



CHAPTER 6

Litter Control

Eliminating litter and illegal dumping throughout our community

GOALS

- Increase public awareness of litter issues and encourage behavioral changes to prevent litter.
- Support volunteer efforts to reduce litter.
- Improve the appearance of the city through the removal of litter and illegal dumps.
- Achieve city ordinance compliance through education, investigations and enforcement.
- Provide technical guidance, outreach and education to develop a culture against litter and illegal dumping.



LITTER CONTROL AT-A-GLANCE

Litter Planning & Management Program Area

Litter is a pervasive and unsightly problem that is costly to clean, impacts neighborhood aesthetics, lowers property values, pollutes our environment and poses a threat to wildlife. The city performs research to determine the most common types of litter, as well as the primary sources of litter. While litter can be found throughout Fort Worth, some areas tend to be more

heavily littered than others, such as major roadways and urban lakes. It is also essential to understand the behaviors that lead to littering and illegal dumping. The city uses this research to develop litter reduction plans that outline projects and implement effective Litter Control programs aimed at preventing and reducing the occurrence of litter and illegal dumps. The city also tests and deploys technologies to collect data and help catch offenders in the act. Ultimately, the city aims to create the long-term, positive behavioral changes in our community needed to establish Fort Worth as a litter-free city.



PHOTO BY CITY OF FORT WORTH

KEY ACTIVITIES

- Litter Analysis
- Litter Reduction Planning
- Litter Rules & Regulations
- Litter Control Projects & Technologies

Litter Prevention & Abatement Program Area

The best way to reduce litter is to ensure items are disposed of properly. The city uses information from litter research to develop prevention programs that target frequently littered items and common sources of litter. Residents are encouraged to utilize resources offered by the city to dispose of items that are at risk of being dumped, such as tires and bulk waste. When prevention efforts fail, the city employs several strategies to abate litter. City staff remove litter and illegal dumps from the community, perform street sweeping operations and clean litter before mowing. The city manages contracts for litter removal along heavily littered corridors and waterways and requires mowing contractors to remove litter before mowing. Residents and volunteers do their part by participating in citywide litter cleanup events and beautification projects. They also lead their own cleanups throughout the year, and some adopt sites for regular cleanup and maintenance activities.



PHOTO BY CITY OF FORT WORTH

KEY ACTIVITIES

- Litter Prevention
- City Litter Abatement
- Contractual Litter Abatement
- Volunteer Litter Abatement

PROGRAM AREAS

- Litter Planning & Management
- Litter Prevention & Abatement

- Litter Compliance & Enforcement
- Litter Communication & Collaboration

Litter Compliance & Enforcement Program Area



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The city's Litter Control programs are designed to encourage businesses and residents to comply with litter laws through incentives and recognition, with enforcement used as a last resort. City staff work with local businesses to reduce litter on their properties

through prevention and cleanup. Residents are reminded to set waste and recycling out properly to prevent litter, and to keep their yards litter-free. Code enforcement officers respond to nuisance litter complaints on private property, and Solid Waste Division staff investigate illegal dumps and work with the police to prosecute offenders. While it is preferable to engage the public to address litter issues proactively, police officers can issue citations to anyone they witness littering or dumping within Fort Worth.

KEY ACTIVITIES

- Commercial Litter
- Residential Litter
- Litter from Other Sources
- Litter Enforcement

Litter Communication & Collaboration Program Area

Addressing litter in Fort Worth takes the effort of city staff across many departments, in collaboration with community groups, businesses and residents. Environmental staff work with other city departments and communications personnel to develop outreach messages, inform the public of upcoming events and provide education to the community. The city

coordinates anti-litter campaigns and major events with the support of Keep America Beautiful (KAB), Keep Texas Beautiful (KTB), the Tarrant Regional Water District (TRWD) and other partners to maximize the reach and impact. Volunteers play an essential role in Litter Control programs. The city recognizes the need to engage youth in litter cleanups, mural paintings and other positive activities to create lasting change in the community. Staff supporting the city's Keep Fort Worth Beautiful (KFWB) program work closely with neighborhood groups, schools, community groups and businesses to encourage recycling and beautification efforts.



PHOTO BY CITY OF FORT WORTH

KEY ACTIVITIES

- City Staff Training & Collaboration
- Public Technical Guidance
- Public Education & Outreach
- Community Partnerships & Volunteerism



Why do we need Litter Control in our community?

Litter Control programs improve overall environmental quality, community appeal, safety and property values.

TO PROMOTE HUMAN HEALTH AND PUBLIC SAFETY.



Limits pollution of our water and land resources



Decreases risk of fire, personal injury and spread of disease in our neighborhoods

TO CREATE AND MAINTAIN A CLEAN, ATTRACTIVE CITY.



Reduces littered areas and blight in our neighborhoods



Fosters pride in our communities

TO PROMOTE QUALITY OF LIFE AND A SUSTAINED ECONOMY.



Increases tourism and improves property values through enhanced aesthetics and safety



Reduces public costs for controlling litter-based pollution and cleanups

Executive Summary

Fort Worth is home to more than 850,000 residents, and thousands more commute to the city each day for work, recreation and education (Reference 6-1). Additionally, the city attracts over one and a half million tourists each year. While vital to the economic health of the city, some of these commuters and visitors contribute to the litter problem by tossing trash from their motor vehicles or dropping garbage on the sidewalk as they walk to work. Our own residents and businesses also litter and dump items, although not always intentionally. To adequately address this pervasive issue, the city seeks to better understand the common sources of litter and the types of social dynamics and behaviors that lead to littering. Litter is considered one of the most important environmental concerns facing Fort Worth (Reference 6-2), and the city plays a crucial role in preventing and mitigating litter and illegal dumping within its jurisdiction. Litter is not only prevalent throughout the city, it is also persistent – an area can be cleaned only to become littered again within days. As such, the city’s Litter Control programs span multiple departments and involve many community partners. The Code Environmental Quality Division is charged with planning and coordinating these efforts and serving as a centralized repository for Litter Control program information and data. Environmental staff oversee many of the litter programs the city currently implements, and are actively developing initiatives to optimize strategic litter management. These include programs administered through the city’s KAB and KTB affiliate, KFWB, as well as other Litter Control programs through the city and its partners.

The KFWB mission is to educate and engage Fort Worth residents and businesses to take responsibility for improving their community environment. The program:

- Engages over 10,000 volunteers who collectively pick up over 100,000 pounds of trash annually at citywide and neighborhood litter cleanup events.
- Is consistently recognized as a President’s Circle affiliate with KAB and a gold-star affiliate with KTB. These are the highest levels an affiliate can achieve with each of these organizations.
- Won the Governor’s Community Achievement Award (GCAA) several times in the past two decades and the KAB Affiliate of the Year Award in 2017.

The city manages litter and beautification programs that:

- Have adopted out over 100 sites in Fort Worth to community groups who volunteer over 10,000 hours annually on regular litter cleanups and beautification projects.
- Abated nearly 700 illegal dump sites each month in fiscal year 2018.
- Remove graffiti from over 4,500 sites every year with the help of hundreds of volunteers and partner organizations.
- Contribute to the regional Reverse Litter Ten on Tuesday campaign that has garnered over 25,000 pledges from individuals to pick up ten pieces of litter every week.



Figure 6-1. Volunteers from the Como Senior Center pick up litter, photo by City of Fort Worth.

6.1 Key Terms

BMPs – Best Management Practices
Code – Code Compliance Department
ECC – Environmental Collection Center
EIU – Environmental Investigations Unit
EPA – Environmental Protection Agency
EPF – Environmental Protection Fund
FWISD – Fort Worth Independent School District
GCAA – Governor’s Community Achievement Award
GIS – Geographic Information System
HHW – Household Hazardous Waste
KAB – Keep America Beautiful
KFWB – Keep Fort Worth Beautiful
KTB – Keep Texas Beautiful
MS4 – Municipal Separate Storm Sewer System
NGO – Non-Governmental Organization
NPO – Nonprofit Organization
OGC – Open Channels Group
PARC – Park & Recreation Department
PID – Public Improvement District
PNS – Presbyterian Night Shelter (of Tarrant County)
TRWD – Tarrant Regional Water District
TxDOT – Texas Department of Transportation

6.2 Introduction to Litter Control

Litter control programs directly support the city’s commitment to create a clean and welcoming environment for all those who live, work and play in Fort Worth. For many years, various departments and divisions within the city, as well as external organizations, have made individual efforts to address litter. The city is working to align, integrate and build upon these existing efforts, and create new Litter Control programs. The city utilizes interdisciplinary and multi-faceted programs aimed at significantly reducing litter in Fort Worth. This chapter also outlines the roles of environmental staff, along with partners in other departments, divisions and external agencies, who are responsible for managing these programs. Litter control programs are grouped into four main program areas (PAs): Planning & Management, Prevention & Abatement, Compliance & Enforcement and Communication & Collaboration. The city is drawing on previous research and planning efforts around litter to combine resources and leverage data-driven solutions to litter management. This includes litter prevention initiatives, which address human behavior and the social aspects of littering, along with the proper management of materials with the potential to become litter.

City staff work diligently to remove litter already on the ground, but engaging volunteers and neighborhood organizations in cleanup efforts is essential to changing perceptions and creating a litter-free community. State law and the city’s litter ordinance provide the basis for enforcing litter programs. Departments must work closely with one another to ensure compliance



Figure 6-2. A city employee pulls an old can out of Echo Lake during the annual Neighborhood Litter Stomp, a citywide litter cleanup event, photo by City of Fort Worth.

with these regulations and establish Fort Worth as a community that does not tolerate litter and illegal dumping. This message is reinforced through training, education and outreach, including awareness campaigns and collaborations with schools and community leaders to foster anti-littering behavior. The Litter Control programs described in this chapter create a holistic approach to litter management that brings litter awareness to the public, prevents littering, improves litter abatement and supports enforcement of litter regulations.

6.2.1 Program Areas (PAs)

6.2.1.1 PA 1: Litter Planning & Management

Litter can be found throughout Fort Worth and is costly to remove. Research has shown that littered and blighted areas continue to attract more litter and illegal dumping. It is a complex problem rooted in cultural norms and learned behavior. The city has invested in studies to better understand the local causes and sources of litter, and collects data on its Litter Control programs. This information was initially compiled into the Draft Comprehensive Litter Management Plan in 2017, and this chapter expands on the programs and initiatives outlined in that draft. These include evaluation of current litter rules and regulations, as well as technologies utilized to prevent and reduce litter. More detailed data collection on all aspects of Litter Control programs and advanced analysis will also help staff create more effective planning and management strategies.

6.2.1.1.1 KEY ACTIVITIES

- Litter Analysis
- Litter Reduction Planning
- Litter Rules & Regulations
- Litter Control Projects & Technologies

6.2.1.2 Litter Prevention & Abatement

Many of the city's litter prevention initiatives focus on materials management and commonly littered items, as well as providing locations for residents and visitors to properly dispose of these items. These prevention methods include everything from providing public trash and recycling receptacles to offering household

hazardous waste (HHW) and electronics disposal at drop-off locations throughout Fort Worth. City staff perform street sweeping operations and abate litter and illegal dump sites. These initiatives also help prevent litter and illegal dumping, because people are less likely to litter or dump in clean areas. The city also works with contractors to remove litter before mowing and contracts with nonprofit organizations (NPOs) for litter removal. Volunteers are the greatest allies the city has in the fight against litter. Residents, employees from local businesses and students clean more litter every year than the city could possibly remove on its own.

6.2.1.2.1 KEY ACTIVITIES

- Litter Prevention
- City Litter Abatement
- Contractual Litter Abatement
- Volunteer Litter Abatement



Figure 6-3. Volunteers display the litter and dumped items collected at Eugene McCray Park, photo by City of Fort Worth.

6.2.1.3 Litter Compliance & Enforcement

Code staff in the Consumer Health, Code Enforcement and Solid Waste Divisions work together on litter and illegal dumping compliance. City staff address debris and waste violations, and try to work with property owners before writing citations and carrying out enforcement activities. When enforcement is necessary, such as in cases of illegal dumping, staff work with local law enforcement and the Tarrant County District Attorney's Office, as well as any witnesses to the violations to identify the responsible party and recoup cleanup costs. As part of this Plan, environmental staff will review compliance and enforcement procedures, and suggest needed

changes. They will work with municipal courts to develop a handbook to help legal personnel understand environmental issues associated with litter and illegal dumping. Staff will also recommend potential citation alternatives, such as community service, to deter littering and illegal dumping.

6.2.1.3.1 KEY ACTIVITIES

- Commercial Litter
- Residential Litter
- Litter from Other Sources
- Litter Enforcement

6.2.1.4 Litter Communications & Collaboration

The city uses a variety of methods to share anti-litter messages, and educate staff and the community on the economic, social and environmental problems associated with litter and the actions they can take to be part of the solution. Staff in the Environmental Quality and Solid Waste divisions of Code offer training to other city staff and community members on a range of topics, including litter programs, composting



Figure 6-4. KFWB attends the volunteer celebration for the Trinity Trash Bash, a city partner cleanup event, photo by City of Fort Worth.

and volunteering with the city. Division staff give presentations and bring together businesses and community stakeholders to engage them in litter prevention and cleanup activities that benefit Fort Worth. The Code Communications Team uses various media outlets and works with our local and national partners to target messages for different audiences and deliver clear, consistent messaging. The city also collaborates with neighborhood associations, faith groups, schools and other organizations to promote Litter Control programs and volunteerism.

