New Urbanism, The Public Realm in Neighborhood Planning in Liminka, Finland
- The Street, the Block and the Building

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This thesis is structured in two parts. The first part is an explanation of New Urbanism, its sister organizations in Europe, and their planning philosophies, followed by three examples of projects which embody the philosophy. The second part is a new design for a neighborhood core in Liminka, Northern Finland. The design follows the basic planning philosophies of the New Urbanist movement and intends to re-establish the pedestrian as the foremost consideration in urban planning.

Liminka has experienced a great deal of growth in the past 15 years and is beginning to suffer from suburban sprawl and is developing an auto-dependent population and was thus chosen as the location for the implementation of this design concept.

The design focuses on the three main physical elements of a neighborhood: the block, the street and the building, and uses definitions of these elements laid out by the New Urbanism to guide their design.
INDEX

Foreword 4

1. Introduction 5
   1.1 Structure of Thesis 5
   1.2 Goals/Hypothesis 5

2. New Urbanism 6
   2.1 Background 6
   2.2 Goals 8
      2.2.1 New Urbanism at the Regional scale 9
      2.2.2 New Urbanism at the Suburban scale 9
   2.3 New Urbanist Theory in Practice - Three Examples 11
      2.3.1 Åkroken-Special District, Sweden 12
      2.3.2 Jackson Meadow - Neighborhood, Minnesota USA 13
      2.3.3 Jakriborg - New Town, Sweden 15

3. Implementation - Liminka, Northern Finland 17
   3.1 The Case for Finland 17
   3.2 Design Concept 18
   3.3 Historic Liminka 19
   3.4 Contemporary Liminka 19

4. Design Process 20

5. Solutions 21
   5.1 Streets 21
      5.1.1 Layout 22
      5.1.2 Intersections and Traffic Calming 23
      5.1.3 Main Thoroughfares 23
      5.1.4 Secondary Streets 24
      5.1.5 Alleys 25
   5.2 Blocks 25
      5.2.1 Layout 26
      5.2.2 Scale 26
      5.2.3 Block with Alley 27
      5.2.4 Block without Alley 27
   5.3 Buildings and Architectonics 28
      5.3.1 Lots 28
      5.3.2 Buildings 29

6. Conclusions and Results 32
Foreword

In 1997, before beginning my studies in architecture, I participated in a design charrette organized by the City of Santa Fe to generate a locally conceived plan for the development of the historic Santa Fe rail yard district. The charrette included local architects, planners, and any local residents who were interested in contributing. The results were later refined and adopted by the city as the Master plan for the development of the area. I found this process of community planning and its eventual results to be outstanding.

This democratic design process sparked my interest in professional architecture and The New Urbanism planning movement, which advocates this type of approach to community planning.

In 2001 I moved to the Oulu region and have witnessed the land between Oulu and Liminka evolve into a high speed automobile-dominated environment, complete with big box stores, drive-in suburbs and a 4-lane highway. I have worked professionally in most of these new suburbs and have found the auto-centric planning policies to be lacking in character and vision. It is my hope that this thesis work will, at the very least, introduce the concept of a more human-centric approach to neighborhood design.
1. Introduction

1.1 Structure of Thesis

This thesis is structured in two parts. The first part is an explanation of New Urbanism, its sister organizations in Europe, and their planning philosophies. The second part is a design for a new neighborhood core in Liminka, Northern Finland, which follows the basic design philosophies of the New Urbanist movement.

1.2 Goals/Hypothesis

There are qualities in traditional urban spaces which people love. These qualities are created by a combination of architectural and social elements which create dynamic places in which to live. A city’s squares, parks, and streets are the common urban spaces in which civic life is at its most vibrant. Well-designed, these common spaces foster social interaction, reinforce a sense of identity and can create a core from which communities grow.

A product of functionalist planning and automobile-centric living, the suburb is on the other end of the spectrum. Suburbs are particularly monotonous, do little to foster social interaction and are typically devoid of quality common spaces.

The goal of this thesis is to identify the qualities and architectural elements of successful urban spaces and apply those same qualities and elements to the suburban environment. The goal is to design a distinct neighborhood core from which future residential growth can occur. The core should help orient users within the larger residential area and should create a framework for future growth. At the same time it should support pedestrianism and community by creating a neighborhood which has its own destinations within it and its own unique identity within the region.

In the United States, The New Urbanism planning movement has formalized the elements and principles of traditional urban design and has applied those elements to create high quality urban environments. Specifically relevant to this
thesis is the New Urbanist’s efforts to rethink suburban planning by applying well established, historic, urban design principles at the suburban scale. “...The New Urbanism demonstrates how such ideas [urban planning ideas, i.e. diversity, pedestrian scale, public spaces and structure of bounded areas] can be realized in the contemporary suburban condition and formalized at any density. It shows that the relationship between architecture and public space can be “urban” regardless of building height or mass; that special hierarchy and connectedness can be rendered regardless of land-use intensity; and that pedestrian life can exist in single-family neighborhoods as well as on tenement streets.” (Katz, et al, p. xi) New Urbanist planning theory is the basis for the design portion of this thesis.

2. New Urbanism

2.1 Background

American Architects Peter Calthorpe, Andres Duany, Elizabeth Moule, Elizabeth Plater-Zyberk, Stefanos Polyzoides, and Daniel Solomon formalized New Urbanist theory in 1993 officially naming the movement the Congress for the New Urbanism (CNU). In Europe, in 2003, the CNU’s sister organization, the Council for European Urbanism (CEU) was founded, being reorganized to better address unique European circumstances. The CNU and the CEU are two of the most prominent organizations within a much larger planning reform movement which includes organizations such as The Prince’s Foundation for the Built Environment, INTBAU, A Vision of Europe, ECCN and others all of which aim to promote more humane built environments (Wikipedia.org, 12.1.2014).

The CNU and the CEU as reform movements are, in large part, based on the foundations laid down by early critics of modernist planning and automobile oriented transit planning such as Jane Jacobs (author of The Death and Life of Great American Cities, 1961) and Lewis Mumford (author of The City in History, 1962) and later by theorists such as Christopher Alexander (author of The Pattern Language, 1977) and Leon Krier (author of The Architecture of Community, 1998). All four of these critics/authors recognize(d) a growing break down in the way urban structures traditionally worked due to the rigorous separation of urban functions promoted by modernist planning theory and the
consequential direction that traffic planning took in order to facilitate it. They also criticized what they saw as severe degradation of community life and a growing dependence on automobiles which would require all citizens to own a car in order to function at the most basic level in society, disenfranchising and isolating the young, the elderly, the poor, and the handicapped. These early critics predicted that infrastructure based on segregated planning would eventually create a culture of auto-dependency.

