University of Nebraska-Lincoln

Lincoln, NE

Parking Operations and Infrastructure Review

May 2012

CHANCE
MANAGEMENT ADVISORS, INC.

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I. INTRODUCTION

This report presents the results of discussions, observations and data analyses conducted by *CHANCE Management Advisors, Inc. (CMA)* in performing a Parking Operations and Infrastructure Review for the University of Nebraska-Lincoln. The firm was selected to conduct this review through a competitive process in response to the University's Request for Proposals issued in July of 2011, which addressed the requirements of the Review as follows:

> **1.1 Parking Operations and Infrastructure Review**
>
> The University of Nebraska-Lincoln is seeking a qualified consultant or consulting teams to 1) evaluate the Parking and Transit Services Department operations and infrastructure, and 2) develop recommendations for operational improvements and strategic transportation demand management strategies for the campus. The dual purposes of this study are 1) to review department operating methods, financial obligations and funding structures, physical infrastructure and demand/needs, and information systems permit management and revenue control for best business practices, and 2) recommend strategic changes for the operation and parking system.

Also, as stipulated in the RFP, the University desired the participation of, "*…four (4) approved university directors (among a list of nationally recognized programs) to remotely perform (a) parking and enforcement policy and procedures review…"* In addition, the RFP requested that certain financial policy issues be benchmarked among a list of ten University of Nebraska-Lincoln Board of Regents approved peer universities.

Following the receipt and review of program financial and operational data, *CMA* consultants conducted a Site Visit to the UNL campus in October, 2011. Discussions were held with Parking and Transit Services (PTS) officials and operating staff, representatives of the University's Parking Advisory Committee, and other University representatives from various departments and administrative units. Observations on both the City and East Campuses were made with respect to existing parking operations and conditions, with a particular emphasis on the potential of the existing infrastructure and management systems to accommodate future campus growth and development. These observations followed on the heels of the announcement in 2011 of the University's anticipated growth by one thousand students annually for the next five years, which will necessitate the adaptation and physical growth of the parking system in order to maintain parking availability, safe and convenient access, and overall parking customer service at desired levels of performance for the entire campus community.

In early November of 2011, digital aerial photographs were taken to record parking occupancy on surface lots during a normal class day at agreed-upon peak occupancy periods of 11:00 a.m. and 1:00 p.m. on both campuses. Simultaneously, PTS staff conducted occupancy counts of the four garages on the City campus. The occupancy data were analyzed and coordinated with PTS officials, and with related planning data and discussions of the population growth and development on both campuses. *CMA* prepared a calibration of the existing parking demand and estimated future parking demand.

During December 2011 and January - February 2012, the four selected nationally recognized university parking program Directors were contacted and provided with a series of questions to assess the Parking and Transit Services department's programs, policies, methods, technologies, and communications methods. Additional university parking Directors were contacted to determine their program's specific financial policies for comparison with those of UNL Parking and Transit Services.

There was extensive communication between *CMA* and the PTS Department Director on multiple issues during the course of the project, part of which involved the coordination and provision of University population and parking permit data for user groups (faculty, staff, non-affiliated employees and students) at both the City and East campuses. Along with the occupancy data that were developed through the aerial photographs and surveys, these data elements formed the basis for calibrating existing parking demand as a precursor to the projection of future demand for both campuses. Finally, in March 2012, a presentation of preliminary findings and recommendations was made to the Parking Advisory Committee by the *CMA* Project Principal and Project Manager.

This remainder of this Report is organized into the following major Sections:

Section II: Operational Review

Section III: Financial Review

Section IV: Infrastructure Review

Section V: Technology Review

Section VI: Recommendations

Appendix A: Operational Reviews by Selected Parking Directors

Finally, *CMA* wishes to express its sincere appreciation to the PTS Department Director for his superb guidance, cooperation and availability during the course of this project. Additional thanks are extended to the Associate Vice Chancellor for Business and Finance, as well as representatives from Campus Planning and Construction, Facilities Management and Planning, Facilities Operations for the Institute of Agriculture and Natural Resources, Housing, Institutional Research and Planning, University Services, Information Services, University Police, and Human Resources representatives and PTS supervisors and staff who were involved in responding to and supporting the firm's numerous data requests and clarifications.

II. OPERATIONAL REVIEW

This chapter of the report will present observations on selected operations, the operational reviews by the four peer university Directors of parking and transportation, and an assessment of the management structure and staffing of Parking and Transit Services compared to peers.

Observations on Selected Operations

CHANCE Management Advisors, Inc. (CMA) conducted site visits and held discussions within the Parking and Transit Services (PTS) department and with other groups and individuals on campus. In addition, the firm reviewed materials forwarded by PTS and discussed aspects of them to confirm details and obtain an understanding of many of the major operations of the department. Observations are offered below, in no particular order.

PARKING AND TRANSPORTATION POLICIES

The Merriam-Webster dictionary offers this very useful definition:

> "**Policy**: a definite course or method of action selected from among alternatives and in light of given conditions to guide and determine present and future decisions"

If these concepts are applied to policies regarding parking and transportation services in a university setting, then the role of policies should be to promote a course of action, take into account the campus conditions, and guide both short-term and longer term decisions. It is also likely that the policies will reflect the administration's values and priorities, as well as those contained in master plans or other documents guiding the institution's future.

The University of Nebraska–Lincoln does not have parking and transportation policies or principals that explain these functions and their roles within the overall university. While some of the guiding ideas have been found in master plans (e.g., constructing parking at the periphery of the campus), the ideas are not complete and are not expressed in PTS materials, either written or on the website.

As an example, the following page presents the first three Guiding Principles prepared for and adopted by The Ohio State University. Although they are located on the Transportation and Parking Services (TPS) website, they have been discussed and adopted by the University administration. This fact is very helpful to TPS staff members when they must explain or justify what they are doing, since the Guiding Principles are a set of university principles, not just TPS principles.

T&P Guiding Principles

The Ohio State University is an institution of Higher Education serving students, the university community, the Columbus area, the residents of the State of Ohio, and the national and international academic, research and medical communities. As a broadly based institution with many constituents, it is important for the University to provide reasonable access for all those who want to visit the University campus.

In order to meet the goal of reasonable access for all, the University has developed the following guiding principles.

PRINCIPLE 1: The Ohio State University has an obligation to preserve and enhance campus life for its many internal constituencies and also recognizes the importance of its numerous external publics.

- While vehicular access within the campus area is limited, Transportation & Parking Services strives to facilitate easy access to and around campus and to extend a feeling of welcome to all of its internal and external customers.
- The University recognizes the need to distinguish between short-term parking needs and all-day parking needs. To this end, short-term parking will be provided in central locations with all-day parking at the periphery of campus. This is consistent with wise land use, the Framework Plan, and the University's overall goal to enhance the pedestrian environment.

PRINCIPLE 2: The University actively promotes and supports the use of multiple transportation modes for trips to and from the campus.

- The University gives precedence to pedestrians, buses, ride-sharing, bicycles and private vehicles, in that order.
- The University intends to manage vehicular transportation on campus and to provide and promote intra-campus transportation through the Campus Area Bus Service (CABS) rather than by private vehicle.
- CABS services will continually be tailored to meet customer needs and to reduce the use of personal vehicles on campus during the day.
- The University will continually work with other authorities and agencies such as COTA and MORPC to explore alternative methods of accessing campus.

PRINCIPLE 3: Transportation & Parking Services must be financially self-sufficient.

- Transportation & Parking Services must operate as a financially self-sufficient auxiliary department with short-term operating strategies and long-term capital plans.
- Increases in fees and service charges may be necessary to fund operations and contribute to reserves for transportation and parking capital improvements.

The entire policy document may be found at:
http://tp.osu.edu/PoliciesandProcedures/GuidingPrinciples/index.shtml

PARKING ACCESS AND REVENUE CONTROL SYSTEM (PARCS)

The University controls access to very few of its parking spaces, and even some facilities that are controlled have equipment that is not working properly. PARCS equipment is used on most university campuses for three reasons: to limit access to parking facilities to those who are supposed to park there, to reduce the amount of enforcement that must take place to prevent individuals from parking where they should not, and to provide reporting of parking occupancy and patterns. Generally it is viewed that controlling access is a more positive method of managing parking supply and demand than is enforcement, which typically has negative connotations.

UNL has working PARCS equipment in the Stadium Garage, in part because short-term paid parking is allowed in this facility. But other facilities with gates do not provide accurate reporting, and many facilities rely only on enforcement to insure that only vehicles with the correct permits are parked in the facilities.

PARCS equipment is critical for obtaining an understanding of parking patterns, whether through real-time occupancy statistics in individual facilities or monthly reporting of permit use over the entire campus. Without PARCS equipment, PTS has to rely upon counts of vehicles taken by staff members to understand parking patterns. For a university of this size, these counts are impossible to take at the same time to obtain information about occupancy levels at specific times and on specific days. Thus a key tool for managing the parking supply is missing.

ENFORCEMENT

UNL has what might be called “instructive” enforcement. The philosophy is to educate parking customers, rather than to write and process all the tickets possible. In fact, one of the peer Directors commented “Why are so many warning tickets issued?” This philosophy of enforcement is more effective when most of the facilities are governed by PARCS equipment, and thus fewer tickets must be written because fewer individuals have the opportunity to do the wrong thing.

PTS uses student workers for enforcement, and there are both positive and negative aspects of using students for this activity. The positive aspects are that jobs are available for students, they obtain work experience in what can be a quite educational work environment, and student workers are less costly than full-time employees. The negative aspects are that it is often difficult for students to write tickets to their friends or sometimes even to faculty members, part-time workers are often less reliable than full-time employees, and more mature individuals are often better equipped to deal with the negative reactions of members of the campus community when they learn they are receiving a parking ticket.

More details about the peer review of enforcement will follow in a subsequent section.

UNIVERSITY DATA SYSTEMS

Effectively planning for future campus parking requirements can be greatly enhanced through the effective interaction of several key data systems. These typically include student and employee information databases, the bursar billing/accounting system, institutional research and planning data, housing, public safety, and parking databases (principally for permits and citations).

Ideally these databases would be linked through a "data warehouse" on campus that securely stores and manages various data elements about the individual's student/employment status and location. Such a database could then be accessed by the parking database when required for permit and growth planning.

At UNL, the parking database has been developed by University information technology staff and refined over the years to suit parking management needs; however, its ability to automatically query or retrieve information from the other databases is limited, and a degree of manual intervention is required. It is for this reason that a rather significant effort was required by University staff in distilling and reconciling information concerning user group populations, their campus locations and permit issuance data, in *CMA's* attempt to develop the necessary ratios needed to calibrate existing parking demand and reliably project future demand based on current driving ratios and potential population growth. Reportedly the University is moving toward integrating the parking database with the SAP and People Soft databases in the next year or two, so this possibility should be highly considered in any future decisions regarding new software or upgrades to the existing parking management access and permit systems.

SERVICES AND SYSTEMS

Many of the functions typically found within a parking and transportation department are performed by others in UNL as purchased services. For example, budgeting for PTS (performed in Business and Finance), IT and computer support (performed by Shared Computing Services), website generation and updates (performed by University Communications), and evening enforcement (performed by Police) are all operations performed outside PTS.

There is nothing inherently wrong with having these functions operate as purchased services, and many if not all of them are generally considered to be performed in an excellent manner. However, the necessity to go through others for some operations can hinder flexibility, take longer to accomplish, and make it more difficult to integrate with other PTS functions. Compared to its peer institutions (from which the peer Directors' Operational Reviews were obtained), UNL PTS has fewer capabilities within its own department.

STANDARD OPERATING PROCEDURES

PTS forwarded a large number of "Office Tasks and Procedures". These 76 files covered procedures ranging from processing an on-line parking permit to dealing with a lost or stolen bus pass. They contained many well written instructions.

