Principles, Partners, and Process: The Redevelopment of Stapleton International Airport

by

Christopher Yake

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Advisor _____________________________
PRINCIPLES, PARTNERS, AND PROCESS
The Redevelopment of Stapleton International Airport

“The opportunities at Stapleton are as unlimited as the vistas the site offers of the nearby Denver skyline and its breathtaking backdrop of the Rocky Mountains.”

- William A. Barnes (first CEO of the Stapleton Development Corporation)
INTRODUCTION
A growing concern within transportation policy and land use planning is the dilemma that is posed by underutilized infrastructure. Across the country, aging transportation nodes, once the economic engines of our society, are growing obsolete and being replaced by more advanced facilities. These neglected rail yards, ports, train stations, bus depots, and airstrips are drawing increasing attention from the planning and development communities. Despite their environmental constraints, these sites are otherwise quite attractive pieces of property. In addition to being pre-assembled, their raisons d’être strategically places them within local, regional, and national transportation networks. The public owners of these properties are presented with the opportunity of redeveloping these pieces of the urban fabric in a sustainable fashion. Leading the way in this developing area of urban infill is a project of great magnitude in the Rocky Mountain West.

The redevelopment of Stapleton International Airport just outside of Denver, CO has received both national and international acclaim both within and without planning circles. At 4,700 acres, it is the largest exercise in urban infill in the nation. 3,600 of the property’s acres will be reinvented as a series of mixed-use environments. Eight distinct districts will soon welcome over 30,000 homebuyers and renters and 37,000 employees. High profile firms will offer a plethora of career opportunities to both skilled and unskilled workers alike. This orchestrated jobs/housing balance coupled with neighborhood shopping destinations, it is believed, will help reduce vehicular commuting and non-commuting household trips.

Considered to be a paragon of sustainable development by any definition, it warrants a closer look. The chief purpose of this case study is to pass on to others the lessons learned from the Stapleton experience. Namely, it will tell the tale of an unprecedented experiment in urban redevelopment made possible by a cast of dynamic and cooperative public and private players. In addition to this recount, it will outline Stapleton’s sustainable practices using a comprehensive evaluative framework. It is this mix of partnerships, processes, and physical planning principles that led to Stapleton’s rebirth.
At first glance it is a prospect both exciting and terrifying, an enormous swath of land in close proximity to an urban area and available for redevelopment. Rarely does such an opportunity present itself to a growing metropolis with a voracious appetite for land. Rarer still is a public entity in sole possession of such a parcel. This is the situation that the City and County of Denver, CO found itself in when, in 1989, its people agreed to discontinue aviation operations out of Stapleton International Airport. During the interim period between this landmark decision and the grand opening of the state-of-the-art Denver International Airport (DIA), a great many questions surfaced. The fate of 4,700 acres a mere six miles from the central business district hung in the balance. The people of Denver were given the awesome responsibility of reusing this vast expanse of land in a sustainable fashion and for the betterment of the region. What unfolded is a truly remarkable chapter in the relatively short history of sustainable development. Not only does the Stapleton Redevelopment Project strictly adhere to the precepts of sustainability, its dynamic partnerships and levels of public involvement serve as lessons to us all.

Stapleton’s amazing story bears repeating. Granted, the unprecedented availability of urbanized land is a luxury not often afforded to municipalities, much less so land of this magnitude. Even so, the lessons learned from Stapleton can be applied at all levels of governmental planning.

Public infrastructure projects often require the assembly of contiguous parcels of land. A bulk of this work was accomplished years ago when our
nation rapidly urbanized during the late 19th and early 20th centuries. Many of these aged public facilities are in desperate need of retrofitting or replacement. In some cases (e.g. military installations), what were once important and strategic governmental uses have grown unnecessary and obsolete. The buffers surrounding much of our nation’s infrastructure have dissipated. As a result, human habitats are increasingly within close proximity of noxious uses. Whatever the case may be, the discontinuation of public uses leaves planners of all levels in the same predicament faced by their counterparts in Denver albeit on a much smaller scale. Consequently, community leaders should be mindful of Stapleton’s unified vision, strategic alliances, and sustainable practices.
A history of the Stapleton Redevelopment Project would not be complete without a brief summary of its years as a fully operational airport. Indeed, before one delves into its transformation, one must first the context that ultimately led to the demise of the site's original, better yet, previous use. Furthermore, it is important to understand the relationship between transportation and the Greater Denver Metropolitan Area. Much of the area's success and growth can be attributed to the high levels of accessibility and mobility offered by its transportation infrastructure. The loss of Stapleton was not an insignificant proposition. The firms and people of Denver valued its
gateway to the world; they weren't about to sacrifice it without a superior replacement in the wings.

Perhaps no other citizenry or host of civic leaders has better appreciated connectivity than have those of Denver. Nestled up against the Rocky Mountains of Colorado, Denver is not naturally accessible to travelers. The metropolitan area has worked hard at achieving its place in our nation’s transportation hierarchy. Few other cities can best Denver’s links to both national and international destinations.

While many other mountainside communities have enjoyed and protected their remote locations, Denver has always sought to better connect itself with the outside world. It is this dedication that has helped the area overcome its natural geographic impediments to trade and cultural exchange. This unyielding determination was first displayed in the 19th century. At the time, the railroads were building their vast networks across the nation. Perhaps more so than even today, land use and transportation were irrevocably linked. The routing of rail lines ushered in population shifts and vice versa. For this reason, plans for the highly anticipated transcontinental railroad were of great interest to Western towns and settlements.

The people and most especially the business leaders of Denver must have been crestfallen upon learning that the major artery linking coast to coast would be bypassing their fair city. Rather than accept their fate, the foresighted residents chose to take action. Indeed, Denver could not run the risk of being disconnected from a commercial lifeline of this nature. In 1868, they banded together to build the 106-mile connection to the transcontinental railroad at a cost of $300,000. This civic spirit and market prescience foreshadowed things to come.

As urban America evolved, so did its transportation network. No longer grounded, a web of interconnections between origins and destinations was being spun high in the sky. No longer a novelty, air travel was rapidly expanding by the 1920s. Again, Denver’s leadership understood this at an early stage. In this case, however, it was primarily the will of one personality that guarded the city’s competitive advantage in the arena of connectivity.

