

Omaha's Lake Cunningham Village is a revolutionary affordable neighborhood that will new standards for lower income (attainable) single family housing. Housing affordability is a critical issue in most US cities. Many advocate that lower income families live in high density towers sacrificing livability and often dignity. In dense cities with excessive land costs, high density attainable housing may be unavoidable. In most suburban areas, land costs should not be the main roadblock, as the expense to develop the land is the major barrier. The excessive development cost is passed onto the buyer.



Price would need to be competitive with other builders. However, a better way to compete is to offer a better home on a better lot at similar prices of existing 'attainable' homes in cookie-cutter subdivisions.

Henry Luo, Mitch He, and Aaron Yang, principals of A1 Development, Inc. purchased the topographically challenging 62 acre site at the Southeast corner of N. 96th Street and State Street, in northwest Omaha. A good portion of the land would allow homes to overlook Cunningham Lake just to the northeast of the site – providing lakeview affordable homes. A1 Development, Inc. is not your typical company, founded on the principles that Albert Einstein once quoted: *Try not to be a man of success – Try to become a man of value.*

To create affordable housing, most builders and developers think of reducing building costs or squeezing homes together (densify) - sacrificing street presence (curb appeal and sense of space). The team that A1 Development, Inc. contracted included Short Elliott & Hendrickson (SEH), civil engineers because of their vast previous experience in 'coved' neighborhood design and history of balancing earthwork to eliminate construction costs. The homes would be designed by Design Basics, because of their expertise in housing affordability without sacrificing character. Rick Harrison Site Design Studio for their pioneering collection of neighborhood design methods described in their book *Prefurbia*, as well as their LandMentor precision Virtual Reality software technology, which SEH also is a user.

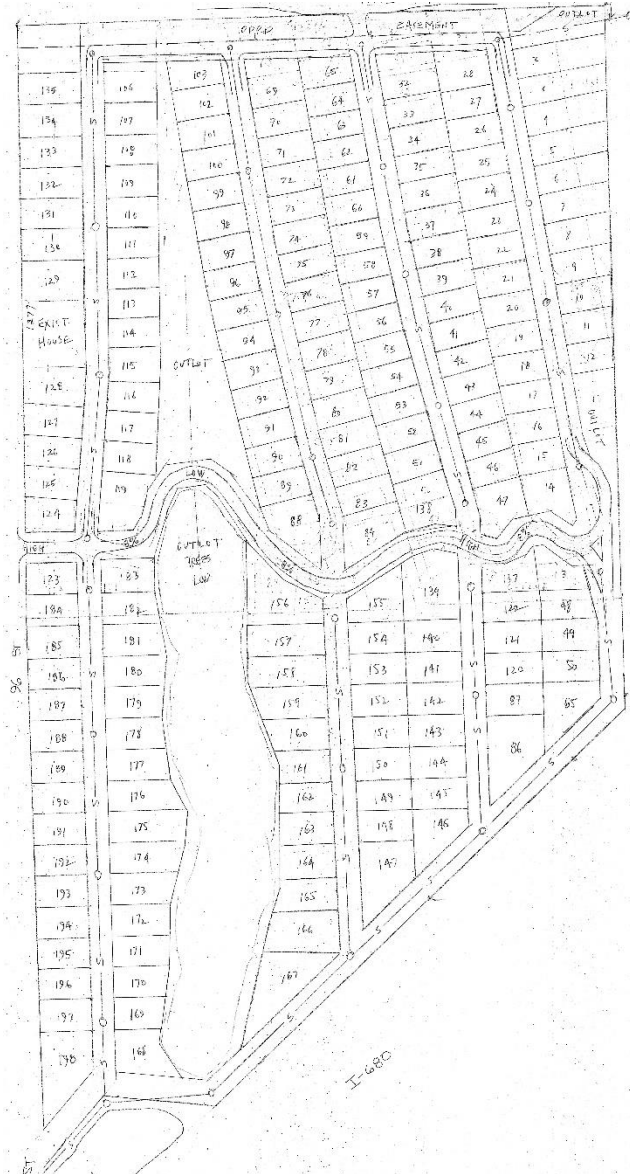
The old way:

A typical subdivision process is to create a *conceptual layout*. The actual original layout is shown here. Picture this site with severe topography that would be ideal for a motocross track. This plan that forces homes close to each other demanding wholesale earth moving, and an abundance of retaining walls. None of those issues are typically considered at the concept stage. A city may give the developer a yes vote at the concept presentation, and the engineer's next task would be to make this plan work for preliminary plat approval.

