An Roinn Comhshaoil,
Aeráide agus Cumarsáide
Department of the Environment,
Climate and Communications

THE NATIONAL LITTER POLLUTION MONITORING SYSTEM

LITTER MONITORING BODY

SYSTEM RESULTS 2021

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Please Note: Individual percentage values illustrated in figures throughout this document are rounded and may, therefore, not total 100%.

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1. The Department of Environment, Climate and Communications; and

2. The local authorities that provided us with their Litter Survey Results.

OVERVIEW OF THE NATIONAL LITTER POLLUTION MONITORING SYSTEM

TOBIN Consulting Engineers were appointed to function as the Litter Monitoring Body (LMB) by the Department of Environment, Climate and Communications for the period July 1st of 2021, to June 30th of 2022, to continue the development of the National Litter Pollution Monitoring System (NLPMS).

The Sustainable Development Goals - National Implementation Plan 2018-2020, published in April 2018, is the Government's response to the United Nations Sustainable Development Goals (SDGs) and Agenda 2030. Agenda 2030 encourages countries to integrate 17 SDGs into planning and policy, on both a national and international level. Work is underway on the development of the next Sustainable Development Goal National Implementation Plan which will set out arrangements for interdepartmental coordination and governance, stakeholder engagement and actions needed for further implementation of Agenda 2030.

The SDGs cover the three dimensions of sustainable development; economic growth, social inclusion, and the protection of the environment. They aim to address inequalities, economic growth, decent jobs, cities and human settlements, industrialization, oceans, ecosystems, energy, climate change, sustainable consumption and production, peace, and justice.

The Government's vision is for Ireland to fully implement the Sustainable Development Goals at home, and to contribute to their achievement internationally through our role as a responsible global citizen, so that no one is left behind.

The Government has adopted a 'whole-of-government' approach to SDG implementation at the national level, with the Minister for Environment, Climate and Communications leading on **SDG 12**. *Responsible Production and Consumption*. This SDG also includes issues such as responsible recycling, reducing all waste going to landfill sites and incinerator facilities, and the socially unacceptable issue of litter.

Of course, litter not only relates to **SDG 12**, it also relates to **SDG 13** *Climate Action,* **SDG 14** *Life below Water* and **SDG 15** *Life on land*. Because all of the SDGs are interlinked, an action like litter is far reaching in terms of environmental damage.

Local Authorities already play a key role in the area of recycling, waste collection and litter control. Carlow County Council in their capacity as one of Ireland's first SDG Champion Organisations has clearly linked the issue of litter into **SDG 12**.

Behavioural change will be a key driver in assisting Ireland to fully achieve all the SDGs and in particular change the damaging blight of littering across the country. Local Authorities through targeted messaging on the SDGs will play a pivotal role in this task.

In September 2020, the Government published *A Waste Action Plan for a Circular Economy - Ireland's National Waste Policy 2020-2025*. This is Ireland's new roadmap for waste planning and management. The circular economy can contribute to a number of Ireland's SDGs that

are relevant to litter including **SDG12** *Responsible Consumption and Production*, **SDG13** *Climate Action*, **SDG14** *Life Below Water*, and **SDG15** *Life on Land.*

The ambition for Ireland is a circular economy where waste and resource use are minimised; the value of products and materials are maintained through good design, robustness and repair; and when a product has reached the end of its life, its parts are recycled to create further useful products. The Plan addresses how we look at our resources more broadly, capturing and maximising the value of materials that may in the past have been discarded. The Plan also has an objective to support clear and robust institutional arrangements for the waste sector, including through a strengthened role for Local Authorities.

This System Results 2021 Report and the data gathered in its composition surveys allow for Local Authorities to gauge:

- The extent and the severity of litter pollution in each local authority area;
- The types, most likely sources and causes of litter pollution;
- The changes in litter levels from location to location and over time;
- The location of litter black spots; and
- The impact of new anti-litter measures.

Under the NLPMS, the **extent** and **severity** of litter pollution is measured using a Litter Pollution Index (LPI), which is on a scale of 1 to 5 as described below:

1. Unpolluted or litter free;
2. Slightly polluted;
3. Moderately polluted;
4. Significantly polluted; and
5. Grossly polluted.

Prescribed standards for each category of the LPI have been circulated to all local authorities in the form of area cleanliness rating photographs to ensure a consistent approach nationwide to measuring the extent of litter pollution in the surveyed areas. Examples of those photographs are contained in Appendix B of this report, together with an explanation of each LPI. They are also available via the litter website (www.litter.ie).

The area cleanliness rating[1] is then used in the calculation of the LPI for each survey location. The use of photographs ensures that area cleanliness ratings are consistently assigned by all local authorities. In 2021, the LMB continued to provide guidance to local authorities, thus ensuring that a consistent methodology for surveying is applied across the country to guarantee that reliable and comparable data is compiled.

A key feature of the national monitoring system is its focus on monitoring in areas that are polluted, or are likely to be polluted, i.e., where potential sources of litter are located. To this end, local authorities select the locations for their surveys using maps produced by specially designed Litter GIS software, as follows:

- 40% in "high risk" locations (e.g., in town or city centres) where the concentration of potential litter sources is greatest;

[1] The Area Cleanliness Rating is determined using a visual inspection of the survey area and rating it according to prescribed standards.

- 40% in random potential litter generating areas - chosen by the Litter GIS software; and
- 20% in locations chosen by local authorities, based on local knowledge of litter pollution.

Note that some local authorities do not have the resources to apply Litter GIS. In these instances, local authorities use local knowledge to select their 'high risk' and 'chosen' survey areas and then randomly choose 40% of their locations by identifying random areas on maps or by using a random function tool on Arc GIS.

Under the NLPMS, the **type** and **origin** of litter pollution is also measured by counting litter items while they remain on the ground. These surveys are called Litter Quantification Surveys (LQS). LQS are completed in the most heavily polluted areas (i.e., the clusters or 'black spots' identified by the Litter Generation Potential Maps) and as long after cleansing as possible to further increase the chances of a large sample size. The statistics obtained during the surveys are divided into several litter categories including, food, packaging, paper, and plastic.

Training

In 2021, the LMB continued to provide training, where required, on the implementation of the NLPMS to local authorities.

Audit

The LMB undertook audits of five local authorities to ensure that the system is being implemented as designed. The local authorities audited were:

- Fingal County Council;
- Laois County Council;
- Kerry County Council;
- Sligo County Council; and
- Waterford City and County Council.

The Audit Report is available at www.litter.ie. The audits have revealed that, for the most part, these local authorities are implementing the system correctly.

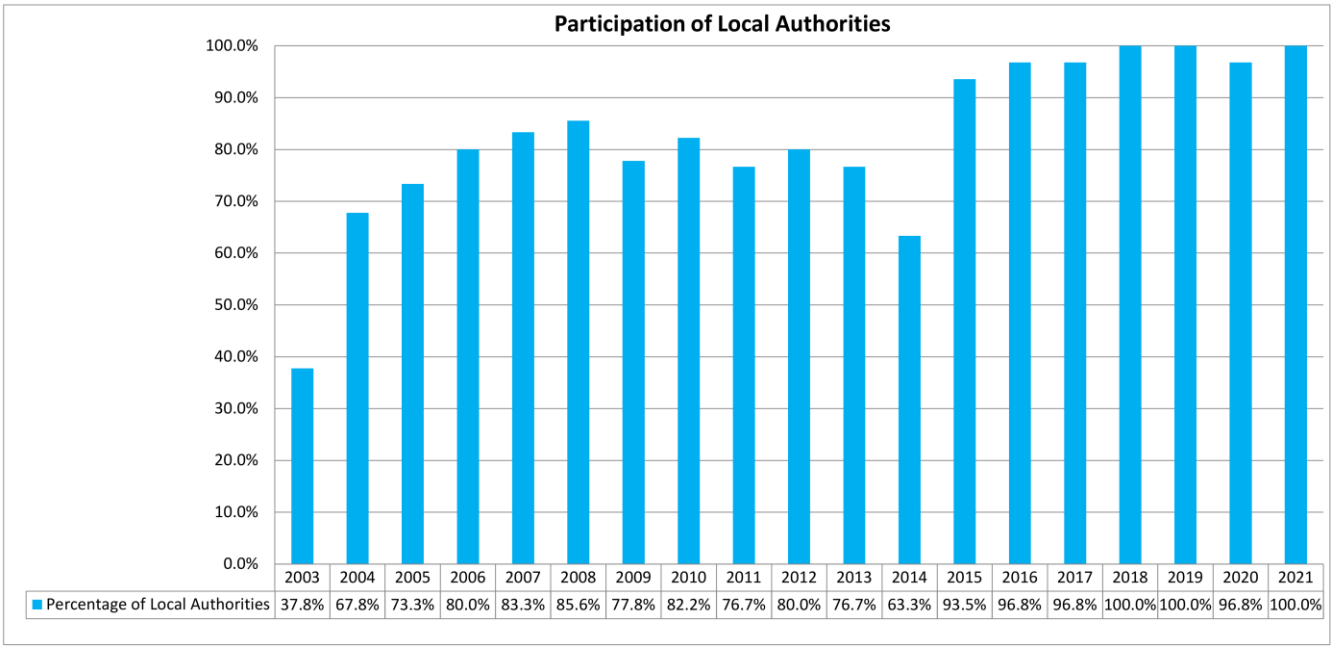
The LMB also completed additional 'spot check' audits on the 2021 results received, whereby photographs of survey locations received from local authorities are cross checked with the awarded LPI. These audits revealed that a very small number of local authorities were not assigning the correct area cleanliness rating to an area in all surveys.

These audits allowed for reassessments of Litter Pollution Surveys (LPS) in collaboration with the relevant local authority, and where necessary, to apply a revised determination of the LPI assigned to the area under study.

It is considered for future year's surveys that local authorities should continue to submit photographs with the LPS; this will allow the LMB to continually audit the System. The LMB is satisfied that the results outlined in this report are accurate and reflective of the country as a whole.

CHAPTER 1: SUMMARY SYSTEM'S SURVEY RESULTS FOR 2021

In 2021, 31 local authorities participated in the National Litter Pollution Monitoring System (NLPMS) Survey.



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Percentage of Local Authorities	37.8%	67.8%	73.3%	80.0%	83.3%	85.6%	77.8%	82.2%	76.7%	80.0%	76.7%	63.3%	93.5%	96.8%	96.8%	100.0%	100.0%	96.8%	100.0%

Figure 1-1 Participation of Local Authorities 2003 to 2021

Figure 1-1 shows the percentage of local authorities that have participated in the System annually since 2003.

The 2021 survey results provide reliable information on the extent, composition and causes of litter pollution in Ireland and facilitate analysis of any emerging trends in litter pollution. The results allow a full and more comprehensive comparison of year-on-year developments with regard to combating litter pollution. They also provide a snap-shot of how our behaviours during the Covid 19 pandemic may have impacted on litter levels recorded in Ireland during 2021.

This NLPMS has set out to answer three key questions:

1. How littered is the country at local and national level?
2. What are the main constituent elements of litter pollution?
3. What are the main causes of litter pollution?

How littered is the country at local and national level?

In 2021, 5529 Litter Pollution Surveys (LPS) were undertaken nationally.

- 22.9% of areas surveyed were unpolluted (LPI 1) in 2021. The percentage of unpolluted (LPI 1) areas has decreased by 0.3%, from 23.2% in 2020.
- 57.1% of all areas surveyed in 2021 were slightly polluted (LPI 2), a decrease of 0.2% on 2020 (57.3%).
- 16.9% of all areas surveyed in 2021 were moderately polluted areas (LPI 3), an increase of 0.5% on 2020 (16.4%).
- 2.8% of all areas surveyed in 2021 were significantly polluted areas (LPI 4), an increase of 0.1% on 2020 (2.7%).
- Grossly polluted areas (LPI 5) have decreased slightly from 0.5% in 2020 to 0.3% in 2021.

What are the main constituent elements of litter pollution?

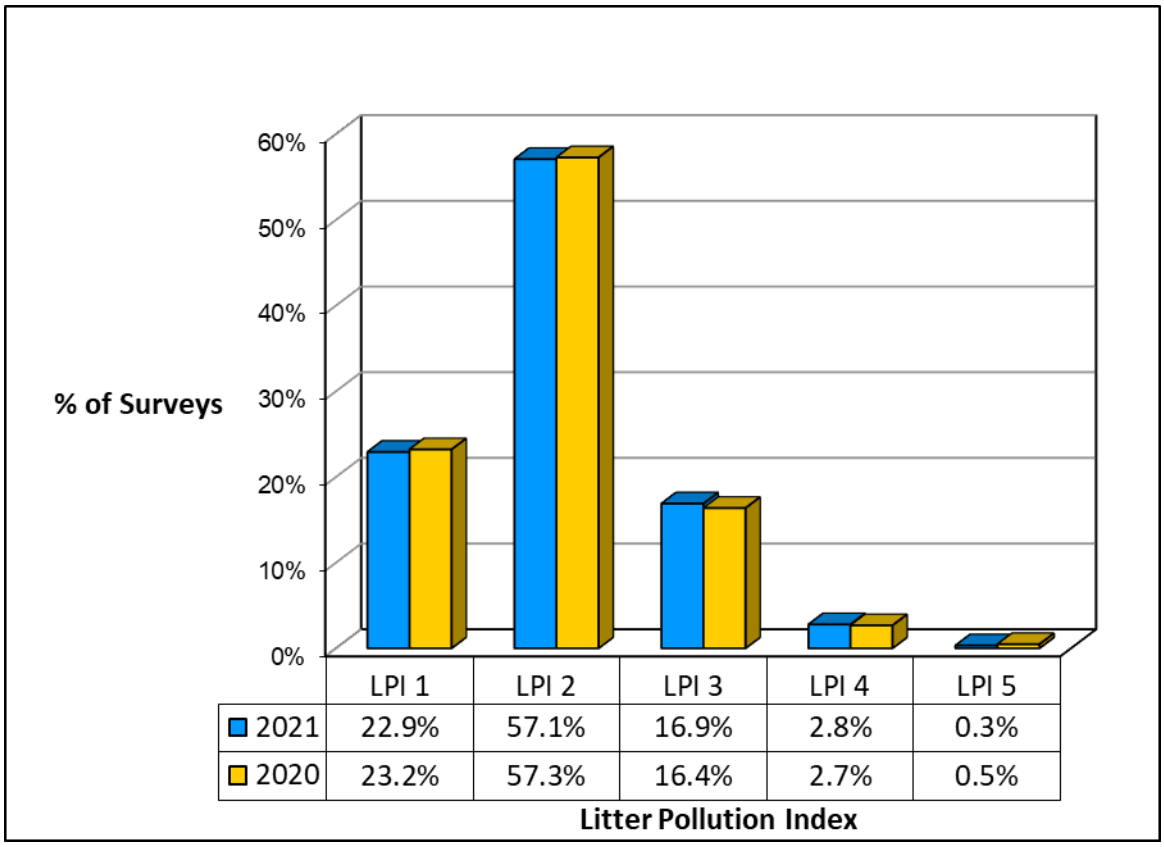
- Cigarette related litter (48.4%), packaging items (20.4%), food related litter (11.2%), sweet-related litter (8.7%), paper items (6.4%) and deleterious litter (3.0%) were the main litter constituents identified nationally.

What are the main causes of litter pollution?

- Passing pedestrians (40.9%), passing motorists (22.4%), retail outlets (8.3%), gathering points (6.2%), schools/school children (4.6%), fast food outlets (4.3%), places of leisure/entertainment (4.1%), bus stops (2.6%), fly-tipping/dumping (2.2%), bring banks (1.7%), bank ATMs (0.8%) and bus/train stations (0.7%) were identified as the main causative factors of litter nationally.

CHAPTER 2: HOW LITTERED IS THE COUNTRY?

The 2021 dataset is obtained from 5529 LPS.



	LPI 1	LPI 2	LPI 3	LPI 4	LPI 5
2021	22.9%	57.1%	16.9%	2.8%	0.3%
2020	23.2%	57.3%	16.4%	2.7%	0.5%

Figure 2-1 Comparison of Litter Pollution Indices (LPI) 2020 to 2021

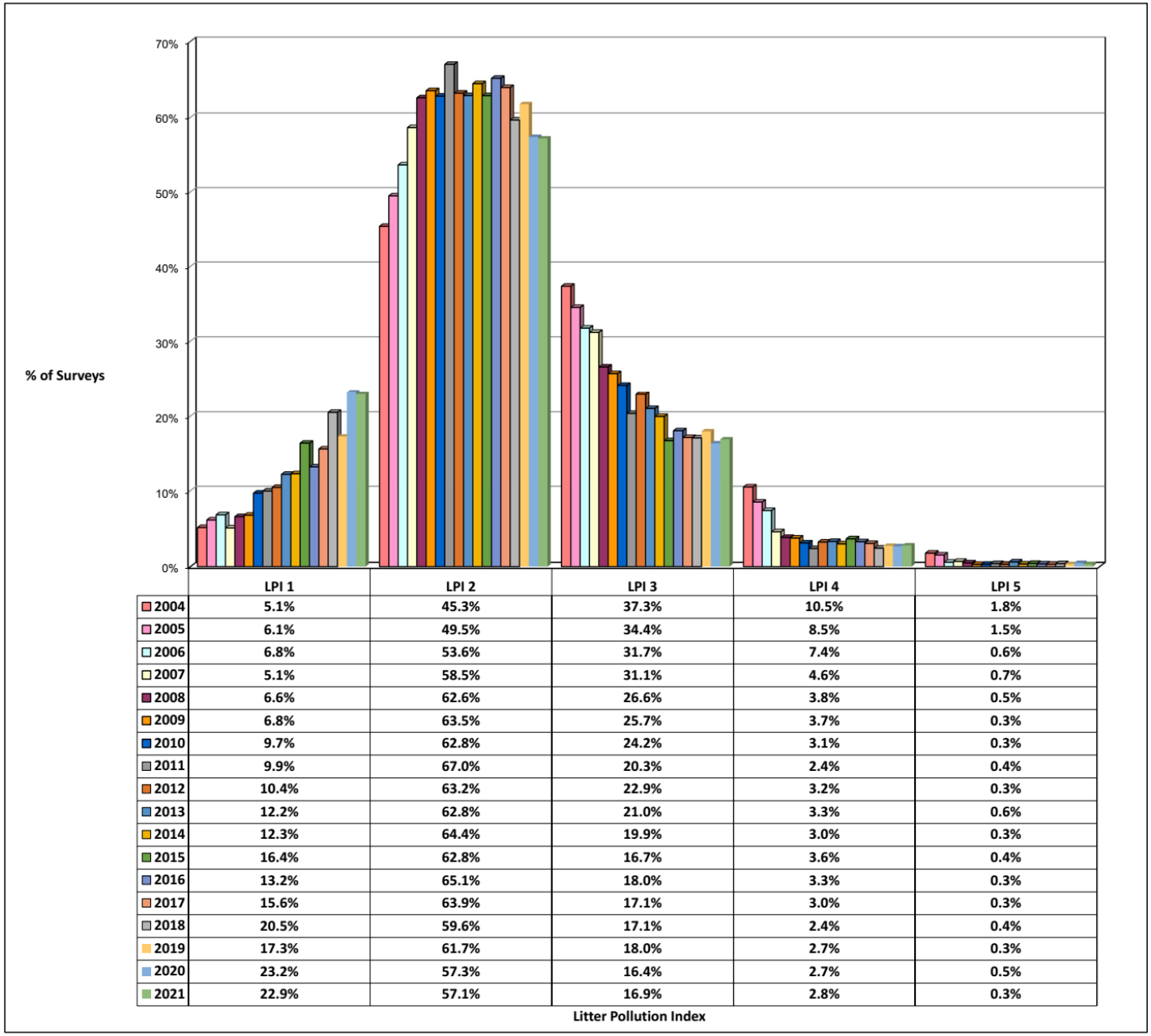
Figure 2-1 compares the 2020 and 2021 LPS results.

The NLPMS results indicate that the percentage of unpolluted (LPI 1) areas has decreased from 23.2% in 2020 to 22.9% in 2021.

A comparison of the results from 2020 to 2021 indicates that the percentage of slightly polluted (LPI 2) areas has decreased from 57.3% in 2020 to 57.1% in 2021.

The percentage of moderately polluted areas (LPI 3) has increased from 16.4% in 2020 to 16.9% in 2021. The percentage of significantly polluted areas (LPI 4) has increased slightly from 2.7% in 2020 to 2.8% in 2021. Grossly polluted areas (LPI 5) have decreased from 0.5% in 2020 to 0.3% in 2021.

The percentage of unpolluted (LPI 1) and slightly polluted (LPI 2) areas combined has decreased slightly (by 0.5%) from 2020 to 2021, thus demonstrating that there has been a slight increase in national litter pollution from 2020 to 2021.



	LPI 1	LPI 2	LPI 3	LPI 4	LPI 5
2004	5.1%	45.3%	37.3%	10.5%	1.8%
2005	6.1%	49.5%	34.4%	8.5%	1.5%
2006	6.8%	53.6%	31.7%	7.4%	0.6%
2007	5.1%	58.5%	31.1%	4.6%	0.7%
2008	6.6%	62.6%	26.6%	3.8%	0.5%
2009	6.8%	63.5%	25.7%	3.7%	0.3%
2010	9.7%	62.8%	24.2%	3.1%	0.3%
2011	9.9%	67.0%	20.3%	2.4%	0.4%
2012	10.4%	63.2%	22.9%	3.2%	0.3%
2013	12.2%	62.8%	21.0%	3.3%	0.6%
2014	12.3%	64.4%	19.9%	3.0%	0.3%
2015	16.4%	62.8%	16.7%	3.6%	0.4%
2016	13.2%	65.1%	18.0%	3.3%	0.3%
2017	15.6%	63.9%	17.1%	3.0%	0.3%
2018	20.5%	59.6%	17.1%	2.4%	0.4%
2019	17.3%	61.7%	18.0%	2.7%	0.3%
2020	23.2%	57.3%	16.4%	2.7%	0.5%
2021	22.9%	57.1%	16.9%	2.8%	0.3%

Figure 2-2 Litter Pollution Index 2004 to 2021

Figure 2-2 illustrates the Litter Pollution Index (LPI) ratings from 2004 to 2021. The percentage of unpolluted (LPI 1) areas has increased from 5.1% in 2004 to 22.9% in 2021 (an increase of 17.8%). The percentage of slightly polluted (LPI 2) areas has increased from 45.3% to 57.1% between 2004 and 2021(an increase of 11.8%). The number of recorded moderately polluted (LPI 3) areas has shown a steady decrease between 2004 (37.3%) and 2021 (16.9%), with an overall decrease of 20.4%. The number of significantly polluted (LPI 4) areas has decreased from 10.5% in 2004 to 2.8% in 2021 (a decrease of 7.7%). The number of grossly polluted (LPI 5) areas has decreased from 1.8% in 2004 to 0.3% in 2021 (a decrease of 1.5%).