The city’s mayor for the majority of years between 1923 and 1947 was Benjamin F. Stapleton. Early in his tenure, he came to the conclusion that the City of Denver needed to consolidate its aviation activities, both general and
commercial, in one place. By building a municipal airport, he posited, Denver could maintain and enhance its economic position both regionally and nationally.

During the initial planning stages, a number of possible sites were considered. Mayor Stapleton, however, had his sights on a pastoral setting far from the hustle and bustle of early 20th century Denver. Often referred to as "The Sand Dunes" and "Rattlesnake Hollow," his preferred location was home to small dairy farming, cattle grazing operations, and the meandering Sand Creek. Ironically enough, he was confident that, at six miles from the downtown, the site was far enough removed from existing urban uses. Indeed, the land could be acquired inexpensively both from a financial and social aspect. Unfortunately, his far-sightedness only went so far. Stapleton could not have foreseen the rapid growth of the neighboring communities of Aurora, Montclair, and, most importantly, Park Hill.

Everyone did not share the visionary Mayor’s desire for a major transportation hub. Political opponents and the media jointly attacked Stapleton for what they felt was sure to be his greatest blunder. The Denver Post mocked the plan calling it "Stapleton’s Folly" and "Simpleton’s Sand Dunes." Stapleton, however, would not be denied.

On March 25th, 1928, Denver’s City Council approved the purchase of 640 acres (approximately 14% of Stapleton International Airport's ultimate size) for the purpose of constructing a municipal airstrip. The purchase price of $143,000 equated to only $223 for each acre. By the time the airport’s grand opening in October of 1929, the cost of the state-of-the-art facility amounted to $430,000. Dubbed the "Union Station of the Air," Denver Municipal Airport was a smashing success. It drew significant media exposure and reaped immediate financial gains. Even so, it was not until that its catalyst was officially vindicated. Finally, in August of 1944, the name of the facility was changed to Stapleton Airfield. The facility prospered well into the jet age of the 1950s. Aviation officials responded to the revolutionary technology by increasing capacity with the acquisition of additional lands from the Rocky Mountain Arsenal to the north. Again, timely maneuvers guaranteed Denver’s place in the hierarchy of transportation services. By 1968, the tiny airstrip had blossomed into what was thought to be its ultimate incarnation, Stapleton International Airport.
“There’s just no cookie cutter for developing a closed airport.”
- Tom Markham, head of the Lowry Redevelopment Authority

As early as the 1970s, it became apparent that Stapleton lacked the capacity it required to remain competitive in the markets of national and international aviation. Despite its land acquisitions and subsequent acreage expansions, Stapleton was in dire need of additional space. In particular, the facility needed to increase the separation between its runways. In fair conditions, landings and takeoffs were executed smoothly. It was during bouts of inclement weather and reduced visibility that Stapleton’s operations were interrupted. At these times, the narrow margins between runways made it impossible to accommodate dual landing streams. Air operations throughout the world suffered as a result of its inability to keep air traffic moving.

The problem only intensified in the 1980s. For Denver to maintain its prime position in the global transportation network, Stapleton would have to add yet again to its acreage in order to accommodate runway spacing. By 1985, the site had already metastasized to 4,700 acres. Poised to derail expansion plans were a pair of interests unhappy with Stapleton’s unfettered growth.

Despite its vast expanse, Stapleton’s operations continually disrupted the peace and quiet of the well-established Park Hill Neighborhood. Its unrest culminated in the settlement of a lawsuit brought against Stapleton for noise violations. Meanwhile, to the north, more legal action was brewing. Adams County threatened to block Stapleton’s attempts to expand its runways onto the Rocky Mountain Arsenal. Clearly, if Stapleton was to add to its capacity, it would come at great expense in the form of political capital and legal defense funds.

It was at this impasse that the idea for the Denver International Airport (DIA) was born. Acquiring more land for Stapleton was indefensible. The only alternative was to relocate Denver’s aviation operations to a more remote site removed from incompatible uses. Needless to say, an available parcel of this magnitude was nowhere near the metropolitan area.

City and County officials turned to neighboring Adams County for assistance. At the time, Adams was far more rural in nature than the densely populated Denver jurisdiction. By January 1985, representatives from both sides
came to an informal agreement; aviation operations would cease in Denver County and be relocated to a more suitable location within the confines of Adams County. The proposed 3,500 acre parcel situated on 53 square miles, however, would eventually change hands. In 1987, the Colorado General Assembly posed the question to Adams County voters: Should the City and County of Denver annex the proposed site, thereby maintaining responsibility for aviation operations in the metropolitan area? Denver voters in a May 1989 election endorsed both the annexation and overall plan. In an effort to remove all concerns of Park Hill and Adams County residents, Denver promised to cease all aviation activity at Stapleton once the new facility was fully operational. Stapleton would not act as a secondary commercial airport. Its fate was sealed.

Stapleton Tomorrow & The Stapleton Redevelopment Foundation, 1989-1993

The future of Stapleton International Airport did not hang in the balance for long. The process of redeveloping Stapleton began early and the lag between decision and action was short. Even before the decision to discontinue operations was finalized, a dynamic group of 35 citizens brought together by Denver Mayor Federico Pena banded together to begin charting a new course for the optimal piece of urbanized land. Between 1989 and 1991, these visionaries carried out a seminal community planning initiative that would come to be known as Stapleton Tomorrow.

Public involvement in the reshaping of its old airport began with this far-sighted exercise. The massive site was a public asset, thus its recreation would be a public endeavor. Stapleton Tomorrow enlisted the aid of the entire community in its efforts to create a sketch plan for the future. This visioning exercise yielded predictably broad results. Among the goals of participants were the preservation of open space, the creation of employment opportunities, and the provision of cultural and recreational facilities. These hopes for the area were incorporated into Stapleton Tomorrow’s final product, a concept plan for the reutilization of the retired airport. In addition to addressing the concerns of the people, the document set an ambitious course for economic developers and urban designers.

