEMENTATION STRATEGIES**

Residential – Reduce **85%** of waste stream through recycling/composting/waste diversion/reuse

Commercial – Reduce **90%** of waste stream through material resource management including recycling, composting and participation in cooperatives, feedstock programs and product stewardship

Local Government – Reduce **85%** of waste stream using management through Collection and Alternative Diversions, Consolidation, and Shared Services

## **1. Zero Waste Strategic Assignments: Short Term Goals (2012-2015)**

### **A. Public Education**

Develop public education campaign to encourage consumers to reduce wasting practices. (i.e. model from water conservation efforts, composting, recycling compliance and green cleaning) *(Recycling Coordinator)*

Educate residents on back yard composting, Xeroscape landscaping, vegetable gardening and grass cycling. *(Recycling Staff)*

Develop a public education program that promotes buying in bulk, reducing single-serving purchases, and promotes reuse and secondary storefronts. *(Recycling Coordinator)*

Actively encourage cooperative education campaigns with local “green” organizations and businesses. *(Recycling Coordinator)*

Conduct periodic audit not less than one time per year to identify recyclables disposed through the trash collection system and to identify residual trash components. Audit residential, commercial and multi-family waste streams to better determine the percentage of recyclables within the trash. Design a public education campaign to reduce recyclables deposited in the trash contaminations. *((Recycling Staff - State Grant funded)*

Include in the information database a list of second-hand opportunities in the area for residents to donate and/or acquire second-hand clothing, house wares, yard wares, etc. including the New Paltz ReUse Center. *(Recycling Staff)*

Educate residents on an expanded recycling collection list of household items that should not be landfilled. *(Recycling Staff)*

Engage SUNY clubs and other organizations to further outreach. *(Recycling Coordinator & Staff)*

Establish waste prevention and recycling guidelines for local schools to be included as part of an outreach and education program. *(Recycling Staff)*

Promote waste diversion concepts such as the Tool Share network and Repair Café *(Independent Consultants)*

Establish a Household Hazardous Waste (HHW) Program including safer alternatives to household cleaners and pesticides. Clearly post every UCRRA sponsored HHW collection day for residents with information on proper handling and disposal including safer alternatives for household cleaning. *(Recycling Coordinator & Staff)*

## **B. Research Activities**

Research / Contact local producers – establish producer responsibility team to develop take-back programs and develop of public list of take back sites. (i.e. battery/fluorescent tubes drop-off locations, sharps collection, etc.) *(Recycling Staff)*

Investigate emerging waste reduction technologies and alternatives. *(ENCB, ECCB, Recycling Staff)*

Research and assist in the development of markets for compost and mulch. *(Recycling Staff)*

## **C. Commercial Business Activities and Economic Incentives**

Implement organics collection at restaurants and food handlers. Explore alternative methods of handling business based organics through on site composting or green hauling of organics to a composting facility. *(Recycling Staff)*

Encourage all waste haulers to develop Zero-Waste plans for their activities. *(Recycling Staff)*

Educate local producers about the “71 ton multiplier” of upstream wastes. *(EPA Tool Kit)*

Promote the establishment of Green Teams within local businesses. *(Recycling Staff)*

Encourage local businesses to “Design for Reuse/Recycling” through workshops and green business forums. Develop business forums to discuss the redesign of products so as to encourage reuse and/or recycling. Encourage use of recycled products and design for recycling (i.e. phase-out “sandwich plastics, where two dissimilar plastics are fused together eliminating possible recycling options.) *(Recycling Staff and New Paltz Chamber of Commerce)*

Link businesses to available technical resources that can advise them on the environmental and budgetary benefits of product redesign. *(Recycling Staff and New Paltz Chamber of Commerce)*

Expand business recognition program to demonstrate zero-waste activities within the local business community and promote their initiative. *(New Paltz Chamber of Commerce and/or Ulster County Chamber of Commerce)*

Restructure waste collection programs and develop a rate study that provides true costing of recycling, green waste and trash collection service. *(Intern and Recycling Coordinator)*

Study the possibility of a **three**-can collection system; Blue for recyclables and green for organics, recognizing the contaminant allowances in available technology and encourage them to implement a program with future goal of going to a two can system and eliminating the trash can. *(Recycling Coordinator)*

