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THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

*Parliamentary Standing Committee on Public Works*

## REPORT

relating to the proposed development of the

# INTERNATIONAL TERMINAL BUILDING AND AIRCRAFT APRONS

at

## Sydney (Kingsford-Smith) Airport

(TENTH REPORT OF 1973)

## C O N T E N T S

	<u>Paragraph</u>
The Reference	1
The Committee's Investigation	3
Development of Projects at Sydney Airport	5
Existing International Facilities	6
The Need	9
Qantas Airways Limited	16
Recovery of Costs	17
Comparison between Melbourne and Sydney (Kingsford-Smith) Airports	19
Aprons and Taxiways	20
Terminal Extensions	22
Air Conditioning of Concourse	23
Environmental Impact - Aircraft Noise	24
Committee's Conclusion	26
Future Airport Development	27
Domestic Terminals	30
Proposed Additional Works	32
Air Terminal Design Concept	33
Second Airport Site	34
Details of the Proposal	
Site	36
Passenger Loading Concourse	37
Terminal Building	38
Construction	
Aircraft Pavement Works	40
Materials and Finishes	42

	<u>Paragraph</u>
Structural	44
Aerobridges	47
Mechanical	48
Electrical	49
Water Supply and Sewerage	50
Committee's Recommendation	51
Programme	52
Estimate of Cost	55
Recommendations and Conclusions	56
Site Plan	

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

DEVELOPMENT OF INTERNATIONAL TERMINAL BUILDING AND  
AIRCRAFT APRONS AT SYDNEY (KINGSFORD-SMITH) AIRPORT

R E P O R T

By resolution on 11 October 1973, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for investigation and report to the Parliament the proposal to develop the International Terminal Building and aircraft aprons at Sydney (Kingsford-Smith) Airport.

The Committee have the honour to report as follows:

THE REFERENCE

1. The reference before the Committee includes:
  - (i) alterations and additions within the passenger concourse to extend two aircraft positions and to provide an additional position for wide bodied jets;
  - (ii) expansion of the first floor departures hall;
  - (iii) provision of additional amenities for transit and departing passengers;
  - (iv) air conditioning of the existing concourse and proposed additions; and
  - (v) provision of additional aircraft standing aprons with associated connecting taxiways and vehicular access.

2. The work in the reference is estimated to cost \$7,300,000.

THE COMMITTEE'S INVESTIGATION

3. The Committee received submissions and drawings from the Department of Civil Aviation, the Department of Works and Qantas Airways Limited and took evidence from their representatives at a public hearing in Sydney on 19 November 1973. We also received a submission and took evidence from two representatives of Environmental Impact Reports Pty. Ltd., on behalf of the Hurstville, Kogarah, Rockdale Municipal Councils and the Sutherland Shire Council who are not in favour of the continued development of Sydney Airport. A written submission was received from Mr. W.H. Cornfield of Fybble who strongly opposes further development of the airport. An inspection of the terminal and adjacent areas was carried out.

4. The Committee's proceedings will be printed as Minutes of Evidence.

DEVELOPMENT OF PROJECTS AT SYDNEY AIRPORT

5. The Committee have investigated seven other major works proposals at Sydney Airport since 1963 and these are listed as follows:

	<u>\$'000</u>
- southern extension of 16/34 runway (March 1963)	10,000
- site preparation of north-west building area (May 1965)	3,200
- operations and control tower buildings (May 1965)	2,396
- ground preparation for instrument landing system (May 1965)	1,700
- buildings and services for the international terminal complex and associated aircraft pavements in the north-west building area (May 1965)	17,900

	<u>\$,000</u>
- site preparations for future domestic terminals and additional roadworks in the north-west building area (October 1967)	3,150
- extension of north-south runway and associated pavement works (June 1968)	23,000
	<u>Total \$61,346</u>

6. Existing International Facilities The present apron was designed to accommodate up to 12 aircraft of the Boeing 707 size. However, as the number of Boeing 747 and other wide bodied aircraft increases, the number of parking positions available for Boeing 707 size aircraft will progressively decrease. Seven of the positions are adjacent to holding rooms on the loading concourse and passengers are able to move directly from the holding rooms to the aircraft, under cover, by means of aerobridges. One other position is adjacent to a holding room but requires a short walking distance across the apron from the holding room to the aircraft. The remaining four positions are slightly more remote but can still be used in conjunction with holding rooms which are vacant at the time. The apron was designed so that it can be extended readily as and when necessary.

