



Parking Council's Leadership

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See you at the
ITE 2006 Technical Conference and Exhibit
 in San Antonio, TX, USA
 on March 19-22



Letter from the Chair

By Randy McCourt, P.E., PTOE



The ITE Parking Council will publish a newsletter twice a year to update members on current issues and topics in parking. ITE's role in parking is different from other organizations such as the National Parking Association, International Parking Institute, TRB, or ULI. Our goal is to focus on the transportation engineering aspects of parking—things such as parking demand/supply relationships (Parking Generation), parking signing and wayfinding (as it relates to the Manual on Uniform Traffic Control Devices) and parking management. The following graphic is an organizational chart that we are considering to identify our role in parking, as well as how we can best support and cooperate with other groups that are extensively involved in various other aspects of parking (ranging from operations and technology to design and construction). Our (ITE) role may change in the future with interests of our members, but for now we will be focusing on three primary efforts—keeping Parking Generation up to date, providing an informational report on parking demand/supply management and parking signing (working with FHWA/MUTCD committees). To this end, our newsletter will provide updates on parking generation research and other parking related issues of significance to transportation engineers and planners. I would like to encourage all members with interests in parking to contact me with ideas that we can consider as a council. We will be sure to consider these suggestions and even publish summaries in future newsletters.



CONCEPT DRAFT

Figure 1: ITE Parking Council Role in Relation to Other Groups

Parking Topics at Meetings

By Ed Papazian and Peter Volk

The Parking Council participates in the ITE technical conferences and annual meetings by sponsoring technical sessions. In the 2005 Technical Conference and Exhibit in Las Vegas, our council sponsored a session titled “State-of-the-Art in Parking Management and Design” and conducted a special interest roundtable on Parking Generation.

The technical session included the following presentations:

- *Case studies in Advanced Parking Management: The U.S. Experience*, by Jennifer Rephlo of SAIC;
- *Norfolk’s Parking Wayfinding Signage System*, by Daniel Rydzewski of the City of Norfolk, VA;
- *Review of Parking Generation*, by Randy McCourt of DKS Associates; and
- *Shared Parking: From Study to Reality*, by Mary Smith of Walker Parking Consultants.

The presentations ranged from an overview of parking management programs around the United States, a specific program in Norfolk, VA, to an overview of the parking generation report and a discussion of the principles and application of shared parking.

The roundtable discussion focused on how to make *Parking Generation* a better resource for the transportation profession. Among the issues discussed were the need for more data, statistical presentation of the results, urban conditions, minimum or maximum parking rates and the relationship between *Parking Generation* and the *Transportation Planning Handbook*.

Our council sponsored session at the ITE Annual Meeting and Exhibit in Australia. The session was titled “Parking Design and Management” and consisted of two speakers from the USA and two speakers from Australia. What was very interesting was that parking issues are universal.

Peter Johnstone, from ARRB Group, Ltd. in Leederville Australia made a presentation entitled “Parking Strategy Developments in Selected Australian Cities: A Platform for Sustainable Transport Systems.” Peter described various strategies that are considered to reduce parking demand and parking supply in urban locations.

Daniel Brame of the Port of Portland in Portland Oregon presented his paper entitled “Making Room for Parking in ITS: The PDX Experience.” Dan described recent advances in parking technology that are applicable to many types of parking facilities. They include single-space parking guidance systems (SSPG) and pay on foot/credit card in/out systems. He also described the successful pay on foot/credit card in/out system that was recently installed at Portland International Airport (PDX).

Glen Hollsworth of TTM Traffic Engineering Group in Toowong, Australia made a presentation entitled “Central Business District Parking Policy.” Glen raised questions about whether the various strategies considered to reduce parking supply and demand will be effective.

Ronald Stehman of HNTB Corp. in Arlington, VA presented his paper entitled “Designing for Parking Garages That Are More Than Parking Garages.” Ron described the growing trend in developing parking garages in special settings that include ground floor retail, office uses, or ground floor transportation centers. In addition, parking garages are often being fit into the urban fabric by altering features contained in a conventional parking structure. He described three case studies including a garage in Richmond, VA which is built above freeway and as part of a proposed office building, a garage at George Bush International Airport in Houston, TX that needed to be built around various airport operations and a garage at Ronald Reagan Washington National Airport in the Washington, DC area on a wedge-shaped parcel of land.

