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RICE UNIVERSITY

A PLAN FOR THE URBAN EXPANSION OF LA DEMOCRACIA, ESCUINTLA

by

Carlos Andrés Bruderer

A THESIS SUBMITTED IN
PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE
DEGREE

MASTER OF ARCHITECTURE

Approved, thesis committee:

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Architecture

Houston, Texas
May, 1996
ABSTRACT

A PLAN FOR THE FUTURE URBAN EXPANSION OF LA DEMOCRACIA,
ESCUINTLA

by

Carlos Andrés Bruderer

In the next 25 years, la Democracia, a town of 4000 people in the Pacific coastal plains of Guatemala, Central America, will double in population if current population growth trends continue. In this thesis, the author investigates the current state of infrastructure; waste disposal, streets, education, health, and housing and proposes solutions for the town's future infrastructure needs.
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PREFACE

From Renaissance thinkers we inherited the idea that humans were at the center of the universe. As a result, cities in this continent reflect this man-in-the-center ideal, consisting of a central plaza surrounded by a grid.

In this day and age our understanding of the universe is different. We are particles in time, always traveling from one place to another, part of a complex system that might be called linear. Although the two systems, linear and central, currently coexist together in la Democracia, the more forceful linear system is beginning to take precedence over the central system. People are settling along the routes that come in and out of town. This trend is causing a loss of activity at the town's center.

I intend to halt this trend by locating new infrastructure strategically around the town, inviting people to settle closer to the geographical center of the town. In this manner, the town will both expand linearly and develop a coherent urban environment at the center. This procedure will allow for better utilization of the existing public facilities at the town's center, reducing the cost this town must pay to grow.

At a growth rate of 3%, la Democracia is doubling its population approximately every 25 years. With an existing population of 4,000, the town will have 8,000 inhabitants by the year 2025. I have projected for this growth, planning to accommodate 4,000 new residents, and have envisioned the addition of a possible 8,000 more people by the year 2050.

To solve the problem of how the town should grow in the future, the author envisions making the Mazate, a river that passes adjacent to the east part of the town, the spine of future growth. By converting it from what it currently is, a trash and sewage dump, into a linear park with pathways for walking, landscaping, and pools along the river for bathing and laundry, the river will become a spine over which la Democracia can grow. The edges of the ravine are planted with vegetation native to the area, and the river bed itself is spanned with new bridges to invite visitors to appreciate the landscape. The idea is that if people get to see their river as something scenic and beautiful, there is a smaller chance they will make it a refuse heap.

If the Mazate river is the town's growth spine, the ordering system for streets and infrastructure is the current property and site lines. By adapting to existing land divisions, the ordering system for streets and infrastructure will aid in the involvement of all property owners in one comprehensive growth plan. In the long run, this system will
help reduce the cost of neighborhood layout. Streets will simply follow existing site and property lines. Thus each property owner will not need to make individual plans for his or her property. In turn, the system will help produce a comprehensive and cohesive growth plan for this town.

The strategy for new urban development is well-defined: The town should have at least one plaza within a five minute walk and existing tree cover will become a natural anchor for the town's future plazas. Important public functions, chapels, public art, a market, a library, multi-use, or even sports facilities should surround public open space to activate it. Approximately one plaza is appropriate for every 4000 people. This relationship can be easily explained with a few calculations. If we know that a person walking covers about 400 meters in five minutes, we can also find out that 50 hectares is within a circle of radius of 400 meters. Yet only about 25 hectares of these 50 hectares are available for permanent residential occupation. (Using the previously discussed figures for land use in Latin America.) If we multiply 25 hectares by the value for the population density of la Democracia, which is 150 inhabitants per hectare, we get about 4000 inhabitants as the influence area of one plaza. Schools, particularly elementary, are located within half the radius, 200 Mts. or 3 minute walk. When possible these schools should be in open spaces separated from the noisy activity of the town by green, vegetative buffers.

At the southeastern corner, a location where prevailing breezes take the foul smells away, sewage treatment ponds are located to serve new neighborhoods and the existing town. Such ponds would replace the town's existing raw sewage dump.
INTRODUCTION

Guatemala is the northern most country of the Central American region (fig 1). It is approximately 1000 miles south of Houston. We can see a section through the country on figure 2. The country is mountainous toward its center, reaching altitudes of fourteen thousand feet at its peaks and remaining flat in its two coasts. The flat area at the southern coast has become a center for commercial agriculture and is the region where la Democracia is found. La Democracia is located in the province of Escuintla, one of Guatemala's 23 provinces. It is mostly an agricultural town.

Climatic conditions in la Democracia are relatively stable throughout the year yet temperatures are almost always hot and humid, around 20 to 30 degrees Celsius. Yearly precipitation is about 140 inches and occurs during a six month period beginning in May (fig 3).

To understand urban growth in Latin America one must understand how land is used here. Domingo García Ramos in his book titled "Primeros Pasos en Diseño Urbano." presents a general idea. For example, in 1968, 60% of all urban land in Latin America was used for residential purposes; 20% was used for circulation (streets and sidewalks); 13% for community areas; and 7% commercial concerns (figure 4). Using these figures, one can obtain information on other variables as well (fig. 5). Let's say the site has 8.7 hectares. Using 52% of this land for residential purposes, there would be five hectares for housing. By dividing the five hectares or 50,000 square meters by 300 units, one can obtain the approximate lot areas of 160 square meters. If each lot is to be occupied by an average family of six, then we can find that 1,800 people will inhabit the site. Out of these 1,800 people for example, an estimated 230 people will be children needing primary education. These statistics provide a general impression of the design needs of a new area slated for development.

