



NASA/FAA North Texas Research Station



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NASA Ames Research Center**



Outline

- **Introduction to NTX**
 - Facilities
 - Field Evaluations
 - Prototype Daily Use
- **VAMS-Related Capabilities**



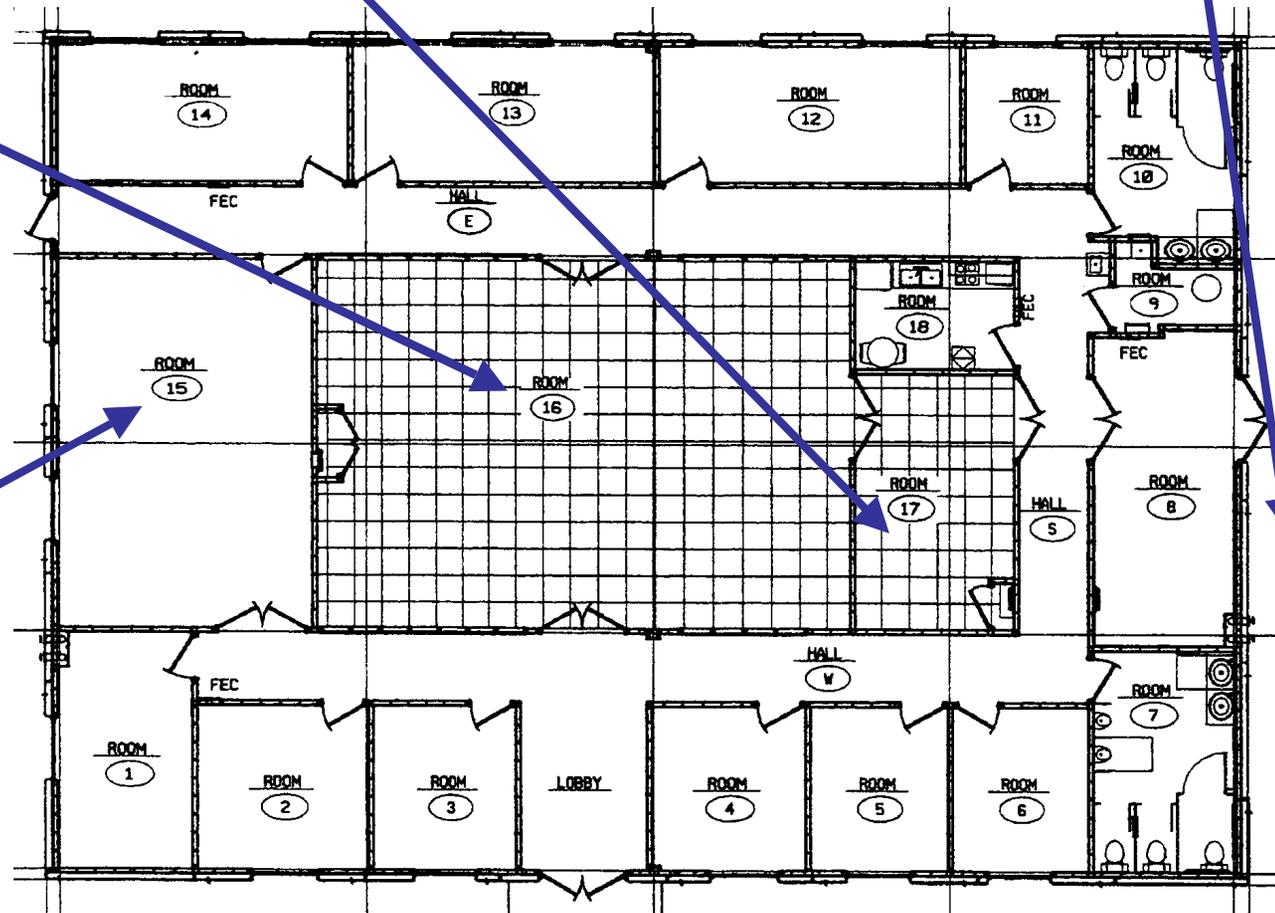
NTX Facilities - Laboratory

Auxiliary Lab
Dim: 11' x 18'
Features: same as primary lab
Uses: isolated research work area

Primary Lab
Dim: 27' x 38'
Features: raised floor, ample power and network capacity, highly reconfigurable
Uses: general purpose research work area

Conference Room
dim: 17' x 27'
uses: visitors, briefings, training, etc.

Radio Communications Tower
Dim: 60'
Features: platform with 6 antenna mounts
Uses: TARTS, wireless LAN, etc.