However, the procedures lacked essential information and organization:

- the procedures were not organized either by type of procedure (e.g., Transit Procedures) or by the personnel position that should be performing the procedure (e.g., Procedures for Cashier/Teller);

- the procedures were not dated, so it was impossible to tell whether they were current, outdated, or needed to be revised;

- while some of the instructions were very clear and complete, others were short-hand descriptions of what should be done, and could not be followed by a new employee or someone filling in for an absent employee; and
- they contained no standard operating procedures for any of the other positions on the organization chart of the department.

The documents are a good start to a set of Standard Operating Procedures that every operating department should have, but they need to be better organized, more complete, and checked to reflect current conditions.

Operational Reviews by Selected Parking Directors

The University of Nebraska-Lincoln (UNL) specified that this project should include an operational review by four directors of parking and transportation from other comparable major universities. *CHANCE Management Advisors, Inc.* (*CMA)* contacted the following individuals, who agreed to complete the matrix on operational issues important to UNL:

- Sarah Blouch, Executive Director, Transportation and Parking Services, The Ohio State University;
- Donna Hultine, Director of Parking and Transit Services, University of Kansas;
- Peter Lange, Executive Director, Transportation Services, Texas A&M University;
- Don Thornton, Director of Parking and Transportation Services (recently retired), University of Kentucky.

Each of the directors was sent an Excel spreadsheet that contained the following categories for comment (the categories are summarized and simply illustrated here):

UNL Operations Categories	Your University Approach	Content Assessment of UNL's Operations	Assessment of "State of the Art" Status	Recommendations, Suggestions, Compliments
Visitor and Guest Parking				
Permits and Registration				
Enforcement				
Rules and Regulations				
Special Events				

The directors were asked to complete the gray shaded boxes shown above. The Operations Categories in the first column each had multiple entries, illustrating all of the operations currently performed by UNL Parking and Transit Services. Thus the directors compared how their universities approach the same operations issues, assessed the information on UNL's website about operations and how those operations compared to other universities of similar sizes, assessed UNL's status in comparison to "state of the art" parking operations, and offered recommendations and other comments as they saw fit. Each of the directors also offered comments on issues they wished were addressed differently on the campuses as they reviewed UNL's operations.

The spreadsheets contain a wealth of information that is being made available to UNL for its use. The spreadsheet entries are too detailed to convey in this report, but significant operational issues, recommendations, and compliments will be summarized below for each of the operations categories.

VISITOR AND GUEST PARKING

Under the category of Visitor and Guest Parking, the peer Directors had the following comments:

- All parking should be paid for by guest or host. To the extent that there is any free parking, someone else has to pay more for parking.
- On-line visitor permits would be good.
- Consider adding payment options, such as credit or debit cards.
- Rate and hour information by facility is good (on the website).
- It would be good to provide data to the interactive campus map, so that information popped up when a cursor moved over a certain parking location.
- It would be possible to have longer hours without cashiers (using technology and pay-by-space or another method).
- Visitor spaces seem well distributed across the campus.
- Include information on disability parking and transit in sections on parking.

PERMITS AND REGISTRATION

The following comments were offered under this category:

- Information on the website is confusing on valid permit hours.
- Promote the sustainable aspects of the Occasional Parking Permit, since it allows minimal parking but helps individuals when they need to park now and then.
- "Park down" privileges are too complex, and this type of system adds confusion.
- The on-line permit process is not real-time, and that is state-of-the-art now.
- "Grandfathered" process to work out of retiree permits is a good solution.
- Eliminate reciprocal permits – stress transit to go between campuses rather than having parking spaces at both ends of the journey.

ENFORCEMENT

The peer Directors made the comments below about enforcement issues:

- There is no way to enforce non-permit registration.
- Clarify some of the violations that are similar (examples are offered).
- Multiple permit types hinder enforcement; standardizing on one type with needed variations may work better.
- Enforcement Resource Manual (standard operating procedures) is good.
- Designate "where" to park instead of reverse (e.g., "park only between two white lines" rather than "do not park on grass, on sidewalk, in handicapped spaces, etc.")
- Date all maps, and update the motorcycle map.
- Reconsider the use of student PCOs; consider full-time enforcement officers.

RULES AND REGULATIONS

- The website shows little of the relationship between transit and parking, or promotion of transit.
- "Definitions" page is very helpful.
- The Advisory Committee concerns form is inconsistent in how it describes the manner in which it should be used.
- Sustainability benefits of various programs and actions should be emphasized.
- Post minutes etc. from the Advisory Committee on the website.
- Provide contact information for managers – they should not be anonymous.
- TDM efforts are not coordinated (shown together) or presented well.
- Keep previous reports online to show changes and improvements.

SPECIAL EVENTS

- The Events form is good.
- Pre-selling parking spaces online would be better than collecting cash on event days.
- Showing alternatives to closed lots would be helpful.
- PDF forms could be converted to web forms that could be e-mailed automatically to individuals and/or groups.
- Maps on event websites that can be e-mailed or downloaded are helpful to direct patrons.
- Establish an E-News for a variety of events (e-mail to send to those who have opted in to its distribution).
- Post photos of visitor parking lot entrances so that it is easier for visitors to know when they have arrived at the correct lot.

There is much to be gleaned from the spreadsheets and the information provided by the Directors. All of the Directors are very experienced executives, and they are acknowledged as some of the best professionals in the field today.

Management Structure and Staffing

The Scope of Services asked that the management structure and staffing of UNL PTS be compared with that of ten peer institutions specified by UNL. *CHANCE Management Advisors, Inc.* (*CMA)* contacted the Directors of the ten universities (two of whom had filled out the Operational Review) to obtain the organization charts for comparison with the one provided by PTS. Although positions may not be given the same titles, and organizational structure varies somewhat, the ten organizations could be generally compared for their structure and staffing. The actual numbers of staff depended greatly upon whether part-time or student staff were used for positions such as enforcement, office staff, transit drivers, and the like. The structure and staffing also varied depending upon whether parking and transportation was its own department or was under Public Safety (such as Iowa State), and the range of responsibilities with which the department was charged.

The larger universities tend to have the larger numbers of full-time staff. For example, The Ohio State University had the largest number of total staff, but 49 of these individuals are full-time vehicle operators for the large transportation system that serves the campus and adjacent sites. However, the University of Iowa has over 300 part-time staff members, with 120 performing part-time cashiering functions and 160 acting as part-time transit drivers.

UNL PTS is among the smaller departments, as UNL is among the smaller universities as ranked by undergraduate student population. Comparing PTS to the other departments, and knowing how many of them operate, the following major points about staffing areas may be made and are illustrated in the graphic following:

- Communications

  PTS lacks a person in charge of communications. Even though the website is prepared by staff in University Communications, a communications staff member in PTS could perform tasks found in other universities: preparation of public relations material, daily updates through E-News or other social media, development of materials to support TDM campaigns, preparation of newspaper articles or advertisements, preparation of the Annual Report, and similar duties. With the growth, development, and changes coming in the near future to the UNL campuses, public information from parking and transit will be very important.

- Finance

  Seven of the ten peer universities have their own financial staff in-house. These staff members prepare budgets, organize cost accounting for garages (which UNL does) and lots (which UNL does not do), analyze alternatives and the cost implications, oversee operating budgets, compare expenses year to year, keep track of warranties for services (construction, paving, light installation, etc.), and issue regular reports on revenues and costs for monthly management staff meetings. Because they are in the departments, they are very attuned to activities and financial issues on a day-to-day basis.

University of Nebraska
PARKING OPERATIONS AND INFRASTRUCTURE REVIEW

TABLE II-1: Comparisons of Selected Parking and Transit Positions, UNL and Peer Universities

University	Approx. Undergraduate Population [1]	Full-Time Staff	Part-Time Staff	Director of Parking and Transit	Director/Manager of Parking	Director/Manager of Transportation	Planning or Strategic Planning	Communications or Public Information	Analysts or System Specialists	Financial, Business, Budget	Alternative Transportation, TDM	Administrative Support	Information Systems /Computer
University of Nebraska, Lincoln	**19,383**	**23**	**51**	■		■							
University of Colorado-Boulder	26,325	69	72	■	■	■	■	■		■			
Colorado State University [2]	23,261	19	20		■					■	■	■	■
University of Illinois at Urbana-Champaign [3]	32,256	25	0		■							■	■
University of Iowa	21,564	76	332	■	■	■		■		■	■	■	■
Iowa State University [4]	24,343	8	28		■					■			
University of Kansas	19,222	25	17	■	■	■		■	■	■			
University of Minnesota-Twin Cities	34,812	68	235	■	■	■		■	■	■	■	■	■
University of Missouri-Columbia [5]	26,024	12	39		■			■				■	
The Ohio State University [6]	42,916	152	21	■	■	■	■	■	■	■		■	
Purdue University	30,776	22	0	■	■	■						■	

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- Transportation Demand Management

  Several of the universities have a specific staff person who is in charge of Transportation Demand Management (TDM) programs. Generally it may be said that the most successful TDM programs across the country in universities are managed by someone whose sole responsibility it is to promote these alternative ways to travel to and from campus. Thus these managers may be found at the University of Washington, Colorado State, Stanford, the University of Wisconsin, and other institutions where a significant emphasis has been placed on changing the commuting patterns of members of the campus community. If UNL is serious about trying to reduce single occupant vehicle commuting to the campus, PTS will need to retain a person whose responsibilities include such tasks as to initiate programs, find grants, publicize benefits, hold TDM fairs, obtain enticements from local merchants, prepare material for student and staff orientations, reorganize the website to promote TDM, and similar activities.

- Technology

  If PTS improves its Parking Access and Revenue Control System (PARCS) technology, and acquires improved technology for meters and enforcement, it will be time to acquire a technology staff to manage the PARCS and related systems. A staff person will need to be in charge of both hardware and software that runs the PARCS systems and must communicate with other databases of the University. The PARCS system will become the focal point of obtaining data, managing permits, operating credential systems, operating gate systems (in some instances), and reconciling revenue of all types. It will be essential to have someone whose position is focused on this highly sophisticated support system of the entire parking set of functions.

- Administrative Support

  Reviewing the organization charts, it appeared that PTS is lacking adequate administrative support staff in some areas. This was also noted as *CMA* staff members discussed responsibilities and activities among PTS staff in interviews. The Director and Managers should have administrative staff that perform a variety of the functions that these individuals indicated they did themselves, such as preparing some materials (maps, letters), checking things in the field (e.g., counting vacant spaces), and preparing basic reports. Although this observation need not mean that the Director and every manager should have a full-time administrative support person, it does mean that adequate support staff should be provided to avoid having top level management staff perform activities that should be delegated to other staff.

- Analysis and Strategic Planning

  Other staff positions that sometimes appear in the organizational structure of the ten peer universities, but that *CMA* believes are essential to a well-run parking and transit organization, are the Analyst position and the Strategic Planning position.

- A Parking and Transit Analyst is essential to convert the significant amount of data created by these functions and their technology into key points of information that are needed to refine operations, improve customer service, improve revenues, and reduce costs. The Analyst should report to the Director and together they should determine the key indicators of operations that are the most important to regularly review, based upon UNL issues. Analysis in programs such as that at The Ohio State University are consistently running comparisons of parking permits to parking occupancy, transit ridership to board/alight counts at specific bus stops, sales of permits when increases or decreases in price are made for programmatic reasons, categories of customer service complaints and time periods to resolve them, and dozens of other key indicators of the department's performance. It is easy to become inundated with data – the Analyst's function is to make it useful for the managers.

  The Strategic Planning position in several universities is responsible for looking ahead at how parking and transportation will need to adapt to larger university imperatives. These imperatives might include construction of major facilities needing parking or transportation, displacement of parking spaces when lots are used for other functions, calculation of how various increases in fuel costs could affect the ability offer transit service, reactions to new special events or functions within the university, road closures and their effects on transit and access to parking, options in the Master Plan, and other similar types of major decisions or alternatives found in the University environment. The Strategic Planning position is responsible for gleaning future possibilities from a large number of sources, analyzing how they might affect parking and transportation, and preparing ideas and plans for how PTS may adapt to changes but continue to meet its operations, customer service, and financial obligations.

