

Public transport graffiti: Understanding and prevention

Literature Review

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Public Transport Graffiti: Understanding and Prevention. Literature Review

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Introduction & Method

Introduction

Conservatively, graffiti in Australia has been estimated to cost upwards of AUD\$300 million annually (Young, 2012), although, due to its management being shared across institutions and jurisdictions, the exact figure is difficult to quantify and has been informally placed at AUD\$2 billion. In terms of public transport, in 2018 Melbourne Metro train service spent AUD\$10 million on vandalism removal and prevention (Killen, 2021) while Sydney Trains estimate the cost of graffiti and other property damage to be over AUD\$30 million, including cleanup and service disruption (Jardim, 2020), indicating that it is a significant drain on public funds. Graffiti and vandalism is also one of the external factors in rail delay in Melbourne, affecting almost 4% of services in 2022 (Victorian Auditor-General's Office, 2023). Graffiti has also been shown to be a major factor influencing patronage, through increasing perceptions of risk, which was quantified locally by a 1800 person survey of public transport users, the majority of which, when they complained, did so about graffiti and vandalism (Killen, 2021). To better understand the phenomenon, and to gather a best practice for its management, this research set the following objectives:

- To understand the public perception of graffiti on public transport and how it differs by location and context.
- To determine the current state of graffiti and how it has evolved over time.
- To identify best practices in graffiti management and the appropriate contexts for their implementation

Graffiti on public transport is a multifaceted issue that affects urban environments globally. Graffiti is not just an act of vandalism but a complex subculture with deep-rooted social, psychological, and artistic dimensions. This literature review, prepared by Swinburne University of Technology (SUT), delves into the history, subculture, governance, and prevention strategies related to graffiti, particularly focusing on public transport systems. Graffiti has evolved from simple tags to complex murals, with its roots tracing back to the streets of New York in the 1970s. The subculture is characterised by its own set of rules, hierarchies, and motivations. Writers often seek fame and recognition within their community, driven by the thrill of illegality and the rush of adrenaline. The act of graffiti is not just about defacing property but is seen as a form of self-expression and rebellion against societal norms.

Different regions have adopted various legislative measures to combat graffiti. In Australia, states and territories have specific acts and policies aimed at controlling graffiti vandalism. These laws often include penalties for offenders, restrictions on the sale of graffiti implements, and provisions for rapid removal of graffiti from public spaces. For instance, the Graffiti Control Act 2008 in New South Wales criminalises marking property without consent and possessing graffiti implements with the intent to vandalise. Similar laws exist in other states, each with its own set of penalties and enforcement mechanisms. Local councils also play a crucial role in implementing these laws and engaging with the community to prevent graffiti. Councils like those in Redland City, Brisbane, Gold Coast, Blacktown, Sydney, and Greater Geelong have developed strategies involving rapid removal, community involvement, and urban art projects. Memorandums of Understanding (MoUs) between local councils and organisations like the police outline collaborative approaches to graffiti management, emphasising the importance of community involvement and coordinated responses.

Effective graffiti prevention requires a multifaceted approach. Some proponents see community engagement as essential, involving educational programs, community participation in policymaking, and creating legal spaces for graffiti. Educational programs can include workshops, classroom lessons, art programs, community clean-up events, and peer education initiatives. These programs aim to educate the community about the consequences

of graffiti and offer alternative ways to express creativity; though, as we will see below, creativity, in terms of artful presentation, is quite low on the hierarchy of writers' motivations. Outside of using community networks as a resource for prevention and removal, the literature is generally sceptical around the outcomes of many community, education and creative interventions.

Crime Prevention Through Environmental Design (CPTED) principles are also crucial. These principles focus on natural surveillance, access control, territorial reinforcement, and regular maintenance. For example, Brisbane's Graffiti Management Plan incorporates CPTED principles to create clean, safe, and artistically pleasing urban areas, and Western Australian collective work, across police, councils and all government infrastructure organisations, has led to nation leading publications on how to implement CPTED at a range of scales.

Technological advancements offer innovative solutions for preventing and removing graffiti. Nanotechnology involves using ultra-small materials to create protective coatings on surfaces, making graffiti easier to remove without damaging the surface. Laser technology provides a non-invasive method for removing graffiti from delicate or historically significant surfaces. Drones equipped with machine learning algorithms can autonomously detect and remove graffiti, reducing costs and minimising disruptions. Sustainable chemical treatments, such as biodegradable or low-toxicity materials, offer environmentally friendly solutions for graffiti prevention. Graffiti tracking software helps identify, document, and analyse graffiti, providing valuable insights for law enforcement and community safety efforts. Security cameras act as a deterrent and provide evidence for investigations, while anti-graffiti paint creates a barrier that repels graffiti substances, making them easier to clean.

Understanding the subculture of graffiti and implementing comprehensive prevention strategies can significantly reduce its occurrence on public transport. Integrating legislative measures, community engagement, environmental design, and technology enables cities to develop safer and more visually appealing urban environments. This comprehensive strategy not only tackles the problem of graffiti but also fosters a sense of community ownership and pride in public spaces.

While the full report will not be published, this literature review provides a snapshot of work undertaken. It provides an assessment of the literature related to graffiti, its origins and the rationale for why individuals do it. It then examines literature on the range of methods to reduce its prevalence in public transport and the urban environment more generally. It should be read in conjunction with the Executive Summary that provides an overview of the full project.

Method

Literature review

The literature review was divided into two sections: the graffiti subculture and methods for prevention. A third section that looks at governance, including laws, policies and organisational collaborations has not been published. Analysis of the graffiti subculture began with well-known texts on the subject and snowballed from there. These were typically ethnographic and explored the day-to-day reality of graffiti writers, as well as the history of graffiti writing, beginning with graffiti writing in New York in the late 1960's and early 1970's and extending to an autoethnography of graffiti writing in Los Angeles in 2019. Books purely written for the graffiti writers, which were typically crowd sourced vignettes of periods and locations (e.g. Melbourne 1980's), were then examined to ensure that the perspectives of academics matched those of the writers themselves. These were mainly Australian texts and provided

some local context to the issue. Journal articles and reports were reviewed but overall proved not to be as informative as full texts, though they did provide some key assessments and overviews of statistics, psycho-social examination of the phenomenon, and impacts of it.

Literature on methods for prevention were largely from grey (institutional) literature. Coding of these documents revealed the three core themes of community engagement (i.e. welfare-based interventions), environmental design, and technological innovation. While the majority of information was from international sources, every effort was made to also provide some Australian context.

Literature on graffiti governance was initially collected at the level of state and territory Crime Acts and Summary Offence Acts, as well as associated Acts, such as those covering youth crimes, offences on public transport and other Acts that relate to the topic. To provide an overview of the varied contexts and forms that local (municipal) laws and policies can facilitate, a set of councils currently working closely with the research were selected and their responses illustrated. With over 500 local councils operating in Australia this was more to show the varied responses from council and how local laws can vary greatly per area.

Survey and sampling

A survey instrument was created pertaining to public transport use and the impact of graffiti. The survey was reviewed by SUT Ethics office and awarded an approval for its dissemination (Ethics approval number 20258402-20654). The survey consisted of:

- 6 demographic questions, including age, gender, level of education, employment, postcode, and language used at home.
- An inclusion/exclusion questions related to public transport usage. Respondents who never used public transport were exited from the survey.
- 2 questions on the frequency of public transport usage.
- 3 questions on perceptions of safety and public transport safety.
- 22 questions on perceptions of graffiti, including its impact, level of legality, levels of reporting, across a range of contexts, including inside and outside of trains, platforms and waiting areas, public transport access areas, and forms of graffiti, including political, stickers, tags and murals.
- 6 questions on whether graffiti would change transport choice, based on having graffiti inside the vehicle, outside the vehicle, or in waiting areas.
- A choice experiment exploring mode change based on varied costs of clean versus graffiti covered public transport.

The survey was drafted in Qualtrics and delivered by the Online Research Unit (ORU) a reputable survey institute with 350,000 Australian members. Participants were rewarded ten dollars per response. Data was verified in terms of geographical, age and gender distribution prior to acceptance and showed good coverage of all jurisdictions, ages and genders, however university educated was overrepresented, at 61% of respondents. The survey attracted 414 respondents in total.

The last part of the online survey contained a set of choice cards to ascertain whether commuters were averse to using public transport, i.e. buses and trains, that have graffiti. Survey respondents were asked to imagine that they regularly had to commute to work, and that the commuting options available to them were to go by public transport (bus or train) or to drive to work. They were asked to assume that each transport mode had the same commute time, and that buses or trains may or may not have graffiti on them. Respondents were presented with three choice cards each containing two commuting options (Choice of travel 1

versus Choice of travel 2). They were asked to choose the option they most preferred. If they did not like any of these options, they could choose “None of these options: I would drive instead”. An example of a choice card is shown in Figure 1. The travel mode choice, the cost of travel, and whether the mode choice has graffiti or not varied from one choice card to another. A choice experiment WTP survey was used to design the choice cards to ensure that the combinations of mode choice, travel cost, and the absence/presence of graffiti varied from one option to another and from one choice card to another. Respondents were asked to assume that commuting by car would cost them \$15 per day. The cost of public transport, on the other hand, varied between \$5 to \$10 per day.

Q48. (1/3)

Imagine that you regularly need to commute to work, and these are your options. In this scenario, you have experience with both options, and you need to choose one of the two.

Each of the options take a similar length of time.

Which of the three options below is your preferred option for your daily (everyday) commute to your place of work or study? Please select.

Choice of travel 1		Choice of travel 2		
Cost	\$7.00	Cost	\$10.00	
per		per		
day		day		
Mode		Mode		
of		of		
travel		travel		
	Train - with graffiti		Train - clean	None of these options. I would drive instead. \$15 per day.

Figure 1: An example of a choice card with three commuting options

A conditional logit model (Train, 2009) was used to analyse the responses from the Willingness to Pay (WTP) survey. The utility from choosing a particular travel mode is determined by the characteristics of the attributes of that mode (in this case they are travel mode choice, the cost of travel, and whether the mode choice has graffiti or not). The functional form for the deterministic utility component (V_{ij}) of individual i for alternative j can be further specified as:

$$V_{ij} = \beta_S SQ_j + \beta_M MODE_j + \beta_G GRAF_j + \beta_C COST_j$$

where β_S , β_M , β_G and β_C are the coefficients for the status quo (SQ_j) or the “None of these options”, mode choice ($MODE_j$), presence of graffiti ($GRAF_j$), and commute cost per day ($COST_j$). It was hypothesised that commuters were prepared to pay less for public transport if there was graffiti.

The WTP amount can be derived for each attribute i.e. mode choice and presence of graffiti, using the parameter estimates from the condition logit function as follows (Gordon, Chapman, & Blamey, 2001):

$$WTP = \frac{-\beta_S + \beta_K}{\beta_C}$$

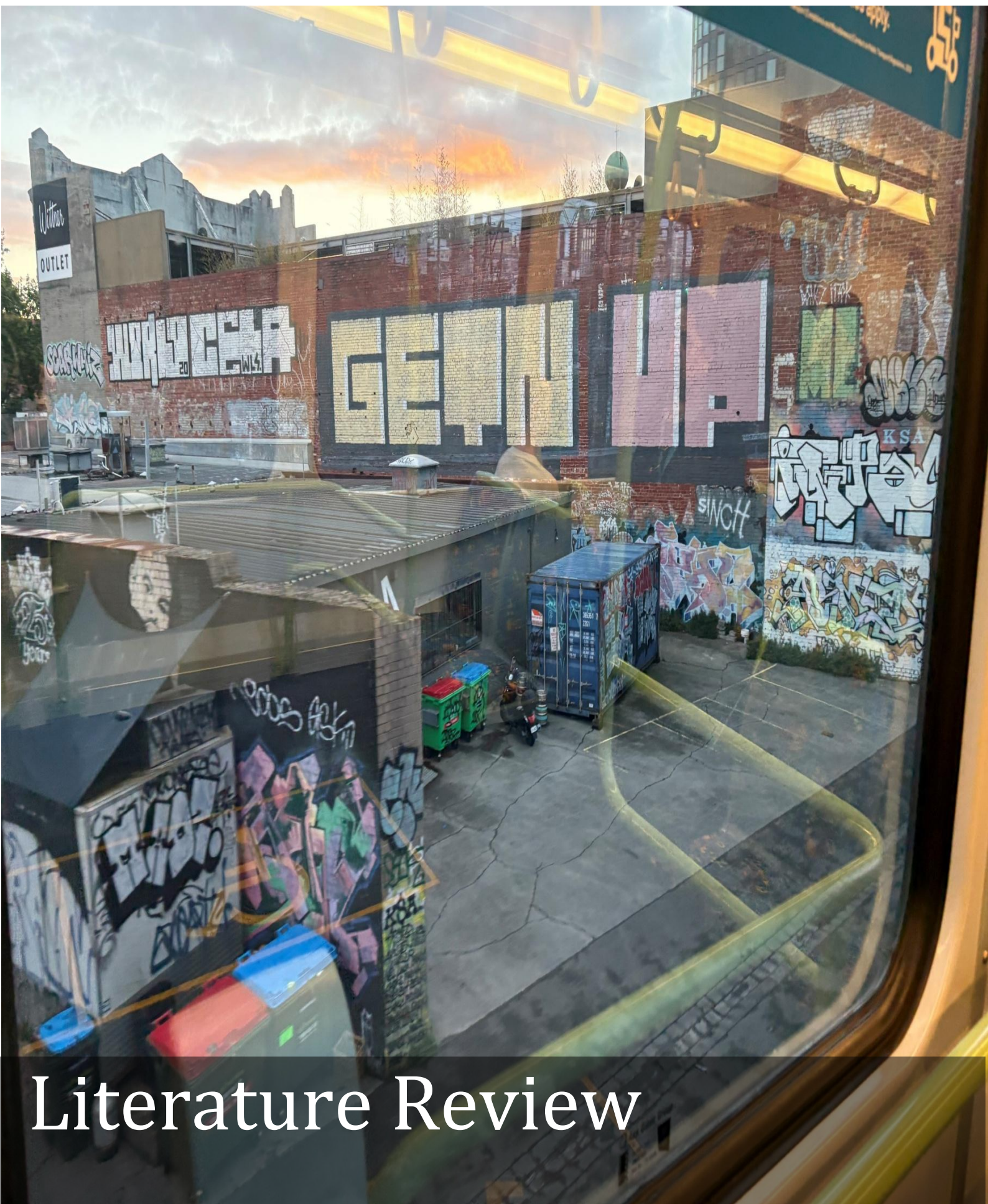
where β_S is the coefficient of the status quo or “None of these options”, β_C is the coefficient of the commute cost per day attribute and β_K is the coefficient of any of the attributes i.e. $MODE_j$ and $GRAF_j$.

Interviews and workshops

Ethics approval for interviews and workshops was received from SUT Ethics panel, approval number 20248141-19487. The approval was to interview key stakeholders nationally and internationally regarding the underlying causes of graffiti, the location and form of graffiti, as well as its impact on public transport and the community in general, the best practises for graffiti management, and the bottle necks to deliver that best practise. Interviews lasted roughly one hour and included representatives from public transport authorities and operators, police, and city councils in New South Wales, Western Australia, Queensland and Victoria. Police involvement required individual research contracts with each jurisdiction, the formality of which precluded international police involvement. This stage of research provided 20 interviews, which were transcribed, coded and themed. These gave a good overview of graffiti management across the four states and provided the background for the following workshops.

Workshops were held in Sydney, Brisbane and Melbourne in May and June 2025. Attendees included representatives from public transport authorities, police, councils, and youth justice and infrastructure organisations. The number of attendees ranged from fifteen to twenty per workshop. Each workshop ran for four hours and covered the topics of graffiti form and location, lines of reporting and organisational structure as relates to graffiti management, what works and what doesn't, and developing a best practise. Workshops were recorded, transcribed, coded and drafted into key themes. For sensitivity reasons names were not retained next to quoted materials.

Findings from the survey, interviews and workshops have not been published.



Literature Review

1: The Graffiti subculture

1.1 Overview of graffiti subculture and perspectives

Though not the first book on the subject, Cooper and Chalfant's 'Subway Art' (1984) is considered to be the seminal text on New York graffiti. While largely a photographic essay, it also provides an introduction to the phenomenon, covering topics such as the history of graffiti, the writer's name as the central aspect of it, the geography of the city and trainlines, the vocabulary, the fame that can be achieved, how graffiti is done, and a range of other aspects that provided the cultural heritage allowing for a long-standing subculture to endure. A deeper read of the culture is provided by Castleman's "Getting up" (1982) which more explicitly examines the rationale behind graffiti and the graffiti lifestyle, showing that proliferation and city-wide coverage are the main aims, with some writers achieving 10,000 pieces and becoming a "king". This text also delves deeper into topics such as the style of writing, the rules of writing, and common belief systems. Unlike Cooper and Chalfant, which only provides a throwaway comment on "the cops and robbers game" with police, this text begins to touch on: the criminal aspect, showing that graffiti is based on stealing paint and initiating younger writers; the political aspect, as various authorities attempted to control it; the judicial aspect, as magistrates dismissed cases; and the danger, as police wrestled with youths amid running trains, live power lines and razor wire. Together with Norman Mailer's "The Faith of Graffiti" (1974), a celebration of graffiti and community resistance in the face of urban decay, Austin's "Taking the Train" (2001), a history New York city's attempt to control graffiti in the seventies and eighties, Powers' "The Art of Getting Over" (1999), a review of the evolution of graffiti in New York and Philadelphia, and Miller's "Aerosol Kingdom" (2002), a retrospective of early New York graffiti style and its evolution, these represent the key texts examining the birth of the phenomenon. The final text, 'Aerosol Kingdom', ends with a chapter discussing the linkage of graffiti with hip hop, which his informants suggest is a contested relationship, married through marketing in an attempt to sanitise it. However, and irrespective of ground-zero commentary from its initial proponents, graffiti, and particularly train graffiti, has become synonymous with hip hop and rap culture, and enjoyed the same global proliferation as the musical form.

As proof of its longevity, Synder's "Graffiti Lives" (2009) returned to New York to show how the culture evolved and how proponents embed it into their later lives as graffiti careers. Moving away from New York, Ferrell's "Crimes of Style" (1993) is the first attempt to ethnographically describe graffiti outside of the city and also the first to begin engaging with graffiti through the lens of a subculture. Comprised of interviews in Denver, the text illustrates the variance in subcultural rules in a different city but also shows how the canons and heritage of the subculture (tagging, piecing, going over, trains as high value targets) are respected and replicated. Bloch (2019) and Phillips (1999) similarly show how graffiti varies per location and how style and intent are partly based on the local context, with, for example, freeway infrastructure, over rail infrastructure, taking primacy in Los Angeles.

Macdonald's "The Graffiti Subculture" (2001a), within parallel interviews in London and New York, is the text that truly embeds graffiti writing as a coherent and global subcultural form. Though alluded to in other texts, MacDonald shows how lifestyles and identities are built out of involvement in the subculture and also how much work is needed to stay valid in an ever-evolving "graffiti meritocracy". All of these texts cover topics such as the importance of the heritage of graffiti, the illegality of graffiti as being a core driver, the regulations within the group, and that universally it is considered a fun activity, with the heightened adrenaline rush of doing graffiti becoming addictive. Evidence of this last point is plentiful throughout all of the above, but is particularly evident in collected anecdotes from writers, such as Van Ken's "Untold Stories" (2020), with stories from Europe, Asia, Australia, North and South America,

the Melbourne centric “Kingsway: The Beginnings of Australian Graffiti: Melbourne 1983-93” (Cubriolo, Harvey, & Stamer, 2009) and “Wall Stories” (Bailer, 2022), and the Sydney based “While the City Sleeps” (Woodward, 2023). The last three of these texts capture elements of the Australian experience, including many occurrences of additional criminal activity (car stealing, stealing paint, violence, property damage, reckless vandalism, drug abuse etc.), a complex understanding of train timetables and security, and a deep knowledge of paint and paint technology. Significantly, these texts, and the number of stories that cover breaking into train yards, painting under pressure, running away from police and guards, strong camaraderie, the highs of getting away with it, the lows of not, and the experiences gained through fringe urban exploration, reinforce what is clear from all texts. The negative social and economic aspects are negated through the internal subcultural logic of those who do it and it is variously considered as, among other things, resistance to social dominance, taking ownership of urban space, beautification, reordering of space, rightful representation in the public sphere along with other forms of advertising, and just a normal thing for kids to do (depending on the locality). More significantly, graffiti is considered a fun activity by those that do it. It is fun because of the illegality of it and the high levels of personal risk involved. And that the euphoria gained from doing it, as well as its repetitive nature, can be addictive.

While largely outside of this report, the enduring nature of graffiti, combined with its global proliferation, has seen a forking of philosophies. The broad coverage of this is termed “Post Graffiti” (Brighenti, 2016; Martínez-Carazo, Santamarina-Campos, & De-Miguel-Molina, 2021) which represents the diverse range of graffiti and urban art forms occurring after train-dominated graffiti, in terms of individuals moving past tagging and piecing, the collective meaning of the work, and the discussion around it. One example of this is how graffiti is variously used to show contested space, be it in occupied territories, warzones, post-disaster zones, areas of gentrification, and areas of ghettoisation, or symbolically retained by indigenous populations against gentrification (Lennon, 2021). Another is the broad artistic commentary on graffiti and street art as a contemporary form or urban decoration (Waclawek, 2011), or, when made into a legal form, sites of legal graffiti can become social and communicative spaces (Bruce, 2019; Kramer, 2017). The complexity of the discussion around graffiti (and street art) is well covered in Avramidis and Tsilimpounidi (2017), where a collection of international authors debate illegality, democratic spirit, the rise of social media and, to complete the chronology, the foundational function of the ‘tag’ in graffiti culture. This debate will not be a major focus, but when we consider that these views occasionally represent the views of those who commit graffiti vandalism, those who see graffiti as a functional element of society or urban planning, or those who propose public art or legal walls as a deterrence, the contentiousness of the discussion will necessarily be incorporated, as this represents the social and political reality of graffiti management (for example see Razak, 2024 and their coverage of graffiti as cultural heritage in Melbourne).

1.2 Graffiti history and heritage

Books capturing New York in the late seventies and eighties (Castleman, 1982; Cooper & Chalfant, 1984; Miller, 2002) show the history of the culture’s development and the key aspects of its functioning. Though Miller’s assessment of the period shows that everything is contested and that the mass-media had a lot to do with creation story and packaging of graffiti to a main-stream audience, there is general consensus that modern graffiti started in Philadelphia with the volume writing of ‘Cornbread’, and his associates ‘Kool Earl’ and ‘Kool Klepto Kid’, throughout the city (L, 2018 - full name withheld by publisher). The significance of this writer was that instead of writing gang names, he wrote his own and did so so prolifically that he was twice arrested and jailed for it. However, as he did not write on New York transit system, which is deemed to be the birthplace of modern graffiti, this remains a debate within the subculture; though Martha Cooper does state that Philadelphia writing did not spread beyond the city and as such is simply a precursor.

