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GARBAGE MOUNTAINS:
THE USE, REDEVELOPMENT, AND ARTISTIC REPRESENTATION OF
NEW YORK CITY'S FRESH KILLS, GREATER TORONTO'S KEELE VALLEY, AND
TEL AVIV'S HIRIYA LANDFILLS.

by

Benjamin A. Lawson

A thesis submitted in partial fulfillment
of the requirements for the Doctor of
Philosophy degree in History
in the Graduate College of
the University of Iowa

December 2015

Thesis Supervisor: Professor Colin Gordon

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Graduate College
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CERTIFICATE OF APPROVAL

PH.D. THESIS

This is to certify that the Ph.D. thesis of
Benjamin A. Lawson

has been approved by the Examining Committee
for the thesis requirement for the Doctor of Philosophy
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ABSTRACT

Garbage landfills are at the heart of debates over sustainable urban development. Landfills are the cheapest waste-disposal method, but have specific environmental problems and are a common target for citizen activism such as environmental justice and Not In My Backyard (NIMBY) protests. As a means of covering up the scars at recently closed landfills, it has been common for cities to redevelop landfills into parks. The ongoing redevelopment projects at New York City's Fresh Kills, Greater Toronto's Keele Valley, and Greater Tel Aviv's Hiriya landfills are uniquely ambitious and large-scale projects, because these three landfills were among the largest in the world at the time each of them closed around the turn of the twenty-first century. These three landfill park redevelopments are positive projects, but there are more complexities involved than one would find discussed in booster rhetoric such as government press releases, local newspaper descriptions, and even museum exhibitions. The construction of Freshkills Park, North Maple Regional Park, and Ariel Sharon Park does little to address the ongoing waste-disposal policy concerns of New York, Toronto, and Tel Aviv; therefore, the redevelopments have more significance as "symbols" of a poor past policy being replaced by a "progressive" policy for a better future than as actual waste-disposal policies. Artists and landscape architects have created works based on the theme of parkland as a fresh start for these landfills, in gallery and museum exhibitions such as *Hiriya in the Museum* at the Tel Aviv Museum of Art in 2000 and artwork created by acclaimed environmental artist Mierle Laderman Ukeles for Fresh Kills.

PUBLIC ABSTRACT

Transforming marginal sites (“brownfields”) into useable land for new development or parkland is a key strategy of cities across the globe. Three of the most fascinating present-day examples are the projects to redevelop three extremely large garbage landfills into parks: New York City’s Fresh Kills landfill (active 1948-2001), Greater Toronto’s Keele Valley landfill (active 1983-2002), and Greater Tel Aviv’s Hiriya landfill (active 1952-1998). For decades, these landfills had been the target of citizen activism and environmental protest; therefore, it seems ironic that these sites could be transformed into parks, and would be a popular subject for eco artists (environmentally aware artists) and museum exhibitions.

The mostly positive representations of the landfill-to-park redevelopments available through the media, government press releases, and museum exhibitions illustrate how municipal/state/national policymakers focus on the promise of future success as a way of deflecting criticism from past problems. The redevelopments are not so simple and positive as the booster rhetoric promoting the projects suggests. Analysis of the historical context of waste-disposal policy in New York City, Greater Toronto, and Greater Tel Aviv from the late-nineteenth century until the twenty-first century holds the key to understanding the real-world and symbolic importance of landfill park redevelopments: these three cities have struggled to implement an effective waste-disposal infrastructure.

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CHAPTER 1

GARBAGE MOUNTAINS: AN INTRODUCTION

Across the twentieth century, growing urban populations created sanitary challenges. Unmanaged waste bred deadly diseases, caused environmental pollution, and was a drain on municipal finances. Since the late-nineteenth century, many cities devoted much time and effort into sanitary reform. Nevertheless, the issues and complications of urban waste disposal were exceedingly complex and simple solutions have rarely worked. An ironic result of the struggle to implement effective waste-disposal measures was a recurring narrative of progress: because of new technology, the near future will be significantly better. This progress narrative disparaged earlier forms of waste disposal as inferior to new, or soon-to-be developed forms of disposal. Sometimes this narrative was based on fact, but other times only on speculation. This narrative of progress is still evident in the twenty-first century: in general terms as talk about “sustainable development”¹ and in specific terms as large-scale projects to redevelop closed landfills into public parks—including those at New York City’s Fresh Kills landfill, Greater Toronto’s Keele Valley landfill, and Greater Tel Aviv’s Hiriya landfill.

The use of “sanitary landfills”—garbage dumps where waste is compacted and

¹ Sustainable development is a general term that describes the policy need to encourage economic development in a manner that will conserve vital resources for future generations. The term first came into popular use after the 1987 Brundtland Report to the UN. Many people today use “sustainability” to mean many things, including general concern for environmentalism. I will define how I see sustainable development more specifically in Chapter 5, when it is relevant to my analysis.

covered daily by earth—was one of the major innovations of the twentieth century. Present-day environmentalists commonly rank landfills as a poor choice, but landfills do have a place in a well-managed waste-disposal system. Landfills remain the core strategy of urban waste disposal and that fact is unlikely to change in the near future. Many cities have switched to emphasizing recycling and other alternative disposal methods to landfilling, but sanitary landfilling is the cheapest method and it allows for the disposal of all types of municipal solid waste—a feat unmatched by incineration, composting, or recycling. The engineering and legal standards of a sanitary landfill have significantly changed over the decades: i.e., a sanitary landfill from the 1940s bore little relation with a sanitary landfill from the 1990s. Nearly all cities across the globe continue to use landfills in some capacity and will for the foreseeable future.²

Recently, New York City, Greater Toronto (the City of Vaughan), and Greater Tel Aviv have decided to redevelop their recently closed mountains of garbage—Fresh Kills, Keele Valley, and Hiriya—into large public parks. It is not new for a city to transform its closed garbage dump into a park—this was common practice in the nineteenth and twentieth centuries—but the scale and promotion of the redevelopments of Fresh Kills and Hiriya are unique (Keele Valley’s redevelopment

²Alternative disposal methods such as recycling, composting, and incineration do not preclude the need for a landfill. Only certain materials may be recycled or composted, and incineration leaves an ash residue (roughly 1/5 the volume of the pre-incinerated tonnage) that must be disposed of. Non-toxic incinerator ash has been used as daily-fill cover for sanitary landfilling.

In some developing countries sanitary landfills may not be common: open-face landfills (or open dumps) may be used instead. Sanitary landfills cost more, and require trained engineers to ensure that specific standards are met; typically, government-sponsored education and regulation is required. For details relevant to solutions and problems of waste-disposal policymaking in impoverished or developing cities, see UN-Habitat, *Solid Waste Management in the World's Cities: Water and Sanitation in the World's Cities 2010*, (Nairobi: UNON Print Shop, 2010).

is less ambitious).

Much of the environmentalist argument against landfills focuses on the fact that they permanently damage the land. Successfully transforming several of the world's largest mountains of garbage into public parks would seem to refute that argument. The landfill-to-park redevelopment plans offer a future vision where closed landfills are areas for human enjoyment and a refuge for wildlife. Whether or not the landfill park redevelopments are successful will depend on if people use the parks, and if these cities implement more efficient methods of waste disposal. Using landfills for decades, until they are mountains of garbage, and then redeveloping the landfills into parks after closure is a partial solution, and not a satisfactory long-term answer. For their part, local newspapers, government press releases, and art gallery and museum exhibitions about the redevelopments focus on the symbolic side: transforming three of the world's largest garbage landfills into public parks is a strong statement of the belief in progress and that today's pattern of recurring environmental problems may be resolved in the near future.

New York City

Since the late-nineteenth century, scholars and public officials have presented New York City as one of the world's most progressive cities. Europe's great cities like Paris and London were the major innovators of updating city infrastructure (e.g. building wide boulevards, constructing underground sewers, standardizing building codes), but New York was not far behind. In the nineteenth

century, New York, like many U.S. cities, looked to Europe for ideas, and then created its own style. New York's late-nineteenth and early-twentieth-century skyscrapers and bridges were significant engineering achievements. By the mid-nineteenth century, New York planned its streets in a logical grid plan. New York City as it exists today, a five-borough metropolis, was formed in 1898 with the amalgamation of Manhattan, Staten Island, Brooklyn, Queens, and the Bronx. This set the stage for New York to become one of the world's first megacities in the early twentieth century: its population grew from a little over a million persons in 1860 (not including Brooklyn, which had three-quarters of a million persons) to a metropolis of over 5.6 million persons by 1920. Today, New York City has over eight million inhabitants and a metropolitan population of nearly twenty million.³

New York is more accurately described as a collection of smaller cities and neighborhoods in close proximity than as a single coherent city. The five boroughs each have their own policymaking structure, and on the citywide policymaking level there is intense competition between these boroughs for revenue, development projects, and other services. Staten Island tends to see itself as the "forgotten child" of New York City, and the fact that the world's largest landfill—Fresh Kills—operated there for over 50 years was a major source of contention.

³ According to the 2012 U.S. Census, the exact figures are 8,336,697 persons for the city and 19,576,125 for the metropolitan region.

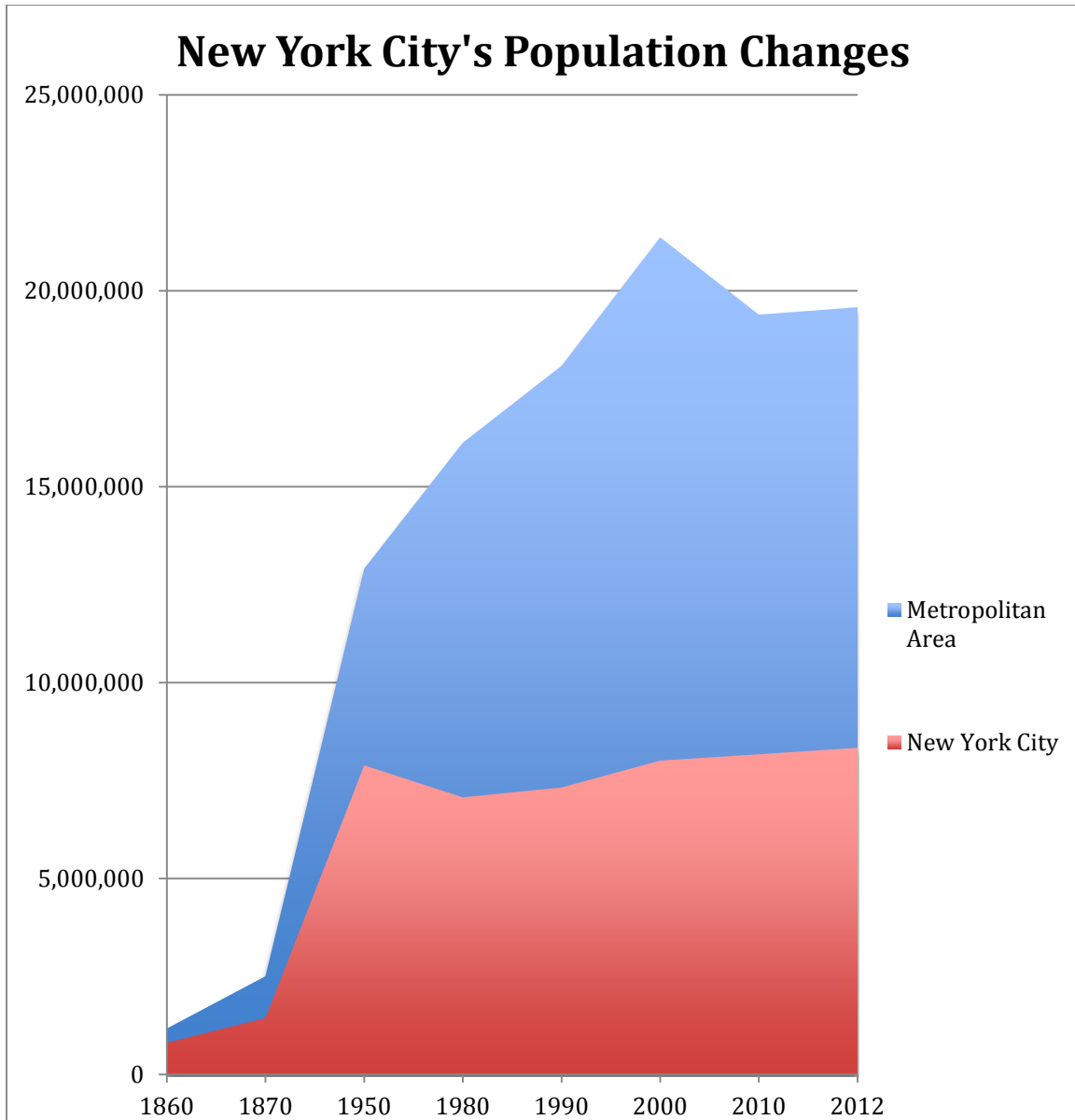


Figure 1. New York's Population Changes. Source: U.S. Census data, compiled from various sources.

New York City has a tiered policy structure, with municipal, state, and national levels; however, the local-municipal level was by far the most important. The United States' national government in Washington, D.C. implemented policies for waste-disposal standards, but the actual interpretation of national policies was delegated to the states. The New York State government is in Albany; the state

government tended to focus on rural areas and allow cities to devise their own specific policymaking decisions. New York State sanitary regulations technically applied to New York City, but in reality the city was able to ignore state laws about waste-disposal standards to a considerable degree. New York City was so large, so densely populated, and so strapped for funds (and also, at times, so corrupt) that it often ignored environmental standards and national and state policymakers were in effect powerless to force the City to comply.



Figure 2. Map of New York State. Source: "The National Atlas of the United States of America. General Reference", compiled by U.S. Geological Survey 2001, printed 2002; The University of Texas Libraries, The University of Texas at Austin."

New York City is in the far southeastern corner of the state. Albany, the state capital, is located in the eastern part of the state, upriver from New York City.

The Fresh Kills landfill was established in 1948 in a salt marsh on the western shore of Staten Island, across the Arthur Kill from New Jersey's industrial coast. By its closure in 2001 there were four clearly defined massive earth mounds on the site, comprised of nearly 150 million tons of solid waste and five decades of daily-fill cover. In 1948, it was considered a sanitary landfill, but by the standards of 2001 it was hopelessly out of date and pollution was a serious problem. Since the closure of Fresh Kills in 2001, New York City has no local disposal options, and impoverished communities outside the state of New York now accept the city's waste for financial gain. Fresh Kills is at present being redeveloped into a large public park.

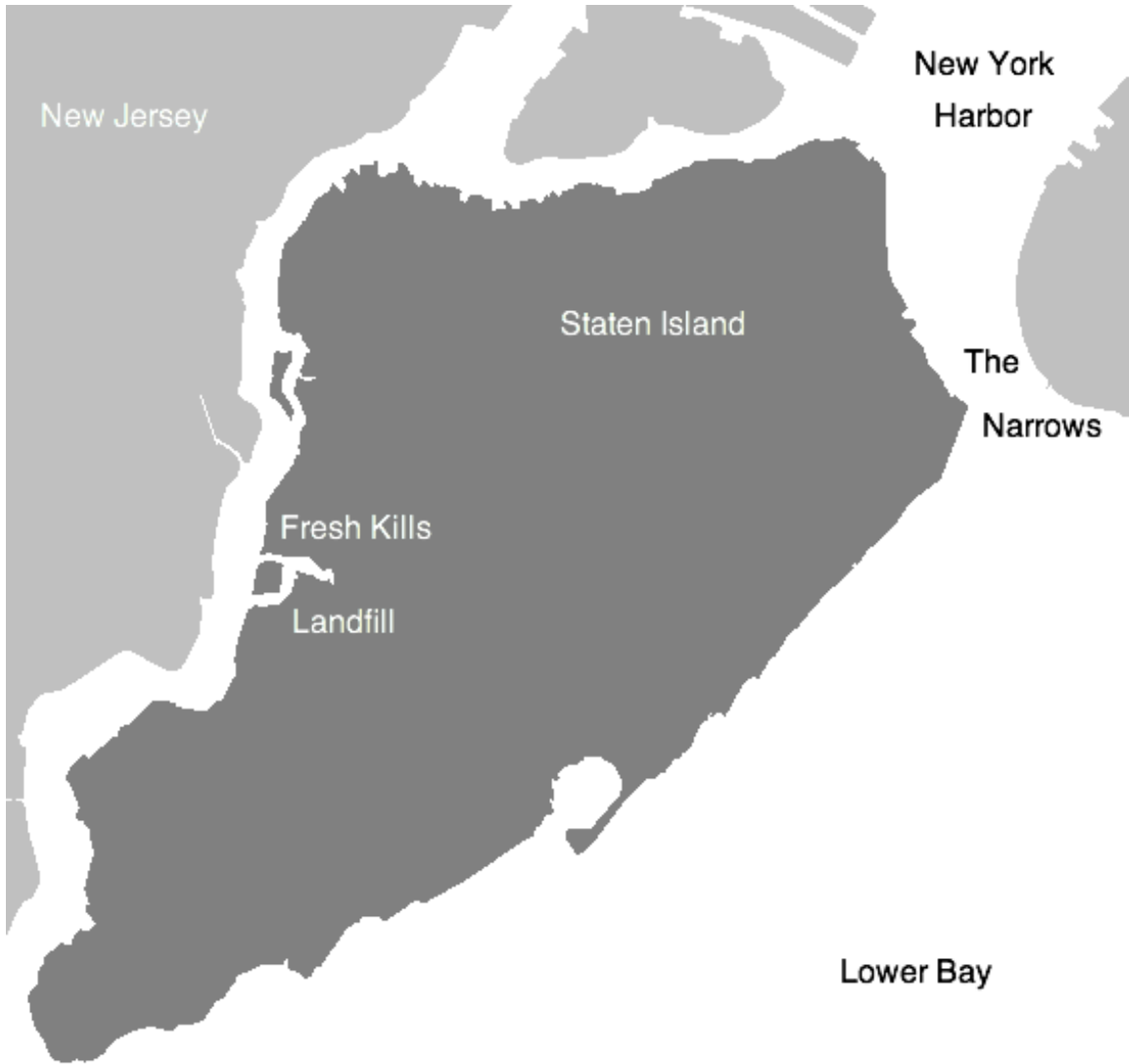


Figure 3. Map of Staten Island, illustrating the location of the Fresh Kills landfill. Source: Adapted from a map on Wikimedia Commons; https://en.wikipedia.org/wiki/File:Staten_Island_Map.PNG.



Figure 4. Fresh Kills in 2013, after closure. Source: Photo by Benjamin Lawson.

Toronto

Toronto was not a particularly large city at the beginning of the twentieth century, but by the mid 1950s it was a sprawling metropolis. Two waves of immigration were responsible for Toronto's development into one of the world's most diverse large cities by the mid-twentieth century. Impoverished British immigrants flooded into the Toronto area in the early twentieth century, and many settled outside the city proper, in the surrounding areas. These "suburbs" were not enclaves of the wealthy, as the common stereotype of today portrays most suburbs, but were communities that sprang up outside the city limits in order to evade city ordinances and city taxes.⁴ Many of Toronto's factories also relocated to outlying areas at the close of the nineteenth century. As a result, some reformers in the 1880s through the 1900s argued for the creation of a Greater Toronto-- a unified city and suburbs—because they recognized that a sizeable portion of the Toronto-

⁴ Lawrence Solomon, *Toronto Sprawls*, (Toronto: University of Toronto Press, 2007), 18.

area residents and industries were relocating outside the city.⁵ After World War Two, a second wave of immigration flooded the Toronto area. Many of these newer, non-British immigrants did not stay long in Toronto proper, but soon relocated to the surrounding municipalities in the Toronto region: Toronto's defining characteristic is sprawling automobile-based development. Increased immigration made Toronto the largest metropolis in Canada. Today, Greater Toronto is Canada's largest and most densely populated area: in 2011 the city had 2.6 million persons and the metropolitan area had 5.6 million.⁶

⁵ Factories, and workers, for example, moved to suburban areas in the 1880s-1910s as industry relocated from the central city. For details on the move of industry to Toronto's suburban areas, see the chapter "Did the factory Lead the Way?" in Richard Harris, *Unplanned Suburbs: Toronto's American Tragedy, 1900 to 1950* (Baltimore: John Hopkins University Press, 1996), 51-85.

Greater Toronto did not come to fruition in the early twentieth century. Toronto annexed some of the surrounding suburban towns, but quickly decided against this policy. The reason for Toronto's policy change was the realization that annexation did not benefit city residents or city businesses. The final straw was the annexation of North Toronto in 1912 by city council decree without a plebiscite, because the voters had rejected annexation of North Toronto in 1911. One contemporary author derisively referred to Toronto's annexation policy as enlarging the city by adding "thousands of acres of what has been fitly designated goose pastures," which was not a good policy for compact, sustainable urban development. Lawrence Solomon, *Toronto Sprawls*, (Toronto: University of Toronto Press, 2007), 6-7.

⁶ The actual figures for 2011 are 2,615,060 persons in the city of Toronto and 5,583,064 in the metropolitan area (the CMA).

