

Appendix A - Survey Results

Following is description of the methodology and results of the T. F. Green Airport 2000 departing passenger survey and terminal observation survey. The surveys were undertaken to gain a better understanding of traveler characteristics and of how the existing terminal is performing.

A.1 Passenger Survey

The passenger survey process consisted of developing a survey instrument (questionnaire), developing an appropriate methodology, selecting a representative sample, conducting the survey, data entry and analysis, and documentation of results.

A.1.1 Passenger Survey Methodology

Survey Questionnaire

The survey questionnaire was adapted from previously used passenger survey questionnaires, and was modified as appropriate to collect specific data pertinent to future planning efforts at T. F. Green Airport. Following are the key characteristics surveyed:

- Travel party size
- Trip purpose
- Destination region
- Place of origin
- Geographic distribution of originations
- Mode of access
- Air passengers in vehicle
- Use of the parking facilities
- Method of checking-in for flight
- Number of well-wishers
- Amount of luggage
- Trip duration
- Resident/visitor status
- Amenities used
- Verbatim comments

Survey Timing

The survey was designed to provide estimates of traveler characteristics for locally originating passengers during average travel periods. Therefore, October (a month with an average number of daily passengers) was selected as the appropriate time to conduct the survey.

Due to the resource limitations, the survey was limited to a three-day period. It was decided to conduct the data collection during a Tuesday, Wednesday, and Thursday to obtain traveler characteristics of passengers during an average weekday (versus an average day, which would require surveying over the weekend).

Sampling Plan and Sample Selection

A random sample of 20 flights was drawn from a listing of flights obtained from the Official Airline Guide (OAG). The listing unit of the sample was a scheduled passenger flight departing during the survey period. The sample frame constituted the 370 passenger flights scheduled to depart T. F. Green Airport during the three-day period of October 24, 25, and 26, 2000. **Table A-1** shows the flights in the sample.

Survey Conduct

The surveys were conducted at the gate holdrooms. Approximately one-and-one-half hours before a flight's scheduled departure time, one or two surveyors (depending on the anticipated number of passengers) approached the gate area and discussed the survey procedure with the gate agent. To increase the response rate, a small sign was placed on the gate counter notifying passengers that the flight was being surveyed. Surveyors distributed questionnaires to passengers after they checked-in at the gate. Once completed, the surveyors retrieved the questionnaire from the passengers prior to boarding. After the flight "closed", the surveyors asked the gate agent for the revenue passenger originations and connections on the flight to determine the flight's response rate and to develop the appropriate weights for each record.

Data Entry/Editing/Coding

Survey results were entered into a computer database for analysis. An editing process was then conducted to correct obvious respondent errors. Missing values were entered, where possible, based on the remaining data provided by the respondent. If the record was determined to not meet a minimum level of completion (i.e., had a high item non-response rate), the record was removed from the database.

Weighting of Sample Records

Each record was weighted in a two-step process. The first weight accounted for the non-responding passengers on each flight. This "flight weight" was determined by dividing the total revenue passenger enplanements on board by the number of valid questionnaires obtained from the flight. For example, if there were 100 passengers on

a particular flight and 50 valid questionnaires were returned, each valid record was weighted by a factor of 2.00. If all 100 passengers provided valid questionnaires, then each record was weighted by a factor of 1.00. The higher the response rate on the flight, the lower the flight weight; the lower the response rate, the higher the flight weight.

Table A-1
LIST OF SURVEYED FLIGHTS
T. F. Green Airport

	<u>Departure Time</u>	<u>Published Carrier</u>	<u>Flight Number</u>	<u>Destination</u>	<u>Equipment</u>	<u>No. of Seats</u>
Tuesday, October 24, 2000						
1	0600	UA	593	ORD	72S	147
2	0759	US	183	PHL	319	120
3	1030	US	473	CLT	734	144
4	1155	US	341	DCA	D9S	103
5	1315	US	4582	EWR	BE1	19
6	1700	AA	5088	JFK	SF3	34
7	1840	WN	1644	ISP	73G	137
Wednesday, October 25, 2000						
8	0700	CO	1477	EWR	M80	141
9	0755	CO	243	IAH	735	104
10	1025	US	3632	LGA	DH8	37
11	1200	DL	2063	ATL	M80	142
12	1400	WN	772	BNA	733	137
13	1505	UA	7637	IAD	CRJ	50
14	1840	US	2736	BWI	73M	111
15	1900	US	3638	LGA	DH8	37
Thursday, October 26, 2000						
16	1030	US	473	CLT	734	144
17	1154	US	2003	PIT	733	126
18	1255	WN	561	TPA	733	137
19	1600	DL	6389	LGA	FRJ	32
20	2035	US	2978	BWI	73M	111

Note: Listing based on random sample of 20 flights operating during the period.

Source: October 2000 Official Airline Guide via Back Information Services; HNTB analysis.

Each record was then weighted by the inverse of the probability of selecting the sampled flights (i.e., 370/20, or 18.500). Finally, the results were divided by three to convert three-day totals to average weekday totals, which is considered to be an easier unit to work with. *All survey results are presented using weighted responses reflecting average weekday activity.* **Table A-2** shows the number of completed questionnaires received, the number of passengers on the flights surveyed, and the total estimated passenger enplanements at T. F. Green Airport for the survey period. The overall response rate was 45 percent.

Table A-2
SURVEY WEIGHTING
T. F. Green Airport

Completed Questionnaires	558
Total Passengers on Surveyed Flights	1,235
Response Rate	45.2%
Total Estimated Departing Passengers During Three-day Survey Period	22,848
Average Daily Departing Passengers (Three-day total divided by three)	7,616

Source: HNTB analysis.

A.1.2 Departing Passenger Survey Results

Following is a summary of the results obtained from the T. F. Green Airport 2000 Departing Passenger Survey. As noted previously, the results are weighted to reflect an average weekday.

Travel Party Size

Table A-3 shows that nearly half of all passengers beginning their trip at T. F. Green Airport were traveling alone. About one-third of passengers were traveling with one other passenger (i.e., a party size of two). The average party size was 1.4.

Trip Purpose

Due to the time of year the survey was conducted (i.e., during an average travel period), the distribution of business and pleasure travel was nearly equal, as shown in **Table A-4**.

Table A-3
AVERAGE TRAVEL PARTY SIZE
T. F. Green Airport

<u>Party Size</u>	<u>Respondents</u> ¹	<u>Percent</u>
1	3,564	46.8%
2	2,625	34.5%
3	733	9.6%
4	694	9.1%
5 or more	<u>0</u>	<u>0.0%</u>
Total Respondents:	7,616	100.0%
Avg. Party Size:	1.4	

¹ Weighted to reflect average weekday activity.

Source: HNTB analysis.

Table A-4
TRIP PURPOSE
T. F. Green Airport

	<u>Respondents</u> ¹	<u>Percent</u>
Business/Convention/Conference	3,741	49.1%
Vacation/Personal	<u>3,875</u>	<u>50.9%</u>
Total Respondents:	7,616	100.0%

¹ Weighted to reflect average weekday activity.

Source: HNTB analysis.

Destination Region

As shown in **Table A-5**, nearly 64 percent of T. F. Green Airport passenger originations were ending their trip in the Northeast or Southeast. Approximately two percent of passengers were traveling to an international destination. (These results should be interpreted with caution, because of the limited number of flights sampled.)

Table A-5
AIRLINE PASSENGER SURVEY DESTINATION REGION
T. F. Green Airport

<u>Region</u>	<u>Respondents</u> ¹	<u>Percent</u>
Northeast (CT, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VT)	1,860	24.4%
Southeast (DC, FL, GA, NC, SC, VA)	2,997	39.4%
Midwest (IL, IN, KY, MI, MO, OH, WI, WV)	322	4.2%
Midsouth (AL, AR, LA, MS, TN)	467	6.1%
North Central (IA, MN, MT, ND, NE, SD, WY)	23	0.3%
South Central (CO, KS, NM, OK, TX)	677	8.9%
Northwest (AK, ID, OR, WA)	151	2.0%
Southwest (AZ, CA, HI, NV, UT)	945	12.4%
International	<u>174</u>	<u>2.3%</u>
Total Respondents:	7,616	100.0%

¹ Weighted to reflect average weekday activity.

Source: HNTB analysis.

Place of Origin

Table A-6 shows that about two-thirds of passengers began their ground trip to T. F. Green Airport from a private residence. About one-in-five passengers began from a hotel/motel. The remaining passengers left from a place of business.

Table A-6
PLACE OF ORIGIN
T. F. Green Airport

<u>Place of Origin</u>	<u>Respondents</u> ¹	<u>Percent</u>
Private Residence	5,084	66.8%
Place of Business	972	12.8%
Hotel/Motel	1,549	20.3%
Other	<u>11</u>	<u>0.1%</u>
Total Respondents:	7,616	100.0%

¹ Weighted to reflect average weekday activity.

Source: HNTB analysis.

Geographic Distribution of Originations

Just over half of all T. F. Green Airport passengers began their ground trip to the airport from within the state of Rhode Island, as shown in **Table A-7**. Nearly 40 percent originated in Massachusetts; while about six percent came from Connecticut.

Mode of Access to Airport

As shown in **Table A-8**, about 60 percent of originating passengers came to the airport in a personal or company car. Approximately 26 percent of passengers arrived by rental car and nearly eight percent came in a taxi. Mass transit was used by less than one percent of travelers.

Air Passengers in Vehicle

Table A-9 shows that the average number of air passengers per auto (private, company, and rental car) is 1.8.

Table A-7
GEOGRAPHIC DISTRIBUTION OF PASSENGER ORIGINATIONS
T. F. Green Airport

	Respondents ¹	Percent
Rhode Island Counties		
Bristol	71	0.93%
Kent	839	11.02%
Newport	701	9.20%
Providence	1,952	25.63%
Washington	569	7.47%
<i>Subtotal Rhode Island Counties</i>	4,132	54.25%
Massachusetts Counties		
Barnstable	301	3.95%
Bristol	949	12.46%
Dukes	11	0.14%
Essex	21	0.28%
Middlesex	332	4.36%
Norfolk	700	9.19%
Plymouth	156	2.05%
Suffolk	162	2.13%
Worcester	379	4.98%
<i>Subtotal Massachusetts Counties</i>	3,011	39.54%
Connecticut Counties		
Middlesex	21	0.28%
New Haven	11	0.14%
New London	311	4.08%
Tolland	18	0.24%
Windham	74	0.97%
<i>Subtotal Connecticut Counties</i>	435	5.71%
New Hampshire Counties		
Grafton	38	0.50%
<i>Subtotal New Hampshire County</i>	38	0.50%
Total Respondents:	7,616	100.00%

¹ Weighted to reflect average weekday activity.

Source: HNTB Analysis.

Table A-8
MODE OF TRAVEL TO THE AIRPORT
T. F. Green Airport

<u>Mode</u>	<u>Respondents</u> ¹	<u>Percent</u>
Personal/Company Car	4,531	59.5%
Rental Car	1,995	26.2%
Door-to-door Shuttle Van	104	1.4%
Hotel/Motel Courtesy Vehicle	170	2.2%
Taxi	577	7.6%
RIPTA	30	0.4%
Limousine	196	2.6%
Other	<u>13</u>	<u>0.2%</u>
Total Respondents:	7,616	100.0%

¹ Weighted to reflect average weekday activity.

Source: HNTB analysis.

Table A-9
AVERAGE NUMBER OF AIR PASSENGERS PER
PERSONAL/COMPANY/RENTAL CAR
T. F. Green Airport

<u>Air Passengers per Vehicle</u>	<u>Respondents</u> ¹	<u>Percent</u>
1	3,060	46.9%
2	2,143	32.8%
3	651	10.0%
4	<u>671</u>	<u>10.3%</u>
Total Respondents:	6,525	100.0%
Average Number of Air Passengers Per Personal/Company/Rental Vehicle		1.8

¹ Weighted to reflect average weekday activity.

Source: HNTB analysis.

Private Auto Behavior

About 26 percent of all departing passengers arriving by private auto were dropped off at the curb, with the vehicle leaving the airport (**Table A-10**). An additional 16 percent of passengers reported that they were dropped off at the curb with the vehicle continuing to a parking location. The majority of passengers (58 percent) arriving by private auto responded that the vehicle in which they arrived was driven directly to a parking facility, without stopping at the curb.

Table A-10
PASSENGERS ARRIVING BY AUTO--DROP-OFF OR PARKED
T. F. Green Airport

	<u>Respondents</u> ¹	<u>Percent</u>
Dropped-off Only	1,701	26.1%
Dropped-off then Parked	1,028	15.8%
Driven Directly to Parking	<u>3,796</u>	<u>58.2%</u>
Total Respondents:	6,525	100.0%

¹ Weighted to reflect average weekday activity.

Source: HNTB analysis.

Parking Lot Use

As shown in **Table A-11**, about 27 percent of passengers reporting the vehicle in which they traveled used a parking facility used the hourly garage. About 19 percent used the daily garage, while one-third used the weekly garage. Express Valet and off-airport parking were each used by just 10 percent of passengers.

Parking Duration

More than 90 percent of the passengers reporting their vehicle was parked in the hourly garage indicated the vehicle was there for less than five hours, as shown in **Table A-12**. At the remaining lots, more than 90 percent of passengers indicated their vehicle would be parked at least five hours.

Table A-11
PARKING LOT DISTRIBUTION ²
T. F. Green Airport

	<u>Respondents</u> ¹	<u>Percent</u>
Hourly Lot	767	27.1%
Daily Garage	522	18.5%
Weekly Lot	942	33.3%
Express Valet (on-airport)	304	10.7%
Off-Airport Parking (includes Thrifty RC Valet Service)	<u>294</u>	<u>10.4%</u>
Total Respondents:	2,829	100.0%

¹ Weighted to reflect average weekday activity.

² Does not include rental car return lots

Source: HNTB analysis.

Table A-12
PARKING CHARACTERISTICS
T. F. Green Airport

<u>Duration</u>	<u>Hourly Lot</u> ¹		<u>Daily Garage</u> ¹		<u>Weekly Lot</u> ¹		<u>Express Valet</u> (on airport) ¹		<u>Off Airport Parking</u> ¹		<u>Total</u> ¹	
	<u>Total</u>	<u>Percent</u>	<u>Total</u>	<u>Percent</u>	<u>Total</u>	<u>Percent</u>	<u>Total</u>	<u>Percent</u>	<u>Total</u>	<u>Percent</u>	<u>Total</u>	<u>Percent</u>
<1 hr.	295	38.5%	42	8.0%	0	0.0%	24	7.9%	0	0.0%	361	12.8%
1-5 hrs.	404	52.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	404	14.3%
5+ hours	68	8.9%	480	92.0%	942	100.0%	280	92.1%	294	100.0%	2,064	73.0%
Subtotals	767	100.0%	522	100.0%	942	100.0%	304	100.0%	294		2,829	100.0%
Percentages by parking facility		27.1%		18.5%		33.3%		10.7%		10.4%	Total	100.0%

Note: ¹ Weighted to reflect average weekday activity.

Source: HNTB analysis

Passenger and Baggage Check-in Location

Eighty-four percent of T. F. Green Airport passengers checked-in at the ticket counter and 16 percent checked-in at the gate (see **Table A-13**). For passengers with bags to check, approximately two-thirds checked their bags at the ticket counter, one-third used curbside check-in, and about one percent checked a bag at the gate.

Table A-13
PASSENGER/LUGGAGE CHECK-IN LOCATION
T. F. Green Airport

<u>Location</u>	<u>Respondents</u> ¹	<u>Percent</u>
<u>Passenger</u>		
Ticket Counter	6,393	84.0%
Gate	<u>1,215</u>	<u>16.0%</u>
Total Respondents:	7,608	100.0%
<u>Luggage</u>		
Ticket Counter	3,353	66.9%
Curb	1,615	32.2%
Gate	<u>45</u>	<u>0.9%</u>
Total Respondents:	5,013	100.0%

¹ Weighted to reflect average weekday activity.

Source: HNTB analysis.

Number of Well-Wishers Entering Terminal

About 85 percent of T. F. Green Airport passengers were not accompanied into the terminal by well-wishers (although many of these passengers were dropped off). (See **Table A-14**.) The average number of well-wishers per passenger was 0.2.

Amount of Luggage

As shown in **Table A-15**, most passengers had at least one carry-on. More than 3-in-10 passengers had no checked bags. The average number of carry-on bags per passenger was 1.1; the average number of checked bags was 0.8.

Table A-14
NUMBER OF WELL WISHERS ENTERING THE TERMINAL
T. F. Green Airport

<u>Number of Well-Wishers</u>	<u>Respondents</u> ¹	<u>Percent</u>
0 (Entered terminal alone)	6,466	84.9%
1	917	12.0%
2	180	2.4%
3	0	0.0%
4	<u>53</u>	<u>0.7%</u>
Total Respondents:	7,616	100.0%
Average Number of Well-Wishers per Passenger Entering the Terminal	0.2	

¹ Weighted to reflect average weekday activity.

Source: HNTB analysis.

