Afterword

"Sprawl is not evil. In fact, it is good. It is the inevitable result of a free people exercising their cherished, constitutionally protected rights as individuals to pursue their dreams when choosing where to live, where to work, where to educate and where to recreate."

— L. Brooks Patterson, Oakland County Executive, Oakland County, MI.

No single design can possibly satisfy every individual need and desire. Every city chooses if they want to embrace growth to create a more vibrant city offering great services - or not. There *will* be growth - some call this sprawl.

Diversity of living styles guarantee there will never be just one planning solution. Standardization prevents cities from growing to its greatest potential. We can no longer be less efficient with land, natural resources, and design methods.

Progress requires change

The education for those designing our neighborhoods must include an understanding of the *financially viable* physical aspects of land development including proven environmental solutions. Plans for growth must have sound economics to ensure an ample supply of affordable housing, and help avoid a repeat of the recent collapse of the U.S. housing market. If land planning remains as something anyone (and everyone) can do, the land development industry cannot progress. If solutions for development are only for the wealthy who can afford 'gentrified' communities, there is certainly little progress.

Land planners

Engineers and surveyors acting as land planners who think achieving density goals by replicating lots and units in a CAD package - is 'land planning', they are sorely wrong. Density is not the only route to profitability. They *must* learn how to enhance living standards and efficiency (both environmental and economic), and not to design primarily for sewage flow and lot -street geometry, or worse - speed to get the plan out.

The land planner who can create beautifully rendered plans, but does not understand engineering and surveying – must take the time and effort to gain a basic understanding to create accurate proposals. Hand drawn plans had their place in the 1960's, not today.

Those who think great land planning can be automatically created by software using an add-on module to replicate street and lot configurations are not just fooling themselves, but also the clients they are contracted to design for, and the cities that they are submitting within. Greater fools are those who develop these automated software packages in the name of good 'planning' - *it's not 'design' when software thinks for them*.

Consulting planners

Planning consultants who boiler plate ordinances (based upon 1930's wording) and suggest only zoning minimums, contribute to the stagnation and mindless replication

that hampers progress towards sustainable growth. A rewards (incentive) theme is what is needed to foster sustainable growth. Ordinances need to be simple and easily understood by all. But that requires change. Progress requitres change.

Architects

Perfurbia represents a new era of design for architects - blending interior with exterior spaces and custom shaping of buldings to fit lots will raise living standards. This mandates collaboration between architecture, engineering, surveying, and planning. LandMentor makes integration easier.

Mayor, administrator, planning commission and council

If you do not like the submitted plans for review – and if you find value in what we have presented in this book, demand changes to be made now –not later.

Create regulations that 'reward' better development. A *minimums-based* regulatory system will get you exactly what you have experienced: *the minimum effort*. Make processes as easy as possible for everyone to understand and do not concentrate only on 'numbers'. What difference does it make if you have a 10,000 square foot lot minimum or a 10,250 square foot lot minimum? How does that assure great development? If the planning consultant cannot get beyond a 'numbers-only' focus, get another one. If your planner is more concerned about what the neighbors see out their windows, instead of the high quality of living those that will dwell in the new sustainable development, it is time to replace your planner or planning consultant and find one that cares more about building quality neighborhoods than what neighboring property owners will think.

A great plan presented poorly can influence a "no" vote. Don't be fooled by a great presentation on a poorly planned site. Imagine living in the neighborhood yourself. Imagine living in all of the homes. Imagine how it would be if you were walking through the site and using the spaces. The commercial center design - will it encourage commerce, or in the pursuit of 'social engineering' will it destroy commerce? Sustainability is about balance. There is no perfect design. If the developer brings in a great design and makes a fortune in profit, that is a good thing. No one stands in line to repeat failure.

Educational institutions

Teach your students what they will need to learn to be valuable in the marketplace. Learning how to use the city's' GIS (Geographic Information System) system is somewhat worthless as a 'land planning design' tool. Teaching New Urbanism and urban planning is fine, but it's not applicable to most of the *suburban buyers* who represent 80% of the housing market. LandMentor is available for Universities to teach Sustainable Land Development. Class projects must promote and teach communication and collaboration. Why not have Engineering, Surveying, Architecture, Planning and Real Estate students all work together on the on the same projects? They will need to do that in the world after they graduate if we ever hope to create a more susainable future!

Developers and builders

You don't work for your consultants - they work for you. You pay them for the best possible designs, not to make their tasks easier. Reliance on a CAD software to do design is a bad thing, and will cost in terms of profitability and marketabiliy. Make sure that the site plan is not a 'quick and dirty' study that ends up permenantly built. Concentrate more on a well thought out plan from the best designer you can find. Hopefully, this book gave you the tools to lead the designers of your neighbohoods. You must set the standard, as the residents quality of living is in your hands.

Stewards of the Environment

I believe we can reduce the worlds infrastructure on newly developed land and redeveloped land by 30%, by using the teachings in this book combined with the execution methods and classes developed for LandMentor. Environmental impact reduction will happen as a byproduct.

If the growth solutions being introduced are for the elite and not the working class, they are not the right solutions. Endorsing a solution just because it sounds right in theory, does not make it sustainable. If the proposed development yields more "green" compared to developments of equal density, it's better for the environment, simple as that.

Elected officials

When we first discovered that these planning innovation would reduce development costs, lower the cost of housing, lessen environmental impact, and increase safety, we shared this knowledge with our elected officials. We approached our state's senators, representatives, and even leaders in the Metropolitan Council to see how they could help. Many (most) of those politicians were tied only to New Urbanism. Since Prefurbia was deemed suburban in nature, they were not interested.

It did not matter if they were Republican or Democrat. It seemed those in our government only wanted a single solution to apply to how our nation grows, and that any conflicting information would make it confusing to a voter. It is critical that our elected officials learn more about the issues in order to make better growth decisions for our environment and economy. The only politician who made any effort was Senator Al Franken, and we thank him for his staff level effort. Meanwhile I've been a keynote presenter at the Western States Planning Convention, the New York Professional Land Surveyors Conference, many Green and Sustainability Conferences, SLDI Best Practices Conference, the California League of Cities Conference in Anahiem, The North Dakota AIA Annual Conference, the North Dakota Annual Economic Development Conference, and many more teaching the virtues of Prefurbia.

Conclusion

All of us can make a difference. If everyone involved in the development process becomes more actively focused on the residents' needs above that of the developers and municipalities, we can make a positive change for future generations and the environment. We are but one firm among thousands. This vision can easily die without *you* to move it forward.

Those that have supported Prefurbia have all been passionate about the developments they build, approve, and engineer. The next time you see a cookie-cutter proposal, ask yourself how much passion and effort went into the design. In an era where technology has provided advancements in the past 50 years unimaginable in the previous 50 in every industry, we must ask - why has land development been stagnant?

Our cities and the hundreds of millions of people who dwell in them deserve much better.

Rick Harrison

Terms and Definitions

Some of the following terms and definitions are original, but many have been compiled from a variety of sources including Sustainable Land Development Inituative and Timothy Holveck of the Wisconsin Department of Natural Resources (www.dnr.state.wi.us).

Affordable Housing

Housing that has its mortgage, amortization, taxes, insurance, and condominium and association fees constituting no more than 30 percent of the gross household income per housing unit. If the unit is rental, then the rent and utilities constitute no more than 30 precent of the gross household income per rental unit.

Amenities

Features that add to the attractive appearance of a development, such as parks, recreational facilities, gathering places, and landscaping, and including the placement and location of utilities underground.

Arterial

A major street, which is normally controlled by traffic signs and signals, carrying a large volume of through traffic.

Architectural Blending

A form of design where the interiors spaces of a home o business becomes a function of the overall neighborhood design.

Architectural Shaping

Designing the perimeter of the home to take advantage of a non-rectangular lot.

