

**ACRP Project 03-03
Enhancing Airport Land Use
Compatibility**

Case Studies of Airport Experiences

National Aviation System Planning Symposium

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First, what is Incompatible Land Use?

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- **OBJECTIVE:**
 - When a land use is judged by some specific airport / aviation based guideline or criteria to be inappropriate
- **SUBJECTIVE:**
 - When an airport expects a land use to result in some constraint on its operation or growth, or
 - When some community members believe the airport adversely affects their lives
- **These three perspectives are not always synonymous – especially when considering noise, but also sometimes in the case of airspace obstructions**

Case Study Overview

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- **A Survey distributed through National Association of State Aviation Officials (NASAO)**
- **Responses from 123 airports**
 - 34 Commercial Service Airports
 - 89 General Aviation Airports
 - Attempted to select across size, location and type – not random but diverse
- **From survey responses, selected 16 case studies**
 - Phone interviews
 - Reviewed reports – Part 150 studies, Master Plans, etc.
 - Our report provides detailed information on each airport

Summary Survey Results

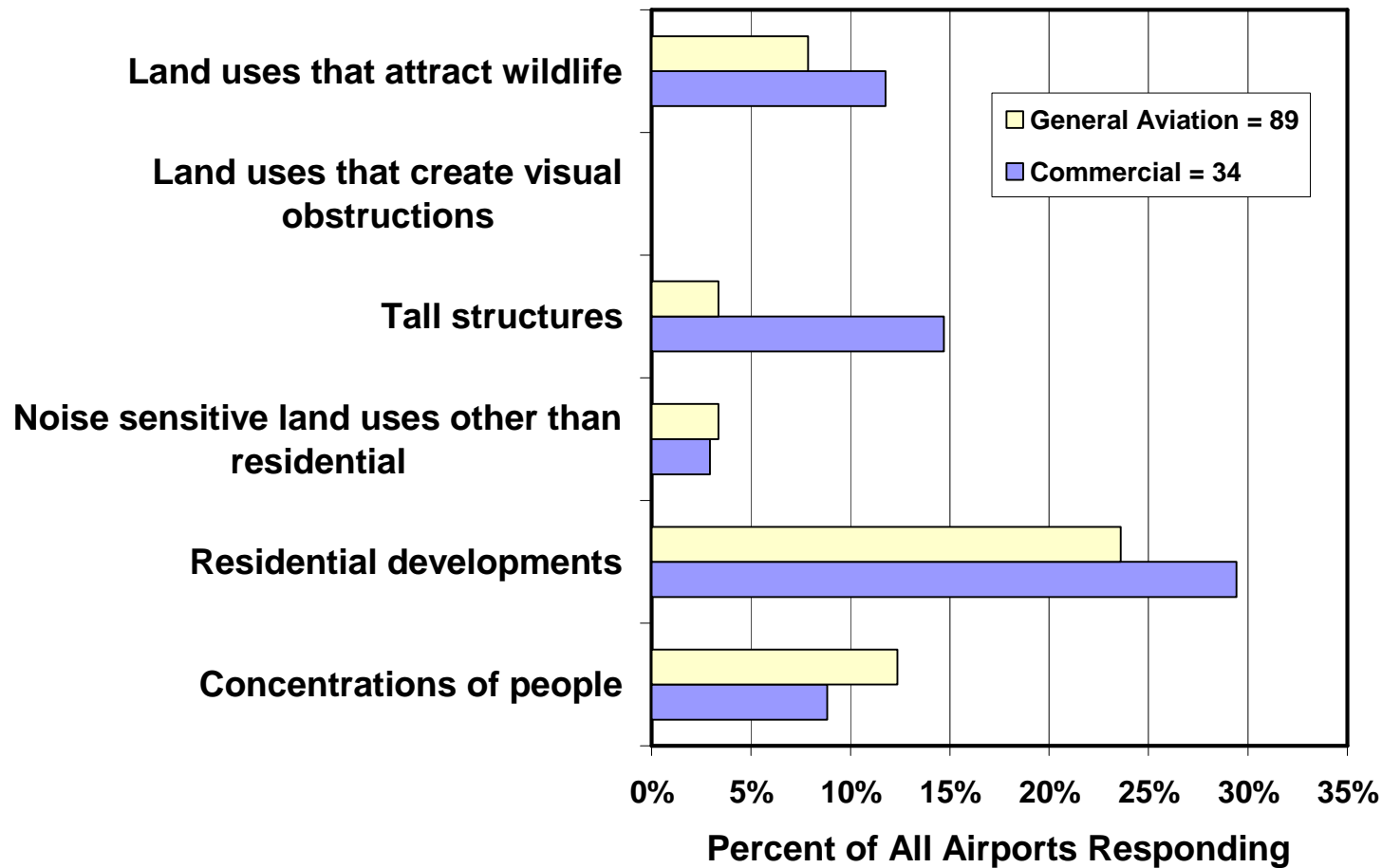
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- **Noise ranks very high in concerns about compatibility**
- **FAR Part 150 studies are usually helpful, but not always**
- **Regulations regarding height of structures are prevalent, but not always effective**
- **Community support, land acquisition and strong regulations encourage compatibility**
- **Airports need to work hard to protect themselves – no one is going to do it for them**
- **Incompatibilities will almost certainly occur, if they haven't already, and they can seriously limit an airport's options**