What is not under debate is the influence of 'Taki 183', and others like 'Julio 204', 'Stan 153', 'Tracy 168' and 'Phase 2', who are universally accepted as being among the first prolific signature writers in New York in the late 1960's and early 1970s. The names come from either their name or a nick name, and their street address. 'Phase 2' is likely the second person to write 'Phase', which is a common occurrence as new writers reclaim names of retired writers, or, possibly due to him creating the 'softy', a 3D bubble style of writing (Caramanica, 2019), indicating that his was the second phase of graffiti, as style evolved away from simple signatures. As a point of note, Phase 2 was so popular that he, and other writers, appeared on Australian youth media television shows in the 1980s.

While these writers have achieved a level of fame within the subculture, and sometimes crossing over into hip-hop cultural fame, this was hard won. Both Castlemaine (1982) and Miller (2002) suggests that there were between two to four thousand graffiti writers operating in New York in 1982, and these were just the ones that were notable; earlier writers suggest up to ten thousand habitual writers in Philadelphia alone (Ley & Cibrywsky, 1974). To achieve some form of recognition writers had to stand out, and the best ways to do this were through the volume of tags, the style of writing and the location.

In terms of volume, "getting up" was, and remains, one of the key aspects of graffiti writing. What this refers to is getting the writer's name on as many surfaces as possible, much the same as any high-volume brand recognition advertising. To become recognisable the name must be everywhere, which is how 'Taki 183' and others achieved fame, by being prolific, by "getting up". The rewards for this are informal titles within the subculture, such as being known to be "King" of a certain line (having the most tags on one subway line) or being known as "all city" (having tags on all subway lines). The writer 'IN', though lesser known due to having poor writing style, achieved ten thousand tags on subways. Even an eighty-year-old lady who wrote "Jesus Saves" on every phone box in New York, though obviously outside of the subculture, was considered a notable "all-city king" just by the volume of writing she did (Castleman, 1982 p83); a local version being Sydney's Arthur Stace and his volume writing of "Eternity" from the 1930's-1960's, who is now immortalised at Sydney's Central Station.

The opposite of being "king" (often symbolised by the drawing of a crown above a name) is the term "toy", which is used derogatorily to indicate that someone is very new to graffiti and who either has little skill or volume to their name – derived from the small tags that new writers did as they started writing (Powers, 1999). All of which starts to show the symbolic hierarchy and the meritocracy of the culture. Figure 2 shows an instance of where, next to modest piece, they have asked for the area not to be used for "toy" writing, due to its visibility.

Speaking to the style of writing, early graffiti was simplistic and just showed the chosen pseudonym of the writer, though in varied styles of writing (Acker, 2023), known as "hits" or "tags". In order to stand out from other writers the style of writing began to innovate into 3D and two-coloured outlined lettering, what we today know as a 'throw up' ('jump-up', 'throwie'), and from there to full multi coloured murals, often involving embellishments such as, arrows, halo's, exclamations, characters, and advances in font and letter connectivity, such as the creation of "wild style" where letters became connected and in some cases harder for those outside the graffiti subculture to identify.



Figure 2: Don't "Toy" the spot

These larger and far more complex works are known as "pieces" (short for masterpieces) or "burners". Figures 3, 4 and 5 provide some illustration of this. In Figure 3 we can see a gold "throw up" with black outline. Figure 4 shows a piece on a train. Figure 5 shows two "wild style" pieces below roller "blockbuster" style, with multiple sprayed tags above that.

However, irrespective of the complexity, the primary focus is always on the lettering and the name, which is why the term "writer" and not "artist" is used throughout. It is "the name" that Mailer (1974) suggests is "The faith of graffiti" – the core of its rationale and the object of its focus. There have been some instances where an image comes to represent the writer, such as "the saint" icon (Cooper & Chalfant, 1984 p15) and the more recent Melbourne "bird" images (Cowie, 2024), however the key point has always been about the name of the writer; through the relative success of the Melbourne instance, in terms of brand recognition, may see an increase in the use of icons and figures into the future.



Figure 3: Example of a two-colour “Throw up”



Figure 4: A train carriage with "Piece"



Figure 5: Two “wild style” pieces below roller “blockbuster” and sprayed tags.

The focus on the name is replicated in the field, where writers often ask, “what do you write?” when they meet (Cubriilo et al., 2009 p249; Snyder, 2009 p77), which is both a form of identification, so writers know who they are speaking to, particularly in terms of their standing within the graffiti world, but also places the focus clearly on the written name as the critical object. But the style of the name, how it is written, how the letters connect, how it utilises the available space, and a range of other factors, add both visibility and recognition to the name and the status of the writer. With so much competition for recognition in the field, style became a key element of distinction with some writers becoming “king” of a certain style (e.g. bubble, Broadway elegant, wild style, Brooklyn style) and even of certain letters; with one writer (ZEPHYR) becoming “king of the Bs” (Miller, 2002 p119). As we will see, this has remained an important element of graffiti, but has also become fractured, with some writers having no ambitions beyond simple tagging (Waclawek, 2011 p15) and, to reinforce volume over style and rebut any discussion of graffiti being art, some writers being stoic “anti-style” writers (Polsky, 2024); which has been a growing issue on Sydney Trains since 2020 (from discussions with key research stakeholders).

With regard to location, graffiti started on walls, preferably in highly visible locations so as to be seen but was largely kept to within the neighbourhood of the writer. With the increasing popularity of writing, and the competition amongst writers to become more visible than others, writing on mobile objects, such as the public transport fleet, became the logical next step, as this allowed for greater visibility across the wider city. According to interviews from earlier proponents, graffiti on public transport initially began on buses, but these were easily cleaned and lost favour among writers, who quickly turned to trains as their vehicle of choice. As Austin (2001 p31) notes “One could avoid ‘bad’ neighbourhoods and the empty urban spaces of the night, but everyone had to go to work”, and they went mostly by train, making them the ideal way to get a name seen by everyone in the city.

As Miller's (2002) informants pointed out, "Anyone can walk up to a bus, but to get to the trains there was danger in climbing up to the layup, the third rail. It took a lot of nerve to get up to the side of a train to paint" ('Zepher', p112). What this amounted to was a significant amount of time in the planning of writing graffiti on trains. Writers had to know which yards were patrolled and at what times, how to gain access to the subway, establishing lookout and lookout positions, identifying escape routes, and, particularly for the larger jobs, selecting which writers to work with, designing the mural(s), selecting colours, and obtaining (usually illegally) the right volume of colour and paint to complete the job (Castleman, 1982 p76; J Ferrell, 1993 p2). All of which indicates both the level of planning needed to paint trains, but also the higher status of writing on trains, as it required far more commitment to the culture. In the first quote below we see the planning behind the painting itself, which, in the original text is followed by a 2-page commentary on the type of paint used, the colours and the various forms of application to paint the whole train car by car. In the second quote we can see the commitment to planning the execution and the knowledge of the train system that writers obtained.

"We planned out all the cars, one by one on paper, planning the amount of paint for each car, and it's funny, it was such a perfect job, a Dillinger job. It was beautiful ... We had to get at least 110 cans for this whole train. We got it in less than a week and a half. We just kept on racking it up (stealing paint)" ('Lee' from 'The Furious Five' in Castleman, 1982 p3)

"They know what time the train pulls in. They'll tell you "The last train pulls in at 8:32 (at a lay-up), the first one pulls out on Monday morning at 6:43. At Utica Avenue on the lower level, the train pulls in at 9:17, but they don't lay up a train on that track on Thursday". They know all that from watching and watching and watching, time in and time out They'll see a new train leave from the yard on the lines, brand new just from the paint shop. They'll follow that train all day long and night to see where it lays up and when that train lays up at a certain yard, they'll hit it before the night is over. (Transit police officer Conrad Lesnewski in Castleman, 1982 p49)

Though trains were being tagged both internally and externally from the late 60's, the first full 'top to bottom' train mural was in 1975, after which it became a rite of passage, often earned through years working under a more experienced writer, marking the writer as coming into their own. Early commentary from the original writers suggests that some writers viewed the work as a form of beautification, while also showing an almost spiritual association with it.

"It was fun ... That's that beauty of the writing. You know, you sit there in a train yard at two o'clock in the morning with four other people and you're spraying, and you look down the track and you see all these brothers working on one goal – to make this train beautiful. There so much peace in that" ('Bama' in Castleman, 1982 p11)

"Everyone was competing. From one end of the train to the other there would be beautiful clouds, beautiful colours, beautiful names" ('Stan 153' in Castleman, 1982 p57)

A key aspect is the sense of ego gratification that graffiti provided. The over inflated importance of graffiti, the personal high that it gave the writers, and the assumption that is has centre stage in the lives of others is represented below.

"That was the greatest thing we ever did, and I think it was the greatest thing ever done on the IRT number 4 train. It was a big showstopper, and I think those people who saw it went home that night and didn't watch TV."

They talked about the train they saw.” (Lee from the Furious Five, in Castleman, 1982 p11)

While an overly romantic perspective of the work, which we will later show is atypical of contemporary trends, it does show an alternative subcultural perspective of it, how it can create identity, ego gratification, become a fixation, and how its illegal aspects can be normalised in favour of positive feedback within a subcultural logic. As a point of note, other than street art, or commentaries on the artistic elements of piecing and tagging, the early commentaries are the only place in the literature where writers, and authors, engage with the topic of graffiti influencing mainstream aesthetics. After these initial texts, and other than the discussions of ‘post graffiti’ mentioned above, writers are conveyed as writing, reasonably exclusively, for other writers and the issue of art is largely an aside; with anything not related to the style of the tag considered to be outside the subculture or a commercial pollutant of its purity. However, and irrespective of individual perspectives on the rationale for, of the outcomes of, painting trains, trains became established as the most high-value targets within the graffiti subculture and became a key aspect of cultural heritage, much in the same way that specific hairstyles, clothing, or other accessories define membership to other subcultures; that is how it was done in the time and place when the subculture emerged, and it will endure as a signifier of subcultural status and membership thereafter (Hebdige, 1979).

In terms of ethnicity and class, though originating in the poorer areas of New York, amongst the more disadvantaged groups, there is little to suggest that there was a racial component to early graffiti writing, with all early tests suggesting that it was an open forum. The first quote below is from a New York Transit police officer, showing this, but also that involvement in graffiti was a reflection of location (New York), opportunity and the persons social group. The second points to the lack of racial or class division as a clear indicator of a writing group, which was well known to police and used to identify those who may be involved in graffiti. As a point of note, the second quote is also from a female, showing that this was not purely a male activity, with some groups having upwards of 25% female membership (again from Miller p100).

“What type of kid writes graffiti?”, “The type of kid that lives in New York City. They range from the ultra-rich to the ultra-poor. There is no general classification of the kids. It’s just that a typical New York city kid will write graffiti – if given the opportunity and that’s what his friends do. There are no generalisations.” (‘Hickey’, New York Transit Police Officer, in Castleman, 1982 p67)

“Writers came from all ethnic backgrounds, all classes, and the police knew to look out for a group of kids that were ethnically diverse – those were the writers” (‘Pink Lady’ in Miller, 2002 p30)

Regarding age of participants, Castleman’s informants stated that most start aged ten, sometimes younger, and generally retired at sixteen, though many came back after this age and there were plenty of individuals older than twenty still practicing. Maller gives a similar account. Given that these were the earlier years of graffiti, we will later show that this age bracket has extended well beyond this, with individuals in middle and even old age continuing to write, though less prolifically. Also, given the skill required to master both the planning and the implementation of larger pieces, there is an assumption that the younger writers will largely be tagging only or assisting older writers with more complex work.

In terms of social organisation, the ‘crew’ (writing gang or group) was identified as having special significance in the culture. Though many writers did, and continue to, work alone, when “all city” saturation tagging is the aim, or when a group is required for larger pieces, then a collective effort is required. The primary function of the crew is to do more work and achieve greater public recognition through the collective; as individuals will often also tag the crew

names, or acronym, when writing, or even the names of others in their crew (also known as “cross tagging” or “roll calls”) meaning those associated with the crew will achieve recognition from the work of others. Socially though, it also serves as a trust mechanism, where individuals are known to each other and develop collegial loyalty as well as understanding each other’s writing styles and technique allowing for more effective work under pressure (M. F. Taylor, Pooley, & Carragher, 2016). This can also be achieved at “writer’s corners” or “writer’s benches”, a colloquial term for a graffiti writer meeting spot, where one or many crews come to meet, examine each other’s “black book” (or “piece book”: a collection of designs), or photos, and share ideas, just socialise, or a place used as a spot to watch work roll past. Crews also provide the space for mentoring, where younger writers are trained in all aspects of graffiti writing, including instructions on accessing (and surviving) subway systems, writing (often doing the fill-ins on larger pieces) and how to steal paint effectively (“racking”). It is typically in crews where the master-apprentice scheme occurs.

Crews can be short or long lived. Writers can be members of one, many or none. Depending on the time and context crews can be either territorial, for example claiming certain sites or train lines as their own, or, more often, not, and simply a work unit, planning and implementing work together. Membership can be a meritocracy, where entry is only gained through status and skill (or volume), or more of a numbers game, particularly when simple volume tagging is required. Crews can be singular or have chapters/divisions spread throughout a city or a region. In short, there are no definitive rules about crews, however the concept of the crew has endured, and it continues to be a central theme of contemporary graffiti culture, particularly for those involved in more complex work.

Prior to summarising it must be noted that while early accounts of the culture provides volumes of material on the subject, they are overtly positive of it. Accounts of violence, both within the culture and its intersection with wider society, are largely only hinted at. Painting over the work of others is covered briefly and shown to be discouraged and disrespectful, unless the work is very degraded, and can warrant some form of payback. “Slashing” (putting a line through the work of others) is an outright sign of aggression and can lead to violence, though this was downplayed to violence through painting by respondents. This is represented in Figure 6. The stealing of spray cans is the only theft covered, which, given the high volume of theft occurring at the time, one would reasonably suspect that this would extend to other goods also. The ‘playful’ cat and mouse game with police is incredibly understated, particularly given the violence that New York police were dealing with at this time. Similarly, the danger of trespass on the rail network, and the numerous incidence that occurred on them during this period are brushed away, remaining only as witty anecdotes; effectively reinforcing a message of “fun first – danger is irrelevant”. However, these issues aside, the early texts do present us with the key aspects of the culture, including the bravado of participants and their unwillingness to speak to its more negative aspects.

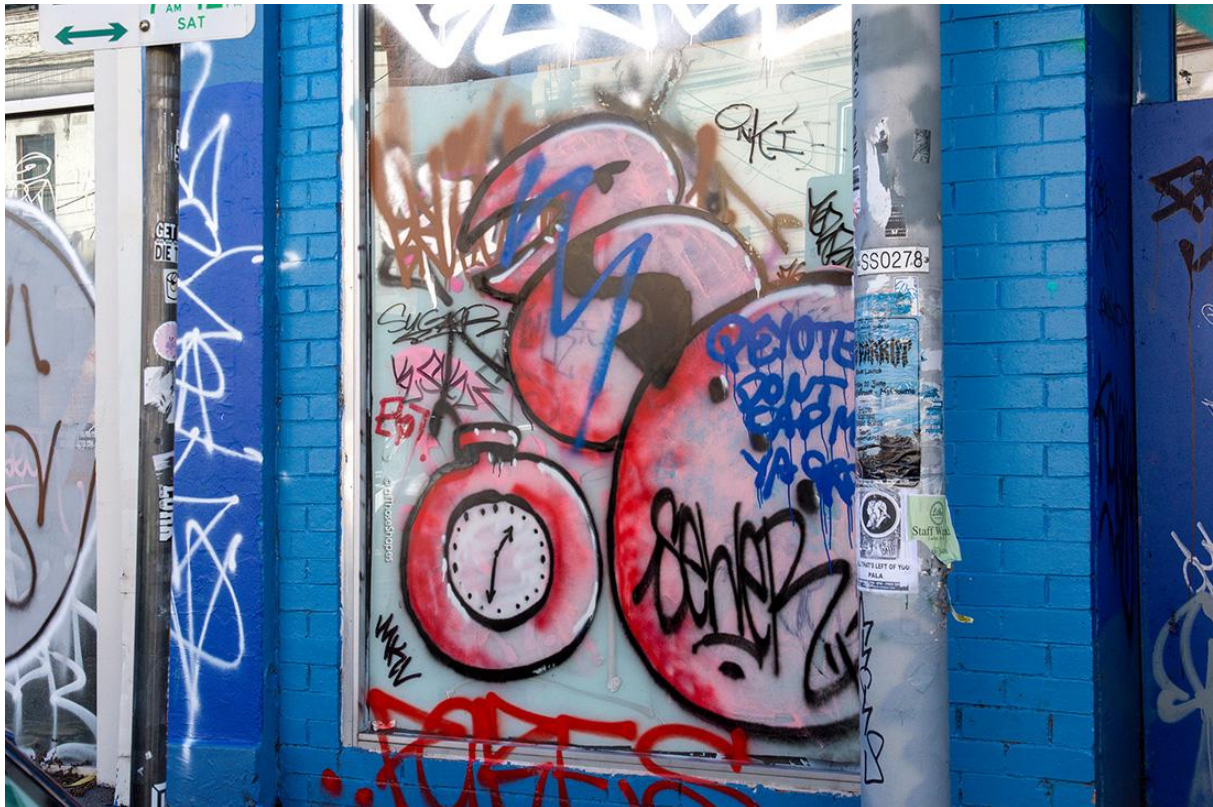


Figure 6: Snowman getting slashed

In summary, the New York subway graffiti writers of the 1970's and 1980's created an alternative and complex set of cultural codes that we know as a subculture and which we have attempted to define above. Participants must have a tag which is their graffiti identity. They must do volume tagging and "get up". They can tag, do throw-ups or piece, and while some styles have been provided, individuals are encouraged to advance these styles, but within a specific format that emulates the original. The main objective should be writing on trains, although all surfaces are open to writing on. If individuals can't get to trains then their work should be visible from the train i.e. the train corridor. It should be illegal, including the stealing of paint, though this can vary per city. Individuals can work in crews or not and should train younger people in the art (including how to access areas and evade authorities) if they have advanced skills. If they do all of this well, they will achieve a level of fame within the bounds of the subculture, if not outside of it.

While an oversimplification, these basic rules were encapsulated by the media industry, packaged with hip-hop, glamourised in films such as 'Style Wars' (Silver, 1983) and 'Wild Style' (Ahearn, 1983) and sold to a global audience, creating a new identity in the youth subcultural palette, that of 'graffiti artist'.

1.3 Lived reality of contemporary graffiti

In this section we will start looking into what graffiti means to the people who do it and try to explain the behaviour. However, prior to this, we briefly need to show how it can be quite distinct per time and place. As Austin (2001 pp60-70) points out, New York graffiti emerged from an existing ecosystem of youth culture within the city, using cultural norms within it as a foundation. The volume of writers led to competition between them, which led to style becoming important. It utilised existing social networks to create crews that focused on specific geographies, such as neighbourhoods and trainlines, and it was also seen as a safer

alternative to gang membership, which it was initially based on (Ley & Cibrywsky, 1974). “Racking” (stealing cans) became commonplace due to paint being outside the economic means of its early proponents, and information was circulated at ‘writer’s benches’ and through the apprentice system, due to a lack of other sites or media. All of which means that subcultural canons came from a negotiation of local society, culture and infrastructure. This same negotiation occurs in other cities. By way of example, in Los Angeles ‘cholo’ style writing, Mexican gang culture, and freeway writing are significant aspects of graffiti culture, where there is also less of an association with hip-hop and a greater one with punk and other musical styles. While in Sao Paulo, association with heavy metal and using ‘pixacao’ style (an angular almost runic lettering) as political protest, are key elements.

The issue of social contagion is also at play. As Ferrall’s informants note, “In areas where there is no scene only rubbish goes up” (p51), meaning that if there is not a critical mass of writers, then style will remain poor and the commitment to the culture will be less, to the point where graffiti may not occur in any serious fashion. The inverse is also the case, where, if graffiti is openly visible then people will do it, as one of Macdonald’s informants shows:

“It starts by you looking at the walls. I’d seen everybody doing it, so I was like, ‘Oh I wonder how long it would take me to do that?’ ... I said ‘I want to be better than those guys’. I want to get up more than them” (‘Jel’, p69).

To a large degree then, the prevalence of graffiti acts as a normalising device. If it is everywhere, then more people will do it, and if everyone is doing it then the demographics will naturally be mixed, as we can see from the quote below, describing Melbourne in the 1980’s

“Melbourne’s writers came from every geographic, racial, educational and social demographic, from affluent kids living in Toorak mansions to the poorest crime and drug saturated public housing slums. Alongside the Anglo Australians were the children of migrant families – Māori, Lebanese, Greeks, Italians, Slavs and Asians”. (Cubriilo, Harvey et al. 2009, p44)

However, if graffiti is not widespread locally, then the demographics may well be quite specific to certain groups or neighbourhoods. Speaking to the Australian context, while coverage of the Melbourne graffiti scene states that all demographics and class groups are represented, this may be different in places where it is less prominent, such as Perth and Adelaide. As such, and as a point of note, the perspectives being covered here are from areas where ‘hip-hop’ graffiti occurs a lot and where it was noteworthy enough to create texts on the matter. They may not reflect the lived reality of individuals everywhere. Additionally, all the material below is taken from texts that focus on graffiti where many of the respondents view the activity positively. There is also a tendency for writers to represent themselves and their activities with a strong theme of bravado, so the information also needs to be viewed through the lens of people being overly romantic and, to a degree, acting up for the camera. However, the themes we have uncovered here are those found throughout all texts and still represent key aspects of writing culture.

We begin the exploration of local graffiti culture with part of the introduction to “Wall Stories” (Bailer 2022) which describes what tagging trains in Melbourne was like.

“To the outsider, bombing (mass tagging) trains is a grotesque pursuit that wastes taxpayers’ dollars, but to the practitioner it is the ultimate form of freedom, self-expression, rebellion and adventure. The fact that most of society hated it was inevitably part of the appeal to disenfranchised youths, angry at the world and feeling powerless. Seeking excitement and adventure, armed with nothing but a fat marker, you could board a train in your boring suburb and instantly become an outlaw. A young kid could propel himself to notoriety with a marker, hard work and some balls. Riding

the system all day just to get some time in an empty carriage, once you had it to yourself it was a thing of beauty. You and your crew would begin the graceful ballet, markers in hand clambering over seats. Some hit (tagged) the roof, others the back panels, some hit the floor or would rip off the no graffiti sticker over the doors to drop a tag on the fuzzy bit the sticker left behind. This was all happening at speed with adrenaline pumping, you would need to control yourself, slow down, pump the marker, make sure it was flowing nicely, don't rush the tag and get maximum style. ... it was all about that smell, the fun and the adrenaline."
(*'Bailer'* in *Bailer*, 2022 p65)

In this quote we see a far more mundane, and a far more realistic, perspective than we have so far. Bored kids, looking for something to do, excited by the danger, and using texters to "destroy" (a popular term indicating volume tagging) the inside of a train carriage. We can also see elements previously covered, such as the "crew", planning and execution, saturation, and "style", but here we also start to see some of the bio-chemical aspects ("adrenaline pumping") and, though slightly hidden in the text, that the author uses the term "hard work", indicating that this is a labour-intensive exercise.

1.3.1 Graffiti as work

The career-like aspect of graffiti is well covered by McDonald (2001a), who, rather than suggest it is an actual career, shows the dedication needed to "get up" and to consistently deliver large pieces or all-city saturation tagging.

