

# 10

## Graphic Communications

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Planners who are also architects, landscape architects, or engineers tend to draw. They lavish affection on graphic presentations as a primary and almost exclusive communication medium, while planners trained in the social sciences do not draw and often use graphics only when they cannot avoid them. Either position leaves considerable room for improvement in effective communication. Although it is not true that every picture is worth a thousand words, graphics of various kinds are often essential for clear communication in the planning profession. There are verbal ideas and there are nonverbal ideas, and each requires the right medium to convey the message. The right graphic in the right place, at the right time, can be instrumental in making a good decision, winning a project, or clinching an argument.

The use of graphics in planning is constrained by the limits a planner imposes on his visualization of the problem. The extent to which graphics are used in projects should and does vary greatly depending on the type of planning project at hand. Generally physical planning projects necessitate more use of graphics and less written material than social, economic, or policy planning projects. In addition, however, it appears that those planners who know how to draw easily and well will often have great difficulty writing a three-page memo but "talk" (sketch) with pencil and tracing paper in hand while others, who do not draw, will omit using even the simplest maps in places where their inclusion would be very helpful. This state of affairs is unfortunate. With ever-evolving graphic techniques, often mechanized, it is important for planners to become familiar with the range of graphics available for use and to learn to integrate them throughout the planning process. A good practitioner does not have to be able to draw a desired graphic product himself but does have to know where a particular kind of graphic is needed and be able to explain clearly what is needed to someone who can execute the work. In short, the ability to conceptualize applications rather than to know specific techniques is most important.

Practitioners who allow the lack of graphic skills to

prevent them from using illustrations in their various professional communications are denying themselves the use of an evocative communications technique. In conjunction with written descriptions and statistical information, often expressed in graphic form by charts, diagrams, and graphs, graphics form the backbone of communication in planning. In the layperson's mind, in fact, maps, charts, and diagrams are probably the major tools of the planning profession.

Learning the intricacies of a particular graphic form is a long-term endeavor involving highly specific, technical, and professional skills. Schools of architecture, landscape architecture, and graphic design require many hours of class work to teach the skills of their trade. The studio setting, providing experience and opportunities for personal demonstrations, is the best place to learn these techniques. This chapter provides an overview and conceptual guide to where and how graphics can be used in various parts of the planning process, and why.

Some of the more conventional materials, tools, and technology of various graphic media are briefly described. The types of graphics used in planning and the considerations that go into the selection of quality, technology, and cost are discussed. Some of the obvious but often overlooked conventions of graphic presentation are listed, concluding with a brief review of various do's and don'ts of graphic organization and presentation.



The objective is to stimulate planners to use graphics effectively. Ever-more sophisticated technology enables even the most untutored in drawing and drafting skills to use graphics. However, any suggestion that future developments will make discussions of graphics anachronistic—that sophisticated technology and computers will suffice—is rejected. Commonsense organization and thinking through of the use of visuals in the planning process, as stressed here, do not become dated. People have used symbols to convey concepts fundamental to their existence for too long to shed the habit. A machine may perhaps execute these symbols and graphics in technically more finished form, but the imagination and sense of which ones to use where and how to use them effectively comes with discretion and the cultivation of a professional judgment for which there is no substitute.

Further, planners also work in countries where the supply of electric power is not dependable, and the means of transporting equipment are often incompatible with delicate machinery. In addition, in the most developed of countries too, sophisticated equipment can and does fail at the most critical moments. It is judicious, therefore, to remain committed to the simplest and least expensive techniques that will do an effective job of communicating.

The ability to convey ideas with the most basic tools—a stick to draw images in the sand, chalk and a chalkboard, pencil and tracing paper, relying not primarily on drafting skills but on the ability to conceptualize and communicate with universal graphic symbols—is a skill that will not be rendered obsolete by high technology. Communicating directly with graphics opens up new ways of understanding spatial relationships for both the individual making the drawing and the observer.

## USES OF GRAPHICS IN PLANNING

Graphics are used at various stages of a planning project for various purposes. They range from simple



diagrams and sketches, useful in thinking through a problem, in the preliminary schematics stage to complex illustrations used in oral presentation, written reports, and in legal, contractual documents. The type of graphic medium used in any planning project is determined not only by the scale of the project, its budget, and time frame but also by the projected role and perceived relative importance of graphics among the various means of communication.

A major consideration is to determine the audience. Who are the decision makers? What is the objective of the particular task for which you are considering the use of graphics? Some audiences are more receptive to graphic communications in the form of slides, maps, or drawings than others. It may be essential to use certain types of graphics to reach some audiences whereas others would find them too simplistic. Deciding what is appropriate must be carefully considered in the light of one's expected audience. Graphics are used in planning toward various ends. Some of the major uses, in order of increasing complexity, follow.

1. To illustrate existing conditions at a place. A picture can serve to authenticate oral or written descriptions. For example, the developer's team in Middlesville might take photographs of the existing dilapidated structures on the proposed site to corroborate their verbal description of the dismal conditions existing in the area at a city planning meeting. In turn, the tenants' union might take a picture of the Middlesville skyline under particularly flattering light conditions to illustrate how aesthetically pleasing the area is and how destructive the proposed high-rise development would be. Sketches, line drawings, and annotations on maps can serve the same function; for example, the map in Figure 10.1 illustrates the pressures on a proposed site of expansion of the surrounding land uses.

2. To record and document in a snapshot fashion an existing set of relationships: spatial volume relationships of built form, natural resources (aerial

photographs of the extent of forest areas in Hiatonka and East Victoria), or human and animal activity and use of spaces and facilities (Junior Planner's photographs of people in Liberty Plaza).

3. To analyze relationships over time by comparing photographic or movie film and videotape recordings or other visual documentation such as artists' sketches or paintings, or diagrams and maps made over time. One such use was mentioned in Chapter 1. Time-series photographs of people's activities in a popular urban space in New York City were taken by planners to analyze how people used that space at different times of the day through the year. Another use, familiar to agricultural-economists and geographers, is the mapping of landownership over a number of years to see if there are significant patterns of change. (See Figure 10.2.)

Another, a technique widely used in planning, is computer-generated maps of census tracts that show the geographic distribution of a particular variable. Such techniques provide different spatial pictures of a phenomenon, pictures that can contribute toward better conceptualization and therefore, one hopes, to better analyses. Excellent examples of this are maps generated for the widespread metropolitan area of Los Angeles, which consists administratively of numerous cities and several counties. A table for a variable derived from data obtained in the census tracts in the basin, such as the frequency of single female heads of households with dependents in each tract, can never have the same immediate and vivid impression as a computer-generated map. The map can be designed to show the higher frequency of occurrence of tracts in darker tones. The poorer downtown areas of Los Angeles and the corridor down to Watts show up dramatically and convincingly in such a map as dark, highest-density areas. (See Figure 10.3.) The visual image, far more evocatively than a statistical tabulation, shows the area's disparities.

