Realtors® Land Institute

Land University Course

Subdivision Development

Edited by John Kilpatrick, Ph. D.
University of South Carolina

SUBDIVISION DEVELOPMENT

Subdivision is legally defined in many states *as "land that is divided or is proposed to be divided for the purpose of disposition into two or more lots, parcels, units, or interests."* Within the scope of the REALTORS' LAND INSTITUTE® (RLI), a subdivision can refer to land in two or more physical or legal divisions that are offered as a part of a common promotional plan, common advertising effort, or common unit of sale.

A subdivision can deal with the physical or legal division of land. A physical division can mean any number and size of land tracts. Physically the subdivision can be composed of ranchettes, sub-divided raw acreage, or developed lots. A legal division can is any concept of legal estate, and/or ownership transfer. Legal divisions can be a syndication interest stated as a legal percentage in several pieces of property, a security interest such as a 1/100 undivided interest in a large estate, or a fee simple interest of $\frac{1}{2}$ of a former farm. The physical and legal divisions do not have to be contiguous.

Based upon the above definitions of subdivision and the process by which it is identified, sub-dividing can overlap with the discussion of many land markets. In fact sub-dividing can be a transitional and rural land marketing strategy.

In **Subdivision Development** sub-dividing is more than a marketing technique -- it is a development process and as such the course will focus on the production and the marketing of the product.

Subdividing is a process of product development and yet despite the emphasis on the product, subdivision is also a marketing strategy for many land types. It makes economic sense. The more tracts there are, the greater the possibility for sale. The smaller the tracts are, the greater the number of potential buyers. There are more people with a little money than there are those with a lot of money. The ultimate objective of sub-dividing is to buy by the acre and sell by the square foot. Therefore, the marketing strategy should direct the product development in many cases.

The objective in sub-dividing is not just limited to getting the broadest market. The appropriate objective is to also identify the "right" market and to maximize profit while minimizing risk. Delivering the land to the appropriate market is the optimal process for achieving the highest return with the greatest control on exposures to risk.

Subdivision Development Seminar

Objectives of the Seminar

The general objectives of the seminar are to:

- Teach processes for developing, marketing, and financing subdivided tracts of land.
- Outline subdivision concepts ranging from parceling a larger tract of land into smaller acreage to the full-scale development of a mixed-use subdivision.
- Use combined techniques of subdivision management, analysis, marketing, and development.
- Show methods for identifying appropriate sites.
- Demonstrate procedures for combining financial capital with raw land within a marketing strategy, which leads to converting the developed product to cash.

In the same way that financial capital is invested into land to create a viable product, educational capital is invested into people to create market participants with the potential for success. In a broader context, a profession -- in this case, the subdivision development profession -- grows by the development of its people. An investment in education is an investment in human capital.

The processes taught in this course are not merely focused on "how to" break up a parcel of land into smaller parcels but designed to provide the students with decision-making and problem-solving skills. These skills will be useful not only in the for-profit endeavor but also to foster the overall benefits for the community. Such benefits range from improvement of the community's tax base to delivery of real estate "products" which meet the needs of the market. The ultimate goals of the course are to expand the market and to enhance community wealth.

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   d. "Whispering Forest" – The use of a Performa in bracketing the potential return for a land development.

3. Illustrations and Handouts
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The Origins of the Development Process

The Process

In general, land development involves steps or stages in a process. To the uninitiated, these steps may not appear to have a logically related order. However, in the end, these steps converge into a finished product.

Complicating this "disjointed-ness", from the student's point of view, is the complexity, which arises from the three basic scenarios of real estate development.

They are:

1. *A site in search of a market.* In this situation, a counselor, sub-divider, developer, broker or property owner has control or responsibility for a tract of land. The land is unproductive, and at best, only has potential value until it is put to use. The process is to go from the product to the market, starting with the specifics of the site. This process is often the method used by the novice developer or a smaller scale developer. The emphasis in this approach is to identify the attributes of the property and match the site to the market. The identification of attributes and the linking of those attributes to the appropriate market emphasize the process of property development.

2. *A market in search of a site.* In this situation, a developer identifies the potential for an active market in an area. With the awareness of a potential market, the developer identifies the needs and/or desires of the market, or more accurately, the market segment. By identifying these needs, the developer then seeks a site that fits the market demand. The process is to go from the market to the specific product. This is often the method used by larger scale professional developers. The scale of the operation has to do with the fact that this approach involves observing multiple markets. This is difficult and may be riskier for the smaller scale developer.

Diversification to reduce risk. As will be seen later, the control of risk is tied to knowing the market area as well as knowing the physical characteristics of the site. Real estate is a business where greater knowledge can result in great returns. Equally important, knowledge can also help the developer reduce exposure to risk. Using the second method as a launch pad into development allows for geographic diversification.

However, to play the game of going from the market to the site in order to increase return and minimize risk, often requires economies of scale and the ability to synthesize tremendous amounts of information.

3. *The investment/business opportunity*. The investment perspective involves the financing package more than the development of the product. Much of the return in development stems from *financing* and not just the operating income or sale proceeds from the property. In the regulatory climate facing real estate finance today, particularly in light of the most recent regulations stemming from the Savings and Loan crisis of the 1980s, future creative financing of real property will require extraordinarily inventive efforts. In addition, even the simplest financing for a project may now require alternative sources of funds. These sources may be non-financial institutions, pension funds, security markets, private or public syndications and other clients seeking a particular type of property or return to fit a portfolio of investments. Such investors are a source of liquid capital, a commodity absolutely required by the developer/sub-divider. The developer however, can no longer simply argue the merits of a single project to this audience. The arguments or documentation to invest in one project must now identify and stress how the subject property can relate, support and benefit other investment properties.

The Initiation of the Process

Unfortunately, each of the foregoing opportunity scenarios requires a different initiation process. For example, if you have a site in search of a market, the first step is productivity analysis. If you have a market in search of a site, the starting point is a market analysis. If the origin is with investor financing, the concern must be investments that generate a desired return or comply with a given risk level.

If the development process starts with the site, then productivity analysis is required:

- Catalogues the characteristics of the site,
- Ties site characteristics to market needs and tastes,
- Develops the marketing strategy that ties to the appropriate market, and
- Outlines market absorption and risk factors.

If the development process begins with an identification of an unserviced market, the order of the process changes. In the first step, the developer catalogs consumer tastes, preferences, and needs. The developer then attempts to locate a site or sites that comply with these market requirements. The analysis will then conclude with development of the marketing strategy, and outlining of absorption and risk factors.

If the final scenario requires an understanding of how to match investment returns and risk levels with types of investment vehicles, with real estate and developable land projects being just a few of the almost infinite variety of alternative investment opportunities, the potential or existing developments in various markets have to be considered. The overview must consider returns and risk as they relate to specific geographic markets or particular property types. If the markets are identified first then alternative properties must be considered in the context of the markets. If property types are identified as the vehicle that can generate the desired return, then alternative markets must be investigated.

Regardless of the scenario, the process investigates the productivity of the site, constructs a market analysis and carries out investment or business analysis. This process complies with the premise of a business enterprise. An enterprise is an organized undertaking. Our objective is to offer a professional enterprise process that can be replicated with variations depending on the origins or opportunities to which the would-be developer is exposed.

The organization, rather than ongoing, is designed to compliment a cash cycle. If the objective is to build a career as a professional subdivision developer, the objective is not ownership, but the conversion of land to cash. Borrowing from accounting, the cash cycle enterprise is a project that begins with cash, which is paid out for the purchase of some raw material. In this case, the land for development purposes is the raw material, which becomes the work in process inventory. Work in Process becomes the Finished Goods inventory, Finished Goods inventory becomes Accounts Receivables, and Accounts Receivables become cash. The objective - and this sounds overly simple - is to generate more money coming in than going out.

It should be obvious that management is important. The enterprise is based on the management of the raw materials of land and other capital that goes into the production of the subdivision product. In this context, a subdivision lot is a manufactured product. It has been legally manufactured, by a survey and recorded plat, and physically manufactured, by the addition of infrastructure. The survey supports the recording of the legal description

and platting of the site. The legal description and plats form the basis of the bundle of rights. Physical inputs to the manufactured product are the street system, the utilities, site improvements and numerous other facilities. This good manufacturing method process requires management. The created lots as Finished Goods inventory require management and marketing. Management and marketing are the key functions in the conversion of the product back to cash.

Given this overview of the process, it is now necessary to concentrate on two concerns. First is an understanding of the product and how it can be developed. Second is the development of management techniques to aid in the control and delivery of the product. A special emphasis should be placed on risk management skills. The need for this emphasis will be identified in the various sections of the process.

Productivity Analysis

Productivity analysis is concerned with the evaluation of the marketable capacities of a property or properties for the providing of services and satisfactions to meet human needs, to house economic activities, and to supply emotional satisfactions and amenities. Productivity analysis is concerned with the analysis of a property to evaluate its market potential. Understanding the property enables the basis by which to achieve creative marketing effort.

The steps in the productivity analysis are:

- Analysis of physical characteristics
- Analysis of legal dimensions
- Analysis of locational attributes
- Examination of environmental issues

These general categories enable a framework by which the product and its attributes can be evaluated as they satisfy the demands of potential buyers. The attributes themselves define the product, its value, and its use. This delineation will direct the owner or developer to the appropriate market buyer. It will also allow the identification of the competitive properties in the area. This ability to compare properties further helps establish the asking price. Comparison enables the recognition of those product benefits or premiums that can be pointed out in negotiation. The comparison of attributes may also help the developer identify any market gaps. If a potential market need is not being delivered, the subject site can be improved or modified to offer a market good. In this manner

productivity analysis can be used to create a superior product and perhaps establish a monopoly position for the developer.

The Physical Characteristics

People need space for life and work - for shelter and privacy. The environment in which they seek these basic needs are often defined by the geological characteristics of the property. The geological features are the most constraining factors with which the developer must deal. The property features such as the terrain, topography, and soils determine the utilization of the land. For sub-dividing, this means the number and size of lots that can be created. It influences the positioning of the lot, such as the orientations of lots for views or its relation to the sun and wind. The identification of these relationships determines the price range of the lots and the possible absorption pattern that the developer can experience. Physical characteristics include the site itself, the actual or intended improvements to the site, such as infrastructure, and the actual or intended improvements on the site, such as buildings.

For example, if the development has a lake, the developer will try to maximize lake front lots. This would suggest long narrow lots with the narrow side adjoining the lake and the access road. This objective may be helped or hindered by the terrain. If the development has a rough terrain, the optimum strategy may be to lie out the lots so that the greatest number of hilltop or hillside lots capitalizing on views or aesthetic landscaping can be achieved. The marketability of hilly or rolling land is especially desirable in areas where the majority of the terrain is flat or level.

An understanding of bedrock, soils and subsoils are important to a developments' layout and success. For example, in areas of karst topography, the limestone forms aesthetically pleasing undulating landscapes, however the potential for sinkholes exists. The potential sinks and swells can be used for large lots or open space. In this situation, the physical aspects of the property direct the subdivision layout. At the same time, many communities have open space and density controls. Thus, the physical constraints create amenities desired by many consumers, and required by many local ordinances. Since avoiding conflict with the authorities that impose constraints reduces the cost of sub-dividing, the process may be better served and more profitably applied by recognizing both the physical and legal constraints and developing within those constraints. This is not only sound development practice, but also good risk management.

Understanding of the soils and bedrock will also aid the subdivision plan. If the topsoil is thin and the bedrock hard, the cost of installing infrastructure, such as sewerage and storm drainage, will be higher. In such cases, an early, albeit cursory cost analysis of development may indicate that the market cannot support the price of these finished lots. In such a case, alternative uses of the land may need to be considered.

As another example, consider the situation of a site, which is too small to develop for the use, yet desired in the market. To properly develop the site, it may be necessary to purchase adjoining tracts. Unfortunately, the cost of such acquisition exceeds the value of the improved site.

Many of the natural physical features that limit a site can be overcome with site improvements. We can categorize these as:

- On-site improvements, and
- Off-site improvements.

On-site improvements range from soil alterations to the construction of the primary structure. The construction of the primary structure -- residential or commercial -- may shift the developer to the role of homebuilder or general contractor. Even if the physical development of the site(s) will be left to third party general contractors or homebuilders, the developer must have a thorough working knowledge of construction techniques, processes, and procedures to be able to knowledgeably contract and supervise. The developer really is a general contractor in the broad sense that the subdivision lot is only created with the introduction of improvements and the subsequent negotiation of legal contracts.

On-site improvements other than the primary structure include grading and leveling of sites, terracing of slopes, retaining walls, drainage treatment, and linkages to public services. All of these capital inputs are a part of the manufacturing of a site.

Off-site improvements often establish the quality of the neighborhood. Off-site improvements include the infrastructure and amenities of the development. At a minimum, these will include:

- Paving and street systems, including curbs, gutters, and sidewalks,
- Sanitary and storm sewers and (often) pumping stations,
- Water distribution systems, and
- Signage and landscaping.

Increasingly, developers find themselves supervising the installation of more complex off-site systems, including natural gas distribution lines, cable television systems, underground electrical and telephone systems, and common amenities such as pools, tennis courts, and club houses.

Responsibility for actual installation of the off-site improvements, and ownership and after-the-fact control and maintenance of these improvements, will vary from community to community. Generally, these can fall into three categories:

- Developer installs and deeds to local governmental authority or private agency.
- Developer installs and maintains in perpetuity, usually through some homeowners association.
- Outside agency installs, with coordination of developer.

In the first case, such as streets and sidewalks, the developer may be required to design and construct the roads, curbs and gutters, and sidewalks, under the supervision of the local roads or highway engineer, and then "deed" these roads and rights-of-way to the local government for maintenance. At the design level, the developer will be required to make sure that the roads meet all local and state requirements.

In the second case, such as common areas and recreational facilities, the developer will grant ownership to some property owners association. The developer will want to carefully plan for the cost of maintenance and for control of the facilities during the marketing phase of the project. Many developers retain control through some proportional vote in the homeowners association. For example, the covenants, which provide for this arrangement, may grant one "vote" in the association for each developed lot. Thus, the developer will retain a majority vote until over one-half of the lots are sold. In practice, since many homeowners do not bother with governance issues, the developer actually retains control until well after a 50% sell-out. The developer will also need to carefully estimate maintenance and upkeep costs, so that this can be built into the annual dues for the homeowners association, and can be established "up front", before the first lots are sold.

Finally, many agencies, such as cable television or public utility companies, will require an easement but will install their own infrastructure within that easement. In such cases, the surveyed layout of the subdivision must provide for such easements, and the developer will need to work with

the companies' well in advance to insure that the easements meet with their needs.

All of the on-and-off-site improvement costs can be capitalized into value, development cost, or operating expenses. The improvements are an integral part of the development of the subdivision real estate product. As such, the developer must develop management skills needed to identify the property attributes and needed improvements, negotiate implementation, control costs, and risk exposure, and to market the features of the improvements. The developer becomes a manager of architects, engineers, land planners, and general contractors and homebuilders.

Finally, it should be obvious that any discussion of the physical dimensions of improvements leads naturally to a discussion of the legal nature of the improvements.

The Legal Dimensions

Real estate is a legal as well as a physical product. In fact, properly used, the term "real estate" refers to the legal bundle of rights passed from grantor to grantee. Thus, the legal "product" to be "manufactured" is just as important as the physical product to be developed.

The manufacturing of the legal product involves the political of rights and restrictions on those rights, both public and private. The most common "bundle of rights" conveyed in a typical subdivision development setting is the *fee simple absolute* estate. This bundle of rights provides the most complete set of rights to have, use, enjoy, and dispose of property. However, even the fee simple absolute estate carries with it limitations, as will be shown.

Over time, the needs of real estate owners have evolved other combinations of rights with other, increasingly common names. For example, a century ago, it would have been uncommon for two or more individuals to own a home together. Today, it is increasingly rare for a single owner to have title to property. When two persons - typically a husband and wife - own property jointly with the surviving spouse gaining immediate ownership in the case of the death of the other, then they are said to have a *joint tenancy.* Two persons can have a joint tenancy with anything that can be owned -- a bank account, a car, or stocks and bonds. In the case of a subdivision lot, the two buyers would have a *joint tenancy of a fee simple absolute estate.*

If two or more individuals share ownership, but they want their own heirs to inherit their proportional share, then they may choose to own the property as *tenants in* common. In the example of common amenities, it may be appropriate for owners to have fee simple ownership of their own homes, but share the common areas with other property owners as tenants in common. This type of legal structure is better known as a *condominium*, and in most states requires some advanced planning and legal structures.

Other types of sharing arrangements which developers may face include:

- Time shares,
- Cooperatives, and
- Legal life estates.

The first of these involve a sharing of property rights, but is delineated by time, rather than physical space. Most states have stringent laws and regulations for establishing a time-share ownership structure. The second, cooperatives, usually involves an apartment building or buildings. Legal structures for cooperatives do not exist in all states. Finally, legal life estates are increasingly being used in retirement communities, where elderly tenants purchase the rights to occupy a space (apartment, nursing home room, etc.) for the remainder of their lives. Pricing such subdivisions requires a careful understanding of actuarial science.

Under English Common Law -- the legal structure in forty-nine of the states -- property ownership was never historically conceived as "complete". In merry old England, the King merely granted a title that carried with it some limited property rights. Many titles could not be inherited so "ownership" reverted to the King when the noble person died. In any case, the grantee of the title owned allegiance to the sovereign, and was required to respect certain rules governing the title to the property.

While the various states do not have kings, they do retain the legal notion that property rights carry with them certain property responsibilities. These responsibilities -- generally to ones neighbors -- are enforced through a series of enforceable public and private restrictions.

Public Restrictions

The community exercises control for the common good over the fee simple estate rights and any lesser rights. These controls generally fall into four categories:

- Police powers,
- Taxation,
- Eminent domain, and
- Escheat.

Eminent domain is the right of a unit of government to take private land for the public good. However, the U.S. constitution requires that if land is taken for public use, just and fair compensation must be paid. Compensation is based on the market value of the real estate taken, or in practice, the loss of market value resulting from the taking. There is an important, but little-understood distinction between the two. For example, assume you own one acre of land fronting on a narrow road. The value of the land is presently $20,000. The local highway department plans to "take" the front portion of your land to widen the road, reducing your ownership to 0.75 acre. Simple math implies that you have lost one-forth of a $20,000 tract, so the government must owe you $5,000, right? Not necessarily. The highway department will typically hire an appraiser, who may determine that the market value of the new 0.75 acre tract -- now fronting on a four-lane road with the *same road front footage as before* -- may in fact be worth as much as the old one-acre tract. Hence, the government owes you nothing! If you disagree with this valuation appraisal, there are typically provisions for you to contest it. However, the record is not very good for such contests.

Presently, this issue of "takings" is attracting significant attention. In some states, "takings" legislation is proposed or pending which will limit local government authority under eminent domain. Court rulings have not been very helpful in determining the boundaries of local authority. In the Penn Central Railroad Case in the late 1970s, the City of New York denied a building permit to the plaintiff to demolish a building and erect a new one, claiming under eminent domain that the existing building had historic value and must be preserved. The U.S. Supreme Court ruled in favor of New York City, stating that the compensation feature of eminent domain did not guarantee highest-and-best-use value to property owners. On the other extreme, in the Lucas Case in 1992, the U.S. Supreme court ruled that local building restrictions rendered two beachfront lots worthless, so the state owed the plaintiff the full value of the lots as just compensation.

In practice, the developer faces the issues of eminent domain in two situations. First, the local authorities will claim easements to provide services to the subdivision. These services enhance the value of the property, and should be willingly granted, typically with no expectation of compensation. The second situation is more problematic. What if the developer purchases a tract of raw land -- often previously used as farmland -- and has a portion claimed under eminent domain for some public purpose *before* development commences. Two problems arise. First, a large "taking" of land -- say for a park or other large public use -- may render the entire tract undevelopable for the intended purpose. Second, the local authority may claim that since the tract had not been developed yet, the "just and fair compensation" should be based on the agricultural value, not the higher development value. The loss in compensation to the developer in either case can be substantial.

Clearly, the developer needs to be aware of local land use planning proposals, and must be careful when purchasing undeveloped land, which lies in the path of an intended land taking.

Police Powers

This is the area of government or public authority that most often involves the subdivision developer. This is often applied to subdivisions as requirements and specifications for streets, neighborhood parks, green belts dedications, yard setbacks, storm water run-off, buffer zones between tracts of different use, etc. In practice, this can include such broad and important issues as street engineering, and such minutia as location of a covered school bus stop along a frontage highway.

The community, though its police power, has the authority to regulate and control a subdivision development plan. These controls come from many regulatory instruments, and are unfortunately exercised through a variety of different agencies, all with separate regulations, statutory authority, and (often) conflicting requirements. Common requirements include:

- Comprehensive plans,
- Zoning regulations
- Subdivision regulations and incorporation requirements,
- Extra-territorial jurisdictions,
- Building and housing codes and local regulations, and
- Height or view corridors or easements.

Local regulations will commonly constrain the developer on such essential issues as:

- Lot size,
- Density,
- Lot converge,
- Street width,
- Structural capacity of finished streets,
- Sanitary sewer regulation, and
- Storm sewer and runoff regulations.

However, this list cannot be thought of as anywhere near complete. Local governments can -- and will -- come up with brand new and creative ways to complicate the life of a developer, all in the name of the community good. Again, it is not uncommon for regulations from different agencies to conflict. New developers -- or developers new to a particular area -- will be well advised to engage the services of a *local* real estate attorney, with experience in subdivision development.

In addition, an important fact to recognize is that, for the politically naive, there are special problems. If a proposal cannot get through city hall or county council, forecasting revenues is a waste of time. The police powers allow a city to control the activities on any parcel of land for the safety and protection of the community. This control can lower the rights, and hence, the value of a specific parcel of real estate. This value and property loss is not compensated in the sense that a straight taking is. The effective loss of land rights via police powers is not covered by the eminent domain provisions in the U.S. Constitution, but this loss is every bit as real.

Knowledge of a community's application of its police powers gives insights to the obstacles and constraints that a developer may face. The knowledge of potential action and reactions in a community reduce the risk exposure of the developer. For example, the comprehensive plan (if one exists) does not, as commonly believed, detail the steps that will be taken in future problem situations. The comprehensive plan does identify policies that say 'when we encounter this situation we will probably react in this way, for these reasons.' Foreknowledge of the potential course of action is important in the development and marketing game.

The typical tools of controls exercised under the police powers are:

1. *Zoning* which is the locally adopted regulation set that prescribes the manner in which privately owned land might be used within a

jurisdiction. Zoning, as a tool, was originally created for fire safety reasons. Its objective has evolved to insure that land uses complement one another. This extends the police power from safety to stability.

Zoning specifies the range of land uses for a class of property. Zoning states what can be done on a site. It is often worded to indicate what cannot be done. Zoning does not have to be permanent. It can be changed. At any one time, the zoning specifies the use, height, bulk, density, and location of structures on a site. It also specifies the density of population, the size of open spaces, and the lot coverage of a site.

2. *Subdivision Regulations* which allow a public authority to control the platting and conversion of raw land into building sites. Subdivision regulations have a great degree of impact over a long period. This impact is greater than zoning, since zoning can be changed. The subdivision regulations are longer term because, through them, a city can control the division, and use of land. This is done by forcing the developer to meet requirements and standards established by the city in return for the privilege of recording a plat and selling off lots.

While zoning regulates uses, bulk, and height on both developed and undeveloped land, subdivision regulations affect undeveloped lands and determine or influence the initially permitted improvements such as street, sewer and water main location. These regulations also determine the widths and standards of these improvements. Subdivision regulations also establish park and school site locations and lot size. The physical placement of these capital improvements can direct land use and development potential for many years. Subdivision regulation forms the layout of the city; this may have a more lasting impact than zoning, which can be re-negotiated.

State statutes regulating the platting of land have been evolving overtime. These statutes are largely patterned after three model acts: the Standard City Planning Enabling Act, the Municipal Planning Enabling Act, and the Municipal Subdivision Regulation Act.

Subdivision regulations are concerned with the layout and lot-by-lot development process. This process is overseen by the plat approval procedure. This procedure prevents a developer from making improvements, dividing and selling tracts, until the planning commission has approved the map or plat of the proposed subdivision. The objective of the procedure is the compliance of the plan with the standards of the ordinance.

This procedure offers two benefits. The first is to the community. The regulatory procedure enables the coordination of unrelated plans of individual developers by the city planners. This prevents any inharmonious effects that may arise and hopefully adds to the overall amenities of the community. This control of external developments makes the individual subdivisions more desirable, an indirect benefit to the developer. The second benefit is directly desirable to the developer. The regulations are a safeguard against competitors who would drive down the value of well-planned subdivisions with substandard development. Although regulations probably rise the cost of lots to the consumer, they also force the quality of product to be higher in many communities.

Despite the benefits of development coordination and higher quality standards, there are problems with the regulations which developers need to be aware of. Many of the requirements adopted by the cities may be excessive. The unreasonable requirements may be excessive street widths and right-of-ways, excessive pavement widths, and the requirement of heavy-duty road construction, and the installation recording of the approved plat. If the subdivision is in a community and is to be dedicated or incorporated into the city, then upon completion of the required improvements as inspected by the public agency, a formal action is required to accept them for public dedication and maintenance. If the subdivision is in the extra-territorial jurisdiction of the city, the city can regulate the approval process, but not necessary take over the maintenance of the property, because it is not in its corporate jurisdiction and/or taxing base.

3. *Extra-territorial jurisdiction area* is the authority, in some states, of a city to control development outside its city limits. The distance of control varies with city size. It is usually two, five or 10 miles. This is done as part of a comprehensive plan for these developments may be within the city in the future, and the city will take over future maintenance and control.

Besides these regulatory controls, communities can require subdivision exactions. This is done to recover what is perceived as the public cost of development. These exactions can be the dedication of land for streets and utilities. These exactions are within the police power because they involve the control of traffic and the sanitary and water regulations to protect city health and safety. Less frequent, but not uncommon, is the required dedication of land for parks, firehouses, school sites and other public facilities. Fees are sometimes required instead of land dedication. These dedications are usually based on a percentage of land area or density. Often there is a sliding scale in which fees or fixed land percentages are reduced if recreational facilities or open spaces are planned

in the development.

The combination of physical and legal dimensions establishes the form of the subdivision. The jurisdictions requirements direct the off site improvements discussed earlier. These requirements may include curbs and gutters, sewers, storm drains, street lights, street trees, street signs, railroad crossings, fire hydrants, fire alarm systems, bridges, and fences.

The developer is given several options to meet these requirements:

- Complete construction of all required improvements,
- Post a performance bond guaranteeing such construction within a given period,
- Submit a petition for the city to construct the improvements and levy the cost against lots in the subdivision as a special assessment procedure or
- Give the city a blanket mortgage on the property, with sections released as the improvements are completed.

Taxation

Taxation is any form is the public's first claim to the benefits that flow from a property. The taxable interest of a property might be viewed as the city's equity interest in a project. This is a selling point that can be used by developers to get plat approval. This view is often taken by cities that make decisions to approve projects on a capital budget or expenditure basis. For example, many of the reasons a manufactured home subdivision is refused by a city are not a bias against the social group or structures that comprise the development, but the economic cost to the city. If a project is laid out to consist of 100 sites, the 100 pads on these sites may be all that is taxable. At $500 per pad that is $50,000 in revenues for the new development. The residences that are housed on the pad may average two children per household. Assume a per student cost of $4,000 per year for educational expenses. Thus, there is a total cost of

$$2 \; X \; 100 \; X \; \$4{,}000 = \$800{,}000$$

Thus, the city collects $50,000 but pays out $800,000 for a loss of $750,000. It can be argued that the spillover effect of this development (increased business licenses from economic activity, increased local sales taxes, etc.) will make up some of the shortfall. However, property taxation is the primary source of financing for local government. Thus, it is not fiscally rational for the city to approve this project unless the rest of the

community is prepared to subsidize lower cost housing. Would any other investor seek negative cashflow and equity?

Some communities view subdivisions as businesses and thus seek a license fee or impact tax. The above example of a negative cashflow of $750,000 could be the basis of an economic impact study. Whatever negative impact is determined is then assessed against the subdivision as a tax to recoup the community's investment in the project. It is important to remember, though, that all costs and fees initially fall on the developer, before being transferred to the lot purchasers. In effect, developers and homebuyers are financing the public and off-site improvements. Unfortunately, by using this method, infrastructure is financed with expensive or high cost equity money. These improvements may be financed more cheaply with bond money. Cities however, do not want to incur additional debt. They might address this issue with the question, "Why should existing subdivisions finance new ones?"

Several states now allow debt (bond) financing of infrastructure without the city incurring the debt. This is achieved with the municipal utility district (MUDs) and road utility districts (RUDs). MUDs and RUDs are the creation of political entities that exist as financial intermediaries to develop and maintain utilities, roads and other common improvements. This is done by establishing a district that includes properties that will benefit from the improvements. These properties are then assessed a fee (property tax). This revenue source is then the collateral or basis for the bond issue.

Recognize that the public restrictions placed on a development process are only constraints. They may also afford opportunities. "Subdivision regulation deals with two variables - land and people - neither of which lends itself to uniformity."

The Interstate Land Sales Full Disclosure Act

The Interstate Land Sales Full Disclosure Act was enacted in 1968. This act requires registration of real estate with the Office of Interstate Land Sales Registration (OILSR) of the United States Department of Housing and Urban Development (HUD). The objective of the act is to require disclosure of full and accurate information regarding the property to prospective buyers before they decide to buy. To comply with the act, the developer must prepare a statement of record and register the project with HUD. After effective registration, the developer must deliver a property report to the purchaser before execution of the purchase agreement. After the delivery of the property report, the prospective

topography, accessibility of public transportation and schools, soil conditions, existence of liens and encumbrances, recreational facilities, the existence of special assessments and other on and off property factors.

The property report must be given to the purchaser 48 hours before committing to the purchase. If the report is not delivered in 48 hours before commitment, the purchaser has seven calendar days to renege on the deal. The report does not need to be delivered in the 48-hour period if the buyer acknowledges receipt of the report and has physically inspected the property. The purchaser has the right to be refunded the purchase money but interest as well. The statement of record is a document filed with a HUD registration for subdivisions that will be sold using interstate commerce. This statement requires information on the property, the site and the developer. This information includes the name and address of each person with an interest in the property, legal description, the general terms and conditions of the contracts, price schedules of the lots, descriptions of property access and utilities, and all encumbrances and entitlements. HUD also requires financial statements and copies of the corporation or partnership papers of the developer.

The Interstate Act comes under the police powers of the federal government to protect citizens and business transactions involving interstate commerce. Important to note is that the information required by the Act is linked to the development process identified in this course.

Private Restrictions on Development

In addition to public restrictions, land use may be regulated by private restrictions. These private restrictions take the form of contracts between or among two or more parties. If contracting parties can agree in conformance with the process of legal accord, various property interest or constraints can be established. Within this general category of contractual agreement is the restrictive covenant. Covenants are the leading land control mechanism in cities that do not have zoning, in rural subdivisions, and even in neighborhoods that desire more restrictive regulations than are provided by local zoning ordinances. Restrictive covenants can
Control land development and use for years in the future. Even if zoning exists, the courts will often side with the restrictive covenants if they are more restrictive than the zoning constraints. The covenants however cannot violate constitutional rights. Therefore, racial restrictive covenants will not be upheld.

If the developer desires to preserve the character of a subdivision as residential, such can be accomplished with a blanket covenant, which can

purchasers must be given a seven- day cooling-off period. In addition, a registered developer selling on an installment contract must refund any payments over 15 percent of the purchase price if the buyer defaults on the contract. This refund excludes any interest owed. This requirement can be avoided if the contract require the developer to deliver legal title in 180 days after the execution of the contract.

The exemptions to the Interstate Act are as summarized in: The Language of Real Estate

1. Registration and disclosure is not required in subdivisions in which there are fewer than 100 lots. If there are less than 25 lots, the developer is not subject to any provisions of the act.
2. The filing requirements are dropped for subdivisions in which the lots are 20 acres or more in size (this includes easements).
3. Filing is not required if buildings improve the subdivision land or if there is a contract obligating the seller to erect such a building within a period of two years.
4. Filing is not required for bulk sales of lots to other developers.
5. Filing is not required for sales to contiguous owners
6. If sales per subdivision are less than 12 lots (sales) per year, then filing is not necessary.
7. Sales to government agencies do not require filing.
8. Filing is not required in sales of single-family residential subdivisions when the subdivision meets local code standards, title passes within 180 days after contract date, and the seller refrains from promotional techniques, such as gifts, and dinner programs.
9. There is an intrastate exemption to the regulations of the Act. This is limited in scope and narrowly construed.
10. If the subdivision has fewer than 300 lots, which are marketed (sold and leased) to residents of the same Standard Metropolitan Statistical Area (SMSA) in which the subdivision is located, the developer may apply for an exemption. Leeway is given so that five- percent or less of sales in any one-year may be made to residents of another state.