Table A-15
AVERAGE AMOUNT OF LUGGAGE PER PASSENGER
T. F. Green Airport

<u>Number of Bags</u>	<u>Respondents</u> ¹	<u>Percent</u>
Carry-On		
0	595	7.8%
1	5,250	68.9%
2	1,709	22.4%
3 or more	<u>62</u>	<u>0.8%</u>
Total	7,616	100.0%
Average Number of Carry-Ons Per Passenger	1.1	
Checked Luggage		
0	2,653	34.8%
1	3,330	43.7%
2	1,449	19.0%
3 or more	<u>184</u>	<u>2.4%</u>
Total	7,616	100.0%
Average Number of Checked Bags Per Passenger	0.8	
Average Number of Bags Per Passenger	1.9	

¹ Weighted to reflect average weekday activity.

Source: HNTB analysis.

Trip Duration

The average number of nights away on travel was 3.2, as shown in **Table A-16** (Passengers traveling for 50 nights or more were not included in the calculation.) About six percent of passengers were returning the same day.

Table A-16
TRIP DURATION
T. F. Green Airport

<u>Number of Nights</u>	<u>Respondents</u> ¹	<u>Percent</u>
0	441	5.8%
1	1,073	14.1%
2	1,249	16.4%
3	938	12.3%
4	950	12.5%
5	880	11.6%
6	474	6.2%
7-13	1,029	13.5%
14-21	310	4.1%
21+	<u>272</u>	<u>3.6%</u>
Total Respondents:	7,616	
Average Trip Duration per Passenger ² :	3.2	

¹ Weighted to reflect average weekday activity.

² Includes trips of less than 50 nights.

Source: HNTB analysis.

Resident Status

Table A-17 indicates that the percentage of residents versus visitors at T. F. Green Airport was approximately evenly split.

Amenities Used

Table A-18 shows the concessions used. Snack food, restaurant/bar, and newsstand/gift shops were each used by about 30 percent of travelers. (It should be noted that passengers using airport amenities would naturally have less time to complete a questionnaire at the gate; these results should therefore be interpreted with caution.)

Table A-17
RESIDENT/VISITOR STATUS
T. F. Green Airport

	<u>Respondents</u> ¹	<u>Percent</u>
Residents	3,947	51.8%
Visitors	<u>3,669</u>	<u>48.2%</u>
Total Respondents:	7,616	100.0%

Note: ¹ Weighted to reflect average weekday activity.

Source: HNTB analysis.

Table A-18
AMENITIES USED
T. F. Green Airport

<u>Amenity</u>	<u>Respondents</u> ^{1, 2}	<u>Percent</u>
Snack Food (ice cream, pretzel, etc.)	2,195	28.8%
Restaurant/Bar	2,289	30.1%
Newsstand/Gift shop	2,301	30.2%
ATM	435	5.7%
Shoeshine	357	4.7%
Specialty Retail (book store, luggage, Nail Port)	701	9.2%
Business Service (fax, laptop hookup, etc.)	<u>58</u>	<u>0.8%</u>
Total Respondents	8,336	109.5%
Total Passengers Surveyed	7,616	

¹ Weighted to reflect average weekday activity.

² The sum of numbers in the "Respondents" column exceeds 7,616 passengers, as a number of passengers reported using more than one amenity, e.g., Newsstand/Gift Shop and ATM. Therefore, the percentages sum to greater than 100 percent.

Source: HNTB analysis.

Comments

Passengers were offered the opportunity to provide comments on the back of the survey form. **Table A-19** presents these comments verbatim. Overall, most comments about the airport and its services were positive. (In surveys of this type, most passengers do not bother to write a comment unless they have a strong opinion about something—usually negative.) Recognizing these factors, it can be inferred that the great majority of passengers have a very positive experience at T. F. Green Airport.

A.2 Terminal Observations

Following is description of the methodology undertaken to conduct the T. F. Green Airport 2000 terminal observation survey and a summary of the results of that survey.

A.2.1 Methodology

Quantitative and/or qualitative observations were made of the following functional elements of the terminal:

- Curbs
- Ticket counters
- Security
- Baggage Claim
- Terminal circulation
- Concessions

Each functional element of the terminal was observed during its scheduled peak, which was calculated based on OAG schedules. Quantitative analysis included obtaining volumes, processing rates, and queue times. Qualitative analysis was limited to observing general levels of congestion.

A.2.2 Results

Curb

The upper (departures) and lower (arrivals) curbs were observed during their respective peak periods. Counts were made by vehicle classification in 10-minute increments. Dwell times by vehicle type were also recorded.

Table A-19 (Page 1 of 3)
SUMMARY OF PASSENGER COMMENTS
T. F. Green Airport

General Comments

- A LOT BETTER THAN GOING TO LOGAN AIRPORT
- A PLEASANT AIRPORT
- ACCOMODATING
- AIRPORT IS BEAUTIFUL. THEY DID A GOOD JOB
- ALWAYS USE IT
- BEAUTIFUL
- BEST ALTERNATIVE TO LOGAN
- COMING TO T. F. GREEN IS MORE CONVENIENT THAN FLYING INTO LOGAN AIRPORT
- CONVENIENT AND EASY. EASIER THAN LOGAN.
- EASY IN, EASY OUT
- GOOD AIRPORT
- GOOD AND CLEAN AIRPORT
- GREAT AIRPORT
- GREAT AIRPORT/ALWAYS CLEAN/EASY IN/OUT
- GREAT SERVICE- WHEELCHAIR
- I FREQUENTLY USE TF GREEN WHEN TRAVELING BY AIR
- I LOVE THE NEW AIRPORT. MUCH IMPROVED
- I LOVE THIS AIRPORT
- I TRAVEL A GREAT DEAL. THIS AIRPORT HAS TO RATE AS ONE OF THE BEST I HAVE HAD AN OPPORTUNITY TO VISIT
- KEEP UP THE GOOD WORK
- LOVE IT. ALWAYS USE IT
- IT'S ALWAYS A PLEASURE FLYING FROM T. F. GREEN
- NICE AIRPORT
- NICE AIRPORT. BETTER THAN BOSTON. WILL USE AGAIN
- NICE AND EASY
- NICE PLACE
- NICE, CLEAN
- NICE, CLEAN APPROPRIATE SIZE
- NICELY APPOINTED FACILITY. ROOMY AND CLEAN
- NO PROBLEMS. VERY PEACEFUL AIRPORT
- PERFECT
- PLEASANT & EFFICIENT
- PREFER TF GREEN TO LOGAN ANYDAY
- RENOVATION IS GREAT. PARKING CONVENIENT. BRADLEY AIRPORT SHOULD LEARN FROM YOU
- SIZE APPROPRIATE & VERY NICE, AND CONVENIENT.
- T. F. GREEN AIRPORT EXCELLENT IN ALL ASPECTS
- THE IMPROVEMENTS THAT HAVE BEEN MADE TO THE AIRPORT ARE FANTASTIC
- THIS WAS A ONE DAY ROUND TRIP, (VERY CONVENIENT).

Table A-19 (Page 2 of 3)
SUMMARY OF PASSENGER COMMENTS
T. F. Green Airport

- UPGRADED AND CLEANER – IMPRESSED
- VERY CONVENIENT
- VERY EASY AIRPORT TO USE. VERY ACCOMODATING
- VERY GOOD
- VERY FOND OF IT.
- VERY NICE
- VERY NICE AND CLEAN. APPROPRIATE SIZE
- VERY NICE LOOKING AND CLEAN
- WE ENJOY THE SIZE & LOCATION - IT'S VERY COMFORTABLE & THE RIDE IS PLEASANT.
- WELL ORGANIZED, WELL LAID OUT- VERY CLEAR
- YOUR LANDSCAPING IS ESPECIALLY ATTRACTIVE. THE DRIVE UP TO THE TERMINAL FROM THE HIGHWAY EXIT IS WELL PLANNED AND MAINTAINED
- APPRECIATE THE NO SMOKING WAS MADE COMFORTABLE BY GOOD SEATING & COURTEOUS PEOPLE.
- I FOUND IT SURPRISING THAT I HAD TO GO ALL THE WAY TO THE MIAN TERMINAL , OUT OF AND BACK IN THROUGH SECURITY TO GET A CUP OF COFFEE AT 7:45 PM. THE PA SYSTEM IN THE US AIR TERMINAL AREA IS SO SEGMENTED THAT ANNOUNCEMENTS FOR GATE 5 COULDN'T BE HEARD NEAR THE GATE 2 COUNTER. AS A RESULT, I MISSED A FLIGHT BY NOT HEARING THE ANNOUNCEMENT OR NOTICING THAT THE FLIGHT HAD BEEN SHIFTED FROM GATE Y TO GATE 5. SURELY WITH PEOPLE SITTING ALL OVER THAT TERMINAL ON CROWDED DAYS ALL GATES 1-8 SHOULD BE HEARD.
- CUP HOLDERS OR SMALL TABLE - FOR COFFEE - WATER, ETC WHILE WAITING FOR PLANE.
- MORE PAX CARTS
- SIGNS AT DAILY GARAGE MISLEADING. SOME INDICATED SPACES AVAILABLE; SOME FULL
- \$2.00 FOR A SMALL CART IS TOO MUCH
- WHY DOES IT SAY PROVIDENCE IF IT'S IN WARWICK?
- HAD TO WAIT A WHILE FOR AN ELECTRIC CART
- PATHETIC LONG TERM P/U SERVICE AND LOUSY RATES. LOGAN AND HARTFORD ALL BETTER
- LUGGAGE CLAIM DOES SEEM TO TAKE EXTREMELY LONG.
- YOUR PARKING VAN DRIVERS ARE VERY COURTEOUS AND HELPFUL
- LAPTOP CONNECTION NEEDED
- MORE LANES OFF 95 AND AIRPORT

Airline Comments

- NEED US AIR CLUB
- COULD USE AIRLINE CLUB. NEED MORE PARKING
- UA CHECKIN DELAYS
- US AIRWAYS STAFF DOES NOT KNOW HOW TO CREDIT THE MILEAGE INTO THE STAR ALLIANCE PARTNER. THAT WAS FRUSTRATING TO ME.
- WHEN FLIGHTS ARE CANCELLED AND CHECK-IN LINES ARE FULL OF RE-BOOKERS, I WOULD APPRECIATE A SEPARATE CHECK-IN LINE FOR THOSE OF US WHOSE FLT IS NOT DELAYED OR CANCELLED. I GAVE MYSELF MORE THAN ABOUT WHETHER I'D GET CHECK-IN IN TIME

Table A-19 (Page 3 of 3)
SUMMARY OF PASSENGER COMMENTS
T. F. Green Airport

- WOULD APPRECIATE LATER DEPARTURE OPTIONS FOR THESE PLANNING ON SPENDING 1 DAY IN R.I.
- SW AIRLINES IS NOT SCHEDULED. NEVER AGAIN WILL I USE THIS AIRLINE. IT SUCKS, SORRY TO SAY. MY 379.50 WAS NOT WORTH THIS CRAP.
- GUY AT US AIRWAYS TICKET COUNTER WAS INCREDIBLY RUDE
- TIA TO PROVIDENCE AND PROVIDENCE TO TIA IS EXTREMELY FOR ME 3-4 TIMES A YEAR. KEEP UP THE GOOD WORK
- I INTEND TO EXPLORE THE USE OF PVD AS A TRAVEL HUB ALTERNATIVE TO LGA & JFK FOR AIR TRAVEL WITHIN THE US
- DON'T LIKE LONG LINES
- LOVE IT - DON'T GET TOO CROWDED. BRING IN MIDWEST EXPRESS
- VERY NICE. SW GOOD, GOOD CONCESSION

Security Comments

- SLOW SECURITY LINE.
- NEED MORE STAFF, (SECURITY & CHECKINS).

Rental Car Comments

- AVIS CHARGES WERE RIDICULOUS
- AVIS RETURN CLERKS WERE THE BEST CUSTOMER ORIENTED GUYS I'VE DEALT WITH. VERY FRIENDLY AND HELPFUL, COURTEOUS, AND MANNERLY.

Concessions Comments

- AIRPORT FOOD & BEVERAGES ARE TOO EXPENSIVE TO PURCHASE
- VERY NICE. SW GOOD, GOOD CONCESSION
- THE FAST FOOD COUNTER EMPLOYEES SHOULD HAVE CUSTOMER SERVICE TRAINING.
- NEED FOR A "HEALTHY" FOOD SERVICE

Smoking Comments

- MORE DESIGNATED SMOKING AREAS
- NEED SMOKING AREA ON US AIR SIDE

Curb Service Comments

- NO ONE OUTSIDE OF THE CURB EVEN THOUGH WE NEEDED ASSISTANCE WITH BAGGAGE AND A WHEELCHAIR.
- GREAT CURB SERVICE. WONDERFUL

Source: HNTB Analysis.

Upper Level Curb

The upper level roadway consists of three lanes—one lane is marked for active passenger drop off and two are marked as through lanes. The innermost lane is wider than the adjacent travel lanes to allow short-duration dwell while passengers unload luggage. The peak hour on the upper level roadway occurred between 5:20 a.m. and 6:19 p.m. when 563 vehicles traversed the upper level roadway, as shown in **Table A-20**. The upper level roadway also provides access to the parking garage. As activity at the airport increased, the queue of vehicles entering the garage began to block egress from the curb. At approximately 6:00 AM, a “No Parking” sign was placed at the entrance to the garage. Prior to the placement of the sign, approximately 20 percent of the vehicles utilized the upper level roadway solely to access the garage.

Peak hour utilization of the curb (i.e., excluding vehicles using the upper level roadway to get to the garage), occurred between 5:30 a.m. and 6:29 a.m., when 498 vehicles stopped at the curb (**Table A-21**).

Approximately 75 percent of the vehicles using the departures curb were automobiles; seven percent were taxis; and the remaining vehicles were hotel/motel shuttles, parking shuttles, door-to-door shuttles, and other miscellaneous vehicles.

During the peak hour, two of the three lanes comprising the upper level roadway were frequently blocked. No enforcement was observed. During the peak hour, between 15 to 20 vehicles would be dwelling at the curb; the maximum observed was 30, which occurred at approximately 6:10 a.m.

The mean dwell time for automobiles was three minutes and 43 seconds; the median dwell time was one minute and 38 seconds, considerably lower than the mean. This suggests that the use of even modest levels of enforcement would bring the mean dwell time down and increase curbside capacity on the upper level. (One vehicle was observed to dwell at the curb for 22 minutes.)

Lower Level Curb

The lower level roadway is divided into an inner and outer roadway separated by a raised median. The inner roadway (i.e., the lanes nearest the lower level terminal entrance) comprises three lanes. As with the upper level curb, the inner lane is wider than the adjacent lanes. Vehicles utilizing the inner roadway were observed to execute several movements: 1) picking up passengers at the curb then exiting the airport, 2) stopping at the curb and then continuing into the garage, 3) driving directly into the garage (i.e., not stopping at the curb first), and 4) re-circulating (often making numerous passes of the curb without stopping). Based on a periodic sampling of vehicles, approximately 17 percent of vehicle movements on the inner roadway were vehicles utilizing the curb and then exiting the airport. An additional two percent of the vehicles stopped at the curb then continued into the garage. Forty-five percent of the inner roadway traffic was destined directly for the garage; and 36 percent of the vehicle movements on the inner roadway were through movements.

Table A-20
PEAK HOUR UPPER AND LOWER ROADWAY VEHICLE CLASSIFICATION ¹
T. F. Green Airport

Location and Time	Rental Car		Hotel/Motel	Door-to-Door	Airport	Private	Limousine	Bus	Other	Total	
	Automobile	Taxi	Courtesy Vehicle	Shuttle	Parking Shuttle	Parking Shuttle					
Upper Level (Departures) (0520-0619)	433	36	26	23	5	17	18	4	–	1	563
	76.9%	6.4%	4.6%	4.1%	0.9%	3.0%	3.2%	0.7%	0.0%	0.2%	100.0%
Lower Level (Arrivals) (1620-1719)	434	34	28	14	4	11	20	3	5	5	558
	77.8%	6.1%	5.0%	2.5%	0.7%	2.0%	3.6%	0.5%	0.9%	0.9%	100.0%

¹ Includes all vehicular movements.

Source: HNTB analysis.

Table A-21
PEAK HOUR UPPER AND LOWER CURB USE ¹
T. F. Green Airport

Location And Time	Rental Car		Hotel/Motel	Door-to-Door	Airport	Private	Limousine	Bus	Other	Total	
	Automobile	Taxi	Courtesy Vehicle	Shuttle	Parking Shuttle	Parking Shuttle					
Upper Level (Departures) (0530-0629)	372	35	24	22	5	17	19	3	–	1	498
	74.7%	7.0%	4.8%	4.4%	1.0%	3.4%	3.8%	0.6%	0.0%	0.2%	100.0%
Lower Level (Arrivals) (1640-1739)	56	28	27	17	5	10	21	1	6	3	174
	32.2%	16.1%	15.5%	9.8%	2.9%	5.7%	12.1%	0.6%	3.4%	1.7%	100.0%

¹ Includes only vehicles stopping at curb.

Source: HNTB analysis.

The outer roadway comprises two through lanes. At the north end of the outer roadway, a third lane, acting as a bay for Rhode Island Public Transportation Authority (RIPTA) buses and courtesy vehicles is provided.

The lower level roadway experienced a relatively flat peak. In the two-hour period between 3:50 p.m. and 5:49 p.m., 1,056 vehicles traversed the roadway with roughly half of these vehicle movements occurring in both of the two one-hour periods.

