Application of SIMMOD-Based Simulation
User’s Group Perspective

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Topics

- Value of SIMMOD
- The NASUG
- SIMMOD Application Examples
SIMMOD’s Value

- Realistically Models How Airport Works Under Different Conditions
- Can Test Various “What If” Scenarios and Quantify Differing Impacts
- Produces Animation of Model That is Understandable By Non-Technical Individuals
The North American SIMMOD User’s Group

- Organization for the exchange of ideas and experiences between SIMMOD users primarily working on North American airspace and airport projects
- More than 100 members from the aviation community
- Meets twice a year
- Web site at www.nasug.com
SIMMOD Applications:
1. Benefit Cost Analysis

- Annualized SIMMOD results may be used to help time the addition of new runways, taxiways, or gates.
- Delay curve is produced showing average delay per operation as operations level increases.
Delay Curve

We need to work together on planning airport development.

- **Existing - Master Plan**
- **Existing - No Improvements Except Max 18L Use**
- **A: Regional & Business Jets Arr 36R/Dep 18L**
- **C: Case A plus Case B**
- **E: Case A plus Case D**
- **G: Case F plus Case D**
- **New Rwy - No 18L Dep block**
- **New Rwy - Unrestricted**

- **New Rwy - Existing**
- **New Rwy - No 18L/18R/New Rwy Dep block**

**Annual Operations vs. Average Aircraft Delay**

- **Base Traffic** 250,000 Annual Ops
- **Future 1** 350,000 Annual Ops
- **Future 2** 400,000 Annual Ops
- **Future 3** 500,000 Annual Ops

**Yearly Operations**

- **Existing - Master Plan**
- **Existing - Absolutely No Improvements**
- **B: Regional & Business Jets Indep 36L/36R Dep**
- **D: All Aircraft Indep 36L/36R Dep**
- **F: Any aircraft Arr 36R/Dep 18L**
- **New Rwy - Existing**
- **New Rwy - No 18L/18R/New Rwy Dep block**
SIMMOD Applications:

2. Terminal/Concourse Layout

Used SIMMOD to quantify ground movement impacts in apron area.
SLC Existing Conditions

Because it provides airport sponsors with:

- A realistic plan that can be funded
- Stakeholder input that meets the needs of the users and the community
- Cooperation from local governing agencies
- Support from all entities
- Funding assistance

- A logical plan that fits in with local/regional development goals and initiatives

Concourse "A"
Concourse "B"
Concourse "C"
Concourse "D"
Concourse "E"
Parking Structure
Terminal Layout Study Results

SLC SIMMOD Analysis - Existing Conditions, 1999 Traffic

[Chart showing ground time in minutes for different times of day, with bars indicating arrival taxi and arrival delay.]
Terminal Layout Study Results
SIMMOD Applications:

3. Construction Phasing

- Modeled the impact of closing part of a runway at MSP for reconstruction
- Showed Airport Management, Airlines and Air Traffic Control That Construction Could Be Accommodated
- Provided Airlines with Necessary Information To Fine Tune Schedule and Minimize Delays
- Helped Airport Fine Tune the Phasing of the Project to Reduce Delays