

Traditional Color Coding for Land Uses
by
Sanjay Jeer, AICP with Barry Bain, AICP
American Planning Association

December 13, 1997

DRAFT

Land-use maps are the most common way of presenting land-based data. They show land-uses by rendering them in different colors. They effectively illustrate land-use concepts by graphically displaying land-uses, roads, public infrastructure, and community facilities. Planning agencies have been using one color scheme since the 1950's that has become a defacto standard. This standard is also being frequently recommended to planners across the country. The following is a survey of this and other traditional coloring schemes.

Maps generally use a different color for each of the major land-use categories. For example, it is common to render:

- Yellows for residential uses such as single-family and town houses.
- Browns for multi-family and high-rise residential
- Reds for retail and commercial uses
- Purples for industrial uses
- Blues for institutional and public facilities
- Greens for recreational uses
- Grays for industrial utilities

The above primary and secondary colors generally serve basic land-use maps that do not have complex land-use categories. When they do, it is common to find additional colors in shades closer to secondary and tertiary colors. Beyond this traditional color scheme, systems vary widely on how many colors to show on a map and which colors denote what land uses. Because some colors are close to others and easily discernible, elaborate coding schemes also specify the appropriate Prisma color number (Prisma Color is the trade name and manufacturer of popular color pencils). On black and white maps, colors replace monochrome patterns of varying crosshatched lines. We have located several such coloring and hatching schemes in standard planning textbooks, plans, guides, etc., in the APA's research library. The following is a summary of these schemes.

Color Coding Schemes

The color coding schemes from the following sources were surveyed.

- *Planning Design Criteria*. 1969. De Chiara. This book has a coloring scheme for land-use categories, which is listed in table1.

- *A Proposal for a Standardized Land Use Classification Project*. 1958. American Institute of Planners, North Carolina Section of the Southeast Chapter Land Use Classification Committee. This is of the earliest examples of a complete color coding scheme that many other schemes copied later. This is also the standard taught in planning schools.
- *Land-use Classification Manual*. 1965. Inter-county Regional Planning Commission. Denver, Colo. This is an additional example of a color coding scheme from the Denver, Colorado metropolitan area which is similar to the North Carolina example, but with some important variations.
- *Guidelines for Preparing Urban Plans*. 1995. Anderson, Larz T. Planners Press: Chicago, Ill. Contains concise guidelines for coloring and presenting data on maps. It also has standard do's and don'ts for graphical representation.

In addition to the above sources, we also examined land-use maps of the following jurisdictions (randomly chosen from the APA Research Library) for examples of common and uncommon colors.

- Aurora, Colorado
- Sioux City, Iowa
- Barnstable County, Massachusetts
- City of Winter Park, Florida

The survey generally shows the traditional color coding conventions for each standard land-use category. However, there are some differences when maps utilize categories that do not fit the six commonly used land use categories.

Residential land uses are fairly consistent in using shades of yellows and browns for higher densities, multi-family developments, and high rise residential areas. Mobile homes tend to be in colors different from yellows or browns. For example, purple is the recommended color in the De Chiara scheme, lavender in Denver's Land-Use Classification Manual Color Scheme), and other colors as well.

Commercial uses are generally colored in shades of orange to red. The denser the commercial, the redder the color. Some maps use pink for tourist commercial areas as well.

Mixed uses are designated a range of colors in the purple or gray shades. For example:

- Purple Shades:
 - Commercial and residential mixed use areas (e.g., Aurora and Denver)
 - Residential with limited office and neighborhood commercial (e.g., Sioux City)
 - Industrial with limited office and retail (e.g., Sioux City)
- Gray Shades:
 - Office and light industry mixed used areas (e.g., Aurora)
- Orange & Red Shades:

- Central Business Districts (e.g., Winter Park, Sioux City)

Industrial uses in most cases are rendered in grays or shades of purple. The heavier the industry, the darker the gray. Sometimes blues may also be used (Denver and North Carolina).

Institutional uses are mostly blue, but for some types of institutional uses, such as schools and health care facilities, we found greens and grays as well.

Open space areas are typically green or left uncolored. Greens may also represent forested areas and Indian reservations; when more than one open space category is used, we also found dark greens for agricultural uses, and light greens for recreational uses.

Public and governmental lands, such as military installations, are commonly colored in light shades like pink, or left blank.

For transportation facilities and public utilities, black is the preferred color. Different types of facilities may be colored with different shades of gray when grays are not used for other designations. For environmental categories such as wetlands, resource protection areas, and steep slopes, deeper shades of greens and blues are frequently used.

Black and White Coding Schemes

In addition to coloring land-uses, maps also use monochrome colors or black and white patterns to differentiate land-use categories. The hatched patterns traditionally indicate denser land uses with heavier patterns while open space or recreational areas are left blank or lightly patterned. Below is a description of some land-uses and the black and white patterns associated with them.

