I am pleased to introduce the 2004 Stapleton Sustainability Master Plan.

As you'll discover, Stapleton's practical, results-driven approach to sustainability has resulted in the achievement of early successes and has provided a solid framework to guide future efforts and investments in the project. Sustainability at Stapleton has set a new standard of excellence for community development projects of all sizes. By demonstrating that sustainability can be integrated on a large scale and in such practical and cost-effective ways, Stapleton provides a replicable model of success for other communities.

Without question, one of the most critical factors helping achieve sustainability goals at Stapleton has been the collaboration and contributions of individuals and organizations throughout the community and country. The ongoing effort and involvement of these groups trace back to the initial planning and vision for Stapleton, including the development of the Green Book, which continues to be a valuable tool in achieving current and future sustainability goals. In addition to furthering the success of Stapleton, these various contributions have created a far-reaching ripple effect and are now poised to impact countless other development projects as ambassadors of other communities visit Stapleton and/or hear the wonderful story.

As a result of the success of sustainability at Stapleton, Forest City Enterprises recently adopted sustainability as one of our eight core values. This marks an important milestone for our organization and elevates sustainability to a new level of strategic importance and accountability. While we have a great deal to learn, our customers and partners are increasingly interested in understanding how sustainability practices can be incorporated in their projects and we are excited to assist them.

Of course, the achievements outlined in this report are only the beginning. Much work remains to be accomplished at Stapleton. Forest City looks forward to continually building on the success and momentum of Stapleton by promoting and pursuing sustainability efforts in our future development projects.

Chuck Ratner  
President and CEO, Forest City Enterprises
It's a question that goes to the heart of what we define as sustainability at Stapleton. Simply put, our goal is to create a community that not only enhances the quality of life for people today, but also ensures that the needs of future generations can be met. It's a common sense approach that involves understanding and planning for the long-term viability of the community’s natural resources as well as its social and economic systems.
The Stapleton Sustainability Master Plan is designed as a guide—a resource that can be shared and referenced at every step in the planning and redevelopment process.

DEFINING: SUSTAINABILITY AT STAPLETON

The Grass Root
In the heart of Stapleton’s sustainability strategy is the Grass Root—known more formally as the Stapleton Development Plan. This comprehensive resource provides key guidelines that provide the foundation for Stapleton’s sustainability efforts as well as a framework for the community’s continuing growth.

Building on these guidelines, the Stapleton Sustainability Master Plan provides strategies and achievement reports that are designed to guide the development and management of key resources within Stapleton natural and built environments.

A Practical Approach
The Stapleton Sustainability Master Plan clearly differentiates Stapleton’s unique and pragmatic approach to sustainability. While many developers tend to treat sustainability as a concept or building philosophy, Forest City Stapleton, Inc. uses the Master Plan as a tool to create a more practical approach.

In addition to defining tangible actions, the Stapleton Sustainability Master Plan provides measurable objectives that can and will be continually tracked and refined throughout Stapleton’s development.

Areas of Focus
The goal of the Stapleton Sustainability Master Plan is to transform the vision of a sustainable community into reality. To do so, it outlines action plans for eleven key areas critical to the long-term viability of the community. Detailed reviews of each of the following areas are provided in the subsequent chapters of this document:

- Education
- Land Use Design
- Parks and Open Space Preservation
- Community Linking
- Residential Building
- Commercial Building
- Recycling
- Transportation
- Energy Conservation and Alternative Sources
- Water Management
- Healthy Living

Next Steps
The Stapleton Sustainability Master Plan is designed as a guide—a resource that can be shared and referenced at every step in the planning and redevelopment process. However, it is also a living document, one that will continue to evolve with Stapleton. On a continual basis, the Plan will be remanaged and refined in order to ensure that goals are not only practical and feasible, but also economically viable. Achievement Reports are included at the end of each chapter of this plan to highlight specific actions and programs that have been completed or underway. These reports will also be updated on a regular basis to provide a clear and timely record of tangible steps being taken to achieve Stapleton sustainability goals.

STAPLETON

THE STAPLETON VISION

When the people of Denver voted to transform the city’s historic Stapleton International Airport into a new landmark neighborhood, they were determined to do it right. That included incorporating sustainability practices into every aspect of the redevelopment effort. Forest City Stapleton, Inc., which was selected as the city of Denver’s development partner in 1999, has worked in partnership with the Stapleton Foundation for Sustainable Communities, the Stapleton Development Corporation and the City and County of Denver to ensure that sustainability is a key priority and integral part of the Stapleton redevelopment project.

Stapleton has garnered international media attention for its commitment to sustainability because it is the first development of such a substantial scale to do so. Its total, Stapleton encompasses 4,700 acres, or 7.5 square miles. When complete, it will be home to some 30,000 residents and 50,000 workers, including more than 12,000 homes, 3 million square feet of regional and town center retail, and 10 million square feet of office, research and development and industrial space. In addition, it will feature more than 3,000 acres of regional parks and open space.

By making sustainability an integral part of its ongoing development plan, Stapleton is setting a new standard for urban community redevelopment—of all sizes.

THE STAPLETON

SUSTAINABLE VISION
At Stapleton, we use a variety of resources to promote the lifelong learning of everyone who lives and works here, from community workshops and classes to the regular distribution of our informative monthly newsletter, New Leaf and New Leaf for Kids.

Ultimately, our goal is to help people understand more than the limits of sustainability—but also the why. By educating and sharing information about the benefits of sustainability practices, people are better able to understand how those efforts impact their day-to-day lives at Stapleton—and why they are worth continuing.

Certainly, we do not expect every person to embrace every aspect of sustainability. Rather, our goal is to encourage each person to change just one behavior in their day-to-day lives, whether it relates to their transportation choices, recycling habits or water conservation practices. Collectively, these efforts will create a positive ripple effect throughout Stapleton and surrounding neighborhoods and communities, initiating conversations among neighbors, strengthening community involvement and, ultimately, inspiring interest and support among future generations.

Sustainability is a community vision. And a community responsibility. It is not a goal that can simply be completed and forgotten. It must evolve and grow into a sustainability mindset and culture.

“The reason is simple: sustainability is a community vision.”

Simply put, the information contained within this Stapleton Sustainability Master Plan serves as the foundation of community ownership at Stapleton. To effect change, we must all build upon it—by incorporating practices into our every day behaviors and continually sharing what we learn with others. At every opportunity.
New Leaf Newsletter
Published monthly, this newsletter provides general information and practical tips about various sustainability practices, helping to inform and motivate residents to utilize them in their everyday lives. The following is a list of sustainability topics covered in past issues:

2004
January: Healthier Laundry
February: Cooking Smarter
March: All About Organic
April: Earth Day 2004 – Take Action!
May: Eating Healthy? Tips to Make it Easier!
June: Protect Yourself from the Sun
July: Reduce Greenhouse Gas Emission from Cars
August: Keep Fit with Fitness!
September: Special Edition on Saving Energy with Appliances in Your Home
October: Belief
November: Save Water in the Laundry Room
December: Reduce Holiday Waste

2005
January: Save Water in the Kitchen
February: What is a Compost Fluorescent Light?
March: Save Water in the Bathroom
April: What a Window?
May: Compost – Share Your Old Leaf
June: Biking – Alternative Transportation
July: Easy Recycling at Home
August: Common Household Cleaning Products
September: Parade of Homes Special Edition – Landscape Design
October: Paint – Safe and Healthier
November: Less is Wiser
December: Holiday Lighting Tips

New Leaf for Kids
Also published monthly, this kid-friendly newsletter features fun tips and activities that help children of all ages better understand principles of sustainability.

