



Downtown Parking Study

Part Two – Examining Parking Requirements

Calculating parking required is based on an analysis of the number of parking spaces demanded and/or needed to serve the size and type of buildings present in downtown Mandan and for future uses planned or proposed. Most parking requirements are based on the floor area of a particular development and the actual generation rate or parking ratio is tied to the use type.

Table 2A demonstrates the parking ratios established for Mandan by Rich and Associates compared with national averages from the Institute of Transportation Engineers (ITE) and the Mandan City Ordinance. ITE ratios are based on nationally conducted surveys and in some cases the survey sample size is very small. In general, the ITE parking generation ratios are assumed to be higher than necessary in a downtown setting where shared use and public parking opportunities help to address the peak parking needed for various uses at different times of the day. Note that Mandan’s parking requirement are not applied in the Downtown Parking District and are offered for comparison only.

Table 2A: Parking Generation Rate Comparison			
<i>Parking Ratios (Parking stalls per 1,000 gross square feet unless otherwise noted)</i>	Established for Mandan:	Institute of Transportation Engineers (ITE)	Mandan Ordinance (1)
Office	2.75	2.79	2.50
Retail	2.78	3.97	5.00
Service	2.41	3.60	(varies)
Government	3.80	4.15	2.50
Restaurant	8.52	12.49	(varies)
Residential (per unit)	1.25	1.50	1.00
Bar	14.30	n/a	(varies)
Mixed Use	3.25	3.25	(varies)
Community	0.81	3.00	2.50 (varies)
Light Ind./Warehouse	0.36	2.79	0.75/0.41

(1) Mandan Ordinance 21-03-10 (Note: not applicable in the Downtown Parking District, for comparison purposes only)

Rich and Associates is recommending that consideration be given to using the ratios established for Mandan in **Table 2A** as a guideline for determining parking need for various development proposals. These ratios are designed around a peak daytime need. When considering how parking needs change over the course of a day, shared-use of parking can also be taken into consideration to help reduce parking even further.



Downtown Parking Study

Shared parking works by serving different adjacent buildings at varying times of the day. For example, most restaurants have their highest parking demand time in the evening. This correlates with individuals going out for dinner. Lunch and breakfast can be different in a downtown because many of the patrons are also individuals who work downtown or are people who would be coming downtown to visit different commercial establishments.

By contrast, most office space experiences a peak parking demand time in the early to mid-morning hours, when most employees are at work. If a common and accessible parking area where to service both an office use and a restaurant use, the variance between peak parking times allows for a complimentary use of parking.

Exhibit A is based on a sample where parking provision for a group of buildings in a downtown area was applied per typical ITE requirements. In this example, developers would be required to provide parking on site for the various buildings. The provided parking would then be 'private parking' for each individual building and therefore technically unavailable to serve other buildings in the area.

Exhibit A: Standard Parking Requirements

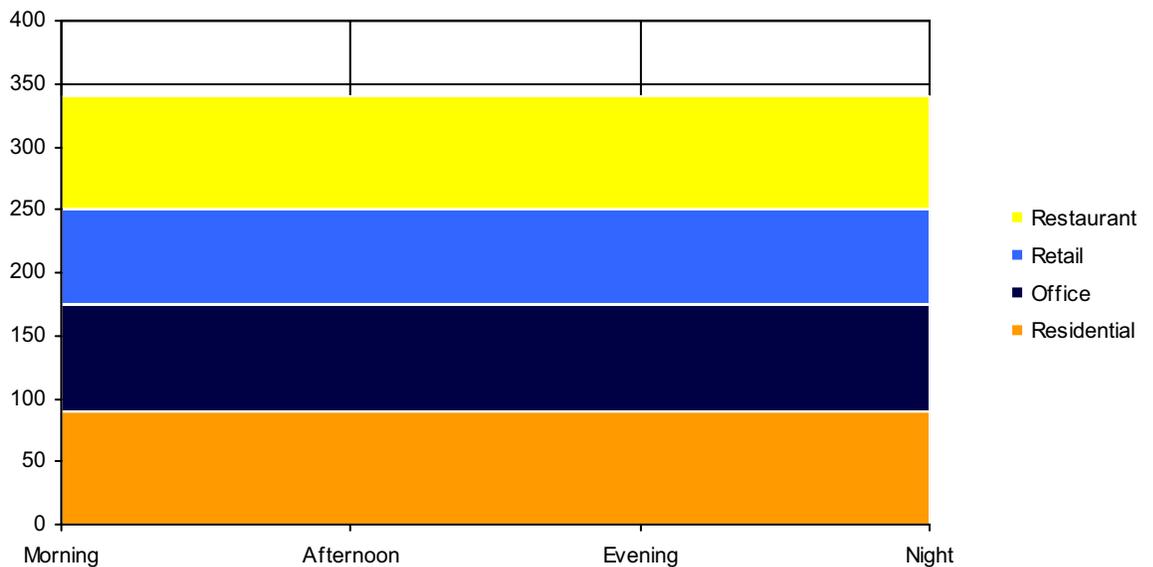


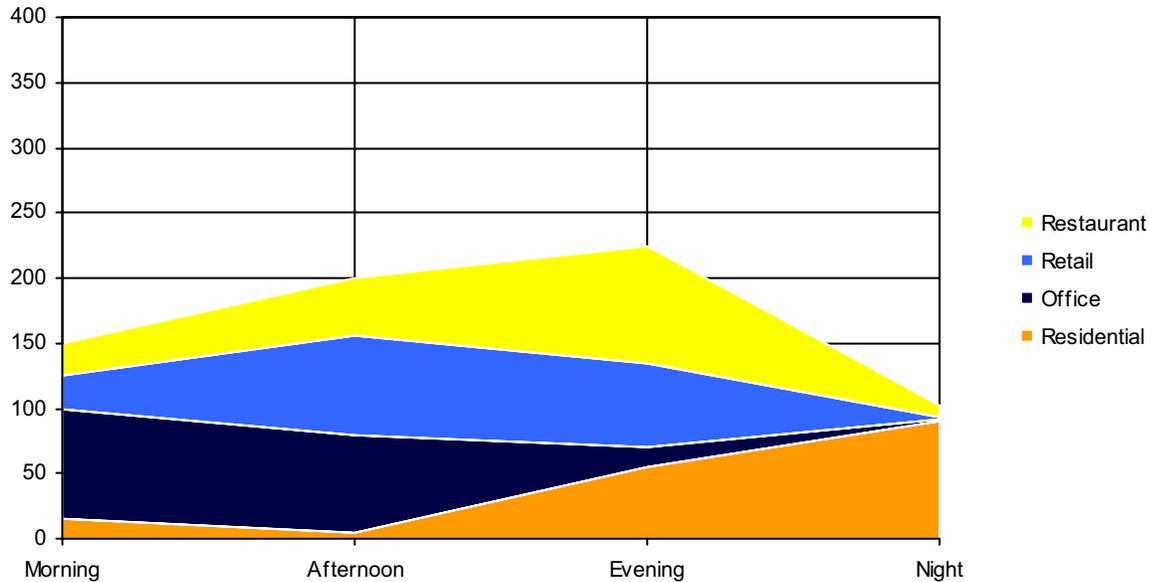
Exhibit A illustrates how much parking a development scenario may require using typical zoning requirements. **Exhibit B** illustrates how that same development scenario actually behaves due to the nature of the different uses and how they require different amounts of parking at different times of the day. Fundamentally, the concept of sharing the parking with multiple uses helps to reduce the overall amount of parking needed. In **Exhibit B**, the reduction is 34%, or 115 parking stalls.



