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Arizona State University's Parking Garage – Steel can be striking.

Steel: It's Worth Another Look

BY PHILIP G. RAHRIG

Given the state of rising costs for concrete construction materials and shrinking maintenance budgets, many owners are requesting a viable alternative parking structure design. Steel is such an alternative, and although surrounded by many misconceptions, its strengths position it as a long-term solution and worth another look.

For a number of qualitative performance-related reasons, steel design – and in particular, hot-dip galvanized steel design – is worth considering. Hot-dip galvanizing has for more than 150 years provided corrosion protection to myriad structures.

Top Ten Reasons to Give (Galvanized) Steel Parking Structures Another Look

1. Galvanized steel has demonstrated a verifiable durability for decades in a variety of environments, including coastal and industrial. (See Figure 1)
2. Castellated beams often used in steel design create an open and light-filled atmosphere where patrons feel safer.
3. Galvanized reinforcing steel in decks means no unsightly spalling and no corroding seams between deck panels.
4. Steel garage construction schedules are shorter.
5. Galvanizing of 60- to 80-foot girders is now common, accommodating almost all designs. The actual turnaround time to galvanize is usually less than five working days.
6. Steel designs are overall lighter in weight, meaning fewer and/or smaller caissons.
7. Galvanized coatings are aesthetically appealing not only for structural members, but also for stairways, exterior mesh panels and guardrail.
8. Painting structural steel means costly, scheduled maintenance and lost revenue. Galvanized steel is maintenance-free for 50 to 80 years.
9. Life-cycle costs of galvanized steel frame parking structures are two to three times less than precast. Life-cycle costs of galvanized steel frames are two to five times less than painted structural steel frames.
10. Galvanized steel framing is initially 10% to 20% less expensive than precast construction.

Initial Cost

Once the qualitative analysis reveals that a galvanized steel frame is maintenance-free for decades and prevents corrosion for many decades, even in harsh coastal climates, the owner's next step in the decision process is to develop the quantitative analysis and evaluate exact initial costs.

Continued on Page 18

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NPA Schedules Annual Convention in Hollywood

The National Parking Association (NPA) will hold its 56th annual Parking, Transportation and Services Convention and Exposition on Oct. 22-25 at the Renaissance Hollywood Hotel, Los Angeles. "NPA's annual convention provides a unique opportunity for networking and information-sharing for all parking industry professionals," said Martin L. Stein, Executive Director. "We have planned an unparalleled educational experience with a dynamic line-up of speakers, general and business sessions, and roundtable discussions."

For registration and general information on the convention and exposition, contact Bobbie Westmoreland at (202) 296-4336. Companies interested in exhibiting or sponsorship opportunities should contact Pat Langfeld, Director of Marketing and Business Development, at (202) 296-4336, ext. 205, or go to www.npapark.org

Show here is the Hollywood/Highland complex with the host hotel in the background.

Steel: It's Worth Another Look

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Life-cycle Cost

Although the initial cost of galvanized steel is favorable to precast concrete, responsible design requires the investigation of other coatings to protect the steel from corrosion. Although not necessarily the case, various paints are generally viewed as initially less expensive than hot-dip galvanizing, and while initial cost is often the decisive factor when selecting a corrosion protection system for steel in a garage, other costs dwarf this initial funding outlay.

Those are associated with a series of scheduled maintenance costs necessary to protect the steel from corrosion over the planned service life. For maximum protection of the asset, plans should be based on an ideal maintenance cycle. For paint systems, an ideal cycle calls for touchup, maintenance painting and full-repainting prior to visual evidence of substrate steel corrosion. However, on most projects, a practical, less rigorous cycle is used, and this means maintenance is conducted when the coating has deteriorated to the point where the project looks to be in disrepair and iron oxide (rust) is visibly evident. For a hot-dip galvanized corrosion protection system, maintenance is normally not required.

To determine the timing of practical maintenance, most paint coating systems have been tested in a laboratory using accelerated corrosion mechanisms. To be sure, if the testing indicates a touchup painting should be performed in year eight, a maintenance paint applied in year 13, and a full repaint in year 18, the actual project may require maintenance according to the wear and tear on the project and the toll environmental corrosive elements have taken. That may mean earlier than planned maintenance based on the accelerated testing.

Comparing one system with another can be an arduous numbers-crunching exercise further complicated by the various performance characteristics each coating system provides. A three-coat inorganic zinc-epoxy-polyurethane system may have initial durability, while hot-dip galvanizing provides corrosion protection inside hollow structural sections, and alkyds may be the standard of past projects. But once the field is narrowed to a couple of optimal coating systems according to desired performance, it is important to use all the financial tools and models available to quantify future costs as accurately as possible, especially with maintenance budgets shrinking and substantial long-term costs.