The peak hour for curb utilization occurred between 4:40 p.m. and 5:39 p.m., when nearly 180 vehicles stopped at the curb. About 31 percent of the vehicles using the curb were automobiles, 18 percent were taxis, 15 percent were rental car shuttles, 12 percent were off-airport parking shuttles, 10 percent were hotel/motel courtesy shuttles, and 14 percent were other vehicles.

During the peak hour, only the first lane of the inner roadway is utilized for picking up passengers. Enforcement was evident during the peak, and three tickets were issued. During the peak hour, between 15 and 19 cars were typically dwelling at the curb.

The mean dwell time for automobiles was considerably higher than the industry standard—10 minutes and 10 seconds. More than one-third of the vehicles occupied the curb for at least 10 minutes. Several vehicles were at the curb for more than 20 minutes. The median dwell time, though lower than the mean, was also fairly high at seven minutes and 37 seconds.

Ticketing

Quantitative observations were made at the US Airways and Southwest Airlines ticket counters (the two largest carriers at T. F. Green Airport). Results are shown in **Table A-22**. Qualitative observations were made at the ticket counters of the other carriers.

US Airways

During the morning peak, the US Airways counter was staffed beginning just after 5:00 a.m. Between that time and about 7:30 a.m., approximately 334 passengers visited the counter. The peak hour occurred between 5:20 a.m. and 6:19 a.m., when 151 passengers visited the counter. Queue times (i.e., the time passengers waited to be served) ranged from one minute to eight minutes in the peak hour, the higher delays experienced before staffing levels reached their typical complement of five or six agents. The average processing time at the counter per passenger was just under 1.5 minutes.

Table A-22
PEAK HOUR TICKET COUNTER OBSERVATIONS
T. F. Green Airport

	US Airways (05:20-06:19)	Southwest (05:40-06:39)
Passengers Processed	151	169
Average Active Positions/Total Positions	5.5 / 10	4.3 / 8
Min/Max Open Positions	5 / 6	3 / 5
Average Processing Time Per Passenger		
In Queue (min:sec)	4:47	2:32 ¹
At Counter (min:sec)	1:30	1:02 ¹
Total (min:sec)	6:17	3:34 ¹
Minimum Queue Time	1:08	0:00
Maximum Queue Time	7:59	5:35

¹ Does not include time for required processing at gate.

Source: HNTB analysis.

Southwest Airlines

During the morning peak, the Southwest Airlines counter was staffed beginning just after 5:30 a.m. Between that time and 6:59 a.m., 252 passengers visited the ticket counter. The morning peak hour occurred between 5:40 a.m. and 6:39 a.m., when 169 passengers visited the counter. Queue times typically ranged from one minute to five minutes in the peak hour. The average processing time at the counter per passenger was just over one minute.

Other Carriers

Although the ticketing functions of other carriers were not studied in detail, each seemed to be functioning adequately. Discussions with station managers confirmed that, as with US Airways and Southwest, facilities were appropriate to the level of passenger activity currently being experienced.

Security

Security processing is conducted in a centralized area. It consists of three magnetometers and three x-ray machines. The security area is managed by Southwest Airlines.

Between 5:00 a.m. and 6:59 a.m., a total of 2,052 people were screened. The peak hour occurred between 5:30 a.m. and 6:29 a.m., when 1,284 people were processed, as shown in **Table A-23**.

Table A-23
PEAK HOUR SECURITY SCREENING OBSERVATIONS
T. F. Green Airport

Peak Hour Volume	1,284
Peak 10-Minute Surge ¹	310
Processing Rates Per Position	
Minimum	4.6 people/minute
Average	7.1 people/minute
Maximum	9.6 people/minute
Processing Times (Including Queue Time)	
Minimum (min:sec)	0:01
Average (min:sec)	2:12
Maximum (min:sec)	6:46

¹ Estimated.

Source: HNTB analysis.

Based on observations and discussions with airline personnel, the security screening area does not provide sufficient capacity during peak periods. Queue times of over six minutes were observed. At one point, the lines for security processing extended past the Flight Information Display System (FIDS) and beyond the escalators; about 88 people were in line waiting to be processed.

Processing rates at the T. F. Green Airport security checkpoint are lower than those observed at other large airports. Rates varied between 4.6 and 9.6 passengers per position per minute—well below typical rates of eight to 10 passengers per minute.

The second issue observed with security is when lines do form, they create a potential conflict with passengers accessing and egressing the escalators.

Baggage Claim

There are five baggage claim carousels on the lower level of the terminal. The five devices were monitored during both the morning and evening peak periods. The number of people queued around each device and the number of bags being displayed at any one time were recorded.

During the morning peak, a maximum of three carousels were used for a brief period. For most of the morning, most carousels were idle. The busiest morning period occurred at 11:38 a.m. when 38 people were claiming bags. (See **Table A-24**.) At that time, a total of about 30 bags were being displayed.

Table A-24
BAGGAGE CLAIM OBSERVATIONS
T. F. Green Airport

	<u>AM Peak</u>	<u>PM Peak</u>
Maximum Passengers in Active Claim Area ¹	38	170
Avg. Maximum Passengers Queued Per Device ²	15	71
Maximum Passengers at One Device ³	29	115
Maximum Devices in Use Simultaneously	3	5
Avg. Time to Clear Device ⁴	11.2 min.	14.0 min.

¹ Active claim area defined as area in vicinity of claim device occupied by passengers actively obtaining bags.

² Based on average of highest value observed at each device. Excludes oversized bag claim.

³ Highest single observed value.

⁴ Defined as when 95 percent of peak passengers have left device.

Source: HNTB analysis.

The afternoon peak saw increased activity compared to the morning. During the afternoon, three carousels were frequently active. For a short duration, all five carousels were active. Most events lasted about 15 to 20 minutes, although flights with only a few bags occupied a device for about 10 minutes. The busiest period, in terms of the number of people actively claiming bags occurred at about 5:30 p.m. when 170 people were queued around the claim devices. At that time, a total of approximately 105 bags were being presented on the baggage belts.

Terminal Circulation

Qualitative observations were made of terminal circulation in public areas, including the ticketing area, baggage claim, and the two concourses. Overall, circulation areas appeared adequate to accommodate current levels of demand. As mentioned previously, security processing partially restricts access/egress to/from the escalators and restricts flow between the two sides of the ticketing lobby during peak periods. On the secure side of the terminal, circulation was never observed to be constricted. On the baggage claim level, circulation also appeared adequate, with sufficient room for active queuing around the baggage belts and adequate room for circulation.

Concessions

Qualitative observations of concession areas suggest that, in general, concession space is adequate to accommodate demand.

Table B-1
HISTORICAL VALUES OF MODEL INDEPENDENT VARIABLES
T. F. Green Airport

Year	New England Gross Regional Product¹ (in millions)	Aggregate T. F. Green Yield²	Low Fare Carrier Stimulation Factor³
1981	271,192	\$0.338	0%
1982	272,510	\$0.320	0%
1983	287,015	\$0.296	0%
1984	313,387	\$0.270	0%
1985	332,287	\$0.217	0%
1986	350,747	\$0.194	0%
1987	377,998	\$0.181	0%
1988	401,733	\$0.204	0%
1989	407,007	\$0.204	0%
1990	398,217	\$0.171	0%
1991	388,547	\$0.179	0%
1992	391,184	\$0.177	0%
1993	397,337	\$0.169	0%
1994	410,084	\$0.148	0%
1995	422,391	\$0.170	0%
1996	439,533	\$0.149	10%
1997	463,267	\$0.124	42%
1998	489,200	\$0.121	46%
1999	519,967	\$0.108	51%
2000	545,282	\$0.102	55%

¹ Source: Is U.S. Bureau of Economic Analysis.

² Source: USDOT, Database 1B

³ Source: EK Analysis based on USDOT Database 1B

Table B-2
NEW ENGLAND GRP PROJECTIONS (IN MILLIONS)
T. F. Green Airport

Year	Low	Medium	High
2000	540,408	540,408	540,408
2001	549,732	549,732	549,732
2002	549,732	552,863	571,258
2003	563,475	568,858	593,627
2004	577,562	587,672	616,871
2005	592,001	608,142	641,026
2006	606,801	627,223	666,127
2007	621,971	663,102	704,231
2008	637,520	697,709	740,985
2009	653,458	733,792	779,306
2010	680,165	771,120	818,949
2011	705,705	807,787	857,890
2012	730,631	844,396	896,770
2013	755,618	881,718	936,406
2014	782,655	922,084	979,276
2015	808,773	962,075	1,021,749
2016	836,606	1,004,805	1,067,128
2017	866,058	1,050,227	1,115,368
2018	895,002	1,095,828	1,163,797
2019	923,415	1,141,575	1,212,382
2020	951,013	1,187,108	1,260,739

Table B-3
YIELD PROJECTIONS
T. F. Green Airport

Year	Low	Medium	High
2000	\$0.102	\$0.102	\$0.102
2001	\$0.103	\$0.101	\$0.101
2002	\$0.104	\$0.101	\$0.099
2003	\$0.109	\$0.103	\$0.101
2004	\$0.110	\$0.102	\$0.100
2005	\$0.111	\$0.102	\$0.098
2006	\$0.112	\$0.101	\$0.097
2007	\$0.113	\$0.100	\$0.095
2008	\$0.114	\$0.099	\$0.094
2009	\$0.115	\$0.098	\$0.092
2010	\$0.115	\$0.097	\$0.091
2011	\$0.116	\$0.097	\$0.091
2012	\$0.116	\$0.096	\$0.090
2013	\$0.116	\$0.096	\$0.089
2014	\$0.116	\$0.095	\$0.089
2015	\$0.116	\$0.095	\$0.089
2016	\$0.116	\$0.094	\$0.088
2017	\$0.116	\$0.094	\$0.088
2018	\$0.116	\$0.094	\$0.088
2019	\$0.116	\$0.093	\$0.088
2020	\$0.116	\$0.093	\$0.087

Note: A low yield implies high traffic.

Table B-4
LOW-FARE CARRIER MARKET PENETRATION PROJECTIONS
T. F. Green Airport

Year	Low	Medium	High
2000	55.5%	55.5%	59.0%
2001	58.3%	58.3%	62.2%
2002	60.4%	60.1%	63.7%
2003	61.3%	62.5%	65.3%
2004	62.8%	63.9%	68.7%
2005	62.8%	67.3%	69.6%
2006	65.8%	67.9%	70.6%
2007	66.4%	68.9%	70.9%
2008	66.4%	68.9%	73.4%
2009	67.3%	71.4%	74.2%
2010	67.3%	71.4%	74.2%
2011	68.7%	71.4%	74.2%
2012	68.7%	71.4%	74.2%
2013	68.7%	71.4%	74.2%
2014	68.7%	71.4%	74.2%
2015	68.7%	71.4%	74.2%
2016	68.7%	71.4%	74.2%
2017	68.7%	71.4%	74.2%
2018	68.7%	71.4%	74.2%
2019	68.7%	71.4%	74.2%
2020	68.7%	71.4%	74.2%

Table B-5
T. F. GREEN LOAD FACTOR DATA- 4TH QUARTER 2000
T. F. Green Airport

Airline	Destination	Departures	Passengers	Seats	Load Factor
Southwest	BWI	1,947	186,640	266,409	70%
USAirways	BWI	1,213	100,436	141,852	71%
USAirways	PHL	906	85,276	120,740	71%
Northwest	DTW	830	63,585	100,836	63%
American Eagle	LGA	800	13,839	27,200	51%
United	ORD	753	81,080	107,864	75%
USAirways	PIT	717	72,087	101,222	71%
Southwest	ISP	711	37,696	97,317	39%
Delta	ATL	700	75,913	99,455	76%
American	ORD	696	69,614	89,783	78%
Continental	EWR	677	51,300	85,032	60%
USAirways	DCA	652	51,781	79,556	65%
Delta	LGA	603	8,508	19,296	44%
American Eagle	JFK	567	10,922	19,278	57%
USAirways	CLT	559	57,371	74,936	77%
Southwest	MCO	550	50,733	75,350	67%
Southwest	MDW	536	49,715	73,417	68%
Southwest	TPA	362	32,014	49,534	65%
Delta	CVG	350	37,969	49,700	76%
Southwest	BNA	345	28,401	47,235	60%
Delta	MCO	341	31,612	40,579	78%
Continental Express	CLE	314	12,292	15,622	79%
Trans State	EWR	219	1,990	6,351	31%
Continental	CLE	197	12,367	25,256	49%
Southwest	MCI	186	18,677	25,467	73%
Southwest	PHX	183	19,740	25,071	79%
Continental	IAH	179	13,779	19,136	72%
Continental Express	EWR	26	1,090	1,300	84%
USAirways	MCO	26	2,581	3,026	85%
Southwest	FLL	19	1,626	2,603	62%
Other		41	2,314	4,961	47%
Total		16,205	1,282,948	1,895,384	68%

Source: USDOT, T100 Domestic Segment Data

Table B-6
ASSUMED MIX OF AIRCRAFT
T. F. Green Airport

Airline	Aircraft	Seats
AA	SF3	34
AA	ERJ	50
AA	100	85
AA	M80	129
AA	738	155
CO	BE1	19
CO	ERJ	50
CO	735	104
CO	73G	124
CO	M80	141
CO	738	155
DL	CRJ	50
DL	73S	115
DL	M80	150
DL	757	185
JI	CRJ	50
NW	CRJ	50

Airline	Aircraft	Seats
NW	D9S	110
NW	319	124
NW	320	148
UA	CRJ	50
UA	735	112
UA	320	144
UA	757	188
UA	767	218
US	J41	29
US	DH8	37
US	CRJ	50
US	100	97
US	73M	118
US	319	120
US	320	142
US	757	182

Source: EK analysis based on 2001 T. F. Green fleet mix and CIBC World Markets Report "The U.S. Airline Industry 2000-2005E Aircraft Fleet Analysis".

Appendix C – September 11 Forecast Validity Review

At the time of the September 11, 2001 terrorist attacks, the Rhode Island Airport Corporation (RIAC) was well into this master planning and Environmental Impact Statement (EIS) process. The studies were suspended following the terrorist attacks and restarted in January 2002. A draft forecast of aviation activity had been prepared at the time of the stoppage, and the chapter was to have been distributed to the Study Resource Committee (SRC) for review and discussion at a September 24, 2001 meeting, that was subsequently cancelled.

Because the studies were suspended for several months, RIAC determined that a review of the draft pre-September 11 forecasts was in order to establish their validity for long-term planning purposes. This review was accomplished at two levels: first, the state of the economy, which was in recession in 2001, was reassessed; and second, changes to the aviation industry that occurred because of the terrorist attacks and any likely resulting longer-term impacts were considered. The economic review was accomplished through the use and analysis of economic and travel data analysis, the results of which were incorporated in Chapter II, *Forecasts of Aviation Demand*. The potential impacts of the terrorist attacks on aviation, and therefore the aviation forecasts, are considered in this appendix.

While changes to the aviation industry are still evolving, this review considers past aviation and economic downturns, industry changes related to September 11 to date, and airline industry data in order to project the likely longer-term impact at T. F. Green.

In order to address the validity of the T. F. Green Master Plan forecasts for long-term planning purposes, this paper considers the following:

- Nationwide trends over the past 40 years
- Nationwide and local trends since September 11
- Potential changes to the T. F. Green Airport role/outlook
- FAA view on the future of aviation

C.1 Nationwide Trends Over Past 40 Years

There have been many negative events over the past 40 years which have had led to a decline in air travel (see [Exhibit C-1](#)). For example, the 1960s had the Cuban Missile Crisis and the 1970s saw aircraft hijackings. The 1980s opened with the Professional Air Traffic Controllers Association (PATCO) strike and the mass firing of controllers. The Persian Gulf War created travel uncertainties in the early 1990s. Each of these events occurred in conjunction with an economic recession.

Since the 1960s, air travel has followed a general upward trend, increasing by an average of over 10 percent annually. An analysis of the major events mentioned above shows that declines in air travel (or very limited growth) were typically followed by robust recovery. The general longer-term growth trend holds true despite these temporary dips. While none of these events is comparable to what occurred on September 11, the trends observed from these occurrences can provide insight into the future. (This Landrum & Brown 40-year analysis was reported in November of 2001 in *Aviation Week & Space Technology* and in the February 2002 issue of *Airport Magazine*.)

C.2 Nationwide Trends Since September 11

Following September 11, air travel declined at most U.S. airports. While airports were affected differently, activity at most airports appears to be recovering. For the industry as a whole, revenue passenger miles declined 32 percent in September 2001 compared with the previous year. Traffic decreased 26 percent in October 2001 compared to 2000 and 20 percent in November 2001. During the holidays (December 20 to January 2) traffic declined 12 percent compared to the holiday season a year ago.¹ As shown in [Table C-1](#), all of the top 10 carriers experienced significant decreases in traffic in the fourth quarter of 2001 with the exception of Southwest.

Most airlines have reduced the number of available seats from 2000 fourth quarter levels in an effort to control costs in light of the current economic conditions and reduced travel. Southwest is the exception to this trend: Southwest is the only airline of the top 10 airlines to increase available seat miles (ASM) in the fourth quarter of 2001 as compared to the same period in 2000 (see [Table C-2](#)).