It is also important to understand past patterns of urban growth in Guatemala. In figure 6a, we can see an aerial photograph of La Antigua. This city was the first planned urban center of the American continent. As a city established in the early 16th century, it follows closely the ideals of the Renaissance. It is organized around a perfectly square orthogonal grid. Other cities in Guatemala are also organized by grids. For example, Guatemala city is also planned around an orthogonal grid, yet this grid is not square (see figure 6b). La Democracia is also planned around a grid (fig.7). Notice that this grid is neither square nor orthogonal but follows the irregularities of the land instead. Thus the grid has been applied in various formats in Guatemala. Sometimes the grid has been
Location of Guatemala in the American Continent

Figure 1
Map of Guatemala

Figure 2
Figure 3

Precipitation, Humidity, La Democracia

Temperature, La Democracia
Site Program

<table>
<thead>
<tr>
<th>PROGRAM FOR SITE</th>
<th>Projected</th>
<th>Realized</th>
<th>Avg. Latin America (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>0.52</td>
<td>0.38</td>
<td>0.60</td>
</tr>
<tr>
<td>Streets</td>
<td>0.20</td>
<td>0.33</td>
<td>0.20</td>
</tr>
<tr>
<td>Technical school</td>
<td>0.11</td>
<td>0.11</td>
<td></td>
</tr>
<tr>
<td>Green Area</td>
<td>0.06</td>
<td>0.06</td>
<td>0.03</td>
</tr>
<tr>
<td>Plazas</td>
<td>0.05</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Community Facilities</td>
<td>0.08</td>
<td>0.04</td>
<td>0.05</td>
</tr>
<tr>
<td>Commercial</td>
<td>0.03</td>
<td>0.03</td>
<td>0.07</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Site area 8.7 Ha.
Lots 300.00 230.00
Persons per household 6.00 6.00
Expected Population 1,800.00 1,380.00
Density (Pop./8.7 Ha.) 206.90 158.62

Land Use (Avg. Latin Am. 1968)

- Residential: 60%
- Streets: 20%
- Community: 13%
- Commercial: 7%

Land Use for residential purposes.


Figure 4
SITE PLANNING (Projected)

<table>
<thead>
<tr>
<th>Homes required</th>
<th>300.00</th>
</tr>
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<tbody>
<tr>
<td>*persons/home</td>
<td>6.00</td>
</tr>
<tr>
<td>Population expected</td>
<td>1,800.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROGRAM AREAS (2.47 Acres/Hectare)</th>
<th>Area</th>
<th>Percent</th>
<th>Houses</th>
<th>Houses/Ha.</th>
<th>Hectares</th>
<th>Percent</th>
</tr>
</thead>
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<tr>
<td>Total Site Area</td>
<td>8.70</td>
<td>100%</td>
<td>300.00</td>
<td>60.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential Streets, Sidewalks (Access)</td>
<td>5.00</td>
<td>52%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6.74</td>
<td>72%</td>
<td>300.00</td>
<td>60.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical School</td>
<td>1.00</td>
<td>11%</td>
<td>2.00</td>
<td>4.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Center</td>
<td>0.05</td>
<td>1%</td>
<td>0.03</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School</td>
<td>0.10</td>
<td>1%</td>
<td>0.15</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gardens</td>
<td>0.50</td>
<td>6%</td>
<td>0.04</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Center</td>
<td>0.04</td>
<td>0%</td>
<td>0.04</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment Plant</td>
<td>0.50</td>
<td>6%</td>
<td>0.04</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (Donations)</td>
<td>1.19</td>
<td>14%</td>
<td>2.38</td>
<td>4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td>0.20</td>
<td>2%</td>
<td>0.03</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market (Use Plaza)</td>
<td>0.02</td>
<td>0%</td>
<td>0.02</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (Donations)</td>
<td>0.22</td>
<td>3%</td>
<td>0.45</td>
<td>1%</td>
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</tr>
</tbody>
</table>

To achieve 52% residential you need to use a 120 m² lot, a minimum size lot.

<table>
<thead>
<tr>
<th>Lot Area (Mts.)</th>
<th>Length</th>
<th>Width</th>
<th>Area (with 20% roads)</th>
<th>Lots/Ha.</th>
<th>Ha. needed</th>
<th>% of 8.7 Ha.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lot A (Minimum size lot)</td>
<td>8.00</td>
<td>15.00</td>
<td>120.00</td>
<td>66.67</td>
<td>4.50</td>
<td>52%</td>
</tr>
<tr>
<td>Lot B</td>
<td>8.00</td>
<td>20.00</td>
<td>160.00</td>
<td>50.00</td>
<td>6.00</td>
<td>69%</td>
</tr>
<tr>
<td>Lot C</td>
<td>10.00</td>
<td>15.00</td>
<td>150.00</td>
<td>53.33</td>
<td>5.63</td>
<td>65%</td>
</tr>
<tr>
<td>Lot D</td>
<td>10.00</td>
<td>20.00</td>
<td>200.00</td>
<td>40.00</td>
<td>7.50</td>
<td>86%</td>
</tr>
</tbody>
</table>

Composition of Population (1800 tot.) | % of tot. population | Persons. | School Attendance | % of school aged children attending | No. Students | Stud./Home |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
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<tr>
<td>(Source: Guardia-Boutrón, Fernando. P 77-107)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-3</td>
<td>13%</td>
<td>225</td>
<td>10%</td>
<td>1%</td>
<td>23.40</td>
<td>0.078</td>
</tr>
<tr>
<td>4-6'</td>
<td>13%</td>
<td>224</td>
<td>80%</td>
<td>13%</td>
<td>23.40</td>
<td>0.768</td>
</tr>
<tr>
<td>7-13'</td>
<td>16%</td>
<td>228</td>
<td>16%</td>
<td>2%</td>
<td>38.89</td>
<td>0.1256</td>
</tr>
<tr>
<td>14-18'</td>
<td>14%</td>
<td>243</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>19-25'</td>
<td>10%</td>
<td>180</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>25-40'</td>
<td>15%</td>
<td>324</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>40-50'</td>
<td>7%</td>
<td>126</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50-60'</td>
<td>5%</td>
<td>90</td>
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Need a Elementary School (at least 230 kids out of 288, total child population, will be attending school)

Figure 5
applied in a formal fashion as in the case of Antigua, in other cases, the grid has been applied with fewer restrictions as in the case of la Democracia.

The grid is a characteristic of most urban centers in Guatemala. Although the grid is universal, the grid has a special significance here. The Spaniards recognized the grid as an outstanding ordering system. It helped to easily parcel land; it was practical, modular and instinctive, and thus was clearly understood. They used it systematically to lay out their towns. Thus the has become symbolic of urban development in Latin America much as it has in other parts of the world. In 1573 Philip II created a series of laws that would guide urban development in the American continent for the following centuries. The document, the Laws of the Indies, stands as the major theoretical backdrop to the Latin American city. It is essential to understand it if one is to fully understand the city in this part of the world. I have reprinted these laws with some rewording in appendix A, hoping the reader would get a better understanding of these principles.

Until the early 1900's, urban development in Latin America had a very clear distinguishing characteristic. It seemed to follow the simple set of rules explained in the laws of the Indies. Buildings clearly defined the street. Urban development was dense because it had to accommodate the pedestrian. Most activities in the city were within walking distance. It is possible to see this characteristic in the aerial photograph of Antigua. In la Democracia, urban development prior to 1920 followed this same pattern.