2004
March: In Time to Excel!
April: Citizens Earth Day 2004
May: Save Our Water
September: What Lies the School Yard!
September: National Farm Animal Week
October: Eat ‘n Plant ‘n Compost
November: Reduce, Reuse and Recycle at Thanksgiving
December: Reduce, Reuse and Recycle

Community Events and Information
Sustainability is a continuous priority at Stapleton and is integrated whenever possible into year-round community events. Due to space constraints, it is not possible to list all of the sustainability components of every community event over time. However below is a list of educational topics that were posted and promulgated on the Stapleton uncerain the year.

Sustainability Homeowner Information, 2004
- Water Restrictions
- Dark Sky – The Lighting Crisis
- Stapleton Resource Market
- Colorado on the Move
- America Recycles Day
- Earth Day
- Community Garden
- Holistic Living and Wellness
- Stapleton Biodiesel
- Recycling Plastic Signs
- Denver LEAFSHOP

Partnership with Schools
Forest City Stapleton, Inc. and the Stapleton Foundation partner with community schools to identify and implement programs that integrate sustainability principles into the educational environment. The following highlights some key efforts and programs:

The Odyssey Charter School and Western Creek Elementary School
- Serve as an ongoing resource to support curriculum development with regard to sustainability.
- A solar-powered computer system and kiosk in the entry area provides a way for students and visitors to learn about solar power.

The Denver School of Science and Technology
Sustainable building highlights include:
- Oriented the building longitudinally on an west-east axis to maximize heat gain during the winter.
- Incorporation various courtyard locations to allow maximum light into the classrooms.
- Used extensive daylighting strategies to reduce artificial lighting needs.
- Ensured that majority of lighting is indirect, which is optimum for learning environments.
- Utilized high-efficiency glass and thermally broken windows to reduce temperature transfer along the walls.
- Maximization of R-38 insulation in the walls and R-30 insulation in the roof.
- Designed mechanical system to allow for ice storage in the future.
- Used recycled copper.
- Installed "white roof" on the area to reduce the heat island effect.
- Constructed wood facade at the south entrance from open wood shingles from mills.

The second Denver Public Schools: Elementary School at Stapleton is currently under construction. Highlights of sustainable design elements include:
- Geothermal mechanical HVAC system
- Daylighting through increased quantity and performance of glazing on windows.
- Skilled control devices to block direct sunlight but also project natural light deep into classrooms.
- Commissioning of mechanical and electrical systems.
- Connection to Denver gray water utility for irrigation.
- Roof system to house all irrigation during snowmelt.
- Separate irrigation systems for roofscaping and sod so that the tree and plants can be integrated during drought restrictions.
- BIS system to monitor and operate mechanical and electrical systems remotely.
Stapleton Farmers’ Market

In June 2004, we launched the first season of weekly Stapleton Farmers’ Markets. Held each Sunday from June through October, the markets were enthusiastically welcomed by residents of Stapleton and the surrounding communities.

In addition to providing a fun community activity, the Stapleton Farmers’ Market is a sustainability program. Unlike the more obvious sustainability aspects of recycling and water conservation, the sustainability aspects of the Stapleton Farmers’ Market require a bit more explanation. Here’s a brief look at some of the key aspects:

ENVIRONMENTAL SUSTAINABILITY: Most food in the United States travels an average of 1,300 miles from the farm to the market shelf. The Stapleton Farmers’ Market provides an outlet for locally grown food, reducing the impact of transportation, while supporting the preservation of the regional food production system. The Stapleton Farmers’ Market also offers residents easy access to an abundance of healthy, fresh local choices.

ECONOMIC SUSTAINABILITY: Sustainability is not just about the environment. It is also about the financial health of a community. The Stapleton Farmers’ Market provides access to local merchants, contributing to a more vibrant community by ensuring a balance between these smaller entities and national food distributors.

SOCIAL SUSTAINABILITY: Sustainability also has a social component that encompasses a sense of place at Stapleton. The Stapleton Farmers’ Market contributes in multiple ways to this goal by creating a natural gathering place for residents to meet and catch up with neighbors and friends.

The Stapleton Farmers’ Market helps build and maintain a more sustainable community for everyone to enjoy.
Stapleton presents a new ideal for urban living. Rather than following conventional suburban models that promote spread, Stapleton is designed to create connectivity throughout the community—from homes to office buildings, to schools and community centers, to shops and restaurants, to parks and open spaces. This New Urbanism philosophy not only dictates how Stapleton's neighborhoods are constructed today, it ensures how they will grow in the future.

At the same time, the design emphasizes site planning, building design and scale in order to create visually dynamic and inviting streetscapes that blend natural elements and urban architecture. Every Stapleton home, office and street is held to specific design standards that preserve a sense of neighborhood, while encouraging architectural distinction. In practical terms, that means each house will look distinct. It also means front porches rather than garages along quiet pass-by. And centrally located parks and open spaces promote a sense of community and connection.

**LAND USE DESIGN**

At Stapleton, sustainable land planning fosters a community that integrates the very best features of traditional urban life, including a vast network of open spaces, parks, homes, businesses and community centers.

At the same time, the design emphasizes site planning, building design and scale in order to create visually dynamic and inviting streetscapes that blend natural elements and urban architecture. Every Stapleton home, office and street is held to specific design standards that preserve a sense of neighborhood, while encouraging architectural distinction. In practical terms, that means each house will look distinct. It also means front porches rather than garages along quiet pass-by. And centrally located parks and open spaces promote a sense of community and connection.

**GOAL:** To incorporate a comprehensive and mixed-use design that ensures a distinct and enduring way of life for the people who live and work at Stapleton.

**Promoting Connectivity**

Stapleton’s land use design calls for neighborhoods with a diverse selection of housing in close proximity to recreational, educational, retail, office and transit opportunities. Emphasizing mixed-use zoning throughout, this integrated design promotes a more inviting and walkable community—where people can enjoy tree-lined streets, sidewalks and pathways that connect homes, offices, shops, schools and parks.

Long-term, the land use design will help ensure Stapleton’s ability to accommodate future growth. For example, the proximity of homes and businesses to multiple transportation options—including mass transit, sidewalks and bike paths will help significantly reduce the impact of increased traffic congestion and related air quality issues.
**Land Use Standards**

Fort City Stapleton, Inc. has defined the following standards to guide the development of land use design at Stapleton.

**Mix of Land Use**
- Distance mixed-use to encourage activity and density.
- Locate essential goods and services within walking or biking distance from homes to reduce unnecessary car use.

**Transport-Oriented Design (TOD)**
- Plan TOD district around future rail connection to downtown Denver.
- Preserves mixed-use buildings adjacent to transit nodes and bus and train stations, where possible.
- Design for future transit uses in place.

**Open Space Connectivity**
- Provide maximum continuity of open space for wildlife migration and recreational use.
- Connect schools to greenway areas to ensure safe walking routes for children.
- Integrate recreation areas into greenway network for easy access from neighborhoods.

**Neighborhood Connectivity**
- Connect neighborhoods via street grid rather than arterial and collector streets. This reduces the need for excessive arterial streets, which are not as pedestrian-friendly as small streets.

**Walkable, Pedestrian-Oriented Neighborhood Streets**
- Inset sidewalks, parallel parking and two-lane streets to promote pedestrian-friendly sidewalks.
- Incorporate bike paths into street design to promote alternative transportation.
- Face buildings forward to the street, rather than toward rear parking lots, to create inviting entrances.