Stapleton Tomorrow’s contribution to the redevelopment project did not go unrecognized nor should it. In June 1991, Denver’s City Council adopted the concept plan as part of its Comprehensive Plan. Perhaps most importantly, the group initiated an exciting dialogue that is now being translated into a reality. In addition, they set a precedent for public involvement that would be followed throughout the remaining planning stages. Not only was Stapleton going to be a sustainable and successful venture, it would also faithfully reflect the will of the people.
The work of the Stapleton Tomorrow Committee would not have been nearly as extensive had it not been for the support of an early private entrant into the process. Working initially behind the scenes and funded entirely through private philanthropy, the Stapleton Redevelopment Foundation was made up of a collection of influential civic and business leaders genuinely interested in the future of the area.

Formally organized in April 1990, the Foundation backed Stapleton Tomorrow's ambitious public involvement activities and visioning events. Over the course of the next two years, it would become the foremost authority on the subject of the old airport's possible redevelopment. By the time the concept plan was adopted by the City Council in 1991, a great deal of organizational inertia had been built up. Indeed, the Foundation's work was far from complete.

Despite the project's momentum, the recreation of Stapleton slowed significantly between the completion of the concept plan and early 1993. This surprising lull can be understood when one looks at the political realities of the time. Contextually, much was occurring both inside and outside Denver. Nationally, the country was in the grip of an economic recession in the wake of the Gulf War of 1991. Mayor Pena, the instigator of the Stapleton Tomorrow endeavor, chose not to seek a third term as Denver's mayor in 1992. Although both he and his replacement, Wellington E. Webb, showed their commitment to the project during these early years, they were understandably preoccupied with more pressing matters. First and foremost, much of their attention was directed towards the construction and completion of the new facility, DIA. Little in the way of redevelopment could proceed so long as Stapleton continued aviation operations. It should also be mentioned that Denver had secured a major league baseball expansion franchise, the Colorado Rockies, and was in the process of erecting Coors Field Baseball

Coors Field, Denver, Colorado, USA
Field in the historic "LoDo" district. Quite simply, the redevelopment of Stapleton would have to wait.

By 1993, a new President was in office, Federico Pena was the U.S. Secretary of Transportation, and DIA was well underway. Mayor Webb’s first act in the redevelopment process was in January of that same year. He began by appointing the Stapleton Citizens Advisory Board, an entity that exists to this day. Shortly thereafter, in June of 1993, a critical partnership was cemented. Although DIA had made significant progress, it still tied up a majority of the City’s resources. The Mayor could not afford to assign staff to yet another major project.

With Stapleton’s closure on the horizon, Webb’s administration had to act quickly if it was to lay down a solid policy foundation. The mayor smartly turned again to the Stapleton Redevelopment Foundation for assistance. The non-profit had continued to function despite the two years of relative inactivity. Indeed, they had become a clearinghouse of sorts for any and all information pertaining to Stapleton and its next life. By entering into a partnership with the Foundation, Webb essentially contracted out for planning services at little cost to the City. In this act, he displayed remarkable willingness to involve the private sector. As it turns out, the Foundation did not betray the trust of the people of Denver. In fact, they went on to create what would become known as the “Green Book,” the inspiring plan for Stapleton that has commanded near religious devotion.

**The Making of the Stapleton Development Plan, 1993-1995**

With the official blessing from Webb’s administration, the Stapleton Redevelopment Foundation embarked upon a two-year journey. With the exception of being overseen by the 42 members of the newly created Stapleton Citizen Advisory Board, the Foundation was largely left to its own devices. If the concept plan was any indication, the work was in good hands.

From September 1993 through February 1995, the Foundation enlisted an accomplished team of architects, urban designers, land use and transportation planners, landscape architects, and market analysts. Cooperating with the consultants were all of the staffers from the relevant public agencies. Coupled
with this expertise was input gathered from over 100 public meetings, workshops, and presentations. Like the Stapleton Tomorrow concept plan, the finished product would not be a strictly technical exercise. It was to be a work of the people and for the people.

Funding this massive effort were a variety of financial contributors. Although the City and County of Denver funneled $750,000 of public monies to the project, the lion’s share of funds came from a bevy of private sources. Over the course of the plan’s creation and its early implementation, the Foundation raised over $4 million from other philanthropic organizations, corporations, and individual donors. This attests not only to the fundraising prowess of the organization but also the broad-based support for the sustainable endeavor.

Buoyed by wide-sweeping support, the Foundation completed its Herculean task early in 1995. Its submittal of its Stapleton Development Plan to the City Council was timely. After four delays due to complications with its modern baggage handling system, the much-anticipated Denver International Airport finally opened to great fanfare on February 28th, 1995. Subject to its agreement with both the residents of the Park Hill neighborhood and Adams County, the City and County was obligated to discontinue operations at Stapleton that same day. The facility had served Denver’s air transportation needs for over 65 years. With the blueprint for its future in the hands of public officials, Stapleton’s single-use days came to an end.

“The Green Book”

“The Stapleton site will be a network of urban villages, employment centers, and significant open spaces, all linked by a commitment to the protection of natural resources and the development of human resources.”

- 1995 Stapleton Development Plan

The long-awaited Stapleton Development Plan did not disappoint. Shortly after receiving it, the City Council adopted it as part of its comprehensive plan in June of 1995. The plan effectively replaced the original vision created by the Stapleton Tomorrow Committee.

The 160-page document is comprehensive both in its scope and its level of detail. Fondly dubbed the “Green Book” by its many adherents,
the plan is divided into eight major sections:

- Executive Summary
- Introduction and Background
- Context
- Community Objectives and Guiding Principles
- Development Plan
- Redevelopment Management Structure
- Phasing Strategy and Early Action Items
- Conclusion – Images of the Future

Despite its technical input, the plan is by no means inaccessible. Indeed, its colorful graphics and jargon-free language style appeal to planning professionals and concerned citizens alike. As a result, the plan reads more like a vision statement. It seeks to convey to all of its readers a unified dream for Stapleton’s future. Stakeholders are invited to invest in the idea of sustainability. Actors in redevelopment activities are given direction as they embark upon the daunting task of creating what Leon Krier called “a city within a city”. Supportive yet separate from the plan is the Development Plan Resource Document. Not intended for public adoption, this work serves as a technical complement and back-up to the more general “Green Book.” The components of the Stapleton Development Plan will be discussed in greater detail when reviewing its principles of sustainability later in the case study.