Functionally, New Urbanist theory is strongly influenced by urban planning solutions that were prominent before the rise of functionalist planning and the automobile. For example, New Urbanism envisions the built environment as structured to 1) create public spaces with discernible edges, 2) create diverse mixed use environments, and 3) create circulation systems which support the pedestrian (Hass, et al, p.64-65). By contrast, functionalist theory envisioned the built environment structured in order to 1) free buildings from the street; creating undefined open spaces out of the left over area around each building 2) create hygienic, single use environments where urban functions were strictly segregated and 3) create a circulation system which favored rapid automobile transportation (Gehl, Life Between Buildings, p.45).

As an aside, it is important to note that, just as New Urbanism, Functionalism had the users’ welfare as its core value as well. It was believed that functionalist environments would promote more hygienic living by creating a segregated urban structure open to more sunlight and ventilation. The negative consequences of the theory only began to be realized later in the 1960s and 70s, after large functionalist environments had been built and used (Gehl, Life Between Buildings, p.45).

Formalized pre-modernist planning theories, such as Ebenezer Howard’s Garden City movement (1898) are also cited as models for New Urbanist theory. Howard envisioned urban growth structured as picturesque satellite towns of a fixed size, cited on mass transit lines which would interconnect towns and cities. Each town would include well defined civic spaces surrounded by village-scale neighborhoods and each town’s edge would be hemmed in with greenbelts (Wikipedia.org – Garden city movement, 15.1.2014). Areas built in Europe and America according to the theory have endured as successful urban environments built at a low density. Helsinki’s Puu-käpylä is an excellent
example of the theory in practice adapted to Scandinavian culture and environment.

Aesthetically, New Urbansim has been most commonly associated with Neotraditionalism and indeed many neotraditional developments are noted as New Urban. With that being said, New Urbanism does not officially promote any one architectural style, however the theory does advocate a regionally sensitive approach to the question of style. This is a very important point that is intended to create or continue distinct regional architectural traditions which respond to local climate and culture, as opposed to a “one size fits all” approach seen in modern American and European planning in the form of tract housing or concrete apartment blocks (see fig. 1. below).

Fig. 1  Examples of American and European functionalist residential planning

2.2 Goals

Fundamentally, New Urbanism is a planning theory which seeks to reshape contemporary planning practices in order to re-establish human beings as the defining element within the built environment. New Urbansim “…advocate[s] the restructuring of public policy and development practices to support the following principles: neighborhoods should be diverse in use and population; communities should be designed for the pedestrian and transit as well as the car; cities and towns should be shaped by physically defined and universally accessible public spaces and community institutions; urban places should be framed by architecture and landscape design that celebrate local history, climate, ecology, and building practice.”(CNU.org, 12.1.2014).
2.2.1 New Urbanism at the Regional Scale

In the broadest sense New Urbanism approaches planning in a holistic manner, identifying all the interrelated parts of the environment and then formulates a plan for a built environment which best meets the needs of the users. That is to say, “New Urbanism is concerned with both the pieces and the whole” (Katz, et al - The New Urbanism, p. xi). According to New Urbanism the basic principles of good urban planning, i.e. diversity, pedestrian scale, defined public spaces, and bounded neighborhoods, should be applied to all regions of the built environment. These same principles should also be applied regionally. Circulation systems should support the pedestrian in the form of good mass transit, the region should remain diverse in its functions, and it should be hierarchical and should have discernible edges. The transect (fig. 2 below) is commonly used within the movement to illustrated the ideal New Urban environment.

![Fig. 2 The transect.](image-url)

2.2.2 New Urbanism at the Suburban Scale

Specifically relevant to this thesis is New Urbanism’s approach to lower density residential, or “neighborhood” planning as a preferred method over typical modern suburban planning practices.

The modern suburb is a result of auto-centric traffic planning. Automobile traffic defines the scale and form of all public spaces which results in wide streets, high speeds, large stores and large parking lots. Functions, such as living, working, shopping and leisure, are isolated and widely spaced. Common
public spaces are typically only planned for in the form of bike paths or buffer zones.

An ideal New Urbanist neighborhood is planned, not exclusively for the automobile transportation, but also for good mass-transit and especially the pedestrian. Andres Duany and Elizabeth Plater-Zyberk describe an ideal neighborhood as having the following attributes:

- Neighborhoods are comprehensive planning increments, when clustered together with others they become a town, when standing alone in the landscape they become a village.
- Neighborhoods vary in population and density according to local conditions.
- Neighborhoods are limited in size so that its population is within a short walk to its center.
- A neighborhood’s center is distinguishable and ideally has shops for the daily needs of those who live nearby, a transit stop, and the ability to accommodate community events, leisure activities, etc.
- A neighborhood’s streets are laid out in an interconnected network, creating possibilities for multiple traffic routes lessening traffic on any one particular street and thus allowing for smaller streets with slower traffic.
- Neighborhood streets are equitable for both cars and pedestrians. Meaning cars, bicycles, and pedestrians all should feel comfortable using the same network of streets.
- A neighborhood’s streets are spatial defined by “walls” of building and/or trees planned in a disciplined manner.
- A neighborhoods buildings/houses are diverse in function but harmonious in scale and architecture. This means a mixture of houses, outbuildings, multifamily dwellings, civic building, shops, restaurants, etc. whose architecture is guided by an underlining set of regulations.
- A neighborhood’s civic buildings (schools, daycares, etc.) are built at important locations, such as on a village square or the termination of a main street and thus serve as landmarks within a neighborhood.
A neighborhood’s open spaces are well defined, planned areas such as squares, parks, playgrounds or greenbelts (Haas, et al, p. 64).

Consequently, planning according to these principles creates invitations for the users to function (at least to a small degree) without the assistance of their automobiles. Contemporary planning practices, on the other hand, assumes (and thus plans accordingly) that people will drive to and from all activities, the need for large streets and parking lots becomes a self-fulfilling prophecy. It is the hope of New Urbanism that by planning neighborhoods in a specific way they can:

- Increase independence of movement by creating an environment in which the young and elderly can function in daily life without the need for automobiles.
- Decrease auto-dependency by creating an environment in which good mass transit can be introduced/integrated.
- Increase pedestrianism and thus social interaction by creating high quality public spaces which people will want to use (streets, squares, parks, etc).
- Increase/promote economic diversity by planning for a range of housing types.
- Increase/promotes democratic initiatives and discourse by providing suitable civic buildings/spaces (Haas, et al, p. 64).

