



**Build airport capacity or manage flight
demand?**

**Demand management and the airport EIS
process**

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Based on a co-authored study with Amber Woodburn
in the *Journal of the American Planning Association*

Disconnect between literature and practice regarding demand management

Planning and academic studies

- Demand management
 - Appears to have significant potential to reduce aviation system delay, increase safety, and reduce environmental impact
 - Could reduce economic development

Actual happenings

- Nineteen OEP 35 airports expanded their airfields with a runway (or started planning to) from 2000 – 2013
- Chicago O’Hare discontinued caps with the addition of the new runway in 2008

What is the disconnect between the literature and planning documents and the airport infrastructure planning process related to the study of demand management?

Disconnect between literature/planning studies and practice is long standing

- Sax, 1973: *“...This study [on JFK demand management in 1971] has seemingly disappeared from the face of the earth for all one could tell by reading environmental impact statements prepared by American airports. Not only has it seemed not to have the slightest effect on the planning of airport officials, who quite uniformly go forward with recommendations for new runways, but I see no trace of it in the issues that are discussed in the [environmental impact] statements.”*
- The FAA currently supports regional planning agencies in conducting regional aviation systems plans (RASP)
 - Few take or are afforded that opportunity
 - Not required for capacity expansion

Key document in the airport planning process: EIS

- To receive Federal Aviation Administration (FAA) funds for capacity expansion, airports must prepare an environmental impact statement (EIS)
- EIS purposes:
 1. Inform federal agencies and the public of a proposed action's potential environmental effects;
 2. Present methods to solve the environmental problems caused by the proposed actions;
 3. Serve as a procedural framework, allowing affected persons to participate in the environmental review process; and
 4. Serve as an information source used by government officials

EIS components:

Considered vs. feasible alternatives

- ✓ Purpose and need
- ✓ Preferred action
- ✓ Alternatives to the preferred action
- ✓ Environmental consequences of *feasible* alternatives
- ✓ Mitigation
- ✓ Responses to Public Comments

EIS components:

Considered vs. feasible alternatives

Considered alternatives must satisfy the EIS's purpose and need statement and meet some measure of practicality to become ***feasible alternatives***



All ***feasible alternatives*** are evaluated for a full range of environmental and socioeconomic impacts, such as air quality, noise, environmental justice, and cultural resources

- ✓ Purpose and need
- ✓ Preferred action
- ✓ Alternatives to the preferred action
- ✓ Environmental consequences of *feasible* alternatives
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Demand management in airport EIS documents

- To what extent did the 19 airport projects completed or planned at airports of national significance since 2000 incorporate demand management in the NEPA process?
- What are the factors that contribute to demand management being overlooked repeatedly as a feasible alternative to new runways?

Dataset of airport EISs for runway expansions

- 19 airports deployed new runway capacity or began planning for new runway capacity after 2000
- 17 completed EIS documents (Orlando (MCO) and Portland (PDX) were not required to complete an EIS)



Demand management overlooked or deemed infeasible

- Narrow purpose and need
- Policy conflicts and uncertainty
- Economic development and airline hub service

Airport EIS Purpose and Need Excerpt

Ft. Lauderdale, Florida: **The purpose** of the proposed action **is to provide sufficient capacity** for existing and forecast demand at FLL with an acceptable level of delay.

Philadelphia: **The purpose of the Capacity Enhancement Program is to enhance airport capacity** in order to accommodate current and future aviation demand ...during all weather conditions.

St. Louis: The purpose of the proposed action is to:

- (1) Enable Lambert to effectively and safely accommodate projected levels of aviation activity at an acceptable level of delay by increasing airfield capacity...
- (2) Enhance the National Airspace System (NAS) by reducing delays nationwide and increasing airfield capacity.
- (3) **Recognize the importance of the economic benefits provided by Lambert** and allow the local communities and the region to continue to reap those economic benefits.
- (4) **Facilitate the airline hub at St. Louis**, which is vital to alleviating projected shortfalls in capacity at Lambert and in the NAS. This is interrelated with all of the above purposes for the proposed project.