What off-airport land uses cause extensive concern about compatibility?

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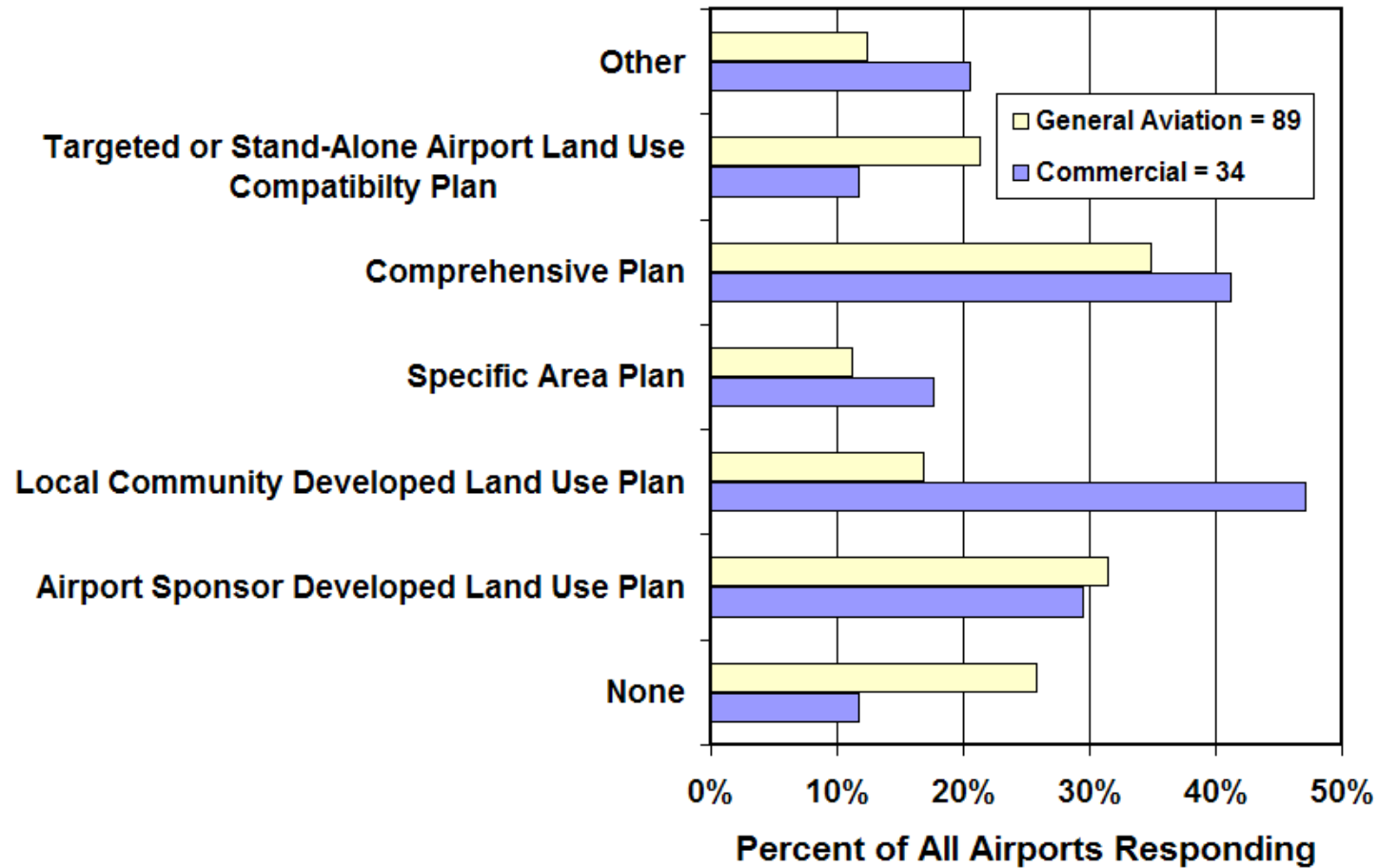
Extensive Concern about Compatibility



