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METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

Airside Simulation at Washington Dulles International Airport

Erik Wilkins, Jim Zimmermann, Joy Martin

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Introduction

- Initial project scope
- Project progression
- Lessons learned (re-learned)

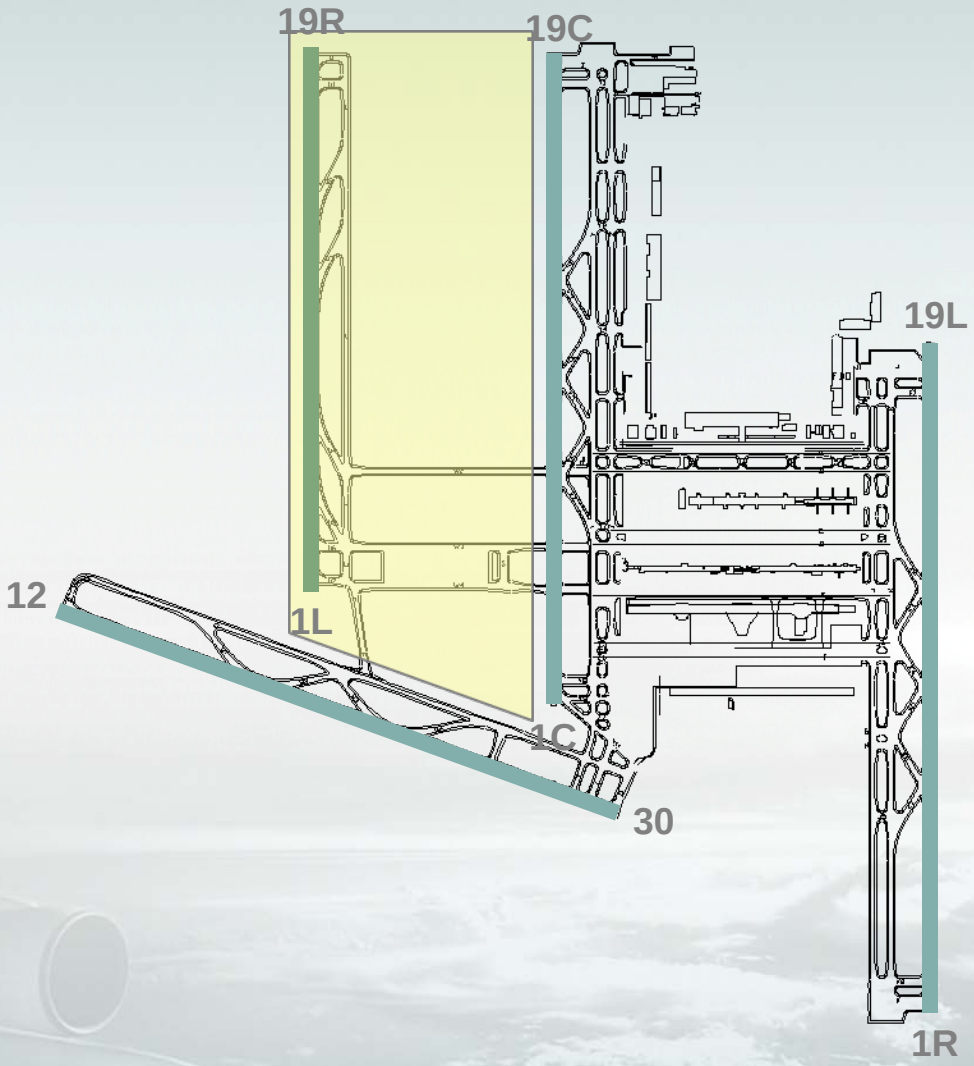
Initial Scope

- Baseline model update
- The models were previously developed by HNTB
- The models needed to be updated to reflect current conditions
- A new baseline flight schedule needed to be developed to reflect summer of 2008 activity
- The models needed to be calibrated and set up to perform future analyses

Models

- Two Airfields
  - Existing – three runways
  - Future – four runways (with new Runway 1L/19R)
- Three configurations
  - North flow
  - South flow
  - Mixed flow
- Weather conditions – visual
- A new baseline flight schedule was developed based on June 2008 activity

