

**PARKING AND TRAFFIC MODELING STUDY
FOR DOWNTOWN SAN ANTONIO AND MEDICAL CENTER**

***Parking Demand Study for
Downtown San Antonio***

Prepared For

City of San Antonio, Texas

Prepared By

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Bain Medina Bain, Inc.

March 2004

March 26, 2004

Mr. Jason E. Cosby, P.E.
Assistant Director of Public Works
City of San Antonio
Post Office Box 839966
San Antonio, Texas 78283-3966

RE: Parking Demand Study for Downtown San Antonio

Dear Mr. Cosby:

We are pleased to submit the enclosed FINAL REPORT entitled: **Parking Demand Study for Downtown San Antonio**. This submittal was prepared in accordance with our Professional Services Agreement dated April 3, 2003.

The Downtown Parking Demand Study is one of a series of three reports prepared for the Parking Demand and Traffic Modeling Study for Downtown and the Medical Center. The other two reports include the Medical Center Parking Demand Study and the Medical Center Traffic Modeling Study.

The San Antonio Downtown Alliance provided information and assistance during the development of the parking demand study. Numerous citizens, City of San Antonio Departments, and other agencies provided information on existing conditions and planned improvements. The cooperation and participation of these organizations and individuals is gratefully acknowledged.

We appreciate the opportunity to perform professional services to the City of San Antonio for this important project.

Respectfully submitted,



Michael D. McAnelly, FAICP
Project Manager

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CHAPTER 1 - INTRODUCTION

1.1 Background

The City of San Antonio undertook this project to update the City of San Antonio 1995 Parking Demand Study. The City is interested in determining the demand for parking in the San Antonio downtown area. The scope of work specifically includes identifying the appropriate location(s) in the Central Business District (CBD) for a new parking garage(s), if such facility is justified. Site selection should consider but not be limited to such factors as demand for parking, identifying day/evening or weekend demand, vehicle access to the site, potential to construct on the site, estimated land and building cost, estimated number of parking spaces, and potential environmental issues.

In addition, the City of San Antonio is interested in establishing whether a parking garage(s) could incorporate housing units. The scope of work includes analyzing whether a parking garage could be constructed incorporating rental housing with an aesthetic design that would be financially feasible. Because of a growing interest in promoting housing in the downtown area, a housing demand study in the downtown area was recently completed, the results of which will be used to address the issue of demand for housing. The City has historically used the existing parking garages and surface lots to promote economic development in the downtown area. The addition of parking could be utilized to provide momentum for future private sector housing development in the downtown area.

In establishing parking demand in the downtown area, this report places specific emphasis on the area between the San Antonio River and Frio Street, generally bounded by Pecan and Travis Streets to the north and Nueva Street to the south, referred to herein as the “West CBD Emphasis Area.” The parking demand study included review of the Historic Civic Center Space Utilization Study, conducted as a concurrent study.

An additional area of emphasis is the area of the proposed Convention Center Headquarters Hotel Project, which includes an analysis of the number of parking spaces required to accommodate the hotel project and public demand, as well as the optimal location for a parking facility. This second area of emphasis is referred to herein as the “HemisFair Emphasis Area.”

1.2 Study Purpose and Objectives

This parking demand study focuses on the City of San Antonio downtown area. The purpose of this parking study is to quantify existing parking supply and utilization information, estimate future parking demands and needs, identify locations in downtown San Antonio for potential new parking facilities, and assess the economic viability for proposed parking improvements.

1.3 Study Area

The downtown area is the focus of this parking study. Downtown San Antonio is the heart of the community with much of the City's government, cultural, and historic development, as well as a portion of retail and office development, located downtown - all of which requires adequate parking to comfortably accommodate employees, patrons, and visitors. The concept of Emphasis Areas was conceived to allow detailed study of the areas of downtown that have the greatest perceived parking needs, while maintaining a reasonable budget. The boundaries for these areas were determined through discussion with City staff to encompass the perceived parking need areas and to include areas where significant change is expected in the near future. The two downtown Emphasis Areas included in the supply and demand analysis are referred to in this report as the “West CBD Emphasis Area” and the “HemisFair Emphasis Area.” The West CBD Emphasis Area and HemisFair Emphasis Area are shown in **Figure 1**.

The West CBD Emphasis Area is generally bounded by Martin, Santa Rosa, Travis, the San Antonio River, Nueva, IH-35, W. Durango, and Frio. Existing parking facilities include 29 parking lots, 4 parking garages, and 29 block faces of on-street parking in the West CBD Emphasis Area.

The HemisFair Emphasis Area is generally bounded by Crockett, IH-37, Montana, Cherry, Martin Luther King, Durango, and Alamo. Existing parking facilities include 17 parking lots, 5 parking garages, and 4 block faces of on-street parking in the HemisFair Emphasis Area. The HemisFair Emphasis Area was expanded after a stakeholders meeting that was held on June 27, 2003. The City recommended expanding the Emphasis Area to include the Federal Courthouse and the adjacent parking facilities. This expansion added an additional 11 parking lots and 3 block faces of on-street parking. The Parking Demand Study for the HemisFair Emphasis Area was coordinated with the development of the HemisFair Park Area Master Plan.

1.4 Study Scope of Work

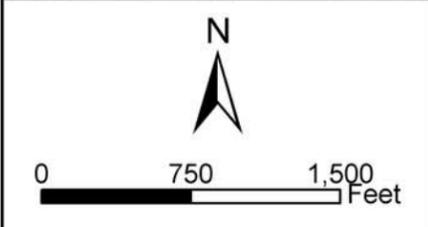
There were four main steps in evaluating the downtown parking needs:

1. Parking Inventory and Data Collection
2. Existing Parking Utilization Analysis
3. Demand Analysis for Future Development
4. Recommendations and Conclusions

The first step involved assimilating the exiting information provided by the City and performing field data collection. This included the following activities:

- Review of previous reports prepared on parking and development in West CBD and HemisFair Areas.
- Parking inventory of both on-street and off-street parking in the West CBD and HemisFair Areas, including curbside parking, surface lots, and garages.

Aerial Photography provided by The City of San Antonio



**Parking and Traffic
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Medical Center
San Antonio, Texas**

Legend

- HemisFair Emphasis Zone
- West CBD Emphasis Zone

**Figure 1
Downtown Emphasis
Zones**



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- Parking utilization studies to determine occupancy in the West CBD and HemisFair Areas.
- Inventory of the proposed land uses in the West CBD and the HemisFair Area, including estimated building square footages and parking supply (if any).

The second step included analyzing the information collected. This included the following activities:

- Analysis of existing conditions including weekday utilization.
- Determination of parking facilities and areas over-capacity.

The third step involved estimating future parking demands based on projected development and land use changes in the downtown. This included the following activities:

- Discussion of future projected conditions with respect to planned future development in a 7-year horizon (to the year 2010).
- Estimation of existing parking demands in the West CBD and HemisFair Areas.
- Projection of future parking demands in the West CBD and HemisFair Areas.
- Development of parking alternatives including new parking structures and potential parking improvement programs.

Building on the previous steps, the fourth step involved developing recommendations with respect to parking management programs, increasing parking supply (new parking lots or garages), and costs and potential financing methods for the recommended actions.

1.5 Community Involvement and Public Participation

Several meetings were held with the City of San Antonio staff to acquire background information for the study and to discuss the issues that the City wanted to specifically address with the Parking Study. A Stakeholders meeting was held on June 27, 2003, at the San Antonio Municipal Plaza building. Representatives from the City, downtown businesses, and other stakeholders provided insight into some of their issues, concerns, and recommendations for improvements to the downtown parking system. Meeting minutes from the June 27th Stakeholders meeting are provided in **Appendix A**. A second stakeholders meeting was held on January 14, 2004, at the International Center. The draft findings and recommendations of the parking study were presented for review and comment. Meeting minutes for the January 14th stakeholders meeting are provided in **Appendix B**. The information provided at the meetings with both the City of San Antonio and the downtown stakeholders was incorporated into the study analysis and considered in the recommendations.



CHAPTER 2 - PARKING SUPPLY

2.1 Overview

This chapter presents a summary of year 2003 conditions in downtown San Antonio relevant to parking in the West CBD and the HemisFair Emphasis Areas. Information that was analyzed and summarized in this chapter was provided by the City of San Antonio or collected by the consultant, and used to quantify parking conditions and identify problems during typical weekdays.

Excluding special events, the peak parking demands in both the West CBD and HemisFair Emphasis Areas typically occur on weekdays when the activities of workers, shoppers, tourists and students all coincide to produce the highest combined level of commercial, government, university, entertainment, and transportation activities.

This chapter describes the currently available parking supply in the West CBD and HemisFair Areas, including both publicly and privately owned parking. In the WEST CBD, approximately 34 percent of the parking available and approximately 68 percent of the parking available in the HemisFair Emphasis Area is public parking and owned by the City. These parking facilities are available for use by the general public on an hourly or daily fee-paid basis. Privately owned facilities generally do not allow public parking, but restrict their lots to certain individuals or specific uses, such as employees or customers of particular establishments. However, there are several privately owned facilities in the emphasis areas that do allow public parking at night and / or on weekends.

During April and May 2003, field data were collected to capture parking patterns in the West CBD and HemisFair Emphasis Areas. The field data were collected while UTSA was in session and during a statewide teachers association conference at the San Antonio Convention Center. The data collected is representative of the existing supply and typical weekday utilization of parking spaces in the West CBD, and of the typical weekday utilization with a statewide conference event occurring in the HemisFair Emphasis Areas. The data related to these field studies are presented in Chapter 3.

2.2 Previous Studies

Numerous transportation studies had been completed in the downtown area. These studies were provided by the City, and used as reference material and for comparison with the information collected for this study. The studies also provided information on areas where land use changes are expected in the downtown area.

The previous parking studies provided by the City are listed and summarized below.

The City of San Antonio Downtown Parking Study was prepared by the Consulting Engineers Group, Inc. for the City of San Antonio in August 1995. The study was prepared to evaluate how seven (7) projects already in progress at that time would impact parking conditions in the downtown. The downtown was divided into six (6) sub areas for detailed analysis. The construction of parking structures and additional parking facilities was recommended.

The Downtown San Antonio On-Street Space Management Plan was prepared by BRW for the San Antonio-Bexar County MPO in January 2000. The plan evaluated the existing downtown on-street space usage and provided recommendations for more efficient use of curb space. Recommendations were made regarding curb space policies, demand management, and capital improvements. Information provided regarding the location of existing on-street parking was used to identify the locations within the Emphasis Areas for the current study.

2.3 Inventory of Parking Supply

An inventory of the available parking supply was performed in April and May of 2003. Consultant staff identified the number and location of all parking spaces in both the West CBD and HemisFair Emphasis Areas. The inventory included on-street spaces and off-street public and private spaces in surface parking lots and garages. Several methods were used to collect supply information for this study and are described below.

2.3.1 Methodology

Several methods were used to determine the current parking supply for the West CBD and HemisFair Emphasis Areas, including aerial photos, field visits, websites, and parking operator questionnaires. The City of San Antonio Parking Division provided information about municipal parking lots and garages. Aerial photographs were used to verify parking supply information, field visits were made where necessary, websites were used as a starting point for supply counts, and operator surveys were used primarily for garages.

All of the sources of parking supply information were compared and a final supply number was assigned for each parking lot, garage, and block face. Generally, where field counts were performed, the number of spaces counted was used for supply. However, there were several cases where operator-reported supply was used over field counts due to the parking operators parking vehicles in the aisles to increase capacity. Where field counts were not performed, the supply value believed to be the most accurate was chosen for analysis. In cases where no choice was obvious, the lowest parking supply was used. The lowest number of parking spaces provided a conservative analysis of the Emphasis Areas.

2.3.2 Aerial Photos

Aerial photos were taken of the West CBD and HemisFair Emphasis Areas. The photos were taken primarily for parking utilization purposes, but were used to verify parking supply information as well. The photos were digitized so they were available

electronically, and plotted to a large scale so that individual vehicles could be easily counted. The number of spaces in each surface lot was counted and recorded. Where visible, curb spaces in each block face were also counted and recorded. Using the aerial photos was the fastest and easiest way to determine and verify the existing parking supply for the majority of parking lots and on-street facilities.

The aerial photos were also used to resolve discrepancies found when comparing parking supply data sources. In cases where the supply number provided on a website did not appear to be correct when compared with the size of the lot as seen on the photo, or the supply reported by the parking operator, the aerial photos were used to obtain an accurate supply count.

The aerials were used along with the City's information to determine the existing parking supply for the majority of parking lots and on-street facilities. However, there were some areas where the parking spaces could not be counted from the aerial photographs. For example, the angle of the photo may have resulted in a building blocking on-street parking, or a parking lot may have had partial coverage, so that parked cars could not be seen on the photo. In these few cases, field counts were made to verify the parking supply.

2.3.3 Field Counts

Field counts were made as needed to confirm the parking supply information for garages, parking lots, and on-street locations. Parking garage supply information for the Downtown West CBD and HemisFair Emphasis Areas was taken from the Downtown Alliance website and confirmed in the returned questionnaires provided by the garage operators. A few of the parking questionnaires were not returned by the parking garage operators so the City of San Antonio performed field counts for these locations. Field counts were made by the consultant for a few parking lots in the Downtown Emphasis Areas to count the parking supply that could not be determined from the aerial photographs due to obstructions.

Available information was used to determine locations where on-street parking is permitted in the Downtown West CBD and HemisFair Emphasis Areas. The *Downtown San Antonio On-Street Space Management Plan*, prepared in January 2000 by BRW, documented the on-street parking locations at the time of that study. The City of San Antonio verified that no new on-street parking areas were added since the completion of the previous study. Field counts were performed at the on-street locations to verify the number of on-street spaces, loading zones, taxi zones, meters rates, time limits, and to verify that all of the previous on-street locations were still operational.

After the HemisFair Emphasis Area was expanded, additional on-street parking facilities were added to the study. These on-street parking spaces could not be counted from the aerial photographs, so the locations were counted by the City of San Antonio.

2.3.4 Websites

The Downtown Alliance-San Antonio publishes pamphlets and maintains a website with information regarding all of the public parking available in downtown San Antonio. The Downtown Alliance website provided information regarding the public parking spaces available in downtown San Antonio. This information included parking garages and off-street parking lots available for public use. The website provided a table with the name, location, and supply information for all downtown parking facilities. The Downtown Alliance website can be found at: <http://downtownsanantonio.org>.

The City of San Antonio (COSA) web site provided information regarding the City-owned municipal parking facilities available in Downtown San Antonio. The website provided location maps, rate information and available parking spaces for all of the COSA parking garages and parking lots. Information regarding on-street parking meters was also provided. The metered parking information included the number of parking meters and the meter rates. The City of San Antonio website can be found at: <http://www.sanantonio.gov>.

The number of parking spaces listed for each facility was compared to information collected from the other available sources.

2.3.5 Parking Operator Survey

Operators of the parking lots and garages in the Downtown West CBD and HemisFair Emphasis Areas were sent questionnaires regarding their facilities. Among the information requested was parking supply information. Some operators provided parking supply estimates, while others provided the exact number of spaces. Parking supply reported in the questionnaires was of particular importance for garages in the Downtown Emphasis Areas, because the scope of the study did not include field inventory counts for garages.

2.4 West CBD Parking Supply

Parking in the West CBD includes 4,753 total spaces; of which 3,082 spaces (66 percent of total supply) are off-street parking in 29 surface parking lots, 1,399 spaces (29 percent of total supply) spaces are located in the 4 parking garages, and 272 spaces (6 percent) are on-street spaces in 29 block faces.¹ The parking supply in the West CBD is summarized in **Table 1** and illustrated in **Figure 2**.

All on-street parking in the West CBD is metered. The maximum duration limit is 2 hours for all locations except one, where the time limit is 1 hour. All of the 2-hour meters charge \$0.25 for 20 minutes and the 1-hour meters charge \$0.25 for 15 minutes.

¹ The UTSA Downtown Campus parking garage was completed subsequent to the date with the parking inventory was performed for this study. The UTSA surface parking lot and parking under IH-35 are located beyond the study area boundary for the West CBD Emphasis Area.

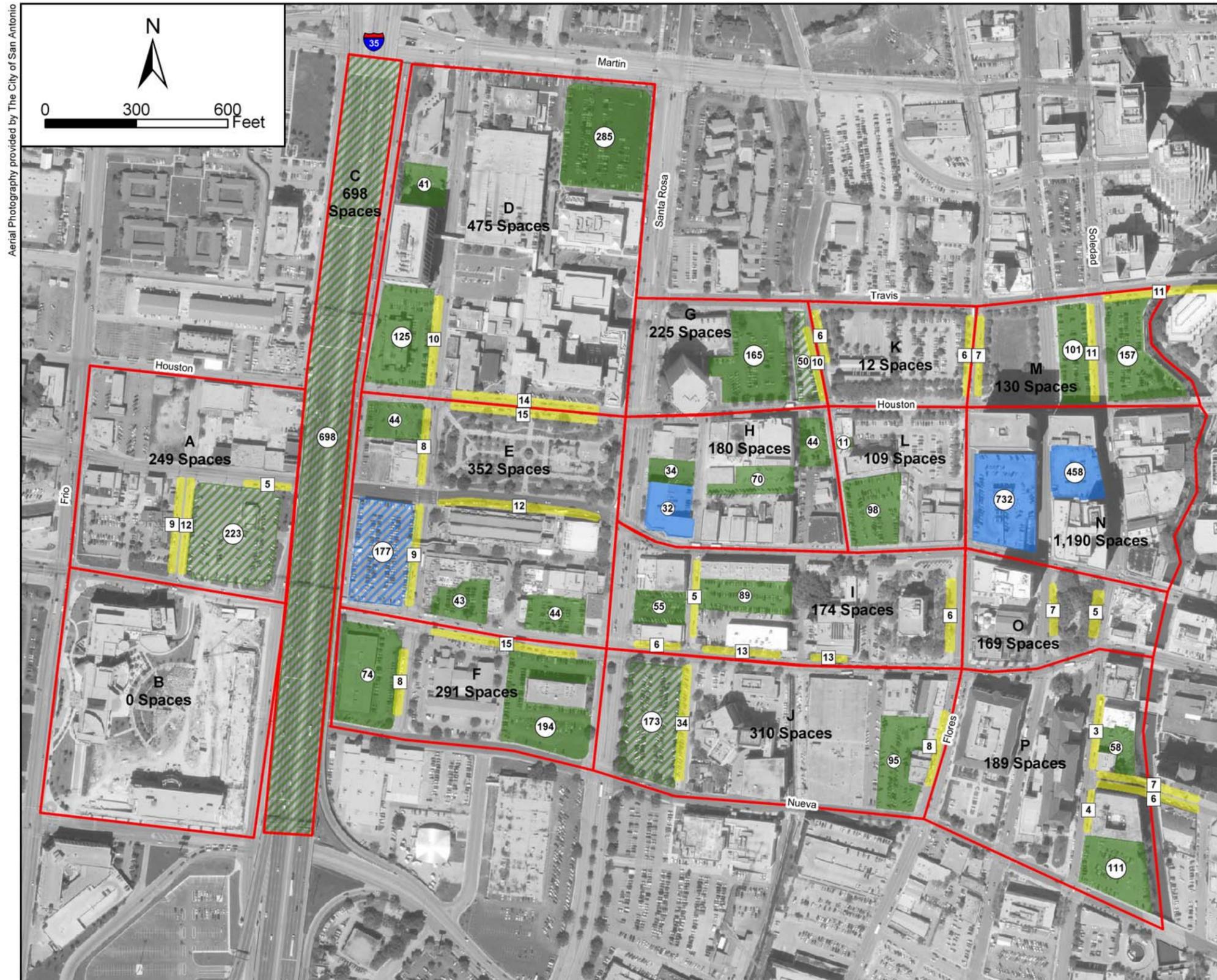
Of the total available West CBD parking supply, 71 percent (3,388 spaces) are designated for general public-use available for hourly or daily use on a fee-paid basis. The remaining 29 percent (1,365 spaces) are private-use parking spaces reserved for certain individuals or uses, such as reserved parking for employees or customers of a particular business establishment. Included in the private parking totals are governmental parking spaces such as those reserved around the City Hall.²

Table 1: West CBD Emphasis Area Parking Supply

Sub Area (See Map)	Parking Garages		Surface Lots		On-Street Parking		Total Number of Spaces
	Number of Facilities	Number of Spaces	Number of Facilities	Number of Spaces	Number of Facilities	Number of Spaces	
A	0	0	1	223	3	26	249
B	0	0	0	0	0	0	0
C	0	0	5	698	0	0	698
D	0	0	3	451	2	24	475
E	1	177	3	131	4	44	352
F	0	0	2	268	2	23	291
G	0	0	2	215	1	10	225
H	1	32	3	148	0	0	180
I	0	0	2	144	4	30	174
J	0	0	2	268	2	42	310
K	0	0	0	0	2	12	12
L	0	0	2	109	0	0	109
M	0	0	1	101	3	29	130
N	2	1,190	0	0	0	0	1,190
O	0	0	1	157	2	12	169
P	0	0	2	169	4	20	189
Total	4	1,399	29	3,082	29	272	4,753

SOURCE: Inventory of the available parking supply was performed in April and May of 2003.

² The Bexar County Courthouse parking garage is located beyond the study area boundary for the West CBE Emphasis Area, south of Nueva Street and west of Flores Street.



Parking and Traffic Modeling Study for Downtown San Antonio and South Texas Medical Center San Antonio, Texas

Legend

- West CBD Emphasis Zone
- City Owned On-Street Parking
- City Owned Garage
- Not City Owned Garage
- City Owned Surface Lot
- Not City Owned Surface Lot
- ① Number of Off-Street Spaces
- ① Number of On-Street Spaces

**Figure 2
Downtown Parking Supply - West CBD Emphasis Zones**



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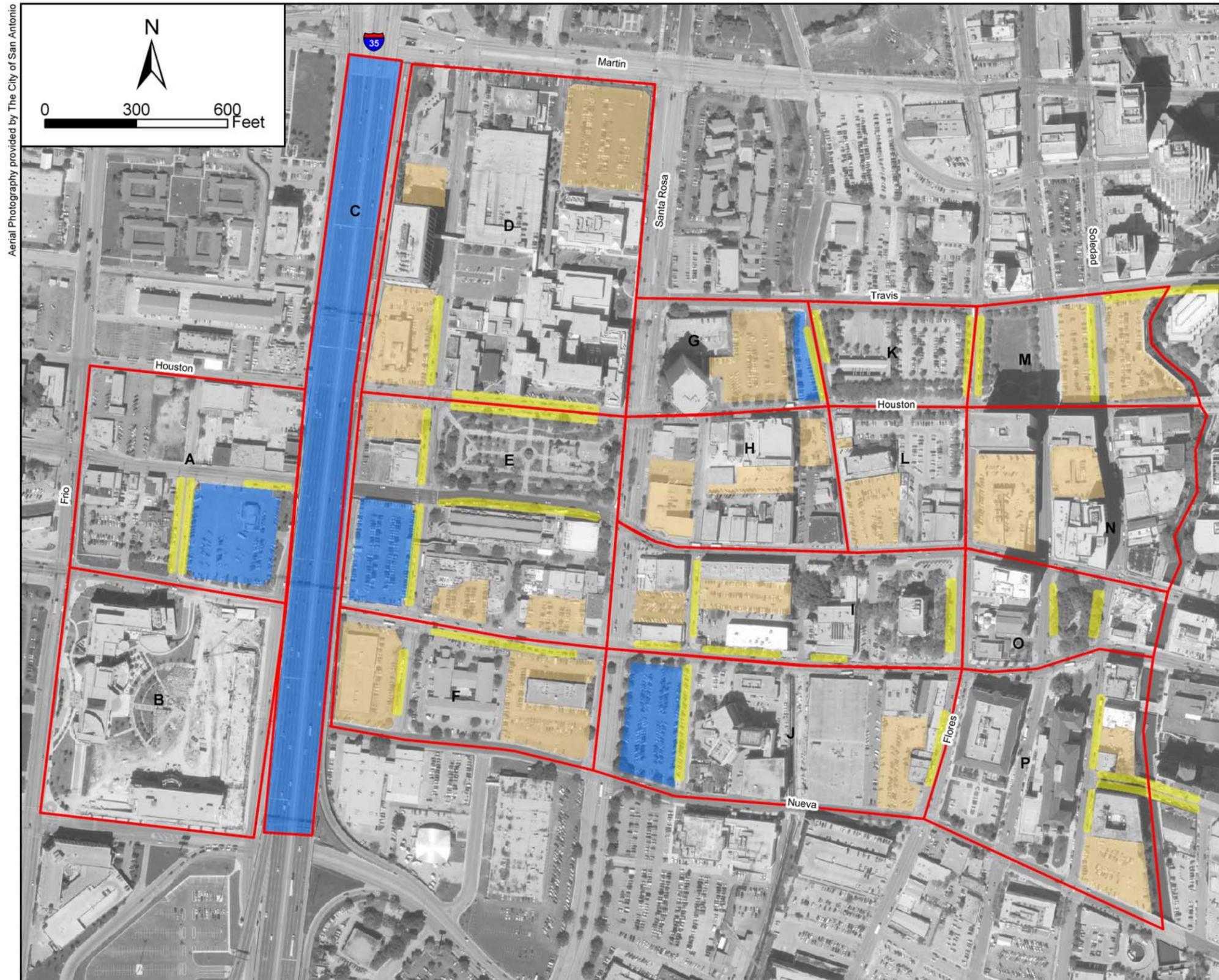
2.4.1 City Owned Parking Facilities

The City of San Antonio owns and operates a large percent of the available public parking facilities. In the West CBD, the City of San Antonio owns approximately 1,590 spaces (34 percent) of the parking facilities. The City-owned/operated parking facilities are summarized by sub area in **Table 2** and illustrated in **Figure 3**.

Table 2: West CBD City-Owned/Operated Parking Facilities

Sub Area (See Map)	Parking Garages		Surface Lots		On-Street Parking		Total Number of Spaces
	Number of Facilities	Number of Spaces	Number of Facilities	Number of Spaces	Number of Facilities	Number of Spaces	
A	0	0	1	223	3	26	249
B	0	0	0	0	0	0	0
C	0	0	5	698	0	0	698
D	0	0	0	0	2	24	24
E	1	177	0	0	4	44	221
F	0	0	0	0	2	23	23
G	0	0	1	50	1	10	60
H	0	0	0	0	0	0	0
I	0	0	0	0	4	30	30
J	0	0	1	173	2	42	215
K	0	0	0	0	2	12	12
L	0	0	0	0	0	0	0
M	0	0	0	0	3	29	29
N	0	0	0	0	0	0	0
O	0	0	0	0	2	12	12
P	0	0	0	0	4	20	20
Total	1	177	8	1,144	29	272	1,593

SOURCE: Inventory of the available parking supply was performed in April and May of 2003.



**Parking and Traffic
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and South Texas
Medical Center
San Antonio, Texas**

Legend

- West CBD Emphasis Zone
- City Owned On-Street Parking
- City Owned Off-Street Parking Facilities**
- City Owned
- Not City Owned

**Figure 3
West CBD City
Owned/Operated
Parking Facilities**



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2.5 HemisFair Emphasis Area Parking Supply

In the HemisFair Emphasis Area, there are 7,242 parking spaces; of which there are with 4,222 spaces (58 percent of total supply) in 16 surface lots, 2,948 spaces (41 percent of total supply) in 5 garages, and 72 on-street spaces (1 percent of total supply) in 4 block faces. The HemisFair Emphasis Area parking supply is shown in **Table 3** and on **Figure 4**.