One tool is the Life-Cycle Cost (LCC) Calculator now available at www.galvanizingcost.com. As the Internet address implies, this site will compare the initial and life-cycle costs for more than 30 (one-, two- or three-coat) paint systems with hot-dip galvanizing. A unique feature of the software allows the user to customize the input to fit his or her particular project exactly. Input variables include total size in tons or square feet, surface preparation type, structural steel component size (small, medium, large), and planned service life of the project. The calculator allows the user to input in either metric or English units.

Philip G. Rahrig is Executive Director of the American Galvanizers Association. He can be reached at PRahrig@galvanizeit.org.

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ACS Introduces Contactless Payments to Parking at Airports

Affiliated Computer Services announced that its airport parking applications in North America will begin accepting MasterCard PayPass contactless payments. ACS installs large airport parking systems, with more than 20 current installations at the nation's busiest airports.

MasterCard PayPass is a fast, cashless payment option that enables ACS customers to pay for parking simply by tapping their PayPass-enabled MasterCard card or device on a PayPass reader. ACS will begin implementing PayPass at selected, existing customer sites this summer. Its airport revenue control solutions will continue to accept traditional magnetic-stripe payment cards along with this contactless payment technology, and will continue to work with all payment card providers.

"MasterCard's selection of ACS to expand MasterCard PayPass acceptance to airport parking facilities demonstrates our focus to simplify our customers' lives by providing innovative alternatives," said Michael Huerta, Managing Director of ACS Transportation Solutions. "Airport parking is an ideal setting for contactless payments, because this technology streamlines a sometimes time-consuming activity for clients who frequently do not have time to spare."

AdverTickets Joins Brite Media Group

Dallas-based hand-to-hand media company AdverTickets, the leading provider of on-ticket advertising, has been acquired by Brite Media Group. Founded in 2000, AdverTickets was the primary operating subsidiary of Upswing Inc. and will now operate as a separate Dallas-based division of BMG.

One major change resulting from the acquisition is the promotion of Denise Pevehouse to National Parking Network Manager, where she will head up one of AdverTickets' main objectives – to significantly increase partnership opportunities with parking companies. "Since AdverTickets is now a division of a media company with offices nationwide, we are taking an aggressive approach in seeking new clients that want to advertise on parking tickets," Pevehouse said. "With our expanded sales force, we now have the capabilities to introduce our ticket network to more potential advertisers than ever before."

AdverTickets produces full-color advertisements on valet parking tickets, machine-issued parking tickets and "Boom Ads." It was the first company to provide full-color, on-ticket advertisements for some of the world's largest brands on a national basis. The company's client list includes Cadillac, DreamWorks, Disney, GMC, Allstate, Altoids, American Airlines, the Army National Guard, UnitedHealthcare and Monster.com.

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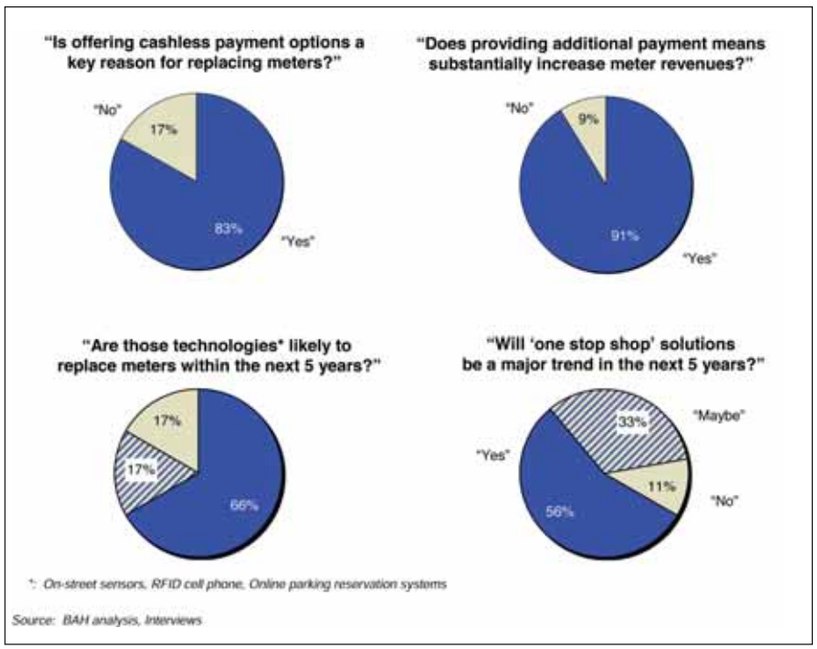

Results of a survey by international consulting firm Booz Allen Hamilton have confirmed that the overriding opinion of on-street professionals is that the ability to use credit cards, plus the potential for an increase in revenue, is driving the change from individual parking meter's cashless payment options, including pay and display, RFID, cellphone and online reservation systems.