Promote secondary storefront reuse opportunities. (i.e. Goodwill, Salvation Army, etc.) *(Recycling Staff)*

Develop education campaign to inform businesses of the value and availability of waste exchange networks. *(Recycling Staff)*

Develop a Zero-waste business eco-park in through the Economic Development Office or through self starter initiatives. *(Recycling Staff and Governmental Boards)*

Encourage local business groups to provide educational opportunities for promoting business efficiencies through waste reduction and waste reuse. *(Recycling Staff and New Paltz Chamber of Commerce)*

Encourage local business to tap into state grant and loan programs to provide capital for reuse and recycling opportunities. (i.e. EDZ) *(Recycling Staff and New Paltz Chamber of Commerce)*

#### **D. Operational Changes**

Implement local EPA Waste Wise Program. *(Recycling Staff with EPA Waste Diversion Technical Assistance)*

Expand recycling collection to all local businesses by creating a centralized recycling drop off site for small quantity generators to self haul. *(Recycling Staff)*

Develop/Implement an Integrated Pest Management Plan. *(Building and Grounds/DPW)*

Establish a waste prevention and recycling plan for all government functions including departmental initiatives to us ReUse Center and share/exchange items prior to purchasing new. *(Recycling Coordinator & Governmental Boards)*

Establish waste prevention and recycling guidelines for large-venue events to reduce wasting practices including legislation with procedures and policies. *(Recycling Staff)*

Post a website dedicated toward promoting secondary reuse and environmental purchase policies. *(Recycling Staff)*

Require all waste haulers that haul within the municipality to participate in Zero-Waste activities, including the avoidance of landfilling recyclables and compostables. *(Governmental Boards)*

Implement a pilot commercial food waste collection program. With success, expand food waste collection to all restaurants and food handlers including a centralized drop off for small quantity generators. *(Recycling Staff)*

Support and encourage start up of green haulers interested in servicing organic pickups.

Establish policies to “re-think” sustainable materials management. *(Recycling Coordinator & Governmental Boards)*

#### **E. Planned Staff Activities (2012-2015)**

Study and increase collection technology efficiencies that can accept food waste collection. (i.e. anaerobic digestion). *(Recycling Staff)*

Research and develop new waste diversion activities. Establish better options for the collection and management of Electronic, HHW and U-Waste streams. *(EnCB, ECCB, Recycling Staff)*

Research and assist in the development of markets for compost and mulch. *(Intern and Recycling Coordinator)*

Evaluate mandatory vs. voluntary programs regarding source separation and contamination. *(Intern and Recycling Coordinator)*

Establish a waste prevention and recycling plan for all government functions. *(Recycling staff and Governmental Board)*

Establish waste prevention and recycling guidelines for large-venue events to reduce wasting practices. *(Recycling staff and Governmental Board)*

Establish waste prevention and recycling guidelines for local schools including school gardens and composting. *(Recycling Staff)*

Sponsor an annual Business Zero Waste Workshop, with featured speakers from various zero-waste based businesses demonstrating the “how-to’s” toward Zero Waste. *(Recycling Staff and New Paltz Chamber of Commerce)*

Establish ground rules for waste haulers to abide by the Zero Waste Plan, including the adoption of hauling rules and educate them on the Zero Waste Plan. *(Recycling Staff and Governmental Board)*

Organize a Community Giveaway and multi-Town Yard Sale Weekend, where residents are encouraged to coordinate yard sales centralized around one well-advertised weekend. *(Recycling Coordinator)*

#### **F. Public School Recycling Education Program** *(Intern and Recycling Coordinator)*

Promote reduction of school snack waste with classroom vermiculture

Encourage reusable lunch kits and/or cafeteria service ware

Provide written education material that conforms to the NYSED curricula for math and science

Offer tours of Recycling Center and Clearwater complex

Support school gardens and healthy, locally grown food

## **2. Zero Waste Strategic Assignments: Long Term Goals (2015-2018)**

### **A. Public Education**



Calculate Green House Gases (GHG) utilizing the EPA WARM Model to assess positive/negative effects on Climate Change. *(Recycling Staff/EPA tools)*

Increase public understanding of sustainability by providing information and encouraging individuals to cooperate in protecting environmental quality and reducing carbon emissions. *(Recycling Staff)*

Encourage residents to utilize the blue & green carts more extensively, eliminating recyclables and organics from the trash collection system. *(Recycling Staff)*

Provide rebates and/or local incentives for Zero Waste participation such as Berkshares and other local currency programs are doing. *(Recycling Staff)*

Initiate civic awards for creating new initiatives or living/promoting Zero Waste lifestyles.