Ed Papazian and Peter Valk are submitting proposed sponsored sessions for the Parking Council for the 2006 Annual Meeting. In addition, Ed has worked with the Transportation Planning Council on submitting a joint sponsored session.

If you have any ideas for a technical session, please contact Ed Papazian (ed.papazian@kimley-horn.com) or Peter Valk (valk@tms85.com).

ITE Parking Council Best Practices Award

By Robert Jurasin

Award Description

The award is bestowed, annually, on a project that applies innovative techniques to a parking issue/problem in a study or planning effort. Projects that benefit the profession through greater understanding and/or the public through effective solutions to parking issues will be considered. Submissions that effectively communicate a problem statement, clearly outline methods used and highlight results and benefits will be given the highest consideration. The emphasis is on an applied project (not design/construction documents). To be eligible, the project should have been completed during the previous calendar year, and a member of the Parking Council should have had a substantial role in the project. Public agencies, consultants and others are welcome to apply.

The winning project will demonstrate the best of parking-related practices in five areas:

- Originality;
- Quality;
- Significance;
- Comprehensiveness; and
- Transferability to other places or agencies.

Randy McCourt, who authored the informational report, was awarded the plaques in Montana at the ITE District 6 Meeting.

Our 2005 Winner

Parking Generation 3rd Edition is the winner of our first Annual Best Practices Award. It also won the ITE International Coordinating Council Award for 2005.

Parking Generation had not been updated since its second edition in 1987. Parking data were kept on paper forms in boxes. This third edition converted all of the historical data to electronic format (Excel), expanded the available data from about 1,000 parking demand studies to nearly 4,000, expanded the number of land uses from about 50 to more than 90 and developed completely new statistical summaries of data.

Parking Generation, 3rd Edition also corrected numerous flaws in the prior report, expanded that breadth and depth of data supporting findings regarding peak parking demand and provided a broad base of data to expand the assessment of shared parking (via time of day, week, month variations). By opening up the data set beyond suburban sites, knowledge has been enhanced into the

factors that can affect parking demand (land use, transit use, TDM, pricing).

More than 30 members of ITE participated in the report's development and review, contributing substantial new parking data. This report was reviewed by six groups: Parking Generation Committee, ITE Council Review Panel, Academic Review Group, Advisory Panel, Technical Editor and ITE Staff. Beyond this, two open houses at ITE meetings and a dozen presentations at ITE meetings were made to update members and seek additional information.

This report will be used throughout the country and world by all those involved in the parking industry, including all levels of government, parking authorities, airport/port/transit authorities, universities/medical centers, parking practitioners, research/academia, land developers, consultants and the public. It is a document referred to on a daily basis and is worthy of this award.

In our next newsletter, we will provide more information for our second annual award process. In the meantime, if you have any questions, please do not hesitate to contact Robert P. Jurasin, Chair of the Award Committee at rjurasin@wilbursmith.com or Heather Talbert, ITE headquarters at htalbert@ite.org.

Congratulations to Randy and the committee that worked on Parking Generation—keep up the great work!



Dalene Whitlock, Zaki Mustafa and Ken Ackeret awarding Randy McCourt the ITE Parking Council and Coordinating Council Award in Kalispell, Montana.

Home Improvement Parking Demand Study Update

By Ransford S. McCourt

The third edition of *Parking Generation* included 34 survey observations of home improvement superstores (Land Use Code 862). Many of these studies were from the 1990's. In 2001, additional studies were conducted at 17 stores in the southwest region of the United States. This information was provided in limited form from research submitted to the City of Carrollton, TX thanks to Cesar Molina. While the detailed observation data were not made available (confidential), the findings from the research provided additional understanding of home improvement parking demand characteristics. The following general findings may be useful when considering home improvement superstore parking needs.

- **Building area as the sole independent variable may not be the most accurate factor for estimating parking needs.** The research indicated that annual store sales may be a better predictor of design-day¹ peak hour parking demand.
- **In using building area as an independent variable, variations in peak parking demand can occur based on several variables such as store hours, market size and annual store sales.** The research indicated the following:
 1. Stores with regular hours have higher peak parking demand on the design-day than stores that operate 24 hours a day. The variation may range from 30 to 80 percent depending upon annual sales. This can probably be attributed to the spreading of demand over more time in the design-day (Saturday) than when the flexibility of more store hours are not available.
 2. Stores with large market sizes may increase design-day peak hour demand by 5 to 15 percent.
 3. Stores with sales that are higher or lower compared to average annual sales conditions may impact design-day peak parking by 25 to 40 percent. Lower sales stores would be below the average and higher sales stores would be above the average.
- **The 85th percentile parking demand ratio from the third edition of *Parking Generation* for Saturdays (4.40 vehicles per 1,000 GFA) would have overestimated demand for all the lower annual sales stores from this survey, accurately predicted peak demand in about half of the average sized, average annual sales buildings, but would have underestimated nearly all of the high performing annual sales stores (particularly those less than 100,000 GSF).**