**Livable, High-Volume Streets**
- Create boulevard streets with landscaped pathways.
- Provide curbside medall parking to keep traffic speeds to a minimum.
- Use setbacks to provide view accommodation points for residents of neighborhoods located in the edge of major streets.

**Preservation of Sensitive Natural Areas**
- Preserve environmentally sensitive areas.
- Leave significant, unique natural areas undeveloped for use as neighborhood amenities.
- Preserve street areas to use as community amenities.

**Emphasis Permeable Surfaces**
- Design narrow streets that inspire low speed.
- Provide under-street parking to reduce conductible.
- Integrate abundant impervious areas in parking lots to prevent natural drainage and landscaping.

**Transit-Supportive Design**
- Design higher residential densities near major amenities.
- Design higher residential densities near transit routes and major streets.
- Design higher residential densities near mixed-use areas.

**Appropriate Solar Orientation**
- Design northwest residential blocks to provide maximum south exposures.
- Utilize solar block design to ensure maximum access to light and air.
- Minimize north-facing exposures.

**Reuse of Existing Buildings**
- Integrate existing parking structures for employment district use.
- Reuse control tower as community amenity and uses.
- Prioritize reuse of structures whenever possible.

**Views to Mountains/Visual Connections to Nature**
- Preserve important natural vistas to reinforce sense of place and connection to natural environment.
- Presence views of downtown to emphasize relationship to urban center.

**Topography-Sensitive Design**
- Use topography to create continuous green-space continuity.
- Integrate topography to ensure access to views.
- Use topography to screen parking lots, industrial spaces and other undesirable features.

**Cultural Sustainability**
- Include pedestrian and park paths to offer convenient places for neighborhood recreation.
- Provide community centers to offer easily accessible venues for programs, dances and classes.
- Situate schools near activity nodes to provide easy access to transit and neighborhoods.

**Demographic Sustainability**
- Enhance variety of residential for use.
- Design variety of housing types.
- Design variety of rental/ownership opportunities.

**Economic Sustainability**
- Design mixed-use employment districts to promote local job growth and maintains community.
- Provide mixed-use town centers near neighborhoods to offer easy access to goods, services and jobs.

**Notes:**

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PARKS & OPEN SPACE PRESERVATION

GOAL:
To create a strong system of parks and open space that integrates with the built environment in order to provide a more enriching urban experience—and create a stronger sense of community.

Protecting and restoring natural systems is a vital part of the Stapleton Sustainability Master Plan. It is also a continuation of Denver’s rich tradition of public parks and greenways. With more than 25 percent of its total acreage – or 1,100 acres – devoted to recreational space, Stapleton will provide an extensive system of recreational space that, when complete, will increase the Denver Park System by more than 25 percent. In addition to serving as a regional recreational resource to residents of Stapleton and the surrounding communities, this system will also protect natural areas that support wildlife habitat and native plant communities.
Natural Highlights

When complete, Stapleton will feature a unique and diverse system of natural areas and environments that will account for nearly one-quarter of the total land area. Here’s a look at some of the key resources that will be included in this vast network:

CENTRAL PARK: The centerpiece of Stapleton’s parks and open spaces, Central Park will offer a wide array of recreational opportunities, including trails, water play areas, meadow/open areas, play environments, specialty landscapes and natural sports fields.

SAND CREEK CORRIDOR AND TRAIL: Spanning nearly 14 miles of natural corridor, Sand Creek starts in Aurora, winds through Stapleton, and ends in Coniferous City. Eagles, fox, deer, coyotes and great blue herons share this natural habitat with visitors. With the open trail open, the next phase is now underway. Completion of the entire greenway is expected in five to seven years, including five major parks, seven trailheads, and off-road connections north to Rocky Mountain Arsenal and west and east to the metro trail network.

WESTSIDE CREEK CORRIDOR AND TRAIL: Previously covered by the runways of the old airport, Westside Creek and its new corresponding trail system now provide recreational pathways and wildlife habitat—and serve as an important storm water management facility.

STAPLETON PARK: Providing a natural connection between adjacent neighborhoods, Ford Thomas Park provides a central spot for a host of recreational resources, including basketball courts, play area, picnic shelters, open meadows and sports fields.

GREENWAY: This linear, multi-use corridor provides wildlife habitat and movement corridor and pedestrian routes, while helping to manage water quality and storm overflows.

PATHWAYS: Located throughout Stapleton, the pathways provide a natural gateway for people to enjoy a wide variety of outdoor activities.

NEIGHBORHOOD POCKET PARKS: Located within each of the neighborhoods, these parks serve as community-gathering areas that are pollution and family-friendly.

TOWN GREENS: These small parks are urban in look and feel, and provide a center for community landmarks, such as an amphitheater, gardens, monuments and water features.

GOLF COURSE: Designed for regulation 18- and 18-hole games, the course will be planned, designed and managed for desirable play conditions in an environmentally sustainable setting. Amenities will include an indoor clubhouse and shaded pavilion.

THE URBAN FARM AT STAPLETON: The Urban Farm provides a place for children and adults to experience Colorado’s agricultural heritage. Operated by the Agriculture, Wildlife and Environment (AWE) Center, it features an indoor farmers’ market, horse corrals, farm animals and a children’s garden.

ATHLETIC AND MULTI-USE COMPLEX: Linked via trail connections to community and neighborhood parks, this multi-use complex will feature state-of-the-art facilities for field sports, including national-level tournaments, while helping to promote overall healthy living.

“These environments not only enhance the quality of life for residents, they provide critical habitat and transportation corridors for wildlife.”
Achievement Report: Parks and Open Space

Stapleton Parks and Recreation Master Plan

This comprehensive resource was developed, published, and managed by the Stapleton Development Corporation and the Parkhill Metropolitan District in Summer 2002.

Sustainable Design Principles

Whether designing for a public or privately maintained park area within Stapleton, the following design principles are constantly considered:

- Use only what is essential to achieve the desired effect and nothing more.
- Use events and locally available materials such as boulders and compost for soil preparation.
- Balance urban development with adequate natural areas and landscapes.
- Design for minimal, direct, constructive utilization of space, interpretation and habitat.
- Provide stormwater systems that reduce pollutants at their source—water quality ponds, swales, landscape swales, etc.
- For materials not available on-site, use materials intelligible to the region, including tree, stone, grasses and stone.
- Design areas for flexibility in use.
- Incorporate opportunities for responsible use of resources such as solar power for irrigation control, control of managed irrigation with weather monitors that apply just the right amount of irrigation, and using recycled water for irrigation.
- Ensure availability and convenience of pedestrian and bike routes to alternative modes of transportation.

Denver Public Parks and Open Space

Denver City Parks, Inc., the Stapleton Development Corporation and the City and County of Denver work together to ensure the sustainability of public parks and open spaces within the Stapleton community. These areas will ultimately be returned to the management of the Denver Parks and Recreation System, but all continue work together in contributing to the design and development stages. As a result, we have been able to introduce more innovative features that enhance the degree of sustainability of these areas, while helping to create the standard of excellence for future public projects throughout Denver.

WestCliff Creek

The WestCliff Creek stream restoration, extending approximately 1.0 mile from Murrow Avenue north to the confluence with South Creek, represents an important step in the conversion of the former airport to our mixed-use community. WestCliff Creek, one of two natural contours for stormwater, previously carried water underneath the former airport’s runways and hangars. The stream was contained from a utilization, unintended consequence channel to a designated waterway, park and open space system. Four bridges cross the creek at various points and are part of the trail system serving pedestrians, bicyclists and open-space riders.

