



United Parcel Service

&

The Alliance for Environmental Innovation

A Project of the Environmental Defense Fund and The Pew Charitable Trusts

ACHIEVING PREFERRED PACKAGING:

Report of the Express Packaging Project

November 1998

In recent years, one of the more visible symbols of the fast pace of American culture has been the express package. Today, businesses and consumers send and receive millions of overnight express packages every day. This disposable express packaging creates solid waste, air and water pollution, and consumes large quantities of paper, plastic and associated raw materials, energy and water.

In part, this situation results from the competitive intensity of the express delivery industry. Among the five largest companies, battles for customers are fierce and have historically focused on the traditional parameters of cost and service. Innovations focus on adding new products, expanding service options, and introducing creative pricing structures. While most of the companies within the industry have significant environmental efforts oriented at ensuring compliance and managing risk, very little attention has been paid historically to advancing superior environmental performance as a competitive advantage.

Against this backdrop, in January 1998, the Alliance for Environmental Innovation (the Alliance) and UPS began a joint project to environmentally improve UPS's express packaging. After ten months, this collaborative project has yielded substantial environmental, customer and business benefits.

PROJECT GOALS, RESULTS & BENEFITS

Goals:

- ◆ Decrease the amount of material used in packaging
- ◆ Expand the use of reusable packaging
- ◆ Increase the post-consumer recycled content in plastic and paper envelopes and boxes
- ◆ Eliminate bleached paper from all packaging

Achieve environmental goals while maintaining performance, appearance and cost-competitiveness.

Action Steps:

Increase Recycled Content:

- ◆ Postconsumer fiber in boxes will increase from 46% to 78%
- ◆ The Express Letter envelope will use 80% postconsumer fiber, up from 73%
- ◆ Postconsumer resin in plastic Pak increased from 0 to 15%

Material Changes:

- ◆ UPS will eliminate the use of bleached paper in all packaging
- ◆ The plastic Pak envelope will use almost 10% less film

Reusable Packaging:

- ◆ UPS currently offers a two-use reusable envelope
- ◆ A reusable box and plastic envelope will be tested for market viability and fit with customer needs



Benefits:

Environmental:

- ◆ 29% lower use of virgin materials
- ◆ 13% average improvement across multiple environmental parameters -- for all packages
- ◆ Over 5 million gallons (14%) less water use annually
- ◆ 49% reduction in hazardous air pollutants

Business & Customer:

- ◆ Packaging that better meets customers' needs -- more functional & convenient
- ◆ Cost savings
- ◆ Increased market share & revenue enhancement
- ◆ Enhanced corporate stewardship & brand image

The UPS-Alliance Express Packaging Project brought together two very different organizations to work toward the common goal of environmentally improved packaging: UPS is the world's largest express package delivery company and the Alliance, a project of the Environmental Defense Fund and The Pew Charitable Trusts, is a prominent environmental organization dedicated to working proactively and collaboratively with market-leading companies to catalyze environmental change. UPS realized that rising to the challenge of improving the environmental performance of its packaging could generate customer service benefits, in addition to a real opportunity to advance its standing as an industry leader. Both organizations recognized that environmental improvements in UPS's express packaging needed to be achieved while also maintaining performance, appearance and cost-competitiveness.

The project's results set in motion remarkable changes in many aspects of the company's packaging. These include not only significantly decreased environmental impact, but also increased package functionality, greater ease of use and convenience for the customer, enhanced brand image, decreased costs, and increased opportunity for competitive win. Moreover, because the benefits extend well beyond environmental improvements, the project serves as a model to other businesses of the many advantages that arise from examining products and operations through an environmental lens.

THE PROJECT

The Preferred Packaging Report

The genesis of the Alliance-UPS project lies in a December 1997 Alliance report examining the potential for environmental and market leadership in shipper-provided overnight delivery packaging.¹ The Alliance saw an enormous opportunity for environmental improvement and innovation in the express delivery industry, given that more than a billion shipping envelopes and boxes are used each year, consuming considerable resources and generating large amounts of pollution and waste.

In preparing its public report, the Alliance sent a survey to each of the top five companies in the industry – Airborne Express, DHL, FedEx, UPS and the US Postal Service – requesting information on their express packaging. The report then compared the packaging used by these companies, identifying numerous environmental improvement opportunities that could be implemented rapidly and cost-effectively, and in a manner that would also provide market benefits.