As shown in the graphs above, 83 percent believe that cashless options drive the change, while 91 percent say that the equipment substantially increases revenues.

In interviews in North America with professionals of the on-street parking industry, mainly at city level, the company confirmed the importance of payment options as a driver for meters replacement and for individual meter revenues.

Consequently, the risk of substituting the meters is low in the short-run. The use of a sole provider is a trend that is likely to grow, but mostly with bigger cities.

Pay-and-display and pay-by-space installations have been increasing in many locales, both large and small. Cities such as New York, Chicago, Denver, Seattle, Portland and Houston have installed large systems, while smaller cities such as Redwood City in California see the equipment as a way to institute a new market-based pricing program.

Pay-by-cellphone is in its infancy, with Florida's West Palm Beach and Coral Gables leading the way in the U.S. Both cities and many private operators see the technology as an additional convenience to their customers.

Online reservation systems are not currently being used in the on-street market, and focus primarily now on airport parking reservation programs.

PT

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Pay by Cell Launched in Va

BY PHOEBE YONG

Ralph Yeomans had a problem. He needed to expand the service his Parking Operations and Enforcement branch in Vancouver, Canada, offered its citizens, but he didn't have a budget to invest in pay-and-display equipment. His solution – pay by cellphone deployed on all 8,000 on-street metered spaces.

As a result, customers were offered a convenient, cashless payment option; receipts for expensing purposes; and text reminders prior to parking time expiration. Wear on existing meters and maintenance and collection costs will be reduced in the foreseeable future. Parking revenue has increased as fewer people opt not to pay.

At 157 people per hectare, Vancouver, British Columbia, has one of the highest downtown population densities in North America and relies on effective management of its complex network of rush routes and arterial roads to keep its population moving.

Parking Officer enters citation data on his PDA.

In 2000, the city's Parking Operations and Enforcement branch devised real-time wireless data transfer technology for its hand-held ticketing devices in order to improve the efficiency of its operations. Its 100 parking enforcement officers (PEOs) are now able to retrieve crucial ticketing, permit and vehicle information from the city's databases; send real-time updates for seamless follow-up; and simultaneously dispatch tow-trucks.

Partly as a result of its increased efficiency, the city brought in close to $40 million in revenue in 2006 from parking management alone – $27 million collected from its 8,000 on-street allotments and $13 million from fines.

ancouver, Canada

The Challenge

In that same year, the city looked for a way to use real-time technology to improve service for its customers. "Real-time technology opens the door to possibilities that cities never had before," says Yeomans, manager of Parking Operations and Enforcement. "We realized we could use the technology to run a pay-by-cellphone parking system on our city streets."

Until then, customers who wished to park on-street had to have the right amount of change or a credit card on hand. If their appointments ran overtime, they had to rush back to the meter to deposit additional coins or run the risk of being fined. Additionally, motorists could not park at vandalized or broken meters, and those who parked along a rush route during rush hour risked being towed or fined.

Faced with the increasing cost of operating and maintaining its existing infrastructure, of theft, and of a high amount of credit card fraud, the city recognized the need for an alternative to coin-operated parking.

"You're looking at $200 per meter a year in maintenance costs, $1,000 for each new meter head or $20,000 for the pay-and-display machines other cities use that can easily be vandalized and cause the whole block to be out of service," says Yeomans. "Pay-by-cellphone parking has the potential to eliminate these costs, increase efficiency in parking operations and provide more convenience for customers. It's part of the new generation of technology that has the potential to make on-street equipment obsolete."

The Solution

On June 25, 2006, the city deployed pay-by-cellphone. A review team for the city found a vendor most compatible with its requirements. "The other systems we looked at were more complex to use," says Alain Chan, the branch's pay-by-cellphone coordinator.

First-time users enter their credit card and license plate information to set up an account online. To park, they simply call the local number featured on the

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Some User Benefits of Pay by Cellphone:

- Eliminates the need to carry change; allows them to buy the time they really need.
- Reduces likelihood of fines by sending a reminder text message before parking expires.
- Allows the user to add parking time without returning to vehicle.
- Provides e-mail receipts and a monthly online statement for expensing purposes.

Some Benefits for the City:

- The ability to accept payment by credit cards without meter upgrades.
- An increase in revenue from businesspeople motivated to pay for parking to get receipts for expensing purposes.
- An offset in maintenance costs arising from increased meter usage (in Vancouver, at a rate of $1 million every year) by an increase in the use of pay-by-cellphone parking.
- A decrease in the amount of meter vandalism and theft as more customers opt to pay by cellphone.
- A decrease in abuse of PEOs now that motorists are offered more parking options.

Revenue Control

BY JOHN VAN HORN

Parking Today began research for this article with a premise. That is, many garages built today were designed not with pay-on-foot or pay-and-display, but with the more traditional pay-on-exit technology. We discovered that our premise was only partly correct.