4. To be evocative and elicit an emotional response. Pictures and films of baby seals being clubbed are

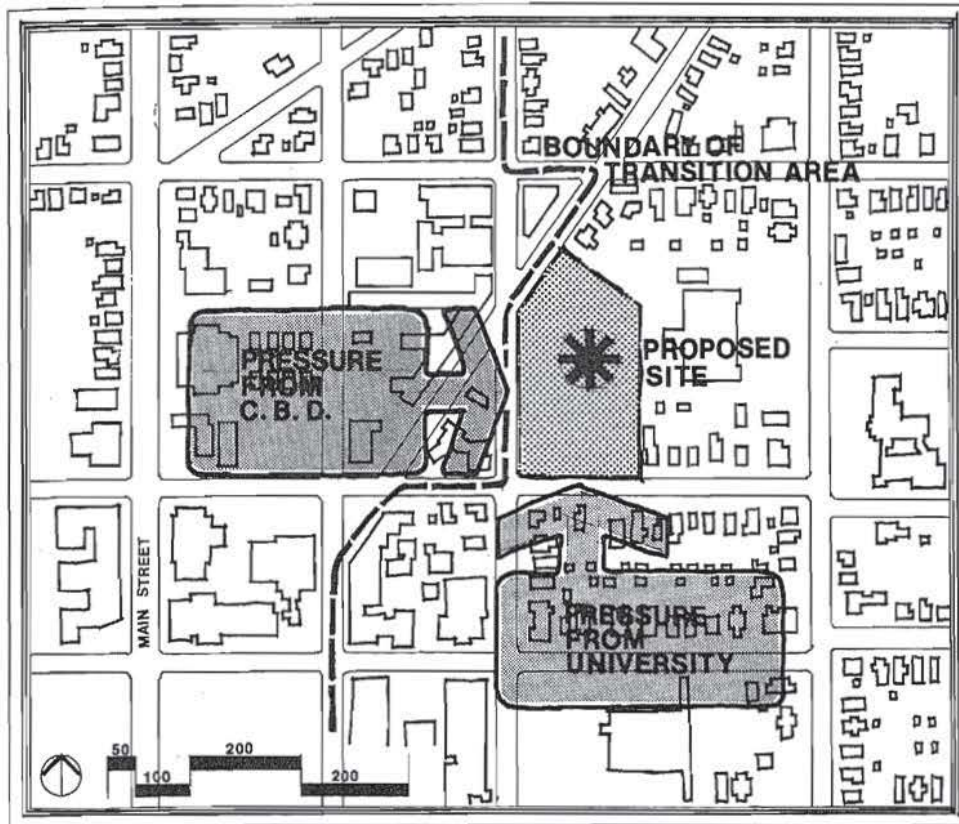


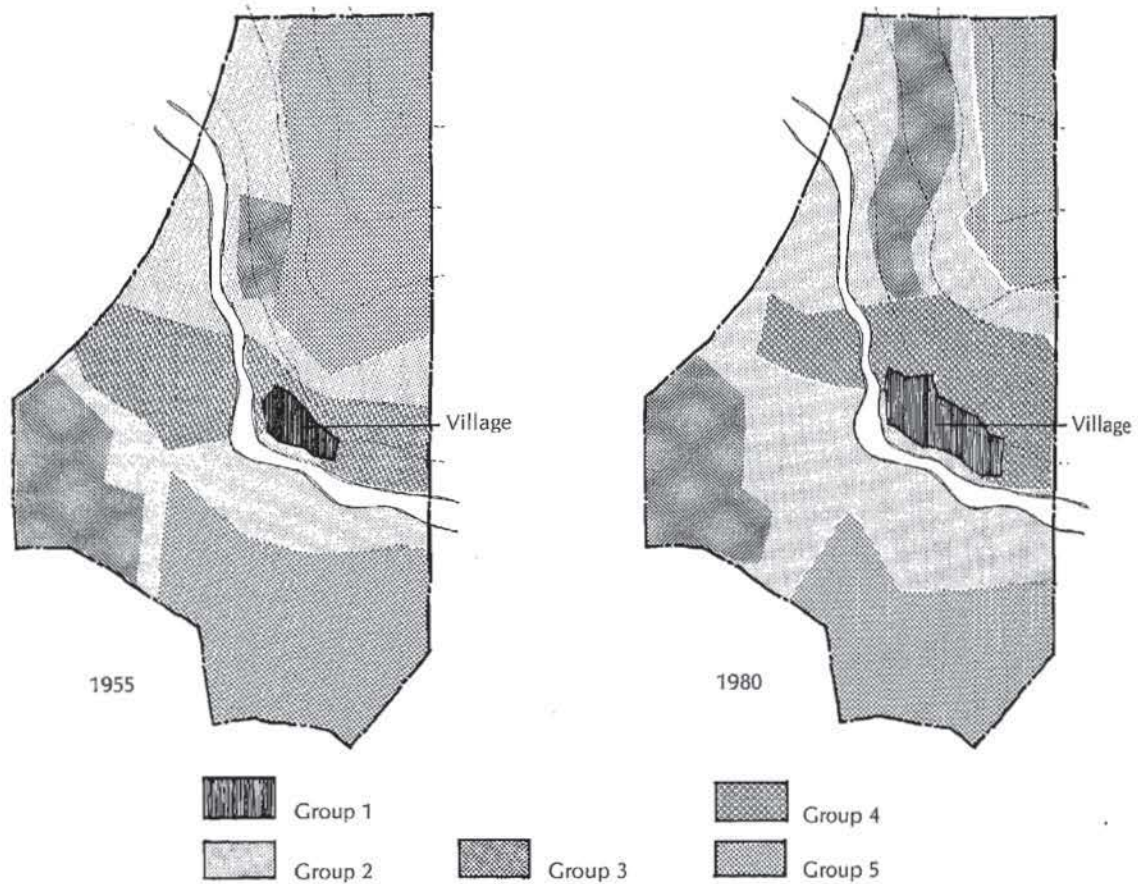
Figure 10.1 Land use pressures on proposed site.

well-known instances of such use by conservationists to get support for legislation to ban this activity on the Northwest coast. In one presentation made by a neighborhood group fighting to protect the existing use of a neighborhood urban space from urban renewal encroachment, the strongest argument was a slide of an old man sitting on a bench, eyes closed, blissfully sunning his large and exposed stomach. What better use of a public open space for utilization

by the poor could one have? Old photographs and illustrations that show how things used to be can also often be evocative if skillfully used in a presentation to reinforce a point of view.

5. To communicate new ideas and interventions. Graphics can be used to show how things might be. For example, the Middlesville developer's planning team could juxtapose a slide of the existing dilapidated condition of the adjoining street frontages with a slide





**Figure 10.2** Ownership of land in 1955 and 1980.

showing, in overlay, the same scene with their proposed project drawn in highly flattering terms so that it appears to improve the area. (See Figure 10.4.) Before-and-after pictures of an intervention are not the sole prerogative of product commercials.

Details of master plans for physical changes in

existing parks or streets can be sketched in order to communicate a general approach to the redesign. For example, Figure 10.5 could be used to communicate to citizens in Middlesville how a currently low-use park in a neighborhood might be improved so that many more user groups would benefit.

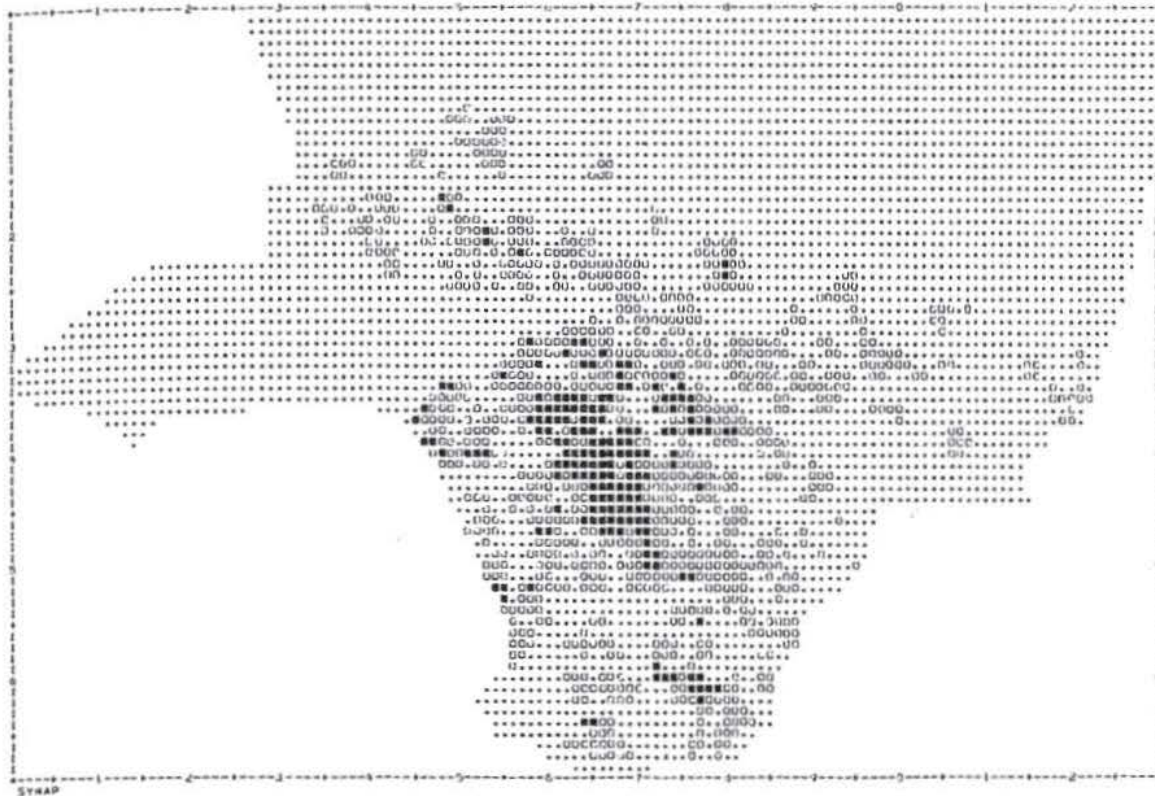


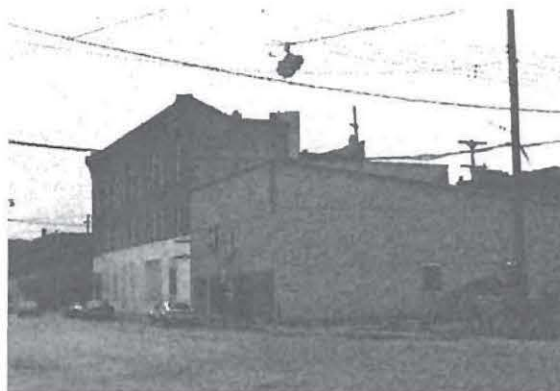
Figure 10.3 Single female heads of households in Los Angeles. (Map produced by the School of Architecture and Urban Planning, University of California, Los Angeles, using the SYMAP program supplied by the Harvard Computer Graphics Lab.)

### When and Where Used

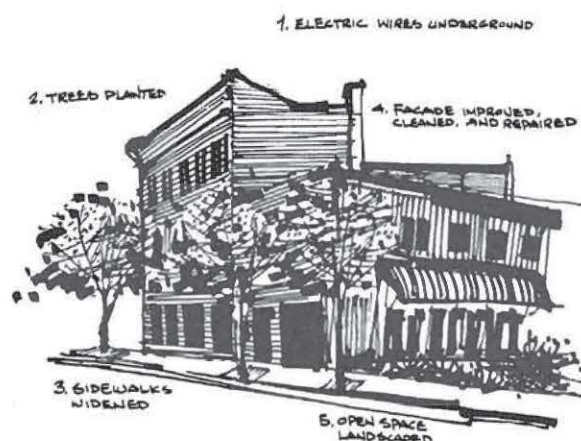
Graphic material is used throughout the evolution of a planning project from preliminary site reconnaissance and review of secondary sources to the final presentation of findings to various groups and

the compilation of the report and other contract documents. Different types of graphics are generally used in the different phases of a project. A typical project might begin with maps, photographs, sketches, and overlays to document the site conditions. Flowcharts, diagrams, and organizational charts might





Existing



Proposed

**Figure 10.4** Proposed renovation of streetscape.

be added to reinforce proposals. Concepts might be developed using bubble diagrams, which provide an understanding of relationships and interactions, and matrixes could be constructed to establish priorities between alternatives and build group consensus around decisions. Descriptive material in simple form might be produced for release to the mass media. Much of this material might be molded and changed to be compiled as part of the final report.

Some of the ways graphics are used in various planning stages can be illustrated by describing what the developer's team of planners in Middlesville might put together to convince enough groups that the proposed development is good for the city at large.

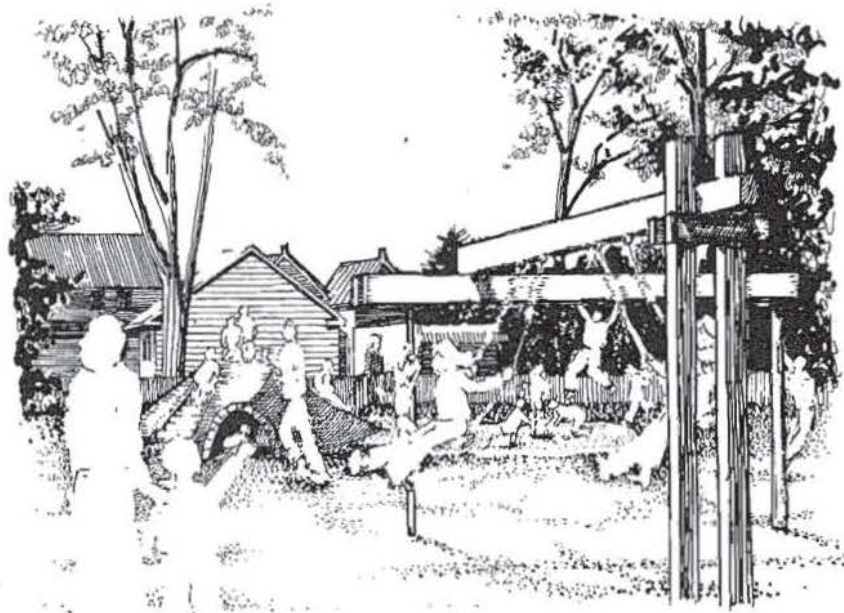
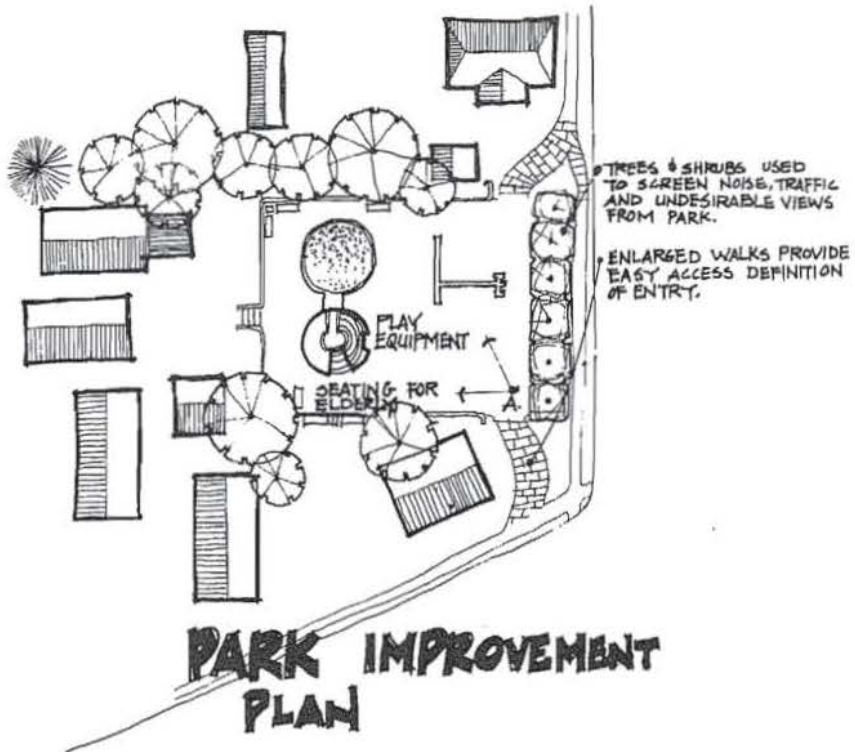
### **Proposals**