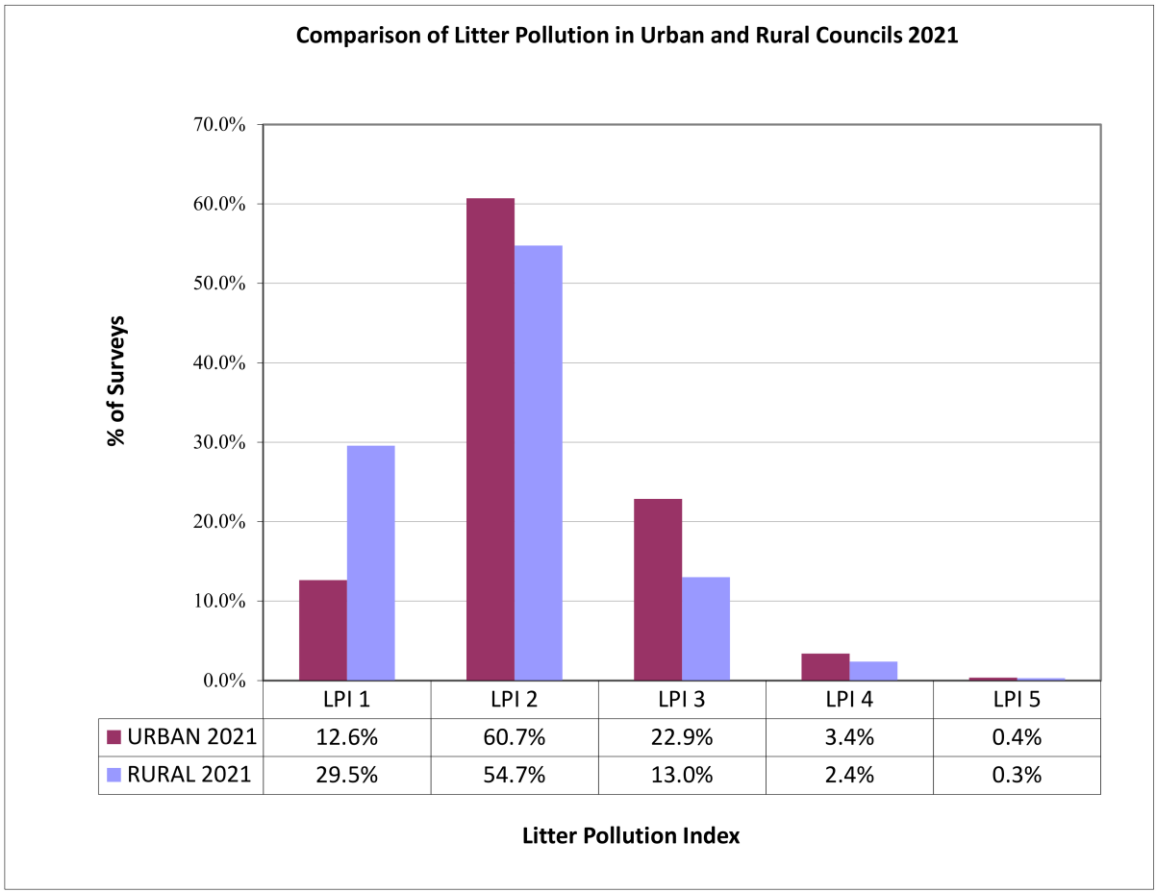


Figure 2-3 Comparison of Litter Pollution within Largely Urban and Rural Areas in 2021

A comparison of urban[2] and rural local authorities[3] is presented above in Figure 2-3.

In 2021, 12.6% of urban areas and 29.5% of rural areas were unpolluted (LPI 1). The percentage of slightly polluted areas (LPI 2) experienced in urban areas is 60.7%, and in rural areas is 54.7%. The percentage of moderately polluted (LPI 3) areas experienced in urban

[2] For the purpose of this Report urban local authorities include Cork City Council, Dublin City Council, Dún Laoghaire-Rathdown County Council, Fingal County Council, Galway City Council, Limerick City and County Council, South Dublin County Council and Waterford City and County Council.

[3] For the purpose of this Report rural local authorities include all other county councils (excluding Offaly County Council).

areas is 22.9%, with 13.0% experienced in rural areas. The percentage of significantly polluted (LPI 4) areas is 3.4% in urban areas and 2.4% in rural areas. Grossly polluted (LPI 5) areas are 0.4% in urban areas and 0.3% in rural areas.

Please refer to Figures 5-4 and 5-5 for further comparison of urban and rural litter pollution data from 2020 to 2021.

CHAPTER 3: WHAT ARE THE MAIN CONSTITUENT ELEMENTS OF LITTER POLLUTION?

Local authorities also conducted 1582 **Litter Quantification Surveys (LQS)** (or item counts) to determine the composition of litter in their areas. A breakdown of the main constituents of litter pollution is highlighted in Figure 3-1 below.

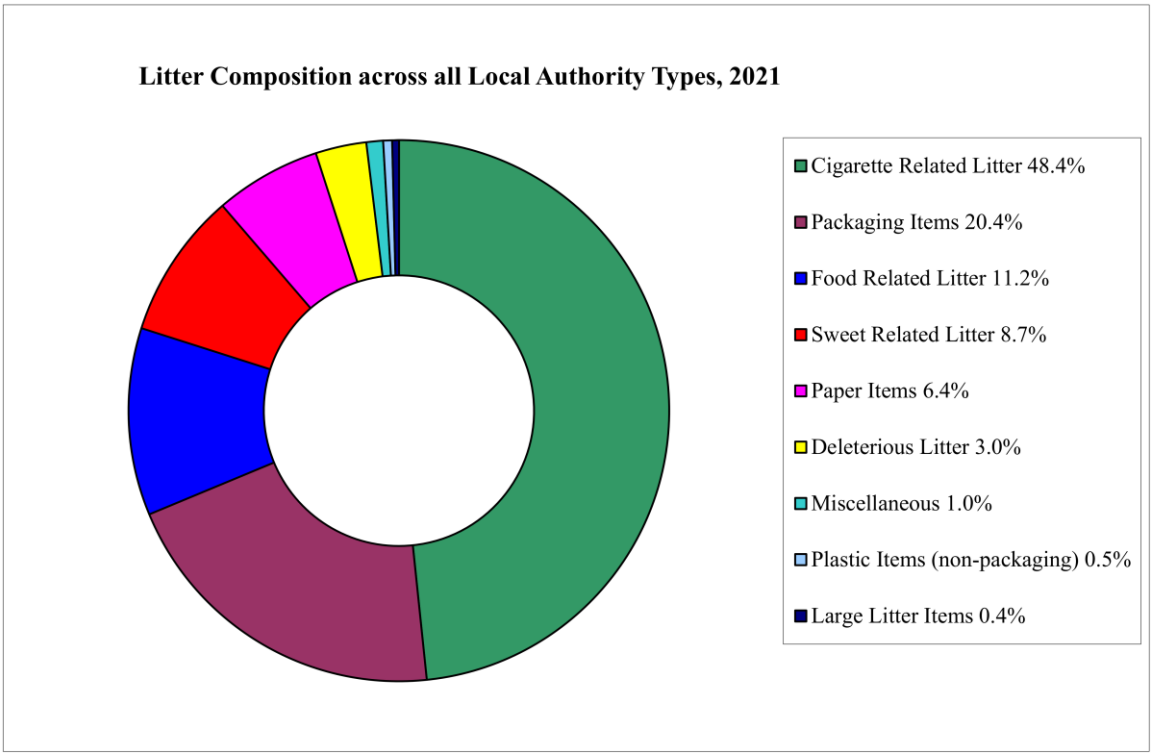


Figure 3-1 Composition of Litter in 2021 Broken Down into Main Categories

From the data in Figure 3-1, it can be seen that:

- **Cigarette related litter (48.4%)** continues to constitute the highest percentage of litter in the locations surveyed – this is comprised mainly of cigarette ends which constitute 44.7% of all litter items nationally.

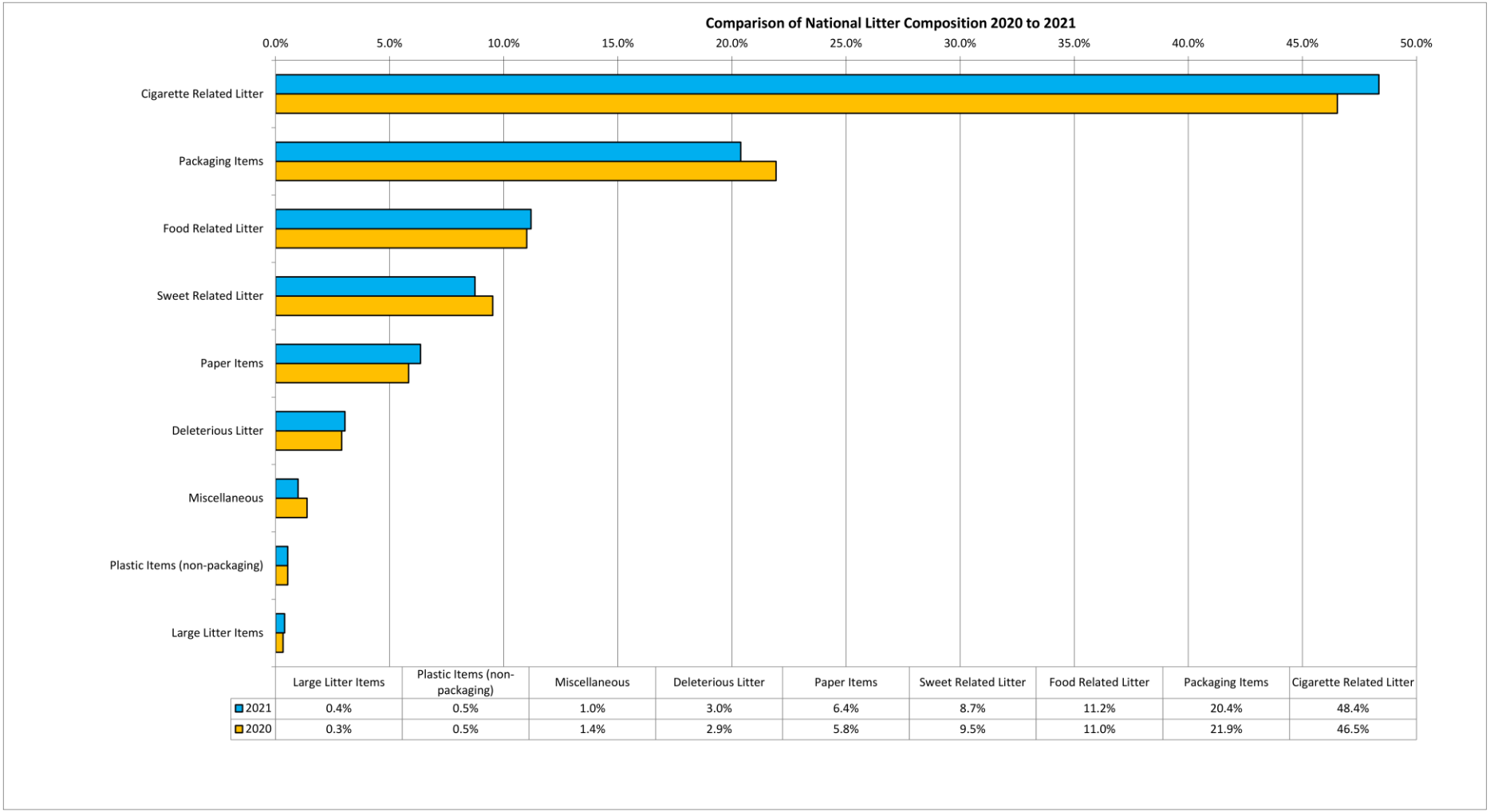
- **Packaging litter (20.4%)** is the second largest component of national litter pollution recorded. Bottle caps (2.3%), bottles (1.8%), bags and wrappers (1.8%), drink cups (1.7%), beverage cans (non-alcoholic) (1.7%), drink lids (1.5%), beverage cans (alcoholic) (1.2%), beverage bottles (alcoholic) (1.2%) and beverage bottles (non-alcoholic) (1.1%), are the main litter items in this category.

- **Food related litter (11.2%)** is the third largest category of litter pollution recorded. Chewing gum is the single largest litter component in the food related litter category, and the second largest component nationally, comprising 9.1% of all litter recorded in the LQS conducted in 2021.

- **Sweet-related litter (8.7%)** is the fourth largest category of litter pollution recorded. Sweet wrappers (plastic/foil) (4.4%) are the largest litter component in the sweet-related litter category in 2021 and is the third largest litter component nationally.

3.1 Comparison of Litter Quantification Surveys (LQS) 2020 – 2021

Figure 3-2 below compares the results of the 2020 and 2021 LQS.



	Large Litter Items	Plastic Items (non-packaging)	Miscellaneous	Deleterious Litter	Paper Items	Sweet Related Litter	Food Related Litter	Packaging Items	Cigarette Related Litter
2021	0.4%	0.5%	1.0%	3.0%	6.4%	8.7%	11.2%	20.4%	48.4%
2020	0.3%	0.5%	1.4%	2.9%	5.8%	9.5%	11.0%	21.9%	46.5%

Figure 3-2 Comparison of National Litter Composition from 2020 to 2021

A comparison of the results of LQS conducted in 2020 and 2021 shows a relatively similar composition of litter. However, analysis reveals some differences in the relative quantities of certain components.

- The percentage of cigarette related litter has increased by 1.9% since 2020.
- The percentage of packaging items decreased by 1.5% since 2020.
- The percentage of food related litter has increased by 0.2% since 2020.
- The percentage of sweet-related litter items decreased 0.8% since 2020.
- The percentage of paper items increased by 0.6% since 2020.
- The percentage of deleterious litter has increased by 0.1% since 2020.
- The number of items recorded as miscellaneous litter has decreased by 0.4% since 2020.
- The percentage of plastic items (non-packaging) remained at 0.5% in 2020 and 2021.
- There has been an increase in large litter items (0.1%) since 2020.

Table 3-1 on the following page details the composition of litter in 2020 and 2021.

The greatest percentage change in litter composition is in the cigarette related litter which has increased by 1.9% since 2020.

Packaging items had the largest decrease since 2020 (1.5%). This can be attributed to a decrease in several items in this category including beverage bottles - non-alcoholic (0.5% decrease), other plastic packaging (0.4% decrease), jars and other containers (0.4% decrease), lids ((e.g. from jars and other containers) 0.3% decrease), other paper packaging (0.3% decrease), bottle caps (0.2% decrease), drink cartons (0.2% decrease), boxes (0.2% decrease), bottles (0.1% decrease), beverage cans - alcoholic (0.1% decrease), drink lids (0.1% decrease), tin foil ((not sweet wrappers) 0.1% decrease) and bags- shopping bags (0.1% decrease).

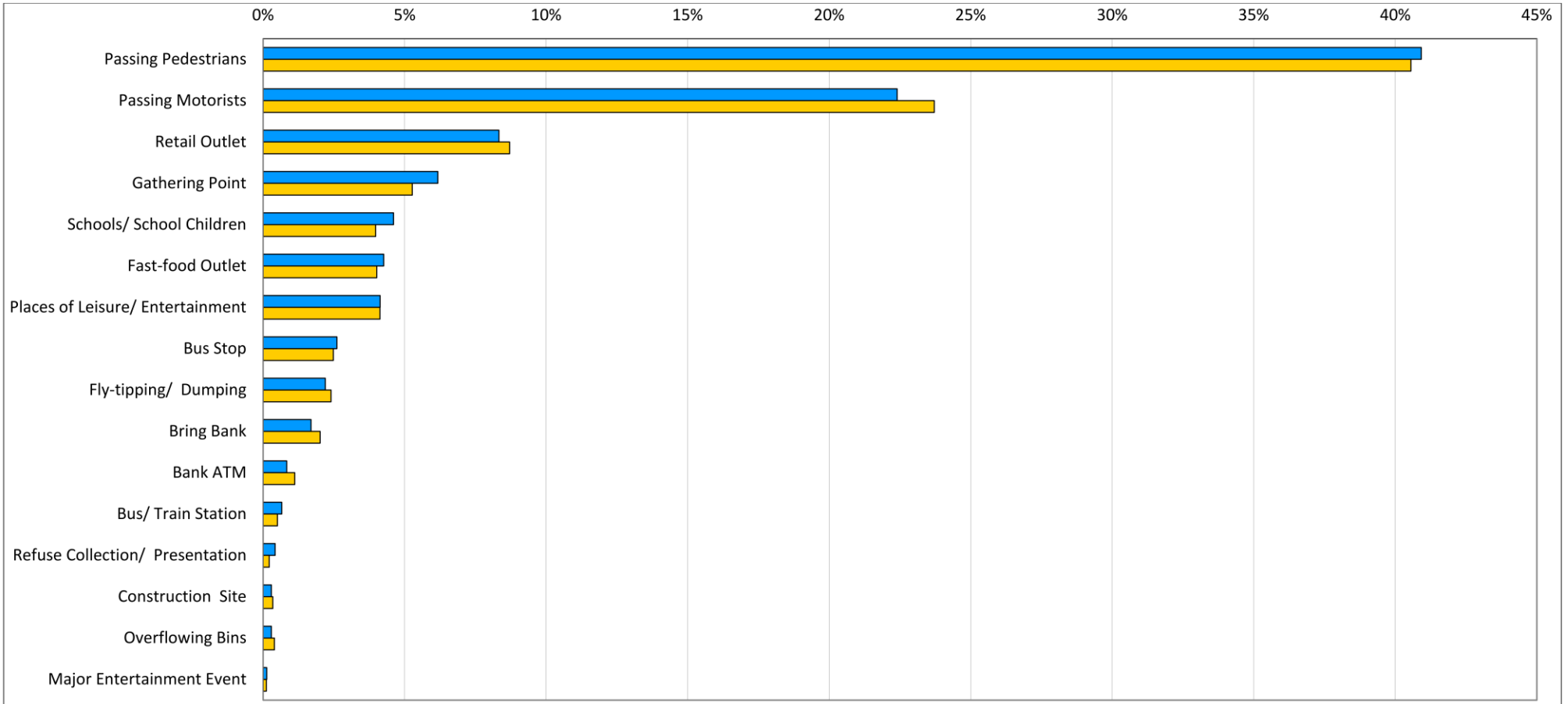
Refer to Appendix C for "Details of Litter Composition from 2020-2021 according to Local Authority Type".

	Detailed National Litter Composition 2021			Detailed National Litter Composition 2020	
Cigarette Related Litter	Cigarette ends	44.7%	**Cigarette Related Litter**	Cigarette ends	43.3%
	Cigarette boxes and wrappers	2.0%		Cigarette boxes and wrappers	2.1%
48.4%	Matches	1.4%	**46.5%**	Matches	1.0%
	Matchboxes and lighters	0.3%		Matchboxes and lighters	0.1%
Food Related Litter	Chewing Gum	9.1%	**Food Related Litter**	Chewing Gum	9.4%
11.2%	Remnants of confectionery food items	0.3%	**11.0%**	Remnants of confectionery food items	0.5%
	Other food items	0.5%		Other food items	0.4%
	Fast-food remnants	0.4%		Fast-food remnants	0.2%
	Bread/ biscuits	0.5%		Bread/ biscuits	0.2%
	Fruit/ vegetables	0.4%		Fruit/ vegetables	0.2%
Packaging Items	Bottle Caps	2.3%	**Packaging Items**	Bottle Caps	2.5%
20.4%	Bottles	1.8%	**21.9%**	Bottles	1.9%
	Drink cups	1.7%		Drink cups	1.6%
	Drink Lids	1.5%		Drink Lids	1.6%
	Bags and wrappers	1.8%		Bags and wrappers	1.4%
	Beverage Cans - Non-alcoholic	1.7%		Beverage Cans - Non-alcoholic	1.2%
	Beverage Cans - Alcoholic	1.2%		Beverage Cans - Alcoholic	1.3%
	Beverage Bottles - Alcoholic	1.2%		Beverage Bottles - Alcoholic	1.2%
	Other paper packaging	0.6%		Other paper packaging	0.9%
	Beverage Bottles - Non-alcoholic	1.1%		Beverage Bottles - Non-alcoholic	1.6%
	Drinks cartons	0.6%		Drinks cartons	0.8%
	Plastic film	0.6%		Plastic film	0.5%
	Other plastic packaging	0.5%		Other plastic packaging	0.9%
	Cardboard	0.7%		Cardboard	0.6%
	Tin foil (not sweet wrappers)	0.3%		Tin foil (not sweet wrappers)	0.4%
	Bags - shopping bags	0.4%		Bags - shopping bags	0.5%
	Other metal litter items	0.2%		Other metal litter items	0.2%
	Lids (e.g. from bottles, jars)	0.6%		Lids (e.g. from bottles, jars)	0.9%
	Food cans	0.2%		Food cans	0.2%
	Aeroboard	0.1%		Aeroboard	0.0%
	Jars and other containers	0.0%		Jars and other containers	0.4%
	Metal drums	0.0%		Metal drums	0.0%
	Bags	0.7%		Bags	0.7%
	Boxes	0.4%		Boxes	0.2%
	Bags - other (e.g. fertiliser)	0.1%		Bags - other (e.g. fertiliser)	0.1%
	Plastic sheeting (e.g. silage)	0.1%		Plastic sheeting (e.g. silage)	0.0%
	Bubble-wrap	0.1%		Bubble-wrap	0.1%
Sweet Related Litter	Sweet Wrappers (plastic/foil)	4.4%	**Sweet Related Litter**	Sweet Wrappers (plastic/foil)	5.1%
8.7%	Lollipop Sticks (wooden/plastics)	1.6%	**9.5%**	Lollipop Sticks (wooden/plastics)	1.4%
	Straws	1.1%		Straws	1.2%
	Crisp Bags	1.7%		Crisp Bags	1.8%
Paper Items	Tissues	2.0%	**Paper Items**	Tissues	2.1%
6.4%	Receipts	1.5%	**5.8%**	Receipts	1.5%
	Other paper items	1.1%		Other paper items	0.7%
	Tickets (e.g. bus, lottery)	0.6%		Tickets (e.g. bus, lottery)	0.6%
	Bank slips	0.7%		Bank slips	0.4%
	Newspapers	0.2%		Newspapers	0.2%
	Flyers and posters	0.2%		Flyers and posters	0.2%
	Letters, envelopes and cards	0.1%		Letters, envelopes and cards	0.1%
	Magazines/ brochures	0.0%		Magazines/ brochures	0.1%
Deleterious Litter	Dog fouling	1.9%	**Deleterious Litter**	Dog fouling	2.2%
3.0%	Municipal Hazardous Waste (e.g. paint, solvents)	0.0%	**2.9%**	Municipal Hazardous Waste (e.g. paint, solvents)	0.0%
	Other deleterious items	0.7%		Other deleterious items	0.3%
	Feminine hygiene products	0.2%		Feminine hygiene products	0.1%
	Nappies	0.3%		Nappies	0.2%
	Needles and syringes	0.0%		Needles and syringes	0.0%
Large Litter Items 0.4%	Other large items	0.1%	**Large Litter Items 0.3%**	Other large items	0.1%
	Household refuse in bags	0.2%		Household refuse in bags	0.2%
	Appliances (e.g. fridge)	0.0%		Appliances (e.g. fridge)	0.0%
	Furniture	0.1%		Furniture	0.0%
	Scrap cars	0.0%		Scrap cars	0.0%
Miscellaneous 1.0%	**Miscellaneous Litter Items**	1.0%	**Miscellaneous 1.4%**	**Miscellaneous Litter Items**	1.4%
Plastic Items (Non-packaging) 0.5%	Plastic items	0.5%	**Plastic Items (Non-packaging) 0.5%**	Plastic items	0.5%

Table 3-1 Detailed National Litter Composition 2020 to 2021

CHAPTER 4: WHAT ARE THE MAIN CAUSES OF LITTER POLLUTION?