"Graffiti takes a lot of work. You can't be half-hearted about it ... It's the work ethic" ('Claw')

"If you get sucked into graffiti it's like a job, it has to be successive to be successful" ('Drax')

"You can do it 24 hour a day. Basically, your life can revolve around graffiti ... When I was doing six or seven hours work in an office, there'd be times when I'd do (graffiti) three nights in a row. During my lunch hour I'd plan the pieces, finish work at six, go to the shops straight after work and steal my paint ... I'd have some dinner, leave my house at half ten, get to the train depot at 12am, go in at two, finish at four, won't get home 'til six or seven, then go to work. I did that for about three days in a row and come Friday I was asleep at work on my desk." ('Acrid') (all quotes from Macdonald, 2001a p67)

Not only is this necessary to get tags up, but it is also necessary to get good at tagging and piecing in the first place. As seen below, spray can work is difficult and must be learnt, and the only way to do that is with practice and stepping up the graffiti ladder.

"You can't just pick up a spray can and start doing pieces and that. You've got to do your fair whack of putting your tag up everywhere ... If you haven't done your roots, tagging and stuff like that, you can't really call yourself a graffiti writer. You've got to go through the whole process. It's like anything, you have to go up the ladder ... A big part of it is getting known and once you're known that's it, but it takes a good long while to get known. You have to put tags up every single day ... going out at night, putting your name up on walls, buses, trains, everywhere you can think of, until you get so known people wonder who you are." ('Steam' in Macdonald, 2001a p75)

While commitment to the culture is imperative, like any job it can get routine and mundane, particularly after writers have achieved some level of notoriety, or reached the pinnacle of what they can achieve with their particular set of skills. Stefano Bloch, one of the most notorious 'all-city' writers in Los Angeles, admits that it eventually got boring, and rather than just painting, he actually missed the urban exploration aspect and his friendship groups (Bloch, 2019 p99). Also, there is a level of ongoing maintenance required to continue having status in the culture, the repetitiveness of which can make it somewhat tedious.

"I try to do two pieces a week on walls or trains, and I try to go bombing (saturation tagging) once a week. I used to really like to go bomb. I used to like seeing my name everywhere, but now it's just maintenance ... it's boring now." ('Claw' in Macdonald, 2001a p81)

This reduction in positive feedback and excitement as graffiti turns into routine, plus the constraints placed on individuals as adult occupations take precedence, explains why individuals leave the subculture, but the fact that 'Claw' continued to write, despite losing the desire to do so, goes some way to show that this is more than a youth fad and has a lot more to do with utilising the skillset learnt in the process of getting-up, and potentially linked to the addictive aspect of it which we will explore further below.

The point of illustrating the hours necessary to become known is to show the level of dedication to the culture that is required and how invested in it some people can become. For some it may be far less involved, but even for the simple tagger there will be some element of 'behind the scenes' work done to reach a level of expertise where they can write graffiti efficiently.

1.3.2 Graffiti skills and knowledge

As covered in the section on graffiti's origins in New York, there is a skillset involved in graffiti, covering the knowledge of paints (colour, density, coverage), cans (pressure, volume, paint quality), caps (speed, angle, dripping), and using them (for fills, lines, highlights) on different surfaces. This is a product of the time spent in the culture and the work done by writers. While there are many descriptions of the use of tools and methods throughout the literature, it is best summed up by Bloch below, who describes painting in on LA freeways, encapsulating the skill required to do it effectively. This is what he terms "the craft".

"You have to determine the perfect distance between yourself to the wall, often approaching its surface at full sprint while looking for oncoming traffic. You have to judge the pressure in the can you are holding, which is determined by the amount of paint you have left plus the thickness of the tip (cap) you are using. You have to estimate the dimensions of the surface as well as its texture to account for possible snags in the stucco or grooves in the façade that will force you to adjust the distance between the tip of the can to the wall, mid letter. You have to use your whole body to make your letters proportionate and stylistically coherent, your pointer finger maintaining perfect pressure to avoid an inconsistent flow of paint, the arm opposite your writing hand extending out as counter balance, your legs spread slightly narrower than shoulder width for stability, your knees bent just enough to allow you to move smoothly along the wall horizontally, all while relying on your hearing and peripheral vision as you watch out for possible approaching gangsters, cops, or heroes who want to stop you, jail you or kill you" (Bloch, 2019 p117).

As a point of note, Bloch covers this aspect of painting out of frustration at the lack of 'craft' that many of his fellow writers (mainly taggers) had, so this can be seen as the work of someone who is operating at a higher level than most. Also, the final comment, about potentially being killed, is not hyperbole and is illustrative of the reality of LA graffiti culture,

where there is often significant crossover with gangland graffiti and many instances of vigilante reprisal against graffiti writers (Phillips, 1999).

After this, Bloch (p141) goes on to describe the preparation of a site, which included both a daytime and a nighttime reconnaissance mission, which is important, as sites can change dramatically between the two times. On these missions he took note the ramps on and off the freeway, frequency of cars, a number of ways to get in and out of the site, potential natural and built form hazards, local shops and their operating times, if 24/7 shops were operating, if there were any graveyard shifts close to the site, or if any spaces nearby could be gang hangouts. There was also a significant amount of time spent on the correct placing of the work, examining angles, lines of view, potential obstacles such as trees or billboards. Following this there was also the preparation of the site itself, such as removing homeless tents and shopping trollies. He also returned to sites afterwards to ensure that the work, if it wasn't painted over, remained visible, removing any obstacles to its viewing. The act of actual painting was the least time consuming of the process.

This form of reconnaissance (colloquially known as a 'reece' or 'recky') is common for larger piece work, though many in the Australian subculture are, through word of mouth, previous activity, or through social media networks, already well aware of the specifics of certain sites.

The selection of site is also learnt behaviour, where writers need to assess the level of exposure and measure that against the level of risk. Often this is simply a factor of copying where other writers have written, as the site has been preselected due to visibility, endurance and low risk (J Ferrell & Weide, 2010). However, for new locations, writers judge the level of street activity (typically based on significant night economy and population density), the 'betweenness' of a site (if it is an area of traffic between key sites), the level of visual interference (such as having too many trees), against the risk involved in writing at that site (Kuralarasan, Bernasco, & Vandeviver, 2024)

All texts show a great depth of understanding of the tools of graffiti, and there are many manuals that provide additional information on how to best use each, see Acker (2023) for a good overview of marker selection and tagging technique. Additional skills include the ability to make tools, such as the creating a 'mop', a large home-made marker or shoe shine bottle, filled with industrial graded ink to make tags larger and almost impossible to remove (Snyder, 2009 p70), cooling Dulux paint in the fridge, heating Dymark paint in hot water, combining them with an adaptor, adding a Pink Dot Fat Cap with the result that you had a spray can at double density and pressure capable of spraying the size of a basketball, allowing the user to fill in a door to door panel with one can of paint (Bailer, 2022 p7), filling fire extinguishers with paint for maximum coverage, distance and damage (Graffiti Eaters, 2024), and using products such as "Stealth Ink" (diluted silver nitrate) that only appears in daylight.

Outside of the act of painting, other skills can include being a good 'checker', (or spotter) acting as the eyes on a bombing mission and informing the writers of any security issues. In the chapter "Checker for hire" by 'Noeb', he describes coordinating a group of writers with phones, binoculars and two other checkers maintaining a three-hundred-meter cordon around all access points to the site (Van Kan, 2020 p102). Knowledge of the train timetable is also a critical skill. One example from Melbourne shows how public information, plus some knowledge of how the network operates, can show where and when targets become available.

"Bonez was the man. He could look at a train timetable and tell you when a particular train went 'missing' 15 or 30 minutes. We'd go check it out and, of course, that train would be laid up in a siding or something, waiting for another train to pass or to link with another 3-car to become a 6-car in time for peak hour" ('Bald' from '70K crew' in Bailer, 2022 p3)

And then there are the skills learnt from having an intimate knowledge of a locale, such as using flat wire to open the locks on subway tunnels, using passing trains to hide from security cameras (Bailer, 2022 p25) and the use of rappelling so that writers, using high-rise cable and pulley systems, can paint vertically down structures (Monk Six, 2025). In short, and again to point out the forethought that goes into a lot of this work, as well as ongoing commitment to the graffiti culture, the individuals who do graffiti are skilled-up and to assume that they are mindless is naïve. Though this may be the case in the early years of tagging and bombing, once they gain some experience and recognition, and move into large scale piecing, they are incredibly resourceful, capable of tackling, and committed to overcoming obstacles that authorities place in their way (K Iveson, 2007 p126).

1.3.4 Illegality, destruction and ‘the rush’

While early commentators on graffiti culture focused on the artistic element, freedom of expression and so forth, later commentators started to capture more aspects, including the primacy of the act being illegal as one of its drivers.

“Right before you hit that wall you get a rush. And right when you hit that wall you know you are breaking the law and that gives that extra adrenaline flow. And that’s what really got me going. It’s almost like a drug. ... I miss the magic, the breaking the law part of it. It’s probably the biggest rush of all.” (‘Voodoo’ in J Ferrell, 1993 p82)

The significance of illegality comes from the risk-taking element that breaking the law, and potentially being caught, creates. As we can see from the quote below, for ‘Teck’, money and creativity were secondary to the thrill of the chase.

“I made a fair amount of money doing legal art for TV commercials and other film endeavours. In actuality, all of this paled to the thrill of being chased through back streets and narrowly escaping the beam of police headlights. Living precariously against the grain took precedence in my daily routine” (‘Teck’ in Urb Magazine, 37, 1994. quoted in: Macdonald, 2001a p73).

This is ‘the game’ that many writers refer to. Be it ‘cat and mouse’ or ‘cops and robbers’, it relates to the subterfuge required to evade detection or capture, which is a key aspect of the attraction. This applies not only to painting, but to the innovative ways writers gain access, appear as legitimate track workers, and also to the volume of paint they can steal. There is also some evidence that this is reflected in the attitudes of the police and transit guards, particularly from reports in early New York, and from the Melbourne Transit Squad, who struck out or wrote over many pieces in the 70’s and 80’s (Castleman p166). This antagonism between writers and authorities is so strong that some writers go so far as to say that it’s the existence of the transport police that actually leads to the tagging (Macdonald p118).

Ferrell is more forgiving to the creative element, suggesting that it is both the illegal and the creative aspect combined that gives writers a high.

“Graffiti writers have told me again and again that they do graffiti for the rush one gets when piecing or tagging illegally - a rush more exciting and pleasurable than any drug they know. And they emphasise that the feeling comes from not just being out at an illegal location, but from the art of painting itself. From the intersection of creativity and illegality as the paint hits the wall.” (J Ferrell, 1993 p28)

The following quotes also illustrate the release that graffiti can provide, allowing writers time away from real life, and an opportunity to variously get back at a society or simply get rid of

some testosterone. There is a simplicity implied here, where graffiti becomes a planned, but spontaneous act, that is quite different from the ordered aspects of the day-to-day existence.

“That’s how I stayed sane. I was a bike messenger, and pressure just builds up and how do I release it? I go out and bomb all night. If they want to run me over in their busses and taxi cabs, then fuck them. I’m going to bomb the shit out of that stuff.” (‘PSoup - Dave’ in Snyder, 2009 p117)

“You don’t think about it when you’re 16 it’s just a release. Writing was ‘fuck everything, lets hit those trains and have a good time’ ” (Member of ‘NAWAS’ crew Berlin in Van Kan, 2020 p7)

While these later texts cover a more realistic contemporary perspective that shows the tactile and emotional aspects of how it feels to do graffiti, it is when we get away from the textbooks and into the books written by, and for, graffiti writers that we see the celebration of destruction as well as the joy of doing it. All the quotes below are from the Melbourne graffiti books ‘Kingsway’ and ‘Wall Stories’, covering the graffiti and tagging scenes from the mid-eighties to now from the perspective of the graffiti writers themselves. There are hundreds of stories in these and other books, as well as blogs and interviews on graffiti websites (such as Bombing Science, 2025) that convey similar perspectives. These serve to highlight the level of destruction, the absolute focus on “destroying” something, and the way this is viewed positively within the subculture. As a point of note, these are all related to tagging and bombing, not piecing, which is viewed as more of a production but still retains many elements of the below.

“I loved tagging on those dark Belgrave (suburb and trainline) nights, sitting on a ledge window, fuming up the car with paint, jumping down at Upwey (station) to do throw ups, catching up with crew along the way. Hanging out in the corners so the guards wouldn’t see you, not knowing how much damage you were doing until you got into the city.” (‘Cure’ in Cubrilo et al., 2009 p249)

“We would do 17-21 insides on a Saturday morning and loops (staying on the same line, back and forth) after school. Walk-ups in Flinders Street, the lot. It was all about getting up. You bombed and hung out with everyone. Fifteen writers in a carriage taking over.” (‘New2’ in Cubrilo et al., 2009 p249)

“To this day my favourite memory as a writer was the damage I produced when I had that (guards) key” (‘Jisoe’ in Bailer, 2022 p71)

“As the tram made its way down Glenferrie Road and more of the passengers disembarked, we started doing more brazen tags. The weed and alcohol had us not giving too many fucks. Eventually we just went for it. Doing some good old proper bombing: ‘Sauna’ was hitting the walls, ‘Tekst’ the ceiling, I was on the blinds. Nothing was sacred. The tram pulled up and the last of the passengers got off, leaving the driver and us. As he took off, we got right back into bombing, ink dripping off fresh hand styles. We made a beautiful mess of the place” (Anon in Bailer, 2022 p39)

As we can see, the focus here is on damage. While “style”, “getting up”, and “the crew” are all aspects of it, the principal aim is collective destruction and, to a degree, gaining control over an environment, akin to almost taking possession of it, if only to destroy it.

Some authors, such as Kramer (2017) and Bruce (2019) extoll the virtues of legal graffiti, suggesting that it is a social activity, can be an indicator of reduced crime in gentrified areas, and can actually reduce socially problematic tagging. While both texts have valid perspectives,

and are, in the context of their own discussion, good portrayals of the effect of legal graffiti, particularly as the culture evolves into a mainstream activity, these largely lie outside of the graffiti subculture. When asked about what would happen if graffiti were legalised, all of MacDonald's (2001a p126) respondents suggested that it would largely be a waste of time.

"I would never do it. If its legal anyone can do it, who cares! If they said 'hey, come bring your little card, and you get spray paint, you get a designated wall' it would be utterly boring" ('Claw')

"It defeats the point of it, all of a sudden you're allowed to do it ... it's not the same as blatantly running around and just going on a mission" ('Akit')

"There'd be no threat, graffiti would be a waste of time. I go bombing for excitement, it's like I get a great adrenalin rush out there." ('Col')

"I think that the essential thing about it is that it's illegal. If you took that away from it, then it would never exist, or it wouldn't carry on" ('Proud 2')

"Unless your goals are illegal when you start you would never do graffiti. If your goals were legal you would go to art school ... It all started in our adolescence, we were all pursuing the same sort of goal, be it on walls or trains, to destroy." ('Proud 2' p72)

From quotes such as this, plus the hundreds of interviews available in text and online, it is reasonably safe to say that one of the main drivers for writing graffiti is the illegality of it and the level of risk involved in doing it, all of which leads to feelings of elation among proponents, which is also reported as a key driver of property crime in general (Tonkin, 2020). However, the social aspect is also critical, which is evident from the collective behaviour above, as is the identity that is formed from doing it.

1.3.5 Sociality, identity and ego

The social aspect of doing graffiti should be reasonably evident from the above, but the depth of it, in terms of what it means to those that do it, and the way that it is far more than its product (i.e. tags), is well captured by Ferrell.

"What is absent from these accounts of tagging's supposedly calculable results - tagging marks territory, tagging establishes status - is a sense of tagging itself; that is, of the incalculably rich experience of 'going out tagging' especially with other writers." (J Ferrell, 1993 p71)

The 'richness' he is talking about here is a combination of the sociality, the rebelliousness, the excitement, and all the other aspects, which, when combined, make it into something far less tangible than just signatures on walls and more of a group celebratory event. Even when done alone, tagging, and graffiti in general, is still communicating with other writers. And if there is a large culture of writers locally, peer and friendships groups form, and become significant parts, or the majority, of individuals' social connections.

"You can go from having 4 to 50 good friends ... you're never bored or lonely because the phone just constantly rang." ('Ale One' in Austin, 2001 p67)

Many authors also state that some crews are not absolutely focused on writing, and use writing culture as social time, with some members just showing up to drink and talk; the writing becoming secondary to the social aspect, though still a unifying activity.

With this amount of subcultural social activity there is inevitably going to be a level of cultural institutionalisation, where writers become so involved in the culture that their core identity

becomes that of “a writer” and the social norms of the writing culture become engrained as normal.

“The more you write your name, the more you begin to think about [it] and the more you begin to be about who you are. Once you start doing that, you assert your individualism and when you do that, you have an identity.”
(Castleman, 1982 p76)

“People tag with each other and for each other. They increasingly define themselves in relation to other writers and the larger scene” (J Ferrell, 1993 p50).

While they have other aspects to their life, and may actually hide their graffiti lives from others, writers will inevitably see themselves, at least partially, in terms of the subculture as it is defined locally; creating and internalising in and out groups (who they define themselves with and against), status hierarchies (how to show and create cultural capital) and negotiating authenticity (defining how to remain true to the culture) (Merrill, 2014; Williams, 2011). All of which, if done successfully, that is, if the writer truly identifies with the institution of writing culture, this new identity can create feelings of superiority and distinction from the rest of society. In the quotes below we can see some of this, as writers show the distinction between them, their culture and rest of society, that they are above others, and that they generally, at least in interviews, view those outside of their culture disdainfully.

“It’s quite a wonderful thing to be part of something that is misunderstood by the rest of society. I’m glad they don’t know. It’s something that they’ll never understand and if they did understand would you want them to in the first place? ... At least in your lifetime you can say that you’ve done something. There’s all these people just floating in and out of tubes (subways), going home, going to work, and you’ve actually left your mark and that’s a good feeling, knowing you’re not just one of the lemmings, that you stand out from the crowd.” (‘Zaki’ in Macdonald, 2001a p154)

“I don’t expect the well-programmed to understand that there are other things in life to want to know or understand. This would upset too many of their cosy conceptions of life and may force them to question their own meagre existence ... You probably go to work, go home, watch tv, go to the pub, go to bed every day and think you’re really living. ... I must admit, I live my life feeling kind of smug, rather superior.” (Londonz Burning Magazine 2, quoted in Macdonald, 2001a p155 & 161)

This ‘us versus them’ attitude, plus the fact that socialising is a key element, could lead a reader to assume that graffiti writers are a coherent collective, but this is not necessarily the case. Though there are numerous accounts of group, and intergroup, activity, such as friendly paint battles between crews, plenty of references to writers’ benches and other meeting areas, and good coverage of the subculture as an ‘international graffiti brotherhood’ (Van Kan, 2020 p48), it is often fractured and violent. This quote shows hints at the violence that comes from egotistic competition, and while there are many more, quite explicit, descriptions of violence within the various scenes, particularly in the texts written for graffiti writers, these will be dealt with in subsequent sections.

“At first you think every other writer is going to understand and be cool with you, but it’s the total opposite. So many people are on a power trip, they’re selfish. They think ‘graffiti is all about me’ and even if they know it’s not all about them, they want it to be about them, so they do everything in their power to make it about them. There are a lot of kids who know they’re not that talented, but they don’t care, they know they are bigger than you and

they'll kick your ass, and that's what they use.” ('Ame' in Snyder, 2009 p121)

However, and irrespective of the egos and aggression, which, along with other dangers, are considered as occupational hazards, graffiti writers are socially and culturally organised around their subcultural identity, their status within the culture and the sense of community, however fractured, that the activity entails (M. F. Taylor et al., 2016).

1.3.6 Compulsion and addiction

Within the graffiti literature coming from field observations there is little doubt as to its addictive nature, where writers become addicted to the risk-taking behaviour as well as the community and social rewards coming from writing illegally. This is supported by more forensic assessments that suggests the addictive element shifts from risk-taking behaviour in early years (due to boredom, emulating the work of others, the rush from both illegality and aggression, satisfaction of retaliation, and identity formation), to the need for respect in later years (based on status and identity, sustaining the status, and achieving community notoriety) (M. Taylor, 2012). Van Loon (2014) also found addiction to both the rush and notoriety as the most unifying aspect of their study. Other work has shown a strong correlation between writers and compulsive disorders, indicating that those who remain in the subculture, psychologically need the instant gratification that graffiti provides (Pani & Sagliaschi, 2009). Importantly though, it is not purely the rush from the illegal element that acts as the trigger, it is that combined with other aspects, which is covered well by Symes, a Melbourne-based therapist, and Waclawek, below.

“When a person experiences the neurotransmitter flood of dopamine, adrenalin and cortisol brought about by illegally writing on a surface with a marker pen or a spray can, it can be as addictive as other habit-forming experiences e.g. illicit drugs, alcohol, gambling or extreme sports. You combine this neurotransmitters experience with a sense of belonging and being part of a group; the feelings of mastery, self-expression, and receiving positive praise from your peers, you have a powerful combination of biological, psychological and social factors.” (Gavin Symes in Van Kan, 2020 p5)

“The risks, thrills and bravado of painting illegally are addictive and part of the energy being expressed through writing. Being part of a world that functions like a secret society – as alternative community through which one can create a different identity in the public sphere - is enticing. Most writers value the subcultural authenticity, fidelity and control that illegal writing facilitates.” (Waclawek, 2011 p54)

While this is also self-reported in mainstream media (Heywire, 2016), and has been used as a defensive rationale to explain graffiti vandalism in court (N. Ross, 2010), it is largely not taken seriously by authorities attempting to govern it, but it does give us another insight into why individuals do it. If individuals are addicted to it and continue to do it regardless of all rational attempts to stop them, then, like dangerous levels of alcohol consumption, or any dangerous addiction for that matter, it lies outside of rationale choice and sits far better in the arena of compulsion; where writers are compelled, most probably for the positive biochemical feedback, to do it. Comments from writers affirming this are throughout the literature.

“I was too far gone to stop painting. Graffiti had literally penetrated the very core of my existence: I couldn't imagine a life without it ... I was painting every night and truly felt superhuman.” ('Lovepusher' in Van Kan, 2020 p52)

A more mundane aspect of this is the simple issue of repetition. Where, as individuals, in an attempt to “get-up”, are constantly tagging, it results in the activity being so commonplace that it simply becomes normal to them. Bloch’s perspective on this below shows the compulsive aspect of tagging, both as preparation for ‘real’ tagging, but also how it can take over a life.

“Like most graffiti writers I compulsively caught tags – on napkins, on steamed up mirrors after a shower, even in the air with my fingers, practising my styles and emulating others’ styles. I was committing to muscle memory a certain curve of the S and the flare of my O, preparing for what I would produce at night. Everything I owned had my tag name etched on its surface. The addiction to writing never goes away. Everything is writing. Every surface is for writing on. That TV, those walls, that arm.” (Bloch, 2019 p83)

Then there are also the trappings of lifestyle. The mass-socialisation and gang-like aspect has been covered above, the power of which, in terms of group acceptance, youthful celebration, and identity formation, would create strong bonds between the act, self-esteem and a sense of belonging that would be incredibly difficult, if not painful, to let go of. But another aspect also exists, which is the experience of seeing the city at night.