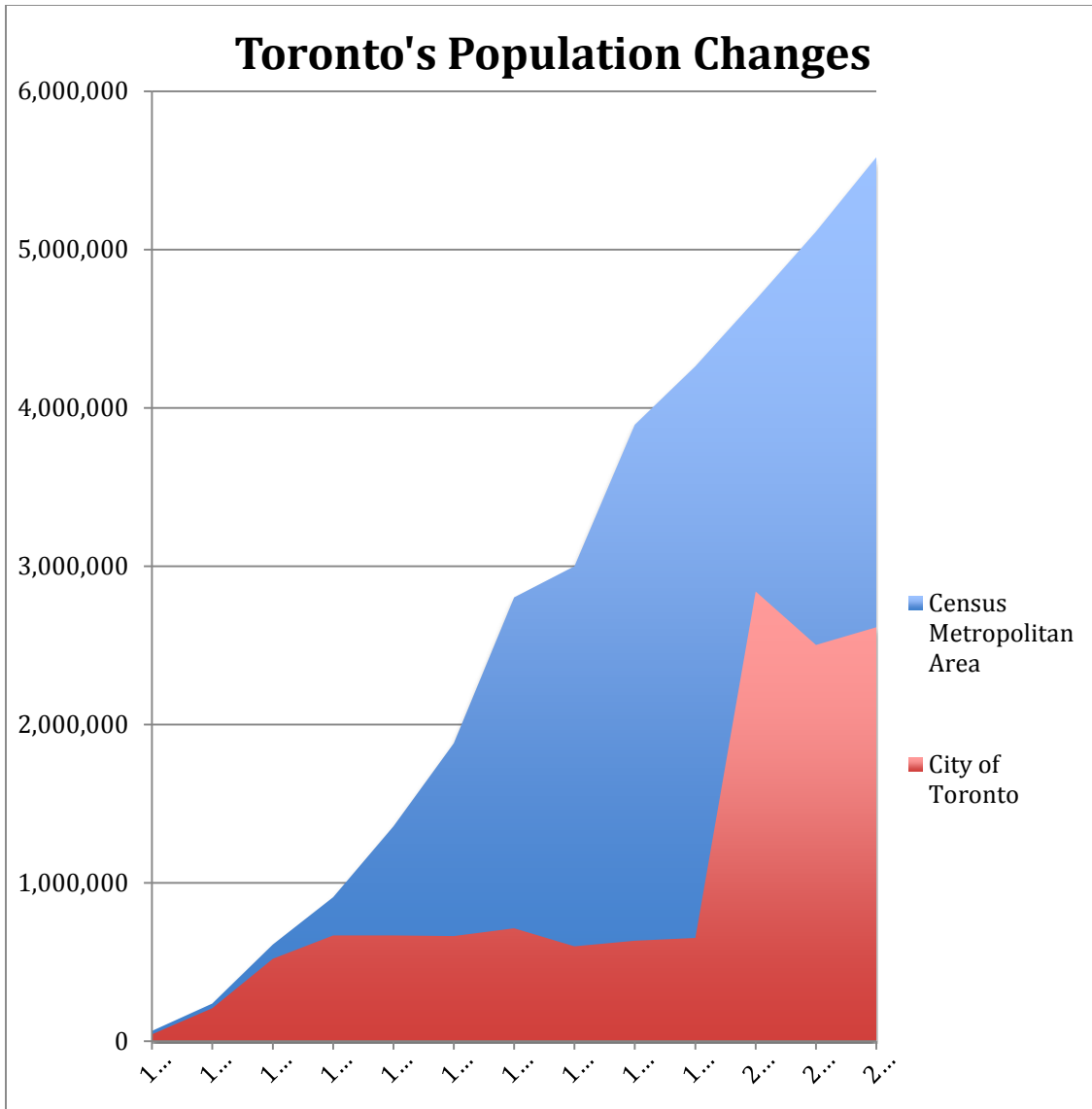


Figure 5. Toronto's Population Changes. Source: Statistics Canada data, compiled from various sources.



Figure 6. Ontario Provincial Map, 2002. Source: National Resources Canada. The reproduction of this map has not been produced in affiliation with, or with the endorsement of the Government of Canada.

Toronto is in the southeastern section, on Lake Ontario. Ottawa, the national capital of Canada, is also located in Ontario, on the border with Quebec northeast of Toronto.

Policymaking in Greater Toronto has several levels: municipal/local; Metro; regional municipalities; provincial; national. From 1954 through 1998 Metropolitan Toronto (Metro) was the most significant regional policymaking body. Under Metro,

local municipalities (e.g. the Town of Vaughan) and regional municipalities (e.g. the York Region) kept their councils, but their area of influence was limited to specific areas; Metro was in charge of most infrastructure and sanitary policies. Metro's policies had to be approved by the Ontario provincial government: obtaining provincial approval was a serious matter; but the influence of the national government, in Ottawa, was very limited. With the dissolution of Metro by provincial decree in 1998, the City of Toronto merged with its neighboring municipalities (York, East York, North York, Scarborough, Etibicoke) into the present-day "mega city" of Toronto; the former "fringe municipalities" of Metro (i.e. the municipalities such as Vaughan that were not immediately adjacent to Toronto) remain part of regional municipalities. Regional and provincial policymaking is much more significant for Toronto compared to New York City.

The Keele Valley landfill--owned and operated by Metro--was Canada's largest landfill, and the third largest in North America. Keele Valley was founded on the former site of the Maple Pits--huge sand and gravel mines located on the northern outskirts of the village of Maple, in the town of Vaughan, north of Toronto. Keele Valley opened in 1983. In the late 1980s and 1990s, Not-In-My-Backyard (NIMBY) protests prevented Metro from establishing new landfills; this meant near-total dependence on Keele Valley once the older Brock West landfill neared capacity. To ensure the site could handle what was nearly the entire region's garbage, Metro upgraded Keele Valley on several occasions. Keele Valley closed in 2002, which fit the original 20-year plan proposed in 1983. Today, residential and commercial developments nearly surround the landfill site, so it makes sense to view Vaughan's

proposed North Maple Regional Park in conservation terms, as a counter to the region's urban sprawl. North Maple Regional Park will only cover a small portion of the Keele Valley area—the former Vaughan Town dumpsite and Toronto's Avondale compost plant--but at present not the Keele Valley mounds, which are still undergoing remediation.



Figure 7. Map of Keele Valley Landfill's location in relation to Toronto. Adapted from Image on Wikipedia; https://commons.wikimedia.org/wiki/File:Toronto_map.png.



Figure 8. Keele Valley in 2013, after closure. Source: Photo by Benjamin Lawson.

Tel Aviv

Tel Aviv was founded in 1909 as a self-consciously “modern” city. Israel’s Zionist history provides the context necessary to understand Tel Aviv’s rapid development into a sprawling metropolis of over a million people within a few decades of its founding in 1909. Zionism is distinct from Judaism. Put simply, Zionism is a secular, political, ideology and is connected with Judaism through ethnic identity (i.e. as Jews) rather than through religion (i.e. as believers in Judaism).⁷ For Zionists, the physical land of Palestine had ingrained significance. Israeli artist Efrat Natan summed up the relation of many Zionist-influenced Israelis

⁷ Since Palestine was the Jews’ ancient homeland, Zionists believed that it was the only possible choice for creating a Jewish State. As Theodore Herzl, one of the movement’s ideological leaders, explained: “With money [provided to facilitate settlement elsewhere] you cannot make a general movement of a great mass of people. You must give them an ideal. You must put into them the belief in their future, and then you will be able to take out of them the devotion to the hardest labour imaginable...In Palestine they [the Jews following the Zionist call] work with enthusiasm and they succeed.” Herzl’s quote was from 1902; it was cited in Martin Gilbert, *Israel: A History* (New York: Harper Perennial, 2008), 21.

toward the land as: “Here [in Israel], the soil is a national myth” because “working the earth meant [creating/sustaining] the Land of Israel.”⁸ The deep-seated identification of Zionists with the land as the traditional Jewish homeland would seem to suggest that respect for the environment would be assured; however, that was not necessarily the case.⁹

Tel Aviv (תל אביב) began as a collection of small Jewish neighborhoods, which were essentially suburbs of the ancient seaport city of Jaffa (יפו or Yafo in Hebrew). Neve Tzedek, the first of these neighborhoods, was purchased in 1886 and was settled in 1887.¹⁰ Soon after Tel Aviv was officially founded in 1909, it combined with the earlier Jewish neighborhoods. Land speculation drove prices up in 1912, and this was one of the major factors that led to Tel Aviv’s growth into a city.¹¹ Jaffa was a predominantly Arab city, and it was the region’s major city--Tel Aviv’s growth, especially after the creation of British Mandate Palestine (first created in 1920 and ratified in 1923) led to intense competition between these two cities.

⁸ Gideon Ofrat, *One Hundred Years of Art in Israel* (Boulder, CO: Westview Press, 1998), 301-302.

⁹ For more on the relation between Israeli environmentalism and Zionism see Alon Tal, *Pollution in a Promised Land* (Berkeley: University of California Press, 2002).

¹⁰ Neve Tzedek was the second plot of land purchased (Neve Shalom was the first, purchased in 1884), but it was the first settled (Neve Shalom was settled in 1890). Mark LeVine, *Overthrowing Geography* (Berkeley: University of California Press, 2005), 63, 76.

¹¹ Mark LeVine, *Overthrowing Geography*, 73.

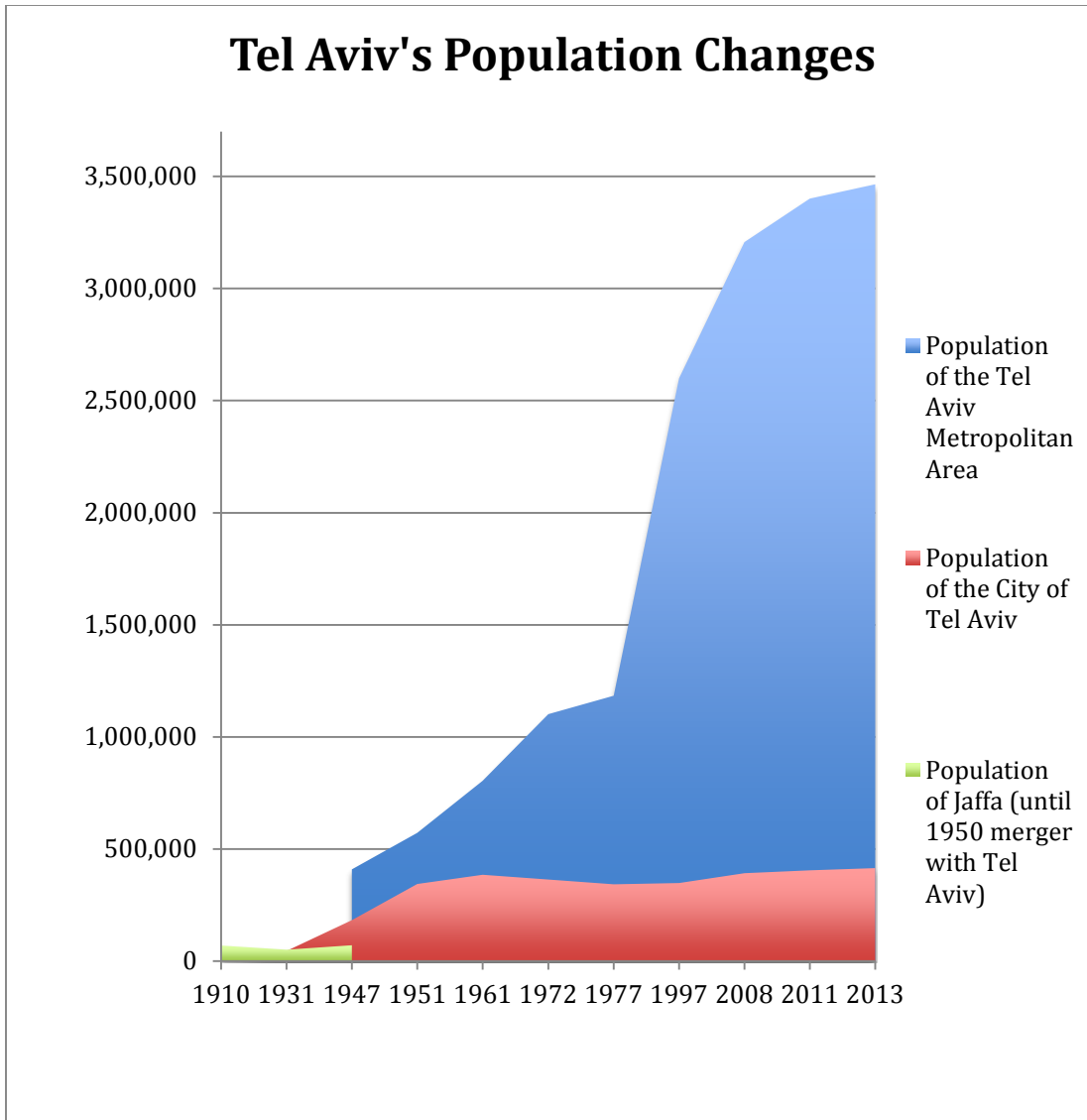


Figure 9. Tel Aviv's Population Changes. Source: Central Bureau of Statistics (Israel), compiled from various sources.

Note: accurate statistics from the decades prior to Israeli independence in 1948 do not exist—many of these records have been destroyed. I compiled these numbers using sources such as Zionist-organization pamphlets, palestineremembered.com, and often the specific numbers varied a little from source to source; rather than guess at numbers of the Jaffa-Tel Aviv metropolitan region before 1947 I decided to leave it blank—but the green area from 1910-1947 is the population of Jaffa (excluding Tel Aviv).



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Figure 10. Israel Map, 2013. Source: The University of Texas Libraries, The University of Texas at Austin.

Tel Aviv is in the center-coastal area. Jerusalem, Israel's capitol is southeast of Tel Aviv and located on the border of the West Bank (Occupied Territories). Because Israel's claim to Jerusalem is contested, most nations have their embassies in Tel Aviv.

The Zionists brought European ideas about development with them to Palestine. European planning theory, such as Ebenezer Howard's Garden City plans, formed a basis for early Tel Aviv, and the municipality employed a British architect, Patrick Geddes, to draft its initial (but not ratified) plan in 1925. By the 1930s, Tel Aviv was well on the way to becoming the world's top consumer of Bauhaus architecture. The 1948 War of Independence¹² (May 15 through March 1949) completed Tel Aviv's eclipse of Jaffa. The 1948 war profoundly changed the population of Tel Aviv, because many Arabs left their homes to avoid the fighting, but the new Israeli government did not allow them to return after the war's end. In 1950 the unified metropolis of Tel Aviv-Yafo was created.

In the decades after Israeli independence, Tel Aviv-Yafo has rapidly grown into Israel's largest metropolis. The Tel Aviv metropolitan area is a seamless stretch of urban development, so it makes sense to think that the city is larger than it actually is: in 2013 the city of Tel Aviv-Yafo had a little under a one-half million residents and the metropolitan area had 3.5 million inhabitants.¹³ Jerusalem-- Israel's capitol city--is in fact larger: its 2013 population was just over 800,000 persons but its metropolitan region only had 1.2 million inhabitants.¹⁴ Tel Aviv is the center of commerce, entertainment, and the arts in Israel. Some persons have

¹² The Israelis call the war the War of Independence, the Arabs call it "The Disaster," and a neutral term is the 1948 Arab-Israeli War.

¹³ Tel Aviv-Yafo's 2013 statistics are 414,600 in the city and 3,464,100 in the metropolitan area.

¹⁴ Jerusalem's 2013 population was 804,400 persons; its metro region was 1,164,000. For more statistics see The Jerusalem Institute for Israeli Studies website: <http://jiis-jerusalem-eng.blogspot.com/2014/08/metropolitan-jerusalem.html>

commented before about how Jerusalem is an ancient city and Tel Aviv is a thoroughly modern city, but this is overly simplified: Tel Aviv and Jerusalem are Israel's two metropolises, and both of them are facing similar problems of rising population, political conflicts over rights to the land, and the basic issues of urban infrastructure common to large cities. The Knesset--Israel's Parliament, located in Jerusalem—has much influence on Tel Aviv's policies.

Greater Tel Aviv's Hiriya (חירייה) was the Middle East's largest landfill. Hiriya was established in 1951, in what was then a rural area--near the Arab village of Al-Khayriyya abandoned during the fierce warfare of 1948. Hiriya began as a compost plant as well as a dump. The compost plant was smelly, and quickly became unpopular; it was also unable to handle much of the Tel Aviv region's trash. After a court order closed the compost plant in the early 1970s, Hiriya quickly grew into the "Mt. Trashmore" that the Israeli press often criticized for its environmental offenses. Talk of closing Hiriya was in earnest in the 1970s, but Tel Aviv's lack of other disposal options forced the dump to remain open until 1998. A series of environmental art and landscape architecture proposals for the site, displayed at the Tel Aviv Museum of Art in 2000 and 2005, further drove home the symbolism and importance of transforming Hiriya into a large public park. At present, the Hiriya area is being redeveloped into Ariel Sharon Park (פארק אריאל שרון). Anti-sprawl, conservation rhetoric is pervasive in the discourse about transforming Hiriya into a "green lung" for the area. Yet, Hiriya still functions as a waste-transfer station, where garbage is unloaded, reloaded, and trucked to another landfill about an hour south.

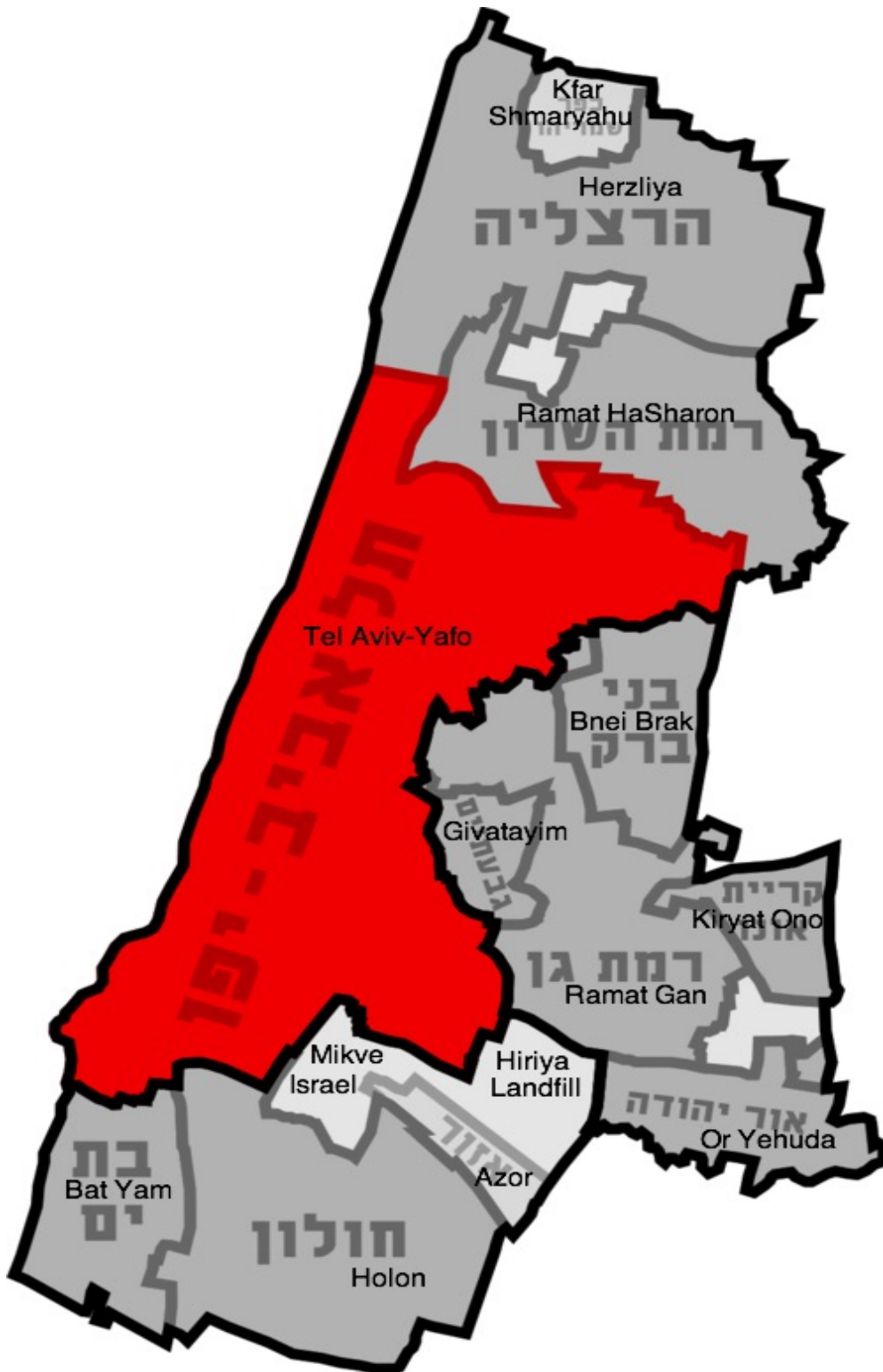


Figure 11. Map of Greater Tel Aviv. Source: Image Adapted (and English Translations added) from a Public Domain map on Wikimedia Commons; https://en.wikipedia.org/wiki/Tel_Aviv_Metropolitan_Area#/media/File:Location_telaviv.png.



Figure 12. Hiriya in 2014, after closure. Source: Photo by Benjamin Lawson.