<i>Land-use</i>	<i>Common Hatching Patterns</i>
Residential	Cross hatches with darker patterns for higher densities
Commercial	Slanted lines, darker patterns for higher intensities
Industrial, Transportation, and Utilities	Points, diamonds, stars, etc.
Public uses	Vertical lines
Parks and Recreation	Stipple patterns
Agricultural	Curved lines

Some standards also specify the hatched pattern by giving Zip-a-Tone or Blu-zip numbers, which refer to the sheets of sticky-back papers with transparent hatching on them. See table 2, Hatched Pattern Schemes, for examples of such specifications.

Color Coding and Computers

Over the years APA's inquiry answering service has fielded questions about coloring maps produced in graphics, CAD, and GIS computer programs. Although there are no specific

standards, we found several land-use and land cover maps using one particular scheme inconsistent with anything planners traditionally produce.

After looking at this standard, the best explanation we have now is that a GIS software program called Arc/Info, included a sample template that used this scheme. The software also showed a sample land-use map based on this template. The colors used here closely matches this frequently found inconsistent scheme. We suspect that non-planners working on GIS might have used this template to assign colors to land uses that has been perpetuated by others. But soon, with cooperation of major GIS vendors and the LBCS study, we hope to provide standard planning color convention schemes so that they may include them as templates.

Unlike color pencils, personal computers can render up to 16 million distinct colors at a time even though the human eye can distinguish only a fraction of these. Most standard personal computers can render 256 to 65,536 colors at a time— providing plenty of color options even for the most demanding maps. Moreover, computers can easily hatch patterns in colors to give even more options. We intend to develop a guideline for templates with colors and hatched patterns after standardizing land-based categories so that popular software vendors can incorporate them as standard templates.

Summary of Frequently Used Colors

Though colors may vary widely, the most frequently used colors for common land-use categories are:

<i>Land-use</i>	<i>Standard Color</i>
Residential	Yellows
Single-Family Residential	Yellows and light Browns
Duplex	Dark Yellow
Multi-family	Dark Brown
Commercial	Reds
Commercial Light Density	Light Red and Orange
Office and Commercial Uses	Red
Mixed Uses	Purple and hatched patterns
Institutional Uses	Blues
Open Space	Green
Transportation	Blacks and Grays
Public and Governmental Lands	Pink
Environmental Areas	Greens and Blues

Bibliography

- American Institute of Planners, North Carolina Section of the Southeast Chapter Land Use Classification Committee. 1958. *A Proposal for a Standardized Land Use Classification System*. State of North Carolina, Department of Conservation and Development, Division of Community Planning: Raleigh, N.C.
- Anderson, Larz T. 1995. *Guidelines for Preparing Urban Plans*. Planners Press: Chicago, Ill.
- Cape Cod Commission. 1991. *Regional Policy Plan Atlas for Barnstable County Massachusetts*. Cape Cod Commission.
- City of Aurora Colorado. 1989. *City of Aurora Colorado Comprehensive Plan Map*. Aurora, Colorado.
- City of Sioux City, Iowa. 1993. *Vision 2020: A Plan for Change*. Sioux City, Iowa.
- City of Winter Park, Fla. Department of Community Development. 1991. *City of Winter Park, Fla. Comprehensive Plan*. Winter Park, Fla.
- De Chiara, Joseph, and Pratt Institute School of Architecture. 1969. 1st edition. *Planning Design Criteria*. Van Nostrand Reinhold Co.: New York, N.Y.
- Inter-County Regional Planning Commission, Denver Colo. 1965. *Land-Use Classification Manual*. Inter-County Regional Planning Commission: Denver, Colo.