A review of individual airport statistics shows that the industry averages reflect a wide range of airport traffic fluctuations. The cost reduction measures of the airlines have disproportionately affected certain airports, while others recovered quickly and are now back to pre-September 11 activity levels. Particularly hard hit were the large coastal airports, which had much overlap in competing airline service to certain markets, and small spoke airports, which often were marginally profitable. Many of the small spoke airports have seen commercial jet service downsized to regional jet service offered by the carrier's regional affiliates. On the other hand, inland hubs and larger low-cost air service markets generally have fared better than average.

¹ Air Transport Association

C.3 T. F. Green Airport Trends Since September 11

T. F. Green has also seen the impact of September 11 and the recession. Prior to September 11, total passengers served had increased approximately nine percent year-to-date. As shown in **Table C-3**, September of 2001 saw a 28 percent decrease in total passengers compared to 2000. Following trends of airports of its type, traffic at T. F. Green is rebounding – December 2001 traffic was down only 1.4 percent compared to the same month the previous year. For the year, annual passenger traffic in 2001 increased 1.8 percent from 2000.

Table C-3
T. F. Green 2000 and 2001 Passenger Traffic Comparison
T. F. Green Airport

	2000	2001	% Change
January-August	3,600,291	3,923,741	8.98%
September	465,317	333,075	-28.42%
October	507,518	453,709	-10.60%
November	464,192	427,910	-7.82%
December	393,620	387,991	-1.43%
January-December	5,430,938	5,530,393	1.83%

Source: T. F. Green traffic statistics

Because T. F. Green is one the low-cost airports described in the previous section, traffic has not been affected as much as some of the bigger, coastal airports, such as Boston Logan (see [Table C-4](#)). The top 25 airports in the U.S. saw a 13 percent average decline in scheduled seats for the last three months of 2001 compared to the same period in 2000. In comparison, T. F. Green experienced a five percent decrease in available seats.

Southwest has been a key driver in the rebound at T. F. Green. Southwest, which served 32 percent of T. F. Green passengers in 2001, saw passenger traffic increase nine percent from 2000 to 2001. Much of this growth was experienced prior to September 11, however, Southwest's December 2001 passengers were up 3.3 percent from the previous year.

Not all of the growth at T. F. Green can be attributed to Southwest. Delta posted an 8.5 percent increase in passenger traffic in 2001 compared to 2000.² Charter passengers also increased - by 38 percent from 2000 to 2001. Many of the other airlines at T. F. Green posted declines in total passengers compared to 2000.

² Rhode Island Airport Corporation traffic statistics.

The fact that the airport is an alternative to Boston Logan, in terms of cost, convenience, and now, perceived safety, has also contributed to T. F. Green's relative stability.

C.4 Potential Changes to T. F. Green Airport Role/Outlook

T. F. Green has been one of the fastest growing airports in the nation since 1996. The airport benefits by being host to airlines who offer a wide selection of air service in densely populated southern New England, as well as competitive air fares. Much of the growth at T. F. Green results from Southwest Airlines' recognition of the unserved demand in the region and subsequent inauguration of air service in 1996. This has created many new and economically priced travel options for southern New England. The introduction of Southwest at T. F. Green spurred other airlines to match air fares and increase air service. In fact, several introduced their own brand of low-fare service (such as US Airways MetroJet) in order to compete head-to-head with Southwest. T. F. Green's low fares, location, easy highway access, and relative convenience provide southern New England travelers with an alternative to the Boston Logan Airport. Recent changes in the perceived security/safety of Logan may have further helped traffic recovery at T. F. Green (and Manchester).

The forecasts prepared as part of the Master Plan predict strong growth over the next 20 years based on the continued role of T. F. Green as a well-located, low-fare travel choice for southern New England. In order to examine if T. F. Green's role, and its corresponding traffic levels, would likely be materially different than what was forecasted before September 11, a variety of factors must be considered:

- **The future of the local and national economy:** Future activity levels are inevitably linked to economic conditions (the domestic passenger forecasts for T. F. Green were developed using a regression model that links passenger growth to the Gross Regional Product). As long as the economy remains in a recession, traffic will likely lag behind forecast levels. However, as the economy recovers, traffic can be expected to once again follow the growth trends predicted in the forecast. Further, the 20-year planning horizon assumes that several economic downswings, as well as growth spurts will occur, although it does not attempt to predict the timing of those downswings. The current economic downturn falls within the expected range and warrants no change. However, because several months have elapsed since the forecasts were originally prepared, the forecasts were updated with the latest economic data.
- **Continuation of low-fare service by Southwest:** As Southwest has been the major driver in the dramatic growth over the last five years, it will also be the biggest factor in how quickly T. F. Green recovers. The outlook for Southwest is promising. Southwest has cash and little debt. It operates its full schedule, has not laid off any of its workers, and has not canceled its aircraft orders (some flexible orders were deferred). Southwest is taking advantage of the fact that the major carriers are cutting capacity in some markets by increasing its market share. According to Merrill Lynch, low-cost airlines such as Southwest are "uniquely positioned to garner share while maintaining profitability as network

airlines scale back their operations to reflect diminished revenue production...and rising operating costs.”³ The *Wall Street Journal* reported that Southwest may actually expand faster than planned because of the other airlines’ weaker position. These changes would not likely go away with the recovery, since Southwest’s presence in a market tends to be strong and long-term. Southwest’s domestic market share improved 1.6 points to 11.3 percent and it now ranks fourth behind major carriers American, Delta, and United. Southwest posted a net profit for the fourth quarter of 2001, making 2001 the 29th consecutive year of profitability.

Based on Southwest’s current strong position in the market, it is expected that it will continue to be strong as the economy recovers. There are no indications that Southwest intends to change the way it operates or its low-fare strategy. With load factors high, there are no indications that Southwest intends to decrease service at T. F. Green, or any of its other markets. Merrill Lynch states “...the fact that Southwest was able to report a profit is evidence of the strength of the company’s business model, especially in weak economic environments.”⁴

- **Financial health of the airlines:** The health of the other airlines will also play a role in the ability of the non-Southwest traffic to grow as expected in the forecasts. Net losses for the airlines are projected to reach \$7.5 billion in 2002, in addition to the estimated \$11 billion loss in 2001.⁵ Merrill Lynch predicts the second worst quarterly net loss on record for the airlines for the last quarter of 2001. However, it and other analysts also predict that the magnitude of the losses will be a catalyst for change. For example, many of the major carriers are restructuring their networks and focusing on the more profitable routes, allowing the airlines to emerge stronger once traffic rebounds.⁶ Some analysts believe the airlines will begin to show a profit in mid-2002, others predict profitability won’t return until 2003-2004.⁷ Lower fuel prices, rebounding traffic, and the air travel market’s increasing ability to bear fare increases led the airlines to post losses for the fourth quarter of 2001 that were near or better than expectations. It is not clear if the Federal financial bailout will be sufficient to guarantee survival of all of the carriers, particularly because labor and other business issues are not alleviated by the bailout. However, the airlines are in the business to meet passenger demand, and the demise of a carrier would likely result in other carriers moving to serve that demand (if a hub carrier were to cease operations, however, its hub cities would be disproportionately affected). T. F. Green however, is not an airline-connecting hub and is a Southwest airport. As such, is not likely to be severely affected by the demise of a major carrier (that is, a non-Southwest carrier).

³ Merrill Lynch January 9, 2002, Airline Industry Update

⁴ Merrill Lynch December Quarter Review, January 18, 2002

⁵ *Air Transport World*, January 2002.

⁶ Merrill Lynch January 9, 2002, Airline Industry Update

⁷ *Air Transport World*, January 2002.

- **Convenience of facilities:** One of the things that makes T. F. Green an attractive travel alternative to Boston Logan is the relative convenience offered at Green. There is no doubt that passenger convenience has diminished since September 11 due to heightened security. However, Boston Logan continues to be difficult to access and is delay-prone during certain weather conditions, making T. F. Green even more attractive than before. Another part of the attractiveness of Green is the location and accessibility. The recovering traffic at T. F. Green in December (and the increase in passengers by Southwest) indicates that the low-fares offered by Southwest are making up for the longer lines at the security checkpoints.
- **Other Factors:** There are other factors that must be considered in the aftermath of September 11, such as any changes to short-haul travel patterns and the potential use of rail or telecommunications instead of air travel.
 - **Short-haul travel:** Due to the increased security screening requirements and queues, the length of a passenger's "door-to-door" air travel trip has increased. This is likely to have an impact on a passenger's decision to fly to short-haul destinations (within 200 miles). This trend affects some airports more than others. At T. F. Green, the security lines are relatively short and service at the airport is not dominated by destinations within 200 miles. The change in short-haul travel may play a minor role in future demand at T. F. Green, but traffic is not expected to be significantly affected. The fact that T. F. Green's 2001 traffic continues to recover and that 2001 traffic increased from 2000 appears to support this opinion.
 - **Use of rail:** Due to an increased fear of flying by some passengers, increased rail usage should be considered. There was an initial jump in rail ridership after the attacks; Amtrak estimated that ridership was up 17 percent in the first week after the attacks. By the second week, the increase had fallen to 10 to 13 percent and it continues to decrease. The Master Plan forecasts and the FAA's forecasts already consider that some travelers will prefer rail over air travel.
 - **Use of telecommunications:** Telecommunications technology, such as teleconferencing, is constantly improving and there was a spike in its use after September 11. A similar spike was witnessed after the Gulf War, however, it soon dropped off again. Telecommunications technology provides another option for business travelers and may result in certain trips being deferred or deemed unnecessary. Telecommunications technology has no impact on leisure travel. The Master Plan forecasts and the FAA's forecasts already take improved telecommunications technology into account.

C.5 FAA's View

The FAA, after careful review, has approved a number of proposed airport development projects since September 11, 2001. These include EISs for new/extended runways at Atlanta and Cincinnati/Northern Kentucky airports. In response to the terrorist attacks of

September 11, the FAA has reevaluated the validity of the proposed projects and the forecasts supporting the need for the proposed projects at each of these airports. In the Record of Decision (ROD) issued for Cincinnati, the FAA states:

“The proposed airport development is a long-term planning and implementation solution for the established purposes and needs at CVG. The FAA concludes that the forecasts included in the FEIS are based on supported data and valid assumptions, and that the analyses for the proposed project and its need are still sound. Therefore, based on the information available at this time, the FAA believes the proposed project is still needed and supported at CVG.”

In addition, the FAA is standing by its forecasts, both nationwide and the Terminal Area Forecasts (TAF) prepared annually for T. F. Green. It appears that the new TAF projections will be similar to the existing version.

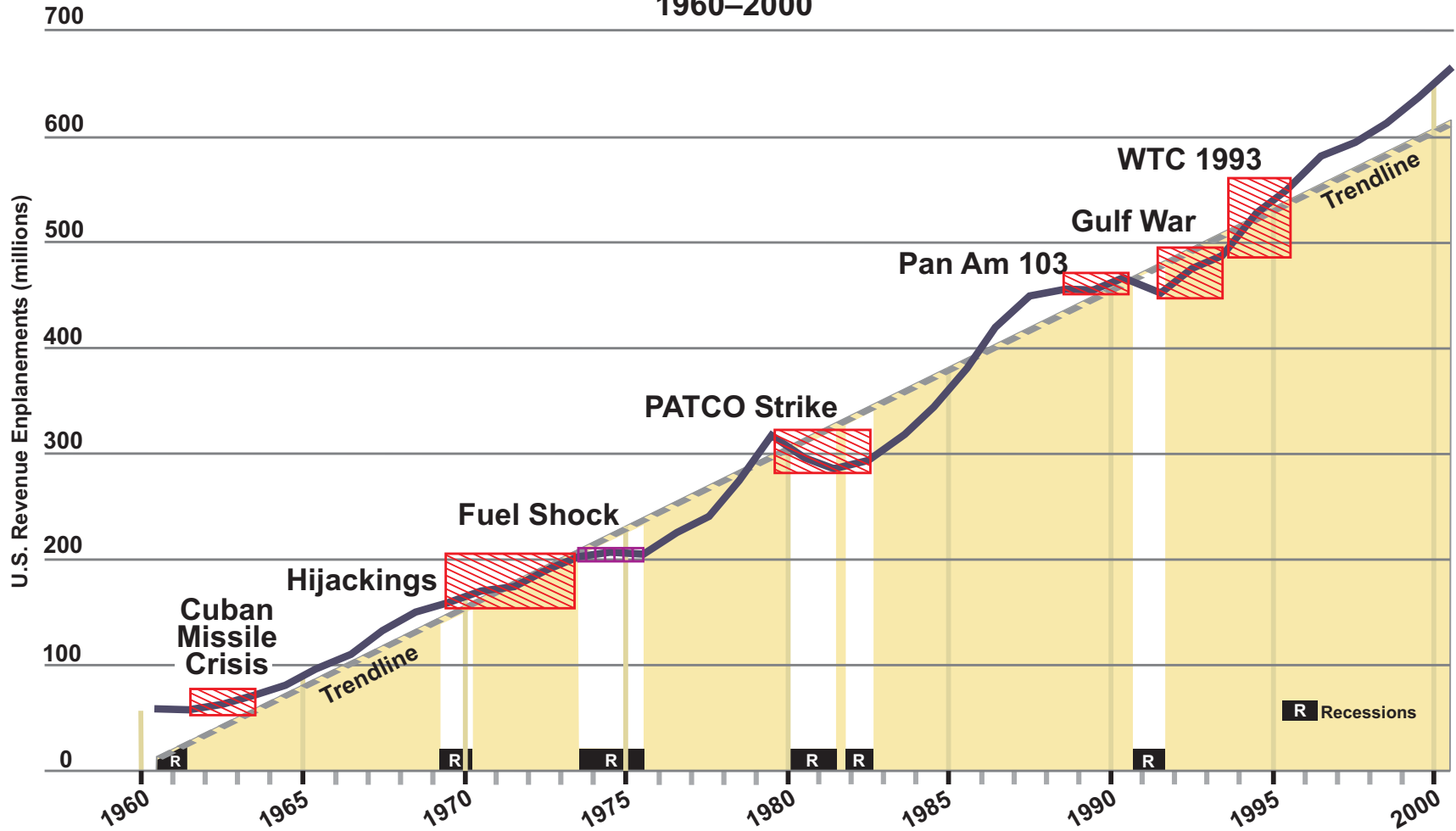
C.6 Conclusion

Although no one knows the whole picture yet, this paper looked at whether or not RIAC should doubt the validity of the T. F. Green Airport Master Plan forecasts for planning purposes. Based on the above analysis, there are reasons to believe that traffic could be higher than anticipated (such as the perception that T. F. Green is “safer” than Boston) but there are also reasons to believe that traffic could be lower (i.e. the economic recession).

Based on previous history and how the industry has responded since September 11, there is very little reason to believe that the overall long-term growth trends in the draft T. F. Green forecasts will change materially. The trigger points identified in the Master Plan are more important than the actual year. The trigger points may be reached earlier or later than anticipated and RIAC will monitor activity levels closely to determine if and when facility improvements are needed. Although the Master Plan provides a 20-year forecast, the forecasts and the Master Plan will likely be updated in the next five years, depending on how closely the forecasts track to actual activity.

While the long-term growth trends appear to be valid, the short-term forecasts require a closer look. The Master Plan forecasts were created based on the most current economic data available in the summer of 2000. Due to the amount of time that has passed since then, it is prudent to update the Master Plan forecasts based on the latest economic data, which takes into account the recession and the terrorist attacks of September 11. This update resulted in revisions to the 2005 and 2010 projections. The 2015 and 2020 projections only changed slightly.

Aviation System Shocks and Recoveries 1960–2000



Source: Air Transport Association, Landrum & Brown, Inc.
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Table C-1
T. F. Green Forecast Review
Top Ten Airlines Revenue Passenger Miles (RPM)
Fourth Quarter 2000 vs. Fourth Quarter 2001

Airline	Revenue Passenger Miles (RPM) (000)							
	Oct-00	Nov-00	Dec-00	4th Quarter 2000	Oct-01	Nov-01	Dec-01	4th Quarter 2001
United	10,936,755	10,006,539	10,046,973	30,990,267	7,800,716	7,655,223	8,224,742	23,680,681
American/TWA	11,716,060	11,177,930	10,991,925	33,885,915	7,935,020	8,378,903	9,083,863	25,397,786
Delta	8,795,141	8,408,612	7,978,792	25,182,545	6,619,229	6,616,813	7,117,281	20,353,323
Northwest	6,485,733	6,019,006	6,043,775	18,548,514	4,604,821	4,715,433	5,361,497	14,681,751
Continental	5,220,191	5,067,745	5,051,068	15,339,004	4,030,717	4,220,902	4,514,085	12,765,704
US Airways	4,219,316	4,069,967	3,873,745	12,163,028	2,800,655	3,067,074	3,020,764	8,888,493
Southwest	3,703,093	3,611,093	3,524,932	10,839,118	3,668,696	3,568,715	3,545,331	10,782,742
America West	1,570,324	1,580,329	1,581,942	4,732,595	1,386,352	1,297,944	1,344,750	4,029,046
Alaska	875,800	979,100	1,044,000	2,898,900	812,200	933,000	990,300	2,735,500

Airline	RPM Percent Change (2000-2001)			
	October	November	December	4th Quarter
United	-28.7%	-23.5%	-18.1%	-23.6%
American/TWA	-32.3%	-25.0%	-17.4%	-25.0%
Delta	-24.7%	-21.3%	-10.8%	-19.2%
Northwest	-29.0%	-21.7%	-11.3%	-20.8%
Continental	-22.8%	-16.7%	-10.6%	-16.8%
US Airways	-33.6%	-24.6%	-22.0%	-26.9%
Southwest	-0.9%	-1.2%	0.6%	-0.5%
America West	-11.7%	-17.9%	-15.0%	-14.9%
Alaska	-7.3%	-4.7%	-5.1%	-5.6%

Source: Aviation Daily airline statistics, "U.S. Major Carriers Traffic", October, November, and December 2001.