III. FINANCIAL REVIEW

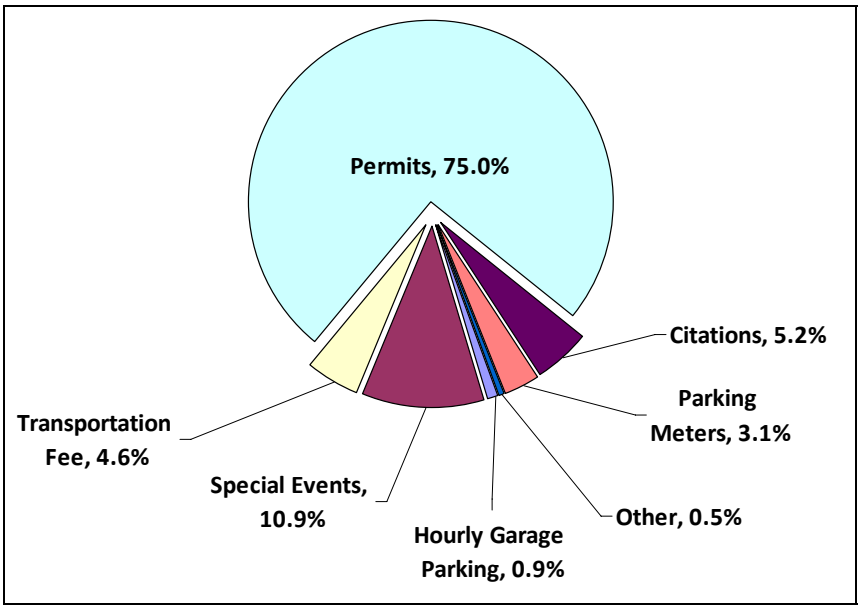
Revenue Sources and Financial Obligations

The overall financial health of the parking and transportation system may be characterized as "excellent". Despite relatively modest parking rates, the Parking and Transit Services Department's lean organization and relatively low operating costs enable it to exceed the system's 1.4 debt service coverage requirement. As a result, stated reserves of approximately $11,000,000 provide a significant resource for future capital purchases, maintenance and improvement of surface lots and garages, and funding for future parking construction.

Further, the willingness and ability of the University and selected departments to contribute significant funds toward garage construction, coupled with a parking and transit organization highly reliant on part-time student workers, have allowed the Department to preserve its reserve funds while holding the line on rate increases. A case in point is the planned $5.5 million contribution from Housing toward garage funding for the planned facility at 19th & R Streets.

In FY2011, three-fourths of the University's parking and transportation revenue of $9,220,000 came from parking permits. As shown in FIGURE III-1, special event parking, including parking revenues shared with UNL's Athletics Department, was the next highest contributor to system revenue, as nearly eleven percent. Citation revenue (five percent), transportation fees (4.6 percent) and parking meter revenue (three percent) comprise the vast majority of the remaining revenue sources.

FIGURE III-1: Sources of Funds for FY2011 ($9,220,000)



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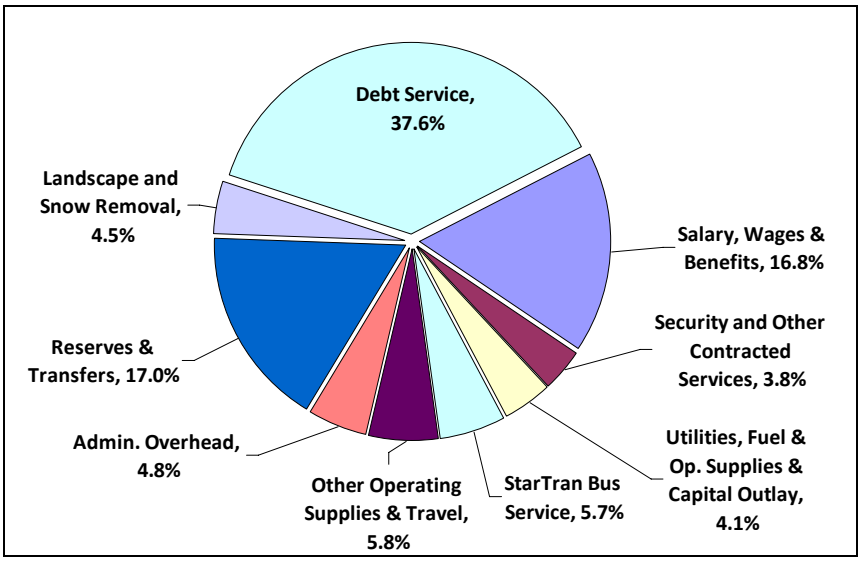
As shown in FIGURE III-2, debt service on garages (at nearly 38 percent of revenue) is the greatest portion of program expenses; this is followed by transfers and reserves (seventeen percent); salary, wages and benefits (16.8 percent) and other typical parking system expenses, including the StarTran bus service contract.

FIGURE III-2: Uses of Funds



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While there is no formal capital improvement plan based on a comprehensive conditions assessment of the system's parking facilities (in part due to the relatively new age of the parking system's garages) or anticipated equipment purchases, transfers to the reserve account are applied based on anticipated maintenance requirements such as re-paving or re-striping for the next fiscal year.

Also among the reasons for the department's significant revenue surplus (i.e., reserves and transfers) is that the organization is extremely "lean". Student workers fill a number of administrative and operational positions. However, this situation is not without its drawbacks from organizational, managerial and analytical perspectives. Specifically, several key positions normally found in peer university parking and transportation programs are absent at UNL.

While the dollar savings from the absence of various positions may be significant, their potential contribution to enhanced parking planning, customer service, operational efficiency and effectiveness – and as a consequence, revenue optimization – should not be discounted.

The Administration's recognition of maintaining parking rates at reasonable levels has resulted in relatively modest rates overall compared with the local market, and the quite modest escalation of parking rates since 2008. TABLE III-1 provides the primary parking rates on campus, the last column of which (the Compound Annual Growth Rate), shows the average annual rate of growth from 2008 through 2012. The italicized and shaded rates in 2011 and 2012 indicate rates that have remained constant since 2010. The Student Non Reserved, Student garage and Student Reserved rates in 2012 increased at rates of five, two and 1.3 percent, respectively, versus the prior year. The Perimeter parking rate actually was reduced by 10.3 percent versus 2011, ostensibly to promote the greater use of perimeter parking resources.

TABLE III-1: Parking Permit Rate Growth Since 2008

Rate	2008	2009	2010	2011	2012	CAGR
Faculty Staff Non Reserved	**$492**	**$522**	**$552**	***$552***	***$552***	**2.9%**
Faculty Staff Reserved (5 Day)	**$972**	**$1,002**	**$1,032**	***$1,032***	***$1,032***	**1.5%**
Faculty Staff Reserved (7 Day)	**$1,092**	**$1,122**	**$1,152**	***$1,152***	***$1,152***	**1.3%**
Faculty Staff Garage	**$552**	**$582**	**$612**	***$612***	***$612***	**2.6%**
Student Non Reserved	**$420**	**$450**	**$480**	***$480***	**$504**	**4.7%**
Student Garage	**$540**	**$570**	**$600**	***$600***	**$612**	**3.2%**
Student Reserved	**$864**	**$894**	**$924**	***$924***	**$936**	**2.0%**
Perimeter	**$288**	**$318**	**$348**	***$348***	**$312**	**2.0%**
Car Pool	**$492**	**$522**	**$600**	***$600***	***$600***	**5.1%**

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The University also offers a large number of purchasing options for its permits, which may be obtained on an annual, nine-month, semester, monthly and even weekly and daily bases. This relatively large variety of purchase options typically is not found among most universities. While summer permits are not uncommon, the monthly and weekly permits are relatively rare, and instead shorter-term permits are effectively sold by refunding a portion of the permit price upon the holder's surrender of the permit. Nevertheless, this customization does provide a high degree of flexibility for UNL's parking customer base. TABLE III-2, obtained from the UNL Parking and Transit Services website, displays the types and durations of the various parking permits.

TABLE III-2: UNL's Parking Permit Rates

Type	Annual	Nine Month	Semester	Summer	Monthly	Weekly	Daily
Faculty/Staff	$ 552	$ 414	$ 207	$ 138	$ 46	$ 14	$ 5
Faculty/Staff Reserved	$ 1,032	$ 774	$ 387	$ 258	$ 86	-	-
Faculty/Staff Premium	$ 1,152	$ 864	$ 432	$ 288	$ 96	-	-
Faculty/Staff Garage	$ 612	$ 459	$ 230	$ 153	$ 51	-	-
Student Resident	$ 504	$ 378	$ 189	$ 126	$ 42	$ 13	$ 5
Student Commuter	$ 504	$ 378	$ 189	$ 126	$ 42	$ 13	$ 5
Student Reserved	$ 936	$ 702	$ 351	$ 234	$ 78	-	-
Student Garage (Resident)	$ 612	$ 459	$ 230	$ 153	$ 51	-	-
Student Garage (Commuter)	$ 612	$ 459	$ 230	$ 153	$ 51	-	-
Perimeter	$ 312	$ 234	$ 117	$ 78	$ 26	$ 9	$ 3
Vendor / Contractor	$ 600	$ 450	$ 225	$ 150	$ 50	$ 16	$ 6
Visitor	$ 600	$ 450	$ 225	$ 150	$ 50	$ 16	$ 6
Bus Pass W/O Permit Purchase (Faculty/Staff)	$ 120	$ 90	$ 45	$ 30	$ 10	-	-

Source: UNL Parking and Transit Services website.

Financial Performance Measures

One of the key measures of financial performance for a university parking system is the debt service coverage ratio, or the ratio of net operating revenue to debt service costs. For UNL, the parking system achieved a very positive debt-service coverage ratio of 1.6 in FY2011, versus the normative ratio of 1.4 required through various garage bonding issues. In addition, parking rates, operating costs and debt service payments have been forecast for the next twenty years, and so an effective base of essential data for management decision-making and program planning exists, much to the program's credit.

With competitive parking rates relative to the areas of Lincoln adjacent to campus, strong reserves approximating a reported $11,000,000, and (as previously stated) the acknowledged commitment of the University's Housing department to fund the next garage planned for 19th & R Streets to the level of $5.5 million, the parking system is well positioned financially at the present time. Further, the system's garages are managed through a distinct revenue and cost accounting process, which is a definite plus for monitoring and controlling operating costs.

There are several potential challenges to the parking system's future financial position. However, they are very amenable to preemptive correction if acted upon now. The parking system's relatively low operating costs will (and by all accounts should) increase as positions critical to the future success of the parking system are added to deal effectively with the increased parking demand caused by anticipated growth in the student population, presently estimated at approximately 1,000 students per year over the next five years, and the faculty and staff to serve them.

In addition, the decision concerning the University's relationship with StarTran for the provision of intra- and inter-campus transit service may affect financial conditions. The possible increase (near double the current cost) of hourly operating costs will represent a financial challenge to the parking system, which covers approximately two-thirds of transportation costs. At this writing, approval has been given to an increase in the student transportation fee from $9 to approximately $16 per semester. While significant in terms of a percentage increase, it is anticipated that parking revenues will of necessity continue to fund the bulk of the University's transportation costs into the future.

The University's parking garages are relatively new, and thus programmed maintenance requirements have been light. However, as the garages age, the need to develop and execute a capital improvement plan will become more pronounced, and it likely will have an effect on parking rates as reserves are drawn down to fund new construction and other capital items – some likely related to transportation.

On campuses that lack parking access and revenue control system (PARCS) equipment, the parking enforcement and citation collection systems assume added importance for controlling the physical access to parking lots and garages. Parking enforcement policies, fine structures and citation collection techniques not only act in concert to promote parking access and compliance with posted regulations, but by encouraging the use of permits as an alternative to receiving parking tickets, the enforcement processes buttress the parking system's overall financial position.

Section IV of this report addresses the issue of relatively low participation rates in UNL's parking permit system, as exemplified by lower than expected driving ratios, or the number of permits compared to the size of various population groups on campus. An examination of the parking fine structure and ticket issuance rates appears to lend credence to a conclusion that the *relatively low parking meter violation fine*, at $10, is likely contributing to lower-than expected permit participation rates, especially among individuals willing to "test" the enforcement system.