Plan of the Present Work

The following chapters describe and analyze the specifics of urban waste disposal (especially landfilling) and landfill park redevelopment in New York, Toronto, and Tel Aviv. Chapter 1 presents an outline of the general context. Chapter 2 covers the waste-disposal history of New York, Toronto, and Tel Aviv before the establishment of the Fresh Kills, Keele Valley, and Hiriya landfills. Chapter 3 covers the political and engineering basis of the establishment of Fresh Kills (1948), Hiriya (1951), and of Keele Valley's predecessors. Chapter 4 details the rising use of huge landfills since the 1970s, as policy regulations, community activism, and environmental standards led each city and/or metropolitan region to overuse their existing landfills and not create new ones. It also details the establishment of Keele Valley (1983). Chapter 5 covers the rise of "waste crisis" and "sustainable development" rhetoric within the context of the complications of closing Hiriya (1998), Fresh Kills (2001) and Keele Valley (2002) and redeveloping these landfills

into parks. Chapter 6 is an analysis of eco/garbage art and the landfill park redevelopments through different perspectives, including art, landscape architecture, and museum exhibitions concerning Fresh Kills and Hiriya.

New York, Toronto, and Tel Aviv have all experienced problems with waste-disposal in the past, and continue to face serious issues today despite the recent concern with sustainable development. The terms of the present-day debate over waste-disposal have changed, but many of the specific limitations of urban waste disposal remain unchanged. In light of past optimism yet slow real-world advance, it is hard to accept at face value the prevailing optimism that today's cities will—because of general support for sustainable-development policies—once and for all fix the problems of environmental pollution. Yet, such progress is possible.

Redeveloping a landfill into a park does not, in itself, represent a significant strategy, but the symbolic importance of Fresh Kills, Keele Valley, and Hiriya (along with other high-profile “brownfield” redevelopments in other cities) may well hold the key. As is true so often in politics and policymaking, how people think about something will determine its success. For decades, locals in New York City, Greater Toronto, and Greater Tel Aviv viewed their mountainous landfills as a source of unpleasant smells, litter, and the cause of deadly diseases; it will take great change for them to adjust to seeing the landfill sites as beautiful parks and places of public gathering, and not as a daily scourge. If Freshkills Park, North Maple Regional Park, and Ariel Sharon Park live up to the high standard necessary to justify this change, then the redevelopment of landfills into parks is a clear example of progress.

Determining the success of the parks, ultimately, is not a historical question; what

the history of waste disposal in New York City, Toronto, and Tel Aviv does illustrate is: solutions to waste disposal are complicated, and quick-fix policies and rhetoric typically do not turn out as planned.

Waste disposal is an essential part of urban history, and is at the heart of heated present-day debates over sustainable development. A city may be defined as a high-density collection of diverse persons living in a built environment that caters to their desires and needs. Since wastes are an unavoidable necessity of life, how effectively a city disposes of its wastes is of paramount importance to its ability to function effectively: at stake are environmental/ecological and public health issues. Hopefully, the present study is only the beginning of many more to come, because the historiography of urban waste is a developing field and has barely scratched the surface. There are, however, many books and articles that describe and analyze specific aspects of urban waste-disposal infrastructure, legislation, social-class impact, or design/planning.¹⁵ Toronto and Tel Aviv currently have less-developed

¹⁵ Urban infrastructure is a growing historical field, and topics such as underground sewers have attracted more interest than garbage and waste disposal--please see the bibliography for a listing of relevant titles. Martin Melosi is the historian who has written the "seminal" books on garbage in the United States: *Garbage in the Cities*, rev. edition (Pittsburg: University of Pittsburg Press, 2005) and *The Sanitary City: Environmental Services in Urban America from Colonial Times to the Present*, (Pittsburg: University of Pittsburg Press, 2008); *Effluent America: Cities, Industry, Energy and the Environment* (Pittsburgh, University of Pittsburg Press, 2001) also has some relevant chapters. Historians (and geographers doing historical analysis) have also offered insightful environmental and social-impact analyses of how to understand humans' interaction with "nature" and the complexities of pollution and urban/industrial development. See especially Joel Tarr's *The Search for the Ultimate Sink: Urban Pollution in Historical Perspective* (Akron, OH: University of Akron Press, 1996), and William Cronon's edited volume *Uncommon Ground: Rethinking the Human Place in Nature* (New York: W.W Norton, 1996), as well as Matthew Gandy's *Concrete and Clay: Reworking Nature in New York City* (Cambridge, MA: MIT Press, 2002). Environmental justice is another significant field: David Pellow's *Garbage Wars* and Andrew Hurley's *Environmental Inequalities* are two of the many analyses of how pollution unequally impacts minorities and the poor.

historiographies than New York.¹⁶ Art historians and landscape architects have also been developing historiographies on similar topics.¹⁷ A primary goal of the present study is to draw from the diverse scholarly fields related to urban waste-disposal in order to provide a more complex analysis of three specific waste-disposal sites in three specific urban areas: interdisciplinary analysis is essential.

¹⁶ The historiographies of the urban/environmental histories of Ontario and Israel are growing. For Ontario, there are specific accounts about the Toronto metropolitan area, as well as general environmental histories of Canada. Relevant environmental histories of Toronto include Jennifer Bonnell's *Reclaiming the Don: An Environmental History of Toronto's Don River Valley* (Toronto: University of Toronto Press, 2014) and by L. Anders Sandberg et. al., *Urban Explorations: Environmental Histories of the Toronto Region*, (Hamilton, ON: L.R. Wilson Institute for Canadian History, 2013). For Israel, environmental histories nearly always mention Tel Aviv because it is the nation's largest urban area. Alon Tal is the "seminal" authority: *Pollution in a Promised Land: An Environmental History of Israel* (Berkeley: University of California Press, 2002) offers a clear argument about the uneasy relation between Zionism and Israeli environmentalism; Daniel E. Orenstein et. al., *Between Ruin and Restoration: An Environmental History of Israel* (Pittsburg: University of Pittsburg Press, 2013), is the first English-language book to analyze Israeli environmentalism from diverse perspectives.

¹⁷ In art history there are syntheses and exhibition-specific accounts. Two relevant exhibition-specific books are Barbara Matilsky, *Fragile Ecologies: Contemporary Artists' Interpretations and Solutions* (New York : Rizzoli International, 1992) and *Hiriya in the Museum* (Tel Aviv: The Tel Aviv Museum of Art, 2000). Of the many syntheses, Ben Tufnel's *Land Art* (London: Tate, 2006) and Linda Weintraub's *To Life! Eco Art in Pursuit of a Sustainable Planet* (Berkeley: University of California Press, 2012) are a good starting point. In terms of landscape architecture, Mira Engler's *Designing America's Waste Landscapes* (Baltimore: Johns Hopkins Press, 2004) is an excellent resource because she took part in the 2000 Hiriya exhibition at the Tel Aviv Museum of Art. Charles Waldheim's edited volume, *The Landscape Urbanism Reader* (Princeton, NJ: Princeton University Press, 2005) offers a concise account of how landscape architects have begun focusing on urban "brownfields."

CHAPTER 2

REFUSE DISPOSAL BEFORE THE SANITARY LANDFILL

The decades from 1850 through 1930—the decades prior to the invention of the sanitary landfill—were a time of experimentation with technological fixes and of improvements to urban infrastructure. Sanitary landfills did not become widespread until the 1950s. New York, Toronto, and Tel Aviv all underwent significant change from the mid-nineteenth century to the mid-twentieth century. All three of these cities were designed and planned according to the latest European-based styles, featuring grand urban parks, tall buildings, boulevards, and efficient transportation. These cities experienced rapid population growth, which strained existing city infrastructure and waste disposal techniques. Policymakers and engineers sought to address the most pressing problems, but successful waste disposal proved more complicated than merely implementing legislation or developing new technologies.

Prior to the mid-nineteenth century, most large cities did not have an adequate sanitary infrastructure. In terms of garbage disposal, most food waste was fed to livestock or scavenged by the poor, and most non-food household waste was re-used and recycled (e.g. hand-me-down clothing). This was before the popularity of consumer packaging and of readymade goods. Nevertheless, the industrial revolution--especially of textile mills--was underway, and industrial pollution and cheap readymade cloth and clothing were on the rise. Industrialization also meant that jobs were more readily available in the city than on the farm: young farm girls

and farm boys often moved to the city for work. The trend of population movement away from rural areas into cities had major consequences for urban sanitation: high population density (and urban patterns of consumption) put sanitary systems under stress. In the mid-nineteenth century, for example, it was not uncommon for city dwellers to die from sanitation-related diseases.¹⁸ Serious sanitation problems existed by the 1850s, so sanitary reform was a clear example of progress.

Public health was a motivating factor for environmental urban reform. Deadly diseases like Cholera were a real threat in nineteenth-century cities, and the affluent classes were not immune. The miasma theory of disease—which was widespread before 1870—held that inhaling the airborne smells (“miasmas”) emanating from unsanitary conditions—such as garbage or rotting animal carcasses—was the cause of illness. The miasma theory was a major impetus for addressing pollution problems (e.g. sewage collecting in tidal mud flats). The germ theory of disease, proposed in 1870 by Louis Pasteur and Robert Koch, countered that bacteria was the cause of disease: this science-based view quickly displaced general talk of miasmas among the educated classes. The common factor in both of these theories of disease was a general call to control the impact of harmful environments (whether sickening vapors or bacteria/viruses) on the general public. This was a difficult task, however, because new policy and engineering methods were required to manage the wastes of large cities in an efficient manner. By the early twentieth

¹⁸ Cholera, which was caused by contaminated drinking water, was an especially deadly sanitation-related disease. The story of Cholera has been well told. An accessible account about New York City—and the influence of English reformers like Jeremy Bentham and Edwin Chadwick on New York’s reformers—is the chapter “The Greatest Happiness” in Benjamin Miller, *Fat of the Land: Garbage of New York, The Last Two Hundred Years* (New York: Four Walls Eight Windows), 17-44.

century, a sanitary urban environment was commonly seen as a prerequisite for “civilization”; for example, when the British assumed control of Palestine (including what later became Israel) one of the very first ordinances that they implemented was the Public Health Ordinance of 1918, which included provisions to improve sanitation and guard against the spread of infectious disease.¹⁹

Late nineteenth-century reformers often sought to redevelop cities according to the desires of affluent elites, so they adopted a sweeping approach to reform. Many reformers, engineers, and policymakers wanted to erase what they interpreted as narrow, dirty, quaint, walking-oriented cities of past centuries, and implement instead an efficient, sanitary, industrial, and commercially styled city based on the newest technologies.²⁰ Separation of land use (e.g. the rise of zoning)

¹⁹ The Public Health Ordinance of 1918 sought to guard against the spread of infectious disease with measures such as requiring government notification of deaths and of illness, mandated vaccinations (especially for children), and set standards for licensing medical officers and doctors. Government of Palestine, *Legislation of Palestine 1918-1925*, compiled by Norman Bentwich, (Alexandria, Egypt: Whitehead Morris, 1926), 45-50.

²⁰ Sometimes the term ‘modernization’ has been used to refer to these general changes. In terms of urban infrastructure, modernization refers to the overall process of rebuilding urban infrastructure. Modernization’s structural transformations led to social and cultural changes as people from all backgrounds adapted to the new urban environment. The structural changes were as follows. First, the construction of straight and wide boulevards, which required the destruction of existing areas and winding high-density streets, is a central hallmark of the ideal efficient modern city. Second, technological developments, such as new building materials like steel allowed new architectural styles such as taller multi-story apartment buildings that could, in theory, efficiently and comfortably house more people, and useless but showy structures like the Eiffel Tower altered the appearance and function of urban areas. Third, the destruction and construction of existing areas, led to increased displacement of the poor.

As part of the modernization process, sanitary engineers—a specific niche in civil engineering—gained prominence in the second-half of the nineteenth century. In the United States, for example, from “1850 and 1880, the number of engineers grew from 512 (including mechanical and civil) to 8,261 (civil only).” Martin Melosi, “Sanitary Engineers in American Cities” in *Effluent America: Cities, Industry, Energy, and the Environment* (Pittsburg, PA: University of Pittsburg Press, 2001), 226.

was a means of removing affluent persons away from unsanitary sites.²¹ The large-scale urban-infrastructure changes negatively impacted the poor, however, as low-income areas were often demolished as part of the rebuilding process. This meant that the affluent were able to enjoy new boulevards, new housing, and the improved sanitary systems, but due to a combination of high rents (in newly redeveloped areas) and zoning measures, the impoverished were forced to crowd into the not-yet redeveloped areas where rents and home values were cheaper, but where sanitation remained poor.

Without question, the primary waste-disposal method in the late-nineteenth and early-twentieth centuries for nearly all cities was the unregulated dumping of refuse in open-face and unlined landfills or in water (e.g. in marshes, rivers, and harbors). Sometimes this was simply an expedient method of dumping just to get rid of the waste: to put it “out of sight, out of mind.” Other times, the waste was used as fill to “reclaim” land for development. The environmental and health dangers of digging up and leveling landfills was not yet understood, so cities commonly leveled the garbage mounds of landfill sites to use as fill for new developments like wharves and parks.²² Looking back at the past from the perspective of the present day, it is

²¹Prior to the late-nineteenth century, which was when new transportation such as streetcars became widespread, the wealthy and impoverished lived in close quarters. By the late-nineteenth century, the affluent classes sought to physically separate their homes from places of industry or waste-management, as well as from the poor. Much of this geographical separation was informal (i.e. individuals relocating) instead of municipal policy; zoning was not considered constitutional until 1926 in the United States.

²² After dumping was finished, building a park was a common use for such sites. Here is an example of a famous park redevelopment. New York leveled the garbage mounds at the Rikers Island municipal dump and the Corona Ash mounds in order to host the 1939 World’s Fair at the Flushing Meadows site in Queens. The Flushing Meadows site in Queens was a marshland that had been the site of the Corona Ash mounds (a privately owned rubbish incineration site), and it was nearby the

easier to see the geographical effects of landfilling as land construction, because of the changing geographical shape of waterfronts and the erasure of marshlands in many cities. Yet, until the standardization of policy and engineering techniques in the mid-twentieth century, much refuse was simply discarded with little fanfare and has left little geographical trace; for example, this is why Toronto has hundreds of refuse dumpsites that have been uncovered in recent decades in its outlying geographical areas.²³ Until the increased regulatory presence of national or state/provincial government in the mid-twentieth century, small, often privately owned, dumpsites were the norm and not the exception.

Dumping garbage in wetlands or along waterfronts in order to construct solid land for development was a pragmatic solution. In the nineteenth and early-twentieth centuries, many cities, including New York, Toronto, and Tel Aviv, commissioned landfilling projects (often utilizing a combination of sand, gravel, dirt, rubbish/garbage, and ash—or, in NYC, crushed oyster shells) as a means to construct solid land. Using garbage, as well as incinerator ash (which had to be disposed of somehow anyway), as part of the land fill mixture allowed cities to address two issues at once: disposal of garbage and the reclamation of

RikersIsland site (on an island between Queens and the Bronx). Robert Moses—who will play a large role in the following chapter—was in charge of the World’s Fair site’s development process (this same site was also used for New York’s 1964 World’s Fair, at which Moses played an even greater role). Two accessible (general-public-audience) accounts of the process of developing Flushing Meadows to be the site of the World’s Fair are to be found in Benjamin Miller, *The Fat of the Land*, and in Robert Caro, *The Power Broker Robert Moses and the Fall of New York* (New York: Vintage Books, 1974).

²³ Jennifer L. Bonnell, *Reclaiming the Don: An Environmental History of Toronto’s Don River Valley* (Toronto, ON: University of Toronto Press, 2014), 122; L. Anders Sandberg and Lisa Wallace, “Conservation and Development: From Rouge Park to the Oak Ridges Moraine,” *Urban Explorations: Environmental Histories of the Toronto Region*, edited by L. Anders Sandberg et al. (Hamilton, ON: L.R. Wilson Institute for Canadian History, 2013), 330.

wetlands/ravines/waterfronts for new development. For example, from 1844 to the 1890s New York City constructed over twenty-seven square kilometers of land; Manhattan accounted for roughly half (over 13K) of these projects.²⁴ Toronto also used this technique to reclaim land along its lakefront, an area that was primarily for industrial use, as did Tel Aviv along its seafront.²⁵

Reduction plants and compost plants were a common means of making money (in theory at least) through waste disposal in the late nineteenth and early twentieth centuries. These factories were beneficial in that they allowed some organic wastes to be recycled into saleable items like fertilizer or soap, but the plants were notorious for their noxious smells.²⁶ Local protest was especially strong against reduction plants in Staten Island; for example, in 1916 while protesting the proposed Metropolitan By-Products (Greenridge) reduction plant,

²⁴ Here are the totals for the following decades in New York City. From the 1890s to 1924 New York constructed over twenty-nine K of filled land, and Brooklyn accounted for the largest portion at over thirteen K. The overall total of filled land skyrocketed from 1924-1957: over 94K of land were filled during these three decades; Queens had the largest portion at over 44K. This was the period when Robert Moses was at the height of his influence, and commonly filled land as part of his 'modernization' projects. This period was also when the first significant land-fill projects occurred in Staten Island; almost 11 kilometers of filled land was constructed in Staten Island. This figure included Fresh Kills, which was established in 1948. Due largely to the closure of older landfills, and New York City's increased reliance on Fresh Kills, from 1954 to 1994 Staten Island had the largest portion (over 12K) of New York's land fill. Citywide, the total volume of filled-land construction dropped down to roughly 33 kilometers. Many of New York's earlier garbage dumps (e.g. Great Kills, Jamaica Bay, etc.) have been transformed into parkland. The statistical data about land-fill area in New York is from Daniel Walsh and Robert G. LaFleur, "Landfills in New York City," *Groundwater*, 33, 4 (2005): 556-560.

²⁵ The Tel Aviv Foreshore Reclamation Project, provisionally approved in 1936, is a case in point. The public notice—which was published in order to give affected persons a chance to protest the plan—was published in Government of Palestine, *Proclamations, Regulations, Rules, Orders and Notices: Annual Volume for 1936* (Jerusalem, IL: Greek Convent Press, 1936), 761-762.

²⁶ As was common in many cities, private investors in New York opened and operated several reduction or waste-to-fertilizer plants. Reduction plants quickly fell from favor: it was disgusting work that produced only a small profit.

many Staten Islanders argued for secession from New York.²⁷ These reduction and compost plants made sense as a means to boost local agriculture yields and because of cities' dependence on horses prior to the explosion of the automobile industry in the twentieth century. Animal manure and animal carcasses were two of the primary wastes of late-nineteenth century cities: this was true in New York, Toronto, and Tel Aviv.²⁸

²⁷This reduction plant was built in 1916 at the mouth of Fresh Kill (the eventual site of the Fresh Kills landfill) but protests were so vehement that it did not open immediately and was abandoned in 1918 "Staten Islanders Talk Secession in Garbage Protest," *The Evening World*, April 15, 1916. See also, *The Staten Island Advance*, October 20, 1938.

²⁸ Prior to the invention of automobiles, horses were essential to city infrastructure. Horses performed many of the city's transportation and hauling tasks: pulling fire engines, freight carts, taxis, hauling produce and saleable goods, and personal transportation. Urban horses had a low lifespan—about 4 years—and they often died while on the job because they were overworked; in 1880 nearly 15,000 dead horses had to be removed from New York City's streets. In addition to the carcasses, horses greatly increased the city's organic-waste: each day, on average, each horse produced between fifteen and thirty-five pounds of manure and a quart of urine—much of which was deposited on city streets. For details on New York City and other cities in the United States, see Clay McShane and Joel A. Tarr, "The Centrality of the Horse in the Nineteenth Century American City," *The Making of Urban America*, Raymond Mohl, ed. (Wilmington, DE: Scholarly Resources, Inc., 1997), 105-130, the quote cited is from page 122. For details on Toronto see Sean Kheraj, "Living and Working with Domestic Animals in Nineteenth-Century Toronto," in *Urban Explorations: Environmental Histories of the Toronto Region* (Hamilton, ON: L.R. Wilson Institute for Canadian History, 2013), 120-140. For Tel Aviv, the local newspapers described the dependence on work animals and of the problems with disposing of animal carcasses; specific examples of this are cited elsewhere in this chapter.



Figure 13. *Skyscrapers of New York City: aerial view of Battery Park and the skyscrapers of lower Manhattan, looking northwards, 1929.* Source: New York Public Library, Public Domain.

Much of the waterfront-land area of Manhattan—including the Battery Park area shown in this photograph—was created through land-fill projects (which often included rubbish along with dirt and gravel and other fill). Battery Park includes an old fort, which used to be located on an island prior to the city's land-reclamation project there. To see maps of how New York City's land-fill projects have drastically changed its shape since the late-nineteenth century, see Daniel C. Walsh and Robert G. LaFleur, "Landfills in New York City," *Groundwater*, Vol. 33, No. 4, 2005: 556-560.