While these additional surveys point to additional issues regarding peak parking demand for home improvement stores (particularly associated with annual sale or store performance), these factors are not necessarily predictable over a 5-10-20 year (or more) period where facility planning decisions must be made at a planning department level. Things such as store hours can change overnight with the decision of corporate management. Additionally, having accurate estimates of store sales in the planning/approval phase of a store is probably very speculative or unlikely² (as compared to an estimate of building area).

The over-estimation of parking needs for home improvement stores is apparent from the data in the third edition of *Parking Generation*. While the peak Saturday demand 85th percentile of 4.40 vehicles per 1,000 GFA was found, the average parking supply of the survey sites was 4.9 spaces per 1,000 GFA. Additionally, research in 2001 indicated that the average peak occupancy among study stores was 45 percent of the parking spaces available for use with the highest peak occupancy of 80 percent. This would tend to indicate the methods used to estimate parking supply are in excess of most home improvement stores.

This recent research points to some factors that would result in parking demand that exceeds the typical ratios noted in *Parking Generation* to help decision-making when considering parking needs. Probably more than anything, it points to the need to consider parking management to address peak needs of high sale and large market area stores. Providing parking more than 5.0 spaces per 1,000 GFA may appear to address the peak parking needs of these high performing conditions, but given that demands above those noted in *Parking Generation* only occur for a few days out of the year and only a few hours of those days-parking management strategies (such as shared parking with office land uses) may be better approaches than paving larger parking lots in these circumstances.

¹ Design-day for this research was the fifth busiest day of the year. The peak hour demand on this day was estimated to typically occur on a Saturday between 11 a.m. and 1 p.m.

² After a store is open, accurate annual store sales data are more readily available and may be utilized to estimate parking management strategy needs in a shared parking situation.

Portland's Parking Meter Pay Stations

By Ransford S. McCourt, with input from Kieth Ehrensing, City of Portland

In early 2002 the City of Portland authorized installation of pay station pay and display technology to replace its aging coin parking meters. With more than 7,000 meters in operation, this was a major undertaking. The SchlumbergerSema manufacturers "smart meter" pay station was selected, which cost about \$6,100 each and replaced up to nine meters per block face (new coin meters cost \$650 per space). The smart meters are solar powered, accept credit cards and remove meter posts from the sidewalk area—significant benefits. The pay stations work in three steps: (1) the user goes to the pay station; (2) payment can be made via coin, credit, debit, or smart cards; (3) driver takes sticker receipt and places it on the window inside of the car at streetside. Portland has phased its implementation during the last 3 years (originally planned for five but high public acceptance and system efficiency accelerated the roll out). In 2002 about 150 stations were in place, in 2003 another 885 were added and now about 1,130 stations are in place (on average they service about 6.7 parking spaces). Downtown development in the Pearl District has added to the overall on-street parking inventory in the past year (now about 8,400 spaces—about 6,000 downtown, 1,100 in the Lloyd District and the rest in the Pearl or other districts). Originally the stations were placed on blocks with four or more meters and now they are placed on blocks with 3 or more meters, thus increasing the number of overall spaces controlled by the pay stations to about 95 percent of the paid parking inventory.

The phasing of the implementation helped with public acceptance, but the over-riding issue was the user payment flexibility that allowed credit, debit and smart cards to be brought to the system. Now more than 55 percent of the transactions are with credit or debit cards and about 1 percent with smart cards. The greatest benefit for longer-term meters is that it would have taken almost a half roll of quarters to pay for parking with a coin meter. The sidewalk space created by the removal of parking meter posts has been favorably received by streetside business (cafes and bistros) as about 2–3 ft. of sidewalk space was reclaimed.