6.2.1.4.1 KEY ACTIVITIES

- City Staff Training & Collaboration
- Public Technical Guidance
- Public Education & Outreach
- Community Partnerships & Volunteerism

6.3 Structure & Funding for Litter Control Activities

Currently, Litter Control programs are managed by staff from other sections within the Environmental Quality Division, primarily the Administrative Section, but no staff are dedicated full time to litter administration. Overall, the city's litter programs are managed by staff working collaboratively with other departments, as well as external partners, including neighborhood associations, businesses, local schools and NPOs/non-governmental organizations (NGOs), on prevention and abatement activities. City staff in the Code Compliance and Police departments, as well as the Tarrant County District Attorney's Office assist in ensuring compliance with litter ordinances and enforcing violations. There are also city staff in other departments who manage beautification programs and support proper waste management, which helps prevent litter. Litter control programs managed by Division staff are funded by the environmental protection fund (EPF), and funding for beautification initiatives including graffiti abatement, mural painting and other activities come from the departments that manage them.

KFWB is a government affiliate of KAB and KTB housed within the Division, and does not have 501(c)(3) NPO status. It is supported by the KFWB coordinator, who is also the Division's environmental planner, and an administrative technician, as well as an external

15-member volunteer board. KFWB duties represent about half of the full-time workload of the KFWB coordinator and administrative technician. KFWB programs are also supported by city staff across multiple departments who serve as advisors to the board and administer litter, beautification and recycling programs. Litter Control programs, including KFWB, are supported through the Solid Waste Fund and the EPF. Occasionally, special projects or programs are funded through grants and awards, such as the GCAA. While KFWB programs receive donations and in-kind services, these amounts have historically been small compared with the overall operating budget.

Table 6-1. *Keep Fort Worth Beautiful annual workload*

TASK	HOURS PER YEAR
Cowtown Great American Cleanup	200
Neighborhood Litter Stomp	95
Board Retreat	20
Data Management	26
Annual Reporting and Award Applications	64
Training and Conferences	96
Supply Order	40
KFWB Governance	20
Litter-Free Lots Program	24
School Green Teams	50
Litter Free School Zones	58
Summer Community Center Litter Free Program	16
Trash Free Texas	34
Website Updates	56
Communications Plan	56
Outreach	162
Social Media	72
Training	72
Volunteer Coordination	156
TOTAL HOURS PER YEAR	1,317

6.4 Challenges to Litter Control

Litter and illegal dumping are costly problems. The City of Fort Worth spends more than \$3 million annually to clean up litter and illegal dumps (Reference 6-3). The city and its partners spend a combined total of over \$8 million per year on all litter-related programs, including education and outreach efforts (Reference 6-3). Litter is found throughout Fort Worth, although some areas experience higher frequencies and amounts of littering than others, including major roadways,

commercial corridors and waterways, especially after heavy rain. There is seasonal variability to litter – parks often experience heavy litter on major holidays, such as the Fourth of July. Some items are littered more frequently than others, including straws, plastic utensils and fast food containers. There has been an increase in littered cardboard, polystyrene foam and other packing materials in recent years, as more people shop online and have items delivered. Division staff must consider these challenges as they evaluate current litter control practices and propose new initiatives to reduce the costs associated with litter management.



Figure 6-5. *Volunteers clean litter out of the Trinity River during the Cowtown Great American Cleanup, KFWB’s largest annual cleanup event. Litter often accumulates in areas near major roads and gets washed into nearby waterways, photo by City of Fort Worth.*

6.4.1 Microplastics, Cigarette Butts and Other Small Litter

Microplastics are the very tiny (smaller than 0.04 inch) pieces of plastic that come from decomposing plastic products and products that used to be manufactured with them, such as face wash and toothpaste (Reference 6-4). Since most litter eventually finds its way into waterways and the oceans, that is where much of these microplastics are found. In samples collected from tributaries of the Great Lakes by the U.S. Geological Survey and State University of New York Fredonia, more than 70 percent of the microplastics found were fibers from synthetic textiles, cigarette

butts, nets, etc. (Reference 6-4). Other sources included fragments of plastic bottles, foam, film from plastic bags and beads from cosmetics, which were banned by the Microbead-Free Waters Act of 2015 that went into effect in 2018 (Reference 6-4). Microplastics are extremely difficult to remove from the environment, due to their size. They persist for a long time, releasing harmful chemicals and working their way up the food chain. It is critical to prevent litter and remove larger pieces of litter from the environment before they break down. Even small pieces of litter that are not microplastics are difficult to remove, as they are often hard to see and time consuming to clean. This includes cigarette butts, fragments of plastic bottles that have been run over by vehicles or mowers, bottles caps and other small litter. Cigarette butts are of great concern, because they contain dangerous chemicals and are often littered in areas where they are easily washed into storm drains. They also pose a fire hazard, especially during periods of high heat and drought. Environmental staff must consider the challenges surrounding microplastics and other small litter as they evaluate current litter control practices and propose new initiatives to reduce the costs associated with litter management.

6.4.2 Controlling Litter at the Source

Trash does not become litter on its own – it becomes litter when people do not dispose of it or manage it properly. Addressing litter at its source through prevention and reduction initiatives greatly reduces the amount of staff time and equipment needed for abatement activities. Some of the largest generators of litter include (Reference 6-5):

1. Pedestrians or cyclists who do not use receptacles
2. Motorists who do not use car ashtrays or litter bags
3. Business dumpsters that are not screened from public view or properly covered
4. Loading docks and commercial or recreational marinas with inadequate waste receptacles
5. Construction and demolition sites without tarps or receptacles to contain debris and waste
6. Trucks with uncovered loads on local roads and highways
7. Household trash scattered before or during collection

Some of these challenges are related to people's habits and the behavior they deem acceptable, as well as perceived convenience, discussed in more detail below. Researching best management practices (BMPs) and effective strategies for litter prevention is essential for program success.

6.4.3 Changing Public Perception & Behavior

Litter begets more litter. People use a variety of cues from their surrounding environment to determine the commonly accepted behavior for a city, neighborhood or block. The presence of litter or illegal dumping in an area communicates to anyone nearby that the social norm is to litter or dump items (Reference 6-6). Individuals are substantially more likely to litter in blighted or already littered environments than in clean ones. Additionally, once an area is used for illegal dumping for a period of time, people tend to continue to dump at that site, even if it is cleaned. This means that once litter or illegal dumping is established in an area, it is very difficult to change the public's perception of that space. It takes considerable time and effort to repeatedly address the issue until the social norm changes, and an area is recognized as a litter-free environment. Often, people do not understand the personal impact litter has on them or their community, and they become apathetic to the problem. Consistent and ongoing community cleanup activities and beautification efforts that foster community pride are necessary to reducing the rate of littering and changing behavior.



Figure 6-6. A chronically littered area. The city has made a concerted effort to continually clean this site since this photo was taken to try to change behavior in the area, photo courtesy of Eric Kelp.



Figure 6-7. An illegal dump site with bulk items and potentially hazardous waste, photo by City of Fort Worth.

6.4.4 Receptacle Placement & Maintenance

The placement of trash and recycling bins and cigarette butt receptacles directly impacts the rate of littering, as many people will not cross the street or take extra steps to dispose of items properly. If there are not enough bins available in an area, the ones that are there tend to fill quickly and overflow, creating a situation where items blow away in the wind or wash away in the rain, and people leave items near the bins instead of seeking out another disposal location. While it may seem like the answer to this problem is to significantly increase the number of receptacles in public spaces, this would require additional crews to empty and maintain them. It may be more effective to employ education campaigns to encourage people not to litter or increase enforcement of litter laws. The city must evaluate these options and balance the cost of additional bins and containers, as well as the cost to hire additional staff, with that of education campaigns and abatement activities.

6.4.5 Illegal Dumping

Illegal dumping costs the city over \$1 million annually, and the number of dump sites abated each year is increasing. This may be due to increased dumping or increased diligence of city staff in finding, reporting and cleaning these sites. Catching culprits in the act of dumping is difficult, requiring an investigative

team to work with law enforcement in catching and prosecuting individuals after the fact. Illegal dumping also poses great risks to human health and safety, as well as the environment. Common sources of illegal dumping include contractors, auto body and tire shops and other commercial operations that produce large-scale and/or hazardous waste. There are increased costs and fees associated with properly disposing of these items, so some individuals and businesses avoid these costs by dumping items illegally, risking penalties and fines. Hazardous waste, including household chemicals like paint, oil and antifreeze, are commonly poured down drains or dumped because residents are unsure what to do with them. These items harm the city's water infrastructure or leach into soils and waterways where they pose a threat to drinking water, human health and local ecosystems. Sometimes illegal dumping is unintentional, such as when a person uses a dumpster that does not belong to them. Many people do not realize that this is still illegal dumping, because they cause the owner of the dumpster to have to pay for increased trash service and maintenance.

6.4.6 Aquatic Trash & Floatables

The Texas Commission on Environmental Quality issued the city's Texas Pollutant Discharge Elimination System permit renewal on March 8, 2018 (Reference 6-7). This permit authorizes discharges from the city's Municipal Separate Storm Sewer System (MS4;



Figure 6-8. The TRWD litter boom and trash collectors across from the Clear Fork pump station, photo by City of Fort Worth.

see Chapter 4 for details). The permit requires the city to address litter that may enter the MS4 or local waterways, as well as floatables in surface waters:

2. a. ii. *Floatables.* The permittees shall continue to implement a program to reduce the discharge of floatables (for example, litter and other human generated solid refuse) into the MS4. The permittees shall include source controls at a minimum and structural controls and other appropriate controls where necessary (Reference 6-7).

Storm drains lead to the nearest body of water, and about 18 percent of litter, usually traveling through the MS4, ends up in local streams, rivers and waterways. The TRWD maintains two floatable (i.e., floating aquatic trash) collection sites on the Clear Fork branch of the Trinity River to remove litter and debris from the water in compliance with the MS4 permit. While additional collection devices can be added to waterways, other trash found below the surface of the water and along the bottom of our rivers and lakes is not as easy to remove.

6.5 Strategies for Litter Control by Program Area

6.5.1 Strategies for PA 1: Litter Planning & Management

Litter is pervasive and persistent throughout Fort Worth, despite the negative public perception of litter and the city's efforts to reduce it. In 2016, the TRWD commissioned Open Channels Group (OCG) to conduct a survey of North Central Texas residents regarding their perceptions of litter (Reference 6-8).

- 70% of survey participants reported observing litter on a very frequent basis.
- 80% felt their city should do more to keep general public areas clean.
- 52% of residents admitted to littering in the past year.

Litter is often seen as a simple problem to solve; however, this study highlights some of the complex and seemingly contradictory perceptions and behaviors that result in littering. Many people believe, incorrectly, that someone will come behind them to collect any trash they throw on the ground, when in actuality, most of this trash ends up in local waterways. By performing additional studies similar to the OCG

survey and other types of research into litter and the behaviors that drive it, the city can provide effective solutions to the problem. Continued and improved data collection will also allow the city to perform the type of detailed analysis required to understand the full scope of the issue and develop strategic plans to address the root causes of littering.

6.5.1.1 Litter Analysis

Numerous studies over the last 40 years have shown that environments that are already littered tend to attract more litter and illegal dumping. These studies show that communities with beautification programs typically have lower rates of littering, and support the use of ongoing cleanups, beautification activities and assessing receptacle location and appearance as litter prevention strategies. Historically, KFWB programs have focused on littering and recycling, with less emphasis on beautification projects. Division staff should coordinate with other departments on city programs, such as the Cowtown Brushup, as well as organizations within the community to develop new beautification programs. These may include tree plantings, community gardens, public art, street sign toppers and other projects that foster community pride. Another established research finding is that littering rates decrease as the convenience of using a proper receptacle increases (i.e., people will throw garbage into a bin if it is nearby). Furthermore, the appearance of a receptacle can also decrease litter rates, and a brightly colored or decorated receptacle attracts considerably more use than does a plain or



Figure 6-9. Beautification activities, such as this mural painting, help to reduce instances of littering, photo by City of Fort Worth.

ordinary receptacle. Staff should research programs in other cities and develop a list of potential pilot projects to increase bin utilization, including targeting bin locations, gamification, voting with trash and wrapping bins with different designs.

A review of these litter studies also found that the most frequently littered items are (Reference 6-6):

1. Cigarette butts
2. Takeout food packaging
3. Snack wrappers
4. Miscellaneous paper
5. Miscellaneous plastic
6. Vehicle debris
7. Beverage containers
8. Napkins, bags, and tissues
9. Miscellaneous metal and glass
10. Other beverage-related litter
11. Construction debris

These studies suggest that the city should consider targeting specific items for anti-litter messaging. The city can utilize data on the types of litter collected locally from litter abatement programs to prioritize development of campaigns around commonly littered items. Staff will research successful campaigns in other cities to develop messaging and outreach strategies.

KFWB conducts an annual Community Appearance Index (CAI) for KAB reporting, which looks at the occurrence of litter, graffiti, abandoned vehicles and other indices of blight, in eight different areas of the city. The CAI measures progress in these areas and helps staff understand major issues that need to be addressed. Staff can review past indices and use the results of the CAI to prioritize areas and activities for future planning. KFWB also tracks the results of litter cleanups throughout the year, including the geographical location, the types of litter found and the amounts collected. These cleanup results should be analyzed to determine not only where volunteers are collecting the most litter, but the areas with little to no volunteer cleanup activities. The city call center tracks reports of litter and illegal dumping, which can be used to identify hot spots throughout the city. Staff will utilize geographic information systems (GIS) to

map location data from litter cleanups and the city call center to identify areas of the city that are highly littered and/or underserved by volunteer efforts. All of this data should be utilized to prioritize cleanup projects and direct city staff and volunteers to areas of greatest need.