Table 3: HemisFair Emphasis Area Parking Supply

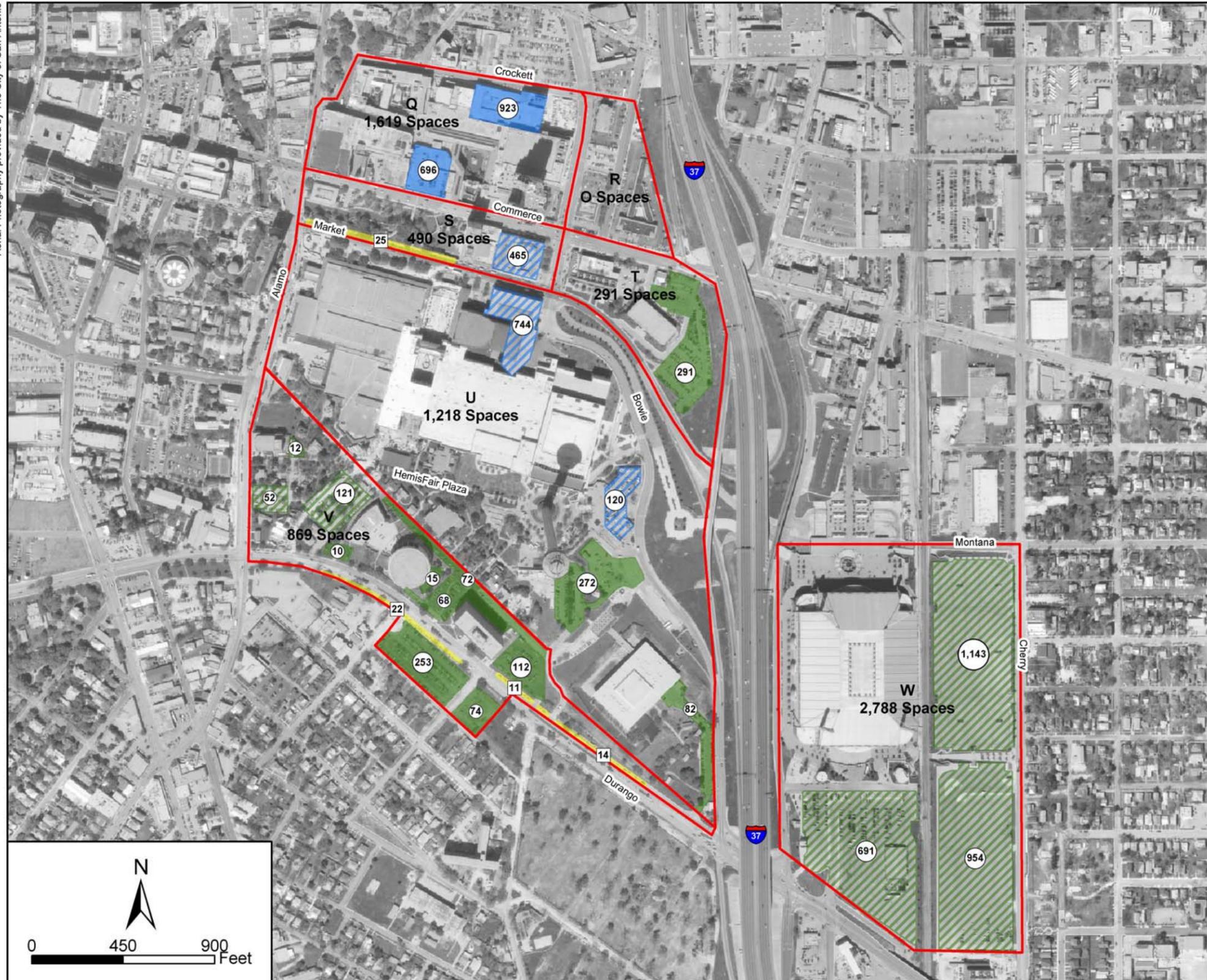
Sub Area	Parking Garages		Surface Lots		On-Street Parking		Total Number of Spaces
	Number of Facilities	Number of Spaces	Number of Facilities	Number of Spaces	Number of Facilities	Number of Spaces	
Q	2	1,619	0	0	0	0	1,619
R	0	0	0	0	0	0	0
S	1	465	0	0	1	25	490
T	0	0	1	291	0	0	291
U	2	864	2	354	0	0	1,218
V	0	0	10	789	3	47	836
W	0	0	3	2,788	0	0	2,788
Total	5	2,948	16	4,222	4	72	7,242

SOURCE: Inventory of the available parking supply was performed in April and May of 2003.

All on-street parking in the HemisFair Emphasis Area is metered, with maximum duration limits of 10 hours, except for one block face, where meters limit duration of stay 2 hours. All of the 10-hour meters charge \$0.25 for 115 minutes and the 2-hour meters charge \$0.25 for 20 minutes.

Of the total available HemisFair Emphasis Area parking supply, 57 percent (4,156 spaces) are designated for general public-use available for hourly or daily use on a fee-paid basis. The three surface parking lots at the Alamodome provide 2,788 parking spaces (39 percent of total supply) for use during special events at the Alamodome, the San Antonio Convention Center and other City events. The remaining 4 percent (299 spaces) are private-use parking spaces reserved for certain individuals or uses, such as reserved parking for employees or customers of a particular business establishment.

Aerial Photography provided by The City of San Antonio



**Parking and Traffic
Modeling Study for
Downtown San Antonio
and South Texas
Medical Center
San Antonio, Texas**

Legend

- West CBD Emphasis Zone
- City Owned On-Street Parking
- City Owned Garage
- Not City Owned Garage
- City Owned Surface Lot
- Not City Owned Surface Lot
- ① Number of Off-Street Spaces
- ① Number of On-Street Spaces

**Figure 4
Downtown Parking
Supply -
HemisFair Emphasis
Zone**



Carter-Burgess



2.5.1 City Owned Parking Facilities

In the HemisFair Emphasis Area, the City of San Antonio owns approximately 4,646 spaces (64 percent) of the parking facilities. The City owned parking facilities are summarized by sub area in **Table 4** and illustrated in **Figure 5**.

Table 4: HemisFair Emphasis Area City-Owned/Operated Parking Facilities

Sub Area	Parking Garages		Surface Lots		On-Street Parking		Total Number of Spaces
	Number of Facilities	Number of Spaces	Number of Facilities	Number of Spaces	Number of Facilities	Number of Spaces	
Q	0	0	0	0	0	0	0
R	0	0	0	0	0	0	0
S	1	465	0	0	1	25	490
T	0	0	0	0	0	0	0
U	2	864	1	272	0	0	1,136
V	0	0	3	185	3	47	232
W	0	0	3	2,788	0	0	2,788
Total	3	1,329	7	3,245	4	72	4,646

SOURCE: Inventory of the available parking supply was performed in April and May of 2003.

Aerial Photography provided by The City of San Antonio



**Parking and Traffic
Modeling Study for
Downtown San Antonio
and South Texas
Medical Center
San Antonio, Texas**

Legend

- HemisFair Emphasis Zone
- City Owned On-Street Parking
- City Owned Off-Street Parking Facilities**
- City Owned
- Not City Owned

**Figure 5
HemisFair City
Owned/Operated
Parking Facilities**



Carter-Burgess





CHAPTER 3 - PARKING UTILIZATION

3.1 Overview

The characteristics of parking patrons utilizing available parking spaces are some of the most important parameters in developing a comprehensive parking strategy. Many factors affect the selection of a parking space including the user's trip purpose, location of available spaces, intended parking duration, applicable parking restrictions, traffic access, and parking fees. Understanding parking characteristics provides a factual basis for planning and policy decisions.

The City of San Antonio serves as the home to many different types of functions. UTSA is located on the west side of the CBD and serves students. The Market Square is also located in the West CBD and serves primarily tourists. The parking demand for students has been historically the greatest during the fall, winter, and spring semesters when university classes are in session. However, the peak tourist season is during the summer months, when classes are not in regular session. Employees who work in or adjacent to the Emphasis Areas occupy the majority of parking in the West CBD and the HemisFair Emphasis Areas. Parking occupancy data was collected on April 10, 2003 from aerial photographs that were flown during the designated study hours. The data was collected on a typical weekday to capture peak utilization during a normal day with no special events. The data also gives clear indication of parking utilization for year-round residents, particularly as the data relates to daytime employee parking.

This chapter provides a summary of the analysis of parking utilization data. Included is an analysis of parking patterns in both the West CBD and HemisFair Emphasis Areas on typical weekdays.

3.2 Parking Utilization Methodology

Parking utilization was determined for all of the study facilities. The utilization is calculated by counting the number of vehicles in each of the study facilities and comparing it to the parking facility supply, as described in Chapter 2. Generally, the parking utilization is equal to the parking demands, especially if the utilization is low. However, there could be areas where the utilization is very high, and the actual parking demands are even higher, but cannot be recorded because drivers find other areas to park. Because necessary information was not available to quantify the parking demands, this study focuses on parking utilization as a measure of the parking demands.

Parking utilization measures the actual usage of existing parking facilities. Utilization counts were conducted for three time periods over the course of average weekdays (Tuesday, Wednesday, or Thursday). For study purposes and to provide conservative results, the highest utilization period for each sub area was used in the analyses. The overall utilization during the study hours for each sub area was calculated and the highest utilization of the three study hours for each sub area was used in the analysis.

This type of evaluation provides an accurate analysis of each sub area by looking at the same time study hour for every parking facility in each sub area.

3.3 Parking Utilization Data Collection

Several methods were used for collecting the parking utilization information in the emphasis Areas in order to gather as much information as possible. Each method is briefly described below.

3.3.1 Aerial Photos

Aerial photographs were used as the primary source for collecting utilization information in the study parking lots and on-street facilities. The aerial photographs were easy to use and provided the most efficient way to count the occupied parking spaces during the study hours of 10:00 AM, 2:00 PM, and 4:00 PM.

Landiscor Aerial Information took aerial photographs of the Downtown West CBD and HemisFair Emphasis Areas on April 11, 2003 at the hours of 10:00 AM, 2:00 PM, and 4:00 PM. The photographs were taken to count the parking utilization in the study areas, and were used to verify the supply information collected as described in Chapter 2. The aerial photographs were digitized and plotted to easily count the number of occupied parking spaces.

In some of the parking lots and for on-street parking, trees obscured the views for several parking spaces. It was difficult to determine whether vehicles were parked in those spaces. In areas where trees covered parking spaces, field counts were performed to determine accurate utilization for the parking lot and on-street spaces.

Field counts were also performed to determine the parking utilization for parking lots that were not captured on the aerial photos.

3.3.2 Parking Operator Survey

Questionnaires were sent out to all parking facility operators in the Downtown West CBD and HemisFair Emphasis Areas. The questionnaires requested information regarding the name of the parking facility, the total number of spaces, the number and type of reserved spaces, and parking rates. Garage operators were asked to provide parking utilization information for each garage on the same day that the aerial photographs were taken, if the information were available. Approximately 52 percent of the West CBD questionnaires were returned and approximately 42 percent of the HemisFair Emphasis Area questionnaires were returned. The returned questionnaires are included in **Appendix C**.

Several of the operators were not able to provide parking utilization information. In those cases, field counts were performed on typical weekdays subsequent to the date when the aerial photos were taken to determine the parking usage during the study hours in the garages with missing information.

3.3.3 Field Counts

Some of the parking lots and on-street facilities were not included on the aerial photographs for a specific time period, or the angle of the photograph and shadow of the large buildings obscured the view of some parking lots and on-street spaces. In these cases, field counts were necessary to determine the parking utilization for the areas that could not be counted from the aerial photos. In addition, several garage operators did not have information regarding the utilization of their parking garages, or the parking garage operators did not respond to the questionnaires that were provided. In these cases, field counts were performed to determine the parking garage utilization. The additional utilization counts were performed on typical weekdays subsequent to the date when the aerial photos were taken.

3.4 Parking Occupancy

Parking occupancy refers to the accumulation of parking over the course of the day. Occupancy during peak periods is the primary measure of parking usage and the need for additional parking. Occupancy rates at or very close to 100 percent are generally considered undesirable because motorists must hunt for available parking and/or may be tempted to park illegally. Because of the time lost in turnover and the fact that supply and demand are not parallel throughout the day, neither curb nor off-street spaces can be used to their full capacity. In addition, occupancy at 100 percent does not allow flexibility for special circumstances or events. For these reasons, a lot is typically considered effectively full at 85 percent occupancy. At 85 percent occupancy the driver often perceives the lot as being full and moves on to find another parking area. This is a case where the parking demand might be higher than the parking utilization. Drivers will generally not pass by an open on-street space. The entire block face can be seen as the driver passes by, and does not require the additional time that driving through a lot, looking for one of the few remaining parking spaces would require. This means that practical capacity of a block face is probably closer to 90 percent utilization than to the 85 percent utilization for effective capacity of a parking lot. However, when counts indicate that parking utilization is high, there may be moments when the parking spaces were 100 percent occupied and a driver looking for parking space had to pass by. For this reason, and for study consistency, 85 percent was used for the practical capacity of both the on-street parking and the parking lots.

The total demand for parking space consists of the demands evidenced by drivers now parking there, plus the demands of those drivers who park outside the area and walk or ride transit to their destination. Additional latent demands may be generated by reducing traffic congestion and expanding the parking supply.

3.4.1 Parking Utilization in West CBD Emphasis Area

Parking occupancy for the West CBD Emphasis Area is summarized in **Figure 6** and shown in **Table 5**. Included are all the spaces observed in the West CBD Emphasis Area. The West CBD Emphasis Area was divided into sub areas and parking utilizations were calculated for each sub area.

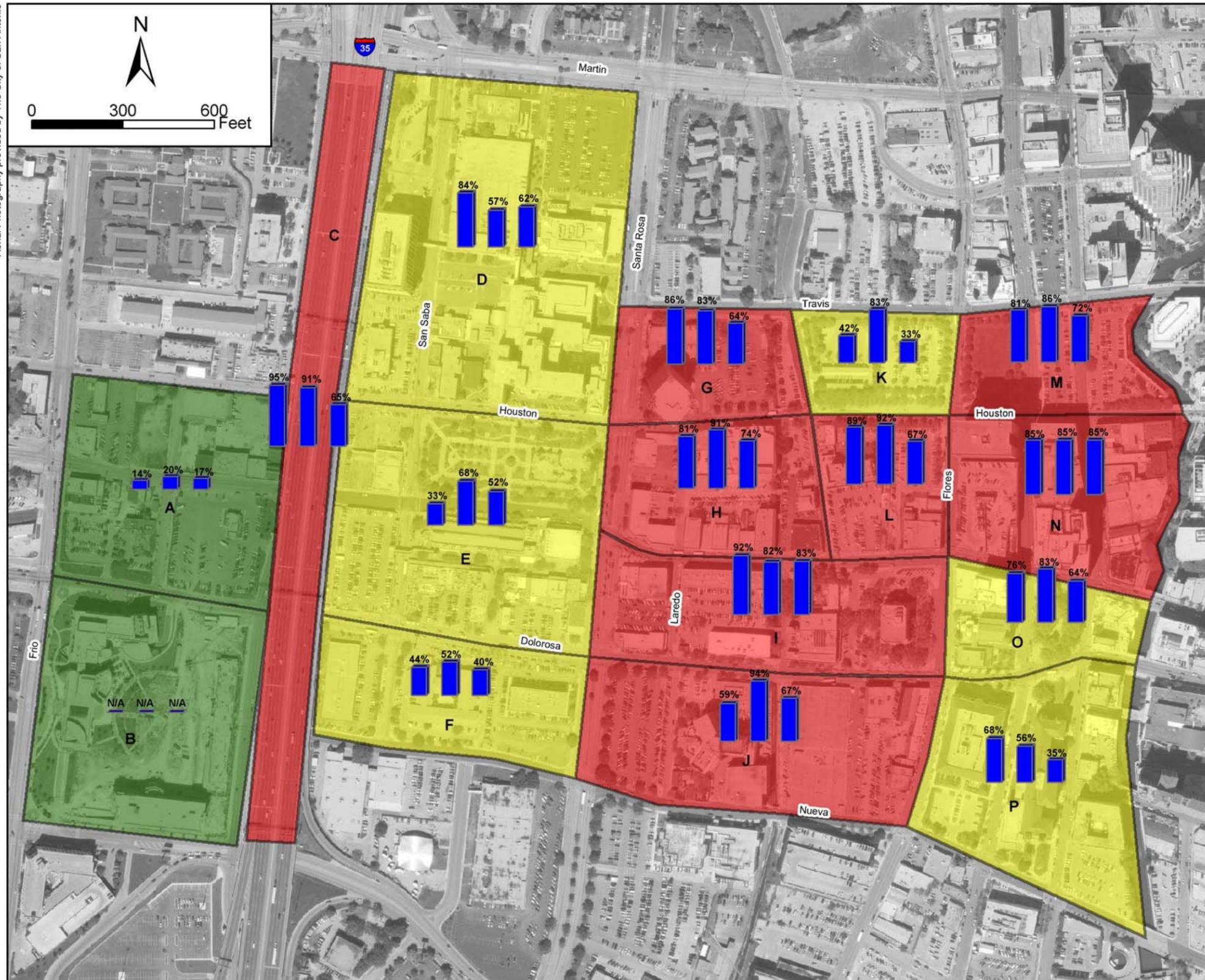
The parking occupancy in the West CBD Emphasis Area peaked at the 2:00 PM study hour, when 3,605 parked vehicles or 76 percent peak occupancy of the available spaces were observed. At the 10:00 AM study hour and the 2:00 PM study hour the demand remains fairly constant with parking occupancy rates at 74 percent and 76 percent respectively, and then decreased to 65 percent during the 4:00 PM study hour as employees and students leave the West CBD Emphasis Area at the end of the day. Overall, parking utilization in the West CBD Emphasis Area during the weekday is below the practical capacity of 85 percent. An overall surplus of parking typically exists in most downtowns because many parking spaces are located around the periphery in areas that are not within convenient walking distance to major destinations.

Table 5: West CBD Emphasis Area Parking Utilization

Sub Area	10:00 AM		2:00 PM		4:00 PM	
	Occupied Spaces	Percent Utilization	Occupied Spaces	Percent Utilization	Occupied Spaces	Percent Utilization
A	35	14%	50	20%	43	17%
B	0	0%	0	0%	0	0%
C	661	95%	633	91%	454	65%
D	399	84%	269	57%	293	62%
E	117	33%	239	68%	183	52%
F	129	44%	151	52%	117	40%
G	193	86%	186	83%	144	64%
H	146	81%	163	91%	133	74%
I	160	92%	143	82%	144	83%
J	182	59%	291	94%	209	67%
K	5	42%	10	83%	4	33%
L	97	89%	100	92%	73	67%
M	105	81%	112	86%	94	72%
N	1012	85%	1012	85%	1012	85%
O	129	76%	140	83%	109	64%
P	128	68%	106	56%	67	35%
Total	3498	74%	3605	76%	3079	65%

SOURCE: Parking utilization survey performed using aerial photographs on April 11, 2003 at the hours of 10:00 AM, 2:00 PM, and 4:00 PM, supplemented by occupancy data from parking garage operator surveys and field counts.

Aerial Photography provided by The City of San Antonio



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Legend

- Utilization
- 10:00 AM
- 2:00 PM
- 4:00 PM
- 0 - 50% Peak Utilization
- 51 - 84% Peak Utilization
- Peak Utilization Greater than or Equal to 85%

Source: Utilization Survey on Thursday April 10, 2003

**Figure 6
West CBD
Parking Utilization**



Carter-Burgess



Sub Area A – The Cattleman Square area includes some off-street facilities and a large City owned surface parking lot. This sub area is located west of IH-35 and north of UTSA. The parking in this area is under utilized and has a peak utilization of 20 percent at the 2:00 PM study hour.

Sub Area B - This sub area includes the University of Texas at San Antonio (UTSA) Downtown Campus, which did not include any on-street or off-street parking facilities at the time the parking inventory was completed. Construction of the UTSA Parking Garage was completed subsequent to the inventory. The parking demands generated by this zone are accommodated in new garage and in parking areas under IH-35 that are not included in the downtown study area.

Sub Area C - This sub area includes the City owned park facilities under IH-35. These parking lots are full for most of the day. The parking lot utilization decreases from north to south between each of five parking lots, however all of the parking lots experience utilization in excess of 85 percent. The average peak utilization is 95 percent at the 10:00 AM study hour.

Sub Area D – This sub area includes the Santa Rosa Medical Center located east of IH-35 and north of Market Square. This area has a higher utilization in the morning, with at peak of 84 percent at the 10:00 AM study hour.

Sub Area E – This sub area includes the Market Square area in the West CBD Emphasis Area. The parking utilization reflects this trend; the peak parking in the Market Square sub area is 68 percent and occurs at the 2:00 PM study hour.

Sub Area F - This sub area is located south of the Market Square. With the exception of on-street parking, the parking provided in this area is primarily used by night and weekend patrons. However, vehicles were parking in these facilities during the weekday. The peak utilization is 52 percent and occurred at the 2:00 PM study hour.

Sub Area G - This sub area is located in the middle of the West CBD Emphasis Area, between sub areas D and O. It includes the Doctor’s Plaza Medical Office Building. The utilization peaks at 86 percent during the 10:00 AM study hour and remains constant during the 2:00 PM study hour. The utilization drops off at the 4:00 PM study hour. This type of trend indicates that the parking is being used primarily by employees in this area. One parking facility in this zone is designated for City employee use only.

Sub Area H - This sub area is located in the middle of the West CBD Emphasis Area south of sub area D and east of Market Square. The utilization in this area peaks at 91 percent during the 2:00 PM study hour.

Sub Area I – This sub area includes City Hall and is located in the middle of the West CBD Emphasis Area, south of sub area G and east of Market Square. The utilization peaks at 92 percent during the 10:00 AM peak hour and remains at a higher utilization

of 82 percent and 83 percent at the 2:00 PM and 4:00 PM study hours, respectively. This indicates that the parking facilities are primarily used by employees in this area.

Sub Area J – This sub area includes the City Hall Annex and is located in the middle of the West CBD Emphasis Area, south of sub area I. The utilization peaks at 94 percent during the 2:00 PM study hour. The utilization during the 10:00 AM and 4:00 PM peak hours is lower at 59 percent and 67 percent, respectively.

Sub Area K – This sub area does not have any off-street parking facilities and provides two blocks of on-street parking. The on-street parking provides adequately for short term parking demands in this sub area, with a peak utilization of 83 percent during the 2:00 PM study hour.

Sub Area L – This sub area has a peak utilization of 92 percent during the 2:00 PM study hour. This area also has a high utilization during the 10:00 AM study hour at 89 percent, but drops off during to 67 percent during the 4:00 PM study hour. The parking supply for this zone was primarily provided by one parking lot. After the parking utilization data was collected for this parking sub area, the primary parking facility was closed and the San Fernando Community Center was constructed on the parking facility site. The utilization in this parking area would subsequently be displaced to the adjacent sub areas.

Sub Area M – The utilization in this sub area is constant throughout the day, indicating that employees in the area are the primary users in this sub area. The utilization at the 10:00 AM study period is 81 percent. The area peaks during the 2:00 PM study hour at 86 percent and then drops to 72 percent during the 4:00 PM study hour.

Sub Area N – The parking in this area is generally contracted out to area employees, however some of the parking is available for patrons and visitors. The information provided in this area was the overall utilization for the entire day and did not include information for each of the study periods. Based on the information provided by the parking facility operators in this sub area, the average utilization in this sub area peaks at 85 percent.

Sub Area O - This sub area is located west of the San Antonio River and south of Travis and includes Main Plaza. The on-street parking in this area had a utilization of 100 percent throughout the day. Overall, parking in this area peaks at 83 percent during the 2:00 PM study hour.

Sub Area P – This sub area includes the Bexar County Courthouse. The parking utilization in this area peaked at 68 percent during the 10:00 AM study hour and then dropped to 56 percent and 35 percent during the 2:00 PM and 4:00 PM study hours, respectively.

3.4.2 Parking Utilization in HemisFair Emphasis Area

Parking utilization for the HemisFair Emphasis Area is summarized in **Table 6** and illustrated in **Figure 7**. Included in Figure 5 are all the spaces observed in the HemisFair Emphasis Area.

The HemisFair Emphasis Area overall had a peak utilization during the 2:00 PM study hour when a total of 2,892 parked vehicles, or 40 percent peak occupancy of the available spaces, were observed. Parking utilization remains constant throughout the workday, with overall utilization at 34 percent and 29 percent during the 10:00 AM and 4:00 PM study hours respectively.

A large percentage (2,788 spaces or 38.4 percent) of the parking available in the HemisFair Emphasis Area is located adjacent to the Alamodome. This parking is generally reserved for special events. Excluding these parking facilities, the utilization in the HemisFair Emphasis Area is 64.8 percent.

Table 6: HemisFair Emphasis Area Parking Utilization

Sub Area	10:00 AM		2:00 PM		4:00 PM	
	Demand	Utilization	Demand	Utilization	Demand	Utilization
Q	418	85%	477	97%	211	43%
R	0	0%	0	0%	0	0%
S	147	9%	635	39%	584	36%
T	231	79%	231	79%	231	79%
U	963	81%	875	74%	535	45%
W	66	2%	51	2%	62	2%
V	634	73%	623	72%	512	59%
Total	2,459	34%	2,892	40%	2,135	29%

SOURCE: Parking utilization survey performed using aerial photographs on April 11, 2003 at the hours of 10:00 AM, 2:00 PM, and 4:00 PM, supplemented by occupancy data from parking garage operator surveys and field counts.

Aerial Photography provided by The City of San Antonio



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Legend

- Utilization
- 10:00 AM
- 2:00 PM
- 4:00 PM
- 0 - 50% Peak Utilization
- 51 - 84% Peak Utilization
- Peak Utilization Greater than or Equal to 85%

Source: Utilization Survey on Thursday April 10, 2003

**Figure 7
HemisFair
Parking Utilization**



Carter Burgess



Sub Area Q – This sub area includes the RiverCenter Mall. The utilization in this area peaks at 97 percent during the 2:00 PM study hour. The 10:00 AM study hour is 85 percent and drops to 43 percent during the 4:00 PM study hour. A shopping mall typically peaks during the afternoon peak hour and on Saturdays.

Sub Area R – This sub area includes the La Quinta Inn development project. At the time of the study, this area was under construction. There was no parking available.

Sub Area S - This sub area is located north of the convention center and includes the Marriott River Walk Hotel and the Marina Garage. The highest utilization during the study period occurred during the 2:00 PM study hour at 39 percent and remained constant for the 4:00 PM study hour.

Sub Area T - This sub area includes the San Antonio Water System (SAWS) office building, northeast of the convention center. The parking facilities in this area are all reserved and are available for public use on weekends only. The parking facility is typically 79 percent utilized, with no change in utilization over all three study hours.

Sub Area U -This sub area includes the Henry B. Gonzalez Convention Center, Tower of the Americas, and Institute of Texan Cultures. The parking in the area is primarily parking garages that provide parking for the convention center. During the study period, there was a State Teachers Association conference at the convention center, which generates above average use of autos compared to other regional and national events. The utilization in this sub area peaked at 81 percent in the 10:00 AM study hour and decreased to 74 percent and 45 percent at the 2:00 PM and 4:00 PM study hours, respectively.

Sub Area V - This sub area includes the John H. Wood Federal Courthouse, Adrian A. Spears Judicial Training Center, and Federal Building West. The utilization in this area was consistent during the 10:00 AM and 2:00 PM study hours at 73 percent and 72 percent respectively and then dropped to 59 percent during the 4:00 PM study hour. The utilization would indicate that the parking is primarily used by employees.

Sub Area W – This sub area includes the Alamodome and Robert Thompson Transit Center located on the east side of IH-37. Parking in this sub area is generally used only during events at the Alamodome, for overflow parking for the convention center, and during special events in downtown. During the study period, there were no events at the Alamodome. The utilization during the study period was 2 percent during all of the study hours.

3.5 Additional Factors in Quantifying Utilization

3.5.1 Pedestrian Issues

Accessibility and aesthetics of parking facilities are directly related to utilization. Parking facilities that are clean, well lit, and convenient to destinations have higher utilization than those parking facilities without these qualities. In addition, providing a safe and comfortable atmosphere downtown will increase the number of pedestrians and therefore increase the parking utilization downtown. The downtown stakeholders meeting provided some insight on what improvements could be made to increase parking lot utilization and pedestrian activity in downtown San Antonio. A few of these ideas are listed below:

- Increase way finding in the downtown area to help show drivers and pedestrians where the parking facilities are located.
- Provide educational material, such as brochures, for pedestrians showing where the downtown parking facilities are located.
- Provide well marked, well lighted, and safe cross walks throughout the downtown.
- Provide additional public restrooms, possibly located in the existing parking garages.

Typically, pedestrians will walk approximately three blocks from a parking facility to their desired destination. However, in discussions with the downtown stakeholders, many expect that people will walk no more than two blocks in downtown San Antonio.

3.5.2 Commercial Areas and Metered Parking

The type of development and the type of parking provided can impact the utilization of a parking facility. In a downtown area, metered parking is often provided for retail customers. Meters are usually placed in high demand areas and are used to control turnover by limiting the amount of time a driver can park in the space. Metered parking areas generally have high utilization.

3.6 Parking Utilization Summary

Data collected and observations made yielded considerable insight regarding parking characteristics in the West CBD and HemisFair Emphasis Areas. The studies presented in this chapter are good background for determining parking problems and needs. The following items are of significance in determining future parking actions and policies:

- Parking occupancy of 100 percent is rarely achieved and not a desirable trait for any area. A margin of supply of at least ten to fifteen percent is preferred to

support commercial needs throughout the day and to allow flexibility for special circumstances.