The report challenged the companies to make recommended changes in their packaging: specifically, increasing postconsumer recycled material content, making packaging lighter, expanding the use of reusable packaging, and eliminating bleached paper.

¹ Sturcken, E.V. (1997) *Preferred Packaging: Accelerating Environmental Leadership in the Overnight Shipping Industry*, Alliance for Environmental Innovation, Boston, MA, 32 pp. Available from EDF Publications, 1-800-684-3322, or at <http://www.edf.org>.

Partnership

UPS embraced the challenge issued in the Alliance report. While the report served as both a catalyst and a blueprint for action in the ensuing partnership, UPS and the Alliance succeeded in going beyond the recommendations on almost every packaging improvement. The partnership benefited from the complementary skills and experience of the two organizations. The Alliance has considerable experience working cooperatively with market-leading companies to reduce environmental impact while integrating environmental goals into business decisions, as well as extensive technical and economic expertise. By combining such strengths with the business know-how and operational expertise of UPS, this project created solutions that are truly a win-win for business and the environment.

ALLIANCE FOR ENVIRONMENTAL INNOVATION

The Alliance for Environmental Innovation is a joint initiative of the Environmental Defense Fund (EDF) and The Pew Charitable Trusts. The Alliance works cooperatively with industry-leading companies to reduce waste and build environmental considerations into business decisions. By bringing the expertise of scientists and economists together with the business skills of major corporations, the Alliance creates solutions that make environmental and business sense.

UNITED PARCEL SERVICE

UPS is the world's largest express carrier and largest package delivery company, delivering 12 million packages every day. UPS provides services to more than 200 countries and employs more than 331,000 people worldwide. UPS revenues for 1997 were \$22.5 billion on a total volume of more than 3 billion packages. An ever-increasing portion of this volume is next day air business, which for the first nine months of 1998 grew at a rate of 9% compared to the same period in 1997.

Project Process & Timeline

A cornerstone of the project was a commitment from both organizations to find packaging solutions that maximized environmental improvements while also ensuring packaging that is fully functional in UPS's operations, maintains appearance and graphic standards, and is cost-effective. Starting from that premise, the Project Team created a work environment that fostered openness to new ideas, designs, creativity and innovation.

Knowledge about packaging, UPS's field requirements and graphic standards, along with expertise about environmentally preferable packaging and materials were critical to the project's success. Equally important, the Project Team was cross-functional both within and across the two organizations. UPS Project Team members included representatives from environmental affairs, marketing, international marketing, customer communications, materials management (purchasing), and package engineering. UPS staff, representing their respective departments,

communicated the team's work to key decision makers in the company, allowing the team to receive feedback and ensuring continued support for the team's work and, in the end, support for the recommendations. Alliance Project Team members brought technical expertise and experience in analyzing the environmental impacts from all stages of the lifecycle of paper and plastic and in implementing effective waste reduction initiatives. Involvement of Alliance management throughout the project ensured buy-in and support for the results. Project Team members are listed in the appendix.

The Project Team identified specific improvements that could be made to each express package that UPS provides – paperboard envelopes, plastic envelopes and corrugated boxes and tubes. Team meetings provided an opportunity to discuss packaging requirements, and identify and evaluate alternative design options. The most promising options were developed and assessed through laboratory and field tests. As a result of this collaborative process, the Project Team consistently found creative ways to get around roadblocks and produced consensus recommendations that are now being implemented.

Supplier Involvement

The Project Team worked closely with UPS's current suppliers to identify and examine packaging options. The team enlisted suppliers as active partners in the search for environmentally improved packaging. In several instances, these suppliers developed creative designs and technological innovations to meet the Project Team's goals. In some cases, they revised their manufacturing processes to create packaging that was both functionally and environmentally superior.

For example, one of UPS's plastic envelope suppliers went through several design iterations to modify its plastic film, both to reduce the weight of the film, and to incorporate postconsumer recycled resin while maintaining product performance and appearance. Similarly, a supplier of recycled paperboard worked proactively with the Project Team to develop and refine the design of the industry's first reusable envelope. The supplier created a quick-release coating for the label area of the packaging, and improved the recloseable features of the envelope.