With the popularization of the car, towns and cities changed dramatically. The size of towns no longer had to correspond to the pedestrian but size could correspond more closely with the distance a car could travel. Towns began to grow in a linear fashion rather than maintaining a densely populated nucleus. Thus shops and services could be spread further apart, limiting what a pedestrian could do, and increasing the dependence of people on the car. As more and more land was developed in the suburbs, building lots became bigger. Houses were no longer built to occupy the entire lot and define the street, but instead were set back in their lots. The streets ceased to be nice spaces in which to walk. One was no longer enclosed in a defined space. The designer had to shift her focus to much larger areas, thus losing the attention to details of the past. The small town ideal soon gave way to the large and confusing metropolitan areas.

In addressing la Democracia one need not dwell on the urban ideas that have turned towns into sprawling urban centers. Instead, one should concentrate on creating an environment that is suitable for the pedestrian, and friendly to people. After all, pedestrians are the ones that use la Democracia. Less than 10% of the people in this town have cars.
A plan for growth that is friendly involves several characteristics. Parks must be well planned and easily available. They are the places where people will socialize and rest during their daily travels on foot. Shops should be within a close walking distance from homes. Streets should be appealing and enjoyable places in which to travel and linger. The buildings that face the street should enliven the street and should protect it from the sun and rain. Making a people-friendly town has to be a conscious decision. Otherwise the current ideals of urban development, those that address the car, will predominate.
TYPOLOGICAL ANALYSIS

An open air plaza is the town's principal urban feature (See diagram 1). This open air space is the area around which city life revolves. Fiestas, gatherings, and public life all take place here. Thus the plaza is surrounded by important public buildings. On the northern side of the plaza, a church consisting of a sacristy and four equal bays with seating for about 50 people graces the court. A multi-use building faces the western portion of the plaza. And city hall with an open air porch on its front faces the southern side. The plaza is a generous space measuring approximately 50 by 50 meters and is shaded by a gigantic Ceiba, an indigenous species of tree. In turn the plaza is subdivided by a grid of walks, landscape, and public art. Within this grided system one can find benches, smaller shade trees, and a series of massive four to five feet tall carved stone heads believed to have been made by the precursors of the Mayas (photo 1).

There are four principal types of streets in la Democracia (fig. 8). The town's principal thoroughfare, an inter-provincial highway, is eight meters wide with two equal two meter shoulders on each side. The typical street is six meters wide with two equal one meter sidewalks on each side. In general, streets are flanked by one story, low pitched roof houses painted in varying colors (photo 2). Figure 9, refers to the traffic flow. Thicker lines indicate greater flow. In figure 10, the major bus stops are located. There is no bus service within the town since most distances can easily be covered on foot. The principal pedestrian routes can be seen in figure 11.

In figure 12 one can see the block and lot infrastructure at la Democracia. No block has a side with a dimension longer than 100 meters. The typical block has a dimension of approximately 30 by 50 meters. Short blocks can help produce variety in the urban environment, increasing the number of corners for any given distance. This condition enables people on foot to turn corners often, allowing pedestrians to reach their destinations more readily.

Property lots come in a varying range of sizes. Property lots were larger in yesteryear than they are today. For example, in the model of Eximenis from 1383 (figure 13), a 100 by a 100 meter block was typically divided into four pieces. Each lot had an area of 625 square meters with each side measuring 25 meters. This was the model the Spaniards brought during their conquest of the American continent. But today lot sizes have become smaller and smaller with only an average of 120 square meters for low income people. We can see that the model of Eximenis is no longer viable. Furthermore, the one 100 by one 100 meter block has also become impractical because it cannot be efficiently adapted to today's smaller lots. In figure 13 one can see how a sequence of
Photo 1. The carved heads located in the main plaza in la Democracia are of great archeological significance. They represent the culture that preceded the Mayas. The heads are displayed as symbols of a past culture. In the future artwork done by students at the new technical school could be displayed at the new plaza, symbolizing the knowledge and work of the current generation.
Figure 8

Existing Streets
Photo 2. Color is one of the most important tools residents of la Democracia have for expressing their individual tastes and preferences.
Existing Traffic Flow
Thicker lines = heavier flow.

Figure 9
BUS SERVICE

Figure 10
CITY LOTS
+
Proposed Lots

Figure 12
various 100 by 100 meter blocks have been divided to adapt to smaller lot sizes. At la Democracia, lots vary from about 120 square meters to about 300 square meters. Lots smaller than 120 square meters are normally considered impractical. This information is critical in deciding what the new lot structure should be for the urban expansion of la Democracia.

The typical house in la Democracia can be seen in figure 14. Houses usually begin with one room and expand in L or U shape as the wealth of the family increases. An open air court dominates the central portion of the lot, allowing for ventilation and cooling of the house's interior. The front façade is usually very simple and has little decoration. When more than one family lives at the house, the façade usually contains multiple doors, but when there is only one family, the façade has only one. Typically, a few small windows pierce the façade. Depending on when the house was built, the windows are usually covered by wooden or iron grilles for protection from outsiders. Older houses will have wooden grilles, newer ones will have iron ones. The houses are made of only a few materials. Older houses were built completely of wood (photo 3) and were covered with a corrugated metal roof. Newer houses are constructed of CMU blocks (photo 4). In fact, most houses in Guatemala today are built with blocks. Unfortunately, because masonry houses are less permeable than wooden ones, these houses are usually warmer in this region where freshness is an advantage. On the other hand they are more durable.

What characteristics would be desirable in a house built today? The characteristics described in the previous paragraph comprise the vernacular architecture of this region. Thus the characteristics of these houses have been tested with time. New housing construction should incorporate the most important features: the grilles, the ventilation system, and the color schemes. New modern materials should adapt to these old functions. In addition there is another characteristic worth noting. Notice in photo 3 how several houses have been raised above the ground. This practice is done for several reasons. First, raising a house above the ground improves ventilation. Secondly, it increases privacy. When the house is elevated, a passer-by can no longer peak into the window. And finally, the house has a greater presence on the street. It stands out more thus defining the street better and creates a better enclosure for pedestrians. Compare photo 3 with photo 4. Notice how photo 3 illustrates a better separation of public and private life. In this day and age, a housing development where all houses are lifted above the ground is prohibitively costly to build. Instead one could carve a street into the terrain, automatically elevating houses above street level.
Figure 14