BayHomes

An alternative to both conventional and neo-traditional communities. BayHomes use interconnected walkways and traditional architecture with enhanced interior and exterior views to create a warm, walkable neighborhood. BayHomes are single family detached townhomes with association-maintained common areas. Well adapted for production housing due to it's replicable footprint (building pad), BayHomes are staggered in a manner that creates unobstructed panoramic views from the kitchen and living areas looking outwards towards green open spaces from most of the units. The kitchen and living areas front onto common open space (typically not directly to a street) and the home's main vehicular entry is from the rear, via private drives, similar to homes that are serviced by alleys in traditional neighborhoods. All BayHomes have a front porch (facing open space) large enough for neighbors to congregate and relax. Each porch connects to a walk system that meanders through common areas. BayHome neighborhoods utilize approximately 50 percent less road infrastructure than traditional alley-based neighborhoods to construct.

Collector

A street designed to carry a moderate volume of traffic from local streets to arterial streets or from arterial streets to arterial streets.

Commercial zoning

A zoning area designated for community services, general business, interchange of services, and commercial recreation.

Common Open Space

Town squares, greens, parks, or green belts intended for the common use of residents.

Connective Neighborhood Design (CND)

A method of transitioning land uses that reverses the typical density progression (high density housing to low density) by doing the opposite. CNDs enhance neighborhood values by showcasing upper-end housing along all visible areas and positioning the higher density housing in a manner that preserves neighborhood values. A CND has the following design features:

- Land use transitions from the development's entrance to the rear, showcasing higher end housing (low density) first then transitioning to the lower priced homes (high density units) afterwards or in distributed pockets. An exception to this rule can be when the architectural controls guarantee that the lower priced homes will maintain or exceed the look and character of the higher-price-point homes.
- The neighborhood is interconnected with a walk system leading to defined destinations that provide active or passive recreation or commercial uses.
- Natural amenities are featured along the walks and, if possible, the street system, for all residents to enjoy.

Coving

Coving is an efficient method of land planning that utilizes a unique meandering road pattern, combined with an independently meandering home setback line, designed to vary the streetscape, thus adding visual interest. Coving also creates additional areas of open spaces along the street, referred to as 'Coves'. Density generally remains the same as a conventionally planned neighborhood.

Environmental (or Economic) Density - ED

This is an accurate measurement that can be made to determine both economic and environmental impacts of a design. It was first made possible by the LandMentor technology.

Flow

The ability to enter and safely traverse the neighborhood with a minimum number of stops and turns while experiencing a sense of space and place. Flow can be applied to both pedestrian and vehicular systems.

Green

Refers to environmentally-friendly concepts, products, or services.

Growth

Growth is the natural and continued expansion of industry and population. Over the past 100 years, the average life span of an American citizen has increased from 48 years to 75 years. As a result, the population has increased accordingly. The population has grown from 76 million people to over 300 million people – or a 400 percent increase of people in the past century. In the same 100 years our population has survived two major world wars, while our industrial and intellectual-based products have gained world markets. All of this demands expansion for industrial, commercial and residential services. Of the 2,870,084 square miles in the continental United States' land mass, only approximately 156,000 square miles (approx. 100 million acres) of that surface is currently urbanized. With a population of 300 million today, this equates to an average density of 3 people per acre residing on only 5 percent of the surface area of the United States. See also "Sprawl".

Homeowner's Association

A nonprofit organization made up of property owners or residents who are then responsible for costs and upkeep of semiprivate community facilities and maintenance of common areas.

Infrastructure

Public utilities, facilities, and delivery systems such as sewers, streets, curbing, sidewalks, and other public services. Within the infrastructure may also be private services such as cable TV and internet.

LandMentor

A patented system combining technology, training and mentoring which expands upon the concepts, ideals, and examples within this book.

Mixed-use development

The practice of allowing more than one type of use in a building or set of buildings. In planning terms, this relates to the combination of residential, commercial, industrial, office, institutional, or other land uses within a specific and defined area.

New Urbanism

An American urban design movement that arose in the early 1980s. It is an approach to development that includes the reintegration of components such as housing, employment, retail, and public facilities into compact, pedestrian-oriented neighborhoods linked by mass transit. Public parks are encouraged, over private spaces. Also called "Neotraditional development," "Smart Growth," and "Traditional Neighborhood Design."

Open (Green) Spaces

A substantially undeveloped area, usually including environmental features such as water areas

Prefurbia

A neighborhood planning method that produces a preferred quality of life: low impact neighborhoods at densities similar to traditional neighborhoods but with more public and

private space and greater pedestrian connectivity, at significantly less development cost than traditional neighborhoods.

Rewards-based Ordinance

Also called incentive-based or bonus-based ordinances. This is a flexible zoning technique that permits a trade-off between the requirements of the land use regulation and the desired changes in those requirements by the developer. It allows for the relaxation of certain regulation minimums or other incentive, in exchange for an increased amenity that would benefit the residents of the development and their neighbors.

Right of Way (ROW)

A parcel of land that has a specific private owner, but some other party or the public at large has a legal right to traverse that land in some specified manner. The term likewise refers to the land subject to such a right. An easement is an example. Often a strip of land occupied by or intended to be occupied by a street, crosswalk, walkway, utility line, or other access.

Sense of Place

The constructed and natural landmarks and social and economic surroundings that cause someone to identify with a particular place or community.

Site Plan

A scaled plan, which accurately and completely shows the site boundaries, dimensions and locations of all buildings and structures, uses, and principal site development features (transportation and utilities) that are proposed for a specific piece of land. It may also include existing land contours, proposed elevation grades, walks, wetlands, ponds, and tree locations (existing and/or proposed). The site plan typically includes information such as total area of site, number of lots, type of units, and open space or park area if there is any.

Smart Growth

An urban planning and transportation theory that concentrates growth in the city for the purpose of growth management. It's policies advocate compact, transit-oriented, walkable, bicycle-friendly land use, including neighborhood schools, streets, and mixed-use development with a range of housing choices. See also "New Urbanism" and "Neotraditional development.

Sprawl

Inefficient use of developed land, because of either wasteful site plan designs or municipal regulations that result in wasteful use of the land – or both of those combined. See Growth.

We exclude from the definition reference to unplanned, uncontrolled spreading of development, as growth is the natural continued expansion of industry and population, and people are free to exercise their constitutional right to choose where to live. In this book, when we write about reducing sprawl, we are referring to definition "A," wasteful site design that results in wasteful utilization of land and natural resources.

Sustainable Land Development

The art and science of planning, financing, regulating, designing, managing, constructing and marketing the conversion of land to other uses through team-oriented, multi-disciplinary approaches which balance the needs of environment, economics, and existence – for today, and future generations.

Sustainability

A characteristic of a process or state that can be maintained at a certain level indefinitely.

Tax Increment Financing (TIF)

A tool to use future gains in taxes to finance the current improvements that will create those gains. Commonly used for redevelopment and community improvement projects, specifically public projects such as a road, school, or hazardous waste cleanup.

Traditional Neighborhood Design (TND)

A compact, mixed-use neighborhood, where residential housing often has detached garages, accessed via alleys, and commercial, schools and civic buildings are within a close proximity. The TND is most often associated with a grid street pattern and blocks that are much shorter in length than those typically associated with suburban design. The TND is often referred to as New Urbanism. See also "Neotraditional development" and "New Urbanism."

Urban Planner

Often also known as a city planner, an urban planner formulates plans for the short and long-term growth of a city. They study land use compatibility, economic, environmental, and social trends. In developing their plan for a community, urban planners consider a wide array of issues such as air pollution, traffic congestion, crime, land values, legislation and zoning codes. They focus on the macro issues in planning. They may monitor or control the ordinances and regulations of a municipality as well as be a bridge between the city and the land developer and land planner. Often, the urban planner represents the interests on the regulatory side of town planning instead of the design side. However, like the civil engineer and land surveyor, the urban planner may also act as the land planner and design site plans. While the urban planner may not have the engineering or surveying technical understanding of the other two professions, they are likely to have the aesthetic talents to apply to the land planning the technical professions may lack.