As is illustrated by the last two exemptions, this act is to protect people buying land in areas remote to their principle place of residence. It is concerned with fraud and requires registration and disclosure.

Two major instruments of the Act are the property record and the statement of record. The property record is a disclosure document. The report is in the form of questions and answers. It covers concerns as

prevent other land uses from encroaching on a development. The presence (*or absence!*) of these covenants can be identified in the title search. The developer should take note to make sure that a property being purchased is not restricted in any way so that the proposed development plan is invalidated. Examples could be a proposed mixed-use development, with a covenant that only allows residential use. The developer may have planned numerous small lots for affordability or profit. There could be a restrictive covenant that requires a minimum sized lot; therefore, existing covenants on a tract could prevent the realization of the proposed plans.

Building Envelope

Legal parameters are a significant component of the subdivision process, since real estate is the artificial delineation of space to be used for economic activities. It is important for the developer to understand the creation of product based on the legal dimensions. A direct combination of the legal and physical attributes creating the real estate product is illustrated by an example of the building envelope.

Assume a commercial parcel within an overall large, multi-use subdivision. This parcel will be used for a convenience store or service station site to serve the residential development.

The lot is 150 feet by 110 feet or 16,500 square feet, and is on the corner of two major streets in the subdivision. It abuts residential properties that lay to the north and east. Because the property will be commercial and adjoins residential parcels, buffer zones are required. The commercial zoning in a predominantly residential area stipulates a 10-foot buffer on the side (east, in this case) and a 15-foot buffer on the rear (north) is provided. This buffer area must be planted with trees and other perennial shrubs, which will effectively block the view of the commercial site from the residential sites, and provide some noise abatement. (A 10 percent open space requirement is specified, exclusive of the buffers. This again is because of proximity to residential properties.)

The site is in a "first height" district. This allows a 35-foot structure maximum, which effectively limits development to a one-story commercial structure on the site. The following calculations are illustrated as the procedure to estimate the building and parking space available.

Computation of Developable Space

Land Basis	16,500
less buffer zone	
150 X 15	-2,250
95 X 10	-950
less: open space:	
13,300 X 10%	-1,330
Developable Space	11,970

The 11,970 square feet must be allocated between the building and the parking. This is directed by the zoning regulations. The zoning requires 200 SF. of parking (typical parking space plus access and turning area) for each 300 SF. of gross building area. The typical building efficiency for one-story commercial retail facilities is 90 percent. These legal restrictions set up the following physical dimensions.

300 SF. of building	=	one parking unit
One parking unit	=	200 SF.

Therefore, for every 300 SF. of building, an additional 200 SF. must be allocated on the surface of the site. This sets up the basic land area equation of:

Building footprint unit	300 S.F.
Surface Parking	200 S.F.
Total land use per unit	500 S.F.

Land allocation units:

$$\frac{11{,}970\ SF}{500} = 23.94\ \textit{allocation units}$$

Land Use Allocation

	Gross Area	Net Area
Building Area per Floor		
300 S.F. X 23.94	7,182.0 S.F.	6,463.8 S.F.
Parking Area		
200 S.F. X 23.94	4,788.0 S.F.	4,788.0 S.F.
Total Restricted Site	11,970.0 S.F.	11,251.8 S.F.

The building envelope illustrates the direct impact of legal constraints on the physical product of real estate, in this case the impact on a single lot within a subdivision. Similar estimations will be made for the entire subdivision to determine the impact of open or green space, roadways, and other land allocations on the final number and size of developable lots.

In summary, real estate development is a highly regulated business. Regulation influences the manner in which real estate is sub-divided, used, occupied, developed, constructed, advertised, transferred, traded and sold. In addition to this, there is another, even more complex story which could be told about the regulation of the lending business and the impact of that on subdivision development. This section has only scratched the surface of the regulatory climate you will face, locally and nationally, in the development of subdivisions.

Location Attributes - An Economic Concept

The economic impact of location is almost unique to real estate. Other assets -- such as stocks and bonds or machinery -- can be moved from the place of manufacture to a place where value may be enhanced. Entire businesses can (and do) move, sometimes frequently. However, real estate suffers from what is called *fixity of location*. This brings with it certain advantages as well as certain disadvantages. For example, fixity of location implies that property cannot be moved to a location of greater economic advantage. On the other hand, fixity of location implies a *monopolistic competition*. That is, if you control a particular site, no other site is an exact substitute for it.

Location is more than a physical characteristic. It is also an economic concept. As such, it is more than simply the street address of a property. Location entails a broad range of external impacts on property use, market exposures and economic considerations. In order to maximize the overall impact and advantage of these, the real estate market analyst must employ tools segmented into two levels:

- Broad, market-wide economic analysis, and
- Neighborhood level economic analysis.

Broad Economic Analysis

On a market-wide scope, real estate analysis must consider the economic reason for the existence of the city in which the subject property is located:

- Why does a particular city exist?
- What is done there?
- What is (are) the main products?
- What are the dominant services offered?
- How is the city commonly characterized?
- How did the city grow into its particular shape?

Now, it is important to note that the term "city" has both a legal and economic usage. Legally, a "city" is typically a municipality specifically chartered by the state. On the other hand, "city" can refer to a metropolitan area with common influences. The boundaries of a legal "city" are usually dictated by political concerns, while natural and economic forces govern the boundaries of a metropolitan area. Geographers have specific, technical terms to refer to these economic areas: e.g. central city, urban area, SMSA, etc.). To avoid confusion, this discussion will simply use "city" to refer to the broad economic area in which the property is located. This is typically the legal "city", plus the surrounding suburbs.

To begin understanding these questions, the developer should identify the nature of economic activity in a community, usually in terms of the businesses or industries which provide the *basic employment* needs of the community. This leads naturally to an estimation of the potential for growth (or decline) and the identification of those reasons for growth (or decline). An understanding of the potential for growth and the major economic activities in a city helps the developer identify the potential market for lots at a particular site. It also allows insights into the time required to absorb the lots in a development.

One concept that has been important to developers over time has been the notion of economic base analysis. The economic base concept segments the economy of a city into exportive (or *basic* industries) and locally oriented (or *non-basic)* economic activities. For example, in a small city with one major factory, that factory is the primary basic employer. Other jobs in the city (such as barbers, physicians, grocers, and police) are non-basic jobs. In an agricultural community, farmers and farm

workers would be basic jobholders.

Basic jobs typically produce a product or service that is sold out of the immediate community. Therefore the money to pay the people in these businesses comes from out of town and builds up the local economy and local capital funds. Exportive activities may be perceived as town building functions.

Non-basic activities are town-filling activities. These supportive functions are jobs and businesses that serve the purpose and needs of local consumers and the businesses of the exportive industries and their employees. Therefore, total employment is the addition of exportive and local service jobs.

The breakdown of employment in a community into these two elements gives the developer several important insights. If the city is going to push to get industries and certain types of employment, a developer should attempt to figure out the sites that will serve the needs of those types of operations. Business site selection on a professional scale is not haphazard.

If a site has already been purchased, then the developer should try to match the needs of the new industry to the property attributes. The acquisition of the new industry's site is a part of the direct impact of the economic base on the local real estate market.

The developer should try to identify the potential direction and placement of the incoming industry. He or she can work with the city and chamber of commerce to develop a worthy industrial subdivision. If the subject site is not appropriate for the particular new employer or a deal has already been established by the city or another developer, the concept of the economic base suggest that other opportunities are available.

These other opportunities come from indirect and induced effects of the base economic activity. If the opportunity to sell land to the new industry is lost, there is still the chance to create a subdivision to house the employees of the new plant. This is an indirect effect of the economic impact of new employers.

For example, assume a new plant is moving to Uno, Kentucky. The new plant will hire 200 people. The direct impact on the employment in Uno will be the 200 base employment jobs created by the firm. The direct impact on industrial land comes from the industrial site itself. Indirect impacts come from other land sales stimulated by the plant locating to

Uno. One indirect impact will be the residential land sold to develop houses to shelter the employees. At a minimum, the plant location will stimulate 200 new dwelling units (assuming all 200 new employees move in from out of town). However, these 200 employees (and their families) will shop in local grocery stores (which will hire a few new employees), will attend local schools (which will hire a few new teachers), and will be treated at the local hospital (which will hire a few new nurses). All of these grocers, teachers, and nurses (and a few dentists, clothiers, gas station attendants, and real estate developers) will need places to live. Hence, far greater than 200 new dwelling units will be needed as a result of the *direct* plus *indirect* impacts of the new plant.

Finally, there is the *induced* effect, which comes from potential consumers who are not employed, such as children. The induced effect is based upon on the propensity to consume by the unemployed population. The ability of this segment to consume is linked to the jobs created by the new plant and their families. The induced effect is quantified by the ratio of total employment to population. The potential income related to this influx of consumers can be estimated by multiplying the change in population by the per capita income estimate.

The economic basis of a community also influences a city's potential and direction of growth. The economic reason for a city's existence and the historical impact of social and economic changes over time can influence the potential value of a given site. Several models for the explanation and direction of a city's growth have been developed over time.

The oldest, traditional model of city growth suggests that the urban area grows out from the central business district in concentric circles. Imagine a stereotype "wild west" town, started as a small village with just a general store, a saloon, perhaps a hotel, and a jail. This is typical of the standard television western. Naturally, people lived in this rudimentary "downtown", such as the general store keeper, the bartender, the sheriff, and the hotel owner. As the town began to prosper -- and "main street" became noisy at night -- these folks would want to move to the outskirts of town, close enough for convenience and safety, but far enough away to avoid the noise. In addition, as the number of businesses grew, the commercial structures tended to "crowd out" the residences. Businesses, with an economic incentive to be close to the center of commerce, could outbid residences for prime sites. Residences, while wanting to be convenient to work and other amenities, did not need to be located on prime sites and could easily "sell out" when out-bid by businesses.

As the population continued to grow and move away from the city center, commercial sites such as general stores, barber shops, and schools followed. As the town continued to grow, the residences would continue to move outward, with the businesses following. Eventually, the city center would fall into disrepair and disuse -- the standard model for inner city decay. An almost unpredictable thing happens, though, because land prices at the city center collapse, and the economics of the situation stimulate an inner city "rebirth". The cycles of re-birth, outward movement, decay, and rebirth continue to repeat.

An obvious extension of this model came into being when geographers noted that the city growth was not completely circular, but tended to be strongest along major transportation arteries. Again thinking back to the latter part of the 1800s, one can imagine the city growing along the rail corridor, as warehouses, businesses, and some residences tended to be close to that sector. As warehouses predominated near the tracks, residences were moved away from the core and toward the outskirts of town.

Cities also often tend to grow toward unusual or naturally aesthetic topography. For example, cities often show growth along bodies of water such as lakes, rivers and streams. There is a tendency to expand towards hills. Residential development will avoid water routes if industry has settled an area first. Industry developed along the water because of transportation convenience.

Cities tend to move in the direction of high-income residential developments. An indicator of this may be the investigation of where the community leaders live or have lived over time. There is also an attraction of development growth towards office facilities. A concept called scatterization states that residential development in-fills along the direction of retail growth. An example of this may be subdivisions that spring up near regional shopping centers. The overbuilding of the latter 1970s and 1980s may alter the previously recognized patterns. However, accessibility within the communities is always an essential economic and locational concern.

An understanding of the city and the nature of its economy and its potential for growth are important for success in subdivision development. Developers add to the existing city and form the base and direction of growth of the community in the future. A city is like a coral reef, with each developer contributing to the form and structure of the reef. However, developers need to understand the economic and political forces that shape and map the city, to place potential subdivisions in the path of likely

development and highest economic and financial returns.

Note that an economic understanding of the city does not require complex economic forecasting, but simply observing and formulating a strategy to be ahead of the curve. The observations should enable the developer to identify the relationship of the city to the immediate neighborhood and the subject site.

Site Level Economics

An important element of analyzing real estate is to observe the relationship of the site to the immediate surrounding neighborhood. These observations must deal with the recognition of activities in an area and the association between those activities. The steps in the site analysis include the following.

1. Identify all *economic activities* in the area, with emphasis on the *key* activities. These activities characterize the area and draw people to the neighborhood. Examples include:

    - Employment activities,
    - Service activities,
    - Supportive activities,
    - Recreational activities, and
    - Other linkages.

2. Identify *key and supportive establishments* in the area and their relationships with one another. These relationships characterize the potential for growth, decline or stability in an area. The approach to evaluating these associations is to identify:

    - The relationship between activities (varies with use)
    - Linkages between activities, and
    - Types of relationships.

The predominant relationships are:

A. Dominant-Subordinate. An example is the residential areas (subordinate) supply labor to industrial (dominant) sites. Another example would be a machine shop (subordinate) which serves a manufacturing plant (dominant) in the area.

B. Dominant-Ancillary. The ancillary use serves the personnel or employees of the dominant use. An example is a service station serving a residential development.

C. Co-dominant or Satellite. In this model, the Co-dominant serves the same clientele. An example would be a department store and a boutique serving the same clients.

3. Identify *Accessibility*. This is the ease with which a person or materials can ingress or egress the locations within the neighborhood. The more accessible a site is, the less the cost is to get to and from the site. The lower transportation costs support a higher price or rent to the site, particularly for commercial uses. Accessibility is the factor of what is often called the *friction of space* that must be overcome to make the site desired, especially if amenities are lacking. Accessibility can be considered from three perspectives.

- Macro-level: Access to neighborhood in relation to the overall city
- Micro-level: Ingress-Egress to the subdivision development or industrial lots.
- Time-distance: Access is a matter of time or distance.

4. Characterize the *Environment*, which is the sum total of the impact of a site's surroundings. It includes neighborhood impacts, local or city impacts, regional or state impacts, and even national impacts. From an appraisal point-of-view, it includes what we call *externalities*, which can be positive or negative. The environment contains the attributes that identify a neighborhood. It characterizes the surroundings that must be transversed to approach the property. It involves not just physical, but also social, economic, institutional, and psychological factors.

The environment changes over time. The developer should be concerned with the impact on the environmental perception of the neighborhood. These changes often follow the traditional life cycle of a neighborhood. The developer should study the neighborhood, attempting to place the neighborhood within the phases of the neighborhood life cycle. This process should begin with the identification of the competing developments in terms of age and amenities:

- Is the area in a growth phase, with new structures going up and many recently surveyed lots available?

- Is the neighborhood in a mature phase, with older but well maintained homes? This type of area has a limited amount of, or no vacant lots available. Because they are located in proximity to major centers of employment, the accessibility of areas like this often bring a premium, given the limited available supply.

New subdivisions are generally developed in the growth areas of a community. However, it is not uncommon for subdivisions to be developed in areas of economic decline. The supporting activities of employment, recreation and service facilities have eroded or moved out in these areas. Neighborhoods in the declining phase are not the ideal sections to propose new subdivisions unless a turnaround in the nature of the neighborhood is expected. This implies that the target area was previously in decline but is now in transition to a more active environment. The key in areas of potential renewal is to identify the major activities and the amenities that may cause people to move into the neighborhood, and to desire to live in that particular area. The risk here is that the renewal phase may not occur and that the neighborhood will continue to decline.

Developers going into declining areas are usually seeking to deliver two distinct types of properties. One is a high-income urban product for consumers who desire urban living and proximity to work, and entertainment, rather than natural amenities, or family life styles. The second product is low cost lots for low cost housing with proximity to employment. Successful developments of these types are typically limited in size, so that success is not dependent on massive market demand. For this type of development, a short absorption period is desired. The appeal of such developments is usually short lived. The are usually only successful during "hot" market periods when expectations for massive neighborhood change is rapid and the costs of alternative lots are high. Given the general over-building in many areas of the country, subdivision in the declining areas with potential for renewal may hold opportunities.

Key points to observe in order to identify neighborhoods in change are:

1. A change in structure without a change in use. In this situation land uses remain constant but the structures housing the uses begin to alter. The structural changes can be moderate to radical. Often the initial changes are moderate, such as the conversion of a single-family residence to a boarding house or duplex. The structure may only require minor changes, such as partitions or additional plumbing.

The use was originally residential, and has remained such. However, change has been invoked. The character of the neighborhood has changed from one of owner occupied housing to a tenant occupied facility. A trend has begun that can be expected to continue.

Over the long term, the boarding house may be razed to build an apartment building. The apartment building may become part of a larger apartment complex. Finally, as the active multifamily area begins to decline, the developers in the area may convert the apartment complex to a condominium project. The suggestion is that real estate can be altered, both physically, and legally, but retain the same general use. The changes, however, alter the character and nature of the potential market for an area.

2. A second general process of alteration is the in change use, but a continuation of the same structure. For example, a residence is converted to a professional office. Accountants, lawyers and some medical professionals use space in this fashion. The implications are again a neighborhood in transition. The example of commercial or office uses moving into an area indicate that the neighborhood and the planned development of a subdivision in that area may be subject to a change in expected economic forces. This is especially of concern if the area was perceived as a residential neighborhood.

The commercial uses are looking for cheap rents. The lower rents or lower prices paid for facilities might be linked to deferred maintenance. This implies a deteriorating residential neighborhood and one that will be rapidly declining or turning around. However, the turnaround will be in a different direction from the previous economic environment. The direction it will turn will be towards a commercial neighborhood. The future can be expected to observe the demolition of the residential structures and the development of first a low rise, and then later, a higher rise commercial or institutional building.

3. The ultimate change in use and structure is the final and most drastic scenario for land use succession. It is both a change in use and a change in structure. The change in the nature of the neighborhood in this case can be two alternatives for the subdivision developer. The neighborhood will not be desirable as a residential area or the developer has the potential to establish a monopoly in housing in this area.

Although the majority of sub-dividing occurs in the early phase of the neighborhood life cycle, (since it occurs on the fringe of many communities) the ability to develop the skill to recognize indicators of change will be an important tool to the developer.

One important reason to develop a skill in recognizing the process of change in neighborhoods is to be able to predict changes which might occur during the development or sell-out period of a planned subdivisions. The neighborhood changes can alter the perception of the environment and the desirability of the development. This can alter the marketing plan and effort of the developer. The understanding of existing neighborhood patterns can direct the developer to the areas of growth and the sites with the greatest potential for rural to urban transition.

The Product-The Basis for Merchandising

Productivity analysis identifies the basic attributes of value in a property. These attributes must be considered in the market in terms of competitive supply and effective demand. The demand for these attributes must be placed in the context of behavioral responses to the property characteristics. The logical step is to link the marketable attributes to the process of market analysis.

Marketability Attributes, also referred to as dynamic attributes, are concerned with the behavioral response of buyers and seller to the productive attributes of property. This can be viewed from two perspectives. First, begin with a specific site. The developer can begin with the physical, legal, and locational features of the property and match them to the tastes and preferences observed in local or boarder markets. In order to do this well a market profile of the possible buyer has to be developed. The procedure for this will be discussed in the section on market demand analysis.

Alternately, view the market tastes and preferences and then seek out sites with the property attributes that deliver the desired packet of characteristics. Either of these perspectives aids the developer in "buying the property right". The right price must be linked to the appropriate property attributes to insure a reasonable return.

Under the first perspective, the concern is to recognize if there is a preference for a specific property, and if so, is a premium paid. This perspective should lead to questions based on the characteristics of a specific tract of land. For example:

- Are wooded residential lots preferred in an area?
- Is this preference reflected in the price that has been paid in other projects?
- If not, can a premium be charged in the subject development?
- What are the on and off-site improvements?
- What are the market preferences for improvements?
- Are residential buyers seeking good school districts?
- Are customers shying away from commercial projects with limited parking?

These considerations are not just for the natural amenities and attributes of the subdivision, but also for planned amenities and attributes. The marketability attributes include issues of property design, amenities, market timing, and segmentation.

Based upon the recognition that a site is a packet of characteristics that must be linked to appropriate market demand, the sales function of the project must prepare brochures to highlight the desirable features. Marketing tools should be applied in a way that the characteristics of the property, both natural and man-made, are depicted to appeal to market taste. Again, this requires insights into the probable buyers.

Marketability attributes can be divided between on site and offsite characteristics. The on site attributes must consider aspects such as:

A. *Functional layout* (link to obsolescence) The functionality issue must address the marketable factors as individual characteristics of the property, each with their own distinct market. These property characteristics must be analyzed as they relate to market preferences and changes in taste. Examples include:

- Flow of people - a link to obsolescence is the road pattern. Residential areas should have winding streets or cul-de-sacs to be competitive and meet market preferences. The street pattern should inhibit drivers from speeding through a neighborhood with children.

- Materials and equipment - demand for materials, equipment and facilities change over time. The material of the street surface, curbs, sidewalks, and utility facilities must be compared to the market preferences and the cost of installation. The market cannot always afford its preference.

B. *Personal response factors*. These can vary with the site but might include concerns such as:

- Orientation to micro climate,
- Scale and texture of materials and equipment,
- Comfort of subdivision layout and mix of amenities,
- Security to insure privacy and shelter, and
- Absence of nuisances and even more severe hazardous conditions.

Off-site attributes are concerned with aspects of the development that influence the project's character, but are not within the property's boundary. An example is: concerns with transportation access. Although heavy traffic is not desired within a residential project, convenience of access to the subdivision is required. If it is a commercial or industrial subdivision access, it is a major component of the marketability of the site. Therefore, the developer must evaluate, from a marketability perspective, such off-site features such as:

- Travel modes,
- Physical access,
- Friction of access, and
- Transportation costs.

Other off-site issues to be considered from a behavioral view include visibility and exposure of site and land structures, street appeal, and the psychological responses to environment.

A careful identification of the range of psychological responses to the subject site, or the alternative investigation of a market and its needs, will direct the developer to the appropriate range of products. This process is much like the appraisal determination of highest and best use. However, rather than one "maximally productive" result from the analysis, the property attributes and the market preferences and needs analysis should offer the developer a range of possible subdivision options. Remember that a subdivision is just the segmenting of a larger parcel using a unitary marketing process. Success is measured by selling out the project at the desired profitability level. Thus, for a given developable tract, the developer may have a variety of profitable development options. The range of possible developments include (but are not limited to) mixed use developments, residential, commercial, and industrial subdivisions and mini-farms or ranchettes.

The delineation of the real estate product aids in establishing the basis for market analysis. Real estate is an economically flexible product, especially land that can be sub-divided. There are any number of products that may be developed on a given land parcel. The appropriate delineation of the product must be tied to the physical, legal and location attributes of the property.

The proper evaluation of these general features directs the analysis to the appropriate competition. The productivity analysis delineates the potential demand and may even establish a monopoly position for any given development site. In summary, before market supply and demand can be identified in any business, there is a need to identify and define the property.

Market Analysis

Market analysis attempts to determine both demand and competing supply. These are the important elements in supporting both a value estimate and the planning of feasible economic ventures. Unfortunately, many market analyses consider supply and demand as separate issues without considering the interaction of both variables. For example, an initial supply study may indicate that a specific property or type of development does not exist, or is in short supply in an area. However, this absence or relative short supply does not at all suggest that there is demand for this real estate product -- even if this product is in great demand in other market areas. An example -- admittedly absurd but real -- would be a perceived "shortage" of day care centers in a particular town or neighborhood. A cursory market review would indicate a small fraction of the "normal" number of daycare centers. Hence, a developer might get excited about developing a daycare center. However, a more careful study of demand would reveal that the overwhelmingly predominate number of households in the market -- far more than typical -- are populated by elderly people. (Just think of the shortage of day care centers in Sun City!).

An observation of market potential, stemming from future growth, does not imply demand for all property types, or that supply will be inadequate. The mere fact that growth is occurring is not an indication of future demand. An example of an erroneous interpretation of the market based primarily on growth was in Austin, Texas. News of MCC (a giant research operation) and 3M moving into the city encouraged several developers to sub-divide and/or build over 600 homes in the "executive" price range. Even if all of the new employees had been chief executive officers, the speculative homes would not have been absorbed in a

reasonable marketing period. The primary failure was to fail to identify the typical income or income distribution range that would be paid to the incoming employees.

If the market is "appropriately" segmented, the accuracy in estimating the potential demand can be improved. The Austin example illustrates the failure to properly segment. The problem with the estimation of the competition is the tendency to infer market activity from the observation of the supply of land uses or property types in an area. This only recognizes existing supply and/or competition. An example of this error occurred in Nashville, Tennessee, where analysts identified fifty-five fast food restaurants in a one mile square area and stated that the highest and best use of a site in that area was for a fast food restaurant. This use was selected because it was the predominant use in the neighborhood.

A highest and best use decision based on the most frequently observed use ignores the principles of contribution, ruinous competition and the importance of the supportive use associations discussed in the productivity analysis. The true objective of market analysis is the identification of gaps in the services and needs in the market given the profiling of the potential land users. The gaps or missing facilities from a market area, i.e. those uses missing in an area are the uses that may be most feasibility to invest in, build or purchase. The objective of the supply and demand analysis is to identify possible monopoly potential. This means to identify a use that does not exist in the current market and is unlikely to be proposed in the immediate future.

The lack of competition for a reasonable time implies that the proposed use will generate less risky returns. Remember, the concern in subdivision analysis is not only the expected quantity of lots sold, but also the expected price and the time to sell-out. These three factors (quantity, price, and time duration) are the inputs to a risk analysis in relation to the projected return. The risk factors (deviation from expected price and time delays) can be partially identified by an appropriate measuring of the competitive supply.

The estimation of supply must be done over time, projecting into the future. The danger is that there is a potential lag in the information and thus errors in the resulting analysis. Market analysts, unfortunately, tend to over-emphasize demand analysis, and often only consider current supply conditions. This is illustrated by a recent event in which one southern city was investigated for the potential of developing additional hotel facilities. The demand and growth of the appropriate sectors of the city indicated that sufficient support existed for the proposed project, given the current

competition. Unfortunately, the analysts used the same data for five separate projects. They never considered the impact if all five projects were built out. The result was that all five projects were built and the current market for hotel space is overbuilt.

Supply Analysis

The first step in the market analysis is to develop a structured process for estimating supply over time. Total supply is an estimate of both future supply and current supply. Future supply is based upon identifying the appropriate time element for absorption in the real estate market.

Reliance on the on the current market and its vacant lots can be misleading. There is a time lag between the production and delivery of real estate facilities. Real estate has traditionally functioned like the cobweb effect in the supply and demand model. The typical construction phase requires 18-24 months to bring new large-scale full-fledged subdivisions on line, not including lead-time for planning, permits, and approvals. Even with the consideration of a long development period, the supply of many subdivision developments can change more quickly than demand.

Thus, the timing issue is critically important. It is necessary to identify the current supply of lots in terms of vacant and available units. A market investigation should gather data on planned, proposed, and "in the pipeline" competing lots. This type of data is often difficult to obtain. Property managers, owners, developers and sub-dividers are not eager to supply their competition with the operation, details and successes of their projects. The limited access of information to competitive projects is one reason smaller scale sub-dividers or developers with limited capital are better off concentrating in market niches where they have knowledge.

Public records and newspapers can provide much information on local projects. Often, both of these sources are available with computerized indices over time to facilitate data mining. Other convenient sources are interviews with public sector employees and local real estate brokers. The employees at the utility companies and school districts often are aware of developments, their size, and potential population density. A helpful exercise is to visit existing projects' sales or information centers. The sold properties are often displayed on a development map. Beware, however, that promotional information and reality do not always coincide.

The first step in compiling a supply estimate is to catalog current supply. It is not sufficient to simply count available lots, because "low end" lots do not compete with "high end" and vice-versa. Rather, it is useful to categorize potentially competing lots by market segment -- both financial and geographic -- and count lots that fit into these arbitrary segments. There are few good substitutes for actually driving around and observing available properties. Again, promotional materials often overstate quality (and quantity!) of currently available lots.

Sales within competing projects may be confirmed by discussions with brokers or by simply counting sold signs in the development (although this latter method can also be very misleading). Commercial or industrial developments often have a sign on the site announcing the future occupant. A good feel for actual sales can be developed from the offices in charge of property tax collection or assessment (the titles vary between jurisdictions). One of the first things a seller often does, especially a professional dealer in property, is get a transaction recorded, and make sure the buyer starts paying the taxes.

The identification of existing competition is an important function of market analysis. However, just because a project exists does not mean it is a competitor. The identification process can be based on a comparative analysis of the characteristics of similar properties. This links the merchandising or analysis of the property's desirability directly to the supply analysis. The methods for accomplishing this include:

1. Comparable property comparison
   a) Detailed characteristic analysis based on the productivity attributes
   b) Comparison of marketable attributes

2. Development of a competitive supply decision matrix

This matrix process is similar to the direct sales comparison grid in a residential appraisal. Productivity and marketability attributes and marketability attributes of comparable projects are compared to the subject. This will enable the developer to identify comparative advantages or disadvantages of the subject as a marketable property in relation to the competition. It will also aid in establishing competitive prices or rents.

On the following page is an example of a simple competitive market matrix for a proposed single family detached residential subdivision.

This type of matrix analysis allows the developer to view, at a glance, both quantitative and qualitative supply considerations. The

objective is to evaluate the competitive situation of the subject. The above, very simple example, does begin to represent all the parameters that should be considered. The appropriate factors to consider vary with the subject property and property type. The primary concern is to establish an estimate of the existing supply, in terms of both quantity and quality. This becomes the basis for the forecasting of future supply.

Changes in supply over time

Data on additional supply can be gathered from three sources:

- Projects under construction,
- Permitted projects, and
- Proposed projects.

Subdivision--> Attributes	**Subject**	**Comp 1**	**Comp 2**
# of Lots	500	400	750
Age	New	2 yrs	5 yrs
Type Breakdown:			
Hillview lots	200	180	300
Lakeview lots	150	100	150
Wooded lots	150	50	50
Meadow lots		70	150
Golf Course Lots			100
Type of Estate:			
Fee Simple	400	350	500
Townhome	100	50	200
Time-Share			50
Zoning	RES & C-1	RES	RES, C-1, & PUD
Area Employment	15,000	15,000	30,000
Associations	Compatible	Contrasting	Compatible
Access	2 miles	1 mile	5 miles
Environment	natural	Natural	shopping
Political/Society	Neigh'hood	Historical	High Crime

Sources of data on potential future competition include local planning and zoning commissions, permitting departments, city building inspection offices. Newspaper articles (often computer referenced at the local library), and informal interviews with other professionals (land surveyors, for example). There are national data services available, but they usually do not give specific information on local development. They do, however, afford insight to the overall economic environment as it can relate to the potential supply on a broad basis. This often fuels the thinking

process of local entrepreneurs.

Note: just because a project is proposed does not mean that it will be developed. For whatever reason – lack of financial resources, legal or engineering barriers, etc. – many proposed projects are abandoned before ground is broken. Unfortunately, the proportion of "fall out" is difficult to measure, and probably varies from area to area and from time to time. However, even in the best market, not all of the proposed projects will see the light of day.

The additional supply over time must be modified by the decline of established subdivisions over time. This can be the result of several factors. For example, residential subdivisions in rapidly declining parts of town will often fail to sell out. Subdivisions with difficult topology will often fail to sell all lots (and experienced developers know to plan for this). Commercial or industrial parks may temporarily stagnate, because of a declining local, regional, or national economy. Finally, some projects are simply poorly planned from the start and doomed to failure.

During the planning process, the developer will pay close attention to these temporarily or permanently "failed" competing projects. The insights gained from considering failed or failing competing subdivisions will enable the developer to more accurately estimate competition and to identify if property characteristics or market timing contributed to the demise or if the demand for the product offered was simply not there.

The estimation of supply overtime is at best uncertain. Consequently, the developer will hope for a range of supply estimates, perhaps from low expectation to high expectation. The best estimate becomes a weighted average of this range, or maybe just the simple median of the range.

A simple formula for estimating supply can now be constructed:

$$\begin{matrix}\textit{Total} \\ \textit{Future} \\ \textit{Supply}\end{matrix} = \begin{matrix}\textit{Existing Units} \\ \textit{Available} \\ \textit{for Sale}\end{matrix} + \begin{matrix}\textit{New Units} \\ \textit{Under} \\ \textit{Construction}\end{matrix} + \begin{matrix}\textit{Proposed} \\ \textit{Development}\end{matrix}$$

An example using the preceding supply model is as follows. A survey of subdivisions indicated the following information in the subject area (see table on following page).