What formal land use plans are there?

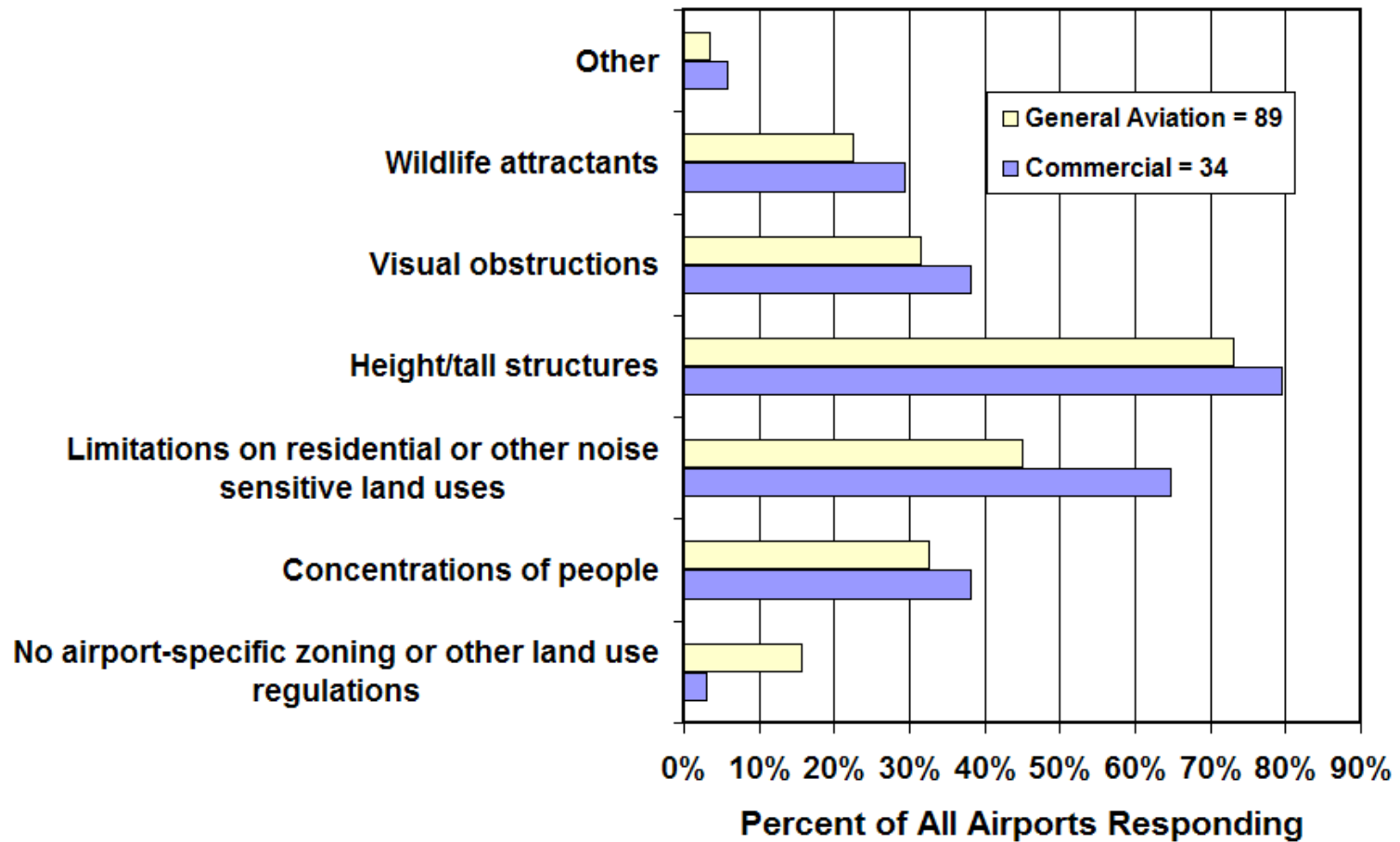
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Formal Land Use Plans