The Stapleton Development Corporation
The project had come to yet another critical juncture. In possession of the guide that would direct development activity and place making in and around Stapleton over the course of a 50-year planning horizon, the City and County of Denver had to decide how to translate the plan into action. With DIA fully operational, it could dispose of the Stapleton site at will. The pending sale, however, was problematic. How could Denver release the land with assurances that it would be developed in accordance with the Stapleton Development Plan?

In June of 1995, the same month the “Green Book” was adopted, the idea for the redevelopment’s next major actor surfaced. Again, Mayor Webb and the City of Denver looked to delegate authority by involving the general public. As before, this helped free up public resources while directly engaging the private sector. Together with the Denver Urban Renewal Authority (DURA), the City and County officially created the Stapleton Development Corporation (SDC) in November of 1995. Overseeing its work and progress would be a board of eleven directors appointed by DURA (2) and the Mayor (9). SDC was charged
with the responsibility of leasing and selling Stapleton property and assets on behalf of the citizens of Denver. More importantly, it was to be the guardian and protector of the Stapleton Development Plan.

In its search for progressive developers, the SDC was not afforded the luxury of offering parcels at reduced rates. All of the sales would have to be at fair market value, a requirement of the Federal Aviation Administration. The proceeds would go towards paying down the debt incurred by the City and County during the construction of DIA. If the SDC was to attract private investment, it would be by other more innovative means.

Crucial to the project was the funding of infrastructure improvements. The public sector had to signal to potential investors that it intended to pay its fair share. Getting DURA involved with Stapleton was a strategic move on the part of City and County officials. DURA was the only public agency empowered by the State of Colorado to fund redevelopment projects through the utilization of Tax Increment Financing (TIF). Casella (2002) states, “tax increment financing is, simply stated, a way of pledging some of the increased taxes that result when property is redeveloped to pay the costs of associated public investment.” By employing this tool, Denver could generate revenue that could go directly towards capital improvements or to the repayment of bonds and developer advances. The property and sales tax increments to be expected over the next 25 years (the maximum lifespan of TIF districts in Colorado) were substantial. The combination of public and private investments would significantly improve upon the base-year valuations. Stapleton’s eligibility for TIF hinged on the outcome of a blight study commissioned by SDC in 1997. It could only create a special taxing district if the site was deemed worthy of urban renewal.

The prospect of TIF bodes with the real estate development community. Reimbursements for infrastructure outlays help to mitigate the risk inherent to infill projects. Suddenly, Stapleton had become a more attractive proposition. It was at this point that the City and County of Denver began to empower the SDC to carry out its responsibilities.

Although the SDC was the chosen civic vehicle for the disposition of the Stapleton property, Denver officials had yet to relinquish complete control over the site. Beginning in 1997, SDC’s authority was gradually enhanced. At first, it was granted the right to initiate transactions with potential buyers. It was not
until July of 1998 that SDC’s power went beyond asset management. With its Master Lease and Disposition Agreement with Denver, it could begin selling parcels so long as the proposed uses were not in direct opposition to the tenets of the Stapleton Development Plan. Should 15 years of land maintenance and leasing expire, SDC would have the option to purchase the property outright.

With this added authority, SDC began its search for a master developer in 1998 by instigating a competitive process. Rather than sell off the land piecemeal, it had decided it was best to court a single developer. Subdivision of the property would have run the risk of perimeter activity along major transportation arteries. The SDC refused to sacrifice either the integrity of the site or the vision of the Development Plan for the sake of expediency.

**Forest City & The Purchase Agreement**

Considering the project’s track record of sustainable practices, one might have expected that the SDC would have chosen a local developer. Instead, the project was awarded to a team over 1,300 miles away. Cleveland-based Forest City Enterprises, Inc. had a proven background in challenging infill projects. The family-owned publicly traded company had worked on large mixed-use developments in Cleveland, Brooklyn, and, most notably, Manhattan’s Times Square. From a financial standpoint, its national marketing expertise helped give it access to capital. Ideologically, the Ratner-owned company had demonstrated a commitment to affordable housing, minority involvement, and sustainable development in general.

Beginning in November of 1998, SDC and Forest City began the arduous process of specifying the terms for the sale of Stapleton’s developable land. Until the two entities came to an agreement, Forest City had an Exclusive Right to Negotiate with SDC. Stapleton’s many complexities guaranteed that the bargaining process would not be swift. It would take over a year for the two sides to reconcile their differences. On February 15th, 2000, the Purchase Agreement between SDC and Forest City was finalized (see details below). In 2001, the master developer bought the first land from the City and broke ground by beginning work on streets and utilities.
The Stapleton Purchase Agreement (Forest City Enterprises)

Forest City Obligations

⇒ **Purchase 2,935 developable acres at the appraised value of $79.4 million,** increased annually by the Consumer Price Index (Bowes and Associates appraised the Property as of December 17, 1999. The appraisal assumed that there would be approximately 1,100 acres of regional parks and open space in addition to neighborhood parks, and that the land would be environmentally remediated, the appropriate building demolished, and runways removed)

⇒ **Purchase the Stapleton Property over a 15-year period,** acquiring at least 1,000 acres every five years with a minimum purchase of 200 acres in 2000

⇒ **Pay a $15,000-per-acre "System Development Fee"** totaling $44 million to be used by the Stapleton Metropolitan District to construct and develop regional parks and open space at Stapleton

⇒ **Develop Stapleton according to the standards set out in the Stapleton Development Plan and according to performance standards and community participation standards set forth in the purchase agreement**

City and County of Denver (Department of Aviation) Obligations

⇒ **Complete zoning (e.g. mixed-use designations) for the entire Stapleton site**

⇒ **Establish a tax increment financing mechanism for funding trunk infrastructure**

⇒ **Complete environmental remediation and demolition on parcels before their release**

(As of November 2000, The Denver City Council had approved all new zoning as well as the tax increment financing and Title 32 districts and work on the balance of the requirements were underway.)
PRINCIPLES
STAPLETON’S SUSTAINABLE FRAMEWORK

The control tower still stands

"Redevelopment of the Stapleton site must be based on the principle of sustainability which seeks to manage natural, economic, and social systems and resources in a fashion that enhances the quality of life for this generation and those to come. Stapleton will be a model of how to break the pattern of urban sprawl, where residents and businesses embrace the values of sustainability."