Variance

A requested deviation from the set of rules a municipality applies to land use known as a zoning ordinance, building code or municipal code.

Zero Lot Line

The location of a building in such a manner that one or more of its sides rests directly on its lot line.

Neighborhood Showcase

Examples of Prefurbia

The above map represents just a few of the 900+ neighborhoods we planned in the United States and 18 Countries using the Prefurbia methods introduced in this book.

The showcased neighborhoods in previous editions of Prefurbia were only those that were approved, in this 4th edition we include more recent examples, some in the design process to represent the very latest innovations, methods, techniques, and technological advancements. Most of the neighborhoods linked to our website are completed neighborhoods that you can visit. Unlike other products that can be brought to market quickly, land development takes many years to go from an approved plan to a finished and established neighborhood.

These examples represent either the very latest designs of Prefurbia, or have a compelling story.

For more examples, please visit our web site at www.rhsdplanning.com

PLACITAS DE LA PAZ

Coachella, California – Canaday & Company

Placitas is a coved neighborhood that provides 270 affordable housing units intentioned for the area's migrant farm workers. It was one of the first applications where all streets lead to a neighborhood focus - in this case a central park. Access to this neighborhood is from Avenue 51 along the South, or from Avenue 50 on the North.

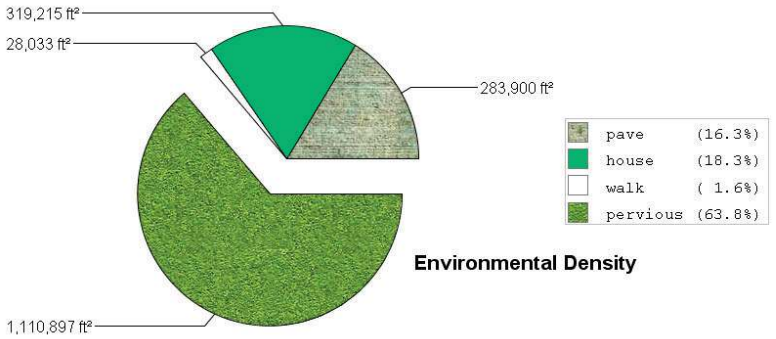
The 55.1-acre site is surrounded on either side by rectangular gridded conventionally-planned subdivisions. The original plan was designed as a grid to Coachella's minimums with a density of 234 lots. The coved plan was approved with 270 lots . The coved plan also added in five acres of park. Yet, there has 3.7 Acres less paving and almost 1,600 less linear feet of street. Also unique to this development is the cities willingness to allow reduction in ulility construction including manholes on the back of curbs and slight bends where pipe joints allow flexibility.

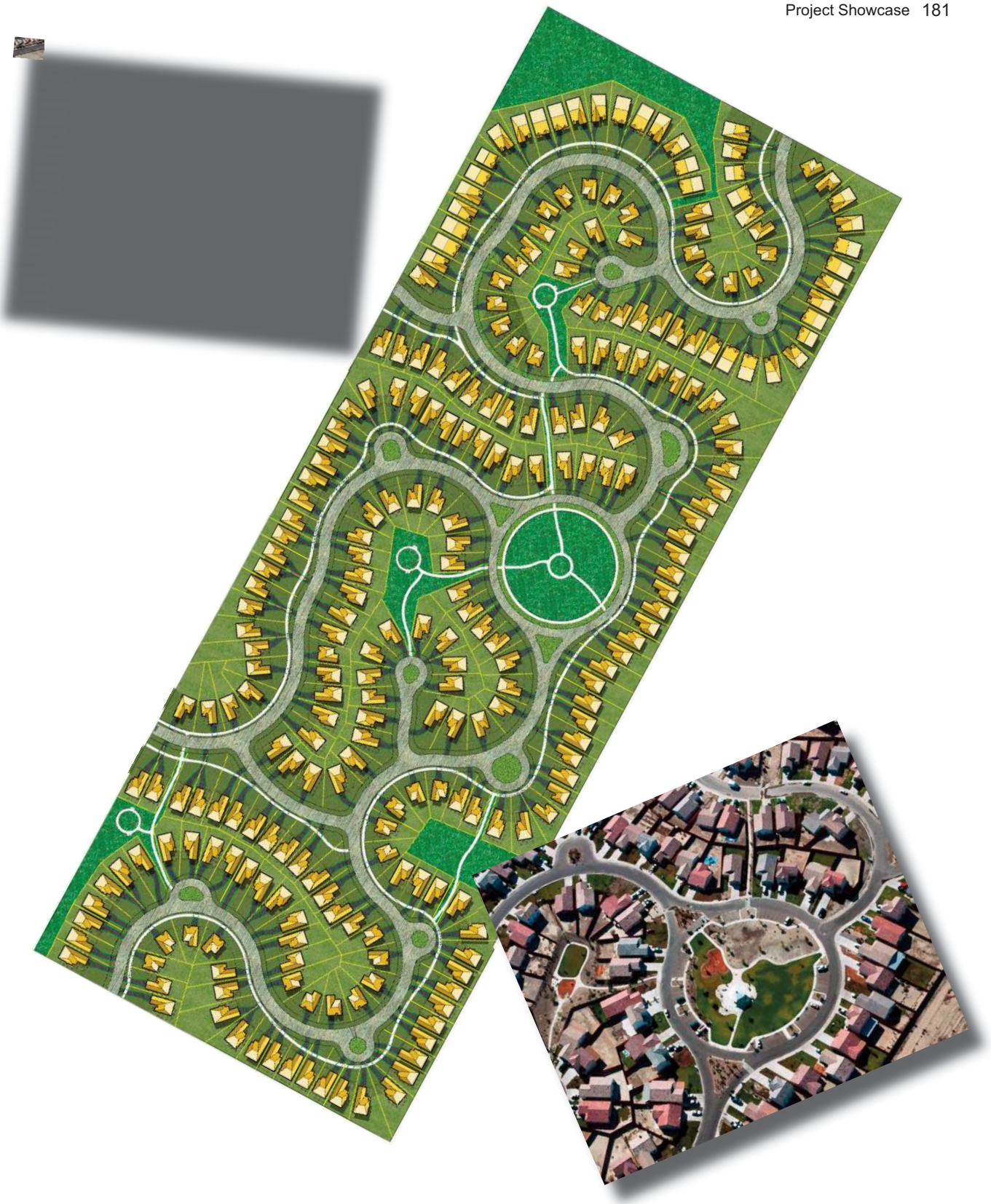
Coving was instrumental to reduce infrastructure enough to add several parks with one main centrally located park. No matter how one enters the neighborhood, they are led to the centrally located park. All the parks are connected by meandering walking trails designed to encourage a stroll, and the central park also contains a work re-training center. The longer than usual driveways help to accommodate off-street parking.

At an average lot size of 6,439 sq. ft., and a density of 4.9 homes per acre, homes sold out quickly. The neighborhood received Coachella, CA's 2002 Affordable Housing Project of the Year.

Total impervious surface area of this site is 40%. Placitas de la Paz is fully constructed.