The close involvement of UPS suppliers in achieving the project's goals – and UPS's significant purchasing power – created two additional benefits from the project. First, each of the suppliers gained practical experience in including the environment as a key design feature in its product offerings. Second, and perhaps more important, these suppliers, especially those whose products were recommended by the Project Team, are realizing market advantage due to their environmental innovation.

RESULTS

Overview

UPS has committed to environmental improvements in all of its express packaging – paperboard and plastic envelopes, and corrugated boxes and tubes. Most notably, reusable packaging alternatives are either in use or will be tested to determine market viability and fit with customer needs. In addition, UPS has eliminated all bleached fiber from its packages and significantly increased postconsumer recycled material content. Each of these improvements has been made while maintaining or improving cost-competitiveness, customer friendliness, aesthetic attributes and functionality.

UPS's improved packaging has significantly lower environmental impacts, consuming fewer raw materials, water and energy during manufacturing, emitting less water and air pollution, and generating less solid waste, both in production and disposal after use. For example, eliminating all bleached paper from UPS's packaging will reduce the emissions of toxic chlorinated organic compounds to rivers and streams. Increasing the postconsumer recycled content of the paper and plastic envelopes has multiple benefits of reducing demand for virgin resources, creating demand for recycled materials, and reducing solid waste requiring disposal. Making the packaging lighter means that fewer material resources are used in the manufacturing process. In addition, UPS's introduction of a reusable letter envelope, and its commitment to test reusable options for its other packaging to determine market viability and fit with customer needs, signal a new direction for express packaging. Reusable options significantly reduce environmental impact; for example, a two-way envelope decreases environmental impacts by half.

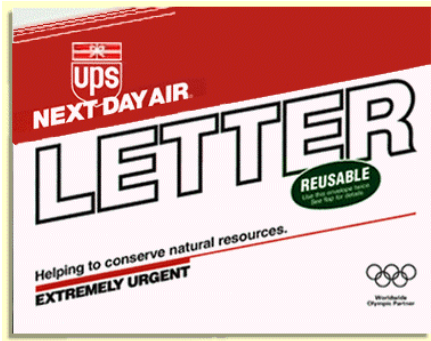
The business benefits of the new packaging, while varying depending upon the specific change, include reduced costs, increased opportunities for competitive wins, and enhanced brand equity. In some cases, such as the Plastic Pak, the new package will actually cost less than the previous alternative because it uses less material. In other cases, such as reusable packaging, cost savings are realized every time a package is used a second time. For targeted customers, including lawyers, mortgage brokers, and environmentally-driven purchasers, the reusable envelope offers specific business benefits by facilitating document returns. This expanded service option of being able to use the just-received package as the return package has already enabled UPS to capture new corporate accounts and attract new business from its competitors. Additional market gains are likely from packaging that has been redesigned with the customer's needs in mind, resulting in the introduction of several innovative changes that promote ease of use and enhanced functionality. These customer benefits can increase brand loyalty. Finally, UPS's environmental leadership can support its overall brand equity and reputation with customers.

The full range of specific improvements made to each individual package, and their environmental, business and customer benefits, is discussed below²:

² Note that the environmental benefits include only those arising from fully implemented improvements, and do not include benefits from additional packaging changes being considered that are to be tested (e.g., reusable plastic Paks or boxes). Calculations are made using models based on data gathered for the Paper Task Force (Paper Task Force (1995) *Recommendations for Purchasing and Using Environmentally Preferable Paper*, Duke University, Environmental Defense Fund, Johnson & Johnson, McDonald's, The Prudential Insurance Company of America,

THE EXPRESS LETTER ENVELOPE

Breaking New Ground: The UPS Two-Use Reusable Envelope



IMPROVEMENTS MADE

- Increased postconsumer recycled fiber content from an average of 73% to a minimum of 80%
- Introduced the industry's first two-use reusable envelope, available in letter, A4, and legal sizes

BENEFITS

Environmental

- When reused, the envelope cuts material use, waste and pollution by half
- Increased postconsumer fiber and reusability reduces manufacturing wastewater by 4.2 million gallons (16%) annually, release of hazardous air pollutants by 26%, and generation of solid waste by over 627,000 pounds (12%) annually

Business

- Convenient for customers to receive and send back documents
- Reduces the need to store and retrieve new envelopes
- Legal-size reusable envelope fills unmet customer needs to send legal-size documents
- New product offers specific benefits and expanded service for target markets
- Potential to create market differentiation in broad market
- Clear leadership position as first express delivery company to offer reusable innovation