2.3 New Urbanist Theory in Practice -Three Examples

The following examples, none of which being realized directly within New Urbanism, represent the core principles of New Urbanist theory applied at different areas within the “transect”. Each example shows how form, scale, and detailing can create pedestrian oriented, regionally appropriate environments with good urban characteristics realized at varying densities.
2.3.1 Åkroken - Special District, Sweden

Åkroken University campus in Sundsvall, central Sweden (opened 1997) is an example of New Urbanist theory applied at the “Special District” scale. The campus was designed with the concept of “school as town”.

Fig. 3 Åkroken University campus

Arken, the Swedish Architecture firm responsible for the design, describes the University as “add[ing] urban qualities to the fringe of this small Swedish town of 90,000 inhabitants. [We] worked with urban elements such as blocks, streets, backstreets, squares and bridges. The old buildings were incorporated into the new layout. By reinventing historical patterns and using existing streets,
the new fabric took shape. The buildings follow the local tradition of timber buildings and express a kinship with the old regional warehouses. Brick, plaster, steel and glass are also used on the façades. Chimneys, birdhouses, trellises are elements that increase the intimate atmosphere of an urban university (Arken SE, 20.3.2014).

This is a case where the “campus” could have easily become a single building surrounded by parking lots. In Sweden’s Northern climate it would have been easy to argue that exterior common spaces, such as the central square, would be unused and too difficult to maintain during the winter months. But by reducing the scale of the build area by creating many “small” buildings, rendering them with tactical finishes and incorporating pedestrian streets, bridges and a square, the architects have made it clear that the district was designed for use by people, giving a clear invitation for pedestrianism to flourish.

The Campus won the CNU Charter Award in 2005 and the Belgian Prix Rotthier for Best New Campus in 2005 (Arken SE, 20.3.2014).

2.3.2 Jackson Meadow - Neighborhood, Minnesota USA

Jackson meadow is a low density, “clustered” residential area in the town of Marine on St. Croix, Minnesota, USA. The town of Marine on St. Croix, with the support of local citizens, was forced to fight a legal battle in order to stop a residential development on a local farm which, according to St. Croix Architect, Tod Drescher, “looked like nothing but urban sprawl full of big ‘McMansions’”. The town subsequently rewrote local zoning laws with the assistance of Tod Drescher, Rodger Tomten (another local architect), Coen + Stumpf Landscape Architects and Planners as well as local citizens in order to prevent future suburban sprawl in their town. The new zoning laws required “clustering” new housing, more specifically dictated where housing could be built, where open space was required to be maintained or developed and what percentage of land could be developed. This scenario exemplifies the benefits of incorporating the democratic process in determining local building issues, a process heavily promoted in New Urbanist Theory (Weinbar, p. 44).
The realized design, begun in 1998, incorporates many other New Urban qualities as well. Larger building lots surround the development’s distinct core on 3 sides. The core itself contains the majority of housing, which is organized in a grid made up of small lots, small streets, and small pedestrian paths, where houses are oriented to face a tree-lined pedestrian lane and where garages are detached and located at the rear of each property. Landscaping is further used to reinforce urban qualities in the core (tree-lined streets) and rural qualities as one moves further out (naturalistic plantings). The overall effect is of a naturalistic thinning out/transition of the built environment to the natural environment. A common green is incorporated near the core and doubles as a wetland wastewater treatment field and ice-skating pond in winter. The entire residential area is bounded by a greenbelt that incorporates walking paths. True to the designers’ goals, the design creates an environment which invites pedestrianism and fosters community spirit.

The development’s architecture also reflects New Urbanist principles. David Salmela, a native Minnesota architect, worked within the town's newly developed zoning laws to create an overarching architectural language which is regional in character, responding to local traditions and climate, while at the same time flexible enough to create uniquely individual houses. The overall
aesthetic is harmonious, while at the same time offering a great deal of variation.

Despite lacking a mixed use core, this residential development is a good example of what Duany and Plater-Zyberk describe as a single neighborhood standing alone in the landscape becoming a village (Haas, et al, 2008).

2.3.3 Jakriborg - New Town, Sweden

Jakriborg is a dense, mixed-use, “New Town” development in southern Sweden designed by Swedish architects Robin Manger SAR/MSA and Marcus Axelsson SAR/MSA. This is a unique example of a new town planned exclusively for pedestrians, where parking for automobiles has been subjugated to the perimeter of the town. The plan is composed of a central pedestrian street, market square, and common green which create the denser “core” of the town (Jakriborg, 20.4.2014).

Fig. 5 Jakriborg - new town
In this area, space for commercial/retail has been integrated into the ground floor of many of the buildings which make up the street walls. Beyond the core are small pedestrian lanes that create a small interconnected grid of residential streets.

The architecture and street plan of Jakriborg are based on historic Northern European models, primarily medieval Hanseatic. The development’s distinctive architecture and civic urban spaces has given Jakriborg a unique ability to host cultural and tourist events that have in turn helped to ensure the success of the businesses in the town. Indeed, the development’s successful integration of commercial spaces is noteworthy. The town has attracted local entrepreneurs as well as a supermarket chain which occupies the first floors of two adjoining buildings. The town’s unique approach to residential design has also been successful. There is high demand for the town’s apartments (all owned by the developers) which represent a full range of types and price ranges, including housing for students, families, the elderly, etc. There are often waiting lists for housing in the most desirable locations in the town (Jakriborg, 20.4.2014).

From the point of view of New Urbanism, the town has been successful in most ways. Jakriborg is even serviced by a commuter rail line which connects it to Malmö and Lund. However, the rail line also creates one of the town’s biggest deficiencies, its lack of integration with the rest of the Hjärup suburb, which it is geographically a part of. As Jakriborg expands, as its owners intend, more pedestrian and automobile connections between the two halves are planned, but the question remains whether such radically different planning and architecture can effectively be integrated to create a single community.