Area	55.1 Acres
Coved Single Family Lots	270
Homes per Acre	4.9
Average Lot Size	6,439 sq.ft
Park Area	5.2 Acres
Area Meandering Front Yard	15.3 Acres





ELEONOR

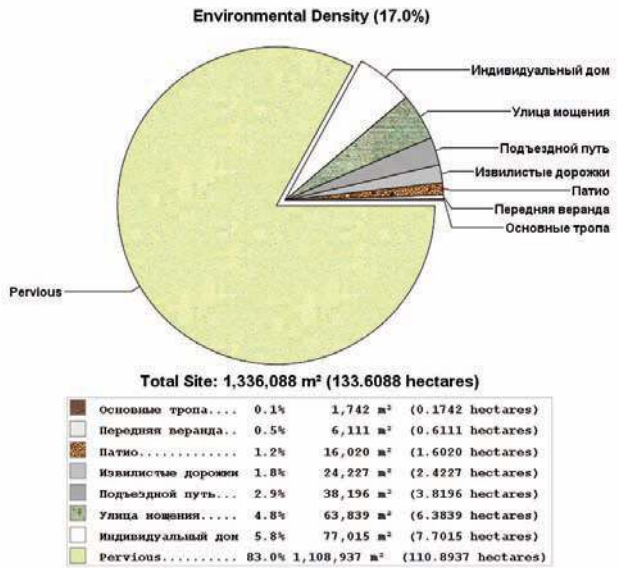
Tomsk, Siberia

Dimensions outside the USA are metric (for convenience we converted the data below to English units). This beautiful site is the first phase of a very large Master Plan (done previously by another consultant) located southwest of the town of Tomsk. Coving was used to increase efficiency and home value compared to the 'before' plan shown in the inset, resulting in a 13% increase in density with a 19% decrease of infrastructure. The center townhome grid, as well as the multiple round-abouts were existing, thus could not be revised.

In addition to gaining density and efficiency, Prefurbia increased connectivity, function, safety, flow, premium locations, and open space.

Russian suburban design is very similar to the American suburbs in form and function. The site is bordered by a beautiful creek and the design reflects a reduction of impact on slopes. This neighborhood is under construction, the 3D LandMentor rendering shows Russian architecture.

Area	Approx. 300 Acres
Coved Single Family Lots	521
Average Lot Size	17,705 sq.ft
Area Meandering Front Yard	75.1 Acres



BEFORE PLAN

FONTANAR

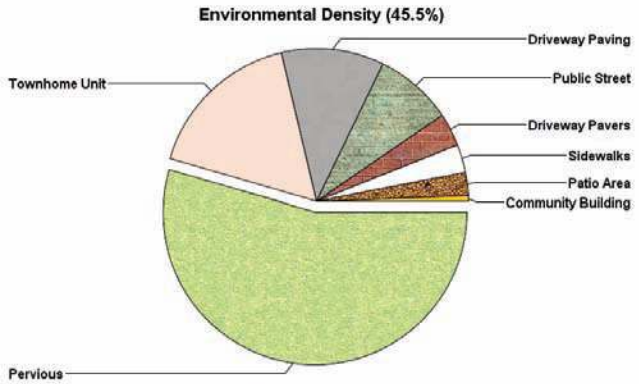
Bogota, Colombia

It began study to convert a grid site plan of a small section of the Fontanar Master Plan testing Prefurbia design methods. This led to many other Prefurbia designs and Master Plans for Amarilo, the developer who is in both Colombia and Panama.

The original plan consisted of many short segments resulting in terrible 'flow' of traffic. It was just natural for any developer to assume the original plan would provide the most density. Our alternate plan achieved the same density with 1/3rd less street, while eliminating monotony and providing a street pattern that would require less travel time and energy. In addition, walking connectivity was provided where none existed before.

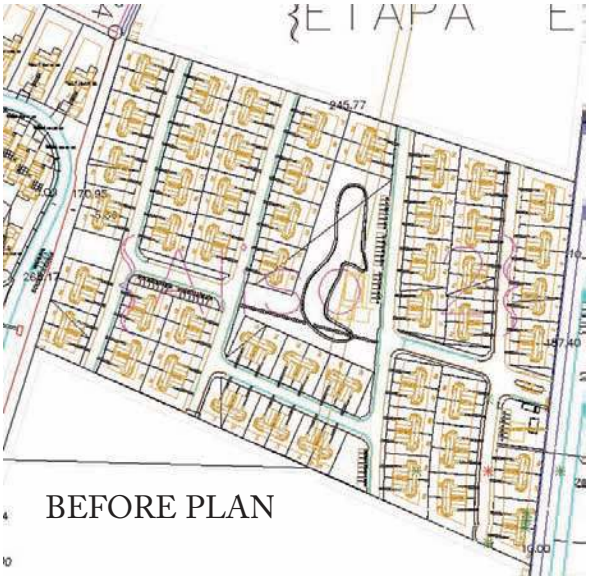
This neighborhood is approved and built as shown.

Area	12.2 Acres
Coved Twinhome (duplex) Units	98
Homes per Acre	8.0
Average Lot Size	4,004 sq.ft
Minimum Lot Size	3,225 sq.ft.
Park Area	1.6 Acres
Area Meandering Front Yard	3.4 Acres



Total Site: 532,934 ft² (12.2345 acres)

Community Building	0.6%	3,077 ft²	(0.0706 acres)
Patio Area	2.4%	12,862 ft²	(0.2953 acres)
Sidewalks	3.0%	16,130 ft²	(0.3703 acres)
Driveway Pavers	3.5%	18,780 ft²	(0.4311 acres)
Public Street	8.3%	43,997 ft²	(1.0100 acres)
Driveway Paving	10.9%	58,286 ft²	(1.3381 acres)
Townhome Unit	16.8%	89,549 ft²	(2.0558 acres)
Pervious	54.5%	290,253 ft²	(6.6633 acres)



BEFORE PLAN

PRAIRIE CROSSING

Kildeer, Illinois – Pulte Homes

Access to this luxury 75.1 acre Kildeer (NW suburb of Chicago) neighborhood is along the site's south border, from West Cuba Rd, then turning north, into North Prairie Lane.

Kildeer had a 'cluster ordinance', which allows ½ acre lots, with a 50% open space requirement. Coving increased the lot size from the minimum 21,780 sq. ft., to an average size of 25,544 sq. ft, while still achieving the allowed density goal.

Although North Prairie Lane appears to be an exceptionally long cul-de-sac, it was allowed due to the addition of a hidden landscaped emergency access, providing access via N Quentin Road, the main street along the west border of the property.

Coving was used to enhance the feeling of space, while ensuring all 54 homes had magnificent views of the site's many natural and manmade features, while also minimizing development impact.

A beautiful meandering natural white stone walking trail connects the neighborhood both through the site and around the perimeter. Its placement provides residents maximum exposure to the creek, aquatic garden, landscaped trellises and landscaped relaxation areas.

The city required 50% open space on this site; we achieved 65% open space (49.1 acres).

This neighborhood is fully constructed.

Area	75.1 Acres
Coved Single Family Lots	54
Homes per Acre	0.72
Average Lot Size	25,544 sq.ft
Minimum Lot Size	21,780 sq.ft.
Open Space	34.9 Acres
Area Meandering Front Yard	14.2 Acres
Total Openness	49.1 Acres (65% of Site)
Area Street Public Paving	3.96 Acres

REMINGTON COVES

Otsego, Minnesota

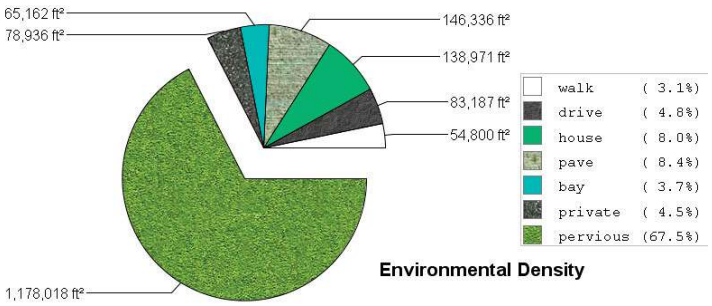
This 37-acre neighborhood is accessible from NE 70th Street, along the north border, or via NE 67th Street on the south. Upon completion in Summer 2014, it will have 70 single family homes and 43 BayHomes.

