PLANTING IN PARKING LOTS TO IMPROVE PERCEIVED ATTRACTIVENESS AND SECURITY

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Abstract. This paper describes the effects of vegetation on public perceptions of the attractiveness and security of commercial and residential parking lots. Attractiveness was generally increased by the total amount of vegetation. The sense of security was enhanced by plantings only when the vegetation was well maintained or incorporated in a distinct landscape design. Visibility of building entrances was especially important for security, calling for careful landscape design so that plantings do not obstruct the view of access routes to and from structures. Proper maintenance of structure and grounds enhances both attractiveness and perceived security.

Résumé. Cet article décrit les effets de la végétation sur les preceptions du public quant à l'esthétique et à la sécurité de terrains de stationnement commerciaux et résidentiels. Le sentiment de sécurité fut augmenté par la présence des arbres seulement lorsque la végétation était bien entretenue et intégrée à un aménagement paysager distinct. Une bonne visibilité des entrées des édifices était jugée importante pour la sécurité, indiquant l'importance de prévoir les aménagements de manière à ne pas obstruer la vue sur les voies d'accès. Un entretien adéquat des bâtiments et des entrées augmente l'esthétique et la sécurité des lieux.

One of the most essential urban land uses is also one of the least attractive: the parking lot. In several studies, lack of vegetation and increased development, including parking lots, led to the lowest evaluations of urban attractiveness (1, 3, 7). But parking is a necessary adjunct to any developed land use, commercial or residential. Zoning ordinances require specific amounts of parking for different densities of residential development. For commercial property, parking is especially important because the availability of convenient parking is an important customer service (8).

Incorporating landscape materials in parking lot design is one of the best and most frequently used techniques to improve the visual quality of urban sites. Planting is a mixed blessing, however; it may improve attractiveness but it can detract from users' sense of security. People want to know the risk of crime or other antisocial behavior in urban settings (4, 6), and visibility is known to affect their perceptions of safety in some urban locations (5). Because the ability to detect the presence of potential attackers is intuitively important to one's sense of safety, some designers recommend the removal of vegetation to increase the perceived security of urban outdoor spaces (2). This apparent conflict between visual quality and perceived security prompted us to explore the ways that vegetation and other physical factors of urban parking lots affect evaluations of these aspects.

Previous research in urban parks indicated that attractiveness and perceived safety are at odds in some setting, but that the two attributes can be enhanced simultaneously by appropriate combinations of design features (5). In our study we tried to identify the vegetation and other features that would enhance both attributes of commercial and residential parking lots. A technical report of this research has been published (9). This version highlights results of special interest to those practitioners whose profession significantly affects the urban landscape.

Method

We collected 180 color slides of commercial and multifamily residential parking lots in Atlanta and Athens, Georgia. The lots varied in size, in the amount of vegetation present, in the number of cars parked in them, in property value, and in the level of maintenance of pavement, structures, and vegetation in and around the lots.

We showed the slides to 200 college students and groups. The students independently rated the scenes either for attractiveness or for their perception of how secure from criminal and antisocial conduct they would feel if they were using the parking lot shown in the slide.

We also rated 31 physical features of the slide scenes (Table 1). Some of the features were estimates of the amount of space occupied by

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cars, buildings, pavement, sky, and vegetation. We also rated the prominence of particular components such as billboards, overhead wires, and flowers. We used a rating of "prominence of landscape design" to distinguish between sites where plantings had been made according to an apparent plan and sites where trees, shrubs, and vines appeared to have sprung up naturally. We also assessed several features related to potential views of the lot from nearby structures and roads, including prominence of windows, visibility of streets, view distance (how far one could see into the site), and proximity of entrances. Other variables addressed the quality of the site more generally, such as the degree of maintenance of pavement, structures, and vegetation. A rating of the apparent rental value of the property was assigned, based partly on the site's location within the metropolitan Atlanta area.

We used both correlation and regression statistics to determine the relationships among the physical features and the evaluations of attractiveness and safety. We used factor analysis to determine how the 31 features tended to cluster together; Table 1 shows the nine clusters that emerged in that analysis.

Results

Attractiveness and security were related to a number of the physical features as shown in Table 1. Translated into more practical terms, our results indicate that the perceived security of the parking lots was greater when:

- Premises were landscaped with plant materials that were originally part of an overall landscape design, even a simple plan, and which continued to be maintained (shrubs pruned, weeds controlled, lawns mowed, dead material removed). Very high levels of unmanaged vegetation of the site tended to detract from security.
- The structures appeared to be easily accessible, whether commercial or residential; that is, the view of the front or street side of the structure, the structure was nearby, and entrances to the structure were highly visible.
- Surrounding property appeared to have high rental value, whether for commercial or residential purposes. Of course, high-quality landscaping and good maintenance practices contribute to the apparent property value of a site.

The attractiveness of parking lots was enhanced when:

- The scene contained a large amount of well-maintained vegetation, and structures and pavements were less visible. In contrast to the security results, high levels of vegetation, whether managed or not, tended to increase attractiveness.

Table 1. Physical factors and individual features related to perceived security and attractiveness.