Portland spent a lot of time working through the two way communication of the pay stations—the "thing" that put smart into the meter. This has been very successful, as the city has seen the cost of revenue collection drop in half through proactive management of stations that are able to tell staff when they are nearly full or need maintenance. Coin meters typically jammed about four times per year, but the equivalent down time with the pay station has been one time per year per space. Additionally the locked/sealed system and communication of revenue receipt to the management system (creating a redundant back up checking system) have made the revenue recovery seamless and much more efficient and less problematic compared to coin meters. The enforcement staff has remained the same with the number of citations and revenue not substantially changing from before to after implementation of the pay stations. Enforcement staff efficiency has increased with more managed systems of enforcement including the use of hand-held ticket writing devices (similar to a PDA) that eliminates hand writing of tickets. The net result of all of this has been greater revenue. In 2001/2002 the coin meter revenue was about \$7.5 million, in 2004/2005 (before significant increases in paid space inventory) the revenue with the pay stations increased to \$9.7 million.

When Portland installed this newer technology, it was the first large city in North America to change the majority of its meters. Toronto and other cities had used pay stations and some older technology and now numerous cities are making the change. In the northwest, Seattle is buying about 1,600 pay stations and both Spokane and Tacoma are considering a similar move. The northwest cities are also looking into ways to share smart card technology and use the smart cards for validation systems. Other new technologies in consideration are the use of cell phones for payment and the ability to validate/approve credit card use prior to transactions. With all this increased interest, the number of manufacturers is jumping—from about 12 when Portland began its research to nearly 25 now. Some of the key issues to address in consideration of these systems are software, encryption techniques and effectiveness of two-way communication systems.



Parking Publications

By Mary Smith and Todd Litman

The second edition of the landmark Urban Land Institute (ULI) publication *Shared Parking* is available and can be ordered at www.uli.org. Based on all new data, this book contains information to estimate parking requirements, a chapter on parking management and case studies that describe how shared parking has been implemented. The document has been coordinated with the third edition of *Parking Generation*. The CD included in the package contains an excel spreadsheet model that can be used to experiment with different mixes of office, retail, hotel, restaurant and residential space and quickly determine the optimal parking requirements through shared parking. The program includes weekday and Saturday parking demand ratios, hourly variations and passengers per car, adjustments for seasonal variations and passengers per auto. The cost is \$595 for ULI members and \$695 for nonmembers.

Upcoming Article in *Parking Magazine*

Mary Smith, vice-chair of the council, recently completed her 20th annual update of the analysis of vehicle sales trends on parking dimensions. Mary evaluates car and light truck (pickups, SUVs, vans and sport wagons) sales data for the United States using a classification system based on the area (length x width) of the vehicle, which allows for more understanding of vehicle size trends. Classes 5-7 are considered small vehicles and classes 8-11 are large vehicles for the purposes of small car only stalls. Although there was considerable media coverage of the reduced sales of large SUVs in the spring of 2004, for the full calendar year vehicle sizes again crept up. A major factor however was the closure of a couple of tax loopholes that encouraged people to buy larger SUVs and pickups than they otherwise would have purchased last winter or to accelerate a planned purchase from 2005 to 2004. Also, the American manufacturers waged a furious incentive war in the fourth quarter to try to improve market share, as well as profitability, through sales of larger vehicles. The following summarizes some of Mary's key findings for calendar year 2004 sales:

- Cars dropped from 47 percent in 2003 of combined car/light truck sales to 45.4 percent in 2004.
- The percent of cars that qualify as small (classes 5-7) inched down from 32.7 percent in 2003 to 32.6 percent in 2004.
- The percent of light trucks that qualify as small inched up, from 7.1 to 7.5 percent, due to sales of small sport wagons.
- Overall, the percent of small vehicles still declined, from 19.2 to 18.9 percent.
- Annual sales of SUVs were down just a tad (1.0 percent).

- Annual sport wagon sales have increased from 66,000 in 1996 to 500,000 in 2000 to 1.75 million in 2004. From 2003 to 2004, they increased 17.6 percent.
- Annual sales of vans have declined from 1.8 million in 2000 to less than 1.5 million in 2002-2004, suggesting that minivan drivers switched to sport wagons. However, van sales were up 4.7 percent in 2004, the first increase since 2000. It appeared that in 2004 a fair number of sport wagon purchases came at the expenses of mid- and large-size car sales.

Overall, the percent of vehicles in classes 10 and 11 (the two largest classes) went up 24.2 and 9.3 percent, respectively. Since 2002, class 10 vehicles have increased from 14.3 to 16.4 percent of vehicle sales and class 11 went from 9.3 to 10.8 percent.