“While the visual payoff may be fleeting, the memories of being out on the street are enduring. Many memories of bombing are actually memories of experiencing an alternative city and the interactions that take place within it” (Bloch, 2019 p148)

The graffiti writer as urban explorer (often known as Urbex) is a common theme, with Snyder (2009, p88), for example, after a night spent in the subway tunnels with writers and meeting Bernard, the famed “Lord of the Tunnel”, claiming that “graffiti writing is often as much about the process of exploration as it is about actual name painting.” Some crews, notably the Melbourne based, but now national, “Cave Clan” place the exploration on an equal footing to writing, choosing only to write in tunnels and other difficult to reach places. Stories of strange encounters that showed the underbelly of the city are ubiquitous and, in terms of volume, roughly parallel with stories of high-risk behaviour and evasion. Making it a key, and quite romanticised, aspect of the lived reality of graffiti writing.

There are then a range of aspects that lead to graffiti being addictive, or at least compulsive. First and foremost is the rush of doing something illegal, but this is combined with the social aspect and the lifestyle that goes with living in this culture, making it a difficult thing to leave behind. While many who leave the culture see it as ultimately destructive and leading to poor life outcomes, there are more that celebrate it as a formative part of their life, and many who continue to struggle with its attraction. The quote below is from a writer who sent over a hundred train panels into traffic and who is now married with children. Though it has been many years since he was active, he still has to tackle the allure of writing culture.

“I still struggle with the desire to paint trains daily. ... Even still today, graffiti keeps me awake at night and daydreaming during the days.” (‘Noris’ in Van Kan, 2020 p175)

1.3.7 Crime and violence

At the height of New York Graffiti, in the late 70’s and 80’s, having a disagreement, or a problem, with someone was known as having a “beef” with them. As with other canons of the subculture, this term has endured, as has the concept of rivalry between writers and crews. While the term is acknowledged by many writers on the topic, few explore it fully and it is, more often than not, brushed aside to focus on the more productive aspects of graffiti, such as how competition led to style innovation. However, Powers’ (1999) “The Art of Getting Over”, gives it the recognition it deserves and captures the violence that was part of the culture. In this

quote we can not only see that violence was typical, but also that it was actually part of the culture, though largely hidden in the media-sanitised version of it.

“There was a dichotomy between the “style wars” people saw on TV and the “blood wars” that was the reality. It was scary if it was your problem, and it was completely ridiculous if it was anybody else’s. A few people got killed over a beef. A lot of people got stabbed, sliced or stuck. Thousands got a smack. What’s strange is the survivors of the violence appreciated it, like it made the graffiti experience more real.” (Powers, 1999 p106)

Though death and serious injuries through misadventure occur regularly, violence leading to fatality is not reported in the contemporary Australian writing context. However, fights, occasional stabbings, and giving people a ‘hiding’ (a beating) are reasonably common, as are examples of pure vandalism outside of writing (see Bailer, 2022 pp 282, 328). Additional and explicit examples (all from Melbourne) are provided below, which illustrate a norm of the violence and vandalism associated with graffiti, and, in the final one, the relationship between graffiti culture and other crimes, though, as indicated, this (and violence) may be more associated with some crew and neighbourhoods more than others.

There was another crew attending (a hip hop event) that we had issue with and we wanted resolution. ... An old-fashioned barroom brawl erupted. Limbs were flying every which way, and you couldn’t help but get punched, elbowed or kicked a few times. I loved it. ... In my mind fighting a bunch of other antisocial, badly behaved graffiti gronks was no big deal.” (‘Anon’ in Bailer, 2022 p361)

“While everyone was tagging, he (‘Window Kicker’) would systematically kick out every window in the carriage ... He worked out how the seats were bolted into the train and if you leveraged them from just the right angle, you could rip them loose so the whole six-seater would get launched from the moving train” (‘Tilt’ in Bailer, 2022 p66)

“Footscray boys and Newport boys, a lot of them had real short careers because they were just thugs. Just always trouble, fights, burs (burglary) and graff every day.” (‘Duke’ in Bailer, 2022 p62)

This last point is particularly significant, especially when taken with stealing of cans, illegal unauthorised entry to sites, and property damage being considered normal activity within the culture.

As Bloch (2019 p153) points out, the act of gaining entry to writing sites is effectively the same as burglary, in that it requires reconnaissance, knowledge of how to gain entry to places, how to avoid detection, or escape if detected, and the physical skills to do all of the above, resulting in him suggesting that “[B]ombing became more like breaking and entering”. While the intent behind gaining access is different, the skillset is similar, if not identical. And this is tied to a second point by Bloch (2019 pp101-103), who described how racking crews slowly moved from stealing paint, to toiletries, CD’s, jewellery and so forth, eventually moving well beyond city limits to rob stores that had yet to harden their security. By his account, racking crews earned tens of thousands per month, the arrests from which “decimated the LA graffiti scene of the mid 1990’s even more than gangbanging had.” (p101). When taken together it would, particularly with the normalisation of criminal activity that graffiti is, seem natural that individuals would move into higher order property crime, making graffiti a gateway to other criminal crime.

Locally, this is covered well in the introduction of “While the City Sleeps” (Woodward, 2023) a review of graffiti in Sydney in the 1980s.

“Other writers became increasingly involved in heavy crime, the slippery slope from stealing a few spray cans, to breaks (break-ins) for spray cans, to breaks and enters for cash, to much more heavy crimes, was an issue for writers ... The mentality shifted to why risk getting busted for graffiti when you could go hard and get some cash with less stress. In fact, the chances of getting caught for doing standard crime was considerably less than leaving a tell-tale trail behind in the graffiti world ... heroin was hitting the scene hard too, and the Hip Hop scene had lost a lot of its naivety”
(Woodward, 2023 p9)

This text acknowledges that the Sydney scene was far more violent and prone to criminality (in addition to illegal graffiti) than Melbourne, and Melbourne-based texts support this. This may explain the additional coverage of illicit activities outside of graffiti (safe stealing, break and enter, car stealing, heavy drug use and so forth), or the aforementioned local expression of the subculture and its distinctive flavour per city, but more so captures the general movement from graffiti to other crimes hinted at throughout most texts.

Limited available research on graffiti recidivism and movement to higher order crimes indicates that most (75%) offenders stop after their first or second encounter with police. However, of those remaining, 66% move to violent crime, which is largely due to a normalisation of crime in their youth and social capital gained through their networks of like-minded individuals (M. Taylor & Khan, 2012). The research also suggests that these networks may be reinforced through isolation tactics, such as banning groups of juvenile offenders from sites, or collectively cleaning walls, which provides subcultural status as well as forcing them to associate with more prolific offenders. This focus on social networks and social capital concurs with psychological research on the treatment of property crime offenders (mainly burglars), which shows that peer connections are largely the driver for ongoing activity and that, unlike other forms of crime, cognitive treatments do little to reduce recidivism in serial property crime offenders (Hollin & Palmer, 2020).

While the data is only for Western Australia and will need to be verified by state authorities, 75% desistance from graffiti would indicate that graffiti does not automatically lead to a long-term criminal career, but it can do, and at 25% significantly so. It most definitely normalises criminal and anti-social activity and it may be an attractor for those who are already criminally aligned; with many instances of criminal association in ethnographic texts, and/or writers not wanting criminal association due to the increased police attention it brings. Graffiti generates a skill set that is more aligned with higher-order criminal activity, such as burglary, than not. Also, the proximal causal factors of property crime, which are financial, social (either to impress friends or due to pressure), skill demonstration, and thrill seeking/boredom alleviation (Tonkin, 2020), are, with the exception of financial gain, remarkably similar to the factors behind graffiti, which, prima facie, seems to be a reasonably strong alignment in terms of causality.

Though accounts of crime, including violence, drug-use, car stealing, vandalism and break and enter, are largely limited to those that show an element of graffiti-based bravado, this can be explained by the ‘macho’ element of the subculture, as covered by Macdonald (2001a), and proponents generally wanting to show only what they consider to be the positive aspects of the culture. However ‘Bailer’, the editor of Melbourne coal-face accounts of graffiti, briefly reflects on the reality of long term subcultural involvement below.

“Sadly, quite a few people who were drawn into this way of life didn’t know when to pull back on the reins and ended up deep in the drug, crime and jail cycle, or worse.” (‘Bailer’ in Bailer, 2022 p65)

1.4 Graffiti and technology

The earliest commentary on graffiti noted that technology plays an important part in. Though speaking about cap size and can volume, Castleman's (1982 p65) respondents knew that change in style comes about from change in materials, and that eventually, with new products, the whole act of doing graffiti would change, and do so continuously. A complete overview of technology change since the 1970's would be outside of scope, but we will cover some of the main elements here.

Possibly the most significant change in graffiti has been the creation of a market, both for materials and product. In terms of materials there are a number of specialist spray can companies selling in Australia. 'Montana Cans' is probably the most well-known, but other companies include 'Molotow', 'Flame', 'Belton' and 'Ironlak', among others. The products on offer include high- and low-pressure cans, skinny and pocket cans, primers, glosses, effects paint (marble, crack, granite effect), paint specifically for glass, cans specifically designed to accommodate 'caps' (spray nozzles) of specific width, and so forth. These companies, as well as other specialist ones (such as 'Night Quill'), also produce a range of caps (fat, skinny, superfine, splatter, wide) and can-adapters, designed to accommodate a range of outcomes. An example, to indicate the specificity of cap design, is the "Night Quill - Big Shotty", which is designed to cover large areas quickly, covering one square metre in ten seconds. This will no doubt shortly be superseded by a faster cap and can combinations. A similar range of products is available for ink and markers, bags specifically designed to carry and easily access spray cans (though many writers use canvas 'green enviro' shopping bags, to both disguise cans and to look like they are shopping), safety gear and apparel associated with graffiti, and all are available at stores throughout Australia, variously associated with hip-hop culture shops (such as 'Union Heights', Melbourne), smoking paraphernalia shops (such as 'Cloud 9', Perth), specialist art shops in all capital cities, and occasionally 'urban street wear' (i.e. hip-hop clothing) shops. As such there are vastly more materials available for writers, and they are easily accessible, both physically and online. While their cost may make them unviable for volume writers, who, in remaining true to the tenets of the culture may simply use what is available to steal, or, in adherence to the 'anti-style' philosophy may prefer volume over quality, using products such as refilled fire extinguishers or more typical painting products, such as brushes and rollers, it does show an ease of access to product, and an acceptability of this product in contemporary urban culture and marketplaces.

In terms of market demand, the commodification of graffiti is evident in all urban centres, through clothing design (J. Ross, I, 2024), shop fit-outs (J. I. Ross, Lennon, & Kramer, 2020), bespoke murals (Abram, 2024), association with inner-urban gentrification (Dovey, Wollan, & Woodcock, 2012), and, for Melbourne particularly, graffiti tourism (Olishevskaya & Kupach, 2022). Graffiti has even been associated with urban planning and placemaking (Evans, 2016). So, while graffiti, as an illegal act, remains uncommodifiable, markets have commodified its output and normalised it as an almost typical urban backdrop in most global cities.

The rise of the internet has also significantly changed graffiti, particularly the proliferation of it. A recent Australian study (Baird, 2022) into the effects of the internet on graffiti, showed that online graffiti forums serve as: a new way to "get up"; a way to extend the reach of graffiti to a now global audience; and a decentralised and global community of practise and learning. While the text opens with a quote pointing to the near irrelevancy of wall writing, as everyone is now looking at their phones, this is only a partial representation. The core subculture still values the risk and illegality of the act, and writers not willing to put in the hours required to get up traditionally are not valued, though they may be by non-writers. This speaks to the growth of the graffiti audience, which has, according to the author, grown exponentially, and presents an opportunity for legitimisation of writing, particularly through branding and financialising the volume of clicks on sites. This is also represented by MacDowall (2017), who shows the volume and growth of followers of graffiti Instagram accounts; many of whom have

hundreds of thousands of followers and many of them being female. This could indicate a turn in graffiti, as it has, until recently, not been a spectator sport, but may also indicate that graffiti, and particularly how to do it, is far more accessible than it has been to date. Meaning that the existence of a strong local writing culture, and the 'master-apprentice' system, may no longer be required, at least for the painting element of the culture. However, as we have covered above, the one-on-one interactive elements, in terms of sociality and subcultural involvement, as well as learning the illegal aspects, are just as significant, if not more so, than simply viewing the outcomes. Meaning that while the spread of graffiti culture has been extended, and it may be more approachable and accessible to a wider audience, it is unlikely to develop without a local culture and the normalisation of graffiti locally, to foster this growth.

A more direct output of the internet, as it relates to the act of doing graffiti, has been a widening of graffiti writer networks and the rise of the 'spraycation', where people travel to write, often using the connections they have made online to accommodate these exercises. Van Kran (2020) contains numerous stories of individuals using these networks to write in new cities, such as a Brisbane writer travelling to New York to paint the subway (p44), travelling from Berlin to Rome to paint trains (p67), a Perth to Sydney tagging road-trip (p71), accommodating a Brisbane writer at a Bendigo yard (p55), and so on. Many of these are one-off trips, but a few are regular events with the same international crew. All use networks that were created through previous graffiti activity or well-established online connections, built on esteem within the subculture and being known to each other via their work. A recent example of the spraycation was a Melbourne teacher travelling to Perth to paint trains, which resulted in a conviction and fine (The West Australian, 2024). What this means for the future of graffiti is that the networks are ever growing, and that individuals and crews are not beyond significant travel to get up in new areas. While some writers suggest that looking after people, particularly those who do not explicitly know the locale, can be tiresome and problematic (Van Kran p55), we can assume that this will expand occurrences of graffiti beyond its current boundaries, or at the very least, see more regional and international collaboration and/or competition between writers.

A lesser known, and quite troubling, aspect of the internet and its impact on graffiti is the use of fraud to acquire paint. While only mentioned once in all of the literature, there is an incidence of a Melbourne writer acquiring credit card details on the dark web and then using software to match the details to the users IP, operating system and computer clock and then using those details to purchase multiple \$500 hardware store vouchers, which were reclaimed for paint (Bailer, 2022 p23). If true, this would indicate that this knowledge is probably part of the newly acquired skillset of writers and may become a trend within the subculture, or outside of it as writers move beyond it and into a criminal career.

Drones have become reasonably commonplace and there are strong indications that they are, or could be, being used for reconnaissance as well as photography (See Fournier, 2013 for an video example of drone usage on train lines and yards). There has also been significant improvement in the painting capability of drone technology. While early versions were quite rudimentary, capable of only doing simple and largely illegible tagging (Holland Mitchel, 2015), they have advanced quickly to show quite legible lettering (Haridy, 2017) with fully preprogrammed and autonomous modes in development (Most, 2023), meaning that the machine can be preprogrammed with images and launched with a two can payload. Once it begins painting it repositions itself horizontally and vertically to draw images without requiring user control. While concerning, it appears that its use may require expensive positioning hardware, making it unviable in the short term. However, as with the online version of "getting up", this may reduce the risk, skill required, excitement and status of the work, meaning that its acceptance as a future tool will largely be a product of acceptance, or not, by the subculture or streams within it. Aside from use by writers and commented on in sections of removal and prevention below, drones are now being employed by municipal and transit authorities to remove graffiti in problematic places, such as over freeways (Demkivich, 2024).

Finally, the use of rappelling and abseiling, though not necessarily new technology, is a growing trend. This allows writers, once they gain access to the tops of buildings and attach their systems, to move up and down the building, writing vertically as they go, and repositioning the system to cover the horizontal dimension, giving them the ability to paint large tags on high rise structures (Monk Six, 2025). These can be seen throughout metropolitan Melbourne and are becoming more commonplace globally, particularly in areas of higher competition among writers.

As indicated at the start of this section, technological change will change how graffiti is done. Whether new modes become commonplace is yet to be seen, as is the compatibility of these new modes with the canons of the subculture. As it stands, there appears to be a plurality of aspects to the subculture. Some proponents advance style and the artistic element, using social media to promote the artfulness, possibly to gain financial gain as well as notoriety, others rebuke this in favour of more purist volume tagging, but also engage in social media to show their impact, while there also appears to be a growing number of people watching the space, or potentially just more writers (including retired writers) internationally, with numbers of followers growing annually. While the maxim that “writers write for writers” remains, it would appear that in many instances this is not the case, particularly among the more artistic pieces (and obviously in image-based, not writing-based street art). The fact that most writers appear to be using social media, irrespective of style, would indicate that, though they would scold those that just watch, they are becoming more reliant on this as a means of getting up, particularly beyond their stomping ground.

When Stefano Bloch (2019 p167) returned to the LA writing scene after a five-year hiatus, he noted that it was both fiercely, and professionally, competitive. Bombers now had paint firm sponsorship, with bail money and lawyers in reserve in case they got arrested. This is indicative of the massive international market that graffiti now commands. And be it for notoriety, or some other form of personal gain, writers are using increasingly using social media to tap into this.

1.5 Subcultural theory and perspectives

There are many ways to theorise subcultures, and each shows those involved in a different light. In order to provide the reader with some varied perspectives, and to try and understand how graffiti became so problematic, we will briefly cover some of these theories.

The earliest attempt to define subcultures suggested that deviant or criminal activity stemmed from ‘social disorganisation’, which was particularly evident in parts of the city that were going through a transition. One example of this was an examination of an Italian neighbourhood in Chicago in the late 1930’s (Whyte, 1943). This work showed how subgroups of racketeers developed in an area where, due to the ‘strain’ of not able to achieve ‘the great American dream’, individuals ended up forming their own sub societies. This resulted in two groups, one that reinforced high moral order and reinforced Italian conservatism to achieve success as defined by the greater society. The other rejecting the dominant social and economic system to focus on alternative methods (crime) as a way to achieve their goals, effectively normalising a new moral order. Significantly, we also see cultural distinction being reported on here, where subgroups dress and acted distinctly as an indication of group membership. The body of work encapsulating this period undermined assumptions that biology or poverty alone created deviancy, and that it was largely a social process. Later work, also in Chicago, similarly focused on the social role of deviancy, introduced the idea of ‘labelling’ and the ‘career’. Here deviancy is created by society as individuals are labelled as deviant and then internalise this labelling to become a deviant personality; the labelling ‘career’ is the process of internalising this label and not a career per se. The ‘career’ is theorised as beginning with rejection from

society though being labelled, doing something deviant as a result, getting punished for that, and then accepting the label as a deviant and consorting with similarly minded individuals (Becker, 1963). While theories of rational choice (i.e. electing to commit crime if the reward is high and the risk is low) endure, these perspectives show us that place, society and local culture are paramount in determining how transgression occurs and is normalised by individuals and groups.

The next body of work explores subcultural forms that arose in the early 1960's to the 1980's. The key focus of this body of work was on how cultural form is created as resistance to the dominant order, and then how this plays out in terms of identity, rules, perspectives, roles and life choices for those involved. Willis' 'Learning to Labour' (1978a) shows how, through resisting the rule of school authorities and developing a common culture of antagonism, working class kids, though they gain an element of ego gratification through the process, effectively doom themselves to factory work. Willis also notes similar patterns in biker gangs and hippies (Willis, 1978b), many of whom ended up with poor life outcomes due to often heroic attempts to take ownership of new cultural forms and manufacture alternative lifestyles. Less negatively, an edited summation of this body of work, titled 'Resistance through Ritual' (Hall & Jefferson, 1975) shows how subcultures utilise everyday objects (e.g. motorbikes, workers boots, jeans, skinhead haircuts) and fetishise them to have a new meaning (termed 'bricolage') to gain some sense of ownership and position in the world, often creating distinctive perspectives and alternative value ordering system. Many of these cultures are used as media fodder and made into "moral panics", where they were demonised and made to be illustrative of anti-social behaviour and, to a degree, an indicator of social disorganisation leading to criminal activity (Cohen, 1972). However, these new alternative cultures are eventually coopted by commercial interests into 'mainstream' commodities, reducing their capacity to act as objects of resistance in the long term (Hebdige, 1979).

Realising that the resistance identified in youth cultural subcultures was largely symbolic, in that it did not lead to any great social or individual change, and that it was largely driven by individuals simply selecting aspects of culture to identify with, later work moved away from this perspective and instead focused on the dynamics that led to subcultures and their adoption, commodification and transference to new locations. Thornton's (1995) 'subcultural capital', shows how individuals can gain notoriety in their subculture through having good knowledge of its evolution and heritage, adhering to its regulations (dress, music taste, drug use, etc.), and having a good presence in terms of what is expected of that subculture (going to raves, gigs, protests etc.). Maffesoli's 'neo-tribes' (1995) showed how, though canons of subcultures exist and are taken up globally (such as punk or rave culture, for example), they are locally adapted to create urban collectives that typically define themselves as passionate (as opposed to mundane and dull) alternatives to 'mainstream' culture. This text focuses on how these tribes reduce individualism in society by enforcing tribe-like collective mentalities. Counter to this, studies in Post-Subculture (Muggleton & Weinzierl, 2003) shows how people take aspects of subculture and recast them to reflect personalised aspects of their own identity, reflecting the broader individualisation of society that digitalisation, globalisation and mass media marketing allows (Bauman, 2013). All of which places subcultural involvement as simultaneously global, local and highly individual.

Bringing this back to Graffiti, it started in inner urban areas under economic decline, with few opportunities for employment (strain). It came about from reutilising everyday objects and reordering city life; with trains becoming high-value targets rather than simply transport (subcultural bricolage). It creates an identity and once internalised seems to have significant longevity into the life course (labelling). It is undoubtedly a rebellious act, deliberately antagonises social authorities, and is inherently symbolic, in that, outside of socio-cultural production, it accomplishes little (resistance). It has its own heritage and history, which must be well understood by participants, and participants must also prove themselves through active participation (subcultural capital). While there is a cultural heritage, this is adaptable per

place but requires collective non-mainstream action (neo-tribe) and, significantly, while it is a collective, it is highly personalised, evidenced by the fact that most writers will claim that they have developed their style on their own (Liñero & Pérez-Izaguirre, 2020) and through the individual tag being the focal point of writing (individualisation). As such, any of the theories used to explore subcultures are potentially in play. The only sticking point is commodification. While there are aspects of this, which have been presented above, the core of graffiti, i.e. its illegal element, cannot be commodified, which is potentially why it has endured relatively unchanged for almost fifty years.

In terms of graffiti social structure, we can clearly see that it has internal regulations, hierarchies, identities, distinction from outsiders and all the markers of a subculture. Individually, and looking to the social aspects covered above, graffiti provides an identity and a form of self-expression (destructive or otherwise) that would suit people looking for friendship groups, though this also applies to all other subcultures, which are a reasonably typical rite of passage in contemporary society. As such it seems that the largest attractor to the culture would be the existence of a writing culture locally. Additionally, though outside of subcultural theory, the concept of “edgework” (Lyng, 1990), or the attraction to risk-taking activity as a means to escape mundanity and gain control over an uncontrollable environment, is also relevant here. While Lyng’s work covers high-risk sports, he suggests that those without the means to afford activities such as scuba diving or skydiving will naturally take up more lumpen activities, such as graffiti, as a means to show mastery of a dangerous situation, to escape a boring existence, and to find their “true selves”, which can only come from working at the edge. Other attractors would be a propensity towards illegality, but research suggest that this is, to a high degree, learnt when inside the culture.