7. During construction of the terminal building some modifications were made to accommodate one wide bodied aircraft.

8. The international aircraft which are scheduled for a long term stopover to allow for maintenance and/or crew rest are presently parked on the old international terminal apron in the T.A.A. domestic sector on the north-east side of the airport.

THE NEED

9. Since June 1965, when the initial development of the international complex was referred to the Committee, there has been a continuing high growth of international passenger traffic at Sydney. The combination of international regular public transport and charter passengers has been increasing at twenty per cent each year. The present proposal is based on air traffic envisaged at the time of the completion of the work. The Committee were told that fare reductions and more general airline promotion activities could sustain the present growth.

10. The following international airlines were operating Boeing 707 type aircraft into Sydney in 1965:

Air India, Air New Zealand, Alitalia, BOAC, Canadian Pacific, KLM, Lufthansa, PAN AM, Qantas, South African Airways and UTA.

11. Since 1970, BOAC, KLM, PAN AM and Qantas introduced Boeing 747 wide bodied aircraft into their services and Air New Zealand and Alitalia introduced the DC 10 wide bodied aircraft in 1973. It is expected that other airlines will use Boeing 747s, the Airbus and DC10s between now and 1977.

12. In addition to the international airlines already mentioned, the following airlines commenced operations from Sydney Airport since 1965:

American Airlines, Garuda International Airways, Japan Airlines, Malaysia-Singapore Airlines, Philippines Airlines, Thai International and Olympic Airways.

13. The Committee were also provided with statistics of the annual number of international passengers through Sydney Airport since 1964. Passengers on scheduled international airlines have more than trebled since 1964. In 1966, charter aircraft commenced conveying international passengers to and from Sydney Airport. Within two years, the number of passengers carried each

year more than trebled and, since then, averaged 370,000 annually. Since 1966, the total number of international passengers passing through Sydney Airport has almost trebled to 1,400,000 annually.

14. The Committee noted the 1973-1977 forecast of the terminal apron positions required for aircraft loading and unloading in the daily peak period. It indicated that the Boeing 747 will increase from 3 to 6 positions, the DC10 from 1 to 4 and that the Concorde will need 2 positions. In the case of Boeing 707 type aircraft, there will be a decrease from 8 to 3 positions. Total positions therefore required will rise from 12 to 15.

15. It was put to the Committee that because of this continued expansion three extra concourse positions are needed for wide bodied jets. These will be required by the mid 1970s. This would be the minimum requirement and would greatly assist the rapid turn-around times of aircraft. Rapid turn-around times minimise apron needs and are therefore savings in themselves. The proposed addition of four aerobridges in conjunction with those already in existence and the additions and extensions to the double-deck concourse will ensure more efficient use of existing facilities and the continued expeditious movement of airline passengers.

16. Qantas Airways Limited Qantas and the other international carriers at Sydney Airport support the proposal and stated that time was the biggest factor to meet turn-around schedules to ensure maximum profitability. The additional aerobridges would provide a quicker turn-around time and would satisfy forecast requirements until about 1977. It was explained that the measures which had been taken to increase apron utilisation had enabled international operators to cope with the existing facilities, despite the heavy increase in Australia/Europe traffic since early in 1972.



17. Recovery of Costs It is now Government policy to recover 80% of all attributable costs of providing, maintaining and operating airport and airways facilities within the next five years. During the same period, 100% of the cost of providing, maintaining and operating terminal buildings, is to be recovered from the industry.

18. The Committee were told that the precise details of implementing these recovery policies are in hand.

19. Comparison between Melbourne and Sydney (Kingsford-Smith) Airports  
One aspect considered by the Committee was a suggestion that Melbourne Airport is under-utilised compared with Sydney Airport which is thought to be over-utilised. The Committee were informed that Sydney is about 25% to 30% busier in terms of total traffic than Melbourne Airport. This is partly due to the difference in population of the two centres. However, Melbourne's international traffic is at present increasing at a greater rate than Sydney's, though there is still a substantial increase at Sydney. Expansion of the international facilities at Melbourne is expected before the end of the 1970s. Present international traffic at Melbourne is 6,000 movements per annum compared with the Sydney traffic which is 17,000 movements per annum. There is therefore less traffic potential at Melbourne than Sydney and Qantas thus provide more services out of Sydney. However, with the rate of growth of Melbourne's traffic, the position could well change in the next two or three years. If the growth rate is sustained, it was suggested that Melbourne may even overtake Sydney in the long term future.

