

Final Report  
**DOWNTOWN BISMARCK  
PARKING STUDY**

Presented to:  
**City of Bismarck, North Dakota**

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## EXECUTIVE SUMMARY

### INTRODUCTION

This parking study was initiated by the City of Bismarck to provide a comprehensive downtown parking system review and analysis. The primary goals of this study included providing recommendations for parking system improvements designed to improve the overall parking experience for users of the downtown parking system, ensure the efficient use of available resources, and provide guidance in dealing with future parking supply and management needs.

The overall study area for this project was set as Avenue B on the north, Sweet Avenue on the south, 12th Street on the east, and Washington Street on the west. However, this study focuses on a core area of approximately 19 blocks (Core Zone). The Core Zone is bounded by Avenue A on the North, the railroad tracks on the south, 6th Street on the east, and 2nd Street on the west.

### ASSESSMENT OF CURRENT PARKING CONDITIONS

The downtown study area has a total parking supply of 11,453 parking spaces. Of these, 9,665 parking spaces (84%) are in off-street parking areas and 1,788 spaces (16%) are located on-street. The Core Zone contained a total of 3,217 parking spaces (2,654 off-street and 563 on-street). The on-street parking inventory includes both marked parking spaces and locations where on-street parking is possible but not currently marked.

Some parking areas could not be accurately inventoried, as they lacked parking stripes or existing stripes were not visible. In these situations, inventories were estimated based on the size of the parking area. Residential parking areas, including any apartment complexes and private driveways, were not counted in the parking inventory as they would not contribute to any shared parking opportunities.

#### *Current Parking Demand*

Based on other similar parking occupancy studies conducted by *Carl Walker*, it was determined that one overall parking occupancy survey would be conducted between 10:00 a.m. and 12:00 p.m. on Tuesday, July 24, 2007. A second occupancy count was conducted for nearby hospital parking facilities at 3:00 p.m., also on Tuesday, July 24<sup>th</sup>. Finally, a more detailed occupancy survey was conducted for the Core Zone. Parking occupancy counts for the Core Zone were conducted every two hours between 8:00 a.m. and 4:00 p.m. on Wednesday, July 25, 2007.



The observed peak parking occupancy was 6,443 vehicles for the first full study area occupancy count on July 24. This level of occupancy translates into 56.3% of the total parking supply. During the peak period of parking occupancy approximately 49.6% of the overall on-street parking supply and 57.5% of the overall off-street parking supply was occupied. Of the total general public parking supply in the study area (3,018 spaces - both off-street and on-street), approximately 46.8% of the spaces (1,413 spaces) were occupied during the overall observed peak period of parking.

Parking facilities for the medical campuses located in the study area appeared well utilized:

- The observed peak parking occupancy for Medcenter One parking areas was 86% of the available parking supply.
- Mid-Dakota parking facilities had a peak observed parking occupancy of 67% of the available parking supply.
- The peak observed parking occupancy for St. Alexius parking areas was 76% of the available parking supply. The counts did not include any St. Alexius parking areas located to the east of Block 56 (outside of the study area).

The final occupancy count completed by *Carl Walker* was for the Core Zone. During the peak period of observed occupancy, approximately 59.1% of the available parking supply was occupied and over 1,300 parking spaces were available.

### ***Current Parking Adequacy***

Overall, there appears to be a substantial surplus of parking available in the downtown study area. Based on the effective parking supply of the overall study area (10,308 spaces), there is currently a parking surplus of 3,543 spaces or approximately 34.4% of the effective supply. Based on the effective parking supply of the Core Zone (2,895 spaces), there is currently a parking surplus of 900 spaces or approximately 31.1% of the effective supply. Downtown vacancy rates appeared significant in some areas during field counts; therefore, observed parking demand may be lower than the demand that would be calculated for the downtown land uses.

Based on the “snapshot” parking occupancy counts completed on July 24<sup>th</sup>, it appears that the parking for Medcenter One is fully utilized (based on the effective parking supply of the medical center). Medcenter One has a current parking deficit of 8 spaces, but this estimate may be low – depending on the actual peak period of parking for the medical center. The other two medical centers, Mid-Dakota and St.



Alexius, appear to have small parking surpluses (89 spaces and 140 spaces respectively). While the parking available to the medical centers appears well-utilized, additional site specific parking studies would be recommended so that parking needs could be more accurately estimated.

### ***Public Input Workshop***

In order to solicit input from the downtown community, the City of Bismarck organized a parking study workshop. The workshop was held on September 13, 2007 and included representatives from city staff, downtown business and property owners, real estate professionals, and area medical center representatives.

At this workshop, background issues, parking inventory/occupancy counts, and basic parking management concepts were discussed. Also, the attending stakeholders were provided an opportunity to voice their concerns and provide potential solutions.

### **PROJECTION OF FUTURE PARKING CONDITIONS**

Currently, the City of Bismarck has few quantifiable future development projects in the planning stages that will impact parking in the study area. However, future development projects could include residential, retail, restaurant, and office projects.

### ***Parking Supply/Demand Alternatives***

To meet future parking demands, several parking supply alternatives are typically available to municipalities:

- The city could decide to improve the utilization of existing parking supplies.
- The city could create additional parking spaces in existing unimproved areas (either on-street or off-street) to provide additional parking.
- The city could require new downtown developments to provide sufficient parking.
- The city could work to reduce parking needs in the study area through the implementation of various transportation demand management and parking supply management strategies.
- The city could utilize a combination of alternatives.

**Carl Walker** recommends that the city utilize a combination of the available alternatives, as it provides a reasonable approach to dealing with future demands



and should limit future parking expenses. Also, this approach will allow the city to show the community that all options were explored prior to expending any city funds for constructing parking facilities. This alternative would involve the city working with the Bismarck Parking Authority and private parking lot owners to better utilize the existing parking surplus before adding additional parking supplies. If sufficient parking could not be secured using this approach, then the city would consider improving existing parking supplies and/or adding new supplies as appropriate. If new parking spaces were added, either through additional on-street spaces or parking structures, the city should look to developers/businesses to help defray a portion of the costs. Finally, the city would encourage the use of alternative modes of transportation, as well as other parking demand management strategies, to reduce overall parking demands.

### ***Review of Current Parking Zoning Code***

As part of this parking study, **Carl Walker** reviewed the existing City of Bismarck off-street parking zoning code (Section 14-03-10). In order to improve the zoning code, **Carl Walker** recommends the following changes:

- Provide additional direction/guidance concerning the functional design of parking facilities.
- Provide improved requirements for accessible parking.
- Update parking requirement ratios for hotels and theaters.
- Incorporate shared-parking concepts and methodologies.
- Provide for the use of in-lieu fees in the downtown area.

### **PARKING MANAGEMENT AND OPERATIONS STRATEGIES**

The purpose of providing parking management strategies is to help improve downtown parking conditions, both currently and in the future. The parking management options included in the main report are recommended in order to provide guidance in developing the parking system, improve parking system management and efficiency, and meet future parking needs.

### ***Parking System Guiding Principles***

Having a well-crafted set of parking principles establishes the goals and objectives that will ultimately define the character of the downtown. Having established these principles, the community will know what is expected and, hopefully, will have had the

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opportunity to be involved in the definition of the downtown parking principles. Using this approach as a first step to parking management can build recognition and increase respect and support for parking goals and management. **Carl Walker** strongly recommends that the City of Bismarck create and approve a set of guiding parking principles.

### ***Parking System Organization and Management***

**Carl Walker** strongly recommends that the City of Bismarck work to create a vertically integrated downtown parking system. This would involve consolidating all parking functions under one management structure (e.g., off-street and on-street parking operations and management, parking enforcement, and parking marketing and communications). Theoretically, the overall operation and management of the downtown parking system could become part of the existing Bismarck Parking Authority. All downtown public parking assets should be incorporated into the consolidated parking system including off-street parking lots, on-street spaces, enforcement, and fine collection. All parking-related revenues should flow toward the goals of the parking system, in concert with the designated parking guiding principles. If the system is financially stable and achieving its goals, then revenue could be diverted to other associated needs (e.g., downtown transit, street improvements, and clean street programs).

### ***Pay Parking and System Management Technologies***

Once parking management alternatives have been decided, the city will need to determine what technologies will be implemented to ensure parking is efficient, effective, and accountable. Applicable parking technologies will depend on the user groups served and where the parking spaces are located (e.g., on-street vs. off-street).

Future parking technologies could include:

- Automated payment technologies, such as pay-on-foot.
- Purchasing Automatic Vehicle Identification (AVI) readers and vehicle tags could provide an opportunity to improve customer service in the future. Customers would likely appreciate the ability to enter and exit parking facilities without having to stop, roll down their windows, and present an access card (especially during winter months).
- Advanced vehicle count systems could be included in future parking facility designs.



- If the city decides to further restrict on-street parking to discourage vehicles from moving between block faces, the utilization of a Mobile License Plate Recognition (MLPR) system would be warranted.

### ***Parking Enforcement Strategies***

The success of any parking management program requires an effective enforcement component. Building an enforcement program requires making many critical strategic and tactical decisions which can greatly impact a program's success and ability to adapt with changing conditions. With this in mind, the following enforcement improvements are recommended:

- Transfer responsibility for parking enforcement to a vertically organized department or authority responsible for the overall downtown Bismarck parking program.
- Ensure enforcement statistics are accurately tracked, and conduct regular reviews of parking citation statistics to ensure goals are achieved.
- Implement a tiered parking citation fine structure.
- Work to improve parking citation collection rates.

### ***Parking Signage and Wayfinding***

In order to clarify parking in downtown, the city should provide adequate signage to denote public parking facilities as well as parking facility regulations. Ideally, parking signage should be part of a larger downtown wayfinding system. Directional signage should be provided to help visitors locate parking resources downtown, depending on the type of parking they need. Then, signs should be located in each parking lot that provides a name for the lot, who can park there, as well as any specific restrictions.

### ***Parking Security and Lighting***

Public parking facilities should embody the concepts of Crime Prevention through Environmental Design (CPTED). Parking facilities should be properly landscaped, lines of sight should be unobstructed, potential hiding places should be eliminated, and adequate lighting should be provided. In order to determine if lighting is sufficient in parking areas and pedestrian pathways, **Carl Walker** recommends that the city conduct a downtown lighting study in the future.



### ***Loading and Delivery Parking***

Although delivery vehicles cannot be removed from downtown, their impact can be minimized through coordinated efforts among area businesses. Potential strategies for addressing delivery vehicle challenges could include the following:

- Delivery vehicles should be discouraged from parking on narrow streets and in no parking zones.
- The city should consider the creation of delivery loading zones in strategic locations.
- The city should identify specific delivery vehicle concerns and work with downtown businesses to encourage deliveries during off-peak parking periods (e.g., mornings), as well as encourage the use of smaller delivery vehicles whenever possible.

### ***Parking Communications and Marketing***

While the current downtown parking system is not overly complex, a breakdown in communications can foster a perception of parking problems. One-page parking maps could be created to show the locations of public parking supplies, provide downtown parking policies and regulations, provide contact information for questions and provide other downtown information. Other downtown marketing materials, either developed by the city or other organizations, should include parking information for visitors.

Improving communications with downtown stakeholders could be accomplished through periodic parking-specific input meetings (perhaps twice per year), annual parking system reports, and parking staff involvement in appropriate downtown organizations (e.g., Downtowner's Association, business groups, Chamber of Commerce).

### ***Incorporating Parking and Transportation***

The concept of integrating transportation and parking elements as part of the larger strategic vision for the downtown supports the adoption of a "Park Once – Pedestrian First" planning concept. This concept encourages employees and visitors to park their vehicles in one location and then use another form of transportation to move around the downtown with excellent pedestrian, transit, parking, and bicycle facilities.



## ACTION PLAN AND RECOMMENDATIONS SUMMARY

### Short-Term (Within the Next Twelve Months):

1. As there is a significant shortage of parking for the library (limiting the efficient use of the building), the city should first look for possible solutions to improve this situation. This would involve investigating opportunities to improve the utilization of nearby parking resources, assisting the library with implementing transportation demand strategies to help reduce parking demand for the library, and investigating the construction of additional parking supplies.
2. Develop and approve a set of guiding principles for the downtown Bismarck parking system using the provided information as a starting point (see Section 4.01 of the main report).
3. Begin work to create a more vertically-integrated downtown parking system.
4. Improve downtown parking signage and wayfinding. Trailblazing signs should be located on incoming streets (e.g., Main Avenue, 7<sup>th</sup> Street, 3<sup>rd</sup> Street) to direct visitors to available on-street and off-street parking supplies.
5. Maximize on-street parking in the downtown area where possible. Work with the city's traffic department to determine locations that could support additional parking.
6. Conduct a maintenance review of existing public parking lots/spaces. Ensure facilities are structurally sound, parking surfaces are well maintained, parking space stripes are visible, signage is maintained, landscaping is appropriate, etc.
7. Using the recommendations included in the main report, begin improving downtown parking enforcement.
8. Work with community stakeholders to improve both real and perceived safety levels in parking areas and on pedestrian pathways.
9. Attempt to better utilize existing parking supplies prior to designing and constructing new parking areas. Theoretically, there is currently enough unused parking to accommodate projected parking needs in the near-term. In order to identify the parking needs of the medical center campus on the eastern side of the study area, site specific parking studies appear warranted.



10. Select a minimum of two primary sites and two alternate sites for future parking structures. Ideally, the location of future parking structures would be driven by projected future needs as opposed to land currently owned or existing parking demands.
11. Develop a parking marketing program to include information for downtown visitors and businesses.
12. Update the city parking zoning code.

**Mid-Term (Year Two):**

1. Conduct an update of the parking inventory and occupancy surveys contained in this report.
2. Ensure the city has sufficient land use data for the downtown parking district, and update annually or as necessary.
3. Conduct a downtown lighting study to ensure lighting levels support safety and security goals and objectives.
4. Evaluate the ability of the parking system to fund additional parking facility construction in the future, and investigate additional sources of revenue.
5. Continue work to improve lines of communication between the downtown parking system and downtown businesses, residents, and visitors.
6. Review parking enforcement statistics to ensure recommended goals are being met.
7. Provide sufficient support for alternative modes of transportation. Provide adequate bicycle racks, comfortable pedestrian paths, bike paths, etc. in the downtown to encourage a pedestrian first mentality.
8. Investigate opportunities to improve customer service by instituting additional service programs, such as battery jumps, lock-out assistance, tire inflation, etc.
9. Consider completing an annual report for the downtown parking system.
10. Work with downtown businesses to determine loading and delivery needs.



**Long-Term (Years Three and Later):**

1. Develop additional parking supplies when needed. The facilities should be placed and sized appropriately, using the parking supply and demand analysis methodology detailed in the main parking study report.
2. Ideally, the development of a parking garage would coincide with the development(s) it is serving or based on growing parking demands in the downtown. If a developer is interested in developing a portion of the downtown, and sufficient parking supplies cannot be provided using other methods, then the city could propose providing the necessary parking along with the construction of the development. In-lieu fees could be used to provide/supplement the funds necessary for parking facility design and construction.
3. Investigate opportunities to incorporate additional parking technologies to improve downtown parking operations and management. This could include variable message systems (to direct parkers to available supplies), MLPR enforcement systems, wireless parking sensors, etc.



## 1.0 INTRODUCTION

### 1.01. Study Purpose and Approach

This parking study was initiated by the City of Bismarck to provide a comprehensive downtown parking system review and analysis. The parking study initially evaluated existing conditions, determined primarily through reviews of background materials, detailed parking occupancy surveys, and stakeholder input meetings. The examination of existing conditions provided the baseline data from which future parking supply and management alternatives could be evaluated. Potential parking improvements were considered to address future needs, as well as improve the utilization and efficiency of existing parking resources. Future parking alternatives included potential parking supply changes, as well as general parking management strategies. The primary goals of this study included providing recommendations for parking system improvements designed to improve the overall parking experience for users of the downtown parking system, ensure the efficient use of available resources, and provide guidance in dealing with future parking supply and management needs.

### 1.02. Scope of Services

The City of Bismarck commissioned *Carl Walker* to complete this Downtown Parking Management Plan in June, 2007. The study was divided into four primary phases. The first phase included a review of available background data and an analysis of existing parking inventories and utilization. The second phase provided a stakeholder outreach program and an additional site visit. The third phase of the project involved an analysis of possible parking system improvement alternatives. Finally, the fourth phase of the project included the compilation of the final report and study presentation. The scope of services for this study was set as follows:

- Phase One
  - Review available background materials and previous planning efforts.
  - Conduct a field review of existing conditions.
  - Conduct an inventory and analysis of existing parking facilities.
  - Perform parking occupancy counts for the entire study area, the downtown core, and the medical facilities located in the study area.
- Phase Two
  - Conduct a public input workshop to gain perspectives concerning parking in the study area (completed in September 2007).
  - Conduct an additional site visit to continue the review of existing conditions.



- Phase Three
  - Conduct an analysis of parking supply, management, and operations alternatives in order to improve existing and projected conditions.
  - Develop a prioritized action plan for short-term and long-term parking system improvements.
- Phase Four
  - Compile the final downtown parking study.
  - Provide a final report presentation.

### 1.03. Study Area

The overall study area for this project was set as Avenue B on the north, Sweet Avenue on the south, 12th Street on the east, and Washington Street on the west. However, this study focuses on a core area of approximately 19 blocks (Core Zone). The Core Zone is bounded by Avenue A on the North, the railroad tracks on the south, 6th Street on the east, and 2nd Street on the west. Figure 1 (below) illustrates the study area (overall study area outlined in orange – Core Zone outlined in yellow).

Figure 1. Study Area



## 2.0 ASSESSMENT OF CURRENT PARKING CONDITIONS

### 2.01. Current Parking Supply

On July 23, 2007 *Carl Walker* conducted an inventory of parking spaces located within the downtown Bismarck study area. The parking spaces were classified into two primary categories, on-street and off-street. For this study, on-street spaces refer to spaces located on a roadway, adjacent to a block, oriented parallel or angled to the curb. Off-street spaces refer to spaces located within a block and within the curb face.



Generally, all on-street parking spaces were available for public parking while the majority of off-street spaces were reserved for a particular group (e.g., specific customers, reserved parking). In this report, public parking will refer to city owned/managed parking available to all user groups. Private parking will refer to parking owned privately and/or designated for a specific business or user group.

The downtown study area has a total parking supply of 11,453 parking spaces. Of these, 9,665 parking spaces (84%) are in off-street parking areas and 1,788 spaces (16%) are located on-street. The Core Zone (shown in yellow in Figure 2) contained a total of 3,217 parking spaces (2,654 off-street and 563 on-street). The on-street parking inventory includes both marked parking spaces and locations where on-street parking is possible but not currently marked. The amount of on-street parking was estimated by *Carl Walker* based on block face lengths and street widths.

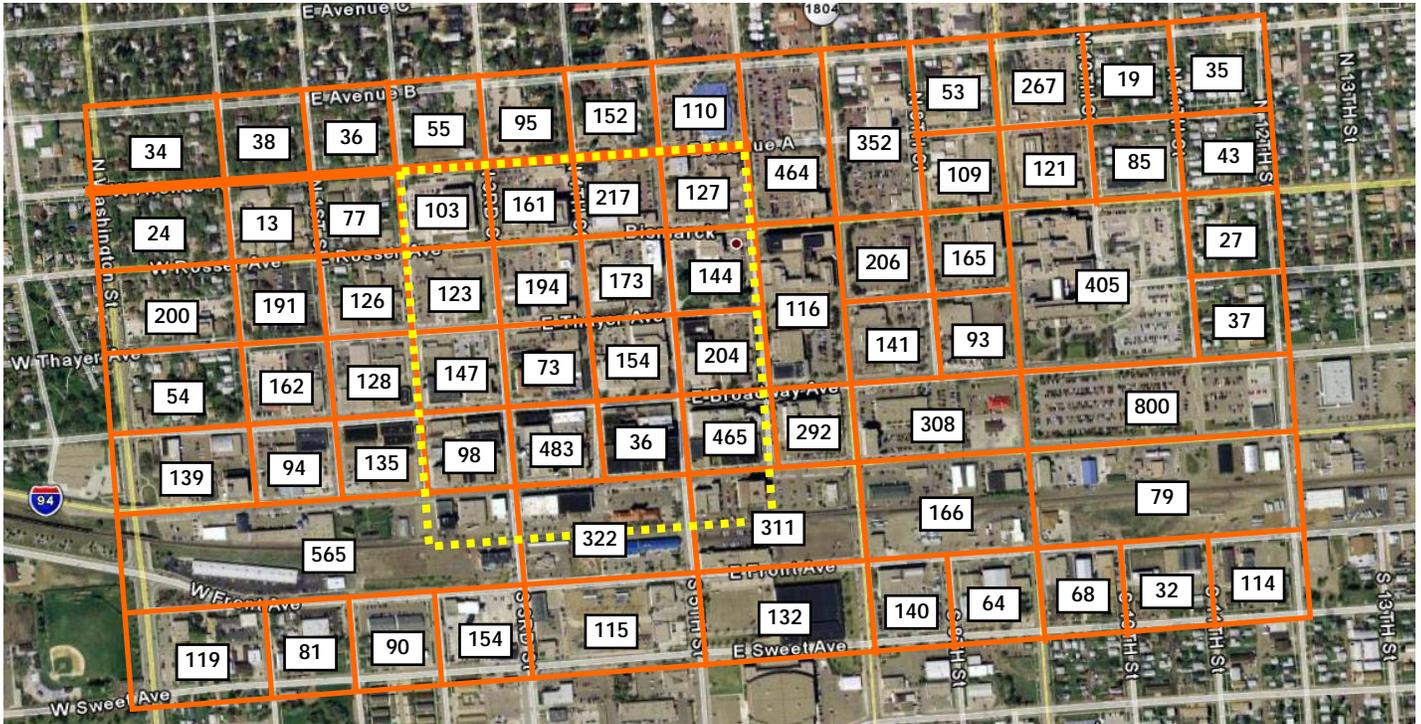
Some parking areas could not be accurately inventoried, as they lacked parking stripes or existing stripes were not visible. In these situations, inventories were estimated based on the size of the parking area. Residential parking areas, including any apartment complexes and private driveways, were not counted in the parking inventory as they would not contribute to any shared parking opportunities.



The following graphic (Figure 2) illustrates the total parking supply located in each designated block. The totals include the number of spaces located in off-street parking lots located within each block, as well as the number of on-street parking spaces on each block face. The number of parking spaces in/on each block is detailed in Figures 3 and 5, as well as Appendix A.



**Figure 2. Total Parking Supply by Block**



The following two subsections summarize the current downtown parking supply by type (off-street versus on-street).

**2.01.1. Off-Street Parking Supply**

The overall study area contained an approximate total of 9,665 off-street parking spaces. There are currently 1,230 general public off-street parking spaces and 8,435 private parking spaces. The Core Zone contained a total off-street parking supply of 2,654 (948 public spaces and 1,706 private).

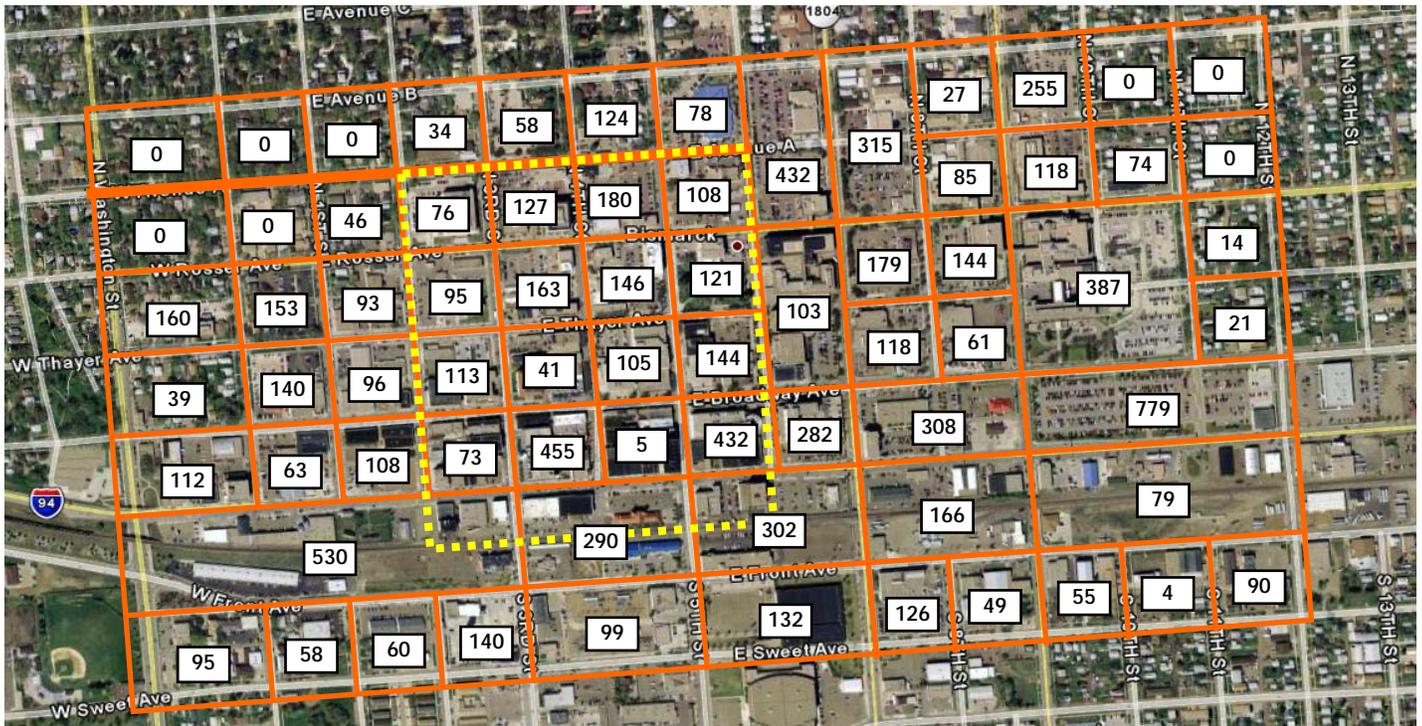


Based on current parking space inventories, Bismarck's Parking Authority controls approximately 13% of the total off-street parking supply (both general public and reserved spaces). The general public off-street spaces are currently available for a fee, and they are controlled using traditional exit cashing control equipment, parking access cards, etc. Of the



remaining 8,435 off-street parking spaces, the vast majority are reserved for employees and visitors of specific businesses or buildings.

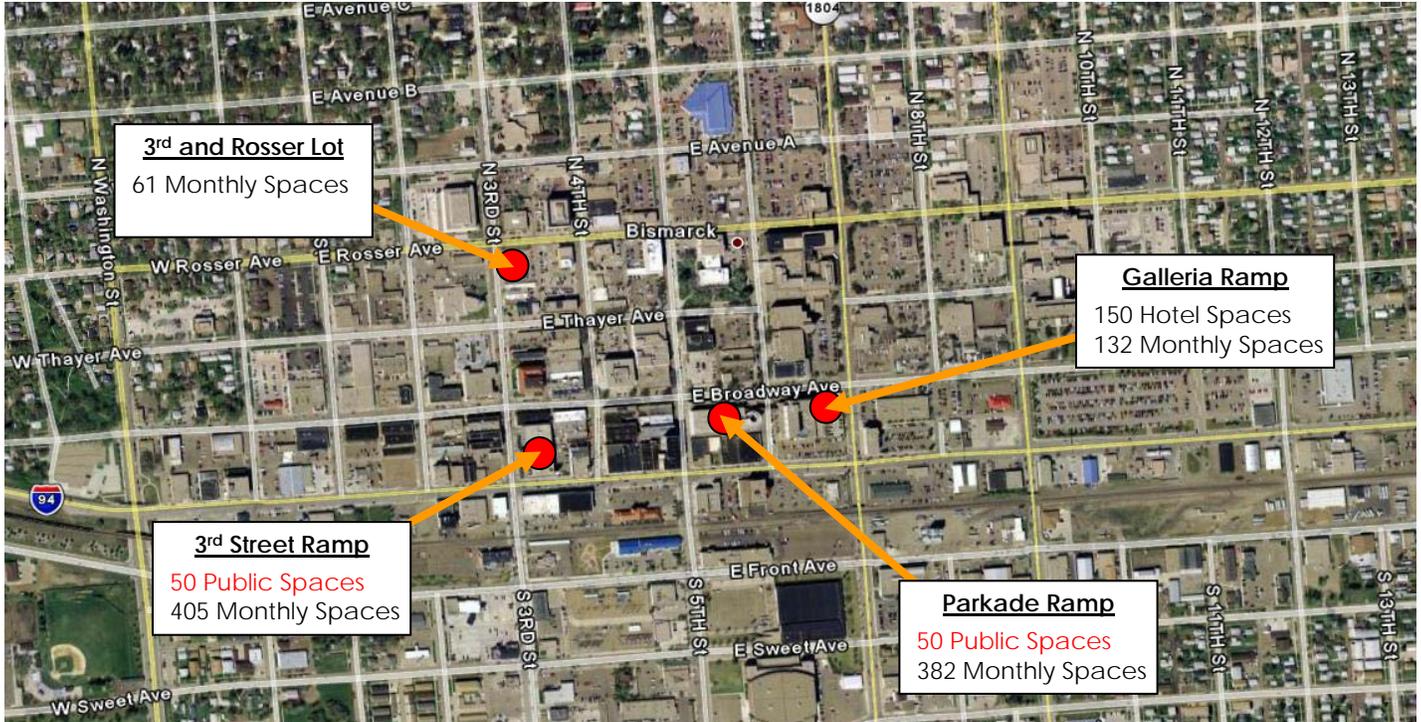
**Figure 3. Off-Street Parking Supply**



The Bismarck Parking Authority currently owns four off-street parking facilities that provide parking for monthly parking customers (e.g., downtown employees, business owners) and transient parkers (general downtown visitors). As stated previously, there are approximately 1,230 public parking spaces provided in Authority parking facilities (948 spaces in the Core Zone). The following figure (Figure 4) illustrates the location of each Authority-owned parking lot, as well as the number of spaces allocated to each user group (as reported by the Authority's parking operator). General public spaces are highlighted in red.