6.5.1.2 Litter Reduction Planning

In 2017, environmental staff developed a Draft Comprehensive Litter Management Plan, which outlined over 25 litter initiatives, including existing programs, pilot programs and those that needed to be developed. The programs and actions described in that draft became the foundation for this chapter, which aims to transition the public from litter awareness to engagement, increase litter prevention and develop advance reduction strategies. Continual litter planning efforts will include action plans for pilot programs and the implementation of new projects and technologies, along with timelines to manage priority programs and projects. Division staff will work closely with Planning & Development to incorporate litter control measures into community plans through creative design elements, public bins and other methods. The city should also explore whether to require litter abatement and control activities in public improvement districts (PIDs) and developments utilizing tax increment financing. Division staff will also work with external agencies, such as the Chambers of Commerce and PIDs to develop litter control plans for specific locations and specific business types. The Downtown Fort Worth, Inc. PID can be used as a model for litter control strategies, as this area is widely recognized to be very clean due to the efforts of the litter abatement and street sweeping crews employed by the PID.

Many of the city's litter programs are administered through KFWB, which manages litter awareness programs, organizes litter cleanup events, provides support and supplies for community cleanups and engages volunteers. A strategic, long-term plan for KFWB management and governance should be developed to grow the volunteer base and support an active board. This should include a board handbook



Figure 6-10. Keep Fort Worth Beautiful is an affiliate of Keep America Beautiful and Keep Texas Beautiful.

and required regular reviews of the KFWB coordinator and board, as well as periodic updates of governing documents, such as bylaws. Historically, volunteers have been recruited for large events, but have not been contacted and engaged on a regular basis. The board has also not been involved in the daily activities of the organization, partly because KFWB is a government affiliate, rather than a NPO. The city may consider whether an alternative structure would be beneficial to KFWB programs.

6.5.1.3 Litter Rules & Regulations

Current litter enforcement activities are governed by state laws and local ordinances. The Texas Health and Safety Code §365.012 establishes littering as illegal within the state and establishes penalties, including fines and jail time, based on the weight and type of litter (Reference 6-9). In 2017, the law was amended to require community service picking up litter, as well as fines, in certain situations. In addition, Fort Worth has several ordinances in place to enforce litter issues (Reference 6-10):

- (Ord. 14676, § 1, passed 6-26-2001) § 11A-27 LITTERING PROHIBITED states that anyone who allows litter to be deposited on a property is committing an offense.
- (Ord. 14676, § 1, passed 6-26-2001; Ord. 17522, § 5, passed 4-24-2007) § 11A-28 DUTY TO MAINTAIN PROPERTY FREE FROM LITTER states that it is an offense if an owner or occupant fails to keep a litter-free property, and that construction sites must also remain litter-free with all debris properly contained.
- (Ord. 12931, § 1, passed 3-25-1997) § 11A-26 STORAGE OF DISCARDED, USED AND BROKEN ITEMS states that a person commits an offense if they allow the accumulation of discarded and broken items on a property, including items on rooftops and porches if they are visible from a public right-of-way or neighboring property.
- (Ord. 19255-08-2010, § 1, passed 8-3-2010) § 20-443 PENALTIES sets the penalties for litter offenses, including fines up to \$2,000 for violations involving fire safety, zoning, public health or dumping and up to \$500 for other violations, and establishes that a person is guilty of a separate offense each day they are in violation of the ordinance.

Environmental staff will conduct a thorough assessment of these ordinances and a review of the litter policies and ordinances of other cities, including penalties and enforcement tools. Staff should evaluate the penalties outlined in Fort Worth's ordinances to determine whether they are adequate to deter littering and illegal dumping. Emphasis should be placed on penalties and enforcement strategies that include community service requirements to pick up litter. Upon completion of the review, Division staff will work with partners in the city to amend Fort Worth's existing ordinances or draft new ones, as necessary.

6.5.1.4 Litter Control Projects & Technologies

Analysis and planning will be used to determine prioritize Litter Control projects, such as those in the Capital Improvement Plan (CIP) and smaller-scale projects in targeted neighborhoods throughout the city. Environmental staff should also evaluate litter control technologies and cleanup tools. This includes everything from litter collection systems on waterways to advanced containers and receptacles that automatically track waste collection data to something as simple as utilizing nets and rakes in waterway cleanups. Technologies and tools should be evaluated for up-front costs, ease of deployment, operation and maintenance requirements and overall return on investment.

6.5.1.4.1 DATA COLLECTION & SOFTWARE

Some of the more pressing needs in Litter Control programs are associated with data collection and reporting. Data collection is essential in evaluating the efficacy of litter programs and monitoring progress toward goals and targets. Increased data collection and ensuring data accuracy are essential to proper reporting, as well as evaluating programs and determining where resources should be allocated. KFWB has additional reporting requirements as an affiliate of KAB and KTB that requires collecting data from volunteers on their litter cleanup efforts, as well as multiple city departments, including Park & Recreation (PAR), police, the Community Engagement Office and the Code Solid Waste Division. Environmental staff have explored the use of different software tools to collect these data, manage volunteers on a day-to-day basis and set up registration for citywide litter cleanup events. This includes creating web-based forms to replace paper forms for more streamlined and efficient data collection, as well as integrating cleanup information into a GIS-based web

tool for better data visualization. There is also a need for external communication tools, because KFWB board members do not have access to internal city systems and files. Staff have piloted different platforms for sharing information and documents with board members, and will continue to evaluate options.

6.5.1.4.2 TARGETED LOCATION PROJECTS

Staff will utilize mapping data to strategically target neighborhoods with high rates of litter and illegal dumping for litter control projects. The city has had success prioritizing specific communities for code enforcement activities, including litter and illegal dumping abatement and outreach activities. Staff from several divisions of Code Compliance, including Solid Waste, Code Enforcement and the Environmental Division, along with other city departments, devoted substantial resources to these neighborhoods for an extended period of time. The city performed substandard building demolitions, removed illegal dump sites, coordinated with the contracted waste hauler to collect items with the potential to be dumped and worked with community members to reduce instances of code violations. These efforts achieved a visible reduction in litter and improvements in other appearance indices, and residents have expressed increased pride in their neighborhoods and become more involved in their communities. Staff should assess these efforts for best practices and continue to develop successful strategies for future projects, including incorporating more litter awareness outreach and volunteer cleanup events.

6.5.1.4.3 TRASH BIN INVENTORY

Environmental staff are working with other city departments on a project to develop a comprehensive mapping inventory using GIS for public trash containers placed at various locations throughout the city. These include bins in the downtown core managed by Downtown Fort Worth, Inc., receptacles in parks maintained by PARD and bins on university campuses. The map will be placed on the city website as an interactive tool that residents and visitors can use to find convenient bins when planning activities in parks and other public area. Environmental staff will work with project partners to identify additional data needs,



Figure 6-11. When the city took ownership of Echo Lake Park, some of the trash bins were in bad shape. Using the inventory, the city can set a replacement schedule for bins to ensure this does not happen in the future, photo by City of Fort Worth.

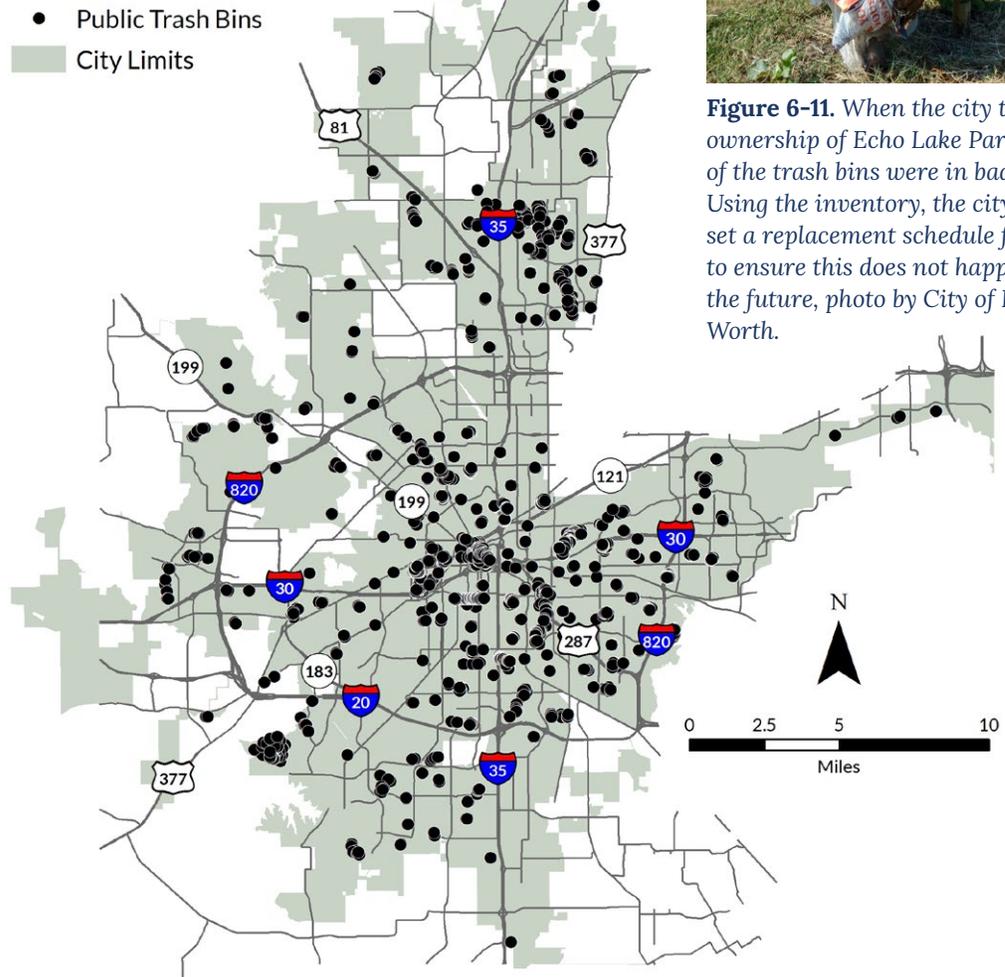


Figure 6-12. Map of public trash bins, 2019.

such as developing a replacement schedule for existing bins, the frequency of container service and the volume and weight of waste collected. This information could be used on pilot projects to determine how bin placement and aesthetics impact waste collection. Eventually, other container types can be added to the database, such as cigarette butt receptacles. Data analysis can also help determine where additional bins should be placed, which will assist staff in reducing litter and maintaining a cleaner city.

6.5.1.4.4 ILLEGAL DUMP CAMERAS

Since 2013, trash removed from illegal dump sites in Fort Worth has increased by 50 percent, and in 2018, approximately 2,900 tons of trash and debris were collected. This could be the result of increased vigilance of dump site reporting and abatement, an increase in dumping activities or a combination of the two. To combat this issue, the Code Environmental Investigation Unit (EIU) has installed more than 70 cameras at known dump sites for the surveillance of perpetrators of illegal dumping. The EIU uses camera evidence to find violators and issue citations. The evidence is shared with the Fort Worth Police Department. The city invested around \$500,000 for the new technology with the idea that some or all of this cost can be recovered by forcing perpetrators to pay for abatement activities and preventing further dumping. The cameras have proved to be useful tools in helping the EIU officers identify the dumping violators, and is slowly leading to an increase in citations. City staff will continue to evaluate the success of these cameras and their impact on chronic dumping. Staff will also explore whether to



Figure 6-13. It is difficult to deter illegal dumping once it has occurred in an area. The city is considering a technological options like cameras to catch perpetrators, photo by City of Fort Worth.



Figure 6-14. This TRWD trash basket traps debris and allows water to pass through, photo by City of Fort Worth.

expand the camera program and hire additional staff to monitor the network.

6.5.1.4.5 FLOATABLES MANAGEMENT

TRWD maintains floatable collection devices that remove litter and debris from the water at two separate locations on the Clear Fork branch of the Trinity River. Collectors were installed across from the Clear Fork Pump Station under Rosedale Street. These devices employ a litter boom to direct floatable debris toward the collection units. A trash basket collector was installed at a major outfall to catch floatables where water entering the main channel of the Clear Fork must pass through. These trash collectors are included in the TRWD routine floodway maintenance program. After a ½-inch rain event, the trash collectors are visually inspected for capacity and damage. The cleaning schedule for the trash rack is dictated by the frequency of storms. Additionally, low water dams naturally collect debris and litter, which is then removed (Reference 6-11). Environmental staff are working with TRWD to identify locations of additional outfalls and low-head dams along the Trinity River and determine the areas with the greatest trash accumulation (details in Chapter 4). Furthermore, city staff will work with TRWD to develop additional BMPs to manage trash accumulations and collect data on the amount of trash removed from surface waters.

6.5.1.5 Development Actions for PA 1: Litter Planning & Management

Litter Analysis

1. Research successful components of beautification programs, as well as KAB and KTB beautification programs.

2. Research BMPs for bin placement and design that encourages use.
3. Develop and annually maintain a prioritized list of frequently littered items to inform anti-litter campaigns.
4. Develop and annually maintain a prioritized list of areas in the city for litter cleanup projects and activities based on the CAI and the litter and illegal dumping hot spots map.
5. Develop and maintain a database of KFWB documents.