What land uses are regulated?

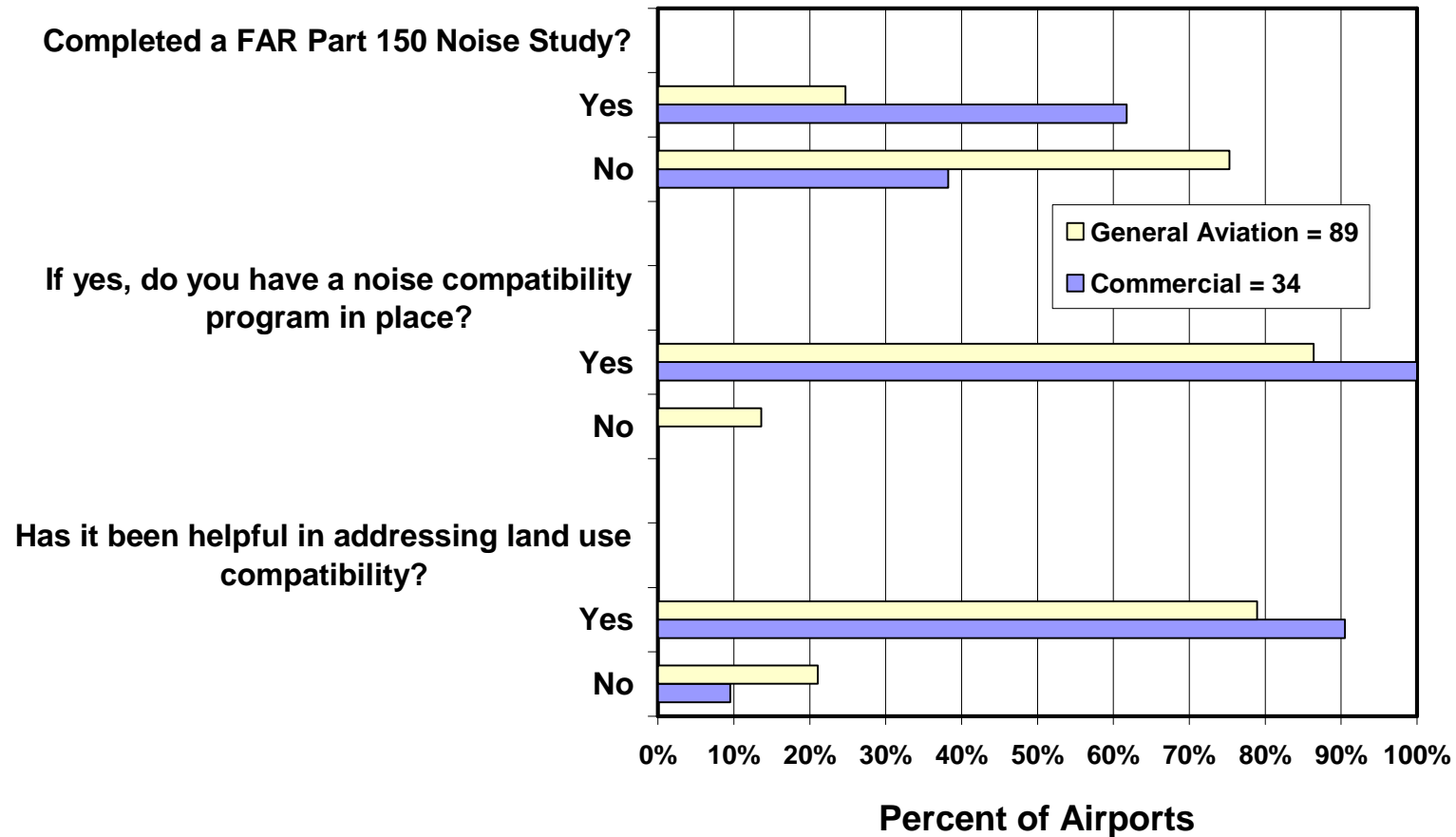
What is Regulated by Zoning or Other Land Use Regulations?