20. Aprons and Taxiways The old international terminal apron in the domestic sector of the airport presently used for long term parking by international airlines will soon no longer be available as TAA will be using this apron for parking their domestic aircraft when they complete the expansion of their facilities in that area.

21. An additional aircraft apron and associated taxiways for international itinerant aircraft remote from the terminal building is therefore required. Extra parking is also proposed for additional Boeing 747 aircraft by adding two nose wheel slabs on the apron adjoining the southern concourse. The total parking positions for Boeing 747 type aircraft is increased to eight (four at the concourse and four at stand-off positions). The two new concrete aircraft apron areas, which are not to be fully serviced, will cover 90,000 square metres.

22. Terminal Extensions The concourse of the terminal will be closed to the public in future due to revised security measures which will not permit friends to accompany passengers to departure gates in the concourse. Because of this, it has been found necessary to provide extra public areas in the main body of the terminal building. These will be located either side of the outwards customs clearance areas on the first floor.

23. Air Conditioning of Concourse The Committee were told that the main body of the terminal is already being air conditioned because the large number of people using the terminal and the high temperature and humidity prevailing in the summer months make conditions intolerable. It has been decided to also air condition the concourse because new security measures being adopted will lead to a large number of transit passengers being held for long periods in the concourse area.

24. Environmental Impact - Aircraft Noise At the request of four local Councils, a submission from Environmental Impact Reports Pty. Ltd. was presented to the Committee. The Councils are concerned with the proposed development because of the geographic proximity of their areas to Sydney Airport. The report, which had not been submitted to the Councils before presentation to the Committee was based on the premise that more detail should have been provided by the client department in its environmental impact

statement. The company recommended to the Committee that it should either withhold its report until a "satisfactory" environmental impact statement had been received and assessed or alternatively report conditionally on a "satisfactory" report being prepared prior to or within a specified time of Parliamentary approval to proceed. The Committee, however, did not consider this course of action warranted in view of the consideration already given to the need for a detailed environmental impact statement by the Department of Conservation and Environment and the Department of Urban and Regional Development. Further, the Committee believe that the only "impact" of major significance which may arise is the one of noise nuisance and there is sufficient weight of evidence to predict that it will, in fact, decrease in spite of an increase in aircraft movements. By 1985, with the introduction of new aircraft, it was estimated that the noise factor would be in the order of 30% less than it is at present. The European Airbus, for example, is significantly less noisy than the Boeing 747.

25. The Committee noted that the detail relating to noise exposure forecasts was readily available to the neighbouring Councils through the Noise Abatement Committee and that revised forecasts will soon be available.

26. Committee's Conclusion The Committee concluded that there is a need for the alterations and extensions to the terminal building and the additional aircraft aprons and recommend that the proposed construction should proceed.

#### FUTURE AIRPORT DEVELOPMENT

27. In its 1968 report on the extension of the north/south runway at Sydney Airport, the Committee referred to its 1965 recommendation that steps be taken to identify as soon as possible the site for the development of Sydney's second major airport. The background of that recommendation was the

forecast that the present airport will be functioning at its maximum capacity some time after 1980 and by that time parallel runways were expected to be completed and operating.

28. On the matter of parallel runways, the Committee were told that the addition of an extra runway would add many years to the life of Sydney Airport, the present saturation point of which was estimated to be in the late 1970s. It could also quite significantly lower the noise level as a whole.

29. The Committee were informed that it was not possible to determine the shape of the terminal and the concourse for, say, 10 years ahead. For that reason, this proposal was sub-divided between the development of the concourse and associated aprons and the extension of the aircraft aprons in order to strike a balance between what can best be done now and retain flexibility and room to manoeuvre to satisfy future needs.