**Figure 4. Authority-Owned Parking Facilities**



**2.01.2. On-Street Parking Supply**

The overall study area contained approximately 1,788 public on-street spaces, all of which are controlled by the city. There were 563 on-street parking spaces in the Core Zone. The on-street parking is available to the public on a first-come-first-serve basis, and a significant portion of the spaces are currently time restricted.

The following graphic (Figure 5) illustrates the on-street parking supply located on each block (sum of all on-street parking on each block face).



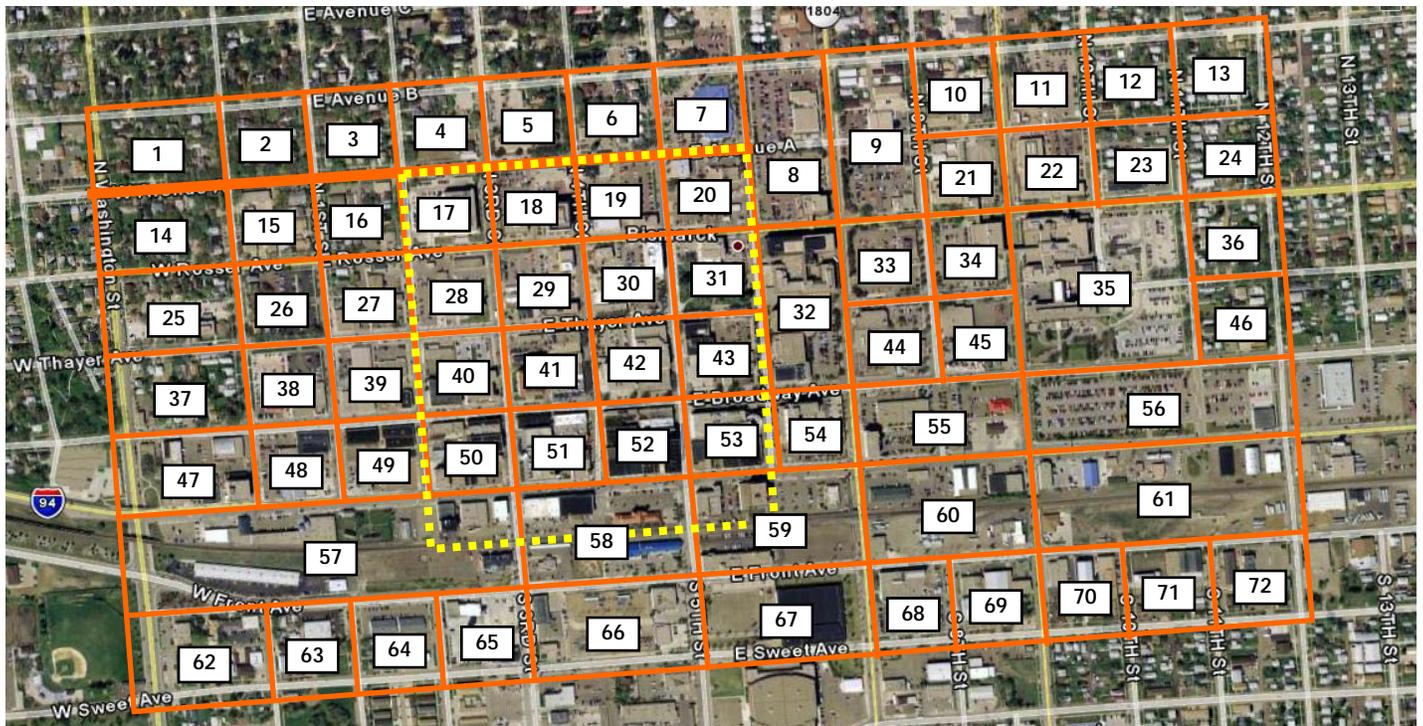


Core Zone. Parking occupancy counts for the Core Zone were conducted every two hours between 8:00 a.m. and 4:00 p.m. on Wednesday, July 25, 2007.

The parking occupancy surveys focused on the two primary categories of parking in the study area, on-street and off-street. The intent of the survey was to determine the overall level of parking utilization in the study area, and the results will serve as a baseline for determining future parking expansion needs and management options.

Prior to conducting the parking inventory and occupancy surveys, block numbers were assigned to the various blocks located in the study area. The following graphic (Figure 6) illustrates the block numbering sequence. The block numbers shown in Figure 6 will identify each block throughout this study.

**Figure 6. Block Number Sequence**



The observed peak parking occupancy was 6,443 vehicles for the first full study area occupancy count on July 24. This level of occupancy translates into 56.3% of the total parking supply. The following table (Table 1) illustrates the total observed occupancy levels for all blocks in the study area.



**Table 1. Overall 10:00 a.m. – 12:00 p.m. Occupancy Survey Results**

Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
ALL	Off-Street Public	1,230	526
	Off-Street Private	8,435	5,030
	<b>Total Off-Street</b>	<b>9,665</b>	<b>5,556</b>
	On-Street North	450	219
	On-Street South	504	240
	On-Street East	419	215
	On-Street West	415	213
	<b>Total On-Street</b>	<b>1,788</b>	<b>887</b>
	<b>Total Parking</b>	<b>11,453</b>	<b>6,443</b>
	Off-Street Public Parking Occupancy %		42.8%
	Off-Street Private Parking Occupancy %		59.6%
	Total Off-Street Parking Occupancy %		57.5%
	Total On-Street Parking Occupancy %		49.6%
	<b>Total Parking Occupancy %</b>		<b>56.3%</b>

During the peak period of parking occupancy approximately 49.6% of the on-street parking supply and 57.5% of the off-street parking supply was occupied. Block-by-block parking occupancy statistics for the overall study area can be found in Appendix A.

Of the available off-street general public parking supplies located in the overall downtown study area, approximately 42.8% of the spaces were occupied during the overall peak period of parking. Of the total general public parking supply in the study area (3,018 spaces - both off-street and on-street), approximately 46.8% of the spaces (1,413 spaces) were occupied during the overall observed peak period of parking.

Figure 7 provides a summary of overall off-street and on-street parking occupancies during the observed peak period of parking demand on July 24. The highest percentages of parking occupancy were observed in Blocks 8 and 44 (greater than 90%). Blocks with parking occupancies greater than 70% are highlighted in yellow.



Figure 7. Percentage of Parking Occupied at Peak – July 24 Overall Count



In addition to the high levels of parking activity in portions of the Core Zone and medical centers, the off-street parking adjacent to the downtown library (Block 7) was fully occupied. While it appears that the library was constructed without sufficient parking, there were significant amounts of underutilized private off-street parking in the blocks to the west and south of Block 7 (Blocks 6, 19, and 20). Over 150 private parking spaces were available during the occupancy count and could provide library overflow parking if private parking lot owners were willing to cooperate.

After completing the overall parking occupancy “snapshot” count on July 24, an additional occupancy count was conducted in medical center parking areas on the same afternoon (3:00 p.m.) Figure 8 (next page) illustrates the result of the afternoon counts. Only the off-street parking supplies for the medical centers were included.

Medcenter One parking areas in Blocks 8, 9, 32, 33, 44, and 43 had a total parking supply of 1,231 parking spaces. During the first occupancy count conducted on July 24<sup>th</sup> (between 10:00 a.m. and 12:00 p.m.), approximately 1,063 spaces were occupied. During the second occupancy count (3:00 p.m.), approximately 979 spaces were occupied. Therefore, the peak period of observed parking occupancy occurred at

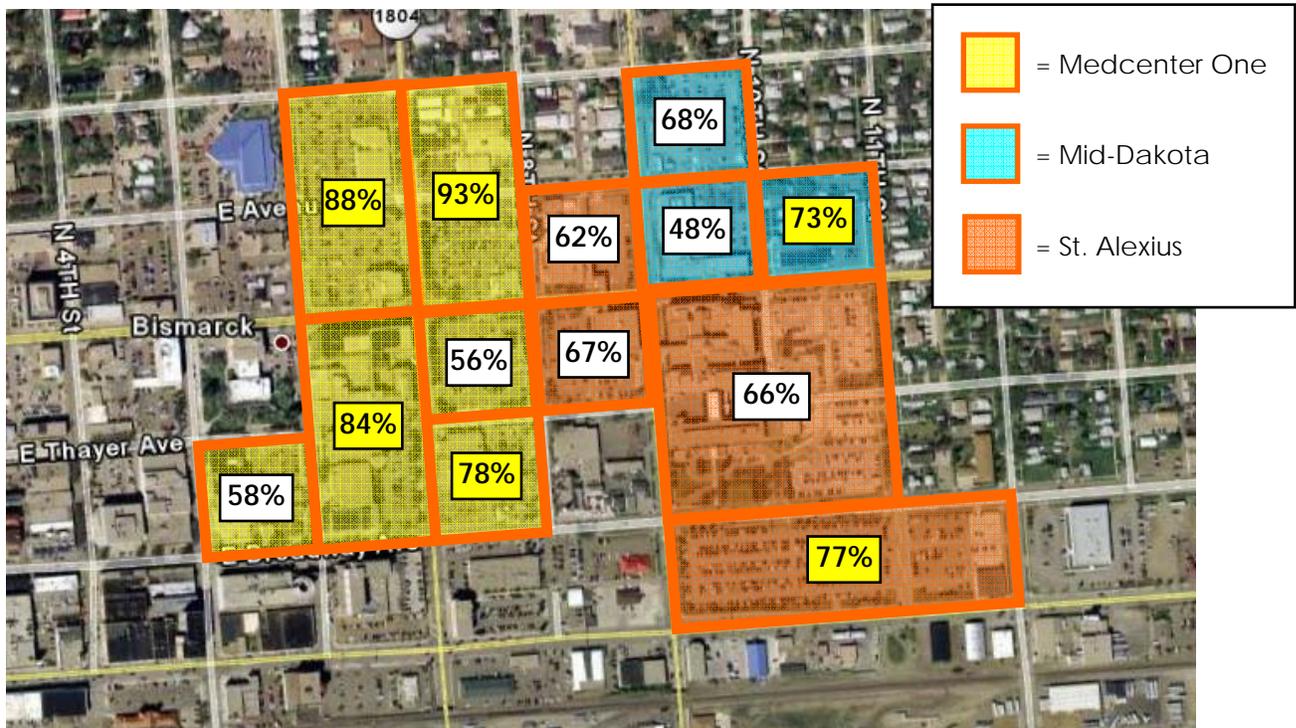


10:00 a.m. when 86% of the available parking supply was occupied. During the peak period of parking occupancy, approximately 168 spaces were available for use.

The Mid-Dakota parking areas in Blocks 11, 22, and 23 had a total parking supply of 447 spaces. During the 10:00 a.m. to 12:00 p.m. occupancy count, Mid-Dakota parking areas had an approximate occupancy of 298 vehicles (67% occupied). During the afternoon count, the parking areas were 64% occupied with 285 vehicles. During the observed period of peak parking occupancy, approximately 149 parking spaces were available for use by Mid-Dakota employees, patients, and visitors.

St. Alexis parking areas in Blocks 21, 34, 35, and 56 had a total parking supply of 1,395 parking spaces. During the first occupancy count of the day, approximately 1,062 spaces were occupied. During the second occupancy count at 3:00 p.m., approximately 1,005 spaces were occupied. Therefore, the peak period of observed parking occupancy occurred during the 10:00 a.m. – 12:00 p.m. count when 76% of the available parking supply was occupied. During the observed peak period of parking occupancy, approximately 333 spaces were available for use. The counts did not include any St. Alexis parking areas located to the east of Block 56.

**Figure 8. Percentage of Parking Occupied at 3 p.m. – July 24 Medical Center Counts**



The final occupancy count completed by *Carl Walker* was for the Core Zone. As previously mentioned, this count was completed on July 25<sup>th</sup>. Occupancy surveys were conducted every two hours between 8:00 a.m. and 4:00 p.m. in all Core Zone parking areas (both on-street and off-street). Block-by-block statistics can be found in Appendix B. Table 2 (below) shows the observed parking occupancy for the Core Zone. The peak period of observed parking occupancy for the Core Zone occurred at 10:00 a.m. when 1,900 vehicles were parked. During this period, approximately 59.1% of the available parking supply was occupied and over 1,300 parking spaces were available. Parking occupancies for public parking areas (both on-street and off-street) also occurred at 10:00 a.m. During the peak period of observed parking occupancy, public off-street parking supplies were 49.8% occupied and on-street parking spaces were 57.2% occupied. At 10:00 a.m., approximately 515 public off-street spaces and 241 on-street spaces were available. The two public parking structures had 445 spaces available during the observed period of peak parking demand.

**Table 2. Core Zone Occupancy Survey Results – July 25, 2007**

Block #	Parking Type/Location	Parking Inventory	8am	10am	12pm	2pm	4pm
CORE	Off-Street Public	948	391	472	433	448	397
	Off-Street Private	1,706	901	1,106	916	1,035	970
	<b>Total Off-Street</b>	<b>2,654</b>	<b>1,292</b>	<b>1,578</b>	<b>1,349</b>	<b>1,483</b>	<b>1,367</b>
	On-Street North	159	80	85	71	89	84
	On-Street South	129	48	76	77	76	77
	On-Street East	140	60	87	87	68	85
	On-Street West	135	46	74	74	83	64
	<b>Total On-Street</b>	<b>563</b>	<b>234</b>	<b>322</b>	<b>309</b>	<b>316</b>	<b>310</b>
	<b>Total Core Parking</b>	<b>3,217</b>	<b>1,526</b>	<b>1,900</b>	<b>1,658</b>	<b>1,799</b>	<b>1,677</b>
	Off-Street Public Parking Occupancy %		41.2%	49.8%	45.7%	47.3%	41.9%
	Off-Street Private Parking Occupancy %		52.8%	64.8%	53.7%	60.7%	56.9%
Total Off-Street Parking Occupancy %		48.7%	59.5%	50.8%	55.9%	51.5%	
Total On-Street Parking Occupancy %		41.6%	57.2%	54.9%	56.1%	55.1%	
<b>Total Parking Occupancy %</b>		<b>47.4%</b>	<b>59.1%</b>	<b>51.5%</b>	<b>55.9%</b>	<b>52.1%</b>	

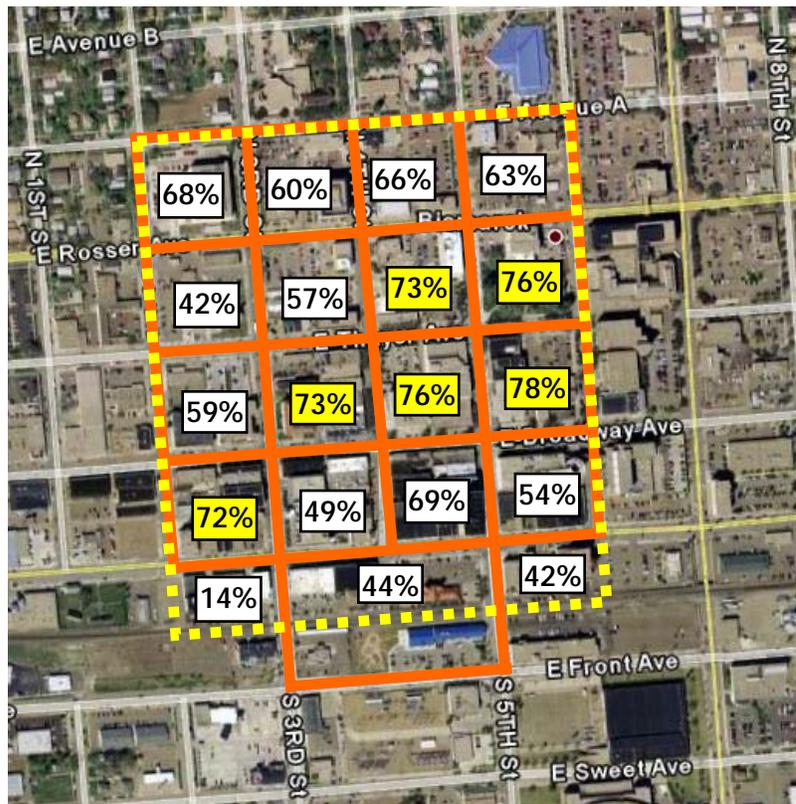
During the overall “snapshot” parking occupancy count conducted on July 24<sup>th</sup>, the Core Zone area had an observed parking occupancy of approximately 1,764 vehicles (54.8% of available parking spaces were occupied). During the July 24<sup>th</sup> “snapshot” count, approximately 46.5% of the available off-street public parking spaces and 58.6% of the on-street spaces were occupied. During this count, the two public parking structures had 483 spaces available during the observed period of peak parking demand. Therefore, the level of parking demand observed during the overall



“snapshot” occupancy count was generally consistent with the level of parking demand observed during the Core Zone surveys.

Figure 9 (below) illustrates the percentage of parking occupied in the Core Zone during the observed peak period of parking demand. Blocks with parking occupancies greater than 70% are highlighted in yellow.

**Figure 9. Percentage of Parking Occupied at 10:00 a.m. Peak – Core Zone**



In addition to the parking inventory and occupancy counts, a parking duration survey was also conducted by *Carl Walker* staff in the Core Zone. The duration surveys were conducted in three on-street parking areas (total of 65 parking spaces):

- The east side of Block 41 and west side of Block 42 (4<sup>th</sup> Street, between Thayer Avenue and Broadway Avenue);



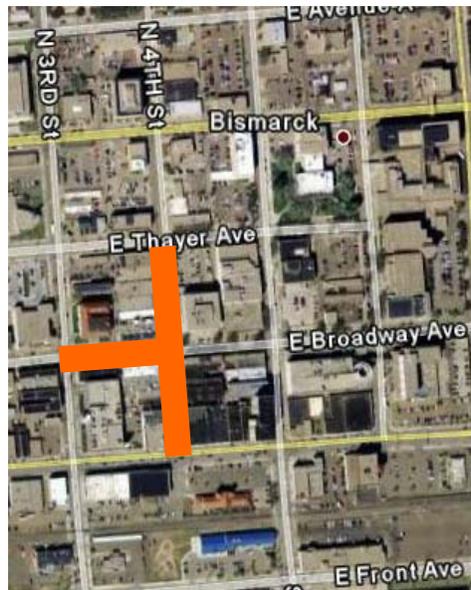
- The south side of Block 41 and north side of Block 51 (Broadway Avenue, between 3<sup>rd</sup> Street and 4<sup>th</sup> Street);
- The east side of Block 51 and west side of Block 52 (4<sup>th</sup> Street, between Broadway Avenue and Main Street).

Figure 10 (below) illustrates the location of the parking duration and turnover surveys. License plate information for vehicles parked in the included on-street areas was recorded every half-hour from 8:00 a.m. to 4:00 p.m. on July 25<sup>th</sup>.

The average amount of time vehicles were parked on the survey day was 1.18 hours. Most vehicles parked well below the posted time limit of 90 minutes, although some people were observed moving their vehicles between block faces to avoid overtime parking. Of the 354 parked vehicles included in the survey, only 29 vehicles parked over the posted time limit (8.2% of parked vehicles). Average vehicle turnover for the parking spaces included in the survey was approximately 5.53 vehicles per space. This level of turnover is fairly typical of other similar downtowns surveyed by *Carl Walker*.

It is important to note that the average duration of vehicles parking in the study area may be slightly higher than what was recorded during the duration survey. This is due to vehicles that were parked before the survey was started, and vehicles that were still parked at the conclusion of the survey each day.

**Figure 10. Parking Turnover and Duration Survey Locations**



### 2.03. Current Parking Adequacy

In determining the current parking adequacy for the study area, it is important to define two terms typically used in analyzing parking adequacy: Effective Supply and Design Day Conditions. When a parking area's occupancy reaches 85-90% of the total capacity, depending on the user group, the area becomes effectively full. When parking lot occupancy exceeds effective capacity, users become frustrated as it becomes increasingly difficult to find an available parking space. Users will begin to either park illegally in the lot or leave the lot altogether and search for parking elsewhere. In a downtown environment, when visitors are faced with significant parking difficulties they could decide to avoid the downtown altogether and shop elsewhere. The accepted effective fill percentage for parking in the downtown study area is 90%. This 10% "cushion" of spaces is used to accommodate spaces lost temporarily due to construction, improper or illegal parking, and provides for shorter searches for available parking.



Design day parking conditions attempt to represent typical peak activity that may be exceeded only occasionally during the year. Due to the limited nature of the occupancy surveys for this project, as well as the time of the year the surveys were completed, design day adjustments will be estimated based on previous parking occupancy studies and available industry data. As parking occupancies for most types of office and commercial spaces do not peak during summer months, parking occupancies will be increased 5% to conservatively estimate current parking adequacies.

The following table (Table 3) illustrates the total estimated parking adequacy for the entire study area based on the overall "snapshot" survey completed on July 24<sup>th</sup>. Overall, there appears to be a substantial surplus of parking available in the downtown study area. Based on the effective parking supply of the study area (10,308 spaces), there is currently a parking surplus of 3,543 spaces or approximately 34.4% of the effective supply. Parking adequacy is based solely on observed parking demand, with a conservative design day adjustment. Downtown vacancy rates appeared significant in some areas during field counts; therefore, observed parking demand may be lower than the demand that would be calculated for the downtown land uses.



**Table 3. Overall Parking Adequacy – July 24<sup>th</sup> Count**

		Number of Spaces
Current Total Parking Supply		11,453
Current Effective Parking Supply (90% of Total)		10,308
Observed Parking Occupancy	56.3%	6,443
Estimated Design Day Demand (105% of Observed)		6,765
<b>Current Effective Parking Surplus/Deficit (Effective Supply minus Observed Occupancy)</b>		<b>3,543</b>

It is important to note however that while a significant parking surplus exists in all areas, a substantial portion of the parking is private and use is restricted. Of the total off-street and on-street parking supply in the study area, approximately 26% (3,018 spaces) is public parking, with the remaining 74% of the parking supply (8,435 spaces) restricted to a specific user group (e.g., business employees, specific customers only). At the peak parking period, approximately 47% of the total public parking supply and 60% of the total private parking supply was utilized.

Table 4 (below) illustrates the parking adequacy for the Core Zone based on the Core Zone occupancy counts completed on July 25<sup>th</sup>. As with the overall study area, there appears to be a substantial surplus of parking available in the Core Zone. Based on the effective parking supply of the Core Zone (2,895 spaces), there is currently a parking surplus of 900 spaces or approximately 31.1% of the effective supply. The estimation of parking adequacy in the Core Zone could be impacted by building vacancy rates in the area.

**Table 4. Core Zone Parking Adequacy – July 25<sup>th</sup> Count**

		Number of Spaces
Current Total Parking Supply		3,217
Current Effective Parking Supply (90% of Total)		2,895
Observed Peak Parking Occupancy	59.06%	1,900
Estimated Design Day Demand (105% of Observed)		1,995
<b>Current Effective Parking Surplus/Deficit (Effective Supply minus Observed Occupancy)</b>		<b>900</b>



As with the overall study area, a substantial portion of the parking in the Core Zone is private and use is restricted. Of the total off-street and on-street parking supply in the Core Zone, approximately 47% (1,511 spaces) is public parking, with the remaining 53% of the parking supply (1,706 spaces) restricted to a specific user group (e.g., business employees, specific customers only). At the peak parking period, approximately 49% of the Core Zone public parking supply and 65% of the total private parking supply was utilized.



On a block-by-block basis, parking surpluses in the Core Zone ranged from 6 spaces to 185 spaces. Currently, there are no blocks with calculated parking deficits. However, there are seven blocks with estimated parking occupancies over 80% of the effective parking supply (Blocks 30, 31, 41, 42, 43, 50, and 52). There are seven additional blocks with parking occupancies over 60% of the effective parking supply on each block. Table 5 (next page) details the calculated parking adequacy for each block in the study area.



With respect to public parking supply in the Core Zone, parking surpluses on a block-by-block basis ranged from 0 spaces to 185 spaces. While there are no current parking deficits, the parking on one block was effectively full (Block 20) and there were three blocks with estimated parking occupancies greater than 80% of the calculated effective public parking supply (Blocks 20, 42, and 43). There are five additional blocks with parking occupancies greater than 60% of the available effective public parking supply. Table 6 (page 19) details the public parking adequacy for each block in the study area.



Table 5. Core Zone Parking Adequacy by Block

Block Number	Current Total Supply	Effective Supply <sup>1</sup>	Observed Demand at Peak	Design Day Demand <sup>2</sup>	Estimated Parking Surplus/Deficit	% of Effective Supply Occupied <sup>3</sup>
17	103	93	70	74	19	79.3%
18	161	145	96	101	44	69.6%
19	217	195	143	150	45	76.9%
20	127	114	80	84	30	73.5%
28	123	111	52	55	56	49.3%
29	192	173	110	116	57	66.8%
30	173	156	127	133	22	85.6%
31	144	130	110	116	14	89.1%
40	147	132	86	90	42	68.3%
41	73	66	53	56	10	84.7%
42	154	139	117	123	16	88.6%
43	204	184	160	168	16	91.5%
50	98	88	71	75	14	84.5%
51	483	435	238	250	185	57.5%
52	36	32	25	26	6	81.0%
53	465	419	252	265	154	63.2%
57 (Partial)	92	83	13	14	69	16.5%
58 (Partial)	151	136	66	69	67	51.0%
59 (Partial)	74	67	31	33	34	48.9%
<b>Overall</b>	<b>3,217</b>	<b>2,895</b>	<b>1,900</b>	<b>1,995</b>	<b>900</b>	<b>68.9%</b>

Notes:

- 1 - Effective supply is 90% of the current supply.
  - 2 - Design Day Demand equals 105% of the observed parking demand.
  - 3 - Percentage of Effective Supply Occupied equals Design Day Demand divided by Effective Supply.
- Blocks highlighted in yellow have effective occupancies greater than 80%.