Ecologically, the corridor is targeted for a variety of small meanders and bird species that historically inhabit the South Creek corridor to the north. Habitat is provided by the planting of native and drought-tolerant trees and shrubs, wetland plants and grasses. The use of the wetlands material has a multifaceted purpose of providing stormwater filtration through water quality ponds, bank stabilization with the soil and biology, wildlife habitat, and aesthetic enhancement that make sure viable with the high urban infill project in the city.

Greenway Park

Greenway Park is a linear multi-use corridor that provides wildlife habitat and natural migration corridors, a pedestrian recreation trail and a water quality/stream capture management function. This active park system has bike and walking paths, tennis courts, a skate park and a dog park. It also features several picnic areas, a playground for children and various gathering areas for get-togethers.

Special sustainability considerations included the installation of a drip-irrigation system for shrubs and trees and the creation of a landscape design using a variety of plants that attract and support wildlife habitat along the greenway. In addition, the hard use design minimizes traffic crossings to allow for continuous wildlife habitat.

Both WestCliff Creek and Greenway Park have been piped with Denver Water’s purple pipe to take advantage of the reclaimed water system. This infrastructure is in place, creating delivery of the water in the next several years by Denver Water.

Community Parks and Open Space

In addition to the public parks, Stapleton includes community pocket parks and town greens throughout each neighborhood that are maintained by the Master Community Association. Smaller in size than the public parks, these areas are designed to provide local play areas and gathering places for residents as well as to create a healthy balance between the natural and built environments. To ensure optimum sustainability, Forest City Stapleton, Inc. continues to integrate a number of innovative design features and elements that address these key areas of focus.

Water Conservation

- Established central filtration-drainage systems in local parklets by using sand-based filtration areas and eliminating costs to allow for natural flow and drainage of water.
- Irrigation systems in future parks to allow for spray irrigation in sod areas only and drip irrigation in all other areas.
- Plant selections in parks are low water species.

Sustainable Materials

- Introduce park bench designs to be used in community parks and town greens with wood slats harvested from last growth trees. Wood slats on each bench are removable, allowing individual slats to be replaced as needed, rather than entire benches being discarded when damage occurs.
- Stapleton’s parks and open space are pet-friendly locations. To ensure a healthy and inviting environment for all trail users, biodegradable dog waste bags are provided. These locations also feature the added benefit of dog drinking fountains.

Community Parks Now Open

- Founder Green
- Avenue Park and Pool
- Three Neighborhood Pocket Parks

Notes:

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At Stapleton, lighting is an important resource that serves both practical and aesthetic needs within the community. Contributing to both visibility and safety, lighting is a key part of creating a walkable community. However, if used in excess, it can be intrusive and detrimental to the environment as well as a safety hazard. Stapleton advocates a balanced approach that optimizes lighting benefits for residents and commuters, while minimizing negative effects on the community and the environment.

The key objective of Stapleton’s Lighting Master Plan is to address the functional and safety needs of the community—without negatively impacting or impairing the natural environment. One of the most common lighting challenges many communities face is the issue of Dark Sky. Light pollution, or excessive and improper use of light within communities, is an increasing problem in this country and around the world. It’s a problem most often recognized at night, when people are simply unable to see the stars because of the abundance of artificial light—hence the name Dark Sky.

**GOAL:** To apply an integrated lighting strategy that ensures appropriate light quality throughout the community, while minimizing light pollution and maximizing energy efficiency.

**“Contributing to both visibility and safety, lighting is a key part of creating a walkable community.”**

To address Dark Sky and other lighting challenges, Forest City Stapleton, Inc. has outlined a series of strategic imperatives that focus on conserving energy usage while improving safety and overall quality of life for residents, commuters and visitors. They include:

- Minimizing glare for pedestrians and motorists.
- Enhancing the nighttime environment and safety with appropriate lighting levels.
- Reducing light pollution and eliminating light trespass.
- Reframing the landscape by developing a natural hierarchy of lighting that reduces visual clutter.

**Areas of Focus**

These strategic priorities are shared with building throughout Stapleton to help ensure proper lighting installations in residential and business buildings.

- **Quantity:** Use fewer but more effective lighting fixtures to achieve design goals.
- **Durability:** Use long-lasting, durable materials to prevent failure, thereby lowering maintenance and replacement costs.
- **Recyclable:** Use recycled-content materials, packaging and other materials that can be safely recycled.
- **Safety:** Use non-toxic materials.
- **Energy efficiency:** Design lighting systems that require the least amount of energy.
- **Individually sustainable:** Use local sources that eliminate energy consumption from freight costs and vehicle pollution.
Achievement Report:

Community Lighting

Lighting Master Plan Development

Now in the final stage of approval, the sustainable lighting plan is designed to:
- Address community safety and functionality needs.
- Promote optimal energy conservation.
- Prevent common Dark-Sky and light pollution issues.

The specific steps outlined by the plan to achieve these goals are highlighted on the previous page.

Lighting Research Study

Point City, Stapleton Inc. and the Stapleton Foundation are conducting research to determine the effectiveness of current lighting fixtures and designs throughout the community. The study utilizes the following quantitative and qualitative research methods:

Photo Metric Measurements - Findings compiled over a nine-month period, from April to December 2003:
- Measurements taken and results calculated for the following retail area throughout Stapleton:
  - QUEEN SQUARE: 5-10% light reduction from big-box corporate lighting standards.
  - KING Soopers in the East 25th Avenue Town Center:
    - Over 90% light reduction from King Soopers' corporate lighting standards, including the lighting design in the gas station area.
  - EAST 25TH AVENUE TOWN CENTER AND FOUNDERY GREEN:
    - More than 90% light reduction from defined development standards. Warnings reduced to eliminate disability glare. Full cut-off collection fixtures installed to adhere with Dark-Sky issues.
  - WALKER GREEN: 100% light reduction and elimination of corporate face lighting.
  - COMMERCIAL FEDERAL BANK: 10% light reduction from corporate standards.

Survey Tool

- Five separate focus groups are planned to participate in a survey that will rate the quality of specific lighting fixtures within the community on a number of factors, including price, safety, functionality and aesthetics.
- The focus group effort has been delayed and current plans project completion of this task in 2005.

Civic Outreach/Participation

A representative from Forest City Stapleton, Inc. is an active member of Denver’s City and County Lighting Task Force. Primary goals for the committee include researching, developing and implementing practical ordinances that will help address Dark-Sky goals throughout Denver neighborhoods. Stapleton is serving as a model for lighting issues throughout the City and County of Denver.
Currently, there is no single residential building standard that is broadly accepted nationwide. By creating a partnership of local and national programs, Stapleton is providing a unique resource for homebuilders that enables them to use and benefit from the best and most proven residential-building programs. Over time, this new standard of excellence will define and distinguish residential homes at Stapleton.
“Residential building quality is one of the most necessary and integral parts of a sustainable community because it directly contributes to the long-term satisfaction of the people who live there.”

Residential building quality is a very important and integral part of a sustainable community because it directly contributes to the long-term satisfaction of the people who live there. Forest City Stapleton, Inc. has created a comprehensive builder-training program for Stapleton that incorporates and integrates the goals of residential building programs. The unique model provides a common hierarchy of standards that can be referenced and used by homebuilders throughout the community.

Setting the Standards
The various organizations and standards listed below work collaboratively to create a dynamic residential training program at Stapleton.