- Stapleton Foundation for Sustainable Urban Communities Vision Statement

If both national and international awards are any indication, Stapleton’s redevelopment is truly a sustainable enterprise. The project’s many accolade include the National League of Cities’ James C. Howland Urban Enrichment Silver Award recognizing the enrichment of the urban environment, the prestigious Outstanding Planning Award from the American Planning Association, the President’s Award for Planning from the American Society of Landscape Architects, and, perhaps most impressively, the Stockholm Partnership for Sustainable Cities Award. Indeed, the King of Sweden himself, Carl XVI Gustaf, awarded representatives from the City of Denver, the Stapleton Foundation, and Forest City this latter honor for their commitment to sustainable development, community-building, and environmental stewardship. A Stockholm juror was quoted as saying that “any city with an inner city core with
a large obsolete industrial site is probably a candidate for the lessons of a Sustainable Stapleton.” Competing with Stapleton for this prize were over 250 nominees from 50 countries around the world.

Stapleton’s global notoriety is well deserved. Even so, a review of its record and future intentions requires a set of evaluative criteria whereby it may be judged and appreciated. Rather than simply evaluate the project using the Stapleton Development Plan’s own principles (environmental responsibility, social equity, economic opportunity, physical design), a comprehensive paradigm for sustainability was chosen so that the project would be subjected to a more thorough treatment. The six principles of sustainability set forth by Berke and Manta-Conroy (2000) provide the lens through which Stapleton will be viewed. Namely, this report will give examples of Stapleton’s adherence to the precepts of harmony with nature, livable built environments, place-based economy, equity, polluters pay, and responsible regionalism.

HARMONY WITH NATURE

“Land use and development activities should support the essential cycles and life support functions of ecosystems. Whenever possible, these activities should mimic ecosystem processes, rather than modify them to fit urban forms. These activities must respect and preserve biodiversity, as well as protect and restore essential ecosystem services that maintain water quality, reduce flooding, and enhance sustainable resource development (Berke and Manta-Conroy, 2000).”

Stapleton’s previous use, aviation operations, could hardly be characterized as one that worked in concert with the land’s natural processes. Now that those days are over, Forest City is working with the City and County of Denver to remedy the damage that has been inflicted upon the site’s native features. In addition to restoring native habitats, the new Stapleton will add over 1,100 acres of regional open space to Denver’s Park system. The development activity that will transpire will be highly sustainable. As part of a national energy efficiency demonstration program, Stapleton will be a model for future residential development.
Habitat Restoration

Even during its years as a domestic and international airport, the sheer size of the Stapleton site was conducive to supporting a unique ecosystem. The vast Sand Hills prairie bioregion’s native species include large populations of wintering eagles, coyotes, hawks, burrowing owls, and prairie dog colonies.

Sand Creek, in particular, is home to deer, foxes, and waterfowl. Along with its tributary, Westerly Creek, this important riparian corridor will be restored to their native states. In addition to supporting wildlife, these critical waterways provide important ecological services to the site. As primary outlets for surface drainage, their ponds and wetlands will serve as low-cost and low-impact measures to enhance water quality. Upon completion, the linear corridors will also serve a recreational function. They are planned to become multiple-use greenways, a series of regional bikeways, walking paths, and equestrian trails for the enjoyment of Denver area residents.

Regional Open Space

Of Stapleton’s 4,700 acres, over 1,100 acres are to remain regional open space. Once they are transferred to the Denver Parks and Recreation Department, they will increase that system by 25 percent. This allowance will include wildlife habitats, pocket parks and linear greenways. Central Park, an 80-acre facility akin to Denver’s beloved Washington Park, will play host to large outdoor concerts, community events, and sporting matches.

Much of the dedicated land will return to its native state. Dovetailing with the Rocky Mountain Arsenal National wildlife Refuge’s ambitious restoration efforts, parks will include and reintroduce native grasses, vegetative...
materials, and wildlife habitats. Within these areas, water consumption will be reduced through recycling and the planting of low-irrigation turf.

Two major open space features are already providing natural educational opportunities for the region. Both the 123-acre Bluff Lake Nature Center on the eastern edge of Stapleton and the 23-acre Urban Farm offer environmental programs specifically designed for urban school children. The latter is a unique community farm that teaches horsemanship, animal husbandry, gardening, conservation, stream reclamation, and land cultivation.
Energy Conservation
Stapleton is setting the bar for a new era in residential construction. Ideally, its rigid practices will set the standard for future housing developments across the country. The project’s commitment to sustainability is evidenced in the high profile programs it’s associated with.

Stapleton is currently a demonstration project of PATH, the Partnership for Advancing Technology in Housing. PATH is a federal coalition of twelve agencies seeking to increase the durability, energy efficiency, overall quality, and affordability through the invention and utilization of technologies. These innovative methods will help Stapleton’s new residential units meet or exceed the minimum standards dictated by the Built Green Colorado program. The largest green building program in the nation, this organization encourages builders to reduce pollution and water usage, increase energy efficiency, enhance durability, and preserve natural resources.
LIVABLE BUILT ENVIRONMENTS

“The location, shape, density, mix, proportion, and quality should enhance fit between people and urban form by creating physical spaces adapted to desired activities of inhabitants; encourage community cohesion by fostering access among land uses; and support a sense of place to ensure protection of any special physical characteristics of urban forms that support community identity and attachment (Berke and Manta-Conroy, 2000).”

Stapleton represents the planning movement currently sweeping the nation, a return to place making. Oftentimes, definitions of sustainability intertwine the environment, the economy, and social equity. Like Berke and Manta-Conroy (2000), the framers of the Stapleton Development Plan have rethought that conceptual model. Similar to the principle of a livable built environment is the Green Book’s attention to physical design. The makers of the place to be Stapleton will attempt to create friendly urban spaces through adherence to the exclusive and overlapping precepts of New Urbanism and Transit-Oriented Development.

New Urbanism / Neotraditionalism

Upon completion, the Stapleton area will be host to eight distinct districts with identifiable centers. Employing the design principles of neotraditionalism, each district will provide a mix of housing and employment centers. The hope of striking a balance of jobs to housing is to encourage alternative modal use for both commuting and non-
commuting purposes. Also facilitating walking and biking will be the interconnected open space network of greenways, parks, and trails.