Downtown Parking Study

Exhibit B demonstrates how different building use types require parking at varying times of the day. The chart is based on Urban Land Institute (ULI) research into the dynamics of how different use types peak with regard to building occupancy.

Exhibit B: Shared Use Parking Requirements



At issue is the fact that private parking is often exclusionary for a specific building. Private owners are reluctant to allow others to use their parking due to maintenance and insurance issues. As a result, parking areas are often underutilized for most of the day and or evening since the amount of parking provided is based on the particular buildings peak daily need according to use.

In the above example, a group of buildings required approximately 340 parking stalls. The amount of parking provided can be thought of in two ways; land area and/or construction cost. As more parking is required in a downtown setting, less land is available for building space. Similarly, the actual cost of building and maintaining parking needs to be considered as part of the equation.

Finally, traditional zoning does not assume use changes over time. Buildings in downtown’s can and do often outlast the use they were originally designed for. The building can be retrofitted to accommodate new uses. However, changes to the amount of parking needed are more difficult when much of the downtown parking is private. What Rich and Associates has seen in other communities is that maturing downtown’s with increasing residential components often have gradual increases in the number of restaurants, particularly restaurants that are put into older building space.



Downtown Parking Study

The growth of a restaurant sector in a downtown can be a positive indicator of transition towards a high quality, economically successful and more diverse downtown area. Restaurants are also one of the most difficult retro-fit projects to provide parking for.

In general, downtowns are ideal places to share resources such as parking facilities between uses due to their close proximity. Additionally, the availability of transportation alternatives helps to reduce the need for parking as individuals can then choose to use their automobiles less.

Exhibit B illustrates how shared parking can reduce the overall amount of parking necessary in a downtown setting. In order for shared parking to be optimized, it is necessary to have as much public parking as possible in order to ensure that the parking is equally available to all users. This allows for a natural balance to occur between supply and demand.

Exhibit B demonstrates the actual need for parking from the same example as presented in **Exhibit A**, only based on the assumption of fully shared parking. With a more realistic view of the amount of parking each use actually needs over course of a day, the example illustrates that only 225 parking stalls are necessary to service the same amount of building space.

Shared parking is not wholly validated on the varying amounts of parking needed by time of day for a particular use. Shared use can also be attributed to linked trips, modal split and passengers per vehicle. A linked trip is an expression used when patrons visiting a given commercial business may visit a second (or more) commercial business without re-parking their car. For example, if a person stops at a restaurant for lunch and then shops at a store without moving their vehicle, they have visited two different commercial businesses and their trip is now referred to as linked.

Modal split is simply a reference to what percentages of people arrive by personal vehicle versus some other form of transportation such as taxi, bus, walking, bicycle, etc. Urban areas, for example, experience a modal split where approximately 85% to 95% of individuals travel by personal automobile. In Mandan's case, mobility is virtually 95% via personal automobile. However, future emphasis on pedestrian activity and the development of residential uses within the core downtown area will help increase the application of shared parking by allowing some individuals to choose to travel on foot instead of by automobile.

Depending on the nature of the trip, there can also be a variation in the number of passengers in a vehicle. For example, a family going to a restaurant may all ride together in a vehicle, while a business-person may travel alone to a restaurant. In the family dining out example, one parking stall is needed to park an entire family of three or four individuals. In the business-person example, only one person rode in the vehicle to go to the restaurant. Overall the rider-ship or passengers in a vehicle varies according to the nature of the trip, but can be summarized as average passengers per vehicle that when applied with the modal split and shared use considerations, will yield a more accurate parking need for an urban setting



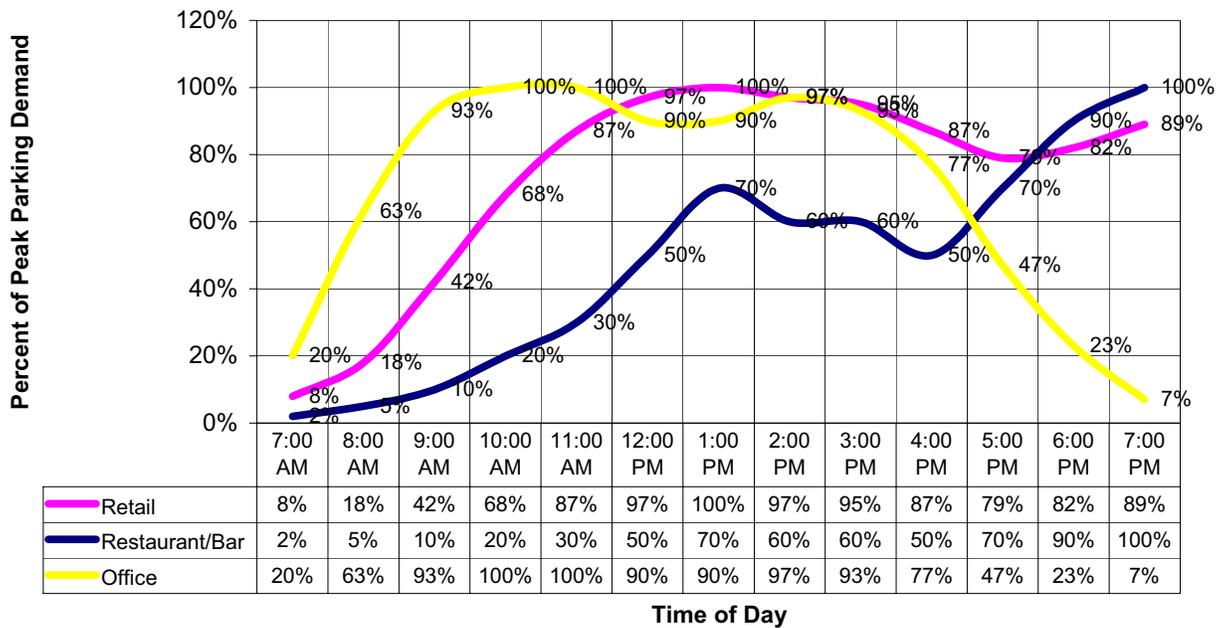
Downtown Parking Study

Part Three – Downtown Development

Figure A, below, demonstrates how shared use can be applied as a peak percentage over the course of a day. The uses included in the chart are retail, restaurant, bar and office space. In some instances, residential uses that are a component of a planned development are built with dedicated residential parking. Similar to private parking, dedicated or resident only parking prevents shared use from taking advantage of daytime residential parking opportunities. Therefore, the chart demonstrates how common downtown building uses could use parking in a shared manner. The application of shared use would typically save capital and land resources when applied to a development by reducing the overall amount of parking needed.