FORT GREEN COLORADO (www.fortgreen.org): This is the minimum standard that all Stapleton home builders must meet—and often exceed. Built Green advocates construction practices that enable:
- Increased efficiency and reduced pollution generation
- Healthier indoor air quality
- Reduced water usage
- Preservation of natural resources
- Improved durability and reduced maintenance

By making these standards mandatory for all its community homebuilders, Stapleton is the largest Built Green community in Colorado.

BUILT EnviroStar (www.envirostar.org): EnviroStar is an EPA-based program requiring homes to operate 30 percent more efficiently than those built to the current Model Energy Code. Builders who qualify are able to use the highly visible Energy Star logo on their homes and marketing materials, which many consumers have come to know. Less known is that in addition to reducing utility bills, the technologies and practices associated with this program also create more comfortable, durable and environmentally responsible homes.

BUILT EnviroStar (www.enr.org): This U.S. Green Building Council (USGBC) is currently developing the Residential Leadership in Energy and Environmental Design (LEED) rating system for homes. As these guidelines are developed, Stapleton is poised to be the first community not only to adopt these standards—but also to meet them.

Rating our Success
An important step in ensuring higher-quality, sustainable homes at Stapleton is a comprehensive third-party certification program. In short, the goal is to ensure that builders are indeed constructing homes that measure up to the standards they say they do.

E-STARS COLORADO (www.e-star.org): E-STAR Colorado is a local, nonprofit organization that has developed an extensive home rating system infrastructure. The system provides a foundation for establishing quality control standards at Stapleton. Forest City Stapleton, Inc. is working with E-Star Colorado, Built Green Colorado, and Building America to create a comprehensive testing protocol for Stapleton. The goal is to ultimately test 25 percent of all homes at Stapleton and establish an impartial, third-party certification system that will help ensure that all Stapleton homes meet or exceed the community’s residential building standards.


**Achievement Report:**

**Residential Building**

**Single-Family Homes**
Forest City Stapleton, Inc. works on a continual basis with all Stapleton builders to achieve and maintain the highest possible ratings for single-family homes throughout the community. Currently, the minimum requirement at Stapleton is the Built Green Colorado program; however, many builders currently exceed this standard. To ensure green building practices and to develop educational materials that help educate future visitors, a new paragraph is added:

2003 Parade of Homes
- Worked with builders to achieve Net-zero home plans prior to construction to ensure green building practices and to develop educational materials that help educate Parade of Homes visitors about the various benefits of green building practices.
- Worked with builders to develop sustainable landscape planning and materials for visitors.
- Achieved highest Built Green Colorado and Energy Star ratings for Parade of Homes.

**Strategic Partnerships**
Forest City Stapleton, Inc. continues to work in partnership with building local and national programs to develop solutions and standards that will ensure

- Building America
- Energy Star
- Built Green Colorado
- National Green Building Council (USGBC)
- The U.S. Green Building Council (USGBC)

**2001-2004**
Forest City Stapleton, Inc. supports builders who are promoting increasing their energy efficiency and green construction practices. This ongoing process includes:
- Plan reviews
- Performance testing of sample products
- Builder training sessions
- Assessment of current practices and strategic planning to meet requirements
- Site visits

**Pilot Homes**
Pilot Homes are constructed to demonstrate various design and construction techniques; these practices are then applied to the ongoing production process. Stapleton builders completing pilot homes to date include:
- New Town Builders
- McIntosh Neighborhoods
- Harvard Communities
- John Long Homes

**Multi-Family Homes**
In 2003 Stapleton developed diverse multi-family homes that are setting a new standard of excellence for sustainability through the use of green building techniques. Efforts in this area included conducting sustainability design workshops to identify components that are both environmentally and operationally practical for these building projects, including:
- Botanas on the Green Apartments
- Clancy Plan Apartments
To develop a sustainable approach to commercial building that encourages higher energy efficiency, better selection of materials and an ongoing commitment to water management and indoor air quality.

Forest City Stapleton, Inc. has made sustainable commercial building practices a priority. In addition to reducing consumption of natural resources and minimizing waste production, these measures will create economic benefits for commercial business owners, as they have been shown to reduce operating costs, enhance building marketability, increase worker productivity and reduce poor indoor air quality. At Stapleton, Forest City remains committed to reviewing and incorporating key practices, standards and technologies that are currently leading the way in commercial green building.
Commercial buildings have a tremendous impact on the environment. Annually, they consume more than 50 percent of our total energy and 60 percent of electricity. Daily, they consume 5 billion gallons of potable water in flush toilets. And during construction, a typical North American commercial building project generates up to 25,000 pounds of trash per square foot of floor space. At Stapleton, we are committed to using sustainable building practices to reduce these negative environmental impacts and reverse the trend of unsustainable construction activities.

3. Rocky Mountain Institute, U.S. Green Building Council

The LEED Guidelines

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System represents the U.S. Green Building Council’s effort to provide a national standard for commercial green building. By using established and innovative practices, standards and technologies, LEED provides common design guidelines and a third-party certification tool that helps promote occupant well being, environmental performance and economic returns.

LEED currently has many guidelines and application guides for real estate projects, including:
- New Construction
- Existing Buildings
- Commercial Interiors
- Core & Shell
- Neighborhood Development
- Multiple Buildings
- Healthcare
- Labs
- Retail
- Schools

The guidelines and application guides most applicable to projects at Stapleton include New Construction, Retail, Core and Shell, Commercial Interiors and Multiple Buildings. As LEED continues to evolve and provide leadership through these sustainable commercial building measures, Stapleton remains committed to adopting and mainstreaming them as a natural part of our development strategy.

Office Buildings

In commercial office projects, the goal is to address both the needs of employees and the environment. In fact, research shows that buildings constructed with sustainable practices have a positive impact on employee productivity. This, in turn, translates into positive economic benefits for employers. In short, the result of using sustainable practices in commercial building is a balanced balance of environmental responsibility, resource efficiency and economic analysis.

Retail Buildings

Retail projects are unique in their design, function and building challenges. Unlike offices, retail buildings must accommodate the flow of people in order to sell goods and services. In addition, retail employees have shifts that are shorter than eight hours, and customer visits are even shorter, creating challenges for parking, ventilation, lighting control, etc. As a result, there are many unique design factors to consider, including the needs of the customer, the employees, the product and the environment.

“Stapleton’s commitment to sustainability has made the adoption of the LEED guidelines a natural part of our overall development strategy.”
Achievement Report: Commercial Building

NorthField at Stapleton
The development team for NorthField at Stapleton, which is scheduled to open in 2005, is working to identify sustainable site elements and criteria for the various building types. Specific steps include:
- Participation in NREL Energy Design Assistance Program
- Acceptance into LEED’s Core & Shell Pilot program
- Development of a tenant handbook containing a green building overview, sustainable design options and LEED scorecards.

East 39th Avenue Town Center
Opened in December 2003, Stapleton’s East 39th Avenue Town Center features the following base building green components:
- Highly reflective roof membranes
- Recycled roof framing
- Cornices for rain proofing
- Masonry exterior
- Opaque, low-E windows
- Low-flow plumbing fixtures
- Higher R-value wall building
- Low-VOC paints
- Low-flow plumbing fixtures
- Energy Star appliances

Recycling
Refer to the Recycling chapter of this plan for an overview of construction waste recycling efforts in the East 39th Avenue Town Center buildings.
To effectively utilize salvaged materials from the original redevelopment site and encourage an ongoing community commitment to recycling in homes, businesses, schools and at construction sites.

