

(2) **Traffic** streams should be separated at an early stage with appropriate signing to avoid congestion and assure lower traffic volumes on each of the terminal frontage roads. Terminal area access roads should be planned to accommodate 900 to 1,000 vehicles per lane per hour. A minimum of two 12 foot (3.6 m) lanes should be provided. For recirculation roads, each lane should serve 600 vehicles per hour. If only one recirculation lane is provided, its width should be 20 feet (6 m) to accommodate stalled vehicles. For multiple recirculation lanes, the standard lane width is 12 feet (3.6 m).

c. **Terminal frontage roads** distribute vehicles directly to terminal buildings. **Since** considerable merging from through lanes to and from the **curbfront** occurs **on** these roadways, at least **two** lanes should be provided adjacent to the curb. The inside lane, sized at 8 feet (2.4 m), provides terminal curbfrontage and the 12 foot (3.6 m) outside lane serves through traffic and maneuvering to the terminal curbfrontage. **While** planned capacity for the outside lane should be 300 vehicles per hour, the inside lane is considered to have no throughput capacity. Additional 12 foot (3.6 m) through lanes should **be** provided at a rate of 600 vehicles per lane per hour. The terminal frontage is a critical element in the performance of the airport ground access system. Accordingly, to avoid the congestion caused by the inevitable double parking, a minimum of four lanes adjacent to the terminal curb is recommended. Four lanes are also recommended when terminal arrivals and departures are on the same level. (See Figures 9-6 and 9-7.)

d. Service roads are divided into two user categories - general and restricted.

(1) General-use service roads are used for the delivery of goods, services, air cargo, flight kitchen supplies, and the like. At very large airports, to relieve congestion on airport terminal access roads, it is desirable to provide service road entrances and interchanges either before or shortly after entering the airport site. At low activity airports, the service and primary **airport** access roads may be coincidental.

(2) Restricted-use service roads and traffic lanes are limited to such traffic as maintenance, tire and rescue, fuel, baggage, freight, and aircraft service vehicles. Those roads or sections of roads providing access to aircraft operating and parking areas require control points for adequate area security.

(3) The recommended hourly lane capacity is 600 to 1,200 vehicles. Since a major portion of **the** road traffic is from trucks, the lower value should be used in preliminary design. The typical vehicle speed is 15 to 20 miles (25 to 33' km) per hour and frequent curb cuts are required for access to airport service facilities. Usually, these roads are two-way in nature with 12 foot (3.6 m) lane widths.

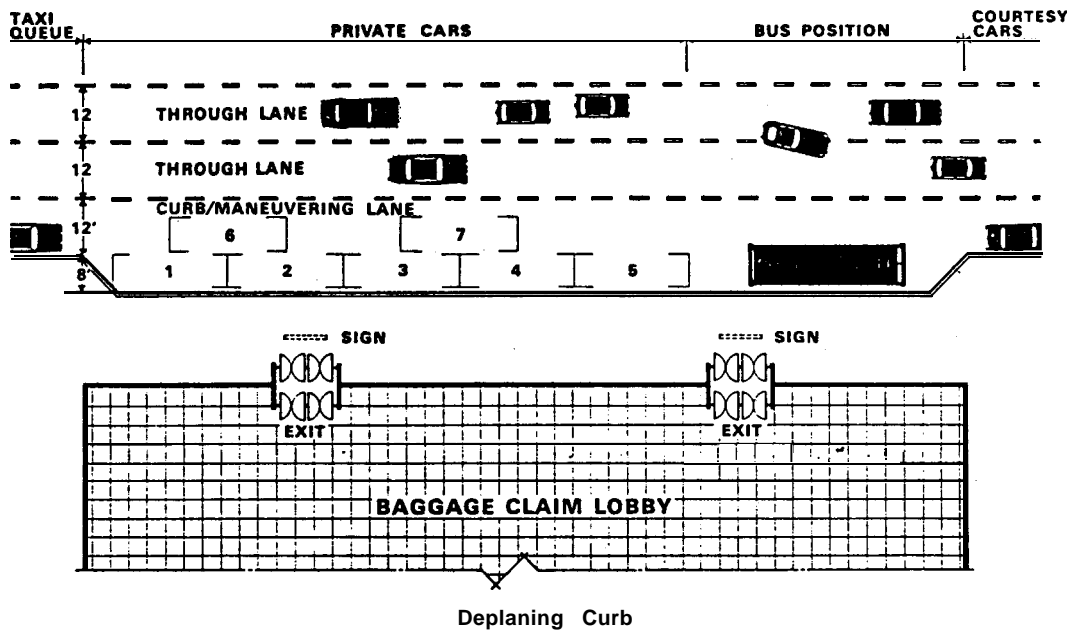
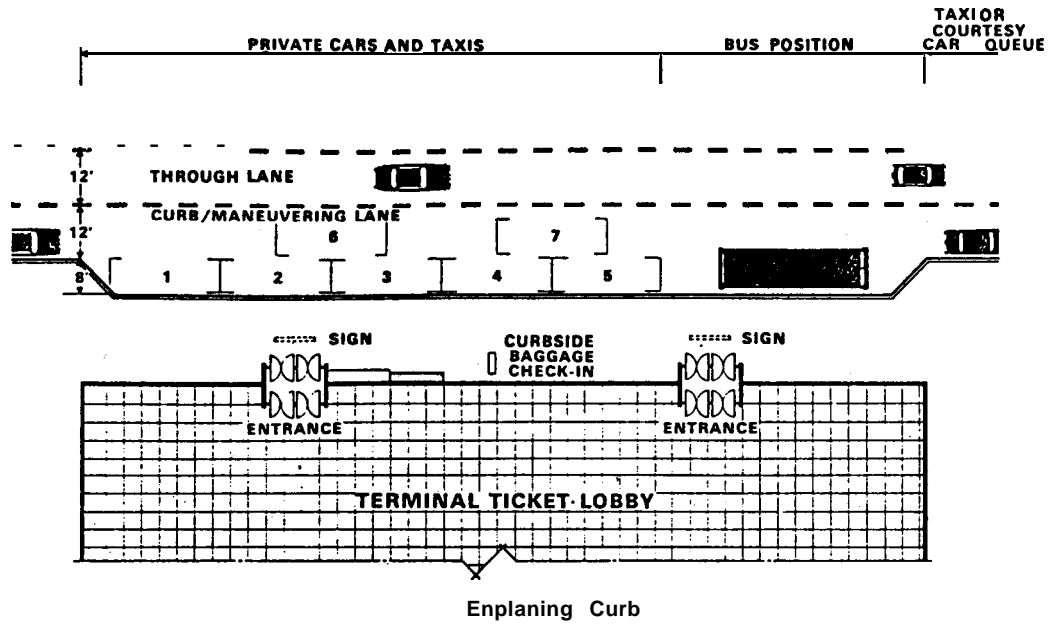