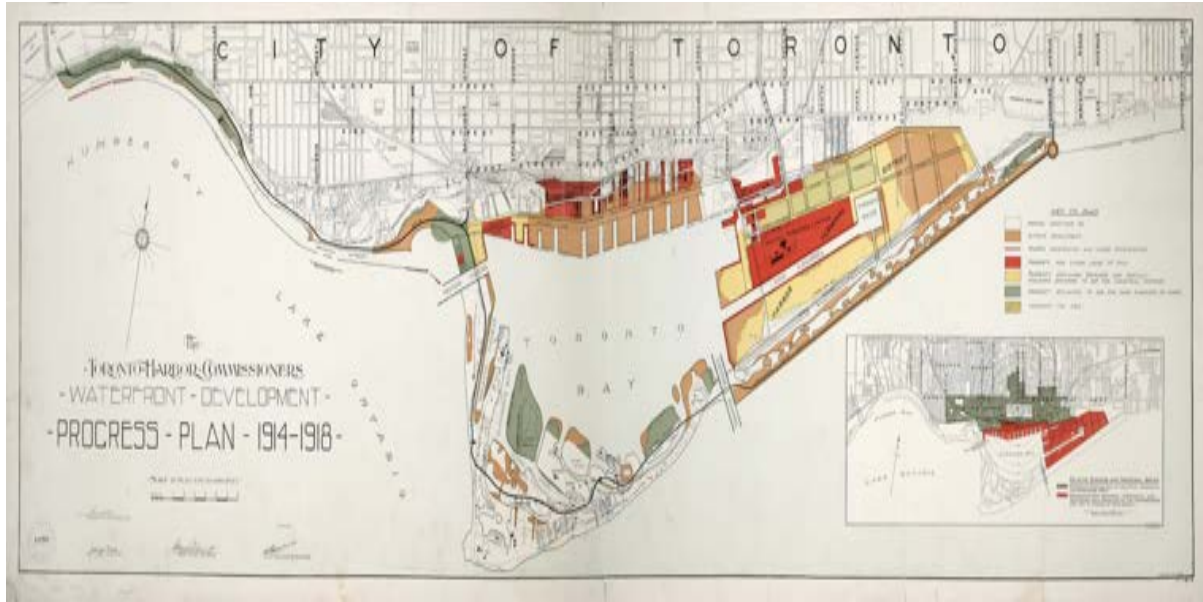


Figure 14. *The Toronto Harbor Commissioners Waterfront Development Progress Plan 1914-1918*, (1918). Source: Toronto Public Library, Public Domain.

Toronto's waterfront was largely "reclaimed" through land-fill projects. It was also largely zoned for industrial use. The plan illustrated here was one of several schemes, some implemented, some not, to adjust the area around where the Don River flowed into Toronto Harbor: Toronto devised and carried out schemes to alter the flow of the Don as well around this time.



Figure 15. Plan for Tel Aviv (1925). Source: Wikimedia Commons; Public Domain; https://commons.wikimedia.org/wiki/File:Geddes_Plan_for_Tel_Aviv_1925.jpg.

This image is from the Master Plan for Tel Aviv created by British city planner Patrick Geddes. Tel Aviv was founded north of the ancient city of Jaffa, along the seacoast. Regularizing the seacoast was one of the initial steps required to develop Tel Aviv into a “modern” city. This map is one of Tel Aviv’s early plans; much of the “green” area in the north was actually developed into Tel Aviv Port (near the mouth of the Yarkon River) in the 1930s.

High-temperature refuse-burning incinerator plants were the most significant sanitation technology of the late-nineteenth century. It is not surprising that Europe was the source of this technological breakthrough in waste disposal, given that much of the trends in the updating of urban infrastructure (e.g. systematic planning, grid-patterns for streets, modern sanitary sewers) had also originated in Europe. The first garbage-burning incinerator was developed in 1874 in Leeds, England; in 1876 Manchester, England built “the first municipal refuse ‘destructor’,” which marked “the beginning of large-scale use of incineration throughout England.”²⁹ Incinerators quickly became popular in Western Europe and were marketed as a means of disposing of waste in a sanitary manner to combat the spread of infectious disease. Incinerators caught on fairly quickly in North America as well due to the widespread acceptance of the germ theory of disease. New York and Toronto both utilized large-scale garbage-burning incinerators in the early twentieth century; Tel Aviv did not.

Refuse-burning incinerators were only a partial solution.³⁰ Incinerators were a source of air pollution, and they led to the creation of huge ash dumps (e.g. New York’s Corona Ash Dump). No one would have chosen to live next to an incinerator, so they were typically located in impoverished or out-of-the-way areas.

²⁹ Martin Melosi, “Sanitary Engineers in American Cities” in *Effluent America: Cities, Industry, Energy, and the Environment* (Pittsburg: University of Pittsburg Press, 2001), 232.

³⁰ For additional insight on U.S. cities’ practices, see Martin Melosi’s books, *Garbage in the Cities* (2005 revised edition) and *The Sanitary City* (2008 abridged edition), which provide a useful overview of the history of the USA’s nation-wide engineering and policymaking push for sanitation reform over the last centuries. *Garbage in the Cities* focuses in detail on the 1880s-1920--with two new chapters in the revised edition that cover the following decades. *The Sanitary City* covers air, water, and land sanitation efforts since the eighteenth century.

Moreover, incinerators only handled a small percentage of garbage; for example, in 1905 incinerators only disposed of 16 percent of New York's rubbish.³¹ Even the best incinerators could not handle a large city's garbage on their own—although city officials continued to have faith that incinerators would be able to do so in the near future.³² Small, single-building incinerators, however, did catch on. Ash from these incinerators, as well as from coal (then a common source for heat), comprised a significant portion of New York's waste in the early twentieth century: in 1905 ash comprised 79.9% of New York's waste; in 1939 ash made up 43.0%; by 1971 only 2.8%.³³ The worst detractor of incinerators, as understood in the early twentieth century, was the capital expense (i.e., construction and maintenance). New York, for example, relied on federal money from New Deal programs to construct and update its incinerators in the 1930s.³⁴ The move toward sanitary landfills after the 1930s was not a rejection of incinerators so much as recognition that incinerators alone could not handle all the garbage.

³¹ "Saving the Waste of Wasteful New York," *The New York Times*, June 25, 1905.

³² Fresh Kills's initial 10-year projection (in 1948), for example, was based on the erroneous assumption that newly constructed incinerators would handle New York's garbage by the 1950s. Toronto's attempt to rely on incinerators also failed in the 1960s. Tel Aviv was riddled by air pollution by the 1970s so city officials rejected the idea that incinerators were a solution.

³³ For specifics see Daniel C Walsh, "Urban Residential Refuse Composition and Generation Rates for the 20th Century," *Environmental Science and Technology*, 36 (2002): 4936-4942; quoted data from page 4938.

³⁴ New York Mayor F.H. La Guardia was a friend on President F.D. Roosevelt, and he regularly wrote FDR's Secretary of the Interior, Harold Ickes, for funding requests. One example is a message from March 19, 1937 in which La Guardia wrote "I would greatly appreciate approval of application for grant on steel well scows our Department of Sanitation stop These are part of the incinerator program which has been approved by your department stop one is completed and in operation and the other ninety-five per cent complete and in partial operation[.]" Mayor La Guardia papers, New York Municipal Archives.



Figure 16. *Arthur Kill - Great Fresh Kills - Staten Island [Richmond.]* c. 1925-1929. Source: New York Public Library, Public Domain.

These photos show the site of the mouth of the Fresh Kills before it became a landfill. The images show the Greenridge garbage-disposal reduction plant—which was the cause of much protest in Staten Island--and a brick factory.

The advent of new techniques, like incineration (and also sanitary landfills after the 1930s), deprived the city's poor of a source of sustenance: scavenging.

Scavenging open-face garbage dumps for food and saleable goods was a common survival-skill of impoverished urban dwellers. Affluent reformers saw scavenging as an unsanitary practice; therefore, cleanliness reforms—such as imposing crackdowns on scavenging at dumps--often went hand in hand with anti-immigrant sentiment.³⁵ In New York, Sanitation Commissioner George Waring saw immigrants' reliance on scavenging as evidence that poor immigrants and refuse were part of the dirtiness of city life: both needed to be reformed.³⁶ In Toronto similar reforms were underway in the slum areas like Cabbagetown (the worst British-immigrant slum) and St. John's Ward (an Italian and Jewish area). Tel Aviv had a different political context (as part of the Ottoman Empire and British-Mandate Palestine) in the early twentieth century, but scavenging was common at the city's dumps as well.³⁷ Unregulated scavenging was one of the activities that fell victim to the reform of waste disposal: with standardization of techniques, municipalities sought to make money selling commissions for the right to recycle or reuse waste materials.

³⁵ Many reformers saw poverty as the poor's biological and personal fault, but exacerbated by negative environments. The primary policy response was to focus on environmental reform (e.g. clearing out slums and building urban parks) and cultural education (e.g. teaching immigrants English and the value of hard-work) to encourage people to reform their morals and behavior. Cultural-education programs such as settlement houses and the Temperance (anti-alcohol) movement gelled with environmental reforms, in that reformers often associated the "unsanitary" lifestyle of impoverished immigrants as the primary cause of inner-city urban filth. In New York City, for example, reform programs sought to turn immigrants into "good Americans" who believed in the values of hard work, sobriety, and clean, well-managed surroundings.

³⁶ Martin Melosi, *Garbage in the Cities*, 59.

³⁷ In 1935, for example, *The Palestine Post* reported on impoverished Arabs who had been accused of stealing goods that they had in fact scavenged from the city dump to sell to wealthy patrons "Finds in the Refuse Dumps of Tel Aviv," *The Palestine Post*, October 28, 1935.

In summary, sanitation was a pressing concern for many cities in the late-nineteenth and early-twentieth centuries. Public health was the primary motivating factor for sanitary reform. Incineration was the most promising technological breakthrough of the late-nineteenth century, but it was not a panacea. Most refuse was in fact dumped unceremoniously in water or on land in out-of-the-way places, or it was utilized as part of the fill mixture for land-construction projects. Despite some progress in terms of reforms, achieving a high-level of sanitation was elusive. The specific examples of New York, Toronto, and Tel Aviv illustrate this point.

New York City

New York's primary waste-disposal practice until 1933 was to dump refuse into or just outside of New York Harbor. This was the cheapest disposal method, and prior to 1857, there was no regulation against dumping of any kind in New York Harbor.³⁸ Dumping sewage and rubbish, as well as industrial waste, into waterways took its toll on area fisheries.³⁹ For example, oystering had been a

³⁸ In 1857 the Board of Pilot Commissioners was "given authority to regulate the dumping of ashes, garbage, &c in the harbor." The Board determined to curtail random dumping by designating a specific island as a dumpsite in 1857--Oyster Island, nearby the New Jersey coast--which was "a shoal which is left dry at low water." Dumping at Oyster Island continued until 1872, but designating the island as the legal dumpsite did little to deter dumping elsewhere because "there was practically no one to enforce the regulations." In 1872 the Board closed the Oyster Island dumpsite because it had recognized that since the island was submerged by twice-daily tides, rubbish dumped there was simply swept into the harbor. The quotes are from "The Harbor in Congress: Senator Conkling's Bill Designed to Save It," *The New York Times*, February 9, 1880.

³⁹ The workers on garbage barges were often careless about dumping in the city's-allocated site, which became a point of contention from Brooklyn and Staten Island residents when the carcasses washed ashore. See for example, "At the Dumping Ground," *The New York Times*, August 23, 1879.

lucrative industry for Staten Islanders in the early nineteenth century, but by the 1890s the quality of oysters, like the area's water quality, had noticeably declined. In 1916 the New York Department of Health officially banned the harvesting of oysters and clams around Staten Island because the Department recognized these were unsafe to eat.⁴⁰

Rubbish interfering with shipping was a serious concern about water dumping for nineteenth-century New York—dredging the harbor bottom to clear shipping lanes was laborious and expensive. New York was a major seaport, and the city's livelihood was dependent on its shipping lanes for the export and import of goods. From 1855 to 1871, the United States Coast Survey prepared a map of New York Harbor's currents and depths, and found significant blockages of channels due to waste dumping; the situation was so bad that "it would be only a question of a few years when an ocean steamer would not be able to come into the Bay at all." In 1876 a new dumpsite was procured three miles off the coast (near Sandy Hook), "which was a most unfortunate move," because although the site was outside the harbor, the discards piled up on an underwater sand bar that "vessels have to cross to come into the harbor," so New York's reliance on water dumping continued to hamper the shipping lanes. Rather than recognize that water dumping was a poor idea, between 1876 and 1880 New York gave permission to the Street-Cleaning

⁴⁰ Here is a link to a local history website with more information on oystering in Staten island: <http://www.tottenvillehistory.com/History-Tottenville-Staten-Island-New-York/history-tottenville/Oystering-and-Maritime.html>

Department to “dump at other places off the shore of Coney Island,” just outside the entrance to New York Harbor, which further hampered shipping lanes.⁴¹



Figure 17. *Map of New-York and its Vicinity*, 1839. Map drawn by D.H. Burr, geographer; engraved by S. Stiles, Sherman & Smith. Source: New York Public Library, Public Domain.

Manhattan Island (center) was the only borough of New York City in 1839, but it was already the largest city in the United States. In 1898 Manhattan merged with the surrounding boroughs: Staten Island (Richmond); Brooklyn (Kings); Queens; The Bronx (West Chester).

⁴¹ In addition to open dumping in waterways, dumping on islands was also common. For New York City, islands, like Barren Island (the city’s largest reduction plant), and Rikers Island (the site of one of the city’s primary landfills) were popular dumping spots, because they were separate from the mainland. Staten Island was especially affected—both as a site for dumps and its location at the mouth of New York Harbor. The quoted sections in the entire paragraph are from “The Harbor in Congress: Senator Conkling’s Bill Designed to Save It,” *The New York Times*, February 9, 1880.

As it became clear that New York City's policy of at-sea waste dumping was directly affecting the area's economic livelihood and sanitation, protests became common. In 1870, residents from the Lower Bay (by the "Narrows" area between Brooklyn and Staten Island) complained that the city's practice of dumping sewage, rubbish, and dead-horse-carcasses too close to shore had destroyed the natural purity of the area. Staten Islanders complained that New York City's waste handlers did their job "With a phlegmatic indifference which would be amusing if it were not culpable, [because] the contractors continue to dump their plague-laden freights in spots convenient" for them and which meant the waste simply washed ashore.⁴² The protests and legal actions against New York's water dumping eventually culminated in a Supreme Court ruling in 1933, which officially declared that at-sea dumping was illegal.⁴³ This ruling forced New York City to abandon at-sea rubbish dumping, but it did not cover all types of waste. After 1933, New York also attempted to curtail the dumping of raw-sewage, but openly continued its practice of sludge dumping (solid-sewage waste) outside of New York harbor.⁴⁴ This

⁴² Open-water dumping was common at this time, and was based on the idea that the earth can take back its own (decompose and renew; the problem the locals objected was non-adherence to municipal legal standards. "Grievance From the Lower Bay," *The New York Times*, August 26, 1870.

⁴³ Until 1933, New Jersey beaches, like those on Staten Island and Brooklyn, were negatively affected by New York City's policy of at-sea waste dumping, and so the State of New Jersey sued. The damages endured by New Jersey were clear, and New Jersey won: the U.S. Supreme Court declared at-sea dumping illegal in 1933.

⁴⁴ The dumping of sludge was not outlawed by the 1933 ruling, so this practice continued. Federal legislation like the 1972 Water Pollution Control Act set stricter standards (the 1970s were a time wide-ranging pollution reform legislation in the USA). For details on New York City, see "Waterways and the Coast" in Eric Goldstein and Mark Izeman, *New York Environment Book* (Washington, DC: Island Press, 1990), 47-84.

illustrates one of the central issues of legislative regulation: every type of pollutant is considered separately, so addressing all sources of pollution through legislation and legal restrictions requires deft law-drafting skills and forethought.

In the late-nineteenth century, most of New York's land waste-dump sites were relatively small and were privately owned. In 1877, for example, a private landowner, William Staples, arranged with the New York's Board of Police Commissioners to allow street-sweepings and refuse to be dumped on land he owned in Staten Island—Staples's hope was to "make about 15 acres of taxable land." Street sweeping was a common way of collecting garbage at this time, before New York instituted a regular garbage collection program; the composition of the waste dumped on Staples's land was 30% ashes and also contained "debris commonly called garbage" and "vegetable matter," which "emitted unwholesome smells and stenches."⁴⁵ It was common for private individuals to "reclaim" land, which they could then sell or use as they wished; Staples's private dumpsite was not an exceptional case.

⁴⁵ Nearby property owners on Staten Island "vigorously opposed" Staples's dump scheme as a direct "nuisance" to public health. Staples, in retort, blamed his neighbors of having "long used his flats for a dumping ground" and the locals "had not complained when offal and other vile matter had continually been deposited here" before because it had been convenient for them. "The Stapleton Flats," *Staten Island Gazette*, February 7, 1877; "The Dumping of Garbage. Excitement at Stapleton, Staten Island," March 21, 1877.



Figure 18. *Beers' New Map of Staten Island: from Careful Surveys*, (two maps) 1887. Source: New York Public Library, Public Domain.

The area of Fresh Kills is on the far left of the map, in the center, where the two maps separate. The creek branches there are Fresh Kills (a kill is the Dutch word for creek). In 1887, the area was mainly salt-water marshlands.

Despite the aforementioned problems, New York City was in the vanguard of implementing urban sanitation techniques. New York was one of the first American cities to follow the lead of European cities in standardizing municipal organization and implementing new technologies. New York built the United States' first permanent incinerator, on Governor's Island in 1885. The promise of incinerators caught the imaginations of entrepreneurs and city officials alike, and New York's opening of the Governor's Island incinerator was a bold statement of the city's forward-looking, technologically advanced sanitation system. New York installed its first waste-to-energy (or "resource recovery") incinerator in 1905. New York was also the first North American city to implement a strictly organized sanitation department.⁴⁶ By 1905, New York's Department of Sanitation (DOS) had a system to "classify waste into four divisions"—garbage, ashes, street sweepings, and rubbish—and "see that this classification was observed" by DOS personnel as well as "by citizens" of New York.⁴⁷ The motivation to sort waste, then as now, was

⁴⁶ Historian Martin Melosi has written in great length about the impact of Col. George Waring in New York City. Soon after his appointment as New York's Sanitation Commissioner in 1895, Colonel George Waring implemented a strict organization to New York's sanitation system that was revolutionary for the time. For the specifics of Waring's impact see Martin Melosi's chapter "The Apostle of Cleanliness And the Origins of Refuse Management," in *Garbage in the Cities* (2005 revised edition), 42-65.

⁴⁷ After Waring's removal from office in 1898 when Tammany Hall resumed power, however, the military-like routine of New York's Sanitation Department declined. After Waring's removal as Commissioner in 1898, the DOS's organization declined. In 1905 the new Sanitation Commissioner, Major John Woodbury, restored the department's organization somewhat. Not surprisingly, Woodbury's "plans for having citizens separate their waste never work[ed] out absolutely, and as a consequence a lot of mixed material is carted each day to the disposal plant" where the workers sorted it as best they could. The quoted sections are from "Saving the Waste of Wasteful New York," *The New York Times*, June 25, 1905.

twofold: to maximize recycling, and to maximize disposal efficiency (e.g. separating waste suitable for incineration from waste that is not).

By the early twentieth century New York City had taken steps to more efficiently manage its wastes, but problems still remained. The sanitary landfill (which will be covered in more detail next chapter) was New York City's primary waste-disposal innovation in the 1930s; New York's first sanitary landfill opened in 1932. By 1950, sanitary landfills were New York's number-one waste-disposal method. The engineering of the first sanitary landfills may be understood as part of the continuing process of innovation since the mid-nineteenth century, but if so they were clearly the most significant. In the 1950s New York City policymakers (e.g. Robert Moses) still touted incinerators as the most promising waste-disposal technology, but understood that sanitary landfills were the most reliable method. The opening of the Fresh Kills landfill in 1948 marked the moment that sanitary landfill eclipsed incinerators as New York's disposal-method of choice; politicians still talked about constructing incinerators after 1948, but their plans rarely materialized; after 1948, Fresh Kills was New York's primary disposal site.

Toronto

In the late-nineteenth and early twentieth centuries, most Toronto-area dumps were small and not regulated, and were in out-of-the-way areas (along rivers, in ridges, in the Oak Ridges Moraine) instead of in the central areas of Toronto proper. As in New York (and also Tel Aviv), many of Toronto's dumpsites

from this period have been lost to history, and are no longer evident: marshes, ravines, or pit mines that were filled in now look like solid land; the shapes of waterfronts were commonly altered, expanded, or straightened using fill and are now well-established features of the landscape. The past reliance on at-water dumping in Toronto is characterized mainly by the historical narrative of cleansing the rivers and harbor from pollution and waste residue--as well as by the continuing problems with pollution and litter--and not by physical sites with a clear name and geographical location marked on a map.

The lower Don River was one of Toronto's primary disposal areas: by the beginning of the twentieth century it was little more than a sink for industrial and municipal wastes. In the early decades of Toronto's incorporation, the Don River, located along the eastern border of the downtown area, was a major source of livelihood as well as waste disposal: by 1850 the "river provided not only the energy to power milling operations, but also a convenient means of waste disposal."⁴⁸ Toronto was a fast-growing city in the late-nineteenth and early-twentieth centuries, and so its sanitary problems were exacerbated by rapid industrialization and rapid population growth: the deterioration of the lower Don was justified as a necessary cost of "progress." By the 1890s, the Don's capacity to "assimilate these wastes" was "severely compromised," yet dumping continued unabated in the area.⁴⁹

⁴⁸ Jennifer L. Bonnell, *Reclaiming the Don: An Environmental History of Toronto's Don River Valley* (Toronto, ON: University of Toronto Press, 2014), 21.

⁴⁹ *Ibid.*, 21.

Landfills were common along the banks of the lower Don. From 1912 through 1925, the Chester Springs marsh was a large dumpsite where rubbish, consisting primarily “of ash and household materials, was used as means of filling the marshy area with “2 to 3 metres of landfill.”⁵⁰ In the 1930s a rubbish dump still operated in the Chester Springs area along the lower Don River, and served the many homeless persons who congregated in the Don River valley during that time of severe economic depression.⁵¹ By the time that sanitary landfills became common in Greater Toronto in the 1950s, at least “forty-seven abandoned landfill sites” had been established “throughout the Don watershed.”⁵²

⁵⁰ “Regeneration Projects.” Accessed June 2013.
http://www.mwilson.on.ca/Don/DonRegeneration/Regeneration_Index.html

⁵¹ Jennifer Bonnell, *Reclaiming the Don*, 107.

