UNVEILING THE SILENT THREAT: GRAFFITI'S UNDERESTIMATED IMPACT ON PUBLIC TRANSPORT

JULY | 2024

INTRODUCTION

Modern graffiti seems to have appeared in America in the early 1960s[1] as a mode of underground communication and protest against authorities, and it does not look like the phenomenon will stop anytime in the near future. It is a major issue and very costly for the public transport operators (PTOs) and railway companies that have to deal with it. In addition to severe operational, financial, and reputational damage, **graffiti poses safety issues** (e.g., when rolling stock windows or driver cabins are obstructed with paint or etched with acid) **and security issues** (access to restricted areas, trespassing, aggression

▶ *S-Bahn train at Munich Airport station, Germany.*

against staff, infiltration of criminality, including sabotage and terrorism, sense of insecurity amongst passengers, etc.) **to railway companies and PTOs.** Regarding security issues, it should be noted that when the risk of trespass is known and nothing is done to try and keep the vandals out, the company's liability may increase in the case of injury or death, according to national legislation.

Graffiti does not concern just street art or personal expression, but, in recent years, has also become a way for specific people to disseminate unlawful or threatening content to a large audience; many incidents of racist,[2] antisemitic,[3] and extremist[4] graffiti have been reported around the world.

According to the "**Impact of graffiti on public transport**" **survey, conducted jointly by UITP and UIC in 2023,**[5] graffiti affects both transport providers' assets (buildings, bus stops, etc.) and the rolling stock. The traditional approach to fixing the damage is the use of cleaning products, while protective films or liquids are also commonly applied on carriages. Preventive measures include deployment of technical equipment like sensors (e.g. motion & noise sensors) and CCTV systems (fixed, mobile, thermal, & equipped with video

1 https://en.wikipedia.org/wiki/Graffiti
2 https://wnyt.com/top-stories/racist-graffiti-found-at-albany-cdta-bus-stop/
3 https://nypost.com/2023/11/23/metro/hateful-gas-the-jews-graffiti-found-scrawled-inside-nyc-bus-police-investigating/
4 https://www.linkedin.com/pulse/understanding-street-communication-technological-tags-ben-jbara/?trk=pulse-article
5 In 2023, UITP and UIC finalised a joint survey on the impact of graffiti on public transport. This action point is based on the survey results.

analytics). In the future, artificial intelligence (AI)-powered technologies and multimodal sensing will increasingly empower companies in their struggle to combat the phenomenon. Deterrence, which also plays an important role, is mostly done by deploying dedicated staff (usually security guards) to patrol the areas at risk.

The network size (and thus the vehicles' area of coverage) plays a critical role in how quickly the rolling stock is removed from the network for cleaning. All companies are concerned about the image they project to passengers, and most of their carriages, if tagged, are removed from service for cleaning as soon as operationally feasible. This means that the rolling stock on smaller networks, such as metros, will reach the nearest cleaning facility quicker than on larger networks such as heavy rail on international routes, as the tagged vehicles must be returned to the original operator for cleaning.

▶ *Tram graffiti in Lisbon, Portugal.*

SURVEY RESULTS: KEY TRENDS

The survey has highlighted the significant international dimension of graffiti, as offenders often travel to neighbouring (and sometimes distant) countries. Graffiti crews often link up, cooperate, and share information on their respective countries' infrastructure. According to the graffiti community, the reasons behind their focus on public transport are diverse, but one key point is that often graffiti taggers seek recognition, and tagging trains is an effective way to reach a bigger audience.[6]

MODUS OPERANDI

Most of the time, graffiti incidents are linked to the activities of small groups. The average age of offenders is getting lower, making prosecution more difficult and often less effective. Aggressive actions are not common, but graffiti is often associated with other forms of vandalism, from unlawful access to restricted areas and destruction or damaging of goods and equipment to "kidnapping" a train at the metro station to spray paint it whilst passengers wait inside.[7] Concerning graffiti techniques, ink gas/pressure cans and fire extinguishers filled with paint are the most common tools used, followed by acid. The damage concerns all equipment that is reachable—rolling stock, fences, and door locks, along with destruction of CCTV to avoid recognition.

STAKEHOLDERS

When it comes to the security aspect, the concerned stakeholders include transport operators and authorities, law enforcement and private security, public authorities (such as cities and ministers), and, of course, passengers.

In urban environments, cooperation among the abovementioned stakeholders is more developed, whereas international cooperation is weaker, with very few international connections between the involved stakeholders. The survey highlighted a general request for information sharing and digitisation, to compare graffiti and tags using a standardised database.

COUNTERMEASURES

A global problem requires a global solution, so the fight against graffiti should entail exchange of both information and expertise. The exchange of information can be performed using databases maintained by PTOs, whereas the exchange of expertise entails establishing relations between PTOs and law enforcement; such partnerships have been a great success in various contexts and should be strongly encouraged.

Besides these exchanges, there is also the need for advanced cleaning techniques, which are usually based on chemical detergents, used together with other various products. Painting over the tags is also common, especially in railway networks. Unfortunately, new products (especially inks) cannot be easily removed, even with strong chemical detergents, so specialised companies often have to be hired for the cleaning.

When it comes to prevention and prosecution, CCTV can be used, especially to cover more security-sensitive areas such as depots and other restricted areas.