Figure A: Application of Shared Use Percentages

(Hourly Parking Demand Variations By Use)





Downtown Parking Study

Part Four – Study Area Parking Demand

Calculating parking demand is a mathematical assessment of how many parking stalls are required based on the gross floor area for a given land use. As previously covered, parking generation ratios vary according to use and are applied to the floor area as the number of parking stalls required per 1,000 square feet of gross building area. **Table 4A** and **Map 9** demonstrate the amount of parking demanded to serve the current need in the downtown area.

The base parking demand illustrated in **Table 4A** and **Map 9** for the downtown is unadjusted and would represent how much parking is demanded. **Part 7**, of this report explores the parking delivery options and the potential reductions in parking based on the principles of shared use.



Downtown Parking Study

Table 4A: Parking Calculation Worksheet

	Demand (current)	Future Adjust.	5 yr. Peak Demand	10 yr. Peak Demand	Parking Supply	Surplus/ Deficit (current)	Surplus/ Deficit (5 years)	Surplus/ Deficit (10 years)
Block	Day							
2	186	0	217	248	387	201	170	139
3	109	0	109	109	55	-54	-90	-90
4	23	0	38	54	65	42	27	11
5	116	0	118	119	72	-44	-82	-83
6	52	53	105	105	151	99	46	46
7	223	0	224	225	130	-93	-94	-95
8	170	68	254	271	180	10	-74	-91
9	172	0	198	223	127	-45	-71	-96
10	164	0	199	234	142	-22	-57	-92
11	127	0	127	127	226	99	99	99
12	60	0	60	60	82	22	22	22
13	48	0	53	58	60	12	7	2
14	10	0	10	10	41	31	31	31
17	6	18	24	24	37	31	13	13
18	2	0	10	17	35	33	25	18
19	62	0	62	62	109	47	47	47
20	111	0	124	137	72	-39	-52	-65
21	210	0	210	210	117	-93	-93	-93
22	93	0	93	93	145	53	53	53
23	33	0	33	33	41	8	8	8
24	0	0	0	0	26	26	26	26
25	0	0	0	0	28	28	28	28
26	29	0	29	29	8	-21	-21	-21
35	30	0	30	30	121	91	91	91
36	41	0	41	41	50	9	9	9
37	0	0	0	0	21	21	21	21
38	7	0	7	7	33	26	26	26
65	43	0	43	43	107	64	64	64
	2,126	139	2,417	2,570	2,668	542	179	26
	(stalls)	(stalls)	(stalls)	(stalls)	(stalls)	(stalls)	(stalls)	(stalls)

72 Redev. Site Parking
470 Adj. Current Surplus

Note: The highlighted blocks (7, 8, 9, 10, 19, 20, 21, 22) represent the core downtown blocks.

PARKING STUDY FOR THE CITY OF MANDAN

MANDAN, NORTH DAKOTA



LEGEND:

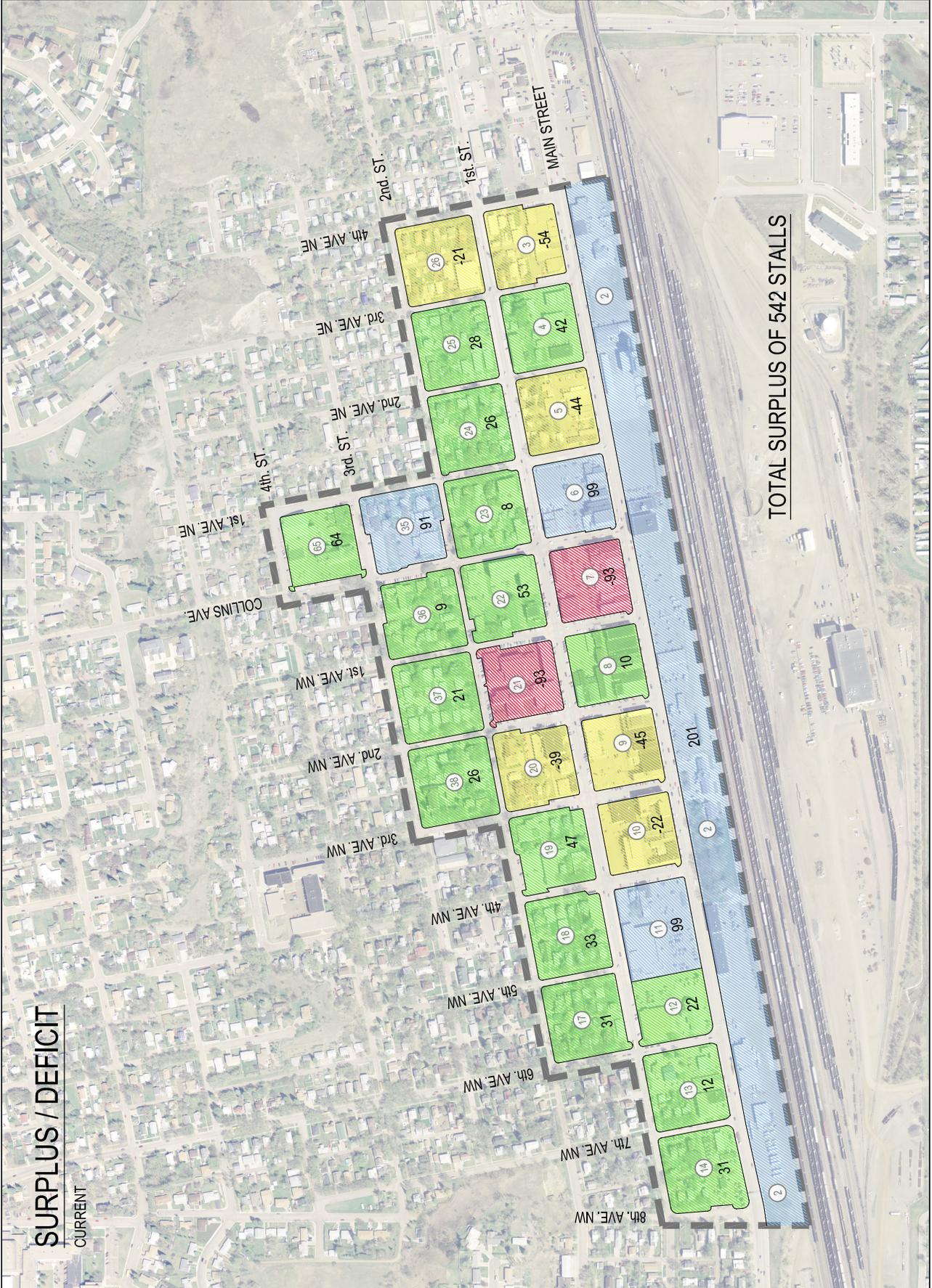
- # BLOCK NUMBER
- STUDY AREA
- SURPLUS / DEFICIT**
- 75 and lower
- 1 through -75
- 0 through +75
- +75 and higher

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

Sheet Title:
SURPLUS / DEFICIT
 (current)

File No.	0905
Scale	NTS
Last Rev.	07-15-09
Page	31
MAP Number:	

MAP 9





Downtown Parking Study

Part Five – Future Study Area Parking Demand

Future parking demand increases with the proposed redevelopments in the downtown area. In examining the parking demand, there is a current shortage of about 180 parking stalls in the core downtown area (highlighted in **Table 4A**). This shortage is being addressed by the relative surplus of parking in surrounding areas and the informal parking occurring on redevelopment sites, although readily finding a parking stall in the core area does present frustrations for employees, customers and visitors.