⁵² *Ibid.*, 122.



Figure 19. *Bryce's new index map of Toronto*, 1888. Publisher: William Bryce, Toronto. Source: Toronto Public Library, Public Domain.

Toronto at the end of the nineteenth century was not yet a huge metropolis, but it was a growing city. This map shows the city's core, which was substantially smaller geographically than today's (post-1998 amalgamation) city. The Don River is in the far-right side.

Municipalities in the Greater Toronto region (including the City of Toronto) also relied on refuse dumping in the area of the Oak Ridges Moraine. The moraine's sandy/gravelly soil supported many sand and gravel mines, which were a significant source of income for the Greater Toronto area. Old sand and gravel pit mines were a common place for landfills. There were many dumps in the moraine area, but many have been forgotten over time and filled in and covered over by industry or roads or buildings. In the Oak Ridges Moraine there are “hundreds” of landfills, “many

undocumented, scattered across the moraine” that testify to the Toronto area’s use of often small-scale dumps.⁵³

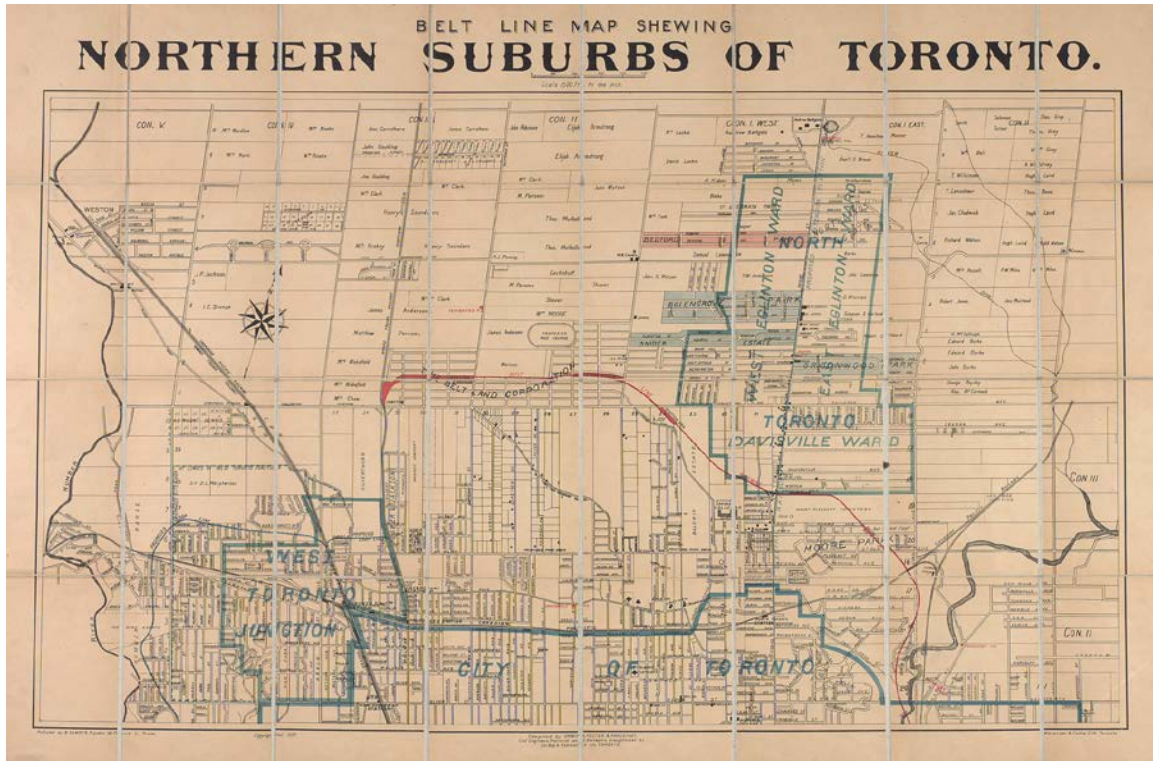


Figure 20. *Handbook for Travellers* by Karl Baedeker, 5th Edition, 1912. *Belt line Map Shewing Northern Suburbs of Toronto*, 1890. Creator: B. Sawden, Toronto; Contributor: Alexander & Cable, Lithography. Source: Toronto Public Library, Public Domain.

Much of the “northern suburbs” shown here became part of the City of Toronto in 1998. The area of Vaughan (Maple) where the Keele Valley landfill was eventually sited is not shown in this map; Keele Street, the street on which the landfill is located, is the main vertical street located under the second “N” of the word “Northern” of the map’s title: the landfill would be a few miles further up.

The site of the Keele Valley landfill is located on the Oak Ridges Moraine. The Maple Gravel Pits, the eventual Keele Valley site, was part of a huge complex of pit

⁵³ L. Allen Sandberg and Lisa Wallace, “Conservation and Development: From Rouge Park to the Oak Ridges Moraine,” *Urban Explorations: Environmental Histories of the Toronto Region* (Hamilton, ON: L.R. Wilson Institute for Canadian History, 2013), 330.

mines on the outskirts of Maple, one of the villages of the town of Vaughan. Private companies had operated pits in the area since the early twentieth century; for example, the Maple Sand, Gravel, and Brick Company began operation in April of 1918.⁵⁴ In 1940 the Ontario Department of Highways opened a small gravel pit in Maple, which it operated until 1954. In the 1940s private companies expanded the size and number of gravel-pits in the Maple area. By the 1950s, some of these mines were huge holes in need of redevelopment. Basic garbage landfills were a pragmatic means to re-fill old gravel mines. The first landfills at the Keele Valley site took advantage of mined-out pits in the 1950s. A private firm, Disposal Services, established a dumpsite there in 1952. The Disposal Services dumpsite was adjacent to the site of Vaughan's town dump, which had been established in 1950. Pollution at these early landfills, from leachate seeping into groundwater--because these dumps did not have protective base liners, which did not yet exist in the 1950s--did not deter Metro from trying to acquire rights to dump at the Maple Pits nearly a decade later. Toronto had a long history of landfilling and sand/gravel pits on the moraine, and so Keele Valley was part of a larger history of a specific geographically based land use.⁵⁵

As of 1950, the basic pattern of waste disposal in Greater Toronto was small-scale landfills, especially in marshy areas along the Don or Humber rivers or in

⁵⁴ Ontario Legislative Assembly, "Sessional Papers" (Legislature of the Province of Ontario, Part 2, 1919), 168.

⁵⁵ In 1974, Vaughan Councilman Jim Cameron prepared a timeline of the Maple Pits area for his private use, and I used it as a guide for the timeline presented in this paragraph. "Garbage Maps and Notes," Jim Cameron fonds, City of Vaughan Archives.

outlying or “wilderness” areas such as in the Oak Ridges Moraine; by 1950, Toronto also used several garbage-burning incinerators. As in New York City, the pro-incinerator argument was bandied around as a potential solution to continuing sanitary problems with landfills, but without substantial success. Landfills, especially the Chester Springs landfill (mentioned above) and the Pottery Road landfill (which was located in East York along one of the branches of the Don River and open until 1965), were Toronto’s primary garbage-disposal method.

Tel Aviv

In the early twentieth century, Tel Aviv relied on open dumps in the sand dunes that were fairly common in the coastal-Mediterranean area near Tel Aviv. Portraying sand dunes as “desert” played an important symbolic role in Tel Aviv’s founding myth; the Zionist settlers of Tel Aviv portrayed the sand dunes of the area (which was only a few miles north of central Jaffa, and geographically part of Greater Jaffa) as a desert “frontier.” Sand dunes, however, are complex ecosystems that support vegetation and even agriculture, and so the counter-argument to Tel Aviv’s Zionist founding myth is that Palestinian Arabs and Bedouins were using the Tel Aviv area’s sand dunes prior to the Zionists’ arrival. In terms of waste disposal, the important point to the Tel Aviv municipality was that sand dunes connoted an out-of-the-way area where it could dispose of waste in an area that would not bother its citizens.

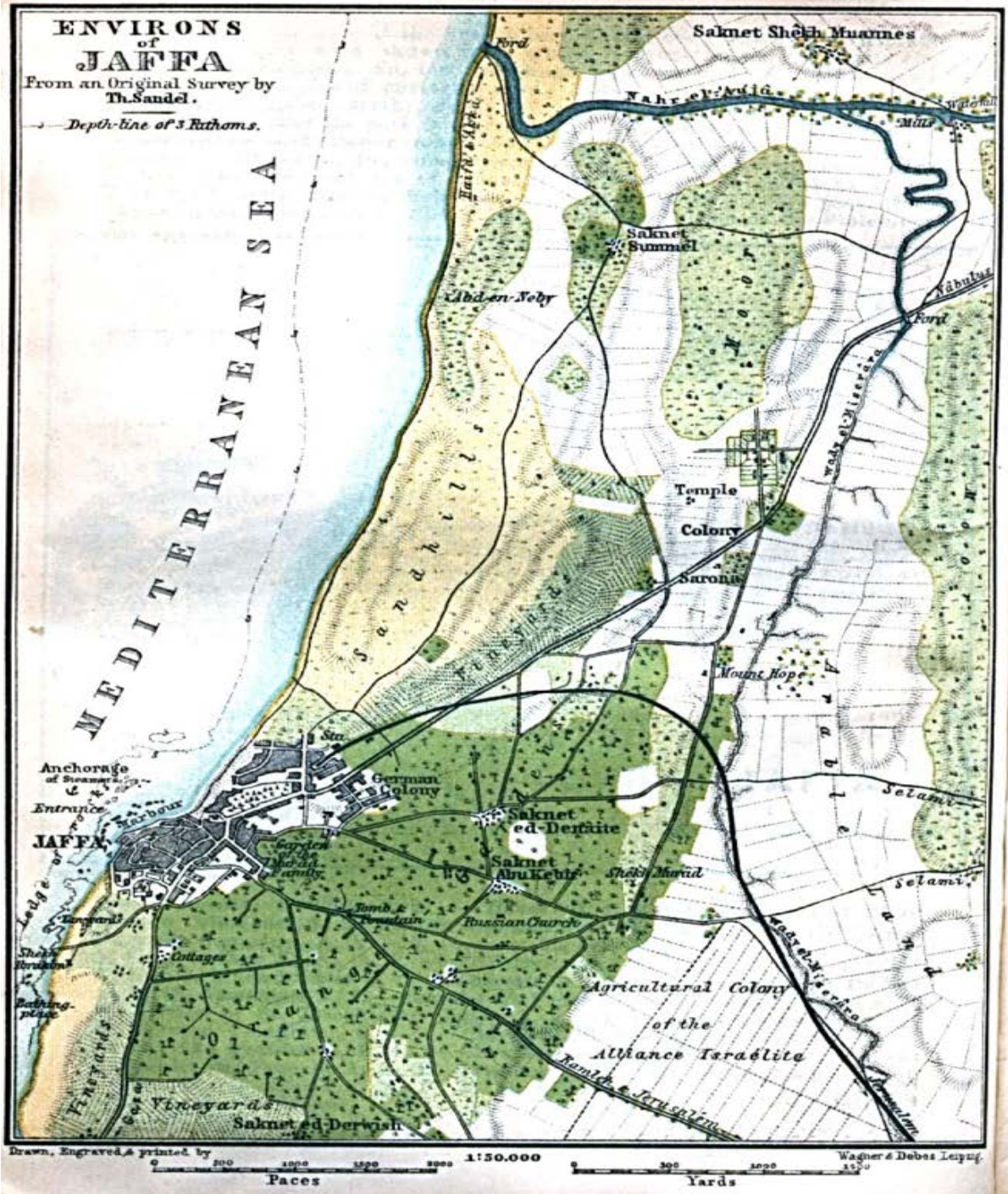


Figure 21. *Jaffa Environs* 1912. Source: University of Texas Maps Digital Collection, From *Palestine and Syria*.

The entire area north of Jaffa is today's area of Tel Aviv. Tel Aviv had been founded in 1909, but it is not shown on this map. The area of Hiriya is not quite shown on this map, but if one followed the road to Jerusalem (which is visible in the bottom right corner of the map) it is not much further to reach the Hiriya site. The Mikve Israel landfill, the dump that preceded Hiriya, was located near the Israel Alliance Agricultural Colony shown in the bottom right of the map.

Tel Aviv grew rapidly in the initial decades of the twentieth century, and sanitation was one of many policy matters on its agenda. The aforementioned 1918 Public Health Ordinance was the initial step.⁵⁶ The municipality of Tel Aviv was quick to implement regulations for sewage disposal, “cesspools” (implemented in 1921, and revised in 1930),⁵⁷ but it did not directly do so for municipal garbage disposal. Instead, the municipality of Tel Aviv focused on targeting private citizens’ unsanitary practices, such as in the “Tel Aviv By-laws for the Prevention of Accumulation of Refuse or Filth, 1935,” which included a provision on “refuse,” which the ordinance defined as “refuse of all kinds, kitchen remains, [...] newspapers, bottles, and broken glass, rags, boxes, nails, [...] branches, leaves, [...] ashes, dust, sand, or any other thing causing or liable to cause uncleanness.”⁵⁸ This ordinance had strict provisions to regulate unsanitary practices such as littering, the accumulation of rubbish or manure in private lots, or chimneys that discharged too much smoke—and included provisions to fine offenders—but ordinances such as this were difficult to enforce.⁵⁹

⁵⁶ See Government of Palestine, *Legislation of Palestine 1918-1925*, compiled by Norman Bentwich (Alexandria, Egypt: Whitehead Morris, 1926), 45-50.

⁵⁷ “Township of Tel Aviv: Byelaws for the Opening or Voiding of Cesspits within the Area of the Boundaries of the Township of Tel Aviv,” 1921, revised 1930. Government of Palestine, *Proclamations, Regulations, Rules, Orders and Notices: Annual Volume for 1931* (Jerusalem, IL: Greek Convent Press, 1931), 588-9.

⁵⁸ See “Tel Aviv By-laws for the Prevention of Accumulation of Refuse or Filth, 1935.” Government of Palestine, *Proclamations, Regulations, Rules, Orders and Notices: Annual Volume for 1935* (Jerusalem, IL: Greek Convent Press, 1935), 556-9.

⁵⁹ Only a flagrant offender would have been worth the time and effort of the municipality to take legal action against, and typically judges were not very sympathetic to environmental cases unless a clear public health issue was at stake. After Israeli independence in 1948, other similar laws were implemented (most notably the Kanovich law in 1960) and these sorts of laws remained

Before commissioning Hiriya, Tel Aviv dumped most of its rubbish at a large dump in the neighboring municipality of Mikve Israel and at a smaller dump in the area municipality of Azor. Mikve Israel, a town to the southwest of Tel Aviv-Yafo, was the site of a well-known Jewish agricultural school; the area just outside the town had sand dunes convenient for dumping.⁶⁰ Azor is a town southwest of Jaffa, not far from Mikve Israel. A report in 1951 described how these “garbage dumps of Tel Aviv” had “accumulated over the last 10 years an estimated half a million tons” of rubbish; the “estimated municipal dumping per year is about 100 thousand tons.”⁶¹ Fires were common at open-face and unregulated dumps such as these;⁶² vermin, such as mice, were also common.⁶³

Animal waste was a huge proportion of the Tel Aviv area’s waste in the early twentieth century. Jaffa was famous for its orange groves; therefore, manure for “organic fertilizer” was a big business in the Tel Aviv-Jaffa area.⁶⁴ As in New York

difficult to enforce. For a commentary on how the Israeli legal system essentially de-toothed environmental or anti-pollution/nuisance legislation, see Orit Marom-Albeck and Alon Tal, “Upgrading Citizen Suits as a Tool for Environmental Enforcement in Israel: A Comparative Evaluation,” *Israel Law Review*, 34 (2000): 373-424.

⁶⁰ Our Own Correspondent, “Finds in the Refuse Dumps of Tel Aviv,” *The Palestine Post* October 28, 1935.

⁶¹ These quotes are my translation from the Hebrew text. “Shipments Endanger the Health of Residents,” *Al Hamishmar*, June 19 1951.

⁶² See for example, Or. Lika, “Hours worked yesterday Near Tel Aviv firefighting piles of trash and garbage,” *Davar*, Nov 17, 1934 and “Burning Refuse,” *The Palestine Post*, July 7, 1936.

⁶³ One article complained about how the municipality of Tel Aviv needed to employ “420 cleaning workers [who] should sweep the sidewalks and the shoulder of the streets” as well as take steps to get rid of mice “led away in landfills” and “prepare to work in the pits” to achieve “the destruction of the mice.” D. Glanndi, No Legible Title, *Maariv*, November 22, 1950.

City and Toronto, dead animal carcasses were a common waste item in the Tel Aviv-Jaffa area: carcasses were unceremoniously dumped where convenient, such as in ditches on the side of roads outside of town. Public health was the main concern that motivated government regulation: in 1926, and updated in 1930, the British-Mandate government implemented the Diseases of Animals Ordinance to require specific standards for disposing of the carcass of any animal that died of disease.⁶⁵ This ordinance did nothing to regulate animal-carcass dumping: a report from 1934, for example, decried how carcasses “of horses, cows, camels, and donkeys in all stages of decomposition” were simply dumped at Mikve Israel and were “left to putrefy and to breed flies and disease.” The author of this report, published in British-Mandate Palestine’s main English-language daily newspaper *The Palestine Post*, inferred from this example that “our towns” in Palestine “have a long way to go before they can attain even a mediocre stage of civilization.”⁶⁶

⁶⁴ The importance of manure is clearly outlined in the “economic activities” section of a long article “What was the center of the Association of the Annual conference organs?” in the Hebrew-language newspaper *Doar Hayom* from December 09, 1935. A rough summary of the main points of this article is as follows. A period of drought had led to high livestock mortality in the Tel Aviv-Jaffa area, which boded ill for local agriculture. The author (not listed) of the article argued for locals to take some measures to increase the amount of “waste” from livestock-animals in the area so as to forestall the need to buy fertilizer from abroad. Related, a news item from 1948 described the arrival of fertilizer at Tel Aviv port (which at this time served Tel Aviv, but not the mostly Arab city of Jaffa) on ships from abroad that was “necessary for crops.” Economic Correspondent, “1000 Tons of Waste at the New Port,” *Al Hamishmar*, April 11, 1948.

⁶⁵ *Diseases of Animals Ordinance*, 1926 and revised in 1930. Government of Palestine, *Proclamations, Regulations, Rules, Orders and Notices: Annual Volume for 1930* (Jerusalem, IL: Greek Convent Press), 347-9.

⁶⁶ Disgusted, “Letter to the Editor: Disposal of Carcasses,” *The Palestine Post*, September 12, 1934.



Figure 22. *Air views of Palestine. Tel Aviv. Looking toward Jaffa Port, seen in distance with ships at anchor, 1933.* Creator(s): American Colony (Jerusalem) Photo Dept., photographer. Source Library of Congress Prints and Photographs Division Washington, D.C; No known restrictions on publication.

The area shown in the foreground of this photograph is the older area of Tel Aviv where the first Jewish neighborhoods (which predated Tel Aviv's 1909 founding) were located.

As Tel Aviv's older dumps—most significantly the Mikve Israel dump--neared closure in 1951, the Tel Aviv-Yafo municipality decided to establish a new open dump at the Hiriya site. Tel Aviv officials saw little reason to experiment with incineration at this time. They did, however, see a fertilizer-producing compost plant as a lucrative component of its waste disposal. In addition to establishing an open-face garbage dump at Hiriya, the municipality of Tel Aviv-Yafo approved a high-tech compost plant.



Figure 23. *Tel-Aviv*, 1936. Creator(s): Matson Photo Service, photographer. Source: Library of Congress Prints and Photographs Division Washington, D.C. No known restrictions on publication.

By the 1930s, Tel Aviv was well known for its High-Modern architectural style—the Bauhaus. This image captures the essence of Tel Aviv’s streetscape: broad streets, Bauhaus-style buildings, and an overall emphasis on clean geometrical lines.

Conclusion

In the nineteenth and early-twentieth centuries many cities relied on open dumping of wastes in water or on land, typically in out of the way areas; this trend is clearly illustrated in the specific histories of New York, Toronto, and Tel Aviv. One explanation for the policy of dumping wastes in rivers, ravines, and in rough-terrain areas like moraines or sand dunes is that these areas were “classified as marginal or ‘waste’ spaces by state authorities,” either because of the natural topography that inhibited human development of these areas, or because these areas were heavily industrialized and so mostly impoverished and racial/ethnic minorities lived in these areas.⁶⁷ In other words, “marginality” in geographic, environmental, social-class, and racial/ethnic terms is “actively produced” through human actions, including the disposal of wastes—and was a process that only served to make marginal areas less desirable as they became more polluted, and so consequently they were likely to become even more polluted.⁶⁸

In terms of the larger historical picture, the nineteenth and early-twentieth century waste-disposal policies of New York, Toronto, and Tel Aviv are best understood as part of the continuing process of updating urban infrastructure to achieve a more sanitary city. The focus on reform and sanitation greatly altered urban infrastructure: reforms were technology-based, focused on efficiency, and typically originated in Europe. These reforms led to some advances, but many problems remained, and pollution continued largely unabated. High-tech waste-

⁶⁷ Jennifer Bonnell, *Reclaiming the Don*, 78.