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Table C-2
T. F. Green Forecast Review
Top Ten Airlines Available Seat Miles (ASM)
Fourth Quarter 2000 vs. Fourth Quarter 2001

Airline	Available Seat Miles (ASM) (000)							
	4th Quarter				4th Quarter			
	Oct-00	Nov-00	Dec-00	2000	Oct-01	Nov-01	Dec-01	2000
United	15,384,572	14,085,346	14,340,020	43,809,938	12,304,098	11,168,165	11,525,206	34,997,469
American/TWA	16,697,045	16,018,614	15,956,485	48,672,144	13,418,760	12,778,442	13,514,404	39,711,606
Delta	12,718,997	12,060,228	11,669,261	36,448,486	10,947,770	10,287,012	10,686,823	31,921,605
Northwest	8,624,038	8,076,046	8,415,236	25,115,320	6,949,848	6,745,426	7,422,260	21,117,534
Continental	7,350,347	6,979,831	7,079,067	21,409,245	6,093,473	5,915,661	6,210,178	18,219,312
US Airways	6,015,422	5,749,851	5,791,320	17,556,593	4,542,368	4,814,262	4,699,639	14,056,269
Southwest	5,289,675	5,108,389	5,302,826	15,700,890	5,759,953	5,463,416	5,484,283	16,707,652
America West	2,313,070	2,274,098	2,331,088	6,918,256	2,032,580	1,854,778	2,004,967	5,892,325
Alaska	1,427,000	1,441,000	1,512,000	4,380,000	1,277,000	1,378,000	1,465,000	4,120,000

Airline	ASM Percent Change (2000-2001)			
	October	November	December	4th Quarter
United	-20.0%	-20.7%	-19.6%	-20.1%
American/TWA	-19.6%	-20.2%	-15.3%	-18.4%
Delta	-13.9%	-14.7%	-8.4%	-12.4%
Northwest	-19.4%	-16.5%	-11.8%	-15.9%
Continental	-17.1%	-15.2%	-12.3%	-14.9%
US Airways	-24.5%	-16.3%	-18.9%	-19.9%
Southwest	8.9%	6.9%	3.4%	6.4%
America West	-12.1%	-18.4%	-14.0%	-14.8%
Alaska	-10.5%	-4.4%	-3.1%	-5.9%

Source: Aviation Daily airline statistics, "U.S. Major Carriers Traffic", October, November, and December 2001.

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**Table C-4
T. F. Green Airport Forecast Review
Scheduled Seats Comparison**

<u>Airport</u>	<u>Oct-00</u>	<u>Oct-01</u>	<u>% Change</u>	<u>Nov-00</u>	<u>Nov-01</u>	<u>% Change</u>	<u>Dec-00</u>	<u>Dec-01</u>	<u>% Change</u>	<u>Fourth Quarter 2000</u>	<u>Fourth Quarter 2000</u>	<u>% Change</u>
T. F. Green	357,461	347,933	-3%	335,705	320,530	-5%	346,972	323,449	-7%	1,040,138	991,912	-5%
Atlanta	4,880,266	4,454,867	-9%	4,676,453	4,230,071	-10%	4,914,997	4,448,148	-9%	14,471,716	13,133,086	-9%
Chicago O'Hare	4,780,695	4,292,850	-10%	4,502,294	3,875,978	-14%	4,524,287	3,997,774	-12%	13,807,276	12,166,602	-12%
Los Angeles	4,406,081	3,810,709	-14%	4,215,074	3,252,728	-23%	4,315,706	3,370,679	-22%	12,936,861	10,434,116	-19%
Dallas	3,726,451	3,390,620	-9%	3,572,906	2,989,952	-16%	3,647,821	3,104,921	-15%	10,947,178	9,485,493	-13%
San Francisco	2,509,486	2,136,469	-15%	2,381,886	1,851,036	-22%	2,428,865	1,906,440	-22%	7,320,237	5,893,945	-19%
Denver	2,396,459	2,064,914	-14%	2,166,686	1,801,937	-17%	2,318,026	1,904,789	-18%	6,881,171	5,771,640	-16%
Las Vegas	2,045,648	1,954,886	-4%	1,968,768	1,815,493	-8%	1,979,085	1,843,911	-7%	5,993,501	5,614,290	-6%
Minneapolis St. Paul	2,175,078	1,840,511	-15%	2,039,701	1,770,854	-13%	2,113,274	1,920,284	-9%	6,328,053	5,531,649	-13%
Phoenix	2,494,108	2,303,396	-8%	2,430,814	2,085,060	-14%	2,522,930	2,184,204	-13%	7,447,852	6,572,660	-12%
Detroit	2,257,048	1,926,221	-15%	2,121,612	1,833,949	-14%	2,152,071	1,922,251	-11%	6,530,731	5,682,421	-13%
Houston	2,050,422	1,907,168	-7%	1,960,027	1,894,287	-3%	2,046,730	1,905,424	-7%	6,057,179	5,706,879	-6%
Newark (NY)	2,288,354	1,864,310	-19%	2,176,061	1,744,107	-20%	2,234,558	1,761,195	-21%	6,698,973	5,369,612	-20%
Miami	1,962,049	1,824,676	-7%	1,961,020	1,754,514	-11%	2,096,790	1,874,930	-11%	6,019,859	5,454,120	-9%
JFK (NY)	2,175,674	1,797,702	-17%	2,085,352	1,549,996	-26%	2,085,094	1,635,924	-22%	6,346,120	4,983,622	-21%
Orlando	1,645,671	1,419,785	-14%	1,631,827	1,302,098	-20%	1,690,840	1,368,898	-19%	4,968,338	4,090,781	-18%
St. Louis	2,106,568	1,979,913	-6%	1,969,741	1,825,583	-7%	2,013,880	1,868,048	-7%	6,090,189	5,673,544	-7%
Seattle	1,801,724	1,627,103	-10%	1,647,797	1,421,858	-14%	1,713,312	1,536,013	-10%	5,162,833	4,584,974	-11%
Boston	2,037,499	1,685,085	-17%	1,922,928	1,339,534	-30%	1,919,561	1,433,715	-25%	5,879,988	4,458,334	-24%
LaGuardia	1,930,095	1,607,064	-17%	1,911,283	1,353,519	-29%	1,951,072	1,415,390	-27%	5,792,450	4,375,973	-24%
Philadelphia	1,826,653	1,720,934	-6%	1,733,576	1,595,531	-8%	1,761,015	1,661,241	-6%	5,321,244	4,977,706	-6%
Charlotte	1,659,916	1,693,700	2%	1,612,216	1,526,498	-5%	1,684,132	1,616,374	-4%	4,956,264	4,836,572	-2%
Honolulu	1,310,568	1,121,686	-14%	1,302,659	983,527	-24%	1,309,068	1,030,953	-21%	3,922,295	3,136,166	-20%
Cincinnati	1,520,855	1,338,575	-12%	1,429,907	1,360,428	-5%	1,465,517	1,372,660	-6%	4,416,279	4,071,663	-8%
Washington Dulles	1,362,603	1,291,930	-5%	1,251,334	1,080,769	-14%	1,246,745	1,093,917	-12%	3,860,682	3,466,616	-10%
Salt Lake City	1,192,295	1,129,137	-5%	1,129,148	1,102,587	-2%	1,203,556	1,157,346	-4%	3,524,999	3,389,070	-4%
Top 25 Total	58,542,266	52,184,211	-11%	55,801,070	47,341,894	-15%	57,338,932	49,335,429	-14%	171,682,268	148,861,534	-13%

Note: Seats shown represent arrival seats.
Source: Official Airline Guide

Appendix D – Terminal Space Program

This appendix contains a description of the passenger terminal facilities program, which estimates the spatial requirements needed to accommodate passenger activity for 2005, 2010, 2015, and 2020. This space program is based on conditions in the terminal prior to the terrorist attacks of September 11, 2001. New legislation by the government or regulations enacted by the FAA may result in changes in the space requirements for the various functional areas, particularly security. At this time, it is impossible to predict what changes will be needed and the space allocated for security will likely need to be revisited and closely monitored. Therefore, this information is largely out of date and was removed from the chapter. It is provided here to serve as a basis for future analysis.

The terminal space program requirements are organized into six general categories:

- Airline Functions
- Concessions Space
- Federal Inspection Services (FIS)
- Secure Public Area
- Non-Secure Public Area
- Non-Public Area

This analysis identifies the functional terminal space needed to serve passengers at a particular level of service (LOS). LOS methodology identifies a range of values or assessments of the ability of supply to meet demand, and combines both qualitative and quantitative assessments of relative comfort and convenience.

It is difficult to establish a precise, quantified relationship between available space, time, and LOS. Many factors, such as passenger behavior patterns, passenger convenience, and passenger comfort can affect the space required in relation to the occupancy time. Additional criteria for evaluating LOS include comfort, convenience, and distance; however, the prime focus to date has been upon space and time. To allow comparison among the various systems and subsystems of the airport and to reflect the dynamic nature of demand upon a facility, a range of LOS measures from “A” through “F” are used. **Table D-1** shows the definition of each LOS. Generally, an airport passenger terminal complex is designed to serve the passenger processing functions at a LOS C as defined by the International Air Transport Association (IATA).

A summary of the 2001 draft forecasts used in this analysis is contained in [Table D-2](#). Additional forecast detail, such as peak hour originating and terminating passengers (local passengers), was estimated based on 2000 data.

Table D-1
LOS DETERMINATION CRITERIA
T. F. Green Airport

Level of Service (LOS)	Definition
A	Excellent level of service; condition of free flow; excellent level of comfort.
B	High level of service; condition of stable flow; very few delays; high level of comfort.
C	Good level of service; condition of stable flow; acceptable delays; good level of comfort.
D	Adequate level of service; condition of unstable flow; acceptable delays for short periods of time; adequate level of comfort.
E	Inadequate level of service; condition of unstable flow; unacceptable delays; inadequate level of comfort.
F	Unacceptable level of service; condition of cross-flows, system breakdown, and unacceptable delays; unacceptable level of comfort.

Note: Level of Service (LOS) "A" is seen as having no upper bound.

Source: IATA Airport Terminal Reference Planning Manual

The majority of the passenger facilities in the terminal space program are based on forecast passenger activity, however, some of the functional area projections are determined more appropriately by their relationship to the number and type of aircraft or the number of gates serving a particular area of the terminal. In addition, other programming criteria have also been selected that reflect the size and operating characteristics at T. F. Green. These criteria are a combination of existing supply/demand ratios, typical industry planning standards, passenger-processing criteria, and factors used at similar terminals around the country. The criteria used in this analysis are consistent with LOS C criteria. The survey information from T. F. Green (see Appendix A, *Survey Results*) provided valuable information for this analysis. Other airports used in this analysis for benchmarking purposes include Bradley International Airport (BDL), Albany (New York) International Airport (ALB), Manchester Airport (MHT), and Charleston International Airport (CHS).

Table D-3 lists the existing areas at T. F. Green according to the categories described previously. The existing supply/demand ratios, or planning factors, were determined for each component of the terminal. Some components of the terminal may be operating in an efficient, but not under-utilized, manner. In these cases, it is appropriate to use the existing ratio to forecast future requirements. In other cases, an area may be operating in an inefficient manner or may be over-utilized. Therefore, it would be more

appropriate to use typical industry planning standards or factors from other airports to project future requirements. [Table D-4](#) lists the existing planning factors and compares them to the proposed planning factors.

[Table D-5](#), [Table D-6](#), [Table D-7](#), [Table D-8](#) and [Table D-9](#) depict the facility requirements for 2000 and each forecast year. The criteria used in the development of the individual program elements depicted in these tables are discussed in detail in the following sections. The text focuses on the long-term 2020 requirement; however, the requirements for the interim years were also evaluated in order to develop an efficient, well-timed phasing plan.

D.1 Airline Function

This category of the terminal space program represents the heart of the terminal complex. It contains all of the areas typically required and leased by the airline tenants to support their operations. It is the single most important category in determining the size, configuration, and relationship of areas. Each of the airline space requirements is discussed in the following paragraphs.

Ticket Counter (area)

This component refers to the area occupied by the ticket counter, ticket agents, and the ticket counter baggage belt. The existing ticket counter area measures 2,670 square feet and is somewhat undersized for the existing peak hour demand. The ticket counter is at maximum capacity and cannot accommodate additional activity without exponential increases in delay.

Based on an industry standard depth of 10.5 feet and the proposed planning factor of 3.57 square feet per peak hour enplaned passenger, approximately 7,600 square feet will be required to accommodate demand in 2020. Although the proposed factor is higher than the existing factor of 2.47, it is comparable to airports that are similar to T. F. Green and would allow T. F. Green to accommodate future passengers at a reasonable level of delay.

Ticket Counter (length)

This category represents the length of the ticket counter at T. F. Green. The current ticket counter measures 246 linear feet. Similar to the ticket counter area, it is slightly undersized to accommodate the existing peak hour demand and cannot accommodate additional demand without disproportionate increases in delay. The future requirements are based on a planning factor of 0.30 linear feet per peak hour enplaned passenger, which is similar to other comparable airports. This results in a need for 640 linear feet in 2020.

Ticket Counter Queuing

This category represents the queuing area directly in front of the ticket counter. At T. F. Green, this area measures 4,072 square feet. Assuming a typical industry depth of 15 feet from the front of the ticket counters, an area of approximately 12,700 square feet is needed in 2020. The resulting planning factor for ticket counter queuing (6.0 square feet per peak hour enplaned passenger) is greater than the existing factor and is similar to other comparable airports.

Airline Ticket Office

This category refers to the area leased to the airlines and is located directly behind the ticket counters. The existing area measures 8,900 square feet and can accommodate the existing airlines at T. F. Green. Based on an industry standard depth of 25 feet (which results in a factor of 8.5 square feet per peak hour enplaned passenger), the 2020 requirement for airline ticket office space is 18,000 square feet. The future requirement is partially a function of the number of airlines serving T. F. Green.

Departure Lounges

The requirement for departure lounges is solely a function of the number and size of aircraft in the peak hour. There are 22 existing gates at T. F. Green and the departure lounges are currently over-crowded during peak periods, particularly at Southwest gates. The peak hour forecast for 2020 calls for 40 gates with a larger mix of jet aircraft as compared to commuter aircraft.

An industry standard planning factor of 1,800 square feet per gate takes the proposed fleet mix into consideration and was used to calculate future departure lounge requirements. This factor is actually slightly less than the current ratio. Even though the hold rooms are currently crowded, this ratio is valid based on observations at other similarly sized airports. In addition, the current conditions at Southwest gates are expected to be mitigated in the future as repeat customers become more accustomed to the unique boarding operations of the airline and as adjustments are made to the Southwest operation. Based on this factor, the existing area of 42,100 square feet will need to increase to 72,000 square feet in 2020.

Baggage Claim Area

This category represents the area occupied by the baggage claim devices and the queuing area for active claiming, measured approximately 15 feet out from the devices. At T. F. Green this area measures 10,600 square feet. Based on an industry standard planning factor of 20 square feet per peak hour deplaned passenger, this area is undersized to meet current peak hour demand. The existing ratio is 11 square feet per peak hour deplaning passenger, about one half of the industry standard planning factor. This would indicate that this area is congested during peak arrival periods. The projected 2020 requirement, which is calculated based on the 20 square feet per peak hour deplaned passenger ratio, measures 39,100 square feet.

Baggage Claim Frontage

This category represents the length of the baggage claim devices and is designed to accommodate the peak 20 minutes of baggage claim time. At T. F. Green the existing overall length of the baggage claim devices measure 825 linear feet. The existing planning factor of 0.85 linear feet per peak hour deplaning passenger is acceptable. Based on the existing factor, 1,700 linear feet will be needed in 2020.

Baggage Service

This category includes the area of baggage service offices leased to the airlines. For planning purposes, the existing planning factor (2.70), which is based on the proportion of leased area to peak hour deplaned passengers, was used to project future requirements. This methodology yields a requirement of 5,280 square feet for baggage services area in 2020. The final area allocation will likely be refined during the design process and will be a function of more specific airline requirements.

Outbound Baggage

This category represents the area directly behind the airline offices and is used for the accumulation, storage, and make up of outbound baggage from the ticket counter and curbside check-in areas. The existing outbound baggage area at T. F. Green measures 16,000 square feet and is slightly undersized to accommodate the existing peak hour enplaned passenger demand. The existing ratio of square feet per peak hour enplaned passenger is lower than the industry standard of 20 square feet per peak hour enplaned passenger. Based on the industry standard ratio, 42,300 square feet will be required to meet demand in 2020.