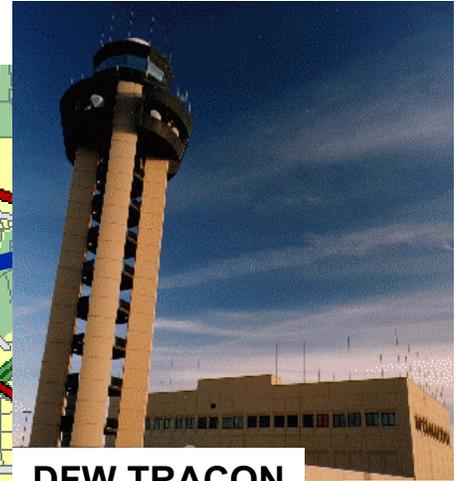
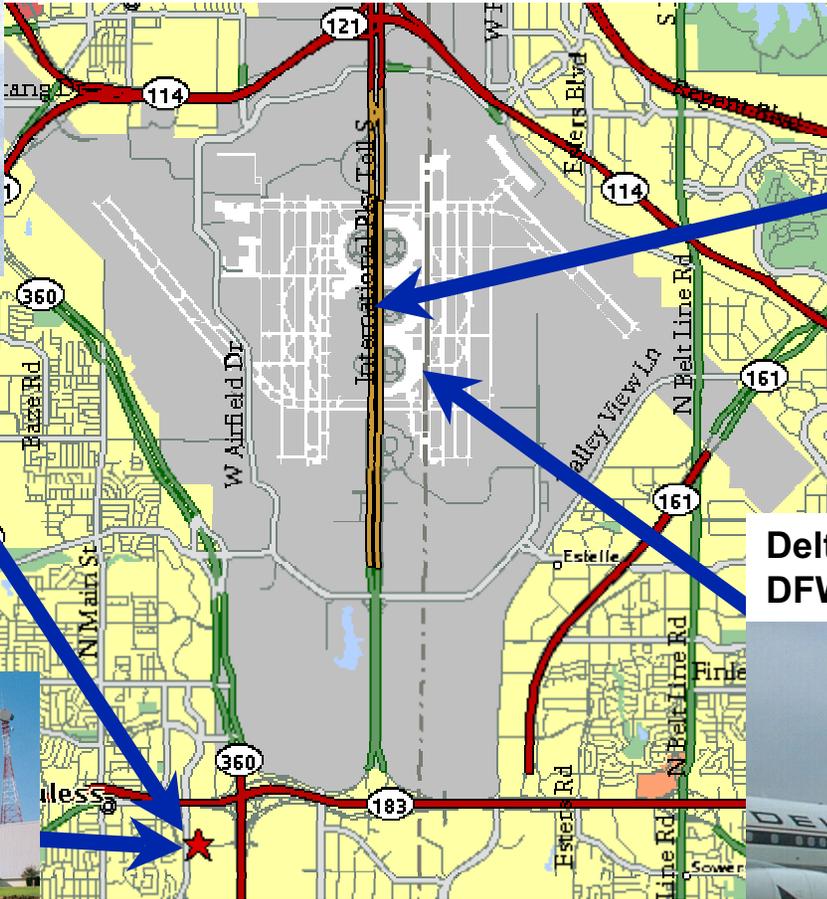
NTX Facilities – CTAS Installations



