

**Maximum Throughput Capacity (MTC) for Single Runway**

Provide a definition for each term. Use short description (i.e. phrases and bullet points). Provide equations and units if applicable

1. Maximum Throughput Capacity (MTC)
  - *Number of flights per unit time (e.g. flights served in an hour)*
  - *Typical Range 8 (IFR) - 12 (VFR) per 15 minutes (32 - 66 per hour)*
  
2. Runway Occupancy Time (ROT)
  - *Time an aircraft uses the runway*
  - *Typical range 30 secs to 60 secs with std dev 5 secs*
  
3. Simultaneous Runway Occupancy (SRO)
  - *Rule that prevents more than one aircraft using the runway at a time.*
  
4. Arrival Wake Vortex Separation Distance
  - *Distance separation required to prevent a following aircraft experiencing a "wake vortex encounter" from the lead aircraft*
  - *Determined based on aircraft weight (Longest distance Heavy followed by Small = 6 nm, Shortest distance (Small followed by Small = 2.5 nm).*
  
5. Inter-arrival Separation Distance ( $S_{ij}$ )
  - *Distance between lead aircraft "i" and follow aircraft "j" at any time on the approach path*

6. Inter-arrival Separation Time ( $T_{ij}$ )

- *Time between lead aircraft "i" and follow aircraft "j" at any time on the approach path.*
- *Depends on the velocity of the lead and follow aircraft.*
  - *When lead and follow same aircraft  $t_{ij} = s_{ij} / v_i$*

## 7. List TWO parameters related to aircraft performance that affect MTC

- *Runway Occupancy Time (ROT)*
- *Approach Speeds*

## 8. List TWO parameters related to Air Traffic Control performance that affect MTC

- *Approach Distance*
- *ATC Buffer*

## 9. Lead-Follow Pair Compression/Separation Cases

- *Compression: Follow aircraft is faster than Lead aircraft*
- *Separation: Follow aircraft is slower than Lead aircraft*