



CITY OF MANDAN

Downtown Parking Study

Final Report

July, 2009



RICH & ASSOCIATES CONSULTING, INC.

Parking Consultants - Planners

www.richassoc.com



Downtown Parking Study

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Downtown Parking Study

Executive Summary

This report prepared for Mandan serves as a budget submissions decision making tool for the Parking Authority. The report's analysis examines the existing and potential future parking within the downtown area and provides recommendations that range from day-to-day operating enhancements to potential new parking. The Mandan parking study presents a comprehensive examination of parking needs, capital assets and operation.

Fundamentally, the existing parking system is capable of accommodating current parking needs. However, the report identifies some alternatives that will aid the community in achieving its goals for urban design, development density and historic preservation, all while alleviate parking shortages that occur in areas of the downtown core. The ideals presented here are that the combined effects of planned parking and traffic will assist Mandan with its vision as a high quality urban center that serves the needs of residents and businesses as effectively and efficiently as possible.

The recommendations outlined in this report will help Mandan continue to achieve a compact and active downtown that promotes pedestrian activity and shared use. The overall design and density envisioned by this document and other planning work undertaken by the City will have far reaching effects in creating a premier place for living, shopping, working or visiting.

Background research, fieldwork and a review of previous documents and planning reports were also undertaken. The following documents were provided to Rich and Associates, Inc., by Mandan for use as resource material and to develop an understanding of the Community's development goals and objectives:

- Parking supply map
- Listing of existing downtown buildings
- Proposed and planned development synopsis
- Transportation information
- Planning documents and redevelopment plans
- Vacant space listings

Fieldwork for the study included a multi-day turnover and occupancy study by Rich and Associates staff. The turnover and occupancy study involved an examination of parking area occupancies and vehicle movements on two typical business days and a Saturday. This was undertaken to gain an understanding of the way Mandan's parking was operating and the way individuals were using it.

Pedestrian activity is currently impeded by Main Street in the core downtown. Pedestrian activity requires that the principal elements of a downtown streetscape, including sidewalk design be adhered to. Specific recommendations that deal with pedestrian safety, as it relates to traffic movement, are presented in a guideline format. Additional consideration is given to bicycle activity within the downtown in order to examine how the community can address and promote multiple forms of transportation, an important element of a livable community.



Downtown Parking Study

Parking is by nature a great determiner of how development occurs. Typically at odds are the aspects of a desire on the part of developers to maximize the property available with occupied space against the need to provide adequate parking to serve the building being designed. Presented in this report are options available to the City that allow for shared parking between buildings to reduce the overall amount of parking needed to serve any one individual building.

An analysis of the overall parking operation and management was undertaken to look for areas where potential improvements could be made. In general, Rich and Associates recommended that parking enforcement be enhanced and become more of a parking ambassador position.

Future demand will lead to areas of parking shortfall in the downtown core. Given the varied nature of potential future developments along with the anticipated effects of the operational recommendations put forth in this document, Rich and Associates recommends that the City conduct a study up-date in five years to help re-quantify parking availability. This will provide an opportunity for the operational enhancements to take effect.

In the future the parking shortfall is large enough to consider some potential solutions for adding new parking in to the downtown area. Rich and Associates has identified a number of options for new parking, including the possibility of new structured parking. These options include the striping of the on-street parking in the downtown and the transition of the leased parking on the south side of Main Street to free parking.

Other options include the acquisition of private parking areas that will become public parking; while not providing more actual parking they will allow for greater shared use opportunities. Finally, potential locations for new parking are also identified that could potentially become joint projects between the public and private sector, which follow the City's desire to create a richly diverse downtown that is both of an optimal density and intensity.

Part One – Overview

Mandan's downtown area is a unique, being a small more rurally oriented town center that is experiencing growth and development pressures. Centrally within the downtown are a number of various housing and commercial development areas. These developments will add pressure to the community to grow and evolve as a commercial hub, serving several new housing development projects that are taking place within the area (see **Map 1: Mandan Downtown Study Area**).

This study, prepared for the City of Mandan serves to examine the Downtown's existing parking system from both a qualitative and quantitative standpoint. The City of Mandan contracted Rich and Associates to prepare a parking planning study which would inventory and review the existing parking and make recommendations regarding the development of potential future parking. A number of issues were examined including operations, management, enforcement, current parking demand, development scenarios, and future parking needs.



Downtown Parking Study

For this study, Rich and Associates initiated the process with field observations meetings and interviews. Data collected as background material was analyzed using proven methods that involve statistical analysis and survey feedback from user groups. The study drew on standards developed by the Institute of Transportation Engineers (ITE) and the Urban Land Institute (ULI), which were modified according to the survey results from Mandan in order to suit the unique circumstances present in the Downtown.

Study Area

The study area was determined by the City of Mandan and is illustrated in **Map 1**, “City of Mandan - Study Area Map” located on **page 6**. The study area consists of the core business area and periphery blocks that contain lower density commercial and other residential uses. Rich and Associates evaluated the parking conditions, parking supply and parking activity in the roughly 28 block study area. Areas outside of the study boundaries were examined for parking supply opportunities and potential impacts only.

Mandan is experiencing interest in residential construction. There are several future development scenarios that include mixed use developments with residential units above. These possible developments, as well as the residential developments that are already in the works, will begin to change the Downtown and the need for parking.

In addition to the increased number of apartments, which have been or will be built in the Mandan area, there are several other factors that will impact development in the core downtown area. Plans and documents pertaining to the area and region that have been prepared by Mandan include the Downtown Mandan and Memorial Highway Redevelopment Plan, an important document that identifies guiding principals for the downtown area.

In general, Mandan is endeavoring to draw development and growth to its downtown core that is consistent with a vision of a traditional downtown. This vision emphasizes preservation of historical buildings, architectural styles, diversity of uses, as well as the facilities and amenities that promote vehicular, pedestrian and potential other future transportation forms.

Parking and transportation circulation are two key elements that need to be considered as development takes place. Fundamentally, the City does not require the private development of parking for the Downtown Parking District.

Field work for this study entailed a review of the buildings and parking within the downtown, as well as various developments that may impact parking, traffic and development within the downtown. **Table 1A** summarizes the existing parking supply in the primary study area in downtown Mandan. There are a total of 2,668 parking spaces in the primary study area. Of these spaces 1,077 are on-street and 354 are off-street public spaces. There are 1,431 private off-street spaces.

**PARKING
STUDY
FOR
THE CITY OF
MANDAN**

MANDAN, NORTH DAKOTA



LEGEND:

- # BLOCK NUMBER
- STUDY AREA

Date	ISSUED FOR:
04-28-09	PRELIM. PRESENTATION
06-02-09	DRAFT REPORT
07-15-09	FINAL REPORT

Sheet Title:

**STUDY
AREA**



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Downtown Parking Study

Table 1B is a detailed parking supply listing types and durations of parking by each block and is followed by **Map 2**, which is a spatial view of the parking supply. In cases where parking spaces were not marked, the number of parking spaces was estimated. For the purpose of the study any parking marked reserved or privately owned was designated as private parking. Whereas any parking that is available for use by the general public was designated as public parking.

The City of Mandan manages and controls 53 percent of the parking in the downtown core. Based on Rich and Associates’ experience and best practices, we have found that to successfully manage municipal parking it is desirable for the municipality to have control of at least 50 percent of the parking supply. This allows the municipality to effectively manage the parking in terms of allocation, changing demand, market pricing, and allows the parking to be enforced with greater efficiency. The majority of the City’s available parking is on-street public parking. The public portion of the City’s parking constitutes 1,431 parking stalls, 33 of which are barrier free (handicap).