Litter Reduction Planning

1. Work with the KFWB board to develop a strategic plan for KFWB management and governance, which includes goals that support the mission, and update it annually.
2. Create a volunteer management plan that includes the resources necessary for daily coordination, and work with KFWB board and city staff to implement it.

Litter Rules & Regulations

1. Review litter ordinances, penalties and enforcement strategies and revise existing ordinances or draft new ordinances to better address the litter problem in Fort Worth.

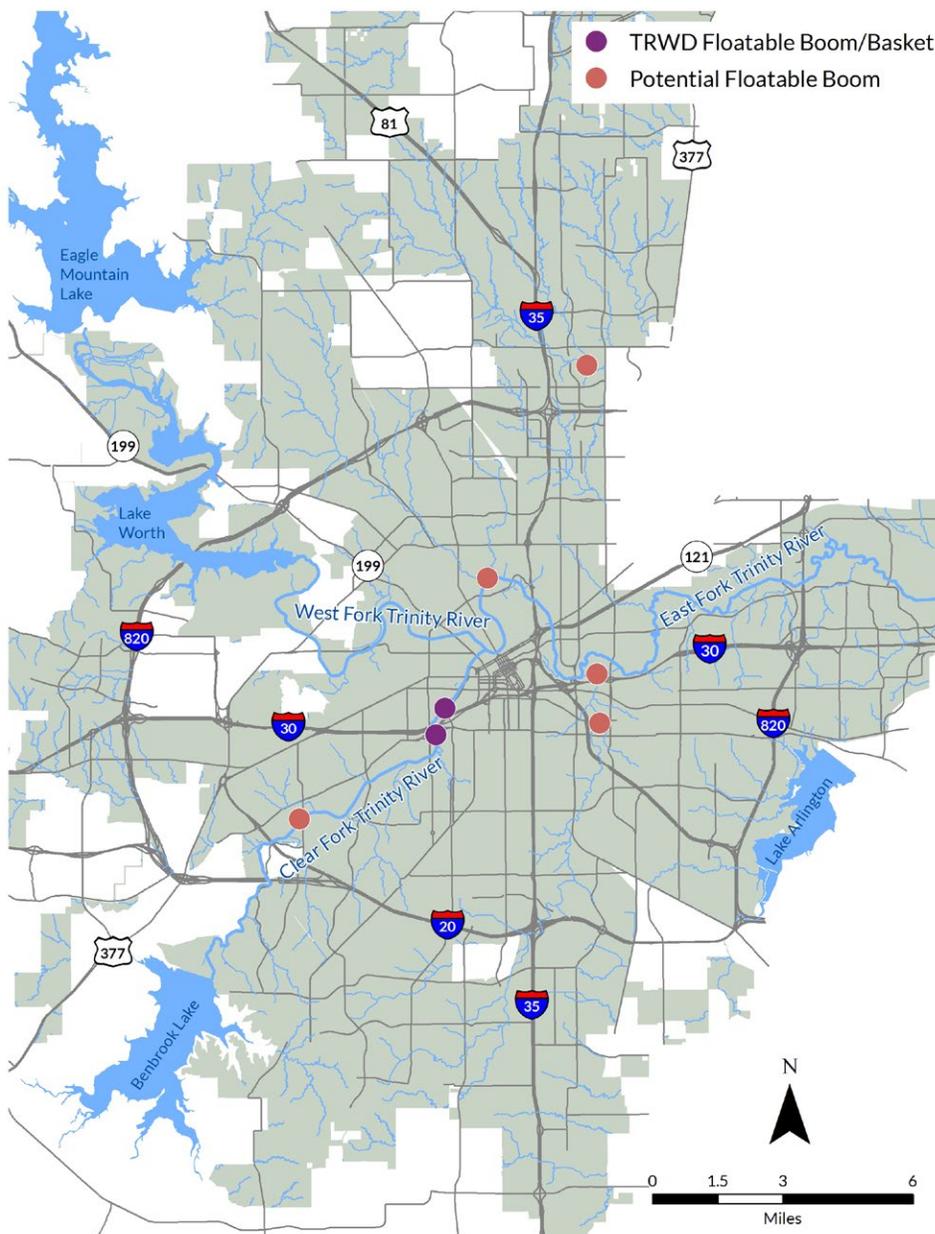


Figure 6-15. Map of current and potential litter boom locations, 2019.

Litter Control Projects & Technologies

1. Evaluate litter control technologies and tools for potential pilot projects and field deployment.
2. Launch long-term, neighborhood-specific litter control projects. Incorporate increased anti-litter messaging and outreach into projects.
3. Evaluate litter control projects upon completion and develop lessons learned to inform future projects.
4. Continue to automate the litter cleanup supply request and event registration processes.
5. Explore options to collect litter cleanup and other KFWB program data online.
 - Create a web-based mapping application for public use that tracks litter clean-up projects. *Performance Indicator:* Number of visitors to the website.
6. Maintain the trash bin inventory database and include information on bin maintenance, replacement timelines and amount of trash collected.

7. Evaluate the need for additional illegal dump cameras and staff to monitor them.
 - *Performance Indicator:* Number of incidents captured by illegal dumping cameras.
8. Continue the collaboration with TPW/Stormwater Management Division and TRWD to identify opportunities to install litter control devices along local streams and the Trinity River.
 - *Performance Indicator:* Number of litter control devices installed.
9. Collect data on the amount of litter removed from waterways.
 - *Performance Indicator:* Quantity of floatable debris removed from waterways by collection devices.

6.5.2 Strategies for PA 2: Prevention & Abatement

Litter programs in Fort Worth have historically focused on complaint-driven reactive abatement due to resource limitations. As staff, resources and partnerships have expanded, the focus has moved toward proactive abatement, coupled with litter awareness programs. There is still substantial room for growth in the abatement programs, but the city also recognizes the need for prevention as a primary litter reduction strategy. Prevention and abatement work in tandem; prevention efforts reduce the need for abatement, and litter abatement establishes an area as litter-free, helping to prevent further litter.

6.5.2.1 Litter Prevention

The best litter control strategy is to prevent trash and debris from being littered in the first place. This includes encouraging people not to litter by making it easy for them to do the right thing and dispose of items properly. The city does this by providing several facilities where residents can take garbage, recycling, HHW and other common items. The city and its partners also provide bins and receptacles throughout the city where visitors can dispose of trash and recyclables. These are often found in areas of high foot traffic, near locations where people might litter. Environmental staff are collaborating with other departments and divisions, as well as external partners, to find ways to provide receptacles for commonly littered items, such as cigarette butts. Below are details for these litter prevention initiatives.



Figure 6-16. The City of Fort Worth Hillshire Drop-off Station, photo by City of Fort Worth.

6.5.2.1.1 DROP-OFF STATIONS & THE ENVIRONMENTAL COLLECTION CENTER (ECC)

Residents with an active Fort Worth water account can take trash, brush, recyclables, HHW and other items to drop-off stations located around the city for free and easy disposal. HHW can also be taken to the ECC, which collects, consolidates, transports and properly disposes of HHW while following federal, state and local environmental regulations. The city opened its fourth drop-off station in September of 2017 and expanded the list of items that are accepted at these sites to include electronics and furniture donations. In the fall of 2018, secured document shredding and destruction services were added to all drop-off stations. Combined, the stations have over 210,000 visits annually, helping prevent illegal dumping and littering. The city plans to open additional drop-off stations to serve more areas and evaluate the demand for additional services to offer and items to accept. More information about the drop-off stations and the ECC is provided in Chapter 5, as well as the Comprehensive Solid Waste Management Plan: Rethinking Waste for a Greener Fort Worth (Reference 6-1).

6.5.2.1.2 CONTAINERS & BINS

Providing easily identifiable and convenient receptacles is key to preventing litter. Research has found that when people are observed littering in public spaces, the nearest trash receptacles averaged about 29 feet away. The rate decreased to 12 percent when people were within about 10 feet of a trash receptacle (Reference 6-6). The city and its partners will use the data from the trash bin inventory to target areas for additional bins and consider the use of wraps or artwork on the bins and surrounding areas to attract attention and encourage people to properly dispose of their trash. Accessible recycling containers also help



Figure 6-17. A Bigbely solar trash and recycle compactor in Trinity Park, photo by City of Fort Worth.

prevent littering, and the city is collaborating with partners and utilizing grants to fund the placement of recycling containers in parks and other public spaces. Additionally, the city and its partners have placed Bigbely solar trash compactors throughout Fort Worth to reduce windblown trash and bin overflow. As of 2018, the Solid Waste Division had placed over half of the 125 Bigbely compactors for this project in public spaces, and some of those units have companion recycling containers. The Solid Waste Plan includes expansion of public recycling, and eventually, organics collection (Reference 6-1). Staff will continue to evaluate BMPs around public receptacles and incorporate them into these programs as they are rolled out and expanded.

6.5.2.1.3 SPECIAL COLLECTION & RECYCLING EVENTS

To prevent illegal dumping, the city offers events throughout the year where residents can bring items like HHW and electronics for proper disposal. These include Crud Cruiser mobile collection events, which



Figure 6-18. City employees helping residents unload items for the America Recycles Day-Shred Day event, photo by City of Fort Worth.

accept cooking oil, lightbulbs, automotive fluids and other HHW. The Solid Waste Division holds an event every year for America Recycles Day in November. Historically, this event has been branded locally as Shred Day, and has focused on secure document shredding, as well as collecting other items like clothes and electronics. After 2018, city drop-off stations will offer shredding services, and target hard-to-recycle items and waste reduction activities. This event serves nearly 1,200 people every year, and the city can capitalize on its success to prevent litter and dumping in our community by targeting a wider range of items with high dump risk.

Community organizations and local businesses also offer their own events throughout the year to accept items, and the city supports these efforts by advertising through social media channels and assisting with special event recycling. City staff should consider developing a calendar of these events to further promote them, and collaborate more closely with event sponsors to gather data on the types and amounts of items collected.

6.5.2.1.4 TARGETED ITEM LITTER PREVENTION

The city will consider the eleven most commonly littered items, listed in the PA 1, when developing new programs and outreach campaigns. Currently, there is a focus on cigarette butts and single-use plastic items, although targeted items may change with time as public perceptions and behaviors change.

Environmental staff are collaborating with other departments, divisions and external partners, including our PIDs, to develop a pilot program to reduce cigarette butt litter. This includes funding and placing specialized receptacles at key locations and wrapping them with city anti-litter campaign graphics. PIDs will work with their crews and local businesses to empty and maintain the receptacles, as well as gather data on the amount collected. The city will explore working with the Chambers of Commerce and business organizations to target specific industries, such as bars and restaurants that are natural partners for these programs. The city will also evaluate the KAB Cigarette Litter Prevention Program to determine if it should be utilized or adapted for use in Fort Worth.

Single-use plastic items are the other commonly littered item the city is focused on. Every bit of plastic ever made still exists. Between 2000 and 2010, the



Figure 6-19. A special receptacle for collecting cigarette butts, photo by City of Fort Worth.

world produced more plastic than during all of last century. The city will consider promoting Plastic Free July or a similar initiative to reduce plastic litter. This involves pledging not to use disposable plastic products during the month of July by substituting reusable alternatives. The pledge is designed to encourage people to think about the single-use plastic items they consume every day, and find ways to reduce that waste. It also encourages businesses to evaluate their impact on litter and pollution. They city staff should work with them to find alternatives, such as compostable utensils, which help prevent litter and reduce waste. The city can also engage advocacy groups and decision-makers in trash and plastic pollution public policy education (Reference 6-12) to support the initiative, and highlight the most commonly littered plastic items: plastic bags, water bottles, takeaway cups and straws (Reference 6-13). These targeted item strategies will include education and outreach that have a litter prevention message and encourage people to take action.

6.5.2.2 City Litter Abatement

The different divisions of Code work together to address all aspects of the litter problem, from planning and prevention to abatement and enforcement to education and outreach. While environmental staff manage volunteer cleanup activities and most of the city's public-facing litter programs, solid waste is the division primarily responsible for the city's cleanup activities and illegal dumping investigations.

6.5.2.2.1 SOLID WASTE FIELD OPERATIONS TEAM

The Solid Waste Field Operations Section for litter and illegal dumps is comprised of five teams: the EIU, Illegal Dump Cleanup, Litter Abatement, Street Sweeping and Dead Animal Pickup. The Litter Abatement team cleans littered sites, performs nuisance abatement duties and removes litter from homeless camps when complaints are received. This team has five crew leaders, one senior maintenance worker and three maintenance workers, and is supplemented by community service workers, when they are available. There are not always enough community service workers to form five crews, and crew leaders must work with one another to clean sites. To adequately address litter as the city grows, this team should be expanded to fully staff five crews without relying on community service workers. The illegal dump crew cleans large-scale sites proactively and when complaints are received. The EIU writes citations for smaller dump sites, investigates illegal dumping and provides case information to Fort Worth detectives, who forward cases to prosecutors. The dead animal crew removes approximately 50 tons of dead animals annually. The street sweeper crew sweeps major Fort Worth arterial roadways and certain intersections on a set schedule, as well as other non-residential roadways upon request. City staff will continue abatement efforts and collaborate with one another to address litter. This includes assessing ways to improve communication between departments and divisions, as well as the public, when handling litter abatement requests and illegal dumping. More information on Solid Waste Field Operations is available in the Solid Waste Plan (Reference 6-1).