- In the West CBD Emphasis Area, overall occupancy plateaus during typical weekdays at approximately 75 percent occupancy. In the HemisFair Emphasis Area, overall utilization peaks at approximately 40 percent and at approximately 65 percent, excluding the Alamodome parking facilities. However, some sub areas in both the West CBD and HemisFair Emphasis Areas experience higher utilization due to concentrated activity and limited supply of close-by parking convenient to major destinations.
- In the West CBD Emphasis Area, eight sub areas experience utilization of 85 percent or greater during the study hours and one sub area in the HemisFair Emphasis Area experiences utilization greater than 85 percent during the study hours.
- During weekdays, significant variations were noted by zone within the study area. As an example, while the convenient, close-in spaces were fully utilized during the weekday, the parking lots and on-street spaces in outlying locations were scarcely utilized.
- Walking distance to West CBD and HemisFair Emphasis Area destinations and parking facility safety and aesthetics play an important roles in how parking is utilized.



CHAPTER 4 - PARKING DEMANDS

4.1 Overview

The primary objective of this parking study is to determine the existing and future parking needs in the West CBD and HemisFair Emphasis Areas. Parking needs depend on the magnitude of parking demands generated by employees, visitors, patrons, students and residents; the proportion of trips made by automobile vs. other modes of transportation; the extent of a captive-market environment; and the parking supply available to accommodate the demands.

4.2 Parking Occupancy vs. Parking Demand

The term “parking occupancy”, as discussed in Chapter 3, is not necessarily synonymous with the term “parking demand”. Parking occupancy is simply an indicator of how the existing parking supply is utilized. It includes only those vehicles currently parking in the study area. Parking demands, on the other hand, indicate how many patrons would like to park at a given location and time if there were sufficient supply. If spaces are not available nearby, people will park at a distance, use transit/bicycle as an alternative, conduct business elsewhere, or forego the trip entirely.

Because parking demand cannot be quantified if parking occupancies are relatively high, throughout this study, the term parking need is used and is defined as the number of additional parking spaces, if any, that are required to adequately accommodate the number of vehicles currently parking in the downtown. Although the total number of parking spaces may be sufficient to accommodate the total number of parked vehicles, there may be certain sub areas where parking overflows and additional spaces are required. The additional parking needs for the downtown as a whole could be zero, while the parking need in the sub area could be substantial.

4.3 Factors Affecting Parking Demand and Parking Needs

Parking demand can be influenced by a number of factors including parking policy, availability of transit, and land use. Parking policy includes strategies such as time limits, rate structures, and location of parking. For example, limiting parking duration of stay in retail areas can increase turnover, thereby making more parking available during a given time period. Charges for parking, and the rate structure utilized, also have an impact on a person’s willingness to drive and park. Perception of a parking shortage stems from the limited number of available spaces during the peak periods conveniently located in the high activity areas, and rate structures can be utilized to optimize parking supply. Increased transit service during periods of peak trip generation may help reduce trips by automobile, and therefore, the parking need, particularly when parking is in short supply or relatively expensive. Land use will greatly influence parking demand. For example, office buildings generate high parking demand for all day parking, whereas retail uses generate shorter term parking demand and weekend parking.

4.4 Managing Supply and Demand

Managing the balance between parking demands and parking supply can be very complex. In San Antonio, parking demands are greatest during the summer months when there are more tourists. Peak demands occur during the midday period on typical weekdays, although special events generate extraordinarily high demands at other times. Supplying enough spaces to accommodate peak parking demands can result in a surplus of parking during off-peak periods. Since construction of parking facilities is an expensive proposition, parking demands need to be carefully scrutinized, and parking plans should be developed to make the best use of resources.

For example, San Antonio's West CBD and HemisFair Emphasis Areas contain a mixture of land uses. Since peak parking demands for many of the land uses vary by time of day and day of the week, there is opportunity to share the parking supply. During weekends and evenings, for example, shoppers and restaurant patrons can utilize parking that is occupied by office workers during weekday business hours. Shared parking was considered in calculating the parking demands for San Antonio.

4.5 Methodology

4.5.1 Calculation of Existing Parking Needs

The approach to evaluate the downtown parking needs considers sub areas rather than the emphasis areas as a whole. While there may be adequate parking overall in the emphasis areas, sub-zones may have significant parking needs. To determine the existing parking need in the downtown emphasis areas, the utilization of each lot was calculated. Because a lot is considered to be at capacity at 85% utilization, and patrons will likely perceive the lot as being full and move on to another facility, the methodology defines parking need as the number of cars parked in excess of 85% utilization. For example, if a 100-space lot were 90% utilized, there would be five cars parked above the 85% utilization point. So there would need to be enough spaces to adequately accommodate those five vehicles within the 85% utilization. The parking need then, by this methodology would be five divided by 85%, or 6 vehicles. Another way to calculate the parking need would be to divide the 90 parked cars by 85%, resulting in a required number of spaces of 106. Then, subtracting the existing 100 spaces from the required 106 spaces, six additional spaces are required to accommodate parkers within the 85% utilization point.

4.5.2 Calculation of Parking Generation Rates and Future Parking Demand

The next step was to determine the peak parking generation rates for each of the proposed land uses and for the existing land uses on those sites. The parking generation rates were based on the Institute of Transportation Engineers (ITE) publication, *Parking Generation*; the Urban Land Institute (ULI) publication, *Shared Parking*; and parking studies for other communities. The parking generation rates were then adjusted for characteristics of San Antonio. Although there was not enough data to calibrate the generation rates exactly to San Antonio's experience, there are factors that tend to increase or decrease parking generation rates that were used to generally adjust the rates. Factors that might impact parking generation rates include: building

occupancy, employee absenteeism, use of transit, ridesharing, walking trips, bicycle trips, trips that had multiple purposes (e.g., restaurant trip that also involved shopping), and captive market trips (e.g., employee having lunch at a restaurant or shopping during the lunch hour or a hotel patron walking down the street for dinner).

Generally, the peak parking generation for the existing land uses was subtracted from the parking generation for the proposed land uses and used as an estimate of the future parking demand due to development and redevelopment.

4.6 Existing Parking Needs

The existing parking needs were determined by calculating the number of cars parked in excess of the effective capacity of 85 percent utilization. **Tables 7** and **8** show the peak parking utilization in each sub area, the effective capacity (85% utilization) for each sub area, and the difference between the actual utilization and the effective capacity.

Table 7: West CBD Emphasis Area Existing Parking Needs

Sub Area	Peak Hour		Effective Capacity (85% of supply)	Number of Cars Parked Greater than Effective Capacity (85% of supply)
	Cars Parked	Percent Utilization		
A	50	20%	212	0
B	0	0%	0	0
C	661	95%	593	68
D	399	84%	404	0
E	239	68%	299	0
F	151	52%	247	0
G	193	86%	191	2
H	163	91%	153	10
I	160	92%	148	12
J	291	94%	264	28
K	10	83%	10	0
L	100	92%	93	7
M	112	86%	111	2
N	1,012	85%	1,012	1
O	140	83%	144	0
P	128	68%	161	0
Total				128

Table 8: HemisFair Emphasis Area Existing Parking Needs

Sub Area	Peak Hour		Effective Capacity (85% of supply)	Number of Cars Parked Greater than Effective Capacity (85% of supply)
	Cars Parked	Percent Utilization		
Q	477	97%	417	61
R	0	0%	0	0
S	635	39%	1,376	0
T	231	79%	247	0
U	963	81%	1,008	0
W	66	2%	2,370	0
V	634	73%	739	0
Total				61

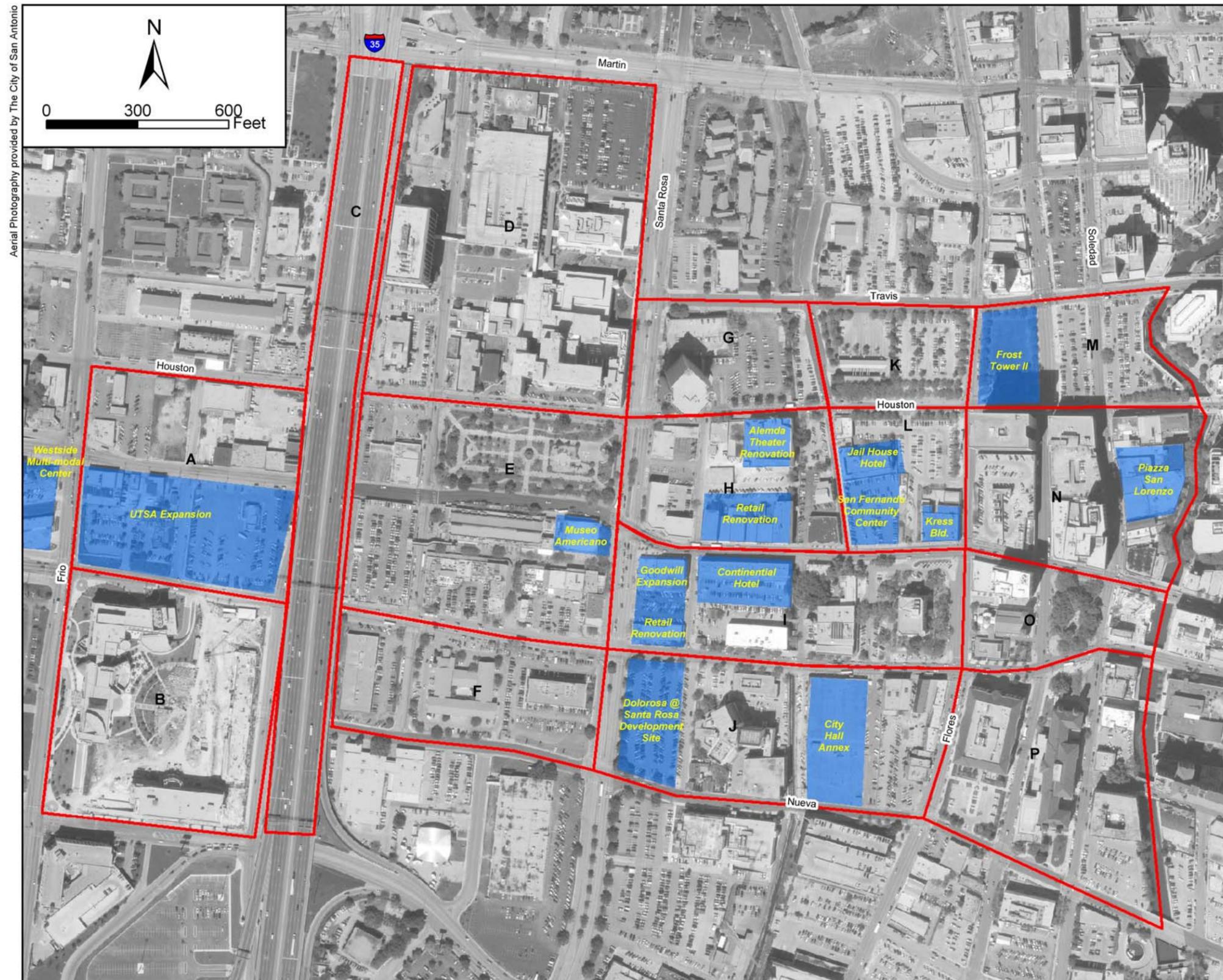
The difference between the actual utilization and the effective capacity shows that there is currently a need of approximately 130 spaces in the West CBD Emphasis Area and a need of approximately 60 spaces in the HemisFair Emphasis Area. By providing the additional spaces within the sub areas, patrons should be able to identify available parking and be accommodated without having to search the lot or move to another facility. Providing additional parking could attract new patrons to the area. This methodology does not account for latent parking demand; however, it is likely that any additional patrons could be accommodated within the supply provided because the needs have been determined based on the effective capacity of 85% utilization.

4.7 Future Parking Demands

The future parking needs were calculated using the methodology described above. Development expected to occur in the downtown Emphasis Areas prior to 2010 was identified by the City and the associated changes in parking supply and demands were considered in projecting the future parking needs. Unless otherwise noted, no additional parking is proposed with the developments.

The City provided the information regarding proposed land use changes for the year 2010, which are described below and shown on **Figure 8** for the West CBD and **Figure 9** for the HemisFair Emphasis Areas.

The identification of proposed land use changes for the HemisFair Emphasis Area was coordinated with the ongoing development of the proposed Master Plan for the HemisFair Park Area. Uses identified in the proposed master plan were included in the proposed future land use changes for the parking study.



Parking and Traffic
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and South Texas
Medical Center
San Antonio, Texas

Legend

- West CBD Emphasis Zone
- Proposed Development

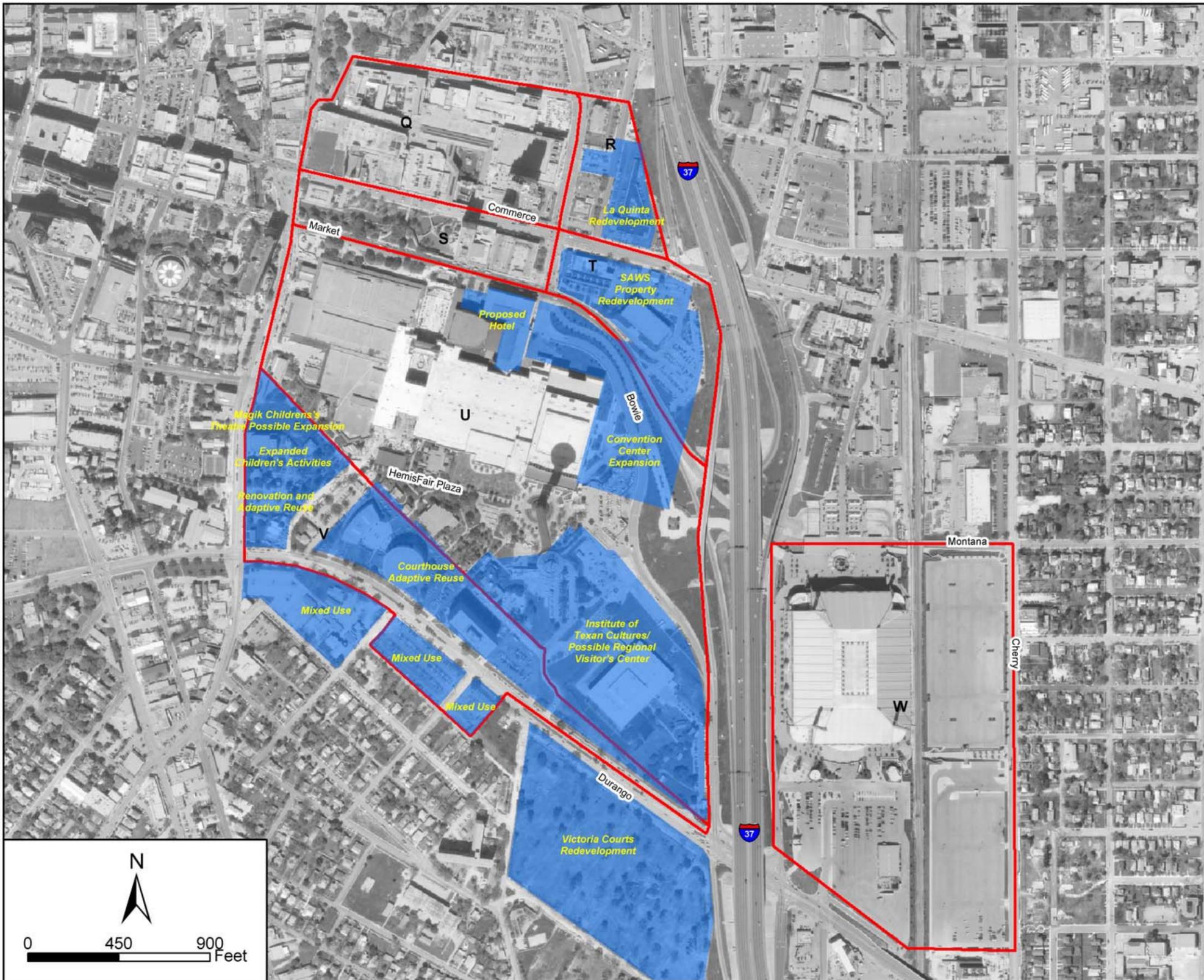
Figure 8
West CBD
Proposed
Development



Carter Burgess



Aerial Photography provided by The City of San Antonio



**Parking and Traffic
Modeling Study for
Downtown San Antonio
and South Texas
Medical Center
San Antonio, Texas**

Legend

- HemisFair Emphasis Zone
- Proposed Development

**Figure 9
HemisFair
Proposed
Redevelopment**



Carter Burgess



Federal Courthouse Relocation -The Federal Government is in the early stages of planning for the construction of a new Federal Courthouse, which could be completed in 2009. Currently, staff from the General Services Administration and the City are investigating relocation options in the downtown area. Although a site has not been selected, it is assumed that the new courthouse will be located in another part of downtown and that the existing courthouse and adjacent training center could be utilized for general office purposes

UTSA Downtown Campus Building – Information provided by the City indicated that the Institute of Texan Cultures might change its function with the addition of the new Museo Americano Smithsonian Museum in downtown San Antonio. The existing Texan Cultures building might be utilized by UTSA as part of their downtown campus expansion. The HemisFair Park Master Plan envisions a Regional Visitor Center within or adjacent to the building.

Convention Center Headquarters Hotel – The proposed new Convention Center Headquarters Hotel is expected to provide approximately 1,200 rooms. The existing HemisFair Parking Garage will be demolished and become the site for the new hotel. The number of new parking space that will be included has not been determined. The new hotel will eliminate 744 parking spaces. The parking need for the Convention Center Headquarters Hotel is the subject of further analysis described later in this chapter.

Convention Center Expansion -The existing Convention Center is planned to expand to the east, adding an additional 500,000 square feet of exhibit space to the existing building.

San Antonio Water System (SAWS) Building – The SAWS is in the process of developing/acquiring a new headquarters property located outside of downtown. At such time, SAWS will relocate all activities from the existing SAWS building. It is anticipated that the building will be used for general office purposes until the next convention center expansion.

Piazza San Lorenzo -This is a proposed multi-use high-rise development with high-end multi-family residential units and ground floor retail. Based on available information, parking for this development will not be provided. The existing building on the site location is currently vacant.

Kress Building – When the future development projects were identified, the Kress Building was undergoing renovation to provide ground floor retail, which was completed at the end of the study.

La Quinta Development -The La Quinta Inn Redevelopment Project is currently under construction. The new development will include a new 350-room hotel and a 150,000 square foot office building. At build-out of the development, a parking garage will be provided for hotel patrons, office visitors, and employees.

Frost Tower II - The Frost Bank is considering expanding its operations by constructing an additional tower. The proposed tower would be located on an existing vacant site east of the Frost Tower I.

Old County Jail Hotel Redevelopment – When the future development projects were identified, it was proposed to convert the old San Antonio County Jail into a hotel. The property was being used as a storage and warehousing site. The hotel redevelopment project was nearly completed at the end of the study.

City Hall Annex - The City has proposed to expand the Annex on the existing surface parking lot. The redevelopment would include expansion of City offices and a possible parking garage. The existing surface parking lot provides 50 spaces for City employees.

San Fernando Community Center - At the time the future development projects were identified, the community center was under construction on an existing parking lot. The community center provides a 600-seat ballroom, classrooms, and meeting space. Parking is included only for clergy and staff.

Alameda Theater Renovation - The vacant Alameda Theater is proposed to be renovated and expanded. The expansion would eliminate approximately 70 parking spaces.

Museo Americano Smithsonian Museum - At the time of the study, the museum was under construction and is located on the site of a previously vacant building at El Mercado. No additional parking for the building is provided.

4.8 Calculation of Future Parking Needs

These new land uses will change the parking needs for the Downtown Emphasis Areas. The future parking needs were calculated in 6 steps:

1. **Parking Demand for Existing and Proposed Land Uses.** The existing and proposed land uses were evaluated, and the difference in generated parking was calculated to determine the net future generated parking.
2. **Parking Adjustments.** Any adjustment in parking (i.e. a new development is going on top of an existing parking facility or a new development is providing parking spaces) was added to the total existing supply to determine the total future supply.
3. **Effective Capacity of Future Parking Supply.** The total future supply was divided by 85 percent to determine the effective capacity of the total future supply.
4. **Future Parking.** The future parking demand was calculated by adding the existing peak utilization with the net future parking demand.

5. **Parking Demand Beyond Effective Supply.** Then the effective capacity of the total supply was subtracted from the future parking demand to determine what is the future parking demand beyond the effective supply.
6. **Total Future Parking Need Beyond Supply.** The future parking demand beyond the effective supply was divided by 85 percent to determine the total future parking need beyond the supply. The range of future parking needs was estimated as +/- 10 percent of the calculated need.

This methodology provides the best estimate of future parking need based on the assumptions made and the information available. The projected parking needs by sub areas are summarized in **Table 9** for the West CBD Emphasis Area and **Table 10** for the HemisFair Emphasis Area.

4.9 Summary of Projected Future Parking Needs

The future parking needed beyond the existing supply in the West CBD Emphasis Area is in the range of **1,000 to 1,300 additional parking spaces**. These spaces are needed primarily in sub areas H, I, and J.

The future parking needed beyond the existing supply in the HemisFair Emphasis Area is in the range of **2,400 to 2,700 additional parking spaces**. These spaces are needed primarily in sub areas U and V.

The projected additional parking spaces figures are based on the stated assumptions about future development and are subject to change based on the timing and magnitude of development, the amount of parking that may be provided, and other factors.

4.10 Convention Center Headquarters Hotel Parking Analysis

A new convention center headquarters hotel is proposed adjacent to the convention center. The proposed hotel is expected to be constructed in the location of the existing HemisFair garage and will eliminate the existing parking facilities. The HemisFair parking garage is owned by the City of San Antonio and accommodates 744 parking spaces. The proposed hotel will provide approximately 1,200 rooms. The new hotel is expected to provide parking for hotel patrons, however additional parking for adjacent land uses, currently using the HemisFair parking garage, has not been proposed. Parking needs for the proposed hotel are summarized in **Table 11**. The needed additional spaces are included in the future parking needs identified for the HemisFair Emphasis Area.

Table 9: West CBD Emphasis Area Projected Parking Needs

Sub Area	Parking Demand for Land Use Changes Using Generation Rates ¹			Parking Supply				Existing Peak Utilization	Future Parking Demand	Future Parking Demand Beyond Effective Supply ³	Total Future Parking Need Beyond Supply ⁴
	Existing Land Use	Proposed Land Use	Net Future Generated Parking	Total Existing Supply	Adjustment to Existing Supply ²	Total Future Parking Supply	Effective Capacity (85%) of Total Future Supply				
Cattleman Square	0	0	0	249	0	249	212	50	50	0	0
Santa Rosa	0	0	0	475	0	475	404	399	399	0	0
Market Square	0	27	27	352	0	352	299	239	266	0	0
Main Plaza	0	16	16	169	0	169	144	140	156	13	15
IH-35 Lots	0	0	0	698	0	698	593	661	661	68	80
La Quinta West	0	0	0	291	0	291	247	151	151	0	0
Doctor's Plaza	0	0	0	225	0	225	191	193	193	2	2
Alameda	0	92	92	180	-70	110	94	163	255	162	190
City Hall	0	0	0	174	0	174	148	160	160	12	14
City Hall Annex	239	355	116	310	0	310	264	291	407	144	169
Frost Bank	0	0	0	12	0	12	10	10	10	0	0
Jailhouse	11	119	107	109	-98	11	9	100	207	198	233
E & P Parking	0	344	344	130	0	130	111	112	456	346	407
Riverview	0	54	54	1,190	0	1,190	1,012	1,012	1,066	55	65
Courthouse	0	0	0	189	0	189	161	128	128	0	0
Total	250	1,008	757	4,753	-168	4,585	3,897	3,809	4,566	998	1,174

¹ Where existing and proposed values equal zero, there no proposed changes in land use; where existing equals zero, but a value is provided for proposed, the existing land use is either a parking lot, or a vacant building.

² Adjustments include proposed parking that will be provided by the development and parking that will be eliminated with the proposed development.

³ Future Parking Demand Beyond Effective Supply equals Net Future Generated Parking plus the Existing Peak Utilization minus the Effective Capacity of the Total Future Supply.

⁴ Equals Future Parking Demand Beyond Effective Supply divided by 85%

Table 10: HemisFair Emphasis Area Projected Parking Needs

Sub Area	Parking Demand for Land Use Changes Using Generation Rates ¹			Parking Supply				Existing Peak Utilization	Future Parking Demand	Future Parking Demand Beyond Effective Supply ³	Total Future Parking Need Beyond Supply ⁴
	Existing Land Use	Proposed Land Use	Net Future Generated Parking	Total Existing Supply	Adjustments to Existing Supply ²	Total Future Parking Supply	Effective Capacity (85%) of Total Future Supply				
Convention Center	217	1,131	914	1,186	-744	442	376	963	1,877	1,501	1,766
Alamodome	0	0	0	2,788	0	2,788	2,370	66	66	0	0
Government Center	664	1,151	487	869	-253	616	524	634	1,121	597	703
Rivercenter	0	0	0	1,619	0	1,619	1,376	635	635	0	0
SAWS	24	14	-10	291	0	291	247	231	221	0	0
Marina Garage	0	0	0	490	0	490	417	477	477	61	71
La Quinta East ⁵	0	286	286	0	286	286	286	0	286	0	0
Total	905	2,582	1,677	7,243	-711	6,532	5,595	3,006	4,683	2,159	2,540

¹ Where existing and proposed values equal zero, there no proposed changes in land use; where existing equals zero, but a value is provided for proposed, the existing land use is either a parking lot, or a vacant building.

² Adjustments include proposed parking that will be provided by the development and parking that will be eliminated with the proposed development.

³ Future Parking Demand Beyond Effective Supply equals Net Future Generated Parking plus the Existing Peak Utilization minus the Effective Capacity of the Total Future Supply.

⁴ Equals Future Parking Demand Beyond Effective Supply divided by 85%

⁵ This parking generated in this sub area is expected to provide parking on site for the new development, and for this analysis does not have an effective capacity.

Table 11: Convention Center Headquarters Hotel Projected Parking Needs

Land Use	Parking Demand for Land Use Changes Using Generation Rates ¹			Parking Supply				Existing Peak Utilization ³	Future Parking Demand	Future Parking Demand Beyond Effective Supply ⁴	Total Future Parking Need Beyond Supply ⁵
	Existing Land Use	Proposed Land Use	Net Future Generated Parking	Total Existing Supply	Adjustments to Existing Supply ²	Total Future Parking Supply	Effective Capacity (85%) of Total Future Supply				
Convention Center Headquarters Hotel	0	235 to 275 spaces	235 to 275 spaces	744 spaces	-744 spaces	0	0	700 spaces	973 spaces	973 spaces	1,150 spaces

1 The existing land use is the HemisFair Parking Garage so there is no generated parking demand. The proposed land use is the 1,200-room convention center headquarters hotel. Estimated parking demands for existing and proposed land uses are for the midday peak demand period on a typical weekday. Typical weekday evening parking demand for the hotel is estimated to be 425 to 500 spaces.

2 Adjustments include proposed parking that will be provided by the development and parking that will be eliminated with the proposed development. The amount of parking that will be included as part of the hotel development project is not known so no adjustment is included.

3 Existing peak utilization based on observed occupancy of the HemisFair Garage during the parking utilization survey conducted for the Downtown Parking Demand Study.

4 Future Parking Demand Beyond Effective Supply equals Net Future Generated Parking plus the Existing Peak Utilization minus the Effective Capacity of the Total Future Supply.

5 Equals Future Parking Demand Beyond Effective Supply divided by 85%.

The estimated hotel parking demand was calculated based upon parking generation rate for a convention hotel and adjusted for conditions in Downtown San Antonio. Parking generation rates for convention center hotels are typically between .8 and 1.1 spaces per guest room, plus spaces requirement for restaurant and meeting facilities, according to data published by the Institute of Transportation Engineers. Hotel parking requirements in the HemisFair area of downtown San Antonio are reduced because of the high utilization of transit, taxis, and shuttle buses for travel between the airport, convention hotels, and convention center. Adjustments were made to the standards parking generation rate, including consideration for the transit mode share, ride sharing, and shared trips for other hotels and downtown destinations. The proposed convention center headquarters hotel is expected to generate a daytime parking demand of approximately 235 to 275 spaces. Evening parking demand for the hotel is estimated at 425 to 500 spaces. Considering the lost parking supply at the HemisFair Garage, the total parking need would be approximately 1,150 spaces.

Future expansion of the Henry B. Gonzalez Convention Center is anticipated to add approximately 500,000 square feet of meeting space. A preliminary estimate of added parking demand for the convention center expansion is approximately 850 spaces. Considering shared parking between the convention center and hotel, the estimated combined future parking need for the convention center expansion and convention center headquarters hotel would be approximately 1,050 to 1,125 parking spaces.

4.11 Parking for Convention Center Headquarters Hotels in Other Cities

Similar convention center headquarters hotel developments in other cities were reviewed to identify associated parking requirements. Convention center hotels planned or already developed in Denver, Houston, Chicago, and Austin were considered for examples of other similar convention center parking development.