30. Domestic Terminals During the investigation on the site preparation for future domestic terminals in the north-west building area at Sydney Airport in 1967, the Committee were told that the master plan for the north-west area envisaged two domestic terminal areas, one to the north and one to the south of the international terminal.

31. In its 1968 report on the extension of the north-south runway, the Committee strongly recommended that the construction of the domestic passenger terminals at Sydney Airport should be commenced without further delay. In the current investigation, the Committee were informed that in relation to proposed future works "it is imperative that the domestic terminals and their complementary apron capabilities in the north-east sector of the airport be substantially improved". Major reconstruction and development of domestic terminals in the north-east sector is now being carried out. This change in concept is due primarily to the advent of wide

bodied jets in large numbers in both the international and domestic fields. The area available in the north-west sector is no longer large enough for both international and domestic terminal complexes sufficient to match the present runway capacity.

32. Proposed Additional Works In addition to expansion in the domestic terminal area, the Committee noted that further improvements to the international terminal at Sydney Airport will be required. These will include improvements to the customs facilities, additional space within the terminal building, improvements to terminal maintenance facilities and the provision of further baggage conveyors.

33. Air Terminal Design Concept The Committee were informed that the philosophy of airport design included catering for air space, surface traffic, airline maintenance, passenger handling and car parking. The design needed to be flexible and have the potential to maintain the existing balance of facilities. It would be unsatisfactory, for example, in having more terminal positions than could be coped with by the existing runway system. Similarly, as explained by the Qantas representative, it would not be desirable to have a dual runway that might increase aircraft movements without having sufficient slots at the terminal to handle them. The real pressure point at the moment at Sydney Airport is not the runway but the apron positions as outlined in this proposal. There are several alternatives for the future of Sydney Airport which depend upon the outcome of more detailed work on a second Sydney Airport study.

34. Second Airport Site The Joint Australian Government/State Government Committee investigating the second Sydney Airport site is being aided in its enquiries by a comprehensive benefit/cost study of the alternative

concepts for a new airport as well as for determining the future role of the existing Sydney Airport.

35. The Committee were told that not enough is known about the second airport at present for the Government to make a value judgment as to whether the present facilities would suffice having regard to the possibility of a second airport.

#### DETAILS OF THE PROPOSAL

36. Site The site for the proposed apron areas is to the north and south of the existing international terminal building. As part of the works carried out in the site preparation of future domestic terminals referred to earlier in this report, the areas concerned have already been prepared for future pavement construction. The surcharge sand still in place north of the terminal will be removed. The surcharge sand for the area adjoining the existing apron near the concourse was removed as part of earlier site preparation work. The pavement design adopted for both the standoff and the remote areas and the taxiway is consistent with the criteria used for all recent aircraft pavement construction at Sydney Airport and the strength of the pavements will adequately meet the demands of existing and currently proposed aircraft likely to use the airport.

37. Passenger Loading Concourse The extended facilities to accommodate a wide bodied aircraft that were modified whilst the terminal building was being built, have since proved satisfactory and the additional modifications to facilitate two more wide bodied aircraft are to be based on the design of the original extension. A fourth wide bodied aircraft position is to be obtained by providing a new gate lounge and holding room facilities as an

extension on the northern end of the concourse, in addition to extensions to other departure lounges, holding rooms and other facilities to cater for Boeing 747s. An elevated walkway at the mezzanine arrivals level will provide access to the two aerobridges serving this position. A new escalator between the mezzanine floor and the first floor will be provided at the concourse "Y" to enable passengers to move from the arrivals level to the departures level of the concourse. In addition, low level windows will be provided in the first floor departure level to match those existing on the mezzanine arrivals level. The areas involved in the building extensions on the three levels of the concourse total 2,880 sq. metres compared with the existing total concourse area of 18,500 sq. metres.

38. Terminal Building Some expansion is necessary in the departures hall on the first floor to compensate for the loss of public space resulting from the closure of the concourse to visitors. This will involve extension of the departure hall over the observation deck to provide an additional 1,070 sq. metres compared with the existing 8,920 sq. metres of the first floor area exclusive of the observation decks and departures plaza.