**Table 1A -
Parking Supply Summary**

On-Street Parking Totals	1,077 (40%)
Public Off-Street Parking Totals	<u>354</u> (13%)
Public Parking Totals	1,431 (53%)
Private Parking Totals	1,237 (46%)
Total Parking in Study Area	2,668



Downtown Parking Study

Table 1B - Parking Supply Detailed

	Accessible	10 Min	1 Hr.	90 Min	2 Hour	Unmarked	90 Min	Public	Reserved	Accessible	Reserved	Accessible	Block	Redev.
Blk #	On-Street	On-Street	On-Street	On-Street	On-Street	On-Street	Off-Street	Off-Street	Off-Street	Off-Street	Off-Street	Off-Street	Totals	Lot
2								155	73	6	147	6	387	
3				11		20					24		55	
4				7	12	9					36	1	65	
5				19		22					31		72	
6				23		6		48	11		63		151	36
7	2			59			17		9		41	2	130	
8	2			78							100		180	36
9	2			66							56	3	127	
10	1			70							71		142	
11				61							161	4	226	
12				16							62	4	82	
13			3			8					49		60	
14			10			8					23		41	
17				19		11					7		37	0
18				16		15					2	2	35	
19				19		31					59		109	
20	6			37		5			13		11		72	
21	5		17	21	29						43	2	117	
22	4			36	6						95	4	145	
23				32		9							41	
24						26							26	
25						28							28	
26						8							8	
35			23			17					81		121	
36	2	4				34					10		50	
37						5					16		21	
38						11		22					33	
65	3					83					21		107	
	27	4	53	590	47	356	17	225	106	6	1209	28	2668	72
		off	on	total										
	Public	354	1077	1431										
	Private	1237	0	1237										
				2668										
	Public	total	(%)											
	On-Street	1077	40.4%											
	Off-Street	354	13.3%											
		1431	53.6%											
	Private	1237	46.4%											
		2668												

PARKING STUDY FOR THE CITY OF MANDAN

MANDAN, NORTH DAKOTA



LEGEND:

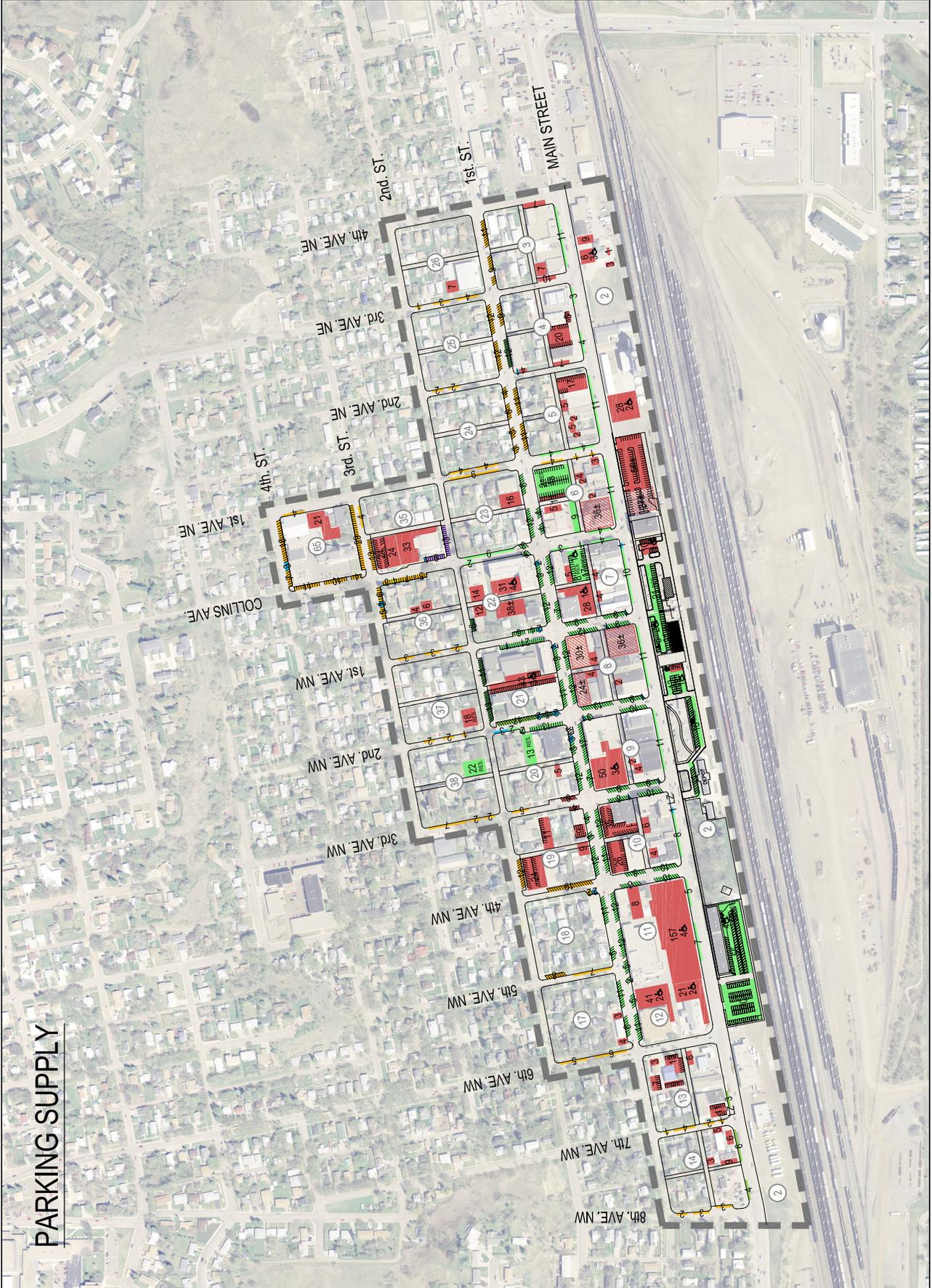
- # BLOCK NUMBER
- STUDY AREA
- RES. RESERVED
- LZ. LOADING ZONE
- ON STREET PARKING
- 10 MIN.
- 1 HR.
- 30 MIN.
- 2 HR.
- UNMARKED (4+)
- ACCESSIBLE
- RESERVED
- OFF STREET PARKING
- PUBLIC
- PRIVATE TEMPORARY LOT/DEVELOPMENT SITE
- PRIVATE
- ACCESSIBLE

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06-02-09	DRAFT REPORT
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PARKING SUPPLY

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PARKING SUPPLY



Downtown Parking Study

As part of the parking analysis, Rich and Associates was asked to review handicap standards in Mandan, specifically the sufficiency of barrier free parking spaces provided. Below is **Table 1C** listing the Americans with Disabilities Act (ADA) parking guidelines. On-street spaces are not covered by the guidelines with respect to the number of spaces required. Off-street parking is however subject to both Federal and North Dakota Law per the ADA guideline as follows:

Table 1C
ADA Parking Guidelines

Total Parking in Lot	Required Minimum Number of Accessible Spaces
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 1000	2 percent of total
1001 and over	20, plus 1 for each 100 over 1000

One in every eight assessable spaces, but not less than one, shall be served by an access aisle 96 in (2440 mm) wide minimum and shall be designated "van accessible".

Table 1D on the next page shows the comparison of publicly provided off-street barrier free parking to the lots with deficits. **Map 3** on **page 13** spatially displays the locations of both on-street and off-street barrier free parking spaces.



Downtown Parking Study

**Table 1D
Comparison of # of Barrier Free Stalls Required vs.
of Barrier Free Stalls Provided**

Lot	Block #	Total Capacity	# of Barrier Free Stalls Required	# of Barrier Free Stalls Provided	Surplus/ Shortfall
Library Lot	2	65	3	4	1
Depot Lot	2	11	1	0	-1
City Lot	2	18	1	0	-1
City Lot	2	13	1	1	-
City Lot	2	50	2	2	-
City Lot	6	48	2	0	-2
City Lot	6	9	1	0	-1
City Lot	7	25	1	1	-
City Hall Employee Lot	20	13	1	0	-1
Totals			13	10	-5

There are four public lots in the downtown that need additional barrier free parking. Four of the public lots do not have any accessible parking. It is important to make the downtown accessible to all people.

If a use changes or a new businesses is opened with an existing private parking lot, the City should require that ADA parking guidelines are followed. There are several privately owned lots in the downtown that do not provide any barrier free parking.

Though the ADA parking guidelines do not cover requirements for on-street accessible parking, Mandan has several accessible on-street parking stalls. There are 27 on-street accessible parking spaces in the downtown. **Map 3 on page 13** details the locations of all barrier free parking in the downtown.