The planning team may show on a base map of the site and adjoining properties the various amenities and annoyances currently there. They may reinforce this with photographs and slides. Along with these, they may produce a series of overlays on the base

map to illustrate alternative proposals for development, with the annoyances removed and amenities preserved. Giving these positive and negative values, matrixes may be drawn, as illustrated in Figure 10.6, to show, quantitatively, which alternatives, including maintaining the site in its present use, might be the most beneficial. Obviously such comparisons are valid only if people agree with the assigned values. As part of a series of items of evidence, they will make an impression. A trial lawyer knows that the judge may tell the jury to disregard some presented evidence that is inadmissible, but once it is heard, the impression remains.

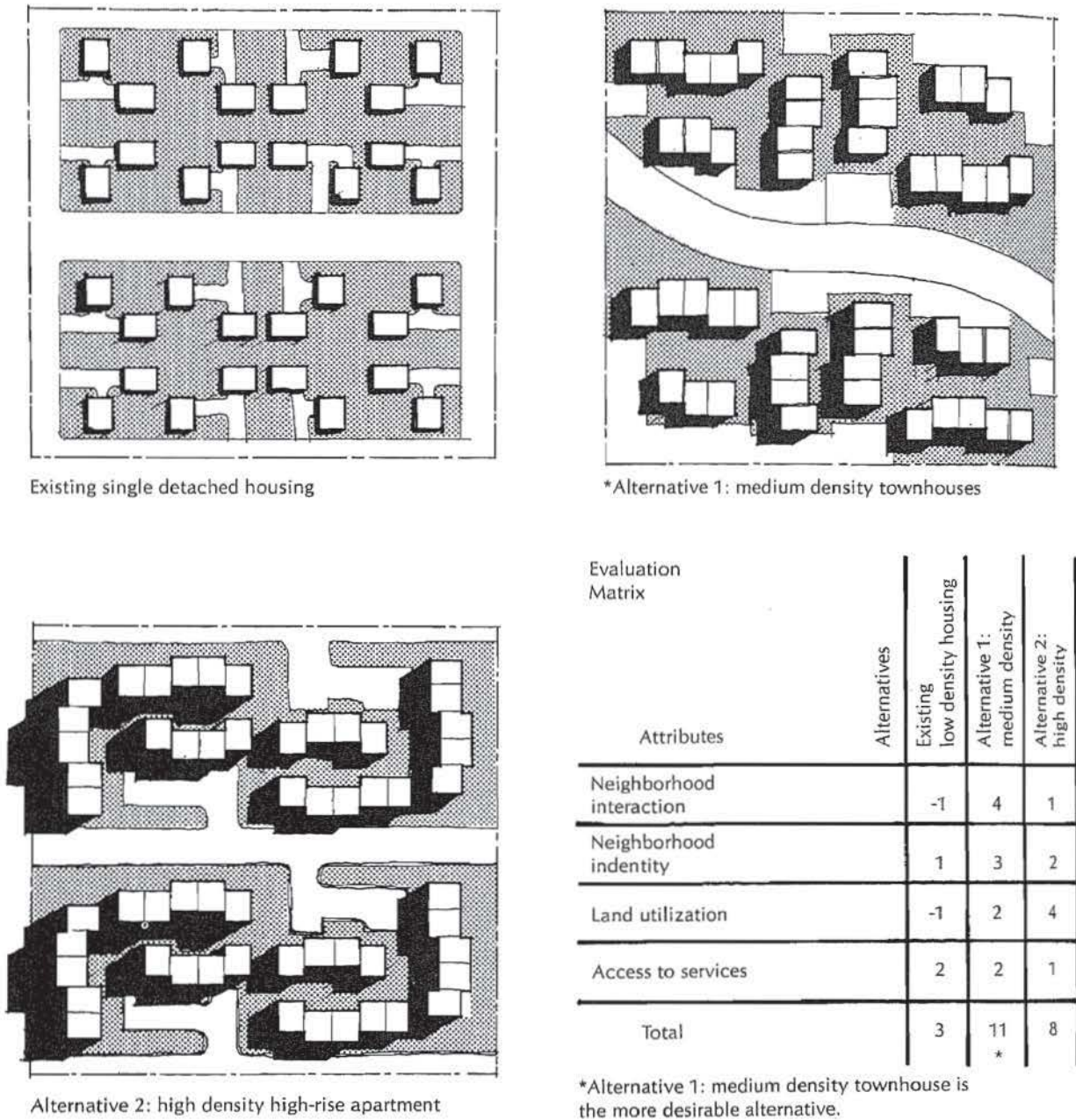
Proposals often contain flowcharts and diagrams to explain how the proposed work will be completed, the time frame, the actors involved, and their work relationships. The strength of their interaction and the increases or decreases in their participation in various phases can be indicated by different line widths and weights. One way to do this is as illustrated in Figure 10.7. Proposals should integrate what has been learned from secondary sources, from site visits and observations, and the conclusions arrived at for a program of analysis and intervention based on the

Figure 10.5  
Park development.



View of improved park from point A





**Figure 10.6** Evaluating alternatives.

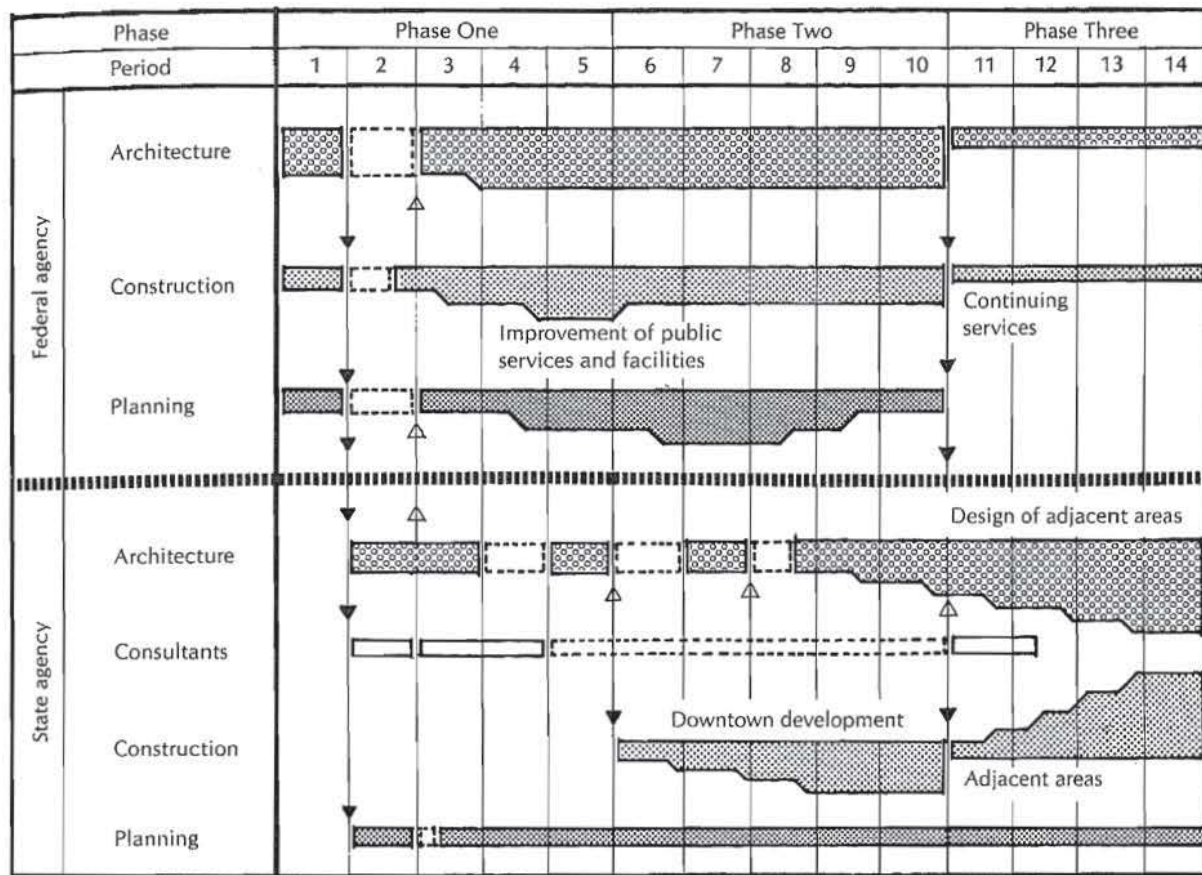


Figure 10.7 Flow chart.

preliminary review of the material. Flowcharts can help reflect this thinking in a tangible, spatial way that provides a time frame.

### Site visits

Site visits may be carried out to update maps and to photograph and document site vegetation, topography, available social services, condition of housing, or proximity to shopping and schools. It would be useful, for example, for the developer's team in Middlesville to illustrate on a map how the

proposed development might improve local business by bringing people to within walking distance of the downtown commercial establishments. Maps can be used to show connections, travel time, and traffic flows, and juxtaposed and keyed with photographs to indicate what a walk in the area might feel like.

### Small group discussions

Bubble diagrams, maps and overlays, illustrations of products, plans, and sketches on tracing paper that are rough and conceptual in nature may be used



to communicate and develop ideas during group discussions of a project either in-house or with consultants or clients.

### ***Presentations***

Graphics are created for presenting projects to clients in small or large groups, in formal and informal settings. They may consist of presentation and delivery of legal, final documents or informal, intermediate documents delineating a phase of the project in roughs.

### ***Memos, meeting reports, and recommendations***

These may contain an assimilation of various graphics used in earlier phases and specially prepared illustrative maps, key maps, key sketches, reproduction of photographs, and similar material for the specific document.