Cleveland: Need to enhance safety and operational capability ... by providing a runway layout which meets current FAA design standards to the extent practicable;

- The need to reduce unacceptable levels of delay and provide sufficient airfield capacity including peak operating periods;
- The need to **provide sufficient runway length** to accommodate current and reasonably anticipated air transportation demand;
- The need to **provide sufficient terminal gate capacity for commuter aircraft**, and domestic and international jet aircraft....

Narrow purpose and need

- The purpose and need statements for the 16 EISs that did not advance demand management as a feasible alternative have a common theme: accommodating growing flight demand while keeping delay at an acceptable level
- An EIS with a purpose and need defined strictly in terms of physical capacity requirements will lead the airport and the FAA to reject demand management as a feasible alternative

Limitations of a narrow purpose and need

- The NEPA process is positioned to instigate significant change when federal agencies incorporate substantive NEPA values
- Example: The U.S. Forest Service
 - A 1986 EIS documented the hazards of herbicides
 - Considered a “good faith analysis of reasonable, environmentally superior alternatives to herbicide spraying”
 - Prompted the agency to radically change their herbicide policy
- **The U.S. Forest Service harnessed the EIS’s potential to identify environmentally innovative solutions**
- The narrow purpose and need statements limit opportunities to explore possibility environmentally innovative solutions

Policy conflicts and uncertainty

- Four of the 11 EISs that initially considered demand management as an alternative cited legal uncertainties as a reason to not advance demand management as a feasible alternative
- Two main legal uncertainties:
 - Federal law explicitly promotes capacity building
 - Federal restrictions on airport revenue

FAA statutory requirements regarding capacity, safety, and demand management

- The FAA has a number of interrelated statutory requirements related to capacity, safety, and demand management
- From U.S. Code §47101, it is the policy of the United States—
 - **(1)** that the **safe operation of the airport and airway system** is the highest aviation priority;
 - **(7)** that airport construction and improvement projects that **increase the capacity of facilities** to accommodate passenger and cargo traffic **be undertaken to the maximum feasible extent** so that safety and efficiency increase and delays decrease;
 - **(9)** that **artificial restrictions on airport capacity**
 - **(A)** are **not in the public interest**;
 - **(B)** should be imposed to alleviate air traffic delays only after other reasonably available and less burdensome alternatives have been tried; and
 - **(C)** should not discriminate unjustly between categories and classes of aircraft;
 - **(13)**airport owners and operators should **not seek to create revenue surpluses** that exceed the amounts to be used for airport system purposes and for other purposes for which airport revenues may be spent

Policy conflicts and uncertainty:

Federal law explicitly promotes capacity building

- Fort Lauderdale–Hollywood (FLL), Chicago (ORD), and Philadelphia (PHL) discussed how federal law explicitly promotes capacity building
- Example: Chicago & Philadelphia
 - When the FAA temporarily reinstated a cap at Chicago in 2005, the Notice of Proposed Rule Making stated the “preferred approach to reducing delay and congestion is increasing airport infrastructure”
 - Chicago included this statement in their EIS alternatives analysis and used this statement to declare demand management infeasible
 - The FAA discontinued the caps when the new runway was constructed
 - The Philadelphia EIS borrowed this exact language in their alternatives analysis to explain why demand management was not advanced as a feasible alternative

Policy conflicts and uncertainty: Federal restrictions on airport revenue

- The FAA prohibits airports from generating revenue in excess of their costs
- Cleveland (CLE), Charlotte (CLT), and Fort Lauderdale–Hollywood (FLL) asserted they could not charge a peak-period congestion fee that would be high enough to encourage airlines to shift flights to the off-peak without violating this rule

Demand management studied outside of policy restrictions in RASPs

- Regional planning agencies can examine and demonstrate demand management tradeoffs outside the NEPA process through the RASP
- 2011 MTC RASP (Metropolitan Transportation Commission of the San Francisco Bay Area) studies ways in which regional airports can accommodate future air transportation demand without defining a particular demand management mechanism



Economic development and airline hub service

“A city had to have [an airport] in order to achieve its ‘destined’ growth and development to match or, better, overwhelm its urban rivals” Bednarek on 1930s airport development