Table 6. Core Zone Public Parking Adequacy by Block

Block Number	Current Public Supply	Effective Supply <sup>1</sup>	Observed Demand at Peak	Design Day Demand <sup>2</sup>	Estimated Parking Surplus/Deficit	% of Effective Supply Occupied <sup>3</sup>
17	27	24	13	14	11	56.2%
18	34	31	22	23	8	75.5%
19	37	33	18	19	14	56.8%
20	19	17	16	17	0	98.2%
28	28	25	13	14	12	54.2%
29	90	81	38	40	41	49.3%
30	27	24	9	9	15	38.9%
31	23	21	14	15	6	71.0%
40	34	31	16	17	14	54.9%
41	32	29	16	17	12	58.3%
42	49	44	41	43	1	97.6%
43	60	54	50	53	2	97.2%
50	25	23	14	15	8	65.3%
51	483	435	238	250	185	57.5%
52	31	28	21	22	6	79.0%
53	465	419	252	265	154	63.2%
57 (Partial)	17	15	0	0	15	0.0%
58 (Partial)	21	19	2	2	17	11.1%
59 (Partial)	9	8	1	1	7	13.0%
<b>Overall</b>	<b>1,511</b>	<b>1,360</b>	<b>794</b>	<b>834</b>	<b>526</b>	<b>61.3%</b>

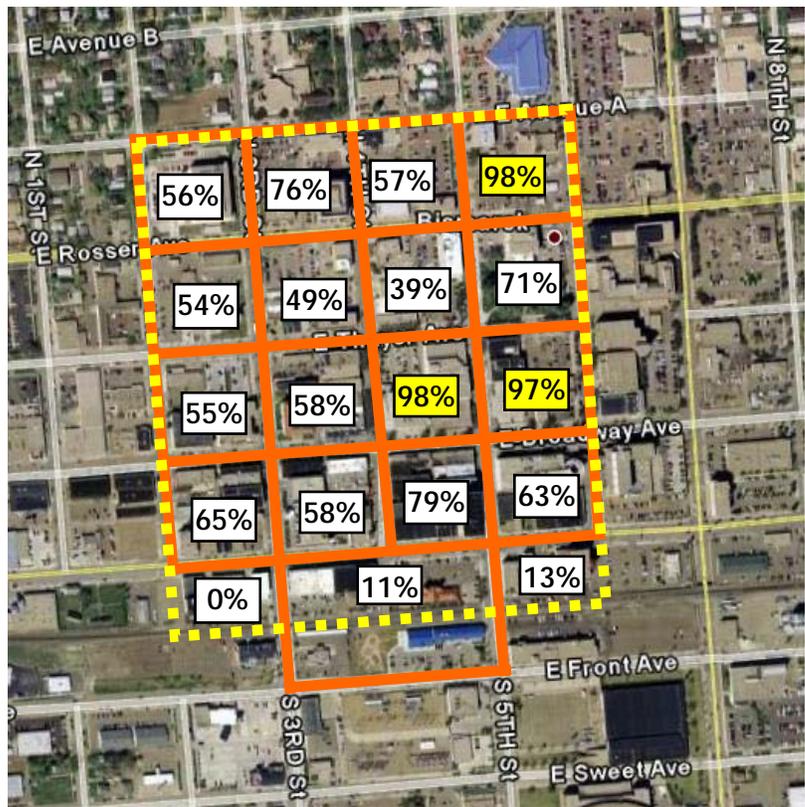
Notes:

- 1 - Effective supply is 90% of the current supply.
  - 2 - Design Day Demand equals 105% of the observed parking demand.
  - 3 - Percentage of Effective Supply Occupied equals Design Day Demand divided by Effective Supply.
- Includes off-street and on-street public parking supplies.  
 Blocks highlighted in yellow have effective occupancies greater than 80%.



The following figure (Figure 11) illustrates public parking occupancies in the core zone based on the effective supply in each block. Blocks with occupancies greater than 80% are highlighted in yellow. Public parking occupancies were relatively high in the centrally located blocks, such as Blocks 42 and 43. It is important to note that not all of the vehicles observed in general public parking areas were parked by downtown visitors. While an occupancy count by user was not available, it is clear that some of the people using public parking are parking longer than the posted time limits or moving vehicles to avoid time limits. This may mean that many of the vehicles belong to downtown employees or business owners.

**Figure 11. Core Zone Public Parking Occupied at Peak (Based on Effective Supply)**



Concerning parking adequacies for the medical centers, *Carl Walker* estimated current adequacies for each medical center based on the observed peak parking occupancies from the July 24<sup>th</sup> counts. Tables 7 through 9 (next page) show the estimated parking adequacies for each medical center. As with the other parking adequacy estimates, a conservative design day adjustment of 5% was added.



Table 7. Estimated Medcenter One Parking Adequacy

		Number of Spaces
Current Total Parking Supply		1,231
Current Effective Parking Supply (90% of Total)		1,108
Observed Peak Parking Occupancy	86.35%	1,063
Estimated Design Day Demand (105% of Observed)		1,116
<b>Current Effective Parking Surplus/Deficit (Effective Supply minus Observed Occupancy)</b>		<b>-8</b>

Table 8. Estimated Mid-Dakota Parking Adequacy

		Number of Spaces
Current Total Parking Supply		447
Current Effective Parking Supply (90% of Total)		402
Observed Peak Parking Occupancy	66.67%	298
Estimated Design Day Demand (105% of Observed)		313
<b>Current Effective Parking Surplus/Deficit (Effective Supply minus Observed Occupancy)</b>		<b>89</b>

Table 9. Estimated St. Alexius Parking Adequacy

		Number of Spaces
Current Total Parking Supply		1,395
Current Effective Parking Supply (90% of Total)		1,256
Observed Peak Parking Occupancy	76.13%	1,062
Estimated Design Day Demand (105% of Observed)		1,115
<b>Current Effective Parking Surplus/Deficit (Effective Supply minus Observed Occupancy)</b>		<b>140</b>



Based on the “snapshot” parking occupancy counts completed on July 24<sup>th</sup>, it appears that the parking for Medcenter One is fully utilized (based on the effective parking supply of the medical center). Medcenter One has a current parking deficit of 8 spaces, but this estimate may be low – depending on the actual peak period of parking for the medical center. The other two medical centers, Mid-Dakota and St. Alexius, appear to have small parking surpluses (89 spaces and 140 spaces respectively). While the parking available to the medical centers appears well-utilized, additional site specific parking studies would be recommended so that parking needs could be more accurately estimated.



#### **2.04. Public Input Workshop**

In order to solicit input from the downtown community, the City of Bismarck organized a parking study workshop. The workshop was held on September 13, 2007 and included representatives from city staff, downtown business and property owners, real estate professionals, and area medical center representatives.

At this workshop, background issues, parking inventory/occupancy counts, and basic parking management concepts were discussed. Also, the attending stakeholders were provided an opportunity to voice their concerns and provide potential solutions. In order to provide structure for the discussion, four primary questions were asked of attendees. Some of the most common comments concerning the challenges of the current parking system included:

- *What is your general perception of parking in downtown Bismarck (specifically in the study area)?*
  - There is a significant lack of parking available downtown (at least in certain areas).
  - Based on a parking study completed by the Parking Authority several years ago:
    - People generally don't want to park too far away from their primary destination.



- A plan is needed to educate downtown employers and employees concerning appropriate parking locations – and sufficient long-term parking should be provided.
- The reality of the parking market may differ from what is perceived.
- It must be easier for people to find (and use) downtown parking. Parallel parking is difficult for some people, so more angled parking would be better.
- Parking downtown is more difficult than parking at nearby malls.
- Snow removal has a strong negative impact on on-street parking.
- There is not enough parking provided for the nearby medical centers.
  - The lack of medical center parking has a negative impact on nearby neighborhoods.
  - There is not enough accessible parking available for disabled patients/visitors, nor is there enough parking for seniors.
- The amount of vacant space in the downtown may be significant, and could impact parking adequacy in the future.
- Parking for the library is not sufficient. The library is currently “land-locked”, and finding additional parking is difficult. If possible, future parking facilities should be located close to the library to provide additional parking.
- *What are the three most important parking related issues to you?*
  - A plan is needed for parking downtown.
  - Need to mitigate medical center parking demands and reduce the impact on neighborhoods.
  - Need to change the public’s general negative perception of parking in a parking structure.



- Need to address the impact of too many surface parking lots downtown. Need to limit the construction of additional surface parking lots.
- Need to determine how future public parking facilities will be financed.
- The design of future parking facilities needs to substantially improve over previous designs.
- The county needs to be involved in addressing current and future parking needs.
- *What opportunities do you see for improving parking?*
  - Educate the public concerning available parking supplies.
  - Where possible, add angled on-street parking.
  - Improve enforcement of on-street parking time limits.
  - Construct new parking structures.
- *What future developments will impact parking in downtown Bismarck?*
  - Future residential developments will increase the need for long-term parking in the downtown.
  - There will be future medical center growth (e.g., St. Alexius).
  - There have been discussions concerning additional parking structures in the downtown (e.g., 6<sup>th</sup> Street or 8<sup>th</sup> Street).
  - Expansions of existing county courthouse and jail facilities may occur in the future.
  - The creation of a “Quiet Zone” for residential areas may have an impact on future development and parking.



### 3.0 ALTERNATIVES FOR ADDRESSING FUTURE PARKING NEEDS

#### 3.01. Anticipated Future Development Projects

Currently, the City of Bismarck has few quantifiable future development projects in the planning stages that will impact parking in the study area. However, future development projects could include residential, retail, restaurant, and office projects. The quantifiable potential developments impacting the parking study area are:

- A new two-story office building on the corner of 2<sup>nd</sup> Street and Main Avenue is currently nearing completion (Block 49). The building will provide approximately 8,000 square feet of space per floor, with the top level dedicated to office space and the bottom level providing some mix of office, retail, and bank space. Exact square footages for each land use were not available for this report. Also, the amount of parking provided as part of the development, if any, was not provided. As this block has a current overall parking surplus of only 35 spaces (only 7 of which are public), this development could substantially impact parking adequacy on Block 49 and other nearby blocks.
- St. Alexius is currently in the process of planning for a new 90-bed long-term care facility on campus. An anticipated parking need of 128 spaces has been determined during preliminary planning efforts. The hospital is currently anticipating meeting parking demands for this project through a combination of 108 new surface parking spaces and utilizing 20 spaces from existing campus parking facilities. The exact location of this development was not provided by St. Alexius or may not yet have been determined.

In addition to the known development projects, the development of currently vacant space could significantly impact future parking adequacies. While information on specific developments was not available, those attending the public input meeting felt that current building vacancies could be substantial – perhaps as much as 10% to 20% of available space.

#### 3.02. Parking Supply/Demand Alternatives

The amount of parking available in the downtown study area, as well as the level of parking utilization, has not changed much since the last parking study was completed in 1978. In 1978, a similarly sized study area contained approximately 10,640 parking spaces and an estimated peak parking occupancy of 53%.



However, additional development in the downtown will obviously impact parking conditions. While it is not currently possible to predict the impacts of undefined development projects, it is possible to provide a framework for addressing future needs. To meet future parking demands, several parking supply alternatives are typically available to municipalities:

- The city could decide to improve the utilization of existing parking supplies. This could include working with private parking lot owners within impact areas to better utilize private parking supplies. Using the concept of shared parking, existing resources could be maximized to meet anticipated needs.
- The city could create additional parking spaces in existing unimproved areas (either on-street or off-street) to provide additional parking. While there are currently options for constructing surface parking in the downtown, land would ideally be used for additional building space – necessitating the need for additional parking structures.

The design and construction of structured parking would be difficult to justify given present conditions (except perhaps to meet medical center parking needs). However, structured parking could become a more viable option in the future - especially with improved, consolidated management of all downtown public parking resources. Ideally, the cost for providing parking would be covered through parking user fees and/or fees charged to developers (e.g., in-lieu fees, special assessments, development fees). However, the city cannot charge for on-street parking due to existing state law.

- The city could require new downtown developments to provide sufficient parking. New developments would provide their own parking for employees and visitors. This could result in higher costs for developers and possibly the overdevelopment of parking supplies. An alternative could be charging in-lieu fees or development fees to require developers to help fund needed public parking resources.

Under existing city development codes, developments occurring in defined portions of the downtown study area are not required to provide any on-site parking. The code states that any necessary parking will be provided by the City of Bismarck.

- The city could work to reduce parking needs in the study area through the implementation of various transportation demand management and parking supply management strategies. These strategies would be geared toward



reducing parking demands by encouraging the use of alternative modes of transportation and improving parking resource management.

- The city could utilize a combination of alternatives.

In the **First Alternative**, the city would attempt to better utilize available parking supplies. As sufficient parking is available in some areas where future development may be planned (based on the parking occupancy study), this alternative may have merit. Better utilization of the available supply would eliminate at least the need for near-term parking supply additions, maintain existing green space or future development sites, encourage pedestrian movement through the downtown, and reduce city and/or Parking Authority parking responsibilities (e.g., maintenance, signage).



The improved utilization of existing parking areas is substantially less costly than creating new spaces. Based on the observed occupancy in the downtown, several options are available to better utilize existing parking resources. Options could include:

- Improving the utilization of the two existing Parking Authority structures. Based on the parking occupancy counts conducted in July, 2007, it appears that up to 339 spaces could be available (based on the effective supply of the facilities). Ideally, the parking structures would be utilized up to 90% of total capacity during peak periods of parking demand.
- While observed parking durations were generally below posted time limits, the city could increase parking enforcement activities related to on-street parking spaces and/or change existing parking regulations to force more downtown employees and business owners into existing off-street parking facilities. For example, vehicles could be prohibited from parking on the same block face for a minimum of four hours once they are moved after initially parking.
- Work with state government to remove laws against on-street pay parking. The pricing structure for parking in downtown is essentially backwards. The most convenient parking (on-street parking) is free, and the less convenient parking (off-street lots and structures) has a charge. The City of Fargo has recently decided to support on-street pay parking, and has officially requested that the state government reevaluate this restriction. The City of Bismarck could join Fargo in this effort.



- The use of some of the underutilized parking areas may require the approval of property owners. In order to encourage the shared use of private parking facilities, the city could use one or more of the following techniques/incentives:
  - The city could communicate the positives of shared parking to private parking lot owners. The positives include increased pedestrian traffic near their businesses, improved downtown development, maintaining green spaces and other non-parking land-uses, easier parking for downtown visitors, the generation of income related to “selling” parking, etc.
  - Shared parking could be limited to certain hours if land uses permit. Signage would need to convey the set parking requirements. This could help solve some parking demand problems around the downtown core.
  - The city could provide periodic lot maintenance for private parking lot owners that agree to allow shared parking.
  - The city could provide periodic trash pick-up for private parking lot owners that agree to allow the use of their lots for other visitors.
  - The city could provide improved signage for private lots. The signage could denote parking restrictions and periods of open public parking.
  - The city could help care for parking lot landscaping in private parking lots for owners that permit shared parking.
- As mentioned earlier, a significant amount of underutilized on-street parking exists on many streets – especially in blocks located outside of the Core Zone. In order to better utilize the parking in these areas, all of the on-street parking in the study zone could be marked, and angled parking could be provided in all areas with sufficient dimensions (with the approval of the City Traffic Engineer). Most streets throughout the Core Zone appeared to be approximately 48’-0” wide. This width could theoretically support angled parking on one side of each street. However, this would result in the loss of on-street parking on one side of each street – virtually eliminating any parking space gains.

The on-street parking could be marked when needed as new developments are constructed. Additional on-street angled parking could be incorporated into future downtown development projects by indenting each block face to provide additional space (vehicles would park off of the roadway – similar to the angled parking on Block 42).



However, this approach to dealing with future parking needs may not adequately meet future parking needs. First, the number of private parking lot owners willing to cooperate may not be sufficient to provide the necessary parking. Second, the location of available parking supplies may not provide “acceptable” parking for future downtown developments. The available parking supplies may not be within an acceptable walking distance, lot conditions could be poor, facilities could be difficult to use, etc. Third, some of the currently underutilized parking areas may be lost to future development projects. Finally, the available parking supply may be insufficient to meet anticipated parking demands. Therefore, additional measures will likely be necessary to address future parking needs.

The **Second Alternative** available to the city is to create additional parking spaces, or improve the capacities of existing lots to provide sufficient parking to meet future demands. Improving parking efficiency would involve an analysis of existing parking lot physical layouts to determine if improvements could be made to increase lot capacities. Theoretically, both public and private parking supplies could be included in this analysis with the consent of private parking owners. After reviewing existing conditions, few substantial opportunities for improving existing parking efficiencies in high demand areas appear available (outside of delineating all on-street parking spaces to minimize improper parking and/or creating additional angled on-street parking where possible). As some of the existing off-street parking lots may eventually be lost to development, improving efficiencies in these areas may only provide limited benefits.

As a significant amount of parking would not be created through lot improvements, additional parking supplies could be constructed using available land. Currently, there are several locations within the study area that could support new parking facilities, and some future developments could include structured parking components. New parking facility opportunities could include both parking structures and surface lots. However, parking structures are a more likely long-term solution.

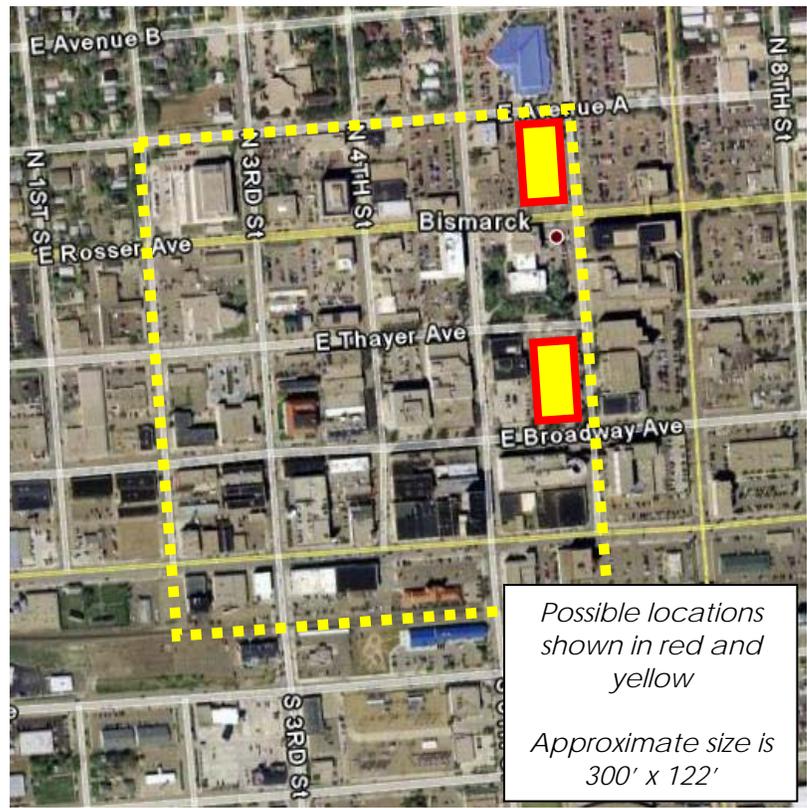
Parking structures can provide several advantages over surface parking. First, a parking structure could provide needed parking closer to the central core of downtown (or a specific parking demand generator). This will provide downtown visitors and employees with more reasonable walking distances between the parking supply and their destination. Second, a parking structure could consolidate parking into one location. This could free other nearby surface parking lots for future economic development. Finally, a downtown parking structure would provide a stable parking supply. Surface parking will be lost to development over time, whereas it is unlikely that a downtown development would result in the removal of a parking structure.



Ideally, off-street parking facilities would primarily provide long-term parking to area visitors and employees, leaving the on-street parking spaces for short-term visitors. If multiple locations are designated for structured parking, the facilities could be designated for a single user group or provide parking for both visitors and employees.

Based on the parking occupancy surveys conducted by *Carl Walker*, the areas of highest parking demand would appear to be likely locations for additional parking facilities (see Figure 12). For example, the areas on the eastern portion of the Core Zone (e.g., Blocks 30, 31, 42, 43) could provide opportunities for a shared-use parking facility for downtown visitors and employees, as well as additional parking for Medcenter One. A parking structure in the northeast portion of the Core Zone (e.g., Block 20) could provide parking for downtown visitors/employees, medical center visitors/employees, and library patrons. The city is already contemplating a parking structure in this area (Block 43). While it does appear that a significant amount of surplus parking exists in the Core Zone, and a new parking structure for downtown does not seem warranted prior to maximizing the utilization of existing spaces/facilities, a structure jointly constructed by the city and Medcenter One could be an option.

**Figure 12. Possible Locations for Parking Structures in the Core Zone**



Based on an approximate footprint of 300' x 122', the potential parking structure sites could provide approximately 110 parking spaces per typical level (assuming 325 square feet per parking space).

Based on the current levels of parking demand in some of the medical center parking areas, additional parking resources located outside of the Core Zone could positively impact downtown parking. For example, a parking structure for Medcenter One patients, visitors, and employees could be constructed by the hospital in one of the medical center's existing surface parking lots located in Blocks 8, 9, or 33. Another possibility could be two or more of the medical centers working together to construct a shared-use parking facility located as conveniently to participating campuses as possible (outside of the Core Zone). This could help reduce parking demands in the Core Zone as more medical center patrons would be directed to parking outside of the Core Zone.

Ideally, any new downtown parking facilities should be located to adequately serve anticipated future developments. Locating a parking structure based on existing parking demand, especially when underutilized parking facilities are available, may not adequately serve any future developments located elsewhere downtown.

While a future parking structure could be possible, it is important to note the disadvantages of new parking facility construction. First, the city (or Parking Authority) may have to pay for the construction of the new parking facilities, as well as annual maintenance and operating costs. While the current industry average construction cost per space for structured parking is approximately \$13,000 to \$15,000, the cost to construct structured parking in Bismarck may be higher (depending on the availability of construction materials and local design concerns). Assuming a 400 space parking structure were constructed, the estimated construction costs could approach \$6 million, not including land costs, design fees, and financing costs. Including an additional 12% for development/design costs, as well as applicable financing costs, a 400 space parking structure could cost over \$8 million and annual debt service could be approximately \$600,000 (2007 dollars). In addition to annual debt service, annual operating and maintenance costs could be between \$250 and \$600 per space, per year (depending on the type of parking provided) – or an additional \$100,000 to \$260,000 in expenses per year.

A second potential challenge is that anticipated parking demands for development projects may not be sufficient to warrant new structured parking supplies if other parking resources could be better utilized. This assumes the city works with the Parking Authority and private parking lot owners to improve overall utilization, and downtown visitors and employees are willing to walk greater distances. Depending on the



development of downtown over time, as well as the increased utilization of existing buildings, additional parking supplies may not be needed for years (except in some medical center areas).

Another challenge will be determining how any new parking structures are allocated to user groups. For example, how would the parking associated with a new parking structure on Block 43 be allocated among downtown and medical center user groups? Theoretically, the parking demand for both downtown and medical center land uses would peak at approximately the same time (approximately 10:00 a.m.) Therefore, there would be little shared parking benefit (or periods of non-overlapping demand). Also, the city would be limited on how much parking could be reserved for a specific land use (e.g., the medical centers) if the parking were financed with tax-exempt municipal bonds. If tax-exempt bonds were used, the city would only be able to reserve approximately 5% of the available parking for a specific land use.

A final challenge to the development of a parking structure is that the construction of a public parking facility will necessitate generating enough revenue from parking (or related economic development revenues – e.g., fees, increased tax revenues) to financially justify the expense of building the parking. Many businesses, building owners, developers, and downtown employees/visitors may not support the institution of rates designed to cover anticipated debt/expenses. Currently, downtown public parking facilities do appear to generate sufficient revenue to cover all Parking Authority expenses. However, additional debt/expenses related to new parking facilities would not be feasible without additional funds/revenues. Also, supporting the operating costs and debt service for a new parking structure would seriously weaken the system's ability to properly maintain existing parking assets.

The **Third Alternative** available to the city would be to require new downtown developments to provide their own parking resources. This would involve setting parking requirements for new developments, based on projected land uses, and enforcing parking zoning codes – including likely removing the zero parking requirement currently in the code. The main advantage to this alternative is that the city would not be required to construct, maintain, and operate new parking supplies in the downtown. While some towns and cities require developments to provide their own parking supplies, the majority of downtowns that are encouraging development reduce or eliminate parking requirements. Instead, the city works with the development to provide sufficient parking. A variation of this alternative could be requiring developers to pay a fee to cover the construction of new public parking resources. This could be a specific development fee or an in-lieu fee. Also, special assessments could be levied to area commercial developments to help fund the construction and/or operation of parking supplies.



An in-lieu fee would allow developers to pay the city for the right to not construct a portion or all of the parking required by the development. The funds raised through parking in-lieu fees would help fund future public parking facilities constructed by the city. This could be a specific development fee or an in-lieu fee.

The use of in-lieu parking fees can have several advantages:

- Offering parking in-lieu fees provide developers with an option to providing expensive on-site parking. The cost of purchasing the necessary land and funding lot construction is typically more expensive for developers than paying the in-lieu fees.
- Parking in-lieu fees encourage shared parking. As developers stop constructing small private parking facilities, parking is consolidated into larger public parking supplies. This results in a more efficient use of available land, the creation of fewer parking spaces, and conditions that encourage pedestrian movement between developments.
- The city would have more control over where parking resources are located and how they are operated and managed.
- As less parking is created, and the parking that is created is consolidated, more space is available for other land uses.
- The city (or Parking Authority) would have greater control over downtown parking spaces, providing the opportunity for uniform operations and management.

While the use of in-lieu parking fees can provide a lot of benefits to the city, there are also some drawbacks:

- Parking will have to be located less conveniently to some primary destinations. As parking is consolidated into fewer locations, some primary destinations will be located further away than if they provided their own parking.
- As the city creates more public parking facilities, the city will have to cover annual operating, maintenance, and management costs.
- As shared parking would be used, fewer parking spaces would be created. This could mean more traffic and frustration during unusually high periods of parking demand, such as during special events.



- The use of these fees could discourage development of the downtown in favor of suburban locations with space for surface parking.
- Depending on how the construction of the parking facility is financed, the city could be limited in how the facility is used to provide parking for private developments.

The fees charged to developers are typically determined by either the cost of land or the typical construction cost of parking per parking space. Ideally, the construction cost per space would be set at the cost to provide structured parking. For example, the city could decide to charge the current typical construction cost of a structure parking space at \$15,000 per space. A development that would typically be required to provide 50 parking spaces would therefore be charged \$750,000 in lieu of providing the necessary parking. This fee could be converted into an impact fee of "X" dollars per square foot by dividing the total calculated parking in-lieu fee by the gross square footage of the development. Also, this fee could be charged up-front, or payments could be made to the city over time. If used by the city, *Carl Walker* would recommend setting development fees or in-lieu fees at a minimum of providing structured parking, or approximately \$15,000 per space, to help fund future parking construction (adjusted as needed each year). This fee would not be a requirement, but would be another option that developers could use to provide parking.

The **Fourth Alternative** involves encouraging the use of alternative modes of transportation and using parking demand management strategies to reduce parking demands. Encouraging the use of alternative modes of transportation could include providing adequate pedestrian and bicycle linkages, provide sufficient mass transit alternatives, encouraging the use of carpools/vanpools, guaranteed ride home programs, telecommuting, parking cash-out programs (in future), etc. Some of these transportation options are already available in Bismarck.

Parking demand management strategies could include any of the following alternatives (but not limited to):

- using shared parking concepts;
- providing flexibility in determining development parking needs;
- using parking maximums to limit parking development;
- using car sharing to reduce the need for some residents to own vehicles;
- improved parking system information and marketing;
- charging for on-street parking (if state law can be changed);
- improved parking enforcement.



The goal of each of the aforementioned parking demand management strategies is to spread parking demands to appropriate locations, improve the utilization of parking supplies, and/or reduce overall parking demand.

The **Final Alternative** is actually a combination of the previous four alternatives. This alternative would involve the city working with the Bismarck Parking Authority and private parking lot owners to better utilize the existing parking surplus before adding additional parking supplies. If sufficient parking could not be secured using this approach, then the city would consider improving existing parking supplies and/or adding new supplies as appropriate. If new parking spaces were added, either through additional on-street spaces or parking structures, the city should look to developers/businesses to help defray a portion of the costs. Finally, the city would encourage the use of alternative modes of transportation, as well as other parking demand management strategies, to reduce overall parking demands. *Carl Walker* recommends this alternative, as it provides a reasonable approach to dealing with future demands and should limit future parking expenses. Also, this approach will allow the city to show the community that all options were explored prior to expending any city funds for constructing parking facilities. The goal is to provide the “right” amount of parking; not too much and not too little. This alternative will be used to direct recommendations for addressing current and future parking needs.

While it appears that there is a significant opportunity to improve the utilization of available parking supplies before adding any parking facilities, it is important to note that the city may not be able to improve the utilization of available private parking facilities. Most, if not all, private parking lot owners may not cooperate with the city. Therefore, the city will most likely need to construct additional public parking facilities in the future if other alternatives are not available (e.g., incorporating public parking into other private developments).

### 3.03. Planning for Future Parking Needs

In order to address future parking needs not currently anticipated, *Carl Walker* recommends the following methodology:

- Ensure downtown land use information is current. This will provide additional insight into existing parking demands. Land use data should be updated as developments occur, and should be available on a block-by-block basis.
- The first step in planning for future parking needs is to determine typical parking demands. This is usually achieved by completing a parking supply and demand survey. This would entail maintaining current parking space inventories and conducting parking occupancy counts (ideally, at least annually – and updating



counts as developments occur). This will provide a baseline of demand data from which to project future parking needs. These surveys will also help determine the correct mix of short-term and long-term parking (based on the utilization of each type of parking).