PARKING STUDY FOR THE CITY OF MANDAN

MANDAN, NORTH DAKOTA
 Parking Consultants
RICH
 ARCHITECTS & ASSOCIATES

- LEGEND:**
- # BLOCK NUMBER
 - STUDY AREA
 - ACCESSIBLE
 - OFF STREET PARKING
 - PUBLIC LOT
 - PRIVATE LOT

Date	ISSUED FOR:
06-02-09	DRAFT REPORT
07-15-09	FINAL REPORT

HANDICAP LOCATIONS

File No.	0905
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MAP 3





Downtown Parking Study

A turnover and occupancy study was completed Friday, March 27, 2009 and Wednesday April 29, 2009 from 9:00 A.M. to 9:00 P.M. of the public and private off-street spaces. An occupancy study was undertaken in the downtown study area, Saturday March 28, 2009 from 9:00 A.M. to 5:00 P.M. The turnover and occupancy studies were observations of the on-street and off-street public parking. The occupancy study was an observation of the on-street and off-street parking in the core downtown, both public and private.

The number of parking spaces occupied was observed during each two-hour circuit. The turnover portion of the analysis, where license plate numbers were recorded, applied to on-street and off-street short term spaces to determine how long specific vehicles were parked in certain spaces and if parkers were moving their vehicles to different spaces to avoid being cited for overtime parking. The turnover information also yields occupancy results for the parking area and therefore for each circuit a composite occupancy can be derived.

Turnover is an indicator of how often a parking stall is being used by different vehicles throughout the course of the day. Turnover is relevant to time periods when time limits on non metered spaces are being enforced and is most important to short-term customer and visitor parking. **Table 1E and 1F, Map 4 and Map 5** are the summary results of the turnover findings.

Occupancy is an important aspect of parking because it helps us to understand the dynamic of how parking demand fluctuates throughout the day. Likewise, the occupancy can be used to illustrate how parking demand is impacted by events in the downtown area. Overall, the occupancy data is used by Rich and Associates to help calibrate the parking demand model. **Table 1G, Map 6** are the summary results of the Occupancy findings.

The peak observed occupancy and key points:

Friday March 27, 2009 - peak observed occupancy 34 percent / occurred between 1:00 P.M. and 3:00 P.M.

- 81 percent of the vehicles observed stayed less than 2 hours.
- 12 percent of the vehicles observed remained in 90 min on-street parking spaces between 2 and 4 hours.
- 4 percent of the vehicles observed remained in 90 min on-street parking spaces between 4 and 6 hours.
- 3 percent of the vehicles observed remained in 90 min on-street parking spaces between 6 and 8 hours

Table 1E
City of Mandan, ND
Occupancy Summary Friday March 27, 2009

Description	# of Spaces	9:00am - 11:00am	% Occ.	11:00am - 1:00pm	% Occ.	1:00pm - 3:00pm	% Occ.	3:00pm - 5:00pm	% Occ.	5:00pm - 7:00pm	% Occ.	7:00pm - 9:00pm	% Occ.
On-street Totals	897	225	25%	229	26%	275	31%	257	29%	185	21%	164	18%
Public Off-Street Totals	403	101	25%	109	27%	91	23%	97	24%	55	14%	53	13%
Private Off-street Totals	868	349	40%	325	37%	368	42%	331	38%	217	25%	162	19%
Combined Totals	2168	675	31%	663	31%	734	34%	685	32%	457	21%	379	17%



Downtown Parking Study

Saturday March 28, 2009 - peak observed occupancy 24 percent / occurred between 11:00 A.M. and 1:00 P.M.

- Block faces 9C and 5D were 100 percent occupied during the peak time.
- The occupancy stayed consistent throughout the day.
- The off-street private parking had higher occupancy than the public off-street parking.

Table 1F
City of Mandan, ND
Occupancy Saturday March 28, 2009

Description	# of Spaces	9:00am - 11:00am	% Occ.	11:00am - 1:00pm	% Occ.	1:00pm - 3:00pm	% Occ.	3:00pm - 5:00pm	% Occ.
On-Street Totals	849	149	18%	201	24%	178	21%	156	18%
Public Off-Street Totals	360	45	13%	57	16%	58	16%	46	13%
Private Totals	731	175	24%	208	28%	197	27%	180	25%
Combined Totals	1940	369	19%	466	24%	433	22%	382	20%

Wednesday April 29, 2009 - peak observed occupancy 37 percent / occurred between 1:00 P.M. and 3:00 P.M.

- 76 percent of the vehicles observed remained less than two hours.
- 14 percent of the vehicles observed remained in 90 min on-street parking spaces between two and four hours.
- Three percent of the vehicles observed remained in 90 min on-street parking spaces between four and six hours.
- Seven percent of the vehicles observed remained in 90 min on-street parking spaces between six and eight hours

Table 1G
City of Mandan, ND
Occupancy Summary Wednesday April 29, 2009

Description	# of Spaces	9:00am - 11:00am	% Occ.	11:00am - 1:00pm	% Occ.	1:00pm - 3:00pm	% Occ.	3:00pm - 5:00pm	% Occ.
On-Street Totals	952	320	34%	320	34%	308	32%	327	34%
Public Off-Street Totals	374	85	23%	92	25%	106	28%	100	27%
Private Off-Street Totals	842	360	43%	367	44%	387	46%	368	44%
Combined Totals	2168	765	35%	779	36%	801	37%	795	37%