Within five years we project the deficit to grow to approximately 340 parking stalls in the core downtown area. This deficit is based on the redevelopment plans for the downtown and a 40% reoccupancy of existing vacant space. The five year scenario is a considerable deficit and will require that the City contemplate new parking initiatives in addition to the parking efficiency enhancements that are discussed in **Sections 9 – 11**.

PARKING STUDY FOR THE CITY OF MANDAN

MANDAN, NORTH DAKOTA

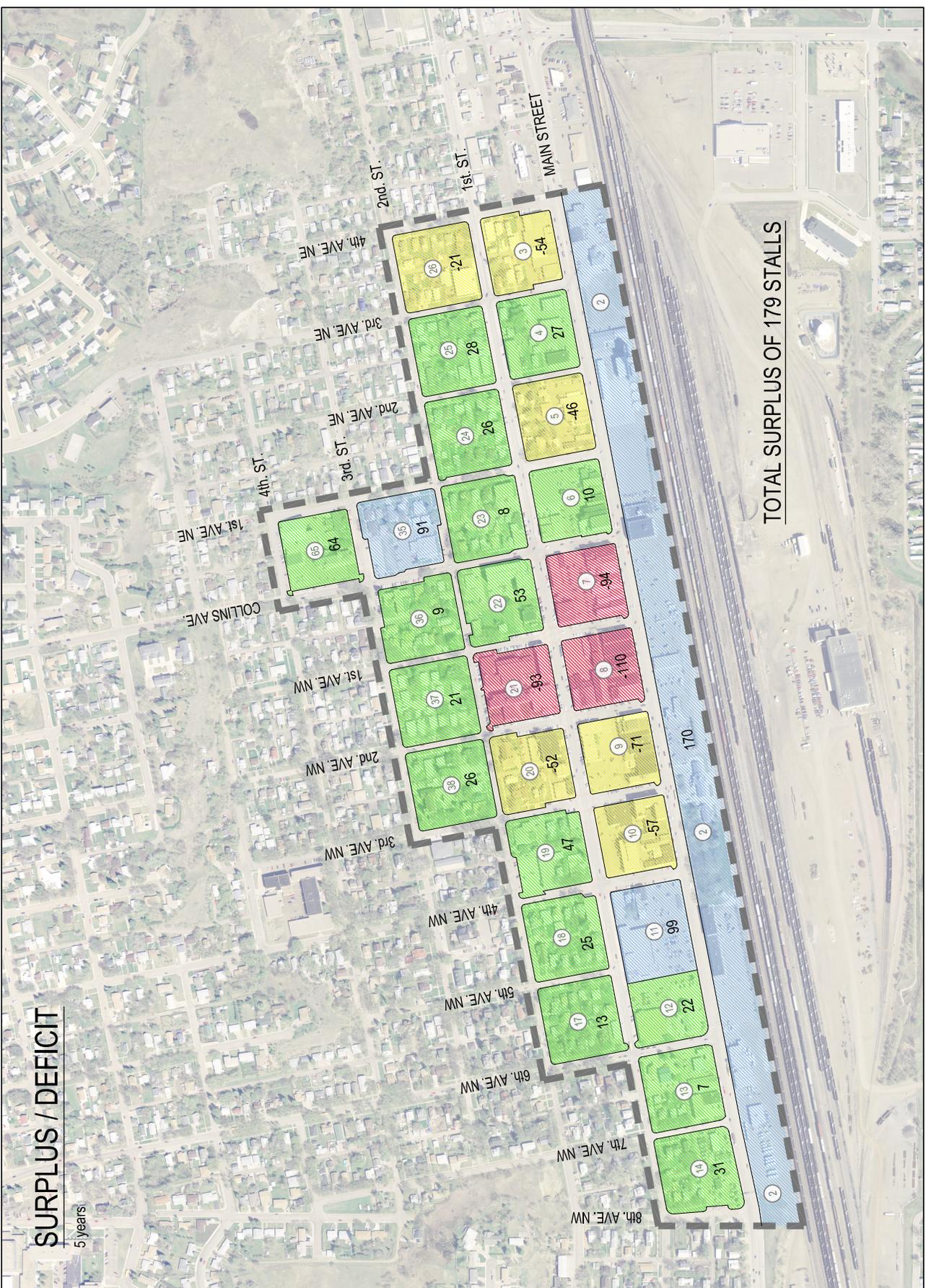


- LEGEND:**
- # BLOCK NUMBER
 - STUDY AREA
 - SURPLUS / DEFICIT**
 - 75 and lower
 - 1 through -75
 - 0 through +75
 - +75 and higher

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

Sheet Title:
SURPLUS / DEFICIT
 (5 years)