Designer after designer told us that pay-on-foot was being "designed in" to a majority of their garages, or that they were either "contract only," using card systems or suburban facilities with no controls at all. That having been said, a substantial number of facilities, both parking deck and surface lot, use the pay-on-exit mode.

While one POF machine can run upwards of $75,000, a lane of parking can be less than half that.

Pay-on-exit is less expensive, makes design easier in many cases, and is arguably more customer service-oriented than automated systems.

In the typical system, a customer pulls a ticket, on entry, and parks. If there is a validation involved, they receive their validation from the company visited, and then proceed to the exit lane. At exit, the cashier either enters the entry time off the ticket into the cashier terminal or inserts the ticket in the terminal. The fee is calculated, money completed and the gate activated.

Some owners tell their designers that this personal touch at exit is important in a time of "pump your own gas" or "check out your own groceries." It enables a visitor to have a positive contact at the exit lane upon leaving. That presupposes that the cashier is properly trained and motivated.

Cost seems to be the driving force in these systems. While one pay-on-foot machine can run upwards of $75,000, a lane of parking can be less than half that. In addition, depending on location and design, the pay-on-foot application can require a number of machines to cover multiple entry and exit locations, while pay-on-exit can often work well with just a few entry and exit lanes.

Usage is important when considering the choice of equipment. In an urban setting with high "daily" traffic, the pay-on-foot automated system may in the long run be operationally more cost effective as fewer staff may be required. However, in "office park" suburban settings with few visitors, a single exit lane, or a reversible design (as shown in the photo below), will have a much lower initial cost and a relatively inexpensive ongoing operational cost.

Such systems are not "low-tech." The monthly "card" system is most often automatic vehicle identification (AVI) using transponders in the vehicles to speed entry and exit and enable drivers to proceed without stopping or even opening windows. The transponder is located either on the vehicle windshield or strapped under the car near the front bumper. The systems often work so well that the cars don't even stop, but simply slow down to allow the gate to open.

The cashier terminals are networked and automated. They can take credit cards and are machine readable.

In many applications, credit card in/out is used. This means, often at airports, that the daily parker doesn't pull a ticket but inserts their credit card to activate the gate on entry. On exit they use the same card, and the system, knowing the entry time of the card, computes the fee, charges the card, and the driver proceeds without cashier intervention. This greatly speeds up exit times, reduces the need for booths and equipment in a number of lanes,

Typical design for a medium-size facility, one dedicated in lane, one dedicated out lane and one reversible lane in the middle. Pay-on-exit doesn't mean that the system isn't high-tech. Note the antennae for automatic vehicle identification (AVI).

and often limits the number of staff needed to a single lane in a very large facility.

Booths, too, have gone through a design change over the past decade. Although typical "white" steel and glass booths are used in many applications, high-tech design, often specific to the project, is extremely popular. Developers see the parking booth as the last point of contact and are willing to foot the cost for attractive models that reflect the overall design of the project.

In smaller projects such as surface lots, the booth combines a cashier station with a parking office, providing a workspace for the facility manager, as well as a location for the cashier terminal and computer. In even smaller applications, this person is one in the same.

Has the pay-on-exit mode of parking gone the way of the passenger pigeon? Not in retrofits and exiting applications, say designers. In new garage designs, pay-on-exit is initially installed, but the facility is designed to be retrofit for pay-on-foot, when occupancy and tenant mix change to fit the requirement.

In the application pictured, the owner selected Amano McGann revenue control equipment, Sirit AVI, and B.I.G. Enterprises parking booths.

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Pay by Cellphone Launched in Vancouver, Canada

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meter, enter the meter location and order exactly as much time as they need, up to the normal limit on the meter. Thanks to real-time technology, PEOs know at once whether the space is paid for when they check the status of a vehicle license plate on their PDAs.

The Results

Since deploying pay by cellphone in the second half of 2006, the city has recorded up to 1,500 transactions a day for on-street parking, surpassing projections of 5% usage for the first year (20% over four years).

"We saw benefits right away," says Chan. "We are issuing fewer tickets, and a lot of people who did not bother to pay when they were short of coins now pay." He says the system also offers defense against unwitting motorists who park along rush routes or in restricted zones. "[They] will know as soon as they call in that they cannot park there." For these motorists, calling in helps them avoid costly towing fees.

No additional training was required to implement the system because the city's PEOs were accustomed to using wireless ticketing devices. Customer service clerks were simply taught how to help customers set up new accounts. "We had no major problems deploying the service," says Chan. "We ran trials and tested each function and regulation variation. All our needs were met."

The city of Vancouver picked Verrus as its pay-by-cellphone supplier.

Phoebe Yong is with Magnolia Marketing Communications. She can be reached at phoebe@magnoliamc.com

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