As shown in TABLE III-3*,* fully half of all parking citations for FY2011 were issued on parking meters (14,983 meter tickets versus 29,227 total citations). Based on the number of meters on campus (391), an estimated *four meter tickets per meter per month* were issued (using a 9.5 month base) – a level traditionally equivalent to a densely populated, urban downtown core area. Given the parking system's strong reliance on issuing warning notices (at thirty-six percent of all citation actions), it is apparent that parking managers use the enforcement process as a positive learning tool for campus parking customers to encourage compliance and good parking behavior, rather than as a mere revenue-generator.

Also as shown in TABLE III-3, the University's citation collection rate (at 83 percent) is quite effective, and reflects generally strong processes and policies for collecting citations. However, to ensure effective parking management and access conditions remain through the next five-year growth period, this report has addressed and is recommending the installation of state-of-the-art parking access and revenue control system (PARCS) technologies (reference Sections V and VI).

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TABLE III-3: UNL Parking Violation Fines, Tickets and Collections

Code	Violation	Fine	Number	Percent	Extended Value
1	Overtime	$10.00	924	3%	$9,240
2	Expired meter	$10.00	14,983	51%	$149,830
3	No valid permit displayed*	$30.00	6,512	22%	$195,360
4	Improper Display of Permit	$30.00	90	0%	$2,700
5	Unauthorized parking by a registered UNL vehicle (student, staff/faculty or vendor/contractor) in a visitor's lot	$30.00	43	0%	$1,290
6	Parking in unauthorized area	$30.00	5,101	17%	$153,030
7	Parking in No Parking Area	$30.00	1,105	4%	$33,150
8	Improper Parking	$30.00	305	1%	$9,150
9	Unauthorized parking in a fire lane	$100.00	30	0%	$3,000
10	Failure to provide notice of registration change	$10.00	19	0%	$190
11	Failure of faculty/staff or student to register vehicles parking on campus	$50.00	6	0%	$300
12	Falsifying permit application	$100.00	-	0%	$0
13	Counterfeit/stolen permit**	$200.00	17	0%	$3,400
14	Unauthorized parking in a space or access aisle reserved for the handicapped	$150.00	81	0%	$12,150
	Second offence within one-year period	$300.00	5	0%	$1,500
	Third or subsequent offense within one-year period	$500.00	-	0%	$0
15	Filing a false lost/stolen permit report	$100.00	6	0%	$600
TOTAL			29,227	100%	$574,890
Parking Violation Fines Collected (Citation Revenue)					$475,532
Citation Collection Rate (Citation Revenue / Citation Value)					83%
Warnings Issued			16,788	(36% of the total of 46,015 enforcement actions)	

CHANCE Management Advisors, Inc. (From UNL PTS website and issuance report provided by PTS staff)

Comparison with Local Market Parking Rates

The University's parking rates are highly competitive with nearby City-owned as well as privately-owned commercial parking facilities. In addition, the University's metered parking rates and fines are similar to those of the City of Lincoln, although this is not necessarily an effective strategy to optimize short-term parking availability and meter turnover on campus. (For instance, one off-site conversation with a UNL professor indicated he routinely uses two-hour meters to park when driving to campus for class because of the distance to surface lots or permitted parking, and so he deposits additional coins to remain parked after expiration of the two-hour time limit.)

Given the relatively low driving ratios calculated for faculty members, it is clear that there is a preference among some faculty (and students) to use meters instead of procuring parking permits, which is not necessarily conducive to parking turnover at meters that ideally are used to encourage and support short-term parking availability.

TABLE III-4 provides a comparison of UNL's parking rates for off-street as well as curb parking facilities,

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TABLE III-4: City-Owned and Commercial Parking Rates versus UNL

	City	Commercial	UNL
1st Hour	Free	$ 1.00	$ 1.00
Additional Hours	$ 1.00	-	$ 1.00
All Day / Maximum	$ 9.00	$ 6.33	$ 5.00
Early Bird	-	-	-
Monthly			
Low	$ 50.00	$ 65.00	$ 26.00
High	$ 75.00	$ 75.00	$ 96.00
Average	$ 66.43	$ 67.50	$ 55.75
Monthly Reserved	$85.00	$ 70.00	F/S: $86; Stu. $78
Note: UNL $96 monthly rate is for Faculty/Staff Premium permits.			

Curb Parking	City	UNL
Predominant Hourly Meter Rate	$0.50	$0.50
Meter Feeding Permitted	No	Yes
Meter Violation	$10	$10
Grace Period (days)	7	14
Non-payment penalty	$15	$0
Notes		
[1] All City meters are $.50; vast majority of UNL meters at $.50.		

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Comparison of Financial Policies with Peer Institutions

The following three TABLES provide benchmarking comparisons for UNL with selected peer institutions in the following areas:

- Program Scope and Funding (TABLE III-5);
- P&T Revenue Sources (TABLE III-6); and
- Transportation Services Finance (TABLE III-7).

The benchmarked universities are part of a list of ten peers identified by UNL in the Request for Proposals. The universities listed are the ones that responded to the survey, and they are generally of comparable size to UNL and include both Big Ten and non-Big Ten institutions. Brief highlights or summaries of the comparisons are provided ahead of each table.

TABLE III-5*:* Comparisons of Program Scope and Funding

Highlights of this table include the following:

- UNL is about average in terms of the percent of garage parking spaces;
- separate cost accounting for surface lots is not generally performed by the peers (or UNL);
- UNL performs cost accounting for garages, as do half of the peer institutions;
- nearly all universities, including UNL, conduct annual rate reviews and perform annual rate increases (at least among some user group rate plans):
- UNL is similar to the majority of peers in budging for a parking repair and replacement (R&R) fund:
- UNL tends to be unique in determining the R&R fund amount via a historical and self-assessment basis;
- UNL is in the minority by not having a capital maintenance program in place; and
- UNL is in the definite minority (one of only two universities benchmarked) in having a parking management system that was developed in-house.

TABLE III-5: Comparisons of Program Scope and Funding

University	Total Number of Parking Spaces	Number of Garage Spaces (included in total)	Percent that are Garage Spaces	Accounting for Surface Lots versus Garages?	Is there Separate Cost Accounting Among Garages?	Is there Separate Cost Frequency of Rate Reviews	Frequency of Rate Increases	Is a Repair and Replacement Fund Budgeted?	Basis for Repair and Replacement Fund	Is a Facilities Assessment / Capital Maintenance Program in Place?	Parking Management System
UN-L	16,307	5,046	31%	No	Yes	Annual	Annual	Yes [1]	History and self assess-ment	No	In-House
University of Illinois at Urbana - Champaign [2]	15,754	4,500	29%	pending	pending	Annual	Annual	Yes	pending	No	T-2 Flex
Iowa State University	19,382	627	3%	No	Yes	Annual	Annual	No	N/A	Yes	Cardinal Tracking
University of Kansas	15,046	1,574	10%	No	No	Annual	Every 3 to 4 years	Yes	Flat amount	Yes	T-2 Systems
University of Minnesota - Twin Cities	20,084	10,264	51%	No	Yes	Annual	Annual	No	No	Yes	Amano McGann
University of Missouri - Columbia	24,000	9,000	38%	No	No	No schedule	No schedule	Transfer from excess	1.5% of facility value	No	In-house
The Ohio State University	35,024	12,782	36%	Yes	Yes	Annual	Permits, Annually; Other, Less Freq.	Yes	Percent of Operating Budget	Yes	T-2

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Notes

[1] Funds obtained from parking surplus account; maintenance estimates conducted in the fall; $300,000 typically.

[2] Approximate number of garage spaces.

All parking departments listed operate as auxiliary functions.

TABLE III-6: Parking and Transportation Revenue Sources

The main points to be gained from this table are the following:

- UNL has the third-highest percentage contribution from transportation fees versus the other institutions;
- UNL has one of the two highest ratios of parking permit fees versus total parking and transportation system revenue;
- UNL is among the lower of the universities in its portion of citation revenue versus total system revenue;
- UNL is second-highest in terms of special event revenue versus total system revenue; and
- UNL has the third-lowest contribution from retail/other revenue sources.

TABLE III-6: Parking and Transportation Revenue Sources

University	Transportation Fees	Parking Permit Fees	Hourly Parking Fees	Citations	Special Events (includes charter services)	Retail / Other
UN-L	**4.6%**	**75.0%**	**4.0%**	**5.2%**	**10.9%**	**0.5%**
University of Illinois at Urbana - Champaign	**0%**	**75%**	**10%**	**10%**	**5%**	**0%**
Iowa State University	**0%**	**55%**	**8%**	**28%**	**6%**	**3%**
University of Kansas	**N/A**	**52%**	**11%**	**15%**	**22%**	**0%**
University of Minnesota - Twin Cities	**5%**	**39%**	**30%**	**0%**	**8%**	**18%**
University of Missouri - Columbia	**10%**	**72%**	**8%**	**10%**	**0%**	**0%**
The Ohio State University	**0%**	**55%**	**26%**	**3%**	**6%**	**10%**

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NOTES:

[KU] Separate Transit and Parking budgets are maintained; only the Parking budget is shown. The Transit buget is comprised of: 57% student fees, 18% facility revenue, 3% charter revenue, and 22% Parking revenue.

[UMN] Citation revenue is returned to the UMPD; included in Retail/Other is the sale of commuter bus passes (17.4% of revenue) on behalf of the local transit agency.

TABLE III-7: Transportation Service Finances

The comparison of UNL and peers on transportation service finances yields the following:

- UNL has the fourth highest transportation budget, at $1.46 million;
- UNL's transportation cost per service hour is the lowest of the four universities using this metric (in the potential contract renegotiation with StarTran, UNL's cost per service hour would be second-highest among the peers, exceeding $90);
- UNL is fairly typical in that parking revenues fund approximately 70% of transportation costs;
- UNL is one of four universities in which a student transportation fee contributes to the parking and transportation budget; and
- At $9 per semester, UNL (at this writing) has the lowest of five university student transportation fees.

TABLE III-7: Transportation Service Finances

University	Annual Transportation Budget	Transportation Cost per Service Hour	Do Parking Revenues Fund Transportation Service, and To What Percent?	Does a Student Transportation Fee Contribute to Parking and Transportation Budget)?	Transportation Fee Amount / Basis
UN-L [1]	$1,460,000	$ 44.00	Yes, 70%	Yes	$9.00/ semester
University of Illinois at Urbana - Champaign [2]	$500,000	N/A	Partially	No	N/A
Iowa State University [3]	$260,000	N/A	Partially, 1%	No	$108.00 / year
University of Kansas	$7,000,000	Approx. $70.00	Partially, 22%	Yes	$78.50 / semester
University of Minnesota - Twin Cities	$4,700,000	$ 108.52	Partially, 71%	Yes	$19.00 / semester
University of Missouri - Columbia	$1,200,000	$ 60.00	Yes, fully	Yes	$17.00 / semester
The Ohio State University [4]	$6,000,000	$ 80.00	Yes, fully	No	$9.00 / quarter [2]

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NOTES:

[1] Cost per service hour is expected to increase significantly in future years. The student fee contributes approximately 30% of total transportation expenses. The $44 Trans. Cost / Service Hour represents operating expenses only, not capital costs.

[2] Parking revenues fund faculty and staff portion of campus district service provided by Mass Transit District (MTD). Student transportation fees go directly to MTD; revenues do not pass through the P&T budget.

[3] Student transportation fee goes directly to CYRIDE (public/university cooperative).

[4] The transportation cost per service hour is fully burdened (service hour direct costs are c. $60-$65). OSU imposes a $9 quarterly transportation fee for students that goes directly to the Central Ohio Transit Authority.

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IV. INFRASTRUCTURE REVIEW

During the site visit held by *CHANCE Management Advisors, Inc.* (*CMA)* and subsequent discussions with University staff, *CMA* was able to gain a clear understanding of UNL's parking supply and demand. These conditions are documented in the following sections, which have been separated into two sections based on the existing and future parking supply and demand conditions.