1.6 Graffiti and art

We end by briefly exploring the artistic element of graffiti, which is a contested and divergent space, however in terms of those who actually do it, Snyder suggests that it is largely a pointless discussion, as meanings are quite distinct per individual.

“[Graffiti] meant different things to each writer. For some it was strictly art, for others it was vandalistic thrill, for others a means of communicating one’s worth. For some it was an addiction, a medium that produced endorphins, but was ultimately proved to be self-destructive ... I discovered that theoretical generalisations about the aesthetics of graffiti quickly became a moot point, as the theory could only be upheld at great cost to what writing meant to individuals”(Snyder, 2009 p9)

With this in mind, aesthetics become secondary to the act of doing it, and while artistic merit is part of the story, it takes a back seat to the other aspects of it that we have covered above.

Remaining within the subcultural perspective, it must also be remembered that writers primarily write for other writers. Advances in style, lettering and going to great effort to be visible is meant for elevation within the writing culture. Though you may observe it, it is not written for you. And while some writers may gain notoriety outside of the subculture through gaining media notoriety, the impact that it has on the rest of society is fleeting, but within the subculture, being promoted to ‘king’ can provide the egoistic boost that goes along with being considered the best in the field. On a more mundane level, the communicative act of wall writing simply tells other writers that another writer is on the scene, part of the community, to greater or lesser levels committed to the same cultural tenets that others are and are attempting to ‘get up’ in whatever style they see fit. As Snyder says, art can be part of it, or all of it for some writers, but it is largely for consumption by people involved in the writing culture. When it is not, and when individuals begin wanting positive feedback from the outside world, or when those outside of the subculture take note of it, is when it becomes contested.

Many writers are moving to legal walls, as the time spent on them can be greater, there is no risk involved, and the quality of work is usually better (Bruce, 2019; Kramer, 2017). Some are also moving to legitimate street art, while others have street exhibitions, perform at events and even sell painted model trains (Kidrobot, 2011). So, there is definitely a legitimisation of the work that appears to be growing. There are also those in the urban planning sphere that support graffiti as a form of placemaking (Dovey et al., 2012; Evans, 2016) and others who frame it around the “right to the city” (Andron, 2024) and freedom of speech (K Iveson, 2016). Some youth groups and municipal authorities (which will be covered below) have provided writers with paint and walls, variously to allow for creative outlets, contain writing to specific spaces, or promote urban street art/culture locally. Legitimate street art has also been shown to be an effective counter measure to graffiti, and many cities now promote their street art as part of local culture. But it needs to be remembered that we are not discussing legitimate street art here. This research therefore, as with Snyder, considers assessment of aesthetics to be largely off topic. While not irrelevant, it is not a major issue relevant to deterrence.

2 Graffiti Prevention

Graffiti prevention is a critical aspect of maintaining the aesthetic and functional integrity of public and private spaces. Graffiti, often associated with vandalism and criminal activity, can significantly impact the environment, leading to decreased property values, increased crime perception, and substantial financial costs for removal and repair (London Assembly, 2002; Melton, McCraw, Hughes, & Leazer, 2009). For instance, in public transport systems, graffiti can deter passengers, reduce the perceived safety of the environment, and lead to increased maintenance costs. Effective prevention strategies are essential to maintain a positive and secure atmosphere for commuters (Transport for NSW, 2023). Various approaches to graffiti prevention have been explored, including the use of murals as deterrents, the incorporation of different technological tools, and Crime Prevention Through Environmental Design (CPTED), which have shown promise in reducing graffiti incidents by transforming potential targets into community art projects (Whitford, 2017). Additionally, community-based programs and victim-centred approaches, such as financial support for graffiti removal, have been suggested to empower property owners and reduce the prevalence of graffiti. This section explains and summarises these graffiti removal strategies in Table 1, presented in the following order: community engagement, the application of CPTED, and an analysis of the role of technology.

2.1 Community engagement

Community engagement refers to the process of working collaboratively with a group of people to address issues affecting their well-being, interests, or environment. It involves building relationships, fostering open communication, and empowering community members to actively participate in decision-making, planning, and actions. Emphasising mutual respect, trust, and shared goals, community engagement aims to create positive and sustainable outcomes for all involved. This process can take various forms, including public consultations, participatory research, volunteer efforts, partnerships, and advocacy initiatives, depending on the context and objectives. This sub-section presents three strategies for community engagement in graffiti prevention, based on the findings from the literature review conducted.

In the context of graffiti prevention, community engagement focuses on collaborative efforts between local authorities, residents, businesses, and other stakeholders to address graffiti-related issues in a way that promotes community pride, ownership, and sustainable solutions (Greater Wellington Regional Council, 2013). According to the report *Delivering a Public Art or Mural Project to Prevent Graffiti Vandalism* by the Victorian Department of Justice and Community Safety (2017), this approach involves open dialogue and active participation from community members to identify the root causes of graffiti, understand the perspectives of those involved, and implement strategies that discourage illegal graffiti. Additionally, it promotes fostering creativity and expression through alternative, constructive outlets such as public art or mural projects.

2.1.1 Educational programs

Educational programs, whether at the federal or state level or coordinated by institutions like the police, are often among the most used strategies for graffiti prevention (Government of Western Australia, 2016). First, one notable example of this is **workshops and seminars**, which allow community members to learn from experts and clear any doubts. Generally, workshops and seminars educate the community about the consequences of graffiti and offer alternative ways to express creativity. These sessions can include guest speakers, interactive activities, and discussions on the impact of graffiti on the community. Workshops also offer practical tips for preventing graffiti on public transport and reporting incidents.

Second, **classroom lessons** are another preventive strategy. Integrating lessons on the impact of graffiti and vandalism into the school curriculum is a preventive approach being used at various educational levels across different countries. For instance, the (National Association of Special Education Teachers, n.d.) in the USA provides students and the broader community with lessons that cover the legal consequences of graffiti, its negative effects on the community, and the importance of maintaining clean environments including public transport. Educators emphasise the role of students in preventing graffiti and encourage them to take pride in their surroundings. In Auckland, New Zealand, classroom lessons are coordinated by the local council. Auckland Council's initiative involved a social innovation process to create an educational program aimed at preventing graffiti vandalism. Social innovations can involve new products, services, or methods that address community needs in more effective, efficient, or sustainable ways. In Auckland, this process included understanding the issues related to graffiti, generating ideas, and designing a program to educate the community about graffiti culture and prevention (Owens, 2014). Engaging community members with knowledge of graffiti and urban design was essential in developing effective strategies.

Third, **art programs**. In other jurisdictions, such as the city of Dallas, Texas, art programs provide a positive outlet for creative expression. Schools and community centres can organise mural projects where students collaborate to create legal and beautiful artwork in designated areas (City of Dallas, n.d.). These projects not only deter graffiti in areas like public transport but also enhance the visual appeal of the community. City of Dallas (n.d.) also launched the "Adopt-a-Spot" program, which involves students and community members in adopting specific areas to keep clean and graffiti-free. Participants take responsibility for maintaining these areas, fostering a sense of ownership and pride. This initiative encourages ongoing community involvement and vigilance against graffiti.

Fourth, **community clean-up events**. These community activities bring volunteers together to remove graffiti and enhance the appearance of neighbourhoods. Such events often include educational elements, like presentations on the significance of maintaining a graffiti-free environment and the long-term benefits of cleaner, more inviting spaces (LaGrange, Ferraro, & Supancic, 1992). By involving residents in the cleaning process, these events help remove graffiti while also fostering a strong sense of community solidarity. Community clean-up events highlight the collective effort required to combat vandalism and install a sense of pride and ownership in the participants, encouraging ongoing vigilance and care for public spaces.

Fifth, **peer education**: The previously mentioned workshops and seminars are highly useful for facilitating the exchange of ideas and proposals, often featuring the participation of experts. However, there are also peer education initiatives, where students are trained to become peer educators who spread awareness about graffiti prevention among their classmates and the broader community. In Hong Kong, for example, peer educators play a vital role in influencing their peers and promoting positive behaviours regarding public spaces (Fung, 2014). This approach influences the power of peer influence, as young people are often more receptive to messages coming from their own peers. Empowering students to take on leadership roles in spreading awareness fosters a culture of respect for public spaces and encourages the community to collaborate in efforts to prevent graffiti.

2.1.2. Community participation in policymaking to prevent graffiti

Involving the community in the policymaking process for graffiti prevention is crucial for ensuring that strategies are effective but also sustainable and widely supported. Engaging community members—such as residents, business owners, youth groups, local organisations, and even graffiti writers — allows policymakers to gather diverse perspectives on the issue of graffiti. This approach helps in understanding the root causes and identifying potential solutions (National Recreation and Park Association, 2013). When local people are included in discussions, they are more likely to take ownership of and participate in the implemented measures. Collaborative policymaking can lead to innovative solutions, such as identifying

underutilised spaces for legal street art projects, designing urban spaces with graffiti-resistant features, or organising community patrols to prevent vandalism (Raič & Jelinčić, 2025). Additionally, integrating local knowledge and experiences, policymakers can create more sustainable and widely supported programs, such as establishing designated spaces for legal street art, promoting neighbourhood watch initiatives, and providing educational campaigns. Community-driven policymaking not only helps prevent graffiti in public transport, but also strengthens the relationship between local authorities and residents, creating a unified effort to maintain and improve urban environments.

As an example, this review identified an initiative in Bogotá, Colombia, where the community was actively involved in the creation of public policies. As reported by DeShazo (2022), in Bogotá, engaging street artists in the design and implementation of graffiti programs has proven to be an effective strategy. The city adopted participatory policymaking and public outreach methods, enabling artists to contribute to the development of responsible graffiti practices. This collaborative approach helps build stronger relationships between government officials and artists, fostering a sense of ownership, accountability, and mutual respect among the artists themselves.

An Australian example: *Jugglers Art Space* a non-profit organisation based in Brisbane, Australia, is committed to nurturing creativity and supporting artists at all stages of their careers (Jugglers Art Space, 2017). Established in 2002, it provides vital resources such as exhibition spaces, affordable artist studios, and professional development programs to help artists grow and thrive. The organisation is deeply invested in promoting contemporary art and fostering inclusivity, creating a welcoming environment for artists from diverse backgrounds. Through its dynamic programming, Jugglers Art Space hosts regular exhibitions, workshops, artist talks, and residencies that serve as platforms for artists to showcase their work, experiment with new ideas, and engage with the community. The organisation also plays a crucial role in bridging the gap between artists and audiences, encouraging dialogue and collaboration in the creative process. With a strong focus on accessibility and community building, Jugglers Art Space has become a cornerstone of Brisbane's cultural landscape, inspiring both artists and art enthusiasts alike.

2.1.3 Negotiated consent and zones of tolerance

Negotiated consent and zones of tolerance are progressive strategies for managing graffiti that emphasise collaboration between local authorities, communities, and graffiti writers. These approaches seek to balance urban cleanliness with the recognition of graffiti as a legitimate form of artistic expression. *Negotiated consent*, involves engaging with graffiti writers the community to identify and agree on specific areas where graffiti is permitted. This strategy promotes a sense of ownership and accountability among writers, helping to reduce illegal graffiti in other locations (Ortiz van Meerbeke & Sletto, 2019). *Zones of tolerance*, on the other hand, are designated spaces where graffiti is explicitly allowed and even encouraged (Young, 2010). These zones provide legal platforms for artists to express themselves, which can serve as an effective measure to mitigate illegal graffiti in unauthorised areas, like public transport.

As an example, in Melbourne, Australia, according to Young (2010), the concepts of "negotiated consent" and "zones of tolerance" were explored in the early 2000s as part of the city's efforts to manage graffiti in a balanced and inclusive manner. The City of Melbourne appointed criminologist Alison Young to develop a Draft Strategy on Graffiti, which proposed innovative approaches to address the issue while recognising the cultural and artistic value of graffiti. The strategy emphasised the creation of zones of tolerance, areas where graffiti would be permitted under specific guidelines. These zones were designed to balance self-regulation by graffiti writers with external oversight by police and council authorities. The approach

sought to encourage responsible graffiti practices while reducing illegal tagging in other parts of the city. Young's work highlighted the importance of involving diverse stakeholders, including local artists, community members, and municipal authorities, in the policymaking process

Other examples around the world where strategies similar to negotiated consent and zones of tolerance have been implemented, as highlighted in [Street Fame's 2024 article on cities with legal graffiti zones](#), include:

- **Los Angeles, USA:** The Venice Art Walls at Venice Beach are a well-known example of a legal graffiti zone. Managed by the ICU (In Creative Unity) Art organisation in collaboration with the City of Los Angeles, these walls provide a legal canvas for artists to express themselves. This initiative has transformed the area into a vibrant hub for street art, attracting both local and international artists. The walls are regularly repainted, ensuring a dynamic and constantly evolving display of creativity.
- **Berlin, Germany:** Berlin is famous for its liberal approach to street art and graffiti. The city has several legal graffiti walls, such as the East Side Gallery, a section of the Berlin Wall that has been preserved as an open-air gallery. Artists from around the world come to Berlin to contribute to its rich street art culture. The city's acceptance of graffiti as a form of artistic expression has helped reduce illegal tagging and vandalism.
- **Bogotá, Colombia:** Bogotá has embraced street art by designating legal graffiti zones and offering guided tours that highlight the city's vibrant murals. The local government collaborates with artists to create large-scale murals that beautify public spaces and convey social and political messages. This approach has not only reduced illegal graffiti but also promoted Bogotá as a cultural destination.
- **São Paulo, Brazil:** São Paulo is known for its vibrant street art scene, particularly in the Vila Madalena neighbourhood. The city has designated several areas where graffiti is legal, allowing artists to create large, colourful murals. These legal zones have helped reduce illegal graffiti and have turned São Paulo into a global street art destination.

Table 1. Summary of Community Engagement Strategies for Graffiti Prevention

Strategy	Description	Examples
Educational Programs	Programs aimed at educating the community about the consequences of graffiti and offering alternative ways to express creativity.	Auckland Council's lessons on urban design, City of Dallas' "Adopt-a-Spot," and peer education in Hong Kong to spread awareness among youth.
Community Participation in Policymaking	Inclusion of local residents, business owners, youth groups, and artists in the policymaking process to ensure strategies are effective, sustainable, and widely supported.	Bogotá, Colombia's participatory approach involving street artists to design graffiti programs.
Negotiated Consent and Zones of Tolerance	Collaborative agreements with graffiti artists to create legal spaces for graffiti, fostering artistic expression while reducing illegal activity.	Melbourne, Australia's designated zones of tolerance, Venice Art Walls in Los Angeles, USA, and Berlin's East Side Gallery as examples of managed graffiti spaces.

The above has provided some examples of what Halsey and Young (2002) refer to as "welfarist" approaches; being those interventions that attempt to intervene through social outreach programs. While the tone of many reviews of these programs is quite celebratory, it needs to be tempered by other observations that are more pragmatic. Though Thompson et al. (2012) note that mixed methods, incorporating the full spectrum of interventions (technological, social, legislative), work best to reduce graffiti, a number authors (Havarneau, 2017; Killen, Coxon, & Napper, 2017; J. Ross, I, 2016; M. Taylor, 2012) variously note that

there is very weak (if any) evidence that education programs works and that legal walls do little to reduce the incidence of graffiti. This is supported by the change in Melbourne graffiti policy which is covered below.

2.2 Graffiti Prevention Through Environmental Design

Crime Prevention Through Environmental Design (CPTED) is a theory focused on strategically designing and utilising the built environment to minimise crime and alleviate the fear of crime (Cozens & Love, 2015). The primary goal of CPTED is to eliminate or reduce opportunities for criminal activity by encouraging positive interactions with spaces by legitimate users. According to the Greater Manchester Police (2025), the central premise is that the physical environment can significantly influence human behaviour, either positively or negatively. CPTED is a proactive approach that integrates physical security, surveillance, movement control, management, maintenance, and the concept of defensible space. Therefore, this approach is relevant for the discouraging graffiti in, on and around public transport.

CPTED strategies can be effectively utilised to manage and reduce graffiti. By modifying the physical environment, CPTED aims to decrease the likelihood of graffiti occurrences. A great example is the TramArt initiative in Valencia, Spain. They used CPTED principles to make underground stations more engaging and interesting, which helps to stop graffiti (Moliner & Clavell, 2016). This project incorporated anti-graffiti coatings and the establishment of an urban graffiti gallery, which prevented unauthorised graffiti but also promoted a sense of community and belonging among residents and visitors. Hence, CPTED principles can be applied to prevent graffiti in public transport by designing environments that discourage vandalism and promote community engagement. According to Armitage and Monchuk (2019) and Government of Western Australia (2023b) Key strategies include:

- **Natural surveillance:** This strategy focuses on improving the visibility of public spaces, making it more likely that graffiti vandals will be seen. The implementation of proper lighting, unobstructed sightlines, and the thoughtful arrangement of windows, entrances, and other elements of the environment increases natural surveillance. This reduces the opportunities for illegal graffiti activities and encourages community monitoring. Open spaces where people can easily observe their surroundings prevent illicit behaviour, as potential vandals feel that their actions will likely be noticed.
- **Natural access control:** Effective management of access to certain areas plays a key role in preventing graffiti. This can be achieved by using walkways, fences, and strategic landscaping to direct the flow of people through spaces and restrict access to locations that are more prone to graffiti vandalism. By guiding movement and reducing areas of isolation, this strategy minimises opportunities for vandalism while encouraging legitimate use of the space. The design can prevent unwanted access to walls or surfaces that are commonly targeted by graffiti artists.
- **Territorial reinforcement:** Clearly defining public, semi-public, and private spaces is a strategy that fosters a sense of ownership and responsibility within the community. When individuals or groups develop a connection to a space, they are more inclined to care for it and safeguard it against vandalism. Creating clear boundaries, such as using physical elements like fences, signs, or distinct landscaping, fosters a sense of pride and discourages the act of damaging a space. This also strengthens the community's role in monitoring and maintaining the area.
- **Maintenance and management:** A key principle in CPTED is the regular upkeep and cleaning of public spaces. This sends a clear message that the space is actively managed and cared for, which in turn discourages graffiti. Graffiti often flourishes in neglected or poorly maintained areas, as it suggests that no one is paying attention to or taking care of the environment. Routine maintenance, such as prompt graffiti removal and cleanliness,

signals to potential vandals that the area is watched and cared for, reducing the incentive to damage property.

Importantly, when applied together, these strategies can create environments that not only prevent graffiti but also promote safer and more vibrant public spaces. Below are examples of how CPTED principles have been effectively used in Australia in public transport and other public spaces at various levels, by the police, state authorities, city councils, and internationally, to combat graffiti.

2.2.1 CPTED and graffiti prevention in Australia

Brisbane: The Brisbane City Council's Graffiti Management Plan outlines a comprehensive strategy for addressing and reducing graffiti in both public (i.e., transport) and private spaces, while ensuring a balance between unauthorised graffiti and approved public art (Halsey & Pederick, 2010). This strategy is rooted in CPTED, which emphasises the creation of clean, safe, and artistically pleasing urban areas. The Brisbane City Council's Graffiti Management Plan consists of six key components: Prevention, Removal, Diversion and Legal Art, Enforcement, Reporting, and Education (Young, 2010). Together, these elements tackle graffiti in a holistic manner, aiming to maintain a vibrant city while minimising vandalism. The plan fosters community participation and provides legal spaces for artistic expression, contributing to overall crime prevention.

Melbourne: The City of Melbourne has applied CPTED principles in various public spaces to reduce graffiti and enhance community safety. One notable example is the use of public art projects and murals in specific areas, which have transformed potential graffiti hotspots into community assets. As explained by Laing, Frost, Hogan, and Wise (2017) Hosier Lane, an iconic laneway in Melbourne, exemplifies this approach. Known for its vibrant street art and graffiti, the lane attracts tourists, art enthusiasts, and photographers. Some commentators suggest that this helps reduce unauthorised graffiti in surrounding areas by offering a designated space for artistic expression (Qadri, 2020). However, there has been a noticeable increase in graffiti in Melbourne, particularly in areas like Footscray and the CBD (The Intrepid Guide, 2020). Consequently, Melbourne Lord Mayor Nick Reece has unveiled a robust plan to tackle graffiti across the city, combining collaboration, enforcement, and investment. This initiative responds to escalating concerns over vandalism, including the defacement of the historic Flinders Street Station in September 2024. The strategy emphasises shared responsibility between the council and property owners, urging them to address graffiti on private and government properties. Notably, over 98,000 square metres of graffiti have been identified on assets not owned by the city (CBD News, 2024). To ensure accountability, Reece advocates for tougher penalties. Offenders may face compensation orders to cover clean-up costs or be required to participate in community correction programs, cleaning graffiti themselves (Inner City News, 2024). These measures are part of a broader effort to deter repeat offences. Major clean-up projects, such as the restoration of 555 Flinders Street in 2023, where 4,000 square metres of graffiti were removed, underscore the city's commitment to maintaining its public spaces (Sky News, 2024). Additionally, the council has doubled its cleaning services investment over four years. Between June and September 2024, they removed 1,650 tonnes of waste and cleaned over 25,000 square metres of graffiti. Reece's plan highlights Melbourne's determination to preserve its reputation as a clean, vibrant city while addressing vandalism's economic and social impact. This supports the point made above, that, if graffiti is to be reduced, legal walls and sanctioned spaces may not be the best policy, and that they may actually go part way to creating, or encouraging, a local graffiti.

New South Wales: CPTED has become a key part of urban planning, with significant input from the NSW Police Force. The police helped develop and implement CPTED guidelines to ensure that crime prevention is considered when designing new developments (Fisher, Clancey, & Rutherford, 2016). This approach emphasises designing public and private spaces

in ways that reduce opportunities for crime, including graffiti. Incorporating features such as good lighting, clear sightlines, and controlled access to specific areas, CPTED seeks to enhance the safety of spaces for all users. The strategy also promotes community ownership and responsibility, as residents are more likely to care for and protect spaces that feel safer and more well-maintained (Clancey & Fisher, 2016). Ultimately, this integrated approach has been instrumental in shaping safer communities across the region.

An example at a more local level in NSW is the City of Newcastle's Street Art Education Program, which aims to combat illegal graffiti by engaging young people in constructive artistic activities. The program provides participants with education on designing artworks, preparing surfaces, and selecting appropriate painting materials. In 2017, four teenagers showcased their skills by creating a mural at Wallsend Park under the mentorship of Shane Kennedy from Up&Up Design (City of Newcastle, 2017). The program incorporates the DeTag initiative, developed by the Police Citizens Youth Clubs (PCYC) in collaboration with the Department of Justice, fostering discussions on graffiti-related topics among youth. Leanne Tillock from the Newcastle Juvenile Justice Community Office praised the program as a successful partnership yielding positive results (City of Newcastle, 2017). The City of Newcastle seeks to reduce illegal graffiti and foster community engagement through art by offering legal opportunities for artistic expression and teaching young individuals about the impact of vandalism (Up&Up Design, 2025).

