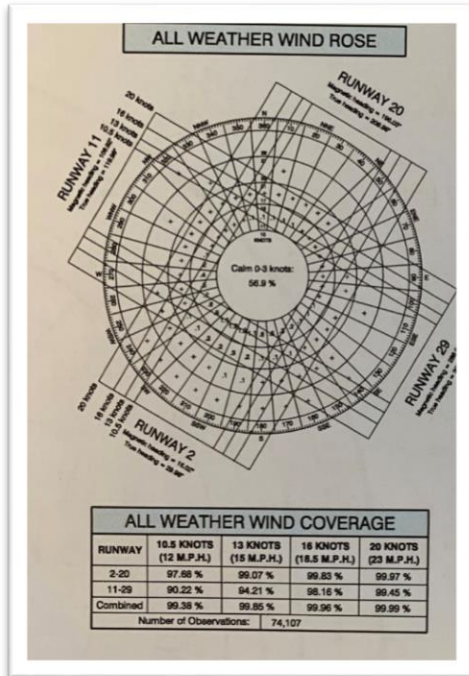


## Determinant Factors for Aircraft Runway Utilization

### WIND



**Wind Direction & Velocity are the primary determinant factors for runway selection and utilization at airports.**

- Relative wind (headwind) reduces takeoff distance and improves climb performance.
- Calm winds usually occur at night, after sunset until mid-morning.
- Wind favoring runway 29 and 20 occur during the peak hours of the day and peak during the summer periods (*airport design*).
- Aircraft arriving or departing with a tail wind pose a significant hazard.
- Aircraft are limited to crosswind of less than 17-20 knots.
- Tower controllers only have access to calm wind runways when wind on the ground and at the approach altitude are calm.

### LENGTH & LOAD BEARING

- Large aircraft need runway 29 or runway 11 based on speed, wingspan, and weight.
- Fast aircraft need runway 29 or runway 11 based on speed.
- In the summer, smaller faster aircraft like Cirrus require runway 29.

### IFR vs. VFR

- Most jets arrive and depart IFR. Only runway 29 and runway 20 support this.
- A very small number of jets depart VFR. The tower instructs them to "Fly runway heading until I80 then I80 on course"

### Peak Period Traffic Flow

- The tower is required to create a general flow of traffic for safety and separation standards which integrates with Oakland Center. When the fleet mix of traffic is comprised primarily of aircraft requiring runway 11 or 29 most traffic will be assigned in-trail.

\*\*Average peak period scenario for summer afternoon\*\* [Wind 240 degrees @18 Gusting 24, 30% jets, 30% turbo-prop, 20% piston single, 10% glider, 10% piston twin/other]\*\*