### ***Final reports and recommendations***

This is one of the most important uses of graphics since the final report or document containing suggested recommendations goes on file and is referred to whenever questions pertaining to the project come up. It is the legal document that fulfills some of the planner's contractual obligations and will tend to be widely disseminated to various constituents.

The graphics and other visual material used in these reports must be clear as well as accurate. Maps should have correct scales and give sources of the data displayed. As far as possible, the graphics should be restricted to black and white, or to colors that can easily be reproduced in black and white, to reduce the cost of reproduction. Watercolor washes and felt pen colors look attractive but are expensive to duplicate. Even though color reproduction is now readily available, it is expensive. In addition, reproduction,

particularly by photocopiers, can change the color in a variety of unexpected ways. If color is necessary, test runs of the colors that are expected to be used on the copy machine to be used will show how each color reproduces. Small areas of a color can show up unexpectedly dark and dense in a reproduction.

### ***Mass media releases***

Usually for cost reasons the visual material provided for the media must be black-and-white reproducible originals. Clarity and simplicity of images, whether photographs, maps, or other illustrations, are the primary criteria. Only the two or three major things that must be conveyed should be included; more will clutter the image.

## **TYPES OF GRAPHICS USED IN PLANNING**

### ***Tables***

Cross-tabulations and simple frequency counts are the most commonly used statistical measures in planning. Displayed in tabular form, they allow the reader to look at the numbers in more detail than was described in the text and to examine other, perhaps related parameters of the problem. They substantiate what is said elsewhere in writing or verbally. When tables indicate three or four categories (see, for example, Figure 6.3 where low, medium, and high levels of participation are illustrated), using graphic symbols, as has been done by use of full, half, or empty circles in this table instead of letters or numbers, can make for a more quickly comprehensible image.

### ***Bubble Diagrams***

These are used usually to clarify and conceptualize the nature of relationships and interactions between individuals, groups, or spaces in the system under

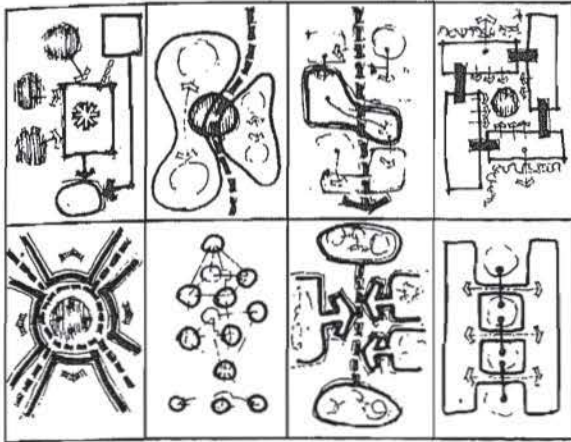


Figure 10.8 Bubble diagram.

observation. For example, a bubble diagram can be overlaid on an existing map showing neighborhoods of a city to define the boundaries of various ethnic group settlements and to indicate the flows and connections between them. Such a diagram can be used to identify and cluster land uses (at a macroscale) or spaces in a building (at a microscale).

A bubble diagram can also be used to conceptualize the groupings and connections of various individuals in an organization. The connecting arrows and lines and shading in overlapping areas can define the interactions and relationships, whether hierarchical or parallel, as illustrated in Figure 10.8.

### Bar Charts, Graphs, and Diagrams

These are used extensively in planning to provide a succinct and quickly comprehensible overview of data and statistical information. Bar charts such as histograms are useful in giving a picture of relationships at a point in time or visual comparisons of changes over a given period. Graphs can summarize a series of observations. They are helpful in indicating current trends and can be used in making future projections. Diagrams can be instrumental in simplifying and conceptualizing complex relationships in graphic form.

### Flowcharts and Organizational Charts

Flowcharts are often used to indicate long- and short-term scheduling and programming for a planning project. Flowcharts can be designed to communicate vividly the parallel or discrete activities involved in a particular project, the skills, resources, and the needed time frame. They provide a tangible image of the time period in which defined activities must take place. Insofar as planning is related to programming and organization of actions in the future, flowcharts are immediate evidence of a planner's contribution.

Organizational charts are depictions of networking and hierarchical relationships between groups and individuals in an organization. They are very useful in conveying the formal power structure and relationships. They can also be constructed to show the informal system of connections. They are useful in the process of analyzing important connections and bottlenecks and for developing strategic interventions and reorganizations. (See Figure 10.9.)

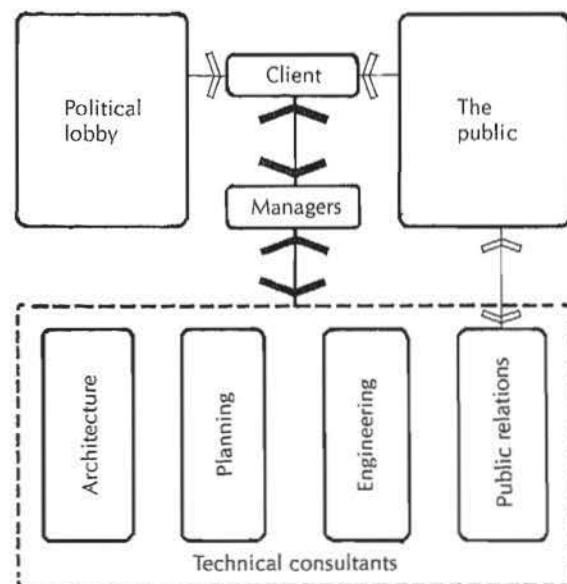


Figure 10.9 Organizational chart.



## Maps

Maps used in the planning profession are of various sizes and subjects and differ in scale, complexity, and detail. They include site and neighborhood plans, survey maps, topographical maps, census block and tract maps, transportation and land use maps, utilities maps, and aerial photographs, and range from a local city scale to vast areas of natural resources such as forests, taken by satellite photography. Infrared photographs are used for land use planning or detection of pollution in air and water, energy consumption, and much more. Some uses of maps are to locate industrial sites, plan reclamation and conservation strategies, do land-use analyses, plan energy development, monitor strip-mining, define flood-prone areas, plan solid waste storage, and design continental shelf exploration.

In the presentation of a project, a series of maps of increasingly larger scale can draw attention to a particular site or area in a larger context. Such maps locate the project in a larger regional, national, or even global frame. Figure 10.10 is a set of maps showing the country and state; the pertinent characteristics of the immediate region around Middlesville that are conducive to future growth of the town; and the project site. The set of maps is used to reinforce the developer's position that additional housing is needed in the area. Such maps are good heuristic devices that can help widen the viewer's perception of the problem and have him or her consider it in a larger, geographic-spatial-issues context.

In these maps the designer must be careful to show only those elements he wishes to draw attention to. A map is drawn to point out and stress a particular set of relationships. The key, therefore, is to simplify, to curb the instinct to provide an overabundance of information, and show only what is important. Such conceptual maps should provide just enough information about significant areas or landmarks and names of adjoining and arterial streets so that the observer is oriented. But too little as well as too much information can be misleading. It is important, even

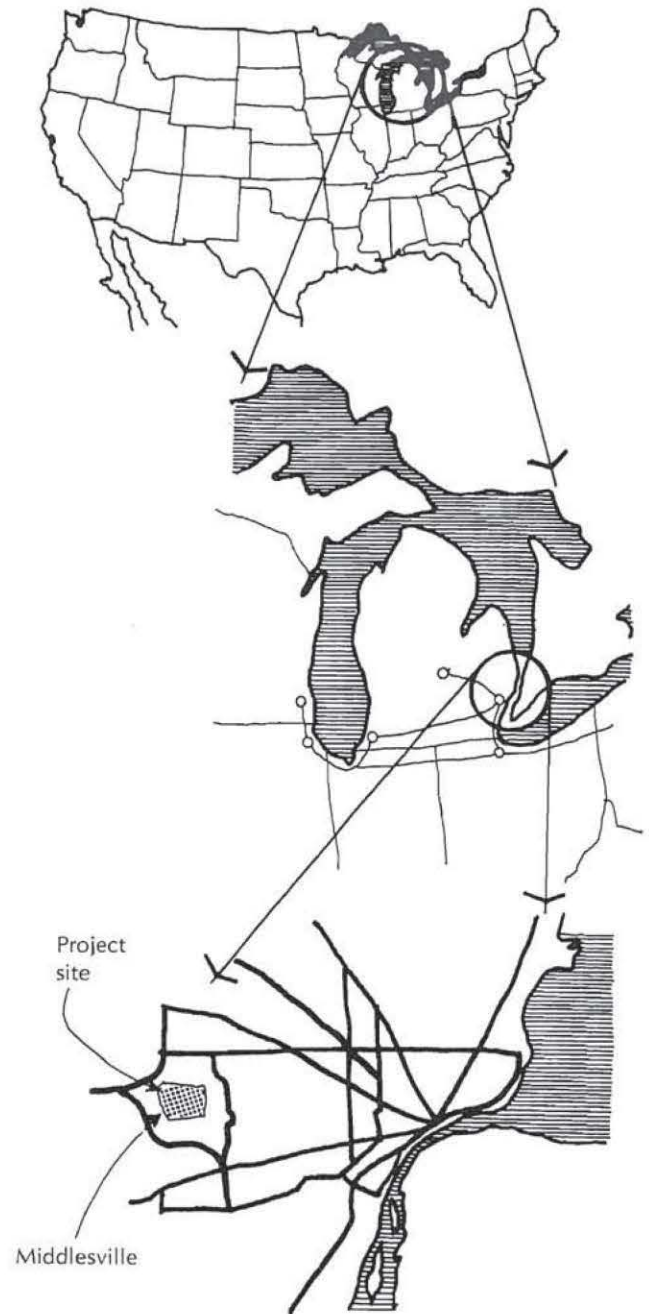


Figure 10.10 Maps to establish context.

in schematic maps, to give some idea of scale, to keep north facing the top of the page, to give sources of information, and to have the map as updated as possible.

Maps in conjunction with drawings can be used to "walk" a viewer through a project. In such cases the maps and visual material should be laid out so that ready reference from one to the other is possible. Maps can show more than just the location of objects. Human activities take place in space and so can be defined, observed, located, and translated into maps that show their relationships. Variables like socioeconomic conditions and demographic traits can be depicted to show their spatial distribution. In conjunction with symbols such as arrows, dots, and other indicators, maps can reflect the dynamics of a particular situation. For example, you can use dark, thick, and light, thin or dotted lines for heavy and light traffic flows, dotted and solid arrows between defined areas to indicate pedestrian movements, and so on. Color overlays on polyester film or tracing paper can be used to show overlapping activities.

### **Drawings**

The types of drawings used in planning can range from quick freehand sketches rapidly made on tracing paper, newsprint, or a chalkboard during a discussion or presentation to finished, drafted, and accurate drawings that can become legal contractual documents (for example, the master plans for a large recreation complex or a new town development). Computer drawings are becoming increasingly prevalent, especially in uses requiring repeated renderings of base information.