Figure 9-6. Terminal Curb Areas

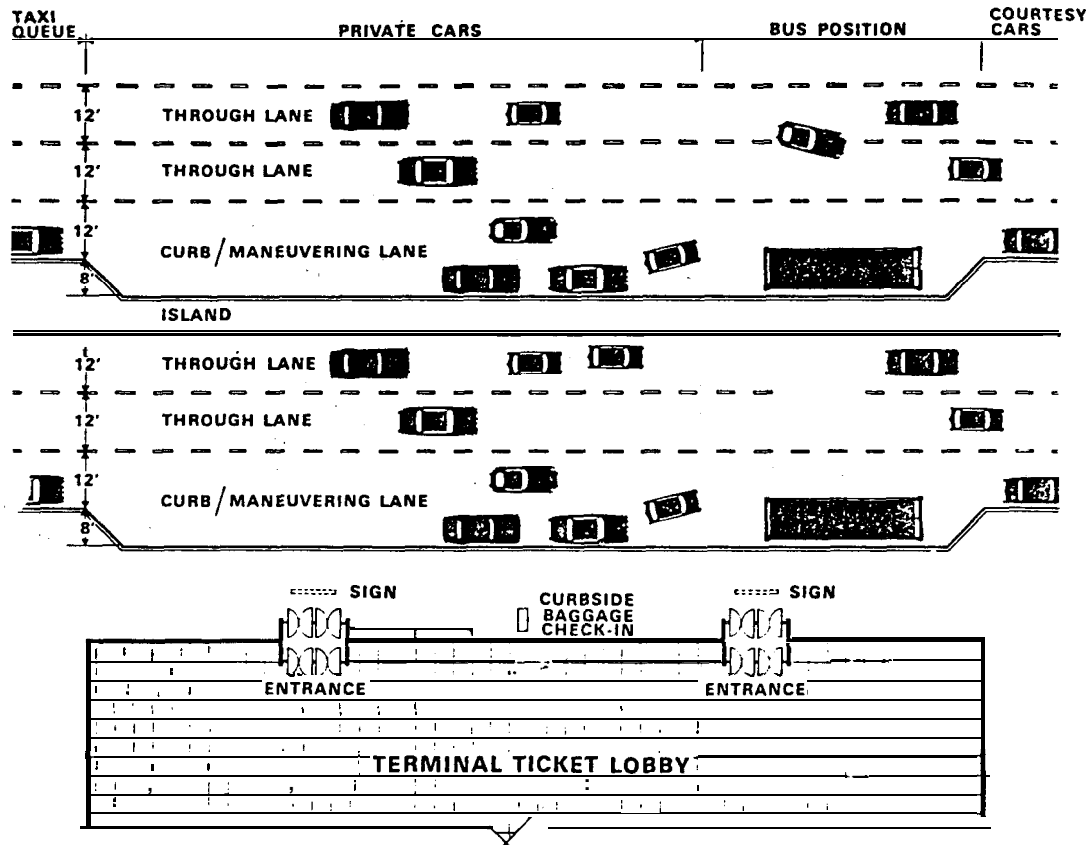


Figure 9-7. Vehicular Island Curb

150. **TERMINAL CURB AREAS.** Curb areas are required at terminals for loading and unloading of passengers and their baggage.

a. **Curbfrontage.** The roadway area adjacent to the curb area is discussed in paragraph 149c. The length of curb to be provided is related to the mix of vehicle types and expected curb dwell time. Table 9-1 shows typical curb dwell times and required vehicle slot lengths for different types of vehicles. It should be noted that, in the case of deplaning passengers, larger volumes of passengers, baggage, and ground transportation requirements peak over shorter periods of time. Strict policing is highly effective in optimizing the vehicle curb slot occupancy rate.

**Table 9-j. Typical Curbfrontage Dwell Times and Vehicle Slot Lengths**

Vehicle	Curb Dwell Time (Minutes)		Vehicle Slot Length (Feet/Meters)
	Enplane	Deplane	
Private Auto	1.0 to 3.0	<b>2.0 to 4.0</b>	<b>25.0/7.5</b>
Rental Car	1.0 to 3.0	<b>2.0 to 4.0</b>	<b>25.0/7.5</b>
Taxi	1.0 to 2.0	1.0 to 3.0	<b>20.0/6.0</b>
Limousine	<b>2.0 to 4.0</b>	<b>2.0 to 5.0</b>	<b>35.0/10.5</b>
bus	<b>2.0 to 5.0</b>	<b>5.0 to 10.0</b>	<b>50.0/15.0</b>

**b. Sidewalk Platforms.** Sidewalk platforms are located immediately adjacent to curb/maneuvering lanes and terminal building entrances and exits to provide passenger walkways and safety areas for loading and unloading of vehicles.

(1) At high activity airports, traffic curb islands are often provided to increase the curb area and, in some cases, to segregate different types of ground transportation vehicles. Airports with relatively low passenger levels may be able to accommodate both enplaning and deplaning passengers from one curb face.

(2) Generally, the curb area is divided functionally into enplaning and deplaning curbs. It is separated physically, either horizontally at each end of the terminal building or vertically by means of structural vehicular ramps (see paragraph 36c).

(3) With a one level operation, the deplaning curb is located at the far end of the terminal with respect to approaching vehicular traffic. In the case of vertical separation, deplaning is on the lower level. Such separation minimizes the congestion which will result if opposing flows and volumes of persons, baggage, and ground vehicles are concentrated in the same curb area.

(4) At most terminals, specific curb areas are designated for buses, limousines, courtesy cars, and taxi queues. These designated areas should be located at reasonable distances from terminal exits to reduce congestion. Overhead coverings are desirable to protect disembarking passengers from inclement weather.

**c. Curbside Baggage Check-in.** Curbside baggage check-in permits baggage to be checked directly to the appropriate airline flight. The area which accommodates this service normally requires space for a baggage check-in desk (usually portable), baggage handtrucks, and a baggage conveyor or belt. Baggage may be either taken by handtruck to the ticket counter or transported directly by an adjacent conveyor belt to the outbound baggage room. The system used is economically related to passenger activity volumes, manpower, and installation cost. Terminal plans should consider design provisions to facilitate both present and future conveyor installations.