- Project the parking needs of each proposed development using applicable city parking requirements. Determine how parking demand for the new development will fluctuate during the day by using the shared parking model provided by *Carl Walker* as part of this study (based on Urban Land Institute data). Determine how parking demand for the proposed development will impact parking supplies during the period of greatest parking demand. Use the concept of shared parking to ensure the efficient use of available parking supplies. An electronic shared parking spreadsheet will be provided to the city, based on the model created by the Urban Land Institute.
- Once parking demands have been projected, determine how the development will impact existing conditions. If the development creates a deficit within the zone it is located (the zone would typically be a one or two-block radius surrounding the development), additional parking would likely be necessary.
- While the parking demand for many land uses can be spread over greater distances, the creation of residential space in the downtown should include sufficient adjacent parking. Residential developments that lack sufficient parking are rarely marketable, and conflicts could arise should a significant use of public parking spaces be required to support residential projects.
- Future downtown developments should include sufficient ADA accessible parking on-site. The city should require developments to provide a suitable portion of their required parking on-site (or directly adjacent to the site) to ensure enough accessible parking is provided. This parking could be provided in a city parking facility adjacent to the development. Sometimes, parking demand for accessible parking may be larger than the minimum requirements. In order to ensure sufficient space is provided, periodic reviews of accessible parking demand should be part of larger parking inventory and occupancy surveys. Through periodic occupancy studies, and community input, the city will be in position to ensure sufficient accessible parking is provided.
- Surface parking lots could include landscaping or structures that can provide shade to parked vehicles. This can be accomplished through the use of fast growing, native shade trees. These trees can be planted around parking lots and in internal landscaped islands. Pedestrian paths to/from parking facilities



could also provide shade in a similar fashion. This will help make the off-street parking facilities more attractive to downtown parkers.

- It is also important to provide adequate timeframes when planning for future parking needs. It can take between 18 and 24 months to design and construct a parking facility. Therefore, it is important to remain “ahead of the curve” when planning for future parking facilities.

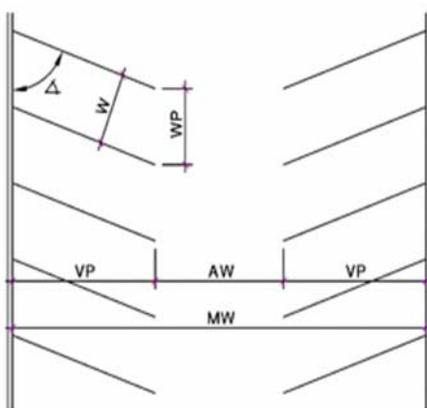
### 3.04. Review of Current Parking Zoning Code

As part of this parking study, *Carl Walker* reviewed the existing City of Bismarck off-street parking zoning code (Section 14-03-10). Existing parking requirement ratios were compared three industry standards (the National Parking Association, the Urban Land Institute, and the Institute for Transportation Engineers). The results of this review are detailed in the following subsections.

#### Parking Design Standards

The existing City of Bismarck zoning code provides little guidance concerning parking design requirements. The opening portion of the code includes a requirement for parking space size (9'-0" wide by 18'-0" long) and lists acceptable parking surfaces. The existing code should be updated to include more detail concerning acceptable parking space dimensions. The city should consider incorporating the following dimensions in the zoning code (W = 9'-0"):

**Figure 13. Recommended Parking Dimensions**



Parking Angle	Stall Width Projection (WP)	Module Width (MW)	Vehicle Projection (VP)	Aisle Width (AW)
45	12'-9"	48'-0"	17'-8"	12'-8"
50	11'-9"	49'-9"	18'-3"	13'-3"
55	11'-0"	51'-0"	18'-8"	13'-8"
60	10'-5"	52'-6"	19'-0"	14'-6"
65	9'-11"	53'-9"	19'-2"	15'-5"
70	9'-7"	55'-0"	19'-3"	16'-6"
75	9'-4"	56'-0"	19'-1"	17'-10"
90	9'-0"	60'-0"	18'-0"	24'-0"



In addition to providing further definition to parking space design standards, the city should consider appropriate parking structure design standards for inclusion in zoning codes (e.g., acceptable ramp slopes, height clearances).

### Accessible Parking Requirements

The existing parking code does not contain a requirement for accessible parking (although another development code may contain requirements for accessible parking). *Carl Walker* recommends updating the parking code to include the latest Americans with Disabilities Act (ADA) guidelines concerning accessible parking. Federal guidelines provide recommendations for the number of spaces to provide, parking space dimensions, etc. Table 10 illustrates current ADA parking requirement guidelines.

**Table 10. Accessible Parking Space Requirements**

<b>Total Number of Parking Spaces Provided in Parking Facility</b>	<b>Minimum Number of Required Accessible Parking Spaces</b>
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1,000	2 percent of total
1,001 and over	20, plus 1 for each 100, or fraction thereof, over 1,000

### Parking Requirement Ratios

The existing off-street parking code provides parking requirements for 21 different land uses. Table 11 (next page) illustrates how the existing zoning code compares to three industry standards for typical downtown land uses. The parking requirement ratios used by the City of Bismarck are generally similar to those contained in the three industry standards. The only two ratio changes recommended at this point are to include an employee parking requirement for hotels (using the ratio provided by the Urban Land Institute) and to base the theater requirement on the number of seats instead of square footage.



**Table 11. Parking Ratio Comparison by Land Use**

City of Bismarck	National Parking Association (2006)	Urban Land Institute (2005)	Institute of Transportation Engineers (2004) - (85% Percentile)
<b>Residential</b>			
Single Family and Two Family Dwellings: 2 spaces per per unit.  Multi-family: 1 space per efficiency unit; 1.5 spaces per one-bedroom unit; 2 spaces per two-bedroom unit; 2.5 per three-bedroom or larger unit.	Single Family: 1 space per unit (less than 2,000 s.f.), 2 spaces per unit (2,000 to 3,000 s.f.), and 3 spaces per unit (over 3,000 s.f.)  Multi-family: 1 space per efficiency unit; 1.5 spaces for the first bedroom for one or more bedrooms and .25 space for each additional bedroom.	Residential - Owned: 1.7 spaces per unit plus .15 spaces per unit for guests.  Residential - Rented: 1.5 spaces per unit plus .15 spaces per unit for guests.	Single Family: 2.14 spaces per unit.  Multi-family: 1.17 - 1.78 per unit.
<b>Medical Office</b>			
Medical Clinics: 4 spaces per 1,000 s.f. GFA (requirement for professional buildings)	4.0 to 4.5 spaces per 1,000 s.f. (depending on location of the Medical Office)	Medical Office: 4.5 spaces per 1,000 s.f.	4.74 spaces per 1,000 s.f.
<b>Banks</b>			
Not provided. May use 4 spaces per 1,000 s.f. GFA	4.6 spaces per 1,000 s.f.	4.6 spaces per 1,000 s.f.	2.64 to 4.62 spaces per 1,000 s.f.
<b>Hotel &amp; Motel</b>			
1 space per guest room, plus required parking for any other included land uses (e.g., restaurants, clubs, retail).	1.25 spaces per room - plus 10 spaces per 1,000 s.f. of restaurant/bar, plus 20 - 30 spaces per 1,000 s.f. for meeting rooms and banquet space. (GLA)	Business Hotel: 1 space per guestroom PLUS .25 spaces per room for employees; Leisure Hotel: .9 spaces per guestroom PLUS .25 spaces per room for employees.	.71 to 1.86 spaces per room.
<b>Restaurants</b>			
16.67 spaces per 1,000 s.f. GFA (1 space per 60 s.f.)	Fine Restaurant: 20 spaces per 1,000 s.f.  Family Restaurant: 15 spaces per 1,000 s.f.  Fast Food: 15 spaces per 1,000 s.f.  Night Clubs: 19 spaces per 1,000 s.f.	Fine Restaurant: 20 spaces per 1,000 s.f.  Family Restaurant: 15 spaces per 1,000 s.f.  Fast Food: 15 spaces per 1,000 s.f.  Night Clubs: 19 spaces per 1,000 s.f.	Quality Restaurant: 18.9 to 24.1 spaces per 1,000 s.f.  Family Restaurant: 13.6 to 20.6 spaces per 1,000 s.f.  Fast Food: 12.3 to 14.8 spaces per 1,000 s.f.  No bar or night club ratio available
<b>Office Building</b>			
4 spaces per 1,000 s.f. GFA	General Office less than 25,000 s.f.: 3.8 spaces per 1,000 s.f.; scaled for 25,000 - 100,000, 3.4 spaces per 1,000 s.f.; scaled for 100,000 - 500,000, 2.8 spaces per 1,000 s.f. over 500,000 s.f.; Data Processing/Telemarketing: 6 spaces per 1,000 s.f.	General Office less than 25,000 s.f.: 3.8 spaces per 1,000 s.f.; scaled for 25,000 - 100,000, 3.4 spaces per 1,000 s.f.; scaled for 100,000 - 500,000, 2.8 spaces per 1,000 s.f. over 500,000 s.f.; Data Processing/Telemarketing: 6 spaces per 1,000 s.f.	General Office: 3.0 to 3.4 spaces per 1,000 s.f.
<b>Retail Establishments</b>			
In some areas: 5 spaces per 1,000 s.f. GFA on the ground floor, plus 3.33 spaces per 1,000 for basement space or for floors above the ground floor. In other areas: 5 spaces per 1,000 s.f. GLA.	General Retail: 2.75 spaces per 1,000 s.f.; Grocery Store: 6.75 spaces per 1,000 s.f. (approx.); Heavy/Hard Goods Retail: 2 spaces per 1,000 s.f. (approx.); Shopping Centers: 4 spaces per 1,000 s.f. for centers up to 400,000 s.f., sliding scale between 400,000 and 600,000 s.f., and retail Space Over 600,000 s.f.: 4.5 spaces per 1,000 s.f.	Community Shopping less than 400,000 s.f.: 4 space per 1,000 s.f.; Regional Shopping (400,000 to 600,000 s.f.): Sliding scale between 400,000 and 600,000 s.f. ratios; Super-Regional Shopping (over 600,000 s.f.): 4.5 spaces per 1,000 s.f.	23 different retail categories. General Shopping: 5 spaces per 1,000 s.f.
<b>Theater</b>			
1 space per 60 s.f. GFA	Theater (live performance): 0.4 space per seat. Single Cinema: 0.5 spaces per seat; 2 to 5 screens: 0.33 spaces per seat; Over 10 screens: .27 spaces per seat.	Up to .27 spaces per seat (or 1.08 spaces for every 4 seats).	.36 spaces per seat (or 1.04 spaces for every 3 seats, approx.)



## Parking Requirement Reductions and Shared Parking

Existing code provides for the elimination of parking requirements if a development is located in certain zoning areas. For example, if a development is to be located in the Downtown Core or the Downtown Fringe all parking requirements are eliminated. Another possible parking reduction could be provided through the use of shared parking. While existing code does not elaborate on how this could be achieved, it does state that parking for one building could be used by another if "the type of structure indicates that the periods of usage for such structures will not be simultaneous with each other, as determined by the board of adjustment." The current code does not provide for any other parking requirement reductions. *Carl Walker* recommends the following code adjustments:

- Shared parking is defined as parking that can serve more than one single land use, without conflict. Shared parking is generally applied to mixed-use developments, or downtown developments composed of several different land uses (e.g., retail, office, theater) that are significantly integrated. Using the shared parking model reduces the amount of parking needed for a mixed-use development (or other groupings of adjacent land uses), as the effect of sharing parking requires fewer spaces than the sum of the parking needed for the individual land uses. It is recommended that this section of the code be updated to utilize the latest Urban Land Institute shared parking model (2005). A shared parking methodology and electronic model (based on the Urban Land Institute model) have been provided to the city as part of this study.
- If developments will be allowed to use the parking contained within another property, and owned by another individual or group, it is important that sufficient documentation be provided that guarantees the parking will be available for the anticipated lifespan of the development. This documentation could be provided by way of a written parking agreement or property covenant. Additional provisions could be included in the agreement requiring the developer to either construct the necessary parking or pay an in-lieu fee to the city should the off-site/shared parking become unavailable.
- The city should consider the inclusion of alternate methods for calculating anticipated parking demands. This would allow developers and property owners to more accurately determine parking demand using either a shared parking model or a detailed parking supply and demand study completed by a professional parking planner or engineer.



### **Parking In-Lieu Fees**

The current city code does not include a provision for parking in-lieu fees for downtown developments. An in-lieu fee would allow developers to pay the city for the right to not construct a portion or all of the parking required by the development. The funds raised through parking in-lieu fees would help fund future downtown public parking facilities constructed by the city. This could be a specific development fee or an in-lieu fee.



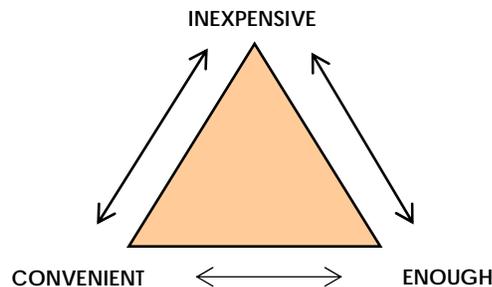
## 4.0 PARKING MANAGEMENT AND OPERATIONS STRATEGIES

The purpose of this section is to provide options for improving parking management and operations in order to improve downtown parking conditions, both currently and in the future. The parking management and operations options detailed in this section will help improve parking efficiency, increase utilization/turnover, and meet possible future parking needs.

### 4.01. Parking System Guiding Principles

When planning for parking there is a built-in conflict to which all stakeholders can easily relate. The conflict revolves around three primary factors: Cost, Convenience and Supply. Unfortunately, usually you can have only two of the three.

For example, parking can be inexpensive and convenient, but you won't have enough. This would assume close surface parking is provided, but, due to constraints on available land, not enough parking could be constructed. Or, you can have enough inexpensive parking, but it won't be convenient (building surface parking lots on the perimeter of downtown). Lastly you can have enough parking conveniently located, but it won't be cheap (constructing parking in close parking structures).



Given this basic problem, keeping all customers satisfied is an on-going challenge. As much as everyone would like, not everyone can park at the front door. Having well-defined parking principles is a good first step in attempting to balance this conflict.

A statement of operating guidelines or principles is a worthwhile effort for any enterprise, but it seems especially useful for parking systems. Given the diverse base of customers that parking operations serve, defining operating philosophies and service parameters can help keep the operation focused on set goals and objectives. As the City of Bismarck does not currently have a set of parking principles for the downtown parking system, taking a pro-active role in the development of these principles can provide significant benefits.



Having an approved set of parking principles protects the city (or Parking Authority) from being perceived as unwilling to provide services that are clearly outside of the approved parking guidelines. When faced with a new development proposal which will cause the elimination of parking spaces, having a predefined and approved policy to address the funding of replacement parking can help the city meet operational budgets and avoid unexpected capital expenses.

Another advantage to having a well-defined set of parking principles is that it provides city planners with a concise set of guidelines, within which they are free to be creative and resourceful in providing development services to their various clientele. It also gives them boundaries so that they know when a request falls outside the approved scope of parking guidelines.

Parking principles are not intended to replace traditional policies and procedures. In general, the parking principles should be kept short and concise - a maximum of one or two typed pages. Some of the items typically incorporated in such a document by other communities include:

- **Mission Statement/Statement of Purpose** – Describes how the parking operation contributes to the success or mission of the downtown community and/or economic development.
- **Operations/Funding Strategies** – Describes how parking facilities and/or operations are to be funded and also whether the operation is intended to be a self-supporting entity, a profit/revenue center, or a support service sustained through other primary revenue sources.
- **Interdepartmental Relationships** – Defines relationships between various departments with respect to downtown parking, especially other support departments such as Traffic, Public Works, Police, Communications/Marketing, Economic Development, etc.
- **Responsibility for Parking Operations** – Is parking to be managed by the city, or will the Parking Authority manage all downtown parking resources? Are all parking operations to be managed through a centralized operation or can other departments be involved in limited parking management?
- **Rate Setting Guidelines** – How are the parking rates set? This is generally done in conjunction with the annual budget planning cycle. Should rates be set to cover operational costs? Should parking rates cover any bond debt?



- **Options for Allocating Parking** – Defining how parking is allocated goes to the heart of parking operations, due to the prioritization process that is required. How much short-term parking should be provided? How much long-term? Where will the parking for each user group be located?
- **Inclusion of Parking in Strategic and Master Planning Processes** – One of the most important outcomes of having a parking principles document is getting city administration buy-in of the importance of having parking represented in strategic and master planning processes.
- **Procedures for Managing Losses of Parking Supply (both temporary and long-term)** – Having procedures/guidelines in place for the coordination and replacement of parking spaces lost due to new development is a benefit of establishing “parking planning” as an element of the guiding principles.
- **Definition and Communication of Parking Rules and Regulations** – How parking rules and regulations are communicated can vary widely depending on the customer groups served and the environment. Having an effective communications plan will keep customers informed of changes brought on by construction and maintenance projects, implementation of new technologies, rate changes, new policies, etc. Additionally, a good communications plan can act as a marketing and public relations tool for downtown parking.
- **Enforcing and Adjudicating Parking Rules and Regulations** – How will parking enforcement be provided in the downtown, and by whom? Defining who is responsible for day-to-day parking enforcement and adjudication is an important operational decision. Other key parking enforcement issues that should be defined include: Who defines parking enforcement policies? Who administers the adjudication process? Who sets the rates for parking fines?
- **Defining Parking Facility Maintenance Responsibilities** – Parking facility maintenance is something that is too easily cut from capital budgets. The result is often a larger price tag at a later date and can involve significant operational disruptions. Identification of parking facility maintenance as an important parking management principle should not be overlooked.
- **Special Events Parking** – If any one area requires a cooperative effort from the larger community, it is providing parking for special events/meetings. If parking supplies are tight, even small seminars or other functions can have a big impact on available parking. Having a well-defined system for the coordination of special events parking can provide improved service for all patrons.



- **Budgeting and Planning Cycles** – Because of the high costs associated with the development of new parking resources, and the lead-time required for design and construction of new facilities, parking budgets can benefit greatly by the development of extended budgeting and planning cycles.

In summary, Parking Principles add value in two primary areas:

- Establishing a set of approved operating guidelines that help define the role of parking within the larger city government and community structure;
- Emphasizing the importance of planning for parking.

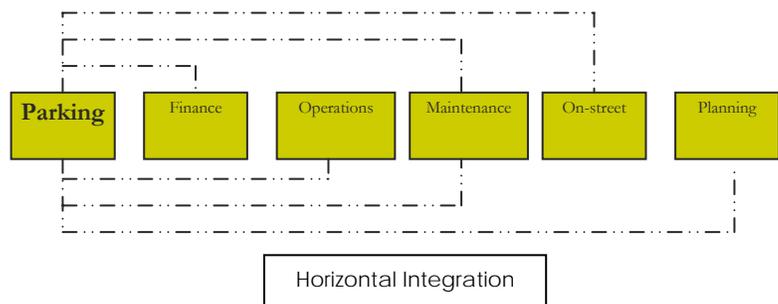
Establishing a set of “Parking Principles” for downtown Bismarck is just one opportunity for improving the way downtown parking is perceived. Using this approach as a first step to parking management can build recognition and increase respect and support for parking goals and management. *Carl Walker* strongly recommends that the City of Bismarck create and approve a set of guiding parking principles.

#### 4.02. Parking System Organization and Management

City involvement in parking management is currently limited to designating on-street parking locations and parking enforcement. The Bismarck Parking Authority is currently responsible for operating and managing existing public off-street parking facilities. There is currently no single organization or department that is responsible for parking management. Parking related responsibilities are currently distributed among several departments/organizations (e.g., police are responsible for enforcement, traffic deals with on-street parking spaces, planning deals with parking requirements, the Authority manages off-street parking).

Many parking systems, especially in municipal or downtown environments, have evolved over time into organizational structures that *Carl Walker* has termed “horizontally integrated”.

This means that various parking system components are spread among multiple departments or entities. The following example illustrates how many municipal parking systems evolved:

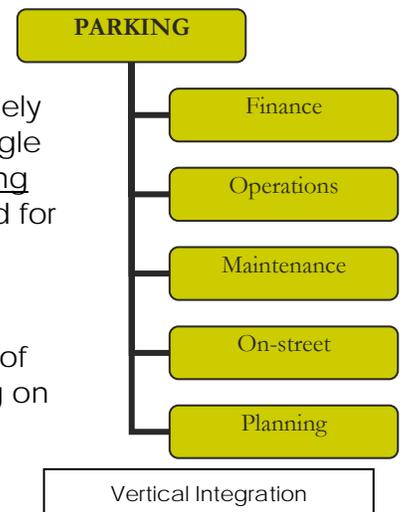


- There was a need to establish a parking function. The initial need was to manage on-street parking supplies. Because the public works department already managed the streets, this function was located under the public works. In some communities, the city's traffic department was initial responsible for on-street public parking.
- When the need for an enforcement function achieved critical mass, this was logically assigned to the Police Department.
- Over time, off-street lots and parking structures were added. The management of these resources was placed under the Facilities Management Division, because they managed the city's real estate assets and facilities. In some cases, the management of off-street facilities was provided by downtown associations or parking authorities/committees.
- Soon there was enough revenue being generated that an audit/accounting function was established to ensure the accurate accounting of revenues and expenses. This function was placed under the Finance Division.

In a horizontally integrated parking program, where each organization/department only manages one aspect of the parking system (such as on-street parking, enforcement, or parking structures), no one has responsibility, or the perspective, to manage all these interrelated components as a system. In one study completed by *Carl Walker*, where different departments each managed a small amount of the parking supply along with responsibilities for several other areas, the observation was made that "parking was everyone's part-time job, but no one's full-time job".

While it may not be necessary, or even desirable, to completely integrate all parking and transportation functions under a single "vertically integrated" model, at least consolidating all parking functions under one management structure is recommended for long-term system management.

As the parking profession has evolved, several very effective parking system organizational models have emerged. Each of these models has its own strengths and weakness depending on several factors including the parking system's size, degree of development, programs offered, political landscape, community goals, etc.



When evaluating possible organizational options it is important to ask community stakeholders to create a prioritized set of evaluation criteria. A typical list of criteria would include determining which organizational option:

- best supports economic development;
- best reflects the image and personality of the community;
- is most efficient/cost effective;
- is most customer-friendly;
- is most politically feasible;
- is most focused on the vision;
- is easiest to achieve;
- is most responsive to businesses and stakeholders;
- is most financially viable;
- provides the most effective coordination.

With these issues in mind, **Carl Walker** strongly recommends that the City of Bismarck work to create a vertically integrated downtown parking system. Theoretically, the overall operation and management of the downtown parking system could become part of the existing Bismarck Parking Authority. The process of organizing the management of the parking system will take time and should be set up to maximize the benefits of a coordinated parking system into the future, not just appeasing the needs of today. All downtown public parking assets should be incorporated into the consolidated parking system including off-street parking lots, on-street spaces, enforcement, and fine collection. All parking-related revenues should flow toward the goals of the parking system, in concert with the designated parking guiding principles. If the system is financially stable and achieving its goals, then revenue could be diverted to other associated needs. The consolidated parking system can also serve the following functions:

- A clearinghouse for downtown parking information.
- Provide support for private parking owners.
- Participate in the planning and development process within downtown.
- Develop policies and procedures based on approved guiding principles.
- Develop parking system mission and vision statements to reflect alignment with downtown development programs strategic goals.
- Provide a more uniform parking system marketing effort.

Prior to organizing a new management structure for downtown parking, the city will need to delineate where the management organization will focus their efforts. The newly consolidated downtown parking management organization would be tasked with managing parking in the "Downtown Bismarck Parking District." The borders for this



district could match the study area for this report (see page 2 for a graphic of the study area), or perhaps any previously designated downtown parking district area - as long as the area includes at least the Core Zone.

In addition to defining downtown parking district boundaries and selecting a preferred management structure, the city will need to determine what revenues will be available to fund parking operations, management, and new facilities. Ideally, the parking system should be provided with the following revenue streams (but not limited to):

- **Pay Parking Revenues:** Pay parking revenues would include monthly parking in public parking lots, as well as pay visitor parking in off-street areas. In the future, pay parking revenues could include on-street spaces as well.
- **Parking Enforcement Revenue:** If parking enforcement responsibilities are incorporated into a larger downtown parking system, revenues generated from parking fines should be used to fund parking needs.
- **Advertising Revenue:** The parking system may be able to generate additional revenue through advertising local businesses and/or events on parking tickets or in parking facilities.
- **Parking In-Lieu Fees:** The amount generated using this option will ultimately depend on how often the alternative is used. However, the fee should be set to cover at least the projected construction cost of new parking structures.
- **Special Assessments:** Within the downtown parking district, the city (or Parking Authority) could decide to institute special assessments (or maintain existing assessments) to generate additional funds to pay for parking operations, management, and future construction.
- **Tax Increment Financing (TIF):** If possible, the city could explore opportunities to fund new parking construction using tax increment financing.
- **Transfers from Other City Sources:** The city may designate other funds to support the downtown parking system (e.g., other taxes or assessments).

Financing the construction of future parking facilities could be accomplished in a number of ways. Common options for financing public parking facilities include:

- **Bonds:** The city could issue bonds backed by tax revenues or special assessments to finance parking facility construction. The bonds could be either



tax-exempt or taxable. Tax-exempt bonds would cost less to repay (due to lower interest rates), but would limit how much of the parking could be reserved for specific land uses. Taxable bonds would be more expensive, but the city would have more flexibility in how the new parking is managed.

Revenue bonds would not appear to be an option as the parking system does not generate sufficient revenue to cover current expenses. However, the city could pledge more than one revenue stream to repay revenue bonds (double-barreled bonds).

- **In-Lieu Fees:** As previously mentioned, in-lieu fees could be collected from downtown developments and reserved for the construction of new parking facilities.
- **Federal/State Programs:** If a new parking facility incorporates an alternative transportation component (e.g., bus transfer center), or is constructed to support an economic development initiative, federal or state funds may be available to support construction.
- **Public/Private Partnership:** The formation of a public/private partnership in the construction of a parking facility could allow the city to construct a structure while minimizing funds needed. This option could work in a number of ways. First, the city and a private developer could split the cost of the parking facility. This would allow the municipality to construct needed spaces while saving on design, equipment, and other consulting/environmental costs. Second, the city could offer land it owns for the construction of a private parking structure that would in turn provide some amount of public parking. In this instance, the city would have the parking spaces it needs without having to construct them. Finally, the city could incentivize private parking construction by providing a development with tax abatements or other development incentives. The developer would then be required to provide their own parking, with the municipality in effect subsidizing its construction.

#### **4.03. Parking Operations and Enforcement Technologies**

Once parking management alternatives have been decided, the city will need to determine what technologies will be implemented to ensure parking is efficient, effective, and accountable. Applicable parking technologies will depend on the user groups served and where the parking spaces are located (e.g., on-street vs. off-street).

Parking management technology exists to help parking asset owners and managers do their jobs more efficiently. In the following sections, this report will introduce and discuss



parking management technology options for the City of Bismarck. In general, only technologies that address the current and future issues described elsewhere in this report are presented.

In order to generate the funds necessary to effectively plan, manage, and operate the downtown parking system, sufficient revenues will need to be generated through some combination of in-lieu fees, special assessments, TIF, and pay parking. As a significant amount of time may be necessary for in-lieu fees and special assessments to make an impact on funds available to the parking system, pay parking will likely be the predominant revenue source for the parking system for the foreseeable future. Pay parking in the downtown can also help encourage parking turnover and encourage the use of other modes of transportation.

The following technologies are used across the county by municipal parking systems and can be successful depending on the specific operating requirements of the environment. Typical methods of operation are described in the following sub-sections.

#### **Pay Parking Technologies for Off-Street Parking Facilities**

Most off-street parking technologies provide options for collecting and auditing revenues, tracking facility utilization data, and operating control equipment. An additional feature that many of these systems can incorporate are variable message signs that can be used to direct patrons to available parking supplies, or even available supplies within individual parking facilities. These signs would be controlled using a comprehensive parking management system, and could display parking space counts, lot closed/open text, and/or other directional information. The following technologies are often used in larger off-street parking lots and parking structures:

##### *Traditional Exit Cashiering*

This is the revenue control technology currently utilized by the Parking Authority. When a patron enters the parking facility, they would take a ticket from a ticket dispenser. When the patron was ready to exit, they would first present their ticket to the cashier. The cashier would then collect the fee from the patron, and the exit gate would open after the fee is collected.

##### *Central Cashiering*

The same type of equipment used for exit cashiering could be configured in a central cashier format. In this situation, instead of paying a cashier at exit, customers would pay at a central cashier point before walking to their vehicles. At exit, the customer would insert their paid ticket into an exit verifier machine that would confirm the fee has been properly paid. If the fee has not been paid,



the customer would either be asked to pay at the central cashier or could be asked to insert a credit card for payment.