Have you completed a FAR Part 150 Study and with what results?

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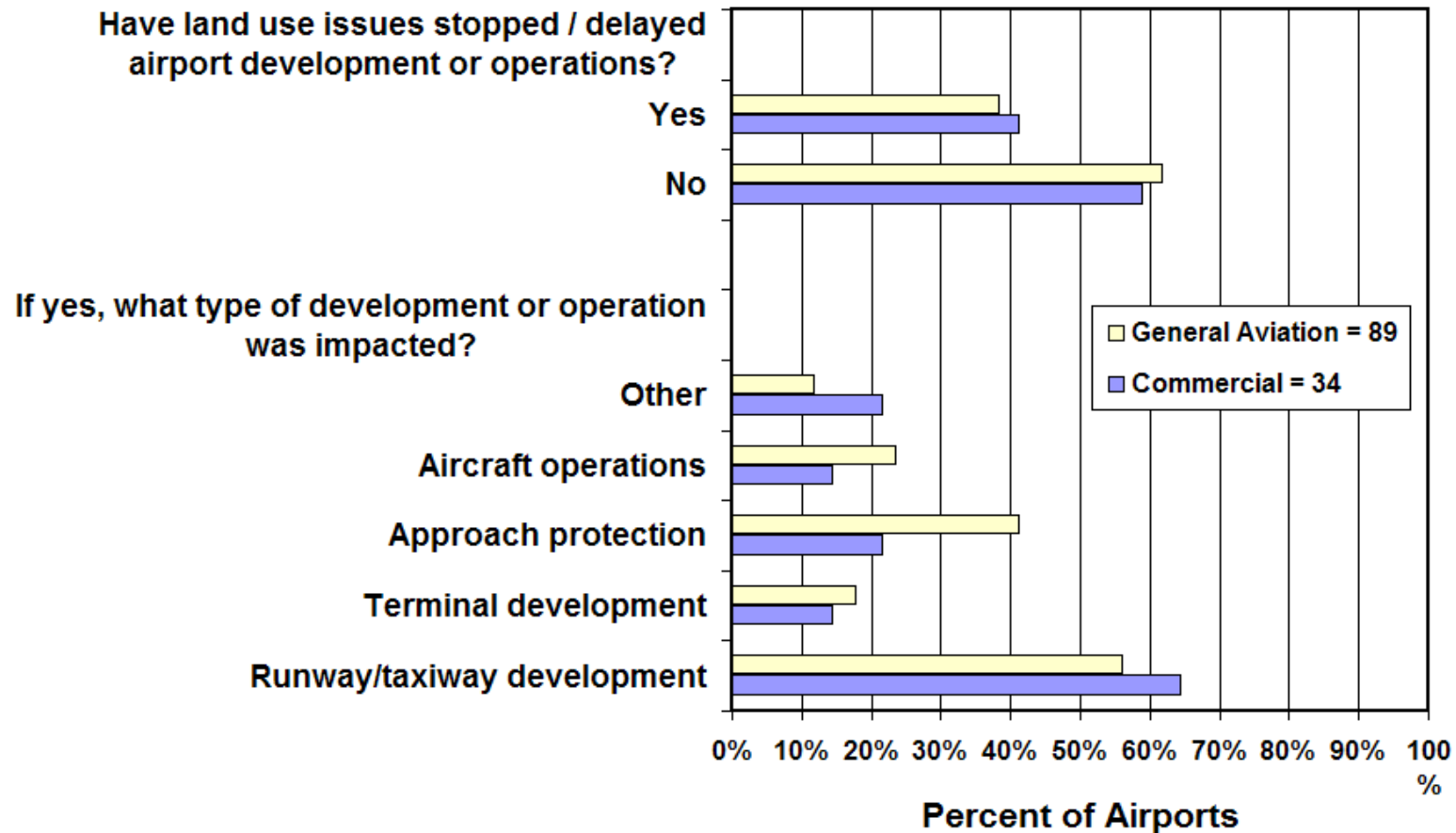
Part 150 Studies