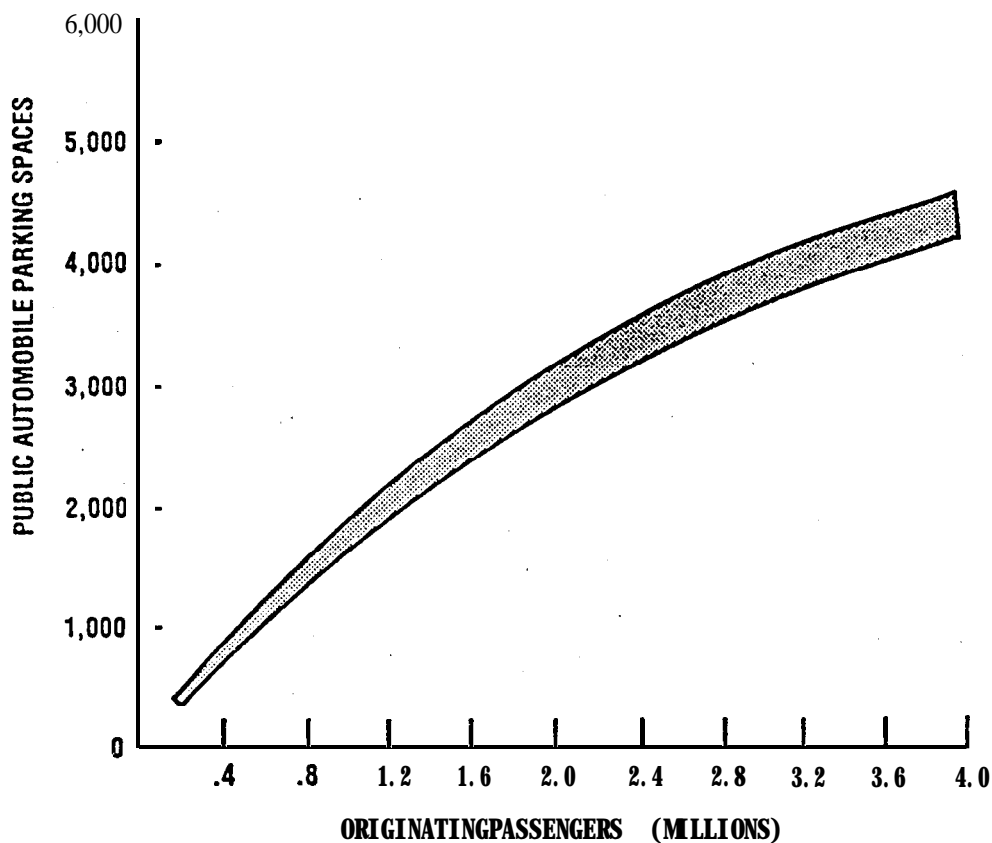
**d. , Terminal Entryways.** Terminal entrances should be located at enplaning curb areas and open directly into airline ticket counter lobbies. Similarly, terminal exits should be located in close proximity to baggage claim facilities and open to deplaning curbs. Automatic doors are highly recommended for: passenger baggage carrying convenience; as a weather buffer; and to increase the efficiency of passenger movement in energy conservation measures.

**e. Pedestrian Crossings and Walkways.** Pedestrian crossings and walkways from terminal curbs to island platforms and parking facilities should be well marked. At high activity locations, consideration should be given to traffic-controlled crosswalks or, preferably, to grade separation by means of overpasses and tunnels.

**151. PUBLIC PARKING FACILITIES.** Surveys at some major airports in the United States indicate that from 40 to 85 percent of the originating passengers arrive in private automobiles. Consequently, adequate public parking facilities are essential to good terminal design. Some general guidelines and recommendations for designing these facilities are discussed in succeeding paragraphs.

a. **Locations.** Public parking lots should be located to limit walking distances from parked automobiles to terminals to no more than 1,000 feet (300 m). At larger airports, large volume parking needs may require provision of remote parking facilities served by shuttle bus or people mover systems.

b. **Sizing.** The number of public parking spaces available per million originating passengers varies between airports, particularly at airports with over 1.5 million originations. The range at existing airports may vary from under 1,000 to as high as 3,300 parking spaces per million originations. Another methodology provides parking spaces for 1.5 times the number of peak hour passengers. Figure 9-8, presents a range of parking spaces for 100,000 to 4,000,000 originating passengers at a sample of airports. A better way for estimating parking needs is through a simulation based on existing parking characteristics and forecasted future needs. While simulation is expensive and time consuming, it can be justified where expansion space is severely limited or the cost of additional spaces is very high. A rule-of-thumb suggests an increase of 15 percent in the number of estimated parking spaces to minimize the amount of time required to find a parking space. In developing a parking lot plan, approximately 350 to 400 sq. ft. (31.5 to 36.0 m<sup>2</sup>), including lanes, should be allowed for each parked automobile. This is the equivalent of 109 to 124 parked cars per acre (269 to 306 per hectare) for on-grade parking.



SOURCE: TRB SPECIAL REPORT 215

Figure 9-8. Estimated Requirements for Public Parking at U.S. Airports

**c. Short-Term Versus Long-Term Parking.** The generally accepted definition for short-term parking is anything less than **three** hours. Approximately 70 to 85 percent of all parking lot users are short-term parkers, mainly greeters and well-wishers. However, this amounts to full time use of only 20 to 30 percent of the total parking requirements. Long-term parkers, the remaining 15 to 30 percent of parking lot users, are almost all travelers and occupy 70 to 80 **percent** of the available parking spaces. Through actual surveys and analysis of parking stubs conducted over several consecutive days, utilization charts can be developed showing vehicle volumes and length of stay. Short-term parking is usually provided nearest the terminal, since its turnover rate is often at **least three** times that of long-term lots. Short-term rates are high to discourage long-term parkers from clogging close in lots. A rule-of-thumb suggests that separate short and long-term parking should be **provided when** the total annual passenger volume exceeds the 150,000 to 200,000 range.

**d. Parking Lot Entrances and Exits.** Parking lot entrances and exits can easily become points of congestion. This congestion can be **minimized** by providing appropriate ticket dispensing and fee collection facilities and queuing lanes to **reduce vehicle** interference with access roads and parking lot circulation. Entrance and exit points should be **clearly identified** and **sufficiently separated** to avoid confusion. The total in and out airport parking lot flow can approach 25 **percent** of capacity in peak **periods**. **While** automatic ticket dispensers can process up to 400 vehicles **per** hour, a **design** capacity of 240 is recommended. At least two ticket dispensing machines per entrance should be **provided** to **permit** equipment maintenance without severely restricting parking operations. Attendant parking **fee** collection booths can process 120 to 150 vehicles hourly with variable fee parking and about 250 vehicles **per** hour with a flat fee. One collection position should be provided per 105 vehicles hourly in manual mode and one position **per** 185 vehicles per hour in a computerized operation.