The breakdown of causative factors nationally in 2020 and 2021 for all local authorities is presented in Figures 4-1 and 4-2. It can be seen from these figures that the relative ranking of causative factors is similar from 2020 to 2021, with the greatest difference occurring between passing motorists (a decrease of 1.3% in 2021) and gathering points (an increase of 0.9% in 2021).



	Major Entertainment Event	Overflowing Bins	Construction Site	Refuse Collection/ Presentation	Bus/ Train Station	Bank ATM	Bring Bank	Fly-tipping/ Dumping	Bus Stop	Places of Leisure/ Entertainment	Fast-food Outlet	Schools/ School Children	Gathering Point	Retail Outlet	Passing Motorists	Passing Pedestrians
2021	0.1%	0.3%	0.3%	0.4%	0.7%	0.8%	1.7%	2.2%	2.6%	4.1%	4.3%	4.6%	6.2%	8.3%	22.4%	40.9%
2020	0.1%	0.4%	0.3%	0.2%	0.5%	1.1%	2.0%	2.4%	2.5%	4.1%	4.0%	4.0%	5.3%	8.7%	23.7%	40.6%

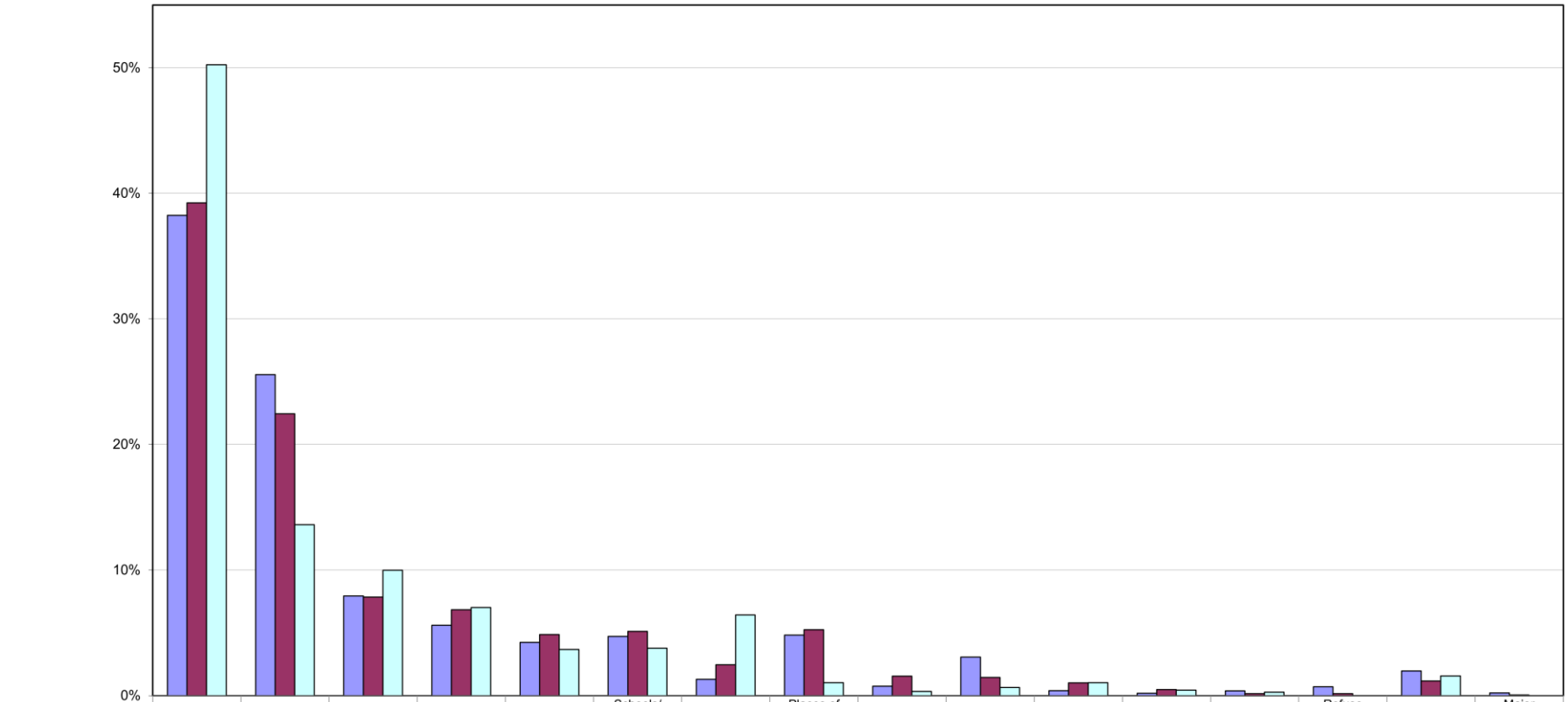
Figure 4-1 Causative Factors of Litter Pollution across all Local Authorities in 2020 and 2021

Figure 4-1 illustrates that:

- Passing pedestrians continue to constitute the greatest single causative factor of litter pollution, accounting for 40.9% across all local authorities.
- Passing motorists are the second largest causative factor accounting for 22.4% across all local authority types in 2021.
- Causative factors that have increased from 2020 to 2021 include passing pedestrians (from 40.6% to 40.9%), gathering points (from 5.3% to 6.2%), schools/ school children (from 4.0% to 4.6%), fast-food outlet (from 4.0% to 4.3%), bus stop (from 2.5% to 2.6%), bus/train stations (from 0.5% to 0.7%) and refuse collection/presentation (from 0.2% to 0.4%).
- Causative factors that have decreased from 2020 to 2021 include passing motorists (from 23.7% to 22.4%), retail outlets (from 8.7% to 8.3%), fly-tipping/dumping (from 2.4% to 2.2%), bring bank (2.0% to 1.7%), bank ATM (1.1% to 0.8%) and overflowing bins (0.4% to 0.3%).
- Causative factors that have remained the same from 2020 to 2021 are places of leisure/ entertainment (4.1%), construction sites (0.3%) and major entertainment events (0.1%).

During the LPS, surveyors are asked for observations on the primary causes of litter pollution. Causative factors are expressed as a percentage of the total number of causative factors identified in all LPS. For each survey, there is usually more than one causative factor of the litter found, e.g., passing pedestrians, fast-food outlets and overflowing bins may all be contributing to litter pollution in a survey area.

The breakdown of causative factors found in each local authority type is presented in Figure 4-2.



	Passing Pedestrians	Passing Motorists	Retail Outlet	Gathering Point	Fast-food Outlet	Schools/ School Children	Bus Stop	Places of Leisure/ Entertainment	Bank ATM	Fly-tipping/ Dumping	Bus/Train Station	Construction Site	Overflowing Bins	Refuse Collection/ Presentation	Bring Bank	Major Entertainment Event
County Councils	38.2%	25.6%	7.9%	5.6%	4.2%	4.7%	1.3%	4.8%	0.7%	3.1%	0.4%	0.2%	0.4%	0.7%	2.0%	0.2%
City Councils	39.2%	22.4%	7.8%	6.8%	4.9%	5.1%	2.5%	5.2%	1.5%	1.4%	1.0%	0.5%	0.1%	0.1%	1.2%	0.0%
Dublin Local Authorities	50.2%	13.6%	10.0%	7.0%	3.7%	3.8%	6.4%	1.0%	0.3%	0.6%	1.0%	0.4%	0.3%	0.0%	1.6%	0.0%

*City Council results also include the Limerick and Waterford county areas (i.e., these local authorities are now known as Limerick City and County Council and Waterford City and County Council).
**County Council results exclude Limerick and Waterford.

Figure 4-2 Causative Factors of Litter Pollution According to Local Authority Type in 2021

The national results for 2021 show that passing pedestrians are the most significant cause of litter pollution within all local authority types. It is also clear from Figure 4-2 that passing motorists, retail outlets, gathering points, places of leisure/entertainment, schools/school children and fast-food outlets are considerable sources of litter across all local authority types.

Survey results from 2021 show that the contribution of passing motorists, fly-tipping/dumping, overflowing bins, refuse collection/presentation, bring banks and major entertainment events are greater in County Councils than in other local authority types.

Fast-food outlets, schools/school children, places of leisure/ entertainment, bank ATMs and construction sites are more significant causative factors in City Councils than in other local authority types.

Passing pedestrians, retail outlets, gathering points and bus stops are more significant causative factors in Dublin Local Authorities than in other local authority types.

The data in Figure 4-2 indicates that the causes of litter pollution nationwide continue to remain relatively homogeneous, irrespective of local authority type. This is not unexpected, given that local authorities conduct their litter pollution and quantification surveys largely in areas where potential sources of litter (i.e., people) are located.

The homogeneous nature of the causative factors of litter pollution in Ireland is further illustrated by the ranking of these causative factors and the linking of them to the level of litter pollution in the locations surveyed – see Figures D.1 to D.8 in Appendix D. The percentage of causative factors varies with each category of LPI. The data is organised illustrating the 2020 and 2021 graphs under each litter pollution index (on the same page) to facilitate the comparison of the 2020 and 2021 results.

CHAPTER 5: ASSESSMENT OF LITTER POLLUTION DATA BY LOCAL AUTHORITY TYPE

This chapter focuses on comparative data for litter pollution across different local authority types. LPS results for 31 local authorities have been returned to the Litter Monitoring Body (LMB) and analysed for 2021 – a list of local authorities is detailed in Appendix A.

Comparison of the 2021 LPS data for the different categories of local authorities is examined in Figures 5-1, 5-2, 5-3 and 5-4.

5.1 Comparison within Dublin Local Authorities

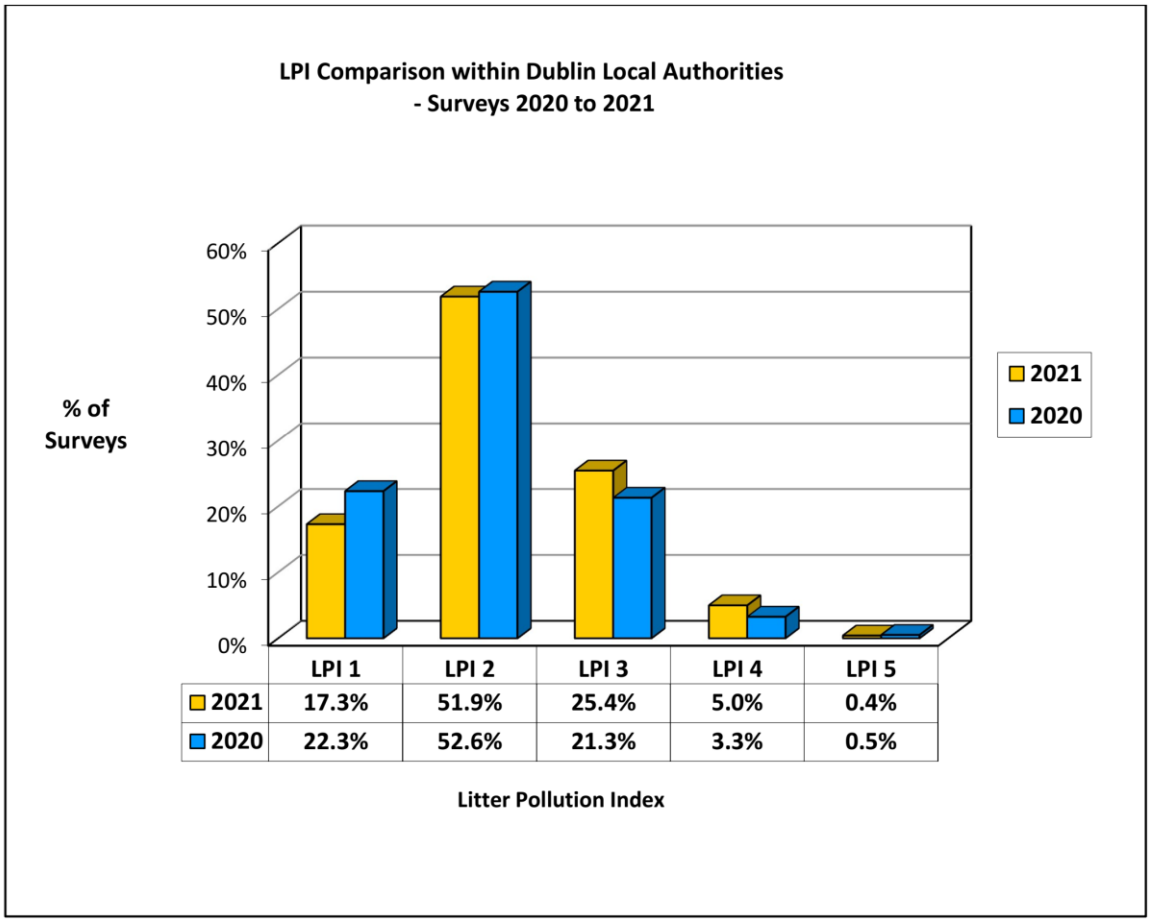


Figure 5-1 Comparison of Litter Pollution within Dublin Local Authorities 2020 to 2021

In comparing the litter pollution data for Dublin Local Authorities, Figure 5-1 illustrates the following:

- The percentage of unpolluted (LPI 1) areas decreased from 22.3% in 2020 to 17.3% in 2021. This constitutes a decrease of 5%. 2021 LPI 1 levels are similar to pre Covid 19 pandemic figures and therefore it would appear that the high LPI 1 rating in 2020 may be attributed to the Government lockdown measures in place during 2020.

- Slightly polluted (LPI 2) areas decreased from 52.6% in 2020 to 51.9%. This constitutes a decrease of 0.7%.
- Moderately polluted (LPI 3) areas increased from 21.3% in 2020 to 25.4% in 2021. This constitutes a 4.1% increase.
- Significantly polluted (LPI 4) areas increased from 3.3% in 2020 to 5.0% in 2021. This constitutes a 1.7% increase.
- Grossly polluted (LPI 5) areas decreased by 0.1%, from 0.5% in 2020 to 0.4% in 2021.
- The percentage of unpolluted (LPI 1) and slightly polluted (LPI 2) areas combined, show a decrease of 5.7% from 2020 to 2021.

Overall, the results show an increase in the level of litter pollution in Dublin Local Authorities from 2020 to 2021. Furthermore, there was also a combined increase, of 5.7%, in moderately polluted (LPI 3), significantly polluted (LP4) and grossly polluted (LP1 5) areas between 2020 and 2021.

5.2 Comparison within County Councils

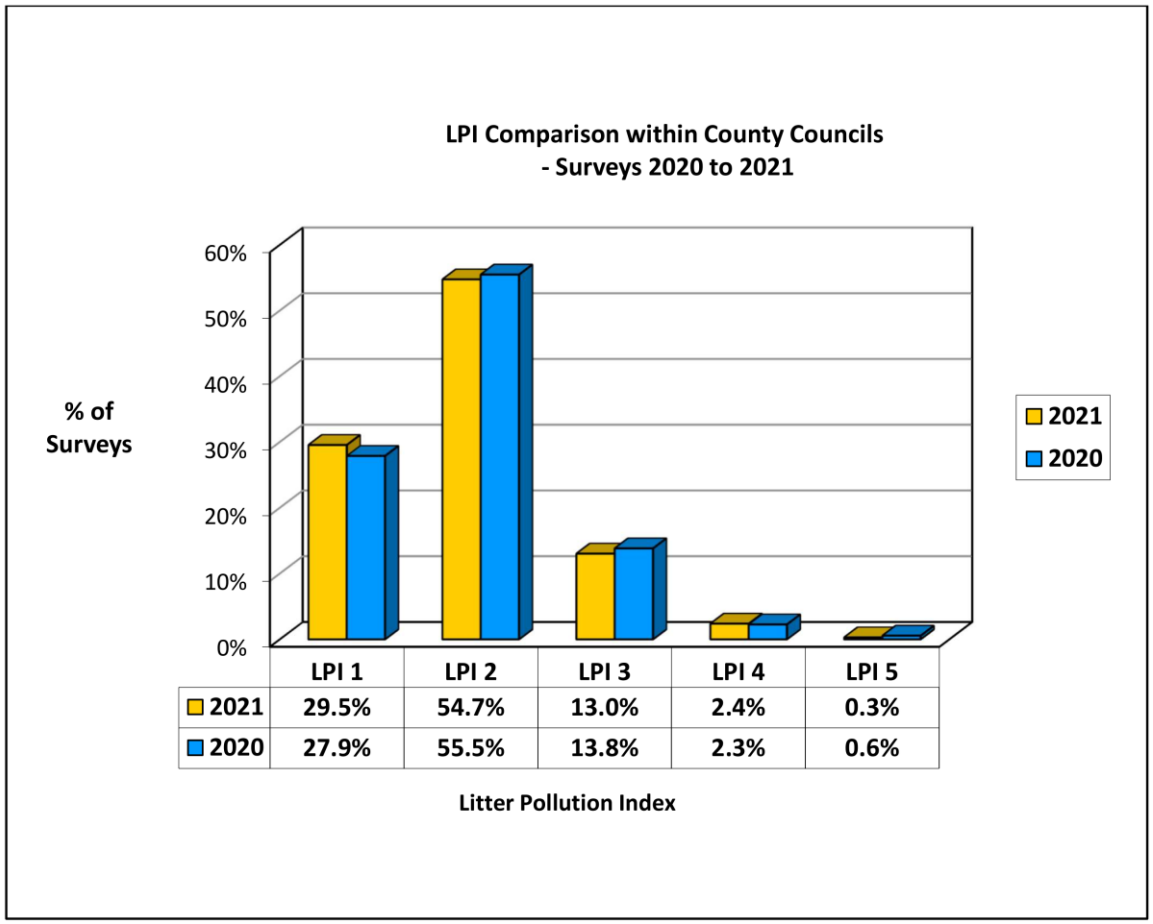


Figure 5-2 Comparison of Litter Pollution within County Councils 2020 to 2021

In comparing the litter pollution data for County Councils, Figure 5-2 illustrates the following:

- The percentage of unpolluted (LPI 1) areas increased from 27.9% in 2020 to 29.5% in 2021. This constitutes an increase of 1.6%.
- Slightly polluted (LPI 2) areas decreased by 0.8%, from 55.5% in 2020 to 54.7% in 2021.
- Moderately polluted (LPI 3) areas decreased by 0.8%, from 13.8% in 2020 to 13.0% in 2021.
- Significantly polluted (LPI 4) areas increased from 2.3% in 2020 to 2.4% in 2021. This constitutes an increase of 0.1%.
- The percentage of grossly polluted (LPI 5) areas has decreased from 0.6% in 2020 to 0.3% in 2021. This constitutes a decrease of 0.3%.
- The percentage of unpolluted (LPI 1) and slightly polluted (LPI 2) areas combined, show a slight increase of 0.8% from 2020 to 2021.

Overall, these results show a decrease in the level of litter pollution in County Councils from 2020 to 2021. When combined, the percentage of moderately polluted (LPI 3), significantly polluted (LP4) and grossly polluted (LP1 5) areas have decreased by 1% between 2020 and 2021.