Before formal initiation of the joint UPS - Alliance packaging project, UPS had begun work on a two-use reusable envelope. This envelope, officially launched during the project, established a new paradigm for express packaging. The Project Team worked to speed this product to market, improve its environmental profile as detailed above, and expand its availability to all customers. This packaging is now available as a general service offering to all of UPS's customers and also comes in letter, legal and A4 sizes.

and Time Inc., December 1995); Tellus Institute (1994) *Energy Implications of Integrated Solid Waste Management Systems*. Rep. 94-11, New York State Energy Res. Dev. Auth., Albany, NY; and Tellus Institute (1992) *Assessing the Impacts of Production and Disposal of Packaging and Public Policy Measures to Alter Its Mix, Rep. 4, Impacts of Production and Disposal of Packaging Materials -- Methods and Case Studies*, Ch. 2. Council State Govern., US Environ. Protection Agency, New Jersey Dept. Environ. Prot. Energy.

The reusable envelope allows customers to immediately return documents that they have received that require signatures or otherwise need to be processed, eliminating the need to store and retrieve a new envelope. This envelope especially benefits businesses in sectors such as legal, financial, and real estate, which frequently send documents to customers for immediate return. The legal size reusable envelope, tailored to the needs of the legal sector, represents two innovations: it is the first legal-sized envelope in the industry, and it is reusable. The A4 size reusable envelope allows UPS customers outside of the United States to send and receive documents as well. The envelope is longer than the regular Letter envelope to accommodate A4-size paper, which is the standard size in most countries around the world.

THE PLASTIC PAK



IMPROVEMENTS MADE

- Decrease weight of the polyethylene film by 9%, from 26.3 to 24 grams
- Increase postconsumer recycled resin content from zero to 15%
- Will initiate testing of a two-use reusable Pak to determine market viability and fit with customer needs

BENEFITS

Environmental

- Consumes 11% less energy to manufacture
- Reduces the consumption of virgin plastic by 347 million tons (22%)
- Reduces solid waste generation by 134 tons annually (9%)
- Reusable packaging achieves pollution reduction of 50% with every reuse

Business

- 20% lower cost for reduced-weight single-use Paks
- Reusable packaging achieves savings of 50% with reuse

THE EXPRESS BOX & TUBE

Eliminating Bleached Paper in UPS's Packaging



IMPROVEMENTS MADE

- Increase postconsumer recycled content from 46% to 78%
- Add quick-release coating to label area and reuse instructions to make the tube reusable
- Eliminate use of bleached fiber in the top liner
- Will initiate testing of two-use reusable boxes to determine market viability and fit with customer needs

BENEFITS

Environmental

- Elimination of bleaching process reduces energy and water consumption and discharge of toxic chlorinated organic compounds
- Contains almost 70% more postconsumer recycled content and uses 57% less virgin fiber
- Decreases releases of hazardous air pollutants by 76%, volatile organic compounds by 37%, and solid waste by 24%
- When reused, reusable boxes and tubes cut material use, waste and pollution in half
- Overall, changes to the box result in a decrease in pollution of 15% averaged across a broad range of environmental parameters (solid waste, energy use, water use, several specific categories of water and air emissions)

Business

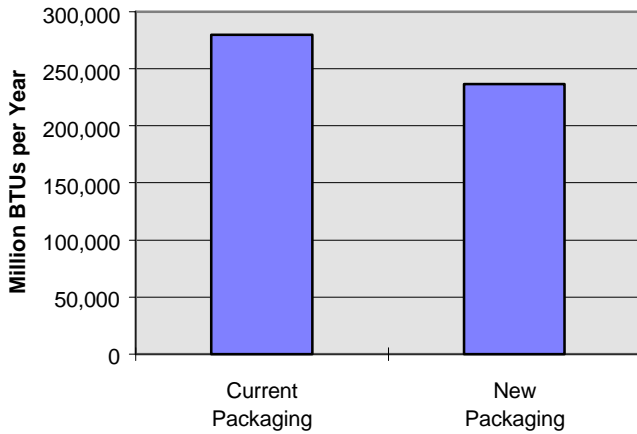
- Reusable packages achieve savings of 50% with every reuse

UPS's boxes and tubes will now be made from paper that has not been bleached. The process of bleaching paper releases a variety of toxic substances including chloroform, dioxins and other chlorinated organic compounds. Eliminating the use of bleached paper results in the reduction of 1.5 to 2 kilograms of adsorbable organic halogens (AOX) for each ton of pulp used. (AOX is a measure of the quantity of chlorinated organic compounds in wastewater, many of which are toxic and bioaccumulate in fish.)