6.5.2.2.2 STREET SWEEPING

The city street sweeping program is a cooperative effort between environmental staff, who assist in planning and setting the routes, and Solid Waste Field Operations who perform sweeping and litter collection activities. The city purchased two street sweepers to remove debris from streets and curbs, as well as five portable vacuum litter collectors to facilitate efficient litter cleanup around Fort Worth. Municipal street sweeping programs provide several benefits to communities. Street sweeping protects stormwater drainage by preventing storm drains from becoming clogged with debris and reducing contaminants that would otherwise enter local waterways. Reducing litter and debris enhances the visual appeal of an area and improves safety for vehicles, bicycles and pedestrians.

With current equipment and crews, the city swept 3,817 gutter miles in fiscal year 2018. Environmental staff will evaluate current and new routes for sweeping and litter collection activities, and explore options for funding additional equipment and crews. Ideally, the city should increase the number of sweepers to 25 with two shifts of drivers to cover more areas on a regular basis.

6.5.2.3 Contractual Litter Abatement

Collaborative efforts help extend the impact of city services, and the city contracts with different companies and organizations to expand its litter abatement capacity. Although PIDs contract their own litter abatement, street sweeping and power washing services, city staff coordinate with them to avoid duplication of efforts and ensure compliance with

city ordinances. The city will explore ways to expand litter control through contractual agreements and partnerships.

6.5.2.3.1 MOWING CONTRACTS

A majority of public spaces in Fort Worth are mowed by contractors, although PARD staff are responsible for mowing park land, medians and right-of-ways. While TxDOT is responsible for litter cleanup and mowing operations along highways and major roads, the Solid Waste Division manages a supplemental mowing and litter abatement contract along the I-30 and I-35 corridors. City staff and contractors, as part of their agreement with the city, are required to remove litter and dispose of it prior to mowing activities.

Mowing littered areas creates micro-litter that is very difficult and time-consuming to remove from an area, and can scatter into streets and gutters where it is washed into stormdrains. Removing litter before mowing reduces labor time and costs and makes the cleanup process more efficient. City staff will review mowing contracts to ensure litter removal and disposal are included, and require language to this effect in all future contracts. PARD and environmental staff should consider auditing the mowing process to ensure contract compliance.

6.5.2.3.2 NPO & NGO PARTNERSHIPS

The Solid Waste Division has an annual contract with Presbyterian Night Shelter (PNS) of Tarrant County for litter collection services along East Lancaster, from Interstate 35 to Riverside Drive. PNS offers assistance to homeless persons, and this program provides compensation, work skills, room and board, meals and clothing. The overall goal of the program is to

2016-2017 Illegal Dump Activity

Incidents

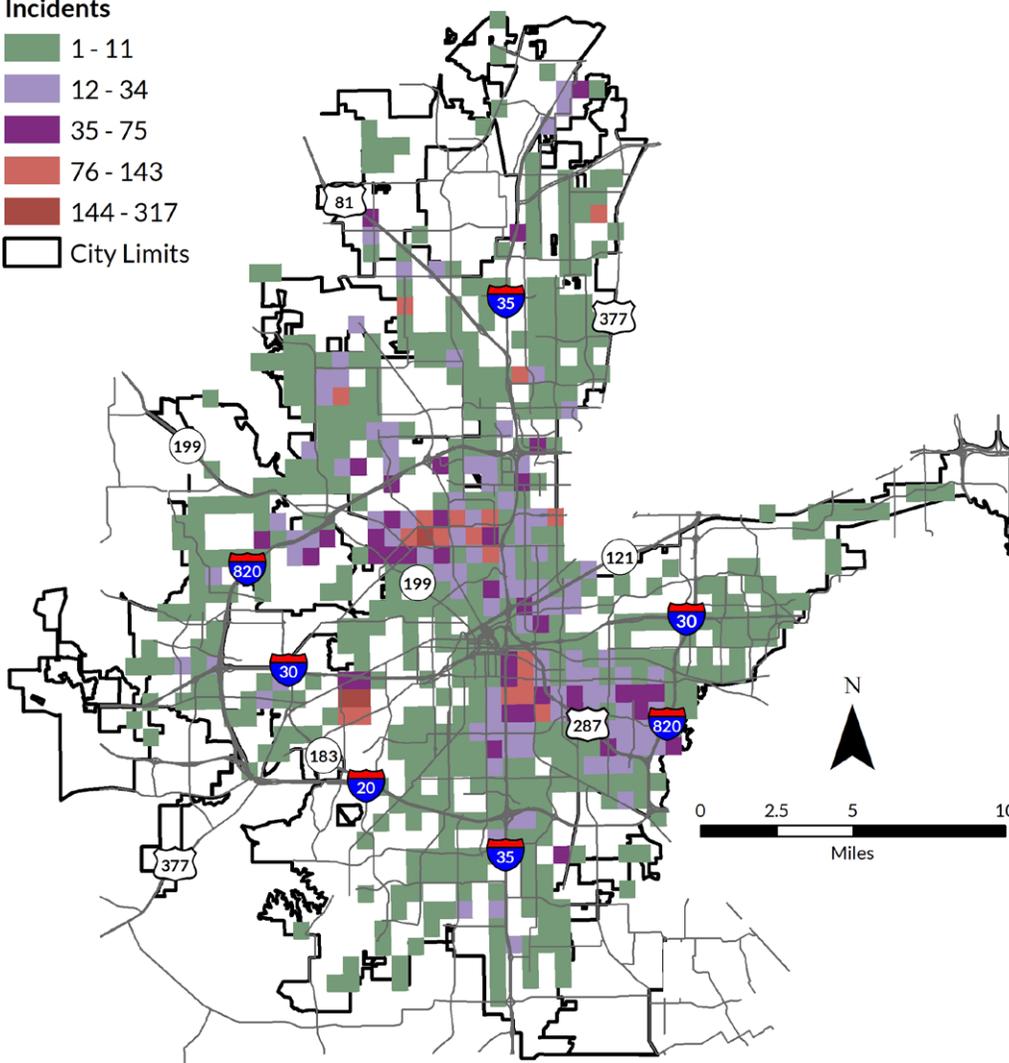
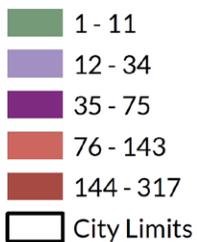


Figure 6-20. Map of the average number of illegal dump sites abated in 2016 and 2017.



Figure 6-21. A PNS worker cleans litter at Echo Lake Park, photo by City of Fort Worth.

reduce homelessness in Fort Worth while providing a beneficial service to the community. This program has already helped transition people out of homelessness and has been expanded to include heavily littered waterways. The city will continue to look for ways to partner with NPOs and NGOs to create programs that reduce litter and have positive community outcomes.

6.5.2.4 Volunteer Litter Abatement

The city recognizes that it cannot solve the litter problem on its own. Volunteers have an enormous impact on litter in Fort Worth, donating tens of thousands of hours picking up hundreds of thousands of pounds of trash every year. Environmental staff work closely with other departments, including PARD and the Community Engagement Office, to organize cleanup events and volunteer efforts across the city. These partnerships within the city increase efficiency and reduce duplication of efforts. Increase interdepartmental communication and cooperation have reduced logistical problems and facilitated the coordination of large-scale volunteer events. City staff should develop procedural documents for these programs to ensure their continuity through staffing changes.

6.5.2.4.1 “ADOPT-A” PROGRAMS & PARTNERSHIPS

The city and its partners have several initiatives promoting environmental stewardship and litter removal. PARD manages the contracts for three “Adopt-a” programs: Adopt-a-Park, Adopt-a-Median, and Adopt-a-Street. Volunteers, often neighborhood associations, NPOs and businesses agree to maintain a particular location through litter cleanup and beautification efforts. These groups give over 9,500

volunteer hours annually, which supports the city’s efforts to eliminate litter. The city partners with TRWD on the Adopt-a-Drain, an awareness campaign to ensure the public knows litter on our streets ends up in our rivers. Over 110 storm drains have been adopted throughout the city. TRWD also manages the Adopt-a-River program that encourages individuals and organizations to volunteer to adopt a section of the Trinity River and pick up litter along the riverbank. The Texas Department of Transportation (TxDOT) administers the Adopt-a-Highway program, which allows businesses and groups to either adopt or sponsor cleanup activities along a section of roadway managed by TxDOT. This program is part of the Don’t Mess with Texas anti-litter campaign. The city will continue to promote adoption of public areas throughout Fort Worth by engaging local community groups and businesses. Environmental staff will also review the current contracts with PARD and compare them to contracts for “Adopt-a” programs in other cities to see if they need to be updated or rewritten.

The U.S. Environmental Protection Agency (EPA) manages the nationwide Trash-Free Waters program, which aims to prevent trash and litter from entering U.S. waterways. The EPA collaborated with the city and other partners to develop a local initiative, Trash-Free Trinity, a GIS web mapping platform to connect volunteers with locations that need to be adopted along the Trinity River. Since its inception, the program has expanded statewide, with all major watersheds in Texas on the map. The city is working with the EPA, KTB and other partners across the state to collect data for adopted sites and sites that need to be adopted. Environmental staff have created a plan for the next steps of program development, and will continue to assess program needs, including funding, and evaluate



Figure 6-22. An adopted storm drain with an anti-litter message, “Don’t Trash the Trinity”, photo by City of Fort Worth.

whether creating a 501(c)(3) NPO or moving the program under an existing statewide NPO would be beneficial.

6.5.2.4.2 CITYWIDE LITTER CLEANUP EVENTS

KFWB and TRWD each host citywide litter cleanup events twice a year in a coordinated effort to eradicate litter in neighborhoods and waterways. TRWD holds the biannual Trinity Trash Bash in the spring and fall. The larger of the two events is in the fall, with over 8,000 volunteers picking up litter, and includes a volunteer party. The Neighborhood Litter Stomp is KFWB's fall cleanup, and usually has around 1,500 volunteers. In the past, these events have been combined on the same day, but at the request of volunteers, the event was split starting in 2018. This could result in greater attendance for both

organizations. KFWB's largest litter cleanup event is the Cowtown Great American Cleanup and Earth Party, held every spring. Around 6,500 volunteers pick up over 100,000 pounds of litter throughout Fort Worth, and about 2,000 people attend the volunteer celebration at Earth Party. Environmental staff and the KFWB board will look at events from other KAB and KTB affiliates to develop strategies to increase participation in these cleanup events. KFWB also supports a summer cleanup challenge at the city community centers that promotes the TRWD "Ten on Tuesday" pledge. Community centers compete to see who can pick up the most litter for a chance to win prizes for the kids who participate. This program could be modified and expanded to school summer programs or citywide.

6.5.2.4.3 VOLUNTEER-LED LITTER CLEANUP SUPPORT

KFWB has made it easy for residents, businesses and local organizations to organize their own litter cleanups. The volunteer-led cleanup program utilizes an online form to gather information on the cleanup, then KFWB provides supplies, including bags and gloves, for volunteers. In addition, KFWB provides a voucher to dispose of the litter at any of the drop-off stations, as some groups do not have access to them for free. To track results of these individual efforts, KFWB provides a form to track the results. Currently, this process is largely manual and involves paper and email forms. Environmental staff are working with IT specialists in the city to automate part of the process through web forms to provide enhanced customer service and more efficient data tracking. KFWB also aids groups with logistical support when organizing large community cleanup events, including connecting them with resources from partner organizations such

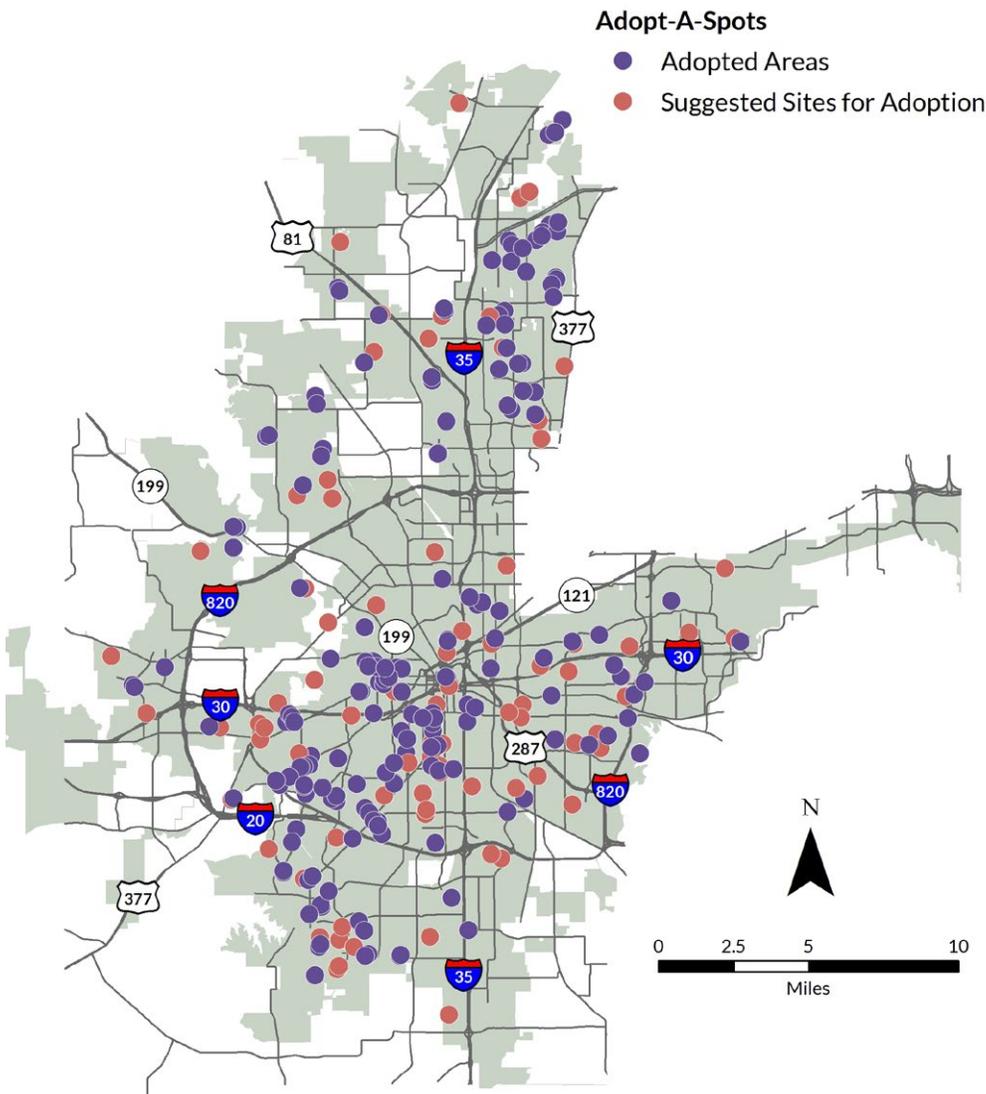


Figure 6-23. Map of adopted locations and sites identified as needing adoption in Fort Worth, 2019.