5.3 Comparison within City Councils

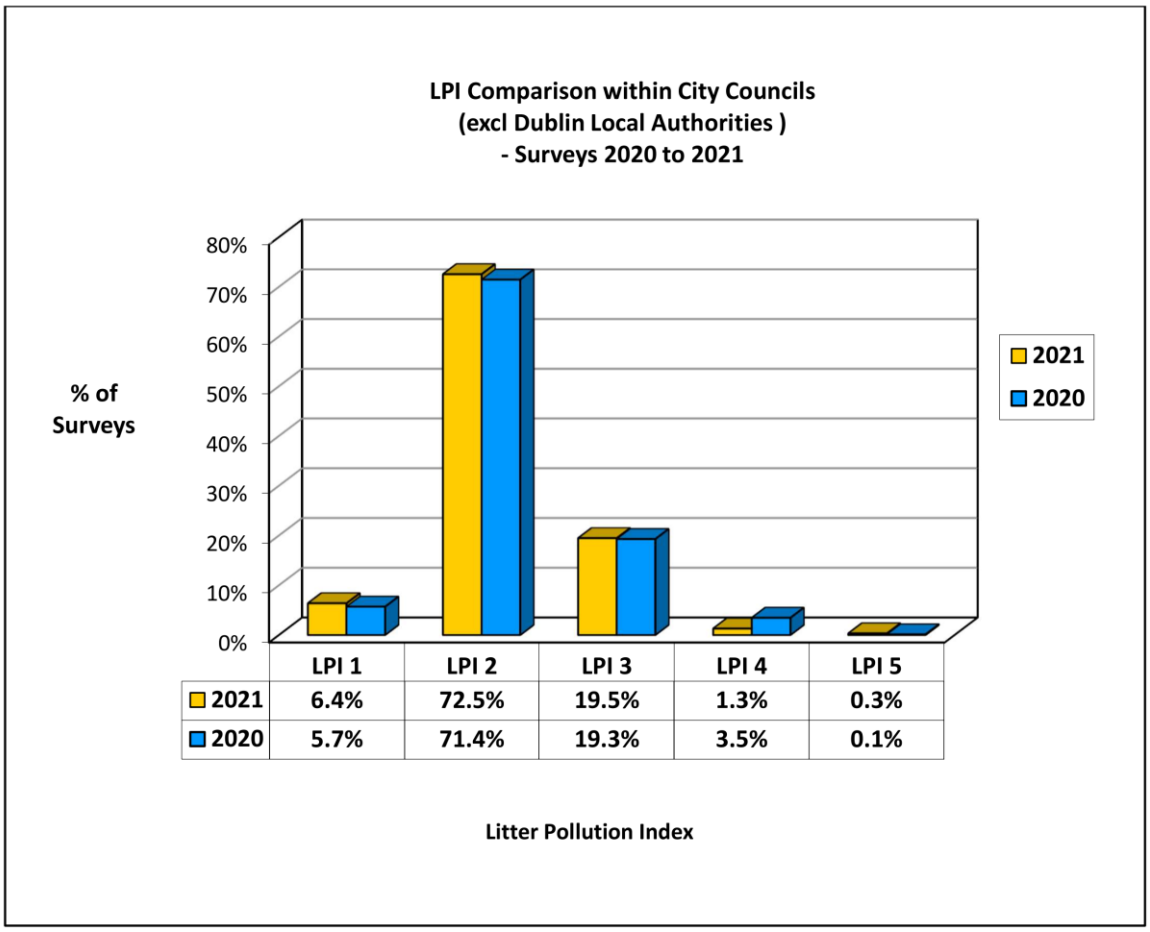


Figure 5-3 Comparison of Litter Pollution within City Councils 2020 to 2021

In comparing the litter pollution data for City Councils, Figure 5-3 illustrates the following:

- The percentage of unpolluted (LPI 1) areas has increased from 5.7% in 2020 to 6.4% in 2021. This constitutes an increase of 0.7%.
- Slightly polluted (LPI 2) areas have increased by 1.1%, from 71.4% in 2020 to 72.5% in 2021.
- The percentage of moderately polluted (LPI 3) areas has increased by 0.2%, from 19.3% in 2020 to 19.5% in 2021.
- Significantly polluted (LPI 4) areas have decreased from 3.5% in 2020 to 1.3% in 2021. This constitutes a decrease of 2.2%.
- The percentage of grossly polluted (LPI 5) has increased by 0.2% from 0.1% in 2020 to 0.3% in 2021.
- The percentage of unpolluted (LPI 1) and slightly polluted (LPI 2) areas combined, shows an increase of 1.8% from 2020 to 2021.

These results show an overall decrease in the level of litter pollution in City Councils from 2020 to 2021. The percentage of unpolluted (LPI 1) and slightly polluted (LPI 2) areas, when combined, show an increase of 1.8%. These results also show there has been a decrease of 1.8% in moderately polluted (LPI 3), significantly polluted (LPI 4) and grossly polluted (LPI 5) areas, when combined, since 2020.

The percentage of unpolluted (LPI 1) areas decreased in Dublin Local Authorities from 2020 to 2021 but increased in County Councils and City Councils.

The percentage of slightly polluted (LPI 2) areas decreased in both County Councils and Dublin Local Authorities but increased in City Councils from 2020 to 2021.

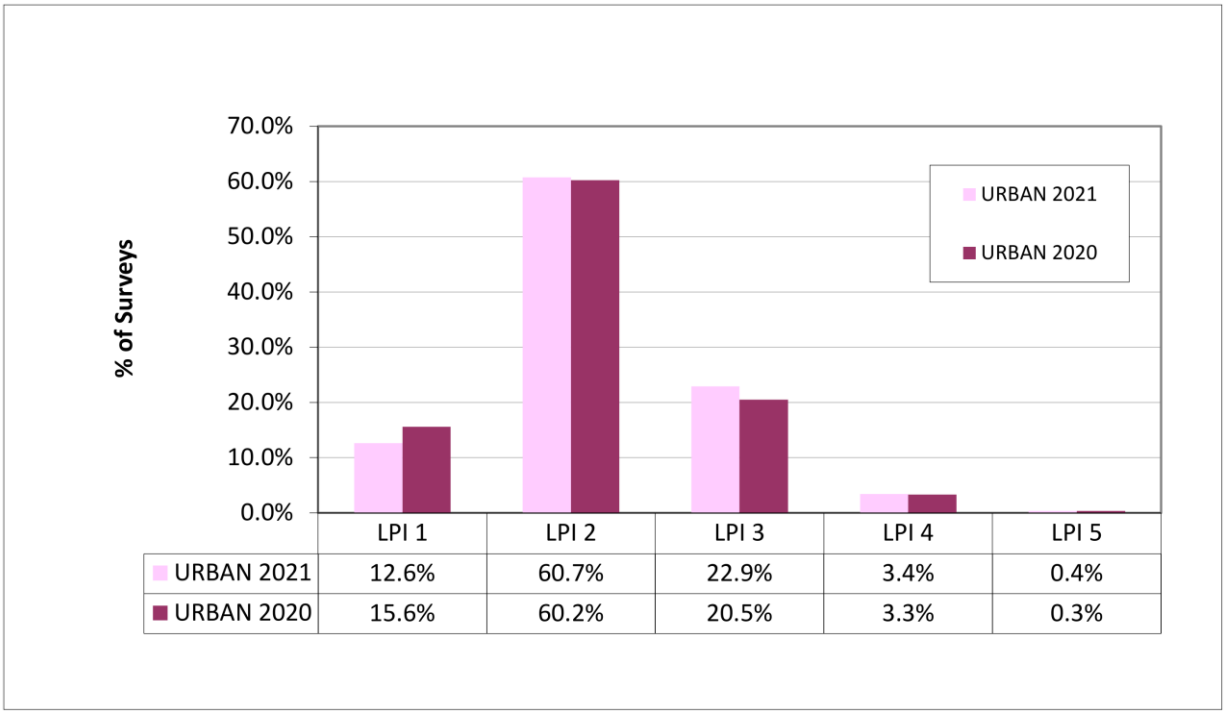
The percentage of moderately polluted (LPI 3) areas decreased in County Council areas but increased in Dublin Local Authorities and City Council areas from 2020 to 2021.

The percentage of significantly polluted (LPI 4) areas increased in Dublin Local Authorities and County Council areas but decreased in City Council areas from 2020 to 2021.

The percentage of grossly polluted (LPI 5) areas increased in City Council areas but decreased in Dublin Local Authorities and County Council areas from 2020 to 2021.

5.4 Comparison within Urban & Rural Areas[4]

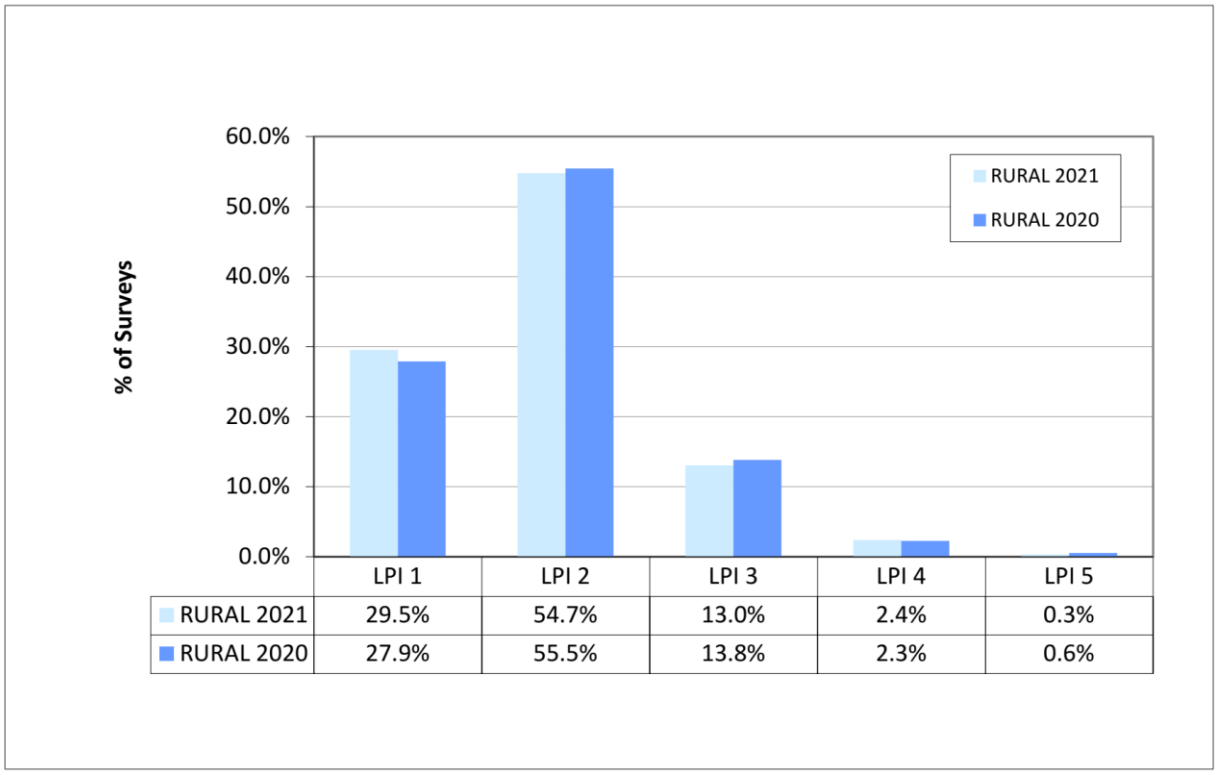
Figures 5-4 and 5-5 provide a comparison of litter pollution in rural and urban areas from 2020 to 2021.



	LPI 1	LPI 2	LPI 3	LPI 4	LPI 5
URBAN 2021	12.6%	60.7%	22.9%	3.4%	0.4%
URBAN 2020	15.6%	60.2%	20.5%	3.3%	0.3%

Figure 5-4 Comparison of Litter Pollution in Urban Areas from 2020 to 2021

[4] For the purpose of this Report urban local authorities include Cork City Council, Dublin City Council, Dun Laoghaire-Rathdown County Council, Fingal County Council, Galway City Council, Limerick City and County Council, South Dublin County Council and Waterford City and County Council. For the purpose of this report, rural local authorities include all other County Councils.



	LPI 1	LPI 2	LPI 3	LPI 4	LPI 5
RURAL 2021	29.5%	54.7%	13.0%	2.4%	0.3%
RURAL 2020	27.9%	55.5%	13.8%	2.3%	0.6%

Figure 5-5 Comparison of Litter Pollution in Rural Areas from 2020 to 2021

The percentage of unpolluted (LPI 1) areas in urban areas has decreased by 3.0%, from 15.6% in 2020 to 12.6% in 2021. The percentage of slightly polluted (LPI 2) areas has increased by 0.5% from 60.2% in 2020 to 60.7% in 2021. Moderately polluted (LPI 3) areas have increased by 2.4%, from 20.5% in 2020 to 22.9% in 2021. Significantly polluted (LPI 4) areas have increased slightly by 0.1%, from 3.3% in 2020 to 3.4% in 2021. Grossly polluted (LPI 5) areas have increased slightly by 0.1%, from 0.3% in 2020 to 0.4% in 2021.

In rural areas, the levels of unpolluted (LPI 1) areas have increased by 1.6%, from 27.9% in 2020 to 29.5% in 2021. The percentage of slightly polluted (LPI 2) areas has decreased by 0.8%, from 55.5% in 2020 to 54.7% in 2021. Moderately polluted (LPI 3) areas have decreased by 0.8%, from 13.8% in 2020 to 13.0% in 2021. Significantly polluted (LPI 4) areas have increased by 0.1%, from 2.3% in 2020 to 2.4% in 2021. Grossly polluted (LPI 5) areas have decreased by 0.3%, from 0.6% in 2020 to 0.3% in 2021.

The percentage of unpolluted (LPI 1) and slightly polluted (LPI 2) areas combined, show that urban areas have shown a decrease in cleanliness levels by 2.5% from 2020 to 2021. Rural areas have shown a slight increase in cleanliness levels by 0.8% from 2020 to 2021.

Refer to Appendix E "Comparison of Causative Factors of Litter Pollution within Urban and Rural Local Authorities".

CHAPTER 6: ANALYSIS OF SPECIFIC COMPONENTS OF LITTER

6.1 Cigarette Related Litter

The percentage of national litter represented by cigarette related litter has increased from 46.5% in 2020 to 48.4% in 2021, an increase of 1.9% (see Table 3-1, page 14). Cigarette related litter continues to be the largest component of litter nationally in 2021.

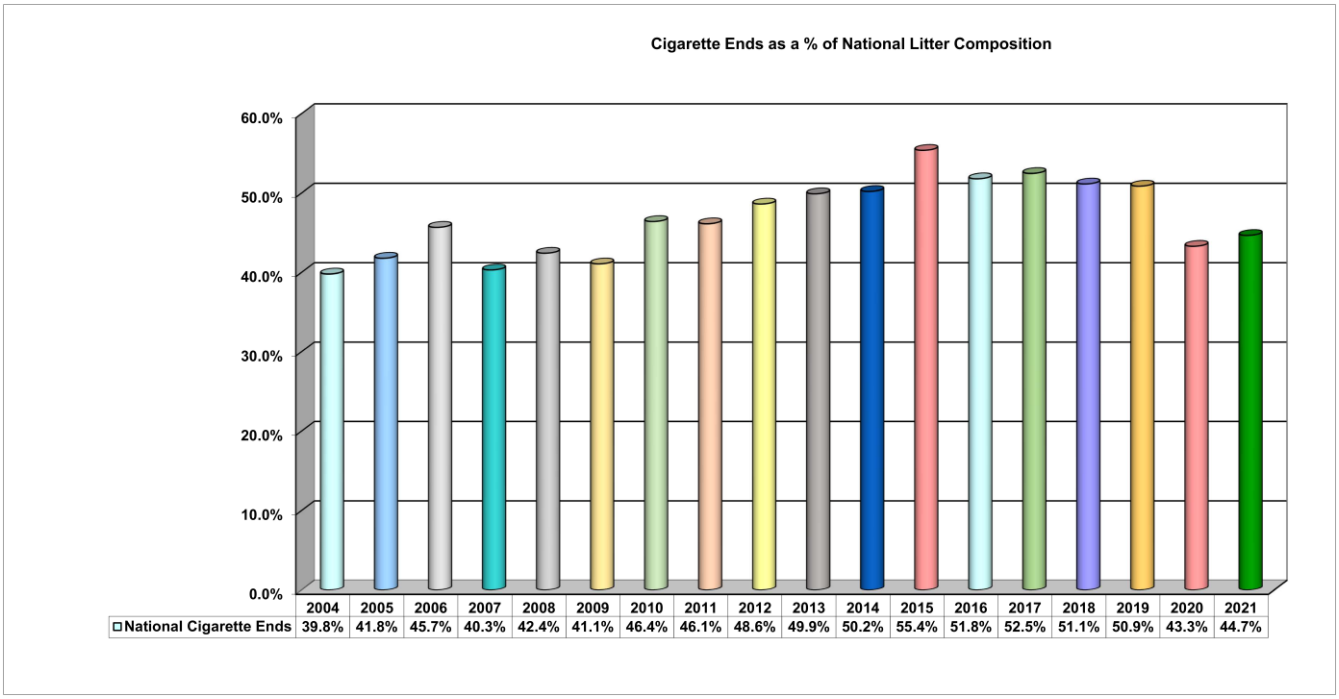


Figure 6-1 Cigarette Ends as a Percentage of the National Litter Composition

Cigarette ends continue to be the biggest component of cigarette related litter. The percentage of cigarette ends, as a component of national litter, increased (by 1.4%), from 43.3% in 2020 to 44.7% in 2021 (Figure 6-1).

6.2 Chewing Gum Litter

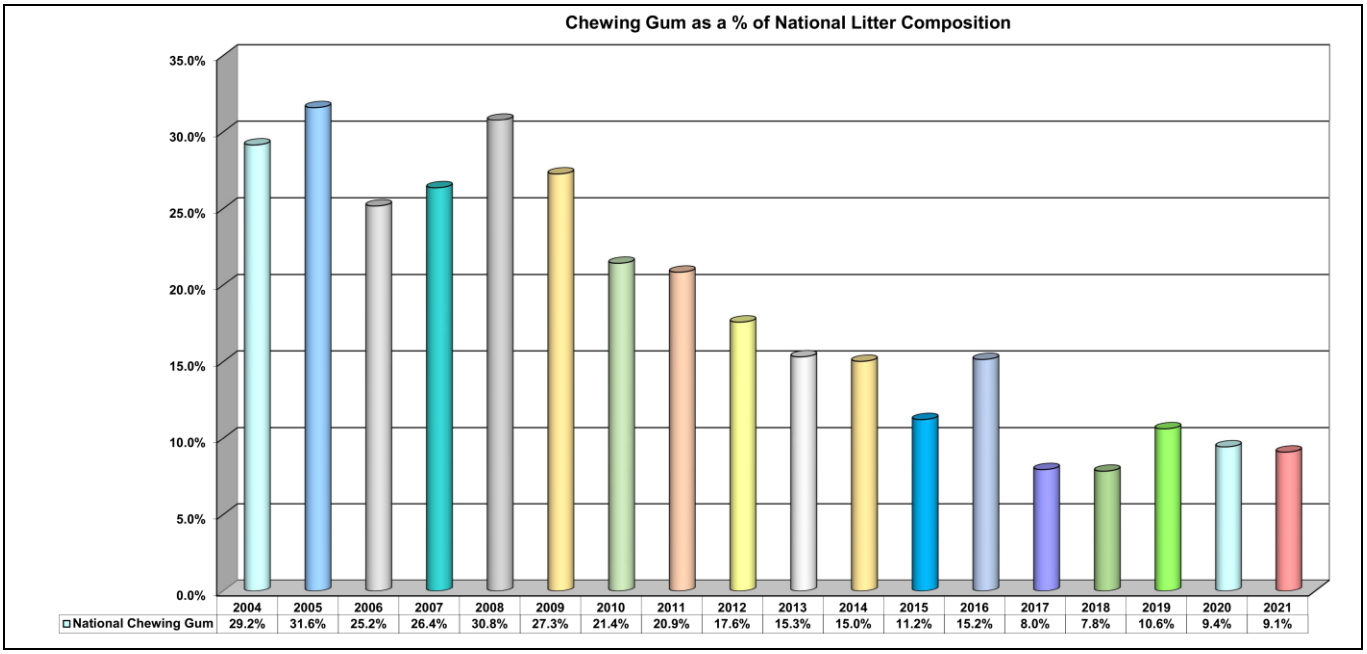


Figure 6-2 Chewing Gum as a Percentage of the National Litter Composition

Food related litter, and specifically chewing gum, continued to be a noticeable component of litter nationally in 2021. Figure 6-2 above illustrates trends in chewing gum related litter since 2004.

Chewing gum has remained the single largest item of litter in the food related litter category and the second biggest component of litter nationally since 2004.

Chewing gum litter in 2021 (9.1%) had decreased by 0.3% since 2020.