Maintenance and design
Vegetation maintenance
Property value
Prominence of landscape design
Pavement maintenance
Prominence of flowers
Prominence of litter
Lot size and enclosure
Size of parking lot[a]
Sky[c]
Number of vehicles[a]
Prominence of outdoor light fixtures[c]
Enclosure of parking lot[a]
Vegetation on premises[d]
Building visibility
Proximity of building entrances[c]
Photo image occupied by structure[b]
Structural maintenance quality
View of front of building
Lot use
Average view distance into scene[a]
Vehicles[a]
Pavement
Proportion of spaces in use[a]
Overgrown area
Vegetation off premises[b]
Prominence of dumpsters
Proximity to street
Visibility of street from lot[b]
Prominence of overhead wires
Strip commercial area
Prominence of billboards
Prominence of unfamiliar signs[b]
Prominence of fences and retaining walls[a]
Shopping center
Residential vs. commercial[b]
People
Prominence of people in scene[a]

[a]related only to perceived security
[b]related only to attractiveness
[c]positively related to perceived security, negatively related to attractiveness
[d]positively related to attractiveness, negatively related to perceived security

- The scene was of residential as opposed to commercial property.
- Surrounding property appeared to have high rental value, either for commercial or residential purposes.

One of our findings was that residential property in general fared better than commercial property. Residential lots tended to be smaller and to have more landscaping, whereas commercial lots were usually larger and often completely lacked vegetation. Commercial lots with some vegetation tended to have individual trees widely spaced in small planting areas across the lot, or to have a line of trees on the perimeter. More generous planting, especially garden areas around the structure, had proportionately greater power to enhance visual quality for commercial property.

Recommendations

Managers of urban commercial and multifamily residential properties range from small business people to real estate consultants advising corporations about their next franchise location, and from city foresters and arborists to planning and zoning commissioners. All these people as well as landscape architects have a common desire to provide settings that are safe and attractive for customers, potential residents, and visitors. The results of this study suggest several recommendations for using vegetation to improve both the attractiveness and perceived safety of urban parking areas.

1. Plant landscape materials according to a design, even a simple one, to enhance attractiveness yet not detract from perceived security. Select thin natural vegetation on a site to give the area a designed and maintained appearance (see Figure 1). Wholesale removal of vegetation is not required to promote the perception of safety.
2. On commercial properties, especially those with large parking lots, use foundation plantings or gardens immediately around the buildings to enhance the appearance of the entire parking lot. For greatest effect, use plantings on the lots as well. But see Recommendation 3 below.
3. To assure visibility of entrances, design plantings that define and emphasize the entrance, rather than reduce its visibility of and from the lot (see Figure 2).
4. Maintain pavement, structures, and vegetation. Provide for litter collection. When the site is undergoing development, maintenance requirements and costs should be considered in the design stage, to assure the upkeep of the premises.

Implementing these basic recommendations will promote both the attractiveness and security of urban parking lots.

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Figure 1. In and near parking lots, unmanaged vegetation reduces perceptions of security. Thinning the trees and clearing out undergrowth would enhance security while preserving the esthetic value of natural vegetation.

Figure 2. Highly visible entrances to buildings are reassuring to parking lot users. Vegetation can help define and locate the doors, but it should not interfere with the view from the lot to doorway or from the doorway into the lot.

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FRENCH ABSTRACTS

The Editor of the Journal of Arboriculture attempts, insofar as possible, to include abstracts in French as well as in English for all manuscripts printed in the Journal of Arboriculture. Some authors do not submit English abstracts. English abstracts are translated into French by Ms. Emelie Desbiens of St-Aubert, Quebec, Canada. Occasionally, scheduling of articles requires printing without both abstracts being available. Three that fell into that category are the following:

Baxendale, R.W. and W.T. Johnson. 1988. Evaluation of summer oil spray on amenity plants. Journal of Arboriculture 14(9):220-225.

Resumé. Des questions persistantes mais isolées concernant l'efficacité et la phytotoxicité potentielle des huiles dormantes appliquées sur les espèces ligneuses et herbacées en période de croissance ont amené une évaluation constante de l'huile Sunspray 6E. Cinquante-et-une espèces de plantes cultivées fréquemment pour des fins horticoles furent observées afin d'évaluer la phytotoxicité sur les feuilles et l'efficacité de l'huile contre un ensemble d'arthropodes. Un traitement avec une dose de 3% d'huile s'est avéré très efficace contre les pucerons, les cochenilles, les phytopes et d'autres insectes. La phytotoxicité fut limitée à certaines espèces de feuillus produisant des noix.

Mifflin, W.E. 1988. Municipal-arboricultural communications. Journal of Arboriculture 14(11):284

Résumé. Les communications entre les municipalités et les compagnies de services publics doivent être établies, maintenues et améliorées à tous les niveaux de gestion et d'exécution du travail. Les méthodes de communication et les structures dépendent de la grosseur et des relations de travail existantes entre les deux parties. Le succès des deux parties dépend de leur engagement mutuel à maintenir une communication ouverte.

Feucht, J.R. 1988. Herbicide injuries to trees—symptoms and solutions. Journal of Arboriculture 14(9):215-219.

Resumé. Les arboriculteurs sont souvent appelés à diagnostiquer des dommages aux arbres ayant pu être causés par l'application incorrecte ou non appropriée d'herbicides par un client ou un voisin. Dans plusiers cas, un arboriculteur est blâmé pour les dommages causés à l'arbre du client. Les arboriculteurs doivent reconnaître les symptômes reliés aux herbicides et les symptômes similaires, de même qu'apprendre les mesures correctives appropriées. Cet article compare les symptômes causés par un herbicide tel le 2,4-D, le Banvel et des composés de triazine avec des symptômes semblables causés par d'autres sources. Des tests en laboratoire furent réalisés pour évaluer les quantités minimales de résidus d'herbicides dans le feuillage et dans le sol requises pour causer des dommages à diverses espèces d'arbres. Trois stérilisants de sol furent testés, soit le bromacil, le prométon et le tébuthiuron.