**e. Circulation.** Counter-clockwise circulation within the parking lot is usually preferable and one-way traffic control is recommended to minimize congestion and hazards. Aisle widths should be generous and parking stalls clearly marked. **The** layout should be **designed** to minimize the number of turns and both vehicular and pedestrian travel distances. Parking lot aisles should be laid out in the direction of pedestrian-parker destination. Perpendicular parking is **frequently used**, since it permits parking from each side of the aisle and maximizes the **number** of stalls in a given area. However, parking stall layout mainly depends on **the** area's shape and, to a lesser extent, on local parking habits.

**f. Parking Structures.** Multilevel parking structures are used at high activity airports, albeit with higher construction costs, to increase the **number** of parking slots in a **given** area and to **reduce** walking distances. This parking arrangement also furnishes users with **protection** from inclement weather.

**152. EMPLOYEE AND TENANT PARKING.** Surveys show that **approximately** 90 percent of airport employees travel to work in **private** automobiles. **Due** to the variation among airports for aircraft maintenance, air cargo, and **other** servicing activities, a consistent relationship **between** numbers of employees and **passengers** has not been **established**. The number of **employee/tenant** parking spaces should be obtained by surveying airport management and terminal **tenants**. **Employee** and tenant parking should be provided near working areas which are not in or near terminal buildings. Otherwise, remote parking with a shuttle service to work areas is required.

**153. PUBLIC TRANSPORTATION AND RENTAL CAR AREAS.** Parking facilities are also required for **the** short-term parking of taxis, vans, limousines, **buses**, and for **rental** car ready and storage lots. Discussions should be held with **the** various **service** operators to establish parking **requirements**. **Approximately** 750 originating passengers are accommodated per rental car ready stall. The space per vehicle **required** for taxi parking and rental car **storage** facilities is less than for public parking or **rental** car ready lots, **since** these vehicles are **driven** by **professional** drivers. Space for 160 vehicles **per** acre (395 per **hectare**) is recommended. Land in the **immediate** terminal area is at a **premium**. Accordingly, a trend is that on-airport **rental** car agencies are basing vehicles at **remote** locations and using vans to shuttle customers to and from **these** areas. Usually, short-term parking areas for **buses**, taxis, vans, and **limousines** are **located** away from **the** terminal curbside to increase **curbside** operational efficiency. These vehicles can be **called** to the curb in a **demand** responsive mode and curbside dwell time considerably reduced. Similarly, provisions can be **made** for exclusive lanes or dedicated auxiliary curbs for high occupancy vehicles such as vans, **limousines**, and **buses**.

154. **ACCESS SYSTEM SIGNS.** Directional and identification signs are extremely important in designing an efficient airport access system. Clearly visible signs should be positioned on roads and in terminal curbs areas well in advance of desired destinations to permit vehicle operations without a need for abrupt movements. Signs should be properly lighted for night use and painted with lettering and background colors which enhance clarity and visibility. Messages should be concise, quickly identifiable, and easily understood. Color coding for unit terminals, airlines, parking facilities, etc., is recommended, particularly for complex terminal areas. The Institute of Transportation Engineers (ITE) Technical Council Committee Report **5D-1, Airport Road Guide Signs (1991)**, may be consulted for further information.

**155. TRANSIT SYSTEM LINKS AND AUTOMATED PEOPLE MOVER (APM) SYSTEMS.**

a. **Public transit system service** ground access to the airport, preferably the airport terminal area, should be considered. High quality public transit service, as provided by rail systems or express bus operations, can attract significant ridership and help alleviate vehicular traffic congestion in the terminal area. Easy direct access to terminal buildings, as well as baggage transport and security, are essential to encourage substantial passenger use.

b. **Automated people mover (APM) systems (automated, driverless vehicles operating on fixed guideways along an exclusive right-of-way)** have demonstrated the potential to be an important element in the airport circulation system. They can serve to provide a convenient and efficient interface for public transit ground access to the airport, as well as means of linking passenger terminals with each other and parking and car rental facilities, hotels, and other airport activity centers. At airports with in-land constraints limiting expansion due to high levels of pollution, or a lack of available construction sites, or a lack of adequate transit and highway capacity, APMs can, in some cases, diminish these constraints by skillful arrangement of facilities and reduction of airport vehicular traffic.

**156. - 160. RESERVED.**

## CHAPTER 10. FEDERAL PARTICIPATION IN THE COSTS OF TERMINAL DEVELOPMENT

**161. GENERAL.** This chapter contains information pertaining to Federal participation in the costs of airport terminal development, including surface access, under the terms of the Airport and Airway Improvement Act of 1982 (P.L. 97- 248), as amended. In particular, the Airport and Airway Safety, Capacity, Noise Improvement, and Intermodal Transportation Act of 1992 has amended the 1982 Act with a focus on international and intermodal issues.

**162. BACKGROUND.** The 1982 Act (P.L. 97-248), successor to the Airport and Airway Development Act of 1970, provides financial support for necessary improvements to the Nation's airport and airway system. The Act's Airport Improvement Program (AIP) provides **Federal** funds through airport grants to finance improvements to eligible public-use airports in the United States. Section 5 13 of the Act authorizes funds for airport terminal development and establishes requirements and limitations for funding these facilities, including multimodal terminal development.

**163. FINANCIAL ASSISTANCE.** Airport surface access, multimodal terminals, and other terminal area facilities may be developed with Federal grants-in-aid. Many projects related to the movement of passengers and baggage within the boundaries of the airport may be **AIP** eligible. Passenger Facility Charge (PFC) program funds may be used for AIP-eligible work and certain other projects. Recently, several changes have been made to eligibility by the Congress. Sponsors, consultants, and interested parties should contact FAA Airports offices for current financial assistance and technical guidance with surface access or terminal development.

### **164. SPECIAL REQUIREMENTS.**

a. All safety and security equipment required by rule or regulation is required to be acquired prior to approval of an AIP project for terminal development.

b. Provision of access to the **terminal** building for passengers enplaning or deplaning from aircraft other than air carrier is required (see paragraph 131).

c. *New and existing* terminal buildings and facilities are required to be made accessible to persons with disabilities (see Chapter 7).

**165. PRORATION OF TERMINAL BUILDING DEVELOPMENT COSTS.** In computing the Federal share for participation, a determination of eligible/ineligible areas is made by the FAA based on engineering judgment and a reasonable review of the areas and facilities dedicated to the movement of passengers **and** baggage. The procedures used in making this determination should be discussed with the FAA Airports **office**.