6.3 Sweet Related Litter

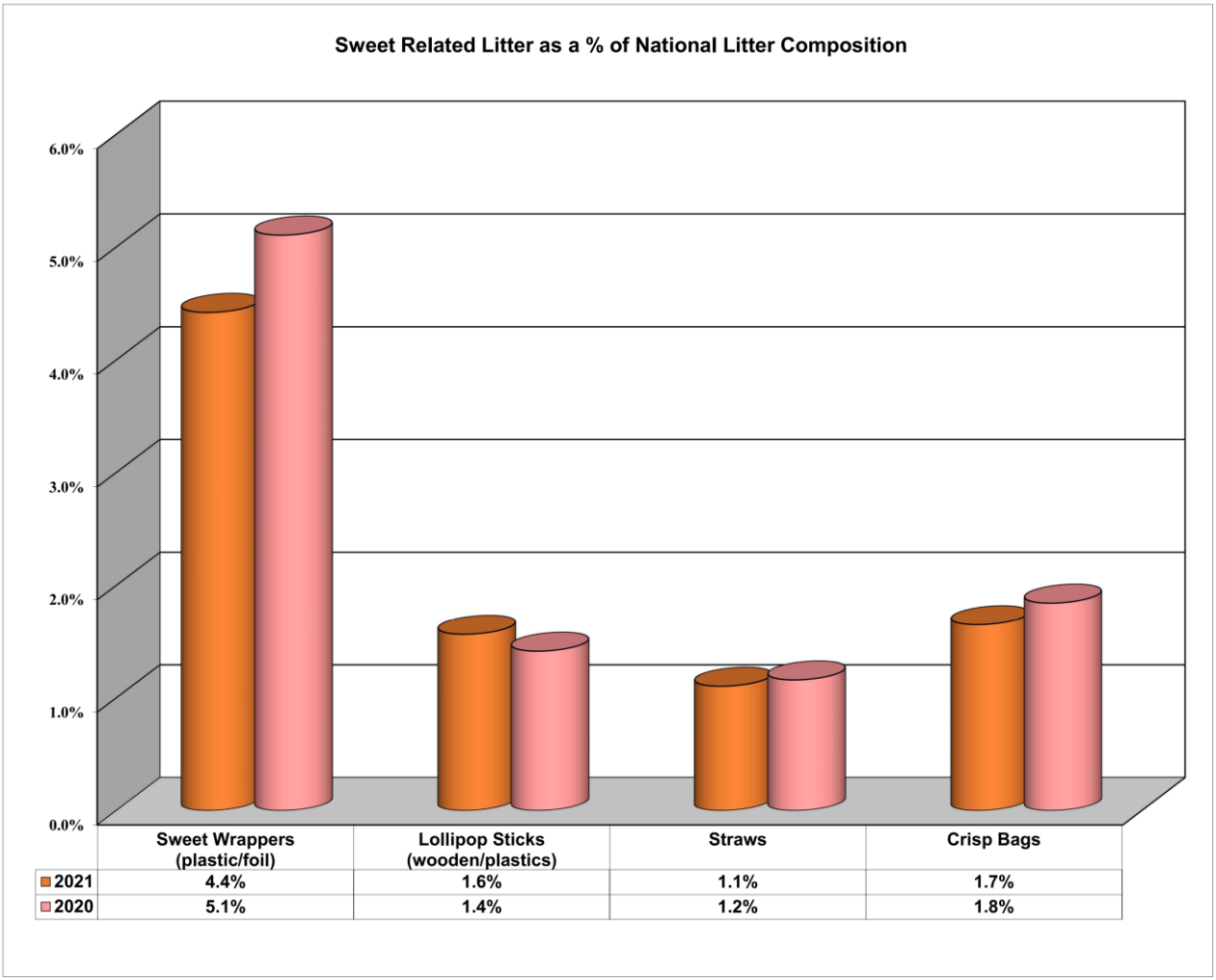


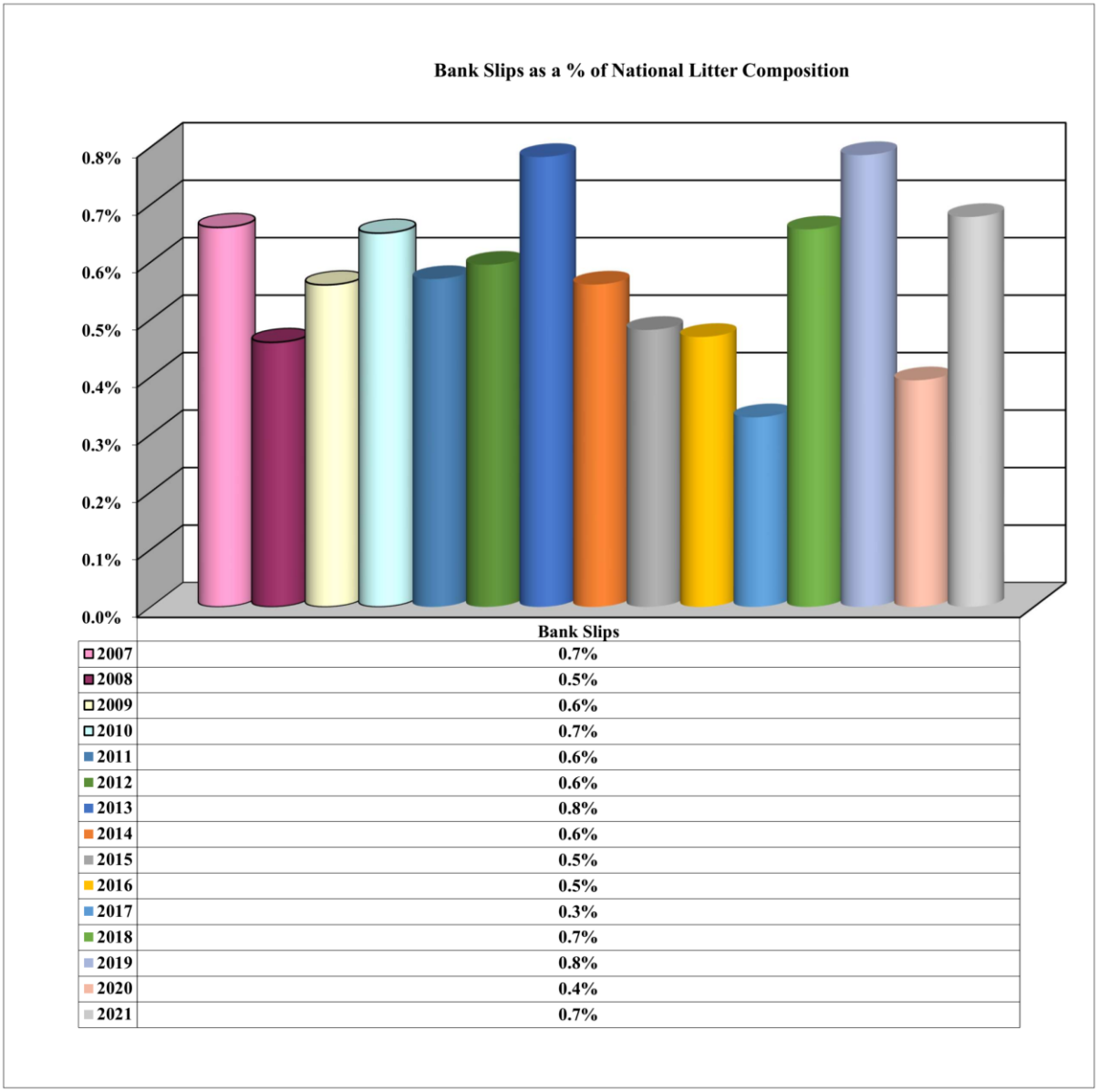
Figure 6-3 Sweet Related Litter Analysed 2020 to 2021

Sweet-related litter, or sweet wrappers (plastic/foil) more specifically, continues to be a large component of national litter. The components of sweet-related litter between 2020 and 2021 are presented in Figure 6-3 above.

Sweet-related litter, as a component of national litter, decreased from 9.5% in 2020 to 8.7% in 2021 (a decrease of 0.8%). The results in Figure 6-3, illustrates that sweet wrapper (plastic/foil), are the highest component of litter in the sweet-related litter category. The quantity of lollipop sticks (wooden/plastic) has increased by 0.2%, in 2021. Straws have decreased, by 0.1%, in 2021. Crisp bags also contribute to the sweet-related litter category and have decreased by 0.1% from 2020 to 2021.

6.4 Bank ATM Receipts

The NLPMS is also used to assess the impact of a protocol to tackle litter generated by ATM advice slips which was announced in January 2007 by the then Minister for the Environment, Heritage and Local Government and then Irish Banking Federation (IBF) on behalf of the retail banking groups with ATM networks.

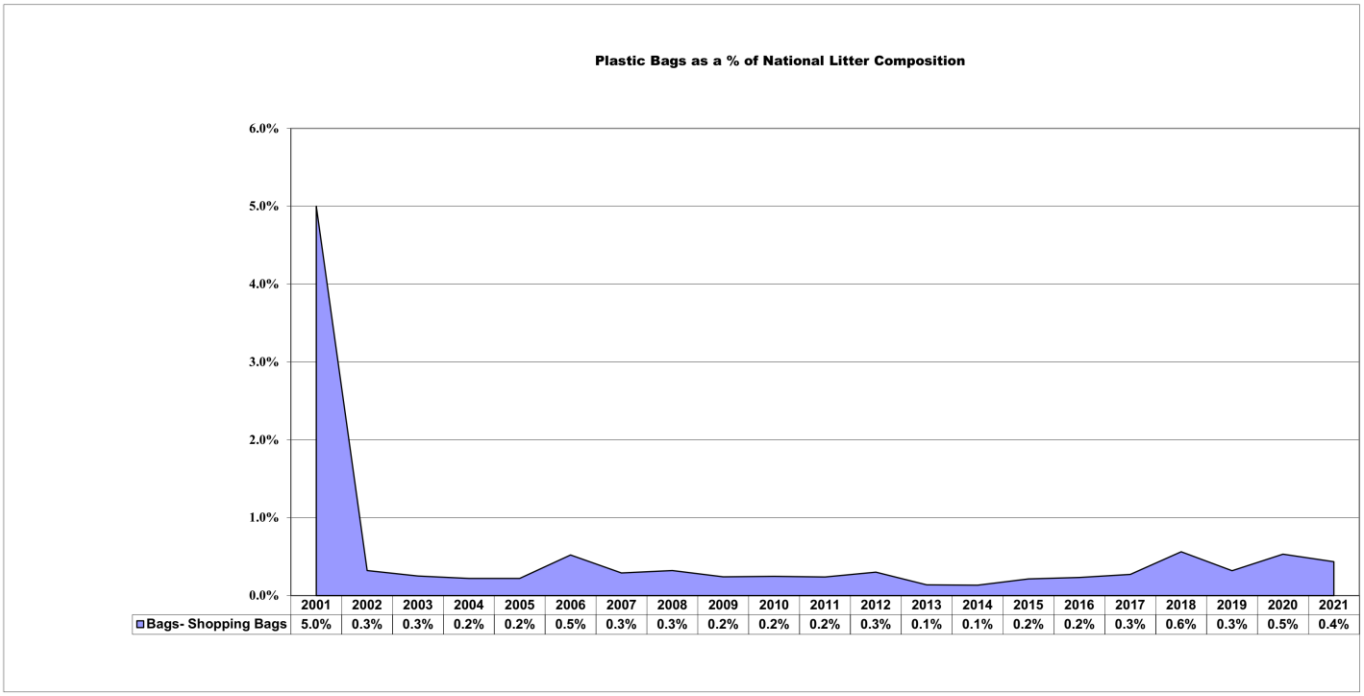


	Bank Slips
2007	0.7%
2008	0.5%
2009	0.6%
2010	0.7%
2011	0.6%
2012	0.6%
2013	0.8%
2014	0.6%
2015	0.5%
2016	0.5%
2017	0.3%
2018	0.7%
2019	0.8%
2020	0.4%
2021	0.7%

Figure 6-4 Bank Slips as a Percentage of the National Litter Composition

Figure 6-4 illustrates that bank slips, as a percentage of the national litter composition has increased (by 0.3%) from 0.4% in 2020 to 0.7% in 2021. The NLPMS will continue to monitor the impact of this protocol.

6.5 Plastic Shopping Bags



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bags- Shopping Bags	5.0%	0.3%	0.3%	0.2%	0.2%	0.5%	0.3%	0.3%	0.2%	0.2%	0.2%	0.3%	0.1%	0.1%	0.2%	0.2%	0.3%	0.6%	0.3%	0.5%	0.4%

Figure 6-5 Plastic Shopping Bags as a Percentage of the National Litter Composition

The NLPMS can be used as a tool to monitor the success of measures implemented to tackle specific issues. Prior to 2002, it was estimated that 1.3 billion shopping bags were issued annually. Because of incorrect disposal, many plastic bags ended up as a very visually intrusive form of litter pollution. Prior to the introduction of the NLPMS, it was estimated that plastic bags constituted 5% of litter. A plastic bag levy was introduced in March 2002 in order to tackle this issue. Results of the System indicated that plastic bags, as a component of national litter, responded positively and plastic bag litter began decreasing.

Between 2004 and 2006, levels of plastic shopping bags recorded by the System steadily began to climb again. The plastic bag levy increased, from 15c to 22c, in July 2007 in a further bid to reduce littering. The results of the System once again indicated that the measures were having a positive impact on littering; plastic shopping bags as a percentage of National Litter Composition reached an all-time low in 2014 (0.13%).

Figure 6-5 above illustrates the percentage of shopping bags as a percentage of the National Litter Composition from the period mid-2001 to 2021. The 2021 results show that the percentage of plastic shopping bags, as part of the National Litter Composition, has decreased. The NLPMS will continue to monitor the level of plastic bag litter in Ireland and the impact of this levy.

CHAPTER 7: ITEMS FOR FURTHER ATTENTION UNDER THE NLPMS

- The NLPMS will be used to continue to assess the impact of the protocol to tackle litter generated by ATM advice slips. This Protocol was announced in January 2007 by the then Minister for the Environment, Heritage and Local Government and the Irish Banking Federation (IBF) on behalf of the retail banking groups with ATM networks. The agreement currently operates between the Minister for Environment, Climate and Communications and the Banking and Payments Federation Ireland (BPFI).

- The NLPMS will be used to continue to assess the impact of the plastic bag levy, which was introduced in Ireland in March 2002, and which was increased from 15c to 22c in July 2007.

- The NLPMS will continue to monitor the level of cigarette related litter which is the largest litter component recorded nationally.

- The NLPMS will continue to monitor the level of chewing gum litter recorded which is the second largest litter component recorded nationally.

- The NLPMS will continue to monitor the causative factors of national litter pollution.

CHAPTER 8: CONCLUSION

As a result of the Local Government Reform Act, 31 local authorities exist in Ireland. In 2021, all 31 local authorities submitted their NLPMS survey results.

The constituent components and the causative factors of litter pollution nationally remain relatively constant across all local authority types from 2020 to 2021.

The percentage of cigarette related litter, food litter, paper litter, deleterious litter and large litter items recorded in the 2021 surveys, have all increased since 2020. Packaging items, sweet-related litter and miscellaneous litter items recorded in the 2021 surveys, have decreased since 2020. The level of plastic litter items (non-packaging) has remained the same from 2020 to 2021.

The national results for 2021 indicate that passing pedestrians are the most significant cause of litter pollution for every local authority type in Ireland. It is also clear that passing motorists, retail outlets, gathering points, places of leisure/entertainment, fast-food outlets and schools/school children are considerable sources of litter across all local authority types.

Survey results from 2021 show that the contribution of passing motorists, fly-tipping/dumping, overflowing bins, refuse collection/presentation, bring banks and major entertainment events are greater in County Councils than in other local authority types.

Fast-food outlets, schools/school children, places of leisure/ entertainment, bank ATMs and construction sites are more significant causative factors in City Councils than in other local authority types.

Passing pedestrians, retail outlets, gathering points and bus stops are more significant causative factors in Dublin Local Authorities than in other local authority types.

The 2021 national litter monitoring system results indicate that the percentage of unpolluted (LPI 1) areas has decreased from 23.2% in 2020 to 22.9% in 2021.

A comparison of the results from 2020 to 2021 indicates that the percentage of slightly polluted (LPI 2) areas has decreased from 57.3% in 2020 to 57.1% in 2021.

The percentage of moderately polluted areas (LPI 3) has increased from 16.4% in 2020 to 16.9% in 2021. The percentage of significantly polluted areas (LPI 4) has increased slightly from 2.7% in 2020 to 2.8% in 2021. Grossly polluted areas (LPI 5) have decreased from 0.5% in 2020 to 0.3% in 2021.

The percentage of unpolluted (LPI 1) and slightly polluted (LPI 2) areas combined has decreased slightly (by 0.5%) from 2020 to 2021, thus demonstrating that there has been a slight increase in national litter pollution from 2020 to 2021.

Analysis of specific components of litter in 2021 resulted in the following observations:

- Cigarette related litter, and more specifically cigarette ends, continues to be the greatest component of litter nationally.

- Chewing gum continues to be the second largest litter component nationally. Chewing gum litter in 2021 (9.1%) had decreased by 0.3% since 2020. The NLPMS will continue to monitor the level of chewing gum litter recorded nationally.

- Monitoring of plastic shopping bags, as a component of national litter, has indicated the number of plastic shopping bags responded positively to the introduction and increases in the levy in 2002 and 2007, respectively. Monitoring by the System recorded an all-time low in the levels of plastic shopping bags in the environment in 2014, after which time the level has slowly increased. In 2021, the percentage of plastic shopping bags recorded in the NLPMS surveys had increased to 0.4%

The degree, composition, causes and trends in litter pollution identified and discussed in this report are representative of the national picture in 2021, and will continue to be monitored into 2022.

The LMB is satisfied that all local authorities are properly implementing the NLPMS. Local authorities will continue to be audited to ensure the System is being implemented as designed.

APPENDIX A

DETAILS OF LOCAL AUTHORITIES THAT CONDUCTED SURVEYS IN 2021

Litter Quantification Survey (LQS) Results

LQS results for 31 local authorities were returned to the LMB and analysed for 2021. These are detailed in Table A.1.

Table A.1 Local Authorities that Submitted Litter Quantification Survey Results for 2021

County Councils
Carlow County Council
Cavan County Council
Clare County Council
Cork County Council
Donegal County Council
Galway County Council
Kerry County Council
Kildare County Council
Kilkenny County Council
Laois County Council
Leitrim County Council
Longford County Council
Louth County Council
Mayo County Council
Meath County Council
Monaghan County Council
Offaly County Council
Roscommon County Council
Sligo County Council
Tipperary County Council
Westmeath County Council
Wexford County Council
Wicklow County Council
City Councils
Cork City Council
Galway City Council
Limerick City and County Council
Waterford City and County Council
Dublin Local Authorities
Dublin City Council
Dún Laoghaire-Rathdown County Council
Fingal County Council
South Dublin County Council

Litter Pollution Survey (LPS) Results

LPS results for 31 local authorities were returned to the LMB and analysed for 2021. These are detailed in Table A.2.

Table A.2 Local Authorities that Submitted Litter Pollution Survey Results for 2021

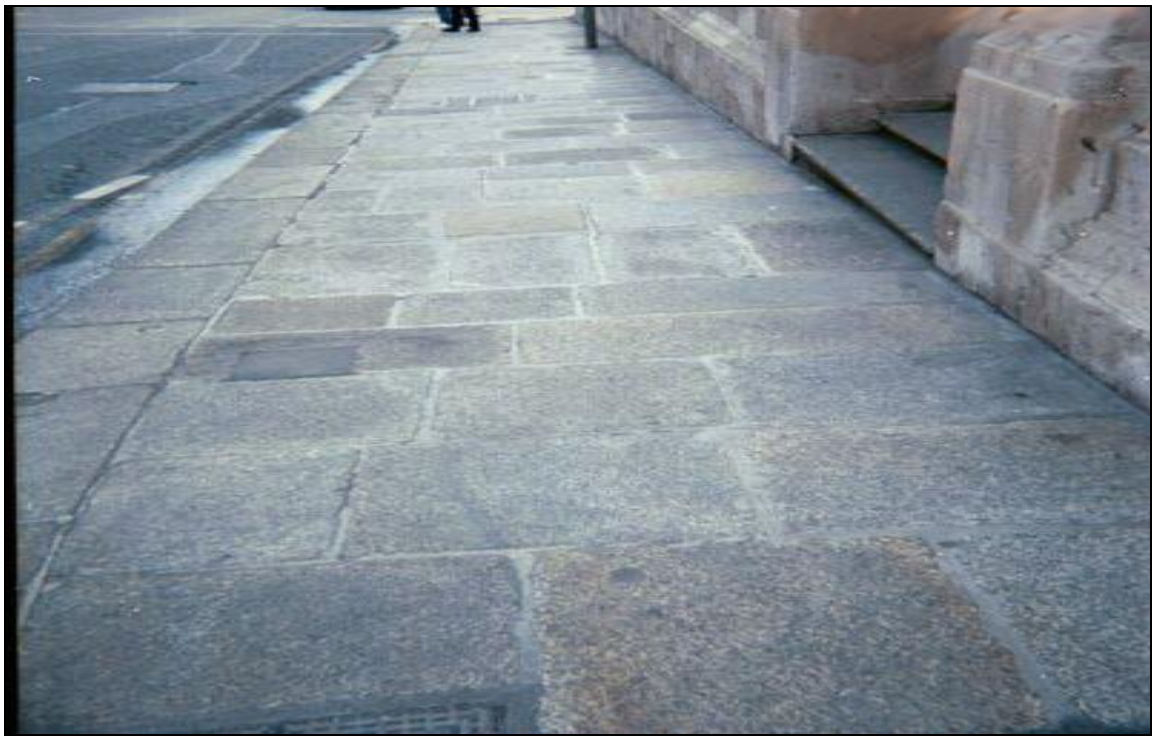
County Councils
Carlow County Council
Cavan County Council
Clare County Council
Cork County Council
Donegal County Council
Galway County Council
Kerry County Council
Kildare County Council
Kilkenny County Council
Laois County Council
Leitrim County Council
Longford County Council
Louth County Council
Mayo County Council
Meath County Council
Monaghan County Council
Offaly County Council
Roscommon County Council
Sligo County Council
Tipperary County Council
Westmeath County Council
Wexford County Council
Wicklow County Council
City Councils
Cork City Council
Galway City Council
Limerick City and County Council
Waterford City and County Council
Dublin Local Authorities
Dublin City Council
Dún Laoghaire-Rathdown County Council
Fingal County Council
South Dublin County Council

APPENDIX B

AREA CLEANLINESS RATING PHOTOGRAPHS

Area Cleanliness Rating 1 (Unpolluted)

This rating is only given to an area with no litter present i.e., the area may be freshly swept.

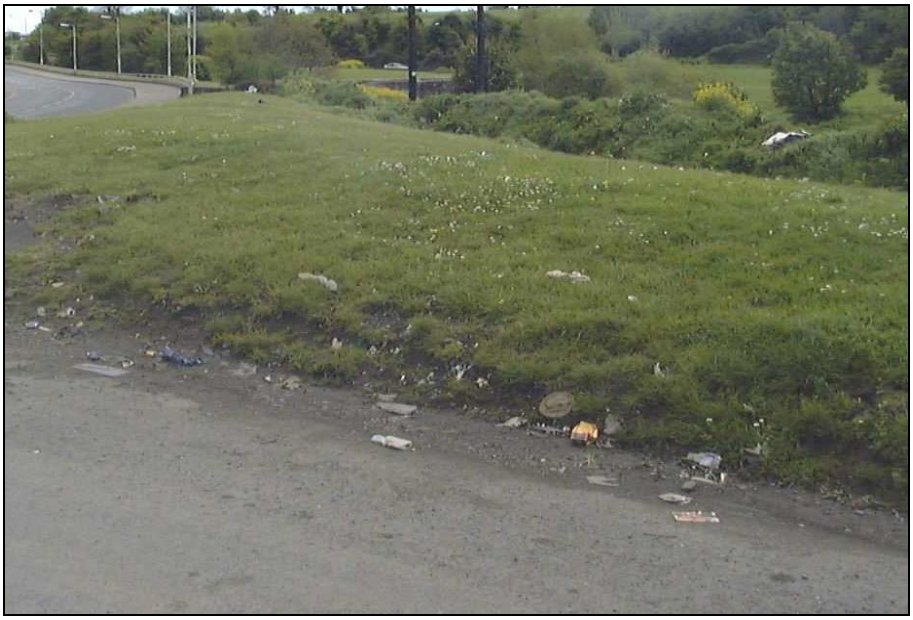


Area Cleanliness Rating 2 (Slightly Polluted)

This rating is only given to an area with small litter items present, i.e., not visually intrusive.