**Table 1H
City of Mandan, ND
Turnover / Occupancy Friday March 27, 2009**

Block/ Face	Description	# of Spaces	9:00am - 11:00am	% Occ.	11:00am - 1:00pm	% Occ.	1:00pm - 3:00pm	% Occ.	3:00pm - 5:00pm	% Occ.	5:00pm - 7:00pm	% Occ.	7:00pm - 9:00pm	% Occ.
2	Library Lot	139	17	12%	34	24%	13	9%	21	15%	10	7%	9	6%
2	Art/Train Station	11	9	82%	9	82%	9	82%	7	64%	0	0%	0	0%
2	Movie/Pizza	7	3	43%	3	43%	2	29%	3	43%	3	43%	3	43%
2	City Lot	14	0	0%	0	0%	0	0%	1	7%	4	29%	2	14%
2	Lot A	18	8	44%	7	39%	8	44%	7	39%	4	22%	4	22%
2	City Lot Remediation Station	52	10	19%	7	13%	10	19%	6	12%	4	8%	3	6%
2	Pvt. Lot	11	2	18%	1	9%	0	0%	0	0%	0	0%	0	0%
3	North West Tire Lot	7	1	14%	4	57%	5	71%	4	57%	4	57%	0	0%
3A	Unmarked On-Street	20	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
3C	90 Min On-Street	11	0	0%	4	36%	1	9%	3	27%	1	9%	0	0%
4	Sanitary Plumbing	20	6	30%	5	25%	6	30%	5	25%	7	35%	5	25%
4A	2 Hr On-Street	21	3	14%	6	29%	5	24%	3	14%	2	10%	1	5%
4C	90 Min On-Street	7	0	0%	0	0%	0	0%	0	0%	0	0%	1	14%
5	Quality Home Furniture	17	4	24%	6	35%	8	47%	4	24%	4	24%	5	29%
5	Alley	14	12	86%	11	79%	12	86%	13	93%	8	57%	10	71%
5A	90 Min On-Street	22	1	5%	1	5%	1	5%	1	5%	1	5%	1	5%
5C	90 Min On-Street	11	2	18%	7	64%	7	64%	8	73%	10	91%	11	100%
5D	90 Min On-Street	8	5	63%	6	75%	4	50%	4	50%	5	63%	8	100%
6	City Lot B	50	7	14%	5	10%	4	8%	5	10%	9	18%	11	22%
6	Fire Station Parking	16	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
6	South of Fire Station	9	2	22%	4	44%	2	22%	3	33%	2	22%	2	22%
6	Gravel Lot	36	11	31%	11	31%	13	36%	9	25%	9	25%	3	8%
6	Alley	8	7	88%	4	50%	6	75%	6	75%	4	50%	7	88%
6A	90 Min On-Street	8	1	13%	3	38%	3	38%	3	38%	2	25%	1	13%
6B	Unmarked On-Street	6	1	17%	2	33%	1	17%	5	83%	7	117%	7	117%
6C	90 Min On-Street	11	0	0%	1	9%	4	36%	1	9%	0	0%	1	9%
6D	90 Min On-Street	4	4	100%	3	75%	1	25%	0	0%	0	0%	0	0%
7	Starian Lot	30	7	23%	6	20%	11	37%	12	40%	6	20%	11	37%
7	City Lot	26	19	73%	16	62%	18	69%	18	69%	8	31%	12	46%
7	alley	8	3	38%	3	38%	4	50%	1	13%	2	25%	2	25%
7A	90 Min On-Street	23	3	13%	4	17%	6	26%	7	30%	1	4%	0	0%
7B	On-Street	8	2	25%	4	50%	2	25%	1	13%	1	13%	1	13%
7C	90 Min On-Street	11	2	18%	7	64%	6	55%	8	73%	9	82%	3	27%
7D	On-Street	19	7	37%	5	26%	7	37%	8	42%	12	63%	15	79%
8	Tavern Lot	30	23	77%	20	67%	22	73%	19	63%	16	53%	18	60%
8	Alley	2	1	50%	1	50%	1	50%	1	50%	2	100%	1	50%
8	Gravel Lot	36	28	78%	26	72%	23	64%	22	61%	11	31%	8	22%
8A	90 Min On-Street	24	4	17%	6	25%	8	33%	6	25%	3	13%	8	33%
8B	90 Min On-Street	22	6	27%	7	32%	7	32%	12	55%	12	55%	11	50%
8C	90 Min On-Street	11	1	9%	4	36%	7	64%	1	9%	1	9%	8	73%
8D	90 Min On-Street	23	12	52%	13	57%	18	78%	17	74%	20	87%	19	83%
9	Wells Fargo Lot	53	8	15%	10	19%	14	26%	10	19%	11	21%	3	6%
9	Alley	6	5	83%	4	67%	4	67%	3	50%	1	17%	0	0%
9A	90 Min On-Street	24	2	8%	4	17%	3	13%	1	4%	1	4%	1	4%
9B	On-Street	22	2	9%	5	23%	5	23%	7	32%	9	41%	13	59%
9C	90 Min On-Street	11	1	9%	9	82%	7	64%	6	55%	7	64%	1	9%
9D	90 Min On-Street	19	5	26%	6	32%	5	26%	6	32%	4	21%	1	5%
10	Elks Lot	26	1	4%	1	4%	1	4%	2	8%	3	12%	2	8%
10	Medicine Shop Lot	35	17	49%	18	51%	18	51%	14	40%	5	14%	4	11%
10	Alley	10	6	60%	5	50%	8	80%	8	80%	4	40%	4	40%
10A	90 Min On-Street	23	2	9%	4	17%	3	13%	3	13%	3	13%	1	4%
10B	90 Min On-Street	19	9	47%	3	16%	7	37%	7	37%	3	16%	5	26%
10C	90 Min On-Street	9	1	11%	6	67%	7	78%	9	100%	7	78%	8	89%
10D	90 Min On-Street	18	4	22%	5	28%	6	33%	6	33%	4	22%	4	22%
11	Liquor Store	8	5	63%	5	63%	6	75%	6	75%	2	25%	0	0%
11	Grocery	157	70	45%	75	48%	87	55%	79	50%	63	40%	38	24%
11B	90 Min On-Street	20	1	5%	2	10%	4	20%	4	20%	1	5%	0	0%
11/12A	90 Min On-Street	47	9	19%	10	21%	8	17%	9	19%	3	6%	0	0%
11/12C	90 Min On-Street	12	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
12	White Drug	43	9	21%	16	37%	11	26%	10	23%	11	26%	6	14%
12	Security First Bank Lot	23	12	52%	6	26%	7	30%	8	35%	3	13%	0	0%
13	Vision Source	13	5	38%	2	15%	0	0%	2	15%	2	15%	0	0%
13	Coffee Shop Lot	3	2	67%	0	0%	0	0%	1	33%	0	0%	0	0%
13C	90 Min On-Street	3	0	0%	1	33%	1	33%	0	0%	0	0%	0	0%
14C	90 Min On-Street	10	8	80%	8	80%	4	40%	4	40%	0	0%	0	0%
17	Video Store	7	0	0%	1	14%	1	14%	0	0%	4	57%	2	29%
18B	Title Co	4	3	75%	2	50%	2	50%	3	75%	0	0%	0	0%
18C	90 Min On-Street	16	3	19%	3	19%	1	6%	0	0%	0	0%	0	0%
19	Schafer Financial	9	9	100%	5	56%	7	78%	8	89%	2	22%	1	11%
19	Fitness	9	5	56%	8	89%	8	89%	6	67%	1	11%	1	11%
19	Crescent Pringing	24	3	13%	3	13%	4	17%	4	17%	1	4%	2	8%
19A	On-street	12	2	17%	2	17%	3	25%	3	25%	1	8%	1	8%
19C	90 Min On-Street	19	5	26%	6	32%	8	42%	8	42%	7	37%	4	21%
19D	On-street	19	4	21%	2	11%	4	21%	4	21%	1	5%	0	0%
20	City Hall Lot	13	11	85%	10	77%	10	77%	11	85%	2	15%	2	15%
20B	On-street	17	12	71%	8	47%	13	76%	8	47%	0	0%	0	0%
20C	90 Min On-Street	23	4	17%	5	22%	8	35%	5	22%	5	22%	0	0%
20D	On-street	11	2	18%	0	0%	2	18%	1	9%	0	0%	0	0%
21	County Private Lot	47	37	79%	27	57%	36	77%	27	57%	12	26%	18	38%
21A	On-street	24	15	63%	9	38%	16	67%	12	50%	4	17%	4	17%
21B	On-street	22	10	45%	4	18%	10	45%	15	68%	6	27%	4	18%
21C	On-Street	22	9	41%	3	14%	10	45%	7	32%	3	14%	1	5%
21D	On-street	26	15	58%	9	35%	13	50%	14	54%	3	12%	1	4%
22	Easter Seals Lot	14	6	43%	3	21%	7	50%	5	36%	0	0%	0	0%
22	Law Firm	12	3	25%	1	8%	4	33%	4	33%	0	0%	0	0%
22A	2 Hr On-Street	6	1	17%	0	0%	0	0%	0	0%	0	0%	1	17%
22B	90 Min On-Street	5	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
22C	On-Street	23	6	26%	3	13%	9	39%	6	26%	7	30%	4	17%
23C	On-Street	20	5	25%	6	30%	4	20%	5	25%	6	30%	6	30%
23D	On-street	12	2	17%	3	25%	3	25%	4	33%	5	42%	5	42%
35	Post Office Lot	33	12	36%	11	33%	11	33%	10	30%	5	15%	1	3%
35	Church Lot	48	7	15%	6	13%	6	13%	6	13%	1	2%	0	0%
35A	Off Street Lot	13	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
35A	On-street	4	1	25%	0	0%	0	0%	1	25%	1	25%	2	50%
35C	Post Office	13	2	15%	0	0%	3	23%	4	31%	0	0%	0	0%
35D	On-street	10	3	30%	0	0%	1	10%	3	30%	0	0%	0	0%
36A	Unmarked On-Street	13	10	77%	5	38%	6	46%	3	23%	0	0%	0	0%
36B	Administration Building	19	6	32%	4	21%	5	26%	4	21%	2	11%	0	0%
37	County Lot	18	10	56%	9	50%	9	50%	8	44%	7	39%	7	39%
38	City Lot	22	6	27%	6	27%	6	27%	8	36%	7	32%	7	32%
65	Church Lot	21	12	57%	13	62%	10	48%	14	67%	6	29%	1	5%
65A	On-street	28	9	32%	9	32%	8	29%	2	7%	3	11%	0	0%
65B	On-street	4	1	25%	0	0%	0	0%	0	0%	0	0%	0	0%
65C	On-street	29	5	17%	3	10%	5	17%	4	14%	1	3%	0	0%
65D	On-street	25	3	12%	3	12%	3	12%	2	8%	3	12%	1	4%
	Totals	2161	677	31%	663	31%	737	34%	689	32%	457	21%	379	18%