**166. BOND RETIREMENT.** Federal grant funds may not ordinarily be used to pay financing costs, such as debt services for bonds issued for airport or terminal development. The only exception is for terminal development financing costs which meet the following criteria:

a. The airport met the definition of an air carrier airport under the previous Airport and Airway Improvement Act;

b. The terminal development was carried out on or **after** July 1, 1970, and before July 12, 1976;

c. The airport sponsor **certifies** that the airport has all the safety and **security** equipment required (see paragraph 131);



d. The Secretary of Transportation **determines** that no project for airport **development** outside the terminal **area** will be **deferred** if such sums are **used** for bond retirement; and

e. It is **agreed** that no funds **available** for airport development will be obligated for any additional terminal development at such airport for a **period** of 3 **years beginning on the** date any such sums are used for bond retirement.

167. APPLICATION OF FEDERAL GUIDANCE. Each **terminal** is a unique facility designed to meet the individual requirements and **desires** of **the** particular community in which it is located. The final design will reflect various demands, constraints, and **compromises**, as **well** as physical and financial limitations. Consequently, it is both impractical and undesirable to **impose** rigid **Federal** standards for determining space and facility requirements for terminal facilities as a condition for receiving **Federal** funds. It is neither the intent or **desire** of the Federal Government to utilize a "cookbook" approach in the **design** of airport terminals or to impose a particular architectural style. Accordingly, **except** for **the** requirements established by legislation or regulation (see paragraph 164), **the** material contained in this advisory circular is presented as general guidance to assist airport sponsors and their consultants in **the** planning and design of airport terminals. It is not intended for use in establishing minimum or maximum limits for determining Federal participation. The final **review** and approval of Federal funds for **terminal** development will consider whether the **design** is reasonable, functional, and not **overly extravagant** or **wasteful**.

168. - 170. RESERVED.

## APPENDIX 1 - BIBLIOGRAPHY

1. **Advisory Circulars.** The latest issuance of **free** advisory circulars (AC(s)) may be obtained from the Department of Transportation, General Services **Section**, M-443.2, Washington, D.C. 20590. For sale **ACs** may be ordered from **the Superintendent** of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. AC-00-02, Advisory Circular Checklist, lists and contains the **prices** of for sale documents.

- a. 00-2, Advisory Circular Checklist. Contains a listing of all current advisory circulars.
- b. 150/5057-6, Airport Master Plans. Provides guidance for the **preparation** of airport master plans, pursuant to the provisions of **the** Airport and Airway Improvement Act of 1982.
- c. 150/5200-11, Airport Terminals and the Physically Handicapped. Discusses the problems of the physically handicapped air traveler and **suggests** features which can be incorporated into modifications of existing as well as construction of **new** buildings.
- d. 150/5220-21, Guide Specifications for Lifts Used to Board Airline Passengers With Mobility Impairments. Provides subject guidance.
- e. 150/5230-4, Aircraft Fuel Storage, Handling and Dispensing on Airports. Provides information on fuel deliveries to airport storage and **the** handling, cleaning, and dispensing of fuel into aircraft.
- f. 150/5300-13, Airport Design. Presents standards and recommendations for the design of airports.
- g. 150/5360-9, Planning and Design of Airport Terminal Facilities at Non-hub Locations. Provides guidance material for terminal facilities at low activity airports.
- h. 150/5360-11, Energy Conservation for Airport Buildings. Provides guidance on energy conservation in the design and operation of airport buildings.
- i. 150/5360-12, Airport Signing and Graphics. Presents guidance on airport related signs and graphics.
- j. 150/5370-10, Standards for Specifying Construction of Airports. Provides construction standards used to specify grading, drainage, paving, lighting, fencing, and turfing items of work on civil airports.
- k. 70/7460-1, Obstruction Marking and Lighting. Describes FAA standards on obstruction marking and lighting and **establishes** the methods, procedures, and **equipment** types for both aviation red and high intensity white obstruction lights.
- l. 107-1, Aviation Security-Airports. Furnishes guidance to **those** individuals and organizations who have **responsibilities** under FAR Part 107. Provides **recommendations** for establishing and improving security for restricted or critical facilities and **areas** not covered in Part 107.
- m. 108-1, Air Carrier Security. Provides information and guidance on **the** implementation of FAR 108, Airplane Operator Security.
- n. 120-57, Surface Movement Guidance and Control System. Provides guidance on developing a Surface Movement Guidance and Control System (SMGCS) plan.
- o. 129-3, Foreign Air Carrier Security. Provides information and guidance on **the** implementation of sections 129.25, 129.26, and 129.27 of FAR 129.

2. **Government Reports.** Government reports may be obtained from the National Technical Information Service (NTIS), Springfield, Virginia 22151. The number in brackets following the report title represents the NTIS ordering number. The NTIS should be contacted for current costs of each report.

a. FAA-RD-73-82, The Apron-Terminal Complex [AD-771 186].

b. FAA-RD-75-191, The Apron and Terminal Building Planning Report [AD-A018 120].

c. A Study of Airport Design, Art, and Architecture, U.S. Department of Transportation [AD-A099 852].

d. Recommended Security Guidelines for New Airport Construction and Major Renovation [Available from FAA Office of Civil Aviation Security Policy and Planning].

3. **Miscellaneous Reports.**

a. Airports--U.S.A. and Preclearance, Facilities Guidelines for Federal Inspection Services. This document is free and may be ordered from the U.S. Customs Service, 1301 Constitution Avenue, NW., Washington, D.C. 20229.

b. Airline Aircraft Gates and Passenger Terminal Space Approximations. Order from the Air Transport Association of America, 1079 New York Avenue, NW., Washington, D.C. 20006.

c. Airport Terminals Reference Manual. Order from the International Air Transport Association, P.O. Box 550, 2000 Peel Street, Montreal, Quebec, Canada I-13A 2114.

d. American With Disabilities Act Accessibility Guidelines for Buildings and Facilities; Transportation Facilities and Transportation Vehicles (ADMG). Order from the U.S. Architectural and Transportation Barriers Compliance Board, 1331 E Street, N.W., Washington, DC 20004-1111.

e. Special Report 215 - Measuring Airport Landside Capacity. Transportation Research Board, 2101 Constitution Avenue, NW, Washington, D.C. 20418.

f. ITE Technical Council Committee Report SD-1, Airport Roadway Guide Signs (1988) [RR-014A]. Institute of Transportation Engineers, 525 School Street, SW, Washington, DC 20025.

## APPENDIX 2—PROJECT PLANNING AND DESIGN

This Appendix provides a suggested questionnaire for consultants and planners preparing for the **construction** of a new passenger terminal or the expansion of an existing building. Because either type of project eventually requires some type of lease and/or rental commitment by building tenants, the sizing of all tenant space (exclusive or joint-use) should be consistent with the requests of prospective tenants. Information on airline tenant space requirements can be obtained from airlines by using this planning data questionnaire. Project planning may also involve situations where it is desirable to review the basic **traffic** flows and functional relationships existing at a number of other comparable passenger terminals.