File No.	0905
Scale	NTS
Last Rev.	07-15-09
Page	34
MAP NUMBER:	MAP 11



**PARKING
STUDY
FOR
THE CITY OF
MANDAN**

MANDAN, NORTH DAKOTA

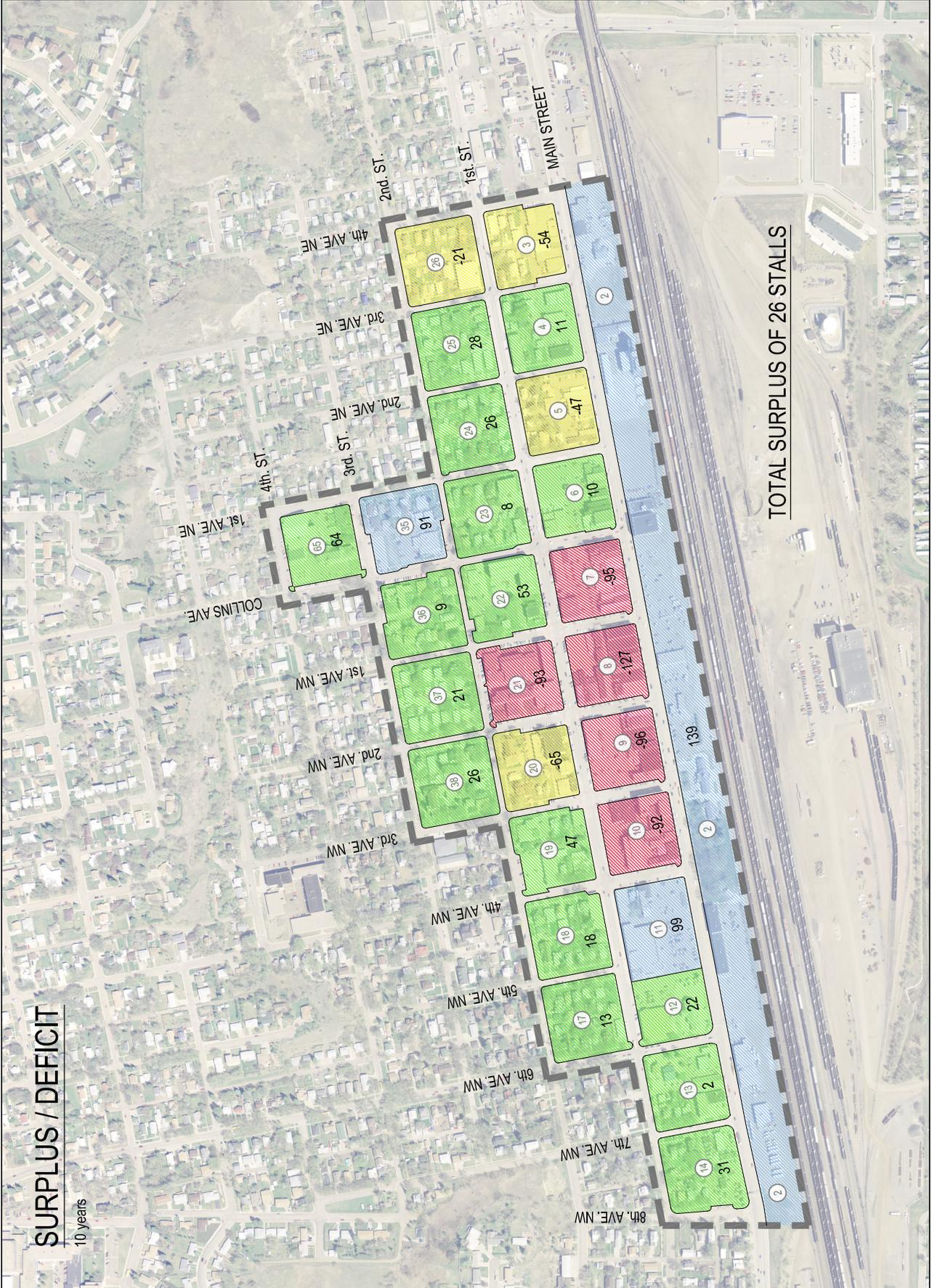
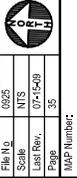


LEGEND:

- # BLOCK NUMBER
- STUDY AREA
- SURPLUS / DEFICIT**
- 75 and lower
- 1 through -75
- 0 through +75
- +75 and higher

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

SURPLUS / DEFICIT (10 years)	
File No.	09025
Scale	NTS
Last Rev.	07-15-09
Page	35
MAP NUMBER:	MAP 12





Downtown Parking Study

Part Six –Public Input

Public input was solicited in the form of Parking Steering Committee Meetings, open Public Meetings, surveys and stakeholder input interviews. In total, 346 individuals had an opportunity to help formulate the Downtown Parking Plan.

The Parking Steering Committee was charged with providing input and feedback at the initiation of the project to aid consulting staff in formulating a project approach. Later the Parking Steering Committee aided by providing feedback and guidance with the recommendations formulated for the community. Below is a listing of the twenty members that made up the Downtown Parking Plan Parking Steering Committee. These included the on-going members; additional individuals added for the study purpose and City staff liaisons.

Parking Steering Committee Members:

- Lee Fleischer, Chairman, Horace Mann Insurance
- Jerome Gangl, City Commissioner & Jerry's Vacuum Center
- Jim Avard, Sewing Machines Plus
- Monte Chase, Mannatech & Not Plane Jane
- Larry Goetzfridt, Simply Wood Furniture
- Julie Haibeck, Golden Comb
- Jay Feil, Starion Financial

Other Downtown Representatives:

- Nick Renner, Mandan Sporting Goods
- Scott McFall, Mysteria Theater
- Karen Johner, N.D. Guarantee & Title
- Mark Bitz, Morton County Commission
- Del Wetsch, Mandan Progress Organization
- Al Fitterer, Al Fitterer Architect

Staff Liaisons:

- *City Administrator, City of Mandan, Jim Neubauer*
- *Business Development Director, City of Mandan, Ellen Huber*
- Police Chief, Dennis Bullinger
- Police Officer, Dave Mills
- Records Secretary, Cheryl Kroh
- Engineering Project Manager, Dave Bechtel
- Planner, Sarah BaeHurst

The next phase of public input involved face-to-face meetings with a variety of stakeholders from the community. The stakeholders were selected by the City to represent a broad cross section of parties involved in the downtown. Spanning local business people to residents and including developers, non-profit organizations and government officials, the stakeholder interviews provided consultant staff with individual perspective on parking function in Mandan.



Downtown Parking Study

Discussions with stakeholders included details on projects; buildings or situations specific to where they worked, lived or had other familiarity with. Often conflict between long and short-term parking needs emerged as an issue that needed to be dealt with. Specifically, long-term parkers were typically using short-term parking due to a lack of alternatives.

The long-term versus short-term parking issue has been found to lead to other parking perception issues, but is often a function of a need to re-allocate parking. In Mandan's case the genuine lack of long-term parking availability was found to be an important point requiring attention.

Other discussions that came out of the stakeholder meetings included the positive reception of in-lieu-fees for providing developers an alternative to on-site parking. Residential permits for downtown residents were also discussed along with the need for a more formalized guideline specific to handicap parking, loading zones and parking signs.

In total, 31 individuals were either met with directly or participated in telephone conference calls as part of the stakeholder interview process. Other topics that came up during the discussions are listed below:

- New development impacts on parking.
- Relative convenience of parking for short-term use and walking distances.
- Enforcement policies and the need to expand coverage, and hours.
- Need for better information from the City (email, newsletter, etc.) regarding changes and regulations.
- Need for residential parking alternatives and options.
- Guidelines for angle parking design and the need for stripping.
- Allowing alley parking and promoting business to use back doors as customer entry points.
- Parking for courts and jury.
- Need for safety and security.
- Recommendations on lighting levels for parking areas.
- Need for pedestrian enhancements in the downtown, specifically barriers at crosswalk points.
- Need for improved sight distances at intersections.
- Need to add ordinances preventing shuffling activity
- Potential for City/County joint efforts in parking solutions.
- Need for traffic calming and pedestrian enhancement on Main Street.
- Need to address snow removal.
- Need for bicycle racks and the recommendation for the City to consider potential bike trails in the future.

The final method employed for gaining input from the community included an on-line survey. The survey was also made available in a printed format that could be submitted to the consulting team for inclusion.

The on-line survey was broken down into a business operator survey, employee survey and parking user survey. The surveys collected were as follows:



Downtown Parking Study

Parking Survey Results:

- Business Operator: 31 Responded
- Employee: 107 Responded
- Parking User: 157 Responded

The surveys included a series of questions pertaining to how individuals traveled, were they visited, how long they stayed. These questions along with business specific questions on size of commercial area, number of employees, hours of operation and number of customers helped the consultant staff determine the average amount of parking each business type in the downtown area needed.

Additional questions provided an opportunity for participants to offer an opinion on various aspects of the parking system. Questions ranged from fine amounts to overall parking adequacy. Results of the opinion based questions are located in the Appendix section of the Downtown Parking Plan.