- The force of urban boosterism driving airports to build capacity remains today
- The most frequently cited reason for a project in airport EIS documents is preserving their hub status
 - Eleven airport sponsors (only eight remain hubs as of 2014) explicitly cited their desire to protect the hub operation of their hub airline in their EIS
 - Eight considered demand management and cited their hub status as a reason to not advance demand management as a feasible alternative

Demand management deemed feasible: The singular case of Boston Logan International Airport

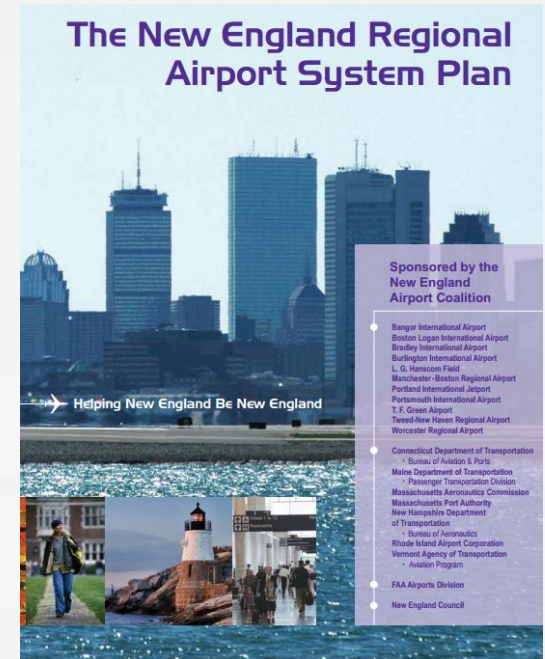
- Purpose and need statement focus: delay and closing the gap between good and bad weather capacity compared with providing sufficient capacity to accommodate future levels of aviation demand

Considering the magnitude of aircraft delays at Logan over the years and FAA's responsibility to provide for orderly and efficient air traffic control at Logan, it is appropriate for FAA to do its part to reduce aircraft delays at Logan. A significant cause of Logan delays is northwest winds....The purpose of the Airside Projects is to reduce delays caused by these conditions. The proposed reductions in approach minimums will also enhance safety and improve runway reliability.

- The EIS included a discussion of increased use of intercity rail and regional airports in Manchester, New Hampshire, and Providence, Rhode Island
- Massport specifically supported a “regional transportation policy to improve the efficient use of the region’s transportation infrastructure by expanding use of regional airports” and acknowledged that regional planning efforts supported their understanding of available capacity

Demand management deemed feasible: The singular case of Boston Logan International Airport

- Running parallel to Massport's EIS was the formation of the New England Airport Coalition and their subsequent RASP effort
- Both phases of the NERASP study analyzed how the system of regional airports in New England could accommodate future travel demand through a "system of underutilized regional airports"
- NERASP found that New England's regional airport system had the ability to meet passenger demand through 2020



Recommendations: More planning studies, taken seriously

- a) the FAA can play a more direct role in funding regional aviation planning and creating regional aviation planning coalitions
- b) regional planners should collaborate early in the airport EIS process
- c) planners should encourage the FAA to make demand management a mandatory alternative in an EIS for airport capacity expansion



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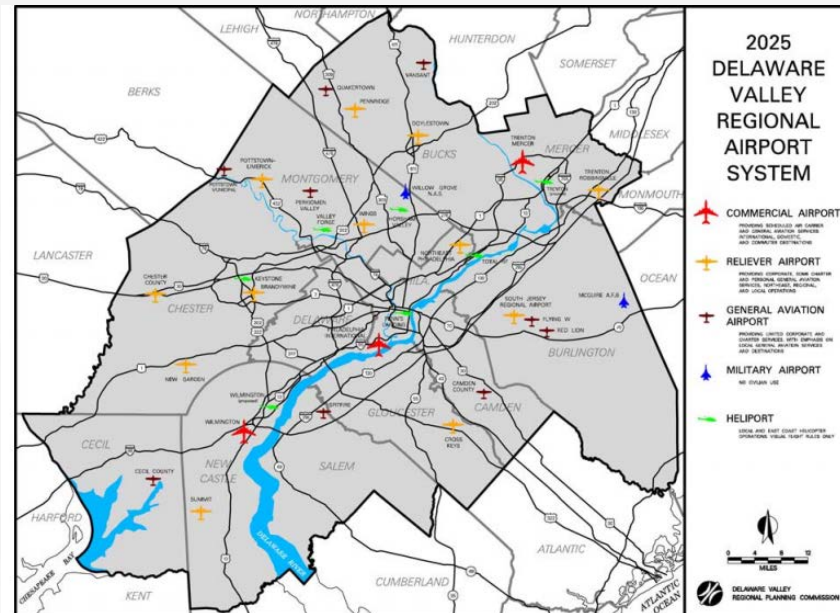
Ryerson, M.S., Woodburn, A. (2014). Build Capacity or Manage Demand: Can regional planners lead American aviation into a new frontier of demand management? *Journal of the American Planning Association*, 80(2), 138-152.