Figure 6-24. Students participate in the annual Cowtown Great American Cleanup, photo by City of Fort Worth.

as KAB and KTB. Occasionally, businesses and very large groups request additional support and media opportunities. KFWB works with staff in PARD and the Solid Waste Division to organize cleanups in multiple areas throughout the city to accommodate groups of anywhere from 50 to 1,000 volunteers. Staff are working to create procedures for these large cleanups that require more coordination and showcase the impact of our volunteers through different media channels.

6.5.2.5 Development Actions for PA 2: Litter Prevention & Abatement

Litter Prevention

1. Encourage the use of the drop-off stations by offering additional services and opening more drop-off stations throughout the city (per the Solid Waste Plan).
 - *Performance Indicator:* Number of people visiting drop-off stations.
 - *Performance Indicator:* Amount of the different materials collected.
2. Develop and annually maintain a prioritized list of areas that need public trash bins and work with partners to place and maintain new bins.
 - *Performance Indicator:* Number and location of new bins.
 - *Performance Indicator:* Amount of trash or recyclables collected.



Figure 6-25. KFWB provides litter cleanup supplies to volunteers, photo by City of Fort Worth.

3. Research the use and effectiveness of bin art and other creative strategies and develop a prioritized list of recommended actions for the city.
4. Coordinate with partners to host events focused on the collection of hard to recycle items.
 - *Performance Indicator:* Number of people who participate in the events.
 - *Performance Indicator:* Amount and type of material collected.
5. Work with partners to develop a pilot program to test the effectiveness of public cigarette butt receptacles.
 - *Performance Indicator:* Number and location of installed receptacles.
 - *Performance Indicator:* Volume or weight of cigarette butts collected at each one.

City Litter Abatement

1. Increase the number of littered sites abated or the total volume of litter collected by expanding the number of litter abatement teams and/or utilizing community service workers.
 - *Performance Indicator:* Number of sites abated.
 - *Performance Indicator:* Amount of litter collected by abatement teams.
2. Expand the city’s street sweeping fleet and/or add more crews on different shifts to increase the amount of time sweepers are in operation.
 - *Performance Indicator:* Number of curb miles swept by the city along each route.

Contractual Litter Abatement

1. Perform regular audits of areas mowed by contractors to ensure they are removing litter before mowing and provide additional education for contractors not removing litter.
 - *Performance Indicator:* Number of sites audited.
2. Develop and annually maintain a list of mowing contractors used by the city.
3. Develop training materials and schedule for mowing contractors used by the city.
 - *Performance Indicator:* Number of mowing contractors that have completed the litter training.
4. Increase the number of litter crews under the PNS contract.
 - *Performance Indicator:* Number of people contracted through the PNS contract.
 - *Performance Indicator:* Square miles of the city cleaned by the cleaning crews each year.
 - *Performance Indicator:* Amount of litter removed.

Volunteer Litter Abatement

1. Increase volunteer participation in the Adopt-a-program.
 - *Performance Indicator:* Number and location of adopted sites.
 - *Performance Indicator:* Hours of volunteer service achieved for each Adopt-a event.
 - *Performance Indicator:* Amount of litter removed at each adopted location.
2. Increase participation in citywide litter cleanups.
 - *Performance Indicator:* Number of participants in citywide litter cleanup events.
 - *Performance Indicator:* Number of locations cleaned.
 - *Performance Indicator:* Hours of volunteer service achieved at citywide litter cleanup events.
 - *Performance Indicator:* Amount of material collected at citywide litter cleanup events.
3. Increase the number of volunteer-led cleanups.
 - *Performance Indicator:* Number of volunteer-led cleanups.

- *Performance Indicator:* Number of participants.
 - *Performance Indicator:* Hours of volunteer service achieved at each volunteer-led cleanup event.
 - *Performance Indicator:* Amount of litter cleaned at each volunteer-led cleanup event location.
4. Send out periodic surveys to evaluate the quality of customer service provided by the city and determine if there are any unmet volunteer needs.

6.5.3 Strategies for PA 3: Compliance & Enforcement

The programs detailed below have been established to deter littering and help make Fort Worth the cleanest city in Texas. They are managed by staff working across department lines to investigate compliance issues and enforce littering ordinances.

6.5.3.1 Commercial Litter

The Consumer Health Division within Code has a commercial compliance team that enforces nuisances, including litter, by inspecting dumpster cleanliness, dumpster screening and loose debris and litter on commercial properties. Violations are documented, and follow-up procedures are in place to ensure that violations are abated in a timely manner. When violations are not abated in a timely manner, citations with fines up to \$2,000 are issued to gain compliance. If the violation persists after citations have been issued, the commercial compliance team works with the litter abatement team to clean the property.

Commercial compliance staff will also provide businesses with information on the Litter-Free Lots Program to encourage businesses to maintain their lots free of litter and remain in compliance without enforcement measures. This program can also be used as an alternative to citations. Commercial property owners and operators with improperly maintained dumpsters or littered properties will be given the opportunity to join the program, which commits them to abating the violation. City staff will provide them with a description of the program requirements, and they will be held responsible for their commitments if they choose to participate. Businesses that meet the requirements will earn a window decal demonstrating their support for the program, as well as recognition on social media or the city website. This solution benefits the business owner or operator, as well as the



Figure 6-26. An overflowing dumpster that has not been screened from public view, photo by City of Fort Worth.

community, by educating them on the importance of preventing litter and encouraging them to maintain their property in a clean condition.

6.5.3.2 Residential Litter

Trash and recycling bins are prominent sources of litter when they are not used properly. When bins and carts are overfilled, unlidded or the lids are not secure, trash and debris get scattered by animals or the wind. Multifamily properties with overflowing dumpsters or bulk items set out near the dumpsters also contribute to windblown and scattered litter, as well as potential rodent and other disease-vector issues. Code officers review residential properties during patrol or when there are complaints of egregious litter. Violations are documented and follow-up procedures are in place to ensure they are abated in a timely manner. When violations are not abated in a timely manner, citations are issued to gain compliance. Information about the HHW services are also provided, when appropriate. City staff should review current procedures to streamline inspection and enforcement efforts, and encourage community members to prevent residential litter.

6.5.3.3 Litter from Other Sources

Fort Worth has experienced tremendous growth over the past two decades, both in population and land area. Development and construction activities are common throughout the city. Construction and demolition sites without tarps and receptacles to contain debris and waste properly are major contributors to litter and stormwater pollution. Debris and construction materials, employee negligence, items falling from delivery and waste-hauling vehicles, cement truck

waste and excavation waste all have negative impacts on the properties surrounding worksites. Loading docks are also sources of blowing litter, including shrink wrap, corrugated boxes and shipping documents. Code officers observe these sites during routine patrol or when they receive a complaint. They document any violations and follow up to ensure that violations are abated in a timely manner. If they are not abated in a timely manner, citations are issued to gain compliance. Unsecured truck loads are not only a source of litter, they are a danger to other vehicles, bicyclists and pedestrians on the road. They are also in violation of city ordinance, and police officers can write citations for not having a covered load. City staff will look for ways to assess and expand litter containment technologies for these types of sites, and work with the departments involved in issuing citations to offer support and education to the public.

6.5.3.4 Litter Enforcement

When people can litter without consequence, it may lead them to believe their behavior is acceptable, and continue to litter. Others see this behavior and adopt it for themselves, creating a culture of litter within a community. Litter and illegal dumping attract other forms of blight, as well as crime. Enforcing litter laws and ordinances is key to prevention. The primary goal is to remediate the situation and educate the violator to prevent future infractions. For enforcement to be effective, the penalty must be adequate to ensure the impacted site is remediated, as appropriate, and deter future violations (Reference 6-14).



Figure 6-27. All loads in truck beds must be secured to keep debris from falling onto the road, photo by City of Fort Worth.

6.5.3.4.1 ILLEGAL DUMP INVESTIGATIONS & PROSECUTION

The Solid Waste Field Operations team enforces litter regulations through abatement warrants and investigations. The senior code officer on the litter abatement crew obtains and executes warrants to allow nuisance abatement activities, and files liens with Tarrant County to recover costs for these efforts. The EIU investigates illegal dumping and submits reports to the Fort Worth Police Department when there is a witness willing to testify or credible evidence or video surveillance footage of the dumping activities. The unit is also responsible for the deployment and monitoring of surveillance equipment, and obtaining accurate information from both witnesses and violators for the Tarrant County District Attorney's Office.

6.5.3.4.2 JUDICIAL HANDBOOK

Environmental staff are looking for ways to strengthen anti-littering ordinances and policies to ensure litter offenders are held accountable for their actions. Environmental staff will work with municipal courts to develop a handbook, which will help legal staff and personnel better understand how litter can impact the environment and why it is a serious problem that should be enforced through the legal system. This information is needed to ensure the courts understand that while litter may not seem like a serious offense, it is costing the city millions of dollars each year and creating other problems in our community. This handbook will also include the full range of interpretations and applications of case law to aid the efforts of legal staff and municipal courts to enforce legal codes for repeat litter offenders and those who dump their trash illegally.

6.5.3.5 Development Actions for PA 3: Litter Compliance & Enforcement

Commercial Litter

1. Evaluate litter prevention, education and enforcement strategies to engage businesses in litter control.
2. Develop and annually maintain a prioritized list of recommended actions for Fort Worth.
3. Increase participation in the Litter-Free Lots programs and recognize businesses that participate successfully.

- *Performance Indicator:* Number of businesses that join the program and the appearance index for their business over time.
- *Performance Indicator:* Number of recognitions or awards distributed to local businesses.

4. Work with partners in the city to assist in the enforcement of commercial litter ordinances.

- *Performance Indicator:* Number of violations and citations issued.
- *Performance Indicator:* Number of businesses that join the Litter-Free Lots Program as a citation alternative.

Residential Litter

1. Work with partners in the city to enforce residential litter ordinances.

- *Performance Indicator:* Number of violations and citations issued to pedestrians.
- *Performance Indicator:* Amount of collected waste that had been improperly disposed.

Litter from Other Sources

1. Support city staff who inspect properties and/or issue citations for littering.
 - *Performance Indicator:* Inventory of litter citations and outcomes.

Litter Enforcement

1. Continue to cooperate with witnesses, law enforcement and the Tarrant County District Attorney's Office to prosecute illegal dumping cases.
 - *Performance Indicator:* Inventory of illegal dumping locations identified through enforcement.
 - *Performance Indicator:* Number of litter enforcement cases associated with litter enforcement violations in Fort Worth.
2. Develop a judicial handbook to assist legal staff and municipal courts personnel when they work on cases involving illegal dumping and process violations for littering.
 - *Performance Indicator:* Number of litter and illegal dumping citations processed.
 - *Performance Indicator:* Number of cases that are enforced and dismissed.

6.5.4 Strategies for PA 4: Communication & Collaboration

The city and its partners must understand the motivational and structural barriers that exist within our community, and devise outreach and intervention strategies tailored to meet their needs. Personal messages and activities that promote an individual's obligation not to litter are important for changing littering behavior (Reference 6–6). Raising public awareness is closely related to anti-litter education. For instance, by informing the public about enforcement of litter laws, awareness is not only increased, but behaviors may change. Effective anti-litter education generally focuses on the development of BMP guidelines and training. These efforts involve national information-sharing networks as well as grassroots initiatives. The desired result is to achieve a cleaner environment by preventing litter through long-term, positive behavioral change (Reference 6–15).