#### *Automatic Pay Stations*

Automatic Pay Stations (pay-on-foot machines) can provide the quickest parker exit times, as payment is taken away from the exit lanes. This equipment allows patrons to pay for parking before they get to their vehicles and enter an exit lane. Patrons would take a parking ticket from a ticket dispenser as they enter the facility. They would then take the ticket with them, instead of leaving it in their vehicle. When they are ready to leave, they must first insert their parking ticket into an automated pay machine. The machine(s) would be located in the facility, adjacent to pedestrian entrances (e.g. stair entry points, elevator lobbies, etc.) The machine would compute the parking fee, collect payment from the parker, and then return the ticket to the parker. The parker will then have a set amount of time to exit the parking facility before additional parking fees are assessed. At exit, the parker simply inserts their parking ticket into an exit verifier and they leave the facility. The exit verifier could also be configured to accept credit cards if the patron fails to pay at the pay-on-foot machine.

#### *Pay-in-Lane Machines*

Pay-in-lane machines can allow for the collection of parking fees without a cashier being present. The machine is placed in an exit lane, and would collect the parking fee from the parker directly. An exiting parker would insert their parking ticket into the machine, and the machine would compute the parking fee and collect the payment. While this equipment reduces the need for cashiers (saving payroll expenses), it increases parker exit times as each transaction takes longer to process.

#### *Credit Card In and Out*

Credit card in – credit card out equipment allows parkers to use a credit card to enter a parking facility, and then use the same card at exit to pay for their parking fees. For example, at the facility entrance a parker would insert their credit card into a reader. The reader would record the credit card number for vehicle duration tracking. This system would not require the parker to pull a ticket from a ticket dispenser. Then, when the parker is ready to leave, they would insert the same credit card into a reader at exit. The credit card number would be retrieved from the system to determine how long the vehicle was parked, and the appropriate fee would be charged to the credit card. The system could also be configured to accept credit cards at exit only, using a parking ticket pulled by the customer at entry. This equipment is most popular in



airport environments; however, they could provide a solution for municipal operations as well.

#### *Access Card Technology*

Access cards are used by monthly parking customers to gain access to the parking facility. There are several access card technologies typically utilized by municipalities. Typical access card technologies would include bar-code, magnetic stripe, proximity card, and automatic vehicle identification (AVI) tags.

The first two alternatives (bar-code and magnetic stripe) function in a similar fashion relative to the parking customer. The customer pulls into an entry/exit lane and swipes their access card through a card reader. The reader then reads the bar-code or magnetic stripe and determines if the card is valid. Both card technologies can provide both general card access and parking debit card capabilities.

Another technology is based on proximity access cards. This technology requires parking patrons to present their parking access cards to a card reader, but not swipe them through the reader. Once a card is presented to a reader, the system will determine the validity of the card. Like the first two technologies, proximity cards can provide standard parking access and parking debit cards.

The final access card technology is AVI and uses radio frequency identification tags. As the monthly parker approaches the entry/exit lane, the AVI reader sends a signal that detects the tag (typically placed on the lower driver-side portion of the vehicle windshield), with the tag responding with the necessary identifying information. The system then determines the validity of the tag and performs the necessary functions (e.g., open entry/exit gates). The main advantages of AVI technology are increased entry/exit throughput and better customer service (e.g. customers don't have to roll down their windows and present a card, faster entry/exit, etc.)

The following technologies are used in smaller off-street parking lots:

#### *Traditional Parking Meters*

Parking meters are very common, and most customers will find them easy to use. Electronic meters are now available that almost never jam and can alert parking enforcement when overtime parking has occurred. These parking meters are relatively inexpensive and easy to maintain. Also, they can now provide additional customer conveniences such as payment using smartcards and prepaid cash keys.



### *In-Vehicle Parking Meters*

An in-vehicle parking meter is a small electronic device that parking customers can purchase or rent from the municipality to use in designated parking spaces. The customer pre-pays for parking, and the time-value is loaded into the in-vehicle meter. When the user parks in a designated area, they turn on the meter and typically hang it from the vehicles rearview mirror. The appropriate amount of time is deducted by the parking meter until the customer returns to their vehicle and turns the meter off. Parking enforcement officers can see the meter as they patrol the area and determine if the vehicle is parking appropriately.

### *Pay-by-Space or Pay-and-Display*

Pay-and-display and pay-by-space machines can be used in situations where the visitor parking area consists of on-street spaces or a set number of parking spaces in a lot. These machines are placed on block faces (typically mid-block), and customers pay their fees to the machine after parking their vehicles. For example, after a customer has parked his/her vehicle, they walk up to a pay machine. They pay for the amount of parking they think they will need by inserting the payment into the machine. Payment could be accepted using cash, debit, credit, or some other prepaid card.

The difference between the two machine types is simple. Pay-and-display machines require parkers to take a receipt from the machine after making payment and put it on the dashboard of their vehicle to prove they paid. Pay-by-space machines require parkers to note which space number they parked in before reaching the pay machine. They then enter the space number into the machine and pay their fee. Parkers using a pay by space machine are not required to display a receipt in their vehicle.

### *Parking by Cell Phone*

This technology would work similarly to a pay-by-space machine, but instead of paying the fee at a nearby machine, the customer would call a phone number using their cell phone. After calling the number, the customer would enter the space number on the space/meter, and the parking fee would be billed to an associated credit card. A sensor could even be located in the space that would determine when the vehicle has left, and the proper fee would be charged. This technology can eliminate some of the negatives of meter and multi-space meter technology, such as returning to meters to pay for more time, machine malfunctions, mentally limiting stays, and displaying receipts. Also, the costs to implement a pay-by-cell system can be very low.



### *Parking Enforcement Technologies*

Parking time limits can be a useful tool for encouraging turnover. While on-street pay parking would be ideal, it is likely that time-limited on-street parking will remain the main tool for controlling vehicle duration and turnover for the foreseeable future. Time limits have traditionally been enforced by one of two methods: tire chalking (or a similar method) and computerized license plate tracking. New technologies, including Mobile License Plate Recognition and wireless parking sensors, can dramatically increase parking enforcement efficiency.

To compare various parking technologies, they are generally measured against their potential “enforcement efficiency”. This is a measure of the average amount of time spent by a Parking Enforcement Officer (PEO) to identify a parking time limit violator. Higher efficiencies can result in either more citations being issued by the same number of PEO hours, or the same number of citations being issued in fewer PEO hours.

#### *Traditional Time Limit Enforcement Methods*

Parking enforcement in downtown Bismarck currently consists of tire chalking and computerized citation issuance. This method has a number of problems, though it may also have some benefits. Problems include:

- Vehicles cited may not in fact be in violation – tire chalk can remain on tires after a short drive (a block or two) and a vehicle that has moved a few spaces may be in compliance with the law, but found to be in violation.
- This method fundamentally requires two or more “passes” – the first to mark or record occupying vehicles, and the second to check for their continued presence. This means that the first citation of each day cannot be issued until at least the minimum time limit period has passed since the start of the PEO’s shift – and if all spaces use 90-minute limits, that means a significant portion of a PEO’s typical shift is spent not issuing citations.
- Tire chalking is subject to driver “interference” – if a driver notices a chalk mark on their car’s tire, they can simply rub it off to “reset” their time of occupancy and avoid getting a citation on the next pass by the PEO. Current City of Bismarck parking regulations include penalties for removing chalk from tires.



- Tire chalking is difficult in diagonal and parallel parking spaces due to the extra distance from the PEO location to the marked tire – generally PEOs must move on foot, instead of in a vehicle, when marking non-parallel parked cars, which significantly decreases enforcement efficiency.
- Tire chalking can put PEOs at risk of Repetitive Strain Injuries (RSI) and other workplace hazards. Reaching out the door of a moving vehicle to chalk tires can have the potential to cause workplace injuries and the resultant insurance claims, increased insurance rates, and lost productivity.

Possible benefits of tire chalking or license plate inventories can include:

- This method of control is relatively inexpensive to implement and are very flexible to accommodate changing parking rules.
- This method is well understood and accepted by the courts and the public.
- Parking enforcement officers are more available to the downtown community and more aware of their surroundings.

#### *New Time Limit Parking Enforcement Technologies*

A couple of technologies to improve time limit enforcement efficiency have recently become available. These include Mobile License Plate Recognition (MLPR) and Wireless Parking Sensors (WPS). Both technologies are more expensive to implement than the method discussed above, but both offer dramatic efficiency increases that can easily pay for the extra implementation expenses.



A MLPR system is essentially a semi-automated, vehicle-mounted system that tracks vehicle parking durations. Instead of manually entering license plate numbers, the MLPR system uses cameras, computers, and a GPS receiver to quickly read the license plate of each parked car that is passed by the MLPR vehicle and note the location of that plate number. Then, when the PEO drives past the same area on a subsequent pass, the plate numbers and locations are



again read and compared to the previously recorded data. If the same plate is seen in the same location, the PEO is alerted and a citation may be issued.

Numerous variations of MLPR systems exist: some identify cars by color, shape, and size, others record plate numbers for issuance of citations by mail instead of by the PEO, and others are handheld instead of vehicle-mounted. All MLPR systems share the same problems and benefits. Problems include:

- MLPR systems are expensive. Vehicle-mounted systems start at about \$50,000, without the vehicle, and go up to over \$100,000 including the vehicle. Handheld systems start at about \$10,000 for the first handheld, and at least \$5,000 for each additional handheld.
- MLPR systems may not catch as many violators as manual license plate inventories. Testing in one community found that only about 80% of plates were recognized correctly on each pass. In subsequent passes, the unrecognized plates varied, requiring some operator input to correct misreads and to identify time limit violators. Plate recognition was especially poor on older and weathered plates, which may be more common in Bismarck due to winter road conditions.
- Vehicle-mounted MLPR systems are generally set-up for either parallel or diagonal/perpendicular parking, but not both. To accommodate all types of parking, additional costs are incurred for extra cameras and mountings, and enforcement efficiency may decrease as PEOs switch the system between parked car types.
- MLPR systems still require two or more passes to identify time limit violators, like tire chalking and manual license plate inventories. This has the same problem discussed above of making the first hour or two of each day's PEO time unproductive in terms of citation issuance.
- Parking enforcement officers may spend more time in vehicles, and will be perceived to be less available for visitor questions, etc.

However, MLPR benefits can include:

- Despite the "multi-pass" problem noted above, MLPR systems can offer significant increases in PEO efficiency. Vehicle-mounted systems can be driven at up to 20-25 M.P.H. while recording plates, allowing a PEO to



patrol a larger area. However, if the MLPR vehicle is constantly stopping to issue citations, the enforcement efficiency will increase only somewhat over manual methods.

- MLPR systems can be loaded with various license plate databases, including parking ticket scofflaws and stolen vehicles. When a plate in the databases is identified, the PEO is alerted and appropriate action may be taken.
- MLPR systems can account for vehicles moving between block faces to evade parking time limits.

Wireless Parking Sensors (WPS) are the very latest in parking time limit enforcement technology. As such, they offer the greatest potential parking enforcement efficiency gains, but they also have the shortest history of use by parking systems. Unlike all of the other parking enforcement technologies presented herein, they also have significant benefits for parking management outside of enforcement, which makes them beneficial to more stakeholders and may reduce their effective cost.

WPS systems include sensors, receivers, enforcement interfaces, and reporting interfaces. Sensors are small, simple electronic devices that are installed within each parking space. They are either permanently adhered to the pavement surface, or they are installed in a small hole drilled into the pavement. Each sensor includes a detector, typically magnetic, a battery that typically lasts 4-6 years, and a radio to communicate parking events. Sensors detect when vehicles enter and exit each parking space – they don't identify the vehicles, but they do identify the spaces and the time of events. Sensors may also include memory to store parking events when no wireless communications are available.

Receivers are either permanently installed on light poles and other elevated positions around the sensors, or are integrated into enforcement devices –



regardless, the receivers collect the parking event data from the sensors and relay it to a database server on the internet.

The enforcement interface is a dedicated handheld device, or an interface on a general-purpose handheld (like a mobile phone or a parking enforcement handheld), that allows PEOs to quickly identify which vehicles are violating parking regulations.

The reporting interface is typically a secure web page that allows parking managers, and even city residents, to view aggregated parking behavior data, regardless of violations. This last point is important – unlike all the other parking enforcement technology described in this report, WPS systems collect parking behavior data for every parking event, not just for violations – this means that the WPS system is useful for making decisions on parking rules, requirements, and other management decisions that might be made by planners, traffic engineers, economic development staff, even local chambers of commerce and merchants.

WPS systems, like all of the technologies previously described, have problems and benefits. Problems include:

- Wireless parking sensors must be installed in each individual parking space. This means that if the number of spaces monitored is to double, the sensor costs will roughly double. With other technologies, expansion to cover additional areas may occur at little or no incremental cost beyond additional PEO time.
- WPS systems typically require delineated spaces for accurate enforcement. While parking behavior can be collected from unmarked spaces, issuing citations based on sensor data requires the spaces to be marked. In parking lots this is not an issue, but some on-street spaces are not currently marked.
- WPS systems are a relatively new technology. As such, there are few long-term or widespread deployments to consider when reviewing WPS systems and vendors. Additionally, all new law enforcement technologies must be reviewed and “approved” by a court of law, and in most jurisdictions this review of WPS systems has not yet occurred.



- Because WPS systems monitor individual parking spaces, and do not identify vehicles, they cannot enforce “zone” restrictions where each vehicle is allowed to park for a limited time within a certain area. Note that tire chalking is also incapable of zone-based enforcement.

Potential WPS benefits can include:

- Most WPS systems are sold as services – instead of customers buying the hardware and related implementation services, vendors will install and service the systems in return for a subscription fee. This reduces the up-front costs to the city, and greatly reduces the risk exposure due to new technology. If the system fails to perform as promised, the city can simply stop paying the service fees. Many parking technologies are sold as a system, with large upfront payments required - regardless of how well the system actually works in the field.
- In addition to capturing parking violation data, WPS systems capture and report all parking behavior. As noted above, this parking survey information can be very useful to many stakeholders in improving the management of the parking resources.
- In a wirelessly connected WPS, the city may use real-time violation information, available via a web browser, to dispatch PEOs to where they are required. By replacing patrols with directed, optimal dispatch, PEO efficiency can be increased dramatically.
- In all WPS systems, regardless of their real-time data capabilities, highly accurate historical violation reporting can be used to optimize parking enforcement beats, routes, and PEO scheduling. For instance, if historical data shows that violations on the west side of town don't typically start occurring until after 11am, then the PEO responsible for that area could be redeployed early in the morning, or their shift could be rescheduled. These adjustments can result in significant enforcement efficiency improvements.

WPS systems, unlike all of the other time limit enforcement systems previously described, allow “one-pass” time limit enforcement. The first time a PEO passes a given parking space on a given day, they can issue a citation. There is no need to come by earlier in the day to chalk tires or record license plates. This single factor presents the largest opportunity for parking enforcement efficiency improvements.



After reviewing available parking technologies related to off-street parking operations and parking enforcement, no new technologies are necessary at this time. However, future parking facilities and on-street enforcement could incorporate the following in the future:

- Existing parking facilities are currently configured for exit cashiering. At this point, this methodology should be continued. However, future parking facilities could incorporate design concepts that would permit the use of automated systems. For example, future parking facilities could be designed for the inclusion of automatic pay stations (e.g., escape lanes for vehicles that failed to pay the parking fee at the pay-on-foot machine, focused pedestrian entrances/exits). The use of automated technologies such as pay-on-foot can help reduce staffing costs and improve vehicle exit times.
- Current and future off-street surface parking lots could incorporate any of the parking access and revenue control technologies mentioned in this section of the report. Ideally, small parking lots would rely on automated parking solutions and larger facilities could incorporate more traditional revenue control options.
- Purchasing AVI readers and vehicle tags could provide an opportunity to improve customer service in the future. Customers would likely appreciate the ability to enter and exit parking facilities without having to stop, roll down their windows, and present an access card (especially during winter months). AVI technology could provide an incentive for parking in Parking Authority facilities. The cost to provide AVI would be approximately \$5,000 per entry/exit lane, plus the costs for tags and installation.
- Advanced vehicle count systems could be included in future parking facility designs. Systems are available that can utilize variable message signs to display parking availability by facility and/or by floor. It is important to note that these count systems will require parking staff to periodically update the control system to ensure parking counts are reasonably accurate.
- If the city decides to further restrict on-street parking to discourage vehicles from moving between block faces, the utilization of a MLPR system would be warranted. A MLPR system would allow the city to better track vehicle movement and enforce block face or zone restrictions.
- As needed, existing parking access and revenue control equipment and parking enforcement equipment should be maintained/upgraded to ensure proper operation. When purchasing upgrades or new equipment, the city should



review potential changes to operations and evaluate technology options (e.g., automating operations).

#### 4.04. Parking Enforcement Strategies

The success of any parking management program requires an effective enforcement component. Regulations are intended to produce parking patterns that utilize the on- and off-street parking inventory efficiently; this will only happen if on-street rate structures (perhaps in the future), time restrictions, or other rules are enforced with sufficient frequency so that drivers see an advantage to parking legally.

Building an enforcement program requires making many critical strategic and tactical decisions which can greatly impact a program's success and ability to adapt with changing conditions. This sub-section addresses several of those key decision areas.

##### Parking Enforcement Goals

The vast majority of the public believes that revenue generation is the primary goal of parking enforcement. Unfortunately, many elected officials and public sector managers share that view, whether explicitly or implicitly. Quite the opposite is true. It is critical that all associated with the parking program recognize that enforcement is intended to contribute to achieving the desired mix of parking behaviors. As such, key customer service values such as education and fairness must be stressed. It follows, therefore, that key measures of performance should include parking indicators such as occupancy and turnover, violation and capture rates, as well as public acceptance of and support for the program.

This is not to say that the successful collection of fines and penalties is not one among many legitimate goals. Parking citations will only have a deterrent effect if they are issued correctly, processed in a timely manner, and the resulting fines and penalties collected. Furthermore, citation revenues are a favorable byproduct of enforcement, and are particularly valuable if used to support and enhance the parking program.

##### Parking Enforcement Management and Staffing

Responsibility for parking enforcement in Bismarck currently rests with the Police Department. According to the city, two full-time civilian Parking Enforcement Officers (PEO's) provide parking enforcement in the downtown. The PEO's provide the bulk of parking enforcement in the downtown, although sworn police officers may also issue a limited number of citations, mostly for health and safety violations (fire lanes, bus stops, etc.) Assuming 250 non-holiday weekdays per year, the city issues an average of approximately 56 to 60 parking citations per day. The city



currently issues approximately 14,000 to 15,000 parking citations each year. The collection of citation fines generates approximately \$150,000 to \$170,000 per year (or \$11 to \$12 per citation).

Placement of enforcement within the local Police Department is typical of many jurisdictions, especially smaller cities and towns. It can have a number of advantages:

- Reliance on an existing command structure.
- Use of existing communications networks.
- Availability of PEO's for emergency duties, such as intersection control, as needed.
- Greater respect for PEO's as members of Police organization.

However, there can also be disadvantages:

- Second class status, with parking enforcement not viewed as "real" Police work.
- Excessive diversion to non-enforcement activities.
- Separation from the larger parking management program, including failure to relate enforcement activities to other parking-related goals.
- Police departments are not often experienced in managing the "backend" collection programs necessary to achieve high citation closure rates.

A popular alternative to Police oversight of parking enforcement is to place the function in the governmental unit with responsibility for the overall parking mission. For Bismarck, this could be the downtown Parking Authority.

Benefits of this approach include:

- Directly linking enforcement activities and personnel to the larger parking mission.
- Greater likelihood that performance will be evaluated in conjunction with parking goals and actual parking dynamics.
- Devotion of all PEO hours to parking-related duties.
- Citation fines and penalties become one component of a larger accounts receivable system managed by the responsible unit.

Disadvantages include:

- A need to build a new organizational structure within the Parking Authority.



- A need to share Police resources (such as communications networks) or build them from the ground up.
- Potential lowering of public respect for PEO's.

As noted in Section 4.02, **Carl Walker** recommends that the city transfer responsibility for parking enforcement to a vertically-organized department or authority responsible for the overall downtown Bismarck parking program. However, we believe that Police officers should continue to enforce health and safety regulations. As suggested above, transfer of the PEO's would increase the likelihood that enforcement goals and performance are aligned with overall parking goals, and facilitate the coordination of all parking related resources.

Transferring parking enforcement responsibilities would also provide the opportunity to transform the responsibilities of the PEOs from only parking enforcement to "Downtown Parking Ambassadors". Instead of only enforcing parking regulations or assisting with traffic direction, the Parking Ambassadors could also provide visitors with information and directions, as well as provide a level of additional security in and between parking facilities. This will improve perceived security in the downtown area and will help improve overall customer service.

In addition to transferring parking enforcement responsibilities to a vertically-integrated downtown parking management organization, additional parking enforcement staff may also be warranted. Based on the size of the downtown study area, one to two additional PEOs may be needed to adequately enforce parking regulations.

### **Reducing the Impact of Parking Enforcement on Visitors**

One issue that often arises during the discussion of parking enforcement is the fear that increased parking enforcement will discourage people from visiting downtown, or will unfairly inconvenience those that do visit. In order to help mitigate this fear, **Carl Walker** recommends an approach that reduces the impact on downtown visitors and increases the penalties on continual parking policy violators. This is typically achieved through the use of an escalating fine structure. For example, the first ticket for a specific offense received within a certain timeframe (e.g. every six months or per year) is an automatic warning. The second ticket received within the set timeframe would result in a set fine, perhaps \$20. The third ticket received for the same offense within the set timeframe would result in a higher fine, perhaps \$40. The fine would continue to escalate to a maximum fine to discourage breaking the same regulation. This would reduce the impact on visitors, as it is less likely they will continually break the rules. However, the penalties will continue to grow for downtown employees abusing parking on-street parking.



### *Collection of Fines and Penalties*

In the discussion of enforcement goals, it was stressed that revenue should not be the primary goal of parking enforcement. While this is true, parking systems must also do everything practical to collect all fines and penalties once imposed on violators. Citations lose their deterrent value if the city collects only a small percentage of the citations for which the vehicle owner is found liable.

Fortunately, the collection tools available to cities have improved in recent years and the city can employ additional tactics. Options could include include:

#### *Noticing*

Additional notices could be sent to parking violators concerning outstanding parking tickets.

#### *Registration Non-Renewal*

If allowed under North Dakota law, vehicle owners could be required to satisfy outstanding parking citation debt before renewing his or her registration.

#### *Booting/Towing*

Vehicles found with a certain number of outstanding parking citations (perhaps three or more) could be booted (immobilized) and/or towed. While booting and towing programs can be very effective, they can also be labor intensive (since enforcement staff must also be assigned to release the boot once the debt is paid). In addition, if the owners of booted vehicles do not come forward within a reasonable period of time (usually 24 to 48 hours) the city must be prepared to tow the vehicles to a secure storage location. Many cities contract out this service to a tow vendor who provides both towing and storage services.

For the past year, the Bismarck Parking Authority has been immobilizing vehicles that do not properly pay parking fees in Authority facilities. The current boot fee assessed to vehicles is \$15.00.

**Carl Walker** recommends that the City of Bismarck consider utilizing a consistent booting/towing program, even if it were operated only several days a month. This would not only provide some direct revenue from the booted/towed vehicles, but would also generate publicity that would probably cause other scofflaws to pay voluntarily.

#### *Credit Bureau Reporting*

Many cities are now reporting outstanding parking fines to one or more of the national credit reporting agencies. In today's economic climate, a poor credit



report will usually not prevent an individual from getting credit, but may well increase the interest rate he or she must pay. Therefore, most vehicle owners have a strong incentive to protect their credit rating. However, this tool must be used carefully. Many cities consider it too harsh, and its use can lead to numerous complaints. It is important that the parking system obtain the informed consent and support of elected officials before starting such a program.

#### *Use of Collection Agencies*

The city could contract with a collection firm specializing in parking fines. Such firms know the issues associated with parking citations, and have programming in place to accept vehicle-based referrals and report payments for application to the correct plate/citation. The city must be careful, however, to structure any such contract so that the vendor is not rewarded for collections which they did not actually produce. Many such contracts, for example, do not pay the agency a fee for payments following the booting of a vehicle or on payments made for citations while filed at DMV for registration non-renewal. If the city does opt for additional collection services, the city could pass on the collection fees to the violator as an additional penalty.

By enhancing its citation collection efforts, the City of Bismarck can both boost its revenues and increase the deterrent impact of citations in modifying parking behavior.

#### **4.05. Parking Signage and Wayfinding**

Currently, parking signage in the downtown is limited to no parking signage, time limit signage, older public parking signs at parking facility entrances, and private parking/tow away signage. In order to better direct visitors to available parking, the city should provide adequate wayfinding signage to locate public parking facilities as well as parking facility regulations. Ideally, parking signage should be part of a larger downtown wayfinding system. Directional signage should be provided to help visitors locate parking resources within the downtown, depending on the type of parking they need. Then, signs should be located in each parking lot that provides a name for the lot, who can park there, as well as any specific restrictions. For example, signage should be located on Main Avenue to direct visitors to the two public parking structures and available on-street supplies. Then, signage in each parking lot would identify the public parking lot, as well as any necessary restrictions. Parking signage should be simple to read, and match the basic design of other wayfinding signage being designed by the city – or could employ a unique design that compliments the larger wayfinding system.

Directional signage should be placed on local streets to direct visitors to both on-street and off-street parking options. Additional parking identification signs should be placed



at the entrances to each significant on-street public parking location to denote public parking and any applicable restrictions (e.g., fees, time limits). A possible sign design for on-street parking could include a "P" with a circle around it and the following wording: "Visitor Parking – 2-Hour Limit." This signage will simultaneously reinforce visitor parking and a specified time limit. The signage for the public parking structures could incorporate a variable message sign to highlight when parking is available.

Some of the no-parking signage currently in private parking lots can discourage visitor use, as they are fairly threatening and not clear as to who is authorized to park. While reserved parking signs are common, they should clearly denote which business the parking serves. Ideally, any parking located behind businesses should first be used by employees, in order to keep the spaces reserved and open more on-street or other public parking for visitors.

Figure 14 illustrates parking signage used by other communities:

**Figure 14. Sample Parking Signage**



#### 4.06. Parking Security and Lighting

A common concern in many communities is the need to improve security and lighting in parking lots and on pedestrian paths to/from parking areas. This was a concern raised in Bismarck. This section will provide options for improving parking facility security and lighting.



There are basically two types of parking facility security options: passive security and active security. Passive security refers to designing a facility to create a secure environment, without the need for an active human security response. This typically includes eliminating potential hiding places, appropriate lighting levels, painting facility interiors white, low-level landscaping around the parking facility perimeter, etc. These elements promote a secure environment.

Active security refers to the addition of systems that require a human response, such as panic alarms, closed-circuit television, etc. While passive security creates an environment that deters criminal activity, sometimes additional steps are necessary to further discourage crime or to improve perceived facility security.

Clearly, all public facilities should embody the concepts of Crime Prevention through Environmental Design (or CPTED), and parking is no exception. According to the National Crime Prevention Institute, CPTED is "... the proper design and effective use of the built environment which may lead to a reduction in the fear and incidence of crime, and an improvement of the quality of life." Parking facilities should be properly landscaped, lines of sight should be unobstructed, potential hiding places should be eliminated and adequate lighting should be provided. Local law enforcement should be able to provide a CPTED review of city parking facilities and provide additional security design recommendations. The two public parking structures should be reviewed and passive security should be improved.

Some active security methods, such as panic alarms and closed-circuit cameras, could be included in public parking facilities to improve real and perceived security. These alarms would generate a loud noise when activated, and could also incorporate a pulsating light to indicate where help is needed. Several types of alarm systems are available including wireless systems with intercom features. The intercoms could provide a voice connection directly to local police in the event of an emergency. Ideally, the alarms should be placed within a 100-foot walking distance from anywhere in the parking area. Bismarck Parking Authority parking structures currently have closed-circuit surveillance cameras installed on each floor.



