



When Should a Developer or Land Owner Consider an Automated Vehicle Storage System?

By Franklyn E. DeFoe

From a land owner's perspective with more than 40 years of developing urban renewal mixed-use, office and condo projects, parking has always been at the bottom of my motivational list—a requirement to resolve, but not nearly as much fun as creating forward-thinking office environments and lifestyle-changing living spaces!

However, parking automation is 'coming of age,' and astute developers and land owners are seriously analyzing Automated Vehicle Storage Systems (AVSS) to resolve their parking problems. According to Don Monahan, P.E., vice president of Walker Parking Consultants, nine AVSS are operational in the U.S.; six more are under construction, with many more in the planning stages. This momentous land planning shift moves parking—traditionally a huge negative to the developer—into a major positive factor that will increase the land owner's bottom line.

Building Site and Parking Density Examples

Site size	Utility	Excavation	Building Height	Parking Spaces
53' x 130'	Doctor's offices, 30,000 sq ft Restaurant, 2,400 sq ft	60'	70' with grass park on top	234
100' x 120'	Office; 24,000 sq ft above retail	26'	34' with grass park on top	161
108' x 116'	2 floors retail 9 levels parking above retail 22 stories hotel above parking	above grade	350'	412
100' x 320'	Mixed-use hotel, condo, retail	60'	140'	1,012

While AVSS are relatively new in the U.S., the balance of the world has been using them for more than 20 years. The U.S. industry has been hampered by outdated building and fire codes, while most architects, planners and governing bodies have been behind the knowledge curve. The AVSS industry is making an all-out effort to ramp up that knowledge factor with seminars and private presentations.

Here are some things to think about when considering an AVSS system:

Urban planning requires more parking spaces. As we adjust our perceptions, new office projects will reduce each worker's space and new condo lifestyles will evolve to smaller spaces. Consequently, traditional parking code ratio requirements will be outdated as the demand on landowners/developers to provide more parking spaces on the same footprint will increase.

Rising land and construction costs. In the past few years we have witnessed land and construction costs continue to rise—and will continue to do so when we move beyond our current economic condition.

When must I make the decision between traditional ramp style and automated parking? In the very early stages of land use planning, building design and engineering.

Building and fire codes. Most municipalities (including the City of Los Angeles) would not process AVSS since there were no apparent applicable codes. At long last, changes are on the way! The AVSS industry is working with the International Building Code and the National Fire Prevention Association councils to modify the existing codes for local municipalities to follow. These changes are expected to be approved in 2010, with application in 2011.

Green buildings and LEED benefits. AVSS significantly reduces carbon dioxide, nitrogen dioxide, carbon monoxide, volatile organic compounds and fuel use. More information on this can be found in a March 2009 article in *PARKING* magazine entitled *The Garage of the Future Must be Green*. Copies are available by emailing dgable@npapark.org. The LEED Council is aware of the benefits of AVSS and is receiving ideas to set new standards to structure a point system.

Cost and return on capital invested. Users will pay higher rates for the convenience of fast in and out time, personal and car safety. AVSS initial capital costs may be slightly higher; however the combined operational costs are less than a conventional ramp garage. Depending on usage, based on \$200 per month per space, the crossover will be less than three years. From then on, an AVSS is a gravy-train! Bottom line: AVSS systems create additional net revenue.

Lenders increasing equity to debt ratios. To decrease risk and inhibit leveraging, lenders continue to increase equity requirements. Especially in a below grade AVSS, decreasing excavation by 50 percent with decreased construction costs, coupled with an increased net revenue stream, will play a significant role underwriting the development.

Maintenance, replacement parts, emergency service and software updates. These are critical to include in the selection process for the best company to provide on a local basis with ongoing rate guarantees.

Why take the risk? The parts and software that are used in automated parking and automated warehouse distribution systems around the globe have been tested and refined over the past 20 years, therefore the 'risk factor' is non-existent if you select the optimum team. Automation has been perfected in the automated storage distribution systems for many years. Redundancy is common on all processes.

What company should I chose? A turnkey project team for one-stop responsibility for engineering, logistics control, software, installation, service and maintenance is a must. Pallet-less systems are faster, less expensive and require less maintenance. Depth of knowledge, combined with innovative technical and software leadership; the size of the company and a cohesive relationship with the general contractor are all requirements to achieve a rewarding development. ↗

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