**American Airlines
System Operations Control**



Fort Worth ARTCC



**DFW TRACON
and Towers**

**Delta Air Lines
DFW Ramp Tower**



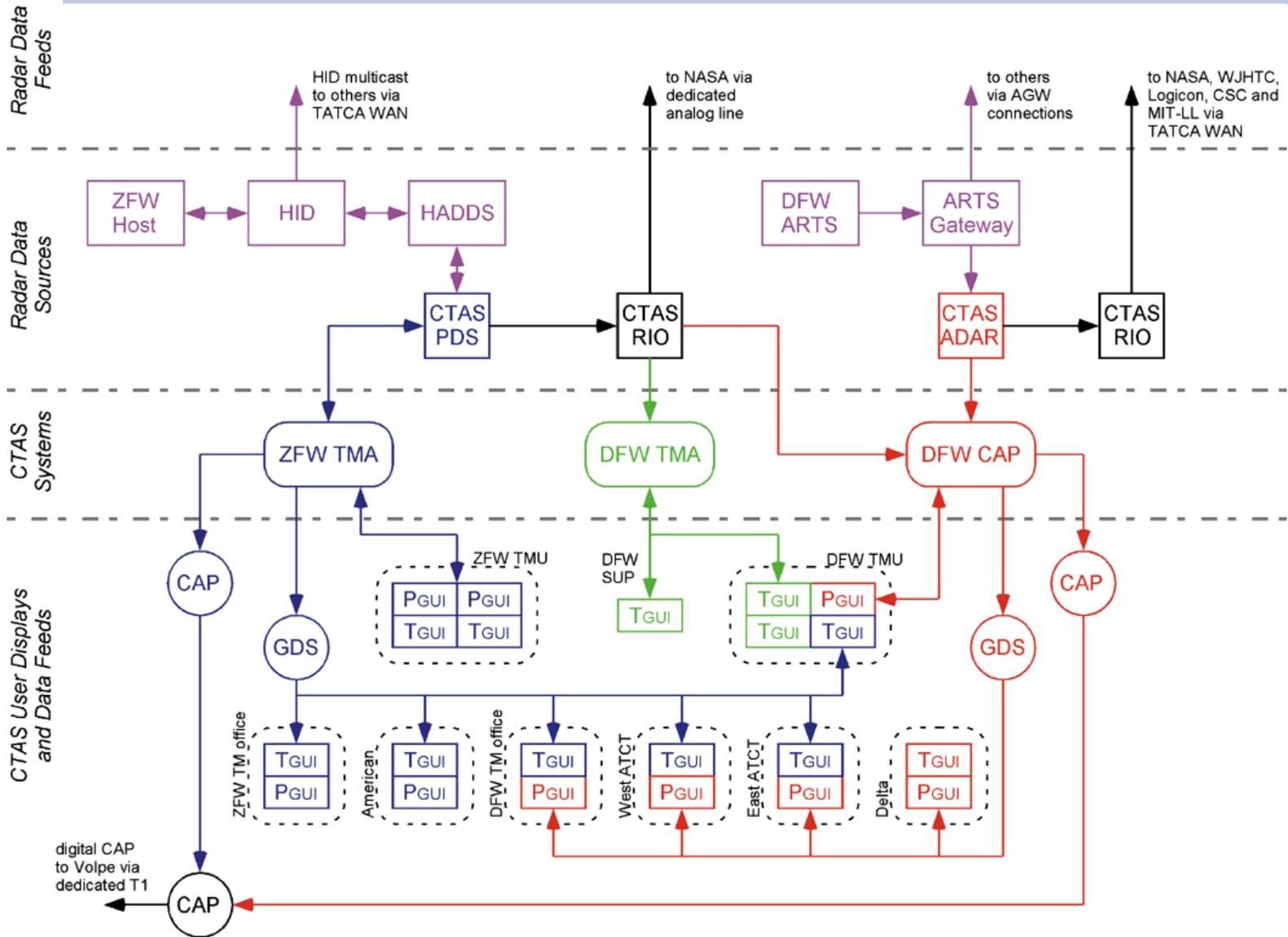


Decision Support Tool Field Evaluations

- **Major Field Evaluations**
 - **Passive Final Approach Spacing Tool (pFAST)**
 - **Traffic Management Advisor (TMA)**
 - **Collaborative Arrival Planning (CAP)**
 - » **Display System**
 - » **Digital Data Feed**
 - **Conflict Prediction and Trial Planning (CPTP)**
 - **Direct-To Controller Tool (D2)**
- **Field Evaluation Support Provided By NTX**
 - **Serve as interface between Ames researchers and local operational facilities (FAA, airlines, airports etc.) – identify key players, develop relationships and build trust**
 - **Study facility operations identifying unique constraints, sensitive issues and unforeseen opportunities**
 - **Design, procure, deploy, maintain and document field test research infrastructure**
 - » **Requires significant coordination with operational facilities**
 - » **Work with researchers to identify requirements and make necessary adjustments to accommodate operational environment**
 - **Assist with experiment setup, execution and data collection (CTAS recordings, observations, human factors surveys, voice recordings, etc.)**
 - **Archive data and assist with analysis**



CTAS Prototype Daily Use





VAMS-Related Capabilities

- **Personnel**

- **NASA Team:** An experienced and motivated resident team of six engineers and computer specialists each with many years of ATC field site experience
 - » Several engineers with strong backgrounds in simulation modeling
 - » Experience preparing and utilizing Host simulation scenarios
 - » Expertise in processing and analyzing ATC data
- **FAA Team:** Air Traffic personnel assigned to NTX provide invaluable ATC expertise and insight