Area Cleanliness Rating 3 (Moderately Polluted)

This rating is given to an area with some large litter items present, i.e., visually intrusive.



Area Cleanliness Rating 4 (Significantly Polluted)

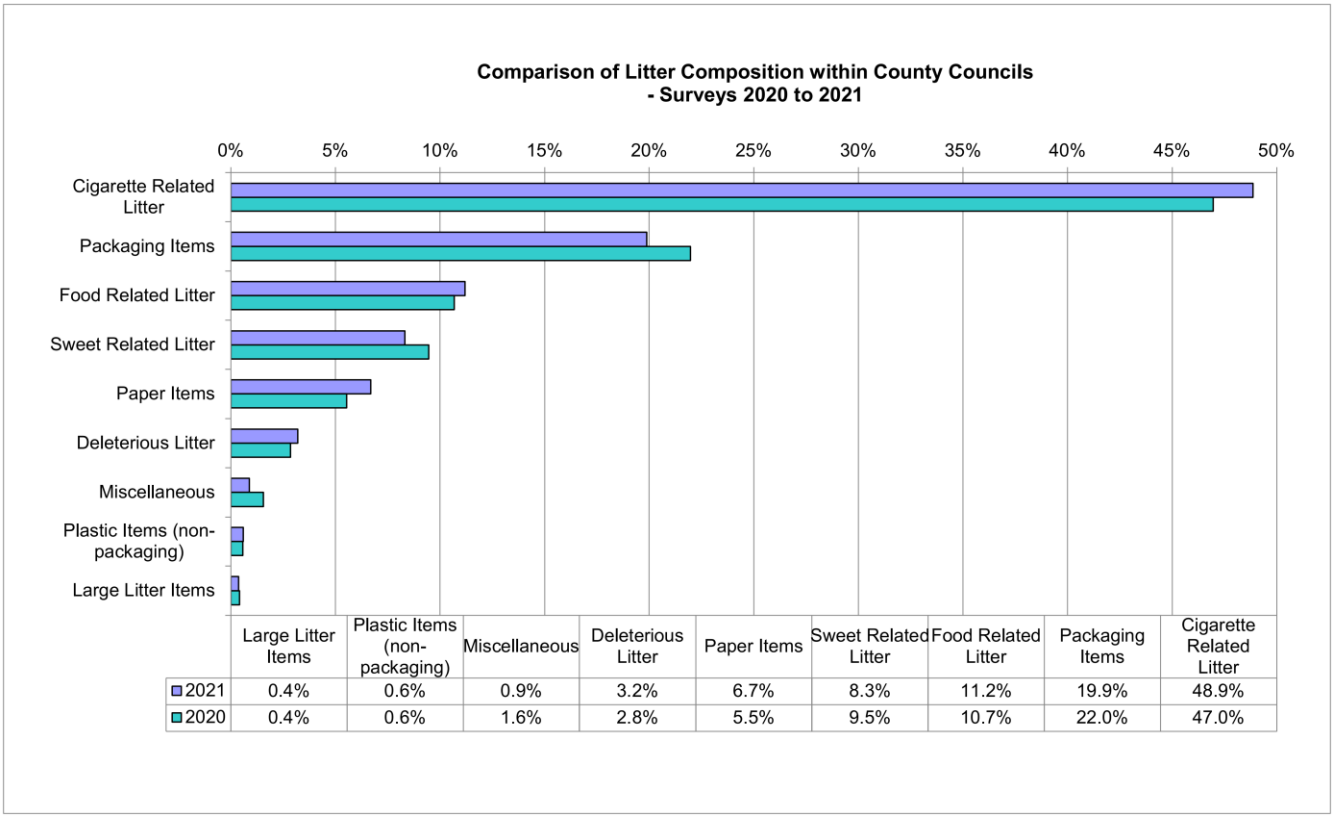
This rating is given to an area with large litter items present throughout the survey area.

Area Cleanliness Rating 5 (Grossly Polluted)

This rating is given to an area, which is heavily littered throughout the survey area, i.e., after an event such as a concert/ festival or a fly-tipping/ dumping incident.

APPENDIX C

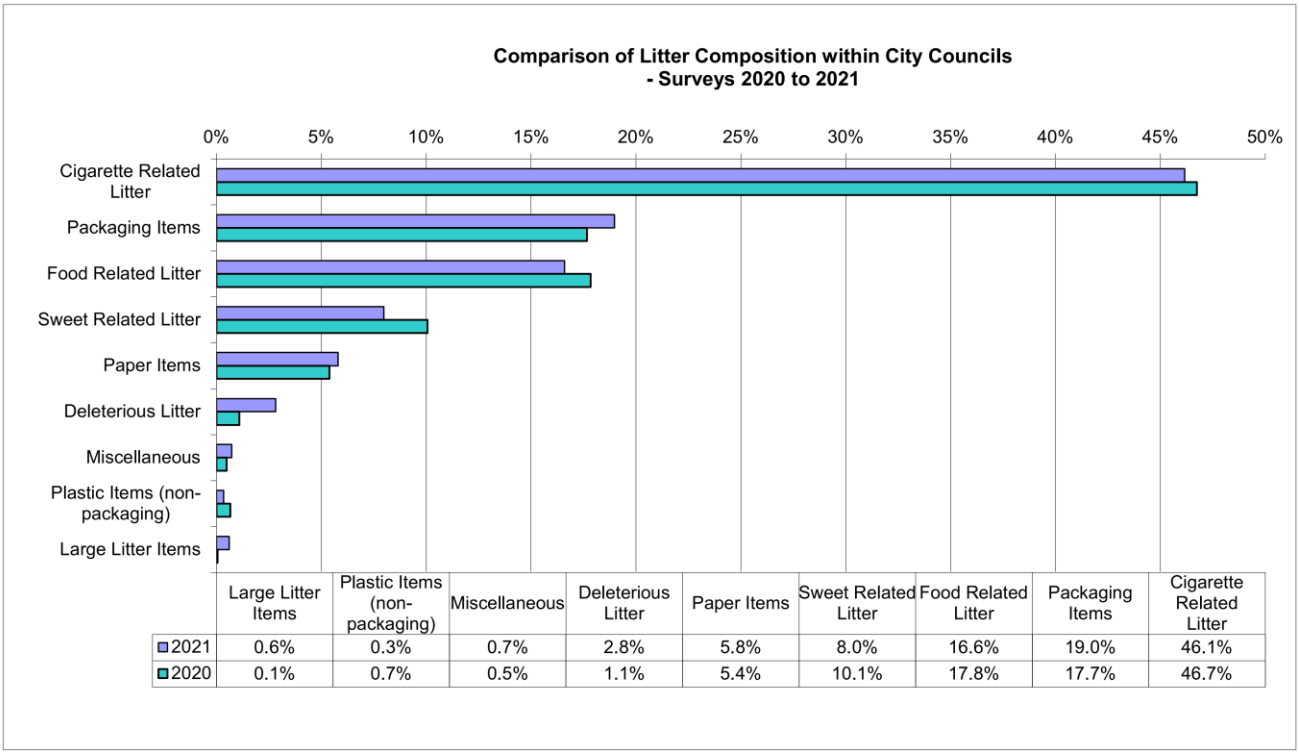
DETAILS OF LITTER COMPOSITION FROM 2020 – 2021 ACCORDING TO LOCAL AUTHORITY TYPE



	Large Litter Items	Plastic Items (non-packaging)	Miscellaneous	Deleterious Litter	Paper Items	Sweet Related Litter	Food Related Litter	Packaging Items	Cigarette Related Litter
2021	0.4%	0.6%	0.9%	3.2%	6.7%	8.3%	11.2%	19.9%	48.9%
2020	0.4%	0.6%	1.6%	2.8%	5.5%	9.5%	10.7%	22.0%	47.0%

Figure C. 1 Comparison of Litter Composition within County Councils 2020 to 2021

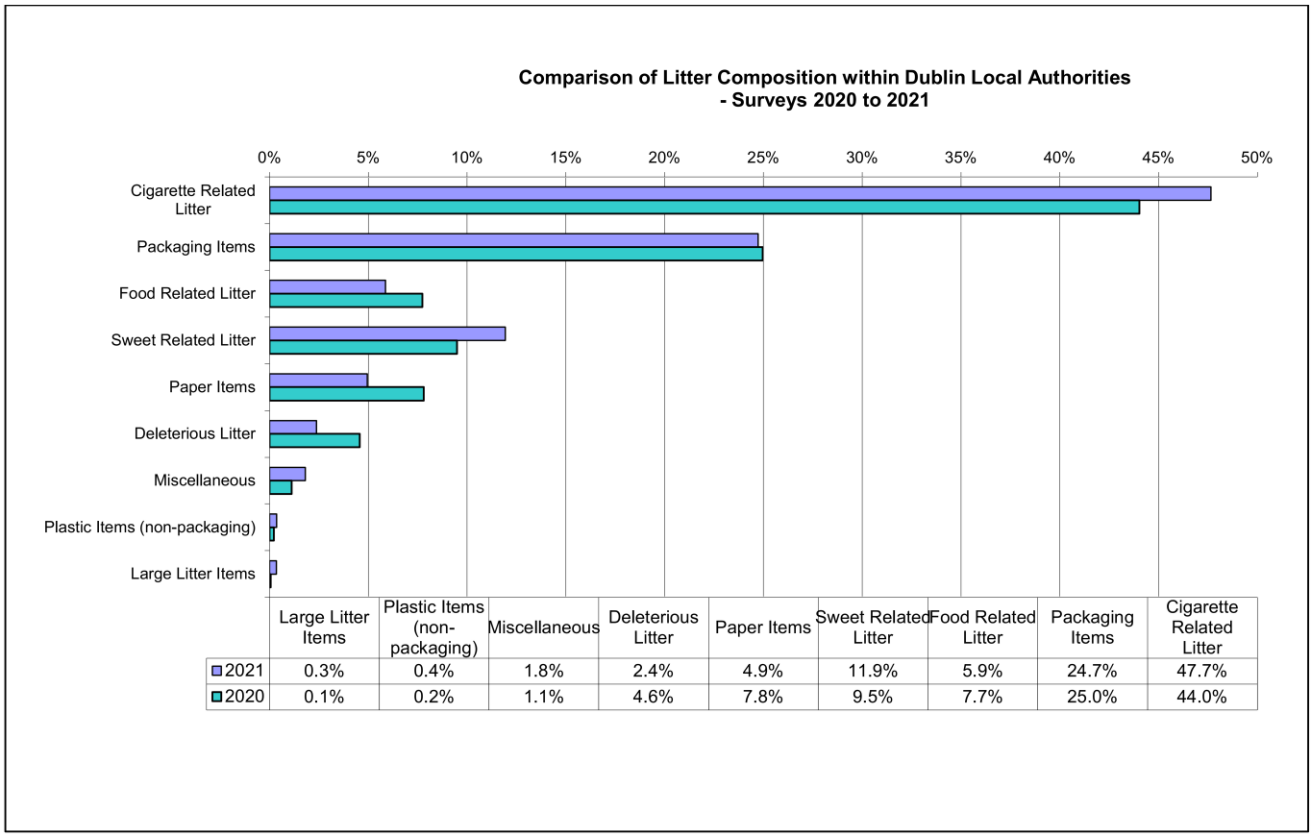
Figure C.1 compares the results of LQS within County Councils from 2020 to 2021. The main observations are that the percentage of cigarette related litter, food related litter, paper items and deleterious litter have all increased from 2020 to 2021. Packaging items, sweet-related litter and miscellaneous litter items have all decreased from 2020 to 2021. Plastic items (non-packaging) and large litter items have remained the same from 2020 to 2021.



	Large Litter Items	Plastic Items (non-packaging)	Miscellaneous	Deleterious Litter	Paper Items	Sweet Related Litter	Food Related Litter	Packaging Items	Cigarette Related Litter
2021	0.6%	0.3%	0.7%	2.8%	5.8%	8.0%	16.6%	19.0%	46.1%
2020	0.1%	0.7%	0.5%	1.1%	5.4%	10.1%	17.8%	17.7%	46.7%

Figure C. 2 Comparison of Litter Composition within City Councils 2020 to 2021

Figure C.2 shows that within City Councils the percentage of packaging items, paper items, deleterious litter, miscellaneous litter, and large litter items have all increased from 2020 to 2021. Cigarette related litter, food related litter, sweet-related litter, and plastic items (non-packaging) all decreased from 2020 to 2021.



	Large Litter Items	Plastic Items (non-packaging)	Miscellaneous	Deleterious Litter	Paper Items	Sweet Related Litter	Food Related Litter	Packaging Items	Cigarette Related Litter
2021	0.3%	0.4%	1.8%	2.4%	4.9%	11.9%	5.9%	24.7%	47.7%
2020	0.1%	0.2%	1.1%	4.6%	7.8%	9.5%	7.7%	25.0%	44.0%

Figure C. 3 Comparison of Litter Composition within Dublin Local Authorities 2020 to 2021

Figure C.3 shows that within Dublin Local Authorities the percentage of cigarette related litter, sweet-related litter, miscellaneous litter, plastic items (non-packaging) and large litter items have all increased from 2020 to 2021. Packaging items, food related litter, paper items and deleterious litter have all decreased from 2020 to 2021.

Note: Cigarette related litter increased in County Council and Dublin Local Authority areas in 2021 but decreased in City Council areas.

Packaging litter decreased in both County Council and Dublin Local Authority areas but increased in City Council areas in 2021.

Food related litter decreased in City Council and Dublin Local Authority areas in 2021 but increased in County Council areas.

Sweet-related litter increased in Dublin Local Authority areas but decreased in County Council and City Council areas in 2021.

Paper litter and deleterious litter increased in both County Council and City Council areas but decreased in Dublin Local Authority areas in 2021.

Miscellaneous litter increased in both Dublin Local Authority areas and City Council areas but decreased in County Council areas during 2021.

Plastic items (non-packaging) increased in Dublin Local Authority areas in 2021 but decreased in City Council areas. It remained the same in County Council areas as per 2020.

Large litter items increased in Dublin Local Authority and City Council areas in 2021. It remained the same in County Council areas as per 2020.

APPENDIX D

COMPARISON OF CAUSATIVE FACTORS OF LITTER POLLUTION WITHIN LITTER POLLUTION INDEX CATEGORIES

In each category of LPI for 2021, passing pedestrians constitute the most significant causative factor of litter pollution. Figures D.1 – D.8 illustrate that as the degree of litter pollution increases (and the LPI value increases), this causative factor becomes, for the most part, a less significant contributor to litter pollution. Accordingly, in 2021 passing pedestrians constitute 43.5% of all causative factors in LPS of slightly polluted (LPI 2) areas; this percentage decreased to 35.1% for moderately polluted (LPI 3) areas and to 32.0% for significantly polluted (LPI 4) areas and to 21.1% for grossly polluted (LPI 5) areas.

Passing motorists constitute 23.6% of all causative factors in LPS of slightly polluted (LPI 2) areas; this decreases to 19.8% in LPS of moderately polluted (LPI 3) areas, then decreases to 16.9% in LPS of significantly polluted (LPI 4) areas. However, this causative factor further increases to 21.1% in LPS of grossly polluted (LPI 5) areas.

Passing pedestrians, passing motorists and retail outlets tend to be the main causative factors in LPI 2 and LPI 3 areas where as in LPI 4 and LPI 5 areas; fly tipping/dumping, bring banks and major entertainment events increase as causative factors.

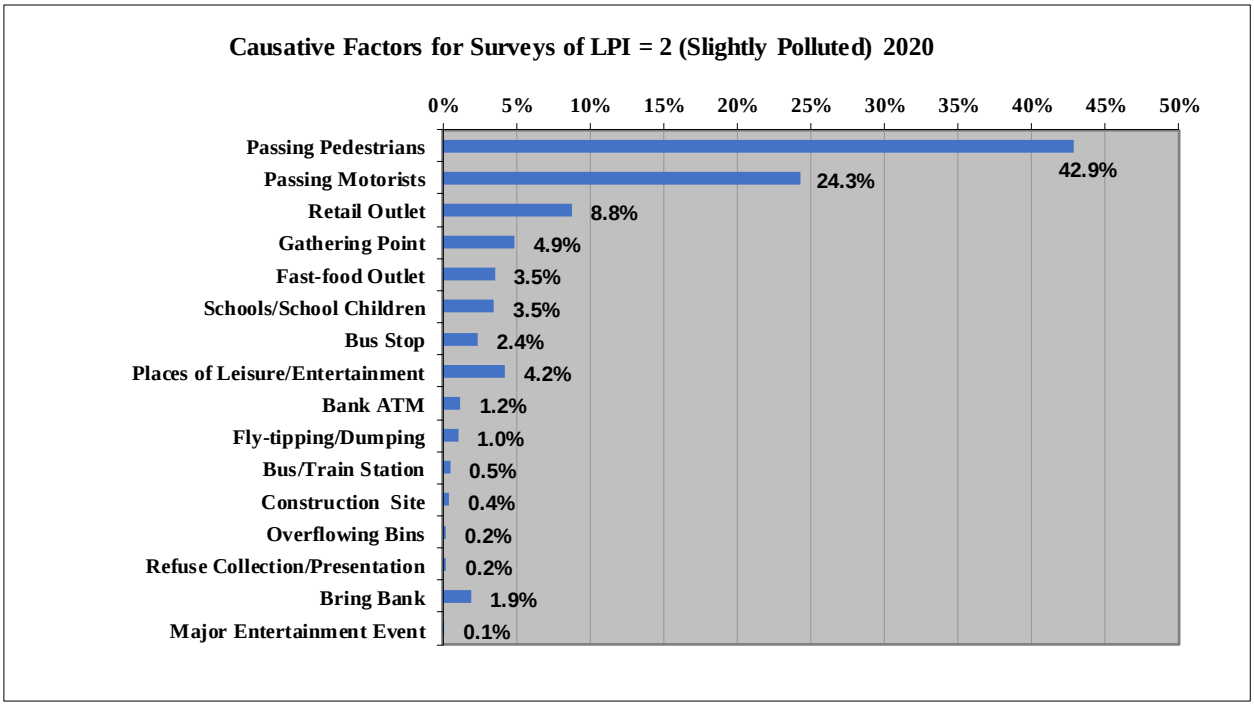


Figure D. 1 Causative Factors of Litter Pollution within Litter Pollution Index Category 2, 2020

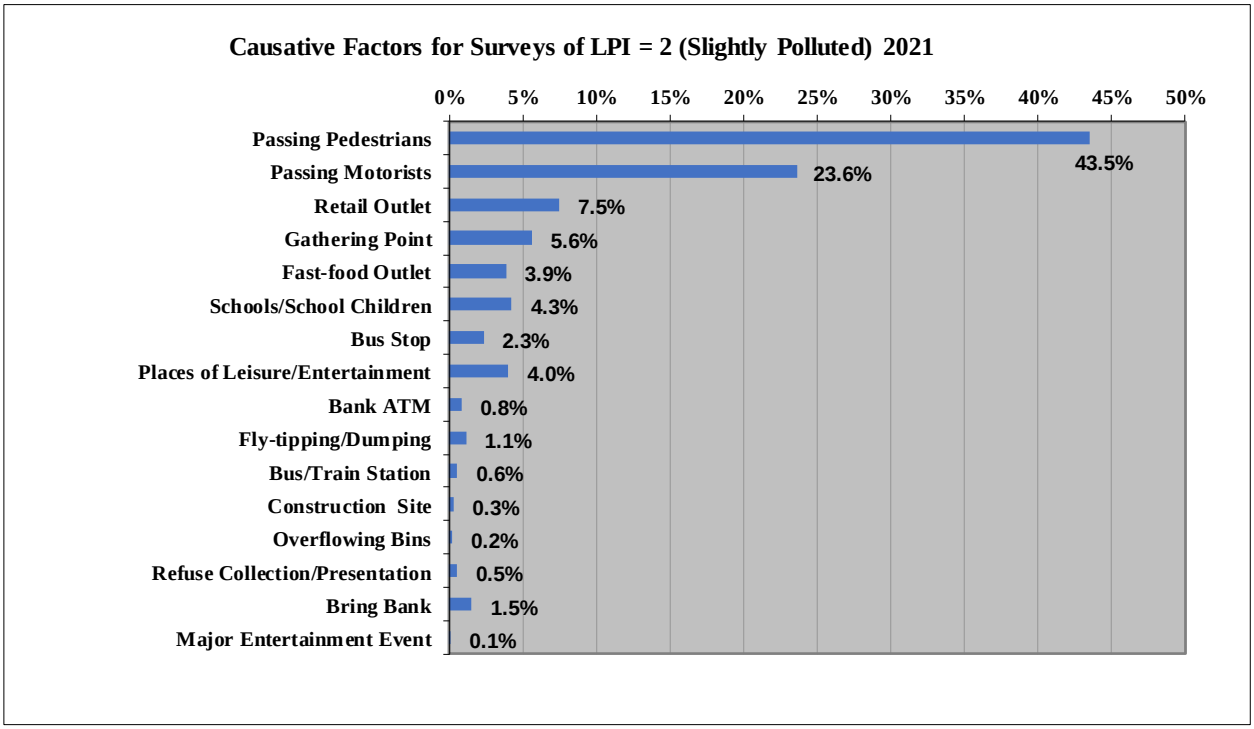


Figure D. 2 Causative Factors of Litter Pollution within Litter Pollution Index Category 2, 2021

