

1. EXECUTIVE SUMMARY

Dallas Fort Worth International Airport (DFW) is one of the largest employers in the Dallas, Fort Worth metropolitan region and source of substantial economic activity. It is also one of the largest sources of emissions and a significant consumer of power within the region. As a result the Airport plays a central role in ensuring the area's quality of life and economic viability. To meet its responsibilities DFW has committed to improving air quality and increasing energy efficiency through an aggressive program that will influence all aspects of airport operation.

DFW has done an outstanding job initiating programs that will control air emissions and improve energy efficiency. Its environmental initiatives represent one of the most far-reaching programs at any airport in the U.S. if not the world. Opportunities for improving air quality and energy efficiency still exist, however, and are necessary to offset emissions resulting from future growth.

Exhibit 1 illustrates the relative contribution of major emission source categories at the Airport (see also Appendix A). Emission reduction opportunities, which are described in this report, have been identified for each source and recommendations are made for capturing the benefits.

- *Landside vehicles* include private automobiles, taxis, limousines, shuttle vans, delivery trucks, and other vehicles that travel to the Airport. Emissions from landside vehicles are about 13% of the current inventory. Recommendations for reducing emissions from landside vehicles include promoting carpooling and transit use, automating parking and signaling to expedite traffic flow, and using contracts or licensing agreements to stimulate alternative fuel vehicle use by commercial vehicles.
- *Ground support equipment* includes all of the vehicles that operate on the airside of the terminal to service aircraft. About 20% of current emissions are from ground support equipment. Recommendations for reducing these emissions include expanding the use of advanced technology vehicles and minimizing or eliminating the vehicles through advanced terminal design techniques.
- *Aircraft* are the largest source of emissions at the Airport contributing more than 62% of the total. A key recommendation of this report is to adopt an airport-wide policy to induce airlines to follow best management practices to minimize fuel use and reduce emissions. Other recommendations include working with FAA to demonstrate specific advanced technologies for improving air traffic management efficiency, which will reduce airport-area emissions, and monitoring advances in fuel additives that improve jet engine efficiency.
- *Auxiliary power units* on aircraft are responsible for about 2% of the Airport's emissions inventory. Recommendations include extending and improving gate power and preconditioned air systems and adopting an airport-wide policy that

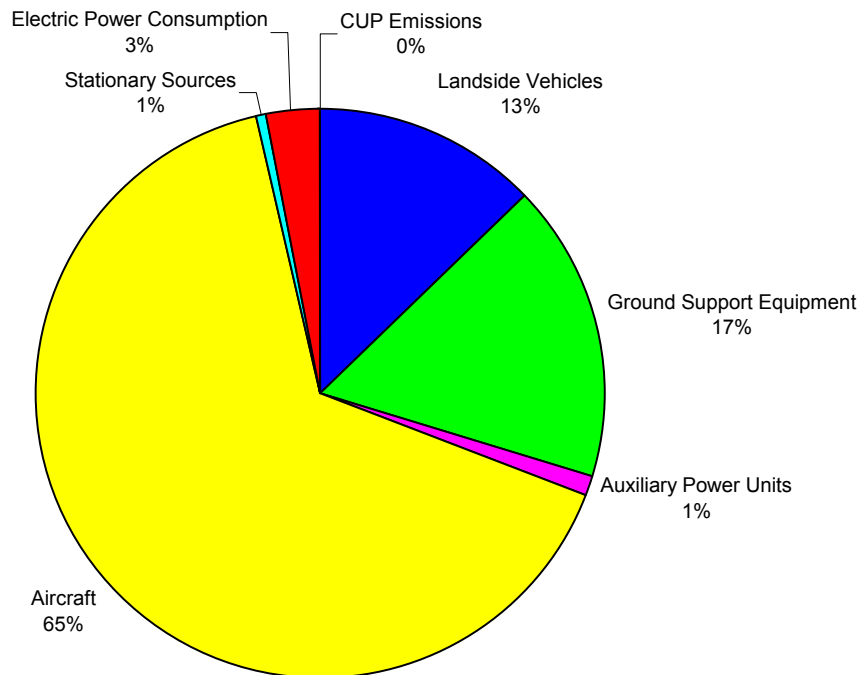
these systems be used instead of auxiliary power units.

- *Electric power consumption* associated with Airport operation is a source of air emissions from electricity generation although the emissions do not occur at the airport. Reducing electricity use and improving generation efficiency can improve local air quality by reducing regional emissions. Recommendations include using guidance from a team of national experts in the design and engineering of Terminal F and in the terminal “re-life” program to maximize building energy efficiency, and adhering to established energy efficiency standards and guidelines for equipment purchasing and facility design.

The report also identifies innovative strategies for improving air quality at the Airport and the region.

- *Electricity supply alternatives* that pollute less or rely on renewable energy are examined. Recommendations include using fuel cells and photovoltaics to supply a portion of the Airport’s electricity and reduce peak power demand and purchasing wind-generated electricity.
- *Emission shifting and time of day controls* can improve local air quality by reducing emissions during times of the day and seasons of the year when ozone generation is the worst. Recommendations are made to reschedule intermittent, high-emission activities such as construction, to

Exhibit 1: DFW NO_x Emission Source Categories



times of the day and seasons that are least environmentally sensitive. Seasonal emission shifting may alleviate General Conformity constraints to future growth.

The final sections of the report address issues that are related to air quality and energy efficiency improvement strategies that can make the Airport's efforts more economically and politically rewarding.