The town is often criticized by architects and planners as being “touristy” and feeling “false”, which is not necessarily a surprising reaction when visiting the town as tourists. The actual experience of living in the town is most likely very different from visiting it as an architectural critic.
3. Implementation – Liminka, Northern Finland

3.1 The Case for Finland

Liminka (see fig. below), located 50 kilometers south of Oulu (the largest city in North Finland) has experienced unprecedented growth during the economic and subsequent building boom of the early 2000s, claiming to be the “fastest growing county in Finland” and nearly doubling its population to around 10 000 inhabitants (Liminka, 15.3.2014). Much of this growth was made possible by the expansion of the #4 motorway in 2004 which has, at least in part, transformed Liminka into bedroom community servicing Oulu. Consequently, the entire region south of Oulu, which is serviced by the new motorway, is now characterized by a transportation-dominated infrastructure, where rapid automobile transportation dictates the scale and character of the built environment. The seeds of auto-dependency and suburban sprawl have been planted. This region of Finland will never be in danger of California-scale traffic and housing problems; however, as suburbs expand and auto-dependency grows, new strategies for creating residential areas should be explored in order to maintain a humane environment, which helps supports pedestrianism, maintains a human scale, helps orient users within their environment and which creates a distinct sense of place.

Fig. 6 Map of the Liminka/Oulu region.
3.2 Design Concept

The municipality of Liminka is currently acquiring tracks of farm land on the northern edge of the village proper, bounded on the north by the Temmes River, on the east by Tupoksentie Road, and on the South by existing residential areas. The area is conceived as a large residential subdivision that will incorporate and roughly double the size of the adjacent housing area directly south of the site (Kela, 2013 interview). The existing housing areas south of the site have been expanded and developed in small pieces without thought to inevitable future expansion and its consequences. Existing roads have been extended in a reactionary way and have become elements which tend to physically and mentally divide the neighborhoods up in an unintentional way.

If this new area is developed in the same manner as the adjacent neighborhoods, the result will be a maze of disconnected streets with no apparent hierarchy and no way in which to orient one’s self. Streets will continue to act like dividers between areas of housing. If the new area is designed as a whole with modern traffic planning logic dictating the layout and function of the subdivision (as is typical) it will most likely be composed of a main collector street, off of which will branch dead end cul-de-sak style arms. This is sound logic if the only function of the streets is to the allow cars to efficiently access individual, private properties. However, this approach only meets the basic needs of automobile access and the creation of the private realm, but neglects the need for common public spaces, otherwise known as the public realm.

This thesis proposes an alternative approach to the creation of this new residential area. New Urbanist theory envisions the built environment as a “deliberate assembly of streets, blocks and buildings” (Katz, p. xi). I intend to create a neighborhood core which is intentionally composed; in which streets, blocks, and buildings are interdependent, and in which the public realm is paramount. This core should create a focus and loose framework for future growth in the area by creating an interconnected hierarchical network of streets and by distinguishing itself through scale, density, and the quality of public spaces as a center for the new community.
3.3 Historic Liminka

The Liminka area has been rebounding from glacial pressures since the end of the last ice-age and continues to reclaim land from the Gulf of Bothnia each year. The reclaimed land has been ideal for farming and constitutes the largest areas of cultivated land in northern Finland. Liminka's cultural history is largely bound to agriculture and to its proximity to the deep water port of Oulu. The original cultural and business center of Liminka developed along the shores of the Liminka river and was mainly realized in the regional wooden blockwork tradition. The old center was supplanted by a new commercial center when the railroad was introduced in the late 1800's. At this time, civically important buildings were being constructed in masonry in the Neo-classic style, while the domestic and agricultural building traditions remained generally unchanged (Liminka, 15.3.2014).

3.4 Contemporary Liminka

Today, the center exists at the intersection of Tupoksentie road and Kauppakatu road road, once again re-establishing itself near the most important transportation links. Contemporary civic building is typical of modern architecture and building practices, utilizing a variety of materials and methods. The vast majority of new home building uses modern stick frame techniques and pseudo-traditional styles, typical of most Finnish suburbs.

To a certain degree, Liminka functions as a center to the communities south of Kempele, including Tynnävä and Lumijoki. Liminka is home to the area’s only Lukio secondary school, police station, vocational school, Fine art school and also the area’s largest health care center. It is also the center to the region’s nature tourism industry, which includes a modern, well-serviced visitor’s center and focuses on the area’s wetlands and migratory bird nesting areas. The Liminka train station was closed in the 1987; however, the feasibility of re-opening passenger train service is currently being evaluated. Liminka is poised to continue to be the center of growth in the region.
4. Design Process

The design process began with a conversation with the Liminka county architect, Pentti Kela, discussing existing local suburban planning policies and goals, and specifically the county’s vision for the development of the design area (Kela, 2013 interview). This was followed by an analytical examination of the site and its context.

![Site analysis diagram]

Defining the elements that I would be designing was vital. Nomenclature varies greatly regarding the elements of a neighborhood as well as the term neighborhood itself. Establishing what a neighborhood is, what its parts are, and how it should function, had to be formulated before being able to begin design work. This thesis uses the New Urbanist definitions of these elements, as defined in sections 5.1. - 5.3.

Applying New Urbanist theory in practice by designing the streets, blocks, and buildings holistically was a major challenge. The final layout was a process of
push and pull between the three main elements until a fairly balanced scale was created.

The New Urbanism design process heavily emphasizes community involvement and design charrettes, which include local officials, residents and future users as a key component for successful democratic design oriented development. This component of the design process was unfortunately outside the scope of this work.

5. Solutions

My solutions for the creation of the neighborhood core are based on principles and definitions laid down by The New Urbanism, specifically concerning the creation of streets, blocks and buildings at the neighborhood scale. The followings sections 5.1-Street, 5.2-Blocks, and 5.3 Buildings, begin with the definition and function of each element, as prescribed by the New Urbanism, followed by their specific implementation in this work.

5.1 Streets

The New Urbanism defines streets as having the following attributes:

-Streets are not the dividing lines with the (neighborhood). They are communal rooms and passages.

-A single given street is always to be part of a street network.

-A variety of alternative paths connecting various destinations shall minimize traffic load on any one street.

-There should exist a variety of streets based on their pedestrian and vehicular loads.

-Under no circumstances should a street be abandoned solely to vehicular traffic.

-Distances between intersections should favor the walkability of streets.
-The architectural character of streets is based on their configuration in plan and section.

-The detailing of streets should favor their use by pedestrians.

(Katz, et al, p. xxii)

5.1.1. Layout

Fig. 8 Layout of Neighborhood core.