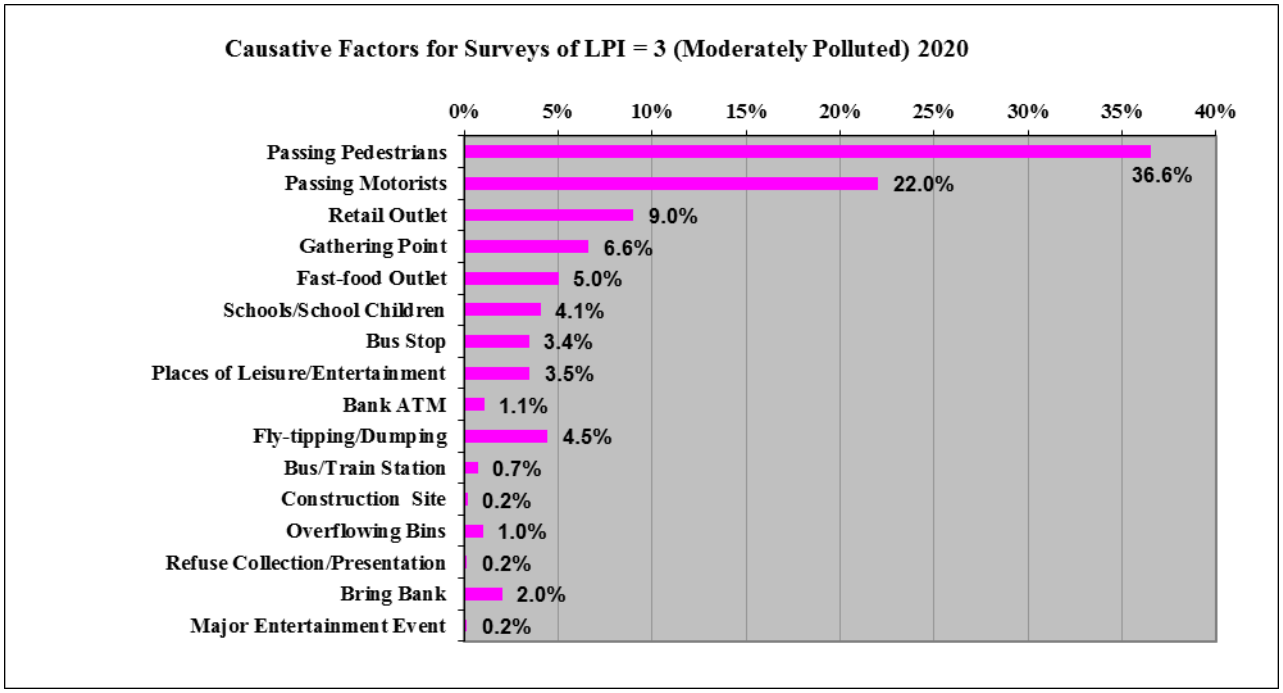


Figure D. 3 Causative Factors of Litter Pollution within Litter Pollution Index Category 3, 2020

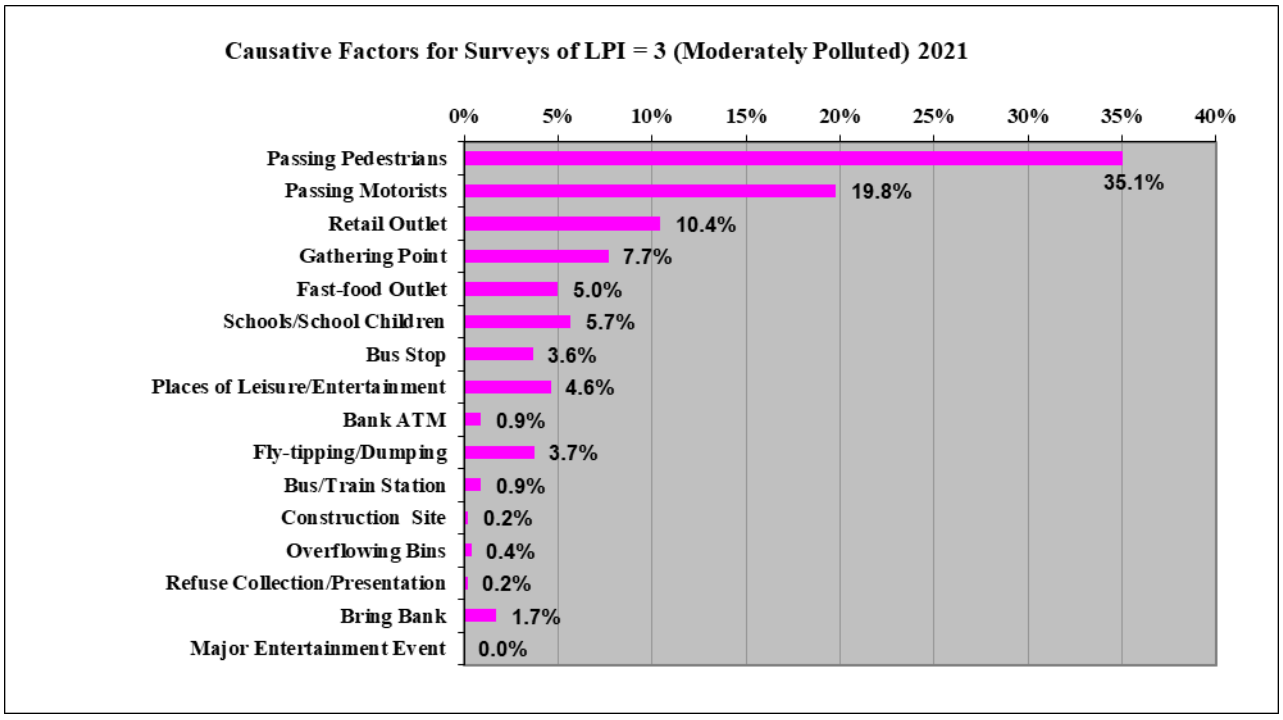


Figure D. 4 Causative Factors of Litter Pollution within Litter Pollution Index Category 3, 2021

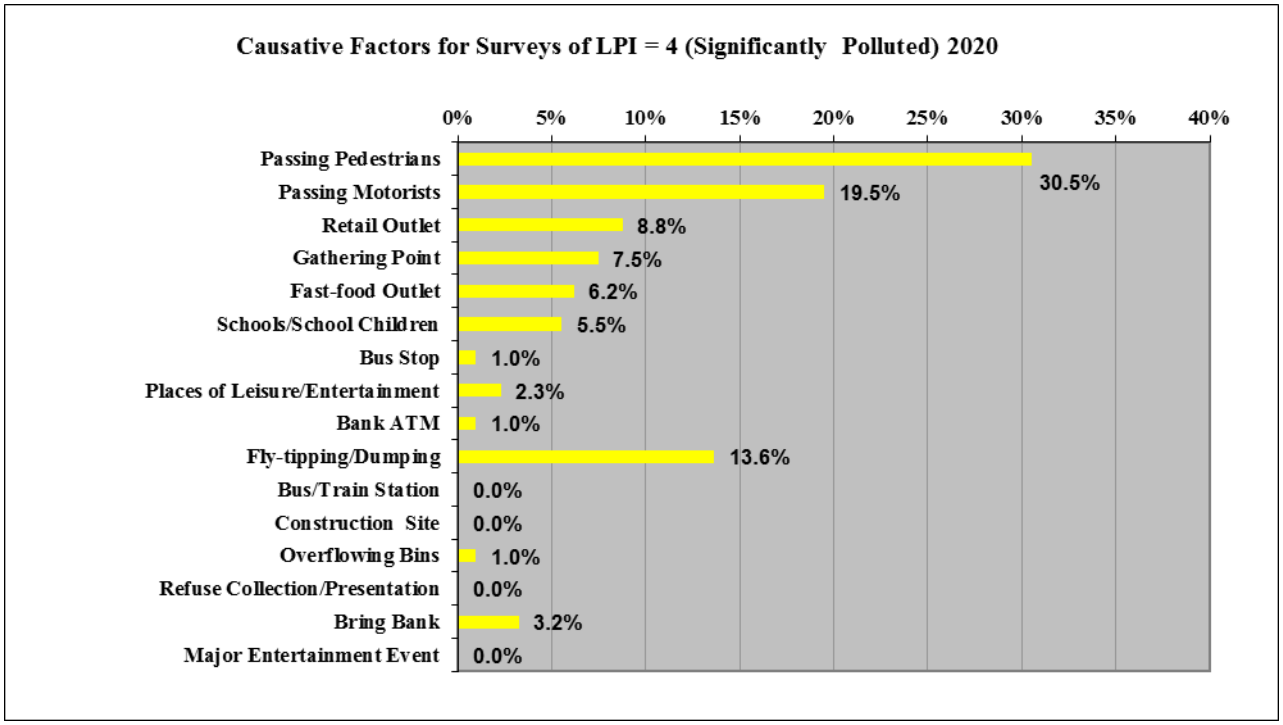


Figure D. 5 Causative Factors of Litter Pollution within Litter Pollution Index Category 4, 2020

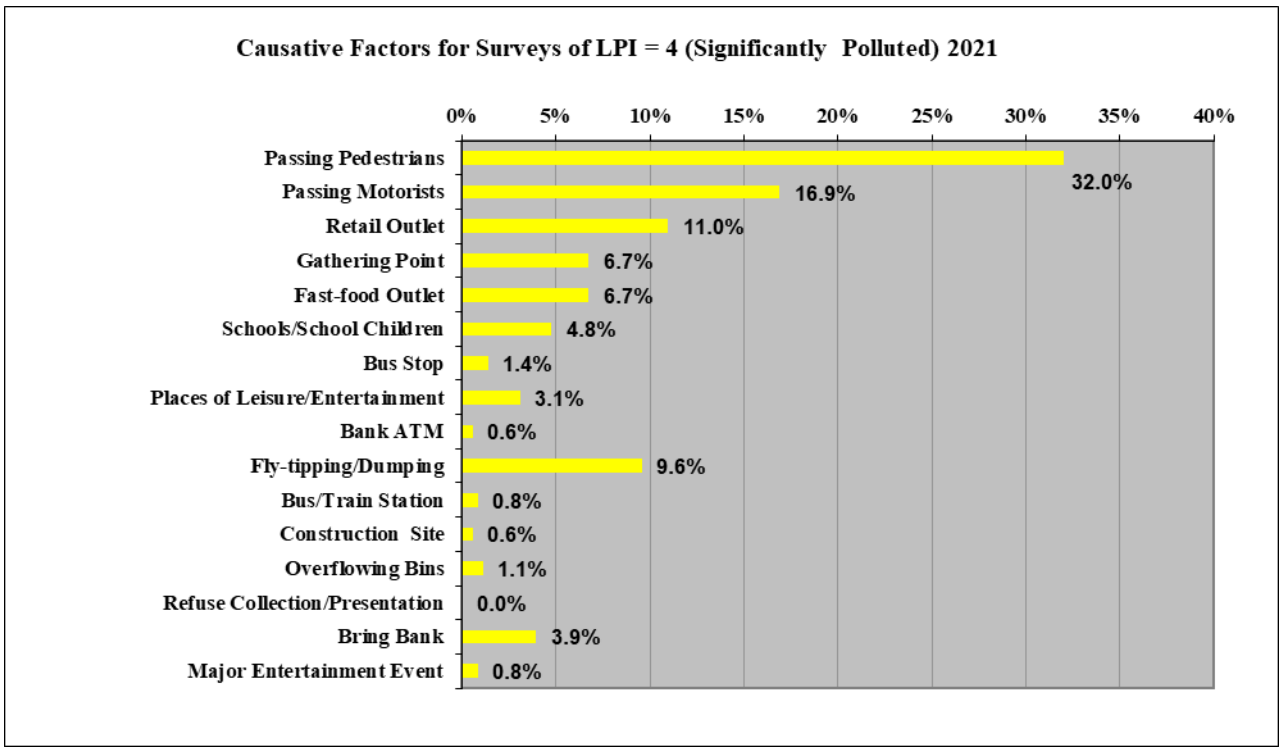


Figure D. 6 Causative Factors of Litter Pollution within Litter Pollution Index Category 4, 2021

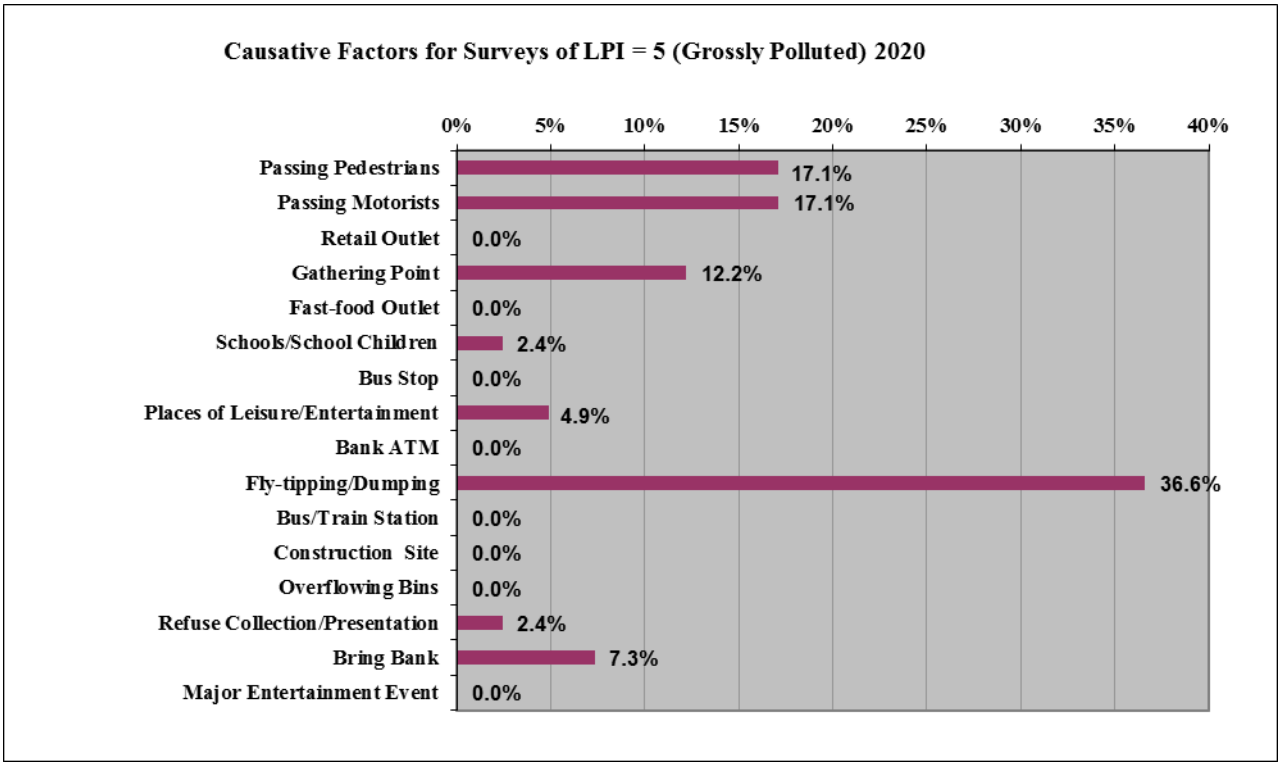


Figure D. 7 Causative Factors of Litter Pollution within Litter Pollution Index Category 5, 2020

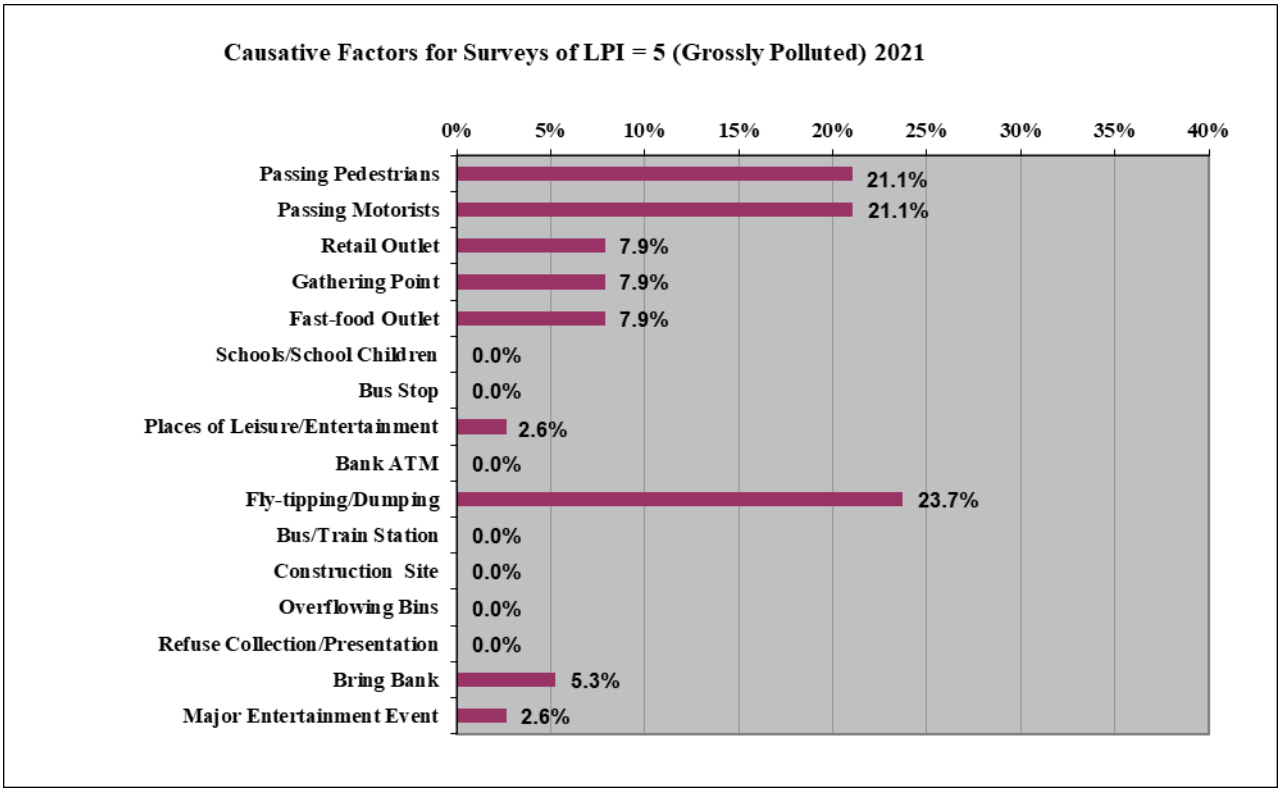
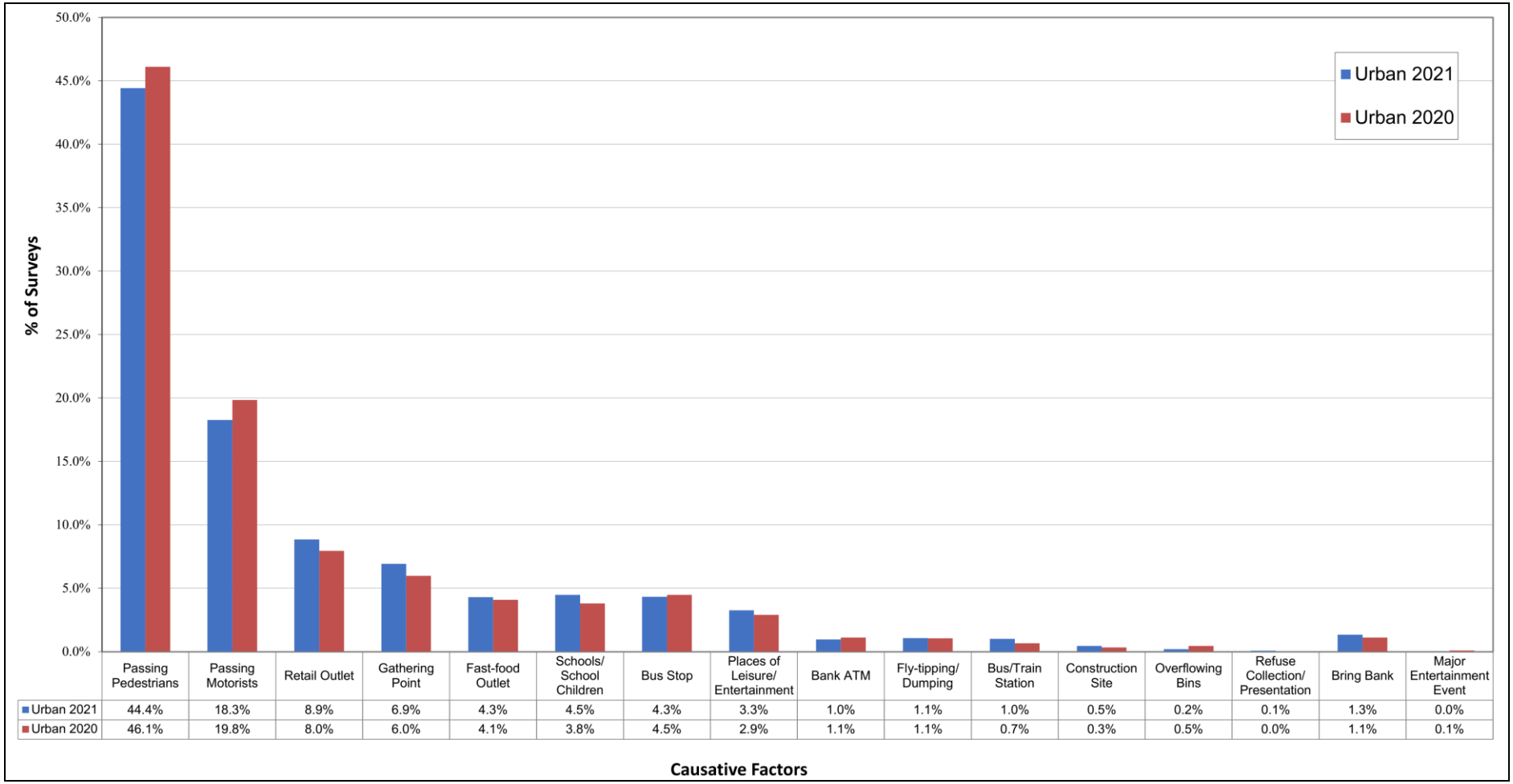