Parking facility lighting should be sufficient to help avoid vehicle accidents, provide visibility of pedestrian hazards, deter criminal activity and meet parking industry lighting standards. A minimum horizontal illuminance of 0.5 footcandles (measured on the parking surface, without any shadowing effect from parking vehicles, trees, etc.) is recommended for enhanced security in parking lots by the Illuminating Engineering Society of North America (IESNA RP-20-98). The recommended minimum vertical illuminance (measured at 5.0' above the parking surface) is also 0.5 footcandles. In order to reduce the amount of light scatter, fixtures that direct light downward onto the parking lot (cutoff luminaire) are recommended. For parking structures, *Carl Walker* recommends a minimum illuminance of 1 to 2 footcandles as measured on the parking surface. In order to determine if lighting is sufficient in parking areas and pedestrian pathways, *Carl Walker* recommends that the city conduct parking facility specific and larger downtown lighting studies in the future.

#### 4.07. Loading and Delivery Parking

During the parking inventory and occupancy counts, *Carl Walker* did not observe any significant occurrences of delays or inconveniences associated with delivery vehicles in the downtown. Currently, delivery vehicles park on-street, in off-street parking facilities and/or in no parking areas to deliver products and services to downtown businesses. There are currently no designated loading zones in the downtown.

Delivery vehicles can sometimes impede traffic flow, block alleyways, block visitor parking spaces, and inhibit pedestrian visibility. Deliveries can often create an environment in conflict with visitor and employee parking, pedestrians, and other groups. However, delivery vehicles are an inevitable component of downtown business. Obviously, the loading/unloading needs of delivery vehicles will increase as the downtown continues to develop.

Although delivery vehicles cannot be removed from downtown, their impact can be minimized through coordinated efforts among area businesses. Potential strategies for addressing delivery vehicle challenges could include the following:

- Delivery vehicles should be discouraged from parking on narrow streets and in no parking zones. Delivery parking in these areas can cause traffic delays, cause visitors to wait to enter or exit the on-street public parking and can cause pedestrian obstacles.
- The city should consider the creation of delivery loading zones in strategic locations. The loading zones would provide time-limited parking for delivery vehicles, and provide a designated loading area. The zones should be appropriately marked, typically with yellow curb paint and stenciling or signage.



These loading zones should be developed with assistance from downtown businesses and future developments in order to mitigate delivery problems as demand grows.

- The city should identify specific delivery vehicle concerns and work with downtown businesses to encourage deliveries during off-peak parking periods (e.g., mornings), as well as encourage the use of smaller delivery vehicles.

#### 4.08. Parking Communications and Marketing

While the current downtown parking system is not overly complex, a breakdown in communications can foster a perception of parking problems. Parking communications and marketing refer to two key issues. First, communicating parking policies, regulations, and services to parking customers. Second, communicating parking system issues, challenges and improvements to downtown community stakeholders.

Communicating parking policies and regulations to parkers is typically done through the use of parking maps and the city website (or the Parking Authority could create a website). One-page parking maps could be created to show the locations of public parking supplies, provide downtown parking policies and regulations, provide contact information for questions and provide other downtown information (see Figure 15 on the next page). These maps would be available at city offices, the Chamber of Commerce, and at downtown businesses. The map would also be available for download from the city website. While the Bismarck Parking Authority does have a web presence, the information is minimal and difficult to find. A specific Parking Authority website could provide parking maps, system statistics and information, monthly parking forms, system mission statement and guiding principles, a description of services, etc. Other downtown marketing materials, either developed by the city or other organizations, should include parking information for visitors.

In addition to communicating parking system issues to the downtown community, the parking system needs an easily identifiable “brand”. The city and Parking Authority will need to develop a branding strategy and incorporate these concepts into downtown parking marketing efforts. In general, this is one of the most neglected and under-



valued aspects of parking system management. The following is a list of potential action items that can help launch an improved parking program:

- Develop a consistent parking system “brand”.
- The brand should promote the image you want people to have of the system.
- A “brand” is more than a logo or tag-line.
- The brand should reinforce the positive aspects of the system.
- Use consistent external signage to tie the system together.
- Have a parking tie-in to most promotional materials.
- Develop new employee/tenant parking brochures or information packets.
- Develop parking “E-Bulletins” to be distributed to monthly/contract parkers.
- Develop strategies for regular contact with customers.
- Look for practical opportunities to connect the parking program to community initiatives. For example, develop parking deck floor identification (themed graphics, music, etc.) as an extension of a local public arts program.
- Use your monthly parking billing system to distribute system info and promotional materials.

Figure 15. Sample Parking Map



Improving communications with downtown stakeholders could be accomplished through periodic parking-specific input meetings (perhaps twice per year), annual parking system reports, and parking staff involvement in appropriate downtown organizations (e.g., Downtowner's Association, business groups, Chamber of Commerce). All of these options provide opportunities for the parking system to provide information concerning downtown parking conditions to stakeholders, in addition to gaining valuable public input.

#### **4.09. Incorporating Parking and Transportation**

The concept of integrating transportation and parking elements as part of the larger strategic vision for the downtown should support the adoption of a "Park Once – Pedestrian First" planning concept. This concept encourages employees and visitors to park their vehicles in one location and then use another form of transportation to move around the downtown with excellent pedestrian, transit, parking, and bicycle facilities. This concept will become very important as the downtown develops.

Several key action elements are needed to achieve this vision and are outlined below:

- Provide adequate transportation options for people visiting/working downtown. As parking management changes in the future (e.g., improved parking enforcement, increased utilization) other transportation options will become more attractive. As previously mentioned, options could include (but not be limited to):
  - Encouraging telecommuting programs.
  - Preferential parking for registered carpools/vanpools (e.g., prime parking spaces, reduced parking fees/rates)
  - Ensuring sufficient bus routes and headways.
  - Adequate bicycle paths and racks/lockers.
  - Providing reduced cost or free transit passes.
- Institute pay parking for all visitors and employees to improve the utilization and turnover of existing parking supplies, encourage the use of alternative modes of transportation, and generate funds that can be used to improve parking resources, streetscapes, transportation options, etc. Work to change on-street pay parking restrictions.



- Ensure downtown streets and sidewalks adequately serve the needs of pedestrians, transit users, bicyclists, and vehicles with the focus on serving pedestrians first. The city has already identified the need for improved sidewalks as an important priority. This element can be supported by:
  - The creation of safe, attractive, shaded, and inviting pedestrian linkages to connect downtown destinations and parking facilities.
  - Ensuring pedestrian crossings across local streets provide sufficient time for people to cross. Signalized crosswalks should be timed to provide sufficient time for people to cross safely.
  - Where necessary, using traffic calming strategies such as speed humps, lower speed limits, on-street parking, lighted crossing paths, etc.
  - Where possible, including bicycle paths on roadways. Existing street widths appear to provide sufficient space for parallel parking on both sides of the street as well as bicycle lanes.
  - Providing amenities such as improved lighting, signage, street furniture, landscaping, etc. in public right-of-ways to support and encourage pedestrian activity.
  - Bicycle racks, lockers or other bicycle friendly facilities should be provided throughout the downtown.
- Developing, managing, and operating parking as an essential civic infrastructure and reducing overall parking ratios over time to create a “Park Once” environment. This action element can be supported by:
  - The usage of in-lieu parking assessments for developments planned in the downtown to support the future funding of strategically located parking resources.
  - Encouraging the “Park-Once” strategy through shared parking for both public and private parking resources.



Figure 16. Pedestrian Amenities



- Ensuring all public parking resources are efficiently and effectively designed and managed. Encourage efficient design and management in private parking resources as well.
- Maximizing on-street parking throughout the downtown and monitor vehicle duration and turnover. Encourage turnover of this critical parking resource through monitoring, communication with downtown business owners, as well as through other means such as parking enforcement, pay parking in the future, etc.
- Locating long-term parking facilities on the perimeter of the downtown (except possible parking structures) and locate short-term parking throughout the downtown. Ensure the proper mix of parking through periodic parking occupancy counts and duration/turnover surveys.
- Incorporating ground floor commercial activity into parking facility designs (where appropriate) when a parking structure is developed in the future.
- Where necessary, improving existing surface parking lots in the downtown (e.g. paving, landscaping, lighting, identification signage, etc.)
- Modifying the identity of the downtown to make it more understandable and attractive to infrequent users. This element is supported by:
  - Actively promoting new downtown attractions and developments including parking availability/locations and alternative transportation options. This can be done using printed materials, as well as the city website.
  - Developing and implementing a downtown informational and directional (wayfinding) signage program with a special emphasis on available parking resources.



## 5.0 ACTION PLAN AND RECOMMENDATION SUMMARY

Currently, almost 44% of the available parking supply in the overall downtown study area, and 40% of the parking supply in the Core Zone, is unused during the typical peak parking period. However, future developments in downtown Bismarck could lead to parking supply deficits in some locations. Therefore, future downtown development could necessitate the construction of additional parking resources – both on-street and off-street. With this in mind, *Carl Walker* recommends the following action plan (in order of priority):

### Short-Term (Within the Next Twelve Months):

1. As there is a significant shortage of parking for the library (limiting the efficient use of the building), the city should first look for possible solutions to improve this situation. First, the city should investigate opportunities to improve the utilization of nearby parking resources. There were significant amounts of underutilized private off-street parking in the blocks to the west and south of Block 7 (e.g., Blocks 6, 19, and 20). Second, the city could assist the library with implementing transportation demand strategies to help reduce parking demand for the library (e.g., employee carpools, free or subsidized transit passes for employees and volunteers, improved bicycle and pedestrian paths, improved dissemination of alternative transportation options). Finally, the city could investigate the possibility of constructing a shared-use parking facility near the library that could serve downtown visitors/employees and nearby medical facilities in addition to the library.
2. Develop and approve a set of guiding principles for the downtown Bismarck parking system using the provided information as a starting point (see Section 4.01). The guiding principles will guide the future development of the downtown parking system, as well as provide reasonable constraints within which future parking issues can be addressed. The process to define parking system guiding principles should include significant public input.
3. Begin work to create a more vertically-integrated downtown parking system. As mentioned previously, a single department or organization should be responsible for managing all aspects of the parking system including off-street facilities, on-street parking, parking enforcement, and parking-related revenue collection.
4. Improve downtown parking signage and wayfinding. Trailblazing signs should be located on incoming streets (e.g., Main Avenue, 7<sup>th</sup> Street, 3<sup>rd</sup> Street) to direct visitors to available on-street and off-street parking supplies. Off-street parking facilities need new identifying signage that includes any user group restrictions (e.g., permit



only versus general visitor), incorporates the parking system “brand”, and is easily visible. On-street parking signs should remind users they are intended for short-term visitors by denoting visitor parking and utilizing a time restriction.

5. Maximize on-street parking in the downtown area where possible. Work with the city’s traffic department to determine locations that could support additional parking, and begin work to mark all on-street parking supplies. Additional traffic studies may be needed to determine appropriate locations.
6. Conduct a maintenance review of existing public parking lots/spaces. Ensure facilities are structurally sound, parking surfaces are well maintained, parking space stripes are visible, signage is maintained, landscaping is appropriate, etc.
7. Using the recommendations included in this report, begin improving downtown parking enforcement. First, provide consistent enforcement of existing parking regulations in downtown study area and consider adding parking enforcement staff. Then consider implementing a tiered parking fine structure to reduce the impact of parking enforcement on downtown visitors and increase penalties on habitual parking violators. Finally, work to improve citation fine collections – with the goal to increase the collection rate 75% by the end of the first year.
8. Using the suggestions provided in this report, ensure adequate pedestrian paths exist to and from parking areas. Work with community stakeholders to improve both real and perceived safety levels in parking areas and on pedestrian pathways. Parking areas should provide the minimum lighting standards noted in this report. Ensure existing parking lots incorporate CPTED design principles. Consider installing emergency call boxes in parking areas.
9. With respect to new developments and existing parking demands, attempt to better utilize existing parking supplies prior to designing and constructing new parking areas. Theoretically, there is currently enough unused parking to accommodate projected parking needs in the near-term. The city should work with private parking lot owners to better utilize existing supplies, to the benefit of the downtown community, developers, and the private lot owners. Future development of the downtown could warrant the addition of parking supplies within reasonable walking distances of the downtown core.

In order to identify the parking needs of the medical center campus on the eastern side of the study area, site specific parking studies appear warranted. While it appears that the parking associated with the three medical centers is at or near effective capacities, site specific parking studies will better quantify parking needs



and possible solutions. Possible solutions should include parking structures constructed by one or more medical centers outside of the Core Zone.

10. Select a minimum of two primary sites and two alternate sites for future parking structures. Using the locations noted in this report as primary sites, select two additional sites in the western portion of the Core Zone (or immediately adjacent to the west side of the Core Zone). Ideally, the location of future parking structures would be driven by projected future needs as opposed to land currently owned or existing parking demands – especially since underutilized supplies appear available. More spaces could be needed if additional downtown development occurs, and the alternate sites could be used to provide the necessary parking.
11. Develop a parking marketing program to include information for downtown visitors and businesses. Create simple downtown parking maps, detailing on-street and off-street parking supplies. Include parking information on the city website and encourage other downtown businesses/organizations to include parking information. Create a Parking Authority website. Create/improve lines of communication between the city and downtown businesses concerning parking issues. This information could incorporate information on alternative modes of transportation as well.
12. Update the city parking zoning code to include an approved shared parking model/methodology (using the shared parking model provided as part of this study), as well as acceptable parking design criteria. Also, the update of the parking zoning code (and/or any other downtown specific plans), as well as existing municipal codes, could include the following issues:
  - o Allowing in-lieu fees and setting requirements.
  - o Improved lighting standards (using the recommendation included in this report).
  - o Specific requirements for bicycle parking (typically a percentage of vehicle parking requirements).
  - o Ensure ADA parking standards adhere to federal ADA guidelines.

**Mid-Term (Year Two):**

1. Conduct an update of the parking inventory and occupancy surveys contained in this report. These counts should be updated as necessary (when new developments occur), and updates should be conducted annually (at a minimum). Evaluate the impacts of downtown development on nearby neighborhoods, and



authorize the creation of residential permit programs as needed to mitigate residential parking concerns.

2. Ensure the city has sufficient land use data for the downtown parking district, and update annually or as necessary. This data should be available on a block-by-block basis.
3. Conduct a downtown lighting study to ensure lighting levels support safety and security goals and objectives.
4. Evaluate the ability of the parking system to fund additional parking facility construction in the future, and investigate additional sources of revenue.
5. Continue work to improve lines of communication between the downtown parking system and downtown businesses, residents, and visitors. Create a monthly downtown parking newsletter to communicate goals and issues, as well as upcoming/ongoing construction projects, to the downtown community. Notify the downtown community concerning changes in parking needs/restrictions.
6. Review parking enforcement statistics to ensure recommended goals are being met. This would include reviewing downtown parking duration and turnover statistics.
7. Provide sufficient support for alternative modes of transportation. Provide adequate bicycle racks, comfortable pedestrian paths, bike paths, etc. in the downtown to encourage a pedestrian first mentality. A marketing campaign could be created to encourage people (especially downtown employees) to walk, bike, carpool, vanpool, or use public transit to travel to the downtown. Investigate opportunities to use parking revenues generated in the parking downtown to fund transportation initiatives.
8. Investigate opportunities to improve customer service by instituting additional service programs, such as battery jumps, lock-out assistance, tire inflation, etc. Vehicles provided to parking enforcement officers (or downtown ambassadors) could be equipment to provide some of these services.
9. Consider completing an annual report for the downtown parking system. The annual report would detail accomplishments, challenges, anticipated needs, parking supply/demand issues, financial issues, etc. This report would serve as a historical record of the year's activities, as well as a way to provide additional information to the downtown community.



10. Work with downtown businesses to determine loading and delivery needs. Where possible, designate specific loading zones and determine adequate hours for delivery vehicle parking. Loading zones could be used for short-term visitor parking after designated loading zone hours.

**Long-Term (Years Three and Later):**

1. Develop additional parking supplies when needed. The facilities should be placed and sized appropriately, using the parking supply and demand analysis methodology detailed in this parking study. Pedestrian paths to/from the parking should encourage use by providing stable walking surfaces, shading, pedestrian amenities (e.g. benches, etc.), and traffic calming measures as needed.
2. Ideally, the development of a parking garage would coincide with the development(s) it is serving or based on growing parking demands in the downtown. Building a parking garage with the hope of attracting development should only occur if sufficient downtown development demand warrants. Should developments not occur, a garage built on speculation could result in a severely underutilized facility. If a developer is interested in developing a portion of the downtown, and sufficient parking supplies cannot be provided using other methods, then the city could propose providing the necessary parking along with the construction of the development. In-lieu fees could be used to provide/supplement the funds necessary for parking facility design and construction.
3. Investigate opportunities to incorporate additional parking technologies to improve downtown parking operations and management. This could include variable message systems (to direct parkers to available supplies), MLPR enforcement systems, wireless parking sensors, etc.



## APPENDIX A

*Parking Inventory and Occupancy Count Data (July 23 and 24, 2007)*



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
1	Off-Street Public	0	0
	Off-Street Private	0	0
	<b>Total Off-Street</b>	<b>0</b>	<b>0</b>
	On-Street North	16	6
	On-Street South	18	7
	On-Street East	0	0
	On-Street West	0	0
	<b>Total On-Street</b>	<b>34</b>	<b>13</b>
	<b>Total Block Parking</b>	<b>34</b>	<b>13</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		0.0%
	Total Off-Street Parking Occupancy %		0.0%
	Total On-Street Parking Occupancy %		38.2%
<b>Total Parking Occupancy %</b>		<b>38.2%</b>	
<hr/>			
Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
2	Off-Street Public	0	0
	Off-Street Private	0	0
	<b>Total Off-Street</b>	<b>0</b>	<b>0</b>
	On-Street North	13	2
	On-Street South	13	6
	On-Street East	0	0
	On-Street West	12	4
	<b>Total On-Street</b>	<b>38</b>	<b>12</b>
	<b>Total Block Parking</b>	<b>38</b>	<b>12</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		0.0%
	Total Off-Street Parking Occupancy %		0.0%
	Total On-Street Parking Occupancy %		31.6%
<b>Total Parking Occupancy %</b>		<b>31.6%</b>	
<hr/>			
Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
3	Off-Street Public	0	0
	Off-Street Private	0	0
	<b>Total Off-Street</b>	<b>0</b>	<b>0</b>
	On-Street North	11	5
	On-Street South	8	7
	On-Street East	7	5
	On-Street West	10	3
	<b>Total On-Street</b>	<b>36</b>	<b>20</b>
	<b>Total Block Parking</b>	<b>36</b>	<b>20</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		0.0%
	Total Off-Street Parking Occupancy %		0.0%
	Total On-Street Parking Occupancy %		55.6%
<b>Total Parking Occupancy %</b>		<b>55.6%</b>	



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
4	Off-Street Public	0	0
	Off-Street Private	34	6
	<b>Total Off-Street</b>	<b>34</b>	<b>6</b>
	On-Street North	0	0
	On-Street South	12	9
	On-Street East	9	8
	On-Street West	0	0
	<b>Total On-Street</b>	<b>21</b>	<b>17</b>
	<b>Total Block Parking</b>	<b>55</b>	<b>23</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		17.6%
	Total Off-Street Parking Occupancy %		17.6%
	Total On-Street Parking Occupancy %		81.0%
<b>Total Parking Occupancy %</b>		<b>41.8%</b>	
<b>Block #</b>			
Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
5	Off-Street Public	0	0
	Off-Street Private	58	37
	<b>Total Off-Street</b>	<b>58</b>	<b>37</b>
	On-Street North	0	0
	On-Street South	13	10
	On-Street East	13	12
	On-Street West	11	10
	<b>Total On-Street</b>	<b>37</b>	<b>32</b>
	<b>Total Block Parking</b>	<b>95</b>	<b>69</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		63.8%
	Total Off-Street Parking Occupancy %		63.8%
	Total On-Street Parking Occupancy %		86.5%
<b>Total Parking Occupancy %</b>		<b>72.6%</b>	
<b>Block #</b>			
Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
6	Off-Street Public	0	0
	Off-Street Private	124	58
	<b>Total Off-Street</b>	<b>124</b>	<b>58</b>
	On-Street North	0	0
	On-Street South	9	10
	On-Street East	10	11
	On-Street West	9	2
	<b>Total On-Street</b>	<b>28</b>	<b>23</b>
	<b>Total Block Parking</b>	<b>152</b>	<b>81</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		46.8%
	Total Off-Street Parking Occupancy %		46.8%
	Total On-Street Parking Occupancy %		82.1%
<b>Total Parking Occupancy %</b>		<b>53.3%</b>	



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
7	Off-Street Public	0	0
	Off-Street Private	78	79
	<b>Total Off-Street</b>	<b>78</b>	<b>79</b>
	On-Street North	0	0
	On-Street South	8	1
	On-Street East	13	1
	On-Street West	11	6
	<b>Total On-Street</b>	<b>32</b>	<b>8</b>
	<b>Total Block Parking</b>	<b>110</b>	<b>87</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		101.3%
	Total Off-Street Parking Occupancy %		101.3%
	Total On-Street Parking Occupancy %		25.0%
	<b>Total Parking Occupancy %</b>		<b>79.1%</b>
<b>Block # 8</b>			
8	Off-Street Public	0	0
	Off-Street Private	432	389
	<b>Total Off-Street</b>	<b>432</b>	<b>389</b>
	On-Street North	0	0
	On-Street South	0	0
	On-Street East	12	8
	On-Street West	20	20
	<b>Total On-Street</b>	<b>32</b>	<b>28</b>
	<b>Total Block Parking</b>	<b>464</b>	<b>417</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		90.0%
	Total Off-Street Parking Occupancy %		90.0%
	Total On-Street Parking Occupancy %		87.5%
	<b>Total Parking Occupancy %</b>		<b>89.9%</b>
<b>Block # 9</b>			
9	Off-Street Public	0	0
	Off-Street Private	315	271
	<b>Total Off-Street</b>	<b>315</b>	<b>271</b>
	On-Street North	0	0
	On-Street South	3	0
	On-Street East	22	10
	On-Street West	12	7
	<b>Total On-Street</b>	<b>37</b>	<b>17</b>
	<b>Total Block Parking</b>	<b>352</b>	<b>288</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		86.0%
	Total Off-Street Parking Occupancy %		86.0%
	Total On-Street Parking Occupancy %		45.9%
	<b>Total Parking Occupancy %</b>		<b>81.8%</b>



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
10	Off-Street Public	0	0
	Off-Street Private	27	18
	<b>Total Off-Street</b>	<b>27</b>	<b>18</b>
	On-Street North	0	0
	On-Street South	11	12
	On-Street East	12	8
	On-Street West	3	3
	<b>Total On-Street</b>	<b>26</b>	<b>23</b>
	<b>Total Block Parking</b>	<b>53</b>	<b>41</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		66.7%
	Total Off-Street Parking Occupancy %		66.7%
	Total On-Street Parking Occupancy %		88.5%
	<b>Total Parking Occupancy %</b>		<b>77.4%</b>
<b>Block #</b>			
11	Off-Street Public	0	0
	Off-Street Private	255	178
	<b>Total Off-Street</b>	<b>255</b>	<b>178</b>
	On-Street North	0	0
	On-Street South	0	0
	On-Street East	12	1
	On-Street West	0	0
	<b>Total On-Street</b>	<b>12</b>	<b>1</b>
	<b>Total Block Parking</b>	<b>267</b>	<b>179</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		69.8%
	Total Off-Street Parking Occupancy %		69.8%
	Total On-Street Parking Occupancy %		8.3%
	<b>Total Parking Occupancy %</b>		<b>67.0%</b>
<b>Block #</b>			
12	Off-Street Public	0	0
	Off-Street Private	0	0
	<b>Total Off-Street</b>	<b>0</b>	<b>0</b>
	On-Street North	5	5
	On-Street South	0	0
	On-Street East	14	8
	On-Street West	0	0
	<b>Total On-Street</b>	<b>19</b>	<b>13</b>
	<b>Total Block Parking</b>	<b>19</b>	<b>13</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		0.0%
	Total Off-Street Parking Occupancy %		0.0%
	Total On-Street Parking Occupancy %		68.4%
	<b>Total Parking Occupancy %</b>		<b>68.4%</b>



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
13	Off-Street Public	0	0
	Off-Street Private	0	0
	<b>Total Off-Street</b>	<b>0</b>	<b>0</b>
	On-Street North	7	1
	On-Street South	9	8
	On-Street East	9	4
	On-Street West	10	4
	<b>Total On-Street</b>	<b>35</b>	<b>17</b>
	<b>Total Block Parking</b>	<b>35</b>	<b>17</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		0.0%
	Total Off-Street Parking Occupancy %		0.0%
	Total On-Street Parking Occupancy %		48.6%
<b>Total Parking Occupancy %</b>		<b>48.6%</b>	
<b>Block # 14</b>			
14	Off-Street Public	0	0
	Off-Street Private	0	0
	<b>Total Off-Street</b>	<b>0</b>	<b>0</b>
	On-Street North	13	1
	On-Street South	11	1
	On-Street East	0	0
	On-Street West	0	0
	<b>Total On-Street</b>	<b>24</b>	<b>2</b>
	<b>Total Block Parking</b>	<b>24</b>	<b>2</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		0.0%
	Total Off-Street Parking Occupancy %		0.0%
	Total On-Street Parking Occupancy %		8.3%
<b>Total Parking Occupancy %</b>		<b>8.3%</b>	
<b>Block # 15</b>			
15	Off-Street Public	0	0
	Off-Street Private	0	0
	<b>Total Off-Street</b>	<b>0</b>	<b>0</b>
	On-Street North	0	0
	On-Street South	8	0
	On-Street East	0	0
	On-Street West	5	1
	<b>Total On-Street</b>	<b>13</b>	<b>1</b>
	<b>Total Block Parking</b>	<b>13</b>	<b>1</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		0.0%
	Total Off-Street Parking Occupancy %		0.0%
	Total On-Street Parking Occupancy %		7.7%
<b>Total Parking Occupancy %</b>		<b>7.7%</b>	



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
16	Off-Street Public	0	0
	Off-Street Private	46	16
	<b>Total Off-Street</b>	<b>46</b>	<b>16</b>
	On-Street North	0	0
	On-Street South	10	9
	On-Street East	11	2
	On-Street West	10	5
	<b>Total On-Street</b>	<b>31</b>	<b>16</b>
	<b>Total Block Parking</b>	<b>77</b>	<b>32</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		34.8%
	Total Off-Street Parking Occupancy %		34.8%
	Total On-Street Parking Occupancy %		51.6%
<b>Total Parking Occupancy %</b>		<b>41.6%</b>	
<b>Block # 17</b>			
17	Off-Street Public	0	0
	Off-Street Private	76	41
	<b>Total Off-Street</b>	<b>76</b>	<b>41</b>
	On-Street North	2	0
	On-Street South	9	4
	On-Street East	10	3
	On-Street West	6	3
	<b>Total On-Street</b>	<b>27</b>	<b>10</b>
	<b>Total Block Parking</b>	<b>103</b>	<b>51</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		53.9%
	Total Off-Street Parking Occupancy %		53.9%
	Total On-Street Parking Occupancy %		37.0%
<b>Total Parking Occupancy %</b>		<b>49.5%</b>	
<b>Block # 18</b>			
18	Off-Street Public	0	0
	Off-Street Private	127	85
	<b>Total Off-Street</b>	<b>127</b>	<b>85</b>
	On-Street North	10	10
	On-Street South	9	4
	On-Street East	8	2
	On-Street West	7	4
	<b>Total On-Street</b>	<b>34</b>	<b>20</b>
	<b>Total Block Parking</b>	<b>161</b>	<b>105</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		66.9%
	Total Off-Street Parking Occupancy %		66.9%
	Total On-Street Parking Occupancy %		58.8%
<b>Total Parking Occupancy %</b>		<b>65.2%</b>	



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
19	Off-Street Public	0	0
	Off-Street Private	180	128
	<b>Total Off-Street</b>	<b>180</b>	<b>128</b>
	On-Street North	10	10
	On-Street South	9	4
	On-Street East	8	2
	On-Street West	10	3
	<b>Total On-Street</b>	<b>37</b>	<b>19</b>
	<b>Total Block Parking</b>	<b>217</b>	<b>147</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		71.1%
	Total Off-Street Parking Occupancy %		71.1%
	Total On-Street Parking Occupancy %		51.4%
<b>Total Parking Occupancy %</b>		<b>67.7%</b>	
<b>Block # 20</b>			
20	Off-Street Public	0	0
	Off-Street Private	108	68
	<b>Total Off-Street</b>	<b>108</b>	<b>68</b>
	On-Street North	8	9
	On-Street South	0	0
	On-Street East	4	4
	On-Street West	7	2
	<b>Total On-Street</b>	<b>19</b>	<b>15</b>
	<b>Total Block Parking</b>	<b>127</b>	<b>83</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		63.0%
	Total Off-Street Parking Occupancy %		63.0%
	Total On-Street Parking Occupancy %		78.9%
<b>Total Parking Occupancy %</b>		<b>65.4%</b>	
<b>Block # 21</b>			
21	Off-Street Public	0	0
	Off-Street Private	85	66
	<b>Total Off-Street</b>	<b>85</b>	<b>66</b>
	On-Street North	10	10
	On-Street South	6	0
	On-Street East	0	0
	On-Street West	8	1
	<b>Total On-Street</b>	<b>24</b>	<b>11</b>
	<b>Total Block Parking</b>	<b>109</b>	<b>77</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		77.6%
	Total Off-Street Parking Occupancy %		77.6%
	Total On-Street Parking Occupancy %		45.8%
<b>Total Parking Occupancy %</b>		<b>70.6%</b>	