## AIRPORT PROJECT DEVELOPMENT QUESTIONNAIRE

## AIRPORT PROJECT DEVELOPMENT QUESTIONNAIRE

CITY: \_\_\_\_\_ P R E P A R E D BY: \_\_\_\_\_  
 AIRPORT: \_\_\_\_\_ AAAC REP: \_\_\_\_\_  
 STATE: \_\_\_\_\_ AAFC REP: \_\_\_\_\_  
 AAPC REP: \_\_\_\_\_

**This questionnaire is intended to provide individual airline data necessary for planning, design and construction of Apron-Terminal Facilities.**

**The submission of this questionnaire, and the data contained herein, does not constitute a commitment by the airline/or airlines to support expenditures for acquisition of land or construction of improvements, lease building space or real property, or incur any other commitments.**

**Facility requirements shown are based on the number of passengers forecasted for that year. However, specific construction programs are normally dictated by economics and their affect upon airport operations. Accordingly, these construction programs are normally based on facility sizing for passenger volumes forecasted during the two to five year period after occupancy. The design year for these construction programs should be mutually agreed upon in advance by the airlines and the Airport Authority.**

**Section 4 has been added for the purpose of providing basic information on future requirements for support facilities. It is similar to Section 7 of the ATA Airport Master Planning Questionnaire (AD/SC FORM 74-Z).**

**INSTRUCTIONS:**

**When completing this questionnaire, fill in all the blanks. If the requested information is not available or not applicable, insert N/A in the appropriate space(s). Do not leave any blank spaces.**

**SECTION 1 GENERAL PLANNING**

**EXAMPLE 1 ANEMENTS**

	19	1 9	19	19
Annual				
Percent Transfer				
Peak Mnth Is _____				
Average Day - Peak Mnth				
Peak Hour (AD-PM)				
Peak Hour Time of Day				

**EXAMPLE 2 ANEMENTS**

	19__	19	19	19
Annual				
Percent Transfer				
Peak Mnth Is _____				
Average Day - Peak Month				
Peak Hour (AD-PM)				
Peak Hour Time of Day				

**Ratio of Visitors to Passengers: Enplaning Pax \_\_\_\_\_; Deplaning Pax \_\_\_\_\_**  
**Ratio of Checked Bags to Passengers: \_\_\_\_\_**

**PART 3 GROUND ACCESS INFORMATION**

BASED ON \_\_\_\_\_, 19\_\_\_\_

MODE	ENPLANING PASSENGERS			DEPLANING PASSENGERS		
	NO. OF VEHICLES	OCCUPANTS PER VEHICLE	% PAX USING MODE	NO. OF VEHICLES	OCCUPANTS PER VEHICLE	% PAX USING MODE
Private Auto (Air Pax. Only)						
Serve-Private Auto*						
Rental Car						
Taxi						
Bus						
Other						

\* Serve-Private Auto = Trip purpose of seeing, meeting, dropping off, picking up, greeting or well-wishing an air passenger.

	ENPLANING PASSENGERS		DEPLANING PASSENGERS	
	NO. OF VEHICLES	PERCENTAGE	NO. OF VEHICLES	PERCENTAGE
Private autos using only the curb				
Private autos using curb before going to parking facility				

% of Private Autos Using Parking Facility \_\_\_\_\_%

Maximum Vehicle Storage Accumulation in the Parking Facility \_\_\_\_\_ Vehicles

**NOTE:**

- a) This information for Section 1 is generally required to determine the elements of the Apron-Terminal which are or may be in common use, such as public corridors, terminal lobby and public waiting areas, baggage claim, vehicle curb length and parking facilities.
- b) Most of the data on vehicular traffic can only be obtained through the Airport Authority. Surveys may be required in the absence of any updated information.

**SECTION 2 APRON-TERMINAL**  
**PART 1 AIRCRAFT GATE OPERATIONAL PROCEDURES - PREFERRED METHOD OF OPERATION**

AIRCRAFT TYPE	19	19	19	19	19	19	19	19	19	19	19	19	19	19
SEAT CAPACITY														
POWER OUT (POM) vs. PUSH OUT (PUSH)														
NUMBER OF GATES														
TOTAL RAMP FRONTAGE (1. f.)														
BOARDING METHOD (Ground vs. Second Level)														
SEAT CAPACITY														
POWER OUT (POM) vs. PUSH OUT (PUSH)														
NUMBER OF GATES														
TOTAL RAMP FRONTAGE (1. f.)														
BOARDING METHOD (Ground vs. Second Level)														
SEAT CAPACITY														
POWER OUT (POM) vs. PUSH OUT (PUSH)														
NUMBER OF GATES														
TOTAL RAMP FRONTAGE (1. f.)														
BOARDING METHOD (Ground vs. Second Level)														
SEAT CAPACITY														
POWER OUT (POM) vs. PUSH OUT (PUSH)														
NUMBER OF GATES														
TOTAL RAMP FRONTAGE (1. f.)														
BOARDING METHOD (Ground vs. Second Level)														
SEAT CAPACITY														
POWER OUT (POM) vs. PUSH OUT (PUSH)														
NUMBER OF GATES														
TOTAL RAMP FRONTAGE (1. f.)														
BOARDING METHOD (Ground vs. Second Level)														

COMMENTS:



**PART 2 INDIVIDUAL DEPARTURE LOUNGE  
SIZING PER AIRCRAFT GATE**

	19 _____		-19_ _		19 _____		19 _____	
Lounge No.	Gate Capability - Specify range of aircraft size	Area in Sq. Ft.	Gate Capability - Specify range of aircraft size	Area in Sq. Ft.	Gate Capability - Specify range of aircraft size	Area in Sq. Ft.	Gate Capability - Specify range of aircraft size	Area in Sq. Ft.

**NOTE: Specify when departure lounge serves multiple gates.**  
**COMMENTS:**

4/22/88

AC 150/5360-13  
Appendix 2

**PART 3 SECURITY**

INDICATE REQUIREMENTS OR RECOMMENDATIONS FOR SECURITY

<b>Suggested Locations:</b>	
<b>Recommended Type of Equipment (Manual, X-Ray, or other)</b>	

**PART 4 COMMUNICATIONS AND FLIGHT INFORMATION**

		YES	NO	COMMENTS
<b>Public Address System</b>				
<b>Flight Information (Describe type under comments)</b>				
<b>Signs</b>	<b>Roadway</b>			
	<b>Terminal</b>			
	<b>Gates</b>			

**PART 5 DESIGN DAY - ACTIVITY TABLE**

**NOTE:** a) This information can be given for one term (five year forecast period). However, the selected period of time is to be agreed upon jointly by the Airline Airport Planning Committee.

b) Design Day is defined as the Average Day of the Peak Mnth.

c) Complete the Table for a minimum of 18 hours of activity.