In this 'normal' process, home design is an afterthought and not part of this process unless there are multifamily units.

During design and engineering communication between the land planner, engineer, and architect is non-existent.

The results a non-collaborative industry? – Stagnation, with little change for the past six decades. No wonder costs savings is limited to density and materials thus, affordability is a problem that's never answered.



A better way:

Instead of working independently, the key consultants, Joe Foley of SEH, Carl Cuozzo of Design Basics, and Rick Harrison merged planning, engineering, and architecture at initial design stages to develop a more affordable and better housing solution for the Omaha market. The main goal was to concentrate on the end customer – the living quality of the family living in each home, as well, as the security of their investment. Lower income must not be lower 'value', because if it is, we are creating future problems for the city and sacrificing living standards and investment security for the people who need it most.

At every step of the way, the professional group worked as a cohesive team under the direction of A1 Development, Inc., either in person at SEH's Omaha office or through team webinars.

Embracing the Terrain:

To control cost, the site design had to take advantage of the natural terrain without excessive dirt movement, a huge task because of the land's steep slopes – everywhere.

To eliminate costly retaining walls, we used large areas of landscaped slopes (maximin 3:1) and created architecture that would embrace the terrain with walkouts and lookouts as well as introducing side walkouts and lookouts. This increases the value of the home while reducing grading issues.

The natural terrain is shown here with 2 foot contour intervals. LandMentor indicates low areas in red, then transitions to green (high ground) to eliminate having to interpret contours by zooming in and reading the numeric elevations along the contour lines, during design and the presentation process.

The interstate is at the south border with a considerable drop in elevation to the highway which will soften the effects of living near the interstate. Severe slopes along the east side of the site allows homes to be situated to view Lake Cunningham which is to the northeast of the tract, these homes are shown on the left side of the below image.

Working with the slopes, the homes on the right side will have a view overlooking the homes at the north entrance and also get a view of Lake Cunningham.



Less infrastructure – less cost and more open space:

Reducing street length reduces right-of-way that would have been dedicated to the city. This allows more area of useable land. Increased distances between homes allows transitioning slopes without retaining walls, or at least very few of them.

As indicated before, the initial plan was designed with straight streets on a grid-like pattern ignoring terrain issues, and infrastructure waste. The average demonstrated street length reduction of 'coved neighborhoods' compared to conventional (suburban style) layout is 25%. This translates into 25% less utility mains and 25% less sidewalk volume (Omaha requires walks both sides of the street). Combined with less earthwork and retaining walls, this translates into a significant savings. Depending upon location in the nation, a developer could expect an average savings between \$3,000 and \$10,000 or much more each lot.

Instead of using that cost reduction as profit, those funds are used for better architectural and landscaping elements and simply put – a far superior product at competitive pricing. Street right-of-way robs lots of space, so if a development could have 25% less street length, the less land dedicated to the city in right-of-way instead goes back into lot size and open space. With the unique geometrics of coving, less is more.

Thus, it is the more efficient land design, along with advanced engineering practices that funds better and more affordable housing! This benefits all housing, not just that at the low end of pricing.

An affordable home with a great view:

By coordinating open spaces around the homes with the floor plan design, we increase premium views from 'living spaces' within the homes – something typically reserved for custom homes on a large lot. To achieve density targets without creating a 'garage-grove project' – we utilized architectural shaping.

Architectural shaping merges the coved lot's nonrectangular shape and home design to make the house wider at the front or rear than could typically fit on a grid-like subdivision. A home that is wider at the front has more curb appeal, a fuller front porch. A home that is wider at front or rear can reduce hallway making rooms within a targeted square footage larger and more usable. 'Architectural Shaping' expands space through it's living areas to make a small(ish) home 'feel' larger. This adds value for the first buyer and those that will purchase at each resale.