1) Typical houses start with the construction of one room.
2) The room is then extended with another room and so forth, to accommodate the family's needs.
3) Bores are dug to drain water from the house, and a roof is added for protection.
4) Doors are used as entrances, and windows are added for ventilation.
5) The roof is made of heavy timbers, often with heavy brackets above.
6) The house is typically elevated off the ground to keep it dry and ventilated.
7) Multiple doors (Photo No. 13) and windows (Photo No. 11) ensure good ventilation and accessibility.
8) The house is usually constructed on a raised base for better drainage.
Photo 3: Some streets in La Democracia are carved out of the sloping terrain while the buildings are simply placed on top of the remaining land. This creates a large base condition which, as a consequence, aids in ventilation, provides privacy, and lends the structures a greater presence on the street.
Photo 4. In San Benito, a new neighborhood, streets are unpaved, houses have little privacy, and have a modest presence on the street. Since houses are expensive to construct above street level, houses in new neighborhoods could be elevated by lowering the level of the ground around it.
"Any city planning worthy to be called organic must bring some measure of beauty and order into the poorest neighborhood," said Louis Mumford, a famous planner. Simple moves like those mentioned above could help bring beauty and order into new neighborhoods.

INVESTIGATION

To begin this section, we have a quote from a famous Colombian Architect, Karl Brunner: "Fundamentally the town planner is an architect, the architect of collective humanity, just like the designer... of residences is the architect of individuals, of the family". A town planner must strive to make the city as comfortable as he would make an individual house.

On diagram 2a one can see the proposed scheme for the expansion of la Democracia. On diagram 2b one can see how it integrates into the rest of the city structure. My interest in la Democracia began upon understanding that this design scheme had limitations which could be overcome. In the sequence of figures starting with number 15 and finishing with number 26, one can see a potential way of solving some of these problems. The guiding principles for these suggestions come from the book titled "Making People-Friendly Towns" (Appendix B) by Francis Tibbalds and the article "The Nature of Urbanism" written by Virendra Sahai (Appendix C). As John Wood the Younger said in A Series of Plans for 'Cottages, Habitations of the Laborer'...in 1781, "In order to make myself a master of the subject, it was necessary for me to feel as the cottager himself... no architect can form a convenient plan unless he ideally places himself in the situation of the person for whom he designs."

1) The existing landscape has not been considered in the solution. (figure 17)
2) The grid for streets is interrupted in several locations. (figure 18)
3) Very long blocks, over 200 meter long in some cases, inhibit pedestrian circulation. (figure 20)
4) No connection has been made with the existing city fabric, that is, new streets in the development are not a continuation of existing streets. (figure 21)
5) The commercial area responds to the automobile only and not to pedestrians who will be the main users of this development. (figure 22)
6) The school’s playing fields are not centrally located for the community. (figure 23)

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7) The area designated for a new technical school is relegated to the corner of the site. (figure 24)
8) All lots are of similar size. (figure 25)
9) All lots have only 8 meters frontage. (8M. X 20 M. = 160 Sq. meters, see fig. 26)
   A wider lot would increase residents access to the street.

In an attempt to promote a better urban environment at la Democracia, I spent time with one of the city's landowners in an effort to arrive at the solution below. On figures 27 to 49 we can see the proposed final solution to the project. First, we carefully considered where the trees and other natural features are located to avoid destroying the existing natural elements of la Democracia. Second, we avoided interruptions in the grid to promote uncomplicated patterns of movement throughout the site. Third, we avoided long blocks that inhibit pedestrian circulation. Fourth, we propose connecting San Benito with the rest of the city to facilitate the interaction among neighborhoods. Fifth, we orient commercial areas toward the pedestrian so they serve the people on foot and not the automobile. Sixth, we tried to locate the school's playing fields so the whole community can use them. Seventh, we located the technical school adjacent to a major thoroughfare and linked it carefully to the existing sports facilities. Eighth, we propose lots of varying sizes to attract people of different needs and income levels. And ninth, we increased frontage of lots from eight to ten meters (10M. X 16M. = 160 square meters) to allow residents a greater access to the street.

CONCLUSION

Urban development is a delicate process. To make development friendly and attractive to users, the urban planner must study existing urban conditions carefully, propose new ideas, and implement only those that adapt to the current or accurately projected needs of the population. If a town caters to pedestrians as in the case of la Democracia, then the solutions proposed must answer the needs of pedestrians. Streets should be attractive and clean. Distances to services and shops should be short. Houses and buildings should define the street edge. Plazas should be easy to find, well shaded, with multiple accesses, and large enough for public gatherings. Public spaces suitable for resting should be evenly dispersed throughout the city fabric. Blocks should remain small, allowing people to turn corners. Shops and cafes should line the streets and plaza, giving people a chance to observe, to rest, and to socialize. Trees and other landscape can be used for shading as well as for meshing disparate areas of the town. Urban development that is friendly involves an attitude. This attitude involves believing that the city is a place where every space counts and needs to be carefully considered.
Colonia San Benito: unplanned settlement
Existing Single Family Residential Development

New Access required

Undeveloped Site: Possible Future Residential

Soil Type:
High Compressibility
Moderate Plasticity

Drainage

Low area: difficult drainage

Undeveloped Site

Predominant Wind

Predominant Sun Exposure

Undeveloped Site

Existing Unpaved Road

Existing unpaved road:

Wooded Area: Mixed Hardwoods

Wooded Area: Mixed Hardwoods

Undeveloped Site

No slope greater than 2%

Note: to find site look at map of city, this is the planned future site for city expansion.

Análisis del Terreno

Figure 15
Figure 16
PROPOSED

Problem: No consideration of landscape.
       Housing to cover existing tree cover.

REVISED

Solution: Align streets to tree cover.
          Retain open space where natural tree shade exists.
PROPOSED

Interuptions of grid complicate circulation.

REVISED

Avoid Interruptions

Figure 18
PROPOSED Grid

REVISED Grid
PROPOSED

Very long blocks inhibit pedestrian circulation.

REVISED

Break up long blocks with street and pedestrian walkway.
PROPOSED

No connection made to city fabric.

REVISED

Connect site to existing city fabric.

Figure 21
PROPOSED

Commercial area responds to automobile only.

REVISED

With over 50% of circulation in site being pedestrian, a commercial area more along pedestrian routes favors a greater amount of neighbors.
PROPOSED

Playing fields not available to community.

REVISED

Have school and community share playing fields.

Figure 23
PROPOSED

School relegated to corner of site.

REVISED

- S School
- G Green
- X Playing Fields

Have school share infrastructure with community, become integral with community.
PROPOSED

site = 21.5 acres = 8.7 ha.
320 lots

All lots similar.