PARKING STUDY FOR THE CITY OF MANDAN

MANDAN, NORTH DAKOTA
 Parking Consultants
RICH
 ARCHITECTS & ASSOCIATES
 1000 UNIVERSITY AVE. SUITE 200
 GRAND FORKES, ND 58005
 TEL: 701.781.9800
 FAX: 701.781.9800
 WWW.RICHARCHITECTS.COM

- LEGEND:**
- # BLOCK NUMBER
 - STUDY AREA
 - OCCUPANCY PERCENTAGE
 - 85% through 100%
 - 75% through 84%
 - 50% through 74%
 - 0 through 49%

Date	ISSUED FOR:
04-28-09	PRELIM. PRESENTATION
06-22-09	DRAFT REPORT
07-15-09	FINAL REPORT

Sheet Title:
**TURNOVER/
 OCCUPANCY**
 03-27-2009 1:00pm - 3:00pm

File No.	09025
Scale	NTS
Last Rev.	07-15-09
Page	16
MAP Number:	

MAP 4

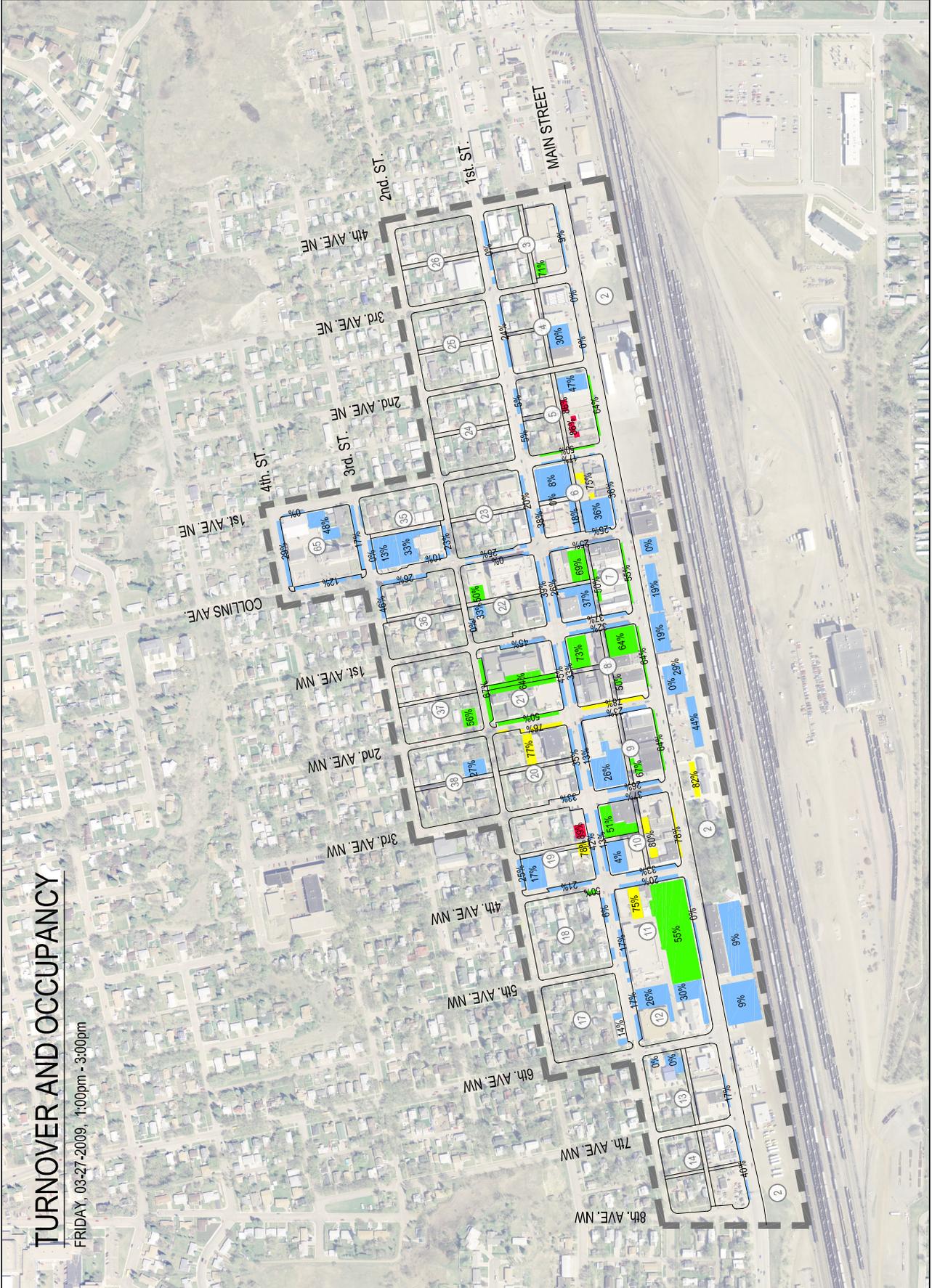


Table 11
City of Mandan, ND
Turnover / Occupancy Wednesday April 29, 2009

Block/ Face	Description	# of Spaces	9:00am - 11:00am	% Occ.	11:00am - 1:00pm	% Occ.	1:00pm - 3:00pm	% Occ.	3:00pm - 5:00pm	% Occ.
2	Library Lot	69	15	22%	23	33%	29	42%	23	33%
2	Lot	70	3	4%	3	4%	3	4%	4	6%
2	Depot Lot	11	3	27%	4	36%	5	45%	6	55%
2	City Reserved Lot A	18	11	61%	13	72%	13	72%	10	56%
2	City Lot B	14	1	7%	1	7%	2	14%	3	21%
2	Private Lot	7	0	0%	2	29%	1	14%	1	14%
2	City Lot C1	52	16	31%	14	27%	15	29%	17	33%
2	Private Lot	11	2	18%	2	18%	0	0%	0	0%
3	Northwest Tire Lot	7	4	57%	7	100%	5	71%	7	100%
3A	On-street	20	1	5%	1	5%	1	5%	2	10%
3C	On-street	11	1	9%	2	18%	1	9%	3	27%
4	Sanitary Plumbing Lot	20	5	25%	4	20%	6	30%	6	30%
4A	On-street	21	4	19%	5	24%	8	38%	4	19%
4C	On-street	7	0	0%	0	0%	0	0%	0	0%
5	Quality Furniture	17	5	29%	8	47%	7	41%	6	35%
5	Alley parking	14	5	36%	9	64%	11	79%	10	71%
5A	On-street	22	2	9%	2	9%	2	9%	4	18%
5C	On-street	11	5	45%	4	36%	2	18%	0	0%
5D	On-street	8	3	38%	5	63%	3	38%	2	25%
6	Gravel Lot	36	19	53%	14	39%	16	44%	11	31%
6	Alley parking	8	9	113%	6	75%	7	88%	0	0%
6	Parking South of Fire Station	9	0	0%	0	0%	0	0%	0	0%
6	City Parking B Lot	50	3	6%	6	12%	6	12%	5	10%
6	Fire Station Lot	16	5	31%	5	31%	6	38%	5	31%
6A	On-street	8	1	13%	1	13%	1	13%	1	13%
6B	On-street	6	4	67%	5	83%	4	67%	4	67%
6C	On-street	11	1	9%	0	0%	2	18%	0	0%
6D	On-street	4	3	75%	2	50%	3	75%	1	25%
7	Starion Bank Lot	30	15	50%	15	50%	15	50%	14	47%
7	City Lot	26	12	46%	10	38%	13	50%	17	65%
7	Alley parking	8	2	25%	1	13%	1	13%	2	25%
7A	On-street	14	7	50%	7	50%	7	50%	7	50%
7B	On-street	8	6	75%	3	38%	2	25%	5	63%
7C	On-street	11	1	9%	3	27%	7	64%	6	55%
7D	On-street	19	8	42%	4	21%	7	37%	5	26%
8	Gravel Lot	30	17	57%	15	50%	19	63%	19	63%
8	Alley parking	2	1	50%	1	50%	2	100%	2	100%
8	Gravel Lot	36	25	69%	24	67%	23	64%	26	72%
8A	On-street	24	10	42%	10	42%	9	38%	10	42%
8B	On-street	22	8	36%	7	32%	6	27%	9	41%
8C	On-street	11	3	27%	5	45%	8	73%	8	73%
8D	On-street	23	15	65%	19	83%	12	52%	20	87%
9	Wells Fargo Lot	53	17	32%	18	34%	18	34%	15	28%
9	Alley parking	6	4	67%	4	67%	6	100%	4	67%
9A	On-street	24	4	17%	4	17%	5	21%	6	25%
9B	On-street	22	3	14%	8	36%	7	32%	11	50%
9C	On-street	11	6	55%	8	73%	6	55%	8	73%
9D	On-street	19	3	16%	6	32%	5	26%	4	21%
10	Elks	26	3	12%	3	12%	3	12%	3	12%
10	Medicine Shop	35	19	54%	19	54%	22	63%	14	40%