Inbound Baggage

The inbound baggage category represents the area that is used to feed bags to the baggage claim devices and measures approximately 22 feet deep by the width of the baggage claim devices. At T. F. Green, the existing area measures approximately 10,000 square feet and is adequate to meet the existing peak hour demand. The existing ratio of 10.0 square feet per peak hour deplaned passenger is adequate for future requirements. Based on the existing ratio, 19,600 square feet will be needed to meet demand in 2020.

Operations/Maintenance/Storage

This category represents the area used by the airlines for their operations and is located on the lower level of the concourse. At T. F. Green this area measures approximately 18,700 square feet and is slightly undersized to accommodate the existing demand. The existing factor for this function is 0.0069 square feet per annual enplaned passenger, lower than the ratio of 0.01 square feet per annual enplaned passenger observed at comparable airports. Based on the revised planning factor, 54,100 square feet will be needed to meet demand projected for 2020.

Clubs/VIP Room

This category refers to the airline club areas. T. F. Green does not currently have airline club areas. The decision to locate a club area at an airport is a function of the airline requirements based on the size of their operation and marketing philosophy. Such facilities are typically, but not exclusively, provided by the dominant carrier at an airport. Southwest, the largest carrier at T. F. Green, does not operate club/VIP rooms currently and has not indicated a desire to do so. For purposes of this analysis, it is assumed that no club/VIP room space would be needed through 2020.

D.2 Concessions Space

This category of the terminal space program represents all of the areas devoted to commercial concessions that generate revenue for the airport. In general, these include food/beverage, news/gift/sundry,¹ rental car, and other revenue-generating functions. These amenities serve two vital functions: (1) they provide the passenger with necessary services during the processing function and (2) they provide revenue to the airport.

Food/Beverage

This category represents the total area for the food and beverage concessions at T. F. Green. The facility space requirements analysis for the concessions area is general and does not sub-divide these areas into individual shops. The existing area occupied by food and beverage concessions totals 15,000 square feet and is deemed adequate to meet existing demand. The proposed planning factor, based on industry standards, is 0.0060 square feet per annual enplaned passenger, which is slightly higher than the existing factor of 0.0055 square feet per annual enplaned passenger. Based on the industry standard factor, 32,500 square feet will be needed to meet the demand projected for 2020.

News/Gift/Sundry

This category represents the existing general concessions and includes news, gift shops, and sundry concessions. This existing area at T. F. Green measures 6,200 square feet. Based on the supply/demand ratio at comparable airports of 0.0030 square feet per annual enplaned passenger, this area is adequate to meet the current demand. Applying this ratio into the future yields a requirement for approximately 16,200 square feet of news/gift/sundry concession space in 2020.

¹ Sundry refers to various other concessions such as business centers, shoe shine and barber shops, etc.

Rental Car

The rental car area consists of counters and back offices for the individual, on-airport rental car agencies. The existing area at T. F. Green totals 3,300 square feet and is undersized to accommodate the existing demand. The proposed planning factor of 0.0020 square feet per annual enplaned passenger is based on comparable airports and is larger than the existing factor of 0.0012 square feet per annual enplaned passenger. Based on the recommended planning factor, 10,800 square feet of rental car space will be needed to meet 2020 demand.

Other Revenue

This category represents the total of other revenue-generating concessions at T. F. Green. The existing area totals 9,600 square feet and is deemed more than adequate to meet the existing demand. Based on a reduced supply/demand ratio observed at comparable airports (0.002 square feet per annual enplaned passenger), 10,800 square feet of space will be needed to meet 2020 demand.

D.3 Federal Inspection Services (FIS)

This category is required by Federal law for the processing of passengers into the U.S. It is composed of U.S. Immigration and Naturalization Services (INS), U.S. Customs Services (USCS), Animal and Plant Health Inspection Services (APHIS), and Public Health Services (PHS). FIS facilities consist of passenger processing areas for each agency as well as required support space for offices, maintenance, and other areas.

The existing FIS area consists of an 8,900 square foot area on the first floor of the terminal. Its purpose is to serve arriving passengers on international charter flights. T. F. Green has international service to Canada, however, these passengers are pre-cleared in Canada and do not use the FIS facilities. International charter traffic, which was instituted on a test basis in 2000, does use the FIS facilities.

Projected requirements are based on a planning factor of 80 square feet per peak hour international deplaning passenger. This planning factor has been observed at comparable airports. The forecast calls for 88 annual international charter operations by 2020, resulting in one operation in the peak hour. Based on a 90 percent load factor and a 215-seat aircraft, there will be 194 peak hour international deplaning passengers in each planning year. As a result, 15,500 square feet of FIS space will be needed to meet demand throughout the planning horizon.

D.4 Secure Public Area

This category is composed of the security check points, public restrooms beyond the security check points, and the public circulation area beyond security.

Security

This category represents the area dedicated for the security checkpoints. It includes a queuing area immediately in front of the X-ray devices and magnetometers, the area occupied by the equipment and its operators, and a modest area beyond security for passengers to collect their belongings and orient themselves. The area also includes a small office and search room space immediately adjacent to the checkpoints. At T. F. Green the existing security area measures 2,700 square feet.

The existing area is adequate to meet year 2000 demand at a typical maximum throughput of 600 passengers per hour. However, recent survey observations have indicated a slower than normal throughput at the existing security checkpoints (426 passengers per hour), resulting in unacceptable queues during certain peak periods. The industry standard average is 450 passengers per hour, which is similar to the observed throughput at T. F. Green. The proposed security area and number of stations for the forecast periods were therefore determined by using the industry standard throughput of 450 passengers per hour rather than the maximum throughput of 600 passengers per hour. This results in a requirement for four security checkpoints and 4,500 square feet of area by the year 2020.

Circulation

This category represents the public circulation area beyond the security checkpoints and consists primarily of the circulation area of the main corridor in the vicinity of the departure lounges. At T. F. Green this area totals 34,400 square feet for 22 gates and is adequate to meet current demand. A typical planning factor for the circulation areas is 1,600 square feet per gate, slightly higher than the existing factor of 1,562 square feet per gate, reflecting that the secure corridors can become congested today. Based on the requirement for 40 gates in 2020, 64,000 square feet of circulation space will be required to meet demand in 2020.

Restrooms

This category includes the restrooms beyond security that are located on the concourse in the vicinity of the departure lounges. At T. F. Green the existing area for these restrooms totals 6,100 square feet. The planning factor observed at other airports is 3.5 square feet per peak hour passenger, which is lower than the existing factor at T. F. Green. Based on the proposed planning factor, 11,800 square feet will be needed to meet 2020 demand.

Other

The other category includes secure public areas not typically categorized as security, circulation, or restrooms. Based on the existing supply/demand ratio of 0.0001 square feet per annual enplaned passenger, 540 square feet will be required for this function in 2020.

D.5 Non-Secure Public Area

This category is composed of the general circulation areas located before the security check points. It consists of the area directly in front of the ticket counters, the baggage claim lobby, and the overall circulation in the terminal complex. This category represents the largest single category of a terminal complex.

Circulation-Ticketing

Circulation-ticketing represents the area directly in front of the ticket counter queuing area. It is generally used for cross-circulation from the ticket counter to the security checkpoint. At T. F. Green, this area totals approximately 7,900 square feet and is deemed adequate to support the existing peak hour enplaned passenger demand. Based on an industry standard ratio of 6.8 square feet per peak hour enplaned passenger, 14,400 square feet will be required to accommodate 2020 demand.

Circulation-Baggage Claim

This is the main circulation area adjacent to the baggage claim area. The existing area totals approximately 6,400 square feet and is inadequate to meet current peak hour demand. Based on comparable airports, a planning factor of 15 square feet per peak hour deplaned passenger was developed for use in determining future requirements. The proposed planning factor is considerably higher than the existing factor of 6.54 square feet per peak hour deplaned passenger, suggesting overcrowded conditions in this area during peak arrival periods. Based on the proposed factor, 29,400 square feet will be needed to meet 2020 demand.

Circulation-General

This category represents the sum total of the remaining non-secure public circulation areas and represents the single largest block of space in a passenger terminal. The existing area measures 56,700 square feet and is considered inadequate to meet current peak hour demand. Based on observations at other airports, a ratio of 0.03 square feet per annual enplaned passenger should be used to calculate future general circulation area requirements. Based on this ratio, the 2020 requirement for this area is 162,300 square feet.

Restrooms

This category represents the public restrooms located on the non-secure side of the passenger terminal. At T. F. Green, the existing restrooms measure 3,500 square feet and are considered inadequate to meet current peak hour demand. A planning factor of 3.50 square feet per peak hour passenger was developed based on observations at comparable airports. Based on this factor, 11,800 square feet of restroom space will be needed to meet 2020 demand.

Other

The other category includes any non-secure public area typically not categorized as circulation, ticketing, circulation-baggage, circulation-general, or restrooms. There is 7,400 square feet currently and this is adequate to meet existing demand. Based on the existing supply/demand ratio of 0.0027 square feet per annual enplaned passenger, this space should be increased to 14,600 square feet in order to meet 2020 demand.

D.6 Non-Public Area

This category includes the “back of the house” area that is not accessible to the public. It generally consists of airport administration, airport police, FAA, other airport-oriented tenants, facilities maintenance, receiving and loading dock, mechanical/electrical/building systems facilities, and other miscellaneous areas. The size and configuration of these spaces is not a function of peak hour data, but is determined by the specific requirements for each component.

Most of the non-public areas are considered to be at capacity based on 2000 conditions. This would seem to indicate that the existing factor of square feet per annual enplaned passenger is inadequate. However, the area allocated for these areas as a percentage of total terminal building area typically decreases as the overall building size increases. In order to account for both of these factors, the existing ratios of square feet per annual enplaned passenger were applied to determine future requirements for each category of non-public space.

FAA

There are no FAA areas in the passenger terminal building at T. F. Green. A need for FAA areas in the passenger terminal in the future has not been identified.

Airport Administration

This category represents the total area devoted to airport administration functions. It currently consists of a reception area, offices, conference rooms, storage areas, work areas, and rooms for special events such as VIP press conferences, etc. The requirements for airport administration are a function of staffing and are generated by the airport. For planning purposes, the required areas were generated for the forecast years based on the existing planning factor for the airport administration area (0.0076 square feet per annual enplaned passenger). Based on this assumption, approximately 41,300 square feet of airport administration space will be needed to meet 2020 demand.

Loading Dock

The existing loading dock area consists of a platform serving two truck bays and two dumpsters. For planning purposes, the required areas for this function for the forecast years were generated based on the existing planning factor (0.0003 square feet per annual enplaned passenger). Based on this assumption, 1,900 square feet will be needed to meet 2020 demand.

Maintenance

This area is the building maintenance facility and consists of shops, storage, office space, circulation, and janitor closets. For planning purposes, the required areas for the forecast years were derived based on the existing planning factor of 0.0041 square feet per annual enplaned passenger. Based on this assumption, 22,100 square feet will be needed to meet year 2020 demand.

Mechanical/Electrical/Building Systems

This category includes the support areas for the terminal building. It consists of mechanical rooms, electrical rooms, telephone closets, communications rooms, energy control rooms, etc. For planning purposes, the required areas for the forecast years were derived based on the existing ratio of 0.0098 square feet per annual enplaned passenger. Based on this ratio, 52,300 square feet will be needed in 2020.

Miscellaneous

This category consists of the remaining spaces at the terminal building. The present total in this category is 8,900 square feet. Approximately 17,800 square feet will be needed to meet 2020 demand, based on the existing ratio of 0.0033 square feet per annual enplaned passenger.

D.7 Summary of Terminal Building Requirements

[Table D-10](#) contains a summary of the terminal space requirements, as compared to the existing facilities. The passenger terminal at T. F. Green was recently completed and is, for the most part, adequately sized to accommodate the current level of peak hour activity through 2005. There are exceptions to this statement, particularly in the ticketing function, including outbound baggage. In addition, the circulation in the baggage claim area is tight, as are the restrooms in the non-secure parts of the terminal. In total, the terminal complex will shortly be at capacity based on LOS C criteria and will need to be expanded in a controlled, well-planned, and well-phased manner.

The present area of the terminal building totals approximately 350,000 square feet and serves 22 gates at approximately 16,000 square feet of terminal area per gate. Generally, domestic airport passenger terminals average 20,000 square feet per gate. At 16,000 square feet per gate, the existing passenger terminal is slightly undersized to

meet current demand. The facility space requirements for the design year 2010 total approximately 604,710 square feet for 31 gates, or an average of 19,500 square feet per gate, about equal to the recommended area per gate for a domestic passenger terminal. The first phase of a recommended expansion program would concentrate on expanding those areas currently at or exceeding capacity according to LOS C. Specifically, they include aircraft gates and departure lounges, ticket counter frontage and area, outbound baggage, and related airline operations areas. Airline tenants have requested additional space indicating that the results of this analysis are realistic. The existing baggage claim and inbound areas are adequate.

**Table D-2
T. F. Green Airport**

Actual and Base Case Forecast - Passenger & Aircraft Activity

<u>Enplanements</u>	<u>Actual 2000</u>	<u>Forecast 2005</u>	<u>Forecast 2010</u>	<u>Forecast 2015</u>	<u>Forecast 2020</u>
Annual (ANNEP)	2,715,469	3,350,700	3,998,750	4,653,900	5,411,350
Peak Hour Enplanements (PHEP)	1,081	1,311	1,564	1,820	2,117
Peak Hour Originations (PHOP)	1,049	1,272	1,517	1,765	2,053
 <u>Deplanements</u>					
Annual (ANNDP)	2,715,469	3,350,700	3,998,750	4,653,900	5,411,350
Peak Hour Deplanements (PHDP)	976	1,212	1,446	1,683	1,957
Peak Hour Terminations (PHTP)	947	1,176	1,403	1,633	1,898
 <u>International Charter Deplanements</u> ^{1/}					
Annual (ANNDPI)	0	11,100	16,700	22,300	27,900
Peak Hour Deplanements (PHDPI)	0	194	194	194	194
Peak Hour Terminations (PHTPI)	0	194	194	194	194
 <u>Total Passengers</u>					
Million Annual Passengers (MAP)	5.431	6.701	7.998	9.308	10.823
Peak Hour Passengers (PHP)	1,701	2,086	2,489	2,897	3,369
 <u>Aircraft Operations</u>					
Annual Operations (ANNOPS)	97,164	115,500	130,420	144,280	158,700
Peak Hour Operations (PHOPS)	52	58	64	69	75
Peak Hour Arrivals (PHARR)	30	34	37	41	44
Peak Hour Departures (PHDEP)	29	32	35	38	41
JET GATES (JGATES)	19	23	28	32	36
COMMUTER GATES (CGATES)	3	3	3	4	4
TOTAL GATES (TOTGATES)	22	26	31	36	40

Note: Requirements were calculated based on the draft forecasts and were not updated to reflect the final forecasts.

^{1/} International charter deplanements are used in this case to calculate Federal Inspection Services requirements. All remaining international arrivals originate in Canada and are pre-cleared. Therefore, these flights do not require Federal Inspection Services.