Thus, the existing competition is 1,650 lots, but the projected supply over the next two years totals 2,850 lots. This consists of 1,200 possible lots over the next two years plus the 1,650 available today. The 1,650 available today may or may not be purchased before the next two years. The total lot count of 2,850 lots can be reduced by the possibility that the proposed lots may not all be built. This adjustment can be calculated by having had experience in the subject area and a good memory, or by actively researching the market and establishing that of the proposed lots over the last five years, only 75 percent were developed to a marketable stage. Research may show that the best absorption will be about 90 percent. The absorption at 90 percent is 2,565 lots with 285 remaining.

Project Subject	Existing Lots	Under Construction	Proposed
#1	500	100	100
#2	400	100	50
#3	750	50	100
#4		200	100
#5		100	300
Total	1,650	550	650

The traditional economic concept of the supply curve in the value equation is based upon the cost of producing the product. Therefore, the availability of supply, and the ability to forecast the amount of future supply is influenced by the cost of bringing competitive units on line. The value of a property cannot be understood or estimated without first understanding the cost and returns necessary to reward the factors of production.

The factors that must be considered are the returns to:

A. Land costs
B. Capital cost-financial cost (Interest rates)
C. Capital cost-real capital (Material cost)
D. Labor cost
E. Entrepreneurial Profit

Developers directly understand the impact of these factors on value. Contrast with the market analysis, where the impacts of the above mentioned factors are more indirect. These cost factors can also be considered in terms of the impact on the probability of competitive space coming on line. For example:

- Consider the following scenario: There is a localized possibility of demand marginally exceeding supply. The community is showing a slow but highly probable degree of growth. However, the interest rate is expected to rise by two percentage points over the next six months. What impact would this have on both the demand for loans and the supply of loanable funds? Lenders would be more interested in loaning money as interest rates rise and as local economic conditions for development improve (demand exceeding supply). However, some developers will be reluctant to borrow -- particularly floating rate loans -- if they anticipate a rise in interest rates.

- The current tax laws provide only limited non-cash profits (such as tax shelters) from commercial property ownership. What impact would this have on current development levels? In short, the demand for commercial property is directly influenced by the availability of tax sheltering opportunities.

- What about costs of production? These can be a national phenomenon, such as across the board increases in timber prices, or localized phenomenon, such as a sharp increase in labor prices due to a major local development (examples: a factory or a military base). If rises in the costs of production exceed corresponding increases in prices, supply will be stagnated until prices catch up.

A major component of market analysis is the estimation of supply. The concern must be for future as well as existing supply. The ability to forecast supply is a combination of research abilities, observation, historic data collection, and an understanding of the logic of the process in segmenting the supply components experienced overtime.

Demand Analysis

The process for analyzing demand for a subdivision project is similar to qualifying a prospective buyer for a single property. The perspective again must be divided between and orientation towards a specific site or profiling a market segment and then seeking a site to match the market demand.

An initial step under either scenario is to delineate the potential market. The major criteria for delineating markets of people or areas are:

1. Geographic delineation - This is accomplished by identifying the area in

terms of physical boundaries. This would be an initial step in the market analysis beginning with a chosen site. The geographic delineation would be a later step, if a particular market segment based on income or age groups were the targeted merchandising concern.

2. Political delineation - This is basically delineation based on legal and economic criteria. A change in jurisdictional boundaries can result in different markets and location amenities: e.g. the cost and/or availability of utilities. A jurisdictional change could even involve the manner in which the utilities are installed. The change between a city and a suburb will be reflected in services supplied, taxes and lot sizes. This variation allows market choice and thus segments markets.

3. Time/Distance - Travel cost estimated in time and/or distance can be used to segment markets. This travel cost can influence the potential residents in competing subdivisions. The cost of commuting to work or shopping can determine neighborhood boundaries. The distinction again allows individual choices.

4. Income levels - The income levels and the affordability of housing and other goods often segment the markets for specific real estate developments.

Consumer Profile, Basis for Existing Demand

Once the neighborhood market area is delineated, the developer can identify the probable buyer of lots in the subject neighborhood. This can best be accomplished by investigating existing data on population and income. The observation of the neighborhood surrounding the subject development discussed in the productivity analysis and the competitive properties in the supply analysis give insights into the possible buyers in a development.

The people existing in the immediate area of the subject subdivision afford some insight into people moving into the new subdivision. This is true because a neighborhood is defined as a homogeneous area comprised of similar structures, income groups, and amenities. In order to develop insights, the following checklist might be formulated by a developer for his/her specific site. See class overhead for an application.

CONSUMER PROFILE FOR MARKET AREA

1. Typical family income
2. Percentage of families in specific income ranges
3. Per capita income
4. Range of occupations or places of employment
5. Mean or median education
6. Percentage of owner occupants
7. Percentage of renters
8. Average or typical lot prices (see supply analysis)
9. Average /typical house price
10. Average or typical rent
11. Term of tenure for owner occupants
12. Term of tenure for renters.
13. Mode of travel to work

This is only an example and not an exhaustive list. Much of this information can be gathered from public sources, such as the census data and from observation and research of local information sources. Experienced developers may already know or have a feel for this type of information. The reason for the list approach is to teach the methodology and stress the point of a growing requirement via the regulation of lending institutions and syndications for a high level of documentation.

Information such as age, income and education allow insights into the people and buying habits of a market segment. This information retrieved from observing ranges or groupings in the data about people enable a subjective formulation of their life styles. The perception of their lifestyles enables the developer to estimate buying preferences. These preferences can range all the way from the price and size of lots and houses to small consumption goods. A subdivision example is the identification of the need to build on site recreational facilities in a development or to identify a preference for wooded lots or curbs and gutters.

This same process is necessary for the identification of the consumer preferences for retail goods. It is important, in all sectors of real estate development, to consider the combinations of factors. For example, in one major southeastern city, two shopping centers were recently constructed at about the same time. Both were developed in areas of relatively high household income -- admittedly an important consideration for the location of a shopping center. Both were located in areas of concentrated population. Almost every other factor was equal. However, the first shopping center was located in an area of older households, while the second was located in an area of *younger* households with children. The

first shopping center was a financial disaster, while the second was a huge success.

The income potential in an area can be estimated by multiplying the projected or estimated household income in an area by the number of households. This calculated area income could be the basis for estimating existing buying power in an area.

For example, assume a market area with 40,000 households and a median household income of $29,943 (actual U.S. median for 1990). Then, the total potential income in the market is about $1.2 Billion. A portion of this income will be spent on local housing and other goods. If a third of an area income is spent on housing, then approximately $10,000 is available for housing, either rent payments or PITI house payments. As an estimate, if a conventional mortgage at 8 percent interest is available, which is payable monthly for thirty years, then under current FNMA guidelines, the typical or median household can afford a mortgage of about $85,000. Given the typical 80% loan to value ratio on conventional loans, this suggests a median house price of about $106,000. This house would typically be built on a $25,000 lot. Thus, a simple median income analysis gives an immediate picture of the subdivision product that would be demanded.

Note, however, that these statistics are for the entire market, not just the population of homebuilders. Many of these households will choose to be renters. Many of those who purchase homes will choose to purchase existing homes, which often sell for different price ranges than new homes. The same statistical databases that provide income statistics also provide information on new housing sales. For example, in 1990, the median new house price in the U.S. was $120,000, not the $106,000 estimated above. Further, this price will vary widely from one community to another. The median in the south, for example, is only $100,000, while the median in the northeast is $155,400.

For all homes (including existing housing stock), the median price nationwide in 1990 was $131,200. This varied widely from new homebuyers to "move up" buyers. The typical home sold to a "first time" homebuyer was priced at $106,000 (remarkably similar to the estimate we calculated above). The typical home sold to a move-up buyer was $149,400.

Thus, the estimate of a $25,000 lot price is probably valid, on average, for a residential subdivision geared to first-time homebuyers. However, a subdivision targeted to the "move up" market would have lot prices in the $30,000 to $35,000 range. The lots would typically be larger, dictating a higher land cost and lower density per lot. Thus, a simple analysis of basic demographic data begins to direct the subdivision planning process. While these estimates are based on national statistics, similar data is probably easily available for your city or county.

Note also that the potential demand and lot pricing is based only on existing income and population data. Consideration must be given to the changes in population, employment and income levels. Consideration must be given to a projection of changes in demand.

Demand is made up of people and the economic capacity of those people to act on their wants. There the concern of future demand analysis must be with the change of the quantity of people within certain markets, the change in the nature of their preferences (i.e. a change in taste), and the potential change in their income levels.

The change in the quantity of people in an area in the future is available via population forecast and projections of employment. It is important to remember that these are only estimates usually prepared by agencies of government or trade or business groups with views of the future that serve their needs. The individual developer can usually only afford secondary data by which to make estimates to aid in business decisions. Secondary data is data gathered by others for a specific purpose that is now being used by another for other purposes.

It is important for the developer to have insights to both employment and population data. Population data is often available on a more frequent and timely basis. It might be wise to establish a relationship with the school district officials since they have some of the more timely population estimates. Remember school funding is based on enrollment. In trying to figure out sources of information, always link it to organizations or people that have a financial stake in the development and research into different types of information. The U.S. Census is not the only source. It is just the most convenient.

Employment data is also important, because it not only gives the quantity of people coming into an area, but also allows some insight into the income levels, life styles, and tastes of the potential lot buyer. The economic base concept in the product analysis section can link directly to market forecast.

For example, imagine that a new employer is coming into the area and is expected to employ 400 people whose average starting salary is $25,000 and 50 managerial or executive employees earning an average of $40,000. What can be estimated about potential increased demand? First, in terms of qualifying the potential buyers, the executives would be more interested in the "move up" market. However, the other workers would barely qualify for the "starter home" subdivision.

What does this also imply about the indirect impact of this new employer? In a relatively closed community -- and many new factories are built in relatively isolated, otherwise rural communities -- there is every reason to believe that local indirect employment will increase as well. It is difficult to estimate the indirect impact, particularly in well-developed metropolitan areas. One "rule of thumb" to consider is that somewhere between two and four non-basic jobs are created for every new basic job. Thus, in a relatively closed community, a new factory employing 450 people will stimulate 1,350 other local jobs. People who already live in the community, but are otherwise currently unemployed will fill many of these new local jobs. (The same, of course, is true about the factory jobs). However, newcomers will fill many of the other jobs. To estimate the indirect housing demand, you will need to look at current average household incomes, current average house prices, and current average home ownership percentages.

Let us say you estimate that the total population influx from the new factory will be 900 households. Of these, 50 will be new managers for the factory, 200 will be new workers moving in to staff the factory (the other 200 being hired locally), and 650 other new households will move into the market. This will stimulate a need for 900 new dwelling units in the very short run. (In the long run, as formerly unemployed people earn wages, they will eventually create an ongoing secondary demand. However, we will restrict the analysis to short run demands for illustrative purposes.) Of the 900 new dwelling units, about half, or 450, will be apartments or other rentals, including mobile homes, and about half will be owner occupied residences. The 50 managers will all look for "move up" owner-occupied homes. Of the remaining 400, we estimate about three-fourths, or 300, will look for "starter" homes, and about one-forth will look for "move up" homes.

Thus, if we are in the starter home subdivision development business, we can estimate an immediate increase in demand for 300 lots market-wide.

Absorption and Capture Rates.

The three ultimate goals of this analysis are:

- The price of the subdivision lot,
- The proportion of the overall demand we will capture, and
- The time to absorb.

Using the example in the preceding section, the market will soon experience a jump in demand for 450 lots. The percentage that the subject subdivision would capture will depend on the existing and proposed competition in the neighborhood. Assume that the subject community has five developments with the following distribution of lots.

Development	**Lots**	**Description**
Rock Creek	275	move-up market
Green Woods	150	starter homes
Mud Hollow	100	starter homes
Possum Meadow	225	move-up market
Subject Property	250	starter homes
Total Lots Available	1,000	

In simple terms of supply, (250 lots out of 1,000 available) the subject development can be expected to pull 25 percent of the market. This would be about 112 buyers. The subject would have 138 lots remaining. Therefore, the potential market capture rate is 25 percent and the absorption is 45 percent in the next year (112/250).

Note, however, that our subject subdivision is in the starter home market, not the move-up. We control 50 percent (250/500) of the local starter home lot supply. In the previous section, we estimated that the demand for starter home lots would be 300, hence our potential share is actually 150 lots. Thus suggests an absorption of 60% (150/250) in the coming year.

The capture rate for the subject can vary with factors other than the number of existing lots. Consumers will prefer one development to another because of amenities, location and all the other productivity variables discussed earlier. Therefore, the understanding of the property's attributes and the comparison matrix introduced earlier must be taken into consideration in the analysis of the absorption and capture potential.

Absorption must also be considered overtime. Again, in the previous example, it was suggested that of the total 1,800 new jobs in the community (450 basic jobs and 1,350 non-basic) only 900 would immediately require new dwelling units, and only 450 of those would be homeowners. However, in the long run -- say years two and three after the plant opening -- it is estimated that these other 900 households will demand dwelling units. If the proportion of homeowners remains constant (50%), then another 450 lots will be absorbed in years two and three. If our capture rate remains constant, and if the proportion of starter homes remains constant (300 out of 450), then we should project "selling out" before the end of year three. We will thus want to consider how we can expand our subject subdivision, having new lots on line before year three.

The problem is that this absorption schedule and development plan assumes that all the other subdivisions will grow at the same ratio of lots to total. The project all assumes that no new subdivision developers will recognize the opportunities observed by the existing developers. This is usually not the reality. One possible model for future competition is shown in the table on the following page.

Our subject subdivision, as it currently sits, now represents only 12.5 percent of the total market of 2,000 lots, and with the planned expansion of 150 lots only represents 20%. Naturally, as indicated earlier, the two new proposed subdivisions may never come on line. However, assuming they do, our anticipation for long-term absorption is now considerably lessened. In a worst-case scenario, the two subdivisions are both on line by the end of year #1, and both compete with us (as do Green, Woods, and Mud Hollow).

Subdivision	Existing Lots	Expansion Lots	New Devel'nt
Rock Creek	275	200	
Green Woods	150	400	
Mud Hollow	100	0	
Possum Meadow	225	0	
Subject	250	150	
Good Hopes			100
Best Wishes			150
Total Lots	1,000	750	250

Thus, by the beginning of year #2, we have sold 150 lots, but brought another 150 on line. Green Woods, with 30% of the starter home market in year #1, sold 90 lots, has 60 of its original lots remaining, and is bringing 400 new lots on line for a total of 460 available for subsequent sales. Mud Hollow captured 20% of year #1 sales, or 60 lots, and has 40 remaining. Thus, the "starter home" market at the beginning of year #2 is 1,000 lots, without subject subdivision containing 250, or 25 percent. Thus, of the subsequent 300 starter home sales in years #2 and #3, we project to capture 75 of them. This will be an absorption rate over the two years of 30 percent (75/250), or fifteen percent per year. This may not be acceptable to us, and we may now want to consider scaling back our expansion plans. Remember, though, that any scale-back to compensate for the reduced absorption rate will also reduce our potential capture rate.

Based on our sales estimates, at a constant price of $25,000 per lot, we can now construct a pro-forma revenue analysis for the next three years.

	Year #1	Year #2	Year #3
Lots Sold	150	38	37
Revenue	$3,750,000	$950,000	$925,000

It is important to realize that the projection of sales revenues must be tied to the activities of the market. The absorption of the development lots must consider the impact of competitive developments. The development strategy must be based upon market knowledge both as to the competition, and as to the preferences of the potential buyers. The use of the consumer profile is a tool that can be used to isolate a consumer need or preferences that are not being met. If this need can be isolated, the developer can deliver a unique product, thus avoiding the market risk of over-supply and ruinous competition, or no demand. However, the absence of market risk does not mean the absence of business risk. The issues of business and market risk are as relevant to subdivision development as it is to any other business operation. As stated earlier, the developer is a manufacturer dealing with a cash cycle enterprise.

Business/Investment Analysis

The objective of any investment is to return the investment with a profit. For subdivision, this means returning the initial investment in the land and any outlays of development. These outlays are surveying, land improvements, legal fees, and all other hard and soft costs in the development of a project. The relationship of the revenue calculation to the capital expended in the subdivision development process will be elaborated on in the case study for this course. As a teaching tool, it is necessary for the class participant to realize that as the lots are sold over a marketing period, various expenses are incurred. These expenses must be considered, whether the developers are active, passive, or limited participants in the development.

Of course, the developers rarely invest the entire cost of developing the subdivision. Real estate is a highly leveraged business, and it is common for a residential development to finance with 60 to 75 percent

debt, usually short-term floating-rate bank debt, financed at some margin (two or three points) over the current prime rate. Thus, the subdivision return must include a repayment of this debt, plus interest, before the developers reap any profit on their equity investments.

If the developers limit their participation in the development and marketing of a product, a fee is paid for the brokerage of the lots. This marketing may be a function of the development group or third party brokers may be involved. The alternative levels of participation can be linked to the management, layout and design of the development. Every level of the enterprise has cost and expenses involved. As land counselors, these various levels can become profit centers and are not just limited to the ultimate sale of lots. For example, in Austin, Texas, city regulations require such a high degree of interpretation, negotiation and political expertise that some developers are able to "sell" the ability to work with the city. These developers may only deal with the physical and legal dimensions of the product, and then turn the project over to individuals that specialize in marketing lots or putting together financing packages for the approved development. This service can be done on a fee basis or as an interest in the property (i.e. the first group purchases the land, works out the zoning and subdivision regulations and may even get the improvements and utilities in place). At this incomplete stage similar to goods in process, the subdivision is sold or turned over to the more traditional developer, broker, or marketing team. Any of these levels may involve cutting the financial deal, however, it is often the second group that deals with financing, since the development's financing package may impact the final marketing effort.

At the core of development is the ability to recognize that the developer operates a business enterprise. As trivial as it sounds, many developers fail to realize this simple truism. The business enterprise requires the establishment of an organized process to deal with the development. The product is then placed into the market to face the competitive forces of supply and demand. The market analysis indicates areas of concern and the ability to create or obtain control of the local markets. The synthesis of the product with the market should enable the establishment of a business strategy. The strategy stressed in this course is the linking of the product to its appropriate market. The combination of the product to its market enables the development of proforma forecast, as demonstrated in the previous example. The forecast of the revenue translates the revenue forecast into a productivity measure of the real estate. In order for the real estate to have a completed value consideration, the various factors of production must be considered. Since the development is a manufactured good, the factors to be recaptured or used

include the land, labor (to construct), capital, and the entrepreneur. The entrepreneurial return is the reward for the developer effort. It is different from the investor's return. The development return is an entrepreneurial return not to be confused with the increasing or decreasing value of the land and its site. This return can be deducted as a lump sum or deducted over time from the project revenues as an income.

The marketing return is compensation for the effort to sale the property. This can be considered as a labor function in sub-dividing land. This too, can be considered a lump sum compensation, or as income over time. The manner of the compensation to the developer or the administrator may depend on the market, the tax situation of the various participants, and pattern of the projects cash flow. The development and market returns have been estimated to be divided 80 -20 percent over and above the return to the land, capital improvement, and other expenses of developing the project.

The forecast of the sell-out plan, and thus the projected revenue stream, requires a consideration of the time value of money. The old saying that "time is money", is correct. There is an opportunity "cost" if capital is tied up in an asset and cannot be transferred or invested in other properties or opportunities that can and do arise over time. To enable a business evaluation or to make investment decisions, a comparative methodology must be established. This method is to discount the returns over the period it takes to receive those returns. This discounting rate, which allows for the impact of receiving returns over a period of time, must be compared to the potential return available on the opportunities lost. The lost returns would be at a desired equity yield rate. The projected subdivision revenues, after operating expenses and debt are discounted at the desired equity, yield, because this is the rate that would attract the investor to other investments. Note that by using the rate derived from opportunity cost on similar investments, our discount rate includes a factor for the potential risk in investments of this caliber. In other words, the appropriate discount rate -- from a practical standpoint -- is our opportunity cost. However, this should also equal the real rate-of-return on invested capital, plus a factor to compensate for the risk of a real estate venture.

Risk Management

This leads naturally to a discussion of risk management and determination of the risk level of the real estate investment. The rate-of-return required on the investment is not appropriate unless it compensates the investor for the accompanying estimate of risk. Modern investment and

portfolio theories are based upon the trade-off of risk and return. Risk can be viewed as an element of business. The potential of a development is improved with the identification of risk exposures and their management or treatment.

Risk management is concerned with the controlling of the actual occurrences as they may vary from expectations. These variances from expectations are the risk measure. The concern of the developer is to manage the variation from the project plan. For example, the market analysis supported the projection of 225 lot sales over the next three years. Capital will be laid out to develop the lots. If the actual population growth does not match the projected growth or if the project does not achieve the estimated capture of the market, then the requisite lots will not be absorbed each year. In reality, the yearly or quarterly forecast may be above or below the estimated lot sales. The developer must be concerned with establishing a mechanism to control or at least deal with the possibility of selling less than the complete set of lots. This mechanism requires a risk management process. The risk management process consist of the following steps:

1. *Identify the potential problems.* With real estate this can be the potential variation at every stage of the development process. The productivity analysis should identify any problems that may arise from physical or legal factors, such as earth movements or zoning restrictions. Market analysis should help firm up the possible demand and competitive supply of the lots in the area. Market analysis, unfortunately, is not an exact science. The developer should project expectations within a range going to the conservative side in a shaky market. The investment analysis must identify any potential variations in the return, price, discount rate, marketing period, and capital structure. Variation from expectations in this area should be more easily quantified than the market and productivity analyses.

2. *Estimate potential financial losses.* Once the potential problems are identified, it becomes necessary to estimate the frequency and magnitude of the possible losses that may occur. For example, suppose we discover that our subdivision was developed near a toxic waste dump that was not public knowledge. The potential litigation against the developer could result in severely large and frequent lawsuits. The exposure to this type of liability could be offset with a thorough productivity analysis of the site and neighborhood. The appropriate consideration of the physical and locational attributes of the property should identify the exposure to

the problem.

3. *Develop a method of managing risk exposure*. The identification of a risk exposure and its frequency and severity can direct the appropriate method to deal with the risk. There are several alternatives.

   a. *Avoidance*. The simplest method is to avoid the problem or the potential for exposure to liability. For example, do not sub-divide near chemical plants or toxic waste dumps. Unfortunately, avoidance can lead to total inactivity.

   b. *Risk Shifting*. Insurance is the most common method of risk management. Insurance shifts exposure to a third party - the insurance company. The insurance process is to trade off a small known frequent loss (the premium) against a possible large and severe loss, such as the settlement of the suit or the cost of the damage repair. Insurance is also used to offset frequent losses. However, if the loss has a high probability of occurrence, the damage expense may be less than or equal to the premium. The insurance company deals with this problem with deductions. Insurance shifts the probable losses to the insurance company from the policy buyer. For example, construction policies can be purchased to offset financial exposures due to delays, physical difficulties, or legal exposures.

Risk exposure can also be shifted to second parties by the structuring of contracts. As part of the negotiation process, responsibility for a potential lost can be shifted by contractual agreement. The agreements are linked to the over-all negotiation such that if a party to the contract accepts more risk, then he or she is probably receiving money or other perks in return. If not, the party accepting the responsibility is either in a weaker bargaining position or not knowledgeable of the true cost of the liability.

An example of a risk shift in real estate is the net lease in which all potential expense increases are shifted to the tenant. In subdivision development, a contractual arrangement might enable the developer to shift the economic responsibility of cost or time over-runs to the subcontractors.

   c. Hold harmless agreements. Hold harmless agreements are a contractual relief of the exposure to liabilities because of specific occurrences. It varies from the previous contractual

agreements in that it does not directly shift the liability to the other contracting party. The shift is indirect in that if the other party does not shift the liability by insurance, there is the possibility that the second party may be held responsible. The hold harmless agreement is usually stated in a hold harmless clause. The clause simply represents that in the case of certain occurrences the primary party to the contract is to be held harmless for the outcome and liability.

An example of hold harmless agreements in subdivisions may be the relief of responsibility for the detrimental effects of expansive soil in a development. Another example may be that the developer is held harmless for any construction mishaps during the development phase. The standard architect's contract holds the architect harmless of any problems that may arise in construction or development.

d. Hedging. Hedging is a process for offsetting financial and economic risk. The hedging process is betting both sides of the market to insure a receipt of the market or desired rate of return. A direct real estate development example might be to develop two projects in competitive areas of the city, such that if the community grows south rather than north, the southern project will do well enough to offset the loss on the north side of town.

Another example might be the trade-off of financial funding risk. A subdivision is sensitive to an increase in the rate of interest because of a variable or graduated mortgage payment. The developer can purchase interest rate futures, betting that interest rates will rise. If rates do rise, the futures returns can offset the increasing cost of project financing, such that at the worst, the developer breaks even, or hopefully meets the market desired return.

A non-recourse loan is the ultimate hedge. It is the classical market straddle in that on the upside the developer participates in the call or appreciation in the property. On the downside, it is a put or pre-established selling price to the lender. The developer is no longer liable for the project and the maximum cost is the lost equity and legal fees.

4. *Managing or monitoring the risk.* After the potential risk exposure (its severity and frequency) and the appropriate method to implement has been recognized, it is necessary to continually apply this process to the enterprise of the development. Situations will change and new exposures will evolve. The developer must be prepared to deal

with risk throughout the life of the project.

This process investigates the downside risk and is concerned with potential losses. Risk also has an upside that may be costly. For example, imagine that our subdivision is a success beyond our expectations. The growth in income may increase taxes to the extent that the residual or after tax income is not worth the undertaking of the development. The developer must have a plan to invest in the appropriate portfolio of investment to shelter the unexpected gains and secure the reception of the income from the development. This can be an extension of the investment origin of the subdivision process. It is definitely a concern of the investment/ business process. Naturally, though, too much income is a far preferable risk than too little income.

As stated earlier, real estate is a management intensive process. Managerial talent (or lack thereof) can make or break a project. To perform well, the exposures to risk must also be identified and managed. Returns and profits to an enterprise are meaningless without a consideration and comparison of the risks that are related to any set of alternatives. What is the use of comparing a six- percent return to a 13 percent return without comparing risk exposure? An erroneous decision can result for the wrong reason. In effect after adjusting for risk, the 13 percent rate of return may drop to four percent. In such a case, the developer would be better off buying a Treasury bill with the cash, and looking around for a better real estate project.

Promotion and Deal Making

Business has been called the process of trading two fifty-dollar cats for a hundred-dollar dog. To figure out the negotiating equivalence between two different proposals it is necessary to understand the options of the people involved. In the end, all jobs are selling. If the developer is only good at the engineering, design, or financing stages of the process, the project is doomed to failure. Only during periods of extremely active growth can the developer sit back and expect the market to come to him or her. Therefore, only two scenarios are open in the subdivision case. The first scenario allows a degree of control, but must be exercised up front. This option requires an analysis of the product and the market to the extent that a monopoly position can be developed. In this position -- rare though it is -- the market will or must come to the developer. To achieve this, the developer must be delivering a product that no competitor is offering. Promoting an amenity package with the purchase of a lot can do this. Examples include large developments that develop golf courses and country clubs, health facilities, parks, jogging trails, and schools. The

offerings must be considered in terms of cost. The best way to establish a "natural" monopoly often at a minimum cost is to pick a good location.

If a monopoly cannot be established, the focus of the developer's effort must be in marketing/merchandising the project. Regardless of monopoly position, planning for the marketing effort should be an integral part of the subdivision planning. All too often, the marketing effort is an "after the fact" gesture. However, marketing must promote the attributes of individual lots and the overall subdivision. When marketing expertise is integrated into the overall subdivision planning process, the amenities are planned with an eye to eventual marketing strategies. Costly amenities with little or no pricing advantage may be reconsidered. On the other hand, amenities that were overlooked by the planners can be emphasized from the beginning.

Marketing can also become a profit center in and of itself through the financing effort. The marketing team (working with appropriate financial experts) negotiates a block of funds from a lender to the subdivision at a lower interest rate, usually by paying points on the total package up front. The developer then recaptures the points in the price of the lots or by loading in additional fees over time. In either case, the desired effect is to lower the monthly payments of the purchaser in order to broaden the range of buyers who can qualify. The negotiation process now follows the traditional procedure of "if you name the price, I name the terms. If you name the terms, I name the price." Terms are the better method, in that it allows the developer control. All attempts should be made not to compete on price. Competition on price takes control out of the hands of the developer. Of course, this does not mean that the developer must not be sensitive to market pricing in relation to the attributes offered by the development.

Marketing Procedures

Whether a monopoly position is developed or not, a marketing effort is required for a subdivision development. The monopoly situation only requires less of a marketing effort after the fact of the development. The monopoly position does require more intensive market research up front. However, given regulations market analysis must be done in most situations. As the risk management section indicated, the market analysis is an aid in the estimation of supply, demand, absorption, financing and revenue returns, and the estimation of variation around the expectations in each one of these categories. Therefore, if the market analysis is required to get financing, and to gain knowledge of the market competition, it might

as well be used to aid in project design and the formulation of a business strategy.

If the project cannot position itself apart from the competition because a unique product can be produced in reality, then it must be accomplished by the development of the perception that it is different. Often in terms of a real estate project and especially one, that is a limited subdivision, a unique project cannot be developed except in terms of location. That, in itself, may be sufficient. However, there are often similar locations for competitive sites, and thus, it is usually not sufficient. In all likelihood, any product differentiation may have to be created by advertising and marketing.

The appropriate strategy for developing the product differentiation must be based on the identification of the potential client for the product. The identification of the client is necessary in order to direct the marketing appeal. To achieve this appropriately, the productivity analysis must be conducted in order to accentuate the specific physical, legal, and locational attributes that would appeal to the targeted customers. The ability to offer a financial "deal", along with the property, is a marketing aid. The important point of the marketing effort is to match the property attributes to the targeted personnel. The personnel involved should even direct the structuring of the transaction. This direction is based on the premise that there is a trade-off between price and terms. The matching of the term and price structure to the potential market target can differentiate the property and create a market premium.

The tools to aid the marketing effort to create a distinct product are not just limited to the personal or oral sales pitch. For example, two tools that apply the development process to the market effort are:

- The sales brochure, and
- The sales prospectus or investment prospectus.

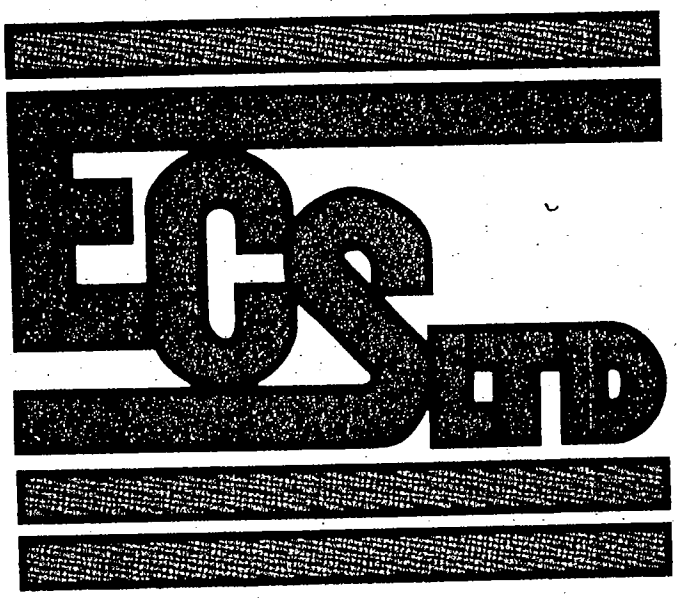
The brochure is a short and high gloss publication to aid in the selling of individual lots and investment/financing of the overall project. The brochure should follow the process delineated in this course. The brochure can list the physical, legal and location characteristics of the property, presenting the general attributes of the subdivision, or the specific attributes of the targeted market group. If a financing package is available, this should also be explained. The brochure should express the most information in the least amount of words possible.

The prospectus is a tool to encourage investors and financing. The prospectus is also a marketing tool, but will tend to give more information than often required by individual lot purchasers. The content of the prospectus is determined by the laws of the state, where the subdivision is located and the states in which the syndication or security interests are offered. (Note: a sales prospectus is not required in all states). The prospectus is more than a listing of attributes. In the prospectus, it is important to include the legal requirements in each state. Again, the elements of the process offered above can form the basis of the document. The document can include physical; legal and locational characteristics laid out in a very complete level of explanation. The prospectus also should include a detailed discussion of the potential market and the business/investment proforma.

Conclusion

Subdivision development is the manufacturing of a product. The product is the result of a business enterprise operating on the premise of a cash cycle. The essence of the production orientation and need to conduct it in an organized fashion requires that a process be developed to aid the development and marketing of the subdivision project. The general categories of the process are the identification of physical, legal, and location characteristics. These characteristics set the context and basis of the market analysis and the marketing process. With the outlining of the appropriate market, the quantity, quality, and duration of the return and its risk are estimated. This supports the strategic planning necessary for a business venture to exist and survive over the absorption period of the project.