- Denver has a new 1,100-room Hyatt convention center hotel, scheduled to open in December 2005. Tourism officials expect the Hyatt and the expanded convention center to help the city attract more business meetings, helping to increase occupancy levels at all downtown hotels. The Colorado Convention Center opened a new downtown 1,000-space covered parking garage in January 2004. The parking garage provides needed covered space for the Center's events, as well as for other downtown venues. The new garage will not only provide parking for the Colorado Convention Center, but also for the Denver Performing Arts Complex. This parking facility is located two blocks from the 16th Street Mall.
- In Houston, the 1,200-room Hilton Americas Hotel opened in November 2003. It is connected via a skywalk to Houston's George R. Brown Convention Center and served as a headquarters hotel for Super Bowl XXXVIII. The hotel includes a 1,600-space parking garage. Meeting space includes 93,000 square feet with 30 meeting rooms, a 40,000 square foot ballroom, and 26,000 square foot junior ballroom.

- Austin opened its convention center headquarters hotel in January 2003. Hilton Austin is located next to the Austin Convention Center, which underwent an 881,000-square-foot expansion in 2002. The hotel includes 800 guest rooms and 60,000 square feet of meeting and event space. The new, four-level, convention center parking garage includes 685 spaces with a central district chilling plant developed in partnership with Austin Energy to serve the recently completed convention center expansion. The street level includes approximately 18,000 SF of office/retail) along 4th, 5th, and Red River Streets. An art in public places project is the exterior face of the chilling plant structure. The parking garage serves both the hotel and the expanded convention center.

Planning and design for future development of the convention center headquarters hotel and proposed future convention center expansion should include further detailed parking analysis to confirm the associated parking requirements. Findings in this study are based upon the utilization survey conducted for the HemisFair area. More specific investigation is needed for subsequent stage of planning and development for the hotel and convention center.



CHAPTER 5 - PARKING IMPROVEMENTS

5.1 Overview

The data collected and analysis performed yielded considerable insight regarding parking conditions in the West CBD and HemisFair Emphasis Areas. While there are several issues that need to be addressed, the overall assessment of parking accommodation is favorable. Parking time limits at curb spaces and associated enforcement provide good turnover, making short-term parking generally available throughout the downtown area. City parking regulations and current enforcement provide a solid technical guideline for parking utilization and supply in Downtown San Antonio.

However, significant additional parking needs will be generated by proposed future development in the West CBD and HemisFair Emphasis Areas. To remain proactive with respect to accommodation of parking for downtown employees and visitors, the City should undertake new programs and/or projects related to parking. Several alternatives were investigated as part of this study and are summarized in this chapter. These alternatives were formulated to address shortcomings found in the study. Many ideas came from public comments that were solicited and received from the Downtown Stakeholders Group.

5.2 Parking Improvement Alternatives

The options for improvement of parking in the West CBD and HemisFair Emphasis Areas generally fall in three categories:

- **Capital improvements**, namely the development of additional parking by constructing multilevel parking structures or surface parking lots;
- **Parking demand management**, such as strategies to encourage increased use of either available public parking in underutilized facilities; and
- **Transportation management** solutions that make better utilization of alternative travel modes for access to downtown (i.e., public transit).

An important policy decision for San Antonio involves the question of how much existing and future parking demands should be accommodated in Downtown. As noted in Chapter 4, there is currently, a need in the West CBD for approximately 1,000 to 1,300 additional parking spaces and in HemisFair Emphasis Area for approximately 2,400 to 2,700 additional spaces. The City could develop new parking to accommodate this demand, arguably without major impact on the unique character of downtown San Antonio. Current parking regulations help ensure that future downtown development will address parking needs, at least in part. Over time, San Antonio may find that simply constructing new parking, or requiring developers to do so as a condition of their building permits, may not be the best alternative. All of the alternatives discussed below have merit in meeting current and future parking needs in San Antonio.

A comprehensive parking improvement program in San Antonio must be concerned with actions that affect both parking supply and parking demands. Both are needed, particularly in light of variations during the week (high demands during normal business hours, with lower demands on weekday evenings and weekends, excluding special events) and variations throughout the year (greater demands in the fall and spring months when tourism is at its peak). Special events bring extraordinary parking demands but construction of parking is very expensive and the city should be careful not to overbuild parking just to meet the demands for these extraordinary demands.

5.3 Parking Garage Site Evaluation for West CBD

In analyzing potential locations for parking garages in the study area, several important criteria were considered including:

- Areas of high utilization throughout the day;
- Relative proximity to Market Square and City Hall (both areas of immediate need);
- Overall site dimensions in order to maximize garage parking function and capacity;
- Ease of vehicular and pedestrian access, taking into account traffic patterns on adjacent streets and pedestrian walkways;
- Visibility; and,
- Potential of locating joint development retail/office space and/or housing on the site.

The mixed-use criteria was part of the charge of this study and is critical to the urban condition in downtown San Antonio in order to connect the urban fabric from the point of view and experience of the pedestrian. For instance, the walk from Main Plaza to Market Square becomes more tenable if there are a series of places to stop and visit along the way. It is important that a garage in a downtown setting meet the needs of both the vehicle and the pedestrian.

Three candidate sites were identified in the West CBD Emphasis Area. All of the candidate sites are located within the area of parking needs described in Chapter 4. The three site alternatives are shown in **Figure 10** include the following locations:

- **Option A** – City Hall Annex Building Site
- **Option B** – Dolorosa Parking Lot Site
- **Option C** - Travis St. Parking Lot Site

Figure 10: West CBD Alternative Sites for Parking Development



5.4 Option A – City Hall Annex Building Site

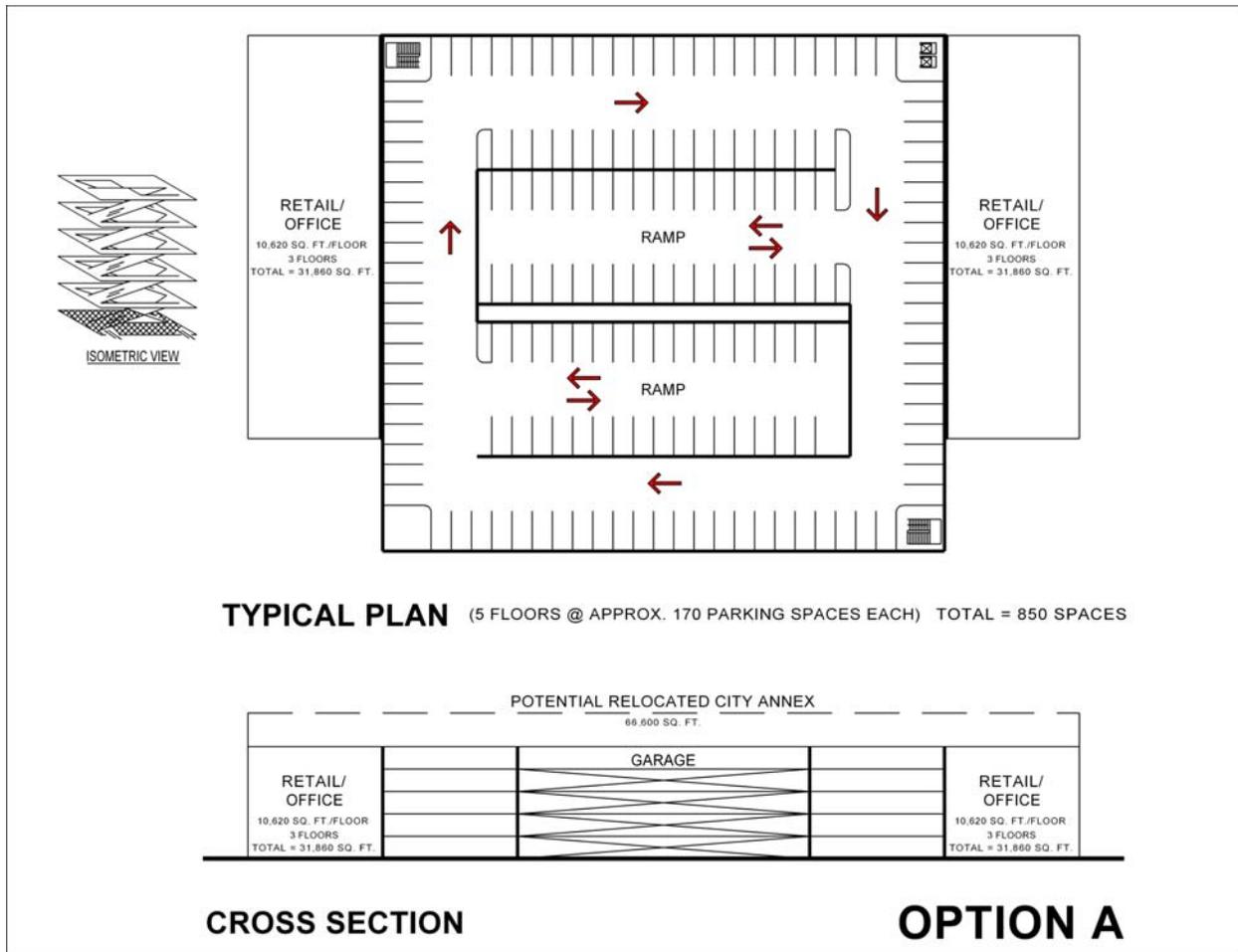
The location for Option A is the current site of the City Hall Annex and the adjacent bay of city-owned surface parking. This site is large and underutilized with a one-story building that houses Park Planning and Finance. Shown in **Figure 11**, this site is viable for many reasons. First, it is a central location between Main Plaza and Market Square and could capture revenue from both of those needs. In addition, the mid-block location is ideal for a parking garage because it does not take up a prime development corner, and it also facilitates queuing within the right lane of Dolorosa to get into the garage. The site dimensions are large and can enable up to 170 cars per floor (800 cars on 5 levels) in addition to the potential of over 60,000 square feet of leasable retail/office space fronting both Dolorosa and Nueva. In addition, the entire City Hall Annex could potentially be relocated over the top of the garage. Further, the height of the garage would screen the adjacent County jail facility from Plaza de las Islas and the surrounding heavily used public spaces. In addition, the potential for office space in this location could be strong due to the proximity to the City and Council offices. Finally, there is a potential on this site to redevelop a section of San Pedro Creek into a site amenity.

Figure 11: Option A – City Hall Annex Building Site



The negative aspects for this location include the cost of demolition of the City Hall Annex (which is a relative unknown until a Phase 1 Environmental Report is completed) and the cost of relocating the functions. The location across from the jail is negative for possible housing, therefore ancillary uses within the garage are limited to retail and offices. A county owned garage is located immediately south of this site and its utilization will need to be analyzed when determining the sizing of a new garage on the City Hall Annex site. Finally, the location is slightly more remote to Market Square and possibly more redevelopment across Dolorosa would be needed to enhance the connection to Market Square.

Figure 12: Functional Layout for Option A



5.5 Option B – Dolorosa Parking Lot Site

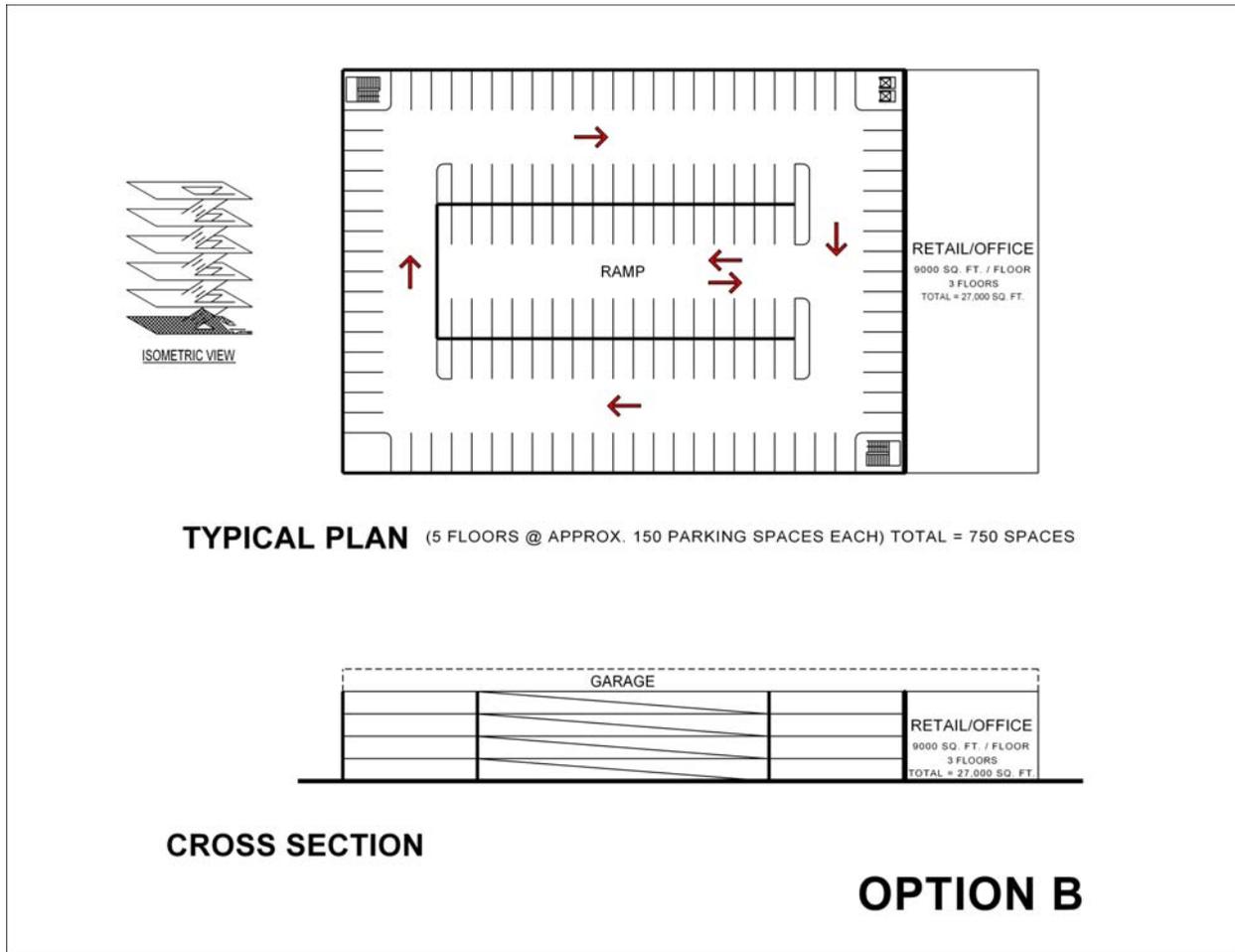
The location of Option B is in the City-Owned surface parking lot at the corner of Santa Rosa and Dolorosa. Shown in **Figure 13**, this site also has good dimensions of a well functioning parking garage with 150 spaces per level. (750 spaces on five levels) It also has a visible presence to Market Square. The corner of Santa Rosa and Dolorosa is a viable retail location with a potential of 35,000 square feet of leasable retail/office space. Finally, the site offers the potential to shield the jail from the approach from the west.

Figure 13: Option B – Dolorosa Parking Lot Site



The negative aspects of the site include the fact that it takes up a potentially major development corner. Vehicular traffic is more problematic due to lack of queuing space off of Dolorosa, and the heavy traffic flow of Santa Rosa also conflicts with a garage entrance on that street. The entrance adjacent to the jail is not ideal. In addition, jail parking will need to be incorporated into the garage, giving less capacity for other potential uses. In addition, finally, the large live oaks on the Santa Rosa side of the site will be endangered if the garage capacity is maximized at 150 spaces per floor.

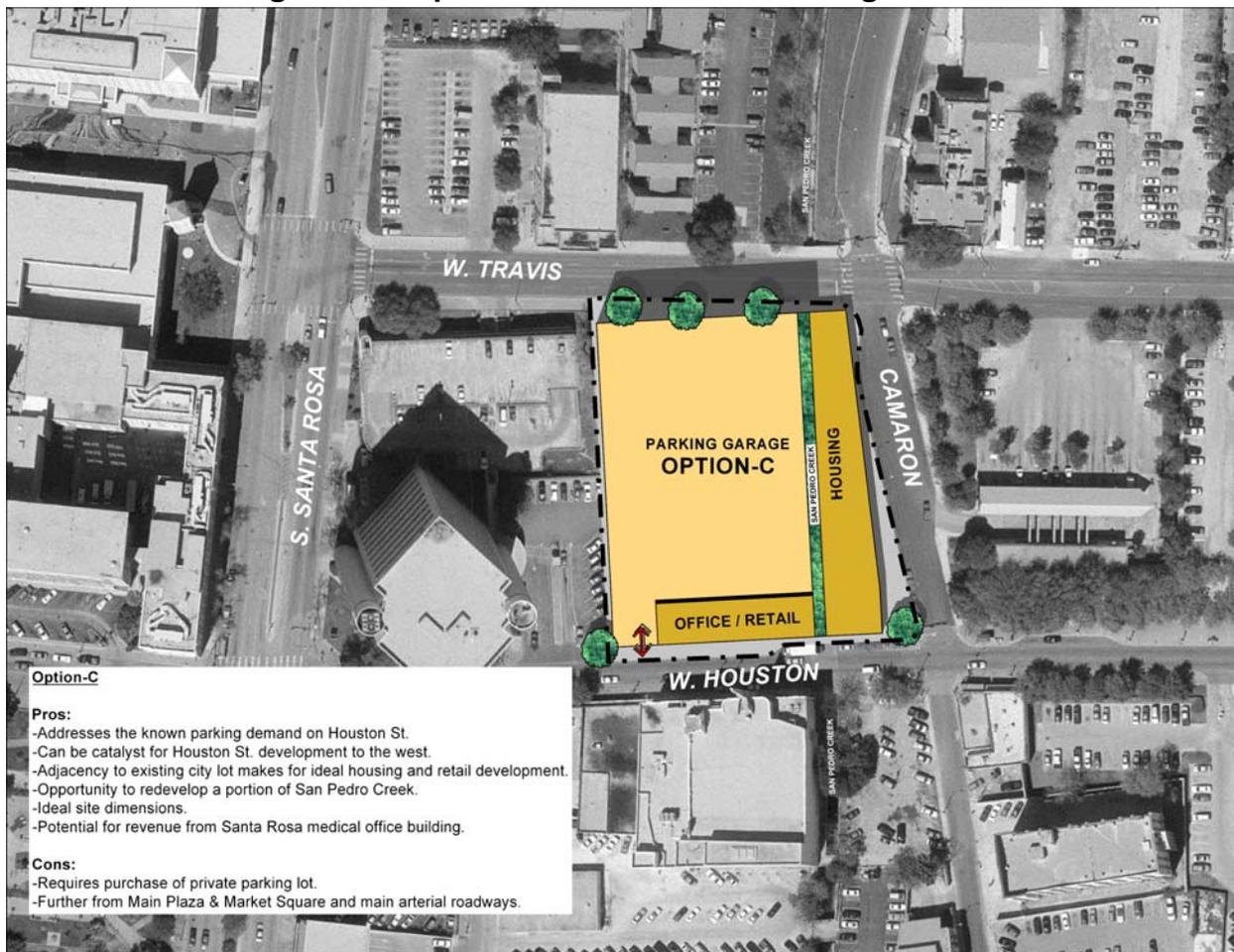
Figure 14: Functional Layout for Option B



5.6 Option C – Houston St. Parking Lot Site

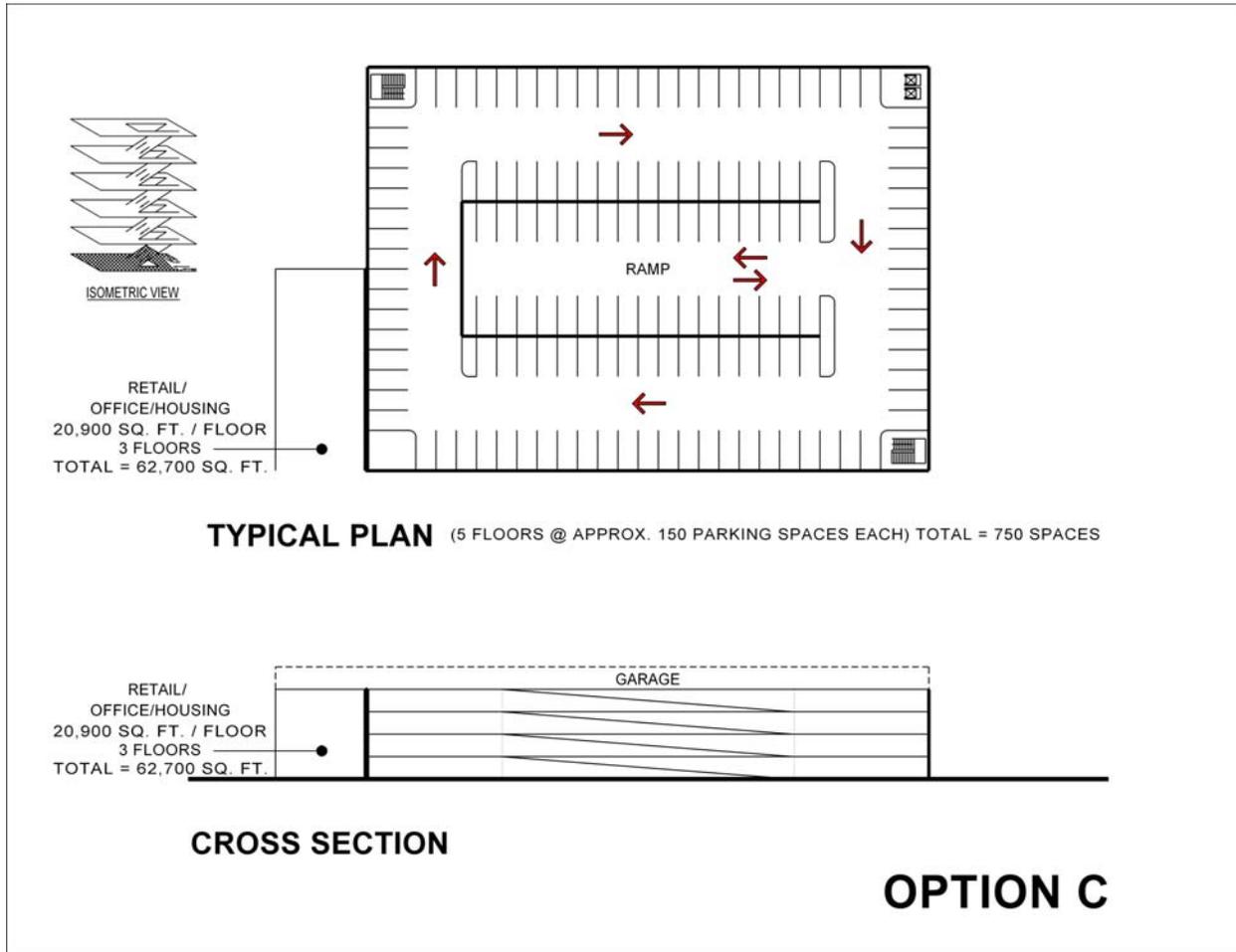
Option C, as shown in **Figure 15**, is located on both a non-City-Owned lot and a City-Owned lot bounded by Houston Street to the south, Travis Street to the north, and Cameron Street to the east. It is a desirable location for housing as well as retail/office space. This use can amount to over 60,000 square feet of leasable space. The site dimensions of the existing parking lot are ideal for a garage of 150 cars per floor (750 cars on 5 levels). A section of San Pedro Creek could be restored between the housing/retail/office and the garage. There will be potential revenue from the adjacent Santa Rosa medical office tower as well as the Alameda Theater. This development could serve as a catalyst to bring Houston Street redevelopment further west.

Figure 15: Option C – Houston St. Parking Lot Site



One important negative aspect of this site is the need to purchase a non-City-Owned parking lot, which could be substantial. It is also further from Main Plaza and Market Square, and the use for those functions is more limited. Finally, the fact that the site is slightly more remote from primary arterial roadways make it less visible.

Figure 16: Functional Layout for Option C



5.7 Parking Garage Site Analysis for HemisFair Emphasis Zone

Alternative sites for parking improvements in the HemisFair Emphasis Zone were identified as part of the Transportation Analysis for the HemisFair Park Area Master Plan. The alternative sites are shown in **Figure 17**. The Transportation Analysis for the HemisFair Park Area Master Plan is included in **Appendix D**. The proposed parking improvement site alternatives are described in the following paragraphs.

Site D - Convention Center Headquarters Hotel – Estimated evening parking demand is 425 to 500 spaces for approximately 1200 hotel rooms. Shared parking should be utilized during the daytime when hotel demand is estimated to be 235 to 275 spaces.

Site E – Convention Center Garage – Multilevel parking garage with 750 to 1,000 spaces serving the proposed Convention Center Expansion, Tower of the Americas, and Institute of Texan Cultures.

Site F – Administration Building Parking Deck – Two-level parking deck providing approximately 350 spaces to serve the Administration Building and Institute of Texan Cultures.

Site G – Lavaca Parking Garage – Multilevel parking garage with 350 to 500 spaces serving the proposed Lavaca mixed use development, Federal Courthouse and Training Center, and activities in HemisFair Park.

Site H – Institute of Texas Cultures Parking Lot – Surface lot for tour bus loading/unloading and visitor parking for Institute of Texan Cultures, including approximately 150 parking spaces. Layover parking for tour buses should be located at the Thompson Transit Center, east of IH-37.

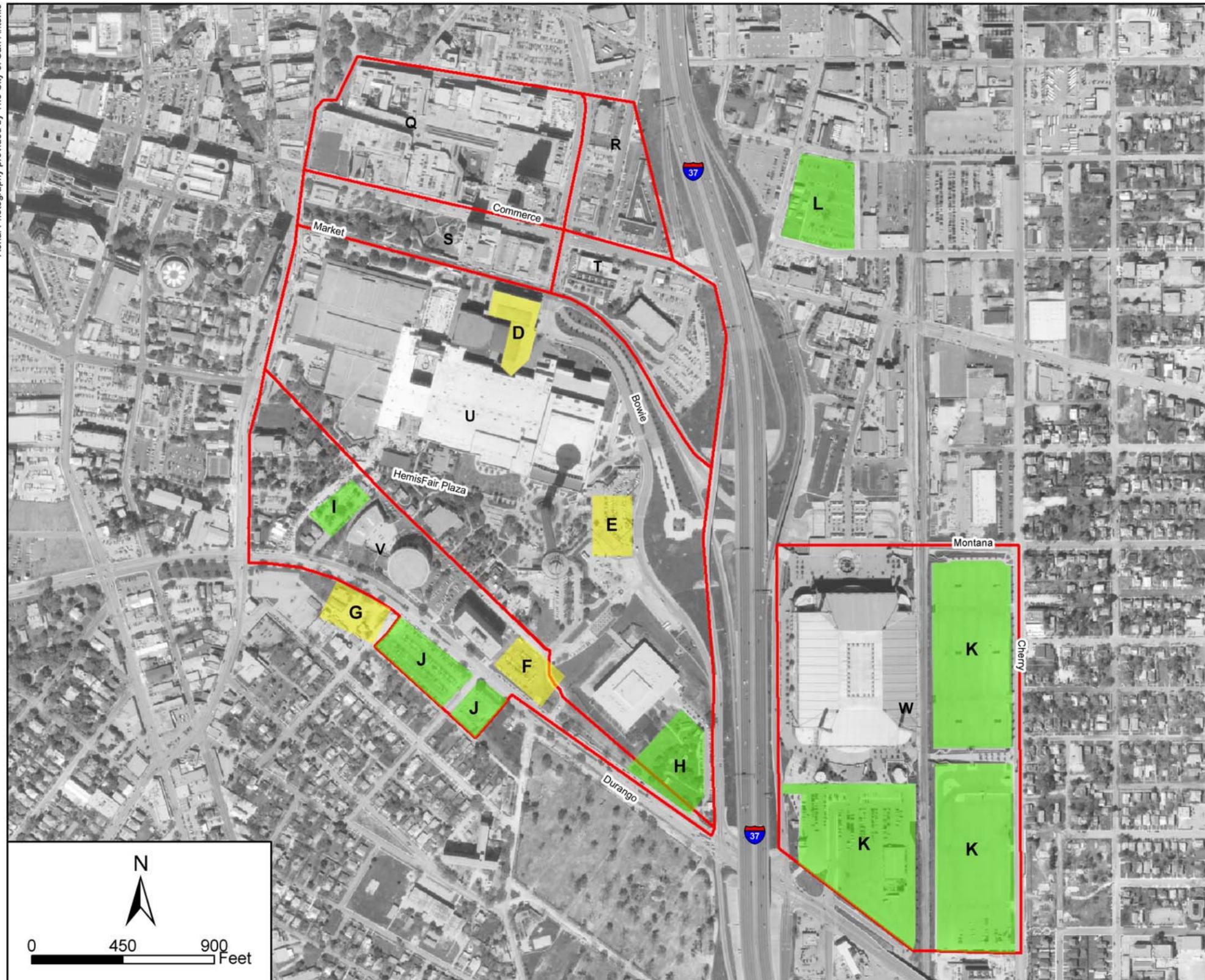
Site I – Temporary Parking Lot for HemisFair Park – Existing surface parking to be replaced with open space and other uses when the Lavaca Parking Garage is placed in operation. Potential site for future underground parking garage.