Table D-3
T. F. Green Airport
Existing Passenger Terminal Building

<u>Space</u>	<u>LF</u>	<u>SF</u>	<u>Existing Demand</u>		<u>Existing Factor</u>	<u>% of Total</u>
			<u>2000</u>			
<u>Airline Functions</u>						
Ticket Counter (SF)		2,670	1,081	PHEP	2.47 SF/PHEP	0.76%
Ticket Counter (LF)	246		1,081	PHEP	0.23 LF/PHEP	
Ticket Counter Queuing (SF)		4,072	1,081	PHEP	3.77 SF/PHEP	1.16%
Airline Ticket Office (SF)		8,871	1,081	PHEP	8.21 SF/PHEP	2.52%
Departure Lounge (SF)		42,098	22	Gates	1,913.55 SF/Gate	11.95%
Baggage Claim (SF)		10,621	976	PHDP	10.88 SF/PHDP	3.01%
Baggage Claim (LF)	825		976	PHDP	0.85 LF/PHDP	
Baggage Service (SF)		2,640	976	PHDP	2.70 SF/PHDP	0.75%
Outbound Baggage (SF)		16,016	1,081	PHEP	14.82 SF/PHEP	4.55%
Inbound Baggage (SF)		9,973	976	PHDP	10.22 SF/PHDP	2.83%
Operations/Maint./Storage (SF)		18,675	2,715,469	ANNEP	0.01 SF/ANNEP	5.30%
Clubs/VIP Room SF (SF)		0	2,715,469	ANNEP	0.00 SF/ANNEP	0.00%
Subtotal Airline Functions		115,636				32.82%
<u>Concessions Space</u>						
Food/Beverage (SF)		15,002	2,715,469	ANNEP	0.0055 SF/ANNEP	4.26%
News/Gift/Sundry (SF)		6,203	2,715,469	ANNEP	0.0023 SF/ANNEP	1.76%
Rental Car (SF)		3,331	2,715,469	ANNEP	0.0012 SF/ANNEP	0.95%
Other Revenue (SF)		9,607	2,715,469	ANNEP	0.0035 SF/ANNEP	2.73%
Subtotal Concessions Space		34,143				9.69%
<u>FIS</u>						
FIS (SF)		8,903	0	PHDP Int'l.	0.00 SF/PHDP Int'l.	2.53%
Subtotal Federal Inspection Services		8,903				2.53%
<u>Secure Public Area</u>						
Security (SF)		2,721	3	Chkpts	907 SF/Chkpt	0.77%
Circulation (SF)		34,368	22	Gates	1,562 SF/Gate	9.75%
Restrooms (SF)		6,163	1,701	PHP	3.6232 SF/PHP	1.75%
Other (SF)		351	2,715,469	ANNEP	0.0001 SF/ANNEP	0.10%
Subtotal Secure Public Area		43,603				12.37%
<u>Non-Secure Public Area</u>						
Circulation - Ticketing (SF)		7,913	1,081	PHEP	7.32 SF/PHEP	2.25%
Circulation - Baggage Claim (SF)		6,387	976	PHDP	6.54 SF/PHDP	1.81%
Circulation - General (SF)		56,658	2,715,469	ANNEP	0.02 SF/ANNEP	16.08%
Restrooms (SF)		3,496	1,701	PHP	2.06 SF/PHP	0.99%
Other (SF)		7,405	2,715,469	ANNEP	0.0027 SF/ANNEP	2.10%
Subtotal Non-Secure Public Area		81,859				23.23%
<u>Non-Public Area</u>						
FAA (SF)		0	2,715,469	ANNEP	0.0000 SF/ANNEP	0.00%
Airport Administration (SF)		20,719	2,715,469	ANNEP	0.0076 SF/ANNEP	5.88%
Dock (SF)		950	2,715,469	ANNEP	0.0003 SF/ANNEP	0.27%
Maintenance (SF)		11,076	2,715,469	ANNEP	0.0041 SF/ANNEP	3.14%
Mechanical/Elect./Bldg. Systems (SF)		26,587	2,715,469	ANNEP	0.0098 SF/ANNEP	7.54%
Miscellaneous (SF)		8,909	2,715,469	ANNEP	0.0033 SF/ANNEP	2.53%
Subtotal Non-Public Area		68,241				19.37%
Total All Areas		352,385				100.00%

Legend

SF = Square Feet PHP = Peak Hour Passenger (enplaned + deplaned)
LF = Lineal Feet ANNEP = Annual Enplaned Passengers
PHEP = Peak Hour Enplaned Passengers PHDP Int'l. = Peak Hour Deplaning Passengers
PHDP = Peak Hour Deplaned Passengers

Note: Requirements were calculated based on the draft forecasts and were not updated to reflect the final forecasts.

Source: Area Take Off, August 2001

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**Table D-4
T. F. Green Airport**

Existing Passenger Terminal Building - Planning Factors

Space	Existing Factor		Proposed Factor		Proposed Factor Remarks
<u>Airline Functions</u>					
Ticket Counter (SF)	2.47	SF/PHEP	3.57	SF/PHEP	10.5 feet deep (Industry standard)
Ticket Counter (LF)	0.23	LF/PHEP	0.30	LF/PHEP	Comparable airports BDL, ALB
Ticket Counter Queuing (SF)	3.77	SF/PHEP	6.00	SF/PHEP	15 feet deep (Industry standard)
Airline Ticket Office (SF)	8.21	SF/PHEP	8.50	SF/PHEP	25 feet deep (Industry standard)
Departure Lounge (SF)	1,913.55	SF/GATE	1,800	SF/GATE	Avg based on forecast fleet mix & load factor
Baggage Claim (SF)	10.88	SF/PHDP	20.00	SF/PHDP	Industry factor
Baggage Claim (LF)	0.85	LF/PHDP	0.85	LF/PHDP	Existing factor
Baggage Service (SF)	2.70	SF/PHDP	2.70	SF/PHDP	Existing factor
Outbound Baggage (SF)	14.82	SF/PHEP	20.00	SF/PHEP	Industry factor
Inbound Baggage (SF)	10.22	SF/PHDP	10.00	SF/PHDP	22 feet deep x width of baggage claim area
Operations/Maint./Storage (SF)	0.01	SF/ANNEP	0.010	SF/ANNEP	Comparable airports BDL, MHT
Clubs/VIP Room SF (SF)	0.00	SF/ANNEP	#####	SF/ANNEP	
<u>Concessions Space</u>					
Food/Beverage (SF)	0.0055	SF/ANNEP	#####	SF/ANNEP	Industry standard
News/Gift/Sundry (SF)	0.0023	SF/ANNEP	#####	SF/ANNEP	Comparable airports - BDL, MHT
Rental Car (SF)	0.0012	SF/Agency	#####	SF/ANNEP	Comparable airports BDL, MHT
Other Revenue (SF)	0.0035	SF/ANNEP	#####	SF/ANNEP	Comparable airports BDL, MHT
<u>Federal Inspection Services</u>					
Federal Inspection Services (SF)	80.00	SF/PHDP Int'l.	80.00	SF/PHDP Int'l.	Comparable airports BDL, CHS, PBI
<u>Secure Public Area</u>					
Security (SF)	907	SF/Chkpt	900	SF/Chkpt	Processes approximately 450 people/hr/chkpt
Circulation (SF)	1,562	SF/Gate	1,600	SF/Gate	Industry standard
Restrooms (SF)	3.62	SF/PHP	3.50	SF/PHP	Comparable airports BDL, MHT
Other (SF)	0.0001	SF/ANNEP	#####	SF/ANNEP	Existing factor
<u>Non-Secure Public Area</u>					
Circulation - Ticketing (SF)	7.32	SF/PHEP	6.80	SF/PHEP	Industry standard
Circulation - Baggage Claim (SF)	6.54	SF/PHDP	15.00	SF/PHDP	Comparable airports - BDL, MHT
Circulation - General (SF)	0.02	SF/ANNEP	0.03	SF/ANNEP	Comparable airports - BDL, MHT
Restrooms (SF)	2.06	SF/PHP	3.50	SF/PHP	Comparable airports - BDL, MHT
Other (SF)	0.0027	SF/ANNEP	#####	SF/ANNEP	Existing factor
<u>Non-Public Area</u>					
FAA (SF)	0.0000	SF/ANNEP	#####	SF/ANNEP	n/a
Airport Administration (SF)	0.0076	SF/ANNEP	#####	SF/ANNEP	Existing factor
Dock (SF)	0.0003	SF/ANNEP	#####	SF/ANNEP	Existing factor
Maintenance (SF)	0.0041	SF/ANNEP	#####	SF/ANNEP	Existing factor
Mechanical/Elect./Bldg. Systems (SF)	0.0098	SF/ANNEP	#####	SF/ANNEP	Existing factor
Miscellaneous (SF)	0.0033	SF/ANNEP	#####	SF/ANNEP	Existing factor

Legend

SF = Square Feet

LF = Lineal Feet

PHEP = Peak Hour Enplaned Passengers

PHDP = Peak Hour Deplaned Passengers

PHP = Peak Hour Passenger (enplaned + deplaned)

ANNEP = Annual Enplaned Passengers

PHDP Int'l. = Peak Hour Deplaning Passengers

Note: Requirements were calculated based on the draft forecasts and were not updated to reflect the final forecasts.

**Table D-5
T. F. Green Airport
Proposed Passenger Terminal Building - 2000 (Base Year)**

<u>Space</u>	<u>Demand Level</u>		<u>Planning Factor</u>		<u>LF</u>	<u>SF</u>	<u>% of Total</u>
<u>Airline Functions</u>							
Ticket Counter (SF)	1,081	PHEP	3.57	SF/PHEP		3,860	0.93%
Ticket Counter (LF)	1,081	PHEP	0.30	LF/PHEP	320		0.00%
Ticket Counter Queuing (SF)	1,081	PHEP	6.00	SF/PHEP		6,490	1.57%
Airline Ticket Office (SF)	1,081	PHEP	8.50	SF/PHEP		9,190	2.22%
Departure Lounge (SF)	22	Gates	1,800	SF/Gate		39,600	9.59%
Baggage Claim (SF)	976	PHDP	20.00	SF/PHDP		19,520	4.72%
Baggage Claim (LF)	976	PHDP	0.85	LF/PHDP	830		0.00%
Baggage Service (SF)	976	PHDP	2.70	SF/PHDP		2,640	0.64%
Outbound Baggage (SF)	1,081	PHEP	20.00	SF/PHEP		21,620	5.23%
Inbound Baggage (SF)	976	PHDP	10.00	SF/PHDP		9,760	2.36%
Operations/Maintenance/Storage (SF)	2,715,469	ANNEP	0.01	SF/ANNEP		27,150	6.57%
Clubs/VIP Room SF (SF)	2,715,469	ANNEP	0.0000	SF/ANNEP		0	0.00%
Subtotal Airline Functions						139,830	33.85%
<u>Concessions Space</u>							
Food/Beverage (SF)	2,715,469	ANNEP	0.0060	SF/ANNEP		16,290	3.94%
News/Gift/Sundry (SF)	2,715,469	ANNEP	0.0030	SF/ANNEP		8,150	1.97%
Rental Car (SF)	2,715,469	ANNEP	0.0020	SF/ANNEP		5,430	1.31%
Other Revenue (SF)	2,715,469	ANNEP	0.0020	SF/ANNEP		5,430	1.31%
Subtotal Concessions Space						35,300	8.54%
<u>Federal Inspection Services</u>							
Federal Inspection Services (SF)	80.0000	PHDP Int'l.	80.0000	SF/PHDP Int'l.		8,903 1/	2.15%
Subtotal Federal Inspection Services						8,903	2.15%
<u>Secure Public Area</u>							
Security (SF)	3	Chkpt	900	SF/Chkpt		2,700	0.65%
Circulation (SF)	22	Gates	1,600	SF/Gate		35,200	8.52%
Restrooms (SF)	1,701	PHP	3.50	SF/PHP		5,950	1.44%
Other (SF)	2,715,469	ANNEP	0.00	SF/ANNEP		270	0.07%
Subtotal Secure Public Area						44,120	10.68%
<u>Non-Secure Public Area</u>							
Circulation - Ticketing (SF)	1,081	PHEP	6.80	SF/PHEP		7,350	1.78%
Circulation - Baggage Claim (SF)	976	PHDP	15.00	SF/PHDP		14,640	3.54%
Circulation - General (SF)	2,715,469	ANNEP	0.0300	SF/ANNEP		81,460	19.72%
Restrooms (SF)	1,701	PHP	3.50	SF/PHP		5,950	1.44%
Other (SF)	2,715,469	ANNEP	0.0027	SF/ANNEP		7,330	1.77%
Subtotal Non-Secure Public Area						116,730	28.25%
<u>Non-Public Area</u>							
FAA (SF)	2,715,469	ANNEP	0.0000	SF/ANNEP		0	0.00%
Airport Administration (SF)	2,715,469	ANNEP	0.0076	SF/ANNEP		20,720	5.02%
Dock (SF)	2,715,469	ANNEP	0.0003	SF/ANNEP		950	0.23%
Maintenance (SF)	2,715,469	ANNEP	0.0041	SF/ANNEP		11,080	2.68%
Mechanical/Electrical/Bldg. Systems (SF)	2,715,469	ANNEP	0.0098	SF/ANNEP		26,590	6.44%
Miscellaneous (SF)	2,715,469	ANNEP	0.0033	SF/ANNEP		8,910	2.16%
Subtotal Non-Public Area						68,250	16.52%
Total All Areas						413,133	

1/ Currently Exists

Legend

SF = Square Feet

LF = Lineal Feet

PHEP = Peak Hour Enplaned Passengers

PHDP = Peak Hour Deplaned Passengers

PHP = Peak Hour Passenger (enplaned + deplaned)

ANNEP = Annual Enplaned Passengers

PHDP Int'l. = Peak Hour Deplaning Passengers

Note: Requirements were calculated based on the draft forecasts and were not updated to reflect the final forecasts.

**Table D-6
T. F. Green Airport**

Proposed Passenger Terminal Building - 2005

<u>Space</u>	<u>Demand Level</u>		<u>Planning Factor</u>		<u>LF</u>	<u>SF</u>	<u>% of Total</u>
<u>Airline Functions</u>							
Ticket Counter (SF)	1,311	PHEP	3.57	SF/PHEP		4,680	0.92%
Ticket Counter (LF)	1,311	PHEP	0.30	LF/PHEP	390		0.00%
Ticket Counter Queuing (SF)	1,311	PHEP	6.00	SF/PHEP		7,870	1.55%
Airline Ticket Office (SF)	1,311	PHEP	8.50	SF/PHEP		11,140	2.19%
Departure Lounge (SF)	26	Gates	1,800	SF/Gate		46,800	9.19%
Baggage Claim (SF)	1,212	PHDP	20.00	SF/PHDP		24,240	4.76%
Baggage Claim (LF)	1,212	PHDP	0.85	LF/PHDP	1,030		0.00%
Baggage Service (SF)	1,212	PHDP	2.70	SF/PHDP		3,270	0.64%
Outbound Baggage (SF)	1,311	PHEP	20.00	SF/PHEP		26,220	5.15%
Inbound Baggage (SF)	1,212	PHDP	10.00	SF/PHDP		12,120	2.38%
Operations/Maint./Storage (SF)	3,350,700	ANNEP	0.01	SF/ANNEP		33,510	6.58%
Clubs/VIP Room SF (SF)	3,350,700	ANNEP	0.0000	SF/ANNEP		0	0.00%
Subtotal Airline Functions						169,850	33.37%
<u>Concessions Space</u>							
Food/Beverage (SF)	3,350,700	ANNEP	0.0060	SF/ANNEP		20,100	3.95%
News/Gift/Sundry (SF)	3,350,700	ANNEP	0.0030	SF/ANNEP		10,050	1.97%
Rental Car (SF)	3,350,700	ANNEP	0.0020	SF/ANNEP		6,700	1.32%
Other Revenue (SF)	3,350,700	ANNEP	0.0020	SF/ANNEP		6,700	1.32%
Subtotal Concessions Space						43,550	8.56%
<u>Federal Inspection Services</u>							
Federal Inspection Services (SF)	194	PHDP Int'l.	80.0000	SF/PHDP Int'l.		15,520	3.05%
Subtotal Federal Inspection Services						15,520	3.05%
<u>Secure Public Area</u>							
Security (SF)	3	Chkpt	900	SF/Chkpt		2,700	0.53%
Circulation (SF)	26	Gates	1,600	SF/Gate		41,600	8.17%
Restrooms (SF)	2,086	PHP	3.50	SF/PHP		7,300	1.43%
Other (SF)	3,350,700	ANNEP	0.0001	SF/ANNEP		340	0.07%
Subtotal Secure Public Area						51,940	10.20%
<u>Non-Secure Public Area</u>							
Circulation - Ticketing (SF)	1,311	PHEP	6.80	SF/PHEP		8,910	1.75%
Circulation - Baggage Claim (SF)	1,212	PHDP	15.00	SF/PHDP		18,180	3.57%
Circulation - General (SF)	3,350,700	ANNEP	0.0300	SF/ANNEP		100,520	19.75%
Restrooms (SF)	2,086	PHP	3.50	SF/PHP		7,300	1.43%
Other (SF)	3,350,700	ANNEP	0.0027	SF/ANNEP		9,050	1.78%
Subtotal Non-Secure Public Area						143,960	28.28%
<u>Non-Public Area</u>							
FAA (SF)	3,350,700	ANNEP	0.0000	SF/ANNEP		0	0.00%
Airport Administration (SF)	3,350,700	ANNEP	0.0076	SF/ANNEP		25,570	5.02%
Dock (SF)	3,350,700	ANNEP	0.0003	SF/ANNEP		1,170	0.23%
Maintenance (SF)	3,350,700	ANNEP	0.0041	SF/ANNEP		13,670	2.69%
Mechanical/Elect./Bldg. Systems (SF)	3,350,700	ANNEP	0.0098	SF/ANNEP		32,810	6.45%
Miscellaneous (SF)	3,350,700	ANNEP	0.0033	SF/ANNEP		10,990	2.16%
Subtotal Non-Public Area						84,210	16.54%
Total All Areas						509,030	

Legend

SF = Square Feet

LF = Lineal Feet

PHEP = Peak Hour Enplaned Passengers

PHDP = Peak Hour Deplaned Passengers

PHP = Peak Hour Passenger (enplaned + deplaned)

ANNEP = Annual Enplaned Passengers

PHDP Int'l. = Peak Hour Deplaning Passengers

Note: Requirements were calculated based on the draft forecasts and were not updated to reflect the final forecasts.