## **B. Research Activities**

Research the effects and distribution of Styrofoam in the new Paltz area through surveys and interviews. Network with businesses utilizing Styrofoam and research alternatives. Develop and implement a Styrofoam ban. *(Recycling Staff)*

Research the effects and distribution of one-time use (disposable) plastic bags in the local market. Network with businesses utilizing plastic bags and research alternatives. Develop and implement a plastic bag ban. *(Recycling Staff)*

Research zero net designs and technologies as a means to reduce carbon emissions and reduce dependence on fossil fuels to create a community independent of outside resources *(Recycling Staff)*

## **C. Commercial Business Activities and Economic Incentives**

Expand food waste collection to all schools, hospitals, restaurants and food handlers. *(Recycling Staff)*

Promote additional opening of NYSDEC registered composting facilities.

Become more involved in the promotion and use of the EDZ business grant/loan program provided by the state. *(Economic Development Office)*

Establish an economic incentives program to attract “green” businesses. *(Governmental Boards)*

Seek new economic growth by attracting new “green” businesses. *(Economic Development Office)*

Research business waste flows that can be reused or recycled. Establish a local database of reuse/recyclable opportunities. *(Recycling Staff)*

Establish a “Feedstock Business Pairings Program”. Solicit new business growth, through the Economic Development Office, that pairs an existing waste stream with a business that can utilize it as a feedstock. *(Recycling Staff and New Paltz Chamber of Commerce)*

Research: Establish a producer responsibility team to develop take-back programs for materials that aren't regulated under Product Stewardship laws (plastic cups, printer cartridges). *(Recycling Staff and New Paltz Chamber of Commerce)*

#### **D. Operational Activities**

Establish a permanent Household Hazardous Waste (HHW) Program for year round residential drop off. *(Recycling Staff and NYSDEC)*

*Close the Loop* - Promote and implement restaurant gardens to incorporate into menus and as a method to use compost created on site for growing herbs and salad greens to put on the menu.

Establish a produce buying cooperative for local restaurants/retailers so they can purchase in bulk and pay competitive prices for locally grown products.

Contract for a Zero Waste Characterization Study that provides waste analysis of the current waste collection system, researches options, and recommends actions targeted toward reaching the zero waste goal by creating more markets. *(Intern and Recycling Coordinator)*

#### **E. Planned Staff Activities**

Develop a waste disposal pricing system that discourages landfilling by encouraging all to rethink, reduce, reuse, recycle. *(Recycling Staff)*

Establish a Household Hazardous Waste (HHW) collection facility within New Paltz in addition to the Ulster County operated program, as well as an HHW reuse center. *(Recycling Staff)*

Contract for a Zero Waste Characterization Study that provides an analysis of the current waste collection system, researches options, and recommends actions targeted toward reaching the zero waste goal.

Expand New Paltz Recycling Center activities to *Close the Loop* by managing all materials on site.

Town government actions to be considered include, but are not limited to:

1. Standardizing purchasing practices to reduce cost, reduce unwanted surplus items, and increase operational and delivery efficiencies.
2. Creating/Revising the Town Environmentally Preferable Purchasing (EPP) policy to clarify the Town's intent to purchase environmentally friendly products whenever and wherever fiscally possible.
3. Changing procurement instructions to vendors requiring that bids and proposals do not waste paper or reduce paper use and plastic bindings or other packaging.
4. Using "take back" language in procurement documents to require that equipment suppliers take back old equipment for reuse or recycling.
5. Encouraging utilization of re-useable packaging.