Existing Conditions

EXISTING PARKING SUPPLY

As of November, 2011, the University's parking supply was comprised of 12,665 spaces on City Campus and 3,600 on East Campus. TABLE IV-1 below categorizes the parking inventory on City and East Campuses by the type of parking space, based on data supplied by UNL's Parking and Transit Services Department.

TABLE IV-1: UNL 2011 Parking Inventory

Parking Type	City Campus	East Campus	Total
Faculty Staff Non-Reserved	1,909	1,253	**3,162**
Faculty Staff Reserved	301	11	**312**
Faculty/Staff/Student Non-Reserved (A/C)	229	644	**873**
Faculty/Staff/Student Reserved (F3/C1, F4/C2)	273	-	**273**
Commuter Non-Reserved	1,092	763	**1,855**
Resident Non-Reserved	913	261	**1,174**
Perimeter	677	163	**840**
Resident & Commuter Non-Reserved (R/C)	1,104	-	**1,104**
Resident Reserved	118	-	**118**
Faculty Staff Student Reserved Garage	4,421	-	**4,421**
Cashiered, Metered, & Time Controlled	788	161	**949**
Handicap	290	69	**359**
Guest & Patient, Client Parking	123	188	**311**
Service & Delivery	90	34	**124**
Departmental/State Vehicle	337	95	**432**
TOTAL	12,665	3,642	**16,307**

Source: UNL Parking and Transportation Services

EXISTING PARKING DEMAND

In order to assess the current level of parking demand (occupancy) on both the City and East Campuses, *CMA's* data collection plan involved conducting two aerial flights over both campuses in order to obtain aerial photography at two different times throughout the day. The flights were conducted on Tuesday, 8 November 2011 at approximately 11:00 a.m. and 1:00 p.m. Simultaneously with the flights, Parking and Transit Services personnel conducted manual counts of parking occupancy in the four UNL garages.

CMA has verified and adjusted the occupancy counts to account for areas hidden by buildings or in shade. Because the nature of conducting parking counts from aerial photography is less exact than conducting the counts on the ground, *CMA* has provided an occupancy range, with a "low" and "high" occupancy count figure.

TABLE IV-2 summarizes the parking occupancy results on both the City and East Campuses.

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TABLE IV-2: Summary of Occupancy Survey Results

		OCCUPANCY RANGE							
		LOW				HIGH			
Campus	Inventory	AM	AM Rate	PM	PM Rate	AM	AM Rate	PM	PM Rate
City Campus	12,362	8,137	66%	8,060	65%	8,941	72%	8,649	70%
East Campus	3,558	2,051	58%	2,011	57%	2,232	63%	2,170	61%
TOTAL	**15,920**	**10,188**	64%	**10,071**	63%	**11,173**	70%	**10,819**	68%

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These results are based on a usable City Campus parking supply of 12,362 spaces at the time the surveys were conducted, accounting for 303 spaces that were out-of-service for construction or otherwise unavailable for use by the campus community. On the East Campus 21 spaces were out of service due to construction staging.

Even under the "high" occupancy count assumptions, the campus parking supply did not exceed 72% occupancy, which would be considered a relatively low level of use by parking industry norms.

MAPS IV-1 and IV-2 show the average (of both the high and low counts) peak (a.m.) parking occupancy results.

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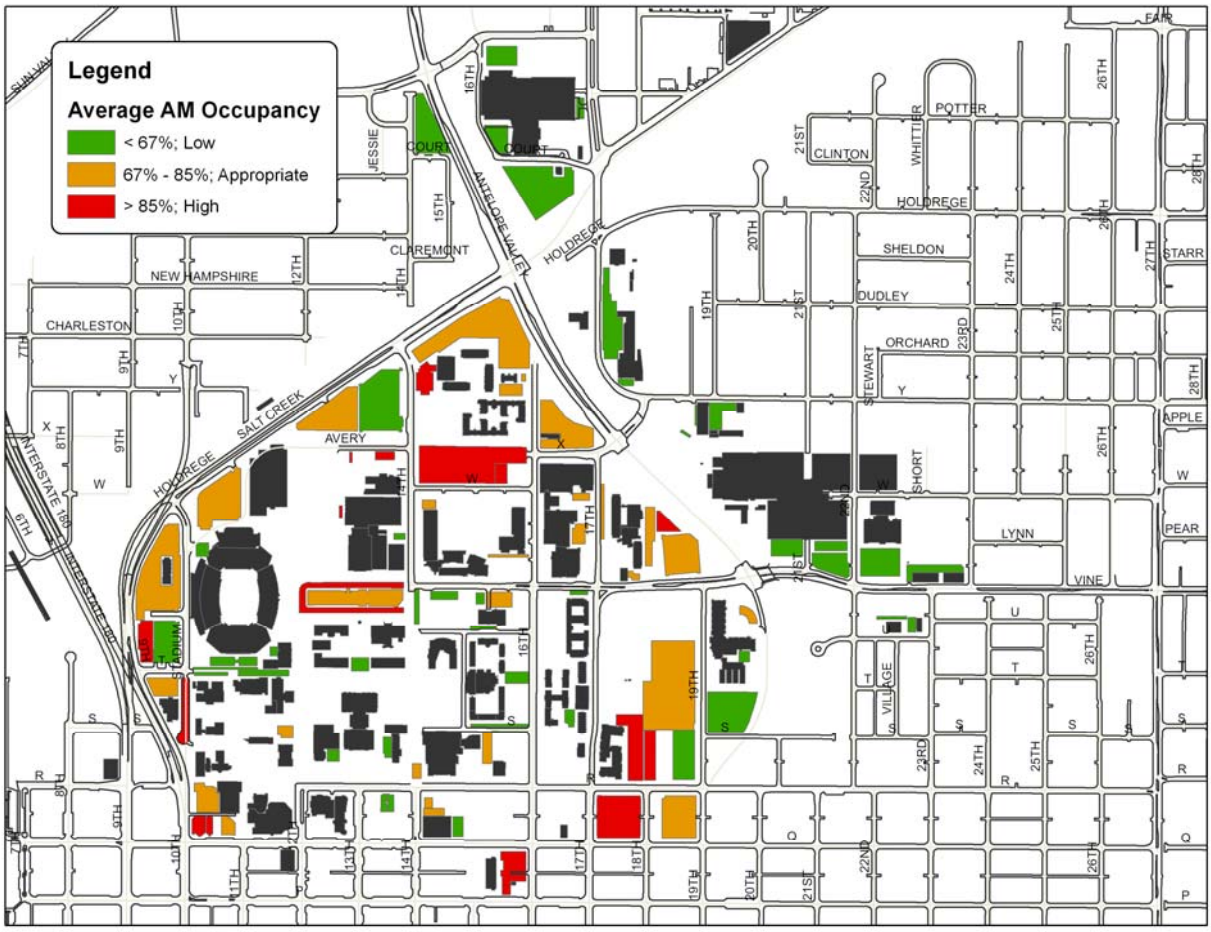
MAP IV-1: City Campus Parking Occupancy (A.M.)



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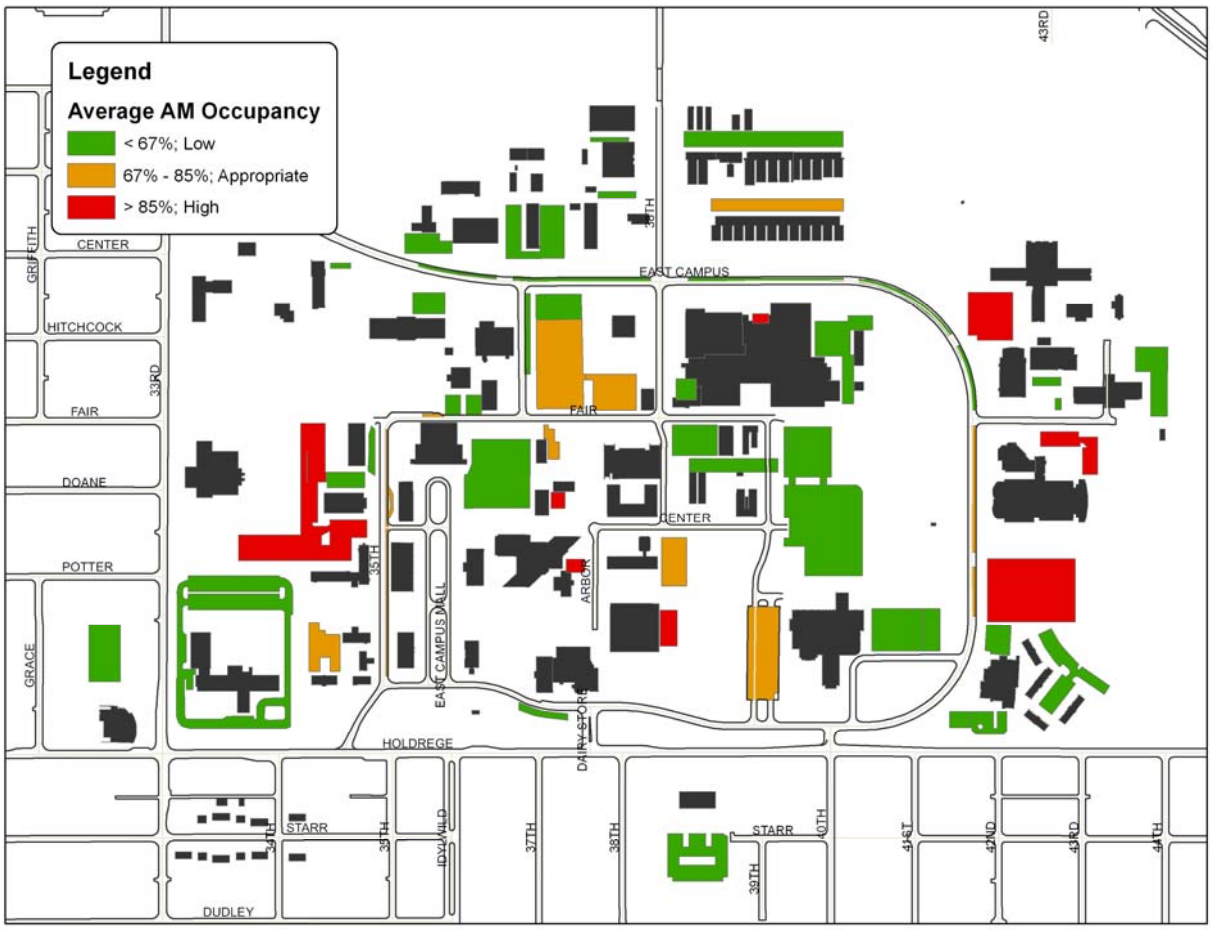
MAP IV-2: East Campus Parking Occupancy (A.M.)



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Future Conditions

FUTURE PARKING SUPPLY

The total, future parking supply is affected by three, main factors: 1) the permanent displacement of spaces for construction of new buildings, green or recreation space, or other uses, 2) the addition of new parking spaces in through the construction of new lots or garages or additions to existing parking facilities, and 3) the temporary displacement of spaces for construction staging or other uses. TABLE IV-3 shows the cumulative effects of these three activities over the next three academic years. Displaced spaces are shown as negative numbers, and additional spaces are shown as positive numbers.

Spaces that show up under both displacements and additions reflect the temporary displacement of parking spaces (e.g., East Stadium Improvement). A total of 1,092 spaces are anticipated to be displaced on the City Campus by the end of 2013 academic year, with East Campus standing to gain 18 spaces during the same time period.