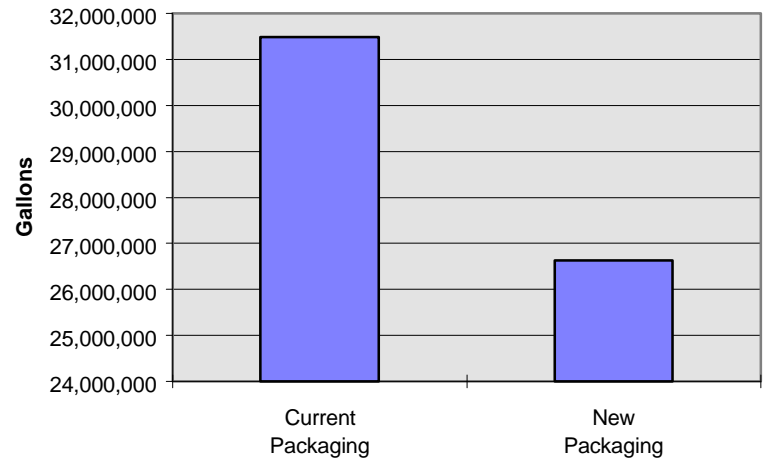
SUMMARY ENVIRONMENTAL CHARTS

Below are a group of charts that show the net environmental improvements aggregated across all of UPS's express packaging.

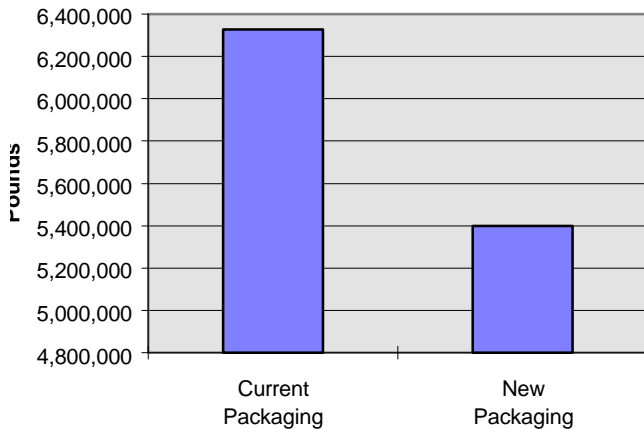
Reductions in Energy Use Due to Improvements in UPS's Express Packaging



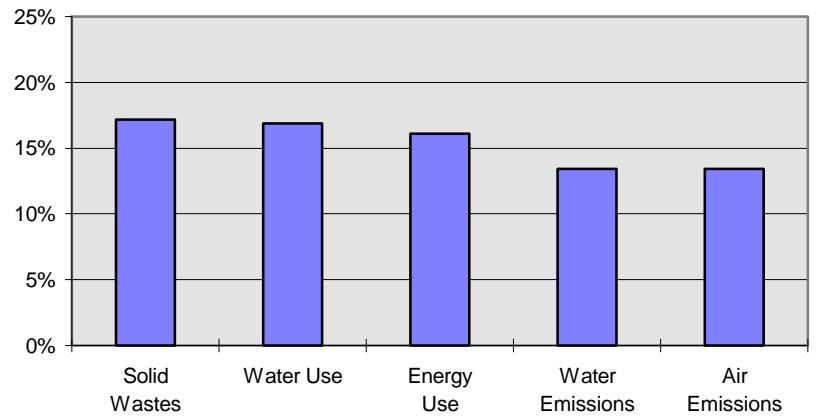
Reductions in Water Use Due to Improvements in UPS's Express Packaging