The free-flowing organic design was the first evolution of coving design methods where homes formed 'blocks within blocks' creating internal open spaces and greatly expanded viewsheds. This low impact development maintains a rural feel while achieving an impressive overall 3.05 homes per acre. The city's minimum lot size was 9,000 sq. ft; yet this pioneering design yielded lots averaging almost 1/3 larger in area, 12,750 sq. ft.

Reasonably priced housing choices, walking paths with multiple routes leading to visible green spaces, a 1.2 acre park, two gazebo's and fully equipped children's playground enhance livability. Two wide paths double as emergency accesses, adding north / south connectivity that places Remington Cove's walkability on par, or better, than traditional or New Urban neighborhoods.

This neighborhood stalled at the recession, like all outer ring suburban developments in Minnesota. As the recovery began, the single family lots were picked up by Ryland Homes, one of the national home builders with very strong sales selling out in just one season.

Area	37 Acres (net)
Total Housing Units	113
Coved Single Family Lots	70
Number of BayHomes	43
Homes per Acre	3.05
Average Lot Size	12,751 sq.ft
Minimum Lot Size	9,000 sq.ft.
Park Area	1.2 Acres
Area Meandering Front Yard	9.3 Acres



Environmental Density

SETTLER'S GLEN

Stillwater, Minnesota – Lennar Homes

This 125 acre neighborhood is located off of 80th Street North, accessible by turning north into either Atwood Lane or Macey Way. Stillwater is a quaint rural town located along the St. Croix River, and a popular tourist destination for antique shopping.

Coving was used to minimize earthwork and preserve many trees, wetlands and environmentally sensitive areas that surround the site, which includes a trout stream, known as Brown's Creek. The site plan has 220 single family homes, set on a minimum lot size of 7,000 sq. ft. The use of Coving increased the average lot size to 10,299 sq. ft.

In a July 10, 2005 article in the *San Diego Union-Tribune,* Bob Swanick, regional vice president of US Home (Orrin Thompson Homes at the time), commented, "*We were looking at communities of narrow home sites, so it was important for us to end up with a community that had a great deal of curb appeal with a maximum amount of parks and still give us the density we needed. Not only did he [Rick Harrison] improve our density, he lowered our development costs, and that allowed us to be a little more affordable than the competition.*"

Meandering trails connect homes to each other and beautiful views of the wetlands, stream, three parks, and athletic fields. Total openness, including the park-like greens along the streetscape, is 37% of the site.

When we first presented the plan we were informed that only 40% of the home front could be garage face (to prevent overload of garage door views) by the ordinance. We demonstrated that with inventive architecture homes could have a forward access garage(s), 3 car garages, and a front porch for character. For this demonstration the City gave us a variance due to the successful architectural alternatives. This neighborhood is fully built and sold strong even during the recession!

Area	125 Acres
Total Housing Units	220
Homes per Acre	2.5
Coved Single Family Lots	220
Average Lot Size	10,299 sq.ft
Minimum Lot Size	7,000 sq.ft.
Open Spaces	67.5 Acres
Area Meandering Front Yard	6.3 Acres
Total Openness	37 Acres (37% of Site)

SUNDANCE VILLAGE

Dickinson, North Dakota - Meyer Real Estate Company

This site is at the Northeast corner of 21st Street East and 109th Avenue SW.

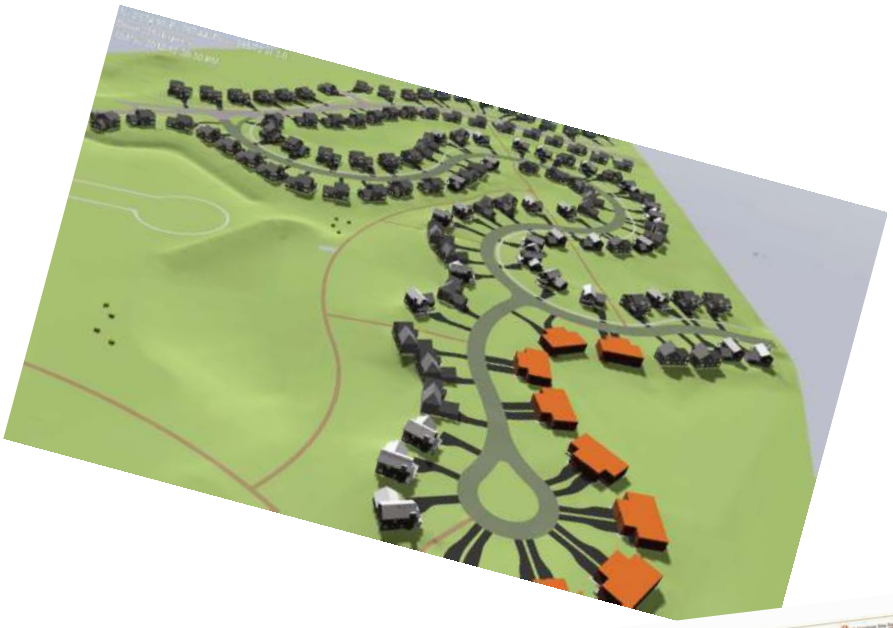
After using Prefurbia planning on a 36 acre site in Dickinson, Meyer Real Estate Company contracted us to design this 308 acre neighborhood which will become a benchmark for future development in North Dakota. Unlike previous examples which use some elements of Prefurbia, this one features almost all of the methods prescribed in this book. Sundance Village will house almost 1,000 families when fully built. It is engineered by Short Elliott & Hendrickson.

Meandering trails are provided along home fronts, with walkways to provide shortcuts through the development (in all directions) to shorten walking distances and encourage a stroll.

The site consists of rolling terrain and surface flow was engineered into the site by Short Elliott & Hendrickson consulting engineers who adopted the LandMentor system. This low impact development features a cascading ponding system harnessing the sites natural flow combined with a main trail system that forms an overall organic flowing parkscape.

What is not obvious, but also important, is that this site pushed new territory for engineering in the Dickinson area. As word of this plan got out, demand for our services increased and in a short time period we were contracted to design over 6,000 units in several developments in the State in 2013. Phase One of this site is approved and under construction.

Area	308.4 Acres
Area in Church and Retail	13.2 Acres
Homes per Acre	3.33
Coved Single Family Lots	982
Open Spaces	47.4 Acres
Area Meandering Front Yard	63.3 Acres
Total Openness	110.7 Acres



COUNTRYSIDE

Fountain, Colorado - Rivers Development Inc.

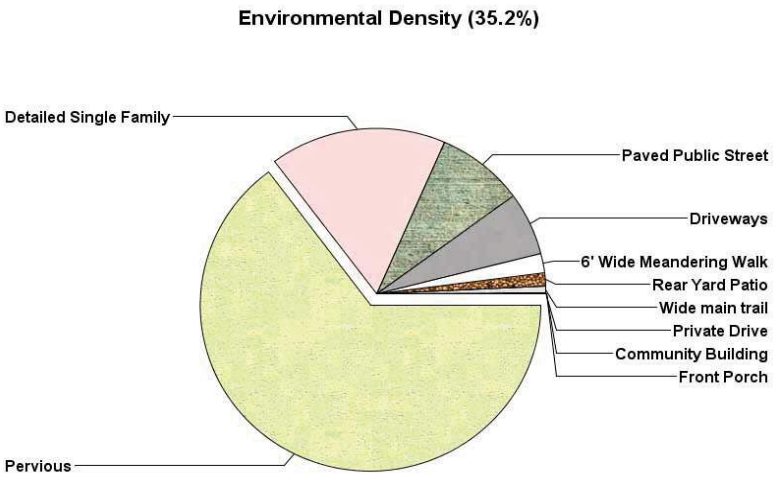
Dean Blazek of Rivers Development was originally skeptical but intrigued with the prospect of Prefurbia. Their site was previously planned using conventional methods their previous projects utilized, quite commonplace in the Denver area.