10	Alley parking	10	6	60%	5	50%	6	60%	9	90%
10A	On-street	23	1	4%	3	13%	1	4%	3	13%
10B	On-street	19	9	47%	9	47%	9	47%	7	37%
10C	On-street	9	2	22%	5	56%	2	22%	8	89%
10D	On-street	18	2	11%	3	17%	5	28%	3	17%
11	Central Market Lot	157	48	31%	52	33%	67	43%	68	43%
11	Liquor Store Lot	8	5	63%	5	63%	6	75%	6	75%
11/12A	On-street	47	10	21%	13	28%	10	21%	10	21%
11B	On-street	20	4	20%	2	10%	3	15%	2	10%
11/12C	On-street	12	0	0%	0	0%	0	0%	0	0%
12	Security First Bank Lot	23	9	39%	9	39%	7	30%	9	39%
12	White Drug Lot	43	7	16%	11	26%	13	30%	12	28%
13C	On-street	3	1	33%	1	33%	0	0%	1	33%
14C	On-street	10	6	60%	4	40%	4	40%	1	10%
17C	On-street	19	0	0%	0	0%	0	0%	2	11%
18B	On-street	4	1	25%	1	25%	0	0%	1	25%
18C	On-street	16	0	0%	1	6%	2	13%	1	6%
19	Schafer Financial	9	6	67%	8	89%	5	56%	4	44%
19	Anytime Fitness	9	1	11%	1	11%	1	11%	4	44%
19	Crescent Printing	24	12	50%	13	54%	11	46%	9	38%
19A	On-street	12	4	33%	5	42%	4	33%	3	25%
19B	On-street	4	2	50%	1	25%	1	25%	2	50%
19C	On-street	19	5	26%	7	37%	6	32%	7	37%
19D	On-street	19	4	21%	3	16%	5	26%	3	16%
20B	On-street	20	20	100%	20	100%	18	90%	16	80%
20C	On-street	18	9	50%	8	44%	5	28%	7	39%
20D	On-street	11	13	118%	9	82%	11	100%	12	109%
21	County Private Lot	45	35	78%	36	80%	36	80%	34	76%
21A	On-street	24	18	75%	14	58%	16	67%	20	83%
21B	On-street	22	20	91%	11	50%	14	64%	9	41%
21C	On-street	22	6	27%	10	45%	11	50%	14	64%
21D	On-street	26	20	77%	20	77%	19	73%	19	73%
22	Easter Seals Lot	14	3	21%	3	21%	6	43%	6	43%
22	Law Firm Lot	12	4	33%	4	33%	3	25%	4	33%
22B	On-street	5	0	0%	0	0%	0	0%	0	0%
22C	On-street	23	2	9%	3	13%	5	22%	6	26%
23C	On-street	20	7	35%	5	25%	4	20%	5	25%
23D	On-street	12	2	17%	2	17%	1	8%	2	17%
23	Library Square	35	28	80%	22	63%	23	66%	26	74%
35	Post Office Lot	33	14	42%	11	33%	13	39%	8	24%
35	Church Lot	48	9	19%	10	21%	4	8%	3	6%
35A	On-street	17	4	24%	2	12%	1	6%	1	6%
35C	On-street	13	3	23%	4	31%	1	8%	2	15%
35D	On-street	10	0	0%	1	10%	3	30%	1	10%
36	Private Lot	4	3	75%	2	50%	3	75%	3	75%
36A	On-street	13	11	85%	10	77%	9	69%	8	62%
36B	On-street	19	11	58%	10	53%	8	42%	8	42%
37	County Private Lot	18	13	72%	14	78%	13	72%	13	72%
38	City Lot	22	7	32%	7	32%	7	32%	7	32%
65	Church Lot	21	14	67%	15	71%	15	71%	13	62%
65A	On-street	28	14	50%	12	43%	12	43%	12	43%
65B	On-street	4	3	75%	2	50%	3	75%	3	75%
65C	On-street	29	2	7%	3	10%	4	14%	4	14%
65D	On-street	25	5	20%	5	20%	3	12%	4	16%
	Totals	2168	765	35%	779	36%	801	37%	795	37%

PARKING STUDY FOR THE CITY OF MANDAN

MANDAN, NORTH DAKOTA
 Parking Consultants
RICH
 ARCHITECTS & ENGINEERS
 A ASSOCIATE
 1000 15th Street, NW
 Mandan, ND 58542
 Tel: 701-651-9800
 Fax: 701-651-9801
 www.richna.com

- LEGEND:**
- ⊕ BLOCK NUMBER
 - ▬ STUDY AREA
 - █ OCCUPANCY PERCENTAGE
 - 85% through 100%
 - 75% through 84%
 - 50% through 74%
 - 0 through 49%

Date	ISSUED FOR:
06-02-09	DRAFT REPORT
07-15-09	FINAL REPORT

Sheet Title:
**TURNOVER/
 OCCUPANCY**
 04-29-2009 1:00pm - 3:00pm

File No.	0925
Scale	NTS
Last Rev.	07-15-09
Page	18
MAP Number:	