The process developed in the above text is applied using the following subdivision analysis model. The economic and financial inputs are based upon a thorough analysis of the productivity factors and the market. The process is applied in a more detailed approach in a case study.



DUE DILIGENCE

ENVIRONMENTAL CONSIDERATIONS PRESENTED TO

GRANT MASSIE GALLIER

MARCH 16, 1999

DUE DILIGENCE
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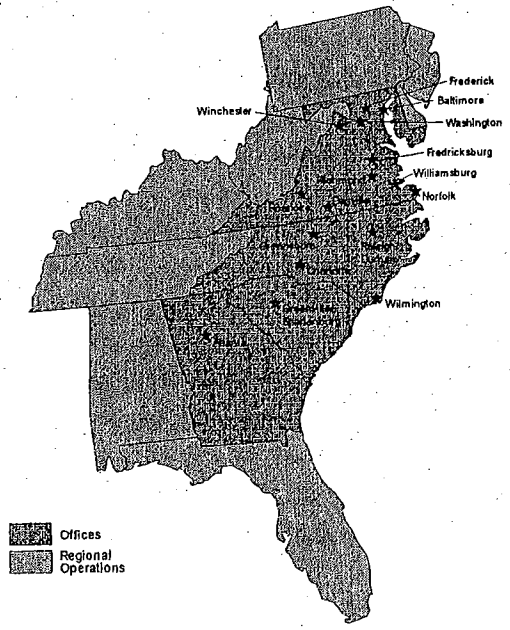
MATERIAL CONTAINED IN THIS HANDOUT IS GENERAL IN NATURE AND MAY NOT BE APPLICABLE TO STATES OTHER THAN VIRGINIA

I. CORPORATE OVERVIEW

Engineering Consulting Services, Ltd. is a diverse, employee-owned, consulting firm specializing in the related fields of environmental, geotechnical, and construction materials engineering.

Incorporated in 1987, our staff has grown to almost 400 personnel and includes registered professional engineers and geologists, certified laboratory technicians and construction inspectors, field engineers, and support personnel. ECS, Ltd. operates 18 offices throughout the southeastern United States including Virginia, Maryland, North Carolina, South Carolina, Georgia, and our newly opened office in Chicago, Illinois.

We have earned a reputation for being responsive and having the ability to solve problems on major projects. Our **Environmental Services Group** acts both independently, in performing assessments and other strictly environmental activities, and in conjunction with our other departments in evaluating emerging environmental situations on sites under construction. Our **Geotechnical Group** has performed subsurface explorations on numerous complex projects, including **Semiconductor Plants**, **Pharmaceutical Facilities**, **Biotechnology Research Facilities**, **Football Stadiums**, and **Nuclear Power Plants**. In addition, we have implemented earth retention system monitoring programs on many deep excavation projects and have been heavily involved with groundwater issues and drainage system design. Finally, our **Construction Materials Division** has provided full-scale testing and inspection services on hundreds of projects, with scopes of work reflecting our ability to follow projects from earthwork phases through roofing construction, including such complex activities as post-tensioning, dynamic compaction, and pile load analysis.



Responsiveness

ECS, Ltd. is uniquely positioned to provide **all** engineering services for confidential due diligence projects throughout Virginia. Utilizing a single source for all engineering requirements provides an **extremely responsive and cost effective** resource for fast track development projects. ECS, Ltd. is experienced in providing high quality, fast turn around due diligence investigations often times providing engineering reports within days of the request.

Due Diligence/Site Selection Assistance

ECS, Ltd. has a substantial amount of experience working with owners, real-estate brokers, site selection firms, industry, and economic development agencies in providing **confidential due diligence investigations** for projects throughout the United States of America. As ECS, Ltd. operates offices offering geotechnical, environmental engineering and construction materials testing services, ECS, Ltd. has proven to be a vital asset to numerous site selection teams.

Richmond Operations

ECS operates a full service 40 person office in Richmond. Based on our understanding reputation for quality and responsiveness, ECS, Ltd. has grown to be one of the largest engineering firms of our type in Central Virginia. The following personnel are available to respond to engineering questions.

1. Robert C. Moss, P.E. – Branch Manager
2. Randy Darden, Jr., P.E. – Environmental Services Manager
3. David D. Stinnette, P.E. – Engineering Services Manager
4. Harry M. Moore, P.E. – Field Services Manager
5. Joseph A. Swider – Vice President, Business Development

Address: 2119-D North Hamilton Street
Richmond, Virginia 23230
Phone (804) 353-6333
Fax (804) 353-9478
Email: jswider@ecslimited.com
Web page: ecslimited.com

ENGINEERING SERVICES OFFERED IN VIRGINIA

LAND DEVELOPMENT & ACQUISITIONS

- Due Diligence Investigations
- Site Assessments Phase I, II, III
- Underground Storage Tank Management
- Environmental Impact Studies
- Hydrogeological & Geophysical Services
- Jurisdictional Wetland Studies
- Industrial Compliance Audits
- Solid Waste/Hazardous Waste Permitting
- Air Quality Permitting
- Well Monitoring and Installation
- Geotechnical Engineering
- Brown Fields Investigations
- Foundation Design and Recommendations
- Drain Field Investigations
- Asbestos/Lead Based Paint Surveys

GEOTECHNICAL ENGINEERING

- Subsurface Explorations (test borings, test pits, rock coring, and geophysical methods)
- Site Development Feasibility Studies
- Geological Studies
- Design Recommendations for Site Grading, Foundations, Slabs, Slope Stability, Retaining Walls, Dewatering and Pavements
- Stormwater Infiltration Studies
- Failure Analysis
- Deep Foundation System Load Tests
- Value Engineering Review
- Air Photo Interpretation
- Soil/Materials Specifications

CONSTRUCTION MATERIALS TESTING

- Shallow and Deep Foundation Systems Testing
- Quality Control Testing for Soils, Asphalt, Concrete, and Steel
- Monitoring of Construction Materials Specifications
- Evaluation of Construction Materials Engineering Properties
- Non Destructive Testing of Steel and Concrete
- Pre- and Post-Construction Surveys of Existing Conditions
- Subgrade Modulus (plate loads) Tests
- Building Movement and Earth Retention System Monitoring
- Floor Flatness Surveys (new and existing floors)
- Structural System Load Test Monitoring
- Value Engineering Review
- Fireproofing Inspection

MASONRY TESTING

- Compressive Strength Testing
- Evaluation of Construction Material Properties (mortar/Grout)
- Masonry Prisms Determination (ASTM C-140, C-90 & E-447)
- Monitoring of Masonry Construction per Project Plans & Specifications

STRUCTURAL STEEL ANALYSIS

- Quality Assurance per Plan and Specifications
- Visual Observation of Welds to Ensure Compliance
- Nondestructive Testing
- Design/Remediation Recommendations

FORENSIC TESTING

- Floor Flatness (Ff/Fl) Survey
- Profometer Analysis (Rebar Location)
- Concrete/Asphalt Coring
- Nondestructive Testing of Steel and Concrete

NEW CONSTRUCTION

- Geotechnical Engineering
- Foundation Monitoring & Materials testing
- Concrete Observation & Testing
- Plant Inspection (Cast-in-Place & Precast)
- Concrete Reinforcement Observation
- Structural Steel Observation
- Visual & Mechanical Observation of Bolted & Welded Connections
- Erection Tolerance Testing

II. DUE DILIGENCE

The due diligence process of any site selection process normally begins with an Environmental Site Assessment (ESA).

A.) PHASE I ENVIRONMENTAL SITE ASSESSMENTS

a) What is a Phase I ESA?

The purpose of an Environmental Site Assessment (ESA) is to evaluate the potential for the property under investigation to contain substantial levels of contamination. Contaminants can occur in the surface water, groundwater, soil and/or within structures at a given site. Contamination may result from present or past activities either on the property under investigation or from off-site sources. An ESA is typically conducted to protect the purchaser of property from future liability stemming from unidentified contamination including regulatory agency mandated cleanups. In addition, the ESA allows the purchaser, lender, or lessee an opportunity to evaluate the environmental risks of acquiring property.

b) What should a Phase I ESA cover?

Phase I studies usually involve minimal, if any, sub-surface investigations, environmental sampling or chemical analyses. The primary objectives of a typical Phase I study are to:

1. Assess the probability of contamination of the surface water, groundwater, or soils within the property boundaries (unless otherwise requested, structural, asbestos, lead-based paint, or radon evaluations are generally not performed);

2. Determine, if contamination is believed to have occurred, the potential sources material(s) and location(s);

3. Develop a detailed site history to identify potential past sources of contamination; and

4. Provide either a written assessment that there is a low probability of substantial levels of contamination being present at the subject site, or a list of specific recommendations for future activities to be carried out in a later Phase II assessment.

Prior to an on-site inspection of the property under review, available pertinent records, documents, photographs, and maps will be compiled and reviewed. These tasks are performed to identify previous activities at or near the site under review that might have had a negative impact on the soils and groundwater associated with the property. These reviews of records could include the following:

- Tax and/or title records (which are usually provided by the client or other designated party for use by ECS, Ltd. personnel) for the purpose of delineating the chain of ownership/occupancy for the subject site;

- Pertinent historical and governmental records;
- Historical sequential aerial photography;
- Operational records for identified facilities located on or near the site;
- Spill Prevention Control and Countermeasure (SPCC) Plans;
- Underground storage tank (UST) registration files;
- Topographic, tax, and developmental planning maps;
- Environmental permits and well records;
- Water and air pollution control documentation; and
- Records of off-site land uses and their apparent potential for migration of contaminants onto the sites.

ECS, Ltd. personnel review the historical and ownership information that has been made available for the subject property as well as the records and reports that are potentially available from the various appropriate regulatory agencies. In addition to record reviews, a reconnaissance is made of the property in question and visual examinations are made of immediately adjacent and nearby surrounding developed and undeveloped properties. The actual walk-over part of the inspection includes searching for evidence of chemical or petroleum hydrocarbon leaks or spills; vegetation or soil discoloration zones; and the presence of storage drums, industrial or commercial refuse, herbicide or pesticide containers, above ground storage tanks (ASTs), underground storage tanks (UST's), and/or PCB's-containing materials. Sewer and storm drainage systems and surface drainage features of the subject site and adjacent properties are also identified.

Based on the findings of the record searches and the on-site reconnaissance, inquiries of appropriate regulatory agencies may be performed to ascertain whether any actions have been, are presently being, or may be taken concerning the site in question or adjacent properties within the site vicinity.

Upon completion of a Phase I investigation, a report is submitted that would include:

- Summary of the site location and history;
- Regional geologic and hydrogeologic characteristics;
- Documentation of field investigation methods, activities, and results;
- Documentation and review of client, facility, public, and regulatory records;
- Photographic records of unusual or questionable site conditions encountered;

- Our professional opinion concerning the presence or indicated absence of substantial levels of contamination on-site;
- Specific recommendations for further investigative activities, if warranted; and
- If necessary, revised cost estimates for the proposed Phase II activities.

There are many different Phase I ESA guidance documents that have been developed by various lenders, developers, insurance companies, and government entities. Typically, ECS, Ltd. will follow the industry standard, **ASTM Practice E 1527-97; Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.** ECS has performed Phase I's for all the major lending institutions in the Richmond area.

c) Should a Phase I ESA be performed only if you plan on leasing a property?

Purchasers are usually exposed to liability as the "current owner" when contamination is discovered that requires some sort of regulatory involvement. The purchaser can also be exposed to liability as an "operator" by conducting activities at the site that cause a release or the improper disposal of hazardous waste. The ***lessee*** assumes risks that are often overlooked. For this reason, it is always prudent to perform an ESA even if you plan on leasing a property in order to limit your liability and establish a "bench mark" for the site conditions. This "bench mark" will help reduce your exposure to liability, especially if the current owner knows of an existing site condition and does not disclose it. If a Phase I ESA is not performed, defending an accusation that you caused the contamination will be made much more difficult.

If underground storage tanks (USTs) are present at a site that have leaked or must be removed, the Virginia Department of Environmental Quality (DEQ) will make a determination on the ownership of the USTs under State Water Control Law. A lessee could be held liable for USTs at the property. This will depend on the language of the lease. Typically, this is found in the "Compliance With Law" section of the lease and says something to the effect of "lessee agrees to comply with all state, federal, and local laws ..." In some instances, the lease could name the lessee as the owner of the USTs even after the lease has expired. **ECS, Ltd. always recommends that an ESA be performed in order to document the past and present uses of the site before the property is acquired by the client either through a purchase or a lease agreement.** By performing a Phase I ESA before you lease, you are informed. You know what is on the site and there will be no surprises. It is always prudent to be as informed as possible about a property before any commitments are made.

B.) PHASE II ENVIRONMENTAL SITE ASSESSMENTS

a) What is a Phase II ESA?

More detailed investigations are usually carried out for a site that meets any of the following criteria:

1. Phase I assessment has indicated that contamination may be present; or
2. Present or past land uses may have caused contamination; or
3. Contaminant sources on adjacent land parcels may have resulted in the release or migration of contaminants onto the property under investigation.

b) What should a Phase II ESA Cover?

The main purpose of the Phase II ESA is to provide initial testing to determine whether soil and/or groundwater contamination exists at a site. Field activities carried out during the Phase II ESA are directed at detecting areas with substantial levels of contamination. Site-specific locations recommended for investigation are in those areas considered to have the highest potential for contamination.

The level of field activities necessary for a Phase II assessment greatly depends on site-specific conditions as determined by the Phase I ESA. Prior to initiation of any Phase II activities, a mutually agreeable revised scope of work is developed. Phase II ESA costs typically range from $2,000 to $20,000 (U.S. dollars) depending on the scope of services required and can be completed within three to four weeks. The proposed scope of work generally includes specifics on:

- The type of environmental sampling and analytical methods that would be used for the investigation;
- The number, location, and depth of groundwater monitoring wells to be installed;
- The number, locations, and depths of soil sampling boreholes and the types of analyses to be performed;
- The type of chemical analyses recommended and the state-certified analytical laboratory to be used. Recommendations might include chemical analyses for volatile organic compounds (VOC's), pesticides, PCB's, primary and secondary drinking water inorganic compounds, and/or a list of site- specific metals; and
- A site-specific health and safety plan prepared pursuant to OSHA regulations (29 CFR Part 1910).

In certain instances, geophysical methods may be employed. Sites with the suspected presence of underground storage tanks or other buried structures that may have a negative impact are good candidates for a geophysical investigation. When appropriately used, geophysical investigations **save time and money** when attempting to locate a possible point of contamination. Examples of these methods include total field magnetic surveys and ground penetrating radar surveys. Pricing for these studies is dependent upon "cultural" features as well as the size of the area to be surveyed and can range from $500 to $5,000 (U.S. dollars).

A report is submitted to the designated parties at the completion of the Phase II environmental assessment and includes:

- A summary of the Phase I study;
- Regional geologic and hydrogeologic characteristics;
- Documentation of field investigation methods, activities, and results including geologic logs, well construction details, etc.;
- Site-specific soil and hydrogeologic conditions that were encountered, including inferred ground- water flow directions, depth to the water table, aquifer systems, confining units, etc.;
- Sampling protocol and decontamination procedures;
- Analytical results from the state-certified laboratory that was used; and
- Our professional opinion concerning the presence or indicated absence of substantial levels of contamination on-site.

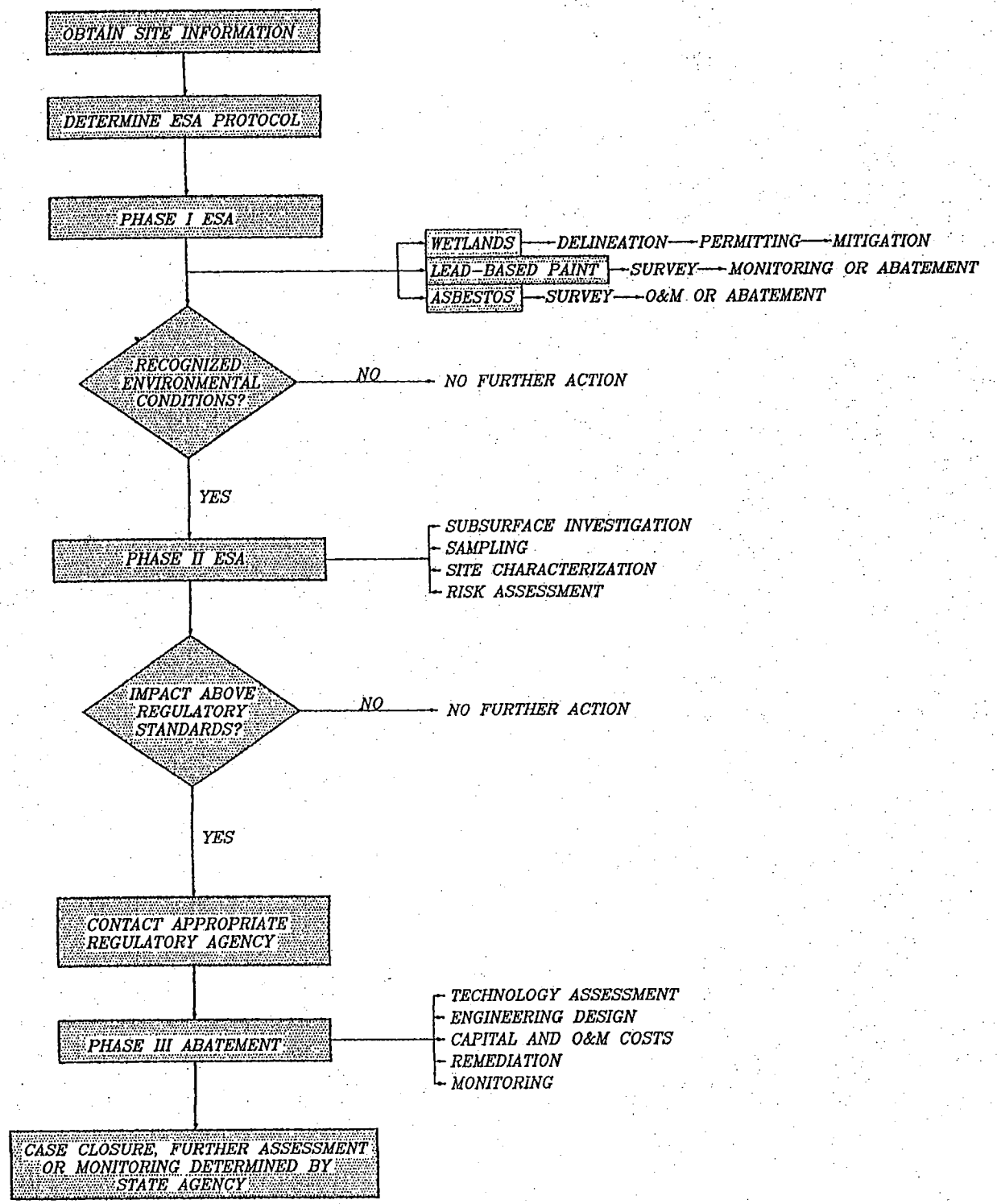
C.) PHASE III ENVIRONMENTAL SITE ASSESSMENTS

A Phase III ESA is the final process if the Phase II ESA identified hazards that either need to be removed or treated in accordance with state and federal regulations. In addition, a Phase III would manage and maintain the successful and continued cleanup of the property.

The scope of work for a Phase III ESA varies greatly and is handled on a site-specific basis. There is not a set standard scope of work to follow. The scope of work would be determined based on the findings of both the Phase I and Phase II ESAs. Typical examples of work involve the removal and disposal of contaminated soil from prolonged or chronic surface spillage, the removal and disposal of 55-gallon drums or other containers stored on-site that contain materials requiring special handling, the removal and disposal of aboveground or underground storage tanks, and the treatment of groundwater contamination.

The cost associated with a Phase III ESA varies as greatly as the scope of work and can range from a few hundred dollars for simple cleanups to over $100,000 for complex remediation systems. The completion time for a simple cleanup of surficially contaminated soil can be only a matter of days whereas collecting and treating contaminated groundwater can extend to several years. ECS, Ltd. has extensive experience in all types of Phase III remediation projects ranging from removal and disposal of surface contamination to the design and implementation of complex subsurface soil and groundwater remediation systems.

D.) DUE DILIGENCE PROJECT FLOW DIAGRAM



NOTE: O&M = OPERATION AND MAINTENANCE

III. BUILDING CONDITION SURVEYS

Building Condition Surveys are frequently required prior to the purchase or refinancing of an existing building. Building Condition Surveys can be conducted on apartment complexes, office buildings, retail facilities and industrial facilities. The survey is primarily directed at noting construction defects or components, which seem to exhibit less than expected service life of which have been poorly maintained. They are not intended to develop detailed remedial plans for identified problems and are qualitative in nature.

The Building Condition Survey begins with a preliminary review of available and relevant drawings, specifications, reports and records, and interviews with the property manager and or maintenance personnel. A walk through of the property follows the review by a trained professional. Tasks unique to particular system surveys are as follows:

Structural & Roofing Systems

The structural Systems Survey is to determine what structural systems were used and their adequacy for the intended use of the facility. Visual observations are made to determine if the structure was constructed in general compliance with the construction documents or industry standards, and to observe any evidence of structural problems. This inspection will specifically address foundations, exterior skin, framing, use of fire retardant plywood, and evidence of water damage.

The purpose of the Roof System Survey is to determine what roofing system was used and assess its general condition.

Pavements

This survey is to observe the overall condition of the existing pavement and determine if it is suitable for the intended use.

Architectural Finishes

This survey is to observe the design of the building envelope including window and wall sections. Observations of the property are made to evaluate the performance of the building skin, window systems, entrances, the condition of sealants, and details intended to protect the interior spaces from water infiltration.

Mechanical, Plumbing , Electrical , & HVAC Systems (MPEH)

The MPEH survey is to briefly review the MPEH drawings to note the system used, to observe the visible components of the system, to assess the appropriateness for the facility, and to assess the quality of the construction of the systems. The observations made are used to determine what replacements and/or repairs are required.

Drainage

The drainage survey is to observe the surface drainage system and the storm drainage system on the site and make note of any problems and condition and adequacy to handle typical runoff.

Fire Protection

During this portion of the assessment, construction documents are reviewed to verify that maintenance and testing of the equipment is current. Observations are made to evaluate the apparent physical condition of the fire protection equipment. Interviews with maintenance personnel service contractors and fire officials are conducted to verify operating reliability and conformance with city requirements is performed.

Elevator/Escalator

If applicable, observations are made of nominal operating characteristics, such as size, capacity, and speed. Interviews are performed with service company and maintenance personnel.

ADA

The purpose of the ADA survey is to review the facility for compliance with handicap access and usability as specified by Title III of the American with Disabilities Act.

Reporting

Written reports from prepared form the observations made of each system, and include executive summaries and photographic documentation. Where financial implications are connected with problem areas, opinions of cost for recommended actions are provided. A chart of expected capital needs for repairs and major replacement over the lift of the mortgage can be included in the report if the scope requires.

Cost and Turn Around

Building Condition Surveys can be accomplished in two or three weeks and typically fees for this work will be between 1200.00 and $2000.

IV. WETLANDS

Recognizing the potential for continued accelerated degradation of the Nation's waters, the U.S. Congress enacted the Clean Water Act. The objective of the Clean Water Act is to maintain and restore the chemical, physical and biological integrity of the waters of the United States. Section 404 of the Clean Water Act authorizes the Secretary of the Army, acting with the Corps of Engineers (COE), to issue permits for the discharge of dredged or

fill material into the waters of the United States, including wetlands. The COE and the U.S. Environmental Protection Agency (EPA) jointly define wetlands as follows:

> *Those areas that are inundated or saturated by surficial or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.*

"Wetlands" is a general term that describes a variety of ecosysytems including marshes, bogs, prairie potholes, and swamps. Wetlands are transitional areas between dry land and open water. Because many wetlands are not "wet" at all times of the year, their recognition and identification can be difficult for the casual observer. Wetlands such as swamps and marshes are often obvious but many wetlands are not readily recognized. Some of these wetlands types include, but are not limited to: bottomland forests, pocosins, pine savannahs, bogs, wet meadows, potholes and wet tundra. This definition of wetlands has significantly impacted development areas that fall under each of these criteria.

Virginia's wetland permit program is a cooperative effort between the Virginia Department of Environmental Quality (DEQ), the Virginia Marine Resources Commission (VMRC), and the Army Corps of Engineers (COE). By working in conjunction with one another, a joint permit application is submitted to the COE District office. By filing a joint permit application with the COE District office in Virginia, the Corps District Engineer will subsequently contact the appropriate State agencies. This expedites time and efficiency in order to avoid costly delays for permits. Virginia's wetlands program is very efficient and is generally stated to be one of the best run programs in the country. Section 401 of the Clean Water grants States the authority to approve, condition, or deny any Federal Permits that could result in a discharge to State wetlands.

Why is it necessary to consider whether an area is a wetland?

Section 404 of the Clean Water Act requires that anyone interested in depositing dredged or fill material into "waters of the United States, including wetlands" must receive authorization for such activities. The COE has been assigned responsibility for administering the Section 404 permitting process. Activities in wetlands for which permits may be required include, but are not limited to:

- Placement of fill material,
- Ditching activities when the excavated material is sidecast,
- Levy and dike construction,
- Recognized land clearing,
- Land leveling,
- Most road construction, and

- Dam construction.

Section 401 of the Federal Clean Water Act requires that any fill or dredged material placed in waters of the U.S. and/or wetlands, shall not exceed the Federal Water Quality Standards. Section 401 enforcement is delegated to DEQ through the Water Protection Permit Program.

The final determination whether an area is a wetland and whether the activity requires a permit must be made by the appropriate Corps District Office.

How are wetlands recognized?

The COE under Section 404 uses three parameters for the identification of wetlands. They are as follows:

- Hydrophytic vegetation (water loving or water tolerant plants).
- Hydric soils (soils formed under saturated conditions).
- Wetlands hydrology (ground that is continuously or periodically inundated by surface or groundwater).

Unless an area has been altered or is a rare natural situation, wetland indicators of all three parameters must be present during some portion of the growing season for an area to be determined as a wetland. Areas that have appeared to have been altered or appear to be a rare natural situation are generally called atypical situations and fall under different criteria usually based upon a COE determination as to whether or not these areas are Section 404 wetlands. Many wetlands can be readily identified by the criteria stated above. However, for many areas it is necessary to carefully examine the area for the three parameters of wetland indicators.

Vegetation Indicators

There are nearly 5,000 plant types in the United States that may occur in wetlands. These plants are known as hydrophytic vegetation and are listed in regional publications of the U.S. Fish and Wildlife Service. However, you can usually determine if wetland vegetation is present by knowing the relatively few plant types that commonly occur in your area. For example, cattails, bulrushes, cord grass, sphagnum moss, bald cypress, willows, sedges, and rushes usually occur in wetlands. However, the presence of a single individual of a hydrophytic species does not mean that hyrophytic vegetation is present. Hydrophytic vegetation must comprise the dominant species in a plant community to indicate a wetland. Other indicators of plants growing in wetlands include trees having shallow root systems, swollen trunks, or roots found growing from the plant stem or trunk above the soil surface.

Soil Indicators

There are approximately 2,000 named soils in the United States that may occur in wetlands. Such soils, called hydric soils, are soils that are saturated, flooded, or ponded long enough during the growing season to develop aerobic conditions. Most of these soils are listed in soil surveys published by the Soil Conservation Service which are differentiated by county. A visual examination of the soils is necessary to determine whether or not the soil is hydric. Also, an examination of the soil can also determine the presence of any hydric soil indicators including soils that:

- Consist predominantly of decomposed plant material (peats or mucks);
- Have a thick layer of decomposing plant material at or near the surface;
- Have a bluish-gray or gray color below the surface, or bright mottles and/or low matrix chroma, Mottle = spots of contrasting color, Matrix = predominant color.
- Have the odor of rotten eggs;
- Are sandy and have a layer of decomposing plant material at the soil surface; and
- Are sandy and have dark stains or dark streaks of organic material in the upper layer below the soil surface. These streaks are decomposed plant material attached to the soil particles.

Hydrology Indicators

The third indicator is wetland hydrology. Wetland hydrology refers to the presence of water at or above the soil surface for a sufficient period of the year to significantly influence the plant types and soils that occur in these areas. Although the most reliable evidence of wetland hydrology may be provided by gauging station or groundwater well data, such information is limited from most areas and, when available, requires analysis by trained individuals. Thus, most hydraulic indicators are those that can be observed during field inspection. Most do not reveal either the frequency, timing, or duration of flooding or soil saturation. However, the following indicators provide some evidence of the periodic presence of flooding or soil saturation:

- Standing or flowing water observed on the area during the growing season.
- Soil is saturated during the growing season.
- Water marks are present on trees or other erect objects. Such marks indicate that water periodically covers the area to the depth shown on the objects.
- Drift lines, which are small piles of debris oriented in the direction of the water movement through an area, are present. These often occur along contours and represent the approximate extent of flooding in an area.
- Drainage patterns within wetlands.
- Thin layers of sediments are deposited on leaves or other objects. Sometimes these become consolidated with small plant parts to form discernible crusts on the soil surface.

<u>If you observe indicators of any of the three characteristics, you should seek assistance from either the local Corps of Engineers (COE) District Office or consult with an expert on</u>

making wetland determinations. If you are proposing to alter an area of wetlands, you must contact the COE District Office that has responsibility for Nationwide Permits or individual permits in your area. ECS, Ltd. is fully capable of defining the boundaries of wetlands and has extensive experience in completing joint permit applications for Nationwide Permits, if necessary.

What is involved in a Wetlands Delineation?

ECS, Ltd. uses the 1987 Corps of Engineers *Wetlands Delineation Manual* for making wetlands determinations. Typically, wetland delineations are performed under the routine method for making wetland determinations. This involves an appropriate literature review typically involving, aerial photography, soil surveys and national wetlands inventory maps, Chesapeake Bay area maps and any other related information that aids in making wetland determinations. Once the literature review is performed and completed, the field investigation is performed. The field investigation involves a determination as to the presence or absence of the three indicators: hydric soils, hydrophytic vegetation, and wetlands hydrology. Typically, the field investigation involves looking at each of the wetland indicators through several transects. Each transect includes sampling points within the boundary of the wetland, in a transitional area, and within an area outside the wetland across the property. The size of the property will determine the number of transects that are involved in the investigation. After the determination of the extent and boundaries of the wetland are made, the wetland boundaries are flagged. This information is then submitted to the COE for approval. Once approved, the wetland boundaries are surveyed in order to determine the area of wetlands to be impacted by the proposed development. After the COE approval of the wetland boundaries and the impacted acreage has been determined, either a joint permit application or an individual permits application are submitted to the COE District Office and the VDEQ. Typically, most development requires Nationwide Permit #26, which regulates discharges in headwaters and isolated waters.

A typical wetland delineation ranges in cost from $400.00 to $20,000.00 (U.S. dollars) depending on the characteristics of the property under investigation. Wetland delineations can generally be completed between 2 weeks to 4 months depending on the property characteristics and the COE availability. A wetlands delineation flow diagram outlining the delineation and permitting process under the current regulations has been included at the end of this section.

What are Nationwide Permits?

The COE in conjunction with the EPA, and other state agencies regulates wetland disturbances. In many cases, landowners are required to notify the COE and obtain a permit prior to disturbing "Waters of the United States, including wetlands." The current Nationwide Permit program, which originated with the passage of 1977 Clean Water Act, generally allows landowners to develop wetlands without notification of rigorous permitting requirements. Nationwide permitting was designed to avoid expensive and lengthy permitting requirements yet, provide developers with an incentive to minimize impacts either through avoiding or mitigation. Currently, there are 40 Nationwide Permits covering a wide range of disturbances. The permits are further controlled by general conditions to prevent unnecessary or excessive impact to these areas. Conditions Number 11, Endangered Species and Number 12, Historical Resources most frequently result in delays or revocation of permits. Additionally, the Virginia Marine Resources Commission and the Virginia Department of Environmental Quality apply conditional requirements to the use of Nationwide Permits. Specifically, the VDEQ may require the issuance of a Virginia Water Protection Permit. Other special conditions preclude the use of Nationwide Permit #26 to impoundment of perennial stream or perennial spring channel. A wetlands delineation flow diagram outlining the delineation and permitting process under the current regulations has been included at the end of this section.