Have land uses affected airport development or operations? - YES

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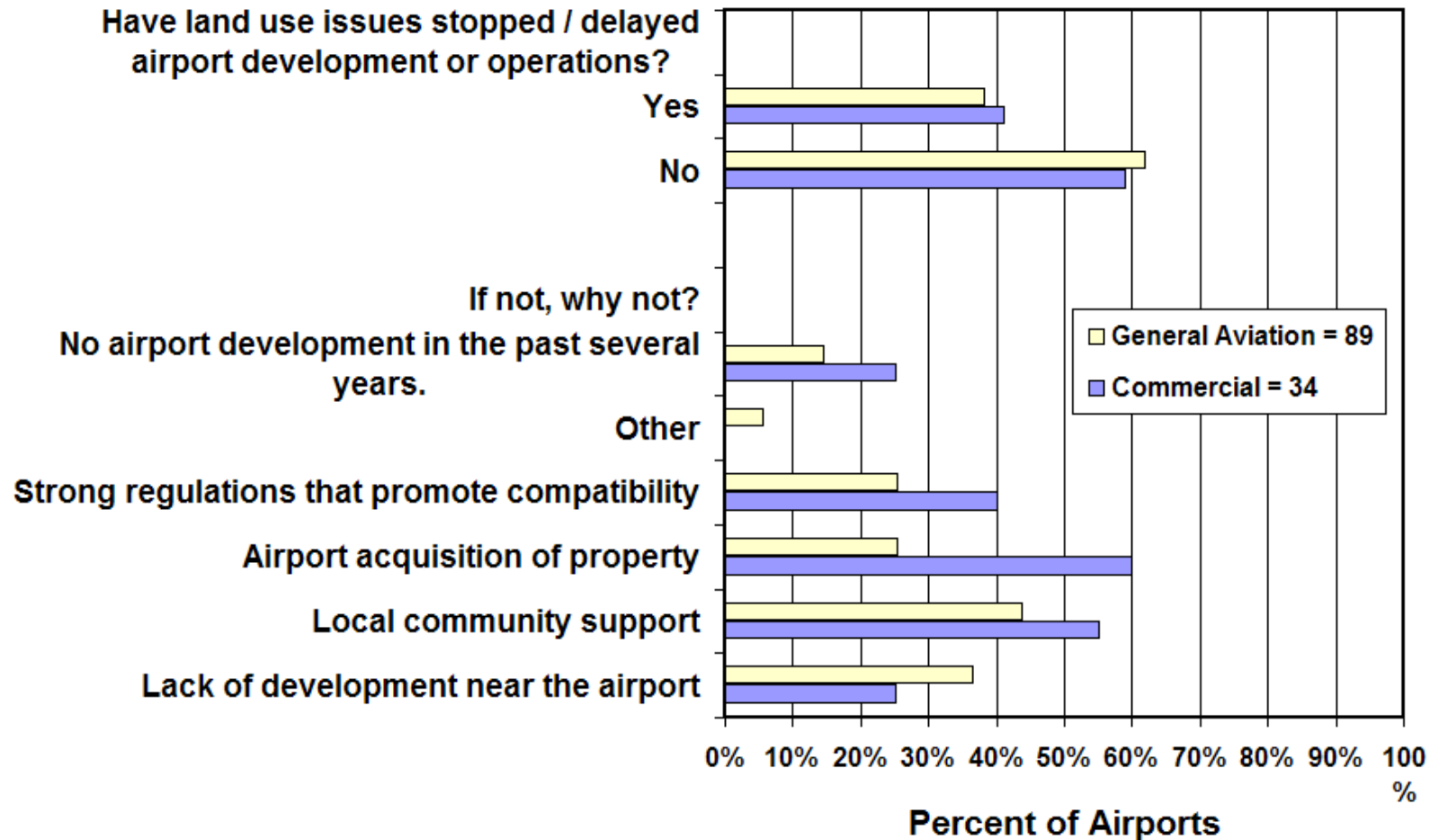
Effects of Land Use on Development & Operations