FORECAST YEAR		PEAK MONTH		
ARRIVAL TIME	PASSENGERS OFF	AIRCRAFT TYPE	PASSENGERS ON	DEPARTURE TIME

**PARTS I G N D A Y -ACTIVITY TABLE (CONT'D)**

ARRIVAL TIME	PASSENGERS OFF	AIRCRAFT TYPE	PASSENGERS ON	DEPARTURE TIME

**NOTE:**

The above table conforms with Figure 2-4, Page 2-11 in The Apron-Terminal Complex; DOT/FAA Report No. FAA-RD-73-82; September, 1973.

**COMMENTS:**

**PART 6 AIRLINE TERMINAL TICKET OFFICE**

**a) TICKET COUNTER**

		19	19	19	19	LOCATION
<b>Type (Specify Linear vs. Through)</b>						
<b>Ticket Counter Length</b>		lf	lf	lf	lf	
<b>Number of Positions</b>	<b>Ticket Counter in Terminal</b>					
	<b>Curbside Baggage. Check-In</b>					
<b>Modular Length per Position in Terminal</b>		lf	lf	lf	lf	

**b) BACK OFFICES (behind ticket counter)**

<b>Supervisory Office(s)</b>		sf	sf	sf	sf	
<b>Other Offices</b>		sf	sf	sf	sf	
<b>Check-out Area</b>	<b>Area</b>	sf	sf	sf	sf	
	<b>No. of People</b>					
<b>Wrk Space</b>		sf	sf	sf	sf	
<b>Locker/Lounge Area</b>		sf	sf	sf	sf	
<b>Storage Area</b>		sf	sf	sf	sf	
<b>Other (Specify): _____</b>		sf	sf	sf	sf	
<b>TOTAL AREA</b>		sf	sf	sf	sf	

**PART 7 TICKET LIFT SUPPORT FACILITY**

Specify: Required in Terminal \_\_\_\_\_ Required in Connector (Specify 2nd vs. Ground Level) \_\_\_\_\_

	19	19	19	19	LOCATION
<b>Flight Close-out Room</b>	sf	sf	sf	sf	
<b>Check-out Room</b>	sf	sf	sf	sf	
<b>No. of People Checking out Simultaneously</b>					
<b>Storage</b>	sf	sf	sf	sf	
<b>Supervisory Offices</b>	sf	sf	sf	sf	
<b>Lounge</b>	sf	sf	sf	sf	
<b>Locker Room</b>	sf	sf	sf	sf	
<b>Training Room</b>	sf	sf	sf	sf	
<b>Other (Specify):</b>	sf	sf	sf	sf	
<b>TOTAL AREA</b>	sf	s f	sf	sf	

**PART 8 PASSENGER SERVICE MANAGER**

	19	19	19	19	LOCATION
<b>Office</b>	sf	sf	sf	sf	
<b>Lounge</b>	sf	sf	sf	sf	

**PART 9 SPECIAL PASSENGER FACILITIES**

	19	19	19	19	LOCATION
<b>Customer Service Lounge</b>	sf	sf	sf	sf	
<b>Club Room(s)</b>	sf	sf	sf	sf	

**PART 10 BOUND BAGGAGE ROOM**

		19 _____	19 _____	19 _____	19 _____	LOCATION
<b>Type (Specify <u>Shared</u> vs. <u>Exclusive</u>)</b>						
<b>Clear Height</b>		ft.	ft.	ft.	ft.	
<b>Clear Length</b>		ft.	ft.	ft.	ft.	
<b>Clear Width</b>		ft.	ft.	ft.	ft.	
<b>Sort Device(s)</b>	<b>Available from One Side</b>	1f.	1f.	1f.	1f.	
	<b>Available from Both Sides</b>	1f.	1f.	1f.	1f.	
<b>Special* (Skis, Oversize Parcels, etc.)</b>		sf.	sf.	sf.	sf.	

**PART 11 INBOUND BAGGAGE**

		19 _____	19 _____	19 _____	19 _____	LOCATION
<b>Baggage Unloading</b>	<b>Width</b>	ft.	ft.	ft.	ft.	
	<b>length</b>	ft.	ft.	ft.	ft.	
<b>Claim Device(s) (Passenger Retrieval of Bags)</b>	<b>Device #1</b>	1f.	1f.	1f.	1f.	
	<b>Device #2</b>	1f.	1f.	1f.	1f.	
	<b>Device #3</b>	1f.	1f.	1f.	1f.	
	<b>Device #4</b>	1f.	1f.	1f.	1f.	
	<b>Provisions for odd-size Baggage</b>	sf.	sf.	sf.	sf.	
<b>Baggage Service Offices (Including storage for unclaimed baggage)</b>		sf.	sf.	sf.	sf.	
<b>Special* (Skis, Oversize Parcels, etc.)</b>		sf.	sf.	sf.	sf.	

\*NOTE: This provision is not required at all stations.

**MAIS 10 E L L A N E O U S**

		19 ____	19 ____	19 ____	19 ____	LOCATION
<b>Mail and Express Transfer Areas</b>		sf.	sf.	sf.	sf.	
<b>Skycaps Room</b>		sf.	sf.	sf.	sf.	
<b>Other (Specify):</b>		sf.	sf.	sf.	sf.	
		sf.	sf.	sf.	sf.	

		19 ____	19 ____	19 ____	19 ____	LOCATION
<b>Flight Info. Center/Load and Clearance</b>		sf.	sf.	sf.	sf.	
<b>Communications/Teletype Area</b>		sf.	sf.	sf.	sf.	
<b>Telephone Equipment Rooms</b>		sf.	sf.	sf.	sf.	
<b>Flight Plan Area(No. of positions@ 3 ft.)</b>						
<b>Weather Display</b>		sf.	sf.	sf.	sf.	
<b>Operations Crew Area</b>		sf.	sf.	sf.	sf.	
<b>Crew Ready Room</b>		sf.	sf.	sf.	sf.	
<b>Crew Kit Bag Area (No. of bags)</b>						
<b>Crew Mail Box Area (No. of boxes)</b>						
<b>Crew Briefing Room</b>		sf.	sf.	sf.	sf.	
<b>Storage</b>		sf.	sf.	sf.	sf.	
<b>Flight Administration</b>		sf.	sf.	sf.	sf.	
<b>Dispatch Weather Service</b>		sf.	sf.	sf.	sf.	