**GOAL:**

Recycling is one of the most fundamental and familiar principles of sustainability. At Stapleton, it has been—and remains—a continuous priority, from the initial challenge of recycling the site’s original airport, to ongoing concerns of repurposing construction and residential waste.
Recycling has been integral to the successful redevelopment of Stapleton from the very beginning—and it remains so. Through ongoing education and community awareness programs, recycling will remain a continuous goal at Stapleton... and an important and permanent part of the community culture.

The Airport

How do you turn an airport into a community? At Stapleton, the question was not only a matter of logistics, but also environmental responsibility. With sustainability already a clearly defined priority, the first challenge of recycling Stapleton centered on successfully recycling the remnants of the airport into usable raw materials for community and area construction projects.

This coltower undertaking will span nearly 10 years. Here is a look at the key projects completed to date, as well as those still in progress today.

Construction Waste

As one of the nation's largest redevelopment projects ever, Stapleton has a distinct opportunity to set new standards of sustainability in regard to managing construction waste.

Given the scope of the project and the numerous entities involved, Stapleton has used various approaches to achieve results. Our first approach was to hire brokers to purchase recycled construction materials so they could then be delivered to specialized recycling centers. Our next concept involved establishing a community-based program to reduce the bulk of waste. And most recently, we have been supporting a local recycling contractor to compost construction waste materials on-site to create compost and mulch for landscaping applications throughout the community.

This innovative approach will set a new construction recycling standard for redevelopment projects.

Residential and Commercial Waste

Standard residential and commercial recycling is an ongoing pursuit. It is never a project that reaches completion, but one that requires the day-to-day involvement of all community members.

At Stapleton, we continue to develop and make available various educational opportunities that increase awareness about the overall benefits of recycling—as well as the variety of collection services and options. For example, Denver Recycles, a program provided through the City and County of Denver, offers free residential recycling services for pre-mixed paper, glass, plastic and cans. Commercial recycling, however, requires private contracting, as no city services are available.

Equally important, we provide ongoing education about bigger picture issues, such as waste reduction, environmentally responsible purchasing and composting. These efforts help promote awareness about the importance of recycling at Stapleton, while fostering a community culture of environmental responsibility.

"Through ongoing education and community awareness programs, recycling will remain a continuous goal at Stapleton... and an important and permanent part of the community culture."

The Stapleton redevelopment will make recycling an integral part of the community culture.
Achievement Report:

**Recycling**

**Consumer Recycling**
Forest City Stapleton, Inc. continues to work in close partnership with Denver Recycle to increase awareness and achieve the highest community participation level in the recycling program in Denver. Ongoing initiatives supporting this goal are highlighted below:
- Periodic community workshops and sign-up events.
- Direct mail programs providing educational and sign-up materials to resident homes.
- Community signage.
- Information and sign-up links on community intranet.

Denver Recycle made its first residential service pickup in Stapleton on September 15, 2003. Currently, 79% of Stapleton residents utilize the recycling service participate in the program. Our goal is to have 90% of Stapleton residents participate. Denver Solid Waste Management conducted construction progress frequently to determine when to expand service; those periodic expansions result in fluctuating participation numbers until newly eligible residents sign up for the program.

**Residential Construction Recycling**
Forest City Stapleton, Inc. is working with all builders throughout the community to advance recycling efforts on residential buildings.
- In 2003, recycling contractors were materialized to each builder.
- In 2004, Forest City Stapleton, Inc. planned to support a consistent recycling program, where are builders could utilize.
- Our program effort did not take place due to an unavoidable change in costs.

**Commercial Construction Recycling**
Forest City Stapleton, Inc. has achieved success in recycling construction waste from commercial building projects. The East 28th Avenue Town Center buildings have achieved the following goals:
- Recycled nearly 170 tons of total construction waste in the Town Center Office/Residential Buildings and Classroom Plaza including:
  - 154,000 lbs. (69 tons) of concrete
  - 43,000 lbs. (24 tons) of metal
  - 201,740 lbs. (92 tons) of wood
- All interior walls were prefabricated for Building on the Go to save construction time and material waste. In addition, 47,880 lbs. (24 tons) of wood was recycled from interior construction materials.

**Airport Recycling**
Forest City Stapleton, Inc. is committed to recycling the remainder of the airport into reusable materials. Key projects include:
- The demolition and recycling of 64 million tons (1,100 acres) of concrete remaining. This aggregate is successfully being used in construction projects at Denver International Airport, Buckley Air National Guard Base, E-470, the Rocky Mountain Arsenal National Wildlife Refuge and Red Rock National Park. It will also be used for numerous state roads, slopes, sidewalks, curbs and culverts at Stapleton and other areas.
- The recycling of more than 90,000 tons of asphalt from the airport parking lots and the former commuter runway and runways apron. This material has been successfully used as road base at the Rocky Mountain Arsenal National Wildlife Refuge.
- The recycling of airport buildings. These buildings, hangars on new homes to a variety of uses organizations within Stapleton, including Colorado Stadium, the Hudson Sports Club of Denver, the Denver Police Training Academy and D.E. Mechanical Inc., Colorado airport mechanical contractor and an employer of nearly 700 employees.
- The former FSA control tower is being preserved in its location. Similarly, the former control tower for Concourse B was recycled for use at Colorado’s Front Range Airport.
- The recycling of debris from building demolition. More than 99% of these materials have been salvaged and reused, including steel, duct metal and concrete.
GOAL: To create a more sustainable community and environment by reducing traditional traffic volume and by encouraging the use of alternative transportation methods, from buses, to car pooling, to walking and biking.

The negative impact of traditional transportation methods—particularly single occupancy vehicles—can be widespread, from traffic congestion, to poor air quality, to noise pollution. At Stapleton, we are taking a proactive approach to reduce these issues by encouraging the use of alternative transportation methods throughout the community. Specifically, Forest City Stapleton, Inc., with the support of the Stapleton Foundation, the Stapleton Development Corporation and the City and County of Denver, has created a comprehensive system that gives people a variety of transportation options that range from buses, to future Light Rail, to bike paths, to walkways, to carpools. These options make it easier for people to choose alternative modes of transportation that contribute to a more sustainable environment that is healthier and more enjoyable for everyone.
Stapleton Transportation Management Association (TMA)
The Stapleton TMA is an organization created by the
Stapleton Foundation that brings together representatives
from Forest City Stapleton, Inc., the City and County of
Denver, RTD and others. Its goal is to work with
Stapleton residents, businesses and schools to promote
transportation alternatives to single occupancy driving.

Public Transportation
The transportation plan for Stapleton includes a
substantial public transportation component, ranging
from airport and local bus services, to Park & Rides, to
a proposed Light Rail Commuter Rail System. Here’s a
close look at each.

Pedestrian Walkways and Bike Pathways
Many Colorado residents enjoy active lifestyles, which
make bike paths and walkways a realistic alternative
transportation mode. Stapleton provides residents and
visitors with a comprehensive network of pedestrian
walkways that are not only practical, but inviting.
Tree-lined sidewalks and paved paths that parallel open
spaces and parks make walking alone or as a family an
easy and enjoyable way to get around. And people will
find ample walkways and paths throughout Stapleton,
connecting residential areas, community amenities,
commercial areas and surrounding neighborhoods.

“Stapleton, we have designed a sustainable transportation system that combines
public transportation, walkways, and other transportation alternatives.”

It is not enough to simply encourage people to make
better and more environmentally responsible trans-
portation decisions. You must also provide them with
realistic alternatives that allow them to get where they
want—when they want.

At Stapleton, we have designed a sustainable trans-
portation system that combines public transportation,
walkways, pedestrian access and other transportation
alternatives.