Site J – Temporary Parking Lots for Federal Courthouse and Training Center – Existing surface parking to be replaced by Lavaca mixed use development when the Lavaca Parking Garage is placed in operation.

Site K – Alamodome Parking Lots – Remote parking with shuttle service to be used for special events.

Site L – VIA Ellis Alley Park & Ride – Remote parking with tram service to be used for HemisFair Park area visitors and patrons.

Aerial Photography provided by The City of San Antonio



**Parking and Traffic
Modeling Study for
Downtown San Antonio
and South Texas
Medical Center
San Antonio, Texas**

Legend

- HemisFair Emphasis Zone
- Parking Site Alternatives
 - Multilevel Parking Structure
 - Surface Parking Lot Site

Multilevel Parking Structure Sites

- D Convention Center Headquarters Hotel
- E Convention Center/Tower of the Americas
- F Federal Office Building
- G Lavaca Development

Surface Parking Lot Sites

- H ITC/Visitor Center Surface Parking
- I Interim Surface Parking
(Potential Underground Garage)
- J Interim Surface Parking
- K Alamo Dome Parking
- L VIA Ellis Alley Park and Ride

**Figure 17
HemisFair Alternative
Sites for Parking
Development**



Carter=Burgess



5.8 Housing as a Joint Use in Parking Garages

In downtown San Antonio, the incorporation of housing into a parking garage is both a viable and desirable concept for several reasons. The first reason is that if the housing is vertically separated from the garage, (this will be necessary for fire protection reasons), the housing can mask the garage from the street, making a more "pedestrian friendly" experience. A garage alone often detracts from the quality of pedestrian experience because the street is less active and often oppressive in scale. Second, the model of a garage bounded by housing is one which urban developers often use and good examples can be seen as near as downtown Houston.

However, due to relatively low price for rental apartments downtown at this time, it seems unlikely that this model is economically feasible as a development financed solely by the City of San Antonio. Based on some interviews with developers interested in building in the downtown area, and our review of the Downtown Housing Analysis performed for the Downtown Alliance, what does seem to make sense is a scenario where the City works with a developer to jointly develop adjacent properties with the city leasing space in the garage to the developer of the housing or housing/retail tract. The housing can be on City-owned land and leased to the developer, or the housing tract can be sold outright with the appropriate use clause. This use-diagram is reflected in the Options for different potential garage locations noted within the West CBD Emphasis Area.

5.9 Summary

In conclusion, a phased, mixed-use program of garage development is ideal, even critical for an urban fabric like downtown San Antonio and there are several viable sights within the study area for future garages. Viable site alternatives are identified in this study that could accommodate the proposed parking garage and joint development use for residential, retail, office, or other use. Any of these sites would fulfill a current need as well as add capacity for future development. A more in-depth analysis would be required to determine which of the options is to be pursued. Available joint development options for residential, retail, office, or other use incorporated in the parking development programs will be an important criteria in choosing the preferred alternative(s).



CHAPTER 6 - FINANCIAL ANALYSIS

6.1 Overview

The financing of parking improvements and parking programs can be complex and large depending on the city's plan for implementation. Constructing a parking garage in the West CBD or the HemisFair Emphasis Areas is a major undertaking from several perspectives:

- The operating and maintenance expenses of a new parking garage will be substantial; and
- While the city would have a revenue stream from hourly, daily, and monthly parking fees, other revenue sources will be needed.

Many other elements of an overall parking program are less capital intensive but may have a major impact on the feasibility of a new parking structure. By installing more on-street parking meters in downtown, increasing parking rates and parking fines, and selling monthly parking permits for municipal lots and garages, the city can generate additional revenue to help pay for a new public parking facility. Parking is intended to be an enterprise system operated so that income supports expenses for operation and maintenance. Continued enforcement will be important to prevent illegal use of available curb spaces in high demand areas for long-term parking.

The City might choose to undertake a phased program of parking improvements, first to develop surface parking and add more metered on-street parking, followed by later development of a multi-level parking garage after a positive revenue stream is established and surplus funds accumulate to support additional parking improvements.

With most municipal projects and programs, it is best to obtain revenue from either the users of the facilities or those individuals and businesses that stand to gain the most from the improvements. However, the city will need to rely on multiple sources of revenue to finance the capital development of a parking structure. Several means of financing parking improvements are discussed in the following paragraphs. Discussion is also presented on the types and amounts of revenue from potential parking sources. Finally, a planning-level financial pro forma analysis is presented for a proposed 750-space parking garage.

6.2 Framework of Parking Finance

Building a new parking facility is a real estate development activity and is subject to many of the risks associated with that industry. As with any real estate activity, risk increases as a property becomes specialized and as capital-intensive features are added. Developing a parking facility that not only meets the current needs of users but is flexible to adapt to future needs and demands, is critical to lenders. The more

unusual or specialized a structure becomes, the more general credit of the borrower will be needed to secure debt financing.

The City of San Antonio is a municipality and has the advantage of being able to use tax-free financing. Enactment of the 1986 Federal tax law and subsequent amendments had a direct influence on the financing of parking facilities. The laws provide clear guidelines that must be met for tax-exempt financing for parking facilities, including the following requirements:

- At least 90 percent of the spaces must be available for public monthly, daily, or hourly parking;
- Not less than 95 percent of the total proceeds must be spent for construction, including related costs such as architectural and engineering fees; Not more than 10 percent of annual debt service may be paid or guaranteed by a non-public entity; and
- Any management agreements for operation with a private contractor cannot exceed duration of five years, with the ability of the owner to cancel at the end of any two-year period.

It is assumed the guidelines above will be present and that tax-exempt financing will be the primary vehicle to finance a parking structure in San Antonio.

Several tax-exempt instruments have traditionally been used to finance parking facilities:

- General obligation (GO) bonds;
- Special assessment bonds;
- Tax increment bonds;
- Parking revenue bonds; and
- Guaranteed revenue bonds.

Any of these options, or a combination, would require a bond election for approval by voters.

6.2.1 General Obligation Bonds

General obligation bonds involve pledging the full faith and credit of the municipality, making the General Fund available to meet debt obligations. GO Bonds would require approval by the electorate, which is a major consideration regarding the use of this option. The city would legally issue Certificates of Participation to the municipal entity responsible for the parking program, and this entity would be obligated through a lease or installment agreement to pay investors back. Debt service for GO Bonds would be paid from revenues earmarked as part of the parking program; it is likely the General

Fund would never have to be used. The primary advantage to GO financing is that pledged revenues need not exceed debt service requirements. In addition, financing costs are relatively low compared to other forms of financing.

6.2.2 Special Assessment Bonds

This form of financing involves bonds that are secured by the property owners and businesses that stand to benefit from the improvements. The special assessment is levied as an added increment of property tax or sales tax in a special tax district. Usually property tax assessments are based on the degree of benefit according to an agreed-upon formula. A sales tax assessment is based on benefit distributed among commercial businesses. The advantage of this method of financing is that costs are borne based on benefits received. Because of the lack of certainty of collection of assessments (compared to property taxes), interest rates will be higher than with GO bonds.

6.2.3 Tax Increment Bonds

This type of financing has been used in Texas and other states such as Arizona, California, Colorado, Oklahoma, and Utah. The financing is derived from a highly segregated form of ad valorem property taxes. A Tax Increment Financing District must be established by city approval and a vote of the property owners within the District. Usually, properties in the vicinity of the improvements are included making this somewhat similar to the special assessment district.

Under this form of financing, the municipality establishes a base-year property assessment in the area served by the improvement. Increases in property assessments over the base year form the tax levy for payment of the bonds. In many instances, the full faith and credit of the issuing municipality is required for security. If not enhanced by the full faith and credit, it is preferable that the project be well under construction to minimize risk to the investor. In addition, without the enhancement, the pledged revenues required are likely to be well above debt service.

6.2.4 Parking Revenue Bonds

This type of financing has been used for approximately 100 years. Under this form of financing, revenue generated by the parking development or parking system is pledged to secure the revenue bonds. The city would perform an investor-grade financial feasibility study to show irrefutable evidence that the proposed parking garage will generate sufficient parking revenue to provide a debt service coverage ratio in the range of 1.25 to 1.5 (ratio of projected annual revenues to annual debt service plus average annual O&M costs). Bond insurance might be used to improve the bond rating, at additional cost.

6.3 Pro Forma Financial Analysis for Parking Development

A planning level pro forma financial analysis was performed to illustrate the financial considerations for the proposed parking development. The financial analysis is based on the development of a new garage containing 750 parking spaces. This analysis is based on numerous assumptions and estimates, which are discussed below. Our

analysis assumes that the market characteristics of the proposed parking facility will be similar to the Marina, Mid-City, and Riverbend garages. Our revenue analysis assumes that the City’s free parking policies will not impact the availability of parking spaces for paying customers. The construction period is assumed two years with revenues and expenditures beginning the third year for the full twelve-month period.

6.4 Operation & Maintenance Costs Analysis

The parking demand study results are the basis for the financial analysis. The project operating and maintenance costs for the new garage are based on the actual operating and maintenance costs of the Marina Garage, Mid-City Garage, and the Riverbend Garage for the fiscal year ending 2003. The average operation and maintenance costs for the three garages per the number of the parking space are shown in **Table 12**.

Table 12: Average Operation and Maintenance Costs

	Average Costs per Space			
	Marina Garage	Mid-City Garage	Riverbend Garage	Average
Personal Services	\$ 291.74	\$ 216.16	\$ 235.07	\$ 247.66
Contractual Services	\$ 73.71	\$ 87.10	\$ 153.68	\$ 104.83
Commodities	\$ 32.13	\$ 20.60	\$ 24.49	\$ 25.74
Other Expenses	\$ 7.18	\$ 5.64	\$ 8.49	\$ 7.10

The average costs of allocated expenditures are shown in **Table 13**. The direct allocated expenditures included: Supervision, Temporary Employees, Building Trade Service, Facilities Maintenance - Parking Division, Facilities Maintenance – Building Maintenance Division, and Cash Support. The overhead expenditures include: Fiscal Operations Support and Administrative Overhead.

Table 13: Average Allocated Costs

	Average Costs per Space			
	Marina Garage	Mid-City Garage	Riverbend Garage	Average
Direct Expenditures-Allocated	\$ 319.19	\$ 427.16	\$ 440.99	\$ 395.78
Overhead Expenditures	\$ 62.93	\$ 58.95	\$ 63.26	\$ 61.71

The average transfer costs for the three comparable garages are shown in **Table 14**.

Table 14: Average Transfer Costs

General Fund Indirect Cost	\$ 59.07
General Fund Other-Payment In-lieu of Taxes	\$ 14.00
General Fund Other - Misc	\$ 42.69
Capital Projects - Parking Demand Study	\$ 45.98
Information Technology ERM	\$ 2.86
Public Improvement District	\$ 10.17
TOTAL TRANSFERS	<u>\$174.76</u>

No capital project costs are projected for the new garage.

The total pro forma operation and maintenance (O&M) expenses are shown in **Schedule A**. The O&M schedule shows the projected operation and maintenance expenses, direct expenditures-allocated, overhead expenditures-allocated, capital, and transfers for the projected periods 2004 through 2028. The total costs and total costs per space are shown for each year. The average operating and maintenance expense increases for future years is adjustment by the average increase in costs between Fiscal Year Ending 1996 and 2002. The average Direct Expenditures-Allocated and Overhead Expenditures-Allocated are based on the average total operation and maintenance expenses increases between Fiscal Years Ending 1996 and 2002. Transfers to the General Fund are estimated using the actual increase in Transfers between the Fiscal Years Ending 1999 and 2003.

6.5 Revenue Analysis

The projected revenues for the proposed garage of 750 parking spaces are shown in **Schedule B**. The Monthly Parking, Residential Parking, Weekday Daily, and Weekday Hourly revenues are projected using the average revenues per parking space after sales taxes from the Marina Garage, Mid-City Garage, and the Riverbend Garage for the fiscal year ending 2003. The increases for parking revenues are based on the City’s planned general rate increases for parking fees. The lease revenue increases are based on the historical increase in revenue for the Fiscal Years Ending 1996 through 2001 and is projected to increase by 2 percent per year beginning in Fiscal Year 2006. The initial lease revenues are based on the new garage having 63,720 square feet of lease area. The current average occupancy rate for the City garages is 66 percent. The current average lease rate for space in the City garages is \$9.02 per square foot. This results in initial annual lease revenue of \$379,338.

**Schedule A: City of San Antonio, Texas -- Pro Forma Operation and Maintenance Expenses for Proposed
Parking Garage**

	Operation & Maintenance						Capital Outlay and Transfers			Total Costs	Total O&M Costs Per Space	
	Personnel	Contracted Services	Commodities	Other	Direct Expenditures- Allocated	Overhead Expenditures- Allocated	Total	Capital Outlay	Transfers			
Increase: Year	3.16%	0.50%	0.00%	2.88%	3.16%	3.16%		0.00%	4.65%			
Base	\$247.66	\$104.83	\$25.74	\$7.10	\$395.78	\$61.71		\$0.00	\$174.76			
2004	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0.00
2005	\$197,670	\$79,411	\$19,305	\$5,636	\$315,891	\$49,254	\$667,167	\$0	\$143,543	\$143,543	\$810,709	\$1,080.95
2006	\$203,916	\$79,808	\$19,305	\$5,798	\$325,874	\$50,810	\$685,511	\$0	\$150,218	\$150,218	\$835,729	\$1,114.30
2007	\$210,360	\$80,207	\$19,305	\$5,965	\$336,171	\$52,416	\$704,424	\$0	\$157,203	\$157,203	\$861,627	\$1,148.84
2008	\$217,007	\$80,608	\$19,305	\$6,137	\$346,794	\$54,072	\$723,923	\$0	\$164,513	\$164,513	\$888,436	\$1,184.58
2009	\$223,864	\$81,011	\$19,305	\$6,314	\$357,753	\$55,781	\$744,028	\$0	\$172,163	\$172,163	\$916,191	\$1,221.59
2010	\$230,939	\$81,416	\$19,305	\$6,496	\$369,058	\$57,543	\$764,757	\$0	\$180,168	\$180,168	\$944,925	\$1,259.90
2011	\$238,236	\$81,823	\$19,305	\$6,683	\$380,720	\$59,362	\$786,129	\$0	\$188,546	\$188,546	\$974,675	\$1,299.57
2012	\$245,764	\$82,232	\$19,305	\$6,875	\$392,751	\$61,238	\$808,166	\$0	\$197,313	\$197,313	\$1,005,479	\$1,340.64
2013	\$253,531	\$82,643	\$19,305	\$7,073	\$405,162	\$63,173	\$830,887	\$0	\$206,488	\$206,488	\$1,037,375	\$1,383.17
2014	\$261,542	\$83,056	\$19,305	\$7,277	\$417,965	\$65,169	\$854,315	\$0	\$216,090	\$216,090	\$1,070,405	\$1,427.21
2015	\$269,807	\$83,472	\$19,305	\$7,487	\$431,173	\$67,228	\$878,471	\$0	\$226,138	\$226,138	\$1,104,610	\$1,472.81
2016	\$278,333	\$83,889	\$19,305	\$7,702	\$444,798	\$69,353	\$903,380	\$0	\$236,654	\$236,654	\$1,140,033	\$1,520.04
2017	\$287,128	\$84,309	\$19,305	\$7,924	\$458,853	\$71,544	\$929,063	\$0	\$247,658	\$247,658	\$1,176,722	\$1,568.96
2018	\$296,201	\$84,730	\$19,305	\$8,152	\$473,353	\$73,805	\$955,547	\$0	\$259,174	\$259,174	\$1,214,721	\$1,619.63
2019	\$305,561	\$85,154	\$19,305	\$8,387	\$488,311	\$76,137	\$982,856	\$0	\$271,226	\$271,226	\$1,254,081	\$1,672.11
2020	\$315,217	\$85,580	\$19,305	\$8,629	\$503,742	\$78,543	\$1,011,015	\$0	\$283,838	\$283,838	\$1,294,853	\$1,726.47
2021	\$325,178	\$86,007	\$19,305	\$8,877	\$519,660	\$81,025	\$1,040,053	\$0	\$297,036	\$297,036	\$1,337,089	\$1,782.79
2022	\$335,454	\$86,437	\$19,305	\$9,133	\$536,081	\$83,586	\$1,069,996	\$0	\$310,848	\$310,848	\$1,380,844	\$1,841.13
2023	\$346,054	\$86,870	\$19,305	\$9,396	\$553,021	\$86,227	\$1,100,873	\$0	\$325,303	\$325,303	\$1,426,176	\$1,901.57
2024	\$356,989	\$87,304	\$19,305	\$9,667	\$570,497	\$88,952	\$1,132,713	\$0	\$340,429	\$340,429	\$1,473,143	\$1,964.19
2025	\$368,270	\$87,741	\$19,305	\$9,945	\$588,524	\$91,763	\$1,165,548	\$0	\$356,259	\$356,259	\$1,521,807	\$2,029.08
2026	\$379,907	\$88,179	\$19,305	\$10,231	\$607,122	\$94,662	\$1,199,407	\$0	\$372,826	\$372,826	\$1,572,233	\$2,096.31
2027	\$391,913	\$88,620	\$19,305	\$10,526	\$626,307	\$97,654	\$1,234,324	\$0	\$390,162	\$390,162	\$1,624,486	\$2,165.98
2028	\$404,297	\$89,063	\$19,305	\$10,829	\$646,098	\$100,740	\$1,270,332	\$0	\$408,304	\$408,304	\$1,678,636	\$2,238.18
2029	\$417,073	\$89,509	\$19,305	\$11,141	\$666,515	\$103,923	\$1,307,465	\$0	\$427,291	\$427,291	\$1,734,756	\$2,313.01
Total	\$7,360,211	\$2,109,078	\$482,625	\$202,282	\$11,762,192	\$1,833,960	\$23,750,348	\$0	\$6,529,392	\$6,529,392	\$30,279,740	
Average Annual	\$294,408	\$84,363	\$19,305	\$8,091	\$470,488	\$73,358	\$950,014	\$0	\$261,176	\$261,176	\$1,211,190	\$1,615

Schedule B: City of San Antonio, Texas – Pro Forma Revenues for Proposed Parking Garage

Year	Percent Increase	Monthly	Residential Monthly	Weekday Daily	Weekday Hourly	Total Parking Revenues	Percent Increase	Lease Revenues	Total Revenues	Average Parking Revenue Per Space
2004	0%	\$0	\$0	\$0	\$0	\$0	0%		\$0	\$0
2005	0%	\$253,800	\$32,400	\$300,300	\$758,063	\$1,344,563	0%	\$379,338	\$1,723,900	\$1,793
2006	0%	\$253,800	\$32,400	\$300,300	\$758,063	\$1,344,563	2%	\$386,925	\$1,731,487	\$1,793
2007	0%	\$253,800	\$32,400	\$300,300	\$758,063	\$1,344,563	2%	\$394,663	\$1,739,226	\$1,793
2008	0%	\$253,800	\$32,400	\$300,300	\$758,063	\$1,344,563	2%	\$402,556	\$1,747,119	\$1,793
2009	0%	\$253,800	\$32,400	\$300,300	\$758,063	\$1,344,563	2%	\$410,608	\$1,755,170	\$1,793
2010	11%	\$281,718	\$35,964	\$333,333	\$841,449	\$1,492,464	2%	\$418,820	\$1,911,284	\$1,990
2011	0%	\$281,718	\$35,964	\$333,333	\$841,449	\$1,492,464	2%	\$427,196	\$1,919,660	\$1,990
2012	0%	\$281,718	\$35,964	\$333,333	\$841,449	\$1,492,464	2%	\$435,740	\$1,928,204	\$1,990
2013	0%	\$281,718	\$35,964	\$333,333	\$841,449	\$1,492,464	2%	\$444,455	\$1,936,919	\$1,990
2014	0%	\$281,718	\$35,964	\$333,333	\$841,449	\$1,492,464	2%	\$453,344	\$1,945,808	\$1,990
2015	5%	\$295,804	\$37,762	\$350,000	\$883,522	\$1,567,088	2%	\$462,411	\$2,029,498	\$2,089
2016	0%	\$295,804	\$37,762	\$350,000	\$883,522	\$1,567,088	2%	\$471,659	\$2,038,747	\$2,089
2017	0%	\$295,804	\$37,762	\$350,000	\$883,522	\$1,567,088	2%	\$481,092	\$2,048,180	\$2,089
2018	0%	\$295,804	\$37,762	\$350,000	\$883,522	\$1,567,088	2%	\$490,714	\$2,057,802	\$2,089
2019	0%	\$295,804	\$37,762	\$350,000	\$883,522	\$1,567,088	2%	\$500,528	\$2,067,616	\$2,089
2020	6%	\$313,552	\$40,028	\$371,000	\$936,533	\$1,661,113	2%	\$510,539	\$2,171,652	\$2,215
2021	0%	\$313,552	\$40,028	\$371,000	\$936,533	\$1,661,113	2%	\$520,750	\$2,181,863	\$2,215
2022	0%	\$313,552	\$40,028	\$371,000	\$936,533	\$1,661,113	2%	\$531,165	\$2,192,277	\$2,215
2023	0%	\$313,552	\$40,028	\$371,000	\$936,533	\$1,661,113	2%	\$541,788	\$2,202,901	\$2,215
2024	0%	\$313,552	\$40,028	\$371,000	\$936,533	\$1,661,113	2%	\$552,624	\$2,213,737	\$2,215
2025	0%	\$313,552	\$40,028	\$371,000	\$936,533	\$1,661,113	2%	\$563,676	\$2,224,789	\$2,215
2026	0%	\$313,552	\$40,028	\$371,000	\$936,533	\$1,661,113	2%	\$574,950	\$2,236,063	\$2,215
2027	0%	\$313,552	\$40,028	\$371,000	\$936,533	\$1,661,113	2%	\$586,449	\$2,247,562	\$2,215
2028	0%	\$313,552	\$40,028	\$371,000	\$936,533	\$1,661,113	2%	\$598,178	\$2,259,291	\$2,215
2029	0%	\$313,552	\$40,028	\$371,000	\$936,533	\$1,661,113	2%	\$610,141	\$2,271,254	\$2,215
Totals		\$7,292,131	\$930,910	\$8,628,160	\$21,780,500	\$38,631,701		\$12,150,307	\$50,782,008	
Average Annual Revenues		\$291,685	\$37,236	\$345,126	\$871,220	\$1,545,268		\$486,012	\$2,031,280	
Average Annual Revenues Per Space						\$2,060				

6.6 Development Cost and Debt Service Analysis

The development costs and debt service for the project are shown in **Schedule C**. The total project costs are estimated at \$17,758,160. The three development cost categories are land cost, construction costs, and finance costs.

No land costs are included in this pro forma, as two of the three proposed project sites are owned by the City. In addition, two of the three potential sites will require minimal demolition and site preparation; therefore, no demolition or site work costs are included in the estimated project cost. Depending on the site selected, these assumptions should be reviewed and considered for the specific site.

The construction costs include: parking garage construction cost, joint development space construction costs, design cost, contingencies, and construction supervision. The garage construction cost is estimated to be \$12,000 per parking space for 750 parking spaces or \$9,000,000. The joint development space construction costs are estimated at \$35 per square foot for 63,720 square feet of lease space or \$2,230,200. The architecture/engineering design and construction supervision cost is estimated to be 13 percent of the construction costs or \$1,459,925. The contingencies are estimated at 10 percent of the construction costs or \$1,123,020. The development costs are estimated based on experience with similar projects; including the City of San Antonio costs for the St. Mary's Street Parking Garage. The total development cost is estimated to be \$13,813,146.

The finance costs include debt service reserve, capitalized interest, bond discount, legal fees, and consultant fees. The debt service is estimated assuming equal payments at an interest rate of 5.5 percent per annum for a 25-year term. Interest earned on bond funds during construction is subtracted from the other finance costs. The debt service reserve is estimated at one years principal and interest payment, or \$1,639,365. Capitalized interest includes the estimated interest payment for the first two years, or \$1,953,398. Bond discount is estimated to be 2 percent of the Development Costs, or \$276,263. The cost of issuance includes legal fees and consultant fees and is estimated to be 2.7 percent of the Development Costs or \$372,955. The interest earned on bond funds assuming a rate of return of 5 percent per annum on the available balances is estimated to be \$296,966. The total finance costs are estimated to be \$3,945,014.

The debt service at 5 percent per annum with a 25-year term and equal payments for the Total Project Costs of \$17,758,160 is \$1,323,859 per year.

**Schedule C: City of San Antonio, Texas – Pro Forma Cost/Revenue Analysis for
Proposed Parking Garage**

	Per Space	Overall	Percent of Construction Costs
Land Cost:			
Square Feet			
Estimated Cost per Sq Ft	\$0.00	\$0	
Development Cost:			
Demolition (site preparation) -	\$0	\$0	
Construction Cost -	\$12,000	\$9,000,000	
Joint Development Space	\$35	\$2,230,200	
Design & Construction Supervision Cost -	\$1,947	\$1,459,926	13.0%
Contingencies -	\$1,497	\$1,123,020	10.0%
Total Development Costs	\$18,418	\$13,813,146	
Finance Costs:			
Debt Service Reserve (1 yr P+I)	\$2,186	\$1,639,365	
Replacement Fund			
O&M Fund			
Capitalized Interest (5.5% per year for 2 year)	\$2,605	\$1,953,398	
Bond Discount (% of Development Cost)	\$368	\$276,263	2.0%
Costs of Issuance (estimated)	\$497	\$372,955	2.7%
(Interest Earned During Construction @ 5% per year)	(\$396)	(\$296,966)	
Total Finance Costs	\$5,260	\$3,945,014	
Total Project Costs	\$23,678	\$17,758,160	
Interest Rate :	5.5%		
Annual Debt Service (Principal + Interest):			
25 Years @ 5.5% Interest	\$1,765 per year	\$1,323,859 per year	
Average Annual Costs of Operations and Maintenance:			
Non-personnel costs	\$1,267	\$950,014	
Personnel costs - Salaries	\$348	\$261,176	
Average Operations and Maintenance Costs	\$1,615 per year	\$1,211,190 per year	
AVERAGE ANNUAL COSTS:			
25 Year Bond	\$3,380 per year	\$2,535,049 per year	
Average Operating Revenues		\$2,031,280 per year	
Coverage Ratio:			
$\frac{\text{Average Revenue} - \text{Average O\&M Cost}}{\text{Annual Debt Service}} = \frac{\$2,031,280 - \$1,211,190}{\$1,323,859} = 0.62 \text{ Times Coverage}$			

Schedule D shows the net income per year based on the above assumptions. The project is projected to have a positive cash flow for each year; however, the net operating income (NOI) is not sufficient to provide the desired coverage ratio of 1.25. The parking development would require a series of further parking rate increases for the garage to make coverage as a stand-alone project. These annual rates increase vary from 49 percent for the initial period to minor increases of 1, 2, or 3 percent in later periods.