Architectural Shaping is combined with Architectural Blending, a method that can be applied to both single and multifamily housing. What Architectural Blending does, is coordinate what goes on inside the home with the site plan's open spaces and viewsheds surrounding that home. In other words, paying attention to design for the location of windows, walls, and 'living spaces'. A person inside the home will have views expand as much as possible looking out into the open spaces adjacent to that home. In this neighborhood, because of the extreme topography, these views can also be of regional areas when a home overlooks space over other groups of homes or ravines.

The market responds to a home that has better curb appeal, but also just 'feels' better and larger – even if it's not larger. The abundance of windows overlooking surrounding space enhances this open feel.



Cars as a 'landscape feature':

A major problem with any form of 'affordable housing' often overlooked are parked cars. No matter what a developer and builder invests on architectural and landscape elements, if the street is cluttered with banged up and rusty vehicles, it will look like a 'project' - not a neighborhood. Many lower income neighborhoods have no garage, or just a single car garage. That lower income family will park the better car in the garage and that 'junker' or working vehicles (unsightly trucks) in plain sight, and there goes the neighborhood, along with home values. When presenting a low income development, the consultants 3D renderings (if any) never shows the car clutter, and instead everyone seems to have a nice new car if parked outside. That fantasy is not the real world. If there is no garage or just a single car, the remaining vehicle(s) are exposed to the sun and elements, slowly deteriorating a poor families second largest investment. In Omaha, parking outside makes residents deal with snow and ice most winter mornings.

For those reasons, a two car garage makes more sense which was a goal of Lake Cunningham Village. Still, even with two car garages, there will be exposed vehicles, just less of them. The 'coved streetscape' with meandering setbacks will soften the impact of exposed cars compared to a row of homes set close to the street. The combination of coving and two car garages will significantly reduce this problem without having to build with rear loaded garages with alleys that skyrocket construction costs increasing impervious surfaces and thus, environmental impacts.

Reducing minimums by exceeding them:

Even though we were asking for deviation to some of the Omaha code minimums such as lot width at the front setback – the 'average' lot width exceeded the underlying code because the lots were not rectangular. In other words, each deviation from code was not to decrease any existing minimum, but to exceed that minimum on an average dimension. The neighborhood as planned was quickly approved.

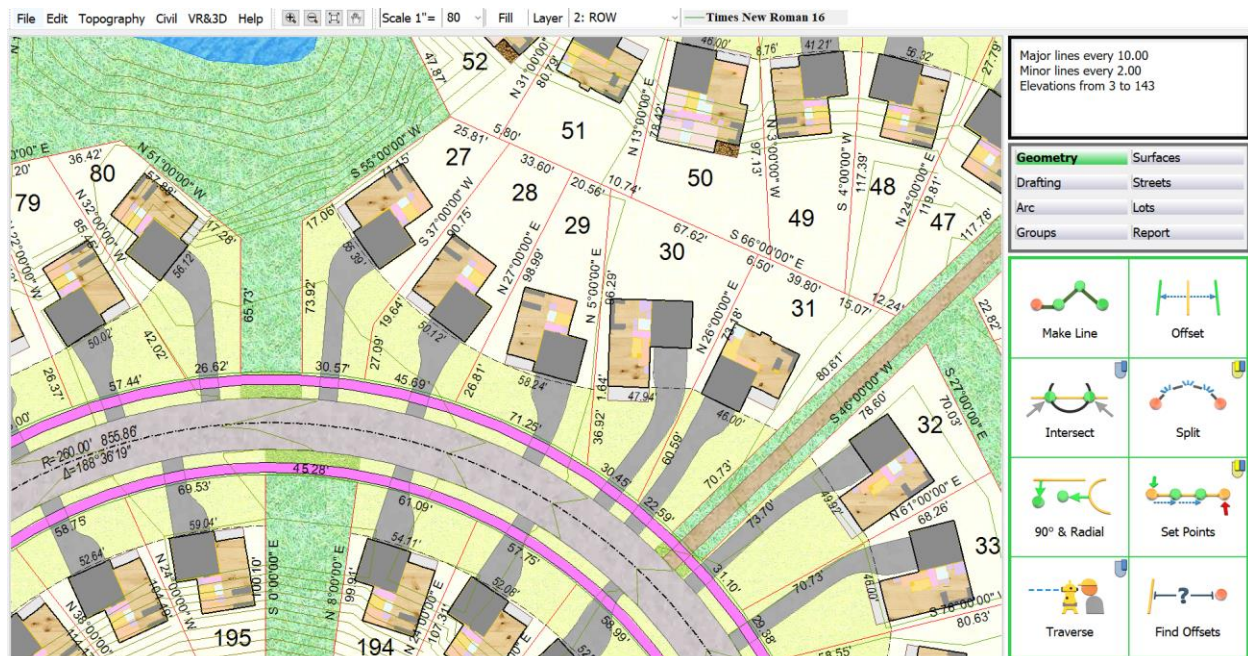
Attainable Luxury Living:

This holistic approach to growth can be applied to every new development and in areas of redevelopment – but it takes an industry to change. Land Surveyors, Civil Engineers, Architects, and Land Planners must collaborate to work as a group at the concept stage through final plat to make sure each element of the design is executed as intended. The way the industry works now, there is no communication between these professionals, like an orchestra in which every musician is playing a completely different tune. To create a symphony (i.e. sustainable neighborhood), everyone must be in concert with another. That ‘concert’ must concentrate on:

- Gaining value while also lowering cost.
- Increasing function without decreasing value.
- Enhancing curb appeal without breaking the budget.
- Embracing the natural terrain without sacrificing neighborhood character.
- Respecting all people regardless of social status or ethnic background.

As seen below, every room – its use (function) and window is coordinated with surrounding views. Homes situated on the inside of a curve get wider at the front – on the outside wider at the rear.

The horizontal and vertical sculpting of the streetscape eliminates the monotony typical of today’s growth. The angled relationship of the homes provides an increased depth of views when inside looking out, and the varied setback provides an increased sense of scale. All of this creates a neighborhood that hides the increased density we achieve on the site. At each stage of design, the LandMentor technology offers instant access to interactive 3D using video gaming technology, both on the screen and using VR headsets. What is seen on a screen is very different than the verification that VR headsets provide with immersive witnessing of the final site as if being there.



Things that can be done (should be) on the governing side:

Cities concerned with affordability have different mechanisms that may (or may not) help the developer to affordability goals. In suburban Minnesota, some cities mandate a certain number of units be at an affordability level. This forces the developer to raise costs for everyone else, which raises real estate tax burden and makes all other homes in that development less affordable. Not the best situation – for anyone but the low income families living in the more affluent suburbs, which is a good thing.

Cities in the USA can learn lessons from Bogota, Colombia!

In Bogota there are many ‘coved’ neighborhoods, built by Amarilo (developer and builder). Affordability is not demanded solely by the developer – the municipality themselves assist. To provide more affordable housing, building materials are not taxed, and the residents pay a reduced real estate tax rate – now that’s a smarter solution. In the USA solutions tend to punish the developer and builder – instead of rewarding them. To make matters worse our ordinances are based on language that can be traced to the 1930’s, and stakeholders. What other product do we purchase today that has its design basis rely on standards nearly a century ago? Cities are made up of a patchwork of development, which is a product. In the USA city administration and councils are more likely to force change than to find methods to encourage it. This win-lose situation does not solve any problems – just creates more.

Technology as a crutch:

A half century ago designers did something rarely seen today – they designed. There was no CAD that automated ‘configurations’ on a button press. New residential and office towers did not replicate each other as if built on an assembly line. Educators did not teach the mindless automation of CAD or GIS - but taught the student how to think – thus design. There cannot be change unless we change the industry, and the universities that teach future generations. Replication is not advancement. We (the land development industry, both private and government) needs to step back and see the obvious – not all technology has improved our living standards – in the case of CAD and GIS it’s done nothing but damage both growth and redevelopment. We need to improve that computer between the ears, not on the desktop. As a development’s affordability gets lower – the situation often becomes worse.

A high income neighborhood will look fantastic no matter how bad the ‘planning’ because of the greater attention to architecture and landscaping – as incomes get lower, the industry must work harder to respect the families who will reside in these developments, so they don’t become a redevelopment project. Today’s technologies and industry education overlooks this situation.

Lake Cunningham Village represents an entirely new way to deliver low income housing with the elements typically provided to only those on the upper end of the social ladder – and that will enhance the sense of pride in the home owners persona. That’s how we solve the affordability issues. No losers – only winners.

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