39. The extensions will blend with the existing building both externally and internally.

#### CONSTRUCTION

40. Aircraft Pavement Works The new aircraft apron connecting taxiways and aircraft tug pavements comprise a standoff apron at the point of the division of the concourse and a remote apron north of the existing north apron. The standoff apron will comprise 34,500 sq. metres of concrete aircraft pavement with connections to the adjacent taxiway consisting of 350 mm thick concrete placed on a 150 mm thick base of fine crushed rock on the sand subgrade.

Three thousand eight hundred square metres of bituminous surfaced aircraft pavement consisting of 50 mm thick bituminous concrete on 300 mm thick hot bituminous base on the subgrade will link the new concrete apron to adjacent taxiway. Some 5,300 sq. metres of flexible aircraft tug pavement consisting of 25 mm bituminous concrete and a 250 mm thick base of fine crushed rock will complete the standoff apron.

41. The remote apron will consist of 56,000 sq. metres of aircraft pavement and 2,400 sq. metres of flexible aircraft pavement linking the new concrete apron at its northern end to the adjacent taxiway. The aircraft pavements will be constructed to the same standards as the existing international apron pavements and other heavy duty runway and taxiway pavements on the airfield. These will be able to cater for international aircraft weighing up to 230,000 kg equipped with a Boeing 707 type landing gear. These pavements are also suitable for Boeing 747 type aircraft up to 450,000 kg.

42. Materials and Finishes The same materials and finishes will be used throughout the extensions as are in the existing building. Plant rooms to house new engineering equipment will be provided with low maintenance internal finishes.

43. The elevated walkway will be clad externally with a pre-finish metal sheeting to walls and roof, and with aluminium framed windows. Internally, the walls will be of lightweight pre-finished panels, the floor of vinyl tiles and the ceiling of acoustic tiles.

44. Structural The main concourse extensions will be in a manner consistent with the requirement to maintain the appearance of the existing buildings. The elevated walkway from holding room 14 to the entrance of the aerobridge unit will be designed as a trussed bridge and will appear to be an extension of the aerobridges.



45. The new aerobridges and associated stairways will be structurally separated from the concourse to allow for ease of future repositioning should the introduction of new aircraft types require a modification to their spacing for maximum utilisation of the apron.
46. The departure lounge expansion will have a steel frame roof similar to that of the concourse supported on steel columns and with a new concrete floor formed over the existing structural slab of the observation deck.
47. Aerobridges Additional aerobridges to be provided under this proposal are two articulated apron drive types, one at each extended concourse position and one articulated and one nose-loader type at the new concourse position.
48. Mechanical There is a current contract for the conversion of the air treatment system from mechanical ventilation and heating to full air conditioning of public areas in the terminal. Air conditioning will be extended into the existing and new concourse areas and the enlarged public areas as part of these proposals. The proposed air conditioning system will consist of air handling plants housed in new plant rooms close to the areas served and supplied with chilled and heated water from existing supply mains.
49. Electrical Electric lighting and power, fire detection and public address and telephone systems will be extended from, and be designed to match, the existing installations. Building additions will require some modification and extension of the existing aircraft apron floodlighting in order to maintain the requisite illumination for aircraft handling.
50. Water Supply and Sewerage The existing water supply, sewerage, stormwater drainage and fire hydrant system will be reticulated to the proposed extensions and new building areas. Drainage of the observation deck will be modified to suit the building extensions.

51. Committee's Recommendation The Committee recommend the construction of the work in this reference.

PROGRAMME

52. The preparation of contract documents invitation of tenders and the letting of contracts for all of the works in the proposal are expected to take a total of 9 - 10 months from the date approval is given to proceed with the work.

53. However, construction will commence on various sections within this period in accordance with a programme intended to minimise interruptions to terminal operations and to maintain security and public safety.

54. It is estimated that the work will be completed within 27 months after approval by Parliament.

ESTIMATE OF COST

55. A detailed break-up of the limit of cost estimate was provided to the Committee. A summary of the estimate is set out below:

	§
Building extensions and aerobridges	3,000,000
Apron development	<u>4,300,000</u>
	<u>7,300,000</u>

RECOMMENDATIONS AND CONCLUSIONS

56. The summary of recommendations and conclusions of the Committee is set out below. Alongside each is shown the paragraph in the report to which it refers.