Establishing primary access to the site from Tupoksentie road, access to the Temmes River bank (planned for recreational use) and access to future neighborhood development (and thus indirect access to the Liminika center) created a natural intersection of thoroughfares that formed the backbone of the core grid, as well as a central location for common public spaces, services, and multifamily housing. Secondary streets and alleys typically run parallel or perpendicular to the main thoroughfares completing the grid of interconnected streets and blocks. The northwestern most edge of the core is designed as a
definite boundary to the area and corresponds to the limits of spring flooding, while the east and west edges allow for future expansion. The southern edge incorporates existing housing. The geometry of the layout is intended to create formal terminations to many of the main streets, a variety of block forms and scales, as well as a combination of curved and straight streets, all of which unfold from the three main thoroughfares in order to create a grid which is varied, yet allows for easy orientation.

5.1.2 Intersections and Traffic Calming

Intersections were designed with traffic calming and pedestrian safety as first priorities. Shortened turning radiiuses, turning circles, on-street parking and constricted intersections along the main streets, as well as short blocks and alley access, which in turn creates frequent intersections, were all incorporated into the street layout in order to slow automobile traffic. Also, irregular intersections were intentionally planned for at the center of the area in order to further slow traffic and distinguish the area as being significant as distinctly public in nature.

5.1.3 Main Thoroughfares

The area consists of three main thoroughfares that intersect at the center of the area, creating a natural point from which the neighborhood radiates, as well as an area which could be distinguished as being public in nature, housing the
area’s services (daycare), multifamily housing, possible live/work studios, rental units and common open spaces.

The thoroughfares are the neighborhood’s backbone and are thus distinguishable by both scale and detailing. They are composed of two lanes of automobile traffic and two lanes of on-street parking divided by a center median with formal plantings, and street lights that is designed to be similar to street lights in the Liminka center. Each side is edged and defined by formally planted tree lines, paved sidewalks and finally, privacy hedges between individual properties and sidewalks.

The main thoroughfares’ street walls are also distinguishable from secondary street walls. Built-to lines, the orientation of houses, their scale, detailing and rhythm are unique within the site and combine to create a specific character to this street type, reinforcing the street hierarchy. There is also no vehicular property access along the majority of the main thoroughfares, which allows for a denser street wall and a more pedestrian friendly street.

5.1.4 Secondary Streets

Secondary streets create the main grid which unfolds from the main thoroughfares. These streets constitute the most common street type in the area and are similar in detail to main thoroughfares. However, they are less distinguished with less well defined street walls and a narrower right-of-way and do not have a center median.
Vehicular access to individual properties occurs almost exclusively from secondary streets or via alleys which are accessed from secondary streets. Lot sizes increase the further one moves from the main thoroughfares. This allows for larger houses and more flexibility in their siting as well as individual or shared driveways where alley access is not included. Aesthetically this means that street walls along secondary streets are less dense with a less regular rhythm, and are frequently punctuated by vehicular access. A regularly planted tree line is used along these streets to maintain a consistent scale and rhythm to these streets.

5.1.5 Alleys

fig. 11 Section through alley.

Alleys are service streets which provide primary vehicular access to the majority of lots in the site and allow for services, such as trash pick-up, to occur off the main thoroughfares and secondary streets. They are primarily defined by the scale and character of outbuildings (garages, storage buildings, bicycle and trash sheds), which line each alley on a consistent two meter set-back. The alley surface is an inverted crown which allows for surface drainage. Whenever possible, small green areas are integrated into alleys to allow for winter time snow pile-up and to allow more sunlight to penetrate the center of blocks.

5.2 Blocks

The New Urbanism defines blocks as having the following characteristics:

-Blocks are fields on which unfold the building fabric (of the neighborhood).
Independent of shape, blocks are to be lotted so that all of their sides can define public space.

Alleys should absorb parking and servicing loads and allow the outer faces of the blocks to become more intensely pedestrian.

A block’s perimeter should consist of parkway, sidewalk and setback.

Setback and built-to lines establish the fundamental rhythm between open space and built form on each block and should create a definite streetwall.

Threshold elements at the setback line are the means by which buildings interface with and determine the character of the street.

Regularly planted trees along blocks establish the overall space and scale of the streets as well as that of the sidewalk.

(Katz, et al, p. xxii)

5.2.1 Layout

Blocks are laid out, along with streets, in order to create a grid of interconnected traffic routes and easy access to individual lots. Blocks have been typically formed as rectangles, or some variation, which allows for at least two long sides and two short sides. This configuration allows for blocks that are only two lots deep, requiring simpler alley configurations and a scale that allows for smaller blocks and thus is more pedestrian friendly and which slows automobile traffic.

5.2.2 Scale

The scale of blocks in plan is related directly to the length of the streets that define their edges and is based on historic models as well as traffic calming and pedestrian oriented design principles. Blocks were kept intentionally small in order to maintain a distinctly human scale.
5.2.3 Block with Alley

Fig. 12  Aerial perspective of typical block along a main thoroughfare.

The majority of blocks within the site contain alleys which run down the middle of the block and divide it in two. The alley allows for many of the elements which give the public realm a more urban character. Alleys allow automobile access to be relegated to the rear of individual lots in the core of each block, which allows for narrower properties and in turn creates the possibility for well-defined street walls and blocks with more pedestrian-friendly outside edges. The edges of each block are defined by formal plantings, creating a “soft edge” between the public and private realms that helps to define the interaction between buildings, streets and pedestrians.

5.2.4 Blocks without Alleys

Larger and more conventional in form, these blocks consist of lots which provide automobile access from main streets while continuing to relegate garages to the rear of each lot. These blocks are intentionally subdivided less densely in order to contrast with and thus establish a distinct hierarchy with the blocks which make up the core along the main thoroughfares. However, built-to lines and the treatment of the block’s edges are the same as with blocks which have alleys. The density and regularness of the street wall decreases as one moves further from the main thoroughfare, while an over-arching architectural coding aesthetically unifies the two types of blocks.
5.3 Buildings and Architectonics

The New Urbanism defines buildings as having the following features:

- Buildings should be designed by reference to their type, not solely their function, allowing for changes in use or adaptations over time and avoiding rendering it obsolete.

- The relationship of buildings to the public realm should be reciprocal. Buildings help define public space and vice versa.