⁶⁸ *Ibid.*, 78, 189-190.

disposal solutions like incinerators raised hopes, but had side effects or were largely ineffective. The development of the sanitary landfill in the 1930s was largely a process of improving specific problems common in open-face dumpsites. Sanitary landfills, however, were a significant development in the ongoing process of improving urban sanitation and waste-disposal systems that had begun in the late-nineteenth century.

CHAPTER 3

TRANSITIONING TO THE SANITARY LANDFILL

By the mid-twentieth century, cities like New York, Tel Aviv, and Toronto faced significant problems of waste disposal. Expressways, skyscrapers, and sanitary sewers all testified to the “progress” these cities had made. Yet economic growth, population growth, sprawling development, and the new products of the consumer lifestyle made efficient garbage disposal of paramount concern. The sanitary landfill was an attractive means of disposing the vast amounts of refuse, especially after the end of World War Two. Sanitary landfills represented progress because they addressed specific problems of the existing landfilling methods, such as inextinguishable fires, infestation of vermin, and bad smells.⁶⁹ Early sanitary landfills were also a means of constructing solid land in marshes and along waterfronts.

At the beginning of the twentieth century, U.S. engineers in specific cities began experiments to improve basic landfilling techniques by covering waste with dirt and crushing rubbish before dumping.⁷⁰ Davenport (Iowa), New Orleans (Louisiana), and Seattle (Washington) were the three U.S. cities to first use sanitary

⁶⁹ The “sanitary landfill” of the 1930s was very different from the “sanitary landfill” of 2000—these differences will be covered in subsequent chapters. Open-face landfills have been around for millennia, and the sanitary landfill may be seen as an update (i.e., applying technological, scientific, and engineering perspectives) of an older method.

⁷⁰ Early experiments occurred in 1904 in Champaign, Illinois and in the 1910s in Seattle, Davenport, and New Orleans. See LaMar J. Johnson, D. E. Daniel, et. al. “Effects From Past Solid Waste Disposal Practices,” *Environmental Health Perspectives*, 27 (1978): 215-221; 215. See also Martin Melosi, *Garbage in the Cities*, 182.

landfilling with success. The method used in these three cities was “different than that of [existing methods of waste] burial” because “garbage, rubbish, and ashes are dumped and then mixed with sufficient earth to insure oxidation and thorough digestion of the decomposable wastes.” Due to this method of mixing these wastes with earth, “The activity of the bacteria of the soil breaks down and mineralizes the organic matter and when there is sufficient oxygen, *i.e.* air, no putrefaction or other odours result.”⁷¹ A similar method, “controlled tipping,” was also developed in England around the same time, where waste was put in lined trenches.⁷²

Jean Vincenz, the sanitary commissioner in Fresno, California in the 1930s, developed what would become the standard model for sanitary landfills in subsequent decades. Vincenz required the daily covering of waste with several inches of dirt in order to curb the threat of disease, to prevent noxious odors, and to keep out rats; Vincenz’s model also divided the landfill into compartments and compressed the waste before dumping.⁷³ These features led the U.S. Army to adopt Vincenz’s model as its official policy during World War Two, and in 1943 the U.S. Public Health Service recommended it for municipalities, but could not mandate municipal implementation.⁷⁴ Sanitary landfills cost more to operate than open

⁷¹ William Parr Capes and Jeanne D. Carpenter, *Municipal Housekeeping: The Methods and Experiences of American Cities in Collecting and Disposing of their Municipal Wastes—Ashes, Rubbish, Garbage, manure, Sewage, and Street Refuse* (New York: E.P. Dutton, 1918), 175-6.

⁷² Timothy Cooper, “Burying the ‘refuse revolution’: the rise of controlled tipping in Britain, 1920-1960.” *Environment and Planning A*, 42 (2010): 1033-1048.

⁷³ See Martin Melosi, “The Fresno Sanitary Landfill in an American Cultural Context,” *The Public Historian*, 24, 3 (Summer 2002): 17-35.

dumps—extra costs included purchase of dirt to cover the garbage daily, heavy machinery to compress and cover garbage, and employing knowledgeable engineers and staff—and so most U.S. cities continued to rely on open dumping.⁷⁵

The decades after World War Two were a time of consumer revolution in the United States and in Canada, which in turn necessitated a revolution in waste disposal. Propaganda during the war years (1939-1945) had presented re-use and conservation of materials as a patriotic duty, but at war's end—in an effort to boost the economy and avoid a post-war depression cycle—the emphasis shifted to promote consumerism and consumption.⁷⁶ North America's increased use of disposable packaging, and the invention of new synthetic materials like plastic, led to the rapid proliferation of non-organic waste in many cities. Prior to this, most

⁷⁴ Municipal waste disposal was a local policy decision, and the U.S. Public Health Service did not have the authority to mandate a specific type of disposal method. Its recommendation was therefore a nonbinding statement. Department of the Army Technical Manual 5-814-5, "Sanitary Landfill," 15 January 1994.

⁷⁵ Standardization of engineering technique did not mean widespread implementation, however, and many problems remained at sanitary landfills. For example, in the summer of 1954, several dump fires occurred (there were 4 in 6 weeks) in the Toronto metropolitan area (Swansea village), which angered local residents. They complained that the Toronto Parks Department had "promised to fill in the marsh" next to the Humber River with "trade waste only" but instead were dumping "all kinds of garbage including flammable materials." Toronto began dumping waste at this marsh site in late June of 1954, with an average of "500 loads a day." Local citizens' ratepayers association, and local council led by Reeve Dorothy Hague, vowed to "see what could be done to stop [the] dumping, [which was] part of a sanitary land-fill scheme." In short, most sanitary landfills of the 1950s were not much different than open dumps. Metropolitan News, "Fed Up' with Parks Dept. Over Garbage Dumping," *The Toronto Star*, Saturday, September 4, 1954.

⁷⁶ The war-year archives of New York's Mayor F.H. La Guardia include many recycling and reuse propaganda and messages, such as scrap-metal drives; in contrast, the succeeding mayor's (William O'Dwyer) archives do not.

refuse had been organic (with the major exception of ash),⁷⁷ which in small quantities would decompose naturally or could be recycled at reduction plants (i.e., transforming organic waste into soap or fertilizer) or fed to swine. Non-organic waste like plastic was immediately obvious when dumped into the nearby river or waterfront, but landfills removed people from sight of their garbage, and thus eased the guilt of non-disposable waste. Landfills made the most economic sense when they were larger, rather than smaller, because land and labor were the major costs of landfilling.⁷⁸ In short, landfills, whether open dumps or engineered sanitary landfills, could accommodate the mass production and consumption of goods, and allow North American economies to maintain wartime levels of production.⁷⁹ Many large cities used incinerators as well for a percentage of their waste.⁸⁰

Sanitary landfills were a standard engineering practice in North America in the 1960s. The ideal conditions for a late-1960s sanitary landfill (using the example

⁷⁷ Ash, however, was a significant percentage of municipal waste through the mid-twentieth century, such as in NYC—see Daniel C Walsh, “Urban Residential Refuse Composition and Generation Rates for the 20th Century,” *Environmental Science and Technology*, 36 (2002): 4936-4942. Basing his points on details of New York City’s waste records, Walsh argues among other things that the overall quantity of refuse in New York has remained somewhat constant over the last 100 years due to the enormous amount of ash (residue of coal for heating) discarded in the early twentieth-century, and recent bottle recycling efforts.

⁷⁸ James F. MacLaren Limited Consulting Engineers, *Report and Technical Discussion on Refuse Disposal for Municipality of Metropolitan Toronto*, (1967), 61.

⁷⁹ For details see Susan Strasser, *Waste and Want*, (New York: Metropolitan Books, 1999). Strasser describes how before the rise of consumer culture in the 1920s, and after World War Two, many Americans commonly reused and recycled. Strasser especially focuses on women’s household practices. This is an insightful book about the changing culture of garbage, which provides insight into how the post-1945 disposable commercialism is a result of policy and personal choices.

⁸⁰ Incinerators were more significant for large cities than for smaller cities or towns. By the mid-twentieth century New York and Toronto both incinerated roughly one-third of waste and landfilled two-thirds (details of this will be covered in later chapters).

of James MacLaren Ltd.'s report for Metro Toronto) were as follows. Landfills needed to be located far enough away from existing neighborhoods to "minimize nuisance and public opposition." Since hauling costs were the most expensive aspect of landfilling, the best location was also as close to the city as possible. A landfill required accessibility to a highway, "within 2 to 3 miles." Most local opposition was based on trucks clogging up local roads; ideally, a landfill should not rely on roads through residential or commercial areas. Groundwater pollution was the main environmental problem. Siting a landfill in "the upper portion of a watershed" was an effective way to minimize the amount of surface-water-drainage entering the landfill after rains. The landfill needed to be large and/or deep enough to be a long-term solution. Parks were a good way to "sell" the landfill-plan to the public, so it made sense to choose areas of "marginal land which can be reclaimed by sanitary landfill; or sites where the topography is favorable to deep fills and high utilization of the land," which would make good parks after the landfill's closure. It was cost-effective to have adequate daily-fill cover (earth, sand, ash) available nearby, so this would not have to be trucked long distances. It also made sense to consider existing land values, because there was no sense in establishing a landfill in an area where land values are high, or will likely become high, because in high-value areas a landfill would be a poor economic decision.⁸¹

In summary, the immediate post-war period was a time of increased and newly widespread consumerism. New products, disposable packaging, and a

⁸¹ James F. MacLaren, *Report and Technical Discussion on Refuse Disposal for Municipality of Metropolitan Toronto, 1967*, 61-68.

surging economy buoyed consumerism in North America; Israel was slower to embrace this trend, but moved in that direction as the ideal of the kibbutzim (i.e., Zionist settler communes) lost influence.⁸² In New York, Toronto, and Tel Aviv, despite the optimism of economic growth, there was also increased awareness of pollution, inadequate waste-disposal policies, and citizen-led environmental protest. The environmental undercurrent of the politics of postwar growth from 1945 through the late-1960s was eventually realized in the push for waste-disposal regulations in the 1970s.

New York City

Since the 1930s, sanitary landfills have been New York City's primary waste disposal method. The city continued to promote garbage-burning incinerators as its disposal-method of choice through the 1950s, but the majority of its garbage was dumped in landfills. As a city built on islands (the Bronx is the only borough not on an island) New York has ample waterfront area for reclamation and many low-lying marshlands suitable (prior to government environmental regulation) for landfills; landfilling was a primary means of reclaiming land. New York city officials (e.g.

⁸² The kibbutzim lost their ideological power somewhat as the left-wing Labor leadership began to lose power to the right-wing Likud Party, although this was not a clear-cut causal relationship. The Labor Party gradually lost support in the 1960s, as the Likud Party gained in power. In 1969, Israel allied with the United States (and thus shut out the Soviet Union's political-economic model), and the impact of capitalist consumerism increased. The debacle of the 1973 October War, and the perceived failures of the Labor-led government, furthered Labor's decline. In 1977 Likud formally won control of the government. Orr Karassin offers a concise summary of these changes in "The Battle of the 'True Believers': Environmentalism in Israeli Party Politics," *Between Ruin and Restoration: An environmental History of Israel*, edited by Daniel Orenstein, Alon Tal, and Char Miller (Pittsburg: University of Pittsburg Press, 2013), 168-189.

Robert Moses) explicitly argued that a sanitary landfill was the best means of bringing progress, expressed through new development projects (e.g. industries, expressways), to the city's outlying areas (e.g. Staten Island's western shore). Despite this generally persuasive argument, New York faced strong grassroots political opposition to garbage-landfill and garbage-burning incinerator proposals. Local protests failed to stop the Fresh Kills landfill from opening (in 1948), but most of the protests against proposed incinerators (post-1948) were successful; this meant that New York was forced to use Fresh Kills much longer than originally planned.

New York's first sanitary landfill was at Riker's Island, a small island in the East River, between Queens and the Bronx. In 1932, the City updated its ongoing landfilling operations on Rikers Island when it opened a new jail on the island; the inmates worked at the landfill.⁸³ Early sanitary landfills were an upgrade on open dumps because covering the waste daily reduced noxious smells. This does not mean that Rikers Island was a successful landfill: it was plagued with fires, rats, and noxious smells, just like the open dumps it was supposedly a "step up" from.⁸⁴ The sanitary landfills of the 1930s were primitive.

⁸³ Rikers Island was the site of a city prison, and as part of their sentence the inmates worked at the landfill. The largest pre-Fresh Kills landfill on Staten Island was at the Great Kills site, on the eastern shore, not far outside the mouth of New York Harbor; its closure in the late 1940s was the impetus for establishing Fresh Kills. The website of the New York Correction History Department offers an informative website, complete with photographs from the New York Historical Society: <http://www.correctionhistory.org/html/chronicl/nycdoc/1920s-Rikers-landfill-photos/1920s-rikers-landfill-scenes-starter.html>.

⁸⁴ "Rikers Island Fires Blamed on Dumping of Garbage," *The Staten Island Advance*, June 12, 1946.



Figure 24. *Rikers Island (North Shore) Refuse Heaps, 1931*. Source: New York Public Library, Public Domain.

Rikers Island was the first “sanitary landfill” in New York City. It was a simple landfill, where the garbage was covered by dirt; the island was also the site of a prison and some inmates worked at the landfill.

New York City was profoundly changed from the 1930s through the 1960s, by the leadership, vision, and whims of one man: Robert Moses.⁸⁵ It was during these decades that New York City transformed from a large city into a large metropolitan area, and Moses's automobile-based vision provided the blueprint. Moses's power was most clearly expressed in his bridge-building and expressway-building projects, but he also held authority in housing, parks, and city planning; he used these positions to influence other city departments. Moses had no position in the Department of Sanitation (DOS) or on the Board of Estimate (the council that authorized and allotted funding for projects), but Moses was the major power-player behind establishing a landfill at Fresh Kills.⁸⁶

⁸⁵ Moses came to power in the 1920s through his close personal and professional relationship with New York's Governor Al Smith (in office 1919-1920 and 1923-1928). Smith gave Moses positions in the State government such as Chairman of the Long Island State Park Commission; Moses cannily solidified his legal authority to obtain land for state use to create both parks and parkways (expressways with parkland along both sides, for aesthetic effect). In 1934, Moses became the city's Parks Commissioner under the new Mayor of New York City, Fiorello La Guardia. Moses used this position, and other positions obtained later on from La Guardia and other mayors, as well as his chairmanship of the Triborough Bridge Authority, to obtain significant power in both New York City and New York State.

Robert Caro's book *The Power Broker* is a very in-depth account of Moses's rise to, use and abuse of, and fall from, power. This book was based in large part on interviews conducted by Caro—and so are not open for public perusal.

Robert Moses wrote a reply to what he viewed as Caro's slanted perspective. It is available at <http://www.bridgeandtunnelclub.com/detritus/moses/index.htm>.

⁸⁶ Heavy-handed though Moses was, did not openly lie about his plan for Fresh Kills: Moses never explicitly said the dump would be short term. In fact, Moses consistently used the phrase "long term" when describing the proposed landfill, although other officials called for a "short term" dump. The critical year of public debates about the proposed Fresh Kills landfill was 1946. Staten Islanders were wary about the dump proposal. Borough officials, if they supported it at all, declared that Fresh Kills would be temporary--at most "three years," Moses convinced some high-ranking Staten Island officials that the Fresh Kills landfill was the cost the borough had to pay in order to obtain the perks of convenient highway connections through expressways and bridges to the rest of the New York City region. But Staten Island's approval of a landfill, without a set-in-stone time limit, at Fresh Kills was a large concession indeed. Even Moses, for all his pragmatism, did not foresee how large Fresh Kills would eventually become.

By establishing a landfill at Fresh Kills, Moses sought to achieve two significant goals: connecting all of the city's islands by expressways and establishing a convenient place to dump garbage. Of these two, Moses poured his energy into constructing the expressways—especially the segment across Staten Island that connected to Brooklyn via the then-proposed Verrazano Narrows Bridge and to New Jersey (Elizabeth/Newark).⁸⁷ The salt-water marshes on the western shore of Staten Island, nearby New Jersey, posed an obstacle to Moses's plan: he needed firm land to construct his expressway. Moses decided to construct a landfill at the low-lying marshes of the Fresh Kills (which is also called Richmond Creek) to fulfill his plan.⁸⁸ Moses clearly stated his reasoning to Staten Islanders: if the borough wanted to develop the "unusable" salt marshes on the island's western shore, establishing "filling operations in the vast, vacant meadowland of Fresh Kills" was the logical, obvious answer. Moses explained: "I know of no other way of reclaiming this area for municipal and industrial use than to use sanitation fill."⁸⁹

⁸⁷ Benjamin Miller, *Fat of the Land*, 194-197.

⁸⁸ *Ibid.*, 180.

⁸⁹ "No Other Way of Meeting Problem, Says Moses, Defending Kills Dump," *The Staten Island Advance*, June 25, 1946.



Figure 25. Robert Moses. Source: Public Domain; C.M. Stieglitz, World Telegram staff photographer, Library of Congress. New York World-Telegram & Sun Collection.

Moses faced a political battle to establish Fresh Kills. In the critical year of 1946, the new Mayor of New York--William O'Dwyer--largely stayed out of the fight: a move which was smart considering Moses's political acumen and Staten Islanders' overwhelmingly negative public opinion toward the dump scheme.⁹⁰ By 1946 and

⁹⁰ "Mayor Silent on Fresh Kills Dump Program," *The Staten Island Advance*, June 15, 1946.

1947, Moses's arguments had convinced enough Staten Island policymakers (most of whom had previously opposed the dump scheme) to seal the deal. The biggest coup was persuading Staten Island's Borough President Cornelius Hall to support the landfill. Only a year earlier, Hall had been a vocal critic of the dump scheme. He was persuaded, however, by the realization that he had to "play ball" with Moses if he wanted to obtain perks for Staten Island. Hall explained his change in decision to his shocked and disconcerted constituents: "I want [landfilling] operations limited to [a] period not to exceed three years...I am going along with this proposal because I believe...we are in a position to use this fill to our advantage, for the development of the West Shore of Staten Island, which is essential."⁹¹

The talk of using Fresh Kills for only three years was somewhat disingenuous—it was a political ploy to allow Hall to save face politically. As described in an inter-departmental report from 1946: "Because of the substantial sums involved in the preparation and acquisition of the [Fresh Kills] site, [in order to justify this expense] the City must dispose of refuse at this location for a number of years."⁹² It is in this light that political statements like Moses's and Hall's to the local press must be considered.

⁹¹ "Moses and Hall," *The Staten Island Advance*, June 5, 1946.

⁹² "Waste Disposal in New York City," July 18, 1946, Mayor O'Dwyer files, New York Municipal Archives. This report also stated: "[Fresh Kills will] be used for a period of three years during which time the incinerator program can be put into effect, and that the City thereafter limit it to unburnable waste and the residue from the incinerators." The area of dumping would "during the first stages" "be placed near the water front in a location remote from residences." Since the same report acknowledged on its opening page that "Approximately 50% of all waste collected by the Department of Sanitation is made up of ashes, cans, bottles, and other material which cannot be burned in incinerators and must be disposed of by land fill operations," limiting Fresh Kills to what amounted to half of the city's garbage was not much of a concession at all.