REVISED

site = 21.5 acres = 8.7 ha.
290 lots

Smaller blocks make for wider variety of lot sizes.
Orient some lots to east and west sides of block to
give north-south streets identity.

Densities
Habitants/hectare
(Habs./Ha.)

Manhattan
(Multi-story)
250 Habs./Ha.

Proposed
(Single Story)
220 Habs./Ha.

Revised
180 Habs./Ha.

New York
92 Habs./Ha.

Houston
12 Habs./Ha.


Figure 25
PROPOSED

**Ratio = Street Frontage**

**Lot Depth**

Typical Lot.

---

REVISED

**Ratio**

- **8 Mts. X 20 Mts. = 160 Mts²**
- **10 Mts X 20 Mts. = 200 Mts²**
- **8 Mts. X 17 Mts. = 136 Mts²**
- **12 Mts X 17 Mts. = 204 Mts²**
- **8 Mts X 15 Mts. = Minimum Lot 120 Mts.²**
- **10 Mts X 15 Mts. = 150 Mts²**

Look for lots with areas similar to typical lot but with larger access to street.

Figure 26
PLAN OF THE EXTENT OF URBAN GROWTH 1960

Drawn by
Carlos A. Bruderer
1995

NOTES:
Urban lots = 400
Persons per household: 5.5
Population: 2,200
Rate of Growth: 3.4%
Doubling Period: 21 years

LAND USE CODES:
- C Commercial
- S Secondary School
- E Elementary School
- R Residential
- R Mixed Use- Res. over Comm.
- I Industrial
- F Habitat Area
- E Environmental/Public Facilities

Explanation:
1) General Park
2) School
3) Res. Area
4) Canals
5) Green Belt
6) Downtown
7) Water Tower
8) Picnic Area
9) Secondary School
10) Cemetery
11) Rest

Scales

Figure 27
PLAN
OF THE EXTENT OF URBAN GROWTH 1980

LA DEMOCRACIA

Drawn by
Carlos A. Bruderer
1995

NOTES:
Urban lots = 560
Persons per household: 5.5
Population: 3,060
Rate of Growth: 3.3%
Doubling Period: 23 years

LAND USE CODE
C Community
S Secondary School
E Elementary School
R Residential
C Commercial
BC Mixed Use-Res. over Comm.
OS Operational Open Space
I Industrial
H Habitat Area
E Environmental-Public Facilities

Scales

Figure 28
PLAN OF THE EXTENT OF URBAN GROWTH 1995

LA DEMOCRACIA

Drawn by
Carlos A. Bruderer
1995

NOTES:
Urban lots = 704
Persons per household: 5.5
Population: 3,872
Rate of Growth: 3.1%
Doubling Period: 23 years

See photo 5.

LAND USE CODE
0 Community
1 SS Secondary School
2 ES Elementary School
3 Residential
4 Commercial
5 Mixed Use—Res. over Comm.
6 ES Recreational Open Space
7 Industrial
8 Habitat Areas
9 Environmental/Public Facilities

Scales

Figure 29
URBAN GROWTH
Projected Year 2005

PLAN
LA DEMOCRACIA
Drawn by Carlos A. Bruderer 1995

LAND USE CODE
C Commercial
S Secondary School
E Elementary School
R Residential
C Commercial
RC Mixed Use-Res. over Comm.
OS Recreational Open Space
I Industrial
H Habitat Area
E Environmental/Public Facilities

NOTES:
Urban land = 994
Persons per household: 5.3
Population: 4972
Rate of Growth: 3.0%
Doubling Period: 24 years

Scales

Figure 30
Diagram 3b
Photo 6. Currently most development occurs along the property lines determined by ownership. If small parcels continue to be developed individually, growth will occur in a disorderly and uncohesive fashion.
LINEAR PARK

Stairways:
1) Allow access to river.

Dams:
1) Encourage Swimming
2) Aerate Water.
3) Falling water creates sense of serenity
4) Dam allows crossing of river.

Comments:
1) Encourage appreciation, preservation of River.

See photos 7 and 8 for current state of river.

See photos 9 and 10, and diagram 4 for proposed new state.
Photo 7 and 8. People who live in shanty houses adjacent to the river Mazate throw all their waste into the river, making the river bed a trash dump, a place of bad smells, and a place of diseases.
Photos 9 and 10. The river is an important natural element in the lives of the people. They use it for washing their clothing and bathing. Unfortunately, a short distance from where this picture was taken, the
river receives the full load of la Democracia's untreated sewage. The river must be respected and cleaned up. It could be a great source of water, beauty, and entertainment for la Democracia's residents.
STREET AND ROAD SYSTEM

- By-Pass
- Inter-Provincial Road
- Inter-Town Road
- Connector Street
- Residential Street
- Pedestrian & Light Vehicle

Figure 33a

Comments:
1) Develop thoroughfare as spaces.
2) Forest pattern determined by topography.
3) Give emphasis to intersections by having a change of axis.
4) For model of blocks, lots, and houses see diag. 8.
Residential Street Perspective.

Diagram 7
Notes:
- Prerequisites: Site of existing object tree, at least 800 Mts. away from another park.
- Area Covered = $A = \pi r^2 = 50$ has.
- % Residential = 50% of 50 Has. = 25 Has.
- Density = 150 habs Ha.
- Population / Plaza = 4000

Figure 34
Development of plaza 1.

Diagram 9
Photo 11. While the main plaza in la Democracia is successful, most plazas, like this one below in San Benito, were poorly designed, and as a consequence they are infrequently used and not well-maintained.
Comments
1) Allows heavy traffic to move around town.
Photo 12. Currently one enters la Democracia on a heavily traveled road and passes directly through the city en route to the next town. A new bypass would take heavy traffic around the city in order to improve the urban and pedestrian conditions in the city.
Figure 36

Comments:
1) "Walking is good."
2) Encourage freedom of access.
3) Covered walkways: Buganvilla Tunnels
Photo 13. Only ten percent of la Democracia's population uses a car regularly. Today, many of the inhabitants must travel precariously on foot along busy roads. New plans will add pedestrian and bicycle paths along existing routes.
Photo 14. The paths will be lined with concrete pavers to decrease run-off and the native bougainvillea will add color and shade to the walkways (diagram 6e and 10).
Photo 15a. Roads such as this one which provide a place where pedestrians can safely walk should be a goal in future urban development.
Photo 15b. For New Year over 10,000 people gather for the annual fiesta. Any new urban development must take this fact into account, making the necessary provisions for this quantity of people to easily enter and exit the area.
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## La Democracia, Escuintla

