The Feasibility Condition (FC) states that, “To be considered a Feasible Successor (FS) the Advertised Distance (AD) a.k.a. Reported Distance (RD) must be less than Feasible Distance (FD) of the Successor”. This is a loop prevention mechanism of EIGRP.

Successor: Best route to a network. In other words, best metric route to a network.

Feasible Successor (FS): Second best route to a network.

FD: Total distance or metric to get to a network.

AD: FD reported by a neighbor to get to a network.

How does the FC helps avoiding loops?

Suppose that R1 advertises Net A to R2 with an AD=5. R2 adds it to its metric to get to R1 resulting in a FD=10+5=15. R2 later advertises Net A to R4. R4 to R3, R3 back to R2. R3’AD=15+100+20=135. So, R3’s AD > R2’FD, 135>15. It does not meet the FC, which means there is a possibility of a loop. Indeed, there is a loop in this case.
There are cases where the FD is not met however there are no loops either. When the successor route fails, the route will be set to Active (A) and DUAL will trigger its mechanism to find an alternative route. Let’s see.

R1’FD to get to Net B is 30. R3’AD is 50. 50>30, so the FC is not met. However, there are not loops either. R1 can get to Net B thru R3 without any loop occurrence. DUAL will be triggered if Successor route thru R2 fails. The network will converge pretty quick, but not as quick as if a FS had been installed in the topology table. So, a good network engineer should adjust R3’AD to a value less than 30 to avoid this evident and unnecessary delay.