



Lane's proportionality allows the designer to understand and predict the effect of forces on a stream. Energy and continuity equations allow the designer to predict the depth and average velocity at any point. The energy and continuity equations are the bases for understanding the exchange of energy modes. Perhaps the simplest useful way to apply these principles is to think of energy as either kinetic or potential. For the purposes of stormwater, flooding occurs when potential energy is higher than we can accept and accelerated erosion occurs when kinetic energy is higher than we accept.

3.1.6 Temporal and Spatial Implications

The location of a stream in its watershed influences the dominant process in that reach as **Figure 3.1.8** illustrates. Most commonly, the upper reaches and headwaters tributaries are the generators of sediment; the mid section of the watershed usually transports sediment without major sedimentation or erosion and the lowest reaches deposit sediment. This broad pattern holds for each sub-unit of the watershed. So each tributary will have an erosional reach, a transport reach and a depositional reach.

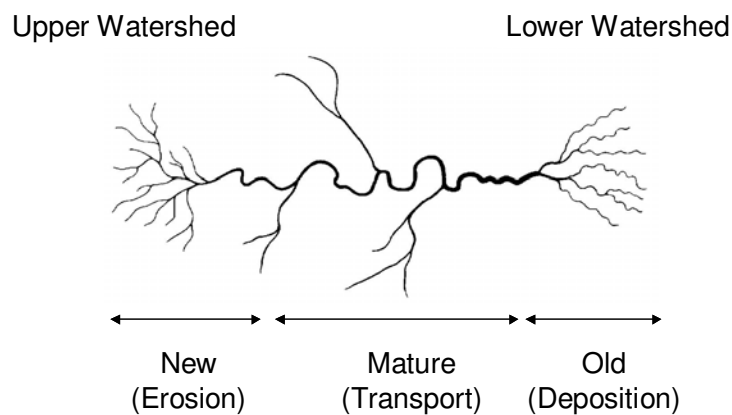


Figure 3.1.8. Influence of Watershed Location on Dominant Process