## AIRLINE OPERATIONS (CONT'D)

<b>Stewardess Administration</b>	sf	sf	sf	sf	
<b>Training Room</b>	sf	sf	sf	sf	
<b>Food Bank/Top-off Area</b>	sf	sf	sf	sf	
<b>Other (Specify):</b>	sf	sf	sf	sf	

**PART 14 LINE CARGO FACILITIES**

	19 ____	19 ____	19 ____	19 ____	LOCATION
<b>Storage</b>	sf	sf	sf	sf	
<b>Supervisory Offices</b>	sf	sf	sf	sf	
<b>Ready Room</b>	sf	sf	sf	sf	
<b>Locker Rooms</b>	sf	sf	sf	sf	
<b>Lunch Rooms</b>	sf	sf	sf	sf	
<b>Clerical</b>	sf	sf	sf	sf	
<b>Training</b>	sf	sf	sf	sf	
<b>Other (Specify):</b>	sf	sf	sf	sf	

**PART 15 CABIN SERVICES**

	19 ____	19 ____	19 ____	19 ____	LOCATION
<b>Administrative Offices</b>	sf	sf	sf	sf	
<b>Cabin, Services Room</b>	sf	sf	sf	sf	
<b>Other (Specify):</b>	sf	sf	sf	sf	



**PART 16 FACILITIES MAINTENANCE**

	19 ____	19 ____	19 ____	19 ____	LOCATION
<b>Shop</b>	sf	sf	sf	sf	
<b>Storage</b>	sf	sf	sf	sf	
<b>Other (Specify):</b>					

**PART 17 AIRCRAFT LINE MAINTENANCE SUPPORT AREA**

	19 ____	19 ____	19 ____	19 ____	LOCATION
<b>Stores and Tools</b>	sf	sf	sf	sf	
<b>Technical Services</b>	sf	sf	sf	sf	
<b>Production Offices</b>	sf	sf	sf	sf	I
<b>Satellite Shops</b>	sf	sf	sf	sf	
<b>Wheel Storage Area</b>	sf	sf	sf	sf	
<b>Fluids Area</b>	sf	sf	sf	sf	
<b>Supervisory Offices</b>	sf	sf	sf	sf	
<b>Other (Specify):</b>	sf	sf	sf	sf	
<b>Locker Room*</b>	sf	sf	sf	sf	
<b>Lounge *</b>	sf	sf	sf	sf	
<b>Lunchroom*</b>	sf	sf	sf	sf	
<b>Restrooms*</b>	sf	sf	sf	sf	

**\*NOTE:** Depending upon the configurations of the various areas and specific official requirements, locker rooms, lounges, lunchrooms and restrooms can be located in one area. If not, indicate the requirements for each section.

**PART 18 ADMINISTRATION**

	19	19	19	19	LOCATION
<b>City Manager's Office</b>	sf	sf	sf	sf	
<b>Secretarial</b>	sf	sf	sf	sf	
<b>Personnel Management</b>	sf	sf	sf	sf	
<b>Secretarial</b>	sf	sf	sf	s	f
<b>Controller including secretarial</b>	sf	sf	sf	sf	
<b>Offices</b>	sf	s	f	sf	sf
<b>Conference Room</b>	sf	sf	sf	sf	
<b>Miscellaneous Areas (Specify)</b>	sf	'sf	sf	sf	
	sf	sf	sf	sf	

**PART 19 EMPLOYEE CAFETERIA**

	19	19	19	19	LOCATION
<b>Total Area (Joint Use)</b>	s	f	sf	sf	sf

**PART 20 EMPLOYEE PARKING**

	19	19	19	19	LOCATION
<b>Maximum No. of Parking Spaces Required</b>					
<b>Time of Day for Req.'d Mx. Spaces</b>					
<b>Preferential Parking Spaces for Carpools</b>					

**SECTION 3 APRON**

**FIXED APRON FACILITIES**

	NO	YES	COMMENTS
<b>Guide-In System</b>			
<b>Potable Water</b>			
<b>Electrical Power for Aircraft</b>			<b>Type:</b>
<b>Ground Rods</b>			
<b>Hydrant Fueling</b>			
<b>Aircraft Sewage Disposal Facility</b>			
<b>Ramp Lighting</b>			
<b>Ground Equipment Parking Off-Gate</b>			
<b>Aircraft Parking</b>	<b>No. of positions at terminal; Specify Aircraft Size:</b>		
	<b>No. of positions Off-gate _____; Specify Aircraft Size:</b>		
	<b>Overnight parking positions in addition to above _____; Specify Aircraft Size:</b>		

**SECTION 4 REMOTE SUPPORT FACILITIES (Total Area)**

	19__	19	19	19	LOCATION
<b>Cargo Facility</b>	acres	acres	acres	acres	
<b>Aircraft MTC/Hangar/Shops</b>	acres	acres	acres	acres	
<b>Automotive/GSE Maintenance Shops</b>	acres	acres	acres	acres	
<b>Remote Aircraft Parking</b>	acres	acres	acres.1	acres	
<b>Flight Kitchen</b>	sf	sf	sf	sf	
<b>Employee Parking (No. Spaces)</b>					
<b>Other(s) (Specify)</b>					

### APPENDIX 3 - FEDERAL INSPECTION SERVICES APPROVAL OFFICES

The following is a listing of addresses **and** phone numbers of the national headquarters offices of the Federal Inspection Services (FIS).

- o Commissioner of Customs, U.S. Customs Service  
1301 Constitution Avenue, N.W.  
Washington, D.C. 20229  
Attn: Director, Passenger Enforcement and Facilitation  
Telephone No.: 202-566-5607
  
- o Associate Commissioner, Management  
Immigration and Naturalization **Service**  
425 I Street, N.W.  
Washington, D.C. 20536  
Attn: Chief, Facilities and Engineering Branch  
Telephone No.: 202-633-3110
  
- o Plant Protection and Quarantine  
Animal and Plant Health Inspection Service  
6505 Belcrest Road, Room 635, Federal Building  
Hyattsville, Maryland 20782  
Attn: Chief, Port Operations  
Telephone No.: 301-436-8295
  
- o Director, Division of Quarantine  
Public Health Service  
Center for Prevention Services  
Centers for Disease Control  
Atlanta, Georgia 30333  
Attn: Chief, Programs Operation Branch  
Telephone No.: 404-639-1437
  
- o U.S. Fish' and Wildlife Service  
Division of Law Enforcement  
4401 N. Fairfax Drive, Room 500  
Arlington, Virginia 22203  
Attn: Desk Officer for International Trade  
Telephone No.: 703-358-1949