## REVITALIZING ALLEYS IN HIGH-DENSITY CITIES: HOW URBAN AND LANDSCAPE DESIGN INTERVENTIONS IMPACT THE SENSE OF SAFETY

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The back alley is a common but often neglected urban space in high-density cities. Citizens, especially females, try to avoid back alleys because of the problem of safety. Citizens often perceive the back alleys as gray, unsanitary, chaotic, crime-infested places. In fact, many alleys have the potential to be benign or even valuable spaces that can benefit citizens in multiple ways. In this study, we examined people's safety perceptions of existing alley conditions in Hong Kong city.

We used a photo-questionnaire survey to investigate how design interventions to revitalize alleys impact people's safety perceptions. We selected five back alleys in Hong Kong and took panoramic photos of existing conditions. Next, we produced photo simulations for each of the alleys by using Adobe Photoshop 6.0, highlighting specific landscape or urban function interventions that could revitalize the five alley scenes. 218 participants participated in a photo questionnaire to rate the safety of scenes displaying the existing alley conditions and alley interventions.

Our results show that the Cleaning intervention yielded the lowest and very limited effect. The Landscape Only interventions yielded moderate but still insufficient effect. We found that green landscapes with a geometrical style promoted a greater sense of safety than green landscapes with a naturalistic style. Urban Function & Landscape interventions, including the presence of exercise facilities, shops, cafés or pocket parks, can promote the greatest and remarkable effect on the sense of safety. The gender difference is another important finding. We found that females reported a lower sense of safety of the existing scene and scenes after the Landscape Only Interventions (including "vertical only greening—natural style," "vertical only greening—geometric style," "vertical and ground greening—natural style," and "vertical and ground greening—geometric style.") than males. However, when Urban Function & Landscape Interventions were included (e.g. "Green Gym", "Green Shops", "Naturalistic Green Park" and so on), there was no gender difference in safety perception. Females reported a significant higher sense of safety of the alley with the presence of café.

These findings provide clear evidence for city managers and environmental design professionals to develop regulations or design guidelines aiming to transform the back alley in high-density

cities to enhance the sense of safety and mitigate gender disparity. (Kuo, Bacaicoa, & Sullivan, 1998; Seymour, Wolch, Reynolds, & Bradbury, 2010; Wolch et al., 2010).

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