Figure D. 8 Causative Factors of Litter Pollution within Litter Pollution Index Category 5, 2021

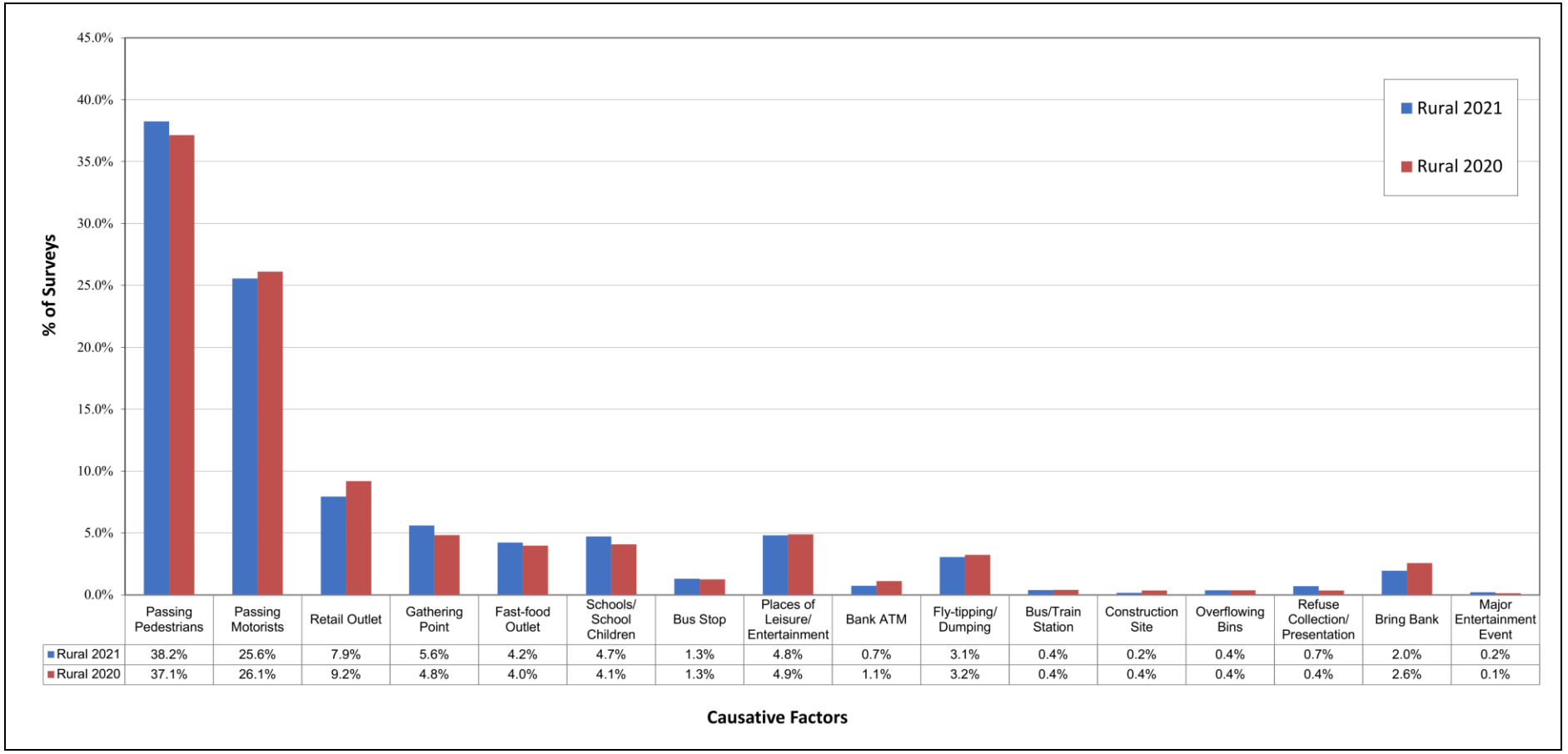
APPENDIX E

COMPARISON OF CAUSATIVE FACTORS OF LITTER POLLUTION WITHIN URBAN AND RURAL LOCAL AUTHORITIES



	Passing Pedestrians	Passing Motorists	Retail Outlet	Gathering Point	Fast-food Outlet	Schools/ School Children	Bus Stop	Places of Leisure/ Entertainment	Bank ATM	Fly-tipping/ Dumping	Bus/Train Station	Construction Site	Overflowing Bins	Refuse Collection/ Presentation	Bring Bank	Major Entertainment Event
Urban 2021	44.4%	18.3%	8.9%	6.9%	4.3%	4.5%	4.3%	3.3%	1.0%	1.1%	1.0%	0.5%	0.2%	0.1%	1.3%	0.0%
Urban 2020	46.1%	19.8%	8.0%	6.0%	4.1%	3.8%	4.5%	2.9%	1.1%	1.1%	0.7%	0.3%	0.5%	0.0%	1.1%	0.1%

Figure E. 1 Comparison of Causative Factors in Urban Councils, 2020 to 2021



	Passing Pedestrians	Passing Motorists	Retail Outlet	Gathering Point	Fast-food Outlet	Schools/ School Children	Bus Stop	Places of Leisure/ Entertainment	Bank ATM	Fly-tipping/ Dumping	Bus/Train Station	Construction Site	Overflowing Bins	Refuse Collection/ Presentation	Bring Bank	Major Entertainment Event
Rural 2021	38.2%	25.6%	7.9%	5.6%	4.2%	4.7%	1.3%	4.8%	0.7%	3.1%	0.4%	0.2%	0.4%	0.7%	2.0%	0.2%
Rural 2020	37.1%	26.1%	9.2%	4.8%	4.0%	4.1%	1.3%	4.9%	1.1%	3.2%	0.4%	0.4%	0.4%	0.4%	2.6%	0.1%

Figure E. 2 Comparison of Causative Factors in Rural Councils, 2020 to 2021

Figures E.1 and E.2 compare the causes of litter within urban and rural local authorities from 2020 to 2021.

In 2021, passing pedestrians are the single greatest cause of litter in both urban and rural areas; this is similar to previous yearly results.

Retail outlets, fast-food outlets, gathering points, schools/ school children, places of leisure/entertainment, bus/train stations, construction sites, refuse collection/presentation and bring banks have all increased as causes of litter pollution in urban areas from 2020 to 2021.

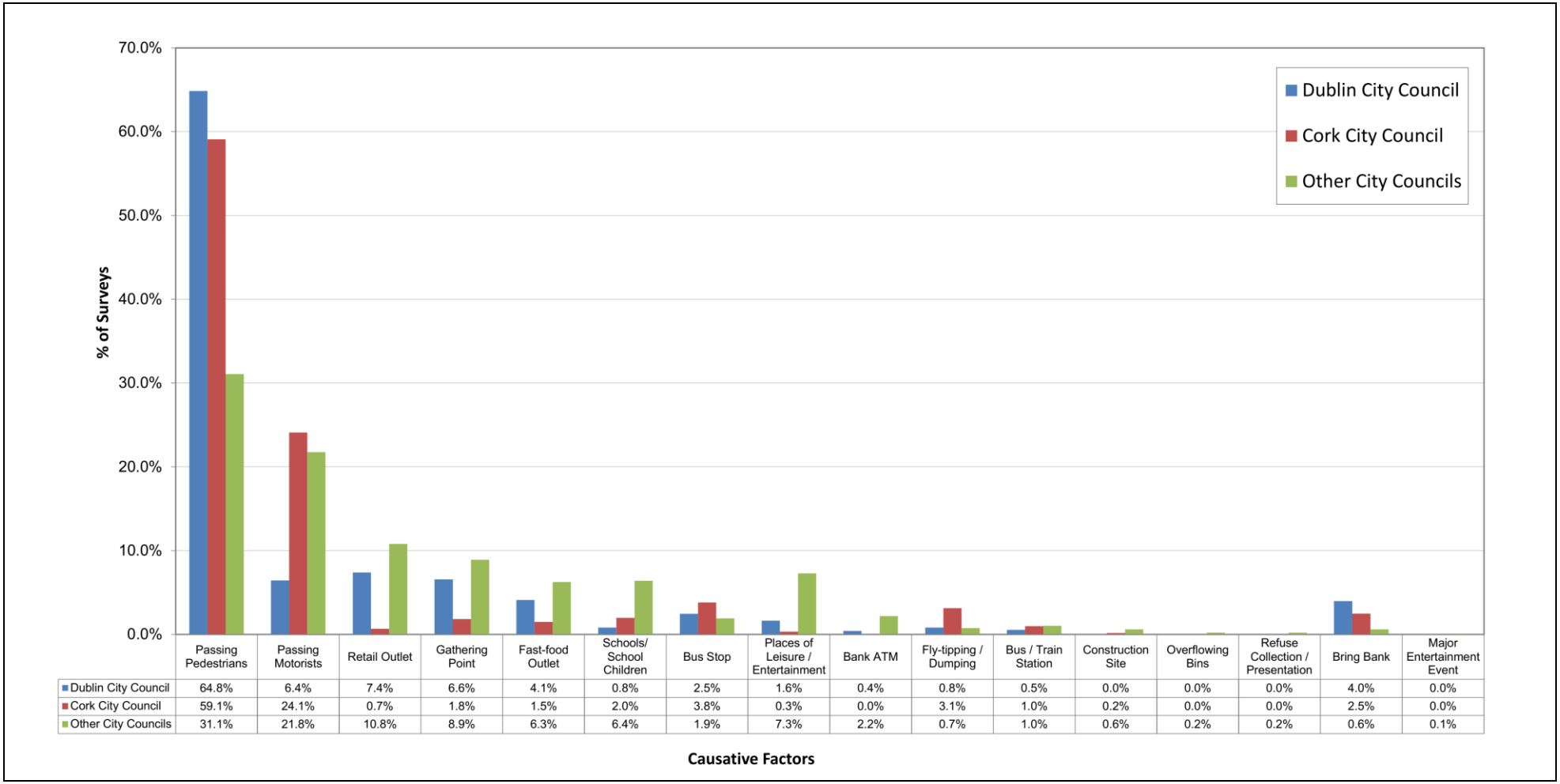
Passing pedestrians, passing motorists, bank ATM, overflowing bins and major entertainment events have all decreased as causes of litter pollution in urban areas from 2020 to 2021.

Levels of litter pollution in urban areas from fly-tipping/dumping have remained the same in 2021 as recorded in 2020.

In rural areas, passing pedestrians, gathering points, fast food outlets, schools/ school children, refuse collection/presentation and major entertainment events have all increased as causes of litter pollution from 2020 to 2021.

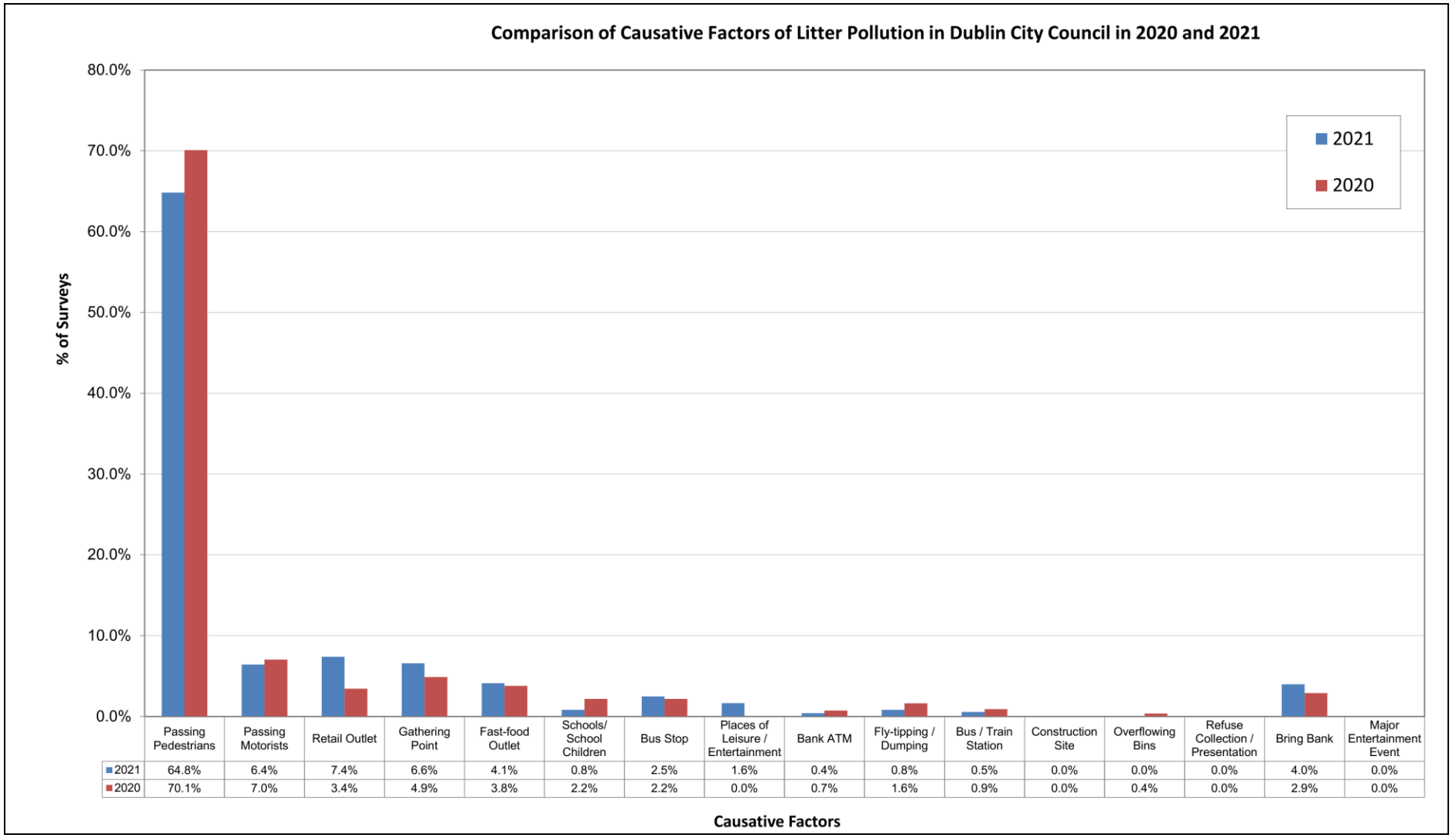
Passing motorists, retail outlets, places of leisure/entertainment, bank ATMs, fly-tipping / dumping, construction sites and bring banks have all decreased as causes of litter pollution from 2020 to 2021.

Levels of litter pollution in rural areas from bus stops, bus/train stations and overflowing bins have remained the same in 2021 as recorded in 2020.



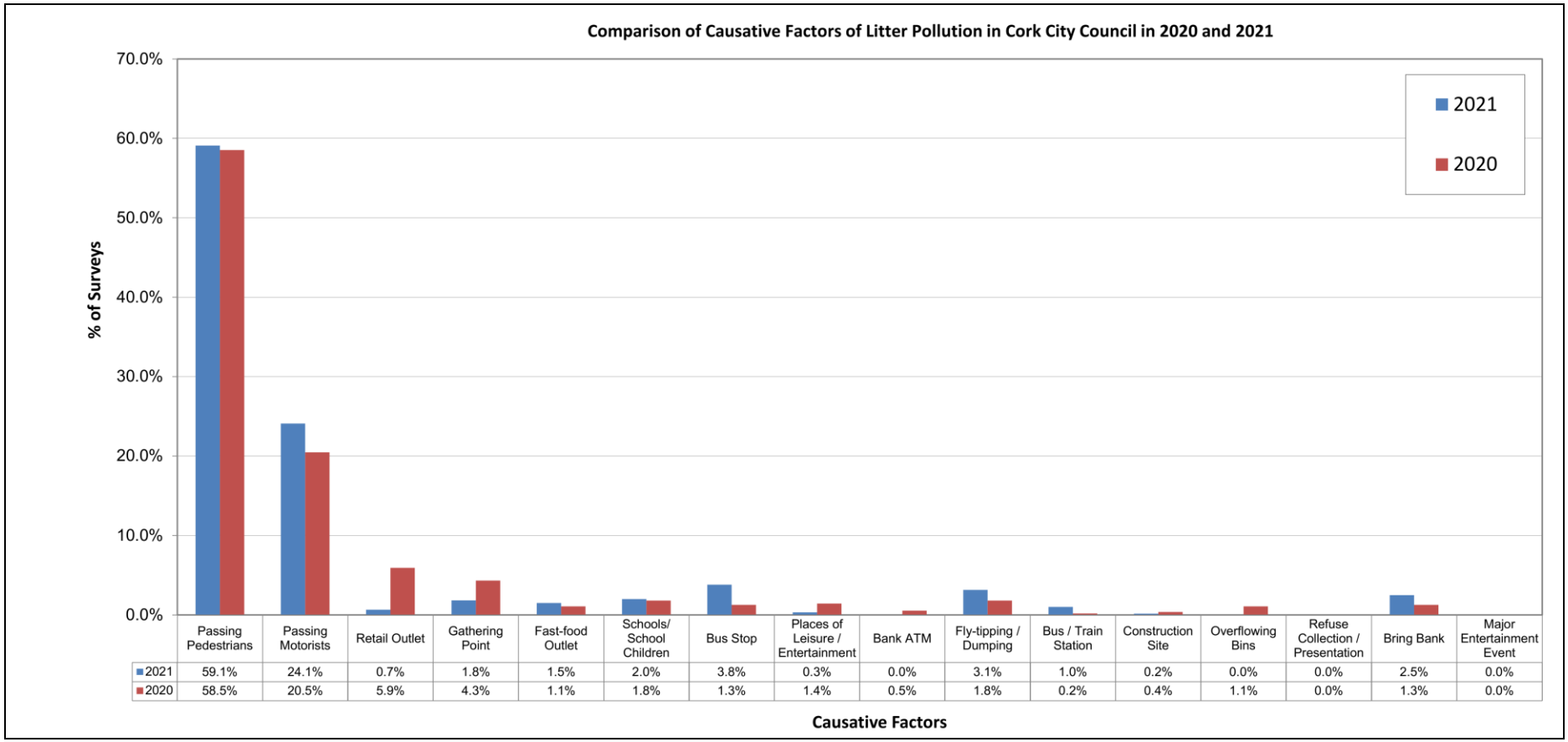
	Passing Pedestrians	Passing Motorists	Retail Outlet	Gathering Point	Fast-food Outlet	Schools/ School Children	Bus Stop	Places of Leisure / Entertainment	Bank ATM	Fly-tipping / Dumping	Bus / Train Station	Construction Site	Overflowing Bins	Refuse Collection / Presentation	Bring Bank	Major Entertainment Event
Dublin City Council	64.8%	6.4%	7.4%	6.6%	4.1%	0.8%	2.5%	1.6%	0.4%	0.8%	0.5%	0.0%	0.0%	0.0%	4.0%	0.0%
Cork City Council	59.1%	24.1%	0.7%	1.8%	1.5%	2.0%	3.8%	0.3%	0.0%	3.1%	1.0%	0.2%	0.0%	0.0%	2.5%	0.0%
Other City Councils	31.1%	21.8%	10.8%	8.9%	6.3%	6.4%	1.9%	7.3%	2.2%	0.7%	1.0%	0.6%	0.2%	0.2%	0.6%	0.1%

Figure E. 3 Comparison of Causative Factors of Litter Pollution within Urban Areas (2021)



	Passing Pedestrians	Passing Motorists	Retail Outlet	Gathering Point	Fast-food Outlet	Schools/ School Children	Bus Stop	Places of Leisure / Entertainment	Bank ATM	Fly-tipping / Dumping	Bus / Train Station	Construction Site	Overflowing Bins	Refuse Collection / Presentation	Bring Bank	Major Entertainment Event
2021	64.8%	6.4%	7.4%	6.6%	4.1%	0.8%	2.5%	1.6%	0.4%	0.8%	0.5%	0.0%	0.0%	0.0%	4.0%	0.0%
2020	70.1%	7.0%	3.4%	4.9%	3.8%	2.2%	2.2%	0.0%	0.7%	1.6%	0.9%	0.0%	0.4%	0.0%	2.9%	0.0%

Figure E. 4 Comparison of Causative Factors of Litter Pollution within Dublin City Council 2020 to 2021



	Passing Pedestrians	Passing Motorists	Retail Outlet	Gathering Point	Fast-food Outlet	Schools/ School Children	Bus Stop	Places of Leisure / Entertainment	Bank ATM	Fly-tipping / Dumping	Bus / Train Station	Construction Site	Overflowing Bins	Refuse Collection / Presentation	Bring Bank	Major Entertainment Event
2021	59.1%	24.1%	0.7%	1.8%	1.5%	2.0%	3.8%	0.3%	0.0%	3.1%	1.0%	0.2%	0.0%	0.0%	2.5%	0.0%
2020	58.5%	20.5%	5.9%	4.3%	1.1%	1.8%	1.3%	1.4%	0.5%	1.8%	0.2%	0.4%	1.1%	0.0%	1.3%	0.0%

Figure E. 5 Comparison of Causative Factors of Litter Pollution within Cork City Council 2020 to 2021

Figure E.3 allows for comparison of the various causative factors of litter pollution between urban areas. The 'Other City Councils' category comprises results from Galway City, Limerick City and County Council and Waterford City and County Councils. Overall, the causes of litter pollution vary with each category of urban area.

In Dublin City, passing pedestrians and bring banks are more significant causative factors of litter pollution than in the other urban categories. Passing motorists, bus stops and fly-tipping / dumping are more significant causative factors of litter pollution in the 'Cork City Council' category than in the other urban categories. Retail outlets, gathering points, fast-food outlets, schools/ school children, places of leisure/entertainment, bank ATMs, construction sites, overflowing bins, refuse collection/presentation and major entertainment events are more significant causative factors of litter pollution in the 'Other City Councils' category than in the other urban categories.

In the Dublin City Council area, retail outlets, gathering points, fast-food, bus stop, places of leisure/entertainment and bring banks have all increased as causative factors in comparison to 2020. For further detail, please refer to Figure E.4.

In the Cork City Council area, increases in litter from passing pedestrians, passing motorists, fast food outlets, schools/school children, bus stops, fly-tipping/dumping, bus/train stations and bring banks all increased as causative factors in comparison to 2020. For further detail, please refer to Figure E.5.