MAP 5

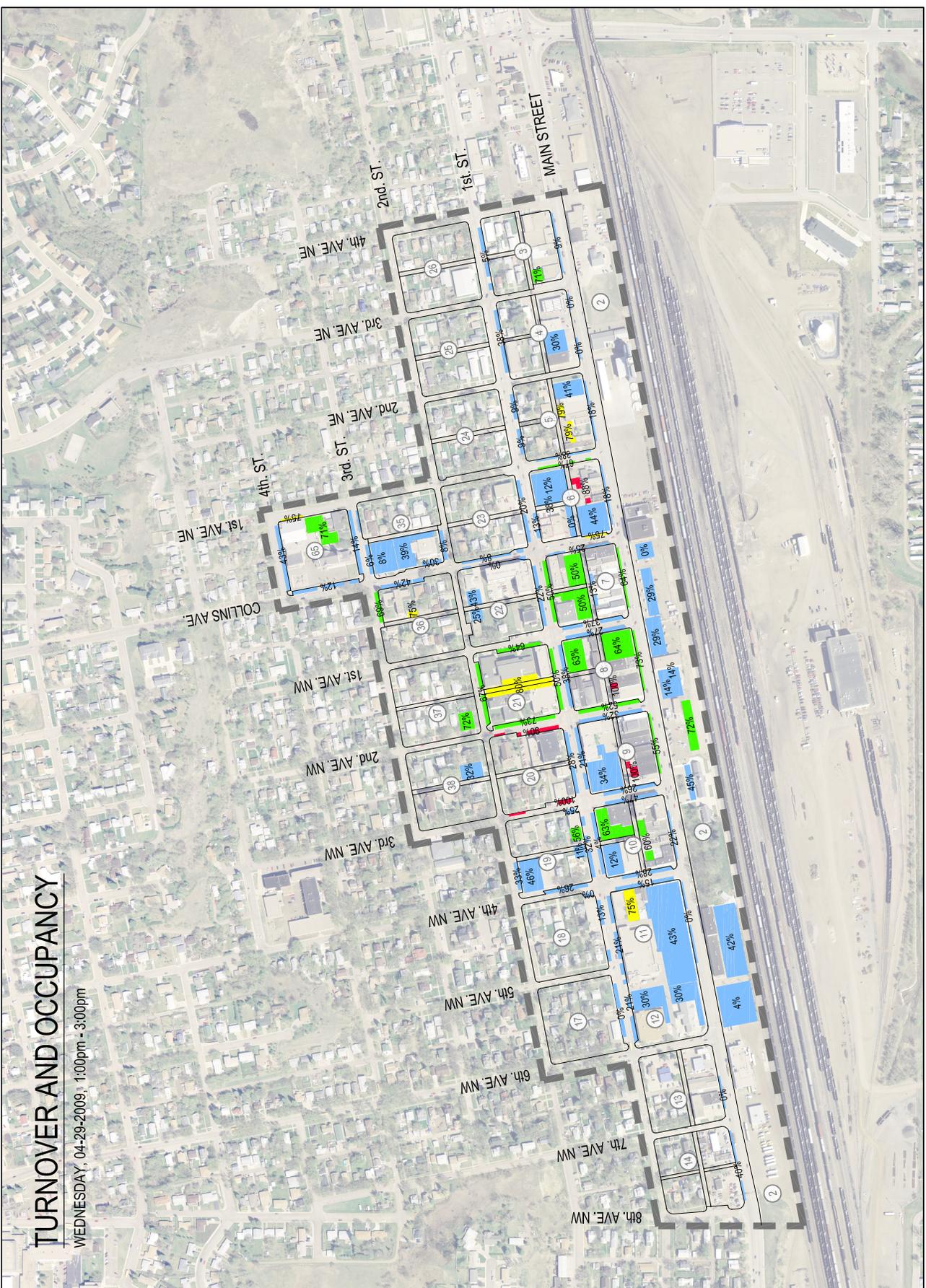


Table 1J
City of Mandan, ND
Turnover / Occupancy Saturday March 28, 2009

Block/ Face	Description	# of Spaces	9:00am - 11:00am	% Occ.	11:00am - 1:00pm	% Occ.	1:00pm - 3:00pm	% Occ.	3:00pm - 5:00pm	% Occ.
2	Library Lot	139	9	6%	14	10%	10	7%	5	4%
2	Depot Lot	11	1	9%	2	18%	5	45%	4	36%
2	Movie/Pizza Lot	7	2	29%	3	43%	3	43%	3	43%
2	City Lot	14	0	0%	3	21%	4	29%	4	29%
2	City Lot A	18	3	17%	3	17%	4	22%	3	17%
2	City Remediation Lot	52	0	0%	1	2%	3	6%	6	12%
2	Pvt. Lot	11	0	0%	0	0%	0	0%	0	0%
3A	90 Min on-street	20	0	0%	0	0%	0	0%	0	0%
3B	Northwest Tire Lot	7	3	43%	3	43%	3	43%	0	0%
3C	90 Min on-street	11	1	9%	2	18%	2	18%	1	9%
4A	90 Min on-street	21	2	10%	0	0%	2	10%	4	19%
4C	90 Min on-street	7	0	0%	0	0%	0	0%	0	0%
4C	Sanitary Plumbing	20	4	20%	2	10%	2	10%	3	15%
5	Quality Home Furniture	17	4	24%	4	24%	4	24%	2	12%
5	Alley	14	10	71%	10	71%	6	43%	7	50%
5A	90 Min on-street	22	1	5%	1	5%	2	9%	1	5%
5C	90 Min on-street	11	5	45%	10	91%	7	64%	6	55%
5D	90 Min on-street	8	7	88%	8	100%	6	75%	4	50%
6	City Lot B	50	8	16%	9	18%	8	16%	5	10%
6	Fire Station Stalls	11	0	0%	0	0%	1	9%	0	0%
6	South Side of Fire Station	11	1	9%	1	9%	0	0%	1	9%
6	Gravel Lot	36	8	22%	9	25%	5	14%	4	11%
6	Alley	8	5	63%	3	38%	5	63%	3	38%
6A	90 Min on-street	8	2	25%	1	13%	3	38%	2	25%
6B	90 Min on-street	6	6	100%	4	67%	6	100%	2	33%
6C	90 Min on-street	11	3	27%	2	18%	3	27%	1	9%
6D	90 Min on-street	4	4	100%	3	75%	1	25%	0	0%
7	Starion Lot	30	5	17%	4	13%	7	23%	7	23%
7	City Lot	26	14	54%	15	58%	15	58%	9	35%
7	Alley	8	1	13%	2	25%	1	13%	1	13%
7A	90 Min on-street	23	2	9%	2	9%	1	4%	0	0%
7B	90 Min on-street	8	6	75%	3	38%	1	13%	2	25%
7C	90 Min on-street	11	4	36%	8	73%	7	64%	8	73%
7D	90 Min on-street	19	3	16%	2	11%	6	32%	6	32%
8	Alley	2	2	100%	2	100%	1	50%	2	100%
8	Gravel Lot	36	7	19%	8	22%	11	31%	9	25%
8	Gravel Lot	30	12	40%	11	37%	11	37%	12	40%
8A	90 Min on-street	24	0	0%	3	13%	0	0%	2	8%
8B	90 Min on-street	22	6	27%	8	36%	6	27%	5	23%
8C	90 Min on-street	11	4	36%	4	36%	5	45%	6	55%
8D	90 Min on-street	23	11	48%	18	78%	19	83%	17	74%
9	Wells Fargo Lot	53	10	19%	13	25%	3	6%	1	2%
9	Alley	6	1	17%	1	17%	2	33%	0	0%
9A	90 Min on-street	24	5	21%	6	25%	4	17%	5	21%
9B	90 Min on-street	22	10	45%	12	55%	11	50%	10	45%
9C	90 Min on-street	11	4	36%	11	100%	12	109%	8	73%
9D	90 Min on-street	19	8	42%	12	63%	13	68%	4	21%
10	Medicine Shop	35	10	29%	12	34%	1	3%	4	11%
10	Elks Lot	26	2	8%	2	8%	3	12%	3	12%
10	Alley	10	3	30%	4	40%	6	60%	5	50%
10A	90 Min on-street	23	1	4%	2	9%	2	9%	1	4%
10B	90 Min on-street	19	5	26%	9	47%	9	47%	8	42%
10C	90 Min on-street	9	3	33%	4	44%	7	78%	6	67%
10D	90 Min on-street	11	3	27%	3	27%	3	27%	1	9%
11	Licquor Store	8	0	0%	0	0%	1	13%	1	13%
11	Grocery Lot	157	49	31%	74	47%	81	52%	74	47%
11	Security First	23	1	4%	1	4%	1	4%	1	4%
11B	90 Min on-street	20	1	5%	1	5%	1	5%	2	10%
11/12A	90 Min on-street	47	1	2%	4	9%	4	9%	1	2%
11/12C	90 Min on-street	12	0	0%	0	0%	0	0%	0	0%
12	Thrifty White	43	7	16%	11	26%	18	42%	16	37%
13	Coffee Shop	3	2	67%	0	0%	2	67%	1	33%
13	Vision Source	13	0	0%	1	8%	1	8%	1	8%
13C	90 Min on-street	3	0	0%	0	0%	0	0%	0	0%
14C	90 Min on-street	10	5	50%	3	30%	4	40%	4	40%
17C	On-Street	19	0	0%	0	0%	1	5%	1	5%
18B	On-Street	4	0	0%	0	0%	0	0%	0	0%
18C	On-Street	16	0	0%	0	0%	0	0%	0	0%
19	Law Lot	9	2	22%	2	22%	1	11%	1	11%
19	Fitness Lot	9	2	22%	4	44%	1	11%	0	0%
19	Copy Shop Lot	24	1	4%	2	8%	1	4%	2	8%
19A	On-Street	12	1	8%	1	8%	1	8%	1	8%
19B	On-Street	4	0	0%	0	0%	0	0%	0	0%
19C	90 Min on-street	19	4	21%	13	68%	3	16%	4	21%
19D	On-Street	19	4	21%	2	11%	2	11%	2	11%
20B	On-Street	17	0	0%	1	6%	0	0%	0	0%
20B	City Lot	17	3	18%	3	18%	3	18%	3	18%
20C	90 Min on-street	23	2	9%	9	39%	1	4%	7	30%
20D	On-Street	11	2	18%	2	18%	1	9%	1	9%
21A	On-Street	24	2	8%	1	4%	1	4%	1	4%
21C	90 Min on-street	22	1	5%	2	9%	3	14%	2	9%
21D	On-Street	26	1	4%	0	0%	1	4%	1	4%
22	Easter Seals Lot	14	1	7%	0	0%	0	0%	0	0%
22	Law Firm Lot	12	0	0%	0	0%	0	0%	0	0%
22A	On-Street	6	0	0%	0	0%	0	0%	0	0%
22B	On-Street	5	0	0%	0	0%	0	0%	0	0%
22C	90 Min on-street	23	4	17%	7	30%	6	26%	7	30%
22D	On-Street	12	3	25%	2	17%	2	17%	4	33%
23C	90 Min on-street	20	6	30%	9	45%	7	35%	5	25%
23C	Post Office	12	2	17%	2	17%	1	8%	2	17%
28B	City Lot	22	6	27%	6	27%	6	27%	6	27%
35	Post Office	33	14	42%	13	39%	8	24%	10	30%
35C	Post Office	13	2	15%	2	15%	1	8%	1	8%
35D	On-Street	10	1	10%	0	0%	0	0%	0	0%
36A	On-Street	13	0	0%	0	0%	0	0%	0	0%
36B	On-Street	19	1	5%	2	11%	0	0%	0	0%
37B	County Lot	16	7	44%	7	44%	7	44%	7	44%
	Totals	1940	369	19%	466	24%	433	22%	382	20%



