



Section 6e: Physical Environment

Introduction

The physical environment of an area plays a vital role in determining the growth and development of a region. Characteristics that make up the physical environment include topography, hydrology, geology, climate and soils. The physical environment has a distinct impact on countless variables that influence the growth of a community. Variables such as road development, construction techniques, building sites, and insurance costs are all processes that are affected by the physical environment. An overall scope of how the physical environment affects the advancement of urban growth is important, whether it is a positive or negative asset.

Topography

Lathrop's absolute location is 39.55 N, 94.33 W in the east central part of Clinton County, approximately 8 miles east of Plattsburg, Missouri. This community rests on Heavy Tilled Plains, which is common along the northwest sector of Missouri. The land is generally flat with gently rolling hills that are cut by sinuous creek beds. The elevation of Lathrop is approximately 294 feet above mean sea level and is fairly equivalent throughout the town.

Geology

Lathrop's bedrock is predominantly underlined by limestone and shale. Other forms of bedrock include Pennsylvanian deposits, sandstones, clays and thin layers of limestone and coal. Glaciers were dominant in Missouri throughout the Pleistocene Epoch, or ice age, and altered much of the landscape. Everything north of the Missouri River was affected by glaciers. Sediments left behind by glaciers include clay, silt, sand, gravel and large boulders. These sediments, known as glacial till, create much of the black, rich, fertile soil in the Lathrop area. Since the area is susceptible to heavy rainfall and has clay found in its topography, the storm water runoff frequently creates erosion problems.

Climate

The climate is generally moderate with hot summers and cold winters. The National Weather Service at the Kansas City/Pleasant Hill location reports the seasonal average temperatures for the area to be 84 degrees in the summer, 54 degrees in the fall, 59 degrees in the spring, and 32 degrees in the winter. Typically the lowest average amount of precipitation occurs during the month of January with approximately 1.29 inches of precipitation. The highest average amount of precipitation occurs during the month of June with 4.86 inches of precipitation. The average snowfall for the area is 20.7 inches.

Hydrology

Lathrop, fortunately, lies in a county with a relatively small portion of land that is within a 100-year floodplain. Clinton County is situated on a flat plateau and crossed by no rivers and few major streams. Lathrop is often spared significant damage during heavy rain events due to its higher elevation. Nonetheless, the county participates in the National Flood Insurance Program, and has development policies in place to discourage construction in the floodplain. There are seven NFIP policies currently in effect in Clinton County, including four in the City of Holt, one in the City of Lathrop, and one in the City of Trimble. There are no streams or water sources around Lathrop which have flows large enough to supply major municipalities. As such, the primary source of water is drawn from the Missouri River via Kansas City, Missouri.

Soils

The majority of soil surrounding Lathrop is comprised of Grundy association. This association makes up about 34 percent of the county. Grundy soils have a surface layer of black silt loam and a subsurface layer of black, friable silty clay loam. The subsoil is very dark gray, dark grayish brown, and grayish brown, mottled, firm silty clay loam and silty clay. The substratum is grayish brown, light brownish gray and mottled silty clay. In most areas the soils in this association are used for cultivated crops, hay, and pasture. The soils are suited to corn, soybeans, grain sorghum, small grains, and grasses and legumes for hay and pasture.

Slope and the hazard of erosion are the main management concerns. Surface wetness is a problem in spring and fall when tillage and harvesting are done. Overgrazing and grazing when the soils are wet are the major concerns in pasture management. The soils are suitable for sanitary facilities and building site development if proper design and installation procedures are used. Wetness, slow permeability, and the high shrink-swell potential are the main limitations.

Severe Weather

In ranked order, the hazards associated with severe thunderstorms (hail, high wind, lightning) are noted as the most likely to endanger lives and property of Lathrop residents, followed by tornadoes, severe winter weather (ice, heavy snowfall, extreme cold), drought, heat wave, and fire. These disasters can precipitate cascading hazards, or those hazards caused as a result of a natural disaster. Cascading hazards could include interruption of power supply, water supply, business and transportation. Natural disasters can also cause civil unrest, computer failure and environmental health hazards. Any of these, in combination could possibly impact emergency response activities.