The density goal was 650 homes. Their intention was to create attainable housing in a low impact development offering a greater standard of living. When looking at their original plan, we estimated we could reduce the street infrastructure by 30% - *the actual reduction was 29.9%.*

The Prefurbia street system 'flows' traffic - with most residents arriving home with just one (intersection) turn, or less. The circular walk 'defines' the neighborhood as well as providing a connective open space system (which also serves as the low impact ponding route).

Impervious surface area is just 35.2% of the site. The parks and coved front yard total 61.7 acres or 36% of the total site area! This plan as of his writing is in the approval stage. However, Fountian Meadows, a Colorado Springs neighborhood we designed is under construction.

Area	168.7 Acres
Homes per Acre	3.84
Coved Single Family Lots	648
Average Lot Size	7,743 sq.ft
Minimum Lot Size	6,000 sq.ft.
Parks	18.5 Acres
Area Meandering Front Yard 43.2 Acres	



BEFORE PLAN

PASEO DE ESTRELLA

Albuquerque, New Mexico – D.R. Horton

This 40 acre neighborhood is located in the master planned community of Vista del Norte. To get there, take State Hwy 25, exit West onto Osuna Rd NE (Hwy 25) and turn into Sidewinder Drive.

This award-winning neighborhood was New Mexico's fastest selling community in 2004. Paseo de Estrella "*was so well received, we sold all our lots within 12 months*," says Bob Prewitt, a former vice president of D.R. Horton's New Mexico division who stated; "*Harrison's plans provided us with unique communities that return greater profits and market advantages over our competitors.*"

Through its organic design this efficiently-planned 162 home neighborhood blends Albuquerque's unique desertscape into the lives and homes of its residents.

The neighborhood includes homes for first time homebuyers, as well as move up markets. Usable land area was increased by the coved approach that consumed much less land in ROW, in fact 39% less linear ft. of street – from 7,500 ft. down to 4,600 ft. The plan's efficiency freed up enough additional land to add more parks, a beautiful meandering walk system, and lots that averaged 20% larger than competing subdivisions. Average lot size was 7,814 square feet yet density is four homes per acre.

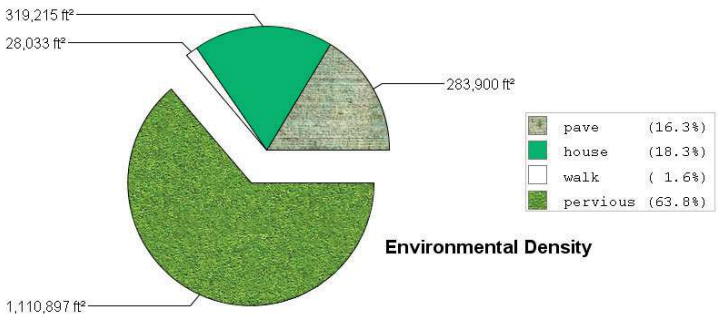
Homes were positioned at graduated angles and varying setbacks along a meandering boulevard that when combined, offer greater scale and create a striking streetscape.

Twenty percent of the net landscaping was water-demanding species and was reserved for the 5.2 acres of common park areas; the remaining 80% of landscaping was xeriscaped, to blend the region's natural surroundings into resident's tangible environment.

Impervious surface area comprises 39% of the site.

Paseo de Estrella is fully built.

Area	40 Acres
Homes per Acre	4.0
Coved Single Family Lots	162
Average Lot Size	7,814 sq.ft
Parks	5.2 Acres



Barton's Creek, Tennessee – S.E. Building Corporation

This 106 acre Barton's Creek neighborhood is accessed from the south border of the property, along Coles Ferry Road, it was approved but on recession hold with plans for construction soon.

Watermill is on sloping terrain. The original proposal ignored the slope advantage calling for a grid pattern to be implemented, which would have increased the amount of cut and fill, as well as the amount of road needed to build the homes. Key viewsheds would have been blocked by homes.

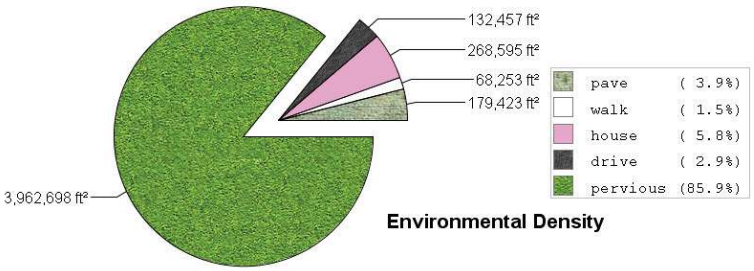
The organic road pattern on the coved plan reduced the amount of paved surface area and accommodated the terrains variation & natural drainage patterns, reducing construction costs. It also allowed many of the 128 single-family coved home lots to gain premium views of Old Hickory Lake, which was at the base of the slope. The average lot size was 16,209 sq. ft..

All residents have access to a beautiful meandering trail system which leads to the lake. Total openness on the site, including parks, center islands and the meandering home front greens, is 68.6 acres, or 66% of the site.

Winding walkways are positioned to provide quick access through the site without encountering severe grades, which will encourage walking over driving. The *pull-back* design technique of Prefurbia provides more homes with direct lake views than possible with the original grid plan.

Impervious surface area is 15.13 acres, or 14% of the site.

Area	105.9 Acres
Homes per Acre	1.21
Coved Single Family Lots	128
Average Lot Size	16,209 sq.ft.
Parks & Street Islands	49.0 Acres
Area Meandering Front Yard	19.6 Acres



WINFIELD COVES

Laredo, Texas – Killam Development

The very first sale of Prefurbia was purchased by Rollie Ortiz of Killam Companies who after reading it contracted us to redesign their 750 acre development.

Similar to Countryside a few pages back, we determined that a main circular trail (approximately 2 miles in perimeter distance) should define this community of 2,000 homes.

This trend setting community will redefine how land should be developed in Laredo setting a higher standard of living at attainable price points. Safety is enhanced with the various *diffusers* that also create a sense of place. There are three large schools and retail that are adjacent to the main trail system. A goal of Killam Development was to keep as much land in it's natural state and minimize impact on water resources as much as practical, easily accomplished with the site design which also utilizes surface flow, a first in the Laredo region.

Similar to other examples previously highlighted, we maintained density while demonstrating a reduction of infrastructure 30% compared to the prior conventionally designed plan.

This neighborhood is zoned based upon the plan shown and phase one is being engineered as of this writing.

Area of Site	763.9 Acres
Area of Commercial	138.1 Acres
Area of Schools	43.8 Acres
Residential Area	582.0 Acres
Homes per Acre	3.43
Estimated Number of Units	2,000
Parks & Street Islands	86 Acres
Area Meandering Front Yard	101.3 Acres

BEFORE PLAN

ROSEHEART

San Antonio, Texas – Sitterle Homes

Roseheart is an 83.5 acre active adult neighborhood in San Antonio, located off of Bulverde Road & Roseheart Road.

Roseheart has a village atmosphere with intimate spatial relationships & multiple interior green spaces containing water features, pool, tennis courts, gazebos, mini-parks, walking trails and a clubhouse.