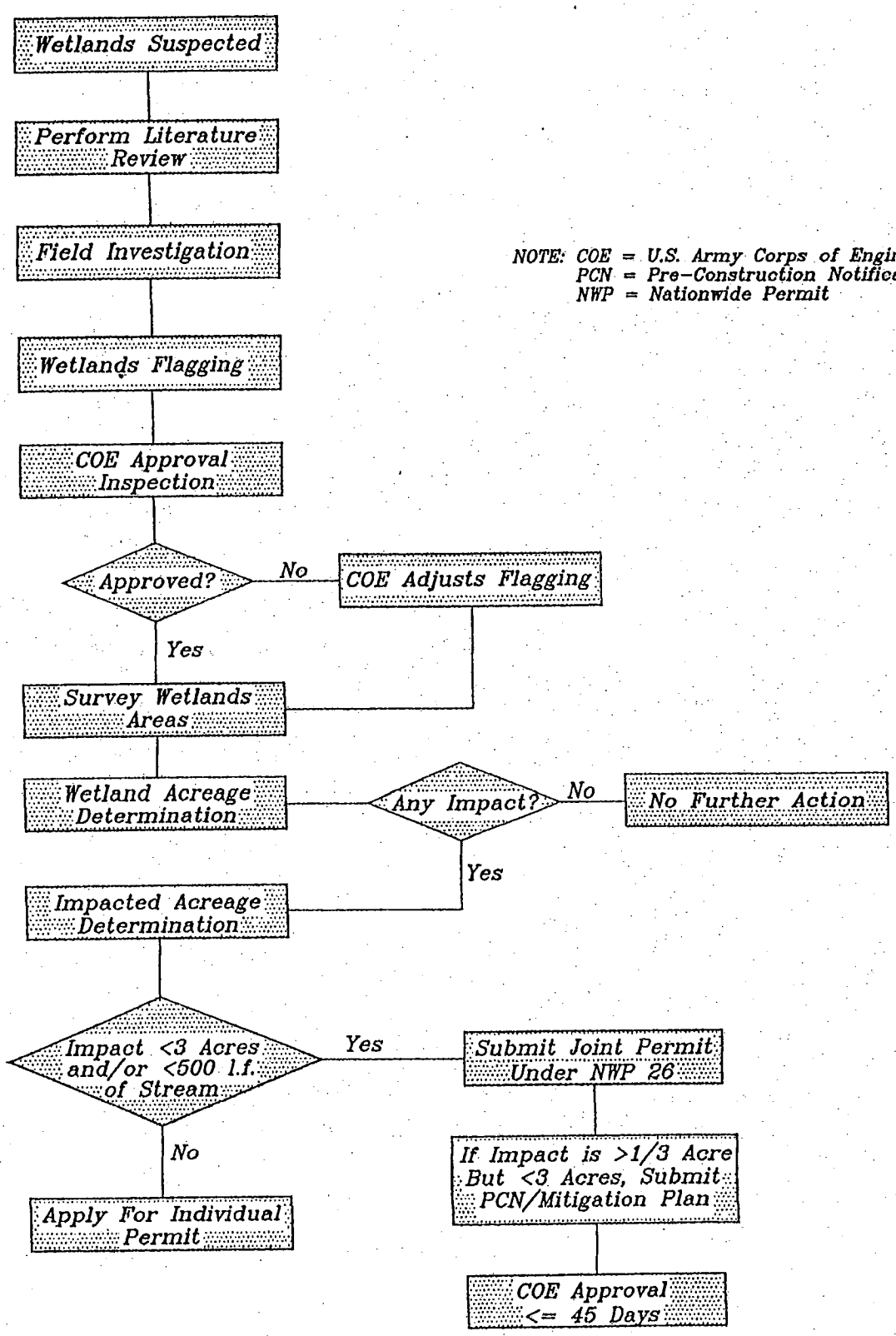
What is mitigation?

Mitigation involves the restoration, replacement, creation, enhancement, reduction, or preservation of wetlands equal to or greater than the area of wetlands to be impacted by development. Mitigation is required when impacts to wetlands are greater than the maximum allowable impact under the Nationwide Permit program. Examples of mitigation that may be appropriate and practicable according to the COE include, but are not limited to:

- Reduce the size of the project;
- Establish buffer zones to protect aquatic resource values;
- Create, restore, replace, and/or enhance aquatic resources of similar value and function of those impacted;
- Make contributions to wetlands trust funds; and
- Mitigation banking.

Under the Nationwide Permit program, mitigation cannot be used to offset wetland losses that would occur in order to meet the acreage limits of some of the Nationwide Permits. Mitigation plans are submitted to District Engineer at the local COE office for approval. Forty five days are allowed under the Nationwide Permit program for COE approval of mitigation plans or the issuance of a second notification for changes to the initial mitigation plan. Mitigation costs range from several hundreds of dollars to several thousands of dollars per acre. The time required for the successful completion of mitigation plans, including monitoring, can range from one month to several years depending on the property characteristics and the mitigation plan used.

WETLANDS DELINEATION FLOW DIAGRAM



IV. SPECIFIC ENVIRONMENTAL ISSUES

A) ASBESTOS

Asbestos containing materials (ACM) have been widely used in the building industry due to its fire retarding ability. Typically, ECS, Ltd. will recommend that an ACM survey be conducted by a licensed inspector for **buildings constructed prior to 1979**. According to Virginia regulations, an asbestos survey needs to be performed for any building to be renovated or demolished in order to obtain a building permit. Residential structures with less than four units that will continue to be used as residential dwellings are exempt from the regulations.

There are a wide variety of materials that contain asbestos. Some of these include: hot water pipe insulation; duct and boiler insulation; vinyl floor tiles and rolled linoleum; siding; roofing shingles, felts, and flashing; spray-on insulation; acoustical ceiling tiles; and window puddy. The cost for an asbestos survey varies depending on the building size and the heterogeneity of the building materials used and should be conducted by a licensed asbestos inspector. Asbestos surveys can usually be conducted at a cost of $300 for a small office or residence to $9,000 for a multi-level office building. The report should identify the various types of asbestos present, the condition of the material in respect to friability, and an estimated quantity. This information will be very important if removal of the material is necessary. Furthermore, a comprehensive asbestos survey will provide for more accurate abatement cost estimates.

B) LEAD-BASED PAINT

Lead-based paint is generally present in **buildings constructed prior to 1978**. ECS, Ltd. typically recommends a lead-based paint survey be conducted on buildings to be used for residential purposes constructed prior to this time. Currently, the two ways of testing for the presence of lead-based paint consist of paint chip analysis and the use of a portable X-ray fluorescence analyzer. The cost for a lead-based paint survey varies depending on the building size and the heterogeneity of the paint used and should be conducted by a licensed inspector. Costs for lead-based paint surveys range from $500 for a small office building or residence to $10,000 for larger buildings. The report should identify the surfaces tested, the results of the analysis, and the condition of the material. Based on the current regulations, a disclaimer stating that either the seller "knows" that there is lead-based paint or "does not know" must be presented at closing. If the seller says they do not know, then the purchaser has the option to perform a lead-based paint inspection at his own expense. This can also be used as a bargaining tool as well. An inspection is mandatory for government subsidized housing.

C) UST REGULATIONS

Typically, the presence of USTs is identified during preparation of the Phase I ESA either during the historical survey, interviews, or during the site reconnaissance. The presence of USTs is most often identified visually by observation of vent pipes or fill ports. Other methods for locating USTs is by use of geophysical methods such as total field magnetic and/or ground penetrating radar.

There are basically two types of USTs, regulated and unregulated. **Regulated USTs** are defined by the Virginia Department of Environmental Quality (DEQ) in the Petroleum Program Manual as USTs containing petroleum as defined in the UST Technical Regulation VR680-13-02 and subject to all the requirements of the Technical Regulation. The most common types of petroleum substances include gasoline, diesel, and kerosene. These USTs are regulated by the DEQ and must be in compliance with all applicable regulations described in VR680-13-02. **Unregulated USTs** are those that do not fit the description of regulated USTs. A common unregulated UST found during the course of a Phase I or II ESA is one that is used for heating oil. A heating oil UST is defined as a tank that contains heating oil and is used to heat the premises where the tank is located. This type of UST, regardless of its size, is not regulated by the DEQ and does not have to comply with VR680-13-02.

If a UST is found on a property, a determination must be made as to its previous use. If the tank qualifies as a regulated UST, it must be registered with the DEQ and fitted with the proper spill containment devices and corrosion protection, replaced, or closed either by removal or filling in-place. Typically, USTs found during the preparation of a Phase I or II ESA have been out of use for an extended period of time and are not registered. Costs for removal vary depending on the size, amount of liquid remaining, and the location of the UST. If the UST fits the unregulated category, sampling is recommended to confirm or confute a release. If a release is not detected, no action is required according to the law. However, it is usually **advisable to close the unregulated UST in accordance with the procedures outlined by the DEQ to limit future liability.**

Because of Federal law, many financial institutions view the presence of underground storage tanks and petroleum contamination at the subject site as a financial liability and would therefore either delay or prevent the lending of funds for the purchase of the property. Although there is a risk associated with underground storage tanks and petroleum contamination, there is a mechanism for solving this problem. Virginia, Maryland and North Carolina have established **Petroleum Storage Tank Funds**. These funds may be used for the following purposes:

1. To provide reimbursement to eligible owners/operators for a portion of the potentially high costs of mitigating the public health and environmental damages from the petroleum storage tank release;

2. To provide a mechanism for regulated UST owners/operators to demonstrate financial responsibility; and,

3. To provide reimbursement for costs incurred for third party bodily injury or property damage from confirmed regulated UST petroleum releases.

The states are responsible for the UST technical and financial responsibility regulatory programs and the fund reimbursement program. The funds are non-lapsing, revolving funds which are administered by the Environmental Divisions of the states. The primary revenue sources for the funds are state fees on regulated petroleum products, including motor fuel, special fuel (diesel) and heating oil and tank registration fees. The moneys collected are primarily used to reimburse responsible parties for the reasonable and necessary costs incurred in cleaning up a petroleum release from a petroleum storage tank.

Virginia, North Carolina, and Maryland have adopted risk based approaches to petroleum contaminated sites. In most cases, after the UST has been removed and confirmatory sampling has identified that the tank has leaked, the state may require a risk assessment possibly followed by additional sampling. The specific phases of corrective action are outlined by the environmental department. Each phase is performed in succession with the performance of the next phase being dependent on the results of the previous one. With this phased approach, the state is able to monitor the amount of work that must be performed and eliminate unnecessary investigation and expenditure of money. Generally, the state will cease site activities once the risk assessment has been completed and has not identified any risk to nearby receptors or risk of exposure to the residences or businesses in the area. Examples of **potential receptors of concern** include drinking water wells, basements, rivers or streams, and deep utility lines located closely downgradient of the release. The presence of free product will usually, however, trigger additional investigation, sampling and possibly remediation.

By use of the Trust Funds and considering the individual state's risk based approach to petroleum contaminated sites, the liability for lenders and borrowers is generally limited to the financial responsibility requirement that applies for the site, assuming the proper procedures for accessing the Fund are followed and the consulting fees are within the current Usual and Customary Rate Tables established by the states.

The trust funds and the laws passed by the states have made available a mechanism for defining the liability to real property caused by leaking of underground storage tanks. Once the liability is defined, financing through traditional means becomes an available option.

WEYKER & ASSOCIATES
Planning/Landscape Architecture

Charter Member
North Carolina League of
Landscape Architects

PLANNER/LANDSCAPE ARCHITECT ROLE IN THE SUBDIVISION DEVELOPMENT PROCESS

I. PLANNING PHASE
- A. .SITE SELECTION/EVALUATION
  - 1. LOCATION ANALYSIS
    - a. TRANSPORTATION
    - b. AREA USE & DEVELOPMENT PATTERNS & TRENDS
    - c. AREA ZONING
    - d. AREA INFRASTRUCTURE
    - e. AREA DRAINAGE
    - f. RELATIONSHIP TO PUBLIC FACILITIES
    - g. RELATIONSHIP TO EMPLOYMENT OPPORTUNITIES
    - h. RELATIONSHIP TO SHOPPING OPPORTUNITIES
    - i. AREA SOCIO/ECONOMIC FACTORS
  - 2. SITE ANALYSIS
    - a. TRAFFIC
    - b. INGRESS AND EGRESS
    - c. UTIITIES
    - d. ADJACENT USE AND DEVELOPMENT
    - e. TOPOGRAPHY/SLOPES
    - f. DRAINAGE/FLOOD HAZARDS/WETLANDS
    - g. SOILS/PHYSIOGRAPHY
    - h. PUBLIC REGULATIONS & RESTRICTIONS
    - i. PRIVATE RESTRICTIONS/COVENANTS
    - j. "SUPER" (OVERLAY) RESTRICTIONS
      - Watershed protection
      - Airport air space restrictions
      - Dam breach hazard restrictions
      - Visual corridor restrictions
      - Thoroughfare corridor restrictions
      - Historic district restrictions
      - Neighborhood conservation district restrictions
      - Stream buffer areas
      - Archaeological or historic sites
      - Mineral Rights

2966-D Saint Marks Road • Winston-Salem, NC 27103
Telephone: 336 / 768-5031 • FAX: 336 / 768-7597 • Email: jweyker@triadntr.net

k. ENVIRONMENTAL HAZARDS/TESTING
l. GEO-TECHNICAL TESTING
m. PROPERTY BOUNDARY (ENCROACHMENTS)

B. MARKETABILITY ANALYSIS
1. MARKET SEGMENT
2. SUPPLY FORECASTING
a. PLANNED DEVELOPMENT
b. APPROVED DEVELOPMENT
c. UNDERDEVELOPMENT
d. ZONED OR OTHERWISE DESIGNATED
e. PUBLIC POICIES/PRIORITIES
3. DEMAND POTENTIAL
a. SOCIO/ECONOMIC CHARACTERISTICS
- Growth in households
- Trends in tenure
- Replacement needs
- Vacancy rates
- Changes in employment opportunities

b. ABSORBTION RATES/PATTERNS/CHARACTERISTICS
4. MARKET SHARE

C. DEVELOPMENT PLAN FORMULATION
1. USE(S)
2. INFRASTRUCTURE
3. AMENITIES
4. LOTTING/EASEMENTS
5. IMPROVEMENTS STANDARDS
6. EROSION CONTROL
7. STORM WATER MANAGEMENT
8. OTHER RESTRICTIONS AND REGULATIONS
9. TESTING OF PROPOSALS
10. PLAN ADJUSTMENTS & MODIFICATIONS

D. COST ESTIMATING AND BUDGETING
1. LAND COSTS
2. SITE IMPROVEMENTS COSTS
3. ADMINISTRATIVE COSTS
4. FINANCING COSTS
5. MARKETING COSTS
6. PROFIT
7. EXPENSE SEQUENCING
8. REVENUE ESTIMATES

E. FEASIBILITY ANALYSIS
    1. HIGHEST AND BEST USE CONSIDERATION
        a. LEGALLY PERMISSIBLE
        b. PHYSICAL POSSIBLE
        c. FINANCIALLY FEASIBLE
        d. MAXIMALLY PRODUCTIVE
    2. FINANCIAL MODELING
        a. PRESENT VALUE ANALYSIS
        b. COST/BENEFIT ANALYSIS

II. CONSTRUCTION/DEVELOPMENT PHASE
    A. PLANS/SPECIFICATIONS/BID DOCUMENTS PREPARATION
    B. BIDDING PROCESS
    C. CONTRACT ADMINISTRATION
        1. WORK PROGRESS MONITORING & REPORTING
        2. CHANGE ORDERS
        3. REQUEST FOR PAYMENTS
        4. PUNCH LISTS
        5. PROJECT REVIEW AND ONGOING ASSESSMENT
        6. CONTRACT CLOSE OUT

III. MARKETING PHASE
    A. SALES AND PROMOTIONAL MATERIAL
        1. BROCHURES
        2. FLIERS
        3. PERSENTATION DRAWING
        4. MODELS
    B. SIGNAGE
        1. IDENTIFICATION
        2. PROMOTIONAL
        3. DIRECTIONAL
        4. INFORMATIONAL

STIMMEL ASSOCIATES, P.A.
LANDSCAPE ARCHITECTURE • LAND PLANNING • CIVIL ENGINEERING
305 WEST FOURTH STREET SUITE 1-A WINSTON-SALEM, NC 27101 PHONE: (336) 723-1067 FAX: (336) 723-1069

9 STEP PROCESS: SUBDIVISION DEVELOPMENT

STEP 1: RESEARCH & ANALYSIS

Walk Site
Do "Site Checklist"
Eliminate 8 Potential Deal Killers
Prepare Site Analysis Plans

STEP 2: PRELIMINARY MASTERPLANS

Lot Layout Alternatives
Preliminary Utility Layouts

STEP 3: FINAL MASTERPLAN

STEP 4: MUNICIPALITY REVIEW

Submit Per City Regulations

STEP 5: FINAL ENGINEERING PLANS

Erosion Control Plans
Sewer & Water Plans & Profiles
Grading & Utility Plans
Revised Cost Estimate

STEP 6: AMENITY DESIGN & CONSTRUCTION DOCUMENTS

Prepare Entry Elements
Signage
Greens ---Trellises
Water Features

STEP 7: PERMITTING

STEP 8: BIDDING & NEGOTIATION

STEP 9: CONSTRUCTION OBSERVATION

STIMMEL ASSOCIATES, P.A.
LANDSCAPE ARCHITECTURE • LAND PLANNING • CIVIL ENGINEERING
305 WEST FOURTH STREET SUITE 1-A WINSTON-SALEM, NC 27101 PHONE: (336) 723-1067 FAX: (336) 723-1069

SUBDIVISION DEVELOPMENT PROCESS

8 POTENTIAL DEAL KILLERS:

1. **ROCK:** Do Preliminary Soil Borings

2. **WETLANDS:** Do Preliminary Wetlands Determination

   A. Federal: Army Corps of Engineers
   B. State: NCDEHNR

3. **WATERSHED:** Verify with Local Planning Staff (Drinking Supply Watershed))

   Limits Density & Impervious Surface

4. **ENVIRONMENTAL PHASE 1 REPORT:** Have Preliminary Testing Done

5. **ZONING:** Verify with Local Officials

6. **UTILITIES:** Are Sewer and Water Available? Gravity Flow?

7. **NCDOT:** Off-Site Road Improvements

8. **ASK THE RIGHT QUESTIONS**

STIMMEL ASSOCIATES, P.A.
LANDSCAPE ARCHITECTURE • LAND PLANNING • CIVIL ENGINEERING
305 WEST FOURTH STREET SUITE 1-A WINSTON-SALEM, NC 27101 PHONE: (336) 723-1067 FAX: (336) 723-1069

NEW TRENDS IN SUBDIVISION DEVELOPMENT

1. **SMALLER LOTS**

2. **HIGHER DENSITY**

3. **MIXED-USE DEVELOPMENTS**

4. **PLANNED DEVELOPMENTS WITH ALL TYPES OF HOUSING AND PRICE POINTS**

Condominiums	Small Lots	Patio Homes	Apartments
Townhomes	Cluster	Large Lots	Garage Apartments

5. **EMPHASIS ON "PEDESTRIAN FRIENDLY"**

Sidewalks	Hiking/ Biking Trails
Parks	Mass Transit

6. **RETURN OF THE "ALLEY"**

7. **MORE AMENITIES**

COMPARISON OF TRADITIONAL vs. CLUSTER VILLAGE PATTERN

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305 WEST FOURTH STREET, SUITE 1-A WINSTON-SALEM, NC 27101
PHONE (336) 723-1067 FAX (336) 723-1069

SITE DEVELOPMENT CHECKLIST

Project: _____
Region/County: _____ City/State: _____
Project Address: _____
_____
_____
Client: _____
Client Address: _____
_____
_____
Municipal Jurisdiction: _____
Prepared by: _____ Date: _____

SECTION I - GENERAL SITE INFORMATION

Site Dimensions: Front _____ Left _____ Right _____ Rear _____

1. Total Square Feet: _____ Acres: _____
2. Property: Lease __ Purchase __
3. Current Site Use: _____
4. Prior Site Uses: ____
    1. Gas Station: Yes __ No __ Undetermined __
    2. Landfill/Dump: Yes __ No __ Undetermined __
    3. Gas/Oil Storage: Yes __ No __ Undetermined __
    4. Home/Business: Yes __ No __ Undetermined __
    5. Industrial/Chem. Storage: Yes __ No __ Undetermined __
    6. Other Suspicious Uses: Yes __ No __ Undetermined __

    Explanation: _____
    _____

Prepared by: _____ Date: _____

Notes:

Site Data

1. Boundary Survey Available: Yes __ No __
2. Topographic Survey Available: Yes __ No __
3. Phase I Environmental Assessment Available: Yes __ No __

    _____
4. Soil Borings Available: Yes __ No __

    _____

5. Maps:
   1. Zoning Map: Available: Yes __ No __ Obtained: Yes __ No __
   2. Record Plat: Available: Yes __ No __ Obtained: Yes __ No __
   3. Folio Numbers and Surrounding Property Owners Names and Addresses: Available: Yes __ No __ Obtained: Yes __ No __
   4. Aerial: Available: Yes __ No __ Obtained: Yes __ No __
   5. USGS: Available: Yes __ No __ Obtained: Yes __ No __
   6. County Topography: Available: Yes __ No __ Obtained: Yes __ No __
   7. SCS Soils Survey: Available: Yes __ No __ Obtained: Yes __ No __
   8. FEMA/FIRM: Available: Yes __ No __ Obtained: Yes __ No __
   9. Wetlands: Available: Yes __ No __ Obtained: Yes __ No __
   10. Others: _____

Prepared by: _____ Date: _____

Notes:

SECTION II - ZONING

1. Present Zoning Classification: _____
2. Rezoning Required: Yes __ No __
3. Foreseeable Variances Required: Yes __ No __
4. Replat/Subdivision Required: Yes __ No __ Lot Tie Requirements: _____
5. Annexation Required: Yes __ No __ If yes, explain: _____
6. Special Use Permit Required: Yes __ No __ If yes, explain: _____
7. Historic District Limitations: Yes __ No __ If yes, explain: _____
8. Special Architectural Limitation: Yes __ No __ If yes, explain: _____
9. Is there a present of purposed Utilities Moratorium: Yes __ No __ If yes, explain: _____
10. Traffic study required? Yes__ No__ If yes, explain: _____
11. Describe all reviews, hearings and variances required and their respective dates: _____

Notes:

Setbacks/Yards

1. Building Setbacks Required: Front _____ Right _____ Left _____ Rear _____
2. Maximum Building Height: _____
3. Maximum Building Area Required: Yes No If yes, what Percentage\Square Footage:
4. Maximum Impervious Area Required: Yes No If yes, what Percentage:
5. Streetyard Required: Yes No If yes, what Size: _____
6. Bufferyard Required: Yes __ No If yes, what Size: Front: Sideyards: Rearyard:
7. Bufferyards Measured to Curb: Front Back

Notes:

Parking

1. Parking Requirements: _____
2. Stall Size: _____ Angle: _____
3. Stall Measured to Curb: Front __ Back __
4. Is consideration given for Car Overhang at Curb Line: Yes __ No __
5. Handicap Spaces Requirements: Size: _____ Quantity: _____
6. Unloading Space Required: Yes __ No __ If yes, what Size: _____
7. Drive up stacking space required: Yes__ No __ N/A __ If yes, how long: _____
8. Is a Bypass Lane Allowed in the Front of the Building: Yes __ No __ N/A __ What is min. width: _____
9. Recommended Drive to Alley: Yes __ No __ N/A __

Notes:

Sanitation

1. Carting Company: _____
   Phone: _____
   Mailing Address: _____
   _____
   _____
   _____
2. Dumpster Pad Required: Yes __ No __ If yes, Size: _____ Type: _____
3. Dumpster Screen Walls Required: Yes __ No __ If yes, Height: _____ Type: _____

Notes:

Signage

1. Road Sign Permitted: Yes __ No __ Maximum Size & Height: __
2. Setback from Property Line: Front _____ Sides _____ Rear _____
3. Roof/building Sign Permitted: Yes __ No __ Number/Type: _____
4. Standard Entrances/Exit Signs Permitted: Yes __ No __ Number/Type: __
5. Is a Separate Sign Permit Required:: Yes __ No __
6. Can Sign Permit be Pulled Prior to Building Permit: Yes __ No __
7. Is a High-rise Interstate Sign Allowed: Yes__ No __ N/A __
8. Per Client, is High-rise Sign a contingency of the Contract: Yes __ No __ N/A __
9. Lighted Roof Beams Permitted: Yes No N/A
10. Flag Allowed: Yes __ No __
11. Flag Poles Permitted: Yes __ No __ Max Pole Height: _____ Max Flag Size: _____
12. Is Signage available on Development Sign: Yes __ No __ N/A __
13. Are there Menu Board Restrictions: Yes __ No __ N/A __
14. How is Total Signage Calculated: _____

Notes:

Landscaping

1. Is a Landscape Plan Required: Yes __ No __
2. Streetyard Landscaping Required: Yes __ No __ If yes, what Type\Amount: _____
3. Bufferyard Landscaping Required: Yes __ No __ If yes, what Type\Amount: _____
4. Parking Area Landscaping Required: Yes __ No __ If yes, what Type\Amount: _____
5. Other Special landscaping required: Yes __ No __ If yes, what Type\Amount: _____

Notes:

Environmental

1. Any Wetlands On-Site: Yes __ No ___
2. Is Site in a Flood Plain: Yes __ No __
3. Is this Property in a Designated Watershed Protection Area: Yes __ No __
   If yes, what Class: _____
   What Are Restrictions: _____

Notes:

Permits

1. Required Permits:
   1. Demolition: Yes __ No __ N/A __
   2. Grading/Drainage: Yes __ No __ N/A __
   3. Building: Yes __ No __ N/A __
   4. Signage: Yes __ No __ N/A __
   5. Off-Site: Yes __ No __ N/A __
   6. Conditional Use: Yes __ No __ N/A __
   7. Driveway: Yes __ No __ N/A __
   8. Median Cut: Yes __ No __ N/A __
   9. Drive-thru: Yes __ No __ N/A __
   10. Watershed: Yes ___No___ N/A___
2. How Long is the Permit Process: _____

Notes:

SECTION II. - ZONING

Verified with: _____ Date/Time: _____

Phone: _____

Mailing Address: _____

SECTION III - BUILDING/ENGINEERING

1. Building Code in Effect: _____
2. Special Code Requirements: _____
   Restrooms __ Non Combustible Material Seismic Wind
3. Approximate Cost of Building Permit:
   Payable to: _____

4. Should Site Plan Be Stamped and Sealed by a Professional Engineer: Yes __ No __
5. Is an Energy Study Required for Heating, Air Conditioning, Lighting: Yes __ No __
6. Number of Sets of Plans for Permits: _____

Notes:

SECTION III- BUILDING/ENGINEERING
Verified with: _____ Date/Time: _____
Phone: _____
Mailing Address: _____
_____
_____
_____

SECTION IV - FIRE CODE INFORMATION

1. Is Site Located in a Fire Zone: Yes __ No __ If yes, Explain: _____
   _____
2. Sprinklers Required: Yes __ No __ If yes, Locations: _____
   Kitchen __ Basement __ Dining __ Other: _____
3. Separate Fire Service Line Required: Yes__ No__ If yes, what Size: _____
4. Any Special Fire Department Requirements Necessary in Addition to Standard Plans:
   1. Fire Stops Is Attic: _____
   2. Fire-Rated Walls(interior or Exterior): _____
   3. Smoke And/Or Fire Alarms: _____
   4. Fire Lanes in Parking Lot: _____
   5. Other: _____
5. Is Emergency Lighting Package Required: Yes __ No __

Notes:

SECTION IV - FIRE CODE INFORMATION
Verified with: _____ Date/Time: _____
Phone: _____
Mailing Address: _____
_____
_____
_____

SECTION V - STREET AND HIGHWAY DATA

1. Jurisdiction: City _____ County _____ State _____
2. Future Highway Changes Anticipated: Yes __ No __ If yes, when: _____
   Location: _____
3. Driveway Permit Required: Yes __ No __
4. Number of Curb Cuts Permitted: Front _____ Left Side _____ Right Side _____ Rear _____
5. Size of Primary Curb Cuts: Max. _____ Min. _____ Radius: _____
6. How Close to Property Line Is Curb Cut Permitted: _____ How Close to Corner: _____
7. Deceleration Lane Required: Yes __ No __ If yes, Width: _____ Length: _____
8. Acceleration Lane Required: Yes __ No __ If yes, Width: _____ Length: _____
9. Concrete Approaches Required: Yes __ No __ If yes, Thickness: _____ Reinforced: _____
10. Exterior Curbs and Gutters Required: Yes __ No __ If yes, Type & Size: _____
11. Sidewalks Required: Yes __ No __ If yes, Type & Size: _____
12. Can Median Be Cut: Yes __ No __ N/A __ Length _____ At Who's Expense: _____
13. Median Cut Permit Required: Yes __ No __ N/A __
14. Drive-thru Permit Required: Yes __ No __ N/A __
15. Culverts and Headwalls Required: Yes __ No __ If yes, Type & Size: _____
16. Are Traffic Directional Signals Required for Proper Entrance and Egress: Yes __ No __
17. Traffic Mitigation/Impact Fees Required: Yes __ No __ If yes, How Are They Calculated: _____
    _____

Notes:

SECTION V - STREET AND HIGHWAY DATA
Verified with: _____ Date/Time: _____
Phone: _____
Mailing Address: _____

SECTION VI - STORM SEWER

1. Is Storm Sewer Available: Yes __ No __ If yes, Location of Storm Sewer: _____
   _____
   Size of Line: _____ Depth __
2. Nearest Manhole Location: Invert Elev. Rim Elev.
3. Is the Size Line Adequate: Yes __ No __
4. Is Storm Sewer Tap Permitted: Yes__ No__ N/A__ If yes, Tap Fee:
   Tap to Be Made by City __ Local Plumber __
5. Is Surface Drainage to Street Allowed: Yes __ No __
6. Is Engineering Study for Storm Water (Retention or Runoff) Required: Yes __ No __
7. Will a Retention/Detention System Be Required: Yes __ No __
8. Is an Engineer's Special Plan Required for Drainage: Yes __ No __
9. Is this Property in a Designated Watershed Protection Area: Yes __ No __
   If yes, what Class: _____
   What Are Restrictions: _____
   _____

Notes:

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SECTION VI - STORM SEWER

Verified with: _____ Date/Time: _____

Phone: _____

Mailing Address: _____

_____

_____

_____

SECTION VII - SANITARY SEWER

1. Is Sanitary Sewer Available: Yes __ No __ If yes, Location of Sanitary Sewer: _____

   _____

   Size of Line: _____ Depth __ Gravity __ Forced __
2. Type of Sewer: Combined__Sanitary__
3. Is the Size Line Adequate: Yes __ No __
4. Nearest Manhole Location: _____ Invert Elev. _____ Rim Elev. _____
5. Is Sanitary Sewer Tap Permitted: Yes__ No__ N/A__ If yes, Tap Fee:_____

   Tap to Be Made by City __ Local Plumber __
6. Minimum Tap Size Allowed: _____
7. Are Fees Based on Water Usage: Yes __ No __
8. Any Special Assessments: Yes __ No __ If yes, Explain: _____
9. Grease Trap Required: Yes __ No __ If yes: Inside __ Outside __

   If Outside, Number of Gallons: _____
10. If Sanitary Sewer Is Not Available, Can We Use a Septic System: Yes __ No __

    Required System/Tank Capacity: _____

    Required Leach Field Area: _____

    Field Location Restrictions: _____

    Final Effluent Treatment/Disposal Required: Yes __ No __

Notes:

SECTION VII - SANITARY SEWER

Verified with: _____ Date/Time: _____

Phone: _____

Mailing Address: _____

_____

_____

_____

SECTION VIII– WATER

1. Is Water Available: Yes __ No __ If yes, Location of Water Line: _____

   _____

   Size of Line: _____ Normal Static Pressure: _____
2. Is the Size Line Adequate: Yes __ No __
3. Is Water Line Tap Permitted: Yes __ No __ N/A __ If yes, Tap Fee: ____

   Meter Fee (2"): _____ (1 1/2"): _____

   Tap to Be Made by Water Company __ Local Plumber __
4. Minimum Tap Size Allowed: _____

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5. Is There a Chemical Makeup Report or Analysis Available: Yes ___ No __
6. If Water Is Not Available Is Well Permitted: Yes ___ No ___ N/A ___
7. If Applicable Minimum Distance-Well to Septic Fields: _
8. Can Exterior Host Bibs, Landscape Sprinklers, or Water Supplies for Coffee, Ice, Soft Drinks and Bun Steamers Be on a Separate Meter: Yes ___ No ___
   Who Installs and at What Cost: _____
9. Is a Back Flow Preventor Valve Required: Yes ___ No __
10. Is Water Quality Control Required: Yes ___ No __