| Airport Name | Airport Code | Location | Project Description |
|---|--------------|---------------------|--|
| Demand management evaluated and initiated as mitigation activity | | | |
| General Edward Lawrence Logan International Airport | BOS | Boston, MA | New runway with airside improvements. |
| Demand management not retained for detailed evaluation | | | |
| Hartsfield Jackson Atlanta International Airport | ATL | Atlanta, GA | New fifth runway and associated projects. |
| Cleveland Hopkins International Airport | CLE | Cleveland, OH | Replacement runway, runway extension, and associated development. |
| Charlotte Douglas International Airport | CLT | Charlotte, NC | New parallel runway and associated projects. |
| Cincinnati/Northern Kentucky International Airport | CVG | Hebron, KY | New north/south parallel runway and associated projects. |
| Fort Lauderdale-Hollywood International Airport | FLL | Fort Lauderdale, FL | Runway expansion and other associated airport projects. |
| George Bush Intercontinental Airport | IAH | Houston, TX | New runway and near-term master plan improvements. |
| Los Angeles International Airport | LAX | Los Angeles, CA | Runway relocations and extensions, taxiway. |
| Miami International Airport | MIA | Miami, FL | New parallel east-west runway and associated projects. |
| Chicago O'Hare International Airport | ORD | Chicago, IL | Four runway replacements and two runway extensions with substantial airfield reconfiguration for the O'Hare Modernization Program. |
| Philadelphia International Airport | PHL | Philadelphia, PA | New runway with two runway extensions and associated projects for the Capacity Enhancement Program. |
| No discussion of demand management | | | |
| Denver International Airport (formerly Stapleton International Airport) | DEN | Denver, CO | New 6th runway, final phase of new airport construction. |
| Detroit Metropolitan Wayne County Airport | DTW | Detroit, MI | New parallel runway and associated projects. |
| Washington Dulles International Airport | IAD | Dulles, VA | New runways, terminal facilities and related facilities. |
| Minneapolis-St Paul International Airport | MSP | St Paul, MN | New north/south runway and associated projects. |
| Seattle-Tacoma International Airport | SEA | Seattle, WA | New runway with runway extension and associated projects. |
| Lambert-St Louis International Airport | STL | St Louis, MO | New parallel runway with associated projects. |
| EIS not necessary (Finding of no significant impact) | | | |
| Orlando International Airport | MCO | Orlando, FL | New fourth runway. |
| Portland International Airport | PDX | Portland, OR | Runway extension and runway rehabilitation. |

Metropolitan Planning Organ

- An FAA-Approved metropolitan planning organizations can play a role in airport system planning for its region
- MPOs may
 - Manage airport system planning studies (RASPs) and identify critical regional aviation issues
 - Act as the contact point for regional surface access, air quality, and land use planning
 - Work to increase the accessibility and mobility options available to travelers and shippers, including enhancing the integration of the entire regional transportation system
 - Perform special studies in aviation-related environmental impacts (i.e. noise, air quality, & environmental justice), airport economic impacts, airport physical capacity, regional airspace analysis, and ground access
- MPOs should complement state aviation system plans and assist the state in recommending aviation projects for the NPIAS