### HEALTH CARE
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<th>Quantity</th>
<th>Service</th>
<th>Population/Unit</th>
<th>Radius (Min.)</th>
<th>Radius (Max.)</th>
<th>Construction (M²)</th>
<th>Lot Area (M²)</th>
<th>Cost 1982 dollars</th>
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<th>Construction (M²)</th>
<th>Lot Area (M²)</th>
<th>Cost 1982 dollars</th>
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<td>250.00</td>
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<td>1.00</td>
<td>100 persons</td>
<td>1,000.00</td>
<td>3.00</td>
<td>250.00</td>
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### SPORTS & OPEN SPACE
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<th>Service</th>
<th>Population/Unit</th>
<th>Radius (Min.)</th>
<th>Radius (Max.)</th>
<th>Construction (M²)</th>
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<td>9,200.00</td>
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<td></td>
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<td>New</td>
<td>Linear Park</td>
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<td>1.00</td>
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<td>Local</td>
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<td>1 to 2</td>
<td>Children</td>
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<td>400.00</td>
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<td></td>
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### STREETS
<table>
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<tr>
<th>Year</th>
<th>Quantity</th>
<th>Type of Street</th>
<th>Description</th>
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<th>Cost/Km. ($1982)</th>
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<tr>
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<td>20</td>
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<td>Existing</td>
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<tr>
<td>New</td>
<td>Bridges</td>
<td>2,015</td>
<td>1.00</td>
<td>Steel</td>
<td>Encourage Crossing, Appreciation of river.</td>
</tr>
</tbody>
</table>

### BUS STOPS
| Bus Stop | Comment | |
|----------|---------||
| Inter-town buses | | Stops every 250 km. |
| PARKING | | Parking Spots |
| Health Center | 1/2 beds | |
| Stores | 1/100 M² | |
| Commercial | 1/100 M² | |
| Houses (1 Dormitory) | 1.00 | |
| Houses (2 Dormitory) | 1.00 | |
| Houses (3 Dormitory) | 1.50 | |

### NON PUBLIC
<table>
<thead>
<tr>
<th>General</th>
<th>Comment</th>
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<tbody>
<tr>
<td>Bank</td>
<td>2,000</td>
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</table>

Purpose: Landscaping has mellowing, softening effect, cooling and shading adjacent area. It helps knit the town together.

See photos 16. Object Trees act as markers identifying each plaza.
See photos 17 and 18. Linear Trees help define and mark entrances.
See photos 19. Tree mass: serves as rest area. (picnics)
Photo 16. Existing object trees such as this Ceiba, a native species of tree, will determine the locations of new plazas, and also act as markers and shading devices for these open spaces.
Photo 17. Palm and coconut trees can be used to line the entrances to the town and form a gateway to the city.
Photos 18. Coconuts from the trees used in landscaping have the potential to generate revenue. Lining the streets with palm trees and harvesting the coconuts could provide an additional source of income for the city. Coconut water is a proven diuretic and an important source of potable drinking water.
Photo 19. A mass of trees like this one can provide nicely shaded areas for weekend retreats and family picnics. Small forests can also help cool air in the areas adjacent to them.
Comment:
1) Encourage crossing of river.
   Less chance of river becoming a trash dump.

Figure 40
Photo 20. Hanging bridges are easily constructible and serve two purposes. Firstly, they allow access to pedestrians to the opposing sides of the river. Secondly they expose the river to pedestrians. Thus people have a greater chance to monitor the condition of the river, preventing possible trash build up along the river banks.
Photo 21. Currently one bridge carries automobile traffic across the river. Future plans propose adding one more. This bridge would open up the eastern river bank for urban development, reducing the necessity of having all development on the western river bank.
Photo 22. New elementary schools should be located in open spaces buffered from the bustle of urban life by shady green spaces.
Options for Technical School Location

Option 1: Close to sports facilities, arterial road

Option 2: At entrance of town

Option 3: Pulls Students through town, close to arterial road.

Option 4: Alternate to option 1.

Existing Secondary School

Comments:
1) Area Provided for school: 3 has.
Photo 23. Guatemala’s newest technical school in the outlying area of Santa Lucia, a small town also located in the coastal region of the country. In contrast, the proposed technical school for la Democracia will be integrated with the city fabric and easily accessible to pedestrians from within the town.
Comments:
1) Only 1.5 basketball courts are available to the public.
2) Children play in the street for lack of playing space.
Comments:

1) Encourage sports.
2) Cover playing fields to avoid extreme mid-day heat.
COMMERCIAL AREAS

Existing Commercial
See photo 24.
Possible Commercial Strip
Linear market @
Technical School
Garage (Auto Mechanics)
Diesel Mechanics
Soldering
Electrical Repairs
Lathe
Carpentry

Comments:
1) Currently, one to four variety stores exist at every corner.
2) New neighborhoods should allow for similar multiplicity of commercial activity.

Figure 46
Photo 24. Perhaps the single most utilized commercial entity in la Democracia today is the corner general store. They provide the residents with the basic essentials while also serving as a community meeting and gathering spaces. Large shopping areas are to be found only in Escuintla.
Photo 25. Future residents of la Democracia will have three options for shopping: streets lined with shops, an open air market on Thursday, and the general stores located on virtually every corner.
HEALTH CENTER

Current Population: 4,000
Current Status: Infirmary
Current Lot Area: 4,000 M²
Current Construction Area: 450 M²
Area of influence: 20 km (10 min drive)

Expected Population Year 2025: 8,000
Required Lot Area: 3,000 M² OK
Required Approx. Construction Area: 3,500 M²
Expected Status 2025: Class "A" Health Center
Notes: Capacity of health center must be expanded nearly five fold.

Figure 47
PUBLIC ARTWORK

- Carved Heads
- Paving: Guidelines of preservation of times
- Student Art Work

STUDENT ART WORK

See photo 1

Comments:
1) Display Archaeological findings: they help people remember ancient cultures that inhabited their area.
2) Encourage the creation and display of students' artwork.
WASTE CONTROL

- Raw Sewage Dump
- Possible locations for sewage plant.
- Possible locations for landfill.

Comments:
1) Reclaim eroded land from river for oxidation ponds
2) Requirements: .5 Ha./1000 people
3) Locate Landfills away from prevailing breezes, i.e. South-east corner of town.

See photo 26.