Notes:

SECTION XIII - WATER
Verified with: _____ Date/Time: _____
Phone: _____
Mailing Address: _____
_____
_____
_____

SECTION IX – ELECTRIC

1. Power Company: _____
2. Location of Electric Line:_____Overhead___Underground ___
3. Voltage(120/208):_____Phase:_____ Wire: _____
4. Is Underground Service Required: Yes ___ No __
   If Yes, Will Power Company Bring Conduit and Wire to Transformer And/Or Building: Yes___ No___ Cost L.F. _ _____
   Transformer Location: Pad Mounted _____ Pole Mounted _____
5. Utility Pole Relocation Required: Yes ___ No __
   If Yes, Will Power Company Relocate Existing Poles: Yes ___ No ___ Cost: _____
6. If the Electrical Lines Are to Be Added or Relocated, Is an Easement Required: Yes ___ No __
7. What Plans Are Needed by Electric Company: _____
8. Do Power Cutbacks Occur During Certain Periods of the Year: Yes ___ No __
9. Are There Any Cash Incentives Offered for Power Efficiency Units or Energy Saving Programs: Yes ___ No ___ If So, Explain: _____

Notes:

SECTION IX - ELECTRIC
Verified with: _____ Date/Time: _____
Phone: _____
Mailing Address: _____
_____
_____
_____

SECTION X – TELEPHONE

1. Telephone Company: _____
2. Is Underground Service Required: Yes ___ No ___ If yes, what Size: _____
3. If Underground Service Will Phone Company Install Conduit and Wire: Yes ___ No ___

Notes:

SECTION X - TELEPHONE
Verified with: _____ Date/Time: _____
Phone: _____
Mailing Address: _____
_____
_____
_____

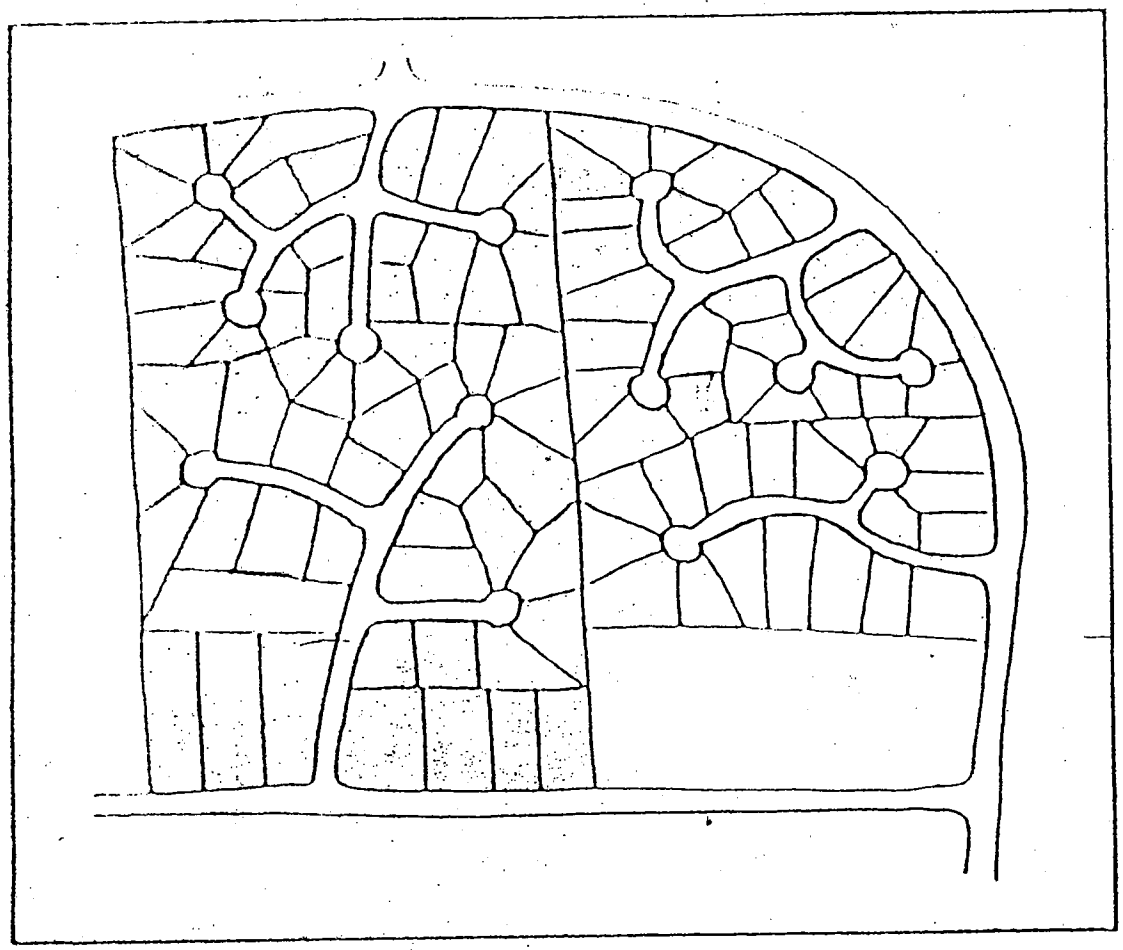
SECTION XI – GAS

1. Gas Company: _____
2. Natural Gas Available: Yes____No____Location of Gas Line:_____
   _____
3. Will Gas Company Bring Line to Building: Yes ___ No ___ Cost: _____
4. Can Gas Company Provide 1.5 Million BTUH at 6" to 10.5" Water Column (Building Side of Meter): Yes ___ No ___Approximate Additional Cost: _____

Notes:

SECTION XI - GAS
Verified with: _____ Date/Time: _____
Phone: _____
Mailing Address: _____
_____
_____
_____

CONVENTIONAL PATTERN:



Advantages:

- Residences are located away from higher intensity uses and work locations
- Privacy - individuals own their own open space
- Opportunity for distinctive homes
- Market predictability

Disadvantages:

- Requires reliance on individual automobiles
- Inefficient use of land
- Few opportunities for preservation of environmentally sensitive land
- Delivery of services is costly

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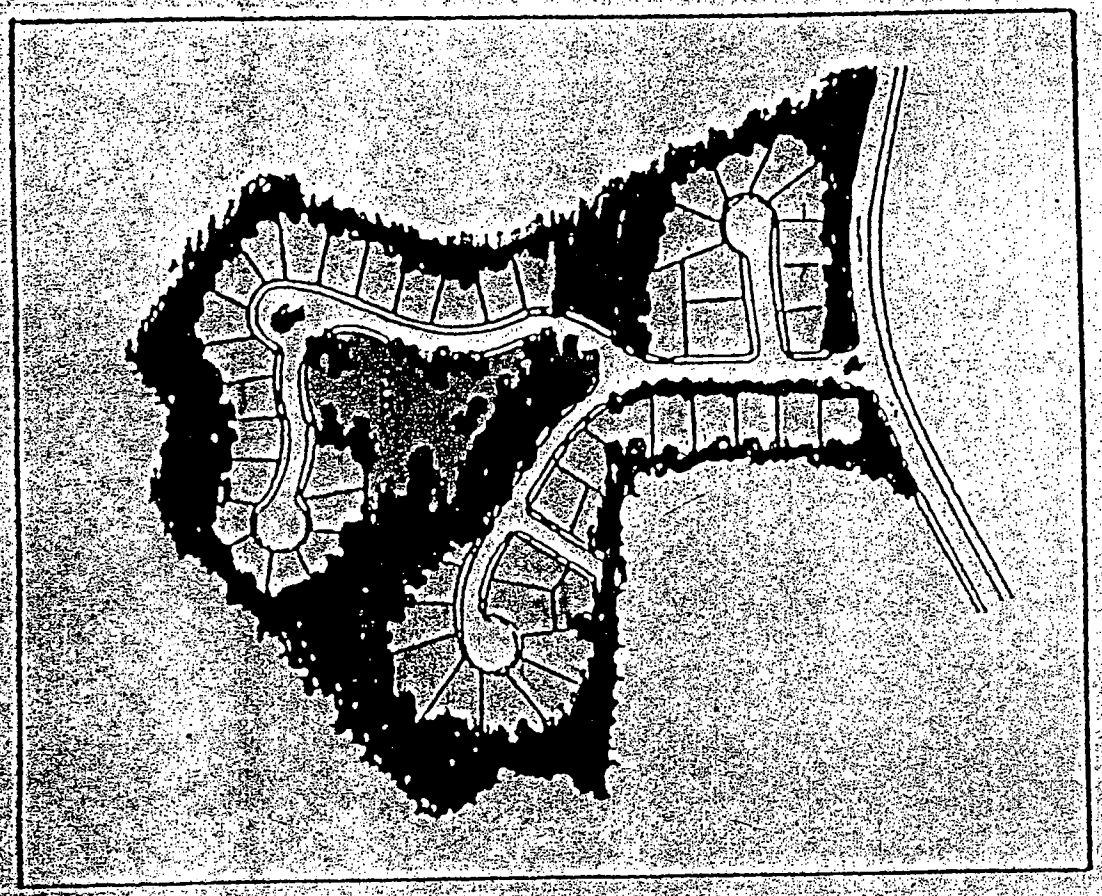
CLUSTER PATTERN



Advantages:

- Some opportunities for alternatives to the private automobile
- Opportunity to permanently preserve sensitive land
- Delivery of services is more economical
- Individuals benefit from common open space

Disadvantages:

- Lower levels of individual privacy
- Lower levels of market predictability
- Most trips are still made by automobile

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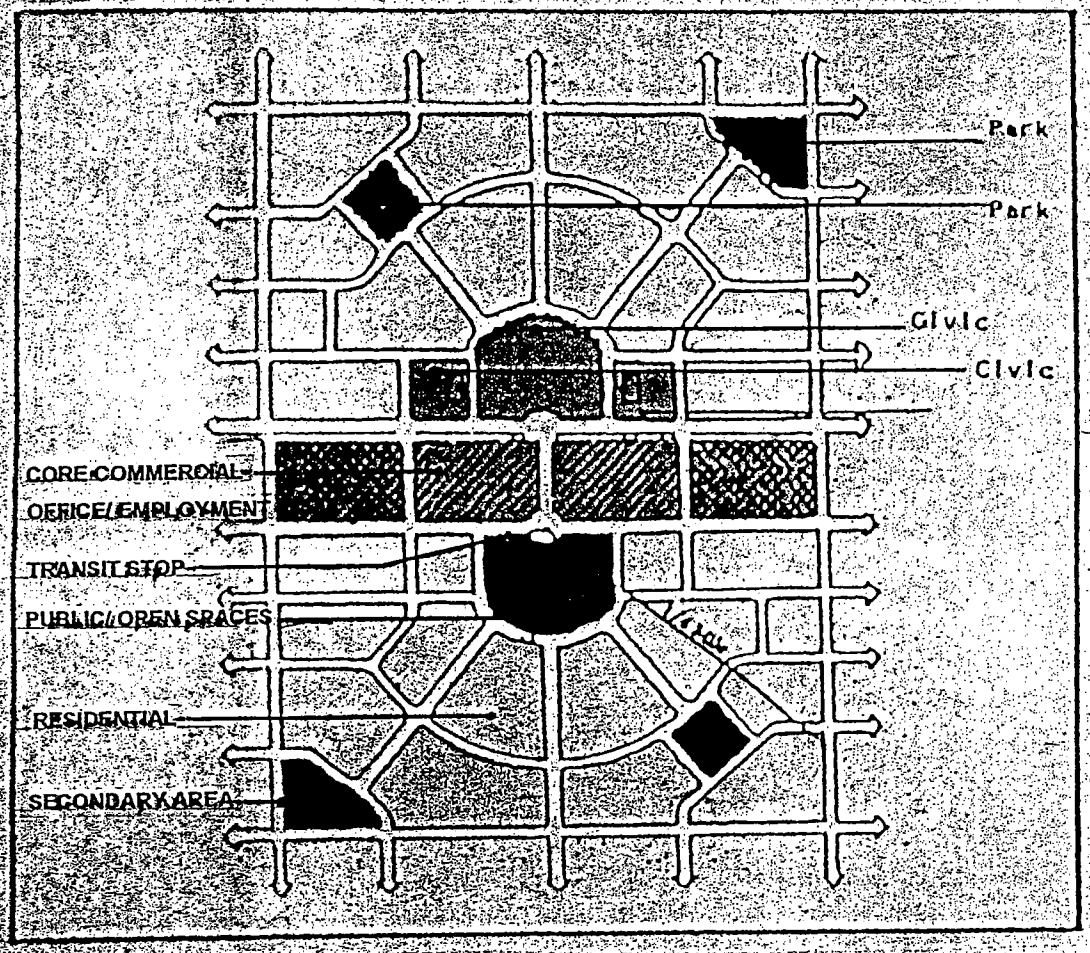
VILLAGE PATTERN



Advantages:

- Various housing types offered
- Opportunity for mobility without an automobile
- Amenities and services are close by
- Opportunities for community interaction
- Public services provided more efficiently
- Efficient use of land
- Opportunity to preserve sensitive land

Disadvantages:

- Must be developed as a complete package of residential, commercial and office uses
- Needs development organization with high level of skill in village developement
- Requires specific Town guidelines

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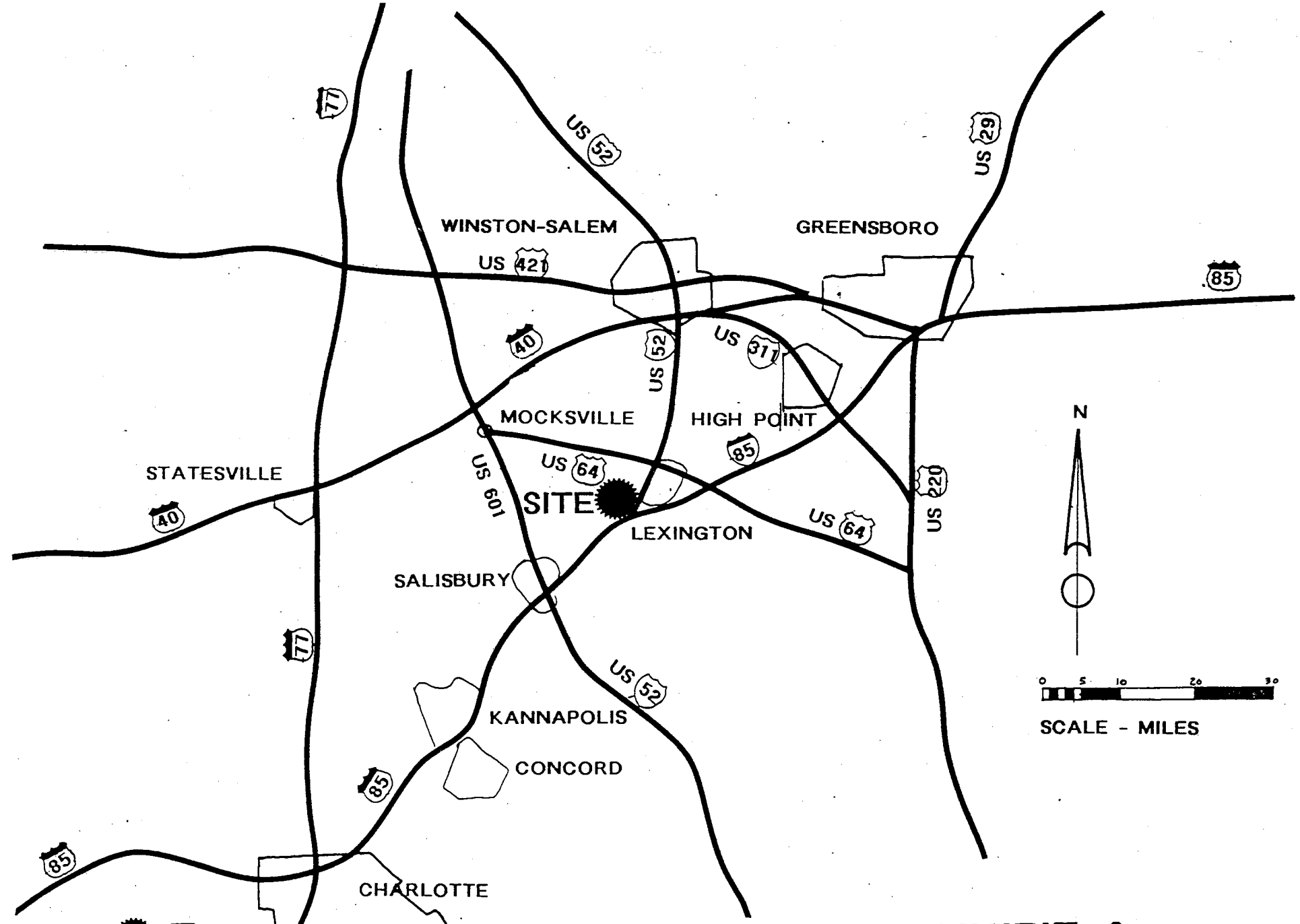
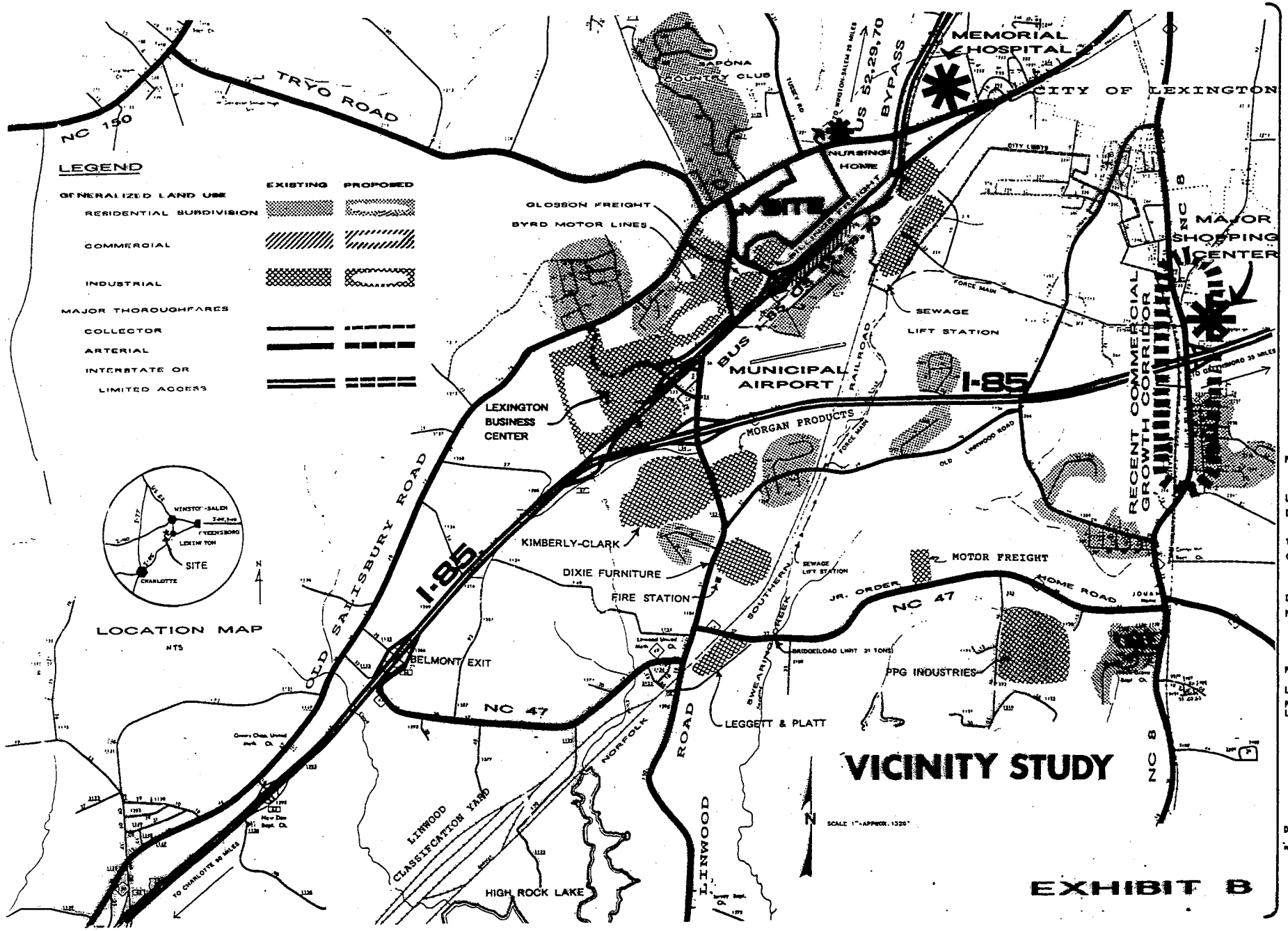


EXHIBIT A

LOCATION MAP

WEYKER & ASSOCIATES
Community Planning/Landscape Architecture



Design
Planning
Landscape
Architecture

WEYKER & ASSOCIATES
2966 - D St. Marks Road
Winston-Salem, N.C. 27103
Telephone 919/768-5831
Fax 919/768-7597

SEAL

PROJECT NO. 918

LAND USE AND DEVELOPMENT STUDY

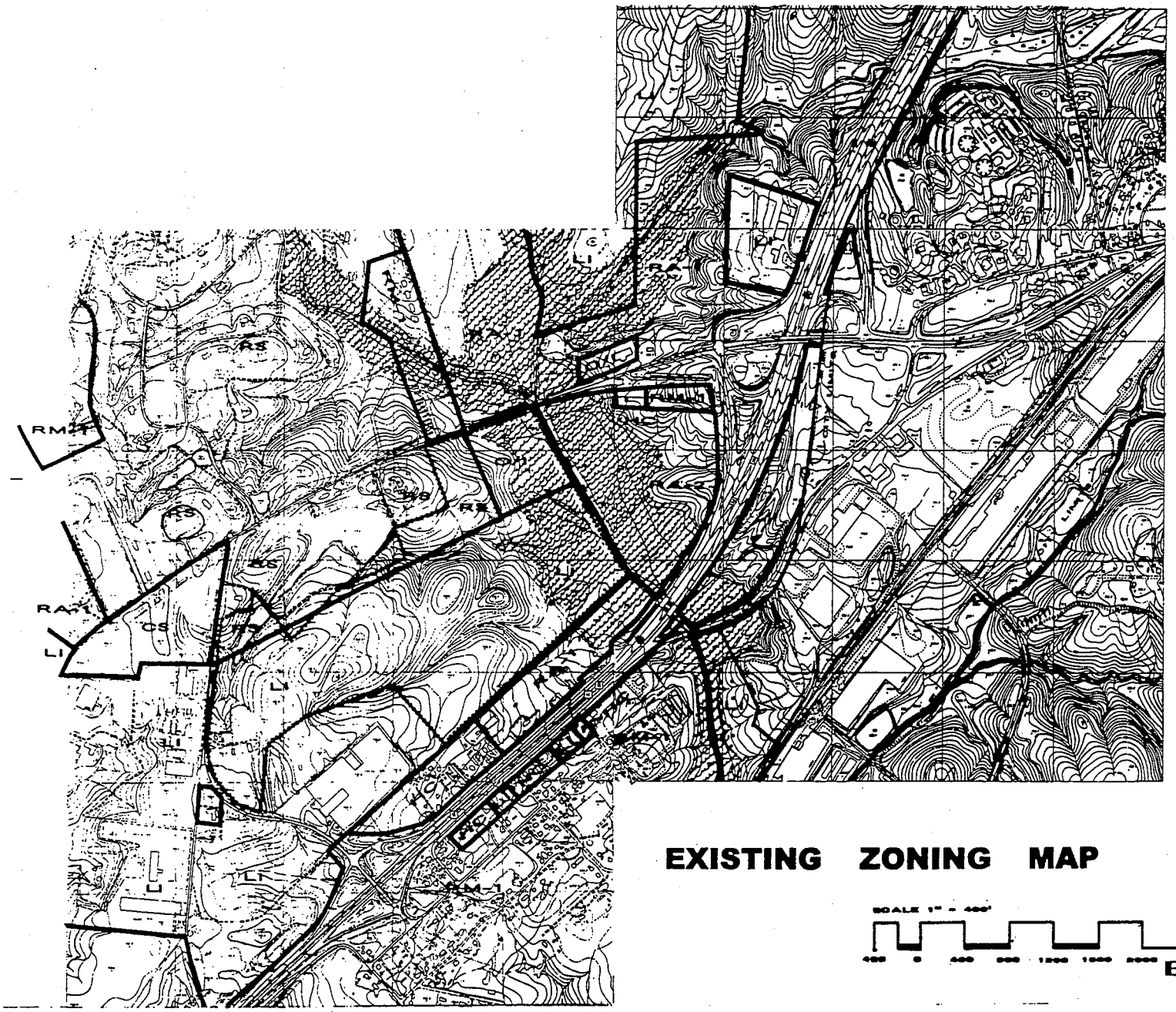
140.37 ACRE TRACT
OLD SALISBURY RD

DAVIDSON COUNTY
NORTH CAROLINA

PREPARED FOR
LEXPROPERTIES, INC.
P. O. BOX 1817
LEXINGTON, NC 27293-1817

DATE:
REVISIONS

TRIM LINE 7



DAVIDSON COUNTY
ZONE DISTRICTS

RURAL AGRICULTURAL	RA-1 & RA-2
LOW INTENSITY RESIDENTIAL	RS
MEDIUM DENSITY RESIDENTIAL	RM-1
COMMUNITY SHOPPING	CS
OFFICE AND INSTITUTIONAL	O/I
HIGHWAY COMMERCIAL	HC
LIMITED INDUSTRIAL	LI

100 YEAR FLOOD ZONE

EXISTING ZONING MAP

SCALE 1" = 400'

NORTH

EXHIBIT C

Design
Planning
Landscape
Architecture

WEYKER & ASSOCIATES
2966 - B St. Marks Road
Winston-Salem, N.C. 27103

Telephone 910/768-5831
Fax 910/768-7597

PROJECT NO. 918

LAND USE AND DEVELOPMENT STUDY

140.37 ACRE TRACT
OLD SALISBURY RD

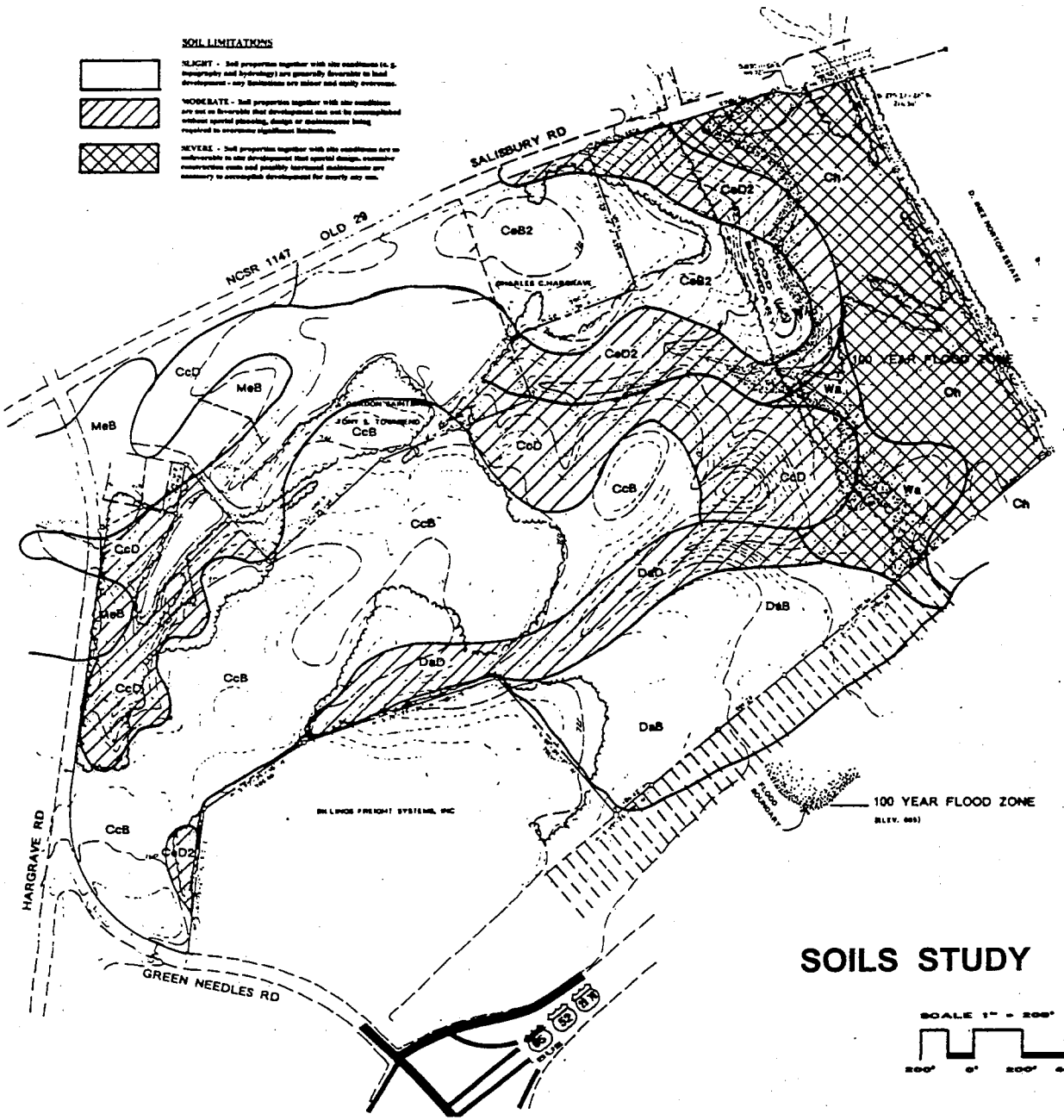
DAVIDSON COUNTY
NORTH CAROLINA

PREPARED FOR
LEXPROPERTIES, INC.
P. O. BOX 1817
LEXINGTON, NC 27293-1817

DATE:

REVISIONS

TRIM LINE 6



LEVEL OF DEVELOPMENT LIMITATION

NONTECHNICAL SOIL DESCRIPTIONS

CcB - CECIL SANDY LOAM - 2% TO 8% SLOPES

This well drained soil is on smooth ridges. Permeability is moderate. The shrink - swell potential is low. The depth to bedrock is more than 6 feet. The soil has no major limitations affecting building site development or nonfarmed uses. Removal of plant cover causes moderate hazard for erosion unless erosion control measures are applied.

CeB2 - CECIL CLAY LOAM - 2% TO 8% SLOPES

This well drained soil is on ridges. Permeability is moderate and shrink - swell potential is low. The depth to bedrock is more than 6 feet. The soil has no major limitations affecting building site development or nonfarmed uses. Removal of plant cover causes cover hazard of erosion unless erosion control measures are applied.

DaB - DAVIDSON LOAM - 2% TO 8% SLOPES

This well drained soil is on broad ridges. Permeability is moderate. The shrink - swell potential is low and the depth to bedrock is more than 6 feet. The soil has no major limitations affecting building site development. However, the clayey clay subsoil. The moderate permeability and the slope are limitations that affect some uses. Removing plant cover causes a moderate erosion hazard unless erosion control measures are applied.

CcD - CECIL SANDY LOAM - 8% TO 15% SLOPES

This well drained soil is on the side slopes, or uplands. Permeability is moderate and shrink - swell potential is low. The depth to bedrock is more than 6 feet. The slope is the main limitation affecting building site development. Removing plant cover causes very sever erosion unless erosion control measures are applied.

CeD2 - CECIL CLAY LOAM - 8% TO 15% SLOPES

This well drained soil is on the side slopes of uplands. Permeability is moderate. The shrink - swell potential is low and the depth to bedrock is more than 6 feet. The clayey subsoil, moderate permeability and the slope are the main limitations affecting building site development . Removing plant cover causes very sever erosion unless erosion control measures are applied.

DaD - DAVIDSON LOAM - 8% TO 15% SLOPES

This well drained soil is on side slopes in uplands. Permeability is moderate. The shrink - swell potential is low. The depth to bedrock is more than 6 feet. The soil is very sticky when wet. The slope, the sticky clay subsoil, and the moderate permeability are the main limitations to building site development and nonfarmed uses. Removing plant cover causes very sever erosion unless erosion control measures are applied.

MeB - BECKLENBURG LOAM - 2% TO 8% SLOPES

This well drained soil is on broad upland ridges. Permeability is slow. The shrink - swell potential is moderate. The depth to bedrock is more than 6 feet. The slow permeability and the moderate shrink - swell potential are the main limitations affecting building site development. Removing plant cover causes a moderate hazard of erosion unless erosion control measures are applied.