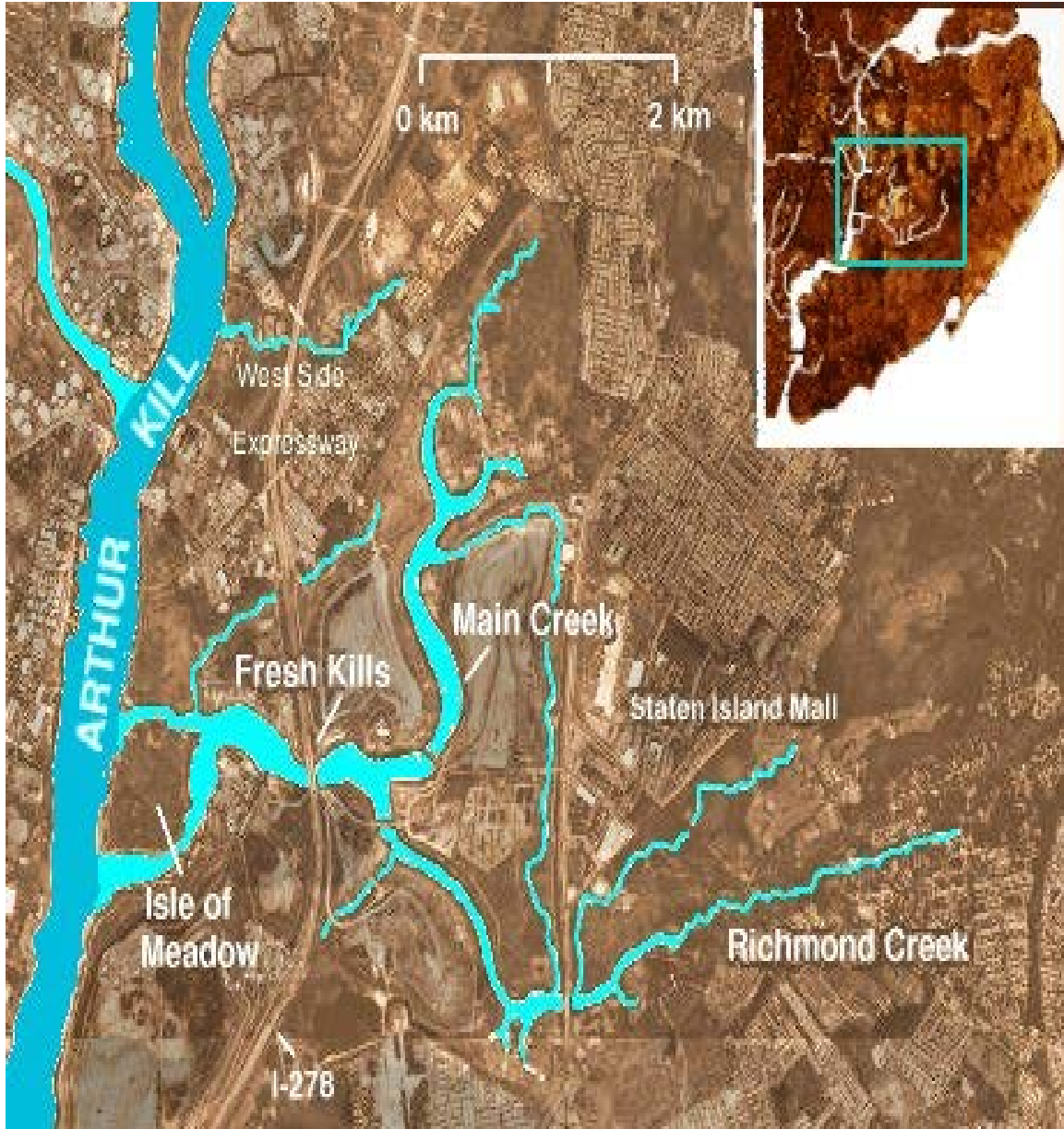


Figure 26. Map of the Fresh Kills Landfill. Source: Adapted from an image from Wikimedia Commons; https://commons.wikimedia.org/wiki/File:Wpdms_usgs_photo_fresh_kills.jpg

The politics between Moses and other members of the New York City municipal government was not the main concern for Staten Island environmentalists. For them, it was about maintaining the natural purity of their

island, which was already threatened by pollution from industry and past waste disposal. The local newspaper, *The Staten Island Advance*, carried a series of articles documenting local protest against the proposed dump at Fresh Kills. The following passage from June 1946 accompanied a photograph showing the Fresh Kills site prior to landfilling:

“Does This [Area of Fresh Kills] Need Improving? Will the garbage landfill plans of ivory-tower dreamers and ‘practical politicians’ add one iota to this beauty spot in the Fresh Kills Meadows? Will this pond, surrounded by tall trees, be more attractive to Staten Islanders if it is made a dumping place for garbage from the five boroughs [of New York City]? Will the odors of putrefying refuse from millions of homes, heaped high by reeking bulldozers for ten long years, make this haven of beauty near the center of the area more glorious? Staten Islanders know better.”⁹³

The anonymous author of this 1946 passage in *The Staten Island Advance* captured the irony, from an environmentalist perspective, of “improving” natural land through garbage landfill. The anthropocentric (i.e., human-centered) views of Robert Moses, and his colleagues in the New York City municipal government, in contrast meant something completely different when they discussed “improving” the site through landfill. Their 1946 report stated: “The benefits to Staten Island from such as a [landfill] program [at Fresh Kills] are self-evident. It will result in the elimination of an unhealthy, mosquito-breeding swamp” as well as allow the construction of the West-Shore Expressway and a (never constructed) private airport.⁹⁴ Moses and his colleagues in the New York municipal government were

⁹³ The underline is handwritten in the photocopy of the article in the Staten Island Museum Archives. “Does This Need Improving?” *The Staten Island Advance*, June 22, 1946.

concerned with constructing an efficient and orderly city, and having a cheap local means of disposing the city's rapidly rising amount of garbage was a paramount concern. Debates over the specific condition of the marshland at Fresh Kills—whether it was an unhealthy place or a beauty spot--was primarily a matter of rhetoric for both sides.

Public protests against the proposed Fresh Kills dump raged in Staten Island through 1946. Local politicians (especially those seeking reelection) and community leaders (labor leaders and religious leaders) spoke out against the dump scheme at public meetings, and anti-dump organizations sprang up around Staten Island. In the end, Staten Islanders did not have a chance to vote on the Fresh Kills landfill scheme. In June 1946 the Board of Estimate approved the dump.⁹⁵ Very quietly, the landfill's infrastructure needs (e.g. a marine unloading plant) were included in the city's budget, and the landfill was formally approved by the New York City Council.⁹⁶

In response to the widespread protest on Staten Island, city officials like Mayor O'Dwyer and Moses promised the imminent construction of garbage incinerators.⁹⁷ Unfortunately, the city's incinerators never ended the need for

⁹⁴ "Waste Disposal in New York City," July 18, 1946, Mayor O'Dwyer files, New York Municipal Archives.

⁹⁵ "Estimate Board OK's Dump Despite Island Protests," *The Staten Island Advance*, June 25, 1946.

⁹⁶ "As Islanders Stormed City Hall to Protest Dump Plan," *The Staten Island Advance*, June 28, 1946.

⁹⁷ Fresh Kills was established at a time of upheaval in New York City politics. The election of Mayor O'Dwyer represented a sea-change in New York City's politics, including the DOS. The

Fresh Kills. In 1946, incinerators handled an average of 4800 tons daily; Staten Island's Great Kills landfill (a Marine Landfill, because waste had to be shipped there by barge) handled 4000 tons daily; truck landfills (i.e., all the city's other landfills) handled 9200 tons daily.⁹⁸ Citywide, in 1947-1948, nearly 4.8 million tons of garbage was collected; 75% of it was deemed combustible—a statistic that supported incinerator plans.⁹⁹ Nevertheless, the impending closure of the Great Kills landfill (and its transformation into a public park under Moses's direction) meant that a similar large-scale landfill—Fresh Kills—would need to be immediately available to handle the city's non-incinerated garbage.¹⁰⁰

preceding mayor, F.H. La Guardia, had been a reformer, who had relentlessly sought to eliminate corruption from municipal government; Mayor O'Dwyer, in contrast, represented the return of Tammany Hall's corrupting power to New York City politics. In 1948, under O'Dwyer, many new city bureaus were created; for example, there was a "reorganization" of the Sanitation Department--which, incidentally, included making space for some 'soft' positions, used as political favors. With these changes, the Bureau of Waste Disposal became a separate department from the DOS; the Bureau of Waste Disposal had three subsections: the Division of Landfills, the Division of Incinerators, and the Division of Marine Operations (which included the shipping of refuse out to the Fresh Kills landfill). These reorganizations raised many questions and concerns about favors: waste disposal sometimes represents an economic boon, and not a drain. For example, in 1948, New York still relied on incinerators and private disposal to a significant extent. In 1947, New York sold \$15,795 worth of ashes to private contractors. This raised questions about whether the Sanitation Commissioner, or someone else, should have the power to decide to whom to award the sale. The papers of the city's mayors—LaGuardia and O'Dwyer--contain many letters and other examples of the political-side of city policymaking.

⁹⁸ In 1946, DOS Commissioner Powell reopened 5 existing incinerators and proposed the construction of five additional incinerators. "Waste Disposal in New York City," July 18, 1946, Mayor O'Dwyer files, New York Municipal Archives.

⁹⁹ Office of City Construction Coordinator, "Memorandum: Disposal of Waste Material," August 1948. Mayor O'Dwyer files, New York Municipal Archives.

¹⁰⁰ "Waste Disposal in New York City," July 18, 1946, Mayor O'Dwyer files, New York Municipal Archives.



Figure 27. Garbage Scows Unloading at Fresh Kills. Source: U.S. National Archives; Public Domain. Garbage Barges were the primary means of shipping garbage from New York's boroughs out to Fresh Kills. This picture, from 1973, illustrates the process of transferring garbage from barges unto trucks upon arrival at the landfill.

In October and November 1946, New York City officials discussed and planned the best way to obtain the land and install infrastructure. Robert Moses and other city officials decided that condemnation of the property would be the most efficient and cost-effective means of obtaining rights to the property. The Department of Sanitation (DOS) would run the landfill, but Robert Moses (Park Commissioner and City Construction Coordinator) and his handpicked aides were directly involved in the decisions for Fresh Kills.¹⁰¹

¹⁰¹ The Parks Department archive has memos from Moses directing other officials, including DOS officials (a department that Moses had no direct role in), how to proceed with Fresh Kills in 1946. The Parks Department papers, Fresh Kills file (Box 0, Folder 020, File Unit 1946).

In 1951 Moses and his colleagues revised the plan for Fresh Kills, expanding it as a landfill, but also outlining concrete plans to ultimately redevelop it as “useful” land.¹⁰² Moses released an impressive, glossy report explaining how his plans to expand the operation at Fresh Kills would not prevent the later construction of a park or airport. In support of the proposed changes, the report outlined the city’s recent “modernizing” agenda. It cited the examples of the recently closed city dumps like the Corona dump (in Queens), which Moses had transformed into the site of the 1939 World’s Fair: the towering piles of refuse had been leveled and used to grade the remaining unfilled portions to create Flushing Meadow Park. “Similarly, the smoking hills of Riker’s Island were lowered to provide fill for the construction of LaGuardia Airport, and the refuse remaining at the Island was regraded and covered. The extensive farm gardens of the City Penitentiary and a flourishing plant nursery of the Park Department now occupy the major part of the former Riker’s Island dump.”¹⁰³ The point of bringing up such examples was to make clear that expanding the landfill operation at Fresh Kills would not mean a breach of the original (1946) promises—but an “improvement” of them. Nevertheless, Staten Islanders were disconcerted to learn that “the city was to bring an additional 1,700 acres into the operation; that the area would not be completely filled until 1968; that a plan for settling industry, homes, parks, and highways on the land [which

¹⁰² Staten Island’s Borough President, Cornelius Hall, affixed his name to this plan, as did the new Sanitation Commissioner Andrew Mulrain, but Robert Moses was the official with the real power and vision, as his memos (found in NYC Mayors’ files) to other city officials attest.

¹⁰³ Robert Moses, Andrew Mulrain (Sanitation Commissioner), Cornelius Hall, “Fresh Kills Land Fill=100 Acres for Development. Report to Mayor Impellitteri and the Board of Estimate,” The City of New York, 1951.

many local environmentalists preferred as natural undeveloped land] had already been drawn.”¹⁰⁴

In the mid-1950s Fresh Kills was only one of New York City’s many waste sites. The DOS labeled the city’s other landfills as “truck landfills” to distinguish them from Fresh Kills, which was the city’s only “marine landfill.” In 1954, according to the DOS’s Annual Report: 1,558,339 tons of wastes were disposed by incineration and 3,256,542 tons were landfilled. This landfilling led to the filling up of, or as the DOS described it the “reclamation” of, 130.5 acres of swampland.¹⁰⁵ In 1954 a total of 1,746,028 tons of garbage were landfilled at Fresh Kills. Fresh Kills received 220,792 tons from the DOS and 1,525,236 from private cartmen with permits to dump--private haulers handled much of New York City’s waste collection at that time.¹⁰⁶

¹⁰⁴ Janice Kabel, “The Fresh Kills Landfill; Thank Robert Moses for idea of transforming marsh to park,” *The New York Times*, October 2, 1978.

¹⁰⁵ “New York City Department of Sanitation Annual Report: 1954,” 22, 26, 28, 46.

¹⁰⁶ Similarly, in 1956 the DOS reported that it hauled 1,106,579 loads of refuse (3,192,943 tons) to dumps, incinerators, marine transfer stations or private dumps. The DOS estimated its landfilling had “reclaimed” a total of 97.10 acres of swampland in 1956. The breakdown was as follows: Marine Park Landfill, 33.50 acres; Crescent Street Landfill, 15.30 acres; Spring Creek Landfill, 17.80 acres; Edgemere Landfill, 7.80 acres; Ferry Point Landfill, 6.20 acres, Pennsylvania Avenue Landfill, 3.00 acres; and Fresh Kills Landfill, 13.50 acres.



Figure 28. Docks at Fresh Kills Landfill. Source: U.S. National Archives; Public Domain. This image, from 1973, shows the transfer station and cranes at the docks of Fresh Kills.

Despite Robert Moses's 1951 (extended) proposed closure date of 1968, Fresh Kills showed no signs of ever closing. In 1954, the incinerators--that were originally supposed to take over from Fresh Kills as the city's primary waste-disposal method as early as 1951—were behind schedule.¹⁰⁷ In fact, the large-scale incinerator plan never did materialize; fears about “dust” emissions and air pollution were a primary deterrent.¹⁰⁸

The failure to construct new incinerators left Fresh Kills to pick up the slack. Fresh Kills took about one-third of the city's garbage in 1960, and many of the city's smaller landfills were running out of space. The revised closure date, proposed by city officials in 1961, was “at least 1980”; according to the *Staten Island Advance*, the DOS's repeated disregard of the proposed closure dates of Fresh Kills was “the biggest cover-up job in the world.” Fresh Kills was New York City's largest dumpsite in the 1960. Each day, tugboats pushed twelve barges, each laden with 550 tons of garbage from the other boroughs (roughly 90% came from Manhattan in 1961) to the site. At Fresh Kills, 310 workers in two shifts operated equipment that had cost three million dollars; the refuse itself came from myriad sources, including “homes,

¹⁰⁷ The delay was due largely to competing City sanitary programs; the City's sewage-pollution program, the Second Stage program, of which an incinerator-building program was part, required in total \$175,000,000, as spread over fifteen sites in all five borough; a sewage-sanitary incinerator at Fresh Kills, for example, required \$3,690,000. Frederick H. Zurmuhlen, “New York City's Pollution Control Program...the Second State and its Financing,” NYC Department of Public Works, November 10, 1954, Mayor Wagner files, New York Municipal Archives.

¹⁰⁸ Mayor Wagner sought to ease fears about incinerator air pollution through press releases, e.g. announcing studies to develop new and cleaner methods. Press Release, Friday November 17, 1961, Office of the Mayor, City of New York, Mayor Wagner files, New York Municipal Archives. In 1961, Sanitation Commissioner Frank Lucia proposed constructing one large incinerator, at Hunts Point Park in the Bronx, instead of three smaller ones—this compromise meant greater reliance on landfill. Frank Lucia, “Consolidation of Three Planned Incinerators,” October 1961, Department of Sanitation, Mayor Wagner files, New York Municipal Archives.

apartment houses, stores, factories, restaurants, night clubs, [and] factories.”¹⁰⁹

The massive scale of the project did not ease the minds of Staten Islanders who were struggling with the feeling that their borough was being taken advantage of.

In 1965, New York’s DOS considered Fresh Kills a “modern sanitary land-reclamation project,” at which “Proper engineering, managerial control and adequate equipment” made it, and the DOS’s policy as a whole, a “model” for other cities to follow. The dump received a yearly average of 2.2 million tons of waste and about 36 million tons total had already been dumped at the site to “reclaim” from the area’s marshland “more than 1,500 acres of land for future parks, homes, and industries.” The 1965 estimate called for another ten to fifteen years of land-fill operations over an additional 900 acres. At Fresh Kills, the “reclamation” process operated 24-hours for six days a week, and involved “an army of 270 workers [who] unload, process, and sink the refuse under earthen fill at Fresh Kills.”¹¹⁰ After dumping, the refuse was “bulldozed into a planned strip, sprayed with disinfectant, compacted by heavy equipment and ultimately covered with two feet of earthen fill which has been stockpiled to assure a constant supply cover.” On average, each level of compressed and covered waste was twenty feet thick; these levels were stacked

¹⁰⁹ Stanley Terkelsen, “Park may not Rise on Fresh Kills Landfill Before 1980,” *The Staten Island Advance*, October 24, 1961.

¹¹⁰ In 1965 the Fresh Kills operation had: 42 barges, cranes for offloading of refuse, wagon trains to haul the refuse from the barges to the specific dump site, and “roads and lighting to assure speedy access of the wagon trains, fire-fighting equipment, fencing to contain windblown litter, waterfront dikes to prevent flotation of refuse, and grading and ditching to prevent accumulations of stagnant water.” S.S. McSheehy, “Fresh Kills Landfill Job Has Years to Go,” *The Staten Island Advance*, July 25, 1965.

on top of each other over the years, which gradually resulted in the mountain-like topography of the landfill site.

Economics was the motivating issue for New York City's DOS, despite rising awareness (in the 1960s and 1970s) of environmental issues like pollution; because of this, from 1964 to 1973 a clear pattern emerged: the percentage of waste being incinerated dropped as the amount landfilled steadily rose.¹¹¹ In 1964-65 New York disposed of its waste as follows: 34.6% incinerated, 29.8% at truck landfills (all city landfills except Fresh Kills), 35.6% at Fresh Kills.¹¹² In the early 1970s, New York City was closing its old, not very efficient, incinerators; furthermore, it was not constructing new incinerators.¹¹³ By 1972-73 incinerators handled only 15.3%,

¹¹¹ More detailed statistical breakdowns are available between 1965 and 1973, because for those years the DOS published an annual comprehensive "Statistical Review and Progress Report," which provided detailed information on the city's waste disposal practices. Department of Sanitation, Bureau of Administrative Services, "Statistical Review and Progress Report," published annually, and which are available in the New York City Hall Library.

¹¹² In 1965-66: 34.0% incinerated, 30.9% at truck landfills, 35.1% at Fresh Kills. Similarly, in 1966-1967 the breakdown was: 33.8% incinerated, 31.2% at truck landfills, and 35.0% at Fresh Kills. In 1967-68, 30.5% incinerated, 32.2% truck landfills, and 37.3% at Fresh Kills. 1968-9: 27.2% incinerator, 33.7% truck landfills, 39.1% Fresh Kills. In 1969-1970 incinerator 23.8%, truck landfills 34.8%, Fresh Kills 41.4%. In 1970-71 incinerator 22.0%, truck landfills 41.6%, Fresh Kills 36.4%.

For these and other statistics see the DOS's annual reports. 1965-1966 "Statistical Review and Progress Report," executive summary page (not numbered); 1966-1967 "Statistical Review and Progress Report," executive summary page; 1967-68 "Statistical Review and Progress Report," executive summary page; 1970-1971 "Statistical Review and Progress Report," 1; 1972-73 "Statistical Review and Progress Report," 1; 1971-1972, "Statistical Review and Progress Report," 1.

¹¹³ In 1970-71 the overall tonnage was 7,149,836 and the cost was \$27,122,624—an average of \$3.794 per ton. Incinerators disposed of 1,742,541 tons, at a cost of \$12,323,896 (an average of \$7.072 per ton). Fresh Kills received 2,879,592 tons at a cost of \$5,745,997 (\$1.995 per ton). Truck landfills disposed of 3,288,348 tons at a cost of \$4,170,057 (1.268 per ton). 1970-71 "Statistical Review and Progress Report," 36.

Overall, the DOS disposed of 8,497,176 tons of refuse in from July 1, 1972 through June 30, 1973; the total cost was \$29,611,362 (an average of \$3.485 per ton). Incinerators handled only 1,390,771 tons at a cost of \$12,138,239—now an average of \$8.726 per ton, which was well above the previous year's average incineration cost of \$7.072 per ton. Despite the lesser reliance on incineration, the totals for Fresh Kills remained somewhat static, at 2,881,731 tons and a cost of \$7,488,483 (\$2.598 per ton). To offset the reduced role of incineration, the DOS simply disposed

truck landfills 53.1%, and Fresh Kills 31.6% of the city's waste. This trend of reduced incineration and rising dependence on landfilling correlated with the rising costs of incineration during these years, as well as with a steadily rising total tonnage of garbage.¹¹⁴ Landfills were cheaper than incinerators, and using Fresh Kills cost the city more per ton than its "truck landfills" because of the extra steps needed to load refuse from trucks on to barges and ship it out to the site.¹¹⁵ The extra cost of running Fresh Kills, however, was worth it because of its enormous

more waste at truck landfills, up to 4,834,250 tons (from 3,288,348 the previous year) at a total cost of \$5,174,547 (\$1.071 per ton). 1972-73 "Statistical Review and Progress Report," 36.

¹¹⁴ In its 1963-1964 Annual Report, the DOS reported that it had collected approximately 10,000 tons of refuse daily. In 1963, the yearly total was 2,808,252 tons and in 1964 there was a total of 3,017,033 tons 1963-1964 DOS Annual Report, 13-14.

Between July 1, 1965 and June 30, 1966 the DOS collected and disposed of a total of 5,580,377 tons of refuse. The breakdown was: 2,232,140 tons received for incineration; 2,305,657 tons disposed at Fresh Kills; truck landfills 2,032,391 tons. The DOS's overall cost of refuse disposal (including labor, administration, fuel, service, equipment, etc.) was \$21,739,301 (an average of \$3.896 per ton). The expense for incinerators was \$12,080,634 (an average of \$5.412 per ton; the total expense of operating Fresh Kills was \$3,260,986 (an average of \$1.414 cost per ton); the expense for disposal at truck landfills was \$2,509,307 (an average of \$1.235 per ton). See the DOS's 1965-1966 "Statistical Review and Progress Report," 27.

¹¹⁵ In 1966-1967 (as before, the date range was from July 1 through June 30) the DOS disposed of 5,880,664 refuse in total. Fresh Kills received 2,413,164 tons; 2,325,253 tons were incinerated, 1,995,479 tons at truck landfills. The total disposal cost for the DOS was \$21,862,138 (an average of \$3.718 per ton); the cost at incinerators was \$12,465,963 (\$5.361 per ton); the cost at Fresh Kills was \$3,396,988 (\$1.408 per ton); and at truck landfills was \$2,491,086 (\$1.248 per ton). 1966-67, "Statistical Review and Progress Report," 36.