Schedule D: City of San Antonio, Texas – Cost/Revenue Summary for Proposed Parking Garage

Year	Operating Costs	Operating Revenues	NOI *	Coverage Ratio	NOI * After Debt Service	Cumulative NOI * After Debt Service	Rate Increase Needed for Coverage
2004	\$0	\$0	\$0	0.00	(\$1,323,859)	(\$1,323,859)	N/A
2005	\$810,709	\$1,723,900	\$913,191	0.69	(\$410,668)	(\$1,734,528)	49%
2006	\$835,729	\$1,731,487	\$895,759	0.68	(\$428,101)	(\$2,162,629)	1%
2007	\$861,627	\$1,739,226	\$877,599	0.66	(\$446,260)	(\$2,608,889)	1%
2008	\$888,436	\$1,747,119	\$858,683	0.65	(\$465,177)	(\$3,074,065)	1%
2009	\$916,191	\$1,755,170	\$838,980	0.63	(\$484,880)	(\$3,558,945)	1%
2010	\$944,925	\$1,911,284	\$966,359	0.73	(\$357,500)	(\$3,916,445)	0%
2011	\$974,675	\$1,919,660	\$944,985	0.71	(\$378,874)	(\$4,295,319)	0%
2012	\$1,005,479	\$1,928,204	\$922,726	0.70	(\$401,134)	(\$4,696,453)	0%
2013	\$1,037,375	\$1,936,919	\$899,544	0.68	(\$424,315)	(\$5,120,768)	0%
2014	\$1,070,405	\$1,945,808	\$875,403	0.66	(\$448,456)	(\$5,569,224)	0%
2015	\$1,104,610	\$2,029,498	\$924,889	0.70	(\$398,971)	(\$5,968,195)	0%
2016	\$1,140,033	\$2,038,747	\$898,713	0.68	(\$425,146)	(\$6,393,341)	0%
2017	\$1,176,722	\$2,048,180	\$871,458	0.66	(\$452,401)	(\$6,845,742)	0%
2018	\$1,214,721	\$2,057,802	\$843,080	0.64	(\$480,779)	(\$7,326,521)	0%
2019	\$1,254,081	\$2,067,616	\$813,534	0.61	(\$510,325)	(\$7,836,846)	0%
2020	\$1,294,853	\$2,171,652	\$876,799	0.66	(\$447,061)	(\$8,283,907)	0%
2021	\$1,337,089	\$2,181,863	\$844,773	0.64	(\$479,086)	(\$8,762,993)	0%
2022	\$1,380,844	\$2,192,277	\$811,433	0.61	(\$512,426)	(\$9,275,419)	0%
2023	\$1,426,176	\$2,202,901	\$776,725	0.59	(\$547,134)	(\$9,822,553)	0%
2024	\$1,473,143	\$2,213,737	\$740,594	0.56	(\$583,266)	(\$10,405,819)	3%
2025	\$1,521,807	\$2,224,789	\$702,982	0.53	(\$620,877)	(\$11,026,696)	2%
2026	\$1,572,233	\$2,236,063	\$663,830	0.50	(\$660,029)	(\$11,686,726)	2%
2027	\$1,624,486	\$2,247,562	\$623,075	0.47	(\$700,784)	(\$12,387,510)	2%
2028	\$1,678,636	\$2,259,291	\$580,654	0.44	(\$743,205)	(\$13,130,715)	2%
2029	\$1,734,756	\$2,271,254	\$536,498	0.41	(\$787,361)	(\$13,918,076)	2%
Totals	\$28,544,984	\$48,510,754	\$19,965,769		(\$13,130,715)		

* Note: NOI = Net-Operating Income

Schedule E shows the impact of the new project on the financial status of the City of San Antonio Municipal Parking System for Fiscal Year Ending 2003 through 2020. The overall parking system enterprise is projected to have sufficient coverage for the prior lien debt of the existing municipal parking system. Adding the proposed new garage, the system provides a positive cash flow but coverage is below the minimum coverage requirement for future years until after 2014. The Municipal Parking System needs a revenue increase or additional funding sources for attaining sufficient coverage of the proposed project.

The accompanying projections have been prepared based on information and assumptions set forth in various sections of the report appendices. We have relied upon this information without verification. These projections are based on management's assumptions concerning future events and circumstances. Moreover, the City of San Antonio believes these assumptions are significant to the projections and are key factors on which the results depend. Although we believe the information and assumptions constitute a reasonable basis for preparation of the projections, the achievements of any financial projection may be affected by fluctuating economic conditions and is dependent upon the occurrence of future events that cannot be assured. Therefore, actual results may vary from the projections and such variations could be material. The terms of our engagement are such that we have no obligation to update this report or to revise the prospective results because of events and transactions occurring subsequent to the date of this report.

Schedule E: City of San Antonio, Texas -- Projected Cash Flow Analysis for Parking System

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Gross Revenues	8,645,894	9,083,881	9,062,870	9,051,977	9,006,620	9,016,516	9,982,137	9,992,534	9,998,928	10,005,417	10,012,005	10,570,491	10,577,278	10,584,166	10,591,157	10,598,253	11,190,116	11,197,426
Total Operating Expense	5,981,570	6,131,110	6,284,387	6,441,497	6,602,534	6,767,598	6,936,788	7,110,207	7,220,177	7,331,879	7,445,341	7,560,592	7,677,662	7,796,579	7,917,373	8,040,076	8,164,718	8,291,330
Net Revenues	2,664,324	2,952,772	2,778,482	2,610,480	2,404,086	2,248,918	3,045,349	2,882,326	2,778,751	2,673,539	2,566,664	3,009,899	2,899,616	2,787,587	2,673,784	2,558,177	3,025,398	2,906,096
Prior Lien Debt Service Requirements:																		
Convention Center Garage	391,273	506,273	515,523	549,023	545,523	551,773	597,178	439,683	499,533	646,035	644,395	641,808	642,558	642,208	645,758	647,933	648,293	642,020
St. Mary's Street Garage	846,933	1,096,933	1,114,433	1,190,433	1,186,933	1,192,683	1,286,978	950,203	1,079,130	1,395,848	1,394,968	1,391,905	1,395,105	1,395,830	1,394,080	1,399,855	1,401,655	1,394,873
Renovation & Signage	129,068	164,068	167,318	185,318	182,318	179,318	196,288	147,208	165,405	207,573	212,373	216,598	214,998	213,123	210,973	213,548	215,428	211,670
Total Prior Lien Debt Service	1,367,273	1,767,273	1,797,273	1,924,773	1,914,773	1,923,773	2,080,443	1,537,093	1,744,068	2,249,455	2,251,735	2,250,310	2,252,660	2,251,160	2,250,810	2,261,335	2,265,375	2,248,563
Net Revenues Available for Other Purposes	1,297,051	1,185,499	981,210	685,708	489,314	325,146	964,907	1,345,234	1,034,683	424,084	314,929	759,589	646,956	536,427	422,974	296,842	760,023	657,534
Subordinate Lien Debt Service Requirements:																		
Outstanding General Obligation Parking Debt	1,814,194	1,817,529	1,793,671	1,673,721	1,666,451	1,635,506	1,468,186	2,279,306	2,069,086	796,993	664,366	162,939	94,860	-	-	-	-	-
Total Subordinate Lien Debt	1,814,194	1,817,529	1,793,671	1,673,721	1,666,451	1,635,506	1,468,186	2,279,306	2,069,086	796,993	664,366	162,939	94,860	-	-	-	-	-
Capitalized Interest	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Surplus Revenues	(517,143)	(632,029)	(812,461)	(988,014)	(1,177,138)	(1,310,360)	(503,279)	(934,072)	(1,034,403)	(372,909)	(349,438)	596,650	552,096	536,427	422,974	296,842	760,023	657,534
Beginning Repair & Replacement Fund Balance (Oct. 1)	2,447,529	2,112,149	1,441,800	590,061	(438,212)	(1,656,615)	(3,009,273)	(3,555,907)	(4,517,472)	(5,579,801)	(5,981,075)	(6,359,325)	(5,791,943)	(5,269,576)	(4,763,348)	(4,371,050)	(4,105,368)	(3,376,998)
Transfers to Operation & Maintenance	181,762	(38,319)	(39,277)	(40,259)	(41,266)	(42,297)	(43,355)	(27,492)	(27,925)	(28,366)	(28,813)	(29,267)	(29,729)	(30,199)	(30,676)	(31,160)	(31,653)	-
Repair & Replacement & Facilities Fund Balance (9/30)	2,112,149	1,441,800	590,061	(438,212)	(1,656,615)	(3,009,273)	(3,555,907)	(4,517,472)	(5,579,801)	(5,981,075)	(6,359,325)	(5,791,943)	(5,269,576)	(4,763,348)	(4,371,050)	(4,105,368)	(3,376,998)	(2,719,465)
Operation & Maintenance Fund Balance (9/30)	1,532,777	1,571,097	1,610,374	1,650,634	1,691,899	1,734,197	1,777,552	1,805,044	1,832,970	1,861,335	1,890,148	1,919,415	1,949,145	1,979,343	2,010,019	2,041,179	2,072,833	2,072,833
Debt Service Reserve Fund Balance (9/30)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aggregate Fund Balances (9/30)	3,644,926	3,012,897	2,200,436	1,212,422	35,284	(1,275,076)	(1,778,355)	(2,712,428)	(3,746,831)	(4,119,740)	(4,469,177)	(3,872,527)	(3,320,431)	(2,784,005)	(2,361,031)	(2,064,189)	(1,304,166)	(646,632)
Coverage on Prior Lien Debt:																		
Gross Pledged Revenues	6.32	5.14	5.04	4.70	4.70	4.69	4.80	6.50	5.73	4.45	4.45	4.70	4.70	4.70	4.71	4.69	4.94	4.98
Net Revenues	1.95	1.67	1.55	1.36	1.26	1.17	1.46	1.88	1.59	1.19	1.14	1.34	1.29	1.24	1.19	1.13	1.34	1.29
Coverage on Total Debt:																		
Gross Pledged Revenues	2.72	2.53	2.52	2.52	2.51	2.53	2.81	2.62	2.62	3.28	3.43	4.38	4.51	4.70	4.71	4.69	4.94	4.98
Net Revenues	0.84	0.82	0.77	0.73	0.67	0.63	0.86	0.76	0.73	0.88	0.88	1.25	1.24	1.24	1.19	1.13	1.34	1.29
New Garage Pro Forma																		
Revenues			1,723,900	1,731,487	1,739,226	1,747,119	1,755,170	1,911,284	1,919,660	1,928,204	1,936,919	1,945,808	2,029,498	2,038,747	2,048,180	2,057,802	2,067,616	2,171,652
Operating Expense			810,709	835,729	861,627	888,436	916,191	944,925	974,675	1,005,479	1,037,375	1,070,405	1,104,610	1,140,033	1,176,722	1,214,721	1,254,081	1,294,853
Operating Income			913,191	895,759	877,599	858,683	838,980	966,359	944,985	922,726	899,544	875,403	924,889	898,713	871,458	843,080	813,534	876,799
New Revenue Bond Debt Service			1,323,859	1,323,859	1,323,859	1,323,859	1,323,859	1,323,859	1,323,859	1,323,859	1,323,859	1,323,859	1,323,859	1,323,859	1,323,859	1,323,859	1,323,859	1,323,859
New Garage Project Coverage			0.69	0.68	0.66	0.65	0.63	0.73	0.71	0.70	0.68	0.66	0.70	0.68	0.66	0.64	0.61	0.66
Total With New Garage																		
Revenues Available for Debt Service		2,952,772	3,691,673	3,506,239	3,281,685	3,107,601	3,884,329	3,848,686	3,723,736	3,596,264	3,466,208	3,885,302	3,824,504	3,686,300	3,545,242	3,401,258	3,838,932	3,782,895
Total Revenue Bond Debt		1,767,273	3,121,132	3,248,632	3,238,632	3,247,632	3,404,302	2,860,952	3,067,927	3,573,314	3,575,594	3,574,169	3,576,519	3,575,019	3,574,669	3,585,194	3,589,234	3,572,422
Total Revenue Bond Debt Coverage		1.67	1.18	1.08	1.01	0.96	1.14	1.35	1.21	1.01	0.97	1.09	1.07	1.03	0.99	0.95	1.07	1.06
Coverage with G.O. Debt		0.82	0.75	0.71	0.67	0.64	0.80	0.75	0.72	0.82	0.82	1.04	1.04	1.03	0.99	0.95	1.07	1.06

6.7 Conclusion

The data collected and analysis performed yielded considerable insight regarding parking conditions in the West CBD and the HemisFair Emphasis Areas. In the preceding chapters, discussion centered on describing the findings of the study and explaining their relevance to real and perceived parking problems. This chapter consolidates the results of the study outlining recommendations for improving parking in San Antonio over the next several years.

Solutions for parking in the West CBD and HemisFair Emphasis Areas entail developing several programs in multiple stages. Some can be implemented easily and with minimal costs. Others will require time and involve developing capital improvements and the associated financing for the improvements.

The recommendations should be viewed as guidelines for future parking development. There is no one solution for improving parking; many elements should be considered and programs implemented to meet parking needs. Moreover, there are many approaches the City could take in solving parking problems. Some of these are dependent on policy (e.g., the amount of parking the City wishes to provide vs. encouraging alternative modes of travel) and others are dependent on costs and availability of funding.

Anything other than the status quo can raise a combination of public concern (as well as public support), which will need to be debated among city residents, businesses and landowners. During the course of the study, two meetings were held with a stakeholders group to disseminate information and solicit input. While the meetings were a good start, it is expected that actual implementation will generate further interest in recommendations that have financial impact on users of parking in the West CBD and HemisFair Emphasis Areas.

APPENDIX A



City of San Antonio Parking Demand And Traffic Modeling Study

Downtown Parking Stakeholders' Meeting Report

June 27, 2003

Prepared by:



Attendance

Public Participants:

Scott Erickson, MPO
Chris Sinick, San Antonio Children's
Museum
Les Locke, Bexar County
Sharon Hamm, Downtown Alliance

Bill Lyons
Patricia Horsford
Ron Czulada, Adams Mark Hotel

Bill Clave, Centro SA Amigos
Todd Hemingson, VIA
James Richards, Central Parking
Jack Hebdon, La Mansion

Zeke Kennedy
Edna Perez-Vega, Goodwill Industries

Ed Cross, Cross & Co.

City of San Antonio:

Jason Cosby, Public Works
Maria Valero, Public Works
John Friebele, Public Works
Kenny Appedole, Parking Division
Mark Webb, Asset Management
Cris Young, Economic Development
Rebecca Waldman, Asset Management

Consultant Team:

Brad Davis, Carter-Burgess
Vanessa Vega, Ximenes & Associates
Mike McAnelly, Carter-Burgess
Linda Vela, Ximenes & Associates

Study and Meeting Background

The City of San Antonio is conducting a parking demand and traffic modeling study for the Downtown and Medical Center areas. Parking demand will be done specifically for the highly congested Downtown study area with emphasis in two Areas, the west CBD and the convention center.

Current parking demands and needs will be assessed in San Antonio's Downtown and Medical Center areas, including confirmation of available parking and the current utilization for existing public and private parking. In the Downtown area, analysis of current parking supply and demands will be performed to determine existing and future parking deficiencies and improvement needs. Planned future land uses in the Downtown and Medical Center areas will be analyzed to estimate the impact on future parking supply and demands.

The stakeholder meeting for the Downtown Parking Demand Study was held June 27, 2003 at the Municipal Plaza Building B Room. There were twenty-one people in attendance.

Participants listened to a presentation on the project given by the project manager for the consultant team, Mike McAnelly of Carter & Burgess. After the presentation, citizens were divided into two groups and given a map of the study area to refer to while

they answered a few questions. Linda Vela and Vanessa Vega of Ximenes & Associates each led a group through a forty-five minute discussion focused on answering the specific questions provided. The information gathered will be used to help the team determine the transportation needs for San Antonio's downtown community.

Meeting Analysis

Participants at the meeting represented a diverse cross-section of stakeholders in the downtown area and included members from the Downtown Alliance, Market Square, businesses, hotels, institutions, parking operators, and the Bexar County Courthouse. The group was very vocal and raised interesting questions and valid concerns pertaining to specific areas and events in the downtown area. Overall, participants provided valuable feedback for the study process and focused on specific parking issues including price, convenience, and educating the public.

While working in their groups, participants were given an opportunity to express concerns they had regarding the parking situation downtown. Stakeholders at this meeting were strongly concerned with educating the public about parking and safety downtown. They elaborated by saying that locals were deterred from coming downtown because of the perception that parking is scarce, expensive, difficult to find, and unsafe. Stakeholders felt that locals could significantly benefit from some type of education about parking available in the downtown area and in turn, businesses would prosper.

Concerns about event parking were briefly mentioned and the consensus was that costs during these events were high and spaces were limited. Suggestions were made for local businesses to offer discounted or free parking during these events and on weekends as an incentive for locals and tourists alike.

Participants addressed the utilization of existing parking lots and garages, especially surrounding the Market Square. Stakeholders felt Cattleman's parking was an underutilized area by Market Square visitors, COSA employees, and UTSA students. A potential parking structure in this area was also mentioned as a potential bridge for Westside residents to downtown San Antonio.

Participants were generally satisfied with the condition of both public and privately owned garages and suggested minimal improvements. Stakeholders addressed Mid City garage as not accommodating traffic from the Majestic and Empire theatres. The lack of cleanliness of some publicly owned garages was also pointed out and a power wash was suggested to remedy the problem. In addition to these suggestions, recommendations were made to increase the number of handicapped parking spaces throughout the study area.

The meeting concluded with each group giving a brief presentation of key points from their discussion to the entire group. Upon completion of their presentation, stakeholders were given the opportunity to ask additional questions and make further suggestions for improvement. One person made a suggestion to create bike stations in the area.

Questions about signage and the necessary funding were also asked and answered upon conclusion of the presentation.

Reporting Sheets

After listening to the consultant's presentation about the downtown parking demand study, participants were asked to form two separate groups and discuss their opinions and ideas regarding the project. A reporting sheet was used to guide the discussion and ask specific questions pertaining to the study area. Linda Vela and Vanessa Vega of Ximenes & Associates, Inc. were the group recorders and facilitated the discussions. The reporting sheet addressed four questions and utilized the map provided to each group. Following is a transcription of the answers provided.

GROUP ONE

What improvements are needed for parking in the downtown area?

- Not enough handicap parking
- Bridge Cattleman Square to Market Square – create more connection between the city's Westside and Market Square
- Promote use of Cattleman parking lot for COSA employees, UTSA students, etc.
- Create a high-rise parking garage by the jail
- Market square needs major improvement overall
- Overall, people do not want to pay and look for parking - it creates a negative image
- Create a education process to inform the public, especially locals, about available parking downtown
- Build high-rise parking garage at Dolorosa lot
- Add more decks to the Market Square parking garage– get the city more involved
- Add second and third story at Goodwill for more parking
- Can Santa Rosa parking be used for parking in evenings and for special events?
- Area around COSA tax office offers potential sites for more parking

List any specific places where you have concerns about parking that were not addressed in the presentation?

- Market Square parking for events like Fiesta was not specifically addressed
- Conduct a weekend parking demand study in addition to during weekdays
- The Children's Museum – people do not want to walk across streets especially with children.
- Children, accessibility, and safety issues need to be looked at
- Price of parking is an issue – how much are people willing to pay for convenient parking?
- How will the new Smithsonian museum affect parking?

On the map provided, indicate potential locations for new surface parking or parking garage facilities.

- Build parking garage by city jail
- Build garage at the Cattleman lot with a connection under the freeway to Market Square
- Use Santa Rosa parking facilities if possible

Do you know of any potential developments that could happen within the next five to ten years that could impact the parking demand? If so, please indicate their location on the map provided.

- How will the new museum affect parking?
- Cattleman's lot – demand not there
- Market Square needs locals – how do we accommodate them?
- Continental Hotel renovation/redevelopment

General Comments

- Events are big parking demand generators at the Convention Center area, but that's only at certain times.
- People who come downtown will walk for parking – those who do not come out (locals) will not even attempt it
- 70% of Goodwill's clients are foot traffic
- The economics of plan are another study all together
- Fiesta makes money for promoting Market Square

GROUP TWO

What improvements are needed for parking in the downtown area?

- Mid City Garage does not accommodate traffic from Majestic and Empire Theatres.
- Garage by Greyhound is always empty – top floor has never opened
- Need public restrooms at city parking garages for tourists coming from out-of-town.
- Riverbend garage is really dirty – needs to be power washed – improve cleanliness of publicly owned garages
- Don't like event pricing at garages at night – it is a deterrent to locals – locals like free parking or low cost parking
- People don't want to park and walk more than 2 blocks in San Antonio
- Look at more metered parking on the streets
- St. Mary's Garage is uncomfortable to use – have to walk by homeless people

List any specific places where you have concerns about parking that were not addressed in the presentation.

- Area south of Nueva to Durango –parking is saturated Monday through Friday, 8 a.m. to 5 p.m. and dead on weekends

- Majestic and Empire area; Nix – Houston St. needs to be better supported with more parking
- Better signage on streets to direct people to under utilized parking, i.e. St. Mary's garage
- Create peripheral parking with info center at Ellis Alley and use trolleys to move people downtown – trolley service cuts off too early at night

On the map provided, indicate potential locations for new surface parking or parking garage facilities.

- Peripheral parking at Ellis Alley
- Parking garages at Houston/Flores, Flores/Travis, Dolorosa/Santa Rosa, Nueva/Flores

Do you know of any potential developments that could happen within the next five to ten years that could impact parking demand? If so, please indicate their location on the map provided.

- County is looking at regional satellite offices that might reduce number of employees and people coming downtown to do business
- SAWS moving out – headquarters hotel will take a garage out
- Victoria courts housing development
- Museum reach of Riverwalk – development north

General Comments

- Perception of downtown by locals is that it is dangerous – needs more education to promote safety downtown.
- City parking lot map that flashes on city access TV channel.

Comment Forms

Each attendee was provided with a comment form to express their opinions about the information presented and the meeting process. The form also provided the project team with information pertaining to parking preference and necessity.

Results showed that the majority of people at this meeting parked at their place of business in the downtown area. Commercial and garage parking lots were second to business parking, and the basis for finding parking was emphasized by location rather than cost.

The following diagram tabulates the responses received.

COMMENT	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Generally, I feel that parking downtown is adequate.		4		7	1
This meeting was beneficial.	1	10	1		
The information was presented clearly.	1	10	1		
This study is a good idea.	7	4	1		

Are there any other specific problems/needs that should be addressed?	Yes	No
<p>Comments:</p> <ul style="list-style-type: none"> • Locals perception of parking downtown. • Need for additional space in west CBD. • “Event parking” cost during regular, non-event Weekends are high enough to deter locals from coming downtown. • If we increase low-income housing we need to consider low-rate or subsidized parking for them. • Parking in county courthouse area. • Educate the public on parking availability. • Market Square parking. 	8	4

Where do you park most often?

Business	6
City Parking Lot/Garage	2
Commercial Parking Lot/Garage	4
Convention Center	2
Event	0
Hotel	1
Mall	0
Market Square	0

Do you choose your parking based on cost or location?

Cost	4
Location	10

General Comments from Comment Forms

- Discounted or free parking to encourage more locals to visit downtown at night and on weekends. Encourage businesses to discount parking for customers. Decentralized parking and use of trolley for tourists and downtown employees.
- Please forward any outcomes or notes to my attention: Goodwill Industries of San Antonio 406 W. Commerce San Antonio, TX 78207.

Group Discussion, Questions, & Comments

Upon conclusion of the meeting Mike McAnelly and Linda Vela asked the group for any other questions and suggestions they had for improvement to the area. A valuable suggestion was made by the public to implement bike stations in the downtown area. In response to a question regarding signage, city staff assisted in explaining procedures for future signage efforts. Linda Vela recorded all questions and responses concluding the meeting.

- Create Bike racks at all lots and garages.
- Create a bike station in downtown area.
- Are there any signage efforts underway?
 - *Yes but vehicular signage is not funded yet – part of bond package.*
- VIA multi-modal station on west-side needs to consider parking.

APPENDIX B



City of San Antonio Parking Demand And Traffic Modeling Study

Downtown Parking Stakeholders' Meeting Report

Meeting Date: January 14, 2004

Prepared by:



Stakeholders Attending:

Patrick Woosley	Regina Davis	Frank Rascoe
John Hedrick	Glenn Reed	Jackie Mallette
John Friebele	Daniel Hagerty	Arturo Vega
Andrew Douglas	Tommy James	Jeanne Geiger
Kevin Conner	Tim Baisdon	Maria Valero
JoAnn Andera	Rebecca Waldman	Jack Skelton
Gary Fisher	Monica Ramos	John Baines
Mike Cochran	Ben Brewer	Pat Hutcherson
Frank Juarez	Slade Williamson	Julian Cruz
Rachel Ponce	Bill Clave	James Richards
Mark Hausheer	Ed Cross	Steve Thurlow
T. González	James Lifshutz	Cecilia Rodriguez
Sid Martinez	Christina Ybañez	Zeke Kennedy
Bill Mayo	Mickey Hansen	Tom Pawel
Bernie Cantu	Emil Moncivais	Ron Czulada
Terry Palmer	Graham Westin	Mark Webb
Pete Tassos	LaJuana Hill	Cris Young
Powell Trotti	Robert Brodeur	Tommy Adkisson
J, Reedy	Mike McAnelly	Kim Elorriaga
T. R. Reedy	John Valentine	Ron Williams
		Jason Cosby

Introduction and Presentation

Jason Cosby, Assistant Public Work Director for the City of San Antonio, welcomed the participants and stated the purpose of the meeting was to present the draft Parking Demand Study for Downtown and to receive comments from the stakeholders. He introduced other city officials and staff, and introduced the members of the consultant team. He thanked Carter & Burgess for providing the refreshments.

Mike McAnelly, Project Manager for Carter & Burgess, made a PowerPoint slide presentation that highlighted the draft findings, conclusions, and recommendations of the Downtown Parking Study.

Review Comments

Following the presentation, Linda Ximenes of Ximenes & Associates facilitated a discussion session. Comments received from stakeholders attending the meeting are summarized in the following notes.

What stood out for you from the presentation?

- Before making a foregone conclusion that parking is needed, we should attempt to reduce automobile usage
- The price of parking should be considered to influence how people use parking
- The study provides a thorough analysis of the parking problems and needs
- Consider a tunnel between the Alamodome and the Convention Center
- Retail located within parking garage is inconvenient
- The study recognizes long-term goals
- Recognizes problems and addresses them
- Boundaries of study area are difficult to see on handouts
- Cost discourages people from parking
- Interesting; eye-opening - 76% utilization sounds high
- Interesting and informative
- New UTSA garage located south of West CBD area opened after study began
- Was the City-owned parking lot in Cattleman Square included? -- Yes
- Goodwill store wants more parking for customers
- Concern about Hemisfair area parking needs
- How to get more utilization of less obvious parking facilities? -- Wayfinding
- Need to make it easier to see where the parking is located
- Bexar County Courthouse parking need should be considered
- West-side Multi-Modal Terminal will likely open before 2010
- Need to address parking demand for Market Square development
- Good site evaluation and like the planned retail mixed use at parking sites
- Did the projections include spaces lost due to future development? -- Yes
- Houston St. corridor attractive and then the parking lots past Frost Bank are ugly
- Design should consider other parking garage layouts
- How far are people willing to walk? -- 1-2 blocks, 3 max; except tourists will accept longer walking distances
- Alternative Site C best addresses needs on Houston St.
- Under-utilization of Alamodome Lots - let public know and provide transit service
- How will UTSA's recent announcement impact downtown area?
- Utilization survey was only one day – how much variation? – Typical weekday
- Santa Rosa Medical Complex growth – need to take into account private growth by developers
- Parking for special events should also be studied and addressed
- What about the center area between West CBD and East CBD areas:
- Impact of parking diverted during construction

- Future needs in center area
- Lots of considerations
- Cost and accessibility should be primary factors in site selection.
- Westside multimodal terminal should be included
- Increase use of Alamodome parking
- Houston St. considered
- Employees need affordable parking – many park in lots under IH 35/IH10 and walk several blocks to workplaces
- There is a disconnect between available parking and perception of parking shortage
- Too concentrated on study areas
- Interesting presentation; pros & cons of alternative sites are well thought-out
- More analysis of non-structural alternatives
- People need to understand where parking is and how to reach their destination
- Pricing and utilization - west edge under freeway - explore further

What concerns do you have about the study?

- Safety & security concerns
- Availability and costs –
- Some garages closed in later afternoon – causes problems
- Will increase spaces available –
- Need to meet with VIA to talk about getting people safely from outlying lots – especially in early morning and late evening
- Would be nice to beautify the walk from the lot to destination for pedestrians
- Handout shows Hemisfair parking locations including lots across freeway; not sure how well these would serve Hemisfair area
- Need to address options and recommendations for Hemisfair area

What do you think of the alternative sites being considered?

- Has the new City garage on St. Mary's been successful? – It is performing better this year as people get more accustomed to using it.
- Be careful about size of garage; look at 1995 study - if put in peripheral area, will get utilization; "overlapping" use should be analyzed.
- Day-in and day-out utilization by workers is what pays for the garage -- "A" site has the best possibility of filling up daily.
- "B" site would accomplish a lot to beef up attendance at Market Square and Museo Americano.
- Creative ways to integrate retail with garage
- "A" and "C" focus more on workers and commuters; "B" more toward tourists
- Need a mix of both Monday-to-Friday and evening/weekend use to make a new garage work.
- Daytime workers will walk longer distances if the price is right; entertainment users will pay higher price for nearby parking. You should hedge toward entertainment and do all-day rate to attract commuters.
- Use back of parking ticket as a bus pass good for one-day downtown.

- Option “A” better than “B” financially – but “B” is better if you consider the people-oriented uses of the Historic Civic Center and how downtown will be used in the future instead - Option “B” does this.

Comment Forms

Thirty-four (34) comment forms were turned in. Below is a tabulation of the checked boxes and the comments made. Please note that not all respondents marked all the items and some marked more than one.