Have land uses affected airport development or operations? - NO

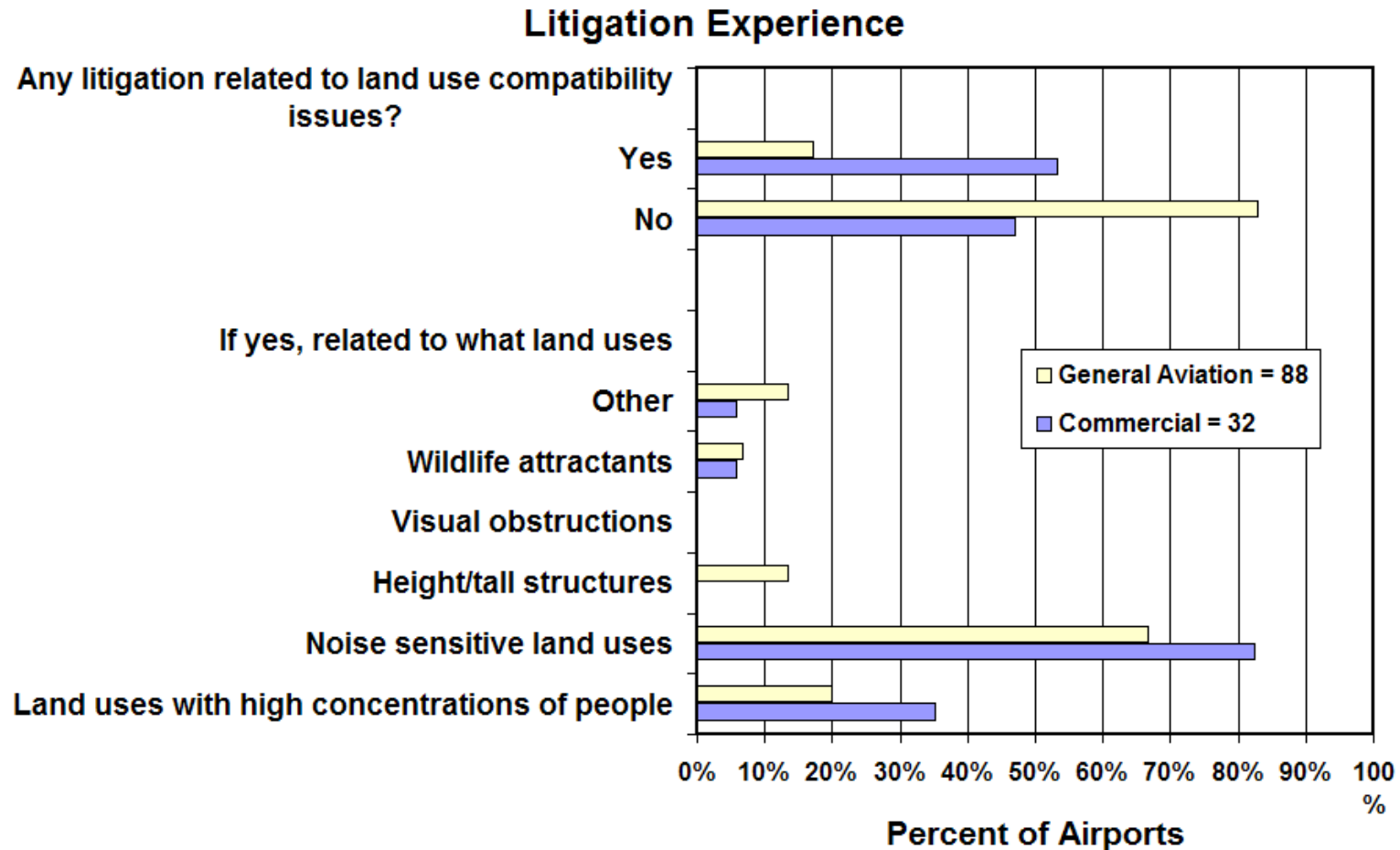
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Effects of Land Use on Development & Operations