6.5.4.1 City Staff Training & Collaboration

Environmental staff developed an initiative to train city staff and the KFWB board to give presentations on litter and illegal dumping in the community. Members of the Litter Speakers' Bureau will serve as anti-litter ambassadors to the community and speak at public meetings to discuss litter problems and solutions in Fort Worth. These presentations will be available to a range of audiences including businesses, neighborhood associations, faith groups and NPOs. The bureau will also engage schools, encouraging college or high school groups to volunteer in KFWB programs or host their own events to clean up litter in the city. Print



Figure 6–28. Staff attend a regional KTB training to learn BMPs from other affiliates, photo by City of Fort Worth.

material that incorporates the presentation messaging will be distributed at all speaking engagements. All city inspectors who regularly visit sites will be trained on litter enforcement procedures, and incorporate litter assessment and violations in inspection reports. The training will be offered citywide to inspectors in Code, Planning & Development, Water and Transportation & Public Works. Environmental staff will work with these departments to inform them of city litter ordinances, update inspection reports, understand the compliance and enforcement process and collect data on inspections and outcomes.

KAB and KTB require annual training for affiliate coordinators. Training records, including the types of trainings attended and the number of hours, must be kept for reporting requirements. It is beneficial to provide KAB and KTB training to board members, as well, to provide them with the latest program information and available resources. City staff will occasionally need to provide trainings to the board on initiatives, such as the Litter Speakers' Bureau, or software and systems the city uses to track information or communicate externally. Environmental staff are also collaborate with KTB and other North Texas affiliates to offer regional training where organizations can share BMPs and program information. Affiliates are working toward establishing a regional approach to litter to better serve all communities in the area, especially because our residents and workers are mobile and tend to work, live and play in different cities.

6.5.4.2 Public Technical Guidance

City staff offer trainings to community groups and schools to provide the information and tools they need to engage in activities like composting, recycling and volunteering. Current programs should be expanded to offer additional training opportunities throughout the year, including master composter classes and Waste-In Place. New training programs should be developed, such as volunteer leadership and youth volunteer classes, utilizing KAB curriculum and BMPs for training. City staff will assess the target audiences for training and ways to encourage them to participate, such as the scholarships offered to teachers for compost training. Staff should also explore training tailored to specific businesses, such as fast food restaurants, convenience stores and bars and restaurants on strategies to reduce litter associated with their industry. Staff should also



Figure 6-29. Participants at a City of Fort Worth master composter class learn how to build a successful compost pile, photo by City of Fort Worth.

hold workshops for the Chamber of Commerce and PIDs to encourage them to support litter control efforts.

To engage community leaders and businesses in the fight against litter, environmental staff held a litter summit in 2016. This event included city staff, regional partners and community stakeholders with a vested interest in litter reduction. The litter summit provided an overview of the city's current Litter Control programs, as well as pilot and planned programs. Attendees gave feedback on these strategies and were asked to implement or improve at least one litter prevention and reduction practice at their home campus after the meeting. The second litter summit is scheduled for fall of 2018, and will cover program updates since the last meeting. City staff will work with stakeholders to evaluate these programs for continual improvement. Additional litter summits will be held every two to three years to increase awareness of city Litter Control programs in the community and how residents and businesses can help prevent litter. City staff will develop a communications strategy to periodically update participants between summits, and assess the timing of the next summit based on responses from stakeholders.

6.5.4.3 Public Education & Outreach

To maximize the effectiveness of public awareness initiatives, the city must provide clear, consistent and informative messages through in-person interactions

and across various media. These include digital platforms, such as the city website, social media accounts, online newsletters and email lists, as well as traditional media outlets like newspaper articles, print material and television. The city must provide a unified message across all of these channels through organized campaigns.

6.5.4.3.1 LITTER PRESENTATIONS

The Community Engagement Office offers several presentations with environmental quality and litter prevention messages to community groups and schools. Its staff will receive Litter Speakers' Bureau training and they will be add this presentation to their list. Environmental staff promote litter awareness and programs at school career day events, and speaking engagements at local businesses and community meetings. They serve as subject matter experts for the city on litter issues. Presentations can be requested by any group in Fort Worth and tailored to that audience. City staff will continue to advertise the availability of presentations and speaking engagements to spread litter awareness in the community. The city should consider developing a form on the website to streamline the speaker request process and promote the program.

6.5.4.3.2 MEDIA CAMPAIGNS

The Code Communication Team is responsible for communicating Litter Control Program messaging to the public and building the city's litter awareness brands, including KFWB and Litter-Free Fort Worth. Environmental staff worked with the Code Communication Team to develop communications and marketing strategies around division programs. The team rolls out campaigns to support the Litter Control Program brands, typically in three-year cycles. They develop graphics, social media ads, print material and signage to promote these campaigns. As of 2018, the city was conducting an anti-litter campaign called "Still Littering, Seriously?" and promoting it with vehicle wraps, magnets, banners at the city's four drop-off stations and print material distributed at Litter Speakers' Bureau presentations. Staff will explore promotional items to support the campaign, such as pocket ashtrays and car litter bags. These items can be distributed when city staff give presentations or at booth events to emphasize the anti-litter message.



Figure 6-30. A City of Fort Worth vehicle wrapped with the “Still Littering, Seriously?” campaign graphics, photo by City of Fort Worth.

6.5.4.3.3 DIGITAL MEDIA

The Code Communications Team uses multiple digital media channels to reach both internal and external audiences. Internally, the team uses monthly reports and regular city news bulletins to communicate Litter Control Program news to city staff and encourage them to support litter awareness initiatives and citywide event activities. They work with city web developers and IT to maintain the Litter Control Program and KFWB web pages and update them as needed with current program information and anti-litter campaigns. These updates should include an awards or recognition page to showcase the efforts of volunteers, businesses that participate in the Litter-Free Lots Program and other organizations within the community working to end littering. The city maintains an email list for KFWB supporters and volunteers, and it is utilized to share information on major programs and citywide cleanup events. The Code Communications Team shares information for major events on the City of Fort Worth home page and social media accounts, including Nextdoor. The team also partners with staff in the Environmental Quality and Solid Waste divisions to maintain social media accounts for KFWB, including Facebook and Twitter. Environmental staff will work with the Code Communications Team to develop a social media strategic plan to increase engagements on current platforms and evaluate the need to utilize other platforms to reach a wider audience.

6.5.4.4 Community Partnerships & Volunteerism

The city has cultivated meaningful partnerships that have greatly increased the reach of Litter Control programs and established regional collaborations in the fight against litter. These efforts are supported

by volunteers who have a profound impact on their community. City staff work closely with neighborhood groups, schools, NPOs, NGOs, as well as volunteers, to support and recognize them for their contributions to their community.

6.5.4.4.1 REVERSE LITTER

The city has partnered with TRWD and other cities in North Central Texas on the regional Reverse Litter campaign, developed by the OCG, since 2012. Reverse Litter is a litter prevention and awareness campaign focusing on reducing litter in North Central Texas waterways and protecting the Trinity River watershed. “Ten on Tuesday” is an initiative within the Reverse Litter campaign that asks people to make a pledge to pick up ten pieces of litter every Tuesday, or once a week. It is a small call to action with a large awareness impact, as more than 25,000 people have taken the pledge. In 2017, OCG increased campaign coverage through traditional and new media, negotiated more than \$100,000 in public service announcements and developed outreach programs that increased Ten on Tuesday pledges by 50%. Post-campaign research shows that, due to these efforts, Reverse Litter awareness doubled among North Texas residents (Reference 6-16). The campaign has been tailored to each city involved in the campaign to better resonate with residents, and the OCG continues to evolve communications strategies, as needed, to serve Tarrant, Dallas and Denton counties.



Figure 6-31. A Reverse Litter campaign billboard designed specifically for Fort Worth, graphic by TRWD.

6.5.4.4.2 LITTER-FREE FORT WORTH

Litter-Free Fort Worth grew from the Reverse Litter campaign, and has since become a regional initiative with other cities using the Litter-Free brand. Environmental staff are developing several programs

around Litter-Free Fort Worth to target different audiences. To engage the business community and commercial districts, the Litter-Free Lots Program was developed and piloted (discussed in Section 6.5.3.1). Nearly one third (33 percent) of Fort Worth’s population is under the age of 18, so involving youth in anti-litter



Figure 6-32. Litter-Free Fort Worth logo developed in partnership with the TRWD Reverse Litter program.

activities is crucial to program success and creating a clean city in the future. The city already engages schools through KFVB programs and citywide cleanup events, so incorporating the “Litter-Free School Zones” challenge into these strategies was a natural fit. This challenge is a partnership with the Fort Worth Strengthen After-School Programs through Advocacy, Resources and Collaboration, Fort Worth Independent School District (FWISD) and TRWD to engage children in litter awareness and prevention activities. It is open to all schools in Fort Worth and FWISD, and challenges a group of students to complete activities to win a prize and recognition for their school. This program has moved out of the pilot phase and is rolling out citywide. The KFVB board, Community Engagement Office and other partners are assisting in raising awareness for the program and encouraging schools to participate. The program will continue to be evaluated and updated as the city receives feedback from teachers and administrators.

Environmental staff plan to develop two other initiatives under the “Litter-Free” brand: Litter-Free Lanes and Litter-Free Landmarks. The Litter-Free Lanes initiative will ask residents to keep their neighborhood streets clean and free of litter. Neighborhoods can share photos, compete to see who can keep their street the cleanest and demonstrate community pride. The Litter-Free Landmarks initiative will ask residents and visitors to take a pledge to keep iconic destinations free of litter and submit photos of themselves picking up litter and properly disposing of trash. Landmarks are tourist destinations and impact how visitors perceive Fort Worth. If the city can generate positive media and the perception that Fort Worth is a litter-free community, this will encourage people not to litter, whether they live here or are just visiting.

6.5.4.4.3 SCHOOL GREEN TEAMS

Historically, School Green Teams was a KFVB program created to provide classroom recycling bins to local schools, and was funded, in part, through grants from the North Central Texas Council of Governments (NCTCOG). It has evolved into an umbrella for all school environmental programs, including Recycling at School, Litter-Free School Zones and other activities. Environmental staff work with the Solid Waste Division to offer the school recycling program, as well as compost training. Staff work with schools in Fort Worth to enhance their overall recycling programs and provide support, such as waste audits and recycling training for teachers and custodial staff. Many students are required to complete volunteer hours for their school programs and college applications. The School Green Teams program has been integrated into the city’s volunteer tracking software to allow students to log their volunteer activities and hours. City staff will continue to identify opportunities for program expansion, such as incorporating KAB youth curriculum into new or existing environmental programs. Staff should also engage home schooling coalitions to ensure that all Fort Worth students have access to city programs.

6.5.4.4.4 COMMUNITY AWARDS & RECOGNITION

The city currently hosts the annual Mayor’s Community Engagement Workshop and Neighborhood Awards Luncheon that recognizes individuals and organizations who have given exceptional service to their community. Environmental staff and the KFVB board are establishing awards and recognition for volunteers, and



Figure 6-33. Lowery Road Elementary School Green Team.

considering collaborating as a partner with the current awards luncheon or holding a separate awards function specifically for KFWB volunteers. In either case, the number of awards and application criteria must be developed. This could include individuals and groups giving exceptional service through litter abatement and beautification activities. KFWB currently recognizes groups for their cleanup efforts during the Cowtown Great American Cleanup and Neighborhood Litter Stomp, such as picking up the most litter or engaging the most youth, through acknowledgment on social media and rewards. Every year, KFWB hosts Earth Party after the Cowtown Great American Cleanup to recognize and reward volunteer efforts with a free lunch, musical performances and exhibitors. City staff and the KFWB board will research BMPs for volunteer appreciation in other cities and affiliate organizations to develop and improve recognition programs.



Figure 6-34. Volunteers enjoy the festivities at Earth Party, photo by City of Fort Worth.

6.5.4.5 Development Actions for PA 4: Litter Communication & Collaboration

City Staff Training & Collaboration

1. Distribute Litter Speakers' Bureau presentation and materials to city staff to present to residents, organizations and businesses. Offer trainings on presentation, if applicable.
2. Cross-train city staff to incorporate litter assessments and violations into inspection reports and other site visits.

- *Performance Indicator:* Number of city staff who receive litter inspection training.
 - *Performance Indicator:* Number of litter assessments performed by trained city staff.
 - *Performance Indicator:* Number of reported violations made by trained city staff.
3. City staff and KFWB board members will continue to support and attend trainings to maintain a good standing status with KAB and KTB.
 - *Performance Indicator:* Number of trainings attended by city staff and KFWB board members.

Public Technical Guidance & Training

1. Increase public participation in available training classes, such as the master composter class.
2. Evaluate the potential to offer additional training programs that incorporate KAB curriculum, such as volunteer leadership.
 - *Performance Indicator:* Number of participants and organizations that attend the public training courses.
 - *Performance Indicator:* List of public training classes that incorporate KAB curriculum.
3. Survey litter summit participants and develop list of lessons learned to inform future summits.
 - *Performance Indicator:* Number of litter summit list participants.
 - *Performance Indicator:* List of companies and organizations represented at litter events.

Public Education & Outreach

1. Raise awareness for Litter Speakers' Bureau through various communications channels (e.g., social media, city website, etc.) and outreach events.
 - *Performance Indicator:* Number of presentations given.
 - *Performance Indicator:* List of civic groups and NGOs that receive the presentation.
 - *Performance Indicator:* Number of people in attendance.
2. Annually review and update as applicable the media campaigns for litter control programs and evaluate successes and areas for improvement.