The construction of ample pedestrian facilities is one way that New Urbanism promotes social interaction. The presence of safe and connected pathways increases the likelihood of active recreation and transportation, both of which increase the likelihood of spontaneous interactions between neighbors. Other prescribed measures to be employed are the reintroduction of front porches and the recession of garages.

In addition to the Green Book, builders unfamiliar with neotraditionalism will reference the Design Guidelines for Stapleton. Created by the Community, Planning, and Development Agency of Denver in 1999, these guidelines serve as yet another device promoting quality urban form within Stapleton. Using a framework of intent statements, standards, and guidelines, the document adds specificity to otherwise broad design goals and objectives.

**Transit-Oriented Development (TOD)**

At the time of the closure of Stapleton International Airport, its bus transfer station served the highest volume number of passengers within Denver’s Regional Transportation District’s (RTD) system. Rather than alter its network hierarchy, the transit agency has maintained Stapleton as a major transfer node despite its reduced activity levels. This hub for public transportation will only be
enhanced in the years to come. It will become the centerpiece of Stapleton’s efforts to promote transit-oriented development within its confines.

As part of its East Corridor plans to link downtown Denver with DIA, RTD intends to extend its commuter rail and light rail transit (LRT) service to the Stapleton site. The station area will be integrated with the present bus service. Under TEA-21 (Transportation Equity Act for the 21st Century) program, the Stapleton Intermodal Center has already received funding from the Federal Transit Administration for bus-related facilities. To be situated off of Smith Road, the facility will be the focus of intense residential and neighborhood-scaled commercial development supportive of transit usage. The remainder of Stapleton will be served by extensions of the local and feeder bus services. Transit friendly environments will be maintained throughout albeit on smaller scales than the Intermodal Center. Helping Stapleton realize these visions of transit villages is the Berkley-based planning firm Calthorpe Associates, the leader in the field of TOD.
PLACE-BASED ECONOMY

“A local economy should strive to operate within natural system limits. It should not cause deterioration of the natural resource base, which serves as a capital asset for future economic development. Essential products and processes of nature should be used up no more quickly than nature can renew them. Waste discharges should occur no more quickly than nature can assimilate the.

The local economy should also produce built environments that meet locally defined needs and aspirations. It should create diverse housing, and infrastructure that enhances community livability and the efficiency of local economic activities (Berke and Manta-Conroy, 2000).”

A place-based economy is one that serves the needs of its residents. Far from becoming Denver’s newest bedroom community, Stapleton is poised to become a model for spatial efficiency. Envisioned is a self-sustaining community equipped with its own bustling economy. Residents will be afforded the opportunity to produce, consume, and recreate in a single district. Not only is Stapleton projected to welcome over 30,000 residents; it also will eventually employ over 35,000 workers. Employment opportunities will range from retail positions (e.g. at the controversial Quebec Square Regional Retail Center) to professional positions with high profile firms relocating to the site. This urban spatial diversity and frugality will help strike a jobs-housing balance, a key equilibrium in the quest to reduce vehicle miles traveled. Also reflecting this commitment to energy efficiency and resource protection is the corporate culture Stapleton hopes to foster. As it’s planned, the community is poised to become a national center for advances in environmental technologies. As an incubator for green businesses, it will provide incentives for start-up firms to locate on-site.

Job Diversity
Employment opportunities within Stapleton will not be limited to professional positions. In fact, concerted efforts are being made to give residents the skills they will need for the jobs being offered within the community. The Mayor’s
Office for Workforce Development has opened a branch in close proximity to the Stapleton site. Its purpose will be to supply incoming employer with the skilled workforce they desire. This coordinated effort encourages firms to draw its employees from the immediate vicinity rather than having to import them.

**Regional Retail Center**
Quebec Square, Stapleton’s 740,000 square foot regional retail center, is an item of contention. At first glance, its mix of big box retail does not appear to be in line with the Development Plan’s vision for pedestrian friendly neighborhood shopping. The early tenants include Sam’s Club, Home Depot, Wal-Mart Supercenter, and Linens ‘N Things. Despite its auto-orientation, Quebec Square is a sustainable measure. Its primary purpose is to serve as an economic engine for later stages of the project. Opening in 2002, the shopping center is already generating the tax increments required for infrastructure improvements. In addition, the stores are meeting a previously unmet need in the area. Prior to Quebec Square, residents of the surrounding neighborhoods were traveling long distances to frequent these popular discount retailers.

**EQUITY**

“Land use patterns should recognize and improve the conditions of low-income populations and not deprive them of basic levels of environmental health and human dignity. Equitable access to social and economic resources is essential for eradicating poverty and in accounting for the needs of the least advantaged (Berke and Manta-Conroy, 2000).”

Stapleton promises to be a socially equitable endeavor. Benefits will be reaped by a broad range of income groups and minority populations. From the project’s inception, a concerted effort has been made to involve representatives from the diverse pool of stakeholders. As mentioned before, the Stapleton Tomorrow Committee’s work set a precedent for public involvement in the planning and implementation of the redevelopment. This tradition of advocacy will continue once Stapleton begins to function as a living community. A multimodal
transportation network will ensure that all will have access to local and regional destinations. A diverse range of housing and commercial real estate products will encourage a mix of income, race, and age groups.

Transportation Options
Stapleton will offer a variety of transportation options for the transportation disadvantaged (disabled, elderly, youth, and low-income populations). First and foremost, the nature of the articulated pedestrian environment will make walking and biking viable options. Sidewalks will be adjacent to every street within the development. A modified grid system will increase the connectivity of the pedestrian and bicycle system. Increasing the mobility and accessibility of the transportation disadvantaged will be public rail transit and bus service. Existing RTD routes will be extended throughout the site to ensure that all Stapleton residents and workers will be within a five-minute walk of a bus stop.

Fair Share Housing
Stapleton will not unfairly burden surrounding communities with the responsibility of housing its 35,000 employees. Indeed, it is accepting more than its fair share of affordable housing stock. Housing types of varying sizes and configurations will appeal to a broad range of income groups. In addition to for sale homes, Stapleton will eventually be home to over 4,000 apartment homes. An encouraging 20 percent of rentals will be at or below 60 percent of the Area Median Income (AMI). To encourage the community’s teachers, police officers, and other public servants to live within one of the eight districts, Forest City’s Workforce Housing Program will make available long-term affordable units; ten-percent of all for-sale units will be at or below 80 percent of the AMI.