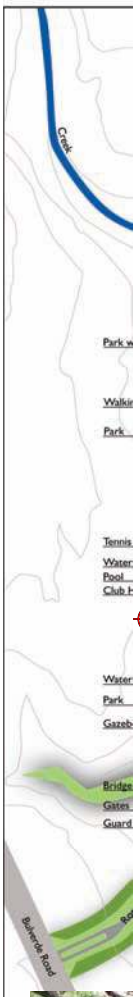
The vision for this 241-home community, was to create a plan that would enable the maximum number of residential lots abutting a private greenbelt perimeter and heavily wooded interior while preserving most of the existing abundant trees. The green belt is covered in mature native trees (oaks, elms, and wild persimmons), and includes two wooded creeks & a large cave preserve, providing residents access into a secluded refuge from city life. These natural constraints also rendered 20 acres unbuildable; however, these same features were then turned into an advantage by utilizing the area for natural drainage and detention.

As a result of coving, streets lengths were reduced substantially, so there was fewer sewers, fewer waterlines and less paving, resulting in a savings of close to $200,000 in development costs.

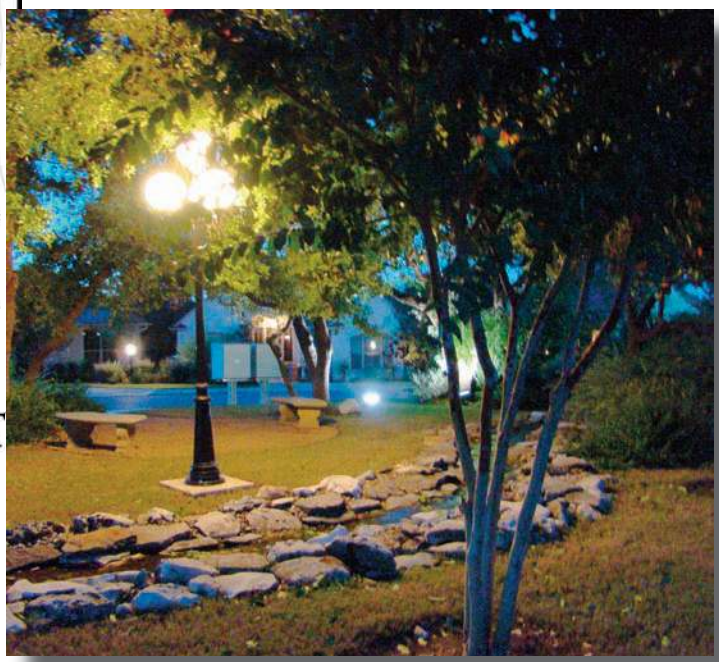
Frank Sitterle, a 41-year Texas home-building veteran who has won numerous awards, is the site's developer. "*Everybody loved it*," he said. "*Every single lot is a greenbelt lot. This is a huge marketing advantage, and we were able to really maximize our return because we could get a premium for every lot we had.*" Density is 2.73 homes per acre, with an average lot size of 9,122 sq. ft.

Impervious surface area comprises 27.41 acres, or 32% of the site.

The site is entirely sold out.



Area	83.5 Acres
Homes per Acre	2.73
Coved Single Family Lots	241
Average Lot Size	9,122 sq.ft
Parks	22.1 Acres
Area Meandering Front Yard	16.0 Acres
Total Openness	38.1 Acres (46% of Site)
Area Street Public Paving	6.31 Acres
Impervious Surface Area	27.41 Acres (32% of Site)



VIERA

Melbourne, Florida – Viera, Florida

The best example we saved for last. Viera is an established large scale Master Planned community near Melbourne, Florida. There were several studies done before Prefurbia was chosen, one example is shown above the Prefurbia plan and the source of comparison. We were introduced to the developer by Hassan Kammal of BSE Consultants who engineered a neighborhood we had previously planned in the area. The Viera Company has a development and home building division.

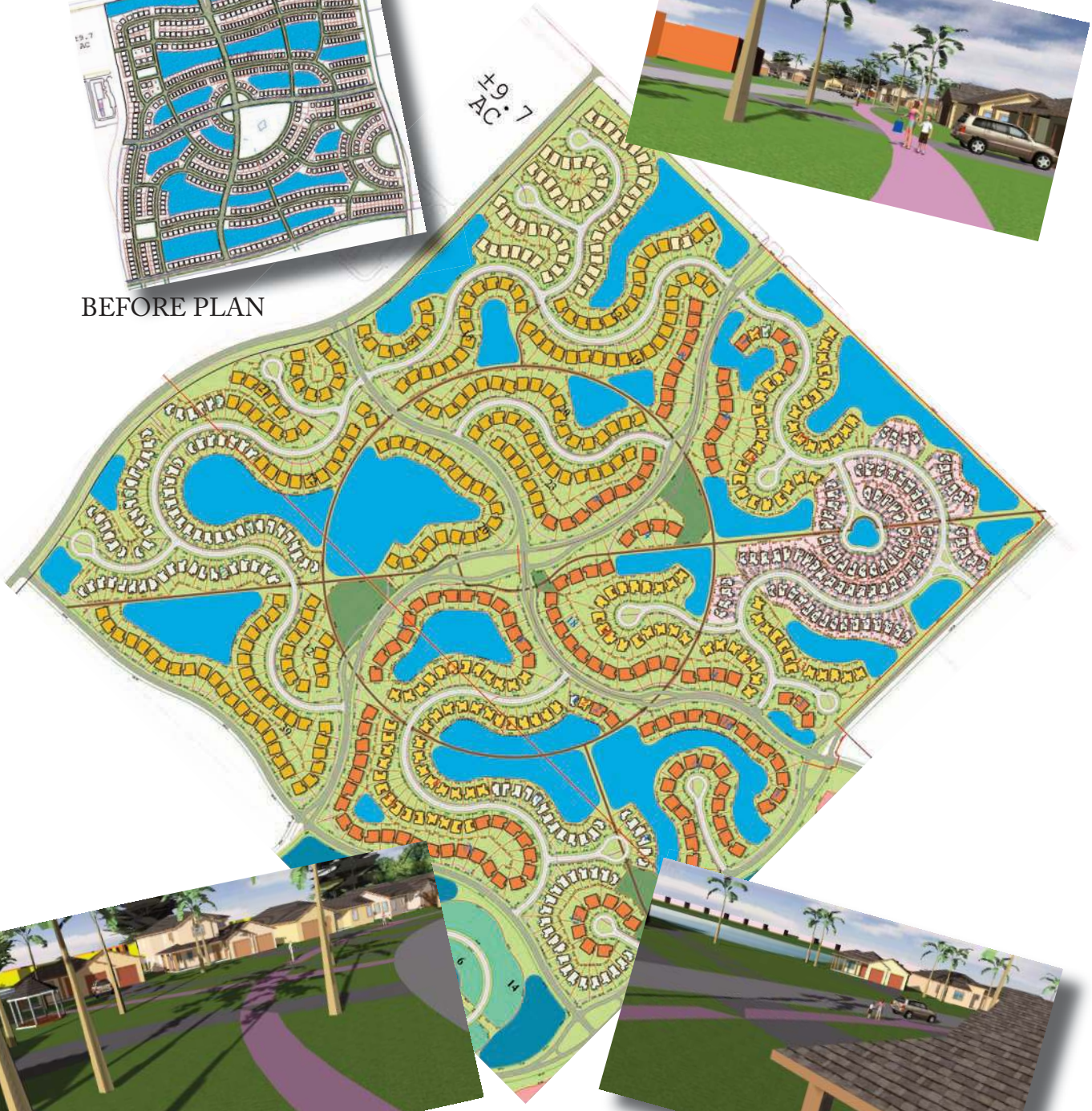
There were certain 'smart growth' elements that were required previously and incorporated in the design. The density and housing mix were also retained. This is the world's first development where the homes were redesigned to make maximum use of the architectural shaping and blending, and actually eliminated the original rectangular floor plans! Viera was first introduced on page 144.

Because of the previous planning criteria, the site is bisected into four quadrants which would typically create separate neighborhoods, however, in Viera, a circular main trail binds neighborhoods together. The 1.2 mile long trail is perfect for exercise. An additional straight tree-lined main trail becomes another neighborhood feature. Elegant meandering walks link residents to the main trail.