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Generally I feel that parking downtown is adequate.	4	12	1	13	3
This meeting was beneficial.	14	17			
My questions were adequately addressed.	6	20	1	2	
I would like more information as the study progresses into implementation.	24	7	2		

Where do you park most often?

Business 22 Hotel 0
 Convention Center 0 Mall 3
 Event 2 Market Square 0
 Riverbend Lot 1 Meter 1
 Downtown Resident 1

Do you choose your parking based on cost or location?

Cost 15 Location 25 Safety 1

Are there any other specific comments or needs that should be addressed?

- Parking study perhaps needs to be more comprehensive geographically.
- In West CBD study area—cost of parking is a big issue
- Prefer Site “B” in West CBD area
- In East CBD area, better access to spaces located east of I-37
- Homeless people living on our downtown sidewalks!
- Use of existing parking—better education, awareness, advertising
- Utilization of sites for uses other than “parking”

- More study on non-structured solutions—higher utilization of existing and alternate transportation
- Security and environmental issues.
- Recommendations should include incentive to promote Smart Growth and sustainable development thru management.
- Public education of availability—website link from something like mysa.com???
- Seems that special event's true peak, not necessarily standard weekday peak should be considered.
- Study should be done in HemisFair area for utilization on nights and weekends, not during events but regular weekend
- Security
- Cost to existing patrons vs. special event charging in advance; [not intelligible] to reg. Customers
- Traffic and construction impact on existing bus.
- Transportation plans from parking facilities to generators—security items addressed
- Alternate modes of transportation—shuttle service, extended trolley routes or tram/light rail system—Park and rides in downtown. I feel there is adequate space readily available.
- Improved alternatives to add. parking—Alamodome & Westside Multimodal
- Handouts difficult to read—too small!
- Cost—short-term parking at low cost
- Alamodome parking should be separate from HemisFair study because of convenience, access and security issues.
- Bexar County Government has roughly 1,000 employees who pay to park near the County Courthouse and Justice Center. Have you considered collaboration with the County?
- Unfortunately, the study stopped short of the area between Travis St. and the Library. There is a major hotel, banks, and several offices in the area that also have parking issues. What is the attraction at Cattleman Square that would include the area as part of the West CBD Development? I can't understand what a bar and empty buildings—the SAMM Shelter and other old buildings would take priority over better developed areas.
- Alternatives: particularly VIA multimodal potential and better Alamodome utilization.

APPENDIX C

Parking Operator Questionnaires

Questionnaires were sent out to all parking facility operators in the Downtown West CBD and HemisFair Emphasis Areas. The questionnaires requested information regarding the name of the parking facility, the total number of spaces, the number and type of reserved spaces, and parking rates. Garage operators were asked to provide parking utilization information for each garage on the same day that the aerial photographs were taken, if the information were available. Approximately 52 percent of the West CBD questionnaires were returned and approximately 42 percent of the HemisFair Emphasis Area questionnaires were returned. The returned questionnaires are included in the following pages.

Several of the operators were not able to provide parking utilization information. In those cases, field counts were performed on typical weekdays subsequent to the date when the aerial photos were taken to determine the parking usage during the study hours in the garages with missing information.

APPENDIX D

Technical Memorandum:
Transportation Analysis
For
HemisFair Park Area Master Plan
San Antonio, Texas

Prepared for:



City of San Antonio

Prepared by:

Carter  **Burgess**

March 2004

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CHAPTER 1 - Introduction

This technical memorandum provides the findings of the transportation analysis performed for the proposed HemisFair Park Area Master Plan in San Antonio, Texas. As a member of the consultant team, Carter & Burgess assessed conditions related to access, traffic, parking, transit, and pedestrian linkage issues associated with the proposed Master Plan. Improvement alternatives were identified and analyzed for streets, parking, walkways, and transit service. Based on the findings, short and long-term improvement recommendations were developed.

1.1 Study Area

The HemisFair Park Area in downtown San Antonio is bounded by Market Street on the north, IH-37 on the east, East Durango Boulevard on the South, and South Alamo Street on the west. HemisFair Park is adjacent to the Henry B. Gonzalez Convention Center, west of IH-37 and the Alamodome. The 78-acre HemisFair Park was the site of San Antonio's HemisFair '68, which marked the city's 250th anniversary. The study area for the proposed HemisFair Park Area Master Plan is shown in **Figure 1**.

The Henry B. Gonzalez Convention Center is located north of HemisFair Park. The area south of the Convention Center was completely renovated and 15.8 acres was designated as HemisFair Park in 1988. During the renovation, unused structures were removed or reused as part of the additional water features and landscaped areas added to the park. The Tower of the Americas is located in the park, with its 605-foot high observation decks and revolving restaurant. HemisFair Park hosts two educational facilities, Texas A&M University Engineering Extension Service and the Universidad Nacional Autónoma de México. The Instituto de México, the Magik Theatre, and many historical homes are also located in the park. Some of the current tenants of the historical homes are the Amaya Deli & Yogurt House, KIA International, the Bexar County Master Gardeners Association, and the Instituto de México Administrative Offices and retail space. In 1990, a children's playground, the Downtown All-Around Playground was added, built entirely with volunteer labor.

The adjoining property east of the park is owned by the University of Texas. The Institute of Texan Cultures is located on the property and the Texas Folklife Festival is held each year on its grounds. Three former HemisFair buildings, the Woman's Pavilion, the Gulf Insurance Building, and the Kodak Pavilion, are also located on the property and currently used for storage.

The adjoining property south of the park is owned by the Federal Government and consists of the John H. Wood Federal Courthouse, the Adrian A. Spears Judicial Training Center, and the Federal Office Building (on the GSA website they call this Building San Antonio Federal Building West, but in the master plan we identify it as the Federal Office Building).

Figure 1 - Study Area



The area south of Durango Boulevard includes property owned by the San Antonio Independent School District, the Federal Government, the San Antonio Housing Authority, and the City of San Antonio.

1.2 Study Purpose

The purpose of the transportation analysis was to evaluate and recommend short-term and long-term improvements for existing conditions and for the planned park development. The transportation analysis included streets, parking, transit, and pedestrian access and facilities. The study methodology included data collection, access planning, parking demand analysis, and transit route analysis.

Recommendations provided by the transportation analysis were used in developing the proposed HemisFair Park Area Master Plan.

1.3 Background

During the October 2003 City Council briefings on the Tower of the Americas Project, staff was directed to prepare a HemisFair Park Area Master Plan outlining recommendations and strategies for park uses and development of linkages. The vision is to develop a comprehensive Master Plan that creates a sense of place for HemisFair Park and the surrounding area.

As the scope of work for the project was developed and tasks were assigned, staff identified firms that were currently under contract with the City that could provide assistance with key areas of the project. The firm of Gould Evans Associates was selected to provide meeting facilitation and to develop conceptual design drawings, and to perform plan development services. The firm of Carter & Burgess, Inc. was selected to provide technical support and analysis related to accessibility, transportation, parking, and linkage issues associated with the Master Plan.

The planning effort included an analysis of existing conditions and land uses for the study area and adjacent areas, as well as proposed uses and changes. Another component of the process involved community input to assist in determining opportunities and constraints of the area; strategies to balance land uses and transportation/parking/accessibility issues; and linkages to areas adjacent to the park. Community input included a stakeholder workshop, public meetings, and individual input sessions. The first stakeholder workshop, which included a charrette facilitated by the consultant team, occurred on December 2, 2003.

1.4 Data Collection

Available information was used to identify existing conditions related to traffic, parking, transit, and pedestrian facilities and services in the HemisFair Park study area. Traffic volume data was provided by the City of San Antonio Public Works Department. Parking inventory data was obtained from the Downtown Parking Demand Study, being prepared simultaneously for the City of San Antonio by Carter & Burgess. The proposed uses outlined in the proposed HemisFair Park Area Master Plan were integrated into the recommendations for the Downtown Parking Demand Study.

1.5 Public Participation

Several opportunities for public participation in the planning process were held during the development of the proposed HemisFair Park Area Master Plan.

1.5.1 Stakeholder Workshop

A stakeholder workshop was held at the Henry B. Gonzalez Convention Center in San Antonio on December 2, 2003. A charrette process was conducted in association with the stakeholder workshop to formulate the proposed master plan.

1.5.2 Individual Meetings

Throughout the master planning process over 46 individual meetings occurred involving tenants, adjoining property owners, institutions, and public interest groups.

1.5.3 Public Meeting

A public meeting was held at the Henry B. Gonzalez Convention Center in San Antonio on January 7, 2004. The proposed master plan concepts were presented for public review and comment.

1.5.4 Parks Board Public Meeting

The Parks Board conducted a public meeting on January 26, 2004, where the proposed master plan was presented for review and comment and was approved unanimously.

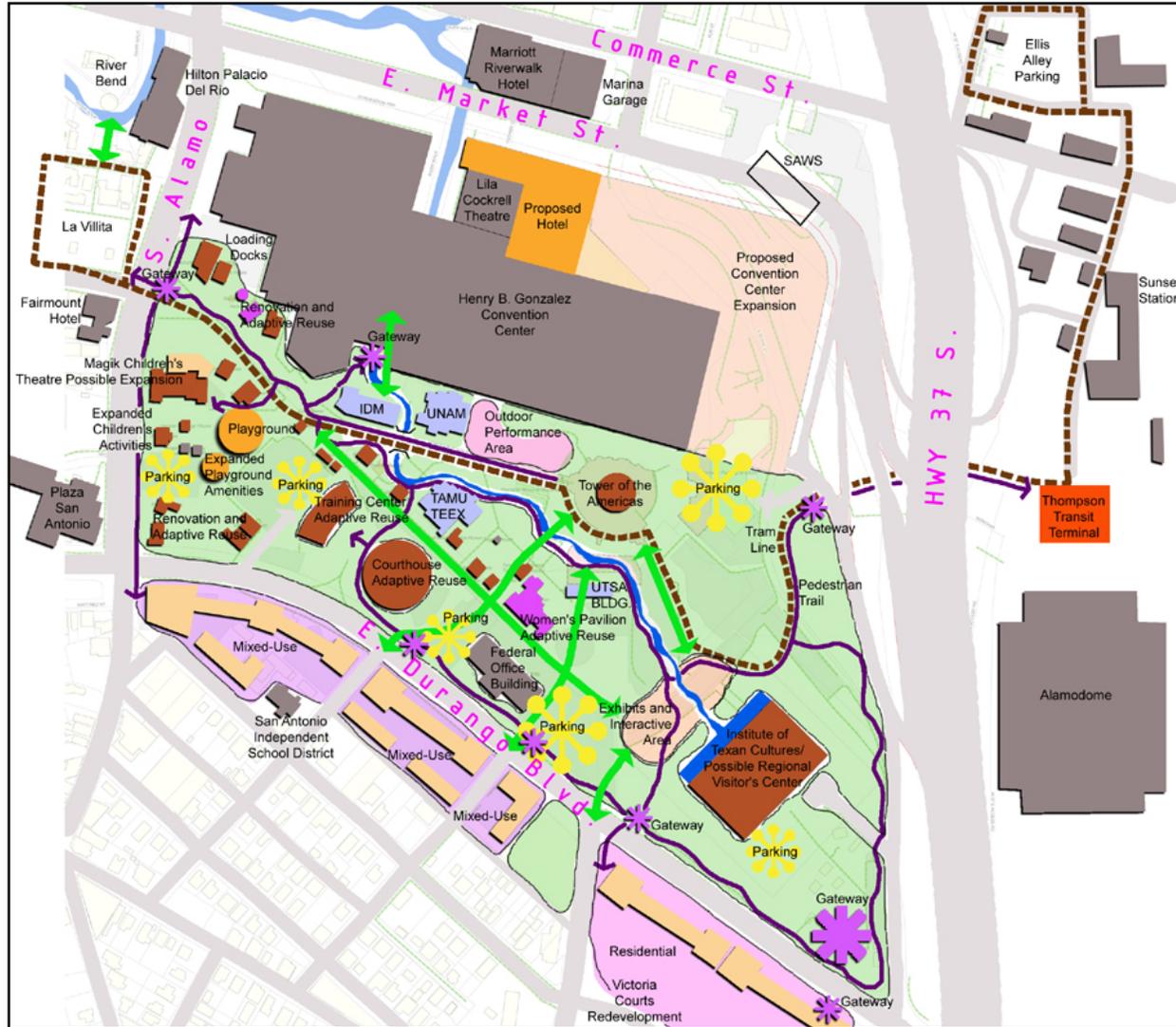
1.6 Proposed HemisFair Park Area Master Plan

The transportation analysis addresses the proposed master plan being developed by the City and consultant team members. The proposed HemisFair Park Area Master Plan prepared by Gould Evans Associates is shown in **Figure 2**. The concept was developed subsequent to the stakeholder workshop and incorporates the goals, objectives, and requirements identified by stakeholders including park tenants, adjacent property owners, institutions, and public interest groups.

The proposed master plan goals include:

- 1) Identify appropriate uses for the park area and surrounding area to increase utilization by residents and those visiting San Antonio
- 2) Improve linkages and connectivity between the park area and La Villita, River Walk, Convention Center, Alamodome, Sunset Station/St. Paul Square, nearby neighborhoods, area hotels, etc.
- 3) Identify capital improvement plan which addresses transportation, parking, rehabilitation of historic buildings, park maintenance, and other park area issues
- 4) Develop design guidelines/standards that are in keeping with and reinforce the Master Plan

Figure 2 – Proposed HemisFair Park Area Master Plan



Source: Proposed HemisFair Park Area Master Plan, prepared by Gould Evans and Associates.

The proposed master plan identifies the general location and relationship of existing and proposed uses in the park and surrounding area. Transportation facilities shown on the proposed master plan include the following proposed concepts and improvements:

- **Streets and driveways** – External access and circulation for the park area is provided by Market Street, Alamo Street, Durango Boulevard, and Bowie Street. Market and Bowie will be realigned with the planned future convention center expansion. Internal driveways provide access to parking facilities and loading areas.
- **Parking** – Due to the limited open space, parking should be strategically located and limited to maximize open space. Limit surface parking and encourage parking garages that maximize onsite parking yet minimize impact to open space. Shuttle service is an additional method to better utilize existing underused parking east of IH-37. Locate onsite parking in peripheral areas and remote off-site areas served by proposed shuttle service. Proposed parking facilities include a mix of surface parking lots and multilevel parking structures.
- **Pedestrian gateways and movement corridors** – Improved gateways and walkways will serve pedestrian movement around the periphery and throughout the interior of the park area.
- **Shuttle Service** - A proposed tram shuttle route connecting destinations within the HemisFair Park to La Villita, the Thompson Transit Center at the Alamodome, St. Paul Square, and VIA's Ellis Alley Park and Ride Facility would provide improved linkages and help promote use of remote parking.
- **Regional Visitor Information Center** - A proposed tourist information station and nearby parking facility to accommodate day visitors to park their cars and receive information, use public restrooms, as well as to connect with tour buses and trolley buses.
- **Robert Thompson Transit Center** – Utilization of the existing infrastructure east of IH-37, which includes ample parking and the Thompson Transit Center for tour buses.

CHAPTER 2 - Existing Conditions

Existing conditions for roadways, parking, transit, and pedestrian facilities in the HemisFair Park area are summarized in this section. Existing traffic volume data and available parking supply are shown in **Figure 3**.

2.1 Roadway Access

The existing roadway network serving the HemisFair Park area consists of Interstate Highways and city streets. Downtown San Antonio access to the Interstate Highway System includes IH-35, IH-10, and IH-37. IH-37 is aligned in a north-south direction on the east side of HemisFair Park with interchanges at Market Street and Durango Boulevard.

Roadway access to the HemisFair Park area is provided by the downtown street network and IH-37. Market Street and Durango Boulevard are Primary Arterials that provide east-west access. Market Street is a four-lane undivided street with parallel parking on the north side and one-way eastbound traffic operation, paired with one-way westbound traffic operation on Commerce Street, located one block to the north. Durango Boulevard is a four-lane divided street with a raised median and parallel parking along the outside lanes, with two-way traffic operation. South Alamo Street and Bowie Street are Secondary Arterials that provide north-south access. South Alamo Street is a four-lane divided street with a raised median and two-way traffic operation. Bowie Street is a two-lane street with two-way traffic operation from Market Street south to the driveway serving the Institute of Texan Cultures (ITC) parking lot, and one-way traffic operation from the ITC parking lot driveway south to Durango Boulevard. Bowie Street functions as a frontage road for IH-37 between Market and Durango.

Existing traffic signals include the following signalized intersections, shown in Figure 2:

- South Alamo Street and Durango Boulevard;
- South Alamo Street and Nueva Street;
- South Alamo Street and Market Street;
- Market Street at Marriott Hotel pedestrian crosswalk;
- Market Street at Marina Garage pedestrian crosswalk;
- Market Street and Bowie Street;
- Durango Boulevard and Indianola Street; and,
- Durango Boulevard and Bowie Street.

A proposed signalized intersection is planned in the future at Durango Boulevard and Labor Street, to be installed in response to the Lavaca neighborhood redevelopment at the former Victoria Courts site. The Lavaca Neighborhood Plan proposes constructing a curb cut and median opening on Durango Boulevard to reopen the intersection of Labor Street and Durango Boulevard, with a traffic calming strategy for Labor Street designed to mitigate potential increased traffic and parking impacts for the Lavaca neighborhood.

2.2 Traffic Volumes

The City of San Antonio supplied historical average daily traffic (ADT) counts at various locations and for various years ranging from 1994 through 2000. The most recent available traffic counts are shown on **Figure 3** and are summarized as follows:

- 104,000 to 131,000 vehicles per day traveled along IH-37 between IH-35 and Durango Boulevard, based on year 2000 traffic counts.
- 20,000 vehicles per day traveled along Durango Boulevard at South Alamo Street, based on 1999 traffic counts.
- 9,500 vehicles per day traveled on South Alamo Street between Nueva Street and Durango Boulevard, based on 1999 traffic counts.

2.3 Intersection Level of Service

Level of service (LOS) is a qualitative measure of the operating conditions experienced at an intersection or along an arterial roadway when it is subject to varying traffic volumes. For signalized and unsignalized intersections, LOS can be calculated using the methodology from the *Highway Capacity Manual* (Transportation Research Board, 2000). Each LOS corresponds to a range of delay. LOS worsens as delay increases. There are six levels of service, LOS A through F, which describe the traffic operating conditions from best to worst, respectively. LOS D is considered the minimum acceptable LOS for intersections.

Year 2000 traffic turning movements and Level of Service (LOS) were analyzed for signalized intersections in the HemisFair Park area were analyzed by Carter & Burgess for the VIA Downtown Multimodal Improvement Alternatives Analysis. The Level of Service for signalized intersections in the HemisFair Park area is shown in **Figure 4**. Based on the Year 2000 traffic analysis, all of the analyzed intersections were operating at LOS C or better, except for the intersection of Durango and S. Alamo, which is operating at LOS D in the PM peak period. The volume of southbound vehicles on S. Alamo turning left at Durango contributes to the degraded level of service at this intersection, although it is still within the minimum LOS D criteria for acceptable traffic operations.

2.4 Parking Supply

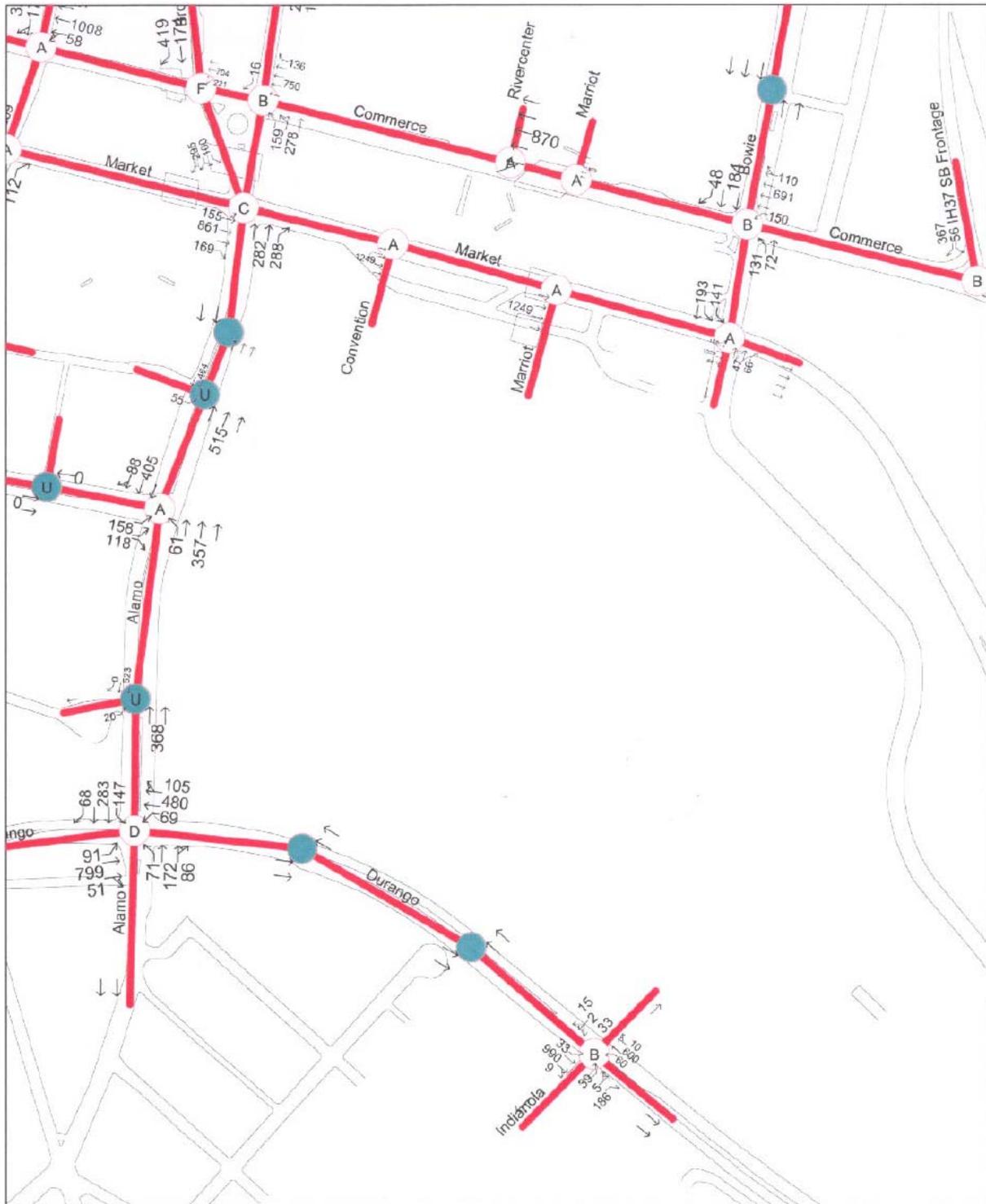
Available parking in the HemisFair Park area was inventoried for the Downtown Parking Demand Study in April of 2003. The existing parking supply within the study area is shown in **Figure 3** and includes a total of 7,602 spaces in off-street lots and garages as well as curb parking spaces. The distribution of spaces among subareas is shown along with the number of spaces in individual parking facilities.

Multilevel parking structures provide 2,948 spaces including the Rivercenter, Marriott, Marina, HemisFair, and Tower of the Americas Garages. Surface lots provide 1,107 spaces west of IH-37 and 2,788 spaces at the Alamodome east of IH-37. The SAWS lot is normally not available for public parking use. On-street parking provides 25 curb spaces on Market Street and 47 spaces on Durango Boulevard.

Figure 3 – Existing Traffic and Parking for Proposed HemisFair Park Area Master Plan



Figure 4 – Year 2000 Intersection Turning Movements and Level of Service



SOURCE: VIA Downtown Multimodal Improvement Alternatives Analysis.

For HemisFair Park patrons who are willing to accept a longer walking distance or utilize transit to reach their destination, additional parking is available in the surrounding area. Additional spaces outside the parking study area include the Ellis Alley Park and Ride north of St. Paul Square and the San Antonio Independent School District parking lot south of Durango Boulevard.

2.5 Transit Service

Existing transit service to the HemisFair Park area is provided by VIA Metropolitan Transit. Bus and rubber-tired trolley routes operate along Market Street, South Alamo Street, and Durango Boulevard bordering the HemisFair Park area. Transit stops are located along the arterial streets along the periphery of the HemisFair Park area.

2.6 Pedestrian Access

Pedestrian access to and within the HemisFair Park area includes walkways and crosswalks along streets bordering the park area, as well as walks within the interior of the park. Market Street, South Alamo Street, Durango Boulevard, and HemisFair Park are part of the pedestrian network of landscaped shaded streets identified in the City of San Antonio's Downtown Transportation Plan, developed as part of the 1999 Downtown Neighborhoods Plan. Main entrances to the Park are not clearly identified and do not provide a park identity. Existing walkways within and to the park do not provide a direct, pedestrian friendly linkage to all areas due to barriers presented by parking lots and discontinuous and circuititous walkways.

CHAPTER 3 - Proposed Transportation Improvements

Information was provided by the City in order to assess proposed transportation improvements for the HemisFair Park area and the surrounding area. The planned improvements were reviewed to analyze the present and future performance of area transportation facilities. This information was used to determine what short-term and long-term issues should be addressed.

3.1 Transportation Improvements Recommended in Previous Plans

The Downtown Neighborhoods Plan (1999) and the Downtown Transportation Plan (June 1997) envisioned the following proposed future improvements in the HemisFair Park area:

- **IH-37 Interchange** - Improve the IH-37 interchange at Durango Boulevard to provide direct access to the area west of downtown.
- **Market Street Realignment** – reduce curve as Market Street approaches IH - 37/ Alamodome and incorporate Bowie Street, south of Market Street, to allow for Convention Center expansion.
- **Alamo Street and/or Broadway Bicycle Corridor** -- a bike corridor along Alamo Street from Witte Museum to South St. Mary's in the King William area connecting to Mission Trails.

3.2 Traffic Access and Circulation Improvements

To provide adequate traffic access and circulation, the arterial streets bordering the HemisFair Park area (Market Street, South Alamo Street, Durango Boulevard, and Bowie Street) should be maintained and improved to provide necessary capacity and Level of Service. Dedicated left turn lanes should be provided in the median at major intersections. Pedestrian crosswalk signals should be included at signalized intersections where warranted.

Future roadway improvements envisioned by the proposed HemisFair Park Master Plan include the proposed Market Street Realignment to allow for future expansion of the Henry B. Gonzalez Convention Center, and IH-37 improvements for the Market Street and Durango Interchanges. Proposed realignment of Market Street and Bowie Street will require further study to maintain necessary access and circulation for the HemisFair Park area. Alternative alignments should be considered to maintain a one-way southbound frontage road on the west side of IH-37 to serve the Convention Center expansion, parking garage, and Institute of Texan Cultures. If Bowie Street is closed south of Market Street, a two-way road extending north of Durango will be needed to provide access to the proposed parking garage on the southeast side of the Convention Center.

Consideration of reopening the intersection of Labor Street and Durango Boulevard should include performing a traffic signal warrant analysis to see if the resulting traffic conditions will warrant the installation of a new traffic signal at the intersection.

3.3 Offsite Parking and Transit Improvements

Offsite parking and transit service were evaluated as an alternative for onsite parking at HemisFair Park to serve park visitors. While convention center patrons might also utilize remote parking with shuttle service, planning to accommodate the volume of traffic associated with convention center shuttle service is beyond the scope of this analysis.

Onsite parking is generally preferred for the following reasons:

- Offsite parking with shuttle service would be less desirable for visitors seeking available onsite parking and not aware of remote parking locations.
- Wayfinding signage and other information would be necessary to direct visitors to offsite parking facilities.
- Offsite parking and shuttles require additional operating expenditures due to the costs for parking shuttle operation and maintenance.
- Offsite parking and shuttles require capital costs for acquiring shuttle vehicles and improving the shuttle route.

Alternatives for shuttle service connecting to remote parking include three options:

- Transit buses and rubber-tired trolleys;
- Tram; and/or
- Historic trolley operating on steel rails.

3.3.1 Transit Buses and Rubber-tired Trolleys

VIA Metropolitan Transit buses and rubber-tired trolleys currently serve the HemisFair Park area and existing transit service could be utilized to provide shuttle bus service between HemisFair Park and offsite parking.



This option would adjust and expand the existing bus/trolley routes and add more stops along South Alamo Street, Durango Boulevard, and Bowie Street to improve transit service in the HemisFair Park area, with increased capital and operating costs. The VIA buses and rubber-tired trolleys operate on the existing street network. The nearest potential bus stop to the Tower of the Americas would be on Bowie Street or Durango Boulevard, which would require walking several hundred feet to the base of the tower. The bus and trolley routes would link the HemisFair Park area to the Thompson Transit Center, St. Paul Square, and VIA's Ellis Alley Park and Ride. VIA's 35-passenger small transit coaches could also be considered for use to provide the proposed parking shuttle service. Delays might be experienced because of congestion during peak traffic periods.