The **Queensland Police Service (QPS)** plays an integral role in enhancing community safety through the application of CPTED guidelines. These guidelines aim to reduce crime, including graffiti, through strategic urban planning and design. The QPS recognises that graffiti often occurs in poorly lit, neglected, or easily accessible spaces, and seeks to create environments that discourage such behaviour. The guidelines as described by Queensland Police Service (2021), focus on promoting spaces that are well-maintained, safe, and actively engaged with the community. This approach encourages a sense of ownership and pride, which in turn helps to prevent criminal activities, including graffiti. Urban planners, designers, and community members are encouraged to work together to ensure public spaces are inviting, well-lit, and actively monitored, making them less appealing for vandals and fostering a greater sense of security for residents.

Western Australia employs a multifaceted approach to graffiti prevention, leveraging the principles of CPTED. One key strategy is improving lighting and surveillance in public spaces, which deters potential offenders by increasing the likelihood of being seen and caught (Government of Western Australia, 2023a). Additionally, the rapid removal of graffiti is crucial, as it sends a clear message that vandalism will not be tolerated and reduces the chances of repeat offences (Government of Western Australia, n.d.). This is part of the Image Management/Maintenance strategy.

Design and landscaping also play a significant role. Using materials and designs that are resistant to graffiti, such as textured surfaces or anti-graffiti coatings, can prevent vandalism (Government of Western Australia, 2023b). Strategic landscaping can limit access to potential graffiti targets. Community engagement and education are equally important. Involving residents in monitoring and reporting graffiti, along with educating young people about the consequences of vandalism, allows the community to actively participate in prevention efforts.

Legal measures and enforcement further support these strategies. Enforcing laws that restrict the sale of graffiti implements to minors and offering rewards for information leading to the prosecution of offenders are effective deterrents (Shire of Waroona, n.d.). Collectively, these methods contribute to creating safer and more aesthetically pleasing environments in Western Australia. Other measures implemented by the Western Australian Government include increased financial and incarceration penalties for recidivist graffiti offenders. However,

according to the same source this approach has not significantly reduced the frequency of graffiti offences in the years following its implementation. A project aimed to remove all highly offensive graffiti within a 24-hour time frame and all other graffiti within 48 hours was introduced (Cozens & Love, 2015).

2.2.2 International applications of CPTED in graffiti control

The **TramArt project, Spain**, is a great example of CPTED principles in action. This project started in 2004 and has been effective in both preventing illegal graffiti and enhancing the visual appeal of public transport systems. It involves artists and uses anti-graffiti measures to transform public transport spaces into areas that discourage graffiti and encourage positive social interactions (Moliner & Clavell, 2016). The project turns tram stops and surrounding areas into colourful art installations, using public art to prevent graffiti, vandalism, and other antisocial behaviours. It also helps create a sense of community ownership and pride. Moliner and Clavell (2016), highlight that the TramArt project shows how art and cultural changes can work with CPTED principles to make urban areas safer and more functional. It addresses both the physical design of spaces and the social aspects, showing how public art can turn transit areas into lively, safe, and community-focused places.

The **Venice Art Walls in Los Angeles, USA**, exemplify their role as negotiated consent and zones of tolerance, as described in Section 2.1.3. They also serve as a great example of applying CPTED principles to urban spaces through public art. Located in Venice Beach, the Venice Art Walls (also known as the Venice Graffiti Walls) are designated areas where graffiti artists can legally create and display their work, transforming the area into a vibrant, community-focused artistic hub (Persaud, 2019). The Venice Art Walls show how public art can be part of urban planning and design to prevent crime and engage the community.

The **Graffiti Hall of Fame in New York City**, is another example of how CPTED principles can be applied to urban spaces through the strategic use of art. Located in Harlem, the Graffiti Hall of Fame is a legal and iconic space where graffiti artists can display their work (Cozens & Love, 2015). This initiative has helped transform a once-vandalised area into a celebrated artistic and cultural landmark while simultaneously promoting community safety. The Graffiti Hall of Fame is an example of how urban design, and the use of public art can be integrated to enhance crime prevention and foster community engagement (Killen et al., 2017). Through its application of territorial reinforcement, natural surveillance, and community engagement, the project has successfully transformed a potential crime hotspot into a vibrant, creative, and safe space for both artists and the wider community. The Graffiti Hall of Fame provides graffiti artists with a legitimate and respected space for their work, which reduces illegal activities and helps strengthen the community's social connections and economy. This project shows how combining art, community engagement, and urban planning can create safer and more unified urban spaces. However, while to some this has been hailed as a success, a text on the wall and its history (meant for writers) does show that this needs to be taken into the context of the wider city and its context, with "Hall of Fame: New York City" (Mariduena, 2012) indicating that this site remains only informally sanctioned and still exists in a city that can be dangerous; meaning it may not be as safe as some commentators allude to.

In summary, CPTED is a proactive approach to crime prevention that focuses on the design and management of physical environments to reduce opportunities for crime and enhance safety (Table 2). Its application in managing graffiti, seen in both Australia and overseas, shows how urban spaces can be transformed into safer, more welcoming environments. Integrating environmental design strategies with community engagement and public art fosters a sense of ownership and pride among residents while discouraging illegal activities like graffiti.

Table 2. Graffiti Prevention Through Environmental Design - Summary table.

CPTED Strategy	Description	Examples
Natural Surveillance	Enhancing visibility of public spaces through proper lighting, clear sightlines, and strategic design to deter graffiti vandals.	TramArt project in Valencia, Spain, using anti-graffiti coatings and public art to increase surveillance and community engagement.
Natural Access Control	Directing movement through walkways, fences, and landscaping to restrict access to vulnerable areas.	Queensland Police Service (QPS) guidelines for managing urban access to reduce graffiti in poorly accessible spaces.
Territorial Reinforcement	Defining boundaries between public, semi-public, and private spaces to foster a sense of ownership and responsibility.	Brisbane's Graffiti Management Plan, including clear delineation of spaces and promoting community ownership through clean urban environments.
Maintenance and Management	Regular upkeep and cleaning of spaces to signal active monitoring and discourage vandalism.	Hosier Lane, Melbourne, where prompt graffiti removal and vibrant street art create a sense of care and reduce illegal activities.
Integration of Public Art	Using murals and legal graffiti zones to transform potential hotspots into areas of artistic and community value, reducing unauthorised graffiti.	Venice Art Walls in Los Angeles and the Graffiti Hall of Fame in New York City, offering legal spaces for graffiti while fostering community pride and safety. Locally, the beach wall at Bondi, Sydney offers a similar approach of sanctioned work.

2.3 Use of Technology to Prevent Graffiti

Technology plays a crucial role in modern graffiti prevention strategies. With the help of advanced tools and systems, communities can better stop graffiti vandalism, quickly respond to incidents, and keep public transport and urban areas clean. In summary, technological approaches help prevent graffiti and enable faster cleanup, reducing the impact of vandalism on public spaces (Sanmartín, Cappitelli, & Mitchell, 2014). This section looks at different technological solutions used to prevent graffiti and shares examples from Australia and other countries (See also Table 3).

2.3.1. Nanotechnology

Nanotechnology for graffiti prevention uses ultra-small materials, which are invisible to the naked eye, to create protective coatings on surfaces (Heinisch & Miricescu, 2017). Nanotechnology enhances these coatings by incorporating hydrophobic (water-repellent) and oleophobic (oil-repellent) properties, which further prevent substances from sticking to the surface (Baker, 2024). These coatings make it much harder for paint, markers, or other substances to stick to walls and other surfaces, making graffiti easier to remove without damaging the surface underneath. This makes graffiti removal easier but also protects the surface from other forms of damage, such as scratches, chemicals, and UV radiation. This review identifies two types of nanotechnology used in graffiti prevention.

The first type is *Anti-Graffiti Coatings*. These coatings are designed to offer long-lasting protection against graffiti on various surfaces, such as walls, fences, and even public transportation (Organisation for Economic Co-operation and Development, 2003). They make

it difficult for graffiti to adhere to the surface, and when it does occur, it can be removed quickly and easily, preventing permanent damage to the materials. Additionally, these coatings are often self-cleaning, meaning they can repel dirt and other contaminants, which helps maintain the cleanliness and appearance of public spaces (Heinisch & Miricescu, 2017). On the other hand, *Chemical methods*, such as nanofluids and hydrogels, are innovative solutions for graffiti removal. Nanofluids consist of ultra-small particles that help break down the graffiti paint, making it easier to clean (Giorgi, Baglioni, & Baglioni, 2017). Hydrogels, with their jelly-like consistency, adhere to graffiti surfaces and soften the paint, allowing for gentle wiping without damaging the underlying material or artwork. These methods offer precise cleaning, making them particularly useful for preserving street art while effectively removing unwanted graffiti.

2.3.2 Laser technology

Laser technology is an advanced and non-invasive method used to remove graffiti, especially from delicate or historically significant surfaces like monuments and sculptures. Additionally, it can also be used on public transport surfaces (Laser Cleaner, 2023). The process works by using focused laser beams to heat and break down the graffiti paint or markings without touching or damaging the underlying material (Sanmartín et al., 2014). The laser energy is absorbed by the graffiti layer, causing it to vaporise or break apart into small particles that can be easily cleaned. This method is highly precise, allowing experts to target the graffiti while leaving the original surface intact (Laserflux, 2021). According to Renovate RX (2024), laser technology is particularly valuable for preserving historic sites, as it avoids the use of harsh chemicals or abrasive techniques that could harm the surface. This makes it an environmentally friendly and effective solution for graffiti removal in sensitive locations.

Additionally, laser cleaning is versatile and can be used on various materials, including stone, brick, metal, and wood. The precision of laser cleaning ensures that only the graffiti is removed, leaving the underlying surface undamaged (Pozo-Antonio, Papanikolaou, Melessanaki, Rivas, & Pouli, 2018). This is crucial for maintaining the integrity of historic monuments and sculptures. Furthermore, the process produces minimal waste and does not involve harmful chemicals, making it a sustainable choice for graffiti removal (Chapman, 2000; Kittiboonanan, Rattanarojpan, & Ratanavis, 2015).

2.3.3 Drone technology for graffiti detection and removal

Drone technology is emerging as a modern solution for graffiti detection and removal, particularly within smart city initiatives. Equipped with advanced machine learning algorithms, these drones can autonomously scan urban areas, identify graffiti using AI-powered image recognition, and then take action to remove it efficiently. Once graffiti is detected, the drones can either notify cleaning teams for manual removal or, in some cases, be equipped with tools like spray systems or precision cleaning mechanisms to remove graffiti on the spot (Interesting Engineering, n.d.; S. Wang et al., 2019). According to a report on a pilot program testing graffiti removal conducted in Washington, USA, in 2024, this innovative approach offers the following benefits (American Association of State Highway and Transportation Officials, 2024):

- **Cost reduction:** Automating the detection and removal process allows cities to significantly lower expenses related to labour and equipment. Drones eliminate the necessity for specialised trucks and large teams of workers, which traditionally contribute to high operational costs. This technological solution promotes more efficient use of resources and ensures long-term financial savings for municipalities.
- **Minimised disruptions:** The ability of drones to operate rapidly and access locations without heavy machinery or scaffolding reduces the need for road closures and traffic interruptions. Urban areas remain accessible and functional during the cleaning process, maintaining the flow of daily activities while ensuring infrastructure remains clean and presentable.

- **Enhanced accessibility:** Drones excel in reaching challenging locations, including tall buildings, bridges, and confined spaces. This capability makes them well-suited for a wide variety of environments and allows for effective maintenance of areas that would otherwise be difficult or dangerous to clean. The flexibility of drones ensures that both the aesthetic and structural integrity of urban spaces are preserved, contributing to overall city maintenance and development goals.

Overall, the integration of drone technology for graffiti detection and removal represents a significant advancement in urban maintenance, offering a cost-effective, efficient, and minimally disruptive solution.

Limits to battery power make tethered drones, i.e. drones attached to a battery and either a telecommunications system or a paint supply, particularly promising both for security and graffiti removal. Attachment to a power supply means they have far greater fly time – potentially indefinite. It also means that high bandwidth/quality data can be sent to ground and then stored or rebroadcast with little or no latency, while the tethering ensures no fly-away events, making them more secure for high security operations and reducing the probability of crashing when using swarms, as swarms can be controlled by an automated tethering system which can also prevent entanglement. Automated AI control can also be used to allow tethered swarms to automatically navigate an environment, such as effectively surrounding a premises, or move through a building. Such processes are complicated, but recent advances have seen drone swarms negotiate a building and create near complete coverage in under a minute. If attached to an vehicle the assemblage can also be mobilised and if security is critical these systems have also been used in unmanned vehicles (Fattori & Cocuzza, 2025).

Tethered drones present themselves as a good alternative to static CCTV requiring no installation, give near 100% visibility of an area, have long flight times (24 hour+), and are mobile.

2.3.4 Sustainable chemical treatments: Protective coatings for Graffiti prevention

Sustainable chemical treatments are advanced solutions designed to shield natural stone materials, such as those used in buildings, transport, monuments, and sculptures, from graffiti damage. These treatments are formulated with a focus on environmental responsibility, ensuring they are effective in preventing graffiti adhesion while minimising ecological impact (Roviello et al., 2022). These treatments typically involve the application of protective coatings that create a barrier on the surface of the stone. This barrier prevents graffiti paint from penetrating the material, making it easier to clean without causing damage. The coatings are often made from biodegradable or low-toxicity materials, which reduces their environmental footprint.

Roviello et al. (2022) highlighted that one of the key advantages of sustainable chemical treatments lies in their ability to protect the aesthetic and structural integrity of historic and culturally significant sites. Traditional graffiti removal methods often involve abrasive techniques that can cause long-term damage to delicate surfaces (Amrutkar, More, Mestry, & Mhaske, 2022). In contrast, sustainable treatments offer a non-invasive approach, ensuring the original appearance and condition of the stone are preserved. Sustainable chemical treatments balance the need for effective graffiti prevention with ecological considerations by using non-toxic, biodegradable, or low-VOC (volatile organic compound) materials as indicated by Huntington (2018). This ensures that the treatments do not harm the surrounding environment, groundwater, or air quality. Though this does not resolve the initial issue of

writers using solvents and other chemicals, nor the state of disrepair that writers typically leave high volume writing areas in after their work.

2.3.5 Graffiti tracking software

Graffiti tracking software is an innovative tool designed to assist in the identification, documentation, and analysis of graffiti, particularly gang-related graffiti, using advanced technologies such as image analysis, location-based services, and machine learning. These systems are crucial for law enforcement and community safety efforts, providing a means to monitor and mitigate gang activity. Graffiti tracking systems utilise mobile devices to capture images of graffiti, which are then analysed using image processing techniques. These techniques include colour recognition, image segmentation, and classification to identify and interpret gang-related symbols and colours (Parra, Boutin, & Delp, 2017). The systems are designed to work on both Android and iOS platforms, as well as through web-based interfaces, allowing for flexibility in how data is collected and accessed (Parra, Boutin, & Delp, 2012).

One of the key features of these systems is their ability to use GPS coordinates to plot graffiti incidents on an interactive map. This allows law enforcement to track the spread of graffiti, identify hotspots, and monitor the activities of specific gangs or vandals (Bartzokas-Tsiompras & Konstantinidou, 2023). Analysing patterns and trends allows authorities to craft targeted strategies for preventing and addressing graffiti-related issues. Moreover, the application of machine learning algorithms significantly improves the accuracy and efficiency of graffiti identification. These algorithms can learn from the data collected, improving their ability to recognise and classify new graffiti over time. This continuous learning process helps in keeping the system up-to-date with evolving graffiti styles and symbols. Essentially, graffiti tracking software is composed of the following components (Parra et al., 2012, 2017; Benjamin Wild, Geert Verhoeven, Rafał Muszyński, & Norbert Pfeifer, 2024)

- **Graffiti detection:** The software can automatically detect and flag images or reports of graffiti in public spaces, often through integration with surveillance cameras, drones, or user-submitted photos. In some cases, the system can also recognise the type of graffiti (i.e., tags, murals, or messages) based on its visual features.
- **Geolocation:** Once graffiti is detected, the software pinpoints the location using GPS or mapping tools. This feature is useful for tracking recurring graffiti hotspots, helping cities prioritise their resources and cleaning efforts in areas with frequent vandalism.
- **Incident reporting and management:** Graffiti tracking software allows users, such as local authorities, to report graffiti and track the status of its removal. The software can generate reports, assign cleaning tasks to specific teams, and monitor the time it takes to clean each area. This streamlined process helps reduce response times and improve efficiency.
- **Data analysis:** The software collects and analyses data over time, providing valuable insights into graffiti patterns and trends. This helps authorities make informed decisions about where to focus preventative measures and which areas need more frequent monitoring.
- **Public engagement:** Some systems allow the public to report graffiti through apps or websites, creating a collaborative approach to maintaining clean public spaces. In addition, data collected from the software can be used to raise awareness or develop anti-graffiti campaigns.

An example is Snap Send Solve, an app that allows users to report graffiti in Australian cities (Snap Send Solve, n.d.). It enables the quick submission of location and images to local authorities for action. The app simplifies the reporting process and promotes cleaner, safer communities by tracking the progress of reports. Additionally, there is VandalTrak, a platform designed to help communities, law enforcement, and organisations combat graffiti vandalism (VandalTrak, n.d.). It allows users to report incidents via a mobile app, providing features like

GPS tracking, photo uploads, and offline functionality. Since 2008, VandalTrak has facilitated collaboration between local councils, businesses, police, and volunteer groups to manage and resolve graffiti issues. The system streamlines data collection, helping authorities respond efficiently to vandalism.

2.3.6 Security cameras for graffiti prevention and detection

Security cameras serve as an effective tool for both preventing and detecting graffiti. They play a vital role in preserving urban aesthetics and improving community safety. Surveillance can indeed be a valuable tool in the prevention and detection of graffiti, but its effectiveness varies and is most successful when integrated into a broader strategy that includes other measures (Elite Protective Services, 2024). According to (Berinato, 2007) and (S. Wang et al., 2019), here is how security cameras function and their associated benefits:

- **Deterrence:** The presence of security cameras can act as a strong deterrent to potential vandals. Knowing they are being watched reduces the likelihood of graffiti being applied in the first place. This psychological effect is significant, as vandals often seek anonymity to avoid being caught.
- **Real-time monitoring:** Advanced security systems often include real-time monitoring capabilities. Trained operators can watch live feeds and respond immediately to suspicious activities by alerting authorities or using on-site speakers to warn off vandals. This immediate response can prevent graffiti from being applied or escalate the situation to law enforcement quickly.
- **Evidence collection:** Security cameras capture high-quality video footage that can be used as evidence in investigations. This footage helps law enforcement identify and apprehend offenders, leading to more effective prosecution. The recorded evidence is crucial for building cases against repeat offenders and deterring future incidents.
- **Strategic placement:** Cameras are strategically placed in high-risk areas such as gates, back alleys, and around buildings. This maximises coverage and ensures that all potential graffiti spots are monitored. Proper placement is essential to cover blind spots and ensure comprehensive surveillance.
- **Integration with other technologies:** Modern security systems can integrate with other technologies, such as motion sensors and AI-powered analytics, to enhance detection capabilities. These systems can automatically detect graffiti-related activities and trigger alerts. AI algorithms can analyse patterns and predict potential graffiti hotspots, allowing for proactive measures.

Importantly, while the initial investment in security cameras and monitoring systems can be significant, the long-term benefits include reduced costs associated with graffiti removal and property damage repairs. Preventing graffiti through surveillance can save municipalities and property owners substantial amounts of money.

2.3.7 Anti-graffiti paint

Anti-graffiti paint is a specialised protective coating designed to prevent graffiti from bonding to surfaces, making it easier to remove unwanted markings without damaging the underlying material (Zhang, Zenucchini, Ricci, Croveri, & Scalarone, 2024). This type of paint acts as a barrier that repels graffiti substances such as spray paint, markers, or stickers, offering an effective solution for maintaining clean public spaces (Pozo-Antonio et al., 2018). As explained by (Neto et al., 2016) and (Moura, Flores-Colen, de Brito, & Dionisio, 2017) these coatings are typically categorised into two types: sacrificial and non-sacrificial.

- **Sacrificial coatings:** These coatings are designed to be removed along with the graffiti. When graffiti is applied, the sacrificial coating absorbs and bonds with the paint, and both the graffiti and the coating are washed away during cleaning. After the graffiti is removed, a new layer of sacrificial coating is applied to maintain ongoing protection.

These coatings are ideal for areas that experience frequent graffiti attacks, as they provide quick and efficient cleaning.

- **Non-sacrificial coatings:** Unlike sacrificial coatings, non-sacrificial coatings do not need to be reapplied after cleaning. They form a durable, long-lasting layer on the surface that resists graffiti without deteriorating. Graffiti can be cleaned off repeatedly without damaging the surface or the coating, making it a cost-effective solution for high-traffic areas like public buildings, transportation hubs, and monuments. Non-sacrificial coatings offer the advantage of continuous protection with minimal maintenance, reducing the need for regular reapplication.

2.3.8 Artificial intelligence

Artificial intelligence is a growing field that is moving rapidly into the security sector. Its application can be applied to many facets of graffiti mitigation. The first of these involves the real time monitoring of CCTV. AI has the capability to identify very specific actions and objects. These include weapon detection, motor cyclists without helmets, unusual crowd behaviours, when used with audio can trigger warnings around automatic teller machines, and can suggest robbery behaviour potential by capturing head cover detection, crowd detection, loitering detection (Pouyan, Charmi, Azarpeyvand, & Hassanpoor, 2023), all of which indicates that it could be used to detect trespass and graffiti writing, but also the intention to do either, or to be holding objects related to graffiti, potentially even the types of containers writers use to carry them. It variously uses 3D convolutional neural networks (data driven and statistical), fuzzy inference (rules based) and AI algorithms (programming based), can be used real-time to send detection signals, but does need data to be trained on and is typically quite specific in its functioning, being used for one purpose per code-base (Pisati, Astya, & Chauhan, 2024)

AI can also identify new graffiti. In one example of this Wild et al (2024) used Go-Pro cameras along a 13km canal wall regularly used by graffiti writers to identify new writing. The method needs light and saturation normalisation and then feature matching but successfully identified 87% of new graffiti at each pass. This area is advancing rapidly, with newer technologies performing more work to remove false flags, process imagery faster, and even identify tags and partial tags, not just large pieces (Agranata, Tsanaullailla, Samba, & Hamami, 2024; B. Wang, Mao, Liu, Chen, & Chen, 2025).

Artificial Intelligence is also showing promise in predictive policing, helping to locate future events based on historical trends. While predictive policing (involving digital statistics) has been around since the 1970s, the power of AI to trawl over vast and complex datasets to deliver themes and trends has dramatically increased its success rate, to the point where some projects have shown up to 31% reduction in crimes in target locations (Ratcliffe et al., 2021), though this can vary greatly dependent on method and location and some reports suggest that there is little to prove that predictive policing is any more effective than hot-spot policing (Weisburd & Majmundar, 2018). Australian experiments have shown success in implementation, but the ability to properly predict is heavily dependent on the city and the amount of data available, with, for example, Townsville outcomes not being as effective as Brisbane outcomes due to the difference in data and urban morphology (Birks, Townsley, & Hart, 2023). The same report also stated that, irrespective of predictive power, the success of the systems to reduce crime volume is wholly dependent on police response, noting that officers place higher significance on attending actual, over predicted, events. They conclude by stating that any further predictive projects be run internally to the police to guarantee uptake.