Traffic diffusers help create neighborhood character and sense of place while increasing both vehicular and pedestrian safety. Ponding area required was 18% of the land area.

	Before	After
Site Area	292.3 Acres	289.7 Acres
Average Lot Size	8,146 sq.ft.	9,901 sq.ft
Area Public Street Per Home	2,143 sq.ft.	1,707 sq.ft.
Total Length of Public Street	44,070 lin.ft.	27,263 lin.ft.
Total Area of Park-like Front Yard	66.0 Acres	0.0 Acres
Number of Street Intersections	54	18

BEFORE PLAN



Biography

Rick Harrison

Growing up in Oak Park just outside Detroit, I dreamed of one day designing cars. At the age of 15, my mother, Carol Minowitz, came home and said, I've got a job interview for you. After showing a few car sketches to Don Geake, of the land planning firm Geake & Associates in Southfield, Michigan, I was hired to begin an after school job in land planning as a draftsman. Within a few weeks, Don had me laying out subdivisions. I was designing land developments before I was old enough to drive!

At Geake & Associates, we used marker pens to create freehand designs. We saw ourselves more as artists than subdividers. At no time was I taught how much development costs to construct, or how to reduce infrastructure. If I thought adding an extra bridge on a site would increase density, I threw that in. Economics did not matter.

We kept developers happy by improving density that would fit in a given area. One way to maximize the illusion of increased density was to 'trace' a site survey larger than it actually was. This created the ability to show a larger number of houses on the site. The mis-represented density was always lost when the engineer or surveyor tried to make the site plan work. Given an unworkable plan, the engineers and surveyors most often changed our plans to the point that they no longer looked anything like what we initially drew. The bigger problem was that the developer estimated costs and profit based our original inaccurate information which was fantasy, not reality.

During the six years working in Don's planning office, it was never suggested that we factor into our plans the cost of constructing the streets, sewers, or drainage systems. Not once did we refer to topographic maps to determine the best position for a street or home, to minimize the impact of earthwork. That was the job of the engineers, not us.

Unfortunately, little has changed in the land planning field in the four and a half decades since I worked for Don Geake. Developers still assume their planner has taken engineering and surveying issues into account, but in most cases this is not the case.

By 1974, the auto industry was in crisis due to the oil shortage. A stalled auto industry in Detroit meant there was little new development work; however, at the same time I was approached with a new opportunity: to become a Land Developer.

At age 21, I was in business with my stepfather Abe Minowitz trying to correct some (many) construction mistakes that had been made constructing a 64-unit development he had invested in, called Robert Arms in Newburgh, New York, located above the banks along the Hudson River. I was excited about the opportunity.

When I arrived at Robert Arms, I had to solve what was essentially an earth-moving problem. The soil under one of the buildings had eroded so badly that the bottom of one of the basement foundation was visible and there was a 90-foot drop to the river valley below. The building was in danger of sliding away!

Abe asked me how much it would cost to fix the problem. I, being an ignorant 21-year-old ex-land planner said, "*It will only be $600 a day for the bulldozer -- plus whatever*

dirt costs." When we got the bill, the "*whatever dirt*" cost over $10,000 – the equivalent of about $42,000 today after inflation. This was for just one apartment building.

I received a justified stern lecture fromAbe. This experience taught me that a planner must look at many more issues than just the almighty yield. In fact, I realized that, to be effective, a planner must have a full understanding of surveying and civil engineering. A knowledge of the impact that his/her decisions will have on the cost of development.

After solving Robert Arms problems, I relocated to Texas (where the jobs were in the mid 70's) and began an employment under the supervision of Paul Lederer, and Chalmers Miller who were land surveyors and civil engineers. In addition to learning as much about surveying and engineering as I could, a new hobby began – developing computer programming related to my work.

Eventually I left Houston for Dallas to become Head of Planning for Herman Blum Engineers, one of the largest consulting firms in Texas. It was there that my programming hobby evolved into something that would end up as a marketable civil engineering and land surveying software that could perform coordinate geometry tasks.

Over a few years, via newspaper ads and a surveying supplier, I made 20 sales to Dallas surveyors. However, I was concerned that I had not received a single support call – ever. Thinking that no one was using the software, I quit selling it.

About 6 months after I quit the software venture, I got a call from Hewlett Packard about a soon to be launched desktop computer called the HP-87. Apparently, they had queried about 50 professional design software packages on the market (they got my customer list from our supplier), and mine had come out on top for user satisfaction! They wanted me to write a surveying package they could promote with their computer, and a very succesful 20 year collaboration with HP began.

I had the first factory prototype HP-87. I took a four month leave of absence to develop the first *Site Computation & Design* software package. In a time when others sold their software for upwards of $20,000… (back then, software did not do much) I estimated if I priced the software at $895, undercutting everyone on the market, the phone should ring off the wall. After a national advertising effort, it did. Within weeks, I left my land planning career behind to become a software developer.

Over a period of almost two decades, we sold about $20 million in systems. Because the equipment was so bulky (about 200 pounds) I began flying lessons. I soon owned and flew a Cherokee 6, upgraded to a Mooney, a P-210 and then a Piper Malibu. With over 4,500 flight hours servicing customers all around the country I gained an intimate 'pilots view' of the development patterns that were taking place. One thing that was very clear was all this new technology at their disposal, those designing land developments seemed to still be stuck repeating patterns from the 1950's, or made worse because of computers and software, repetition became the norm.

After a few years, I moved on to a new challenge: use all that I had learned in business, to help improve the way land was being planned. That is how Rick Harrison

Site Design Studio was founded. I soon discovered *Coving,* and with it success came faster than I ever imagined. We have been continually discovering new ways to raise development standards in both design and regulation.

With the land planning business flourishing, we decided to teach others the knowledge that we have gained, so that these methods, concepts, and even technologies can improve the quality and sustainability of future development. We decided to write a book. In 2004, we began writing this book and a few years after that began developing an entirely new form of software, along with comprehensive design training, now sold as LandMentor. LandMentor is a patented software technology created specifically for sustainable land development design. We did not do this alone, mind you...

Skip Preble, a financial consultant for land developers helped us design analytical aspects of LandMentor financial modeling. Skip, president of Land Analytics, LLC (www.landanalytics.com), sums up Prefurbia:

Everyone in the land development process should devour this book, because the vast majority of Americans want what it describes. Prefurbia describes a more livable, attractive development environment - one that minimizes pavement, allows for "walkable" neighborhoods, and provides streetscapes that will get more attractive as they age. In my land development consulting practice, I have had the opportunity to test these methods on a number of occasions, and in every case the resulting designs have not only produced attractive, livable communities, but they also reduced development costs and accelerated absorption rates compared to competitive developments using conventional design. Prefurbia is absolutely a win-win for all involved.

Steve Sletner, head of private development expansion for Short Elliot & Hendrickson (SEH, Inc.) consultants has been instrumental in overcoming objections of engineers who fight progress and change. Steve and SEH, Inc. represent the future of engineering firms, a select leading edge group of consultants who believe in a brighter and sustainable future and have proven instrumental in making change possible.

When I began writing software, my fellow workers at Herman Blum Engineers snickered and said 'he will never sell any'.

If only I had a nickel for every naysayer who said it won't work.

We designed over 900 developments in 46 States and 18 Countries.

For more information and the latest on the concepts presented in this book, you can go to the Rick Harrison Site Design website at www.RHSDplanning.com.

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Page 107:	Commercial strip center with senior townhomes behind it in St Michael, Minnesota.
Page 127:	Hamilton Mills, Georgia.
Page 129:	Remington Coves - Otsego, Minnesota taken from BayHome porch.
Page 139:	Streetscape in Roseheart, San Antonio, Texas.