6 https://graffstorm.com/train-graffiti#:~:text=Recognition,-Being%20recognised%20by&text=Although%20it's%20similar%20to%20respect,painting%20in%20a%20static%20location
7 https://www.nzherald.co.nz/nz/taggers-delay-auckland-train-for-15-minute-illegal-paint-job/L3FDR4COXDFPE555ZHP5E743LQ/

MAJOR CHALLENGES

In the quest to curb graffiti on public transport, the biggest challenge is currently the lack of **cooperation,** both on an international level between PTOs and the police and locally between PTOs and other authorities such as ministries and other related departments (justice, transport, cultural heritage preservation, etc.)

Urban transport operators and railway companies **remove trains** with a lot of graffiti from the network (according to the types of tags), which can heavily impact their operations. The image projected to customers remains of paramount importance, and the number of cancelled rides and the related costs are rarely quantified (or this information disseminated) by the operators.

Furthermore, punitive measures for perpetrators are often cumbersome for PTOs, and their impact still needs to be verified. A better approach could include raising **awareness** on the security and legal implications of graffiti, as well as sponsoring social campaigns that target schools and high-risk environments.

BEST PRACTICES

❯ Technical equipment has been used since graffiti appeared. In the early stages, it was mainly just cleaning equipment, and, before cleaners were available, paint was used to cover the graffiti. Then came the films (for paintwork, drivers' windscreens, and/or passenger windows) and special fabric to cover the seats. When physical security equipment is still in use (including new type of fences and barbed wire to protect the assets/buildings) they are now being complemented by "intelligent devices".

❯ Among that equipment, CCTV surveillance is the most commonly used. Cameras are becoming increasingly cheap compared with the quality of pictures they can provide. They are frequently complemented by various sensors (e.g. motion, sound, & infrared (IR) detection) that "drive" the camera.

❯ There is also interesting software being developed to help address the graffiti issue. Motion detection is still the most common software application, but now it is also possible to create virtual CCTV patrols that can replace guards (mitigating the related costs and limited availability of personnel) for the surveillance of depots, warehouses, etc.

❯ Large networks (mainly railways) use drones to cover their activity zones and fight against criminal activities like copper theft, vandalism, and graffiti.

❯ Cooperation with COLPOFER, an International union of railways (UIC) special group that brings together railway companies and railway police, which has a dedicated working group on graffiti on public transport.

The following table shows how peri-urban transport networks and heavy rails address the five main aspects of graffiti, according to our survey responses.

GRAFFITI	PERI URBAN TRANSPORT NETWORKS	RAILWAYS
Cooperation w/police	Not systematic (private guards)	Systematic (COLPOFER)
Location	Depots, stations, and network	Depots, stations, and network
Cleaning	Quickly and systematically performed (especially on rolling stock)	Performed as fast as possible without hindering operations (especially on rolling stock)
Prosecution	Often sought	Claims to authorities always made
Protection	Technical equipment (CCTV, AI, sensors, sometimes drones for large networks)	Physical security measures frequently used (protection film/liquid), along with CCTV, patrols, etc. Increasingly coupled with new technologies (audio, video or multimodal sensing, analytics, drones, etc.)

CONCLUSIONS

According to the survey, there is a consensus that graffiti represents a global problem, but there is a lack of information exchange between different operators, sometimes even in the same network. The need for a **centralised database** *of graffiti tags is a major point of discussion among transport providers, to make prosecution easier and help identify any sign of malicious intent (terrorism, organised crime, etc.) early on.*

It is important to enable PTOs worldwide to share knowledge and expertise, including with law enforcement, so that their efforts to catch graffiti taggers do not stop at their borders.

RECOMMENDATIONS

⬧ **Graffiti is a security concern and ought to be considered as a security issue rather than solely an economic and operational one.** Unauthorised access to restricted areas poses a significant threat to the security of the public and critical infrastructure. From a safety perspective, graffiti is usually done in potentially dangerous operational environments, where both perpetrators and employees can get hurt.

⬧ **Understanding motivations is imperative.** Designing effective strategies to combat this phenomenon requires insights into the trends, meanings, and motivations behind graffiti and tags. To achieve this understanding, the best tools include:

› Social media monitoring.

› Awareness campaigns targeting the relevant demographic groups.

› Monitoring research on the subject.

⬧ **Reduction of public visibility through prompt removal of graffiti is a key deterrent,** discouraging individuals seeking recognition and financial gain through such acts.

⬧ **Data collection is paramount.** Organisations should:

› Prioritise data collection and analysis as the initial step in addressing the threat.

› Create and maintain a common database that can foster a clearer understanding of graffiti, accessible to operating companies, railway companies, and national and supranational authorities, including law enforcement.

⬧ **Strengthening exchanges and collaboration among affected stakeholders is key.** Collaboration among transport companies, sectoral organisations, and authorities is crucial for the exchange of information and knowledge focused on addressing global graffiti trends. Furthermore, links with other forms of crime should not be underestimated, and vigilant monitoring by the competent authorities should be ensured.

⬧ **Fostering prevention and awareness raising campaigns helps mitigate the issue.** Organisations should:

› Strengthen internal communication focused on preventive measures and engage internal personnel in the reporting of incidents.

› Cooperate with relevant departments to communicate with passengers and citizens on their personal and legal risks if they do graffiti, including reaching out to schools to raise awareness on the topic.

› Engage with associations and initiatives on street art to integrate curated graffiti artwork into appropriate locations and assets, which usually reduces illegal graffiti in areas where such artwork is located.

DIGITAL VERSION AVAILABLE ON
MYLIBRARY

UITP SECURITY

UIC INTERNATIONAL UNION OF RAILWAYS

Rue Sainte-Marie 6, B-1080 Brussels, Belgium | Tel +32 (0)2 673 61 00 | Fax +32 (0)2 660 10 72 | info@uitp.org | www.uitp.org