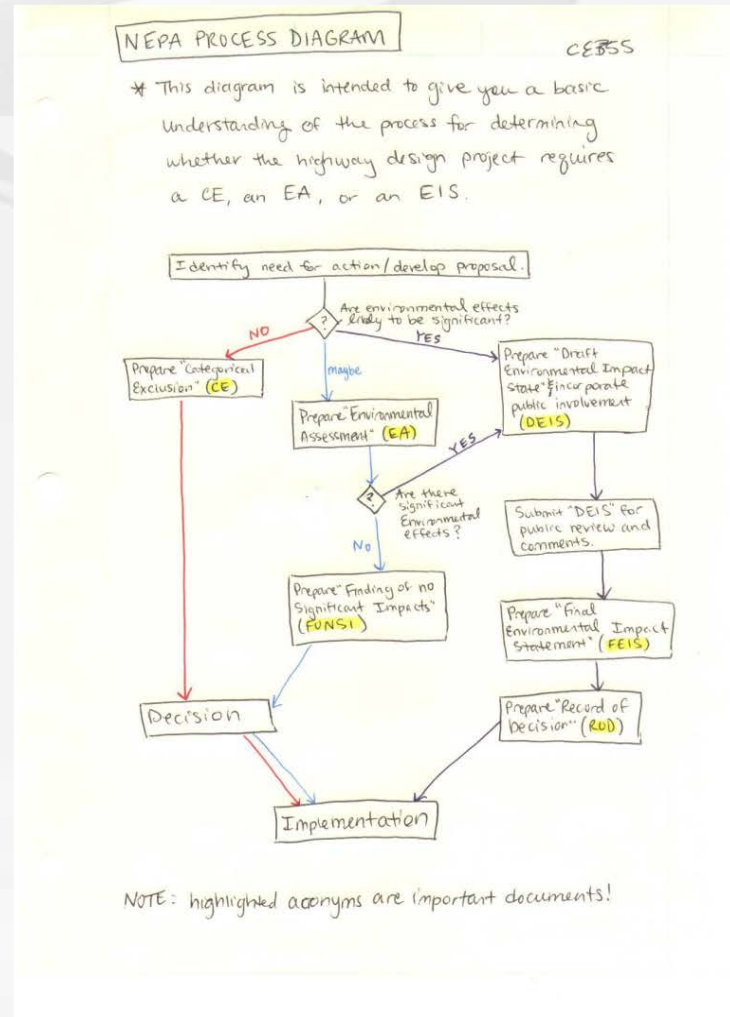


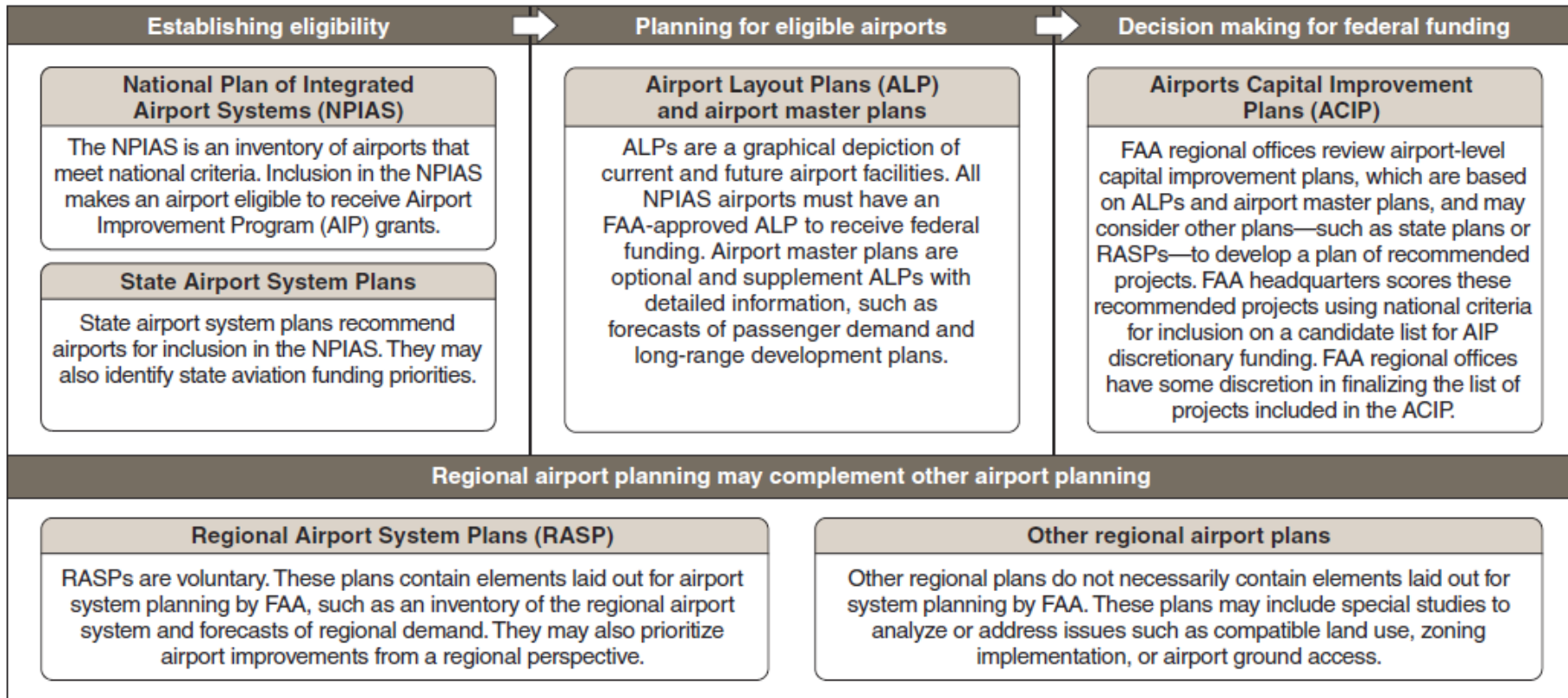
Source: Delaware Valley Regional Planning Commission

The NEPA Process

How do we record the project impacts?
CE, FONSI, EIS

Who prepares the EIS? The lead agency is the FAA. However, preparers are usually hired consultants that work with federal, state, and local governments.





Denver: Economic Development

Skip Spensley remarked: "We looked at Dallas and Atlanta and began to realize what a big issue economic development generated by the airport was." When Atlanta's Hartfield Airport underwent a \$1 billion expansion beginning in 1977, there was a dollar-for-dollar multiplier generated in off-site construction (e.g., hotels, warehouses, etc.). That airport is one of Georgia's single largest employers with 37,000 personnel. Moreover, it is the state's single most important economic generator. Over 800 international firms have established offices in Atlanta, attracted in large part by its international airport.³ Similarly, within its first dozen years of operation the Dallas-Fort Worth Airport, which opened in 1974, had spurred development of almost 10 million square feet of office space in the airport's vicinity.