Part Seven –New Parking Delivery Strategies

In order for the overall vision of the downtown area to become a high quality destination place it is necessary to consider parking delivery and how the various scenarios will impact the built environment. There are pros and cons to each scenario, so a description and a summary chart are offered here for comparison purposes. In general the goals of a traditional style downtown is to cultivate a walkable, integrated community with minimal conflict between vehicles and pedestrians where the building height is consistent with the width of the street and to reduce or eliminate the interruption of parking lots between buildings. The way parking is delivered in the downtown area will have one of the greatest influences on how development will occur.

Surface Parking: Traditional downtowns have very few breaks between the buildings along the main commercial street(s). Breaks in the form of parking lots have the effect of diminishing pedestrian activity, which is considered to be a key element in successful and high quality urban areas. Additionally, many small surface parking lots create increased traffic flow and congestion within a community due to the combined effect of decreased pedestrian activity and the promotion of vehicular travel, even within the downtown area.

Another aspect of breaks between buildings for a variety of entrances and exits to parking for vehicles creates unnecessary conflict between pedestrian activity and vehicular turning movements. Modern planning promotes a reduction in the number of access points along street faces for vehicles by using combined driveways or off-alley parking locations. This safer approach also makes pedestrians more comfortable with their surroundings, enhancing the overall experience of a place.



Downtown Parking Study

Private Parking: Individual private parking lots reduce the potential for shared use since each parking area is only intended to serve one given use, and shared-use is an important tool in a downtown that helps reduce the overall amount of parking necessary. Surface lots also reduce the amount of land a development can occupy, which can lead to higher density as there is increasing pressure to build taller structures in order to make a project viable.

On-Street Parking: Creating a barrier between street traffic and pedestrian traffic is one of the most important methods of creating a feeling of comfort for pedestrians. Parking along the street presents a physical barrier, as well as perceived barrier that puts pedestrians at ease. This aspect of pedestrian safety is very important to creating a successful downtown. On-street parking works as a traffic calming device by slowing traffic flow.

On-street parking places high valued parking stalls in the most convenient location to serve businesses. This type of parking is generally most preferred by customers and having on-street parking resolves some of the issues of providing handicap access. The absence of on-street parking may require greater rear building access for deliveries through alleys that effectively duplicates the street network, consuming more land resources.

Scenario #1 illustrates complete City control and responsibility for providing parking. In situations like this, the City usually assess development an impact fee for parking and uses the collected fee to pool into a parking provision fund. The City then land-banks parcels for future development as public parking lots to serve the downtown area. Parcels are usually acquired that are large enough to allow for the potential future construction of parking structures as local demand for parking dictates.

The key advantage to this scenario for the City is that parking provision can be centralized into fewer parking areas. Shared use potential is maximized and vehicular access is directed to fewer points of ingress and egress for optimal control of potential conflict areas. Additionally, the public parking can be oriented towards the implementation of future transit options (bus, bicycle, or even light rail). Finally, with maximum control over public parking the City could consider implementing paid parking and parking regulations/enforcement to optimize the system efficiency and to raise capital for future projects.



Downtown Parking Study

Scenario #1 – Private Parking Development Not Allowed			
Category:	On-Street	Off-Street Private Parking Lots	Off-Street Public Parking Lots
Description:	Short-term time-limited stalls, fully shared (with barrier free stalls and loading zones).	Not allowed.	Centralized locations with all parking being public and fully shared (combination of short and long-term).
Advantages:	Locate parking near businesses serves handicap needs and local loading and unloading for business. Public parking maximizes shared-use potential.	Allows a developer to maximize land dedication to building area and green space. No cost for providing parking. Greatest incentive for development to occur in a traditional style. Also, blocking all private parking development allows the City to maintain 100% of the control over parking.	Central parking reduces traffic congestion, allows for link with other modes of transportation as services are added in the future. Public parking maximizes shared –use potential helping to reduce the overall need for parking.
Disadvantages:	Payment burden is on City or user.	Development must rely on public parking and pay an impact fee.	Payment burden is on City or user.
Payment Options:	Paying for parking is typically undertaken through an in-lieu-fee (further clarification of in-lieu of fees is found on page 47). The parking required for a development is assessed using Mandan’s Ordinance. The number of stalls is then calculated and the developer then pays a per stall fee to the City. The per-stall fee usually varies from \$10,000 to \$15,000 per stall for communities that have a parking impact fee. The advantage for developers is that the amount of land they have can now be dedicated to occupied space, maximizing their potential return on investment.		



Downtown Parking Study

Scenario #2 illustrates parking development being undertaken by private developers and then turned over to the City as public parking. This scenario also allows the shared use of parking, but is more difficult to administer and gauge. Parking will be somewhat disjointed as the tendency will be to develop many small parking areas around buildings. The effect of shared parking will be diminished.

Scenario #2 – Private Development Of Public Parking			
Category:	On-Street	Off-Street Private Parking Lots	Off-Street Public Parking Lots
Description:	Short-term time-limited stalls, fully shared (with barrier free stalls and loading zones).	Allowed, but turned over to City on completion as public parking.	Provided by developers.
Advantages:	Locate parking near businesses serves barrier free or handicap needs and local loading and unloading for business. Public parking maximizes shared-use.	Public parking maximizes shared –use potential helping to reduce the overall need for parking. City maintains control over downtown parking.	Parking provided by developers. No initial cost to City.
Disadvantages:	Payment burden is on City.	Development has parking provided that is convenient and adequate. However the parking becomes public on completion.	Design of parking is more difficult to administer and incremental development of parking is difficult to coordinate when seeking to amalgamate parking areas. Shared parking opportunities are somewhat diminished.
Payment Options:	Parking is provided by developers. Future repairs and replacement become City responsibility.		



Downtown Parking Study

Scenario #3 illustrates parking being provided by the City, but with land provided by the development community. This scenario provides a compromise between the first two, since a parking fee may discourage some developers and yet still allows the City to either outright build public parking or to trade land for other parcels. This approach is more intensive for planning staff to administer as they need to work closely with developers to achieve the overall downtown vision.

Scenario #3 – Developer Provides Land For Public Parking			
Category:	On-Street	Off-Street Private Parking Lots	Off-Street Public Parking Lots
Description:	Short-term time-limited stalls, fully shared (with barrier free stalls and loading zones).	Not allowed, developers provide land in lieu of parking.	All parking is public and fully shared (combination of short and long-term).
Advantages:	Locate parking near businesses serves barrier free or handicap needs and local loading and unloading for business. Public parking maximizes shared-use potential.	Allows a developer to work with City on development proposals and potential to engage in land swaps to achieve better overall built environment. Lower cost for providing parking as only a land dedication is required, without actual construction costs.	Land is provided by developers. City can trade parcels to achieve vision for development. Overall cost of providing parking is reduced.
Disadvantages:	Payment burden is on City.	Development must rely on public parking and pay an impact fee.	Payment burden is shared with the City and developers.
Payment Options:	The overall cost of parking provision is shared. However the City will need to build the parking lots using general funds or Tax Increment Financing (TIF's/TAD's)		



Downtown Parking Study

Scenario #4 illustrates parking being provided mostly by developers. This scenario is what is currently in place. The overall cost for parking is with the developers. The City can only dictate a few design elements and the amount of parking provided. Shared parking is minimized and future control of parking remains with the property owners. Paid parking is not a long-term option. The development style that usually results is referred to as 'highway commercial' and is typified by lower density designs that cater to automobile travel.