Has the airport been involved in litigation related to land use?

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Case Study Airports

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- **Baltimore Washington International/Thurgood Marshall Airport**
- **Buckley Air Force Base - CO**
- **Centennial Airport - CO**
- **Collin County Regional Airport - TX**
- **Denver International Airport - CO**
- **Fort Bragg Army Base and Pope Air Force Base - NC**
- **Fort Lauderdale Executive Airport - FL**
- **Independence State Airport - OR**
- **Indianapolis International Airport - IN**
- **Naples Municipal Airport - FL**
- **Naval Air Station Pensacola - FL**
- **O'Hare International Airport - IL**
- **Randall Airport - NY**
- **Sacramento County Airport System - CA**
- **Willmar - MN**

Case Study Findings – As Questions to an Airport

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- **Have you accepted that the responsibility for encouraging land use compatibility falls entirely on the airport and will continue to do so for the indefinite future?**
- **Has some one person at the facility taken full ownership of the compatibility issue?**
- **Has a true long-term and continuing partnership been established with local communities and planning organizations, and are you working cooperatively to establish clear compatibility guidelines / requirements?**

Case Study Findings – As Questions to an Airport

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- Does someone on the staff receive notices of all proposed developments in the surrounding communities?
- Does someone on the staff understand FAA regulations and guidance on off-airport airspace obstructions?
- Does someone on the staff understand DNL?
- Do the airport and surrounding communities understand the link between protecting the community from noise and protecting airport operations and growth?

Translating DNL

Three scenarios that produce DNL 65 dB

Maximum Aircraft Sound Level	Required No. of Operations in 24 Hrs (none at night)	~Time Above 60 dB(A), Each	~Total Time Above 60 dB(A)
95 dB(A)	10	50 Seconds	8 Minutes
85 dB(A)	100	35 Seconds	1 Hour
75 dB(A)	1000	20 Seconds	6 Hours

Translating DNL

Relating DNL Values to Effects on People

DNL Range (dB)	Effects on People		Number of Daily Aircraft Events that:	
	Chance Average Person Awakened at least once	Percent of population Highly Annoyed	Interfere with Conversation Indoors (windows open)	Cause Feelable House Vibration
>70	> 40%	> 40%	> 250	>200
65 - 70	35% - 40%	30% - 40%	100 - 250	50 - 200
60 - 65	30% - 35%	20% - 30%	50 - 100	<50
55 - 60	20% - 30%	10% - 20%	< 50	negligible

Conclusions

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- **Achieving airport land use compatibility is a continuing process**
- **The more successful approaches require long-term dedication and considerable knowledge about:**
 - **Airspace use and limitations**
 - **Aircraft noise**
 - **Community and airport planning**
 - **Public outreach**
 - **Working with the FAA**
- **We hope the report can provide some insights into all these factors that affect the ability of an airport to protect its operation and to work successfully with surrounding communities**

Thank you