1.	THERE IS A NEED FOR THE ALTERATIONS AND EXTENSIONS TO THE TERMINAL BUILDING AND THE ADDITIONAL AIRCRAFT APRONS.	<u>Paragraph</u>
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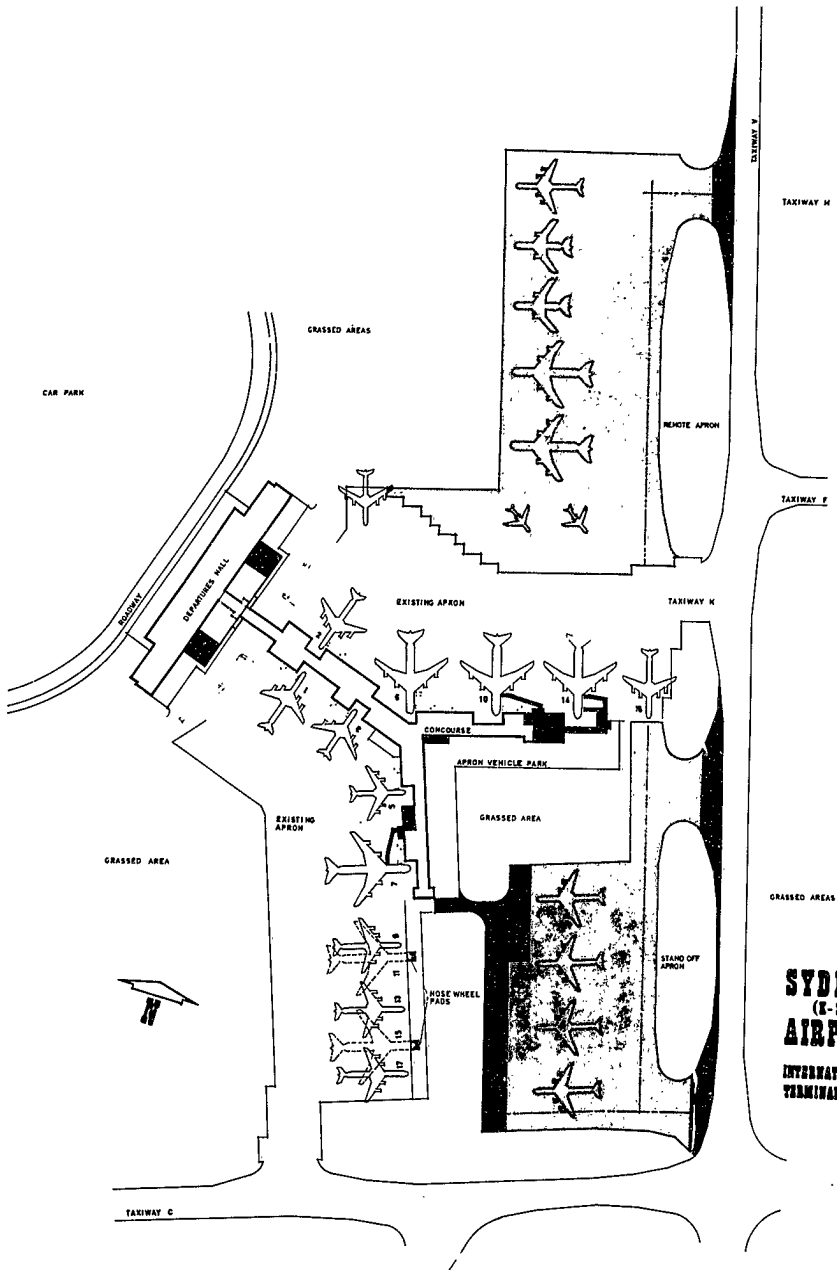
Paragraph

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|----|---|----|
| 2. | THE COMMITTEE RECOMMEND THE CONSTRUCTION OF THE<br>WORK IN THE REFERENCE. | 51 |
| 3. | THE ESTIMATED COST OF THE WORK IS \$7.3 MILLION.                          | 55 |

(W.J. FULTON)  
Chairman.

Parliamentary Standing Committee on Public Works,  
Parliament House,  
CANBERRA, A.C.T.

4 December 1973.



**SYDNEY**  
 (K-8)  
**AIRPORT**  
 INTERNATIONAL  
 TERMINAL BLDG