### **Cartoons and Caricatures**

Cartoons and caricatures can be particularly powerful if developed with the right blend of

professional insight and humor. Cartoons often have been used to communicate expeditiously issues of social policy or power relationships in a proposed planning project. The tenants' group in Middlesville might use cartoons depicting the eviction of local residents by rich developers in order to mobilize the neighborhood quickly.

### **Three-Dimensional Models**

These are widely used by physical planners at scales ranging from studies of parts of a building to urban design and city master plans. Gaming and simulation techniques often make use of boards and various artifacts to simulate land, regions, resources, buildings, and services. In gaming the opportunity for participants to see, modeled in three dimensions, what planning processes at work do to the physical plant leads to a high level of involvement. The participant can get a visceral understanding of the systems at work.

### **Photographs and Slides**

Black and white and color photographs and slides are widely used in planning documents and presentations. With ever-evolving improvement in the design of cameras, and a simplification of their operation, almost anyone can take successful photographs and slides. Although professional photographers are hired for high-budget projects requiring sophisticated work, most planners will be required to do their own photography on a number of occasions and must become familiar with the art of taking usable slides and photographs. Good photographs that are well integrated into a report or slides that are properly sequenced and thematically interjected into an oral presentation are relatively inexpensive and a powerful means of communicating information.



### **Videotapes and Movie Films**

Video and movies are used to document existing conditions or planning processes at work. For example, visual recording of citizen meetings, construction of infrastructural projects like dams, and delivery of social services such as health care can be vividly descriptive. Video and film are also used to record events, to disseminate information about particular case studies, to trigger discussion, and to educate. The costs of producing films are relatively high, but the impact of a well-made documentary can also be commensurately high. Videotapes are cheaper to produce than films and are an excellent way to present three-dimensional information in presentations to which models cannot easily be shipped without damage.

### **GRAPHIC TOOLS**

A large range of tools and materials is used in creating graphics for planning projects. The simplest and possibly one of the more versatile is a drawing pencil. Pencils come in various types, from very soft, almost charcoal-like consistency to very hard. Hard pencils are numbered H, 1H, 2H, 3H, up to 9H in increasing order of hardness, and soft are numbered B, 1B, 2B, up to 6B in similarly increasing softness. Also there are leads labeled F and HB in increasing softness, between an H and a B. A line weight varies according to the pressure applied by pressing down on the lead in drawing. The same drawing lead feels different on various paper types and finishes (the more tooth or grain a paper has, the harder the lead need be to get uniform thickness) and the drawing surface (harder surfaces make leads feel softer). The factor that cannot be controlled is the humidity. High humidity tends to make the leads appear harder. Thus it is necessary to experiment with various lead weights to see which will provide the correct effect. As drawing conditions change, so will the pencil lead. Generally 4H to 9H are used for work requiring a

high degree of accuracy, 3H to B for architectural line drawings, lettering, arrows and scales, and 2B to 6B for freehand work, rendering, and details. The work normally done in an average planning firm can easily be done with leads ranging from 2B to 2H.

There was a time when first year drafting techniques instructors in architecture would come around, break a laboriously sharpened pencil lead, and ask the student to sharpen the pencil with a pencil knife. They did not believe in mechanical pencil sharpeners and other gadgets, and students spent precious time whittling away at their stubs. Fortunately, teachers no longer make such archaic demands. Commercial establishments have developed easy methods for obtaining the required thickness of pencil leads. There are a variety of mechanical pencils that consist of a lead holder, ready leads, and some easy tools to sharpen them. The standard lead holders allow one to change leads rapidly for different softnesses. The microlead pencil holders are the latest and most useful devices since the leads rarely need sharpening; they are a specified thickness ranging from 0.3 mm to 0.7 mm.

When you are using a straight edge, such as a T square or parallel rule, and want to make a consistently thick line, you must rotate the pencil in your fingers as you draw. Otherwise on a very long line, the lead and the line get fatter toward the end. The microleads are somewhat less prone to this problem.

Ink pens of various types and felt-tipped pens are other commonly used materials. Technical drawing pens that use waterproof drawing ink to give a dense, dark line are made by various manufacturers and are available in a range of thicknesses. They make drawings look finished since they can give, by virtue of the consistency of the pen point, a uniform line. The way to get a uniform-thickness line width is to draw the line slowly, holding the instrument close to a vertical position, so the ink has a chance to flow in the necessary thickness. Stopping in the middle of a desired line will tend to result in a slightly enlarged ink blob there. If you do stop, pick up the pen and start with a tiny gap from where you stopped. It is a good

idea to do this even when working with pencils or felt pens. Ink pens come with instructions about how to keep them clean. It can take hours to clean a point, particularly one of the thinner ones, if the ink has dried in it. Some pens are claimed to be self-cleaning, but my experience is that none is perfect and all must be constantly maintained so they do not fail, particularly during the last touches on a final presentation.

Felt-tip pens also come in various thicknesses and are available in colors. It is impossible to get uniformly solid consistent colors with felt pens. Every time you stop a stroke, you will get a darker deposit. This problem is less acute with some papers and more acute with others, so quick tests must be made before working on the final drawing. If you have small areas to color in, you can go across the full area in one or parallel strokes, and then you have only to accept the slightly darker areas of overlap between parallel lines as part of the overall pattern. You can regularize the overlaps, both horizontal and vertical, and accentuate them to give a texture. Make sure your supply of felt-tipped markers is replenished and fresh when you start producing final graphics for a project. In addition, it is wise to check for consistency between old and new markers in the lighter tones such as beige, sand, light olive, and gray. The same name on the label does not always assure that the colors will be identical.

Black felt-tip pens are useful for making bold, simple sketches, for bubble diagrams, and for creating simplified, stylized maps. The latest development in felt-tip pens is micropoints that come in accurately gauged sizes. Since felt-tip pens are much more convenient to carry and take care of, they are preferred on many occasions to ink pens. The microtip felt pens also offer accuracy and can be used in applications where formerly ink pens were mandatory. They do not, however, give as dense a line and therefore do not give as clearly defined a line on prints. (Figure 10.11 shows a variety of drawing tools.)

Areas can also be colored with pencils or pastels. The former do not usually give the vibrant colors of

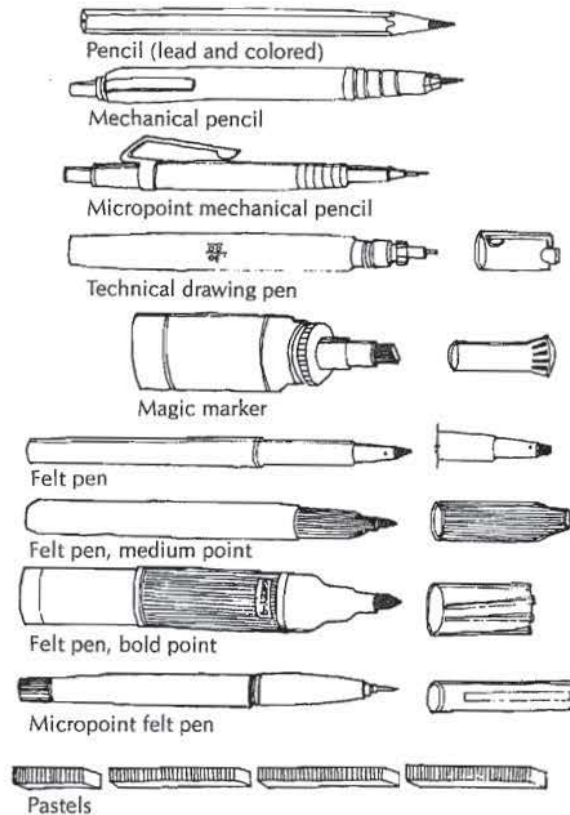


Figure 10.11 Drawing tools.

felt pens but produce a softer, more delicate effect. They are used to color drawings on various kinds of boards or drawing papers. Skillfully handled, pastels can be used on yellow or white tracing paper to produce quick, quite delightful drawings. They are bold, and used flat, on edge, they give broad, dramatic lines. Thus they are a good medium to use on newsprint or yellow tracing in front of an audience. Pastels can also be used to add exquisite touches of color and highlight to black-and-white line drawings. Practice and a few demonstrations from someone knowledgeable can be quite helpful in learning to use pastels skillfully. Pastel-colored drawings photograph well into color slides, the pastels showing up as vibrant colors. Cut-outs of solid colored papers stuck



onto background paper with or without writing is another simple, bold, and effective, as well as quick and easy, technique.

There is a large array of papers to draw on. One of the most useful and versatile of these is the range of tracing papers available. Tracing paper comes in a variety of weights, which is tied to the quality and the cost of the paper. Heavier weights are sturdier and are used for drawings that might be reproduced many times or kept as a permanent record. They are also more expensive. The flimsiest, and traditionally the most popular among architects for rough conceptual sketches, is yellow tracing paper, fondly known as canary paper or onionskin. Available in standard widths, starting at twelve inches and going to forty-two-inch rolls, this paper is relatively inexpensive. Being transparent, it is used to develop basic ideas on successive overlays. Like canary paper but slightly heavier in weight are rolls of white tracing papers available in the same widths and used basically in the same way. More precise tasks are usually done on the white tracing paper because it is a little sturdier.

Tracing paper can be laid on maps. Only the pertinent information from the map is traced. This tracing can be used to make multiple blue, black, brown, or sepia line prints on papers that have been treated with a diazo emulsion and that can be colored or added to in various ways. Sepias are diazo prints made on tracing paper, which can in turn be worked on and then used as originals to run off additional prints.

More permanent drawings such as base maps, basic building outlines (sketch elevations), and frontages may be made on superior quality tracing paper. This is of two types: medium grade (weight 16 lb.) with a fine or medium tooth, which is used for preliminaries, and quality grade, generically called vellum (16 or 20 lb., 100 percent rag) used for finished drawings, both of which are available in twenty-four-inch and thirty-six-inch-wide rolls. Polyester film 0.004 mils. in thickness is also commonly used for

drawings and, next to linen, is the most durable and dimensionally stable and gives the cleanest print quality. It is available in clear sheets, which are used to make overlays on maps and charts. Polyester film is treated so as to be rough grained and capable of receiving pencil and ink lines on one side (which is thinner and cheaper) or both sides (which is double weight and more expensive). Gridded film has grid lines that help in maintaining a module throughout a drawing but do not show up in print. Film is available in standard-sized sheets from 9 X 12 inches to 24 X 36 inches or in thirty-six-inch-wide rolls. Special leads must be used because normal ones will cut through the film. And ink pens used on it must have special tungsten-carbide steel points, or the pen point will soon be rendered useless.

Most architectural and planning firms use polyester film for their working drawings and other more permanent graphics. Base information, such as the boundaries of the site and existing vegetation, or the street patterns of a city, can be printed on the reverse or back of a polyester film or sepia diazo print, and can be drawn and erased on the front without affecting the base information. When base information is to be printed on the back of a reproducible print, a reverse-reading sepia or polyester film is needed. Sepia reproducible prints are less expensive than film and they are also less sturdy, but if the work is short term or tentative and conceptual, then they are a moderately priced good choice.