Minority Involvement
In accordance with Social Equity Principle 3 of the Green Book, Stapleton has made a concerted effort to involve minorities and women in the development
and future of the community. As of early 2003, nearly 150 minority and women-owned business enterprises had contributed to the redevelopment process. Low-income and unskilled labor populations will have ample employment opportunities within the development. For those workers interested in expanding their skill sets, the Mayor’s Office of Workforce Development is working directly with Stapleton’s new employers to meet their labor force needs. As mentioned above, there are considerable provisions for affordable housing.

**POLLUTER PAYS**

“Polluters (or culpable interests) that cause adverse community wide impacts should be required to bear the cost of pollution and other harms, with due regard to the public interest (Berke and Manta-Conroy, 2000).”

Oddly enough, the polluter in the Stapleton case is a public entity, the City and County of Denver. As owner and manager of aviation operations of the site for sixty-five years, it is holding itself responsible for the environmental contamination that occurred (see Table below: Known Environmental Conditions). As part of the Purchase Agreement with Forest City, Denver will pursue and complete environmental remediation measures prior to the sale of parcels to the developer. That is, Forest City is not obligated to buy those parcels that have yet to be cleaned up. Estimates for the entire remediation process range from $50 to $140 million for the site. Prior to land disposition, the City and County is also responsible for the demolition of all structures. It is in this capacity that Denver has found ways to recycle Stapleton’s former infrastructure for the betterment of the project without inconveniencing the environs.

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**Environmental Responsibility – Principle 3**

*“The Green Book”*

*Restore and enhance existing natural systems to achieve optimal health and viability.*

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Petroleum products (jet fuel, gasoline, and diesel fuel) - Petroleum products have been detected in soil and groundwater from sources including underground and above ground storage tanks, pipelines, and hydrant fueling systems. Petroleum products, primarily jet fuel, by far represent the largest contaminant that requires action at Stapleton. Areas that are known to be affected by petroleum products have either already been or will be cleaned up by the City and County of Denver prior to development.

The cleaning and degreasing solvent known as trichloroethene (TCE) - An area of TCE in groundwater known as the "Lowry Plume" is present beneath Stapleton at an approximate depth of 30 feet. The Lowry Plume originated at Lowry Air Force Base, located approximately 1 mile south of Stapleton. The Colorado Department of Public Health and Environment has determined that property at Stapleton above and near the Lowry Plume is suitable for residential use.

Methane - Methane results from the natural breakdown of deicing agents used during airplane deicing activities. The source of the identified methane has been or will be removed or has degraded naturally, and methane readily dissipates when exposed to air. The residual methane that is not removed during cleanup activities will be addressed during grading and/or construction activities.

Nitrate - Nitrate is commonly found in groundwater throughout the Denver area. Its primary sources include livestock manure and fertilizers, as well as a deicing agent used at Stapleton. Although nitrate is present in groundwater beneath Stapleton, it is not a health risk because groundwater beneath Stapleton will not be used as drinking water. Therefore, the presence of nitrate poses no risk to residents or workers at Stapleton.

Asbestos - Asbestos was present in many of the old buildings and hangars, as well as in subsurface pipe wrapping at Stapleton. The majority of these structures have already had the asbestos removed and have been demolished. Prior to demolition or removal of any remaining structures, the asbestos will be removed and properly disposed offsite at a licensed disposal facility.

Recycled Materials
The removal of the site’s aviation-related relics was no small task. Keeping with its unrelenting commitment to a sustainable project, Denver chose to embark upon a massive recycling project. Not only did this conscientious decision save
the City $95 million in demolition, hauling, and disposal costs, it also precluded major traffic and neighborhood disruptions in adjacent areas.

Instead of bidding traditional demolition, Denver issued a rather unique Request for Proposal (RFP). The firm awarded the contract would remove the concrete, sub-base, and asphalt materials from the site at no cost to the City and within a five-year period. What transpired was the largest recycled program ever embarked upon in the United States. By the beginning of 2001, over 200,000 tons of rebar, aluminum, copper, tin, and shredder metal had been successfully recycled. For example, 1,100 acres of runways yielded the over six million tons of aggregate, the minerals such as sand or stone used in making concrete, acting as a base for site roads and sidewalks. During the course of the operation, neighboring roads and landfills were spared the tremendous weight and volume of the endeavor.

RESPONSIBLE REGIONALISM

“Communities should not act in their own interests to the detriment of the interests of others, and they should be responsible for the consequences of their actions. Just as individual developers should be subject to the principle that polluters (or culpable interests) pay, a local jurisdiction has an obligation to minimize the harm it imposes on other jurisdictions in pursuit of its own objectives (Berke and Manta-Conroy, 2000).”

Much more so than its predecessor, Stapleton promises to be a cordial neighbor. Its very birth stems from regional cooperation. Rather than risk further discord between itself and the adjacent communities of the Park Hill neighborhood and Adams County, the City and County of Denver elected to relocate its aviation operations. In recognition of this compromise, the residents of Adams County approved the concession of land to its urban neighbor. In exchange for noise abatement, Park Hill has already contributed employees to the early retail components of the Stapleton redevelopment.
Regional cooperation is not limited to Stapleton’s closest neighbors. Indeed, the building of what amounts to a city of its own promises to have far-reaching implications in the metropolitan area. 30,000 new residents will eventually converge on a plot of land in northeast Denver that, for the last 74 years, has been home to none. The quality design coupled with the free publicity garnered by the project promises to make homes and rental units highly coveted real estate products. Were it not for Stapleton’s aggressive affordable housing plan, its allure would otherwise price-out many middle and low-income families. Instead, most employees will be able to secure a residence within the development. In this way, Denver and Forest City are helping to mitigate the impact upon surrounding neighborhoods. Residential overflow should be minimal.