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**Table D-7
T. F. Green Airport
Proposed Passenger Terminal Building - 2010**

<u>Space</u>	<u>Demand Level</u>		<u>Planning Factor</u>		<u>LF</u>	<u>SF</u>	<u>% of Total</u>
<u>Airline Functions</u>							
Ticket Counter (SF)	1,564	PHEP	3.57	SF/PHEP		5,580	0.92%
Ticket Counter (LF)	1,564	PHEP	0.30	LF/PHEP	470		0.00%
Ticket Counter Queuing (SF)	1,564	PHEP	6.00	SF/PHEP		9,380	1.55%
Airline Ticket Office (SF)	1,564	PHEP	8.50	SF/PHEP		13,290	2.20%
Departure Lounge (SF)	31	Gates	1,800	SF/Gate		55,800	9.23%
Baggage Claim (SF)	1,446	PHDP	20.00	SF/PHDP		28,920	4.78%
Baggage Claim (LF)	1,446	PHDP	0.85	LF/PHDP	1,230		0.00%
Baggage Service (SF)	1,446	PHDP	2.70	SF/PHDP		3,900	0.64%
Outbound Baggage (SF)	1,564	PHEP	20.00	SF/PHEP		31,280	5.17%
Inbound Baggage (SF)	1,446	PHDP	10.00	SF/PHDP		14,460	2.39%
Operations/Maint./Storage (SF)	3,998,750	ANNEP	0.01	SF/ANNEP		39,990	6.61%
Clubs/VIP Room SF (SF)	3,998,750	ANNEP	0.0000	SF/ANNEP		0	0.00%
Subtotal Airline Functions						202,600	33.50%
<u>Concessions Space</u>							
Food/Beverage (SF)	3,998,750	ANNEP	0.0060	SF/ANNEP		23,990	3.97%
News/Gift/Sundry (SF)	3,998,750	ANNEP	0.0030	SF/ANNEP		12,000	1.98%
Rental Car (SF)	3,998,750	ANNEP	0.0020	SF/ANNEP		8,000	1.32%
Other Revenue (SF)	3,998,750	ANNEP	0.0020	SF/ANNEP		8,000	1.32%
Subtotal Concessions Space						51,990	8.60%
<u>Federal Inspection Services</u>							
Federal Inspection Services (SF)	194	PHDP Int'l.	80.0000	SF/PHDP Int'l.		15,520	2.57%
Subtotal Federal Inspection Services						15,520	2.57%
<u>Secure Public Area</u>							
Security (SF)	4	Chkpt	900	SF/Chkpt		3,600	0.60%
Circulation (SF)	31	Gates	1,600	SF/Gate		49,600	8.20%
Restrooms (SF)	2,489	PHP	3.50	SF/PHP		8,710	1.44%
Other (SF)	3,998,750	ANNEP	0.00	SF/ANNEP		400	0.07%
Subtotal Secure Public Area						62,310	10.30%
<u>Non-Secure Public Area</u>							
Circulation - Ticketing (SF)	1,564	PHEP	6.80	SF/PHEP		10,640	1.76%
Circulation - Baggage Claim (SF)	1,446	PHDP	15.00	SF/PHDP		21,690	3.59%
Circulation - General (SF)	3,998,750	ANNEP	0.0300	SF/ANNEP		119,960	19.84%
Restrooms (SF)	2,489	PHP	3.50	SF/PHP		8,710	1.44%
Other (SF)	3,998,750	ANNEP	0.0027	SF/ANNEP		10,800	1.79%
Subtotal Non-Secure Public Area						171,800	28.41%
<u>Non-Public Area</u>							
FAA (SF)	3,998,750	ANNEP	0.0000	SF/ANNEP		0	0.00%
Airport Administration (SF)	3,998,750	ANNEP	0.0076	SF/ANNEP		30,510	5.05%
Dock (SF)	3,998,750	ANNEP	0.0003	SF/ANNEP		1,400	0.23%
Maintenance (SF)	3,998,750	ANNEP	0.0041	SF/ANNEP		16,310	2.70%
Mechanical/Elect./Bldg. Systems (SF)	3,998,750	ANNEP	0.0098	SF/ANNEP		39,150	6.47%
Miscellaneous (SF)	3,998,750	ANNEP	0.0033	SF/ANNEP		13,120	2.17%
Subtotal Non-Public Area						100,490	16.62%
Total All Areas						604,710	

Legend

SF = Square Feet

LF = Lineal Feet

PHEP = Peak Hour Enplaned Passengers

PHDP = Peak Hour Deplaned Passengers

PHP = Peak Hour Passenger (enplaned + deplaned)

ANNEP = Annual Enplaned Passengers

PHDP Int'l. = Peak Hour Deplaning Passengers

Note: Requirements were calculated based on the draft forecasts and were not updated to reflect the final forecasts.

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**Table D-8
T. F. Green Airport
Proposed Passenger Terminal Building - 2015**

<u>Space</u>	<u>Demand Level</u>		<u>Planning Factor</u>		<u>LF</u>	<u>SF</u>	<u>% of Total</u>
<u>Airline Functions</u>							
Ticket Counter (SF)	1,820	PHEP	3.57	SF/PHEP		6,500	0.93%
Ticket Counter (LF)	1,820	PHEP	0.30	LF/PHEP	550		0.00%
Ticket Counter Queuing (SF)	1,820	PHEP	6.00	SF/PHEP		10,920	1.56%
Airline Ticket Office (SF)	1,820	PHEP	8.50	SF/PHEP		15,470	2.21%
Departure Lounge (SF)	36	Gates	1,800	SF/Gate		64,800	9.25%
Baggage Claim (SF)	1,683	PHDP	20.00	SF/PHDP		33,660	4.81%
Baggage Claim (LF)	1,683	PHDP	0.85	LF/PHDP	1,430		0.00%
Baggage Service (SF)	1,683	PHDP	2.70	SF/PHDP		4,540	0.65%
Outbound Baggage (SF)	1,820	PHEP	20.00	SF/PHEP		36,400	5.20%
Inbound Baggage (SF)	1,683	PHDP	10.00	SF/PHDP		16,830	2.40%
Operations/Maint./Storage (SF)	4,653,900	ANNEP	0.01	SF/ANNEP		46,540	6.64%
Clubs/VIP Room SF (SF)	4,653,900	ANNEP	0.0000	SF/ANNEP		0	0.00%
Subtotal Airline Functions						235,660	33.65%
<u>Concessions Space</u>							
Food/Beverage (SF)	4,653,900	ANNEP	0.0060	SF/ANNEP		27,920	3.99%
News/Gift/Sundry (SF)	4,653,900	ANNEP	0.0030	SF/ANNEP		13,960	1.99%
Rental Car (SF)	4,653,900	ANNEP	0.0020	SF/ANNEP		9,310	1.33%
Other Revenue (SF)	4,653,900	ANNEP	0.0020	SF/ANNEP		9,310	1.33%
Subtotal Concessions Space						60,500	8.64%
<u>Federal Inspection Services</u>							
Federal Inspection Services (SF)	194	PHDP Int'l.	80.0000	SF/PHDP Int'l.		15,520	2.22%
Subtotal Federal Inspection Services						15,520	2.22%
<u>Secure Public Area</u>							
Security (SF)	4	Chkpt	900	SF/Chkpt		3,600	0.51%
Circulation (SF)	36	Gates	1,600	SF/Gate		57,600	8.22%
Restrooms (SF)	2,897	PHP	3.50	SF/PHP		10,140	1.45%
Other (SF)	4,653,900	ANNEP	0.00	SF/ANNEP		470	0.07%
Subtotal Secure Public Area						71,810	10.25%
<u>Non-Secure Public Area</u>							
Circulation - Ticketing (SF)	1,820	PHEP	6.80	SF/PHEP		12,380	1.77%
Circulation - Baggage Claim (SF)	1,683	PHDP	15.00	SF/PHDP		25,250	3.61%
Circulation - General (SF)	4,653,900	ANNEP	0.0300	SF/ANNEP		139,620	19.93%
Restrooms (SF)	2,897	PHP	3.50	SF/PHP		10,140	1.45%
Other (SF)	4,653,900	ANNEP	0.0027	SF/ANNEP		12,570	1.79%
Subtotal Non-Secure Public Area						199,960	28.55%
<u>Non-Public Area</u>							
FAA (SF)	4,653,900	ANNEP	0.0000	SF/ANNEP		0	0.00%
Airport Administration (SF)	4,653,900	ANNEP	0.0076	SF/ANNEP		35,510	5.07%
Dock (SF)	4,653,900	ANNEP	0.0003	SF/ANNEP		1,630	0.23%
Maintenance (SF)	4,653,900	ANNEP	0.0041	SF/ANNEP		18,980	2.71%
Mechanical/Elect./Bldg. Systems (SF)	4,653,900	ANNEP	0.0098	SF/ANNEP		45,570	6.51%
Miscellaneous (SF)	4,653,900	ANNEP	0.0033	SF/ANNEP		15,270	2.18%
Subtotal Non-Public Area						116,960	16.70%
Total All Areas						700,410	

Legend

SF = Square Feet
 LF = Lineal Feet
 PHEP = Peak Hour Enplaned Passengers
 PHDP = Peak Hour Deplaned Passengers
 PHP = Peak Hour Passenger (enplaned + deplaned)
 ANNEP = Annual Enplaned Passengers
 PHDP Int'l. = Peak Hour Deplaning Passengers

Note: Requirements were calculated based on the draft forecasts and were not updated to reflect the final forecasts.

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Table D-9
T. F. Green Airport
Proposed Passenger Terminal Building - 2020

<u>Space</u>	<u>Demand Level</u>		<u>Planning Factor</u>		<u>LF</u>	<u>SF</u>	<u>% of Total</u>
<u>Airline Functions</u>							
Ticket Counter (SF)	2,117	PHEP	3.57	SF/PHEP		7,560	0.94%
Ticket Counter (LF)	2,117	PHEP	0.30	LF/PHEP	640		0.00%
Ticket Counter Queuing (SF)	2,117	PHEP	6.00	SF/PHEP		12,700	1.58%
Airline Ticket Office (SF)	2,117	PHEP	8.50	SF/PHEP		17,990	2.23%
Departure Lounge (SF)	40	Gates	1,800	SF/Gate		72,000	8.93%
Baggage Claim (SF)	1,957	PHDP	20.00	SF/PHDP		39,140	4.86%
Baggage Claim (LF)	1,957	PHDP	0.85	LF/PHDP	1,660		0.00%
Baggage Service (SF)	1,957	PHDP	2.70	SF/PHDP		5,280	0.66%
Outbound Baggage (SF)	2,117	PHEP	20.00	SF/PHEP		42,340	5.25%
Inbound Baggage (SF)	1,957	PHDP	10.00	SF/PHDP		19,570	2.43%
Operations/Maint./Storage (SF)	5,411,350	ANNEP	0.01	SF/ANNEP		54,110	6.71%
Clubs/VIP Room SF (SF)	5,411,350	ANNEP	0.0000	SF/ANNEP		0	0.00%
Subtotal Airline Functions						270,690	33.59%
<u>Concessions Space</u>							
Food/Beverage (SF)	5,411,350	ANNEP	0.0060	SF/ANNEP		32,470	4.03%
News/Gift/Sundry (SF)	5,411,350	ANNEP	0.0030	SF/ANNEP		16,230	2.01%
Rental Car (SF)	5,411,350	ANNEP	0.0020	SF/ANNEP		10,820	1.34%
Other Revenue (SF)	5,411,350	ANNEP	0.0020	SF/ANNEP		10,820	1.34%
Subtotal Concessions Space						70,340	8.73%
<u>Federal Inspection Services</u>							
Federal Inspection Services (SF)	194	PHDP Int'l.	80.0000	SF/PHDP Int'l.		15,520	1.93%
Subtotal Federal Inspection Services						15,520	1.93%
<u>Secure Public Area</u>							
Security (SF)	5	Chkpt	900	SF/Chkpt		4,500	0.56%
Circulation (SF)	40	Gates	1,600	SF/Gate		64,000	7.94%
Restrooms (SF)	3,369	PHP	3.50	SF/PHP		11,790	1.46%
Other (SF)	5,411,350	ANNEP	0.00	SF/ANNEP		540	0.07%
Subtotal Secure Public Area						80,830	10.03%
<u>Non-Secure Public Area</u>							
Circulation - Ticketing (SF)	2,117	PHEP	6.80	SF/PHEP		14,400	1.79%
Circulation - Baggage Claim (SF)	1,957	PHDP	15.00	SF/PHDP		29,360	3.64%
Circulation - General (SF)	5,411,350	ANNEP	0.0300	SF/ANNEP		162,340	20.14%
Restrooms (SF)	3,369	PHP	3.50	SF/PHP		11,790	1.46%
Other (SF)	5,411,350	ANNEP	0.0027	SF/ANNEP		14,610	1.81%
Subtotal Non-Secure Public Area						232,500	28.85%
<u>Non-Public Area</u>							
FAA (SF)	5,411,350	ANNEP	0.0000	SF/ANNEP		0	0.00%
Airport Administration (SF)	5,411,350	ANNEP	0.0076	SF/ANNEP		41,290	5.12%
Dock (SF)	5,411,350	ANNEP	0.0003	SF/ANNEP		1,890	0.23%
Maintenance (SF)	5,411,350	ANNEP	0.0041	SF/ANNEP		22,070	2.74%
Mechanical/Elect./Bldg. Systems (SF)	5,411,350	ANNEP	0.0098	SF/ANNEP		52,980	6.57%
Miscellaneous (SF)	5,411,350	ANNEP	0.0033	SF/ANNEP		17,750	2.20%
Subtotal Non-Public Area						135,980	16.87%
Total All Areas						805,860	

Legend

SF = Square Feet
 LF = Lineal Feet
 PHEP = Peak Hour Enplaned Passengers
 PHDP = Peak Hour Deplaned Passengers
 PHP = Peak Hour Passenger (enplaned + deplaned)
 ANNEP = Annual Enplaned Passengers
 PHDP Int'l. = Peak Hour Deplaning Passengers

Note: Requirements were calculated based on the draft forecasts and were not updated to reflect the final forecasts.

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**Table D-10
T. F. Green Airport**

Passenger Terminal Building Facility Requirements Summary

Space	Existing Facilities		Facility Requirements									
			2000		2005		2010		2015		2020	
	LF	SF	LF	SF	LF	SF	LF	SF	LF	SF	LF	SF
<u>Airline Functions</u>												
Ticket Counter (SF)		2,670		3,860		4,680		5,580		6,500		7,560
Ticket Counter (LF)	320		320		390		470		550		640	
Ticket Counter Queuing (SF)		4,072		6,490		7,870		9,380		10,920		12,700
Airline Ticket Office (SF)		8,871		9,190		11,140		13,290		15,470		17,990
Departure Lounge (SF)		42,098		39,600		46,800		55,800		64,800		72,000
Baggage Claim (SF)		10,621		19,520		24,240		28,920		33,660		39,140
Baggage Claim (LF)	830		830		1,030		1,230		1,430		1,660	
Baggage Service (SF)		2,640		2,640		3,270		3,900		4,540		5,280
Outbound Baggage (SF)		16,016		21,620		26,220		31,280		36,400		42,340
Inbound Baggage (SF)		9,973		9,760		12,120		14,460		16,830		19,570
Operations/Maint./Storage (SF)		18,675		27,150		33,510		39,990		46,540		54,110
Clubs/VIP Room SF (SF)		0		0		0		0		0		0
Subtotal Airline Functions		115,636		139,830		169,850		202,600		235,660		270,690
<u>Concessions Space</u>												
Food/Beverage (SF)		15,002		16,290		20,100		23,990		27,920		32,470
News/Gift/Sundry (SF)		6,203		8,150		10,050		12,000		13,960		16,230
Rental Car (SF)		3,331		5,430		6,700		8,000		9,310		10,820
Other Revenue (SF)		9,607		5,430		6,700		8,000		9,310		10,820
Subtotal Concessions Space		34,143		35,300		43,550		51,990		60,500		70,340
<u>Federal Inspection Services</u>												
Federal Inspection Services (SF)		8,903		8,903		15,520		15,520		15,520		15,520
Subtotal Federal Inspection Services		8,903		8,903		15,520		15,520		15,520		15,520
<u>Secure Public Area</u>												
Security (SF)		2,721		2,700		2,700		3,600		3,600		4,500
Circulation (SF)		34,368		35,200		41,600		49,600		57,600		64,000
Restrooms (SF)		6,163		5,950		7,300		8,710		10,140		11,790
Other (SF)		351		270		340		400		470		540
Subtotal Secure Public Area		43,603		44,120		51,940		62,310		71,810		80,830
<u>Non-Secure Public Area</u>												
Circulation - Ticketing (SF)		7,913		7,350		8,910		10,640		12,380		14,400
Circulation - Baggage Claim (SF)		6,387		14,640		18,180		21,690		25,250		29,360
Circulation - General (SF)		56,658		81,460		100,520		119,960		139,620		162,340
Restrooms (SF)		3,496		5,950		7,300		8,710		10,140		11,790
Other (SF)		7,405		7,330		9,050		10,800		12,570		14,610
Subtotal Non-Secure Public Area		81,859		116,730		143,960		171,800		199,960		232,500
<u>Non-Public Area</u>												
FAA (SF)		0		0		0		0		0		0
Airport Administration (SF)		20,719		20,720		25,570		30,510		35,510		41,290
Dock (SF)		950		950		1,170		1,400		1,630		1,890
Maintenance (SF)		11,076		11,080		13,670		16,310		18,980		22,070
Mechanical/Elec./Bldg. Systems (SF)		26,587		26,590		32,810		39,150		45,570		52,980
Miscellaneous (SF)		8,909		8,910		10,990		13,120		15,270		17,750
Subtotal Non-Public Area		68,241		68,250		84,210		100,490		116,960		135,980
Total All Areas		352,385		413,133		509,030		604,710		700,410		805,860

Legend

SF = Square Feet

LF = Lineal Feet

Note: Requirements were calculated based on the draft forecasts and were not updated to reflect the final forecasts.

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