Illustration boards are used either for finished drawings or for mounting prints for presentation. One hundred percent rag boards, medium weight or heavier, are suggested. Models are often constructed out of Strathmore illustration boards, which are dense and white clear through. Rough models are also made from boards that have a core of plastic foam with thin cardboard on either side. These, available under various names such as Foam-core or Art-core, are about a quarter inch thick and available in sheets 20 X 30 inches to 32 X 40 inches.

Various devices make lettering, shading, and



drawing conventional symbols easier. They include different sizes and types of plastic stencils for lettering, various kinds of templates for drawing circles and to indicate different plumbing fixtures, and on-site equipment. Rub-on lettering is available for legends and labels, as are rub-on trees, cars, and people and other often-used symbols available at various scales. Well-articulated hand lettering and sketching is quicker and cheaper for those who are skilled, but it is not essential to become proficient at it. But often one can just trace over the outlines of an image on a tracing sheet. In hand lettering it can be helpful to use a small triangle to serve as a guide to get straight verticals. Various kinds of lettering machines are available but they are time-consuming to use and generally give a mechanical-looking lettering devoid of character.

Tone paper of various densities and textures is available for shading. You must be careful to burnish rub-on lettering and tone paper carefully and firmly. When printing, the original is put on top of the light-sensitive paper that the print will appear on and passed under the lights in the print machine. The areas not exposed to the light where you drew in pencil or felts do not get developed and so appear as dark lines or areas in the print. The emulsion side of the printing paper is thus facing the back of the original, and the front of the original, facing the light source, gets heated. The heat or the lights tend to burn off the rub-on lettering, which can get dislodged from the original and lodged onto the rollers of the printing machine. Some rub-on material has special adhesive and is designed for originals that will be run through the printing machine. Even so, great care must be taken in applying it and checking that it remains well adhered.

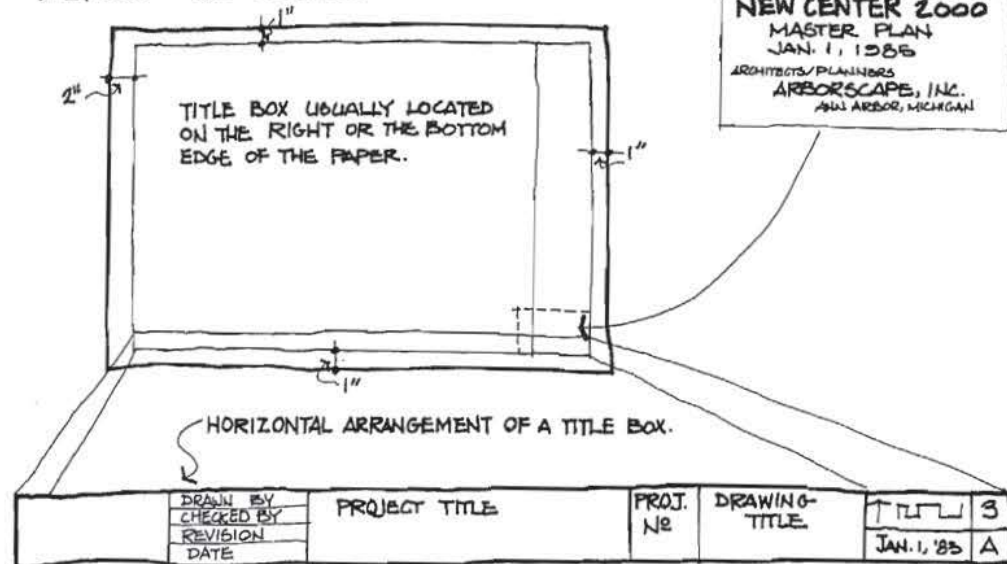
It is very demoralizing to find the original art work, on which you have spent many laborious hours, in a sorry state of disrepair, rub-on letters askew or missing. If there are only a few, restricted areas of lettering, these can be covered with clear sticky tape to protect them; however, in some prints the tape will show up as a halo around the lettering, which is not desirable

in fine-quality work. A piece of clear acetate placed over the whole drawing while printing can solve the problem of burn-off. Another way to avoid it is by making the first print a reverse-reading sepia or polyester film and using that for subsequent prints. Reverse readings are made by placing the original facing the emulsion side of the printing paper and its reverse side facing the light. In this case the rub-on lettering is not so likely to burn off. Stickers with the project name, name of your firm, or other identification can also be made that have adhesive fronts and can be attached on the back of the polyester films or tracing, thus providing consistent labels from sheet to sheet. Conventionally this block of information is placed either along the bottom edge of the sheet or the right edge. North arrows, scales, date of printing, date of revisions, and similar information are often all arranged within this block. (See Figure 10.12.) Various weights and finishes of white drawing paper are available for more conventional drawings, sketches, and watercolors. Currently, however, most graphics in planning are made on transparent sheets because they allow for easy duplication.

Other equipment is helpful: French curves to help in drawing or tracing over segments of curves, small and large triangles that are 45 or 30/60 degrees, adjustable triangles that can open from 45 degrees to anything up to 90 degrees, T-squares (which are less expensive and getting to be somewhat old-fashioned), and the more expensive but simpler to use parallel rule. To get parallel lines the T-square has to be held firmly in position against the edge of the drawing board by the pressure of the nondrafting hand; a difficult task for the neophyte draftsman. Much simpler to use is the parallel rule, which enables one to make parallel lines easily because it moves up and down the drawing board on a system of wires and pulleys. The more expensive models of the parallel rule have the advantage that they are kept off the paper surface by the roller bearings they slide on. It is therefore much easier to keep drawings clean and smear free. A T-square can quickly turn the beginner's efforts into



TWO SIZES OF PAPER ARE OFTEN USED:  
1. 24" x 36" AND 2. 20" x 50"



TITLE BOX ALSO CAN BE PLACED VERTICALLY. IT INCLUDES BASIC INFORMATION SUCH AS PROJECT TITLE, NAME OF FIRM, LOCATION, PROJECT NUMBER, DRAWING-TITLE, SHEET NUMBER, NORTH ARROW, SCALE, DRAWN BY WHOM, AND DATE OF DRAWING. FOR PRELIMINARY DRAWINGS, TITLE BOX CAN BE MUCH SIMPLER AS INDICATED IN THE EXAMPLE IN THE UPPER RIGHT CORNER.

Figure 10.12 Typical sheet layout.

grey smears. If that happens and if you have pressed hard on the lines you want, exposing the print for a longer time to the light while printing could give a usable copy. Other special items are rubber-covered scales that can be bent to help make projections on graphed curves or to draw over irregularly shaped curves as for site boundaries and roads. (Figure 10.13 shows some of these tools.)

Photographs, publicity materials, fabrics, and maps can be combined into collages that can be reproduced in black-and-white format on a copying machine. They can be designed to convey an ambience of the place. Duplication machines of many kinds are versatile tools for planners. They can make reductions, enhance

contrasts, and often produce prints that look much better than the originals.

Simple line drawings can be easily constructed from slides by projecting the slide on to a drawing surface, laying tracing paper over the image, and outlining. The problem is, as you draw, your hand is likely to interfere with the projected image. To get around this in a visuals studio, you may find, or be able to set up for yourself, a glass box so that the image is projected from the back of the glass, and you can trace over it by placing tracing paper over the image. (See Figure 10.14.) You can thus make a copy of the outline without interfering with its projection on to the screen. You can also make a tracing from a

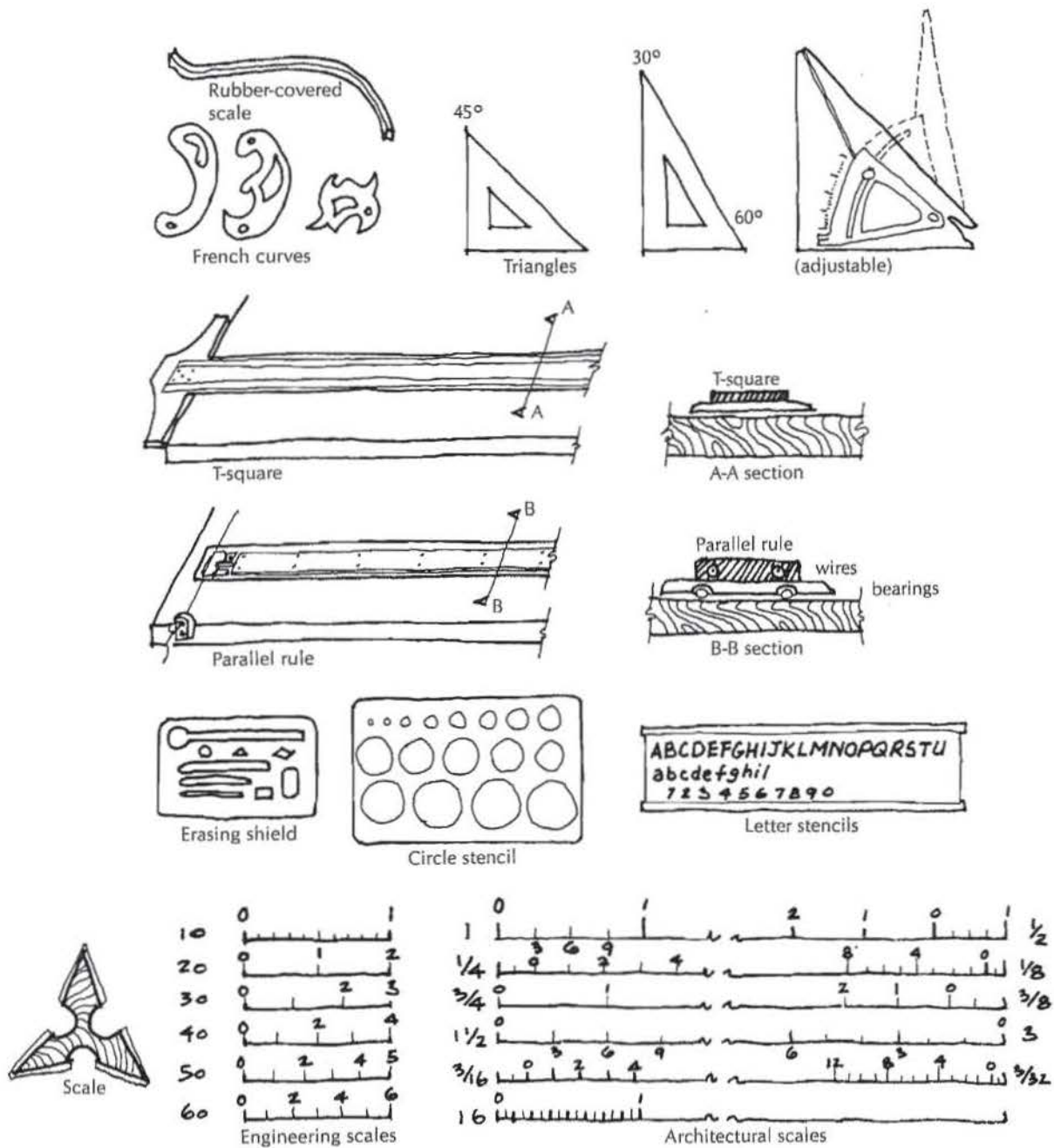


Figure 10.13 Drafting tools.