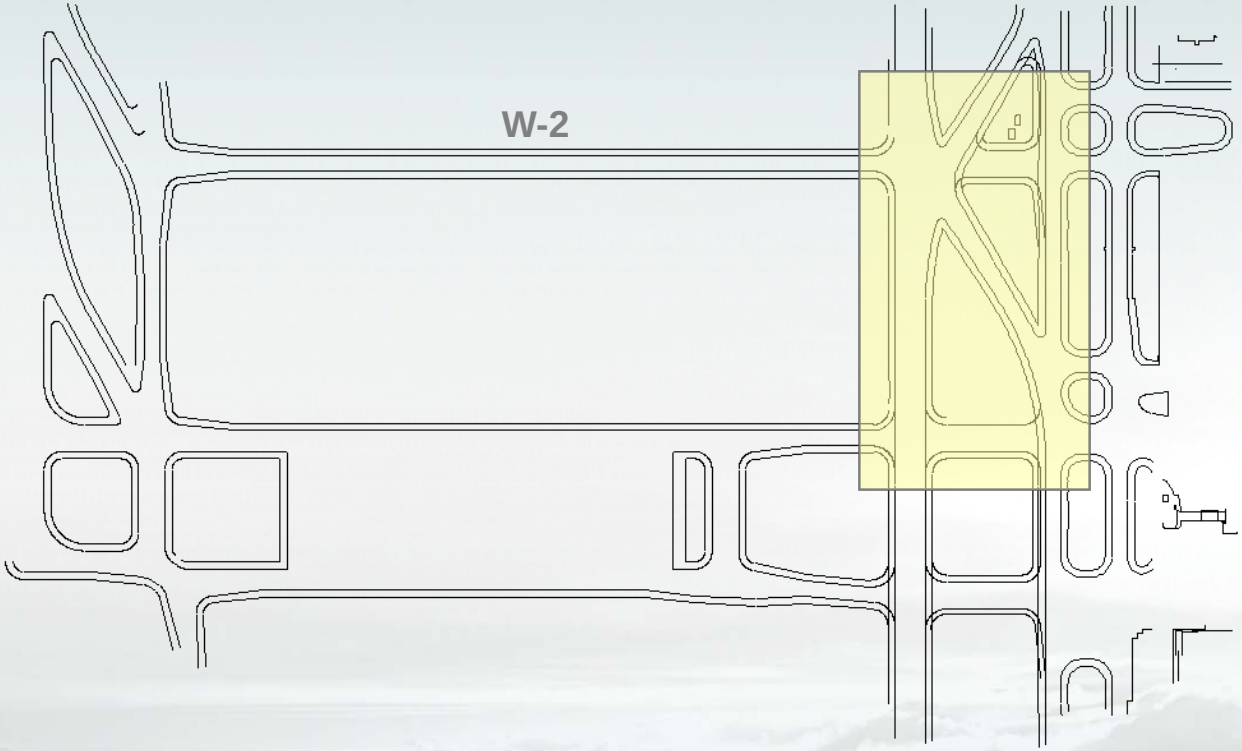
Washington Dulles International Airport



Question

- Is the Taxiway W-2 connection needed?
- More specifically, what are the implications of not connecting Taxiway W-2 to the east side of the airfield?
- The subsequent analysis highlights the use of fast-time simulation beyond capacity and delay analyses

Taxiway W-2 Issue



Taxiway W-2 Analysis

- Assumptions were made regarding use of the new runway and taxi routings
- Changes were implemented in the models, simulations run, and results processed
- Results were presented in terms of taxi-in travel time (minutes per operation averaged over all operations)

Scenario	Without Taxiway W-2	With Taxiway W-2	Savings
North Flow	7.7	7.6	0.1
South Flow	9.7	9.4	0.3
Mixed Flow	9.3	9.0	0.3

Taxiway W-2 Analysis

- When the results were re-averaged over just those operations that use the connected Taxiway W-2 (Runway 1L arrivals), the benefits of completing Taxiway W-2 become more apparent

Scenario	Without Taxiway W-2	With Taxiway W-2	Savings
North Flow	7.7	7.6	0.1
South Flow	9.7	9.4	0.3
Mixed Flow	9.3	9.0	0.3
North Flow (Runway 1L arrivals only)	14.3	12.9	1.4

Lessons Learned (and Re-Learned)

- Fast-time airside simulation has uses beyond capacity, delay, and environmental analyses
- Construction phasing, operational changes, and a myriad of other problems can also be analyzed using simulation
- Results can help clients (airports) make better (more informed) decisions
- The visual aspects of simulation and the flexibility inherent in these models prompts more questions
- Trying to find answers to those additional questions can push the capabilities of SIMMOD and of the consultants
- Often, the complexities of airside systems can't be fully understood or appreciated until they are simulated

Thank you for your time!