- **Relationships**

- **FAA ZFW ARTCC:** Facility Management, Traffic Management, NATCA, Automation, Airways Facilities, Quality Assurance, System Requirements, Airspace and Procedures
- **FAA D10 TRACON/DFW Towers:** Facility Management, Traffic Management, Automation, Airways Facilities, Programs and Procedures, NATCA
- **FAA Southwest Region:** Air Traffic Division staff and NAS Implementation (i.e. facilities engineering)
- **DFW Airport:** Capacity Design Team, Operations, Planning
- **Other:** American Airlines, Delta Air Lines, Southwest Airlines, FAA WJHTC, MIT-LL at DFW, DOT Volpe Laboratory

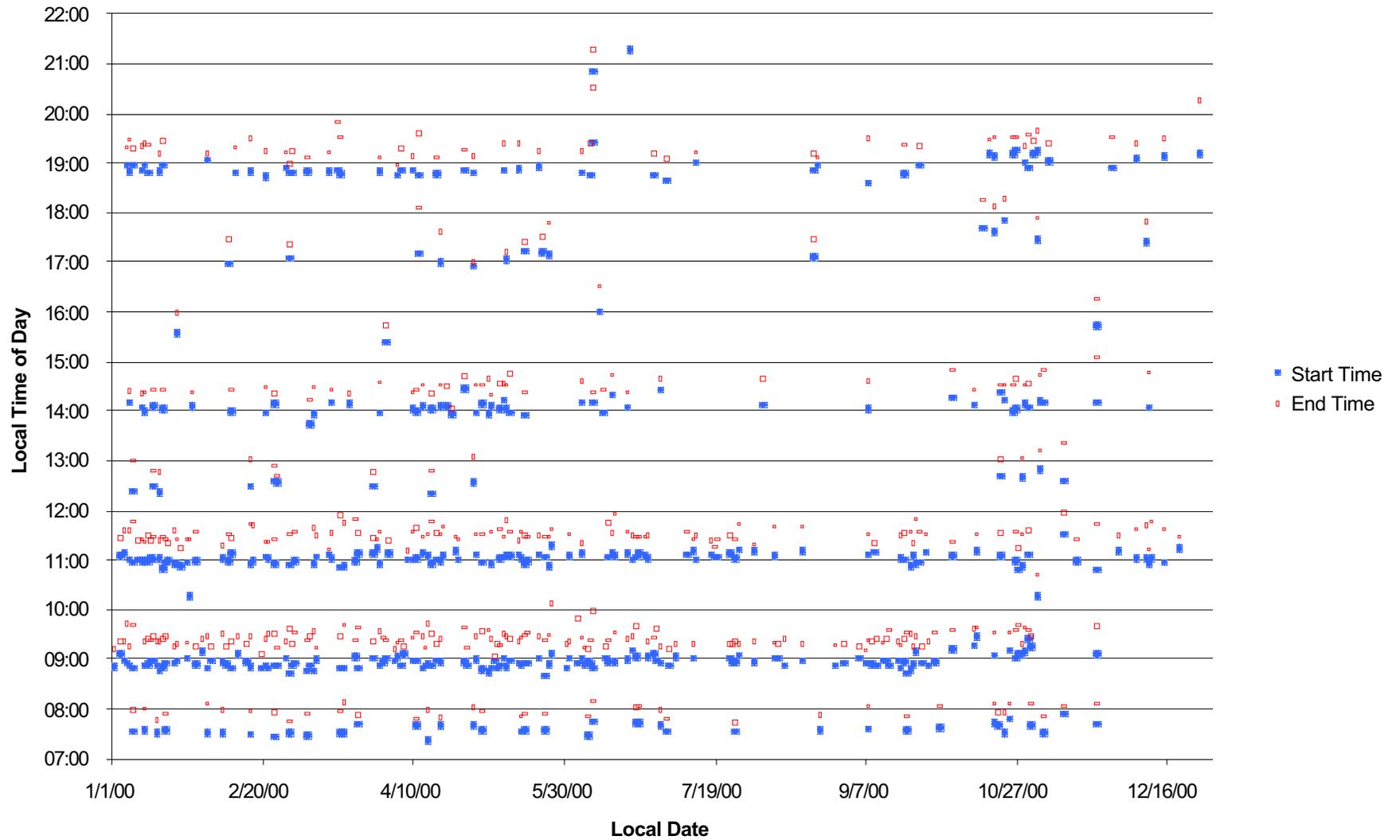


VAMS-Related Capabilities - Continued

- **NTX CTAS Data Archive**
 - More than 5 years of daily-use CTAS data from ZFW and DFW
 - Main archive includes real-time CTAS recordings plus post-processed summary and statistical data
 - Separate relational database stores archive summary information and environmental data to provide context
- **Data Sets and Analytical Results Delivered**
 - Data supplied to AATT and Free Flight to support CTAS benefits analysis
 - Data supplied to D/FW Airport consultants for SIMMOD model development
 - Data requests from Ames researchers often require quick-turn modifications to NTX post-processing utilities
 - Deliveries include unique data sets (e.g. CAD files and tower photos for FFC sim, TMU logs, ARTS traffic count statistics, op error data, etc) obtained via aforementioned relationships
- **Airspace Utilization and ATC Operations Studies**
 - In-house analysis of data in NTX archives
 - Results made available to Ames researchers and local FAA partners
 - Similar analyses performed for other ATC domains