- There are two categories of buildings: Fabric and monumental. Fabric buildings are consistent in their form with all other buildings of their kind. Monumental buildings can be unique and idiosyncratic, points of concentrated social meaning.

- Each building and yard is of a particular type, types are defined by formalized characteristics, adjacent buildings and yards which share some of these characteristics generate a cohesive character within the neighborhood. Individual designers working within the established framework create architectural variety.

- Architecture should be bound to its climatic and culture context.

- Buildings should be considered permanent fixtures in the landscape and should be designed with enough material and technical quality to allow for their continued renovation and reuse.

(Katz, et al, p. xxiii)

5.3.1 Lots

The general design of lots is meant to create a balance between the needs of the private owner (private realm) and the goal to create a neighborhood with high quality public spaces (public realm). Set-back lines, inside of which owners are given free-reign to site their houses and outbuildings are typical of suburban planning. Set-back lines are abandoned here in favor of build-to lines along the front of properties which require that buildings be built along a specific line in order to create well-articulated public spaces, such as streets and
parks. The efficient use of lots is planned for by allowing or requiring that garages and other outbuildings be built to the edge of properties and by sharing driveways. In the most densely planned areas, typically along the main thoroughfares, property edges are planted with privacy hedges, formalizing the threshold between private and public realms.

Lots along the main thoroughfares are uniquely small and narrow. These lots are designed for small single-family homes with detached garages. Garages and parking are relegated to the rear of the property, eliminating the need for driveways and allowing for narrow fronts along the public edge which help establish strong street walls. This new type of small lot creates a new segment in the housing market, somewhere between the duplex and typical single-family home, and acts as a catalyst for the creation of a new housing type.

Lots beyond the main thoroughfares are more conventional in form, however, follow the same general planning guidelines as those in the core. Build-to lines, the location of garages at the rear of properties, the efficient use of space and the balance between the needs of the individual and the needs of the community guide the development of these lots as well.

5.3.2 Buildings

It is typical of Finnish suburbs to be planned by the city or county in which they exist and have only loose guidelines concerning the scale, sitting and the style of homes allowed to be built. The buildings themselves are of good quality, being typically pre-fabricated and created by home manufacturers which are commissioned by the end users who buy or rent a lot from the county. However, the aesthetic result is often a mix of modern and traditionally massed homes and a confusing mixture of detailing and materials, which fail to create an underlying common architectural fabric within the neighborhood.

In this neighborhood, “building types” are formalized and prescribed for specific areas within the site. “Building types” would be defined by formalized characteristics which create the aesthetics of the architecture, not its function. A framework would be created by which homes are designed within related typologies in order to create an identifiable architectural fabric. Different
Typologies would exist in different areas of the site, allowing for variation in detailing, massing, materials, and colors while adhering to overarching design goals. Typologies would then be formalized into codes, simply written and illustrated and intensely physical in their prescriptions.

I have formalized the “building type” along the main thoroughfares as an example of the concept:

**Houses**

![Example of a typical lot along a main thoroughfare.](image)

-Siting. The main building mass is sited on center, along the lot’s front build-to line (5 meters from front edge of the lot). Porches, decks, or other lightweight protrusions shall extend over the build-to line by no more than 2.5 meters. Covered front porches on the public façade are encouraged.

-Roofs. Roofs are to be pitched between 38 and 45 degrees. Roofing material shall be standing seam metal, black or dark grey in color. Eaves at the gable end are to be no more than 35 cm deep and 20 cm thick; other eaves are to project no more than 45 cm from the face of the wall. Soffits must be “open” in nature. Skylights and dormers are encouraged. The orientation of the roof along the street must not be repeated more than three times in series.
-Size/foot print. The foot print of the main mass must not exceed 8.5m wide x 14m deep. Buildings are 1 ½ to 2 stories tall, second floor knee walls must not exceed 1.5m in height.

-Exterior detailing. The exterior cladding material is wood, vertical or horizontal in orientation, no combinations of the two are permitted; the cladding profile is not specified. Exterior colors are to be ochre red, ochre yellow, charcoal grey, or white, no combinations of colors are permitted. Fenestration and its detailing, including trim, are to be consistent with the architectural style of the building.

**Garages and outbuildings**

-Siting. Garages are sited anywhere along the lot’s rear build-to line (2 meters from the rear edge of the lot) and can be built against the lot’s side property lines. Other small outbuildings or structures are also to be built along the rear build-to line and side property lines. In cases where lots have two public faces, garages and/or outbuildings shall align with the public face of the main building.

-Roofs. Roofs are to be pitched between 30 and 38 degrees. Roofing material and color shall match that of the main building. Eaves at the gable end are to be no more than 25 cm deep and 15 cm thick; other eaves are to project no more than 35 cm from the face of the wall. Soffits must be “open” in nature. The roof ridge is to run parallel to the alley.

-Size/foot print. The garage foot print must not exceed 6m deep x 8m wide. Garages are 1 story tall with an interior ceiling height not to exceed 2.7 meters. Other outbuildings are to be no more than 2m x 4m in plan.

-Exterior detailing. The exterior cladding material is wood, vertical or horizontal in orientation, no combinations of the two are permitted; the cladding profile is not specified. Exterior colors are to be ochre red, ochre yellow, charcoal grey, or white, no combinations of colors are permitted. The color and cladding type do not necessarily have to match that of the main building. Fenestration and its detailing, including trim, are to be consistent with the architectural style of the main building.
Landscaping

A consistent privacy hedge is to exist along the property line between the side walk and the lots. Fencing between and at the rear of lots is to be wooden, vertical or horizontal in orientation or planted vegetation and must not exceed the height of the mature privacy hedge. Plantings along the public face of lots must not compete with or disrupt the rhythm of street trees.

6. Conclusions and Results

The goal of this thesis, through research and design, has been to introduce an alternative approach to standard suburban development; one which reintroduces the public realm into residential planning. The New Urbanism planning philosophy offers a good framework which was created specifically to guide residential planning in that direction.

By applying New Urbanist planning strategies, the final design of this neighborhood core meets my goals of creating a neighborhood core with urban-like qualities, which encourages pedestrianism, is hierarchical, and in which users could better orient themselves. The plan, at the very least, creates an infrastructure that promotes the growth of community.

The next step in this design would be to define the character of the public spaces that exist at the intersection of the three main thoroughfares, in the form of a public green and a park. These areas would be recognized as the center of the neighborhood and would incorporate the public services (daycare) and multi-family housing, thus defining their character would be essential. Looking beyond the core area and considering how the area would expand and evolve in the future would also be worth exploring. It would also be informative to organize a survey to gauge consumer reaction to the general concept and format of the plan.