Wa - WAHEE LOAM - OCCASIONALY FLOODED

This nearly level, somewhat poorly drained soil is on low terraces. The seasonal high water table is 0.5 foot to 1.5 feet below the surface. Permeability is slow. The shrink - swell potential is moderate. The soil is generally unsuited to building site development uses because of the wetness and flooding.

Ch - CHEWACALA LOAM - FREQUENTLY FLOODED

This nearly level poorly drained soil is on first bottoms along streams and rivers. The seasonal high water table is 0.5 foot to 1.5 feet below the surface. Permeability is moderate. The shrink - swell potential is low. The wetness and flooding causes the soil to be generally unsuitable for building site development.

SOILS STUDY

SCALE 1" = 200'

NORTH

200' 0' 200' 400' 600' 800' 1000'

EXHIBIT D

Design
Planning
Landscape
Architecture

2966 D St. Marks Road
Winston Salem, N.C. 27105

Telephone 910 768 5811
Fax 910 768 7543

PROJECT NO. 918

LAND USE AND DEVELOPMENT STUDY

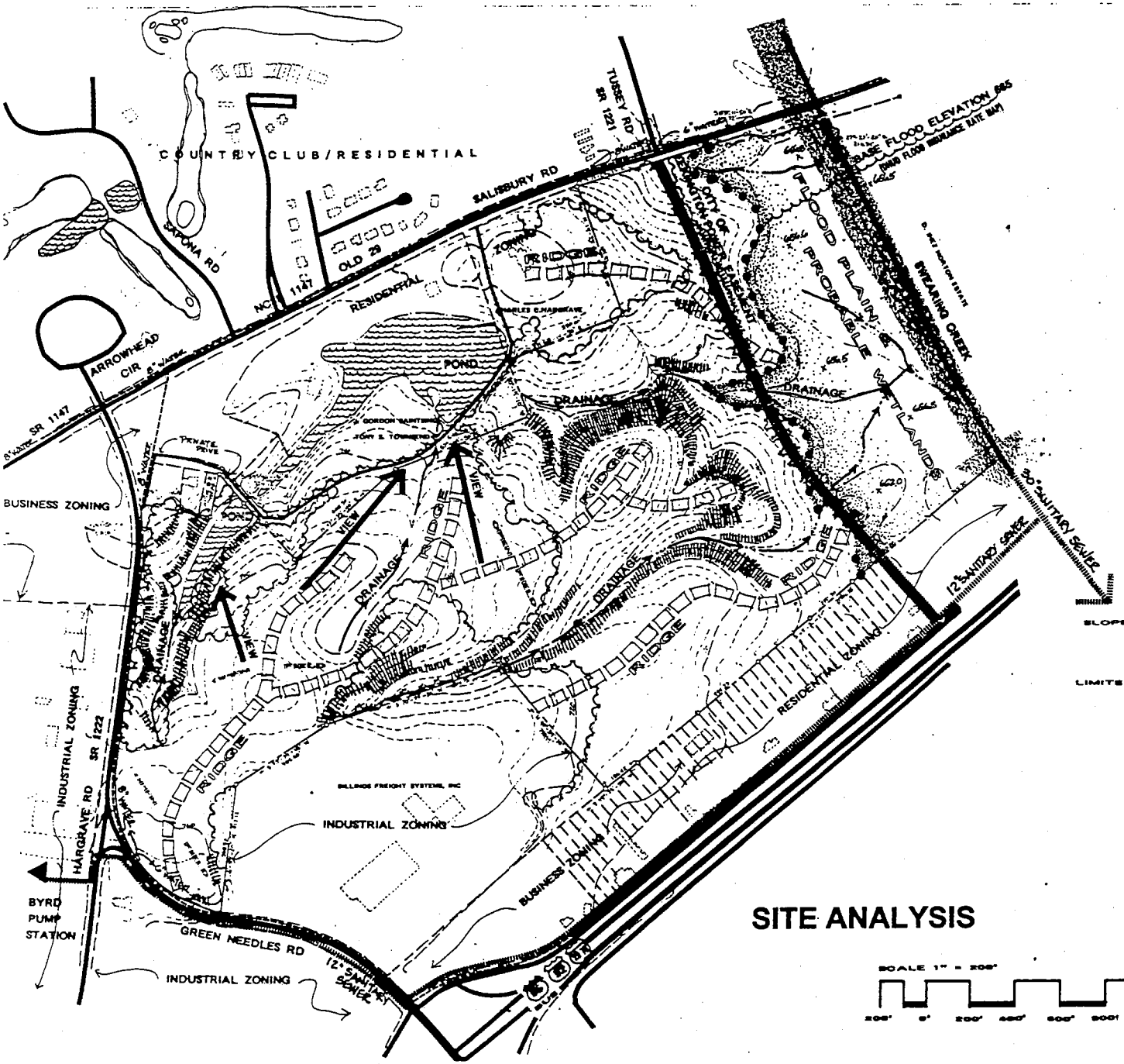
140.37 ACRE TRACT
OLD SALISBURY RD

DAVIDSON COUNTY
NORTH CAROLINA

PREPARED FOR

LEXPROPERTIES, INC.
P. O. BOX 1817
LEXINGTON, NC 27293-1817

DATE:



SITE ANALYSIS

SCALE 1" = 200'

NORTH

200' 0' 200' 400' 600' 800' 1000'

EXHIBIT E

POND

VIEW

RIDGE

TREE MASSES

MAJOR STREAM

SLOPES IN EXCESS OF 15%

LIMITS OF 100 YEAR FLOOD

DRAINAGE COURSE

POWER EASEMENT

WATER LINE

SANITARY SEWER

Design
Planning
Landscape
Architecture

2966 B St. Marks Road
Winston Salem, N.C. 27103

Telephone 919 768 1611
Fax 919/768 7597

PROJECT NO. 918

LAND USE AND DEVELOPMENT STUDY

140.37 ACRE TRACT
OLD SALISBURY RD

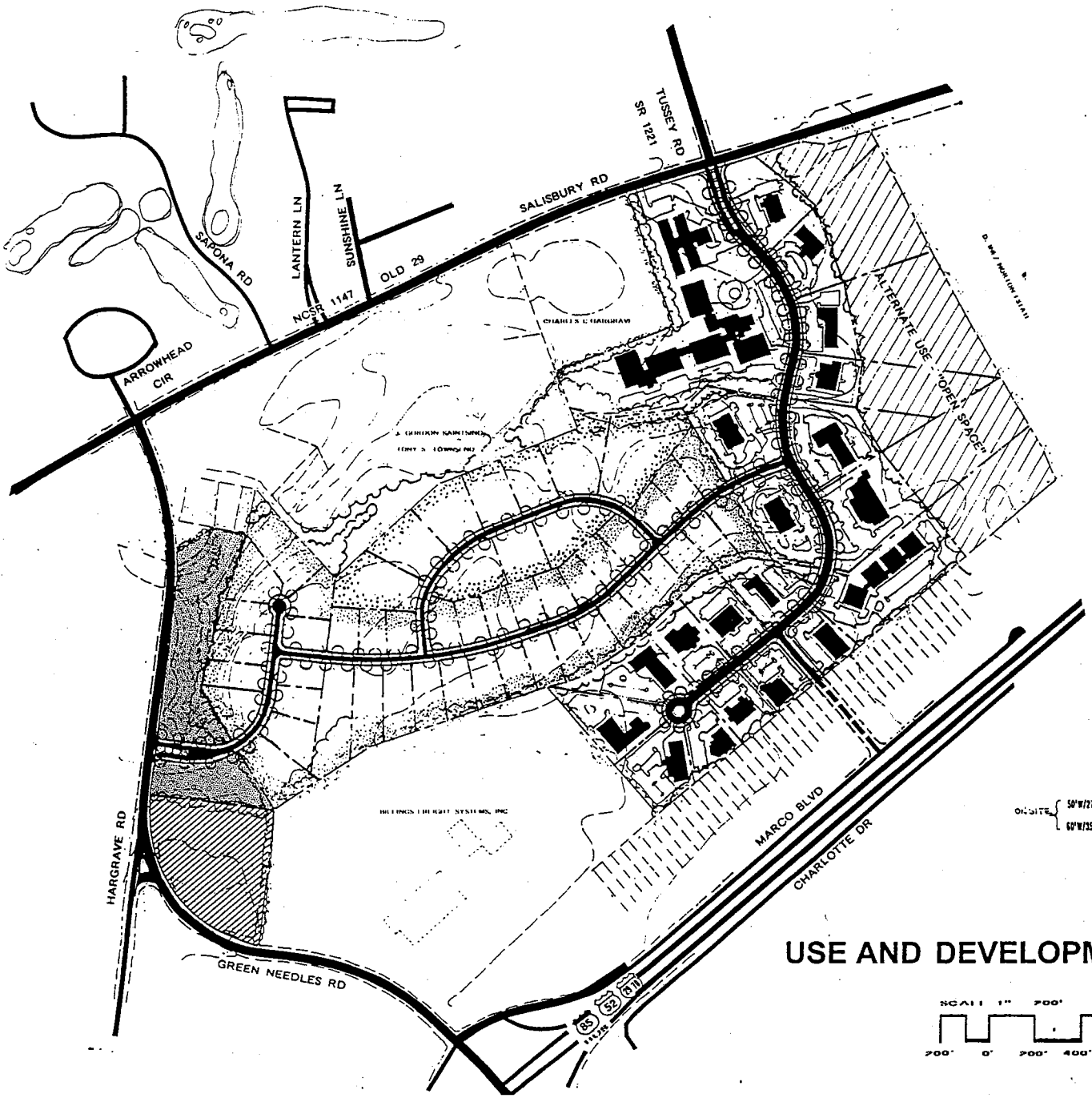
DAVIDSON COUNTY
NORTH CAROLINA

PREPARED FOR

LEXPROPERTIES, INC.
P. O. BOX 1017
LEXINGTON, NC 27293-1017

DATE:

REVISIONS



LEGEND

LAND USE CATEGORY		APPROX. ACRES	MIN. UNITS	OTHER
ONE FAMILY DWELLINGS				
	MIN. LOT SIZE 43,000 SQ FT	14.41	18	—
	MIN. LOT SIZE 25,000 SQ FT	31.28	42	—
	MULTI-FAMILY DWELLINGS	6.66	90	—
	NURSING HOME/ASSISTED LIVING	13.23	100/130	—
	OFFICES / OPEN SPACE (ALTERNATE USE)	(36.15) 57.16 21.0	—	19
	COMMECIAL	5.67	—	—
	EXISTING ROW	1.78	—	—
ON-SITE: 50'W/27'PVMT	PROPOSED ROW	10.18	—	—
60'W/35'PVMT				
	TOTAL	140.37	372	19

PRELIMINARY
USE AND DEVELOPMENT SKETCH PLAN

SCALE 1" = 700'

700' 0' 700' 400' 800' 900' 1000'

NORTH

EXHIBIT F

Design
Planning
Landscape
Architecture

2966 B St. Marks Rd
Winston Salem, N.C. 27

Telephone 910-768 56
Fax 910-768 7537

PROJECT NO. 918

LAND USE AND DEVELOPMENT STA

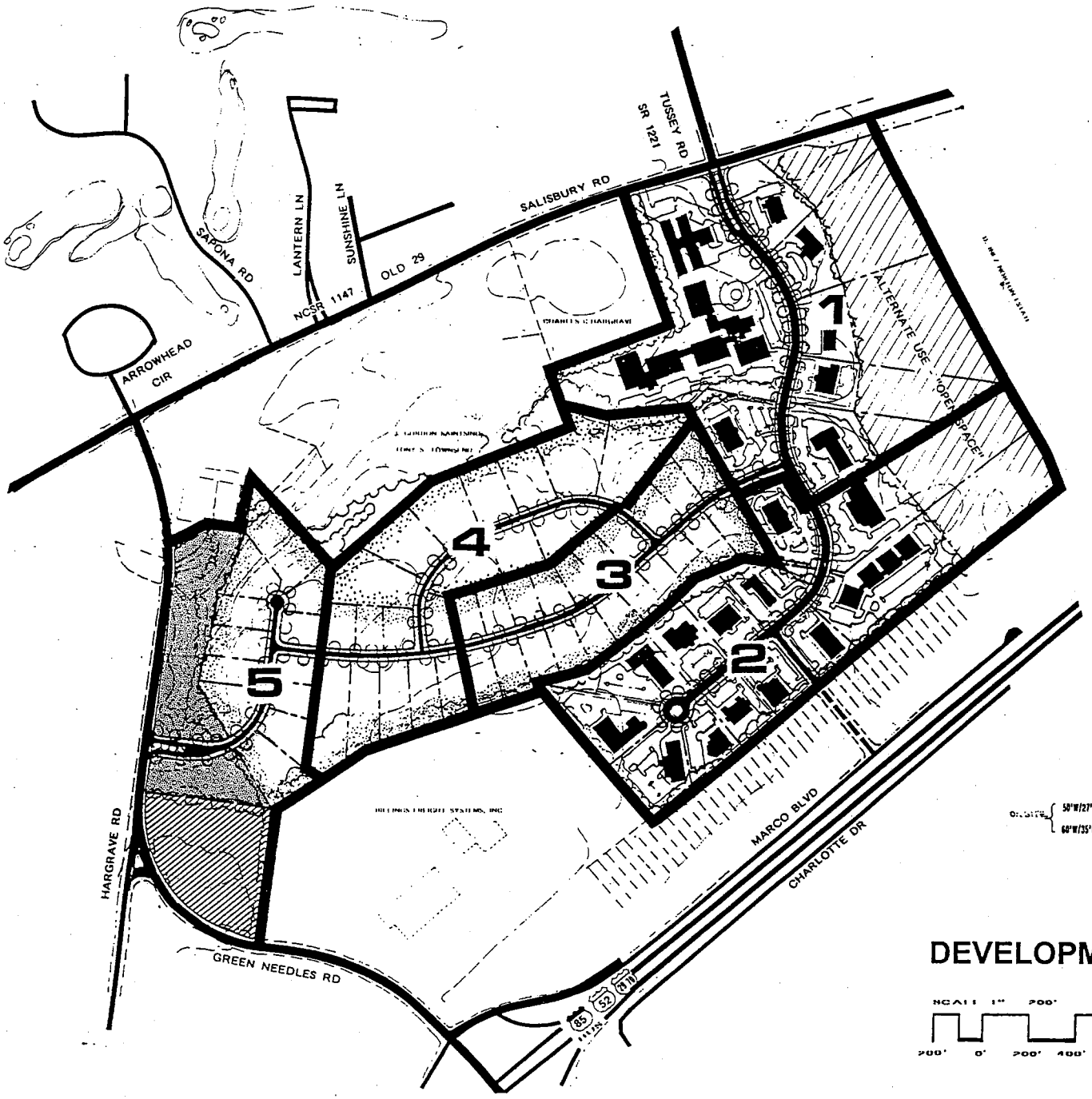
140.37 ACRE TRAC
OLD SALISBURY R

DAVIDSON COUNTY
NORTH CAROLINA

PREPARED FOR

LEXPROPERTIES, I
P. O. BOX 1817
LEXINGTON, NC 27293-1817

DATE:



5 PHASE DESIGNATION

LEGEND

LAND USE CATEGORY		APPROX. ACRES	MIN. UNITS	OFFICE
ONE FAMILY DWELLINGS				
	MIN. LOT SIZE 43,000 SQ FT	14.41	10	—
	MIN. LOT SIZE 25,000 SQ FT	31.28	42	—
	MULTI-FAMILY DWELLINGS	6.66	90	—
	NURSING HOME/ASSISTED LIVING	13.23	100/139	—
	OFFICES / OPEN SPACE (ALTERNATE USE)	(36.16) 57.16 21.0	—	19
	COMMECIAL	5.67	—	—
	EXISTING ROW	1.78	—	—
OFF-SITE: 50'W/27'PVMT; 60'W/35'PVMT	PROPOSED ROW	10.18	—	—
	TOTAL	140.37	372	19

DEVELOPMENT PHASES

SCALE 1" = 200'

200' 0' 200' 400' 600' 800' 1000'

NORTH

EXHIBIT G

De
Plan
Lands
Archi Lec

29ee E St., Wi
Winston Salem, N

Telephone 910 7
Fax 910 766 75

PROJECT NO. 918

LAND USE AND
DEVELOPMENT

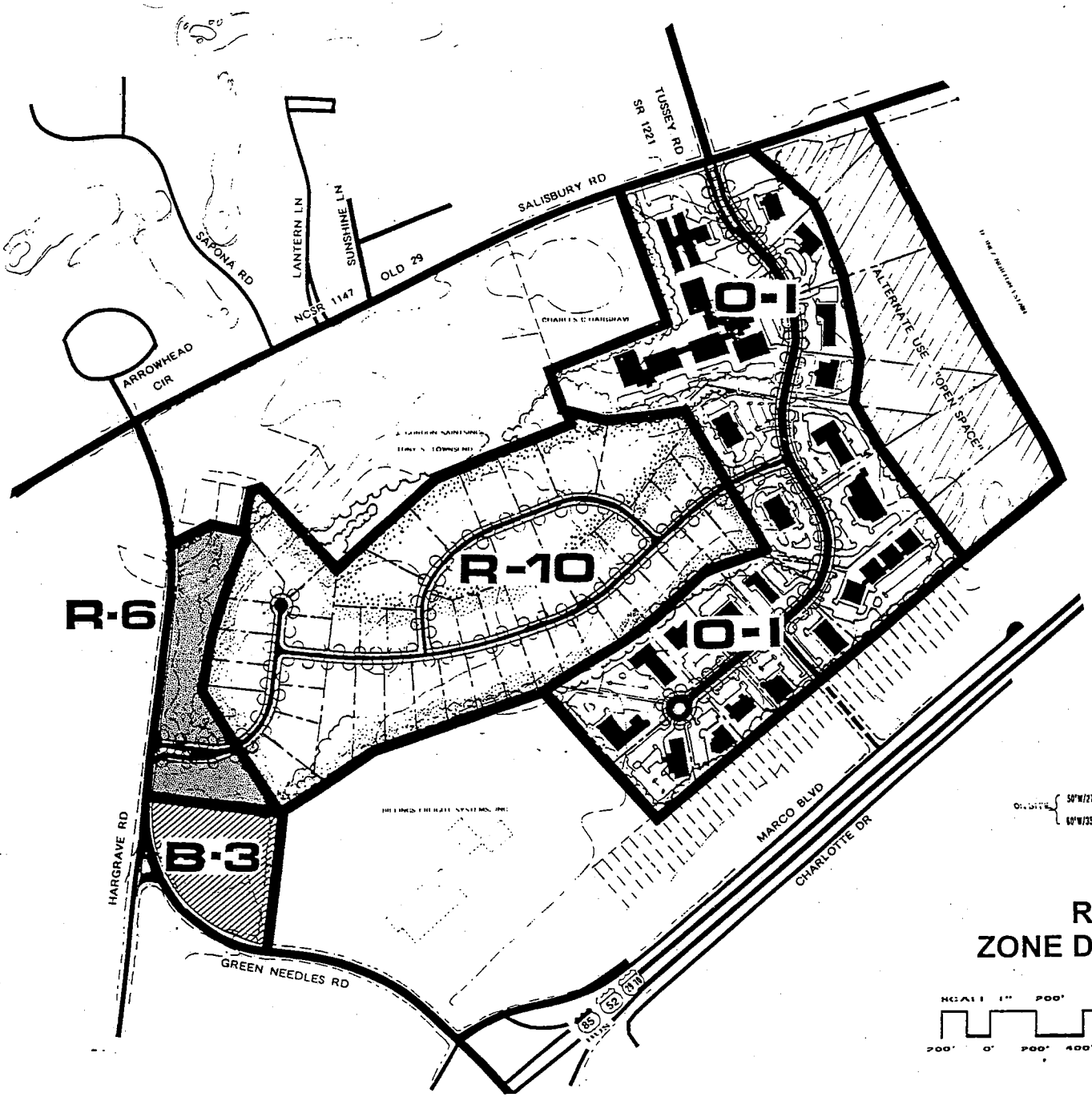
140.37 ACRE TR
OLD SALISBURY

DAVIDSON COU
NORTH CAROLI

PREPARED FOR

LEXPROPERTIES
P. O. BOX 1817
LEXINGTON, NC 27293-181

DATE:



ZONE DISTRICTS - CITY OF LEXINGTON

- **R-10** LOW DENSITY RESIDENTIAL
- **R-6** HIGH DENSITY RESIDENTIAL
- **I-O** OFFICE & INSTITUTIONAL
- **B-3** GENERAL BUSINESS

LEGEND

LAND USE CATEGORY	APPROX. ACRES	NO. OF UNITS	OFFICE SQ FT
ONE FAMILY DWELLINGS			
MIN. LOT SIZE 43,000 SQ FT	14.41	10	—
MIN. LOT SIZE 25,000 SQ FT	31.28	42	—
MULTI-FAMILY DWELLINGS	6.66	90	—
NURSING HOME/ASSISTED LIVING	13.23	100/130	—
OFFICES / OPEN SPACE (ALTERNATE USE)	36.16 / 57.16 / 21.0	—	19
COMMECIAL	5.67	—	—
EXISTING ROW	1.76	—	—
PROPOSED ROW (ON-SITE: 50'W/27'PVMT; 60'W/35'PVMT)	10.16	—	—
TOTAL	140.37	372	19

RECOMMENDED ZONE DISTRICTS MAP

SCALE 1" = 200'

200' 0' 200' 400' 600' 800' 1000'

NORTH

EXHIBIT H

DATE:

PROJECT NO. 918

LAND USE AND DEVELOPMENT ST

140.37 ACRE TRA
OLD SALISBURY F

DAVIDSON COUNT
NORTH CAROLINA

PREPARED FOR

LEXPROPERTIES,
P. O. BOX 1817
LEXINGTON, NC 27293-1817

SUMMARY OF SITE DEVELOPMENT COSTS BY PHASE

LAND USE AND DEVELOPMENT STUDY

HARGRAVE 140.37 ACRE TRACT - LEXINGTON, N C

TOTAL SITE AREA - 140.37 acres

IMPROVEMENT ITEM	PHASE I	PHASE II	PHASE III	PHASE IV	PHASE V	TOTAL
CLEARING & GRUBBING	$20,000.00	$20,000.00	$6,000.00	$4,000.00	$4,000.00	$54,000.00
GRADING	$88,000.00	$40,175.00	$0.00	$0.00	$0.00	$128,175.00
STREETS	$68,800.00	$63,120.00	$51,520.00	$66,560.00	$43,100.00	$293,100.00
SANITARY SEWER	$85,500.00	$62,850.00	$47,850.00	$78,150.00	$34,650.00	$309,000.00
WATER	$38,800.00	$40,450.00	$37,250.00	$53,550.00	$29,650.00	$199,700.00
ENTRANCE IMPROVEMENTS	$35,000.00	$0.00	$0.00	$0.00	$25,000.00	$60,000.00
ELECTRICAL (none if annexed)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
OLD 29 WIDENING	$30,000.00	$0.00	$0.00	$0.00	$0.00	$30,000.00
SOIL & ENVIRONMENTAL TESTING	$7,500.00	$2,500.00	$2,500.00	$2,500.00	$2,500.00	$17,500.00
SEEDING AND MULCHING	$2,500.00	$3,600.00	$1,000.00	$500.00	$1,500.00	$9,100.00
STORM DRAINAGE	$51,540.00	$38,460.00	$21,910.00	$47,100.00	$27,600.00	$186,610.00
EROSION CONTROL	$3,750.00	$3,750.00	$1,500.00	$1,500.00	$1,500.00	$12,000.00
SUBTOTAL	$431,390.00	$274,905.00	169,530.00	$253,860.00	$169,500.00	$1,299,185.00
CONTINGENCY - 15%	$64,708.50	$41,235.75	$25,429.50	$38,079.00	$25,425.00	$194,877.75
SUBTOTAL	$496,098.50	$316,140.75	$194,959.50	$291,939.00	$194,925.00	$1,494,062.75
PLANS&SPECS/SURVEYING - 15%	$74,414.78	$47,421.11	$29,243.93	$43,790.85	$29,238.75	$224,109.41
ADMINISTRATIVE/LEGAL - 5%	24804.925	15807.0375	9747.975	$ 14,596.95	9746.25	74703.1375
PLANS& ADMIN. COSTS ON STREET WORK BY CITY	$36,000.00	$32,340.00	$15,818.00	$20,427.00	$19,390.00	$123,975.00
TOTAL	$631,318.20	$411,708.90	$249,769.40	$370,753.80	$253,300.00	$1,916,850.30
SAY TOTAL	**$631,300.00**	**$411,700.00**	**$249,800.00**	**$370,800.00**	**$253,300.00**	**$1,916,900.00**

* CITY POLICY IS TO PAY FOR STREET PAVING IN DEVELOPMENTS WITHIN THE CITY, HOWEVER, TAKING ADVANTAGE OF THIS INCENTIVE CAN BE LIMITED DUE TO AVAILABILITY OF FUNDS AT THE TIME THE IMPROVEMENT IS NEEDED.

IF NOT FUNDED BY THE CITY ADD $352,110 TO THE TOTAL COST

DETAILED SITE DEVELOPMENT COSTS
LAND USE AND DEVELOPMENT STUDY
HARGRAVE 140.37 ACRE TRACT - LEXINGTON, N C

PHASE I - Total site area acres

IMPROVEMENT ITEM	UNITS	UNIT COST ($)	SUB-ITEM COST ($)	ITEM COST	REMARKS
CLEARING & GRUBBING	5ACS	4,000/AC	20,000.00	$ 20,000.00	ROW & FILL AREAS
GRADING				$ 88,000.00	
STRIPPINGS	3000CY	2.50/CY	7,500.00		
EARTHWORK	23,000CY	3.50/CY	80,500.00		
STREETS*				$ 68,800.00	
GRADING	1,900LF	12.00/LF	22,800.00		
8"ABC+2"HB+1.5"I-2	6,500SY	15.50/SY	*		35' BC-BCW/2.5'C&G
CURB & GUTTER	4,600LF	10.00/LF	46,000.00		
SANITARY SEWER				$ 85,500.00	
8" WITH MANHOLES	2,730LF	30.00/LF	81,900.00		
LATERAL SERVICES	8 EA	450/EA	3,600.00		
WATER				$ 38,800.00	
8" WITH HYDRANTS	1,700LF	20.00/LF	34,000.00		
6" WITH HYDRANTS	200LF	20.00/LF	1,200.00		
LATERAL SERVICES	8 EA	450/EA	3,600.00		
ENTRANCE IMPROVEMENTS	LS	LS	35,000.00	$ 35,000.00	SIGNAGE/PLANTING/ETC
ELECTRICAL	0	0	0.00	$ -	NONE IF ANNEXED
OLD 29 WIDENING	LS	LS	30,000.00	$ 30,000.00	
SOIL & ENVIRONMENTAL TESTING	LS	LS	7,500.00	$ 7,500.00	
SEEDING AND MULCHING	2.5ACS	1,000/AC	2,500.00	$ 2,500.00	
STORM DRAINAGE				$ 51,540.00	
15"RCP	140LF	18.00/LF	2,520.00		
18"RCP	80LF	24.00/LF	1,920.00		
24" RCP	120LF	30.00/LF	3,600.00		
48"RCP	300LF	65.00/LF	19,500.00		
CATCH BASINS	10 EA	1,500/EA	15,000.00		
HEADWALL	1 EA	5,000/EA	5,000.00		
ENERGY DISIPATORS	2 EA	2,000/EA	4,000.00		
EROSION CONTROL	5ACS	750.00/AC	3,750.00	$ 3,750.00	
SUBTOTAL				$ 431,390.00	
CONTINGENCY - 15%				$ 64,708.50	
SUBTOTAL				$ 496,098.50	
PLANS&SPECS/SURVEYING - 15%				$ 74,414.78	
ADMINISTRATIVE/LEGAL - 5%				$ 24,804.93	
PLANS & ADMIN. COSTS ON STREET WORK BY CITY				$ 36,000.00	
TOTAL				$ 631,318.20	
SAY TOTAL				**$631,300.00**	

* CITY POLICY IS TO PAY FOR STREET PAVING IN DEVELOPMENTS WITHIN THE CITY, HOWEVER, TAKING ADVANTAGE OF THIS INCENTIVE CAN BE LIMITED DUE TO AVAILABILITY OF FUNDS AT THE TIME THE IMPROVEMENT IS NEEDED.

IF NOT FUNDED BY THE CITY ADD $100,750 TO THE TOTAL COST.