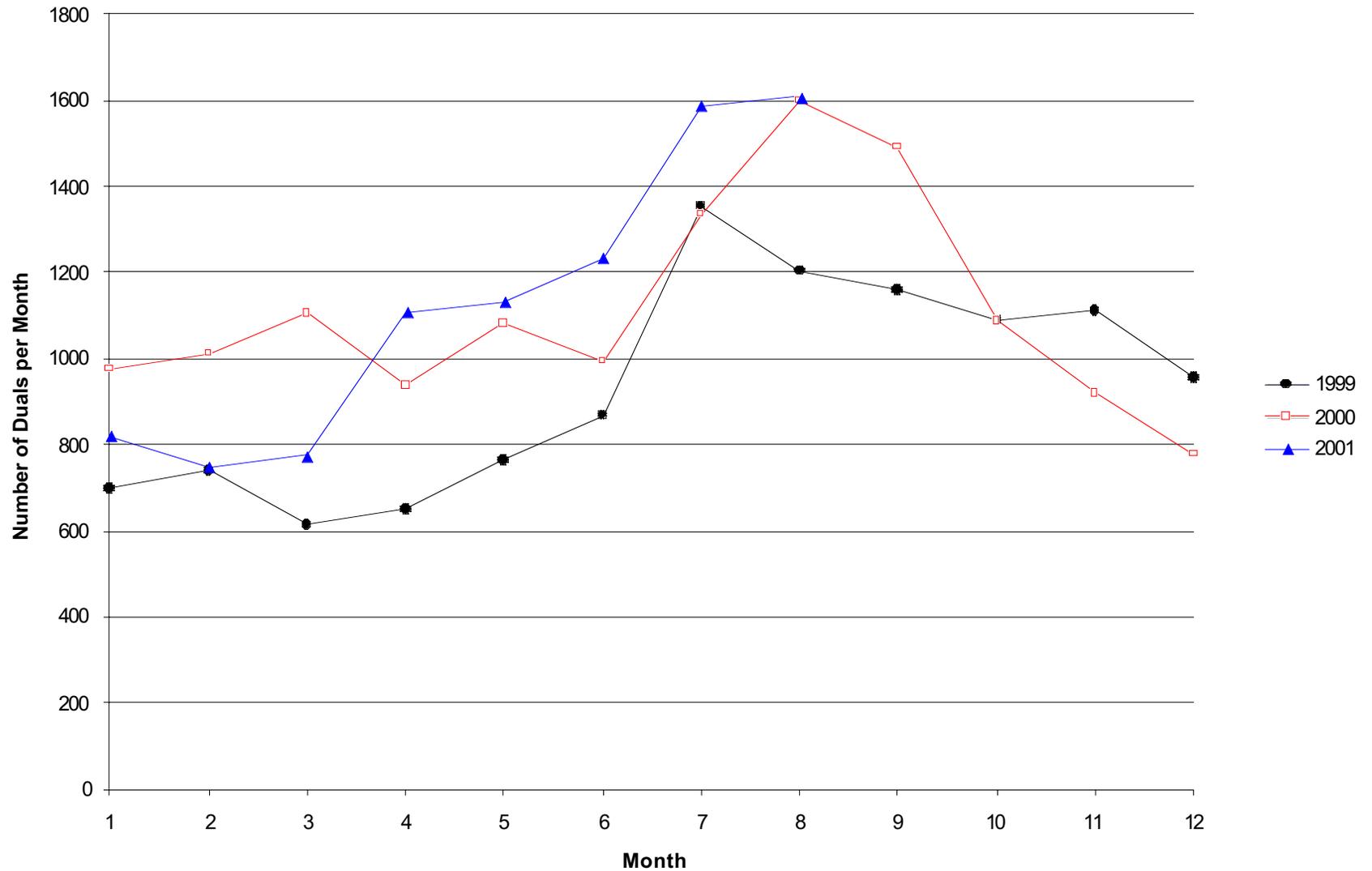


ZFW Metering for 2000





Variation in DFW Dual Arrivals





1999 DFW Arrival Tally