2. PICTURE IS PROJECTED ON TO THE TRACING OR DRAWING PAPER THROUGH THE GLASS SHEET

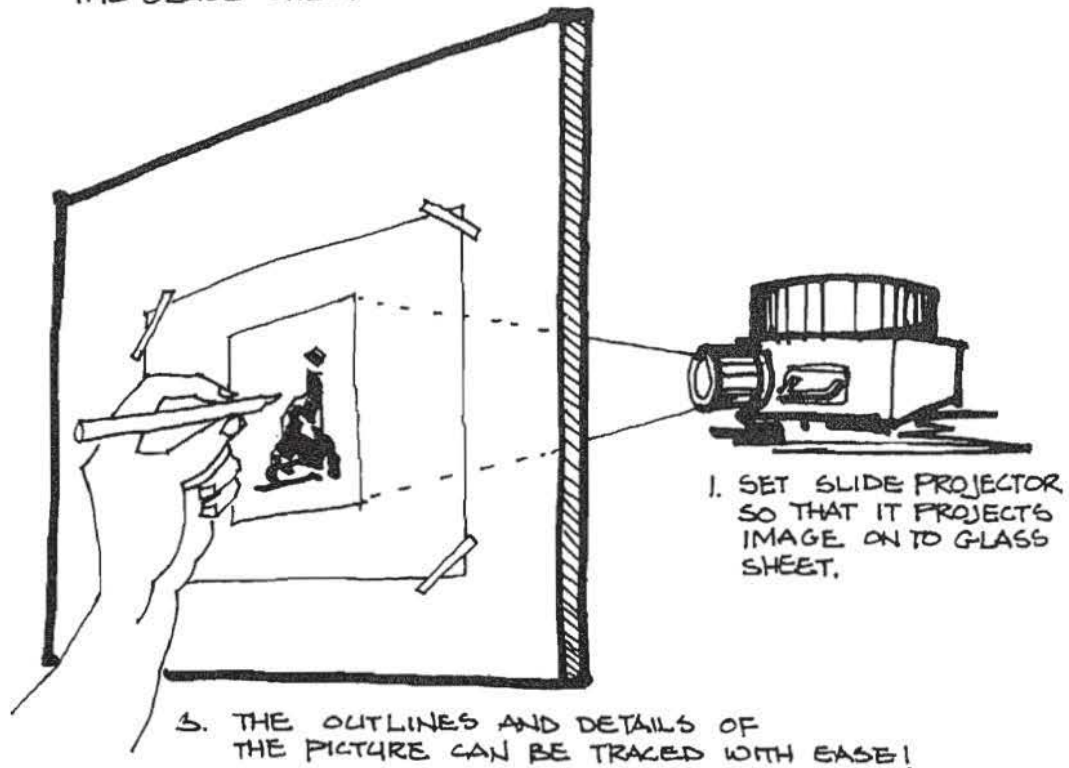


Figure 10.14 Making drawings from slides.

black and white or instant-camera photograph on to an acetate sheet and project this by means of an overhead projector to enlarge the image to a desired size from which a final tracing can be made.

The projection method can allow one to make simple black-and-white drawing from slides that can then be reduced for use in reports. High-contrast photographic papers are used to create stylized images from black-and-white photographs. Conversely, slides may be made from a variety of secondary sources of

information. Old documents, photographs in historical journals, title sheets of legal documents, excerpts from newspapers and journals, cartoons, and diagrams can be reproduced into photographs and slides. This material, if it is well integrated and woven through oral presentations or written reports, can add an extra stimulating dimension to the work. Accompanying music or taped recordings of sounds in places being visually depicted are other, similarly reinforcing techniques that can aid graphic presentations.

## FORM AND STYLE

The form and style of graphic presentation to use in a particular situation should be appropriate to the task at hand. In a preliminary presentation, the graphics should reflect the tentative nature of the work. Initial rounds of dialogue with a client group may consist of very "soft" copy, of chalkboard sketches that can be modified and erased in response to the audience reaction and as part of the teaching-learning dialogue underway. Merely to label a presentation or a set of graphics preliminary or tentative is not sufficient. The form, style, and organization of the work must show openness and possible areas of change. Preliminaries should look like preliminaries, not like final contract drawings. I have worked in offices where I have made freehand tracing paper overlays of drafted, semi-developed drawings to use for preliminary presentations to the client. Clients such as citizen groups can become nervous, even hostile, if they are presented with what appears to be an accomplished fact when they were expecting an exchange of ideas, and understandably so. Similarly, final presentations should appear finished, organized, proofread, checked for accurate cross-indexing, and well integrated with the written material.

## Graphics in Presentation

The importance of learning how to make an organized and convincing presentation cannot be overstated. More and more as planners assume more than a technical adviser role, they are in the business of selling their ideas about a professional problem. Graphics must be an integral part of both written and verbal presentations.

In oral presentations, the graphics conventionally used consist of slides that are projected or drawings mounted on chip boards and installed for display. These may be of people and places, or charts, maps, and diagrams. Graphics that can be mounted and hung on walls or display screens have an advantage

over slides, for if they can be left in place, they can be examined by the audience before and after the presentation. Sometimes three-dimensional models of the site and project can have the same advantage. On the other hand, slides, including slides of maps and drawings, have the advantage that they can be presented one at a time, under the control of the person making the presentation, who can stress those aspects that he or she deems important. Showing slides and commenting on them thus gives the planner more control over what the audience pays attention to than installing graphic boards. Finally, reductions of some of the material presented or a "program" or "guide" of what is going to be presented may be included in a one- or two-page handout distributed to the audience.

Equipment like overhead, slide, or movie projectors or videotape and tape recordings should be checked to be sure they work and are positioned properly before a presentation. This is particularly critical if two or more projectors are being used and one is attempting to fade in and out of images by using special "dissolve" units on projectors. It is disconcerting to both the audience and the speakers if mechanical difficulties disrupt the flow of the presentation. If the audiovisual equipment is an important part of the presentation, the professional must make sure the right equipment is on hand and must try it out prior to use. Replacement items such as extra bulbs must be kept on hand. The films, tapes, and slides to be used must be run through at least once. When a slide sticks in the middle of the presentation it is usually not due to bad luck but to a bent slide, one that could have been weeded out if a trial run had been made.

The presentation should be kept within the limits of the time designated. If you overrun, you may not be allowed to finish your conclusion and recommendations. Attention spans are short, so try not to tax them. Large numbers of slides can put an audience to sleep, particularly after dinner.

One way to keep an audience's attention is to have a good mix of both the subject material you present and of media. For instance, graphics can be of physical



spaces in the form of maps, plans, or drawings; of data in the form of charts, diagrams, and graphs; of people to lend some human interest and dynamics; and historical pieces that establish a continuity with past traditions. A good mix of graphic types—charts, slides, photographs, diagrams, and handouts—coupled with perhaps more than one person to make the presentation can liven the proceedings. Memorable presentations can consist of presenters role-playing a city planning commission hearing or a formal advisory panel, to the delight and amusement of the audience, as well as convincingly communicating their point of view. Sometimes lighthearted touches, like using flamboyant hats to signify changes in role being played or having the drollest in a team of professionals hold up charts and graphics, can win the audience's attention and convictions. This is not to suggest that such techniques should be tried in a presentation before a formal corporate board or important political gathering. The medium must fit the message and the audience. But a little loosening of the conventionally accepted professional style may go a long way toward gaining rapport with the audience.

Professionals using graphic illustrations in presentations before groups should stand beside the chart or diagram and talk out to the audience. It is very disconcerting to listen to a speaker address himself to the map on the wall. The size of the drawing, the blocks and colors used, the size of the lettering, and major symbols should be large enough to be recognizable at the back of the room. A good rule of thumb in deciding on letter size is to remember that a one-inch cap height type can be read by an audience at fifty feet, two-inch type at one-hundred feet, and so on, so that theoretically a six-inch letter can be read at three-hundred feet. Type that is reversed, white type on black, looks 10 percent larger than the normal black type on white ground. If representatives of cable television and radio, newspaper reporters, and photographers are present, graphics should be available in black and white, and there should be handout materials for dissemination. Providing handouts of well-organized material enhances one's chances of getting good and accurate coverage.

### **Lighting**

When slides or films are shown or the overhead projector is used, some light should play on the speaker, even if the only way to do this is to flash on the light from the projector, which the speaker can stand in front of. Ideally, the speaker's face should be lighted from above (from a ceiling light) rather than from below.

### **Handouts**

A handout that uses the same graphics in reduced form is useful. Graphics can provide the needed continuity between the various stages of a presentation when they are reproduced in different forms. For example, a handout for a verbal presentation can be modified to become the cover page or abstract page of a final report. Keeping the same format and layout can induce a sense of familiarity with the material that might help the reader's approach to the finished work. A handout should be a guide or a program to the presentation. The audience's attention should be drawn to it so they understand what it contains. Then the presenter should refer verbally to it throughout the talk, focusing the audience's attention on it. Otherwise the crowd will generally not read a handout, especially if the presentation is lively and informative. However, the verbal and visual message can be reinforced by repeating key words and figures in the handout. The professional's job is to see that the handout is read and may in fact create enough interest to get taken home and referred to.

### **Use of boards**

Some thought should be given to the sequencing of diagrams and charts on boards at a presentation. They can be arranged in the order they will be referred to in descriptions so that in reviewing the presenter can just go down the line and summarize what has been said. Graphics should use only key

words. Large-sized, bold-lettered headings will be retained better by an audience than will smaller-sized listings and itemizations. The graphics on the board should be grounded with strong base lines or a border so that they do not appear to float unconnected to each other or to the edges of the board itself.

### **Explaining graphics**

If you are using a map juxtaposed with slides to “walk” people through an area, point out on the map the vantage point from which the slide is taken, and move back and forth between the map and the slide so the audience understands the connection between the two graphics being projected. Those who use maps, plans, and elevations routinely in their work tend to forget that many people are not as well trained to visualize in two dimensions as they are able to comprehend in three dimensions. The layperson’s inability to read maps was demonstrated clearly to me when I was attempting to get an illiterate older man in a village I was studying to show me which part of the village he lived in and which social spaces he used the most. He kept claiming that the map I had drawn up with much care and labor over several months was wrong. Suddenly he turned the map around 180 degrees so that the map was now aligned with the way the village was spread out outside his house, turned to me, and said, “Now you have it right.” I could only agree.

### **Graphics in Reports**

In compiling the final report, the planner should look at all the graphic visual material collected and produced for the project up to that time and plan to integrate as much of it as possible in the final report. Using some of the material that has had favorable response during the intermediate stages of the project will, when used in the final report, give a sense of continuity to the reader who has been involved previously with the project.