STAPLETON SUSTAINABILITY : TRANSPORTATION

Transit Center: The current Stapleton Park
in Place, known as the Stapleton Transit Station, will be
relocated north to South Road in the future. Shortly
thereafter, the functions of the Station will be trans-
ferred to the planned Stapleton Interchange Center,
which will serve as a main station for the Stapleton Air
Transit Light Commuter Rail system as well as provide
for bus and rail transfers, park in ride facilities and bike
storage facilities.

URBAN RAIL: In November 2006 voters approved
ReTracks, RTD’s 12-year comprehensive plan to build
and operate high speed rail lines throughout the region.
It is anticipated that a light rail stop at Stapleton will be
completed in 2019.

RERAIL TRANSFER RESIDENT (RTD): 14 RTD bus
routes currently run throughout the interior and perimeter
of Stapleton. Additional routes are already being planned,
including connecting Stapleton to downtown Denver, the
Denver Tech Center and the eastern suburbs.
Achievement Report: Alternative Transportation

**Education and Programs**

Forest City Stapleton, Inc. initiated a number of programs, promotions and partnerships both to communicate the health and environmental benefits of using alternative transportation and to build awareness about the different modes of transportation available in Stapleton.

Forest City Stapleton, Inc. also worked in conjunction with the Stapleton TMA to plan events that would help to develop and implement creative programs that promote fun and healthy transportation alternatives. The following highlights some key efforts throughout the year:

**2004**
- **RTD:** Installed first RTD kiosk in the state of Colorado at the King Soopers in the East 29th Avenue Town Center. Information about all RTD services is available.
- **Commuters:** Commute with RTD to ensure ample transportation routes via Dan and South Park Hill.
- **Pedestrian RTD opportunities:** Pedestrian RTD opportunities to residents, workers and business owners.

**Pedestrian Safety**
- **New pedestrian crossing signals:** Installed at Quebec and East 29th and East 30th, giving pedestrians an extra five seconds to cross Quebec.

**Bike to Work Day**
- **Stapleton TMA hosted Stapleton's 2nd Annual Bike to Work Day,** attracting over 200 participants.

**Pool to School**
- **Coordinated walk from Avon Pool to Western Creek Elementary on the first day of school.**

**Mobile Cyclery**
- **Arranged for mobile bicycle service shop to come to King Soopers every week.**

**I-70 Environmental Impact Study (EIS)**
- **1-70 EIS Planning Team:** Worked to address community concerns and presented the concepts plan to the CAR, SDG, Stapleton TMA, and the Greater Stapleton Business Association.

**Stapleton TMA Website**
- **Stapleton TMA launched the first bilingual transportation website in Colorado.**

**2004 - 2003**
- **Ride-Along Rides:**
  - **On a monthly basis,** Forest City Stapleton, Inc. hosted a drawing to give away a free bike to a Stapleton resident.

**SIP Car Alternatives**
- **In 2003,** these events, one were provided as an educational resource for students and residents.

**Transportation Fair**
- **In October 2003,** the Stapleton TMA held its first Transportation Fair at Quebec Square.

**Eco-Pass Master Contract**
- **In 2002,** the Stapleton TMA established a Master Contract for Eco Passes for 55 businesses at Quebec Square, the East 29th Avenue Town Center and some of the surrounding levels.
Energy Conservation

Forest City Stapleton has made energy conservation a priority for both residential and commercial construction within the community. By incorporating the building standards of the U.S. Green Building Council, Built Green Colorado’s Energy Star and Building America, Stapleton encourages builders to create more energy-efficient buildings. For example, by implementing the green-building practice advocated by Energy Star and Building America, Stapleton homes will provide an average 30-40 percent savings on energy—which provide long-term benefits for community residents and the environment.

Alternative Energy Sources

While energy conservation will always be an integral component of sustainability, alternative energy sources must one day provide a more effective solution to reducing the impact and consumption of fossil fuel energy. Here are just a few of the promising alternatives currently being explored:

- Renewable energy sources: Called renewable because they naturally and continually replenish; these energy sources have a much lower environmental impact than conventional sources. They include wind, geothermal, solar, and biomass, which uses heat to convert plant and other organic material into fuel.

- Geothermal:热能 from underground sources that are ideal for sites with space limitations due to their compact size and light weight. Additional benefits include greater energy efficiency, lower emissions, and reduced electricity costs.

At Stapleton, we have developed a two-pronged sustainable energy strategy that incorporates conservation practices, while exploring renewable and distributed generation sources of energy as potential long-term solutions.
Energy Conservation

Through ongoing efforts, Stapleton residential and commercial buildings continue to achieve exceptional energy conservation results. In 2002 - 2006, for example:
- Stapleton homes achieved energy savings of between 20-60% over industry standards.
- Stapleton commercial buildings achieved an average 25% greater energy efficiency than industry standards.

Forest City Stapleton, Inc. continues to work with key agencies throughout Colorado, including Xcel Energy, to:
- Identify additional energy-saving opportunities.
- Identify design and construction impacts for residential, commercial and multi-family structures.

Alternative Sources

Forest City Stapleton, Inc. remains at the forefront of discussions about potential community-wide alternative energy sources. Involvement and efforts to date include:
- Partnering with Xcel Energy and the Colorado Governor’s Office of Energy, Management and Conservation to research alternative energy sources.
- Working with local and national resource groups to develop renewable, distributed generation strategies.
- Developing and sharing educational materials about alternative sources of energy with Stapleton residents.
- Implementing a pilot program with Xcel Energy to provide incentives for evaporative cooling systems.

To date, it has been challenging to identify solutions that meet the practical standards of sustainability at Stapleton. However, Forest City Stapleton, Inc. remains open to organizations and programs that are able to present options that meet those demands and comply with existing development schedules.
WATER MANAGEMENT

GOAL: To protect, conserve and ensure the long-term availability of one of the community’s most precious and scarce natural resources: water.

Colorado’s semi-arid climate ensures that effective and sustainable water management is a constant priority for every community—including Stapleton. To address both current and future consumption needs, Forest City Stapleton, Inc. has created a comprehensive and proactive plan that incorporates proven best practices in effective resource management as well as community-wide conservation efforts, sustainable landscape design, water reclamation and ongoing community education.
Forest City Stapleton, Inc. is working closely with Denver Water and other appropriate entities to optimize water conservation opportunities at Stapleton.

It is projected that these measures will reduce water consumption by 80 million gallons annually—just in Stapleton’s first neighborhood. Applied community-wide, these practices can help generate substantial results for Stapleton on a continual basis.

The following are some of the key sustainable practices that comprise Stapleton’s water management strategy:

- Using available landscape areas, such as parking lot medians or edges along alleys, for bio-reseal that break down pollutants and disperse them in root systems.
- Using permeable pavers to prevent storm water runoff from smaller neighborhoods.
- Instituting non-structural measures such as the use of public education to control outdoor usage, lawn care, street sweeping and maintenance to limit the amount of urban pollutants coming in contact with storm water.
- Creating retention ponds.
- All homes at Stapleton are required to comply, at a minimum, with the water and energy conservation elements of the Built Green Colorado standards of the Home Builders Association of Metro Denver. Using low flow fixtures and plumbing devices are standard.

Landscape Guidelines

The updated Sustainable Landscape Design Guidelines have been created to more appropriately respond to Stapleton’s high-plains, semi-arid climate. The responsible use of native resources and native materials within this geographic context is important as we develop visually appealing landscape design to serve the Stapleton community over time.