The Thompson Transit Center should be utilized for tour bus staging and layovers when groups are visiting destinations in the HemisFair Park area.

3.3.2 Trams

Trams are open-sided, rubber-tired trains consisting of a power unit and one or more trailers, similar to parking trams used at theme parks and other major recreation areas. The tram option is functionally similar to offsite parking with transit bus shuttle service.



The proposed tram route is shown as a dashed brown line on the proposed HemisFair Park Area Master Plan in **Figure 2**. The average operating speed for trams would be five to ten miles per hour. The linear distance between the initial Ellis Alley loading zone and the La Villita turnaround is about 1.5 miles. The one-way travel time is estimated to be approximately 15 minutes, or 30 minutes round trip. With two trams in operation, the service could provide headways of 20 minutes between tram trains, scheduled with a 40-minute round trip to allow time for loading and unloading along the route. The average passenger wait time would be 10 minutes; assuming that for every person that just misses the tram, there will be one that walks up just as the tram arrives.

A tram includes a power unit with seating for the driver and 6 to 8 passengers, and trailer units with seating for 15 passengers. With a tram consisting of a power unit and two trailers, each tram has a capacity of about 35 people. A wheelchair accessible trailer unit is also available. Two trams would be able to transport approximately 140 passengers per hour in each direction along the proposed tram route between Ellis Alley, St. Paul Square, the Thompson Transit Center, the Institute of Texan Cultures, HemisFair Park, and LaVillita. One extra tram would be needed as a spare to allow for mechanical problems or added to the service when ridership is heavy. Tram vehicles could be stored at the Thompson Transit Center when not in operation.

Some improvements to existing infrastructure would be needed for trams to safely cross Alamo Street and Bowie Street. Where the tram route would be located within pedestrian walks within the park, pavement markings should be applied to delineate the tram route. The tram route would need to be a 20-foot wide pathway with two-way traffic operation. In narrow or congested areas, traffic cones or rope barriers may be considered for placement along the tram route so that the trams and pedestrians can safely coexist. Traffic signal preemption or cycle adjustments for tram passage may be needed at street intersections on South Alamo and Bowie Streets.

Pullouts should be provided at marked stop locations for passenger boarding and alighting. However, the tram should be able to pick up and drop off passengers anywhere along the route except for the on-street portions of the route. The tram will be traveling slow enough to allow riders to flag down the driver. Intersections where

pedestrian walkways cross the tram route should be controlled by signs and pavement markings warning pedestrians to stop and look for approaching trams.

The open-sided tram vehicles could operate on city streets but would not be appropriate for highway use. Use of the open-sided tram vehicles would be impractical during periods of inclement weather. During major events, the trams may not operate due to pedestrian conflicts when many visitors may find walking to the park to be more expedient.

Tram vehicles are approximately seven feet wide and have a minimum turning radius of approximately 30 feet. Minimum vertical clearance for trams is approximately 7 feet, six inches. Structural investigation is needed to confirm that the existing pavement and structures in the park are adequate to support the tram vehicles.

Related considerations presented by the proposed tram and offsite parking include public information, enforcement, and security. Although the HemisFair Park area is served by public transit, most visitors arrive by auto or walking. The tram would serve park visitors, tourists, Convention Center and Alamodome patrons. Visitors would need clear direction to use the off-site parking and to prevent spillover parking in adjacent neighborhood areas instead of using the remote parking and tram. Access to onsite parking facilities would need to be controlled by parking fees or card controlled access gates in order to promote use of the remote parking and tram service.

The tram proposal may be considered a short-term solution. It offers relatively low initial capital cost but would represent significant operating expense. Tram service could be implemented in a short amount of time and would provide shuttle service. Later if demand warrants, a more capital-intensive program could be considered. Further study would be needed to determine the feasibility, costs, and impacts of tram service.

3.3.3 Historic Trolley

The 1999 Downtown Neighborhoods Plan and the 1997 Downtown Transportation Plan envisioned a steel-rail historic streetcar trolley extending through the HemisFair Park area and extending to other areas in Downtown and potentially to Brackenridge Park. A historic trolley streetcar line could be developed along Market and Commerce Streets linking La Villita, the Henry B. Gonzalez Convention Center, HemisFair Park, the Thompson Transit Center at the Alamodome, St. Paul Square, and VIA's Ellis Alley Park and Ride.

A historic trolley streetcar line operating on steel rails would provide needed transit service between these destinations and would be a visitor attraction in its own right, enhancing the visitor experience in Downtown San Antonio.



Development of a historic trolley line could be eligible for federal assistance under the New Starts program of the Federal Transit Administration. If San Antonio were to later implement Light Rail Transit, the trolley line could be integrated with the Light Rail network.

3.4 Parking Supply/Demand Analysis

Existing parking supply in the HemisFair Park area includes the following facilities and spaces:

3.4.1 On-Site Parking Facilities

- Institute of Texan Cultures – 354 spaces on north and east sides of ITC.
- Tower of the Americas Parking Deck – 120 spaces off of Bowie between Market Street and Durango Boulevard.
- John H. Wood Federal Courthouse, San Antonio Federal Building West and Adrian J. Spears Judicial Training Center – 604 spaces off Durango (north and south sides).
- Other uses – 185 spaces off Durango Boulevard and South Alamo used for park police, playground, and other uses.
- Total on-site parking = 1,263 spaces.

3.4.2 On-street Parking Spaces

- 47 spaces on Durango Boulevard.

3.4.3 Remote Parking Facilities

- Alamodome Parking Lots – 2,788 spaces on Cherry Street between Durango Boulevard and Commerce Street on east side of IH-37.
- VIA's Ellis Alley Park & Ride – 127 spaces at Chestnut and Crockett on east side of IH-37.
- Sunset Station Parking – 233 spaces on Hoefgen between Center and Commerce Streets on the east side of IH-37.
- Total remote parking = 3,148 spaces.

The future relocation of uses in the Federal Courthouse and Judicial Training Center; development of new park uses and attractions; and other changes are expected to alter existing parking demands and utilization patterns of park visitors. For example, the new park uses will likely create a longer "length of stay" for park visitors providing higher attendance and therefore, greater parking demands. Some existing parking demands will be removed by relocating Park Police and Federal uses outside the HemisFair Park area, although these demands will be replaced by the new uses occupying the buildings.

3.4.4 Future Parking Demands

The parking impacts of potential future land use changes in the HemisFair Park area are summarized in **Table 1**. The proposed future land use scenario is illustrated in **Figure 5**.

Total added parking demands generated by the proposed future land use scenario amount to about 1,752 spaces. Approximately 287 new spaces will be added to the parking supply for the LaQuinta development, and 744 spaces in the HemisFair Garage will be lost by demolition of the garage for the proposed Convention Center Headquarters Hotel development. Additional parking will be needed for the proposed Convention Center Headquarters Hotel and Convention Center Expansion. The Downtown Parking Study indicates that the future total parking demand in the HemisFair Park area will exceed the effective supply by approximately 1,000 to 2,000 spaces. There is a projected future parking need for 1,200 to 2,350 additional spaces on the west side of IH37, primarily for the Convention Center HQ Hotel and future convention center expansion.

3.5 Proposed Parking Improvement Concepts

The parking improvement concept plan for the HemisFair Park Area is shown in **Figure 6**. Parking should be strategically located and limited in order to maximize open space. Surface parking should be limited and parking garages should be encouraged to maximize onsite parking yet minimize the associated impact to open space. Shuttle service is an additional method to better utilize existing underutilized parking east of IH-37 at the Alamodome and Ellis Alley Park and Ride. Onsite parking should be located in peripheral areas and remote parking should be provided in off-site areas served by proposed shuttle service. Proposed parking facilities include a mix of surface parking lots and multilevel parking structures

It is recommended that the implementation of the proposed HemisFair Park Area Master Plan should retain the same amount of existing parking spaces but relocate the parking facilities to facilities on the periphery of the park. Additional parking will be needed for the proposed Convention Center Headquarters Hotel and Convention Center Expansion. Locations for additional parking are illustrated in the proposed Master Plan and shown in Figure 5. In order to reduce the aesthetic impact of parking, the amount of surface parking lots should be reduced, while the amount of multilevel structured parking should be increased to retain approximately the same total number of spaces.

Table 1 – Future Land Use Scenario and Parking Impacts for HemisFair Park Area

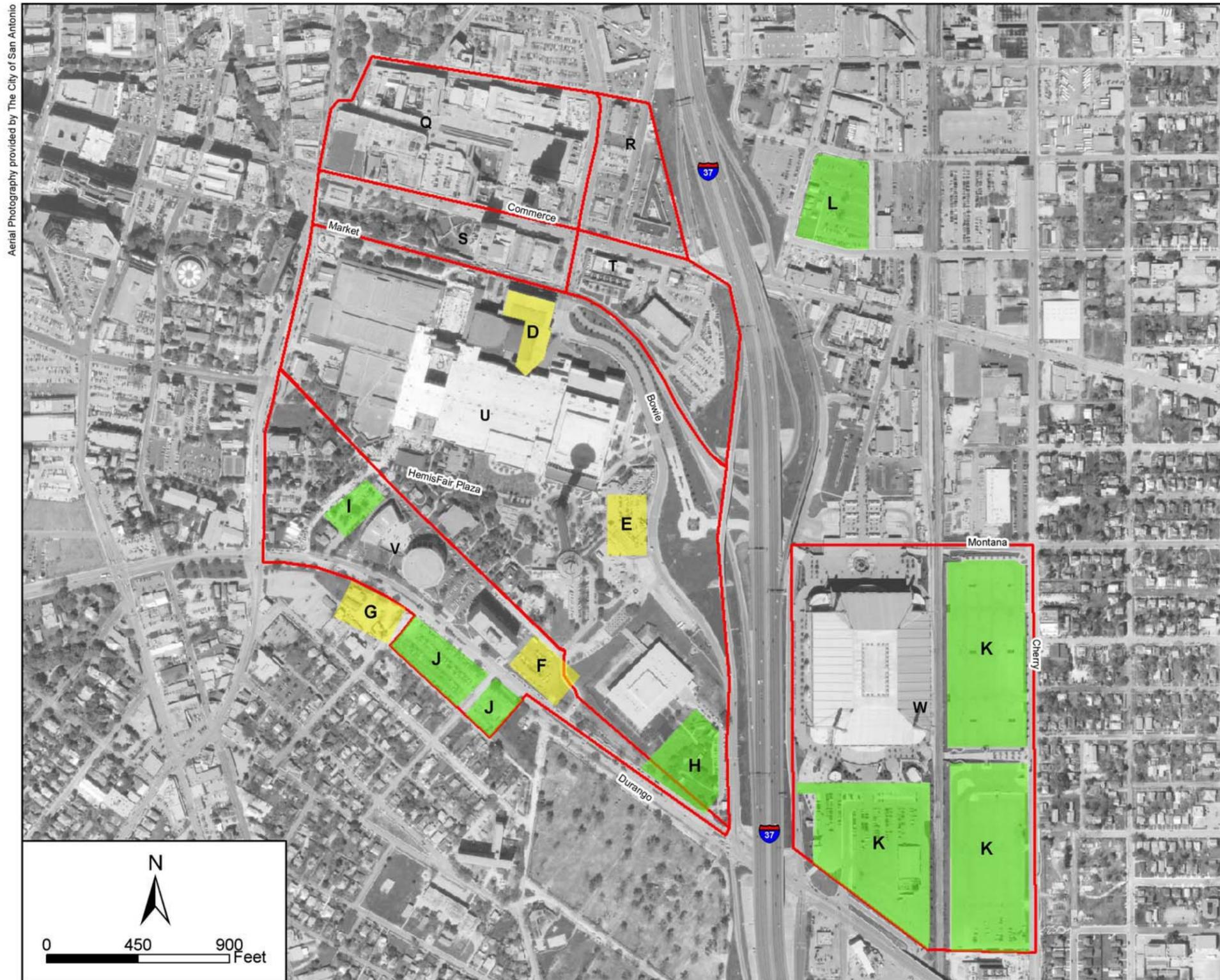
Project Name and/or Location	Square Feet	Units	Type of Development	Projected Parking Generation	Number of Spaces Added	Parking Spaces add/removed
Convention Center Expansion	500,000		Convention Center	850		
Convention Center Headquarters Hotel		1,200	Convention Hotel	273		-744
La Quinta site office, Elm & Commerce		350	Convention Hotel	80	80	
La Quinta site office, Elm & Commerce	150,000		Office	207	207	
Pereida House	2500	5	Hotel/Motel/B&B	2		
Eager House	2000		Retail	3		
Hermann Carriage House	900	2	Hotel/Motel/B&B	1		
Beethoven Hall	40808		Recreation/Amusement	33		
Acosta /Halff House	2600	5	Hotel/Motel/B&B	2		
Kampmann/ Solomon Halff House	6500	12	Hotel/Motel/B&B	5		
Koehler House	1100	2	Hotel/Motel/B&B	1		
Espinoza House	1100	2	Hotel/Motel/B&B	1		
Amaya House	600		Retail	1		
Smith House	509		Retail	1		
Solis House	500		Retail	1		
James Sweeney House	1800	3	Hotel/Motel/B&B	1		
Hermann Schultze House	1650	3	Hotel/Motel/B&B	1		
Meyer-Halff House	5106	9	Hotel/Motel/B&B	4		
Park Police HQ	4500		All other Vacant	0		
OK Bar	1400	3	Hotel/Motel/B&B	1		
Richter House	1200		Retail	2		
Adrian Spears Training Center	18000		Educational/Training	32		
ITC/University of Texas at San Antonio	40000		Educational/Training	72		
John H. Wood Federal Courthouse	114196		Office	157		
Woman's Pavilion	12000		Educational/Training	22		
Total				1,752	287	-744

Source: Potential future development and adaptive reuse projects were identified by City of San Antonio Asset Management Department. Parking generation and supply changes were estimated by Carter & Burgess.

Figure 5: Future Land Use Scenario for HemisFair Park Area



Figure 6: Parking Improvement Concepts for HemisFair Park Area



Aerial Photography provided by The City of San Antonio

**Parking Site Alternatives
 HemisFair Park Area
 Master Plan
 San Antonio, Texas**

Legend

- HemisFair Emphasis Zone
- Multilevel Parking Structure
- Surface Parking Lot Site

Multilevel Parking Structure Sites

- D Convention Center Headquarters Hotel
- E Convention Center/Tower of the Americas
- F Federal Office Building
- G Lavaca Development

Surface Parking Lot Sites

- H ITC/Visitor Center Surface Parking
- I Interim Surface Parking (Potential Underground Garage)
- J Interim Surface Parking
- K Alamo Dome Parking
- L VIA Ellis Alley Park and Ride



Carter Burgess

3.5.1 Administration Building Parking Deck

A new, two-level parking deck with approximately 350-spaces is proposed on the east side of the existing Federal Administration Building.

As illustrated in the photograph of a similar parking deck, the new parking deck east of the Administration Building could be concealed by landscaping and low earthen berms along sides facing the park area and as viewed from the street, excluding entry-exit areas. The two-level parking deck would be partially depressed with one level below grade and one level above grade, so that the surrounding landscaping and berm would largely conceal the façade of the parking deck.



3.5.2 Convention Center Expansion Parking Garage

A new, four-level 750 to 1,000-space multilevel parking structure is proposed on the southeast corner of the Henry B. Gonzalez Convention Center to serve the expanded Convention Center, as well as the Tower of the Americas and the Institute of Texan Cultures.

The new four-level, 750 to 1,000-space parking garage located near the convention center, Tower of the Americas, and the Institute of Texan Cultures could be designed and constructed to include one level below-grade and recessed upper levels with hanging gardens and landscaping. An example of a similar parking structure design is illustrated in the photograph.



3.5.3 Lavaca Development Parking Garage

An additional new two to three level, 350 to 500 space parking structure is proposed to be constructed as part of the mixed use development on the south side of Durango Boulevard. Total parking provided in these facilities should equal or exceed the 1,200 spaces provided in existing on-site parking.

3.5.4 Potential Underground Garage

A new underground parking garage could potentially be developed at the site of the existing Park Police surface parking lot, which would provide expanding parking supply while maintaining open space. Underground parking is significantly more expensive to construct than an above-ground parking garage, but the reduced aesthetic impact on the surrounding HemisFair Park area would be a benefit.

3.5.5 Institute of Texan Cultures Surface Parking Lot

Surface parking should be developed at the southeast corner of HemisFair Park to serve short-term parking needs for the Institute of Texan Cultures and the proposed new Visitor Center. Surface parking areas should be screened and landscaped as illustrated in the photograph of a similar parking area.



3.5.6 Other Surface Parking

Limited existing surface parking should remain adjacent to facilities in HemisFair Park for use by staff and delivery vehicles. The existing Federal Government surface parking lots on the south side of Durango Boulevard are envisioned as redevelopment area for mixed use residential and commercial uses.

3.5.7 Mitigate Parking Impact on Adjacent Neighborhoods

Indianola Street, Labor Street and any other access points to Durango Boulevard from the Lavaca neighborhood should be closed off (during special events at the Alamodome, HemisFair, La Villita, etc.) to prevent spillover parking in the neighborhood by spectators. Neighborhood decal parking permit information should be readily available to neighborhood residents and the public.

3.6 Pedestrian Gateways and Corridors

Pedestrian corridors within HemisFair Park are shown in the proposed master plan. Major corridors extending throughout the park would link the major facilities, activity areas, and uses, as well as parking facilities. Major pedestrian gateways would be located around the park perimeter including the Nueva Street entrance on South Alamo Street, the intersections of South Alamo Street and Durango Boulevard, Indianola Street and Durango Boulevard, Labor Street and Durango Boulevard, Matagorda Street and Durango Boulevard, Durango Boulevard and Bowie Street, and on Bowie Street between Durango Boulevard and Market Street.

- Walkways within the park should be continuous concrete walks with a minimum width of twelve feet. Walks that are part of the tram route should have a

minimum width of thirty feet. Walkways located along streets six feet behind the curb and should be eight feet (minimum) to twelve feet (preferred) in width.

- Crosswalks at street intersections should include pedestrian crossing signals, signage, and pavement markings in accordance with the Manual of Uniform Traffic Control Devices. Pedestrian safe zones should be provided at corners where right turn lanes exist and in the center median of divided roadways with dedicated left-turn lanes.
- Create a wayfinding signage system for both pedestrians and cars that guides drivers and people along streets to available parking and their destinations. Wayfinding should include directions to HemisFair Park and other area destinations, as well as directions to public parking in on-site and remote locations. Wayfinding for the HemisFair Park area should be integrated with the City's downtown wayfinding system.
- Add enhanced sidewalks/brick pavers, trees, water fountains, shade, benches, small urban spaces, public restrooms, and measures to comply with the Americans with Disabilities Act.
- Improve the pedestrian environment (sidewalks, lighting, and landscaping) and crossings along Durango Boulevard and provide small public spaces along street.

APPENDIX: Historic and Existing Traffic Volume Data for HemisFair Park Area

Alamo @ Durango – May, 2000

<i>Location:</i>	#79 Alamo & Durango											
<i>Approach:</i>	Northbound			Southbound			Eastbound			Westbound		
<i>Street:</i>	Alamo			Alamo			Durango			Durango		
<i>Direction:</i>	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
<i>Designation:</i>	1	2	3	4	5	6	7	8	9	10	11	12
<u><i>Time Starts</i></u>												
7:00 AM	5	30	9	10	19	14	12	66	8	8	214	17
7:15 AM	6	28	11	14	30	14	15	80	10	9	223	38
7:30 AM	13	57	11	15	21	17	19	53	14	10	285	27
7:45 AM	8	67	11	9	39	17	20	79	20	19	303	45
8:00 AM	8	59	17	14	30	14	15	60	18	30	246	26
8:15 AM	10	40	10	13	15	21	15	73	14	27	203	26
8:30 AM	6	32	7	17	26	16	20	83	9	12	220	20
8:45 AM	9	37	9	25	24	17	15	74	16	41	155	21
A.M. Peak Hour (7:30-8:30)	39	223	49	51	105	69	69	265	66	86	1037	124

<u><i>Time Starts</i></u>												
4:00 PM	17	52	20	39	39	21	24	177	28	19	135	23
4:15 PM	5	27	12	24	45	12	20	145	14	25	135	24
4:30 PM	16	46	27	24	47	18	16	187	13	24	135	31
4:45 PM	16	37	17	32	39	17	27	159	19	18	93	30
5:00 PM	22	55	22	47	47	19	23	282	9	13	107	29
5:15 PM	17	34	20	44	56	14	25	238	10	14	110	15
5:30 PM	13	52	19	29	46	21	18	206	9	19	102	23
5:45 PM	12	34	14	25	47	22	24	162	9	28	86	20
Downtown PM Peak Hour (4:30-5:30)	71	172	86	147	189	68	91	866	51	69	445	105

Alamo @ Durango – August 1994

Intersection: Alamo(ns) & Durango(ew)

Date: AM-Peak 8/11/94

Off-Peak 8/24/94 (11:00-12:00)

PM-Peak 8/10/94

		Northbound			Southbound			Eastbound			Westbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Traffic	AM	30	211	51	53	112	47	73	229	38	78	982	159
Volume	OP	29	152	56	89	124	56	98	395	41	50	363	115
(VPH)	PM	64	216	85	181	219	75	136	747	19	79	448	166
No. of Lanes													
Speed (MPH)													
Left Turn Protection													
LT Bay													
RT Bay													
Bay Length													

Alamo @ Market, November 1998

<i>City:</i>	San Antonio	<i>Intersection:</i>	#5 Alamo & Market
<i>County:</i>	Bexar County, TX	<i>Date:</i>	November 17, 1998

<i>Location:</i>	#5 Alamo & Market											
<i>Approach:</i>	Northbound			Southbound			Eastbound			Westbound		
<i>Street:</i>	Alamo			Losoya			Market			Market		
<i>Direction:</i>	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
<i>Designation:</i>	1	2	3	4	5	6	7	8	9	10	11	12
<i>Time Starts</i>												
7:00 AM		38	19	17	46		8	72	13			
7:15 AM		44	16	13	51		17	75	13			
7:30 AM		58	31	16	65		15	106	19			
7:45 AM		89	36	25	58		15	139	29			
8:00 AM		59	36	19	65		32	120	21			
8:15 AM		60	26	34	55		31	106	20			
8:30 AM		56	46	39	53		17	103	16			
8:45 AM		53	47	33	47		25	106	17			
A.M. Peak Hour (7:30-8:30)	0	266	129	94	243	0	93	471	89	0	0	0

<i>Time Starts</i>												
4:00 PM		85	50	19	27		42	258	33			
4:15 PM		61	54	18	25		36	229	34			
4:30 PM		84	67	17	25		41	290	30			
4:45 PM		67	55	25	31		39	307	60			
5:00 PM		69	96	31	39		32	333	44			
5:15 PM		62	70	27	28		43	302	35			
5:30 PM		40	48	32	17		30	297	30			
5:45 PM		44	45	39	23		42	238	42			
Downtown PM Peak Hour (4:30-5:30)	0	282	288	100	123	0	155	1232	169	0	0	0

Alamo @ Nueva – May 2000

<i>City:</i>	San Antonio	<i>Intersection:</i>	#81 Alamo & Nueva
<i>County:</i>	Bexar County, TX	<i>Date:</i>	May 11, 2000 Friday

<i>Location:</i>	#81 Alamo & Nueva											
<i>Approach:</i>	Northbound			Southbound			Eastbound			Westbound		
<i>Street:</i>	Alamo			Alamo			Nueva			Nueva		
<i>Direction:</i>	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
<i>Designation:</i>	1	2	3	4	5	6	7	8	9	10	11	12
<i>Time Starts</i>												
7:00 AM	12	44			41	31	4		4			
7:15 AM	12	65			45	24	9		9			
7:30 AM	18	84			45	19	8		9			
7:45 AM	18	100			53	18	6		7			
8:00 AM	6	83			49	31	17		10			
8:15 AM	9	65			51	16	10		12			
8:30 AM	7	65			60	26	13		7			
8:45 AM	8	57			58	14	5		10			
A.M. Peak Hour (7:30-8:30)	51	332	0	0	198	84	41	0	38	0	0	0

<i>Time Starts</i>												
4:00 PM	8	87			74	18	36		21			
4:15 PM	8	72			75	16	43		6			
4:30 PM	11	92			87	15	36		19			
4:45 PM	5	91			68	17	39		20			
5:00 PM	10	100			79	13	52		26			
5:15 PM	5	74			88	14	31		23			
5:30 PM	4	94			92	16	35		20			
5:45 PM	12	75			80	10	31		15			
Downtown PM Peak Hour (4:30-5:30)	31	357	0	0	322	59	158	0	88	0	0	0

Durango @ IH-37 Northbound Ramp, December 1994 – January 1995

Intersection: Durango(ew) & IH37 NB Access Ramp(s) Date: AM-Peak 12/14/94

Off-Peak 1/12/95 (11:00-12:00)

PM-Peak 1/23/95

		Northbound			Southbound			Eastbound			Westbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Traffic	AM	793	42	99	0	0	0	85	233	0	0	352	58
Volume	OP	179	38	53	0	0	0	243	295	0	0	291	49
(VPH)	PM	177	28	78	0	0	0	348	369	0	0	338	85
No. of Lanes													
Speed (MPH)													
Left Turn Protection													
LT Bay													
RT Bay													
Bay Length													

Durango @ IH-37 Southbound Ramp, January 1995

Intersection: Durango(ew) & IH37 SB Access Ramp(s)

Date: AM-Peak 12/13/94

Off-Peak 1/11/95 (11:00-12:00)

PM-Peak 1/19/95

		Northbound			Southbound			Eastbound			Westbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Traffic	AM	0	0	0	146	21	711	0	204	145	83	991	0
Volume	OP	0	0	0	81	23	227	0	455	183	73	339	0
(VPH)	PM	0	0	0	95	28	202	0	624	620	176	343	0
No. of Lanes													
Speed (MPH)													
Left Turn Protection													
LT Bay													
RT Bay													
Bay Length													

Durango @ Indianola, May 2000

<i>City:</i>	San Antonio	<i>Intersection:</i>	#101 Durango & Indianola
<i>County:</i>	Bexar County, TX	<i>Date:</i>	May 16, 2000 Tuesday

<i>Location:</i>	#101 Durango & Indianola											
<i>Approach:</i>	Northbound			Southbound			Eastbound			Westbound		
<i>Street:</i>	Indianola			Indianola			Durango			Durango		
<i>Direction:</i>	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
<i>Designation:</i>	1	2	3	4	5	6	7	8	9	10	11	12
<i>Time Starts</i>												
7:00 AM	2	0	5	1	0	1	2	51	9	35	259	2
7:15 AM	3	0	7	5	0	4	2	47	2	60	232	0
7:30 AM	4	0	14	2	1	1	4	75	9	47	314	0
7:45 AM	4	0	21	1	0	2	6	89	11	70	315	1
8:00 AM	5	0	19	1	0	2	11	72	6	53	285	2
8:15 AM	6	0	27	3	0	2	13	94	12	28	280	3
8:30 AM	8	6	18	2	0	0	19	75	9	17	239	1
8:45 AM	5	7	11	0	1	4	11	65	3	20	204	3
A.M. Peak Hour (7:30-8:30)	19	0	81	7	1	7	34	330	38	198	1194	6

<i>Time Starts</i>												
4:00 PM	22	0	70	9	0	4	13	207	3	29	119	4
4:15 PM	9	4	34	9	0	4	14	173	2	19	135	0
4:30 PM	9	3	67	5	0	1	11	242	4	13	126	2
4:45 PM	9	0	40	7	0	3	9	220	0	12	132	3
5:00 PM	13	2	40	15	0	6	7	315	1	8	130	1
5:15 PM	8	0	39	6	2	5	6	295	4	27	119	4
5:30 PM	9	1	57	10	0	4	15	219	0	15	114	4
5:45 PM	3	0	21	2	0	3	15	187	3	12	132	11
Downtown PM Peak Hour (4:30-5:30)	39	5	186	33	2	15	33	1072	9	60	507	10

Durango @ Indianola, July 1994

Intersection: Durango(ew) & Indianola(ns)

Date: AM-Peak 7/21/94

Off-Peak 7/21/94 (11:00-12:00)

PM-Peak 7/20/94

		Northbound			Southbound			Eastbound			Westbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Traffic	AM	26	3	61	7	1	15	36	261	58	205	1346	55
Volume	OP	34	7	106	39	5	38	53	531	27	52	546	44
(VPH)	PM	63	2	218	22	3	30	30	1012	24	61	488	37
No.of Lanes													
Speed (MPH)													
Left Turn Protection													
LT Bay													
RT Bay													
Bay Length													