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TABLE IV-3: Future Parking Displacement and Additions

Facility	Location	Year	City Campus	East Campus
FY 2011/2012			**(744)**	**(18)**
Displacements				
East Stadium Improvement	Memorial Mall	2011	(117)	
18th & R Residence Hall	18th & R Streets	2011	(420)	
940 N 17th Street (GE Building)	17th & X Street	2011	(31)	
Morrison Center Addition	Morrison	2012		(18)
Campus Recreation Outdoor Advent	14th & W Streets	2012	(299)	
		Subtotal	**(867)**	**(18)**
Additions				
Animal Research Facility Addition	Veterinary Basic Science	2011	21	
Gaughan Surface Replacement	14th & R	2012	27	
Devaney Sports Center	Devaney South	2012	75	
		Subtotal	**123**	**0**
FY 2012/2013			**(98)**	36
Displacements				
College of Business		2013	(40)	
East Campus Recreation Center	Activities Building	2012	(58)	
		Subtotal	**(98)**	**0**
Additions				
Morrison Center Addition	Morrison	2013		36
		Subtotal	**0**	**36**
FY 2013/2014			**(250)**	**0**
Displacements				
Campus Recreation Fields	14th - 16th & W Street	2013	(284)	
Thermal Energy Storage Tank	1001 Y Street	2013	(83)	
		Subtotal	**(367)**	**0**
Additions				
East Stadium Improvement	Memorial Mall	2014	117	
		Subtotal	**117**	**0**
TOTAL NET SPACES (Displaced)/Added			**(1,092)**	**18**

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FUTURE PARKING DEMAND

In late 2011, it was announced that new plans for UNL included growing the student population by 5,000 students within the next five years. The 5,000 student growth is anticipated to be comprised of approximately 2,750 new students recruited from out-of-state and internationally, and 2,250 students coming from improved retention rates for currently enrolled students.

As TABLE IV-4 shows, the faculty is anticipated to grow by approximately 150 people, ten percent of which are anticipated to be based on the East Campus. An increase in the staff population was calculated from the existing ratio of the number of staff to the number of faculty and applied to projected future faculty numbers. Using the current driving ratios for each population group, and making assumptions about the presence factors for each, the total additional future parking demand was determined to be 2,630 spaces for both campuses by the end of 2016.

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TABLE IV-4: Future Population Growth and Parking Demand

	Academic Year 2011-2012		2012-2013		2013-2014		2014-2015		2015-2016		TOTAL		
	City Campus	East Campus	City Campus	East Campus	City Campus	East Campus	City Campus	East Campus	City Campus	East Campus	City Campus	East Campus	GRAND TOTAL
Students [1]	900	100	900	100	900	100	900	100	900	100	4,500	500	**5,000**
Driving Ratio	49%	43%	49%	43%	49%	43%	49%	43%	49%	43%	49%	43%	
Presence Factor	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	
Permits	437	43	437	43	437	43	437	43	437	43	2,185	215	**2,400**
Spaces	415	40	415	40	415	40	415	40	415	40	2,075	200	**2,275**
Faculty [2]	29	3	29	3	29	3	29	3	29	3	144	16	**160**
Driving Ratio	44%	61%	44%	61%	44%	61%	44%	61%	44%	61%	44%	61%	
Presence Factor	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	
Permits	13	2	13	2	13	2	13	2	13	2	65	10	**75**
Spaces	10	2	10	2	10	2	10	2	10	2	50	10	**60**
Staff [3]	97	11	97	11	97	11	97	11	97	11	486	54	**539**
Driving Ratio	57%	92%	57%	92%	57%	92%	57%	92%	57%	92%	57%	92%	
Presence Factor	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	
Permits	55	10	55	10	55	10	55	10	55	10	275	50	**325**
Spaces	50	9	50	9	50	9	50	9	50	9	250	45	**295**
Total Additional Future Parking Demand (Spaces)	**475**	**51**	**475**	**51**	**475**	**51**	**475**	**51**	**475**	**51**	**2,375**	**255**	**2,630**

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FUTURE PARKING SURPLUS/DEFICIT

When the current parking occupancy and availability is combined with the projected growth over the next five years, the result is an understanding of the campuses' future parking surplus or deficit condition. If the current parking supply will meet all of the projected additional parking needs, it is considered to have a surplus of spaces, whereas if the future demand exceeds the number of spaces the University will be in a parking deficit situation.

As part of the surplus/deficit calculation, *CMA* adjusted the available parking supply to remove from consideration parking spaces dedicated to uses other than permit parking (service spaces, patient and client parking, etc.), in order to reflect the fact that the future growth in parking demand is projected to occur almost completely in the permit parking category. Therefore the adjusted available parking supply reflects those spaces that can be used for permit parking.

As TABLE IV-5 shows, in both the "low" and "high" ranges, the East Campus has a considerable future parking surplus of between 800 and 1,000 spaces. City Campus, however, has a 660 space surplus under the "low" scenario, but has a 151 space deficit under the "high" occupancy scenario. When taken into context of the entire City Campus parking supply, however, this deficit is only approximately 1% of the total campus parking supply, and as such could easily be accommodated through management and operational changes.

TABLE IV-5: Future Parking Surplus/Deficit

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	TOTAL
Additional Future Parking Demand						
City Campus	475	475	475	475	475	2,375
East Campus	51	51	51	51	51	255
Total	**526**	**526**	**526**	**526**	**526**	**2,630**
Net Spaces (Displaced) / Added						
City Campus	(744)	(98)	(250)	0	0	(1092)
East Campus	(18)	36	0	0	0	18
Total	**(762)**	**(62)**	**(250)**	**0**	**0**	**(1074)**
Total Future Parking Need (Spaces)						
City Campus	1,219	573	725	475	475	3,467
East Campus	69	87	51	51	51	309
Total	**1,288**	**588**	**776**	**526**	**526**	**3,704**
Available Peak Parking Supply (Nov. 2011 A.M.)						
City Campus Survey Availability						
Low Occupancy: 4,225 spaces available						
High Occupancy: 3,421 spaces available						
Adjusted Availability (Spaces Available to Accommodate Permits)						
Low Occupancy: 4,127 spaces available	2,908	2,335	1,610	1,135	**660**	
High Occupancy: 3,316 spaces available	2,097	1,524	799	324	**(151)**	
East Campus Survey Availability						
Low Occupancy: 1,507 spaces available						
High Occupancy: 1,326 spaces available						
Adjusted Availability (Spaces Available to Accommodate Permits)						
Low Occupancy: 1,362 spaces available	1,293	1,206	1,155	1,104	**1,053**	
High Occupancy: 1,197 spaces available	1,128	1,041	990	939	**888**	

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V. TECHNOLOGY REVIEW

Existing Management Systems

CMA examined the existing conditions, use and effectiveness of the following UNL Parking and Transit Services (PTS) department management systems to determine the ease of customer access; the level, reliability and ability to obtain management reports and audit information; how and to what extent these systems are integrated; and the current real time connectivity:

- parking permit and citation management system;
- special event schedule / billing system;
- parking access and revenue control system;
- meter audit system; and
- customer online graphic user interface.

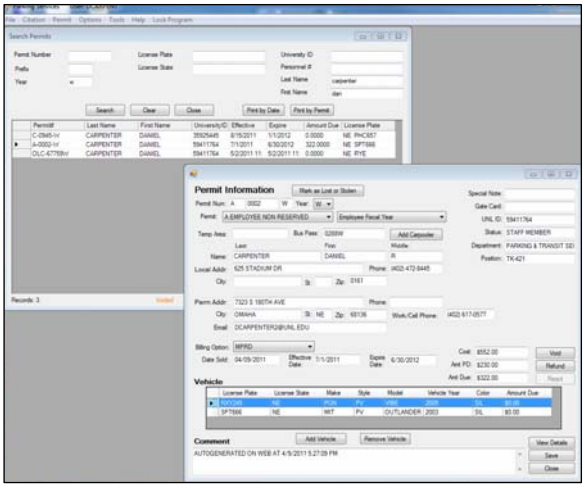
As part of the analysis, *CMA* generally compared these management systems with industry best practices and developed recommendations to improve their utility or presented alternative solutions that better serve the Department's requirements, enhance the level of service provided, and promote and support the technological growth of the department and its systems.

The Parking and Transit Services department uses several hardware and software systems to facilitate daily business operations, including the permit and citation management system and the special event scheduling and billing system. These two systems comprise 90 percent (90%) of all service tracking and revenue collection. Dan Carpenter, Director Parking and Transit Services furnished *CMA* with descriptions of these systems and the following three screen shots of the permit management system, citation management system, and the new impoundment release feature.

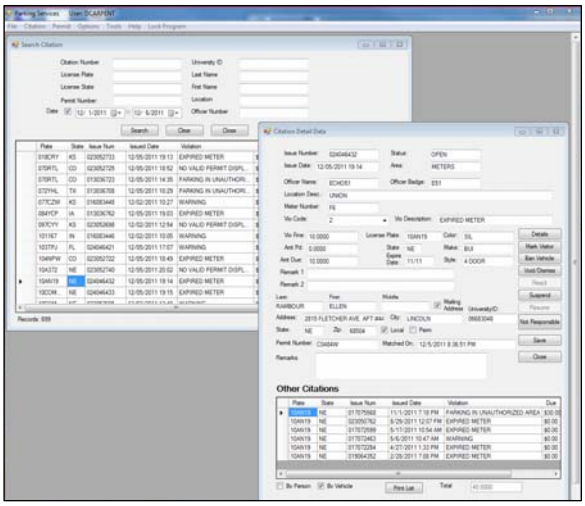
PARKING PERMIT AND CITATION MANAGEMENT SYSTEM

In 2003, Parking and Transit Services began an internal University partnership with Shared Computing Services (SCS) to develop an in-house solution built on .Net using SQL servers to replace permit and citation management software (AutoProcess) purchased from Enforcement Technology four years earlier. To solve ongoing data management problems and limited access issues with the AutoProcess software, SCS created new software for the University parking system that continues to be functional, customizable and provides the required auditing controls and reporting capabilities.

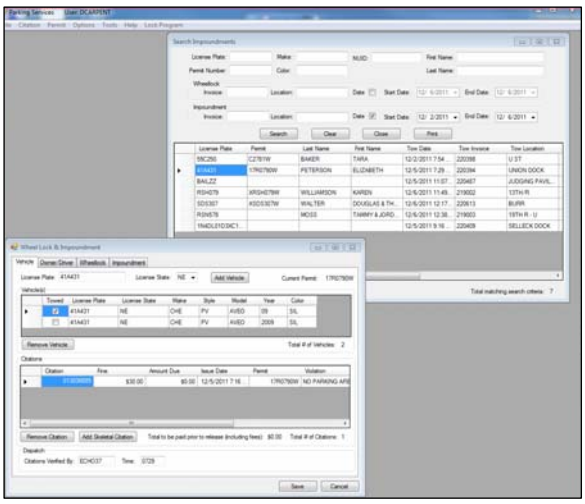
The **permit management** functionality of the in-house management system includes customer permit record information, vehicle information, and links to citations. PTS staff can perform data searches by parking permit number, permit prefix or year code, vehicle license plate number/state, University identification number, and customer name. Individual customer records may be updated by PTS staff, added or removed (also done by the customer online), and payment records, history of changes and unpaid citations (through the citation link) may be viewed.



The **citation management** functionality of the in-house management system provides customer information and payment history, and original citation information; the latter is imported into the management system from the Duncan handheld ticket writers using AutoIssue as the bridging software. PTS staff may view the details within a selected record including citations issued, vehicle information, history and payment information; and initiate changes to citations (e.g. void or suspend citations or change violation type.) Citations may be paid online or in-person at the PTS office.



Several modifications to the Permit and Citation Management System have been made over the last several years to maximize PTS staff productivity and reduce the duplication of effort:



- automating the online permit ordering process drastically reduced the amount of interaction time with customers during this process and required PTS staff to simply review the customer order and prepare the mailing of the permits and relevant information;
- providing customers, when the department began wheel-locking (booting) vehicles again, with online access to pay and release impounded (wheel-locked and towed) vehicles; and
- (in process of) developing the online purchase of guest permits for visitors requiring parking for 1-5 days and the ability to print the permit and display it on the dashboard while parked in approved parking areas.

In terms of customization, reporting and overall functionality, PTS has had success with the in-house permit management and special event management programs; however, these programs are not integrated and any significant changes will require the need for future programming. Additionally, the University utilizes two different databases for maintaining vital personnel records: SAP for faculty and staff records and People Soft for student records; and for the most part the interface between the University and PTS databases is promulgated through manual input. As a result, PTS relies on effective collaboration with Shared Computing Services including them now and into the immediate future in the planning and decision making process related to technological upgrades, programmatic requirements and replacement of existing hardware, systems and related infrastructure.