Figure 49
Photo 26. Waste control is a tremendous problem in la Democracia. Trash litters some of the streets and larger quantities are dumped in arbitrary locations just outside the city. Unfortunately, the river is also a main disposal site.
BIBLIOGRAPHY


APPENDIX A
THE LAWS OF THE INDIES

-34, 35. When populating an area consider: the health of the area: fertile fields (no noxious things should be growing); that there be healthy people (labor), animals, and good fruits; the climate should have clear skies, pure soft air, good temperature without excessive heat or cold, and having to decide, it is better that it be cold; and good resources, wood for construction, and water for drinking and irrigation.

LOCATION:
-37. look for good access by sea and land, at the same time check that area can be easily protected.
-39. avoid excessive work and cost by locating close to a town that can be demolished for materials.
-40. choose places of middle elevation (good winds), not to high (too much wind) not too low (unhealthy).
- Locate mountains on the east or west sides of the city, they block early morning and late afternoon sun. If construction is to proceed in a high place, avoid places with fog.
- If building is to occur in the banks of a river, locate the town on the eastern bank, so that the sun strikes the city first, then the water.
- Locate the town so that wind direction shall not align with streets. This restriction will prevent the winds from tunneling along the streets. Choose areas with north-south winds if possible.
-41. Select a maritime location, preferably a harbor, or bay. Select such a location only for the necessary commercial activities and defense of the land, otherwise avoid these locations. These places have pirates and little labor.

RULES ON STARTING A NEW TOWN.
-100. Settlements shall be no less than twelve persons.
-103. Selection of the urban lots, farm, and pasture lands shall be made by the person responsible of the town.
-104. The unit the land shall be divided into is the Peonia (46 ft. by 92 ft., approximately 15 meters by 30 meters, no more than five may be given out per person) and;
-105. the caballería [(92 ft. X 184 ft. no more than three may be given out per person). Comment: City lots are given out based on their productive capacity.]
-106. City lots shall be clearly marked and surveyed, pasture land is common to all.
-107. Lots are kept based on performance.
-110. A plan for the city shall be made, 'dividing it into squares, streets and building lots, using cord and ruler. Begin with the main square from which streets and principal roads are to run to the main gates. Leave sufficient open space between the plaza and gates so that even if the town grows, it will have space to expand.'
-111. In summary, the main points for building a new town are(requirements):
   Healthy location
   Good elevation
   Fortifiable
   On fertile soil (land for farming)
   Fuel, timber, resources.
   Fresh water
   A native population (a workforce)
   Ease of transport
   Good access and exit
   Open to the North Wind
   No marshes or lagoons (breeds polluted air)
-112. In Maritime location: Plaza should be at landing place of the port
Other locations: Plaza should be at center of town.
-113. The plaza shall be square or rectangular, and shall be surrounded by principal four streets. The plaza should be proportioned in a 2:3 ratio (best for fiestas and other gatherings) according to the number of inhabitants, and the potential of future growth. For example in Spain the plaza should be 85 ft. X 100 Ft. (Typical. l.e. Mayor de Villareal) In the American continent, the maximum size for a plaza should be 500 ft. X 800 Ft. The minimum should be 200 ft X 300 ft. The suggested size is 400 ft X 600 ft. Below is a diagram showing this data.
-114 From the plaza shall begin the four principal streets: One shall be from the middle of each side, and two streets shall extend from the corner of the plaza. Orient the four corners of the plaza toward the prevailing winds, thus preventing the wind from tunneling along the street.

- 115 Locate portals at the four principal streets, those that do not begin at the corners. These are of great use since merchants gather there.
116 In cold places streets shall be wide, in hot ones, narrow. Narrower streets provide shade and thus cooling in warmer weather. But for purposes of defense with horses, make streets wider.

117 Extend streets from plaza in such way that if the town increases considerably in size, the town can accommodate the growth painlessly.

118 Locate services (chapels, healthcare, library, multi-use) in good proportions such that all the town’s population is well served. For example, smaller plazas shall be located within town.

119 Assign a complete lot for the principal church. Unless it were for ornamental reasons, prevent other buildings from being nearby.

120 In a maritime location, locate the church such that it can be seen from outgoing ships and where it can protect against invasions.

121 Locate a site for the Royal council, Cabildo, Custom house, and arsenal preferably next to the church so that they can help each other in case of need.

122 Businesses such as fisheries, slaughter houses, tanneries shall be located so that their filth can be easily disposed of.

123 Locate inland towns near a navigable river. Locate the town on the side of the river from which the wind is coming. Businesses producing filth on the other side, thus the wind will always carry the smells away.

124 In inland places locate the temple in a high place where it is easily visible, decorated and reached by steps.

125 In the plaza, assign no lots to private individuals. Lots around the plaza shall be for city use. Build shops and houses for merchants first. Impose a small tax on goods so that these stores may be built.

127 Distribute other building lots by lottery, starting with the lots closer to the plaza. Maintain a plan of all that is being built.

128 Owners of lots shall settle as soon as possible in their lots, installing their tents there. They shall help to build a ditch and palisade around the main plaza to protect against the Indians.

129 Maintain a commons area where the people can go for recreation. Design it such that even if the town suffers rapid expansion, its site will not interfere with city growth.
-130 Adjoining the commons, shall be land for the grazing of oxen, horses and the cattle of the people. The rest of the land around the city shall be distributed as farm lots. One lot shall be distributed for every city lot, such that everyone will have land to cultivate. We will retain any unused land such that we may assign it to future settlers.

-132 Houses shall be built quickly, with good foundations and walls, and at low cost.

-133 Arrange building lots and edifices such that the inhabitants may enjoy the best winds, those from the north and south. Build houses such that they may help in the defense of the town. Provide corrals as large as possible so that the inhabitants may keep horses and work animals in their yards.

-134 They shall try to have the buildings of all one type for the sake of the beauty of the town.
APPENDIX B

WHAT MAKES A PEOPLE-FRIENDLY TOWN? (by Francis Tibbalds)

Does the project have a sense of order and unity? Does it have a good referencing system? Make towns and cities understandable and clear. Good design adds value to property.

Uses at ground level should be appropriate for pedestrians. A town fulfilling such a condition can be said to have an urban scale. Pedestrians enjoy cafes and window-shopping.

A new building should be considered on all levels: its skyline, down a street, across a square, at eye level, from the sky, from the eye of the disabled, or from the eye of the elderly. Have you considered how the building meets the ground?