6. Making waste reduction and diversion a priority through policies, improving inhouse equipment and collection services, and urging employees to conserve energy and save money.
7. Quantifying the Town's mass balance of inputs (products and services) to outputs (solid wastes, hazardous wastes, recyclables, compostables).
8. Determining current waste diversion levels for county government and countywide.
9. Assessing construction practices and facility operation and maintenance practices for opportunities to reduce the quantity and toxicity of wastes produced and to increase diversion.
10. Assessing waste reduction opportunities at county meetings and events through the use of durable, recyclable, and compostable food service items.
11. Requiring volume-based residential trash collection and recycling in unincorporated Boulder County and determining opportunities for municipalities and the county to work together to pursue this countywide.
12. Requiring increased diversion of organic waste streams generated in for beneficial reuse (as wood mulch) or composting into soil amendments and other products; supporting the efforts of public, private, and nonprofit entities in providing infrastructure for organics recovery.
13. Supporting and promoting increased traditional and non-traditional recycling through modification of the recycling center to accept and process single stream materials, education and outreach, and support of facilities providing supplementary recycling opportunities.
14. Supporting increased diversion of construction and demolition waste streams.
15. Requiring new development to provide adequate indoor and outdoor space for recycling and other waste diversion containers.
16. Instigating and supporting legislation at the state and local level that supports Zero Waste.
17. Seeking public and private partnerships to leverage limited public resources to accomplish our Zero Waste goals.
18. Incorporating these principles into updates of the New Paltz Comprehensive Plan(s).

## Appendices

APPENDIX A – Local Law No. 4 of 2010 Mandatory Source Separation

APPENDIX B - Zero Waste Compliance and Enforcement Committee May minutes

APPENDIX C - 2012 Revised Village of New Paltz Recycling Law

APPENDIX D – February 3, 2012 Food Waste Composting Meeting

APPENDIX E – NYSDEC Organic Waste Composting Application and Approval Letter

APPENDIX F – Commercial Food Waste Composting Manual

APPENDIX G - April 20, 2012 Minutes of the Gardens, Composting & Bio-Fuels Committee

APPENDIX H - 2012 Zero Waste Day

APPENDIX I - April 20, 2012 Meeting of the Sub-Urban Planning and Financing Committee

APPENDIX J – February 7, 2012 Minutes of the Alternative Energy Committee

APPENDIX K – February 14, 2012 Minutes of the Alternative Energy Committee

APPENDIX L – February 21, 2012 Minutes of the Alternative Energy Committee

APPENDIX M - May 2011 Street Lighting and Safety Report

APPENDIX N- Table 1. Existing Facilities

APPENDIX O - Baseline Measures –2004 through 2011 County Recycling Report

APPENDIX P - Baseline Measures –2004 through 2011 NYSDEC Facility Tonnage Report

APPENDIX Q - Budgets 2012 and 2013

## Bibliography

Fresno Zero Waste Action Plan

Colorado Zero Waste Action Plan

Arkadelphia 2009 Waste Audit

Eugene, Oregon Love Your Food education program

<http://wmr.sagepub.com/content/25/4/307.abstract>

[www.epa.gov/climatechange/wycd/waste/downloads/fullreport.pdf](http://www.epa.gov/climatechange/wycd/waste/downloads/fullreport.pdf)

<http://www.livingeconomies.org/> BALLE (Business Alliance for Local Living Economies)

<http://www.p12.nysed.gov/ciai/mst/pub/elecoresci.pdf>

## Figures

1. <http://www.epa.gov/osw/conservation/materials/organics/food/fd-basic.htm>

## Photographs

1. Electronics and cardboard illegally disposed of in Recycling Center containers
2. Community Giveaway Event at United Methodist Church on Grove St., New Paltz
3. Ulster County Fair: Volunteers from NYSDEC and New Paltz Transition Educating Attendees
4. R3 Education “Bus” collecting recycling bins used at the Fourth of July event
5. Volunteers from CSA and Tool Share build new beds and planted potatoes, tomatoes & herbs
6. Basket of produce from demonstration garden donated to New Paltz Food Pantry
7. EPA representative reviewing Zero Waste Initiative with attendees at “Green Your Business”
8. Department heads meeting with Town Supervisor to discuss budgets and consolidation
9. Presentation by Squire Sanders LP RE: Consolidation of Governments (Village, Town, School)