SPECIAL EVENT SCHEDULE / BILLING SYSTEM

The UNL Department of Parking and Transit Services utilizes an in-house Special Event Management System that was developed in 2007 to manage and schedule parking, transportation and other event services including parking permits, barricades / traffic control devices, parking meter rentals, and staffing requirements for sporting events and conferences held on the UNL campus. There are three specific challenges with this system: the event scheduling and subsequent billing functions are two separate programs; all event billing is manually entered by the Business Center into SAP; and there is no reliable data management reporting capabilities. As a result, PTS is seeking a more robust and cashless special event parking solution that includes on-line reservations and prepayments and functionality to manage parking sales on-location utilizing current (bar code, cellular or other) technology and eliminating cash sales.

PARKING ACCESS AND REVENUE CONTROL SYSTEM (PARCS)

Federal APD “ScanNet” central management software is used to control and monitor parking operations in the Stadium Drive parking garage, the only parking structure on campus accepting daily cash sales. The Federal APD PARCS is an integrated solution capable of monitoring and controlling parking, access and revenue control at multiple locations with functionality to perform lane counts, provide ticket control, monitor lane equipment, produce a host of management reports, and more. Unfortunately, the local Federal APD vendor does not provide good, reliable support and service and although there is access control equipment located on other lots on campus, they are not in service, so the PARCS system and functionality is only being used in the one parking garage on campus. As a result, PTS has limited its ability to capture real-time system-wide parking use and occupancy data; to perform trend analysis on how the campus parking facilities are being used on a daily basis; and to take advantage of many other good parking management tools provided by the ScanNet system. The minimal use of the system has limited the return on investment for the University.

METER AUDIT SYSTEM

Parking and Transportation Services utilizes over 439 parking meters located in 23 parking locations on City Campus and East Campus. The parking meters are manufactured by Duncan Solutions and PTS utilizes the Duncan "AutoTRAX" software solution for programming and auditing functions. Coin collection is segregated by area, key control is well managed, and the reconciliation of meter revenue touts less than 1.0% differences between physical counts performed by PTS staff and audit reports produced by the AutoTRAX software. In addition, a pay-by-cell partnership with ParkNow will soon be available providing a cashless alternative to feeding coins into parking meters located across campus.

CUSTOMER ONLINE GRAPHIC USER INTERFACE

The PTS website provides an abundance of information in a well presented and organized format. One can register and pay for a parking permit online; pay or appeal a citation online; and schedule a special event requiring parking, transportation or other special needs (i.e. ADA requirements, special parking for the elderly or VIPs, enforcement, etc.) A variety of legible campus maps are provided on the website and downloadable in PDF format, but the online versions do not appear to be interactive and present a lost opportunity to provide valuable information to campus visitors and guests.

New Technology

A number of new and competitive technologies are available to the parking industry that have been tested and are proven to be effective parking solutions for the current and future growth anticipated by the University of Nebraska-Lincoln. Included in the Technology Matrix below are recommended high-tech systems with the pros and cons for each technology and the names of several leading manufacturers of each product.

University of Nebraska
PARKING OPERATIONS AND INFRASTRUCTURE REVIEW

TABLE V-1: Technology Matrix

Parking Access Revenue Control System (PARCS) e.g. Federal APD, Amano	
PROS	CONS
Integrated parking systems with multi-functional capabilities	Capital investment required for initial purchase, setup and training
Provides mixture of functionality and flexibility for the right solution	Some systems have proprietary software
Strategic alliances with RFID/AVI, LPR and Parking Guidance systems providers, and more	Requires highly trained service technicians and reliable IT support

Radio Frequency Identification (RFID) e.g. Transcore, Tagmaster	
PROS	CONS
Faster entry into parking facilities	Higher price for credentials (RFID tags on the vehicles)
More convenience for drivers	Higher price for the readers at facility entrances/exits
Lower environmental impact due to faster entry into facilities (lower emissions)	More installation efforts required (reader is on a pole +/- 12 feet in the air, rather than at car-door level)
Interoperability with electronic toll collection technology as an access or payment credential	Most RFID tags cannot be removed from a vehicle and used again, even though they have a 5-6 year life
Very high reliability (even in harsh climates)	Requires barrier gates in all vehicular traffic lanes to restrict unauthorized access
Hands-free solution increases personal safety	
Longer credential life (RFID tags versus permit stickers, decals, hangtags)	

License Plate Recognition (LPR) e.g. Genetec, Park Trak	
PROS	CONS
Fast and credential-free access to parking	Moderate reliability in harsh climates (fog, ice, snow)
Available in fixed or mobile applications	More frequent maintenance of components
Increased enforcement efficiency	Increased enforcement is required in a “gateless” application
Automated vehicle inventory collection, reconciliation, reporting and data mining	
Controlled access with or without barrier gates	
Higher throughput at entrances and exits	

Space Location and Guidance System e.g. Streetline/Streetview	
PROS	CONS
Provide real-time parking availability to motorists	More installation efforts required (equipment required at each space) and higher cost
Lower environmental impact due to locating available parking faster (lower emissions)	Frequent maintenance of system infrastructure (batteries, transmitters)
Increased customer satisfaction and convenience	Moderate reliability in harsh climates (ice, snow)
Reduced traffic congestion	Promotes more vehicular circulation and congestion if individuals are not assigned to lots

Integrated Management System e.g. T2 Systems, Cardinal Tracking	
PROS	CONS
Full access/control/management of all related systems and data	Capital investment required for initial purchase, setup and training
Multiple software and hardware solutions for complete parking management	High ongoing subscription/service fees
Increased customer satisfaction and convenience	Vendor dependency for response to system errors/failure
Integration with other University information systems	Mandatory upgrades are usually required and at additional expense
Automatic updating of data and management reporting	
Global Positioning System (GPS) e.g. TransLoc, NextBus, Syncromatics	
PROS	CONS
More accurate tracking of bus fleet for fuel, mileage, maintenance and reporting requirements	Capital costs for installation of software and hardware on buses and in operations center
Provides real time bus location information online or on portable electronic devices	Need to identify a GPS system that is user friendly for software upgrades and functions
Improves ridership with convenient information on route maps, bus location and accurate information for next bus arrival	Some systems require monthly fees for data collection, software upgrades and online service capabilities
Identifies unauthorized route diversions, stops and delays	
Provides reliable coordination of transit connections between bus routes	

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VI. RECOMMENDATIONS

Recommendations are offered below, gleaned from the analyses associated with the four main issues found in previous chapters. The major functions reviewed in this project (operations, finance, infrastructure, and technology) are intertwined within the PTS organization; thus several recommendations address multiple conditions and provide solutions to improve multiple situations.

Operations

Five major operations issues are addressed by the recommendations below.

1. **Develop University Policies for Parking and Transportation**. The University needs to promulgate some guiding policies for parking and transportation functions. These policies should address the imperatives of PTS (being financially self-sufficient, needing to address not only day-to-day parking but also parking for visitors and special events, etc.) as well as the concepts of University Master Plans (previous and upcoming). The policies can form the base for the planning and decisions made by PTS, and they can show the University's commitment to a defined role for parking and transportation at UNL.

2. **Participate in any discussions and decisions about integrating university databases**. PTS has a great and continuing need and interest in being able to integrate parking information with student and employee information databases, the bursar billing/accounting system, institutional research and planning data, housing, and public safety data. As integrated data becomes more possible and desired across the University, PTS needs to be included in the discussions to indicate both what it needs and what it can provide.

3. **Develop Standard Operating Procedures (SOPs) for all PTS positions.** PTS has a good start on the documentation of Standard Operating Procedures for the department, but it needs to reorganize some information, date all the procedures, associate them with positions, and complete the writing of missing Procedures. Good SOPs help to avoid unclear decisions, misdirected information, bad customer service, and inadequate coverage of positions when individuals are absent.

4. **Determine priority activities from among the peer Directors' recommendations.** As mentioned in a previous chapter, the Directors who filled out the operations comparisons provided many good ideas and approaches to the functions fulfilled by PTS. These should be reviewed by PTS and decisions made about adopting recommendations and implementing them in a priority order.

5. **Add critical positions to enhance performance and prepare for the future**. Without a good Parking Access and Revenue Control System (PARCS), it is even more necessary to have a Parking Analyst in place, along with staff devoted to Communications, support of Managers, Finance, Transportation Demand Management, Technology, and Strategic Planning. Given the size of the University and the complexity of the functions carried out by PTS, additional positions are warranted to cover existing work and to do what is anticipated in the future.

Many of the functions in PTS will change if the University adopts the recommendations to implement a new PARCS system, and the positions recommended will enhance the ability of PTS to make the transition, inform the campus community, safeguard the revenue, and provide good customer service.

In addition to these five major recommendations, the following issues should also be addressed:

- If the University wants to make the best use possible of available vacant spaces in all of the locations where they exist, the transit service will need to be enhanced to meet the expectations (reasonable ones) of riders for prompt, predictable, customer-oriented service for moving around campus and between peripheral parking and the core of campus.

- Additional work should be done to explore and verify the need for additional short-term parking on East Campus for University business, as well as more visitor parking and more short-term parking for business on City Campus. How much of these needs might be met by better transit is one of the issues to explore, as is the amount of inappropriate parking in visitor and service spaces.

- A new PARCS system should eliminate the rationale and need for “parking down”, a condition where individuals with higher ranked permits may park in lots with a lower rank permit requirement. This “parking down” process confounds the ability to oversell spaces in lots with a surety for parking availability, confuses the members of the campus community, and makes parking management more difficult. It should be abandoned, and the legitimate issues associated with what initiated the policy should be met in other ways.

- There is a general perception, which may be backed up by actual data, that the parking lots are much darker in the evening than are the parking garages. It is true that more break-ins occur in vehicles parked in lots. An analysis should be undertaken of the variances between parking garages and lots in terms of light levels and the commensurate support for better security, and a capital plan should be developed for improvements to the lots if the analysis bears out the lower lighting level.

- A new system, coordinated with the recommended new PARCS system, should be researched and acquired for cashless event parking management. The new system should include the ability to procure event parking online in designated lots/garages, as well as some provision for electronic payment for those who cannot or did not register online.

Finance

A major focus of the section on finance was to identify opportunities to enhance the financial performance of the PTS department. Based on *CMA's* discussions with University officials and Parking and Transit Services department personnel, as well as data reviews and analysis, the following enhancements to the Department's financial performance are offered.

1. **Communicate more effectively with the campus community regarding parking and transportation costs and benefits delivered.** Parking and Transit Services provides a vital service to the campus for relatively modest fees. This is a story that must be effectively shared to build goodwill among the campus community. Historically, parking departments that share this information through annual reports, their websites and campus newspapers over time are able to remove the mystery surrounding necessary rate increases, as customers can associate the benefits derived from permit fees and enforcement. Ultimately, the goodwill generated through this open communication with the campus community can facilitate approval of program adjustments when needed.

2. **Create and staff a Parking and Transportation Analyst position.** Program analytical work now performed by the Director (which includes periodic collection of parking occupancy data in lots and garages and other related tasks) is actually best performed by dedicated staff having the time to focus proactively on parking and transportation trends and activities. At UNL this new position would increase the quality and frequency of program analysis, while allowing the Director to devote more time to interact with parking stakeholders and user groups regarding strategic parking issues. Individuals having quantitative backgrounds would be able to provide the Director with information well-suited and formatted for more efficient decision-making. Given the multitude of parking locations serving various purposes, the number of spaces and the breadth of activities on the two campuses, the need for focused and consistent program analysis is great. Such positions are typically revenue-generating, in that through a combination of field work and data analysis, they can enhance management's ability to optimize the efficiency and effectiveness of operations. Selected duties of the analyst position would include: program operational analysis; occupancy and violation surveys (initially); fine-tuning of parking oversell rates by location and detailed revenue and performance analysis, for example, on parking meters and cashiered parking locations, analysis of transit ridership and use of stops, to name a few.