A system implementing a predictive system exclusively for graffiti prediction on Spanish public transport assets is currently in development (Inova-tn, 2025). A future assessment of the outcomes of this system will indicate the potential for global application, which will, as indicated above, likely require localised training.

A full review of other police applications of AI is included in a EuroPol report (2024) covering biometrics in CCTV analysis, gait analysis, forensic analysis of open source and social media matter to create intelligence (OSINT and SOCMINT) and image classification, all of which are allowing for greater optimisation of police resource allocation, as well as identifying linkages between crimes to identify crime networks which would not have been possible without significant computation power. This report also illustrates the distinction between pattern recognition and generative AI, used to create new content, such as avenues of inquiry that may not have been recognised without its use. While AI is seen as an important growing field, there are some concerns, such as heavily reported bias towards cultural groups, which has led to real-time use of AI CCTV monitoring being outlawed in European states, unless it speaks to specific security or safety threats. Finally, the report acknowledges the need for transparency of AI systems, to both ensure their equitable use, but also so they can be used in courts. AI systems should therefore not be “black box” solutions but instead have their underlying architecture visible to users and interrogators.

2.3.9 GRAFFOLUTION project

The GRAFFOLUTION project (CORDIS, 2016) aimed to combat graffiti vandalism through technology-driven solutions. It developed a web-based platform to share knowledge and best practices among city administrations, public transport services, and law enforcement agencies. The project conducted a comparative analysis in Austria, Germany, Spain, and the United Kingdom, interviewing over 80 stakeholders and graffiti writers. This project contributed to the development of a two-sided web platform for better collaboration and graffiti prevention:

- **Collaborative knowledge base:** designed for professionals such as city administrations, public transport organisations, and law enforcement agencies. It allows these stakeholders to share knowledge, good practices, and prevention strategies, facilitating interaction and collaboration. The platform includes a comprehensive library of case studies and research papers, and a repository of best practices to standardise and improve graffiti prevention efforts across different regions.
- **Open information hub:** targets the general public, including local communities, citizens, and graffiti writers. It aims to raise awareness about the negative impacts of illegal graffiti and the importance of preserving public and private property. The hub uses various tools and visualisations to engage the community and supports legal artistic expression by providing information on legal graffiti walls and events. It encourages community involvement in graffiti prevention efforts, fostering a sense of ownership and responsibility among citizens.

To reach a wider audience, especially young people and the graffiti community, the platform integrates social media features. This helps in disseminating information quickly and engaging with users on popular social media channels. Overall, the two-sided web platform aims to create a comprehensive and collaborative approach to graffiti prevention, balancing the need to prevent vandalism with the support for legal artistic expression.

While this was hailed as a success it appears to have not been updated recently, or used for graffiti prevention, being more of an advertising space for graffiti events and legal walls. As such there remains no central point for graffiti governance collaboration in Europe.

Table 3. Use of Technology to Prevent Graffiti – Summary table

Technology	Description	Examples
Nanotechnology	Uses ultra-small materials to create protective coatings on surfaces, making graffiti easier to remove without damaging the surface.	- Anti-graffiti coatings - Chemical methods like nanofluids and hydrogels
Laser Technology	Advanced, non-invasive method using focused laser beams to remove graffiti from delicate or historically significant surfaces.	- Preservation of historic sites - Use on various materials like stone, brick, metal, and wood
Drone Technology	Drones equipped with machine learning algorithms to autonomously detect and remove graffiti, particularly within smart city initiatives. Tethered drones can replace static CCTV in complex or poorly resourced areas.	- Cost reduction - Minimised disruptions - Enhanced accessibility - Greater coverage - Mobility - Low cost
Sustainable Chemical Treatments	Protective coatings designed to shield natural stone materials from graffiti damage while minimising ecological impact.	- Biodegradable or low-toxicity materials - Preservation of historic and culturally significant sites
Graffiti Tracking Software	Tools for identifying, documenting, and analysing graffiti using image analysis, location-based services, and machine learning.	- Graffiti detection - Geolocation - Incident reporting and management - Data analysis - Public engagement
Security Cameras	Surveillance systems to prevent and detect graffiti, acting as a deterrent and providing evidence for investigations.	- Deterrence - Real-time monitoring - Evidence collection - Strategic placement - Integration with other technologies
Artificial Intelligence	Using a range of AI technologies to variously analyse vast datasets, predict future events based on historical ones, find patterns and suggest new lines of inquiry/insight.	- Predictive policing - Deep analysis of large datasets - Social network analysis - Generative suggestions
Anti-Graffiti Paint	Specialised protective coatings that prevent graffiti from bonding to surfaces, making it easier to remove.	- Sacrificial coatings - Non-sacrificial coatings

Extended Bibliography

- Abram, S. (2024). Graffiti, Street Art and Murals in the Age of the Neoliberal City: The Muralization of Capital. *Street. Art & Urban Creativity Scientific Journal*, 10(1).
- Abrir Empresa. (n.d.). El memorando de entendimiento: Qué es y cómo se utiliza en los negocios. Abrir Empresa. Retrieved from <https://abrir-empresa.com/el-memorando-de-entendimiento-que-es-y-como-se-utiliza-en-los-negocios/>
- Acker, C. P. (2023). *Flip the Script: A Guidebook for Aspiring Vandals and Typographers*. Richmond, CA.: Ginko Press.
- ACT Government. (2025). Crimes Act 1900. Retrieved from <https://www.legislation.act.gov.au/a/1900-40>
- Agranata, I. Y. B., Tsanauilla, L., Samba, S. H., & Hamami, F. (2024). *Real-Time Graffiti Vandalism Detection: Enhancing Public Safety with the YOLOv8 Algorithm*. Paper presented at the International Conference on Advanced Information Scientific Development (ICAISD).
- Ahearn, C. (Writer). (1983). *Wild Style*. In. New York: Rhino Home Video.
- American Association of State Highway and Transportation Officials. (2024). WSDOT pilot program testing graffiti removal drone. Retrieved from <https://aashtojournal.transportation.org/wsdot-pilot-program-testing-graffiti-removal-drone/>
- Amrutkar, S., More, A., Mestry, S., & Mhaske, S. (2022). Recent developments in the anti-graffiti coatings: An attentive review. *Journal of Coatings Technology and Research*, 19(3), 717-739.
- Andron, S. (2024). *Urban Surfaces, Graffiti, and the Right to the City*. New York: Routledge.
- Armitage, R., & Monchuk, L. (2019). What is CPTED? Reconnecting theory with application in the words of users and abusers. *Policing: A Journal of Policy and Practice*, 13(3), 312-330.
- Austin, J. (2001). *Taking the Train: How Graffiti Art Became an Urban Crisis in New York City*. New York: Columbia University Press.
- Australian Government. (2024). Trusted Information Sharing Network. Retrieved from <https://www.cisc.gov.au/how-we-support-industry/partnership-and-collaboration/trusted-information-sharing-network>
- Avramidis, K., & Tsilimpounidi, M. (Eds.). (2017). *Graffiti and Street Art: Reading, Writing and Representing the City*. New York: Routledge.
- Bailer. (2022). *Wall Stories*. Melbourne: In Deep Ent.
- Baird, R. (2022). Youth and social media: the affordances and challenges of online graffiti practice. *Media, Culture & Society*, 44(4), 764-784.
- Baker, R. (2024). Protecting public spaces: Innovative anti-graffiti coatings. Bauer Painting. Retrieved from <https://bauerpainting.com/protecting-public-spaces-innovative-anti-graffiti-coatings/>
- Bartzokas-Tsiompras, A., & Konstantinidou, E. (2023). Visual analytics of graffiti spatial patterns across 30 European city centres. *Environment and Planning B: Urban Analytics and City Science*, 50(2), 564-568.
- Bauman, Z. (2013). *The Individualized Society*. New Jersey: John Wiley & Sons.

- Becker, H. S. (1963). *Outsiders: Studies in the Sociology of Deviance*. New York: The Free Press.
- Berinato. (2007). Should surveillance cameras detect criminals or deter crime? Retrieved from <https://www.csoonline.com/article/521022/should-surveillance-cameras-detect-criminals-or-deter-crime.html>
- Birks, D., Townsley, M., & Hart, T. P. p. i. a. A. c. A. v. a. u. T. a. l. i. C. a. C. J., (666), 1-22. (2023). *Predictive policing in an Australian context: Assessing viability and utility*. . Retrieved from Canberra:
- Blacktown City Council. (2012). Graffiti Management Plan (2012-2017). Retrieved from <https://www.blacktown.nsw.gov.au/Our-environment/Pollution/Graffiti>
- Bloch, S. (2019). *Going All City: Struggle and Survival in LA's Graffiti Subculture*. Chicago: University of Chicago Press.
- Blue Notary. (2024). Memorandum of Understanding (MoU). Retrieved from <https://bluenotary.us/memorandum-of-understanding-mou/>
- Bombing Science. (2025). Bombing Science. Retrieved from <https://www.bombingscience.com/>
- Brighenti, A. M. (2016). Graffiti, street art and the divergent synthesis of place valorisation in contemporary urbanism. In J. Ross, I (Ed.), *Routledge handbook of graffiti and street art* (pp. 158-167). New York: Routledge.
- Brisbane City Council. (2023a). Graffiti prevention techniques. Retrieved from <https://www.brisbane.qld.gov.au/laws-and-permits/complaints-and-fines/graffiti>
- Brisbane City Council. (2023b). Graffiti removal quick reference guide. Retrieved from https://www.brisbane.qld.gov.au/sites/default/files/20140925_-_graffiti_removal_a4_quick_reference_guide_multilingual_tag.pdf
- Brisbane City Council. (2023c). Managing graffiti on private property. Retrieved from <https://www.brisbane.qld.gov.au/laws-and-permits/complaints-and-fines/graffiti/managing-graffiti-on-private-property>
- Bruce, C., F. (2019). *Painting Publics: Transnational Legal Graffiti Scenes as Spaces for Encounter*. Philadelphia: Temple University Press.
- Caramanica, J. (2019, December 20). Phase 2, an Aerosol Art Innovator, Is Dead at 64. *The New York Times*. Retrieved from <https://www.nytimes.com/2019/12/20/arts/phase-2-dead.html>
- Castleman, C. (1982). *Getting Up: Subway Graffiti in New York*. Cambridge, MA: MIT press.
- CBD News. (2024). Lord Mayor puts landowners on notice over graffiti. Retrieved from <https://www.cbdnews.com.au/lord-mayor-puts-landowners-on-notice-over-graffiti/>
- Center for Victim Research. (2019). Memorandum of Understanding (MOU) for Victim Researcher-Practitioner Collaborations. Retrieved from <https://justiceresearch.dspacedirect.org/server/api/core/bitstreams/00edc660-0653-422e-ac7b-1bedf4df4d3f/content>
- Chapman, S. (2000). Laser technology for graffiti removal. *Journal of Cultural Heritage*, 1, S75-S78.
- City of Dallas. (n.d.). Prevention tips. Dallas Code Compliance. Retrieved from https://dallas.gov/departments/codecompliance/dallascommunityoutreach/DCH%20Documents/prevention_tips.pdf

- City of Gold Coast. (2023a). Graffiti Management Policy. Retrieved from <https://www.goldcoast.qld.gov.au/Council/Future-plans-budget/Plans-policies-strategies/Our-policies/Graffiti-Management-Policy>
- City of Gold Coast. (2023b). Graffiti prevention through urban art. Retrieved from <https://www.goldcoast.qld.gov.au/Services/Neighbourhood-issues/Graffiti>
- City of Gold Coast. (2023c). Report a problem - Graffiti, rubbish & illegal dumping. Retrieved from <https://www.goldcoast.qld.gov.au/Services/Report-pay-apply/Report-a-problem/Report-a-problem-Graffiti-rubbish-illegal-dumping>
- City of Greater Geelong. (2017). Graffiti Management Strategy. Retrieved from <https://www.geelongaustralia.com.au/graffiti/article/item/8cdd6e5b831114a.aspx>
- City of Greater Geelong. (2024). Graffiti - City of Greater Geelong. Retrieved from <https://www.geelongaustralia.com.au/graffiti/article/item/8cdd6e5b831114a.aspx>
- City of Newcastle. (2017). Council tackles graffiti through art classes. Retrieved from <https://www.newcastle.nsw.gov.au/about-us/news-and-updates/latest-news/council-tackles-graffiti-through-art-classes>
- City of Sydney. (2018). Graffiti Management Policy. Retrieved from <https://www.cityofsydney.nsw.gov.au/report-issue/report-illegal-graffiti>
- Clancey, G., & Fisher, D. (2016). Crime prevention through environmental design in New South Wales. *Australian Planner*, 53(2), 73-82.
- Cloud 9. (2025). Cloud 9. Retrieved from <https://cloud9australia.com.au/>
- Cohen, S. (1972). *Folk Devils and Moral Panic: The Creation of Mods and Rockers* (Vol. London): Granada.
- Cooper, M., & Chalfant, H. (1984). *Subway Art*. New York: Henry Holt and Company Inc.
- CORDIS. (2016). Awareness and Prevention Solutions against Graffiti Vandalism in Public Areas and Transport. Retrieved from <https://cordis.europa.eu/project/id/608152/reporting>
- Cowie, T. (2024, 20 September 2024). Once you see it, it's everywhere: The story behind Melbourne's mysterious 'Pam the bird' graffiti *The Age*.
- Cozens, P., & Love, T. (2015). A review and current status of crime prevention through environmental design (CPTED). *Journal of Planning Literature*, 30(4), 393-412.
- Cubriilo, D., Harvey, M., & Stamer, K. (2009). *Kingsway: The Beginnings of Australian Graffiti: Melbourne 1983-93*. Melbourne: The Miegunyah Press.
- Demkivich, L. (2024, 24 December 2024). Drones helpful in removing graffiti along WA highways, agency says. *Seattle Herald*. Retrieved from <https://www.seattletimes.com/seattle-news/drones-helpful-in-removing-graffiti-along-wa-highways-agency-says/>
- Department of Justice and Community Safety, V. (2017). Delivering a public art or mural project. Retrieved from <https://www.crimeprevention.vic.gov.au/resources/delivering-a-public-art-or-mural-project>
- DeShazo, J. L. (2022). Going beyond the usual suspects: engaging street artists in policy design and implementation in Bogotá. *Policy Design and Practice*, 5(3), 384-397.
- Dovey, K., Wollan, S., & Woodcock, I. (2012). Placing graffiti: Creating and contesting character in inner-city Melbourne. *Journal of urban design*, 17(1).
- Doyle, A. (2023). Money blowout on graffiti removal. *CBD News*. Retrieved from <https://www.cbdnews.com.au/money-blowout-on-graffiti-remova>

- Elite Protective Services. (2024). Five methods to prevent permanent graffiti damage. Retrieved from <https://eliteprotective.com/five-methods-prevent-permanent-graffiti-damage/>
- Europol. (2024). *AI and policing: The benefits and challenges of artificial intelligence for law enforcement*. Retrieved from Luxembourg:
- Evans, G. (2016). Graffiti art and the city: From piece-making to place-making. In J. Ross, I (Ed.), *Routledge handbook of graffiti and street art* (pp. 168-182). New York: Routledge.
- Fattori, F., & Cocuzza, S. (2025). Tethered Drones: A Comprehensive Review of Technologies, Challenges, and Applications. *Drones*, 9(6), 425.
- Ferrell, J. (1993). *Crimes of Style: Urban Graffiti and the Politics of Criminality*. New York: Routledge.
- Ferrell, J. (2001). *Tearing Down the Streets: Adventures in Urban Anarchy*. New York: Palgrave.
- Ferrell, J. (2021). *Crimes of style: Urban graffiti and the politics of criminality*: Routledge.
- Ferrell, J., & Weide, R. D. (2010). Spot Theory. *City*, 14(1-2), 48-62.
- Fisher, D., Clancey, G., & Rutherford, A. (2016). Policing built environment crime risks: the role of police in CPTED in New South Wales, Australia. *Police Practice and research*, 17(5), 477-488.
- Fournier, G. (2013). Drone Graffiti. Retrieved from <https://www.bombingscience.com/drone-graffiti/>
- Fung, D. (2014). Promoting critical thinking through effective group work: A teaching intervention for Hong Kong primary school students. *International Journal of Educational Research*, 66, 45-62.
- Giorgi, R., Baglioni, M., & Baglioni, P. (2017). Nanofluids and chemical highly retentive hydrogels for controlled and selective removal of overpaintings and undesired graffiti from street art. *Analytical and Bioanalytical Chemistry*, 409, 3707-3712.
- Gordon, J., Chapman, R., & Blamey, R. (2001). Assessing the Options for the Canberra Water Supply: An Application of Choice Modelling. In R. Blamey (Ed.), *The Choice Modelling Approach to Environmental Valuation*. Cheltenham: Edward Elgar.
- Government of Tasmania. (2025). Police Offences Act 1935. Retrieved from <https://www.legislation.tas.gov.au/view/whole/html/inforce/current/act-1935-044>
- Government of Western Australia. (2016). Graffiti Vandalism Act 2016. Retrieved from [https://www.legislation.wa.gov.au/legislation/prod/filestore.nsf/FileURL/mrdoc_29645.pdf/\\$FILE/Graffiti%20Vandalism%20Act%202016%20-%20%5B00-d0-02%5D.pdf?OpenElement](https://www.legislation.wa.gov.au/legislation/prod/filestore.nsf/FileURL/mrdoc_29645.pdf/$FILE/Graffiti%20Vandalism%20Act%202016%20-%20%5B00-d0-02%5D.pdf?OpenElement)
- Government of Western Australia. (2023a). Planning guidelines safer places by design. Retrieved from <https://www.wa.gov.au/government/publications/planning-guidelines-safer-places-design>
- Government of Western Australia. (2023b). Safer places by design: CPTED guidelines. Retrieved from <https://www.wa.gov.au/system/files/2023-07/safer-places-by-design-cpted-guidelines.pdf>
- Government of Western Australia. (2025). State Graffiti Taskforce. Retrieved from <https://www.wa.gov.au/organisation/western-australia-police-force/state-graffiti-taskforce>

- Government of Western Australia. (n.d.). Graffiti vandalism strategy of Western Australia. Design Out Crime. Retrieved from <https://designoutcrime.org/index.php/free-resources/books-research/cpted-in-public/86-graffiti-vandalism-strategy-of-western-australia>
- Graffiti Eaters. (2024). Graffiti Vandals Using Fire Extinguishers to Attack Buildings. Retrieved from <https://graffitieaters.com.au/graffiti-vandals-using-fire-extinguishers-to-attack-buildings/>
- Graham, H., & White, R. (2016). The ethics of innovation in criminal justice. In *The Routledge handbook of criminal justice ethics* (pp. 267-281): Routledge.
- Greater Manchester Police. (2025). Crime prevention through environmental design (CPTED). Retrieved from <https://designforsecurity.org/crime-prevention-through-environmental-design/>
- Greater Wellington Regional Council. (2013). Wellington Regional Graffiti Prevention Strategy 2013–17: Principles, Definitions and Examples. Retrieved from https://www.gw.govt.nz/assets/Documents/2013/10/2012_492_3_Attachment.pdf
- Hall, S., & Jefferson, T. (Eds.). (1975). *Resistance Through Ritual/Working Papers in Cultural Studies no 7/8*. Birmingham: CCCS.
- Halsey, M., & Pederick, B. (2010). The game of fame: Mural, graffiti, erasure. *City*, 14(1-2), 82-98.
- Halsey, M., & Young, A. (2002). The Meanings of Graffiti and Municipal Administration. *The Australian and New Zealand Journal of Criminology* 35(2), 165-186.
- Halsey, M., & Young, A. (2006). 'Our desires are ungovernable' Writing graffiti in urban space. *Theoretical criminology*, 10(3), 275-306.
- Haridy, R. (2017, 23 January 2017). Drone graffiti artist demonstrates new precision with anti-Trump tag. *New Atlas*. Retrieved from <https://newatlas.com/drone-graffiti-precision-trump-tag/47506/>
- Havarneanu, G. M. (2017). Behavioural and organisational interventions to prevent trespass and graffiti vandalism on railway property. *Journal of rail and rapid transit*, 231(10), 1078-1087.
- Hebdige, D. (1979). *Subculture: the meaning of style*. London: Methuen.
- Heinisch, M., & Miricescu, D. (2017). *Innovative industrial technologies for preventive anti-graffiti coating*. Paper presented at the MATEC Web of Conferences.
- Heywire. (2016). How I overcame my addiction to graffiti. Retrieved from <https://www.abc.net.au/heywire/heywire-winner-dom/8969712>
- Holland Mitchel, A. (2015, 30 April 2013). The Age of Drone Vandalism Begins With an Epic NYC Tag. *Wired*.
- Hollin, C. R., & Palmer, E. J. (2020). The treatment and rehabilitation of property crime offenders. In A. Burrell & M. Tonkin (Eds.), *Property Crime: Criminological and Psychological Perspectives* (pp. 221-233). New York: Routledge.
- Huntington, D. (2018). Sustainable graffiti management solutions for public areas. *SAUC-Street Art and Urban Creativity*, 4(1), 46-74.
- Inner City News. (2024). Fight against offensive graffiti ramps up. Retrieved from <https://www.innercitynews.com.au/fight-against-offensive-graffiti-ramps-up/>
- Inova-tsn. (2025). Inova-tsn wins Renfe's challenge to develop a Predictive System for Graffiti Prevention using AI. Retrieved from <https://www.innova-tsn.com/en/innova-tsn-wins-renfes-challenge-to-develop-a-predictive-system-for-graffiti-prevention-using-ai/>