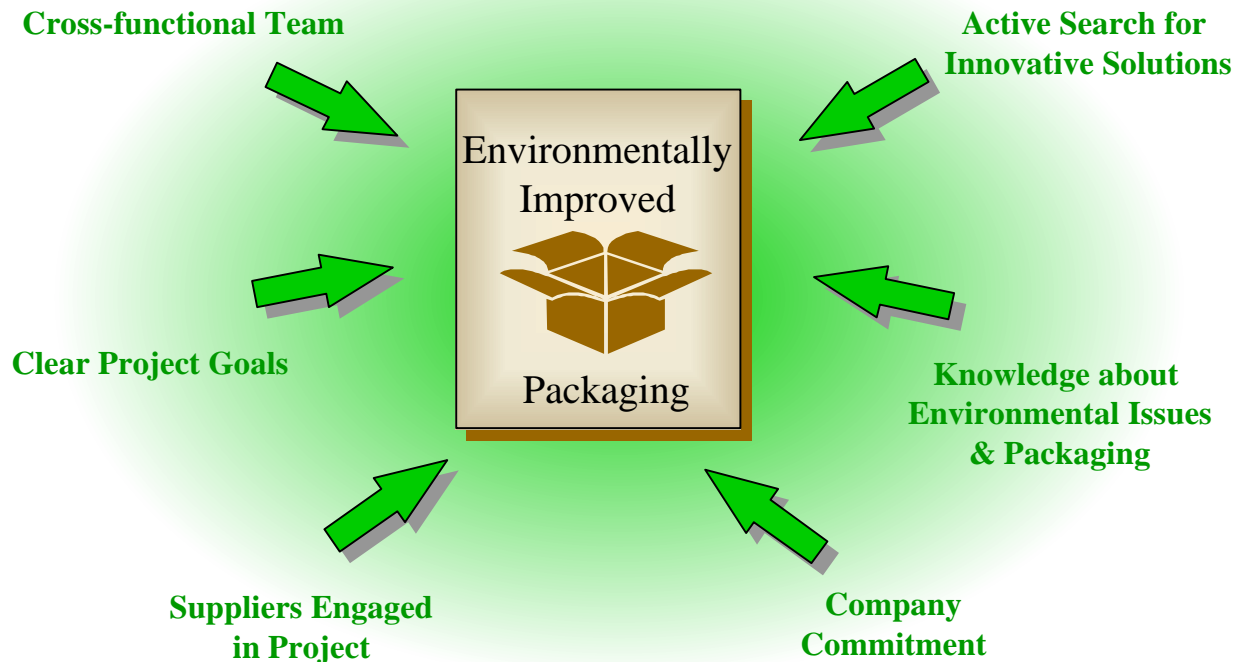
Reductions in Solid Waste Due to Improvements in UPS's Express Packaging



Average Percent Improvement in UPS Express Packaging



Elements of Project Success



Lessons Learned

There were many factors that came together to create a successful project. UPS believed from the start that this environmental project could benefit its customers and its business in a tangible way. Because of that, there was high-level commitment to the goals of the project. This commitment manifested itself in the creation of a cross-functional team composed of members who had decision-making ability from all key departments in the company.

The Project Team started with an open mind about possible solutions for environmentally preferable packaging. This, coupled with the project goals that were developed at the outset, established a clear direction, yet flexible working environment. A final ingredient in the project's success was the proactive response of some of UPS's suppliers. They supported and in some cases facilitated the search for better packaging materials and designs.

Competition

We expect that this project and its example of the benefits of visible environmental leadership will have positive impacts on the entire shipping industry. UPS's willingness to accept the challenge of improving their express packaging environmentally and their commitment to implement the action steps outlined in this report, will serve as a model to business of the benefits of engaging in voluntary environmental initiatives. Competitors in the express delivery industry have a widely

varying track record for providing their customers with environmentally preferable packaging. Other major express delivery companies have an opportunity to follow UPS's lead in eliminating the use of bleached virgin paper, increasing postconsumer recycled content, and offering reusable packaging.

Future Directions

As technology advances, the need to ship documents from one location to another will likely decrease. Electronic data interchange is expected to partially replace document delivery. But such technology cannot eliminate the need for express shipping: How else to get grandma's hand-knit sweater across the country to her grandchild in time for a birthday, or to get an automobile part from the manufacturing plant in Asia to the service shop in Chicago for an anxious customer? The need for express packaging that has a minimal impact on the environment will continue into the future. That need will be met by creating packaging that uses less material or material with lower environmental impact, or by moving from packaging that is disposed of after one use to packaging that is durable enough to be used multiple times.

The challenges of creating better packaging in the future can be met by undertaking initiatives like the project detailed in this report. Many opportunities exist for business to realize both environmental benefit and business advantage by proactively improving products and processes environmentally.