East Denver

East Denver has been and will be in a state of flux for some time. Amazingly enough, Stapleton is one of four major land uses to undergo conversion within the last ten years. Within this time span, the natures of Lowry Air Force Base (1,866 acres), Fitzsimons Army Medical Center (577 acres), and the Rocky Mountain Arsenal (17,000 acres), a former chemical weapons factory, have all been dramatically altered. These projects do not all fall within a single jurisdiction nor do they share owners. Even so, the radical transformation has been a largely coordinated effort to implement smart growth in the region. Like Stapleton, Lowry is a mixed-use community that has drawn national attention. The redeveloped Fitzsimons facility now is home to the University of Colorado Health Sciences Center (UCHSC) and the University of Colorado Hospital (UCH). The Arsenal is due to become one of the largest urban national wildlife refuges in the United States. The contiguity of the restored habitats will not be broken once they cross Stapleton’s northernmost boundaries. Once completed, these interrelated projects will act together to create a more livable metropolitan area.
CONCLUSION

“Any city with an inner city core of a large obsolete industrial site is probably a candidate for the lessons of Sustainable Stapleton.”

- Stockholm juror

There may never again be an urban infill project the size of the former Stapleton International Airport. Nationally, however, there are countless centers of transportation activity that are either underutilized or insufficient to meet the needs of travelers and the shipping industry. Often these are publicly owned and operated. Each of these facilities offers their owners unique opportunities for redevelopment. At the same time, the sites are usually environmentally constrained, economically entrenched, and politically controversial.

Denver has proven that redevelopment projects of this size and nature can be realized. In this special case, a unified vision in the form of sustainable guiding principles informed the process whereby Stapleton would be rethought and recreated. Participating in the process was a cast of public, private, and non-profit partners representing a wide range of stakeholders. Each of these components was critical to the success of the Stapleton endeavor. Without meaningful and specific principles, the project would have lacked direction. Dynamic partnerships yielded the necessary legislative, political, and financial resources. An inclusive process initiated early generated innovative solutions to logistical and regulatory obstacles. As communities across the country and abroad embark upon similar ventures, they would be well-advised to review and comprehend the Stapleton story. Any deviation or oversight might very well result in less sustainable outcomes.
ACKNOWLEDGMENTS
I would like to thank my advisor Dr. David Godschalk for his guidance, patience, and encouragement. I also appreciate the editorial comments offered by Dr. Daniel Rodriguez and David Paine.

RELATED PROJECTS

Robert Mueller Municipal Airport Redevelopment (Austin, TX)
http://www.ci.austin.tx.us/mueller/default.htm

Horace Williams Airport (Chapel Hill, NC)
http://www.fac.unc.edu/horacewilliams/index_files/frame.htm

Lowry Air Force Base (Denver, CO)
http://www.lowry.org/

INFORMATION SOURCES


Calthorpe Associates
(http://www.calthorpe.com/)


The City and County of Denver
(http://www.denvergov.org/)

Denver Urban Renewal Authority
(www.denvergov.org/dura)

EDAW
(http://www.edaw.com)
Forest City Enterprises, Inc.  
(http://www.stapleondenver.com)  


PATH – Partnership for Advancing Technology in Housing  
(http://www.pathnet.org/)  

Rocky Mountain Arsenal National Wildlife Refuge  
(http://rockymountainarsenal.fws.gov/)  

Sand Creek Regional Greenway  
(http://www.sandcreekgreenway.org/)  

Stapleton Development Corporation (SDC)  
(http://www.stapletoncorp.com)  


Stapleton Foundation for Sustainable Urban Communities - formally the Stapleton Redevelopment Foundation  
(http://www.stapletonfoundation.org/)
## APPENDICES:

<table>
<thead>
<tr>
<th>PARTICIPANTS</th>
<th>STATUS</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>City &amp; County of Denver, CO</td>
<td>Public</td>
<td>Owners of the Stapleton International Airport and its environs</td>
</tr>
<tr>
<td>Stapleton Development Corporation (SDC)</td>
<td>Nonprofit</td>
<td>Created by Denver’s mayor and city council, SDC is the private vehicle charged with the responsibility of leasing and selling Stapleton property.</td>
</tr>
<tr>
<td>Forest City Enterprises, Inc.</td>
<td>Private</td>
<td>Family-owned and publicly traded Cleveland based business with a background and commitment to mixed-use urban infill projects. Through a competitive process, it was chosen in 1998 to be the Master Developer of the Stapleton land.</td>
</tr>
<tr>
<td>Stapleton Foundation for Sustainable Urban Communities</td>
<td>Nonprofit</td>
<td>Originally the Stapleton Development Foundation, this privately funded group of civic and business leaders is responsible for the “Green Book,” the Stapleton Development Plan. Its comprehensive vision for the future continues to direct the Stapleton redevelopment project as both an official policy document and stakeholder handbook.</td>
</tr>
<tr>
<td>Denver Urban Renewal Authority (DURA)</td>
<td>Public</td>
<td>Only entity capable of implementing tax-increment financing (TIF)</td>
</tr>
<tr>
<td>Stapleton Metropolitan District</td>
<td>Public</td>
<td>Independent political subdivision created for the purpose of levying special taxes upon properties within its district’s boundaries.</td>
</tr>
<tr>
<td>EDAW</td>
<td>Private</td>
<td>Landscape architectural and land-planning firm contracted by the Stapleton Metropolitan District to create a master greenway and park plan for the area.</td>
</tr>
<tr>
<td>Rocky Mountain Institute</td>
<td>Nonprofit</td>
<td>Environmental consulting firm commissioned by Forest City to generate the sustainability plan that would inform and guide the redevelopment of Stapleton.</td>
</tr>
<tr>
<td>Company</td>
<td>Sector</td>
<td>Description</td>
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<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>URS</td>
<td>Private</td>
<td>Lead consulting engineer for the redevelopment of Stapleton</td>
</tr>
<tr>
<td>Roy F. Weston, Inc.</td>
<td>Private</td>
<td>Leading international environmental services firm charged with remediation tasks (e.g. asbestos surveys, aviation fuel cleanups).</td>
</tr>
</tbody>
</table>

**OUTSIDE FINANCIAL AND IN-KIND SUPPORTERS**

- Great Outdoors Colorado
- The Boettcher and Gates families
- ARCO Foundation
- Berger Foundation
- Denver Urban Resources Partnership
- Colorado State Trails Program
- State Division of Wildlife
- U.S. Forest Service
- U.S. Bureau of Reclamation
- National Civilian Community Corps
- Greater Stapleton Community Service Corps
- Volunteers for Outdoor Colorado
- Commerce City: Mission Possible!
- Denver Public Schools
- Aurora Public Schools
- Embracing Horses
- Green City Data Project in collaboration with the National Association of Black Environmentalists