If high quality public spaces are to be integrated into residential areas, it must be a goal valued by professional planners. Planning strategies must go beyond simply responding to market demands and only providing for the needs of the individual consumer. The greatest challenge in planning new neighborhoods is to balance the needs of the individual and the future needs of a new community, needs which individual residents may not initially recognize.
Sources:
PRINCIPLES OF THE NEW URBANISM AT THE SUBURBAN SCALE

TYPICAL SUBURBAN SPRAWL

Typical suburban sprawl is characterized by isolated "villages," which are dedicated to single use such as shopping centers, office parks, and residential clusters. All of these are inaccessible from each other except by car. Housing is widely dispersed and often comprises large centers containing units of similar size, hiding socio-economic divides.

Suburban sprawl is limited only by the range of the automobile, which easily forms fragmentations for retail, office, and residential areas.

Suburban residential areas are characterized by a high proportion of cul-de-sacs and looping streets within each pad. Through traffic is possible only by means of a few "collector" streets that, consequently, become highly congested.

Vegetation traffic controls the scale and form of urban space, with streets being wide and extended primarily to the automobile. Parking lots typically dominate the public space.

Suburban buildings are often highly articulated, related to open lots, and greatly set back from streets. They are unable to create spatial definition or a sense of place. Community buildings do not normally receive distinct identities.

Suburban open space is often provided in the forms of barbed, pedestrian ways, courts, and other ill-defined residual spaces.

[Images: Aerial perspective of a typical suburban residential area characterized by a low density, single-use zoning, collector streets, and lack of designed public space.]

THE NEW URBANISM SOLUTIONS

NEW URBANISM AT THE NEIGHBORHOOD SCALE

The neighborhood is a comprehensive planning increment, when planned with others, it becomes a town, abutting towns to the landscape. It forms a city. The neighborhood is a configuration and density to accommodate local conditions.

The neighborhood is limited in size so that a majority of the population is within a five-minute walking distance of its center (500 meters). The needs of daily life are essentially available within this area. The center provides an excellent location for a transit stop, convenient walkable areas, parks, community events, and service areas.

The neighborhood's streets are laid out in a network, so that there are alternate axes to destinations. This permits most streets to be private, with a through traffic, as well as to have parking, trees, sidewalks, and buildings. They are accessible for both vehicles and pedestrians.

The neighborhood's streets are specially defined by a wall of buildings that form the sidewalk in a disciplined manner, and includes the parking lots.

The neighborhood's civic buildings (school, meeting hall, theater, library, court house, etc.) are often placed on squares or at the termination of street dead-ends. By being built at important locations, these buildings serve as landmarks.

The neighborhood's open spaces are provided in the form of specialized squares, plazas, parks, and parks, and in the case of villages, greenbelts. [Images: New Urbanism and Beyond - Designing Cities for the Future, Rizzoli, New York (2008).]

[Images: Aerial perspective of new urbanism solutions used in the suburban residential area pictured above: characterized by a higher density, walkable streets, squares, and a well-defined public space.]

THE NEW URBANISM AT THE REGIONAL SCALE

The rural-fringe transit is an organizational framework and planning methodology that enables the comprehensive and effective (re)development of growing communities into sustainable patterns. The transit, as it relates to the built environment, organizes structural elements according to an increasing density and connectivity from the periphery to the central city. This transit leads into zones, each representing a complex facade of different building types, street patterns, and public spaces. The transit zones represent housing conditions that are similar to the area administrated by conventional zoning. However, these conditions are not only the building lots, density height, and the land requirements, but also the building rules to which they come together to shape the public space.

[Images: The new urbanism at the regional scale: characterized by a higher density, walkable streets, squares, and a well-defined public space.

YELLOWISH T1 T2 T3 T4 T5 T6

11 NATURAL ZONE consists of lands approving or requiring for a wilderness condition, including lands substantially protected due to their biological, ecological, and recreational values.

12 RURAL ZONE consists of open suburban lands in open or scattered states. These include woodland, agricultural land, grasslands, and forested area. Typical buildings are farmlands, agricultural buildings, and farms.

13 SUBURBAN ZONE consists of low-density residential areas, adjacent to higher centers that have some mixed uses. These areas include low-density suburban areas. Planning in the suburban areas is relatively easy. Blocks may be large and the roads irregular to accommodate natural conditions.

14 SUBURBAN ZONE consists of a mixed use but primarily residential urban fabric. It may have a wide range of building types, detached and attached houses, and townhomes. Sidewalks and landscaping are available.

15 URBAN CENTER ZONE consists of higher-density mixed-use buildings that accommodate retail, offices, townhomes, and apartments. It has a fire network of streets, with wide sidewalks, busy street tree planting, and buildings set close to the sidewalks.

16 URBAN CORE ZONE consists of the highest density development, with the greatest variety of uses, and civic buildings of regional importance. It may have larger blocks, streets, busy street tree planting and buildings set close to wide sidewalks. Typically only larger towns and cities have an urban core zone.

SPECIAL DISTRICTS consist of areas with buildings that do not conform to one or more of the six previous transit zones, such as college campuses, or transit districts with a concentration of a specific type of use but also support functions such as restaurants or retail. Districts are not suburban-like single activity areas such as office parks.

[Images: The new urbanism at the regional scale: characterized by a higher density, walkable streets, squares, and a well-defined public space.]

MFA’S THESIS - UNIVERSITY OF OULU - SUPervisiong Professor HELKA-LIISA HENTILA - 15.5.2015 - EMET LEIF ANDERSON
NEW URBANISM
THE CASE FOR FINLAND

Lumina, located 35 kilometers south of Oulu, the largest city in North Finland, has experienced unprecedented growth during the economic and subsequent building boom of the early 2000s, claiming to be the "hottest growing county in Finland" and newly doubling the population to around 20,000 inhabitants. Much of its growth was made possible by the opening of the 49 kilometre in 2004 which four, at least in part, transformed Lumina into a bedroom community serving Oulu. The entire region south of Oulu, which is serviced by the new highway, is now characterized by a transport-oriented development infrastructure, where rapid automobile transportation dominates the scale and character of the built environment and where daily activities are only accessible by car. The needs of eco-dependency and suburban sprawl have been planted.