APPENDIX

UPS ACTION ITEMS: COMPARISON OF CURRENT & NEW PACKAGING ENVIRONMENTAL SPECIFICATIONS

Product	Paper Grade or Plastic Type	Recycled Content	Postconsumer Content - % of total	Bleached Paper & Coatings	Film Weight	Window	Recyclable?
Current Next Day Letter	Clay Coated Newsback	100%	73%	Not bleached/ Outer coating		Plastic Window Optional	Possible, but unlikely given current limited infrastructure
New Next Day Letter	Clay Coated Newsback	100%	80%	Not bleached/ Outer coating		Plastic Window Optional	Possible, but unlikely given current limited infrastructure
Current Next Day Poly Pak	Layered Polyethylene	None	None		26.3		Possible, but unlikely given current limited infrastructure
New Next Day Poly Pak	Layered Polyethylene	15%	15%		24		Possible, but unlikely given current limited infrastructure
Current Express Box	Corrugated	61%	46%	Top layer of linerboard is bleached & coated			Yes
New Express Box	Corrugated	92%	78%	Not bleached/ Outer coating			Yes
Current Tube	Corrugated	53%	53%	Top layer of linerboard is bleached & coated			Yes
New Tube	Corrugated	92%	78%	Not bleached/ Outer coating			Yes

RECOMMENDATIONS FROM UPS - ALLIANCE

EXPRESS PACKAGING PROJECT

PAPERBOARD ENVELOPES:

The Express Letter envelope should be made using materials that entail as little environmental impact as possible, while meeting performance, cost and appearance specifications.

- #1 - The Letter should be made from paperboard containing 100 % recycled fiber content with a minimum of 80% postconsumer recycled fiber content, 20% post-industrial content.
- #2 - The paperboard should be manufactured without the use of bleaching agents; instead whiteness and printability of the envelope should be controlled by application of a clay coating on the exterior of the envelope.
- #3 - All current UPS Express envelopes and the two-use reusable envelope should use these design specifications.
- #4 - The Reusable Envelope (two-use), in regular, legal, and A4 size, should be available for customers in the U.S. and Canada and, ultimately, internationally.

CORRUGATED BOXES:

The Express Box and Tube should be made using materials that entail as little environmental impact as possible, consistent with meeting performance, cost and appearance specifications.

- #5 - The Box and Tube should be of the lightest possible basis weight and should contain the highest possible postconsumer recycled fiber content for the entire box, achieving 100% postconsumer fiber content for the inner liner and medium, if possible. Implement a 45% postconsumer fiber (PCF) top liner, a 98% PCF medium and a 100% PCF inner liner.
- #6 - The linerboard and medium for the Box and Tube should be manufactured without the use of bleaching agents.
- #7 - A two-use reusable box should be tested in the marketplace.

PLASTIC ENVELOPES:

The Plastic Pak should be made using materials that entail as little environmental impact as possible, while meeting performance, cost and appearance specifications.

- #8 - The Pak should have the lightest weight and contain the maximum postconsumer recycled resin content. Implement a 15% PCR and 3.0 mil weighted average specification.
- #9 - A reusable Plastic Pak (two-use) should be tested in the marketplace.

GENERAL:

- #10 - For all packages, we recommend a continuing search for new materials, manufacturing technologies, and products that allow UPS to further enhance environmental performance of the packaging, consistent with performance, cost and appearance objectives.

PROJECT TEAM

Team Member	Organization	Department/Expertise
David Guernsey - Project Leader	UPS	Environmental Affairs
Brett Beier	UPS	Business Development
Rick Boheler	UPS	Quality Operations Planning Group
Jim Brill	UPS	Package Engineering
Paul Hamill	UPS	International Marketing
Bob Mathe	UPS	Marketing
Barbara Jones Newey	UPS	Customer Communication/Brand Presence
Bob Snyder	UPS	Environmental Affairs
Iva Thelen	UPS	Customer Communication/Production
Tracy Yates	UPS	Materials Management
Elizabeth Sturcken - Project Leader	Alliance	Environmental impacts of express packaging
Richard Denison	Alliance	Environmental impacts of plastic & paper; solid waste; packaging
Ralph Earle	Alliance	Former Alliance Director
John Ruston	Alliance	Environmental impacts of paper; solid waste; packaging

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