- *Performance Indicator:* Inventory of media campaigns, including graphics and collateral pieces, as well as public response to the campaign to help design future campaigns.
 - *Performance Indicator:* List of implemented BMPs and anti-litter campaigns with a record of their performance.
3. Follow strategies outlined in the Code Compliance Communications Plan to increase awareness of litter control programs, especially the Litter-Free Fort Worth and KFWB brands.
 4. Annually review and update as applicable the litter control information on the city website and social media.
 - *Performance Indicator:* Number of visits to website.
 - *Performance Indicator:* Number of people registered for city-sponsored litter control events advertised on website and social media.

Community Partnerships & Volunteerism

1. Continue to support the Reverse Litter partnership with TRWD and guide the marketing strategy to fit Fort Worth's needs and distribute information through Fort Worth's communications channels and outreach.
 - *Performance Indicator:* Annual summary of TRWD's media efforts and strategies, including the actions taken to share the Reverse Litter brand to TRWD.
2. Increase participation in the Litter-Free School Zones Challenge.
 - *Performance Indicator:* Number of schools that sign up for the Litter-Free School Zones challenge.
 - *Performance Indicator:* Number of schools that complete the Litter-Free Zone Challenge.
3. Develop the Litter-Free Lanes and Litter-Free Landmarks programs and encourage participation through various media channels and outreach.
 - *Performance Indicator:* Inventory of neighborhoods that participate in Litter-Free Lanes.
 - *Performance Indicator:* Frequency of how often neighborhoods engage in cleanup activities.

- *Performance Indicator:* Frequency of posts on social media about Litter-Free Lanes and Litter-Free Landmark events.
 - *Performance Indicator:* Amount of litter collected during Litter-Free Lanes and Litter-Free Landmark events.
4. Market Litter-Free Lanes to groups that have adopted roadways.
 5. Increase participation in School Green Team activities and share promotional and educational materials with schools.
 - *Performance Indicator:* Number of schools participating in School Green Team activities.
 - *Performance Indicator:* Number of student volunteer hours logged for supporting litter control and Green Team activities.
 6. Explore options for offering community recognition for litter and beautification efforts, including hosting an awards ceremony, partnering with existing city awards programs and nominating individuals or organizations for external awards.
 - *Performance Indicator:* Number of awards distributed to individuals and organizations supporting the city's litter control events and beautification efforts.

6.6 Conclusion

While litter control may seem like a daunting and never-ending challenge, it can be addressed through strategic planning and actions. The city will work with residents, businesses and other organizations to develop a comprehensive approach to litter control that includes prevention, abatement, enforcement and communications strategies with the goal of transforming awareness into action. By addressing the behaviors and social dynamics that contribute to littering, the city can make meaningful progress toward reducing litter in the community and making Fort Worth the most livable city.

6.6.1 Summary of Litter Control Development Actions

Litter Analysis

1. Research successful components of beautification programs, as well as KAB and KTB beautification programs.
2. Research BMPs for bin placement and design that encourages use.
3. Develop and annually maintain a prioritized list of frequently littered items to inform anti-litter campaigns.
4. Develop and annually maintain a prioritized list of areas in the city for litter cleanup projects and activities based on the CAI and the litter and illegal dumping hot spots map.
5. Develop and maintain a database of KFWB documents.

Litter Reduction Planning

1. Work with the KFWB board to develop a strategic plan for KFWB management and governance, which includes goals that support the mission, and update it annually.
2. Create a volunteer management plan that includes the resources necessary for daily coordination, and work with KFWB board and city staff to implement it.

Litter Rules & Regulations

1. Review litter ordinances, penalties and enforcement strategies and revise existing ordinances or draft new ordinances to better address the litter problem in Fort Worth.

Litter Control Projects & Technologies

1. Evaluate litter control technologies and tools for potential pilot projects and field deployment.
2. Launch long-term, neighborhood-specific litter control projects. Incorporate increased anti-litter messaging and outreach into projects.
3. Evaluate litter control projects upon completion and develop lessons learned to inform future projects.
4. Continue to automate the litter cleanup supply request and event registration processes.

5. Explore options to collect litter cleanup and other KFWB program data online.
 - Create a web-based mapping application for public use that tracks litter clean-up projects.
Performance Indicator: Number of visitors to the website.
6. Maintain the trash bin inventory database and include information on bin maintenance, replacement timelines and amount of trash collected.
7. Evaluate the need for additional illegal dump cameras and staff to monitor them.
 - *Performance Indicator:* Number of incidents captured by illegal dumping cameras.
8. Continue the collaboration with TPW/Stormwater Management Division and TRWD to identify opportunities to install litter control devices along along local streams and the Trinity River.
 - *Performance Indicator:* Number of litter control devices installed.
9. Collect data on the amount of litter removed from waterways.
 - *Performance Indicator:* Quantity of floatable debris removed from waterways by collection devices.

Litter Prevention

1. Encourage the use of the drop-off stations by offering additional services and opening more drop-off stations throughout the city (per the Solid Waste Plan).
 - *Performance Indicator:* Number of people visiting drop-off stations.
 - *Performance Indicator:* Amount of the different materials collected.
2. Develop and annually maintain a prioritized list of areas that need public trash bins and work with partners to place and maintain new bins.
 - *Performance Indicator:* Number and location of new bins.
 - *Performance Indicator:* Amount of trash or recyclables collected.
3. Research the use and effectiveness of bin art and other creative strategies and develop a prioritized list of recommended actions for the city.

4. Coordinate with partners to host events focused on the collection of hard to recycle items.
 - *Performance Indicator:* Number of people who participate in the events.
 - *Performance Indicator:* Amount and type of material collected.
5. Work with partners to develop a pilot program to test the effectiveness of public cigarette butt receptacles.
 - *Performance Indicator:* Number and location of installed receptacles.
 - *Performance Indicator:* Volume or weight of cigarette butts collected at each one.

City Litter Abatement

1. Increase the number of littered sites abated or the total volume of litter collected by expanding the number of litter abatement teams and/or utilizing community service workers.
 - *Performance Indicator:* Number of sites abated.
 - *Performance Indicator:* Amount of litter collected by abatement teams.
2. Expand the city's street sweeping fleet and/or add more crews on different shifts to increase the amount of time sweepers are in operation.
 - *Performance Indicator:* Number of curb miles swept by the city along each route.

Contractual Litter Abatement

1. Perform regular audits of areas mowed by contractors to ensure they are removing litter before mowing and provide additional education for contractors not removing litter.
 - *Performance Indicator:* Number of sites audited.
2. Develop and annually maintain a list of mowing contractors used by the city.
3. Develop training materials and schedule for mowing contractors used by the city.
 - *Performance Indicator:* Number of mowing contractors that have completed the litter training.
4. Increase the number of litter crews under the PNS contract.
 - *Performance Indicator:* Number of people contracted through the PNS contract.

- *Performance Indicator:* Square miles of the city cleaned by the cleaning crews each year.
- *Performance Indicator:* Amount of litter removed.

Volunteer Litter Abatement

1. Increase volunteer participation in the Adopt-a program.
 - *Performance Indicator:* Number and location of adopted sites.
 - *Performance Indicator:* Hours of volunteer service achieved for each Adopt-a event.
 - *Performance Indicator:* Amount of litter removed at each adopted location.
2. Increase participation in citywide litter cleanups.
 - *Performance Indicator:* Number of participants in citywide litter cleanup events.
 - *Performance Indicator:* Number of locations cleaned.
 - *Performance Indicator:* Hours of volunteer service achieved at citywide litter cleanup events.
 - *Performance Indicator:* Amount of material collected at citywide litter cleanup events.
3. Increase the number of volunteer-led cleanups.
 - *Performance Indicator:* Number of volunteer-led cleanups.
 - *Performance Indicator:* Number of participants.
 - *Performance Indicator:* Hours of volunteer service achieved at each volunteer-led cleanup event.
 - *Performance Indicator:* Amount of litter cleaned at each volunteer-led cleanup event location.
4. Send out periodic surveys to evaluate the quality of customer service provided by the city and determine if there are any unmet volunteer needs.

Commercial Litter

1. Evaluate litter prevention, education and enforcement strategies to engage businesses in litter control.
2. Develop and annually maintain a prioritized list of recommended actions for Fort Worth.
3. Increase participation in the Litter-Free Lots programs and recognize businesses that participate successfully.

- *Performance Indicator:* Number of businesses that join the program and the appearance index for their business over time.
 - *Performance Indicator:* Number of recognitions or awards distributed to local businesses.
4. Work with partners in the city to assist in the enforcement of commercial litter ordinances.
 - *Performance Indicator:* Number of violations and citations issued.
 - *Performance Indicator:* Number of businesses that join the Litter-Free Lots Program as a citation alternative.

Residential Litter

1. Work with partners in the city to enforce residential litter ordinances.
 - *Performance Indicator:* Number of violations and citations issued to pedestrians.
 - *Performance Indicator:* Amount of collected waste that had been improperly disposed.

Litter from Other Sources

1. Support city staff who inspect properties and/or issue citations for littering.
 - *Performance Indicator:* Inventory of litter citations and outcomes.

Litter Enforcement

1. Continue to cooperate with witnesses, law enforcement and the Tarrant County District Attorney's Office to prosecute illegal dumping cases.
 - *Performance Indicator:* Inventory of illegal dumping locations identified through enforcement.
 - *Performance Indicator:* Number of litter enforcement cases associated with litter enforcement violations in Fort Worth.
2. Develop a judicial handbook to assist legal staff and municipal courts personnel when they work on cases involving illegal dumping and process violations for littering.
 - *Performance Indicator:* Number of litter and illegal dumping citations processed.
 - *Performance Indicator:* Number of cases that are enforced and dismissed.

City Staff Training & Collaboration

1. Distribute Litter Speakers' Bureau presentation and materials to city staff to present to residents, organizations and businesses. Offer trainings on presentation, if applicable.
2. Cross-train city staff to incorporate litter assessments and violations into inspection reports and other site visits.
 - *Performance Indicator:* Number of city staff who receive litter inspection training.
 - *Performance Indicator:* Number of litter assessments performed by trained city staff.
 - *Performance Indicator:* Number of reported violations made by trained city staff.
3. City staff and KFWB board members will continue to support and attend trainings to maintain a good standing status with KAB and KTB.
 - *Performance Indicator:* Number of trainings attended by city staff and KFWB board members.

Public Technical Guidance & Training

1. Increase public participation in available training classes, such as the master composter class.
2. Evaluate the potential to offer additional training programs that incorporate KAB curriculum, such as volunteer leadership.
 - *Performance Indicator:* Number of participants and organizations that attend the public training courses.
 - *Performance Indicator:* List of public training classes that incorporate KAB curriculum.
3. Survey litter summit participants and develop list of lessons learned to inform future summits.
 - *Performance Indicator:* Number of litter summit list participants.
 - *Performance Indicator:* List of companies and organizations represented at litter events.

Public Education & Outreach

1. Raise awareness for Litter Speakers' Bureau through various communications channels (e.g., social media, city website, etc.) and outreach events.
 - *Performance Indicator:* Number of presentations given.

- *Performance Indicator:* List of civic groups and NGOs that receive the presentation.
 - *Performance Indicator:* Number of people in attendance.
2. Annually review and update as applicable the media campaigns for litter control programs and evaluate successes and areas for improvement.
 - *Performance Indicator:* Inventory of media campaigns, including graphics and collateral pieces, as well as public response to the campaign to help design future campaigns.
 - *Performance Indicator:* List of implemented BMPs and anti-litter campaigns with a record of their performance.
 3. Follow strategies outlined in the Code Compliance Communications Plan to increase awareness of litter control programs, especially the Litter-Free Fort Worth and KFWB brands.
 4. Annually review and update as applicable the litter control information on the city website and social media.
 - *Performance Indicator:* Number of visits to website.
 - *Performance Indicator:* Number of people registered for city-sponsored litter control events advertised on website and social media.

Community Partnerships & Volunteerism

1. Continue to support the Reverse Litter partnership with TRWD and guide the marketing strategy to fit Fort Worth's needs and distribute information through Fort Worth's communications channels and outreach.
 - *Performance Indicator:* Annual summary of TRWD's media efforts and strategies, including the actions taken to share the Reverse Litter brand to TRWD.
2. Increase participation in the Litter-Free School Zones Challenge.
 - *Performance Indicator:* Number of schools that sign up for the Litter-Free School Zones challenge.
 - *Performance Indicator:* Number of schools that complete the Litter-Free Zone Challenge.
3. Develop the Litter-Free Lanes and Litter-Free Landmarks programs and encourage participation through various media channels and outreach.

- *Performance Indicator:* Inventory of neighborhoods that participate in Litter-Free Lanes.
 - *Performance Indicator:* Frequency of how often neighborhoods engage in cleanup activities.
 - *Performance Indicator:* Frequency of posts on social media about Litter-Free Lanes and Litter-Free Landmark events.
 - *Performance Indicator:* Amount of litter collected during Litter-Free Lanes and Litter-Free Landmark events.
4. Market Litter-Free Lanes to groups that have adopted roadways.
 5. Increase participation in School Green Team activities and share promotional and educational materials with schools.
 - *Performance Indicator:* Number of schools participating in School Green Team activities.
 - *Performance Indicator:* Number of student volunteer hours logged for supporting litter control and Green Team activities.
 6. Explore options for offering community recognition for litter and beautification efforts, including hosting an awards ceremony, partnering with existing city awards programs and nominating individuals or organizations for external awards.
 - *Performance Indicator:* Number of awards distributed to individuals and organizations supporting the city's litter control events and beautification efforts.

6.7 References

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