Modifying some of the work slightly, reducing it in size, and adding labels or explanatory notes and legends to existing graphic work may make them appropriate for the final report. Graphics can be used to provide space breaks or breathers to lengthy technical or conceptually complex paragraphs. Spacing and size of the graphics should reflect the main purpose of using that graphic in that location. Headings, titles, and legends to the graphics should emphasize and clarify certain points; they should not obfuscate the point with professional jargon. Graphics should tell the viewer what he should see, in simple words. One word, a sentence, perhaps even a line from a poem will do. Generally a graphic with one message is more effective than one with several.

A dummy of the report can be used to plan blocks of space in which various bits of information, artwork, maps, and diagrams should go and to ensure a flow of the narrative and the accompanying illustrations. A dummy gives a sense of how long the report might become, what additional work must be completed, the costs of reproduction, and so on. This information can be used to schedule a team’s work, decide on the quality and cost of reproduction techniques, use of colors, and other such questions. (See Figure 10.15.)

Accepted conventions should be adhered to, as far as possible, in the ways the material is composed. If color is used to indicate land use, green is the conventional color for vegetation, parks, and recreation, red for commercial, yellow for residential, and blue for industry. Certain standard graphic symbols are used in planning, and books are available that give good examples. Copying these and using the more conventional, stylized symbols on a drawing is preferable to realistic depictions that can appear amateurish when rendered by less artistic and neophyte planners. (See Figure 10.16.)

Certain graphic conventions are part of our daily awareness; for example, street signs generally use dotted lines as tentative suggestions (overtake with caution) and solid lines as definite directives. Try not to fly in the face of such conventions. Be aware of them in your daily life and reflect them in your work. For instance, in representing part of a project that is



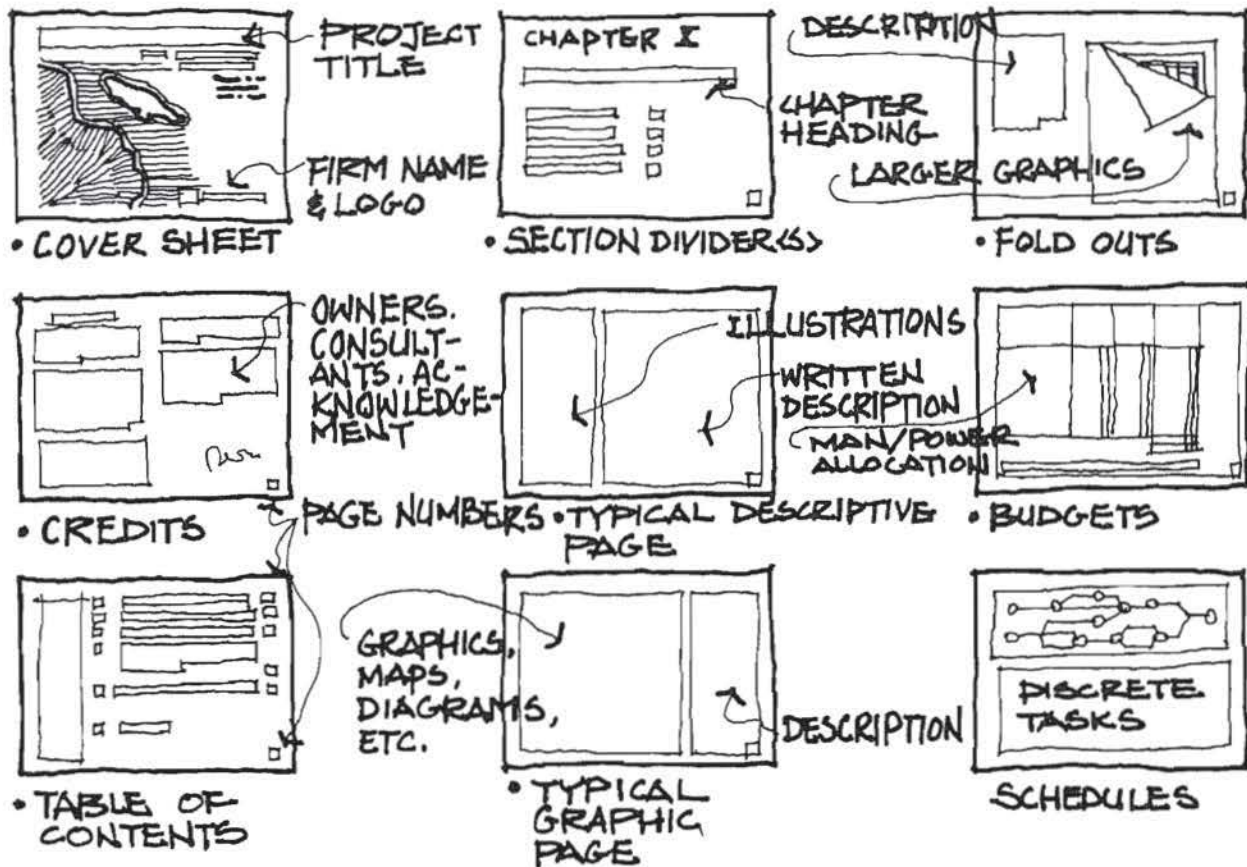


Figure 10.15 Preparing a dummy for a report.

complete and another part that is proposed, the completed portions can be indicated in bolder, more vivid colors than the proposed. The eye should see what is foreground and what is background, what is complete and final and what is tentative in a presentation.

A report should not be padded with repetitions of maps and graphics that are not enlightening or useful in further clarifications. To the reader who is paying attention, such padding is annoying; to the one who is skimming, it is confusing.

Planners must leave enough time when completing a final report to go over the finished work, to make

sure all pages, including those containing figures, illustrations, and diagrams, are numbered, that cross-references are correct, and that the table of contents is complete. In the atmosphere of crisis that prevails when a project is being completed, leaving aside the final two or three hours for such checking is difficult, but a well-integrated, complete manuscript evokes confidence in the author and the work, and it is generally worthwhile to have one less illustration or one less paragraph in the report and have a thoroughly completed and cross-checked document. There is nothing so dismaying as to find, after one has made fifty copies of a manuscript, that the client's name is

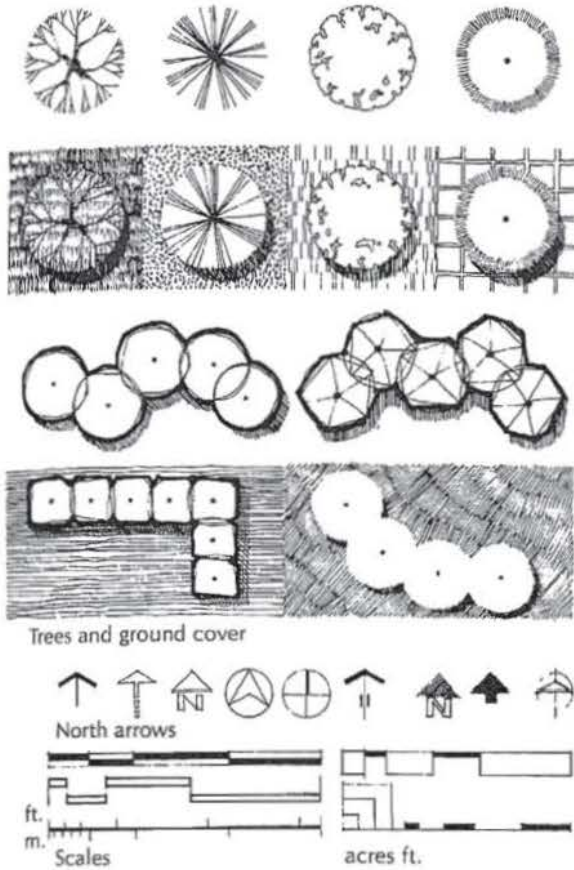


Figure 10.16 Stylized symbols.

missing or, worse yet, misspelled, that pages are out of order, that tables that are referred to are not included or do not show what they are supposed to. Such mistakes do not inspire confidence in the author's professionalism. Difficult though it may seem at the crisis hour, the time to check the report is before duplicating and disseminating it.

### FOR FURTHER CONSIDERATION

1. Review a planning report from a local or regional planning agency. Examine the categories of

graphics used and evaluate how well they are integrated into and augment the text. Note places where additional graphics would have made for more effective communications.

2. Critique a report you have worked on along the same parameters.
3. Put together a dummy for a report you are compiling. Break down the needed work into appropriate categories and estimate time and skills required and cost of reproduction. Keep accounts of actual time and materials expended in completion and compare with the original estimations. Identify what items you underestimated or overestimated.
4. If you had to compile another report similar to the one you have just completed, what aspects of the graphics would you change in both planning and execution?
5. Attend a public presentation of a planning project and evaluate the graphics used along the following criteria:
  - a. Subject matter, its interest and evocativeness.
  - b. Quality.
  - c. Type.
  - d. Integration with oral presentation.
  - e. Efficiency and operation of audiovisual machinery.
  - f. Balance between verbal and graphic components of the presentation.
6. Critique your next presentation using the criteria in number 5.
7. For this next presentation, prepare a handout for the audience and a media release for newspaper journalists and television reporters.

### BIBLIOGRAPHY

Although a number of books cover graphic, drafting, and rendering skills for professions such as architecture, landscape architecture, and graphic design, there is no standard book on useful graphic techniques for planners. Planners therefore have to read about selective techniques in books aimed at these other related professions. The following books are useful in the areas described.



Babbie, Earl R., *Survey Research Methods*, Wadsworth, Belmont, California, 1973.

Chapter 13, "Constructing and Understanding Tables," is especially useful.

Berryman, Gregg, *Notes on Graphic Design and Visual Communication*, William Kaufmann, 1979.

Contains useful sections on design, graphic design symbols, logos, pictographs, and type.

Ching, Frank, *Architectural Graphics*, Van Nostrand Reinhold Co., 1975.

A good preliminary section on basic equipment and materials, the site plan, landscape and ground textures, graphic presentation symbols, hand lettering, and architectural presentations.

D'Amelio, Joseph, *Perspective Drawing Handbook*, Tudor Publishing Co., New York, 1964.

Useful for those who have had no drawing courses to gain some understanding of perspective drawings.

Duncan, Robert, *Architectural Graphics and Communications*, Kendall/Hunt Publishing Company, Dubuque, Iowa, 1980, esp. pp. 1-21.

Useful illustrations and use of some basic drawing equipment.

Hartmann, Robert R., *Graphics for Designers: A Studio Workbook*, Iowa State University Press, Ames, Iowa, 1976.

Useful sections on the drawing process, graphic analysis, generating ideas graphically, line drawing techniques, felt-tip sketches, and photographic techniques and applications.

Kilment, Stephen A., *Creative Communications for a Successful Design Practice*, Watson-Guptill Publications, New York, 1977, esp. pp. 27-35, 61-73.

Although this book is aimed primarily at physical planners and designers, there are lots of cues in it to aid planners to organize and integrate graphics more effectively.

Laseau, Paul, *Graphic Thinking for Architects and Designers*, Van Nostrand Reinhold Co., New York, 1980.

Interesting sections on visual communications through time, graphic thinking, and abstraction. A general graphics book useful to planners.

Peña, William, with William Caudill and John Focke, *Problem Seeking: An Architectural Programming Primer*, Cahners Books International, Boston, 1977.