- Interesting Engineering. (n.d.). Graffiti-removing drone. Retrieved from <https://interestingengineering.com/innovation/graffiti-removing-drone>
- Iveson, K. (2007). Making a Name: Writing Graffiti in Sydney. In *Publics and the City*. New York: John Wiley and Sons.
- Iveson, K. (2010). The wars on graffiti and the new military urbanism. *City*, 14(1-2), 115-134.
- Iveson, K. (2016). Graffiti, street art and the democratic city. In K. Avramidis & M. Tsilimpounidi (Eds.), *Graffiti and Street Art: Reading, writing and representing the city* (pp. 105-116). New York: Routledge.
- Janke, J. (2025). Graffiti Offences in NSW: The law explained. Retrieved from <https://www.hamiltonjanke.com.au/graffiti-offences-in-nsw-the-law-explained/>
- Jardim, V. (2020). Graffiti criminals costing \$30m, delaying commuters - and risking death. Retrieved from <https://www.9news.com.au/national/graffiti-criminals-sydney-trains-cost-delays-death-and-injuries/849054e6-9287-45ef-b78f-f6985130df56>
- Jugglers Art Space. (2017). The End of an Era -The beginning of another. Retrieved from <https://www.jugglersartspace.com.au/>
- Kelling, G. L., & Wilson, J. Q. (1982). Broken windows. *Atlantic monthly*, 249(3), 29-38.
- Kidrobot. (2011). Custom Graffiti Model Train & Station By Dril One. Retrieved from <https://www.kidrobot.com/blogs/news/custom-graffiti-model-train-station-by-dril-one>
- Killen, A. (2021). Mitigating Rail Vandalism Through Design Intervention. In S. Coxon & R. Napper (Eds.), *Advancing a Design Approach to Enriching Public Mobility*. Berlin: Springer.
- Killen, A., Coxon, S., & Napper, R. (2017). *A review of the literature on mitigation strategies for vandalism in rail environments*. Paper presented at the Proceedings of the 39th Australasian Transport Research Forum (ATRF), Auckland, New Zealand.
- Kittiboonanan, P., Rattanarojpan, J., & Ratanavis, A. (2015). *An optical surface measurement for laser removal of graffiti*. Paper presented at the Proc. Siam Physics Congress.
- Kramer, R. (2017). *The Rise of Legal Graffiti Writing in New York and Beyond*. Singapore: Palgrave Macmillan.
- Kuralarasan, K., Bernasco, W., & Vandeviver, C. (2024). Graffiti Writers Choose Locations That Optimize Exposure. *Crime & Delinquency*, 0(0). doi:<https://doi.org/10.1177/00111287241287133>
- L, A. (2018). A History of Graffiti - The 60's and 70's. Retrieved from <https://www.sprayplanet.com/blogs/news/a-history-of-graffiti-the-60s-and-70s>
- Lachmann, R. (1988). Graffiti as career and ideology. *American Journal of Sociology*, 94(2), 229-250.
- LaGrange, R. L., Ferraro, K. F., & Supancic, M. (1992). Perceived risk and fear of crime: Role of social and physical incivilities. *Journal of research in crime and delinquency*, 29(3), 311-334.
- Laing, J., Frost, W., Hogan, T., & Wise, E. (2017). Tourism and Melbourne's laneways: The making of hosier lane. In *CAUTHE (27th: 2017: Dunedin, New Zealand)* (pp. 658-661): Department of Tourism, University of Otago Dunedin, New Zealand.
- Laser Cleaner. (2023). Sustainable Laser Graffiti Removal – Eco-Friendly. Retrieved from <https://graffitiremovallondon.co.uk/laser-technology-for-graffiti-removal-pros-cons/>
- Laserflux. (2021). Removal of graffiti. Retrieved from <https://www.laserflux.com/en/solutions/removal-of-graffiti/>

- Legal Services Commission South Australia. (2017). Graffiti. Retrieved from <https://www.lawhandbook.sa.gov.au/ch12s06s02s05.php>
- Lennon, J. (2021). *Conflict Graffiti: From revolution to gentrification*. Chicago: University of Chicago Press.
- Ley, D., & Cibrywsky, R. (1974). Urban Graffiti as territorial Marker. *Annals of the Association of Urban Geographers*, 64(4), 491-505.
- Liñero, A. M., & Pérez-Izaguirre, E. (2020). I want to learn to do that': subcultural heritage, identity, and learning graffiti in Pamplona. *International Journal of Heritage Studie*, 27(6), 570–583. doi:<https://doi.org/10.1080/13527258.2020.1843521>
- London Assembly. (2002). Graffiti in London: Report of the London Assembly Graffiti Investigative Committee. Retrieved from https://books.google.com.au/books/about/Graffiti_in_London.html?id=rgAdAAAACAAJ&redir_esc=y
- Lyng, S. (1990). Edgework: A social Psychological Analysis of Voluntary Risk Taking. *American Journal of Sociology*, 95(4), 851-886.
- Macdonald, N. (2001a). *The Graffiti Subculture: Youth Masculinity and Identity in London and New York*. New York: Palgrave.
- Macdonald, N. (2001b). *The graffiti subculture: Youth, masculinity and identity in London and New York*. Springer.
- MacDowall, L. (2017). #Instafame: Aesthetics, Audiences, Data. In K. Avramidis & M. Tsilimpounidi (Eds.), *Graffiti and Street Art: Reading, Writing and Representation in the City* (pp. 231-249). New York: Routledge.
- Maffesoli, M. (1995). *The time of the tribes: The decline of individualism in mass society*. Melbourne: Sage.
- Mailer, N., & Naar, J. (1974). *The Faith of Graffiti*. New York: Praeger.
- Martínez-Carazo, E. M., Santamarina-Campos, V., & De-Miguel-Molina, M. (2021). The New emerging artistic expressions: Public mural art, graffiti and post-graffiti. Cultural and creative mural spaces. In E. M. Martínez-Carazo, M. De Miguel Molina, & V. Santamarina-Campos (Eds.), *Community, culture and tourism of Uruguayan contemporary muralism and other international mural spaces* (pp. 113-130). Cham: Springer International Publishing.
- Melton, S., McCraw, G., Hughes, C., & Leazer, S. (2009). *A New Way of Thinking about Graffiti Removal and Prevention*. Paper presented at the Bus & Paratransit Conference & International Bus Rodeo/Bus Rapid Transit Conference American Public Transportation Association Transportation Research Board.
- Merrill, S. (2014). Keeping it real? Subcultural graffiti, street art, heritage and authenticity. *International Journal of Heritage Studies*, 21(4), 369–389. doi:<https://doi.org/10.1080/13527258.2014.934902>
- Miller, I. (2002). *Aerosol Kingdom: Subway Painters of New York City*. Jackson: University Press of Mississippi.
- Moliner, L. A., & Clavell, G. G. (2016). The TramArt experience: domesticating graffiti in public transport. *Journal of Place Management and Development*, 9(1), 105-115.
- Monk Six. (2025). First 48. Retrieved from <https://www.bombingscience.com/graffiti-video-first-48/>
- Most, M. (2023). Graffiti drone mural world record 2023. Retrieved from <https://www.youtube.com/watch?v=KVZa9i9K0zo>

- Moura, A., Flores-Colen, I., de Brito, J., & Dionisio, A. (2017). Study of the cleaning effectiveness of limestone and lime-based mortar substrates protected with anti-graffiti products. *Journal of Cultural Heritage*, 24, 31-44.
- Muggleton, D., & Weinzierl, R. (Eds.). (2003). *The Post-Subcultures Reader* Oxford: Berg.
- National Association of Special Education Teachers. (n.d.). Preventing graffiti and vandalism. National Association of Special Education Teachers. Retrieved from <https://www.naset.org/publications/the-practical-teacher/preventing-graffiti-and-vandalism>
- National Recreation and Park Association. (2013). Making graffiti a gift to the community. *Parks & Recreation Magazine*. Retrieved from <https://www.nrpa.org/parks-recreation-magazine/2013/august/making-graffiti-a-gift-to-the-community/>
- Neto, E., Magina, S., Camões, A., Begonha, A., Evtuguin, D. V., & Cachim, P. (2016). Characterization of concrete surface in relation to graffiti protection coatings. *Construction and Building Materials*, 102, 435-444.
- New South Wales Government. (2025). Graffiti Control Act 2008 No 100. Retrieved from <https://legislation.nsw.gov.au/view/whole/pdf/inforce/2024-12-22/act-2008-100>
- Northern Territory Government. (2024). Summary Offences Act. Retrieved from <https://legislation.nt.gov.au/en/Legislation/SUMMARY-OFFENCES-ACT-1923>
- Olishevskaya, Y. A., & Kupach, T. G. (2022). Street art in the context of urban tourism development. *Journal of Geology, Geography and Geoecology*. 31, 1(120-132).
- Organisation for Economic Co-operation and Development. (2003). Vandalism, terrorism and security in urban public passenger transport. Retrieved from https://www.oecd.org/en/publications/2003/06/vandalism-terrorism-and-security-in-urban-public-passenger-transport_g1gh35f6.html
- Ortiz van Meerbeke, G., & Sletto, B. (2019). 'Graffiti takes its own space' Negotiated consent and the positionings of street artists and graffiti writers in Bogotá, Colombia. *City*, 23(3), 366-387.
- Owens, K. (2014). Graffiti insights & case studies. . Retrieved from https://issuu.com/kathyowensspringfield/docs/graffiti_insights_amp_case_studies_final_to_share
- Pani, R., & Sagliaschi, S. (2009). Psychopathology of excitatory and compulsive aspects of vandalistic graffiti. *Psychological reports*, 105(3), 1027-1038.
- Parliament of South Australia. (2013). Graffiti Control Act 2001. Retrieved from https://www.legislation.sa.gov.au/_/legislation/lz/c/a/graffiti%20control%20act%202001/current/2001.46.auth.pdf
- Parra, A., Boutin, M., & Delp, E. J. (2012). *Location-aware gang graffiti acquisition and browsing on a mobile device*. Paper presented at the Multimedia on Mobile Devices 2012; and Multimedia Content Access: Algorithms and Systems VI.
- Parra, A., Boutin, M., & Delp, E. J. (2017). Automatic gang graffiti recognition and interpretation. *Journal of Electronic Imaging*, 26(5), 051409-051409.
- Persaud, D. (2019). *Empowering a generation: Integrating community-based arts pedagogy in Los Angeles public schools*: University of California, Los Angeles.
- Phillips, S. A. (1999). *Wallbangin' Graffiti an Gangs in L.A.* The University of Chicago Press: New York.
- Pisati, R., Astya, R., & Chauhan, P. (2024). *A Profound Review of AI-Driven Crime Detection in CCTV Videos*. Paper presented at the Sixth International Conference on Computational Intelligence and Communication Technologies (CCICT), Delhi, India.

- Plenty, S., & Sundell, K. (2015). Graffiti: A precursor to future deviant behavior during adolescence? *Deviant Behavior*, 36(7), 565-580.
- Polsky, A. (2024). Ugly Graffiti, Antistyle, and 'Shithole' Post-Socialist Aesthetics. *GSA-Graffiti and Street Art*, 2(2), 58-63.
- Pouyan, S., Charmi, M., Azarpeyvand, A., & Hassanpoor, H. (2023). Propounding first artificial intelligence approach for predicting robbery behavior potential in an indoor security camera. *IEEE Access*, 11. doi:doi:10.1109/ACCESS.2023.3284472
- Powers, S. (1999). *The Art of Getting Over: Graffiti at the Millennium*. New York: St Martin's Press.
- Pozo-Antonio, J. S., Papanikolaou, A., Melessanaki, K., Rivas, T., & Pouli, P. (2018). Laser-assisted removal of graffiti from granite: advantages of the simultaneous use of two wavelengths. *Coatings*, 8(4), 124.
- Public Transport Authority. (2010). PTA's 'Operation Cleanskin' cleans up. Retrieved from <https://www.pta.wa.gov.au/news/media-statements/ptas-operation-cleanskin-cleans-up>
- Qadri, D. (2020). Hosier and Rutledge Lanes—where anyone can go and make art and other stories. *Journal of Public Pedagogies*(5), 31-47.
- Queensland Government. (2024a). Graffiti. Retrieved from <https://www.qld.gov.au/law/crime-and-police/types-of-crime/graffiti>
- Queensland Government. (2024b). MEDIA STATEMENT: The Crisafulli Government Makes 50 Cent Public Transport Fares Permanent. Retrieved from <https://statements.qld.gov.au/statements/101663>
- Queensland Government. (2024c). Summary Offences Act 2005. Retrieved from <https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-2005-004>
- Queensland Police Service. (2021). Crime prevention through environmental design: Guidelines for Queensland (Version 1). Retrieved from <https://www.police.qld.gov.au/sites/default/files/2021-07/Crime%20Prevention%20Through%20Environmental%20Design%20-%20Guidelines%20for%20Queensland%202021%20v1.pdf>
- Raič, M., & Jelinčić, D. A. (2025). Types and Effectiveness of Public Policy Measures Combatting Graffiti Vandalism at Heritage Sites. *Heritage*, 8(1), 18. doi:10.3390/heritage8010018
- Ratcliffe, J. H., Taylor, R. B., Askey, A. P., Thomas, K., Grasso, J., Bethel, K. J., & Koehnlein, J. (2021). The Philadelphia predictive policing experiment. *Journal of experimental criminology*, 17(1), 15-41.
- Razak, I. (2024). Is it art or is it a crime? These are the rules of street art in Australia's graffiti capital. *ABC News*. Retrieved from <https://www.abc.net.au/news/2024-09-15/melbourne-street-art-vandalism-tagging-graffiti/104303430>
- Redland City Council. (2014). GL-3022-001 Removal of Graffiti on Council Assets and Facilities and Private Property. Retrieved from https://www.redland.qld.gov.au/info/20111/safety_and_security/51/graffiti_and_vandalism
- Redland City Council. (2023a). Council calls for community support to tackle vandalism. Retrieved from <https://www.redlandscoasttoday.com.au/2023/12/council-calls-for-community-support-to-tackle-vandalism/>
- Redland City Council. (2023b). Council tags graffiti vandals in court. Retrieved from <https://www.redlandscoasttoday.com.au/2017/12/council-tags-graffiti-vandals-in->

[court/#:~:text=He%20again%20warned%20of%20the,VandalTrak%20website%20or%20mobile%20app](#)

- Renovate RX. (2024). Effortlessly remove graffiti with laser cleaning: A modern solution for tough stains. Retrieved from <https://renovaterx.com/effortlessly-remove-graffiti-with-laser-cleaning-a-modern-solution-for-tough-stains/>
- Ross, J., I. (2016). How major urban centers in the United States respond to graffiti/street art. In J. Ross, I (Ed.), *Routledge handbook of graffiti and street art*. New York: Routledge.
- Ross, J., I. (2024). How Graffiti and Street Art Styles, Images, and Iconography Impacted the Designs that Tribal Streetwear Uses on their Clothing and Accessories. In G. J. Daichendt (Ed.), *Tribal and the Cultural Legacy of Streetwear* (pp. 68-83): Intellect Books.
- Ross, J. I., Lennon, J. F., & Kramer, R. (2020). Moving beyond Banksy and Fairey: Interrogating the co-optation and commodification of modern graffiti and street art. *Visual Inquiry: Learning & Teaching Art*, 9(1-2), 5-23.
- Ross, N. (2010, 18th August). I'm addicted to graffiti, vandal tells Magistrates' Court. *The Herald Sun*. Retrieved from <https://www.heraldsun.com.au/news/victoria/im-addicted-to-graffiti/news-story/b5a3d71c5c6202930dfa1c14fec2ac4b>
- Roviello, V., Bifulco, A., Colella, A., Iucolano, F., Caputo, D., Aronne, A., & Liguori, B. (2022). Suitability and Sustainability of Anti-Graffiti Treatments on Natural Stone Materials. *Sustainability*, 14(1), 575.
- Sanmartín, P., Cappitelli, F., & Mitchell, R. (2014). Current methods of graffiti removal: A review. *Construction and Building Materials*, 71, 363-374.
- Schacter, R. (2008). An ethnography of iconoclasm: An investigation into the production, consumption and destruction of street-art in London. *Journal of material culture*, 13(1), 35-61.
- Shire of Waroona. (n.d.). Graffiti prevention guide. Retrieved from <https://www.waroona.wa.gov.au/Assets/Documents/Graffiti-Booklet-PDF.pdf>
- Silver, T. (Writer). (1983). *Style Wars*. In. New York: PBS.
- Sky News. (2024). Height of idiocy: Melbourne Lord Mayor Nick Reece calls for tougher penalties for graffiti after vandals target Flinders Street Station. Retrieved from <https://www.skynews.com.au/australia-news/crime/height-of-idiocy-melbourne-lord-mayor-nick-reece-calls-for-tougher-penalties-for-graffiti-after-vandals-target-flinders-street-station/news-story/d499cdd7817fec2a23d8d64087bc729e>
- Snap Send Solve. (n.d.). Report graffiti. Retrieved from <https://www.snapendsolve.com/report/graffiti>
- Snyder, G. J. (2009). *Graffiti Lives: Beyond the Tag in New York's Urban Underground*. New York: New York University Press.
- State Government of Victoria. (2025). Graffiti Prevention Act 2007. Retrieved from <https://www.legislation.vic.gov.au/in-force/acts/graffiti-prevention-act-2007/016>
- Taylor, M. (2012). Addicted to the Risk, Recognition and Respect that the Graffiti Lifestyle Provides: Towards an Understanding of the Reasons for Graffiti Engagement. *International Journal of Mental Health Addiction* (10), 54-68.
- Taylor, M., & Khan, U. (2012). Graffiti offenders' patterns of desistance from, and persistence in, crime: New insights into reducing recidivist offending. *The Police Journal*, 85(1), 5-28.

- Taylor, M. F., Pooley, J. A., & Carragher, G. (2016). The psychology behind graffiti involvement. In J. I. Ross (Ed.), *Routledge handbook of graffiti and street art*. London: Routledge.
- The City of Joondalup. (2002). *Memorandum of Understanding between the City of Joondalup and the City of Stirling for Carine open space skatepark joint venture*. Retrieved from <https://api.joondalup.wa.gov.au/files/councilmeetings/2002/Attach4brf050302.pdf>
- The City of Melbourne. (2007). *Graffiti removal – draft memorandum of understanding with corrections victoria*. Melbourne Retrieved from https://mvga-prod-files.s3.ap-southeast-4.amazonaws.com/public/about-council/committees-meetings/meeting-archive/MeetingAgendaItemAttachments/185/2756/C3_511_200703270530.pdf
- The City of Vincent. (2010). *Memorandum of Understanding between Western Australia Police and the Town of Vincent for the implementation and support of a graffiti clean up referral program*. Perth, WA. Retrieved from <https://www.vincent.wa.gov.au/agenda/2011/20110419/att/MOU%20for%20Grafitti.pdf>
- The Commonwealth of Australia. (2005). *An Agreement on Surface Transport Security*. Canberra: The Commonwealth of Australia Retrieved from https://federation.gov.au/sites/default/files/about/agreements/IGA-on-Surface-Transport-Security_PDF.pdf
- The Intrepid Guide. (2020). The best Melbourne street art map [Blog post]. Retrieved from <https://www.theintrepidguide.com/best-melbourne-street-art-map/>
- The West Australian. (2024, 3 November 2024). Grant Godbold: Fine arts graffiti teacher fined for late night raid on Perth train. *The West Australian*.
- Thompson, K., Offler, N., Hirsch, L., Every, D., Thomas, M. J., & Dawson, D. (2012). From broken windows to a renovated research agenda: A review of the literature on vandals and graffiti in the rail industry *Transportation Research Part A*, 46, 1280 - 1290.
- Thornton, S. (1995). *Club Cultures: Music, Media and Subcultural Capital*. Cambridge: Polity Press.
- Tonkin, M. (2020). The pathway into property crime. In A. Burrell & M. Tonkin (Eds.), *Property Crime: Criminological and Psychological Perspectives* (pp. 23-38). London: Routledge.
- Train, K. (2009). *Discrete choice models with simulation, 2nd edition*. Cambridge: Cambridge University Press.
- Transport for NSW. (2023). Public Transport Safety and Graffiti Prevention. Sydney: Transport for NSW. Retrieved from <https://www.transport.nsw.gov.au/data-and-research/research-hub/research-and-evaluation-projects/graffiti-prevention-research>
- Union Heights. (2025). Union Heights. Retrieved from <https://unionheights.com.au/>
- Up&Up Design. (2025). Graffiti and street art workshops. Retrieved from <https://upnup.com.au/graffiti-street-art/>
- Van Kan, R. (Ed.) (2020). *Untold Stories: Inside Graffiti Writing Culture*. Germany: GMBH.
- Van Loon, J. (2014). “Just writing your name?” An analysis of the spatial behaviour of graffiti writers in Amsterdam. *Belgian Journal of Geography*(3).
- VandalTrak. (n.d.). Home. VandalTrak. Retrieved from <https://www.vandaltrak.com/>
- Victoria Law Foundation. (2012). Graffiti Laws. Retrieved from <https://youthlaw.asn.au/wp-content/uploads/2012/08/Graffiti-finalSep2012.pdf>

- Victorian Auditor-General's Office. (2023). *Maintaining Railway Assets Across Metropolitan Melbourne*. Retrieved from Melbourne: <https://www.audit.vic.gov.au/report/maintaining-railway-assets-across-metropolitan-melbourne>
- Victorian Law Reform Commission. (2020). *Committals: Report: 8. Charging practices*. Retrieved from Melbourne:
- Waclawek, A. (2011). *Graffiti and Street Art*. London: Thames and Hudson.
- Wang, B., Mao, Q., Liu, A., Chen, L., & Chen, C. P. (2025). DIG: Improved DINO for Graffiti Detection. *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, 55(5).
- Wang, S., Gao, J. Z., Li, W., Li, Y., Wang, K., & Lu, S. (2019). *Building smart city drone for graffiti detection and clean-up*. Paper presented at the 2019 IEEE SmartWorld, Ubiquitous Intelligence & Computing, Advanced & Trusted Computing, Scalable Computing & Communications, Cloud & Big Data Computing, Internet of People and Smart City Innovation (SmartWorld/SCALCOM/UIC/ATC/CBDCom/IOP/SCI).
- Weisburd, D., & Majmundar, M. K. (2018). Proactive policing: Effects on crime and communities. *National Academies Press*. doi:<https://doi.org/10.17226/24928>
- Western Australia Government. (2017). Graffiti Vandalism Act 2016. Retrieved from [https://www.legislation.wa.gov.au/legislation/prod/filestore.nsf/FileURL/mrdoc_29645.pdf/\\$FILE/Graffiti%20Vandalism%20Act%202016%20-%20%5B00-d0-02%5D.pdf?OpenElement](https://www.legislation.wa.gov.au/legislation/prod/filestore.nsf/FileURL/mrdoc_29645.pdf/$FILE/Graffiti%20Vandalism%20Act%202016%20-%20%5B00-d0-02%5D.pdf?OpenElement)
- Whitford, M. J. (2017). *Getting rid of graffiti: A practical guide to graffiti removal and anti-graffiti protection*: Routledge.
- Whyte, W. F. (1943). *Street Corner Society: The Social Structure of an Italian Slum*. Chicago: The University of Chicago Press.
- Wild, B., Verhoeven, G., Muszyński, R., & Pfeifer, N. (2024). Detecting change in graffiti using a hybrid framework. *The Photogrammetric Record*.
- Wild, B., Verhoeven, G., Muszyński, R., & Pfeifer, N. (2024). Detecting change in graffiti using a hybrid framework. *The Photogrammetric Record*, 39(187), 549-576.
- Williams, J. P. (2011). *Subcultural Theory: Traditions and Concepts*. Cambridge: Polity.
- Willis, P. E. (1978a). *Learning to Labour: How Working Class Kids Get Working Class Jobs*. Teakfield: Saxon House.
- Willis, P. E. (1978b). *Profane Culture*. London: Routledge and Kegan Paul.
- Woodward, J. D. (2023). *While the City Sleeps: A Rough Guide to Sydney Graffiti in the 1980's*. Sydney: One Eight Three.
- Young, A. (2010). Negotiated consent or zero tolerance? Responding to graffiti and street art in Melbourne. *City*, 14(1-2), 99-114.
- Young, A. (2012). Criminal Images: The affective judgment of graffiti and street art. *Crime Media Culture*, 8(3), 297-314.
- Young, A. (2013). *Street art, public city: Law, crime and the urban imagination*: Routledge.
- Youth Law Australia. (2018). Teen Issues: Graffiti. Retrieved from <https://yla.org.au/act/topics/teen-issues/graffiti/>
- Youth Law Australia. (2024). Graffiti. Retrieved from <https://yla.org.au/tas/topics/teen-issues/graffiti/>

Zhang, Y., Zenucchini, F., Ricci, C., Croveri, P., & Scalarone, D. (2024). Analytical Evaluation of Laser Cleaning Effectiveness in the Context of Contemporary Muralism. *Applied Sciences*, 14(11), 4799.

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