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
22	Off-Street Public	0	0
	Off-Street Private	118	69
	<b>Total Off-Street</b>	<b>118</b>	<b>69</b>
	On-Street North	0	0
	On-Street South	3	0
	On-Street East	0	0
	On-Street West	0	0
	<b>Total On-Street</b>	<b>3</b>	<b>0</b>
	<b>Total Block Parking</b>	<b>121</b>	<b>69</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		58.5%
	Total Off-Street Parking Occupancy %		58.5%
	Total On-Street Parking Occupancy %		0.0%
	<b>Total Parking Occupancy %</b>		<b>57.0%</b>
<b>Block # 23</b>			
23	Off-Street Public	0	0
	Off-Street Private	74	51
	<b>Total Off-Street</b>	<b>74</b>	<b>51</b>
	On-Street North	6	0
	On-Street South	0	0
	On-Street East	0	0
	On-Street West	5	4
	<b>Total On-Street</b>	<b>11</b>	<b>4</b>
	<b>Total Block Parking</b>	<b>85</b>	<b>55</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		68.9%
	Total Off-Street Parking Occupancy %		68.9%
	Total On-Street Parking Occupancy %		36.4%
	<b>Total Parking Occupancy %</b>		<b>64.7%</b>
<b>Block # 24</b>			
24	Off-Street Public	0	0
	Off-Street Private	0	0
	<b>Total Off-Street</b>	<b>0</b>	<b>0</b>
	On-Street North	10	7
	On-Street South	10	0
	On-Street East	12	3
	On-Street West	11	0
	<b>Total On-Street</b>	<b>43</b>	<b>10</b>
	<b>Total Block Parking</b>	<b>43</b>	<b>10</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		0.0%
	Total Off-Street Parking Occupancy %		0.0%
	Total On-Street Parking Occupancy %		23.3%
	<b>Total Parking Occupancy %</b>		<b>23.3%</b>



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
25	Off-Street Public	0	0
	Off-Street Private	160	67
	<b>Total Off-Street</b>	<b>160</b>	<b>67</b>
	On-Street North	15	4
	On-Street South	17	1
	On-Street East	8	4
	On-Street West	0	0
	<b>Total On-Street</b>	<b>40</b>	<b>9</b>
	<b>Total Block Parking</b>	<b>200</b>	<b>76</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		41.9%
	Total Off-Street Parking Occupancy %		41.9%
	Total On-Street Parking Occupancy %		22.5%
	<b>Total Parking Occupancy %</b>		<b>38.0%</b>
<b>Block #</b>			
26	Off-Street Public	0	0
	Off-Street Private	153	75
	<b>Total Off-Street</b>	<b>153</b>	<b>75</b>
	On-Street North	10	8
	On-Street South	8	1
	On-Street East	10	7
	On-Street West	10	2
	<b>Total On-Street</b>	<b>38</b>	<b>18</b>
	<b>Total Block Parking</b>	<b>191</b>	<b>93</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		49.0%
	Total Off-Street Parking Occupancy %		49.0%
	Total On-Street Parking Occupancy %		47.4%
	<b>Total Parking Occupancy %</b>		<b>48.7%</b>
<b>Block #</b>			
27	Off-Street Public	0	0
	Off-Street Private	93	35
	<b>Total Off-Street</b>	<b>93</b>	<b>35</b>
	On-Street North	9	9
	On-Street South	6	0
	On-Street East	9	8
	On-Street West	9	7
	<b>Total On-Street</b>	<b>33</b>	<b>24</b>
	<b>Total Block Parking</b>	<b>126</b>	<b>59</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		37.6%
	Total Off-Street Parking Occupancy %		37.6%
	Total On-Street Parking Occupancy %		72.7%
	<b>Total Parking Occupancy %</b>		<b>46.8%</b>



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
28	Off-Street Public	0	0
	Off-Street Private	95	36
	<b>Total Off-Street</b>	<b>95</b>	<b>36</b>
	On-Street North	6	3
	On-Street South	8	3
	On-Street East	7	1
	On-Street West	7	7
	<b>Total On-Street</b>	<b>28</b>	<b>14</b>
	<b>Total Block Parking</b>	<b>123</b>	<b>50</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		37.9%
	Total Off-Street Parking Occupancy %		37.9%
	Total On-Street Parking Occupancy %		50.0%
	<b>Total Parking Occupancy %</b>		<b>40.7%</b>
<b>Block # 29</b>			
29	Off-Street Public	61	28
	Off-Street Private	102	102
	<b>Total Off-Street</b>	<b>163</b>	<b>130</b>
	On-Street North	6	0
	On-Street South	8	4
	On-Street East	6	6
	On-Street West	9	3
	<b>Total On-Street</b>	<b>29</b>	<b>13</b>
	<b>Total Block Parking</b>	<b>192</b>	<b>143</b>
	Off-Street Public Parking Occupancy %		45.9%
	Off-Street Private Parking Occupancy %		100.0%
	Total Off-Street Parking Occupancy %		79.8%
	Total On-Street Parking Occupancy %		44.8%
	<b>Total Parking Occupancy %</b>		<b>74.5%</b>
<b>Block # 30</b>			
30	Off-Street Public	0	0
	Off-Street Private	146	113
	<b>Total Off-Street</b>	<b>146</b>	<b>113</b>
	On-Street North	6	3
	On-Street South	1	0
	On-Street East	12	6
	On-Street West	8	5
	<b>Total On-Street</b>	<b>27</b>	<b>14</b>
	<b>Total Block Parking</b>	<b>173</b>	<b>127</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		77.4%
	Total Off-Street Parking Occupancy %		77.4%
	Total On-Street Parking Occupancy %		51.9%
	<b>Total Parking Occupancy %</b>		<b>73.4%</b>



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
31	Off-Street Public	0	0
	Off-Street Private	121	85
	<b>Total Off-Street</b>	<b>121</b>	<b>85</b>
	On-Street North	0	0
	On-Street South	2	0
	On-Street East	9	9
	On-Street West	12	2
	<b>Total On-Street</b>	<b>23</b>	<b>11</b>
	<b>Total Block Parking</b>	<b>144</b>	<b>96</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		70.2%
	Total Off-Street Parking Occupancy %		70.2%
	Total On-Street Parking Occupancy %		47.8%
	<b>Total Parking Occupancy %</b>		<b>66.7%</b>
32	Off-Street Public	0	0
	Off-Street Private	103	79
	<b>Total Off-Street</b>	<b>103</b>	<b>79</b>
	On-Street North	0	0
	On-Street South	4	4
	On-Street East	0	0
	On-Street West	9	4
	<b>Total On-Street</b>	<b>13</b>	<b>8</b>
	<b>Total Block Parking</b>	<b>116</b>	<b>87</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		76.7%
	Total Off-Street Parking Occupancy %		76.7%
	Total On-Street Parking Occupancy %		61.5%
	<b>Total Parking Occupancy %</b>		<b>75.0%</b>
33	Off-Street Public	0	0
	Off-Street Private	179	109
	<b>Total Off-Street</b>	<b>179</b>	<b>109</b>
	On-Street North	8	0
	On-Street South	10	7
	On-Street East	9	4
	On-Street West	0	0
	<b>Total On-Street</b>	<b>27</b>	<b>11</b>
	<b>Total Block Parking</b>	<b>206</b>	<b>120</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		60.9%
	Total Off-Street Parking Occupancy %		60.9%
	Total On-Street Parking Occupancy %		40.7%
	<b>Total Parking Occupancy %</b>		<b>58.3%</b>



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
34	Off-Street Public	0	0
	Off-Street Private	144	105
	<b>Total Off-Street</b>	<b>144</b>	<b>105</b>
	On-Street North	3	0
	On-Street South	11	4
	On-Street East	0	0
	On-Street West	7	7
	<b>Total On-Street</b>	<b>21</b>	<b>11</b>
	<b>Total Block Parking</b>	<b>165</b>	<b>116</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		72.9%
	Total Off-Street Parking Occupancy %		72.9%
	Total On-Street Parking Occupancy %		52.4%
	<b>Total Parking Occupancy %</b>		<b>70.3%</b>
<b>Block # 35</b>			
35	Off-Street Public	0	0
	Off-Street Private	387	269
	<b>Total Off-Street</b>	<b>387</b>	<b>269</b>
	On-Street North	7	0
	On-Street South	11	5
	On-Street East	0	0
	On-Street West	0	0
	<b>Total On-Street</b>	<b>18</b>	<b>5</b>
	<b>Total Block Parking</b>	<b>405</b>	<b>274</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		69.5%
	Total Off-Street Parking Occupancy %		69.5%
	Total On-Street Parking Occupancy %		27.8%
	<b>Total Parking Occupancy %</b>		<b>67.7%</b>
<b>Block # 36</b>			
36	Off-Street Public	0	0
	Off-Street Private	14	8
	<b>Total Off-Street</b>	<b>14</b>	<b>8</b>
	On-Street North	6	2
	On-Street South	7	0
	On-Street East	0	0
	On-Street West	0	0
	<b>Total On-Street</b>	<b>13</b>	<b>2</b>
	<b>Total Block Parking</b>	<b>27</b>	<b>10</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		57.1%
	Total Off-Street Parking Occupancy %		57.1%
	Total On-Street Parking Occupancy %		15.4%
	<b>Total Parking Occupancy %</b>		<b>37.0%</b>



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
37	Off-Street Public	0	0
	Off-Street Private	39	17
	<b>Total Off-Street</b>	<b>39</b>	<b>17</b>
	On-Street North	9	3
	On-Street South	6	1
	On-Street East	0	0
	On-Street West	0	0
	<b>Total On-Street</b>	<b>15</b>	<b>4</b>
	<b>Total Block Parking</b>	<b>54</b>	<b>21</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		43.6%
	Total Off-Street Parking Occupancy %		43.6%
	Total On-Street Parking Occupancy %		26.7%
<b>Total Parking Occupancy %</b>		<b>38.9%</b>	
<b>Block # 38</b>			
38	Off-Street Public	0	0
	Off-Street Private	140	23
	<b>Total Off-Street</b>	<b>140</b>	<b>23</b>
	On-Street North	0	0
	On-Street South	6	1
	On-Street East	10	0
	On-Street West	6	0
	<b>Total On-Street</b>	<b>22</b>	<b>1</b>
	<b>Total Block Parking</b>	<b>162</b>	<b>24</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		16.4%
	Total Off-Street Parking Occupancy %		16.4%
	Total On-Street Parking Occupancy %		4.5%
<b>Total Parking Occupancy %</b>		<b>14.8%</b>	
<b>Block # 39</b>			
39	Off-Street Public	0	0
	Off-Street Private	96	42
	<b>Total Off-Street</b>	<b>96</b>	<b>42</b>
	On-Street North	10	8
	On-Street South	7	4
	On-Street East	6	3
	On-Street West	9	7
	<b>Total On-Street</b>	<b>32</b>	<b>22</b>
	<b>Total Block Parking</b>	<b>128</b>	<b>64</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		43.8%
	Total Off-Street Parking Occupancy %		43.8%
	Total On-Street Parking Occupancy %		68.8%
<b>Total Parking Occupancy %</b>		<b>50.0%</b>	



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
40	Off-Street Public	0	0
	Off-Street Private	113	62
	<b>Total Off-Street</b>	<b>113</b>	<b>62</b>
	On-Street North	5	2
	On-Street South	11	7
	On-Street East	9	3
	On-Street West	9	2
	<b>Total On-Street</b>	<b>34</b>	<b>14</b>
	<b>Total Block Parking</b>	<b>147</b>	<b>76</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		54.9%
	Total Off-Street Parking Occupancy %		54.9%
	Total On-Street Parking Occupancy %		41.2%
	<b>Total Parking Occupancy %</b>		<b>51.7%</b>
<b>Block #</b>			
Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
41	Off-Street Public	0	0
	Off-Street Private	41	29
	<b>Total Off-Street</b>	<b>41</b>	<b>29</b>
	On-Street North	12	7
	On-Street South	11	9
	On-Street East	1	2
	On-Street West	8	4
	<b>Total On-Street</b>	<b>32</b>	<b>22</b>
	<b>Total Block Parking</b>	<b>73</b>	<b>51</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		70.7%
	Total Off-Street Parking Occupancy %		70.7%
	Total On-Street Parking Occupancy %		68.8%
	<b>Total Parking Occupancy %</b>		<b>69.9%</b>
<b>Block #</b>			
Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
42	Off-Street Public	0	0
	Off-Street Private	105	80
	<b>Total Off-Street</b>	<b>105</b>	<b>80</b>
	On-Street North	6	8
	On-Street South	18	16
	On-Street East	9	7
	On-Street West	16	15
	<b>Total On-Street</b>	<b>49</b>	<b>46</b>
	<b>Total Block Parking</b>	<b>154</b>	<b>126</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		76.2%
	Total Off-Street Parking Occupancy %		76.2%
	Total On-Street Parking Occupancy %		93.9%
	<b>Total Parking Occupancy %</b>		<b>81.8%</b>



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
43	Off-Street Public	0	0
	Off-Street Private	144	109
	<b>Total Off-Street</b>	<b>144</b>	<b>109</b>
	On-Street North	16	10
	On-Street South	14	13
	On-Street East	20	19
	On-Street West	10	6
	<b>Total On-Street</b>	<b>60</b>	<b>48</b>
	<b>Total Block Parking</b>	<b>204</b>	<b>157</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		75.7%
	Total Off-Street Parking Occupancy %		75.7%
	Total On-Street Parking Occupancy %		80.0%
	<b>Total Parking Occupancy %</b>		<b>77.0%</b>
<b>Block #</b>			
Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
44	Off-Street Public	0	0
	Off-Street Private	118	122
	<b>Total Off-Street</b>	<b>118</b>	<b>122</b>
	On-Street North	11	10
	On-Street South	5	0
	On-Street East	7	4
	On-Street West	0	0
	<b>Total On-Street</b>	<b>23</b>	<b>14</b>
	<b>Total Block Parking</b>	<b>141</b>	<b>136</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		103.4%
	Total Off-Street Parking Occupancy %		103.4%
	Total On-Street Parking Occupancy %		60.9%
	<b>Total Parking Occupancy %</b>		<b>96.5%</b>
<b>Block #</b>			
Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
45	Off-Street Public	0	0
	Off-Street Private	61	42
	<b>Total Off-Street</b>	<b>61</b>	<b>42</b>
	On-Street North	10	8
	On-Street South	7	9
	On-Street East	0	0
	On-Street West	15	12
	<b>Total On-Street</b>	<b>32</b>	<b>29</b>
	<b>Total Block Parking</b>	<b>93</b>	<b>71</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		68.9%
	Total Off-Street Parking Occupancy %		68.9%
	Total On-Street Parking Occupancy %		90.6%
	<b>Total Parking Occupancy %</b>		<b>76.3%</b>



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
46	Off-Street Public	0	0
	Off-Street Private	21	0
	<b>Total Off-Street</b>	<b>21</b>	<b>0</b>
	On-Street North	8	1
	On-Street South	0	0
	On-Street East	0	0
	On-Street West	8	10
	<b>Total On-Street</b>	<b>16</b>	<b>11</b>
	<b>Total Block Parking</b>	<b>37</b>	<b>11</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		0.0%
	Total Off-Street Parking Occupancy %		0.0%
	Total On-Street Parking Occupancy %		68.8%
	<b>Total Parking Occupancy %</b>		<b>29.7%</b>
<b>Block # 47</b>			
47	Off-Street Public	0	0
	Off-Street Private	112	54
	<b>Total Off-Street</b>	<b>112</b>	<b>54</b>
	On-Street North	10	0
	On-Street South	8	2
	On-Street East	9	2
	On-Street West	0	0
	<b>Total On-Street</b>	<b>27</b>	<b>4</b>
	<b>Total Block Parking</b>	<b>139</b>	<b>58</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		48.2%
	Total Off-Street Parking Occupancy %		48.2%
	Total On-Street Parking Occupancy %		14.8%
	<b>Total Parking Occupancy %</b>		<b>41.7%</b>
<b>Block # 48</b>			
48	Off-Street Public	0	0
	Off-Street Private	63	30
	<b>Total Off-Street</b>	<b>63</b>	<b>30</b>
	On-Street North	8	1
	On-Street South	8	3
	On-Street East	7	0
	On-Street West	8	0
	<b>Total On-Street</b>	<b>31</b>	<b>4</b>
	<b>Total Block Parking</b>	<b>94</b>	<b>34</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		47.6%
	Total Off-Street Parking Occupancy %		47.6%
	Total On-Street Parking Occupancy %		12.9%
	<b>Total Parking Occupancy %</b>		<b>36.2%</b>



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
49	Off-Street Public	0	0
	Off-Street Private	108	86
	<b>Total Off-Street</b>	<b>108</b>	<b>86</b>
	On-Street North	8	5
	On-Street South	8	7
	On-Street East	7	1
	On-Street West	4	1
	<b>Total On-Street</b>	<b>27</b>	<b>14</b>
	<b>Total Block Parking</b>	<b>135</b>	<b>100</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		79.6%
	Total Off-Street Parking Occupancy %		79.6%
	Total On-Street Parking Occupancy %		51.9%
	<b>Total Parking Occupancy %</b>		<b>74.1%</b>
<b>Block # 50</b>			
50	Off-Street Public	0	0
	Off-Street Private	73	45
	<b>Total Off-Street</b>	<b>73</b>	<b>45</b>
	On-Street North	9	8
	On-Street South	6	2
	On-Street East	3	1
	On-Street West	7	2
	<b>Total On-Street</b>	<b>25</b>	<b>13</b>
	<b>Total Block Parking</b>	<b>98</b>	<b>58</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		61.6%
	Total Off-Street Parking Occupancy %		61.6%
	Total On-Street Parking Occupancy %		52.0%
	<b>Total Parking Occupancy %</b>		<b>59.2%</b>
<b>Block # 51</b>			
51	Off-Street Public	455	192
	Off-Street Private	0	0
	<b>Total Off-Street</b>	<b>455</b>	<b>192</b>
	On-Street North	9	9
	On-Street South	4	3
	On-Street East	15	10
	On-Street West	0	0
	<b>Total On-Street</b>	<b>28</b>	<b>22</b>
	<b>Total Block Parking</b>	<b>483</b>	<b>214</b>
	Off-Street Public Parking Occupancy %		42.2%
	Off-Street Private Parking Occupancy %		0.0%
	Total Off-Street Parking Occupancy %		42.2%
	Total On-Street Parking Occupancy %		78.6%
	<b>Total Parking Occupancy %</b>		<b>44.3%</b>



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
52	Off-Street Public	0	0
	Off-Street Private	5	6
	<b>Total Off-Street</b>	<b>5</b>	<b>6</b>
	On-Street North	2	0
	On-Street South	9	4
	On-Street East	11	8
	On-Street West	9	4
	<b>Total On-Street</b>	<b>31</b>	<b>16</b>
	<b>Total Block Parking</b>	<b>36</b>	<b>22</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		120.0%
	Total Off-Street Parking Occupancy %		120.0%
	Total On-Street Parking Occupancy %		51.6%
	<b>Total Parking Occupancy %</b>		<b>61.1%</b>
<b>Block # 53</b>			
53	Off-Street Public	432	212
	Off-Street Private	0	0
	<b>Total Off-Street</b>	<b>432</b>	<b>212</b>
	On-Street North	5	1
	On-Street South	10	6
	On-Street East	8	7
	On-Street West	10	9
	<b>Total On-Street</b>	<b>33</b>	<b>23</b>
	<b>Total Block Parking</b>	<b>465</b>	<b>235</b>
	Off-Street Public Parking Occupancy %		49.1%
	Off-Street Private Parking Occupancy %		0.0%
	Total Off-Street Parking Occupancy %		49.1%
	Total On-Street Parking Occupancy %		69.7%
	<b>Total Parking Occupancy %</b>		<b>50.5%</b>
<b>Block # 54</b>			
54	Off-Street Public	282	94
	Off-Street Private	0	0
	<b>Total Off-Street</b>	<b>282</b>	<b>94</b>
	On-Street North	1	0
	On-Street South	0	0
	On-Street East	0	0
	On-Street West	9	6
	<b>Total On-Street</b>	<b>10</b>	<b>6</b>
	<b>Total Block Parking</b>	<b>292</b>	<b>100</b>
	Off-Street Public Parking Occupancy %		33.3%
	Off-Street Private Parking Occupancy %		0.0%
	Total Off-Street Parking Occupancy %		33.3%
	Total On-Street Parking Occupancy %		60.0%
	<b>Total Parking Occupancy %</b>		<b>34.2%</b>



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
55	Off-Street Public	0	0
	Off-Street Private	308	196
	<b>Total Off-Street</b>	<b>308</b>	<b>196</b>
	On-Street North	0	0
	On-Street South	0	0
	On-Street East	0	0
	On-Street West	0	0
	<b>Total On-Street</b>	<b>0</b>	<b>0</b>
	<b>Total Block Parking</b>	<b>308</b>	<b>196</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		63.6%
	Total Off-Street Parking Occupancy %		63.6%
	Total On-Street Parking Occupancy %		0.0%
<b>Total Parking Occupancy %</b>		<b>63.6%</b>	
<b>Block # 56</b>			
56	Off-Street Public	0	0
	Off-Street Private	779	622
	<b>Total Off-Street</b>	<b>779</b>	<b>622</b>
	On-Street North	21	10
	On-Street South	0	0
	On-Street East	0	0
	On-Street West	0	0
	<b>Total On-Street</b>	<b>21</b>	<b>10</b>
	<b>Total Block Parking</b>	<b>800</b>	<b>632</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		79.8%
	Total Off-Street Parking Occupancy %		79.8%
	Total On-Street Parking Occupancy %		47.6%
<b>Total Parking Occupancy %</b>		<b>79.0%</b>	
<b>Block # 57</b>			
57	Off-Street Public	0	0
	Off-Street Private	530	98
	<b>Total Off-Street</b>	<b>530</b>	<b>98</b>
	On-Street North	17	11
	On-Street South	18	1
	On-Street East	0	0
	On-Street West	0	0
	<b>Total On-Street</b>	<b>35</b>	<b>12</b>
	<b>Total Block Parking</b>	<b>565</b>	<b>110</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		18.5%
	Total Off-Street Parking Occupancy %		18.5%
	Total On-Street Parking Occupancy %		34.3%
<b>Total Parking Occupancy %</b>		<b>19.5%</b>	



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
58	Off-Street Public	0	0
	Off-Street Private	290	109
	<b>Total Off-Street</b>	<b>290</b>	<b>109</b>
	On-Street North	21	4
	On-Street South	5	0
	On-Street East	0	0
	On-Street West	6	0
	<b>Total On-Street</b>	<b>32</b>	<b>4</b>
	<b>Total Block Parking</b>	<b>322</b>	<b>113</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		37.6%
	Total Off-Street Parking Occupancy %		37.6%
	Total On-Street Parking Occupancy %		12.5%
<b>Total Parking Occupancy %</b>		<b>35.1%</b>	
<b>Block # 59</b>			
59	Off-Street Public	0	0
	Off-Street Private	302	134
	<b>Total Off-Street</b>	<b>302</b>	<b>134</b>
	On-Street North	9	0
	On-Street South	0	0
	On-Street East	0	0
	On-Street West	0	0
	<b>Total On-Street</b>	<b>9</b>	<b>0</b>
	<b>Total Block Parking</b>	<b>311</b>	<b>134</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		44.4%
	Total Off-Street Parking Occupancy %		44.4%
	Total On-Street Parking Occupancy %		0.0%
<b>Total Parking Occupancy %</b>		<b>43.1%</b>	
<b>Block # 60</b>			
60	Off-Street Public	0	0
	Off-Street Private	166	79
	<b>Total Off-Street</b>	<b>166</b>	<b>79</b>
	On-Street North	0	0
	On-Street South	0	0
	On-Street East	0	0
	On-Street West	0	0
	<b>Total On-Street</b>	<b>0</b>	<b>0</b>
	<b>Total Block Parking</b>	<b>166</b>	<b>79</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		47.6%
	Total Off-Street Parking Occupancy %		47.6%
	Total On-Street Parking Occupancy %		0.0%
<b>Total Parking Occupancy %</b>		<b>47.6%</b>	



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
61	Off-Street Public	0	0
	Off-Street Private	79	49
	<b>Total Off-Street</b>	<b>79</b>	<b>49</b>
	On-Street North	0	0
	On-Street South	0	0
	On-Street East	0	0
	On-Street West	0	0
	<b>Total On-Street</b>	<b>0</b>	<b>0</b>
	<b>Total Block Parking</b>	<b>79</b>	<b>49</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		62.0%
	Total Off-Street Parking Occupancy %		62.0%
	Total On-Street Parking Occupancy %		0.0%
	<b>Total Parking Occupancy %</b>		<b>62.0%</b>
<b>Block # 62</b>			
62	Off-Street Public	0	0
	Off-Street Private	95	26
	<b>Total Off-Street</b>	<b>95</b>	<b>26</b>
	On-Street North	7	1
	On-Street South	11	8
	On-Street East	6	1
	On-Street West	0	0
	<b>Total On-Street</b>	<b>24</b>	<b>10</b>
	<b>Total Block Parking</b>	<b>119</b>	<b>36</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		27.4%
	Total Off-Street Parking Occupancy %		27.4%
	Total On-Street Parking Occupancy %		41.7%
	<b>Total Parking Occupancy %</b>		<b>30.3%</b>
<b>Block # 63</b>			
63	Off-Street Public	0	0
	Off-Street Private	58	32
	<b>Total Off-Street</b>	<b>58</b>	<b>32</b>
	On-Street North	0	0
	On-Street South	9	2
	On-Street East	7	2
	On-Street West	7	3
	<b>Total On-Street</b>	<b>23</b>	<b>7</b>
	<b>Total Block Parking</b>	<b>81</b>	<b>39</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		55.2%
	Total Off-Street Parking Occupancy %		55.2%
	Total On-Street Parking Occupancy %		30.4%
	<b>Total Parking Occupancy %</b>		<b>48.1%</b>



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
64	Off-Street Public	0	0
	Off-Street Private	60	17
	<b>Total Off-Street</b>	<b>60</b>	<b>17</b>
	On-Street North	11	10
	On-Street South	4	1
	On-Street East	8	6
	On-Street West	7	3
	<b>Total On-Street</b>	<b>30</b>	<b>20</b>
	<b>Total Block Parking</b>	<b>90</b>	<b>37</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		28.3%
	Total Off-Street Parking Occupancy %		28.3%
	Total On-Street Parking Occupancy %		66.7%
	<b>Total Parking Occupancy %</b>		<b>41.1%</b>
<b>Block # 65</b>			
65	Off-Street Public	0	0
	Off-Street Private	140	30
	<b>Total Off-Street</b>	<b>140</b>	<b>30</b>
	On-Street North	5	1
	On-Street South	0	3
	On-Street East	0	0
	On-Street West	9	6
	<b>Total On-Street</b>	<b>14</b>	<b>10</b>
	<b>Total Block Parking</b>	<b>154</b>	<b>40</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		21.4%
	Total Off-Street Parking Occupancy %		21.4%
	Total On-Street Parking Occupancy %		71.4%
	<b>Total Parking Occupancy %</b>		<b>26.0%</b>
<b>Block # 66</b>			
66	Off-Street Public	0	0
	Off-Street Private	99	43
	<b>Total Off-Street</b>	<b>99</b>	<b>43</b>
	On-Street North	4	6
	On-Street South	12	10
	On-Street East	0	0
	On-Street West	0	0
	<b>Total On-Street</b>	<b>16</b>	<b>16</b>
	<b>Total Block Parking</b>	<b>115</b>	<b>59</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		43.4%
	Total Off-Street Parking Occupancy %		43.4%
	Total On-Street Parking Occupancy %		100.0%
	<b>Total Parking Occupancy %</b>		<b>51.3%</b>