Make new development permeable, allow people to go through it. Let it be easy to move through and around. Make it easy to orient oneself. Make it easy to turn corners. Avoid reliance on single routes. A fine network of movement has choice, variety, and deliberate redundancy. Does your system of circulation benefit any particular mode of transportation? Unchecked reliance on private cars will cause any new development to lack a human touch. Encourage freedom of access and movement, particularly for pedestrians and the disabled.

Promote mixed-uses for urban sites. Such uses combine, cafes, pavilions, kiosks, shops. A mixed-use project has places where you can live, work, recreate, shop, and have solitude all in one place. Use important public buildings such as a church or town hall to anchor open spaces. Encourage busy places; they are nice to be in. Access should be for everyone, that is, all income levels, age groups, and backgrounds. Promote human contact. Create places where it is easy to congregate and meet people. Use housing as a civilizing force in the development. If it's not suitable to live in, it can hardly be suitable to visit. Thus make places as if they were to be lived in. Avoid large scale monolithic development.

Enrich the public landscape with the integration of art, landscape, and street furniture. Make landscaping part of the organizational structure of the city.
Landscaping has mellowing, softening effect. It helps knit a development together. Water is also a key structuring element. Make water visible, build dams, face buildings toward river, and build good bridges. For example, a high density, mixed-use project can be built up contiguously with green lungs. One tree can become the most important tree in the whole wide world.
Access roads, and parking areas should be near the served building. They should be efficient and safe. Have good street lighting. Use lighting imaginatively on buildings, streets, trees, sculpture, and monuments. Combine night routes with uses that operate well after dark.

Require a study on how the project will affect neighboring property and environment. Illustrate proposals in their physical context, using perspectives, photomontages and three dimensional presentations. Connect new developments to their physical context. Use no pastiche. Promote individuality, intricacy, and user friendliness. Harmonize new development with the existing townscape. Use materials that respect local traditions. Study the local vernacular style and common historical features.

Set apart places for landmarks; set guidelines for other buildings and set the total number of stories allowed. Individual buildings should only be promoted when they serve as markers.

Encourage good craftsmanship, robustness, permanence, consistency, and durability of the design. Use materials that are of good quality, and easily maintained. Use common architectural vocabulary: arcade forms; column and pier forms; ceiling and vault forms; interesting, clearly defined entrances and exits; and good façade proportions.

Suggest the use of color, patterns, decoration, texture, elevation design, and details. Sensitive development takes care of all these elements.

Are you demolishing a historic building? If you are, do you have a good enough reason?

Promote good maintenance of the city. Arrival point to the city must be attractive. Keep the airport, the railway station, the bus station, the multistory car park, and the pedestrian gateway all in good shape and clean.

Are there places where you can visualize the whole city?

Early on, involve the people that work, shop, and play in the area. Involve people from all disciplines in the design process. Put well trained people in charge.

When planning for urban growth, make a plan that goes 20 to 50 years ahead into the future. Such a plan helps a short term politicians implement long term plans.
APPENDIX C
THE NATURE OF URBANISM (by Virendra Sahai)

The essence of urbanism is the creation of public spaces. Since the earliest of
times, the purpose of urbanism has been to provide sheltered places for human
interaction. In general, a town becomes an enjoyable place to be in by the way its streets
and buildings interact. We enjoy places that are enclosed and safe from the environment.
It is not the quality, style or grandeur of one particular building that matters but how the
building is positioned within the townscape. In other words what matters is the totality of
the resulting environment not the individual pieces. Urbanism is about, "[creating] places
for chance meeting as well as for formalized civic or religious functions."

The constituents of Urbanism:
1) A distinctive skyline.

A sign of a great city is how it buildings meet the sky. This feature can help
identify and distinguish a city from others. The skyline of a city usually becomes its
trademark. For example, in Toronto, the CN Tower becomes a visual focus in the
skyline. A distinctive skyline is a characteristic of all great cities. It can also help orient
the people within the city.

2) Hierarchically organized buildings and spaces.

Some buildings and some spaces will be more important than others. Those that
are important need to stand out more than those that aren't. This condition also can
provide a sense of orientation.

3) Thoroughfares need to be treated as spaces.

Streets are not only for transportation. They are not just passageways. They are
places where, people walk, talk, gaze. Thus, they need to be attractive and interesting.
They need not only be straight, but can be winding. This characteristic gives them charm
and arouses our curiosity. They need not be one same width, but may vary in thickness.
Thus streets point to places where we may want to go more slowly and observe more.

Making a street a more enjoyable space to be in can be achieved by the following
means.
a) A street should dictate the size of the buildings that face it. For example, a wider street, say a boulevard, should have taller buildings than a narrower residential street.

b) Whenever possible, streets should have a focal points at its ends. Locate landmarks at the end of key view corridors.

c) A street should be framed by continuous building blocks. The only interruptions should be at intersections with other streets.

d) If streets that intersect a main street are interesting, then the main street becomes punctuated by a series of distinctive events.

e) Streets should have clearly demarcated areas for vehicles and for pedestrians. The clearer this distinction is made visually, say by using trees between the street and walkways, the greater will be the sense of enclosure and protection for its users.

f) Corners of streets should be given emphasis by carefully detailing them.

g) A street that winds can be more interesting than one that is straight. Our sense of curiosity lightens when our depth of vision is limited.

h) Create an arcade when it is feasible. This element softens the juncture between public places, streets, and private places, buildings. It provides shade and protection from rain.

4) Public spaces should be strategically placed in the townscape. This condition ensures that no matter where one is, one will always be able to find a comfortable and enjoyable rest place.

5) Successful urban spaces are places that are enclosed. Land use around open areas should be intensive. Buildings are the elements that enclose a public space.

These conditions can help ensure that the city becomes a place where spatial and pictorial compositions unfold constantly. The urban planner must decide what type of experience the user will have. He must use all the elements at hand, streets, buildings, and landscape to deliver a city that is full of surprises and variety.
Appendix D:

Elements of TYPOLOGICAL ANALYSIS:

A) Road system:
   1) Avenues.
   2) Streets.
   3) Side Walks.

B) Green Areas:
   1) Trees in avenues.
   2) Parks
   3) Gardens

C) Social Spaces (Social Life):
   1) Public Spaces, (Plazas)
      a) Market
      b) In front of the church
      c) In front of town hall.
      d) Public Buildings
   2) Semi-public: Galleries
   3) Semi-private: Internal Patios
   4) Private: Rooms, house

D) Architecture:
   1) Façades.
   2) Internal Composition, distribution.
   3) Symbolic System.
      a) Forms
      b) Decorations
      c) Colors.