3. **Conduct a parking meter operational and revenue security audit.** While not a primary focus of the current project, analysis of several meter program indicators and discussions with operating personnel point to the need for an operational review and security audit of meter operations. Indirectly measured through the estimated number of four meter tickets per meter per month (MTx/M/Mo), it is possible that the parking violation rate on meters may be significantly higher than industry norms for electronic, multi-coin meter systems of three to five percent. The level of four MTx/M/Mo would be that expected in a densely-populated and congested urban core, which appears inconsistent with either the City or East campuses at UNL.

4. **Conduct parking occupancy, turnover, and violation rate and capture rate studies in lots and garages, and at on-street meters.** Conducting reliable parking program analysis based on parking citations alone is insufficient: the true extent of non-compliance or potential enhancements can not be known without knowledge of other key parking activity indicators, such as those named above.

While such a study does not (and should never) focus on increased parking revenue as its goal, the information gleaned from knowledge of these indicators by location, time of day and day of week can help Department staff make both operational and programmatic adjustments that will optimize the parking system's efficiency and effectiveness. Examples of the tangible benefits from such a study include but are not limited to:

- enhanced management and targeting of permit oversell rates for specific lots;
- management of parking congestion and demand through alternative pricing strategies, either for specific facilities, areas of both the City and East campuses;
- adjustment of selected parking violation fines, particularly those for expired and overtime meter parking;
- adjustment of parking enforcement officer staffing and deployment strategies and patterns;
- modification where/when needed of the parking meter time limits and rates to encourage parking turnover;
- identification of locations for multi-space meter locations, and/or electronic payment parking infrastructure (for example, credit card and/or pay-by-phone);
- encouragement of the use of parking meters for short-term access to key locations versus long-term parking; and
- evidence for the case for parking access and revenue control system procurement and related technologies.

5. **Adjust selected parking violation fines, meter rates, and parking time limits.** Short of analyzing the actual data generated through the recommended parking activities surveys, it would appear based on the present analysis of selected parking violation and meter revenue data that judicious adjustments to the meter violation fine schedule and pricing/time limit structure are warranted. The combined effects of these adjustments would discourage short-term parking violations and encourage turnover, and promote greater participation in the University's parking permit system.

6. **Plan for and implement a comprehensive Parking Access and Revenue Control System (PARCS), including a parking permit management system.** This recommendation is proposed as an opportunity to enhance financial performance, although it is not without significant cost. The added operational and parking management logistical efficiencies these new systems would bring to the University would further enable the fine-tuning of parking facility occupancies, thereby facilitating parking customer service for the entire campus community, which ultimately will enhance revenue through greater participation in the permit process.

7. **Develop a capital plan specific to Parking and Transit Services to project and phase major costs associated with recommended system enhancements.** A capital plan would include the amounts and phasing (by year) for all of the major parking system enhancements addressed in this Report, including but not limited to:

    - a parking facility capital maintenance plan;
    - new PARCS equipment, including:
        - a new permit management system,
        - surface lot and garage access controls,
        - related signs and inventory information systems,
        - enforcement equipment,
    - transportation information systems;

- electrical work and reconfiguration of parking access lanes where needed to accommodate the new control system;
- re-lighting of surface lots where needed; and
- other major improvements to be determined.

The resulting capital plan expenses should be incorporated into the parking and transportation system's existing financial planning documents to determine the amounts that will be funding from existing surpluses, available bond proceeds, and/or adjustments to future parking permit fees.

Infrastructure

1. **Maximize Efficient Use of Existing Resources.** Currently, the University has a considerable number of available parking spaces. The University should attempt to maximize the efficient use of all existing parking spaces before constructing another parking facility. Some of the recommendations in this report will change patterns of parking behavior on campus, and so the full effects of these changes should be realized and understood in relation to parking availability before an irreversible decision is made to invest in new facilities.

   Furthermore, the University is about to undertake another campus master plan. The master plan is likely to make numerous recommendations about how the University should grow and how it should address parking and transportation in the future. Knowing the direction the master plan will take in regards to the future of campus is critical to understanding how to address future parking needs. Therefore, the University should strongly consider delaying the construction of any major parking facilities until it can be determined whether such an approach fits within the context of the new campus master plan.

   Another way the University should work to maximize the existing parking supply is by adopting a "Park Once" policy. A Park Once policy reduces the need for parking spaces by only allowing parking users to park in the one parking facility to which they are assigned. Any movement within or between campuses happens either by walking, or taking advantage of the campus transit system, which was designed to enable the adoption of a Park Once policy by providing quick, reliable service to most of campus.

2. **Allocate Users to Individual Parking Facilities.** While a small number of spaces within the overall system may be designated for a specific use (for example, visitor and ADA spaces), permit holders are not assigned to specific parking lots, leading to an increase in campus traffic as people search various lots for a "good" parking space. At present, any compliance with the intended use or designation of the surface lots is strictly voluntary, as access to the lots is not controlled through gates and access cards; this forces a reliance on enforcement personnel to ensure compliance with the desired uses of a parking lot by issuing violation citations.

The University should adopt an allocation system by which users are assigned to park in a certain facility and the access control system only allows them access to that specific lot. This increases the efficiency of the parking system and reduces (but does not eliminate) the need for enforcement. Users can be allocated to certain facilities by a number of systems, but the most common is combination of seniority and individual choice whereby users list their top three choices for their parking location. The permit management system then assigns individuals to a facility based on these and possibly other factors (time of registration, full-time/part-time status, etc.).

3. **Consider Relocation of Resident Student Parking.** Because resident students' vehicles may remain in place for days at a time (whereas spaces used for commuter students would typically be expected to turn over several times a day), the University may wish to consider re-locating resident versus commuter student parking assignments. It is clearly understood that the issues of resident student convenience as well as personal and vehicle security, with their associated costs, should be considered in the decision-making process for this potential strategy. However, relocating resident student vehicles to more peripheral, underutilized locations would free additional spaces on the interior of campus (including more valuable garage spaces), for other users. Frequent campus transit service also makes this a much more feasible option for resident students.

4. **Establish Additional Parking Permit Categories.** As part of both the allocation and parking permit systems, the following new permit categories should be established for implementation with the Fall 2012 academic semester (each of which may be further subdivided to establish a parking priority system):

    - faculty (both part-time and full-time);
    - administration and staff (both part-time and full-time);
    - campus resident students;
    - commuter students;
    - contract employees;
    - others (visitors, VIP, emeriti faculty, alumni, temporary, etc.)

5. **Expand City Campus Visitor Parking Supply.** The University should consider adding more paid visitor parking around campus. This goal would dovetail perfectly with an effort to move resident student vehicles to more outlying parking lots, allowing some garage spaces currently used by resident students to be turned into shorter-term paid parking. By distributing the paid parking around campus, it would be more conveniently for visitors to campus to park closer to their destination rather than forcing everyone to park in the Stadium Drive garage, regardless of where their destination is.

Technology

The following recommendations include preferred solutions that use industry tested and proven technologies that will provide the UNL Parking and Transit Services department with the capability to more effectively and efficiently manage its parking and transit operations into the future.

1. **Upgrade or replace the current parking access and revenue control system (PARCS)**. This will provide the comprehensive management of parking systems and equipment (i.e. cash registers, validators, ticket spitters, access control equipment, barrier gates, lane counters, etc.) and the functionality of PARCS software including revenue control and audit capabilities, daily user and occupancy counts, remote access/control of barrier gates and peripheral equipment, system diagnostics and alerts, and management reports. As important, if not more so, than the capital outlay when upgrading or choosing a new PARCS is taking into consideration the resources, competence and location of vendors/suppliers to provide product and IT support, service and maintenance, and fast and reliable response to emergency system and equipment failures. The performance requirements and the whole Request for Proposal document are absolutely essential for the University to obtain the best technology and service to meet its needs.

2. **Use wireless Radio Frequency Identification (RFID) technology as the access control for large parking facilities.** The preferred solution for parking access control in the four garages and other larger UNL permitted parking lots is wireless Radio Frequency Identification (RFID) technology using automatic vehicle identification (AVI) tags as the credential to regulate authorized access into these parking facilities. An RFID solution would also require the use of barrier gates in all access/egress traffic lanes to control unauthorized access and depending on the vendor and how UNL proceeds, some if not most of the existing PARCS equipment may be used. This technology may also be used in smaller lots where gated access is important to maintain authorized use of the parking spaces.

   In addition to providing faster and more convenient entry and exit for parking patrons, an RFID/AVI solution as recommended will provide effective and controlled access and a higher level of safety and security by disallowing the illegal entry of unauthorized vehicles. However, a capital investment will be required to purchase the necessary related equipment (i.e. gates, readers, mounting poles, antenna, credential stock, etc.), modify or reconfigure entry/exit lanes, add curbing, increase lighting and connect to the University's communications infrastructure and power grid.

   This controlled access solution will also support and provide the necessary access controls for the assignment of permit parking to specific facilities and reduce the amount of time required for enforcement of parking policies and regulations. The introduction of assigned parking and controlled access will be a change in how parking at UNL is currently managed and the P&T Department may experience some discontent that may evolve to broken gate arms or damage to access control equipment. In the event of such occurrences, the installation of surveillance cameras and appropriate signs may assist in identifying perpetrators, provide deterrence, and actually support the Department's enforcement efforts.

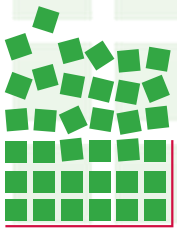
Overall, the combination of an *RFID Access Control solution* and *allocated parking* will afford permit holders with increased convenience upon entry/exit, insurance that a parking space will be available, and reduced traffic congestion caused by vehicles stacking at the entrances and exits or traveling to find available spaces in multiple facilities.

3. **Use License Plate Recognition (LPR) as the preferred solution for campus-wide enforcement.** This solution would be particularly effective in the campus parking areas/lots where vehicular access is not controlled by RFID technology and barrier gates. This application would predominantly use mobile and hand-held LPR equipment, but would not preclude the use of fixed, in-lane LPR equipment at select locations where barrier gates may not be desired or possible (e.g. high profile areas in the campus core or where substantial turnover or illegal parking is rampant. Primary enforcement would entail the use of mobile enforcement vehicles (e.g. fossil fuel or alternative fuel) equipped with LPR equipment and regularly patrolling the ungated campus lots to enforce parking rules and regulations. In areas where enforcement cannot be adequately performed from a slow-moving vehicle, hand-held LPR scanners would be utilized by officers/staff on-foot. Mobile enforcement would also be used in the large gated parking facilities, but on a random an as needed basis if it appeared that unauthorized entry was occurring.

4. **Purchase a fully integrated Parking Management System to manage operations.** The Parking and Transit Services Department has been successful using home-grown management software programs to manage parking operations including permit registration and allocation, citations, special events, meters, and web-based information. Although these in-house solutions have served parking operations well, the multiple systems are not integrated and they do not provide the parking department with reliable management reports, accurate and useful data collection and other functions that will be essential to PTS as the University continues to grow and expand its population, facilities and services. A fully integrated Parking Management System should be considered as the fundamental component that is used in conjunction with a fully operational and well supported parking access and revenue control system to manage the daily parking and transit operations including, but not limited to:

    - two-way data flow between PTS and the University's SAP and People Soft systems (and eventually a central data warehouse);
    - permit registration and allocation (RFID or other types of parking credentials);
    - billing and audit functions;
    - citation issuance, tracking and collections;
    - meter management;
    - special event parking; and
    - data management and report generation.

5. **Ensure that a real-time GPS customer information system is incorporated into any transit program operated by UNL or operated by StarTran on behalf of UNL.** If UNL operates its own transit system, a Global Positioning System (GPS) is a very highly appreciated feature and will increase ridership by making the transit system more predictable and dependable for the riders. If all transit service is contracted with StarTran, it is recommended to negotiate the same level of information be made available from StarTran buses as UNL would obtain from its own fleet equipped with a GPS system.



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