The amount spent on the campaign, in face of relatively unorganized opposition, reflects the fear airport supporters had that historic resentment against Denver alone could still succeed in defeating the referendum issue. Spensley explains, "We were fighting images, symbols and history because Denver had always considered Adams County as a dumping ground. Reversing that is what cost us \$34 a vote." It is perhaps ironic that in the end the noise and other LULU concerns were wholly eclipsed by the promise of jobs. Both issues related to a general concern over trust. Overcoming the historic distrust of Adams County residents for Denver was well captured in one campaign slogan that PIP organizers wish they'd thought of:

VOTE YES ON THE AIRPORT. SCREW DENVER!

Background: Demand Management in regional planning documents

- In a 1973 law school address, Dr. Sax highlights a National Academies of Sciences study of Jamaica Bay and the John F. Kennedy International Airport completed in 1971, which recommended a series of non-airfield alternatives to alleviate congestion
 - landing fees
 - flight schedule consolidation
 - improved air traffic control systems
- Sax remarks:

“...This study [on JFK demand management in 1971] has seemingly disappeared from the face of the earth for all one could tell by reading environmental impact statements prepared by American airports. Not only has it seemed not to have the slightest effect on the planning of airport officials, who quite uniformly go forward with recommendations for new runways, but I see no trace of it in the issues that are discussed in the [environmental impact] statements.”