- *Emission reduction credits* are available for many programs the Airport might institute, which may significantly enhance the value of a program as well as the Airport's ability to grow in the future. It is recommended that a detailed emissions baseline be developed as a first step to quantifying emission reductions. Another recommendation is to work with a broader group of stakeholders to establish a means for regulatory agencies to recognize the air quality benefits that arise from building energy efficiency improvements and clean power generation and to build the magnitude of backing needed to get key programs implemented.
- *Funding opportunities* are identified that can support many of the initiatives presented in this report. A recommendation is made for DFW to commit to becoming a "Green Airport" and solicit financial support from governmental and private sources to demonstrate the benefits of such a comprehensive program, serving as a model for other airports.
- *Future directions* include recommendations to pursue two concepts that will serve to continue the

progress DFW has made. First, rigorously managing environmental information can improve resource use, enhance compliance, and support future growth and development of the Airport. A recommendation is made to establish a digital environmental information management system that tracks changes in the Airport's emissions inventory in near real-time. Second, the concept of sustainability recognizes that simultaneously improving economic, social, and environmental performance is essential to ensure long-term viability. A recommendation is made that the Airport begin tracking its performance in a way that highlights its progress toward sustainable development now and in the future.

Exhibit 2 shows a breakout of emissions by source as forecast in 2010 (see also Appendix A). The "Business-As-Usual" scenario is a forecast of emissions assuming there is no effort to control emissions beyond current regulations. The "Regulated" scenario is a forecast of emissions assuming all planned state and Federal air quality regulations are implemented and current Airport air quality programs are in place. The "Prospective" scenario represents the Airport's air emissions inventory on the same basis as the regulated scenario and assumes implementation of the recommendations presented in this report.

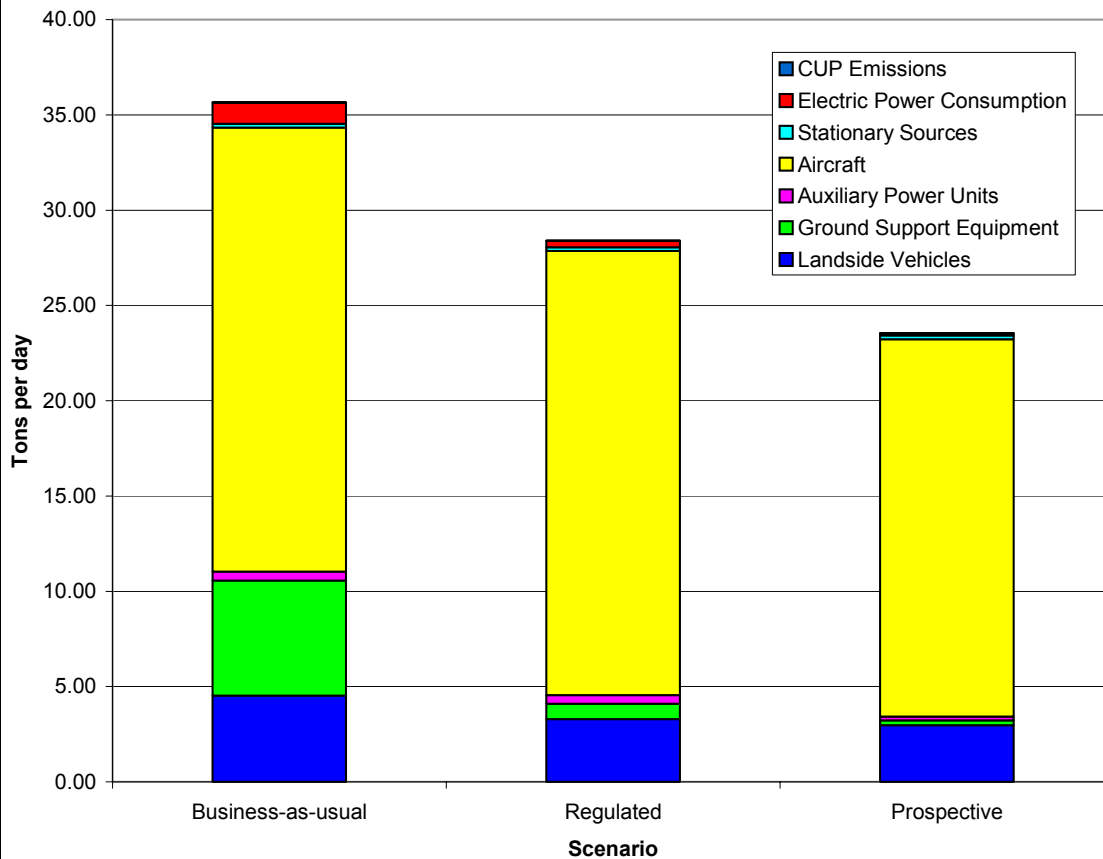
If DFW continues its current efforts to improve air quality and energy efficiency, it can be one of the leading airports in the world for modeling the prin-

principles of sustainable development. This approach will also enable the Airport to create substantial economic and employment benefits for the Dallas, Fort Worth area.

Finally, to heighten the visibility of the Airport’s accomplishments, to build broad-based political support for its initiatives, and to secure the needed comprehensive funding support, it is recommended the Airport consider creating an Air Quality Advisory Committee. Participants would include high level representatives from universities, local, state,

and federal agencies, non-governmental organizations, and the public. Individuals would be carefully selected to insure their ability to provide technical, political, or financial support and their positive commitment to building a green airport. Agendas would be created to effectively guide input and establish productive meetings that facilitate progress. This would ensure objective confirmation of the Airport’s commitment and progress toward becoming an international “green airport” showcase and the acknowledged “Airport of Choice.”

Exhibit 2: DFW NOx Emissions Forecast - 2010



= DFW International: Building a Model Green Airport =