Downtown Parking Study

During the turnover and occupancy study there were 61 violations observed on Friday, March 27 and 117 violations observed on Wednesday, April 29. This information is shown in **Table 1K** and graphically on **Maps 7** and **8**. The importance of examining the number of violations is to help understand whether increased parking enforcement will aid in increasing turnover. Rich and Associates believes that in Mandan's case, increased enforcement would positively impact the parking system. Most communities experience a gradual decline in the number of tickets issued as individuals follow parking regulations more closely.

**Table 1K
Turnover Summary**

Friday March 27, 2009

Parking Turnover Summary (by type)	On-Street 90 Minute Parking
Vehicles that remained less than 2 hours	268 (81%)
Vehicles that remained between 2 and 4 hours	39 (12%)
Vehicles that remained between 4 and 6 hours	12 (4%)
Vehicles that remained between 6 and 8 hours	10 (3%)
analyzed (9:00 A.M. - 5:00 P.M.) in 90 min stalls	329
Total number of 90 min stalls analyzed	382
**Turnover of two hour spaces continued until 5:00 P.M.	
Source: Rich and Associates Field Observations, Friday March 27, 2009	

Wednesday April 29, 2009

Parking Turnover Summary (by type)	On-Street 90 Minute Parking
Vehicles that remained less than 2 hours	366 (76%)
Vehicles that remained between 2 and 4 hours	67 (14%)
Vehicles that remained between 4 and 6 hours	17 (3%)
Vehicles that remained between 6 and 8 hours	33 (7%)
analyzed (9:00 A.M. - 5:00 P.M.) in 90 min stalls	483
Total number of 90 min stalls analyzed	584
**Turnover of two hour spaces continued until 5:00 P.M.	
Source: Rich and Associates Field Observations, Wednesday April 29, 2009	

PARKING STUDY FOR THE CITY OF MANDAN

MANDAN, NORTH DAKOTA



LEGEND:

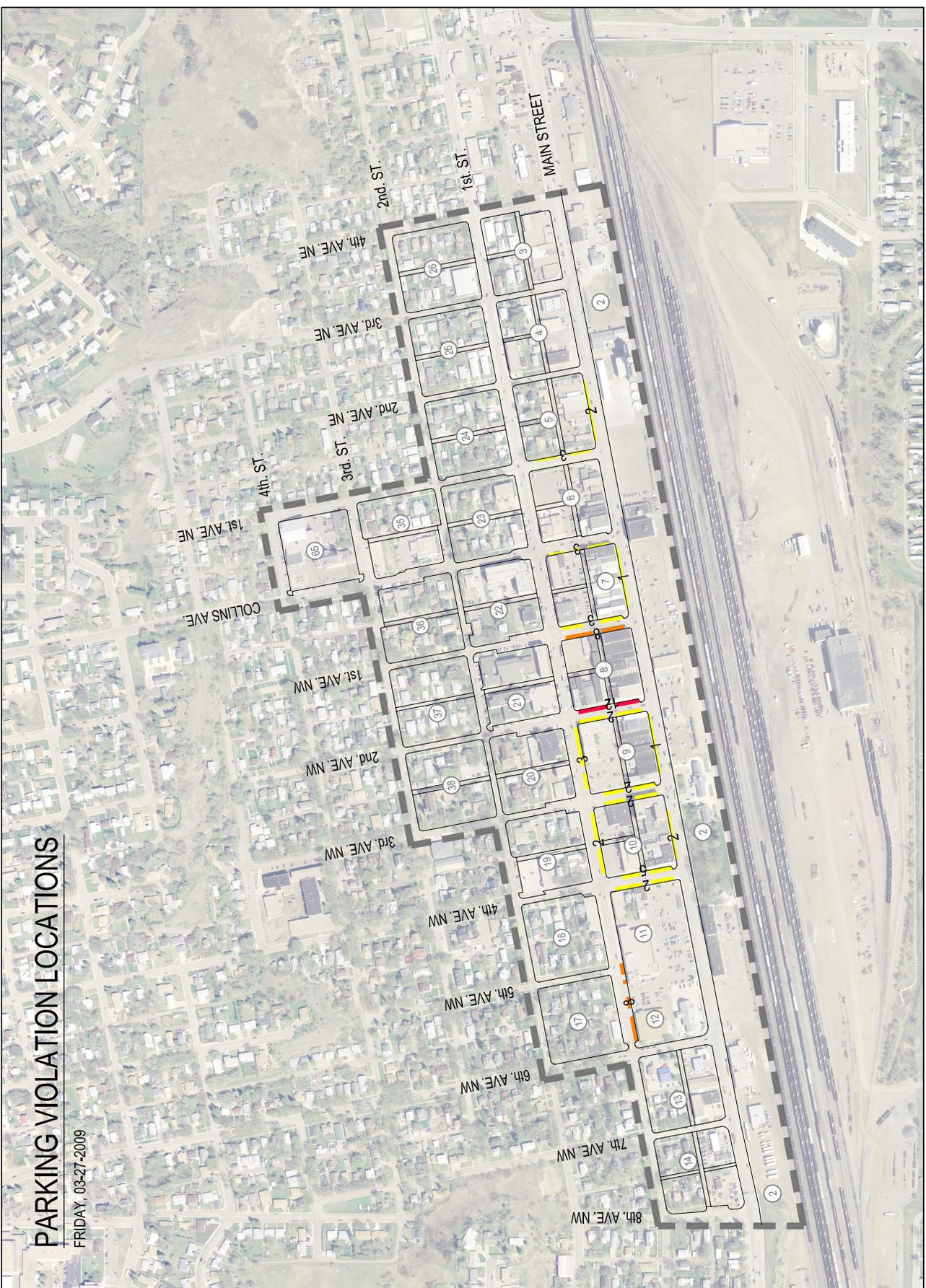
- # BLOCK NUMBER
- STUDY AREA
- NUMBER OF VIOLATIONS
- 11+ (Red)
- 6 through 10 (Orange)
- 1 through 5 (Yellow)

Date	ISSUED FOR:
06-02-09	DRAFT REPORT
07-15-09	FINAL REPORT

Sheet Title:
PARKING VIOLATIONS LOCATIONS
 FRIDAY, 03-27-2009

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MAP 7



PARKING VIOLATION LOCATIONS
 FRIDAY, 03-27-2009

PARKING STUDY FOR THE CITY OF MANDAN

MANDAN, NORTH DAKOTA



LEGEND:

	BLOCK NUMBER
	STUDY AREA
	NUMBER OF VIOLATIONS
	11 +
	6 through 10
	1 through 5

Date	ISSUED FOR:
06-02-09	DRAFT REPORT
07-15-09	FINAL REPORT

PARKING VIOLATION LOCATIONS
 WEDNESDAY, 04-29-2009

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Scale	NTS
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MAP 8