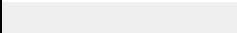


























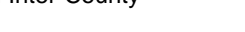

Land Uses	De Chiara Schemes			North Carolina Scheme	Denver What? Comp Plan
	Scheme 1	Scheme 2	Simplified		
RESIDENTIAL					
Single-family	915 Lemon Yellow	915 Lemon Yellow	915 Lemon Yellow	940 Sard	915 Lemon Yellow
Two family	939 Flesh	942 Yellow Ochre	943 Burnt Ochre	942 Yellow Ochre	
Three and four family	917 Yellow Orange	943 Burnt Ochre	943 Burnt Ochre		
Over 5		946 Dark Brown	943 Burnt Ochre		
Boarding rooms and houses	943 Burnt Ochre		946 Dark Brown		
Multifamily	946 Dark Brown			918 Orange	942 Yellow Ochre
Mobile homes					934 Lavender
Group quarters		918 Orange			946 Dark Brown
Tourists and trailer courts	930 Magenta	946 Hatched Brown	931 Purple		
Hotels	931 Purple		931 Purple		
BUSINESS AND COMMERCIAL					
Commercial residential					931 Dark Purple
Services					918 Orange
Retail				922 Scarlet Red	922 Scarlet Red
Wholesale				930 Magenta	
Strip Mall		929 Pink			
Other retail commercial		922 Scarlet Red			
Banks and					
Local	929 Pink		929 Pink		
Consumer service				904 Light Blue	
Professional service				905 Aquamarine	
Business Service				933 Blue Violet	
Shopping Center		925 Crimson Lake			
Offices and Banks	921 Vermilion Red	928 Blush			
General	923 Scarlet Lake		923 Scarlet Lake		
Intensive, theatres and recreation	925 Crimson Lake				
INDUSTRIAL					
Extractive		964 Warm Grey		940 Burnt Ochre	966
Warehouse, wholesale		936 Slate Gray			968
Manufacturing		961 Warm Grey		931 Purple	966
Manufacturing Services				934-Lavender	
Utilities		931 Purple			901 Indigo Blue
Sewerage, Disposal					965
Light	964 Light Gray				
Railroad and Utilities	962 Dark Gray				
Communications					901 Indigo Blue
Heavy Industry	935 Black				
TRANSPORTATION		956 Light Violet			936 Slate Grey
Vehicular Transportation				962 Medium Grey	
Non-Vehicular Transportation				964 Light Grey	
PUBLIC					
Corrections					906 Copenhagen Blue
Parks	910 True Blue		910 True Blue		
Public schools	909 Grass Green	919 Sky Blue	909 Grass Green		
Public buildings	903 Dark Green	902 Ultramarine			
Educational, religious, recreational				912 Apple Green	903 True Blue
Sports/recreational facilities					909 Grass Green
Open space					910 True Green
Unimproved forest land					910 True Green
Health and welfare				907 Peacock Green	
QUASI PUBLIC					
Open uses	903 True Blue				
Churches	902 Ultramarine		901 Indigo Blue		
Buildings and institutions	901 Indigo Blue	901 Indigo Blue			
Military					919 Non-photo Blue
Cemeteries	905 Aquamarine		905 Aquamarine		919 Non-photo Blue
AGRICULTURAL			912 Apple Green		912 Apple Green
Crops	912 Apple Green				
Livestock	911 Olive Green				
VACANT LAND	no color		no color		
WATER					

Sources:

1. De Chiara, Joseph, and Pratt Institute School of Architecture. 1969.1st edition.*Planning Design Criteria*. Van Nostrand Reinhold Co.: New York, N.Y.
2. Inter-County Regional Planning Commission, Denver Colo. 1965. Land-Use Classification Manual. Inter-County Regional Planning Commission: Denver, Colo
3. North Carolina Section of the Southeast Chapter Land Use Classification Committee, American Institute of Planners, 1958.*A Proposal for a Standardized Land Use Classification System*. State of North Carolina, Department of Conservation and Development, Division of Community Planning: Raleigh, N.C.
4. Anderson, Larz T. 1995. Guidelines for Preparing Urban Plans. Planners Press: Chicago, Ill.

Table 1: Color Coding Schemes

Standard Hatching Patterns

Land Uses	North Carolina	Denver Classification Manual	
	Example Blue-Zip Patterns	Zip-A-Tone	Zip-a-tone Pattern Pattern
RESIDENTIAL			
Single-family	0	B550 10%	
Two family	02		
Multifamily	03-05	B550 40%	
COMMERCIAL			
Services		B340M	
Retail	Red-Blue	B340M	
Wholesale	BP-68		
Consumer Service	BP-66		
Professional Service	BP-1		
Business Service	BP-126		
INDUSTRIAL			
Extractive	BP-75		
Warehouse, Wholesale		B312M	
Manufacturing	BP-54	B408M	
Manufacturing Services	BP-69		
Utilities		B87IM	
Sewerage, Disposal		B87IM	
Light		B87IM	
Railroad and Utilities		B87IM	
Communications		B87IM	
TRANSPORTATION		B87IM	
Vehicular transportation	BP-50		
Non-vehicular transportation	BP-50		
PUBLIC		B323M	
Corrections			
Parks		B320M	
Educational, Religious, Recreational	BP-167		
Sports/Recreational facilities		B320M	
Health and Welfare	BP-7		
QUASI PUBLIC		B323M	
AGRICULTURAL		B447M	

Sources:

1. Inter-County Regional Planning Commission, Denver Colo. 1965. *Land-Use Classification Manual*. Inter-County Regional Planning Commission: Denver, Colorado.
2. North Carolina Section of the Southeast Chapter, American Institute of Planners, 1958. A Proposal for a Standardized Land Use Classification System. State of North Carolina, Department of Conservation and Development, Division of Community Planning: Raleigh, N.C.

Table 2 Hatched Pattern Schemes