Scenario #4 – Developer Provides Parking			
Category:	On-Street	Off-Street Private Parking Lots	Off-Street Public Parking Lots
Description:	Short-term time-limited stalls, fully shared (with barrier free stalls and loading zones).	Developers provide parking.	Few
Advantages:	Locates parking near businesses, serves barrier free or handicap needs and local loading and unloading for business.	Allows developers to build parking as part of their development providing the maximum needed to serve tenants.	Little to no cost to the City for off-street parking provision.
Disadvantages:	Payment burden is on City.	Parking is private and shared use is minimized.	Little control over parking, urban density is reduced, adversely effecting pedestrian activity. Parking is effectively over-built in some instances because shared use is limited.
Payment Options:	On-Street parking is still provided by the City.		



Downtown Parking Study

Exhibit C, on the following page illustrates how parking lots could be configured in relationship to the streets and buildings located on a block. The examples demonstrate how parking can be placed adjacent to the roads, intermingled with the buildings or located behind buildings. Ideally, parking is located behind buildings, at least on the main downtown streets, in order to maintain continuity between buildings and to help promote pedestrian activity.

Mandan should consider having on-street parking on all downtown streets. The combination of long-term parking located to the rear of the buildings fronting the main streets and on-street parking in the front for customers and visitors works exceptionally well by providing adequate parking in convenient locations for all users. Also, the use of on-street parking and rear lots helps minimize walking distances for pedestrian activity to and from vehicles and the continuity of building facades promotes pedestrian activity for downtown shopping.

The overall downtown concept should have buildings as close as possible to the street leaving wide sidewalks for pedestrian activity (per the current City efforts) in order to achieve a genuine 'old fashioned' town look in the downtown area. Rear lot parking and on-street parking help to achieve this goal. On-street parking also addresses the fundamental issues of having handicap parking and loading zones distributed throughout the downtown area where they are needed most. The amount of on-street parking that can be built depends on the road layout, street width, parking angle, bump-outs, and whether or not there is on-street parking on every street.

On-Street Parking: Rich and Associates recommendation is to build public on street parking wherever possible. This parking should be considered part of the overall supply and be a part of the shared parking supply available to service the downtown buildings.

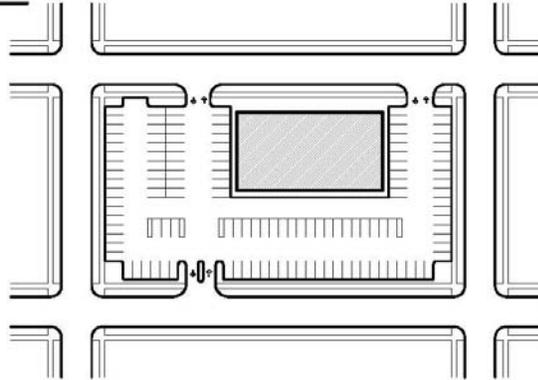
Off-Street Parking: Rich and Associates is recommending against wholly private surface lots in the downtown area. Existing private lots will need to be allowed as non-compliant uses and changed to suit the overall plan when uses change and or when buildings are demolished and re-built. The preferred model is to seek joint projects or to allow developers to pay an in-lieu-fee towards more public parking.



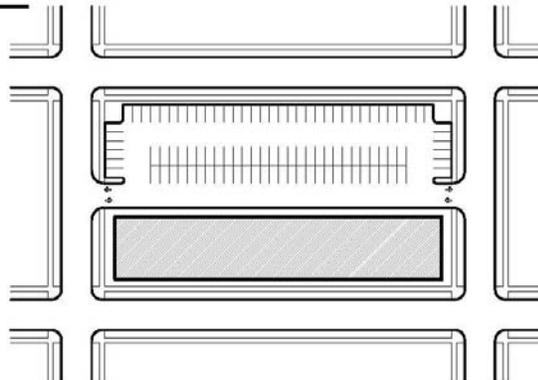
Downtown Parking Study

Exhibit C: Example Parking Lot Configurations

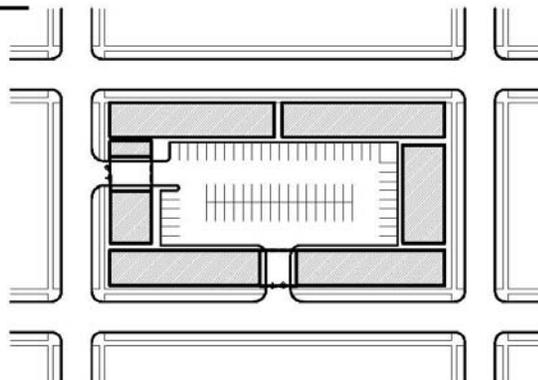
LEAST DESIRABLE



MORE DESIRABLE



IDEAL





Downtown Parking Study

In-Lieu-Fee: Communities that ban or discourage surface parking in their downtowns undertake responsibility for providing all of the parking necessary to support economic activity in a downtown setting. Typically this is fairly easy in dense urban settings where pedestrian activity is substantial. Suburban or smaller downtown areas that lack high levels of pedestrian activity are difficult to service with public parking due to the fact that the development is spread out.

Under this scenario, all of the parking needed is provided by the City through parking structures, lots and on-street parking. The City can then consider charging an in-lieu-fee or impact fee for new development to fund new parking projects. Developers sometimes argue against this style of parking control and development, however, it has been successful in communities such as Grand Rapids, Michigan. In the end the developer will typically pay less to the in-lieu-fee than if building parking specific to their development. This reduction in cost to the developer can help spur additional development in the downtown.

In-lieu-fees are typically based on a percentage of the cost to provide one parking stall in a new parking structure. The rate determined needs to be mindful of the need to redevelop the downtown and will need to be examined every three to five years to keep the amount in line with market prices and construction costs. The average fee in the United States among communities that provide an in-lieu-option for parking is approximately \$10,000 per stall (as of 2006). To determine how much parking a development's assessment should be based on, comprehensive listing of parking ratios are used as a basis and any shared potential can then be applied as a potential reduction.

As an example, if a mixed use development is proposed that includes retail, office and residential space, the floor area of each use would have a ratio applied to it to determine the amount of parking needed. The amount of parking needed to serve the development would then be the basis of the impact fee assessment. If the developer could demonstrate a shared use potential for the development that would result in a reduction in the overall amount of parking needed, the shared use reduction would then be deducted from the total amount of parking needed.

Table 7A offers a sample calculation for determining the impact fee for a proposed re-occupancy project. The sample uses 50 percent of the cost of providing a parking stall in a new parking structure.