Reclaimed Water

Using recycled water for irrigation and industrial uses has proven to be a reliable and viable solution—both economically and environmentally. At Stapleton, roofs are already being taken to source and utilize recycled water on an ongoing basis. Since 1989, in fact, Denver Water has been running a program to take treated water from the Metro Wastewater Reclamation Facility and recycle it to a level suitable for irrigation and industrial uses throughout both Stapleton and Denver. Currently, The Denver Water purifying installation is under way in park areas that will use the water for irrigation.

Ongoing Education

- The previous Stapleton Visitor Center included a demonstration garden that educated potential home buyers, business owners and members of the public about attractive landscape alternatives that are drought resistant and consume less water.
- Forest City Stapleton, Inc. is working with Denver Water and Denver Botanic Gardens to create and distribute, educational materials and interactive workshops about water conservation and appropriate landscape techniques. These materials are made available to new residents and business owners at Stapleton through the Forest City web site, the Stapleton inmail, New Leaf newsletter and other channels of distribution.

Water Quality via Best Management Practices (BMPs)

Effective storm water management at Stapleton is accomplished through a number of initiatives, which stem from a comprehensive menu of Best Management Practices (BMPs). Defined in a BMP Permit Book, these practices include measures for storm water control and treatment of urban pollutants via structural and non-structural controls, including:

- Disconnected interception areas to provide maximum infiltration and reduced irrigation on individual development parcels.

Conservation

Reducing water consumption is critical to water conservation. In addition to promoting behaviors that contribute to conservation among residents and business owners, Forest City Stapleton, Inc. has incorporated water conservation measures into these aspects of the community plan:

- The development of compact, urban neighborhoods where lots as small as 5,800 square feet require less landscape to be irrigated, producing an estimated 40 percent reduction of water use per household.

“Forest City Stapleton, Inc. is working closely with Denver Water and other appropriate entities to optimize water conservation opportunities at Stapleton.”
**Addressing the Drought**

Forest City Stapleton, Inc. worked closely with Denver Water throughout Colorado’s drought to develop solutions that help reduce water consumption without disrupting the ongoing construction and landscape development throughout Stapleton. These efforts included:

- Developing user-friendly guidelines and manuals for efficient water use.
- Conducting site-by-site evaluations of residential properties to ensure optimal, low-water landscaping materials and designs.
- Ongoing installation of water-conserving equipment within residential and commercial buildings, including water-efficient plumbing systems.

**Community Education**

Forest City Stapleton, Inc. provides ongoing education to Stapleton residents, workers and visitors through a variety of materials, events and partnership initiatives including:

- A unique alliance with Denver Water and Denver Botanic Gardens to create and distribute educational materials about water conservation and appropriate landscape techniques. These materials are made available to new residents and business owners at Stapleton through the Forest City Stapleton, Inc. website and the Stapleton community events.
- In 2002 – 2003, a demonstration garden at the Stapleton Visitor Center educated potential homebuyers, business owners and the general public about attractive, low-water landscape alternatives that are drought-resistant.
GOAL: To create a vibrant and active community environment that encourages and supports healthy living at Stapleton.

Healthy living at Stapleton is created in part through the built environment and a strong sense of community. Healthy living is the last chapter of this Master Plan because a healthy community results from the cumulative impact of the other areas of focus in the Stapleton Sustainability Master Plan.
Healthy living at Stapleton starts with the built environment and Stapleton’s design as a walkable community, which provides lots of opportunities to incorporate physical activity into daily life. For example, neighborhoods are specifically designed within walking distance of local shops, parks, restaurants and schools. The simple fact that groceries are located at the back of the house instead of the front reflects that this is a community built around people—not cars. At the same time, Stapleton’s expansive park system gives people lots of opportunities to get outside and be active, whether it’s simply taking your dog to the park, riding your bike or enjoying a weekend picnic with your family. Together, these factors make it easy for residents to get outside and be active, which promotes physical health and wellness.

Physical activity is only one aspect of healthy living at Stapleton. A strong sense of community is also an important aspect of mental health and important to overall well-being. Here, people are able to easily meet and interact with others from throughout the community. Diverse housing options help create enriching neighborhoods by bringing together people of different ages, backgrounds and cultures. Local parks, shops and restaurants double as community gathering places. And seasonal events like the Stapleton Farmers Market bring families, friends and entire neighborhoods together and encourage healthy food choices that also support the local economy.

“A strong sense of community is also an important aspect of mental health and important to overall well being.”

West City Stapleton, Inc works in conjunction with many partners throughout Denver and surrounding communities to promote healthy living. These include partnerships with healthcare, nutrition and other wellness-related professionals and organizations. At Stapleton, all of these factors work together to create a community that encourages healthy choices and lifestyles.
Achievement Report: Healthy Living

Programs
- Forest City Stapleton, Inc. encourages healthy living through year-round programs and events. In the past few years, Stapleton has hosted numerous events and introduced activities that help build awareness about healthy living and encourage involvement among residents, businesses and visitors.

Stapleton Meals
- An ongoing walking conditioning class for new moms led by a trainer.

Stapleton Charity Chase
- The 5k run is held in conjunction with Founder’s Day each year and helps raise funds for local charities.

Stapleton Stampede
- Held in August, the event features both 1K and 5K runs and a family walk with proceeds benefiting the Metro Denver Reentry Foundation.

Community Blood Drive
- Hosted by the Blood Center Blood Drive Merek.

Flu Shot Clinics
- Due to the nationwide shortage of flu vaccine in 2006, Stapleton free flu shot clinics were cancelled.

Wellness Website
- Dedicated wellness section on community intranet.

Active Living Partnership at Stapleton (ALPS) Grant
In November 2005, the Stapleton Foundation along with the Friends of the Center for Human Nutrition, a Colorado-based nonprofit organization, received a three-year, $280,000 grant for ALPS from the Robert Wood Johnson Foundation. The funds are being used to determine if the design of the pedestrian-friendly neighborhood at Stapleton can lead to more active and healthier lifestyles.
As you have seen throughout the 2004 edition of the Stapleton Sustainability Master Plan, we continue to evolve our programs in all areas of focus. While the Stapleton Sustainability Master Plan details accomplishments both big and small, here is a quick list of major accomplishments for 2004:

Moving minimum residential building requirement to Energy Star – Energy Star qualified homes are independently verified to be 30% more energy efficient than homes built to the 1995 national Model Energy Code. In 2005 we will work diligently with Stapleton builders to assist with this transition.

Incorporating sustainability principles into the design of Northfield at Stapleton – We are participating in Xcel Energy’s Design Assistance Program, the project has been accepted into USGBC’s Core & Shell Pilot program, and a manual handbook containing a green building overview, sustainable design options and LEED strategies has already been developed.

Launching the Stapleton Farmers’ Market – In June 2004, we launched our first season of weekly Stapleton Farmers’ Markets. Held each Sunday from June through October, the markets were enthusiastically welcomed by residents of Stapleton and the surrounding communities. The Stapleton Farmers’ Market will continue this season, opening June 5th, 2005.

Expanding our educational programs – By the end of 2004 we completed the 28th issue of New Leaf, our monthly newsletter containing tips for sustainable living. In 2004 we also introduced another version, New Leaf for Kids, which we offer in English and Spanish to area schools. Education remains at the core of all of our sustainability initiatives at Stapleton.

As the Director of Sustainability, I encourage and welcome your ideas, comments and feedback. Please feel free to contact me by phone at 303-342-1869 x751 or email me at mkunit@stapletondirect.com.

Malene Kuent
Director of Sustainability
Pepper Creek Stapleton, Inc.