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
67	Off-Street Public	0	0
	Off-Street Private	132	37
	<b>Total Off-Street</b>	<b>132</b>	<b>37</b>
	On-Street North	0	0
	On-Street South	0	0
	On-Street East	0	0
	On-Street West	0	0
	<b>Total On-Street</b>	<b>0</b>	<b>0</b>
	<b>Total Block Parking</b>	<b>132</b>	<b>37</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		28.0%
	Total Off-Street Parking Occupancy %		28.0%
	Total On-Street Parking Occupancy %		0.0%
	<b>Total Parking Occupancy %</b>		<b>28.0%</b>
<b>Block # 68</b>			
68	Off-Street Public	0	0
	Off-Street Private	126	76
	<b>Total Off-Street</b>	<b>126</b>	<b>76</b>
	On-Street North	0	0
	On-Street South	8	2
	On-Street East	6	2
	On-Street West	0	0
	<b>Total On-Street</b>	<b>14</b>	<b>4</b>
	<b>Total Block Parking</b>	<b>140</b>	<b>80</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		60.3%
	Total Off-Street Parking Occupancy %		60.3%
	Total On-Street Parking Occupancy %		28.6%
	<b>Total Parking Occupancy %</b>		<b>57.1%</b>
<b>Block # 69</b>			
69	Off-Street Public	0	0
	Off-Street Private	49	11
	<b>Total Off-Street</b>	<b>49</b>	<b>11</b>
	On-Street North	0	0
	On-Street South	7	3
	On-Street East	0	0
	On-Street West	8	3
	<b>Total On-Street</b>	<b>15</b>	<b>6</b>
	<b>Total Block Parking</b>	<b>64</b>	<b>17</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		22.4%
	Total Off-Street Parking Occupancy %		22.4%
	Total On-Street Parking Occupancy %		40.0%
	<b>Total Parking Occupancy %</b>		<b>26.6%</b>



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
70	Off-Street Public	0	0
	Off-Street Private	55	27
	<b>Total Off-Street</b>	<b>55</b>	<b>27</b>
	On-Street North	4	0
	On-Street South	6	0
	On-Street East	3	0
	On-Street West	0	0
	<b>Total On-Street</b>	<b>13</b>	<b>0</b>
	<b>Total Block Parking</b>	<b>68</b>	<b>27</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		49.1%
	Total Off-Street Parking Occupancy %		49.1%
	Total On-Street Parking Occupancy %		0.0%
	<b>Total Parking Occupancy %</b>		<b>39.7%</b>
<b>Block # 71</b>			
71	Off-Street Public	0	0
	Off-Street Private	4	4
	<b>Total Off-Street</b>	<b>4</b>	<b>4</b>
	On-Street North	8	0
	On-Street South	7	1
	On-Street East	5	0
	On-Street West	8	1
	<b>Total On-Street</b>	<b>28</b>	<b>2</b>
	<b>Total Block Parking</b>	<b>32</b>	<b>6</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		100.0%
	Total Off-Street Parking Occupancy %		100.0%
	Total On-Street Parking Occupancy %		7.1%
	<b>Total Parking Occupancy %</b>		<b>18.8%</b>
<b>Block # 72</b>			
72	Off-Street Public	0	0
	Off-Street Private	90	50
	<b>Total Off-Street</b>	<b>90</b>	<b>50</b>
	On-Street North	7	0
	On-Street South	7	1
	On-Street East	6	0
	On-Street West	4	0
	<b>Total On-Street</b>	<b>24</b>	<b>1</b>
	<b>Total Block Parking</b>	<b>114</b>	<b>51</b>
	Off-Street Public Parking Occupancy %		0.0%
	Off-Street Private Parking Occupancy %		55.6%
	Total Off-Street Parking Occupancy %		55.6%
	Total On-Street Parking Occupancy %		4.2%
	<b>Total Parking Occupancy %</b>		<b>44.7%</b>



Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
ALL	Off-Street Public	1,230	526
	Off-Street Private	8,435	5,030
	<b>Total Off-Street</b>	<b>9,665</b>	<b>5,556</b>
	On-Street North	450	219
	On-Street South	504	240
	On-Street East	419	215
	On-Street West	415	213
	<b>Total On-Street</b>	<b>1,788</b>	<b>887</b>
	<b>Total Parking</b>	<b>11,453</b>	<b>6,443</b>
	Off-Street Public Parking Occupancy %		42.8%
	Off-Street Private Parking Occupancy %		59.6%
	Total Off-Street Parking Occupancy %		57.5%
	Total On-Street Parking Occupancy %		49.6%
	<b>Total Parking Occupancy %</b>		<b>56.3%</b>

Block #	Parking Type/Location	Parking Inventory	10 am - 12pm
CORE	Off-Street Public	948	432
	Off-Street Private	1,706	1,002
	<b>Total Off-Street</b>	<b>2,654</b>	<b>1,434</b>
	On-Street North	159	90
	On-Street South	129	79
	On-Street East	140	90
	On-Street West	135	71
	<b>Total On-Street</b>	<b>563</b>	<b>330</b>
	<b>Total Core Parking</b>	<b>3,217</b>	<b>1,764</b>
	Off-Street Public Parking Occupancy %		45.6%
	Off-Street Private Parking Occupancy %		58.7%
	Total Off-Street Parking Occupancy %		54.0%
	Total On-Street Parking Occupancy %		58.6%
	<b>Total Parking Occupancy %</b>		<b>54.8%</b>

Note: Matches core lots and associated counts.



## APPENDIX B

*Core Zone Parking Occupancy Count Data (July 25, 2007)*



Block #	Parking Type/Location	Parking Inventory	8am	10am	12pm	2pm	4pm
17	Off-Street Public	0	0	0	0	0	0
	Off-Street Private	76	48	57	49	50	47
	<b>Total Off-Street</b>	<b>76</b>	<b>48</b>	<b>57</b>	<b>49</b>	<b>50</b>	<b>47</b>
	On-Street North	2	0	0	0	0	1
	On-Street South	9	4	4	6	4	4
	On-Street East	10	4	4	5	4	3
	On-Street West	6	0	5	6	4	7
	<b>Total On-Street</b>	<b>27</b>	<b>8</b>	<b>13</b>	<b>17</b>	<b>12</b>	<b>15</b>
	<b>Total Block Parking</b>	<b>103</b>	<b>56</b>	<b>70</b>	<b>66</b>	<b>62</b>	<b>62</b>
	Off-Street Public Parking Occupancy %		0.0%	0.0%	0.0%	0.0%	0.0%
	Off-Street Private Parking Occupancy %		63.2%	75.0%	64.5%	65.8%	61.8%
	Total Off-Street Parking Occupancy %		63.2%	75.0%	64.5%	65.8%	61.8%
	Total On-Street Parking Occupancy %		29.6%	48.1%	63.0%	44.4%	55.6%
<b>Total Parking Occupancy %</b>		<b>54.4%</b>	<b>68.0%</b>	<b>64.1%</b>	<b>60.2%</b>	<b>60.2%</b>	
<b>Block #</b>							
18	Off-Street Public	0	0	0	0	0	0
	Off-Street Private	127	61	74	61	78	72
	<b>Total Off-Street</b>	<b>127</b>	<b>61</b>	<b>74</b>	<b>61</b>	<b>78</b>	<b>72</b>
	On-Street North	10	10	10	9	10	5
	On-Street South	9	3	2	1	0	3
	On-Street East	8	3	6	6	2	4
	On-Street West	7	4	4	2	2	1
	<b>Total On-Street</b>	<b>34</b>	<b>20</b>	<b>22</b>	<b>18</b>	<b>14</b>	<b>13</b>
	<b>Total Block Parking</b>	<b>161</b>	<b>81</b>	<b>96</b>	<b>79</b>	<b>92</b>	<b>85</b>
	Off-Street Public Parking Occupancy %		0.0%	0.0%	0.0%	0.0%	0.0%
	Off-Street Private Parking Occupancy %		48.0%	58.3%	48.0%	61.4%	56.7%
	Total Off-Street Parking Occupancy %		48.0%	58.3%	48.0%	61.4%	56.7%
	Total On-Street Parking Occupancy %		58.8%	64.7%	52.9%	41.2%	38.2%
<b>Total Parking Occupancy %</b>		<b>50.3%</b>	<b>59.6%</b>	<b>49.1%</b>	<b>57.1%</b>	<b>52.8%</b>	
<b>Block #</b>							
19	Off-Street Public	0	0	0	0	0	0
	Off-Street Private	180	100	125	106	109	105
	<b>Total Off-Street</b>	<b>180</b>	<b>100</b>	<b>125</b>	<b>106</b>	<b>109</b>	<b>105</b>
	On-Street North	10	10	10	9	9	7
	On-Street South	9	3	4	4	5	2
	On-Street East	8	2	2	4	1	5
	On-Street West	10	1	2	6	6	3
	<b>Total On-Street</b>	<b>37</b>	<b>16</b>	<b>18</b>	<b>23</b>	<b>21</b>	<b>17</b>
	<b>Total Block Parking</b>	<b>217</b>	<b>116</b>	<b>143</b>	<b>129</b>	<b>130</b>	<b>122</b>
	Off-Street Public Parking Occupancy %		0.0%	0.0%	0.0%	0.0%	0.0%
	Off-Street Private Parking Occupancy %		55.6%	69.4%	58.9%	60.6%	58.3%
	Total Off-Street Parking Occupancy %		55.6%	69.4%	58.9%	60.6%	58.3%
	Total On-Street Parking Occupancy %		43.2%	48.6%	62.2%	56.8%	45.9%
<b>Total Parking Occupancy %</b>		<b>53.5%</b>	<b>65.9%</b>	<b>59.4%</b>	<b>59.9%</b>	<b>56.2%</b>	



Block #	Parking Type/Location	Parking Inventory	8am	10am	12pm	2pm	4pm
20	Off-Street Public	0	0	0	0	0	0
	Off-Street Private	108	56	64	60	54	57
	<b>Total Off-Street</b>	<b>108</b>	<b>56</b>	<b>64</b>	<b>60</b>	<b>54</b>	<b>57</b>
	On-Street North	8	10	10	8	10	5
	On-Street South	0	0	0	0	0	0
	On-Street East	4	4	4	4	4	2
	On-Street West	7	0	2	1	1	0
	<b>Total On-Street</b>	<b>19</b>	<b>14</b>	<b>16</b>	<b>13</b>	<b>15</b>	<b>7</b>
	<b>Total Block Parking</b>	<b>127</b>	<b>70</b>	<b>80</b>	<b>73</b>	<b>69</b>	<b>64</b>
	Off-Street Public Parking Occupancy %		0.0%	0.0%	0.0%	0.0%	0.0%
	Off-Street Private Parking Occupancy %		51.9%	59.3%	55.6%	50.0%	52.8%
	Total Off-Street Parking Occupancy %		51.9%	59.3%	55.6%	50.0%	52.8%
	Total On-Street Parking Occupancy %		73.7%	84.2%	68.4%	78.9%	36.8%
<b>Total Parking Occupancy %</b>		<b>55.1%</b>	<b>63.0%</b>	<b>57.5%</b>	<b>54.3%</b>	<b>50.4%</b>	
28	Off-Street Public	0	0	0	0	0	0
	Off-Street Private	95	39	39	41	40	35
	<b>Total Off-Street</b>	<b>95</b>	<b>39</b>	<b>39</b>	<b>41</b>	<b>40</b>	<b>35</b>
	On-Street North	6	4	4	4	3	3
	On-Street South	8	0	1	6	2	1
	On-Street East	7	1	0	6	3	0
	On-Street West	7	7	8	6	8	6
	<b>Total On-Street</b>	<b>28</b>	<b>12</b>	<b>13</b>	<b>22</b>	<b>16</b>	<b>10</b>
	<b>Total Block Parking</b>	<b>123</b>	<b>51</b>	<b>52</b>	<b>63</b>	<b>56</b>	<b>45</b>
	Off-Street Public Parking Occupancy %		0.0%	0.0%	0.0%	0.0%	0.0%
	Off-Street Private Parking Occupancy %		41.1%	41.1%	43.2%	42.1%	36.8%
	Total Off-Street Parking Occupancy %		41.1%	41.1%	43.2%	42.1%	36.8%
	Total On-Street Parking Occupancy %		42.9%	46.4%	78.6%	57.1%	35.7%
<b>Total Parking Occupancy %</b>		<b>41.5%</b>	<b>42.3%</b>	<b>51.2%</b>	<b>45.5%</b>	<b>36.6%</b>	
29	Off-Street Public	61	28	30	22	28	27
	Off-Street Private	102	63	72	57	75	74
	<b>Total Off-Street</b>	<b>163</b>	<b>91</b>	<b>102</b>	<b>79</b>	<b>103</b>	<b>101</b>
	On-Street North	6	0	0	0	1	0
	On-Street South	8	4	3	4	6	3
	On-Street East	6	1	2	2	3	3
	On-Street West	9	1	3	8	6	4
	<b>Total On-Street</b>	<b>29</b>	<b>6</b>	<b>8</b>	<b>14</b>	<b>16</b>	<b>10</b>
	<b>Total Block Parking</b>	<b>192</b>	<b>97</b>	<b>110</b>	<b>93</b>	<b>119</b>	<b>111</b>
	Off-Street Public Parking Occupancy %		45.9%	49.2%	36.1%	45.9%	44.3%
	Off-Street Private Parking Occupancy %		61.8%	70.6%	55.9%	73.5%	72.5%
	Total Off-Street Parking Occupancy %		55.8%	62.6%	48.5%	63.2%	62.0%
	Total On-Street Parking Occupancy %		20.7%	27.6%	48.3%	55.2%	34.5%
<b>Total Parking Occupancy %</b>		<b>50.5%</b>	<b>57.3%</b>	<b>48.4%</b>	<b>62.0%</b>	<b>57.8%</b>	



Block #	Parking Type/Location	Parking Inventory	8am	10am	12pm	2pm	4pm
30	Off-Street Public	0	0	0	0	0	0
	Off-Street Private	146	107	118	95	107	106
	<b>Total Off-Street</b>	<b>146</b>	<b>107</b>	<b>118</b>	<b>95</b>	<b>107</b>	<b>106</b>
	On-Street North	6	4	2	2	5	3
	On-Street South	1	0	0	0	0	0
	On-Street East	12	5	5	3	8	8
	On-Street West	8	1	2	2	2	4
	<b>Total On-Street</b>	<b>27</b>	<b>10</b>	<b>9</b>	<b>7</b>	<b>15</b>	<b>15</b>
	<b>Total Block Parking</b>	<b>173</b>	<b>117</b>	<b>127</b>	<b>102</b>	<b>122</b>	<b>121</b>
	Off-Street Public Parking Occupancy %		0.0%	0.0%	0.0%	0.0%	0.0%
	Off-Street Private Parking Occupancy %		73.3%	80.8%	65.1%	73.3%	72.6%
	Total Off-Street Parking Occupancy %		73.3%	80.8%	65.1%	73.3%	72.6%
	Total On-Street Parking Occupancy %		37.0%	33.3%	25.9%	55.6%	55.6%
	<b>Total Parking Occupancy %</b>		<b>67.6%</b>	<b>73.4%</b>	<b>59.0%</b>	<b>70.5%</b>	<b>69.9%</b>
31	Off-Street Public	0	0	0	0	0	0
	Off-Street Private	121	86	96	64	97	86
	<b>Total Off-Street</b>	<b>121</b>	<b>86</b>	<b>96</b>	<b>64</b>	<b>97</b>	<b>86</b>
	On-Street North	0	0	0	0	0	0
	On-Street South	2	2	1	0	0	1
	On-Street East	9	8	8	8	9	8
	On-Street West	12	2	5	2	8	2
	<b>Total On-Street</b>	<b>23</b>	<b>12</b>	<b>14</b>	<b>10</b>	<b>17</b>	<b>11</b>
	<b>Total Block Parking</b>	<b>144</b>	<b>98</b>	<b>110</b>	<b>74</b>	<b>114</b>	<b>97</b>
	Off-Street Public Parking Occupancy %		0.0%	0.0%	0.0%	0.0%	0.0%
	Off-Street Private Parking Occupancy %		71.1%	79.3%	52.9%	80.2%	71.1%
	Total Off-Street Parking Occupancy %		71.1%	79.3%	52.9%	80.2%	71.1%
	Total On-Street Parking Occupancy %		52.2%	60.9%	43.5%	73.9%	47.8%
	<b>Total Parking Occupancy %</b>		<b>68.1%</b>	<b>76.4%</b>	<b>51.4%</b>	<b>79.2%</b>	<b>67.4%</b>
40	Off-Street Public	0	0	0	0	0	0
	Off-Street Private	113	41	70	52	65	63
	<b>Total Off-Street</b>	<b>113</b>	<b>41</b>	<b>70</b>	<b>52</b>	<b>65</b>	<b>63</b>
	On-Street North	5	1	3	1	0	2
	On-Street South	11	4	6	6	6	2
	On-Street East	9	0	2	1	0	2
	On-Street West	9	0	5	3	3	3
	<b>Total On-Street</b>	<b>34</b>	<b>5</b>	<b>16</b>	<b>11</b>	<b>9</b>	<b>9</b>
	<b>Total Block Parking</b>	<b>147</b>	<b>46</b>	<b>86</b>	<b>63</b>	<b>74</b>	<b>72</b>
	Off-Street Public Parking Occupancy %		0.0%	0.0%	0.0%	0.0%	0.0%
	Off-Street Private Parking Occupancy %		36.3%	61.9%	46.0%	57.5%	55.8%
	Total Off-Street Parking Occupancy %		36.3%	61.9%	46.0%	57.5%	55.8%
	Total On-Street Parking Occupancy %		14.7%	47.1%	32.4%	26.5%	26.5%
	<b>Total Parking Occupancy %</b>		<b>31.3%</b>	<b>58.5%</b>	<b>42.9%</b>	<b>50.3%</b>	<b>49.0%</b>



Block #	Parking Type/Location	Parking Inventory	8am	10am	12pm	2pm	4pm
41	Off-Street Public	0	0	0	0	0	0
	Off-Street Private	41	31	37	24	27	25
	<b>Total Off-Street</b>	<b>41</b>	<b>31</b>	<b>37</b>	<b>24</b>	<b>27</b>	<b>25</b>
	On-Street North	12	6	4	5	8	5
	On-Street South	11	4	7	6	7	10
	On-Street East	1	2	1	2	0	0
	On-Street West	8	5	4	3	3	1
	<b>Total On-Street</b>	<b>32</b>	<b>17</b>	<b>16</b>	<b>16</b>	<b>18</b>	<b>16</b>
	<b>Total Block Parking</b>	<b>73</b>	<b>48</b>	<b>53</b>	<b>40</b>	<b>45</b>	<b>41</b>
	Off-Street Public Parking Occupancy %		0.0%	0.0%	0.0%	0.0%	0.0%
	Off-Street Private Parking Occupancy %		75.6%	90.2%	58.5%	65.9%	61.0%
	Total Off-Street Parking Occupancy %		75.6%	90.2%	58.5%	65.9%	61.0%
	Total On-Street Parking Occupancy %		53.1%	50.0%	50.0%	56.3%	50.0%
	<b>Total Parking Occupancy %</b>		<b>65.8%</b>	<b>72.6%</b>	<b>54.8%</b>	<b>61.6%</b>	<b>56.2%</b>
<b>Block #</b>							
42	Off-Street Public	0	0	0	0	0	0
	Off-Street Private	105	54	76	41	67	67
	<b>Total Off-Street</b>	<b>105</b>	<b>54</b>	<b>76</b>	<b>41</b>	<b>67</b>	<b>67</b>
	On-Street North	6	3	7	6	5	7
	On-Street South	18	12	16	14	18	16
	On-Street East	9	4	5	4	4	8
	On-Street West	16	9	13	12	14	12
	<b>Total On-Street</b>	<b>49</b>	<b>28</b>	<b>41</b>	<b>36</b>	<b>41</b>	<b>43</b>
	<b>Total Block Parking</b>	<b>154</b>	<b>82</b>	<b>117</b>	<b>77</b>	<b>108</b>	<b>110</b>
	Off-Street Public Parking Occupancy %		0.0%	0.0%	0.0%	0.0%	0.0%
	Off-Street Private Parking Occupancy %		51.4%	72.4%	39.0%	63.8%	63.8%
	Total Off-Street Parking Occupancy %		51.4%	72.4%	39.0%	63.8%	63.8%
	Total On-Street Parking Occupancy %		57.1%	83.7%	73.5%	83.7%	87.8%
	<b>Total Parking Occupancy %</b>		<b>53.2%</b>	<b>76.0%</b>	<b>50.0%</b>	<b>70.1%</b>	<b>71.4%</b>
<b>Block #</b>							
43	Off-Street Public	0	0	0	0	0	0
	Off-Street Private	144	96	110	92	95	72
	<b>Total Off-Street</b>	<b>144</b>	<b>96</b>	<b>110</b>	<b>92</b>	<b>95</b>	<b>72</b>
	On-Street North	16	15	13	6	12	17
	On-Street South	14	6	14	12	12	14
	On-Street East	20	7	17	9	7	15
	On-Street West	10	6	6	6	7	8
	<b>Total On-Street</b>	<b>60</b>	<b>34</b>	<b>50</b>	<b>33</b>	<b>38</b>	<b>54</b>
	<b>Total Block Parking</b>	<b>204</b>	<b>130</b>	<b>160</b>	<b>125</b>	<b>133</b>	<b>126</b>
	Off-Street Public Parking Occupancy %		0.0%	0.0%	0.0%	0.0%	0.0%
	Off-Street Private Parking Occupancy %		66.7%	76.4%	63.9%	66.0%	50.0%
	Total Off-Street Parking Occupancy %		66.7%	76.4%	63.9%	66.0%	50.0%
	Total On-Street Parking Occupancy %		56.7%	83.3%	55.0%	63.3%	90.0%
	<b>Total Parking Occupancy %</b>		<b>63.7%</b>	<b>78.4%</b>	<b>61.3%</b>	<b>65.2%</b>	<b>61.8%</b>





Block #	Parking Type/Location	Parking Inventory	8am	10am	12pm	2pm	4pm
53	Off-Street Public	432	188	226	215	226	192
	Off-Street Private	0	0	0	0	0	0
	<b>Total Off-Street</b>	<b>432</b>	<b>188</b>	<b>226</b>	<b>215</b>	<b>226</b>	<b>192</b>
	On-Street North	5	0	1	0	1	1
	On-Street South	10	0	10	9	7	8
	On-Street East	8	1	7	6	7	6
	On-Street West	10	3	8	9	10	8
	<b>Total On-Street</b>	<b>33</b>	<b>4</b>	<b>26</b>	<b>24</b>	<b>25</b>	<b>23</b>
	<b>Total Block Parking</b>	<b>465</b>	<b>192</b>	<b>252</b>	<b>239</b>	<b>251</b>	<b>215</b>
	Off-Street Public Parking Occupancy %		43.5%	52.3%	49.8%	52.3%	44.4%
	Off-Street Private Parking Occupancy %		0.0%	0.0%	0.0%	0.0%	0.0%
	Total Off-Street Parking Occupancy %		43.5%	52.3%	49.8%	52.3%	44.4%
	Total On-Street Parking Occupancy %		12.1%	78.8%	72.7%	75.8%	69.7%
	<b>Total Parking Occupancy %</b>		<b>41.3%</b>	<b>54.2%</b>	<b>51.4%</b>	<b>54.0%</b>	<b>46.2%</b>
57	Off-Street Public	0	0	0	0	0	0
	Off-Street Private	75	5	13	13	13	5
	<b>Total Off-Street</b>	<b>75</b>	<b>5</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>5</b>
	On-Street North	17	0	0	0	0	0
	On-Street South	0	0	0	0	0	0
	On-Street East	0	0	0	0	0	0
	On-Street West	0	0	0	0	0	0
	<b>Total On-Street</b>	<b>17</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
	<b>Total Block Parking</b>	<b>92</b>	<b>5</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>5</b>
	Off-Street Public Parking Occupancy %		0.0%	0.0%	0.0%	0.0%	0.0%
	Off-Street Private Parking Occupancy %		6.7%	17.3%	17.3%	17.3%	6.7%
	Total Off-Street Parking Occupancy %		6.7%	17.3%	17.3%	17.3%	6.7%
	Total On-Street Parking Occupancy %		0.0%	0.0%	0.0%	0.0%	0.0%
	<b>Total Parking Occupancy %</b>		<b>5.4%</b>	<b>14.1%</b>	<b>14.1%</b>	<b>14.1%</b>	<b>5.4%</b>
58	Off-Street Public	0	0	0	0	0	0
	Off-Street Private	130	45	64	80	75	66
	<b>Total Off-Street</b>	<b>130</b>	<b>45</b>	<b>64</b>	<b>80</b>	<b>75</b>	<b>66</b>
	On-Street North	21	4	2	5	10	9
	On-Street South	0	0	0	0	0	0
	On-Street East	0	0	0	0	0	0
	On-Street West	0	0	0	0	0	0
	<b>Total On-Street</b>	<b>21</b>	<b>4</b>	<b>2</b>	<b>5</b>	<b>10</b>	<b>9</b>
	<b>Total Block Parking</b>	<b>151</b>	<b>49</b>	<b>66</b>	<b>85</b>	<b>85</b>	<b>75</b>
	Off-Street Public Parking Occupancy %		0.0%	0.0%	0.0%	0.0%	0.0%
	Off-Street Private Parking Occupancy %		34.6%	49.2%	61.5%	57.7%	50.8%
	Total Off-Street Parking Occupancy %		34.6%	49.2%	61.5%	57.7%	50.8%
	Total On-Street Parking Occupancy %		19.0%	9.5%	23.8%	47.6%	42.9%
	<b>Total Parking Occupancy %</b>		<b>32.5%</b>	<b>43.7%</b>	<b>56.3%</b>	<b>56.3%</b>	<b>49.7%</b>



Block #	Parking Type/Location	Parking Inventory	8am	10am	12pm	2pm	4pm
59	Off-Street Public	0	0	0	0	0	0
	Off-Street Private	65	24	30	29	28	33
	<b>Total Off-Street</b>	<b>65</b>	<b>24</b>	<b>30</b>	<b>29</b>	<b>28</b>	<b>33</b>
	On-Street North	9	1	1	2	2	6
	On-Street South	0	0	0	0	0	0
	On-Street East	0	0	0	0	0	0
	On-Street West	0	0	0	0	0	0
	<b>Total On-Street</b>	<b>9</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>6</b>
	<b>Total Block Parking</b>	<b>74</b>	<b>25</b>	<b>31</b>	<b>31</b>	<b>30</b>	<b>39</b>
	Off-Street Public Parking Occupancy %		0.0%	0.0%	0.0%	0.0%	0.0%
	Off-Street Private Parking Occupancy %		36.9%	46.2%	44.6%	43.1%	50.8%
	Total Off-Street Parking Occupancy %		36.9%	46.2%	44.6%	43.1%	50.8%
	Total On-Street Parking Occupancy %		11.1%	11.1%	22.2%	22.2%	66.7%
<b>Total Parking Occupancy %</b>		<b>33.8%</b>	<b>41.9%</b>	<b>41.9%</b>	<b>40.5%</b>	<b>52.7%</b>	

Block #	Parking Type/Location	Parking Inventory	8am	10am	12pm	2pm	4pm
CORE	Off-Street Public	948	391	472	433	448	397
	Off-Street Private	1,706	901	1,106	916	1,035	970
	<b>Total Off-Street</b>	<b>2,654</b>	<b>1,292</b>	<b>1,578</b>	<b>1,349</b>	<b>1,483</b>	<b>1,367</b>
	On-Street North	159	80	85	71	89	84
	On-Street South	129	48	76	77	76	77
	On-Street East	140	60	87	87	68	85
	On-Street West	135	46	74	74	83	64
	<b>Total On-Street</b>	<b>563</b>	<b>234</b>	<b>322</b>	<b>309</b>	<b>316</b>	<b>310</b>
	<b>Total Core Parking</b>	<b>3,217</b>	<b>1,526</b>	<b>1,900</b>	<b>1,658</b>	<b>1,799</b>	<b>1,677</b>
	Off-Street Public Parking Occupancy %		41.2%	49.8%	45.7%	47.3%	41.9%
	Off-Street Private Parking Occupancy %		52.8%	64.8%	53.7%	60.7%	56.9%
	Total Off-Street Parking Occupancy %		48.7%	59.5%	50.8%	55.9%	51.5%
	Total On-Street Parking Occupancy %		41.6%	57.2%	54.9%	56.1%	55.1%
<b>Total Parking Occupancy %</b>		<b>47.4%</b>	<b>59.1%</b>	<b>51.5%</b>	<b>55.9%</b>	<b>52.1%</b>	