Downtown Parking Study

Table 7A: In-Lieu-Fee Sample Calculation

I.	Building Gross Floor Area:	50,000 sq.ft.
	Current Use: Vacant with no parking	
	New Use: Office	
	Parking Needed: $50,000 \times 0.00275$	138 stalls

II.	Cost of Supplying Parking in a Deck/Structure	\$18,000/parking stall
	Parking Impact Fee (50% of cost)	
	$\$18,000 \times 50\% = \$9,000 / \text{parking stall}$	

III.	Project Subsidy (Incentive x Added Public Parking)
	$138 \text{ stalls} \times \$9,000 / \text{stall} = \$1,237,500 \text{ (for parking fund)}$

Part Eight – Pedestrian/Vehicular Traffic Circulation

Part Eight offers details on pedestrian and vehicular interaction points in an urban setting. Mandan experiences some interaction issues and several stakeholders and survey respondents cited pedestrian movement as an issue with regard to street crossing. The following points are guidelines offered for Mandan to consider whenever street improvements are made to streets and or sidewalks.

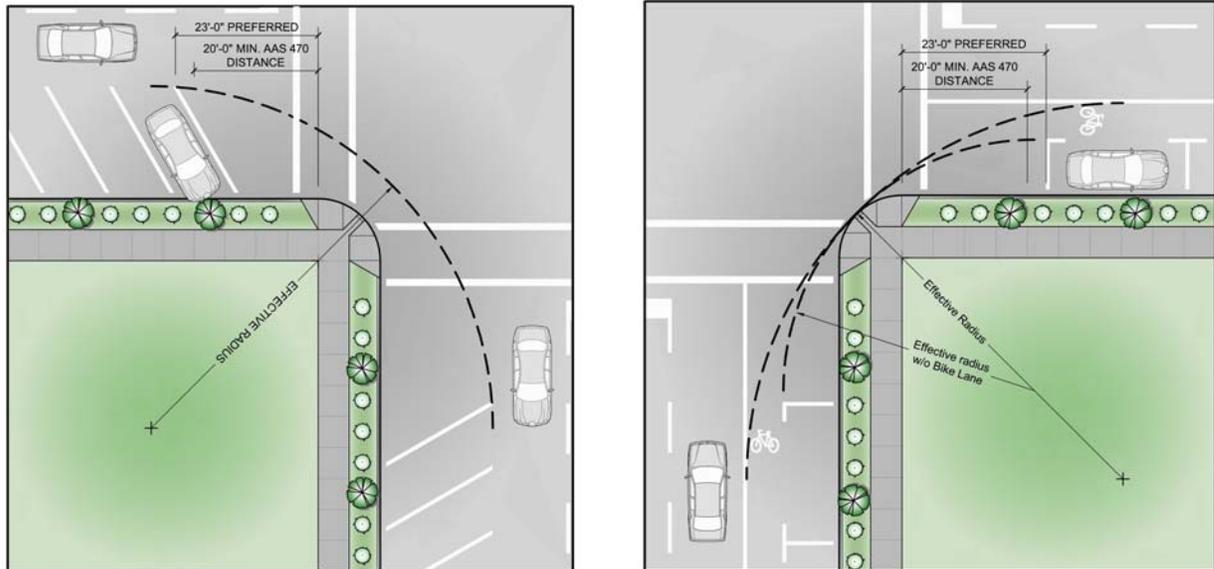
General Design Concepts

- Sidewalks should be constructed along all sides of every street with developed frontage.
 - Minimum 5 foot wide (8 feet if adjacent to a street).

Downtown Parking Study

- Wherever possible, there should be a minimum 4 foot buffer between the street and sidewalk. The buffer should either be planted (i.e., grass, low bushes, flowers, trees) and/or provide for street furniture (i.e., benches, decorative light poles, information kiosks, mailboxes, trash receptacles, planter boxes).
 - Pedestrian should be able to cross all arterial streets at convenient intervals and locations.
 - Pedestrian signals should be provided at all signalized intersections. In addition, all signalized pedestrian crossings should be equipped with countdown clocks to operate during the pedestrian clearance phase. Timing for pedestrian crossing lights should be based on 3.5 to 4.0 seconds per foot o distance that a pedestrian needs to walk to cross the street.
 - Minimize intersection corner turn radii to take into account the effective turning radius into any available lane, instead of the more common curb-to-curb turning radius (see **Exhibit D**), and select an appropriate design vehicle based on the size and type of vehicle expected to make each turn. Not all intersection movements need to accommodate larger semi-trailer trucks.

Exhibit D: Effective Turning Radius

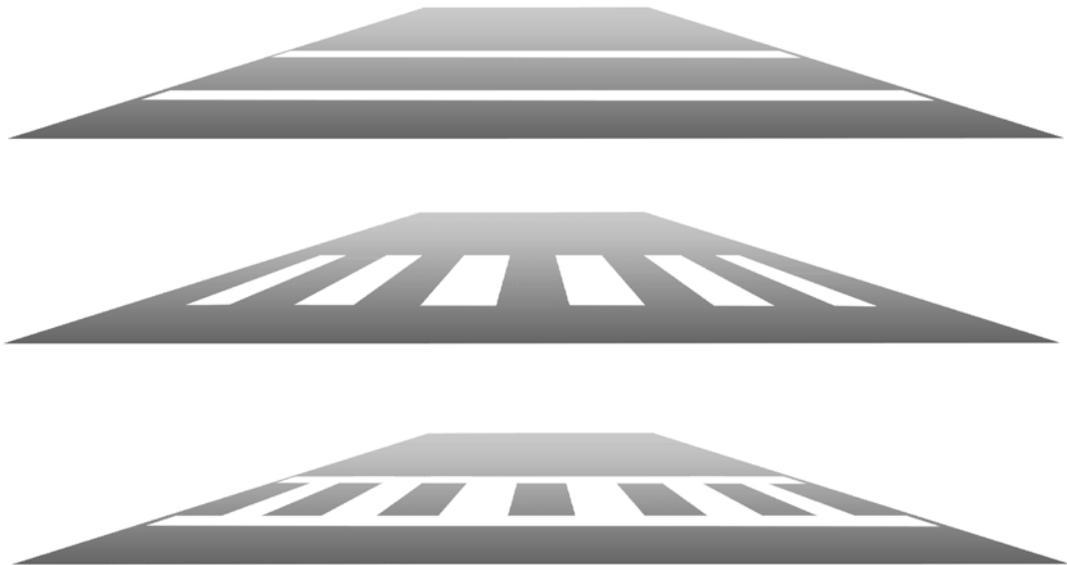




Downtown Parking Study

- At unsignalized intersections or mid-block pedestrian crossing locations, use high visibility crosswalk designs (see **Exhibit E**) and supplement with signs and flashing beacons, where appropriate. If possible, median islands can make such a crossing even more comfortable, and all crosswalk locations should have high-level nighttime illumination.
- Street trees, curb bulb outs, on-street parking and bicycle lanes can all help to slow traffic.

Exhibit E: High Visibility Crosswalk Markings



- Wherever on-street parking is allowed, consider curb bulb outs at intersections and mid-block pedestrian crossing location to maximize sight lines between drivers and crossing pedestrians.