There are indications however that vehicle sizes have peaked and will start to inch down. Mary has done a partial analysis focusing on light truck sales for the first 3 months of 2005. Clearly, the continuing popularity of sport wagons is significantly impacting SUV sales, with SUV sales down 19 percent and sport wagon sales up 16 percent, but the shift is across the board, as class 6 and 7 SUV sales are down 41 percent, class 8 and 9 SUVs down 11 percent and class 10 and 11 sales down 19 percent. Conversely, full-size van sales are up 10 percent. More recently, it was reported that there has been a significant decline in the "blue book" resale value of SUVs, which is attributed to high gas prices. Also according to industry sources, there appears to be a shift towards medium-sized pickups, rather than the extended ones.

The complete analysis is scheduled to be published in the October *Parking Magazine*, published by the National Parking Association.

Parking Management

Todd Litman is working on an informational report that describes parking management strategies, how to evaluate and implement them and how to develop an integrated parking management program. Parking management includes a variety of strategies that result in more efficient use of existing parking facilities, including the sharing of parking facilities, regulation to control and prioritize the use of parking spaces, more accurate and flexible parking requirements, parking maximums, use of remote parking facilities, overflow parking plans, improved user information, access management and smart growth land use policies, improved walkability between parking facilities and destinations,

transportation management associations and parking brokerage services, increasing capacity of existing parking facilities, mobility management programs that encourage use of alternative travel modes, parking pricing with improved pricing methods, parking cash out, unbundling of parking from building spaces (so occupants only pay for the amount of parking they want to use), parking tax reform, bicycle parking as a substitute for some automobile parking and addressing spillover problems through better enforcement and compensation.

An integrated parking management program that includes a variety of cost-effective strategies can significantly reduce the amount of parking required at a particular location compared with what is required by conventional standards. Parking management can help address many planning objectives, including improving users' quality of service, reducing parking and traffic congestion, reducing conflicts resulting from parking spillover impacts, reducing road and parking facility

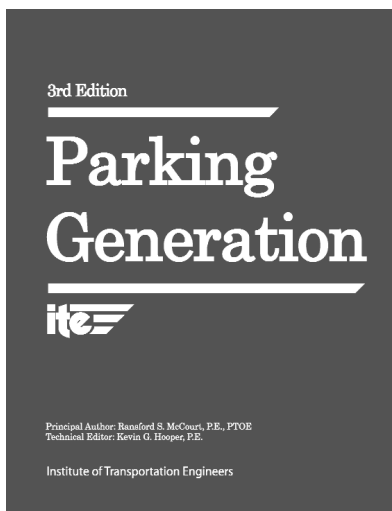
costs, increasing facility design flexibility, reducing energy consumption and pollution emissions, reducing sprawl and reducing impervious surface area.

Parking management is increasingly supported by transportation and land use professional organizations. Many individual parking management strategies have been described in existing documents published by ITE and other professional organizations, but no existing documents provide detailed information on all of these strategies or guidance on how to develop an integrated parking management plan. The ITE parking council wants to provide leadership and guidance for practitioners who want to apply parking management solutions.

For information on this project and how ITE members can stay informed contact Todd Litman at litman@vtpi.org.

Parking Signing: Are Updates Needed?

Uniform parking signing helps traveler efficiency and understanding. While parking signs are not necessarily as safety critical as regulatory or warning signs, they provide a core service to travelers. With the move to pay-and-display smart parking meters in many downtowns, the MUTCD provides no guidance for these types of signs. Additionally, parking wayfinding signing throughout the United States and the world varies from green signs to blue signs, round signs to rectangular signs. The MUTCD will be considering updates in 2006. Should you have any input and interest in this topic, please e-mail Randy McCourt at rsm@dksassociates.com



Parking Generation, 3rd Edition

Parking Generation, 3rd Edition represents a significant change from its predecessor published in 1987. Three times as much data are now available and 91 land uses are represented. In addition, parking demand data by hour of day is incorporated into this update. This edition begins a process of segregating parking data records for future analysis and research into various factors that may affect parking demand. Parking data are linked to the hour of observation to provide a temporal understanding of parking demand and the peak hour of parking demand. Additionally, this update separates out the influences of area type on parking demand, including (where data are available) information about sites that have priced parking. ITE, 2004. ISBN No: 0-935403-92-2

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