The New Urbanism offers an alternative approach to the dilemma of growth. By applying principles of place-based design - defined by its density, pedestrian scale, public space, and structure of bounded neighborhoods - throughout a region, regardless of location, a more harmonious and sustainable environment can evolve.

Currently, the municipality of Lumina is acquiring tracts of farm land on the northern edge of the village proper, bounded on the north by the Ternes River, on the east by a public road, and on the south by existing residential areas. The area is considered as a large residential subdivision that will incorporate and roughly double the size of the adjacent housing area directly south of the site. Planning this area according to the principles of the New Urbanism will ensure a more equitable environment for both cars and pedestrians.
### Site Analysis

#### Area of Floorplan

- **Agricultural Land**
- **Managed Forest Area**
- **Built Environment**
- **Local Services**
- **Main Auto-Access**

#### Dwelling Types

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<th>Max m²</th>
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<td>Semi-detached family homes</td>
<td>19.000</td>
<td>36.000</td>
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<td>Total built area (m²)</td>
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**Access to Future Neighborhood and Lihana Center**

**Aerial photograph of Liminka with NE neighborhood core overlaid. Not to scale.**

**Site Plan 1/2010**

**New Urbanism - The Public Realm in Neighborhood Planning - Liminka, Finland - The Street, The Block and The Building**

**Master's Thesis - University of Oulu - Supervising Professor Helka-Liisa Hentilä - 15.5.2015 - Emmett Leif Anderson**
THE STREET

Streets as defined by The New Urbanism:
- Streets are not the dividing lines with the neighborhood. They are communal rooms and passages.
  - A single given street is always a part of a street network.
  - A series of alternative paths connecting various destinations shall minimize traffic load on any one street.
- There should exist a variety of streets based on their pedestrian and vehicular loads.
- Under no circumstances should a street be abandoned solely to vehicular traffic.

Distances between intersections should favor the walkability of streets.
- The architectural character of streets is based on their configuration in plan and section.
- The detailing of streets should favor their use by pedestrians.


NEW URBANISM - THE PUBLIC REALM IN NEIGHBORHOOD PLANNING IN LIMINKA, FINLAND
- THE STREET, THE BLOCK AND THE BUILDING

MASTER'S THESIS - UNIVERSITY OF OULU
SUPERVISING PROFESSOR HELKA-LIIISA HENTILÄ
15.5.2015 - EMETT LEIF ANDERSON
THE BLOCK

The block as defined by The New Urbanism:

Blocks are fields on which unfold the building fabric (all the neighborhood)

- In the neighborhood, blocks are to be sited so that all of their sides can define public space.
- Blocks should absorb parking and servicing loads and allow the outer facades of the blocks to become more intensively pedestrianized.
- A block’s extension should consist of pathways, sidewalks and setbacks.
- Block and built-to- fronts establish the fundamental rhythm between open space and built form on each block and should create a distinct structural.
- Thresholds at the sidewalk line are the means by which buildings interface with and determine the character of the streets.
- Regularly planted trees along block establishes overall space and scale of the streets as well as tradition of the neighborhood.


Blocks are led right, along with streets, to create a grid of interconnected traffic routes and easy access to individual lots. Blocks have been logically formed as rectangles, or some variation, which allow for at least 3 long sides and 2 short sides. This configuration allows for blocks that are only 2 lots deep, requiring simpler setbacks configurations and a scale that allows for smaller blocks and thus is more pedestrian-friendly and which shows accessible traffic. The scale of blocks is plan related directly to the length of the streets that define their edge and is based on historic models as well as traffic calming and pedestrian oriented design principles. Blocks were kept intentionally small in order to minimize a block by human scale.

THE BUILDING

- Height. The main building mass is sited on center, along the lot’s front build line (5 meters from front edge of the lot). Parcels, decks, or other lightweight structures shall extend over the build line by no more than 1.5 meters. Covered front porches on the public façade are encouraged.
- Roofs. Roofs are to be pitched between 38 and 45 degrees. Roofs ideal shall be standing seam metal, black or dark grey in color. Exter on the gable end and at the eaves to be no more than 15 cm deep and 20 cm thick; other eaves are to project no more than 0.45 m from the face of the wall. Soffits must be “open” in nature. Skylights and dormers are encouraged. The orientation of the roof along the street must be repeated more than 2 times in series.
- Stack/flat roof. The flat roof of the main mass must not exceed 8.5 cm wide x 14 cm deep. Buildings are 1 1/2 to 2 stories, total second floor wall must not exceed 1.5 m height. There is a minimum of 120 square meters of living space.
- Exterior detailing. The exterior cladding material is wood, vertical or horizontal in orientation, no combinations of the two are permitted; the cladding profile is not specified. Exterior colors are to be olive green, white, yellow, gray or white, no combinations of colors are permitted. Fenestration and its detailing, including trim, are to be consistent with the architectural style of the building.

GARAGES AND OUTBUILDINGS

- Height. Garages are sited anywhere along the lot’s rear build line (2 meters from the rear edge of the lot) can be built against the lot’s side property lines. Other small outbuildings or structures are also to be built along the rear build line and side property lines. In cases where lots have two public faces, garages and/or outbuildings shall align with the public face of the main building.
- Roofs. Roofs are to be pitched between 38 and 45 degrees. Roofing material and color shall match that of the main building. Exter on the gable end and at the eaves to be no more than 30 cm deep and 20 cm thick; other eaves are to project no more than 0.30 m from the face of the wall. Soffits must be “open” in nature. The roof ridge is to run parallel to the alley.
- Exterior detailing. The exterior cladding material is wood, vertical or horizontal in orientation, no combinations of the two are permitted; the cladding profile is not specified. Exterior colors are to be olive green, white, yellow, gray or white, no combinations of colors are permitted. The color and cladding type do not necessarily have to match that of the main building. Fenestration and its detailing, including trim, are to be consistent with the architectural style of the main building.

Landscape

A consistent privacy hedge is to exist along the property line between the side walk and the lots. Fencing between and at the rear of lots is to be wooden, vertical or horizontal in orientation or planted vegetation and must not exceed the height of the mature privacy hedge. Plantings along the public face of lots must not compete with or duplicate the rhythm of street trees.

NEW URBANISM - THE PUBLIC REALM IN NEIGHBORHOOD PLANNING IN LIMINKA, FINLAND

- THE STREET, THE BLOCK AND THE BUILDING

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