W & A
Mar-98

DETAILED SITE DEVELOPMENT COSTS						
LAND USE AND DEVELOPMENT STUDY						
HARGRAVE 140.37 ACRE TRACT - LEXINGTON, N C						
PHASE II - Total site area	acres					
			SUB-			
		UNIT	ITEM	ITEM		
IMPROVEMENT ITEM	UNITS	COST ($)	COST ($)	COST	REMARKS	
CLEARING & GRUBBING	5acs	4,000/AC	20,000.00	$ 20,000.00	ROW & FILL AREAS	
GRADING				$ 40,175.00		
STRIPPINGS	2,070cy	2.50/CY	5,175.00			
EARTHWORK	10,000cy	3.50/CY	35,000.00			
STREETS*				$ 63,120.00		
GRADING	2,260LF	12.00/LF	27,120.00			
8"ABC+2"HB+1.5"I-2	5,160SY	15.50/SY	*		35' BC-BCW/2.5'C&G	
8"ABC+ 2"I-2	1080SY	11.50/SY	*		27' BC-BCW/2.5'C&G	
CURB & GUTTER	3,600LF	10.00/LF	36,000.00			
SANITARY SEWER				$ 62,850.00		
8" WITH MANHOLES	1,900LF	30.00/LF	57,000.00			
LATERAL SERVICES	13EA	450/EA	5,850.00			
WATER				$ 40,450.00		
8" WITH HYDRANTS	230LF	20.00/LF	4,600.00			
6" WITH HYDRANTS	1,500LF	20.00/LF	30,000.00			
LATERAL SERVICES	13EA	450/EA	5,850.00			
ELECTRICAL		0		$ -	NONE IF ANNEXED	
SOIL & ENVIRONMENTAL TESTING	LS	LS	2,500.00	$ 2,500.00		
SEEDING AND MULCHING	3.6ACS	1,000/AC	3,600.00	$ 3,600.00		
STORM DRAINAGE				$ 38,460.00		
15"RCP	770LF	18.00/LF	13,860.00			
24" RCP	120LF	30.00/LF	3,600.00			
CATCH BASINS	8EA	1,500/EA	12,000.00			
HEADWALL	1EA	5,000/EA	5,000.00			
ENERGY DISIPATORS	2EA	2,000/EA	4,000.00			
EROSION CONTROL	5ACS	750.00/AC	3,750.00	$ 3,750.00		
SUBTOTAL				$274,905.00		
CONTINGENCY - 15%				$ 41,235.75		
SUBTOTAL				$316,140.75		
PLANS&SPECS/SURVEYING - 15%				$ 47,421.11		
ADMINISTRATIVE/LEGAL - 5%				$ 15,807.04		
PLANS & ADMIN. COSTS ON STREET WORK BY CITY				$ 32,340.00		
TOTAL				$411,708.90		
SAY TOTAL				$411,700.00		
* CITY POLICY IS TO PAY FOR STREET PAVING IN DEVELOPMENTS WITHIN THE CITY,						
HOWEVER, TAKING ADVANTAGE OF THIS INCENTIVE CAN BE LIMITED DUE TO						
AVAILABILITY OF FUNDS AT THE TIME THE IMPROVEMENT IS NEEDED.						
IF NOT FUNDED BY THE CITY ADD $92,400 TO THE TOTAL COST						
						W & A
						Mar-98

DETAILED SITE DEVELOPMENT COSTS						
LAND USE AND DEVELOPMENT STUDY						
HARGRAVE 140.37 ACRE TRACT - LEXINGTON, N C						
PHASE III - Total site area	acres					
			SUB-			
		UNIT	ITEM	ITEM		
IMPROVEMENT ITEM	UNITS	COST ($)	COST ($)	COST	REMARKS	
CLEARING & GRUBBING	1.5acs	4,000/AC	6,000.00	$ 6,000.00	ROW AREA	
STREETS*				$ 51,520.00		
GRADING	1,610LF	12.00/LF	19,320.00			
6"ABC+2"I-2	3,930LF	11.50/SY	*		27'BC-BCW2.5'C&G	
CURB & GUTTER	3,220LF	10.00/LF	32,200.00			
SANITARY SEWER				$ 47,850.00		
8" WITH MANHOLES	1,280LF	30.00/LF	38,400.00			
LATERAL SERVICES	21EA	450/EA	9,450.00			
WATER				$ 37,250.00		
8" WITH HYDRANTS	1,390LF	20.00/LF	27,800.00			
LATERAL SERVICES	21EA	450/EA	9,450.00			
ELECTRICAL		0		$ -	NONE IF ANNEXED	
SOIL & ENVIRONMENTAL TESTING	LS	LS	2,500.00	$ 2,500.00		
SEEDING AND MULCHING	1AC	1,000/AC	1,000.00	$ 1,000.00		
STORM DRAINAGE				$ 21,910.00		
15"RCP	495LF	18.00/LF	8,910.00			
CATCH BASINS	6	1,500/EA	9,000.00			
ENERGY DISIPATORS	2EA	2,000/EA	4,000.00			
EROSION CONTROL	1	1,500/AC	1,500.00	$ 1,500.00		
SUBTOTAL				$169,530.00		
CONTINGENCY - 15%				$ 25,429.50		
SUBTOTAL				$194,959.50		
PLANS&SPECS/SURVEYING - 15%				$ 29,243.93		
ADMINISTRATIVE/LEGAL - 5%				$ 9,747.98		
PLANS & ADMIN. COSTS ON STREET WORK BY CITY				$15,818.00		
TOTAL				$249,769.40		
SAY TOTAL				**$249,800.00**		
* CITY POLICY IS TO PAY FOR STREET PAVING IN DEVELOPMENTS WITHIN THE CITY,						
HOWEVER, TAKING ADVANTAGE OF THIS INCENTIVE CAN BE LIMITED DUE TO						
AVAILABILITY OF FUNDS AT THE TIME THE IMPROVEMENT IS NEEDED.						
IF NOT FUNDED BY THE CITY ADD $45,195 TO THE TOTAL COST						
						W & A
						Mar-98

DETAILED SITE DEVELOPMENT COSTS						
LAND USE AND DEVELOPMENT STUDY						
HARGRAVE 140.37 ACRE TRACT - LEXINGTON, N C						
PHASE IV - Total site area acres						
			SUB-			
		UNIT	ITEM	ITEM		
IMPROVEMENT ITEM	UNITS	COST ($)	COST ($)	COST	REMARKS	
CLEARING & GRUBBING	1AC	4,000/AC	4,000.00	$ 4,000.00	ROW AREA	
STREETS*				$ 66,560.00		
GRADING	2,080F	12.00/LF	24,960.00			
6"ABC+2"I-2	5,075SY	11.50/SY	*		27'BC-BCW/2.5'C&G	
CURB & GUTTER	4,160LF	10.00/LF	41,600.00			
SANITARY SEWER				$ 78,150.00		
8" WITH MANHOLES	2,320LF	30.00/LF	69,600.00			
LATERAL SERVICES	19EA	450/EA	8,550.00			
WATER				$ 53,550.00		
8" WITH HYDRANTS	800LF	20.00/LF	16,000.00			
6" WITH HYDRANTS	1450LF	20.00/LF	29,000.00			
LATERAL SERVICES	19EA	450/EA	8,550.00			
ELECTRICAL		0		$ -	NONE IF ANNEXED	
SOIL & ENVIRONMENTAL TESTING	LS	LS	2,500.00	$ 2,500.00		
SEEDING AND MULCHING	0.5AC	1,000/AC	500.00	$ 500.00		
STORM DRAINAGE				$ 47,100.00		
15"RCP	1100LF	18.00/LF	19,800.00			
18"RCP	200LF	24.00/LF	4,800.00			
CATCH BASINS	11EA	1,500/EA	16,500.00			
ENERGY DISIPATORS	3EA	2,000/EA	6,000.00			
EROSION CONTROL	1AC	1500/AC	1,500.00	$ 1,500.00		
SUBTOTAL				$253,860.00		
CONTINGENCY - 15%				$ 38,079.00		
SUBTOTAL				$291,939.00		
PLANS&SPECS/SURVEYING - 15%				$ 43,790.85		
ADMINISTRATIVE/LEGAL - 5%				$ 14,596.95		
PLANS & ADMIN. COSTS ON STREET WORK BY CITY				$20,427.00		
TOTAL				$370,753.80		
SAY TOTAL				**$370,800.00**		
* CITY POLICY IS TO PAY FOR STREET PAVING IN DEVELOPMENTS WITHIN THE CITY,						
HOWEVER, TAKING ADVANTAGE OF THIS INCENTIVE CAN BE LIMITED DUE TO						
AVAILABILITY OF FUNDS AT THE TIME THE IMPROVEMENT IS NEEDED.						
IF NOT FUNDED BY THE CITY ADD $58,365 TO THE TOTAL COST						
						W & A
						Mar-98

DETAILED SITE DEVELOPMENT COSTS

LAND USE AND DEVELOPMENT STUDY

HARGRAVE 140.37 ACRE TRACT - LEXINGTON, N C

Phase V - Total site area **acres**

IMPROVEMENT ITEM	UNITS	UNIT COST ($)	SUB-ITEM COST ($)	ITEM COST	REMARKS
CLEARING & GRUBBING	1AC	4,000/AC	4,000.00	$ 4,000.00	ROW & FILL AREAS
STREETS*				$ 43,100.00	
GRADING	1,300LF	12.00/LF	15,600.00		
8"ABC+2"HB+1.5"I-2	1,800SY	15.50/SY	*		35' BC-BCW/2.5'C&G
8"ABC+2"I-2	2,245SY	11.50/SY	*		27' BC-BCW/2.5'C&G
CURB & GUTTER	2,750 LF	10.00/LF	27,500.00		
SANITARY SEWER				$ 34,650.00	
8" WITH MANHOLES	900LF	30.00/LF	27,000.00		
LATERAL SERVICES	17EA	450/EA	7,650.00		
WATER				$ 29,650.00	
8" WITH HYDRANTS	1,100LF	20.00/LF	22,000.00		
LATERAL SERVICES	17EA	450/EA	7,650.00		
ENTRANCE IMPROVEMENTS	LS	LS	25,000.00	$ 25,000.00	SIGNAGE/PLANTING/ETC
ELECTRICAL		0		$ -	NONE IF ANNEXED
SOIL TESTING	LS	LS	2,500.00	$ 2,500.00	
SEEDING AND MULCHING	1.5AC	1,000/AC	1,500.00	$ 1,500.00	
STORM DRAINAGE				$ 27,600.00	
15"RCP	620LF	18.00/LF	11,600.00		
CATCH BASINS	8EA	1,500/EA	12,000.00		
ENERGY DISIPATORS	2EA	2,000/EA	4,000.00		
EROSION CONTROL	2ACS	750.00/AC	1,500.00	$ 1,500.00	
SUBTOTAL				$169,500.00	
CONTINGENCY - 15%				$ 25,425.00	
SUBTOTAL				$194,925.00	
PLANS&SPECS/SURVEYING - 15%				$ 29,238.75	
ADMINISTRATIVE/LEGAL - 5%				$ 9,746.25	
PLANS & ADMIN. COSTS ON STREET WORK BY CITY				$ 19,390.00	
TOTAL				$253,300.00	
SAY TOTAL				**$253,300.00**	

* CITY POLICY IS TO PAY FOR STREET PAVING IN DEVELOPMENTS WITHIN THE CITY, HOWEVER, TAKING ADVANTAGE OF THIS INCENTIVE CAN BE LIMITED DUE TO AVAILABILITY OF FUNDS AT THE TIME THE IMPROVEMENT IS NEEDED.

IF NOT FUNDED BY THE CITY ADD $55,400 TO THE TOTAL COST

W & A
Mar-98

REFERANCE MATERIALS

1. *Subdivision Analysis*
   Douglas D. Lowell and Robert S. Martin, Appraisal Institute, 875 North Michigan Avenue, Chicago, IL 60611-1980
   ISBN 0-922154-11-2

Roster of Land Development Software

1 Argus Financial Software

Argus Financial Software offers an excellent analytical format. There is a section which can be utilitzed for land development.

For futher information contact:
Argus Financial Software
Weslayan Tower, Suite 1650
Houston, TX USA 77046-2401
(713) 621-4343
Fax: (713) 621-2787
Sales: (800) 332-7372
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editor's note

Living the Y Life

"What is in the health insurance future for Gen Y?" writes Alison Stein Wellner in "The Young & The Uninsured," one of *American Demographics'* two feature stories this month that focus on shifting attitudes among America's newest crop of adults.

The answer? When it comes to predicting whether or not the Echo Boom will rewrite the rules on how to market health insurance to young adults, "My crystal ball is broken, based on the chaos in the marketplace," says Bonnie Sherman, executive director of the Colorado Child Health Plan.

Even amid the chaos, a clear trend has emerged among men and women between the ages of 18 and 24, a group that will swell to 30 million strong by the year 2015: they are opting to do without health insurance. As a result, almost 40 percent of young adults lack coverage, accounting for about a fifth of the 44.8 million Americans who are uninsured.

Reasons for the trend abound.

Of course, cost is a major factor: wages are not keeping pace with the cost of health-care premiums. Also, the nature of the work place has radically changed. Gone is the era of safe, benefits-filled, long-term employment. In its place is the world of free-agent, contract-based work arrangements. And that is translating into reluctance on the part of young employees to sacrifice tangibles like net pay for intangibles like the safety net of insurance. They'd rather put their hard-earned wages toward other things that money can buy, like St. John's Wort, or aromatherapy, or fun. Disarray in the nation's health-care system is a culprit as well, because the dollar value of insurance coverage has come under suspicion by many young people. Also noteworthy is the fact that this band of consumers is more demanding: they want more information, more options, more flexibility, and new features from health insurance products and service. Meanwhile, insurers and most employers have been slow to respond to that more intense level of demand.

There's that magical thinking thing that this generation seems to have going for it.

Then again, there's that magical thinking thing that this generation seems to have going for it, a factor that comes through loud and clear in our second feature, "Y Not Love?" by Helene Stapinksi, about the dating and mating habits of the Echo boomers. Hopefulness may be supplanting fear as a critical motivator among those on the brink of adulthood. Commitment phobia? Not in this crowd.

"Kids are fed up with the superficialities of life," Youth Intelligence consultant Kirsty Doig observes. "They have not had a lot of stability in their lives. It's a backlash, a return to tradition and ritual...and that includes marriage. It's all about finding the right one, as opposed to sleeping around."

The question is, is neotraditionalism a sign of greater, purer hope among young adults, or are they just afraid of different things, totally opposite consequences than the preceding generation? The answer to that question may be Y.

—John McManus

AMERICAN demographics

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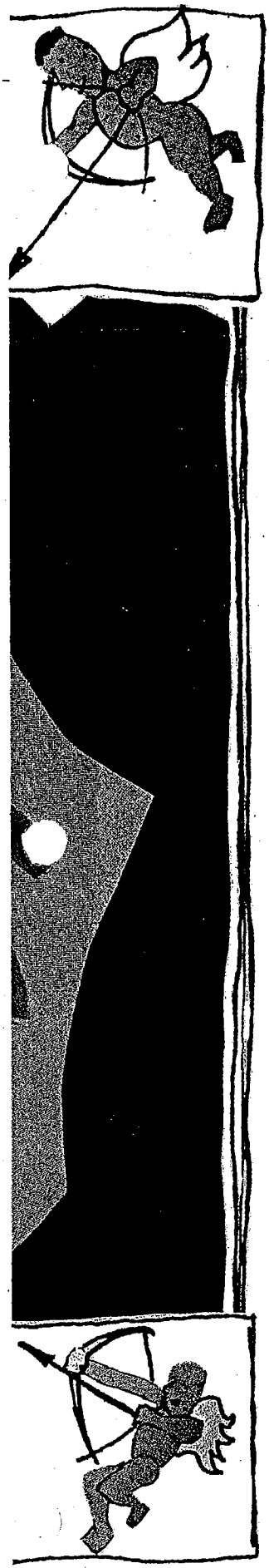


Y NOT love?

Dating and mating among Generation Y means a blending of '50s conservatism with millennial open-mindedness

BY HELENE STAPINSKI

TOM COCOTOS/SIS

Picture Eisenhower,

Ryan K. has searched all his life for his soul mate, and when he finally finds her, he will romantically propose marriage, rather than living together. He will have sex with his bride for the first time on their wedding night. He has no respect for women who sleep around. But that doesn't stop him from wearing Between the Sheets cologne.

On a recent date with a potential mate, Ryan (cologne liberally applied) wore a suit and took Bachelorette No. 1 on a traditional night out—dinner and a play. He almost bought her flowers, but then thought twice about it, figuring it would be awkward for her to lug a bouquet around all night. When he's feeling a bit more adventurous, he might take a date to play miniature golf or even go bowling.

Though he fits the profile of the classic male of the 1950s, Ryan is not from the Ozzie-and-Harriet generation.

He is a 19-year-old snowboarder from Vail, Colorado, a college freshman majoring in business at Georgetown University who is looking for love in all the right places. And in many ways, he's more idealistic than his baby boomer parents ever were, at least when it comes to matters of the heart—and more conservative, too. Picture Eisenhower, but with a pierced eyebrow.

"The soul mate thing is so huge," Ryan says. "I still believe there's one person out there that you're meant for. It sounds naive. But this generation kind of has a trust in fate. When I talked to my mom about it, she told me she could have married seven or eight different people, that my father was the best choice at the time. Not 'He was my true love.' I was like, 'Oh, thanks.'"

With Ryan and his cohorts in mind, market analysts are predicting a values shift for Gen Y lovers—whose dating, mating, and child-rearing habits may be more like those of their grandparents than like the cast of *Melrose Place*.

"One of the macro-trends we're seeing is neotraditionalism," says Kirsty Doig, vice president of Youth Intelligence, a market research and trend forecasting group based in New York City. "These kids are fed up with the superficialities of life. They have not had a lot of stability in their lives. It's a backlash, a return to tradition and ritual. And that includes marriage. It's all about finding 'the right one'—as opposed to sleeping around."

Though census data has yet to reflect the trend—marriage and childbearing have continued to occur at later ages, and living together is still on the rise—the pundits all agree: We're headed for a second coming of family values. And with it, boosted sales of white wedding gowns, subscriptions to bridal magazines, and perhaps a future surge in sales of Pampers.

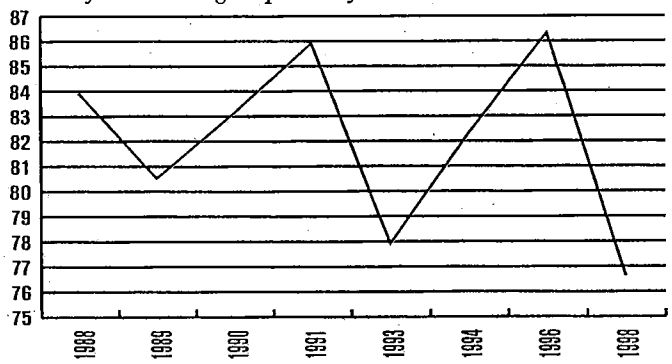
"This generation is very much into the spirituality of love," says Doig. "They're much more optimistic than Generation X...They know they'll find their soul mate."

Last year, when asked if they would get married if they found the right person, 80.5 percent of 18-to-24-year-olds answered a resounding "Yes!" Only 69 percent of Gen X—the 25-to-34-year-olds—held the same romantic view, according to the General Social Survey of the University of Chicago.

Rather than base their lives on people like Sylvester Stallone—whose daughter was nine months old when he and mom, Jennifer Flavin, wed in 1997—Generation Ys are more likely to follow the example set by young Macaulay Culkin, the *Home Alone* star raised in a turbulent,

THE BIRDS AND THE BEES

Percentage of people age 18-24 who were sexually active during the previous year.



Source: General Social Survey, 1998

P''T WITH A PIERCED EYEBROW: WHEN IT COMES TO MATTERS OF THE HEART, YOUR AVERAGE SKATEBOARDER IS MORE IDEALISTIC THAN HIS BOOMER PARENTS EVER WERE.

common-law marriage, who tied the knot with his 17-year-old girlfriend last year.

People like Culkin—and even snowboarding business majors like Ryan—are what marketing consultant Liz Nickles of Chicago-based Nickles & Ashcraft calls the early adopters: opinion and style leaders who set the trends. "They don't show up on the government charts," she admits, "but the rest of the population follows them."

Nickles, who's been conducting surveys with partner Laurie Ashcraft for the past 18 years, predicts a surge in teen marriage and a trend toward bigger families, whether because of the threat of AIDS or simply as a rebellion against what their free-lovin', baby boomer parents did in the '60s. Or perhaps more importantly, what Mom and Dad did in the '80s.

"[Gen Y's] role models were mothers focused on their careers," says Nickles. "But today you can have a career and your first priority can still be your home. For these young women, their heart is in the home."

In their latest survey, "The New Millennium Woman," Nickles and Ashcraft found that 82 percent of 20-to-24-year-olds thought motherhood was the most important job in the world, compared to 72 percent in the more jaded 25-to-34-year-old Gen X category.

Sociologist Linda Waite, codirector of the Alfred P. Sloan Center on Parents, Children and Work at the University of Chicago, says that because children usually rebel against their parents, it makes sense that Generation Y may get hitched earlier. "Part of the women's movement," she explains, "was involved in trying to make sure women weren't trapped in bad marriages. Certainly some marriages are bad, but marriage has its advantages, too."

Perhaps the younger set knows instinctually what Waite has spent years researching—that married people are much more healthy psychologically and physically than those who are just living together. For women, according to Waite's forthcoming book, *The Case for Marriage* (Harvard University Press), the state of matrimony improves their access to health insurance, provides safer places to live, and even boosts their endocrine and immune systems. Men reap the benefits as well, with improved careers and extended life spans.

It's not only in the outside world that Waite sees changes. "My 20-year-old daughter won't live with her boyfriend," says Waite, laughing. "She's talking about marrying him."

Young women who return to more traditional ways in the new millennium will do so on their own terms, however. Millie Martini Bratten, editor-in-chief of *Bride's*, says there's been a definite swing toward traditional weddings: young women are buying beautiful long gowns, exchanging time-honored vows, and gathering family and friends to break bread. Eighty percent of brides are tossing their garters, 78 percent are walked down the aisle by Daddy, and almost all brides expect to be carried across the threshold, Bratten reports.

28 percent of 15-to-24-year-olds who bought fresh flowers and plants in 1997 did so for Valentine's Day.

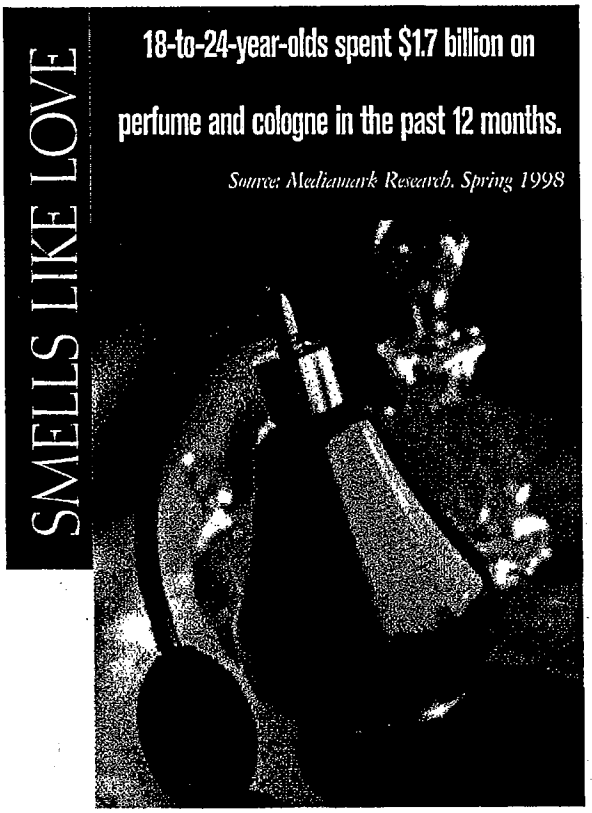
Source: NPD

HEARTS & FLOWERS

"What has changed, though, is who's paying for the wedding," she adds. "Nearly 30 percent of couples pay for their own wedding. And many couples plan it together, rather than just the bride and her mother. As a result, we're seeing more personalized weddings, couples making it different and unique, whether that's adding a few lines to the traditional vows or taking 30 of your closest friends and family members to Tuscany for the ceremony."

That idea—taking tradition and running with it—will spill over into child-rearing as well, experts say. "For these young women, it's not so much doing it all," says Nickles "but rather selecting certain elements and crafting your lifestyle. This generation leaves behind words like 'juggling.' For instance, they'll have that career, but they'll

Young people ARE UNDER PRESSURE FROM THE WORLD



work from home instead."

Because of the trend toward early coupling, whether married or living together, companies like Maytag and Black and Decker need to pay heed, market researchers say.

"The makers of major appliances are ignoring that generation," according to David Morrison, president of TwentySomething Inc., a strategic planning and market research firm that works with such Fortune 500 companies as General Motors, Coca-Cola, and AT&T. "They have to stop thinking of X and Y as IKEA patrons and more as Whirlpool customers."

Advertisers, however, would be wise to stay away from old-fashioned pitches, Morrison warns. Even though they believe in marriage and having babies, Gen Yers won't respond to ads featuring "the husband, wife, two kids, and the white picket fence," says Morrison. "You do that and you're going to hit barriers. Unless you're doing it tongue-in-cheek."

Though they're arriving at the same conclusions their grandparents did—find a life partner and stick with them—Gen Y is savvier and, in some ways, much more tolerant than the generations that came before it, experts say. Marriage can apply to men with men, and women with women. Cross-cultural and interracial unions are not taboo, but in fashion. In other words, the kids may like tradition, but they are hardly traditional.

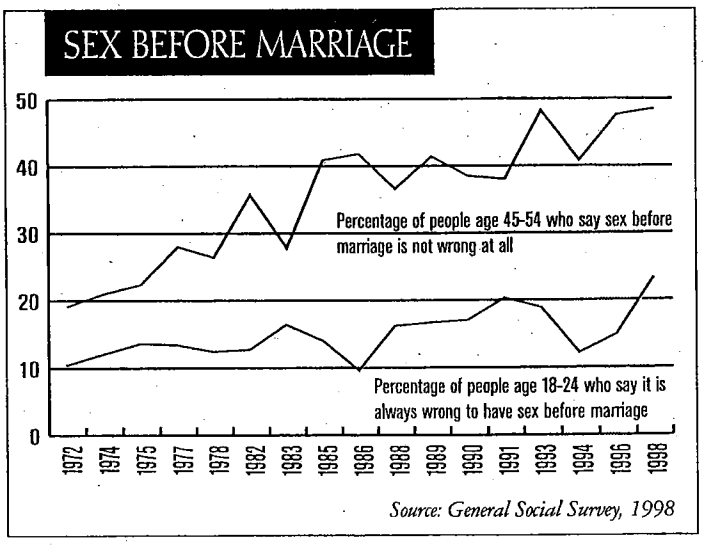
The perfect prototype for the new generation, says Morrison, is the Volkswagen commercial—what he calls the "Da da da" ad—in which the heroes, a young black man and a young white man are driving down the street in their VW. They stop to pick up a discarded chair, place it in the back seat and then, without exchanging a bit of dialog, realize the chair has a terrible odor and/or bad vibe, and dump it back on the street. It's all backed up with a suitably enigmatic soundtrack, "Da da da," sung by a band called Trio.

"Are these guys gay? Are they straight?" asks Morrison. "No one really cares. The commercial works."

Young people may be more mature and careful about their life choices, whether they're looking for a sofa or shopping for a partner, but not because they're under pressure from their parents, says Morrison; they're under pressure from the world at large. "These young people are still sexually active but they're terrified of having multiple partners," Morrison says. "They have more of the fear of God in them. Having a lasting partner," he says, "guarantees some safety."

According to the General Social Survey, young people's attitudes toward sex have certainly become more conservative over the past two decades, especially compared to their elders' views. In 1972, a mere 10.4 percent of the 18-to-24-year-olds surveyed said it was "always wrong" to have sex before marriage. Over the years, those numbers have shifted slowly but surely. Last year, they more than doubled: 23.3 percent of 18-to-24-year-olds believed sex was almost always wrong before marriage.

These days it's Mom and Dad who say sex before marriage isn't so evil. Back in 1972, only 19.1 percent of 45-to-54-year-olds believed it was okay to have sex before marriage. But last year, the number grew to a whopping



LARGE, NOT THEIR PERMISSIVE PARENTS.

"THEY HAVE MORE OF THE FEAR OF GOD IN THEM," TREND SPOTTERS SAY.

48.5 percent. Then again, who listens to Mom and Dad?

In 1988, 83.9 percent of 18-to-24-year-olds said they had been sexually active. By 1998, that number had dropped to 76.6 percent. Of those involved romantically, 31.7 percent of 18-to-24-year-olds lived together in 1996. In just two years, that number dropped over 10 percentage points, to 21.6 percent.

Numbers don't speak as loudly as real voices, though. Stacey H., a 22-year-old legal assistant/writer/actress living in New York City, says she will never live with a boyfriend—based simply on the examples set by her peers.

"I've decided I would never live out of wedlock," says Stacey. "I've seen too many instances where the relationship's soured. Living together takes the specialness out of it. My friends who live together go through all the problems of a marriage, but they don't have the joy of being married. One of my friends just told me straight, 'Don't do it.' And I won't. For sure, I would not live with a guy."

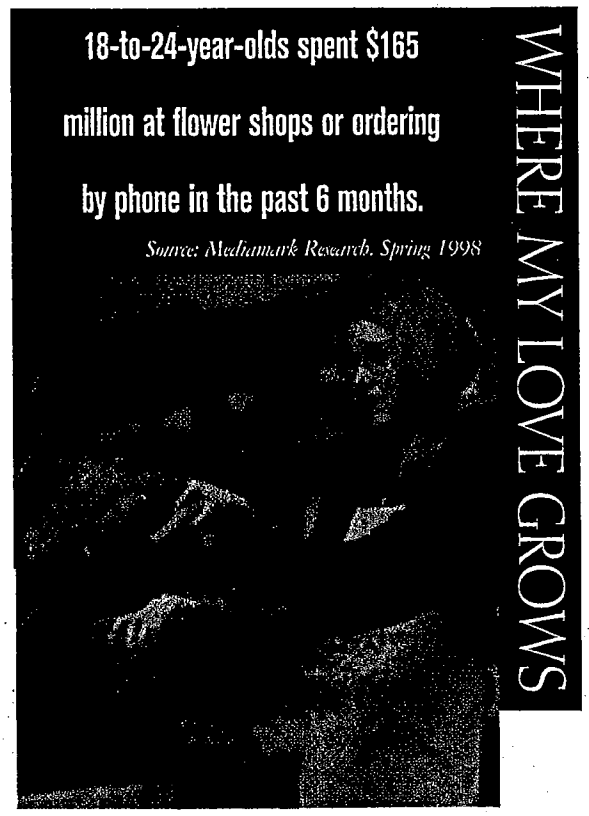
Like other women her age, Stacey says she plans on getting married only once. But singling out that perfect man has not been easy. Ah, for the good old days of cotillions, socials, and fancy-dress balls.

"I pity our times," says Stacey, who despises meeting guys in bars. "We don't have big balls to go to with big dresses. You can't be classy about meeting someone these days."

Some of Stacey's friends have resorted to nontraditional means, like frequenting a bar called Drip—a matchmaking establishment on Manhattan's Upper West Side, where patrons fill out forms, can read each other's "stats," and are matched up by the bartender on request. On a recent Friday night outside Drip, a young twentysomething could be overheard making small talk with her supposed match: "Let's see. I'll try and summarize my whole life in a few sentences," she said, tongue firmly planted in cheek.

Morrison says coffee bars are the latest trend in dating safety. "A coffee bar allows you to hear the other person without an 80-decibel band blaring behind you," he says. "You may get a caffeine rush, but because there's no alcohol, you're not becoming impaired." The coffee rendezvous also allows daters to cut short the date if it's not going well, or continue on to the more traditional dinner and a movie if things are looking up.

Because of the growing popularity of the coffee bar dating trend, many of them have even morphed back into restaurants, serving food and playing light music in the background, says Morrison. Some even serve liquor. "You can get a Guinness in some coffee bars, which brings us right back to the old-fashioned pub," he says, laughing.



Another retro trend in dating is traveling in groups of four, six or ten friends. "People are doing things like swing dancing or ballroom dancing," says Morrison.

More and more common are Blockbuster nights, involving several friends "hooking up" in front of the television set.

In some cases, employers are picking up on dating desperation and are arranging employee nights for some of their harder workers—those who work 20-hour days and can't get out to meet that perfect someone.

"Employers even encourage you to bring a friend," says Morrison. "There's cross-pollinating, if you will, with other employees out there."

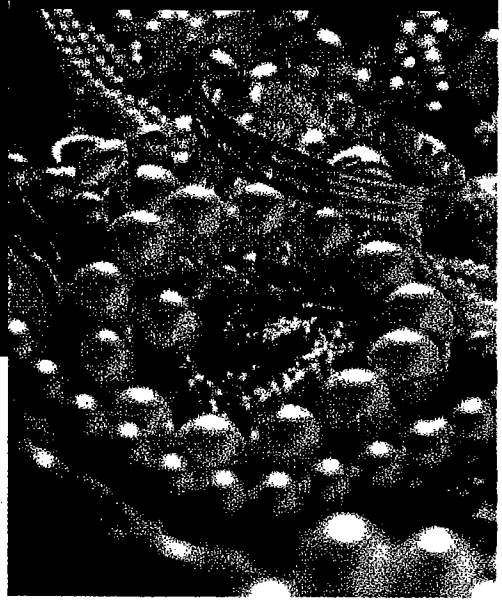
Doig suggests that some young people are meeting each other in church—how's that for tradition? "This is a very spiritual group, remember," she says.

Then, of course, there is finding love online, a phenomenon that continues to grow, particularly for Gen Y. "As hokey as they are, those chat rooms are real places, filled

METALS FOR PRECIOUS

In the past 12 months, 18-to-24-year-olds spent $2.6 billion on fine jewelry.

Source: Mediamark Research, Spring 1998



with real people," says Morrison. "It's a place to share your passions. It would take you 1,000 bars —if you're lucky —to find that person you can find online."

first five minutes whether the other person qualifies as potential soul mate material. "The greatest pursuit of all time is the pursuit of the love of your life," explains Schreiner. "Imagine the number of people you can contact online in three or four hours?"

Once onliners hook up through e-mail love letters and online chats, they generally "go to voice." Translation: they resort to old-fashioned methods and have a telephone conversation. Then, if all goes well, the meeting takes place.

ONCE cyber lovers HOOK UP THROUGH E-MAIL AND IN CHAT ROOMS, THEY GENERALLY "GO TO VOICE." TRANSLATION: THEY TALK ON THE PHONE.

In 1996, America Online handled a few hundred personal ads on Love@AOL for Valentine's Day. Today they have more than 125,000 ads year round. Of those, 23,000 come from people between the ages of 21 to 25. The 18-to-20-year-olds come in at a close second, with about 20,000.

"The younger generation is very comfortable with computers," says AOL's Bill Schreiner, who calls himself the CEO of Love and was hired to develop and oversee Love@AOL two years ago. "They've been on mom and dad's computer since they were 10 years old." Schreiner compares online chatting with the long telephone conversations of the early 1960s teenager.

"To my parents, the phone was a thing on which you called somebody briefly for a meeting or to exchange quick information," he says. "But for the younger generation, it was a means of communication. We stayed on the phone for hours. Well, that's the same thing for these kids—the computer is a living form of communication."

Unlike the Tom Hanks/Meg Ryan romance in *You've Got Mail*, Gen Y singles may meet someone through a personal ad, but then they connect in a chat room. Schreiner says that experienced chatters know within the In chat room speak, that's F2F—or Face to Face. Hopefully, the online courtship will culminate in the Cyber Vows chat room, where people "get married" online by a "love doctor." People invite 20 of their closest friends and, after the hour-long "ceremony," open the chat room to their guests. It's a reception for the new millennium.

Schreiner says it certainly won't replace more traditional weddings. "But some people use it as a dress rehearsal for the real thing, or as an addendum to the real wedding."

College professor Richard Booth, author of *Romancing the Net*, a book about finding love online, says the trend will continue to grow, but controls need to be stricter for online searches to be more successful—and safer. The biggest problem online is misrepresentation: sending fake photos or telling lies, he says.

"We're not that far away from chat sessions where you will be able to see the person," says Booth. "It will change the nature of online dating, but it will make it more useful in the long run."

And it will help the younger generation do what the generation before them and the generation before that may have found impossible: finding that one true love through accelerated—yet fairly safe—trial and error.

"In the '70s, people were like bees, wanting to get a little nectar from every flower in the garden. But this generation seems more concerned with finding that one man, one woman," says Schreiner. "And, you know, I gotta say, it's kind of cool." ■