The statistics from 1967 through 1971 were fairly similar, but there was a growing reliance on landfilling. In 1968-69, for example, the overall tonnage of refuse was 6,281,521 and the total cost was \$23,331,573 (an average of \$3.683 per ton). Incinerators disposed of 1,932,559 tons at a cost of \$12,526,097 (an average of \$6.481 per ton). Fresh Kills disposed of 2,784,713 tons, with a total cost of \$7,804,148 (an average of \$2.802 per ton). Truck landfills received 2,401,161 tons and cost \$2,801,328 in total (an average of \$1.167 per ton).

In its 1969-70 report the DOS listed a total of 6,547,217 tons of refuse, disposed of at a total cost of \$25,960,461--an average cost of \$3.965 per ton. Incinerators disposed of 1,740,728 tons, at a total cost of \$12,514,534 (an average of \$7.189 per ton). Fresh Kills received 3,023,493 tons at a cost of \$5,304,701 (an average of \$1.754 per ton). Truck landfills received 2,541,907 tons at a cost of \$3,663,931 (an average of \$1.442 per ton). 1969-70 "Statistical Review and Progress Report," 36.

size: the City's truck landfills were small and unreliable, whereas Fresh Kills was very dependable and had no fixed-capacity limit or set closure date.

Toronto

The creation of Metropolitan Toronto (Metro) in 1954 significantly altered waste-disposal politics and techniques in the Toronto region. Metro was the regional policymaking body for the Toronto area.¹¹⁶ Frank Gardiner, the chairman of Metro, was a gregarious personality and an able politician--Toronto's counterpart to New York's Robert Moses. The creation of Metro, and its region-wide perspective, set the stage for very large landfills like Beare Road (1967-1983), Brock West (1975-1997), and Keele Valley (1983-2002). After the creation of Metro, small-scale landfills were owned and operated by specific municipalities and by local private companies, but Metro's policy was to purchase and operate large-scale incinerators and large-scale dumpsites.¹¹⁷

Metro Toronto first became directly involved in waste-disposal in 1955, when the area municipality of Long Branch arranged a waste-disposal-for-money

¹¹⁶ The suburban areas' difficulty implementing sanitary infrastructure—especially sewers—and general infrastructure such as roads was a major motivation for the establishment of Metro. For details, see Lawrence Solomon, *Toronto Sprawls: A History* (Toronto: The University of Toronto Press), 56-64.

¹¹⁷ After 1965, especially, Metro recognized that any interim dumping site with a total capacity less than 1,000,000 tons was not worth considering, and that any viable long-term site needed to have at least 3,000,000 tons capacity. James F. McLaren Limited Consulting Engineers, *Report and Technical Discussion on Refuse Disposal for Municipality of Metropolitan Toronto*, May 1967, 62.

scheme with Metro in order to raise the money to rebuild after a flood.¹¹⁸ The landfilling plan worked as follows: Long Branch would pay Metro by calculating the charge for each cubic yard of fill Metro dumped in the local landfill, and when the project was over the land would be turned over to Metro as parkland “to take its place in the area’s projected green belt.”¹¹⁹ This 25-acre landfill park was completed by June 1959: 10 acres had been used as garbage landfill.¹²⁰ This flood-recovery program in itself was small-scale and relatively insignificant, but it opened the doors to Metro’s takeover of the entire region’s waste disposal.

Between 1955 and 1960 Metro undertook many similar landfill projects in various municipalities; an amendment to the Metropolitan Toronto Act 1960 gave Metro official sanction for its regional waste-disposal operations.¹²¹ Clause 257 of the 1960 amendment stated:

257. -- (1) The Metropolitan Corporation may acquire, use or occupy land and may erect, maintain and operate buildings, structures and machinery for the purposes of dumping and disposing of garbage, refuse and domestic or industrial waste of any kind and may regulate the dumping and disposing of garbage, refuse and domestic or industrial waste of any kind upon such land and charge fees therefor.”

¹¹⁸ As part of the landfilling plan, Metro gave Long Branch \$400,000 for flood recovery. In midcentury it was common for local towns and villages in the Toronto area to use sanitary landfill as a means to cover bills and fund infrastructure projects. James F. MacLaren Limited and Black and Veach, *Report on Refuse Disposal for Municipality of Metropolitan Toronto, May 1967, 2.*

After floods in November 1954, Long Branch intended to pay for its rebuilding costs (157 homes, \$800,000) by setting up “a sanitary land-fill scheme and charge \$2 per load and we feel sure we can pay back our share.” Metropolitan News, “Ontario Offer Generous, Flooded Regions Agree,” *The Toronto Star* Thursday, November 25, 1954.

¹¹⁹ Metropolitan News, “300 to Get 80P.C. Value for Land, Homes,” *The Toronto Star*, December 16, 1954.

¹²⁰ “Park ‘Dream Come True,’” *The Toronto Star*, June 5, 1959.

¹²¹ James F. MacLaren Limited and Black and Veach, *Report on Refuse Disposal for Municipality of Metropolitan Toronto, May 1967, 2.*

(2) The powers conferred by subsection 1 shall not be exercised without the approval of the area municipality in which the land is situate or the dumping and disposal operations are to be carried on.

Provincial approval in 1960 was really only a rubberstamp to Metro's expanding waste-disposal operations from 1955 through 1960. By the late 1950s, Metro already struggled to find adequate landfill sites and faced local resistance to proposed landfills. A Metro Works report from 1956 stated "Disposal of refuse by sanitary land-fill is ideal for small communities but 'cannot be considered adequate' for [an urban area as large as] Metro." Instead, the report stated: "All combustible waste originating in Metro, either domestic or industrial, must be incinerated." Thus, only non-combustible refuse would be landfilled, enabling Metro to conserve its valuable landfill-space. This report also noted Metro's plans for the "eventual development of [landfills] as park areas, but only after the areas have served their full use as dumps."¹²² As in New York, however, the planned incinerators failed to materialize (for economic, public-health, and political reasons).

The Pottery Road landfill, along the Don River in East York (closed 1965), was Toronto's primary landfill, but as it neared capacity Metro began searching for new dumping sites. In 1956, Metro identified several potential sites that would allow a total capacity of 9,235,000 tons.¹²³ One of the most promising sites was the

¹²² Would Spend \$2,000,000 for Metro Dump Land," *The Toronto Star*, June 22, 1956.

¹²³ Ibid. Metro was willing to consider interim landfill sites—sites that were available without a long waiting period, and could hold a sizeable but not enormous amount of waste. Some possibilities for new dumpsites considered were: Eglinton Flats (1,900,000 tons); North Queen Street in Etobicoke (360,000 tons); Humber-River swampland below Toronto's Bloor Street (460,000 tons);

Eglinton Flats in the borough of York, where dumping began in September 1958. York's motivation for allowing the site to be reserved for potential landfill development was that the site in its natural state required "drainage and land-fill" before any "development can be permitted."¹²⁴ Also in 1958, Metro sought a dump in the gullies of East York bordering on North York.¹²⁵ This landfill was a moneymaking opportunity for these townships, which expected the landfill to operate for about four years, with a capacity of 300,000 loads of waste at a cost of five dollars a load; the plan was to turn the site into a park once dumping ended.¹²⁶

By the late 1950s, obtaining support for dumpsites was not an easy task. Selling landfill schemes as park-building projects was a common strategy. This had mixed results. In 1958, for example, locals protested the operation of a privately owned dump at the intersection of Keele Street and Lawrence Avenue in North York; in August of that year they "chased away a bulldozer operator" who was about to level the trees that separated the dump from view of their homes.¹²⁷ This landfill

swampland by intersection of Toronto's Finch and Page Streets (240,000 tons); airport-fill area on the Toronto Islands (250,000 tons); a gully west of Toronto's Dawes Road (1,000,000 tons); several gullies in East York (1,000,000 tons); land owned by the Toronto Brick Company (300,000 tons); several gullies on the Scarborough Bluffs (2,000,000 tons); and Young Farm located on McCowand Road north of Eglinton Avenue (105,000 tons).

¹²⁴ What was most unusual about this example is its center-city location: by the late 1960s, there were no suitable dumpsites in central Toronto. "York Zone By-Law Nears Final O.K.," *The Toronto Star*, September 9, 1958.

¹²⁵ This site was located west of Bermondsey Road and north of Northline Road. "Operation Sunrise is Land-Fill Plan," *The Toronto Star*, April 11, 1958.

¹²⁶ This site did not immediately become a dump, however; in July 1966 Metro was still seeking to obtain permission. "Operation Sunrise is Land-Fill Plan," *The Toronto Star*, April 11, 1958. "Garbage Crisis worsens, dictator said essential," *The Toronto Star*, July 20, 1966.

¹²⁷ "Odors, rats, Dust Causing Discomfort," *The Toronto Star*, August 9, 1958.

site had been established in 1957 to fill a 40-foot ravine, and thus create a “30-acre, level park.” Not all area residents supported the anti-dump protests: as one local said, “We definitely want the park. It’s too bad if some residents are inconvenienced but I’m willing to tolerate flying paper to get the park.” North York officials agreed that the anti-dump protests were uncalled for: according to the town’s works inspector the dump was not an environmental nuisance and was “well under control.”¹²⁸ This positive verdict, however, was flawed; only months later, April 1959, polluted drainage, or leachate, was discovered to be a serious problem at the site.¹²⁹

In 1960 Toronto began using a dumpsite on the Humber River (Toronto’s main river to the west of the city) south of Bloor Street. This 20-acre dump took mostly industrial waste, roughly 600 truckloads a day from 500,000 Metro area industries. Metro Works commissioner Ross L. Clarke set out to investigate in May 1961 after local residents complained of noxious odors, although he expected to find “nothing particularly unhealthy or unsanitary about it” despite the “objectionable odor.”¹³⁰ This dumpsite was one of many, and it or its objectionable smells were not unique. There were many dumpsites in the swampy areas along the Humber River, especially near the lakefront, because solidifying the waterfront was one of

¹²⁸ “Complaints about Dump Called Exaggerations,” *The Toronto Star*, August 12, 1958.

¹²⁹ North York’s medical officer of health, Dr. C.E. Hill, declared that the visible leachate was only the tip of an iceberg: “That which is out of sight contains the greatest danger.” “North York seeks Cure for Seepage,” *The Toronto Star*, April 2, 1959.

¹³⁰ Humber Land-Fill Odor Keeps Windows Down,” *The Toronto Star*, May 4, 1961.

Toronto's development priorities.¹³¹ The Humber River was historically less industrialized than the Don, because it was located farther away from the downtown area, but by 1960 the area was rapidly developing.

Of the gullies in East York used for dumps, the transformation of Riverdale was a good example.¹³² This area was full of steep ravines, and parts of it were being raised in preparation for the construction of the Don Valley Parkway, which quickly became one of Toronto's major North-South expressways. Locals were upset at the odors released by dumping in the area. "The contract says they must use clean industrial waste, but it smells as if they are dumping rotten fish," said one resident; another local speculated that Metro was "dumping anything and everything, including raw garbage."¹³³ This area was only a temporary dumping site, and part of the parkway's construction, but it illustrates the point that development projects often used garbage as fill.

In light of the rapid development within Metro Toronto, successfully promoted by Metro Chairman Frank Gardiner, it is unsurprising that conservation became an increasingly vocal political force. In the early 1960s, this was largely an increase in talk about conservation rather than direct action that impacted Metro's waste-disposal policy.¹³⁴ In 1965 the Metro Toronto Region Conservation

¹³¹ See, for example, "Landfill for harbor parks urged," *The Toronto Star*, December 11, 1963.

¹³² This landfill site was located at the intersection of Broadview and Sparkhall Avenues.

¹³³ "Riverdale Park or Riverdale Dump," *The Toronto Star*, July 18, 1961.

Authority (MTRCA) decided to crack down on landfills and unauthorized dumping in the metro area's ravines and swamplands. In previous years the authority had been approving most dumpsites, and so by late 1965 it was facing pressure to not be so environmentally lax.¹³⁵ This new "crackdown mentality" was not in reality very tough. In autumn 1965, for example, the MTRCA rejected bids from Scarborough and North York, but approved Toronto's proposal to establish a new dumpsite for disposal of incinerator ash and inert material off Pottery Road on the banks of the Don River. In part, the MTRCA was swayed because Toronto's proposal expressed vague plans that after dumping ended "the land would be turned over to Metro as a park site."¹³⁶ The significant point is that the language of conservation took hold as part of a reaction against the increasingly noticeable negative environmental effects of pollution and rapid development.

¹³⁴ Conservation was a big political issue for several years. For example, in November 1966, an influential conservationist--Dr. Lord, Chairman of the Metro Toronto Region Conservation Authority (MTRCA)--chimed in, decrying pollution, and calling for Metro to recognize that costs of disposal were significantly rising, and so Metro needed to triple its annual allocation for waste disposal. Dr. Lord estimated it would cost "\$2 billion to \$3 billion over the next 10 or 15 years" to safely dispose of Metro's garbage. Frank Jones, "Conservationist: Garbage to cost Metro billions," *The Toronto Star*, November 1, 1966; "Garbage bill goes up unknown amount," *The Toronto Star*, November 2, 1966.

¹³⁵ "Too much landfill, Metro would stop it," *The Toronto Star*, October 7, 1965.

¹³⁶ "Etibicoke wins ball park loses 'fill' site," *The Toronto Star*, December 9, 1965.

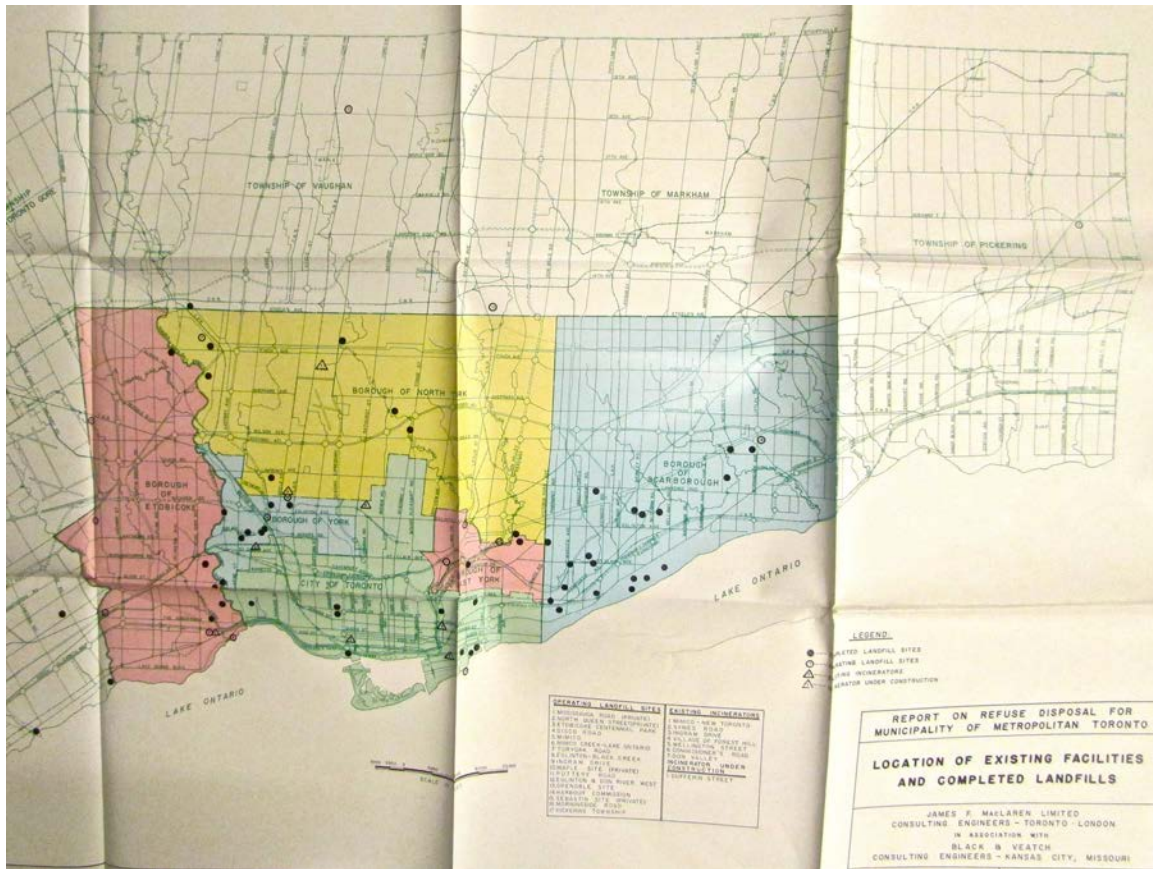


Figure 29. Existing Waste-Disposal Sites in Metro Toronto, 1967. Source: *The MacLaren Report*; Courtesy of the City of Vaughan Archives.

This map shows the waste-disposal facilities in Metropolitan Toronto in 1967. In 1967 Toronto still relied heavily on incinerators. Many of the landfills shown on this map were small-scale projects used to fill in ravines or marshland; however, the Pottery Road landfill is the un-shaded circle shown in the left side of East York (the red section in the center of the map). The privately owned Disposal Services landfill in Maple is shown at the top center-left of this map.

Talk of a “waste crisis” for Metro Toronto became common after 1965. In part, this was an offshoot of the “conservation” rhetoric, but there was also a clear immediate cause: the closure of the Pottery Road landfill left Toronto without any large-scale dumps.¹³⁷ In response to fears about a waste crisis, Metro Works

¹³⁷ The 1967 map of Metro’s waste-disposal sites lists Pottery Road as still operating, but it was essentially full and so not in use.

pushed for assuming a centralized role of managing the Metropolitan Toronto region's garbage disposal; local municipalities retained control over garbage collection. By 1965 Metro Toronto produced roughly 1,400,000 tons of garbage per year.¹³⁸ From 1965 through 1967 Metro generated roughly 4,500 tons of refuse daily; of these discards, 84.7% was combustible.¹³⁹ In 1966, as part of its imminent takeover of the region's waste-disposal, Metro commissioned an independent engineering report (known as The MacLaren Report) on the area municipalities' existing methods and to plan for the future.¹⁴⁰

Effective January 1, 1967, Metro Works was explicitly in charge of the Toronto region's waste disposal (under Bill 81). Metro's control now spanned 720 square miles, including 26 municipalities, and a population of roughly two million people.¹⁴¹ Of this region, Metro Works was required to provide disposal for the five boroughs and thirteen area municipalities closest to Toronto, which included roughly 1,800,000 people. Bill 81 did not require Metro to provide disposal for the

¹³⁸ The 1965 year statistic is from Robert Reguly, "Metro rule proposed for garbage disposal," *The Toronto Star*, June 17, 1965.

¹³⁹ In March 1967 Francis Redelmeier compiled a timeline of Metro's commissioning of the MacLaren Report and Metro's subsequent bids for landfills in Vaughan. The daily 1965 through 1867 statistic is from James F. MacLaren Limited and Black and Veach, *Report on Refuse Disposal for Municipality of Metropolitan Toronto, May 1967*, 7.

¹⁴⁰ The MacLaren Report was commissioned in March 1966 and was a "far-seeing and progressive document for its time." Alderman Ken Lund, Metro Works Report, March 26, 1973, 43.

¹⁴¹ James F. MacLaren Limited and Black and Veach, *Report on Refuse Disposal for Municipality of Metropolitan Toronto, May 1967*, 4.

“fringe” municipalities such as Vaughan if it chose not to.¹⁴² Yet, Metro was able to establish dumpsites in fringe municipalities despite local disapproval as long as the provincially appointed Municipal Board approved the plan.¹⁴³ Metro Works was not responsible for collecting this refuse, but it was responsible for disposing of the waste that municipalities and private companies collected.¹⁴⁴

¹⁴² Under Bill 81, Vaughan was one of Metro’s “fringe” municipalities. In the 1960s, Vaughan was “a pleasant, rural” township with “thousands of acres of farm, park and brush,” but some elected officials of Vaughan township were seeking for means to expand development. These officials recognized allowing Metro to use the Maple Pits as a landfill was part of the process of turning Vaughan into “a burgeoning giant.” In 1967 Vaughan had 18,434 residents, 56 industries, and Vaughan was at the intersection of several major highways and the site of “one of the largest railroad marshaling yards in the world.” In 1967 Vaughan’s council promoted a 15-20 year plan for developing the town “in the best possible way for our citizenry.” Becoming urbanized, “like North York” was part of their prescription for ‘progress’. Quotes are from *Vaughan Township*, Letter dated June 14, 1967, Francis Redelmeier fonds.

¹⁴³ County of York Planning Office, “RE: Bill 81—Metro Toronto Waste Disposal—Vaughan Township,” Staff Report #45, March 8, 1967.

¹⁴⁴ Metro’s garbage totals for this region were high in 1966, and expected to rise in subsequent decades. In 1966 alone, in the 5 boroughs of Toronto’s metro area 1,119,000 tons of garbage was collected for disposal (732,100 collected by the area’s 13 municipalities and 386,900 privately collected); in 1966 The Greater Toronto Area, serviced by Metro Works after 1967, added an additional 120,400 tons (73,000 tons municipally collected and 47,400 tons privately collected). These totals were expected to double by the early 1980s. James F. MacLaren Limited and Black and Veach, *Report on Refuse Disposal for Municipality of Metropolitan Toronto, May 1967*, Table V-2 and V-4.

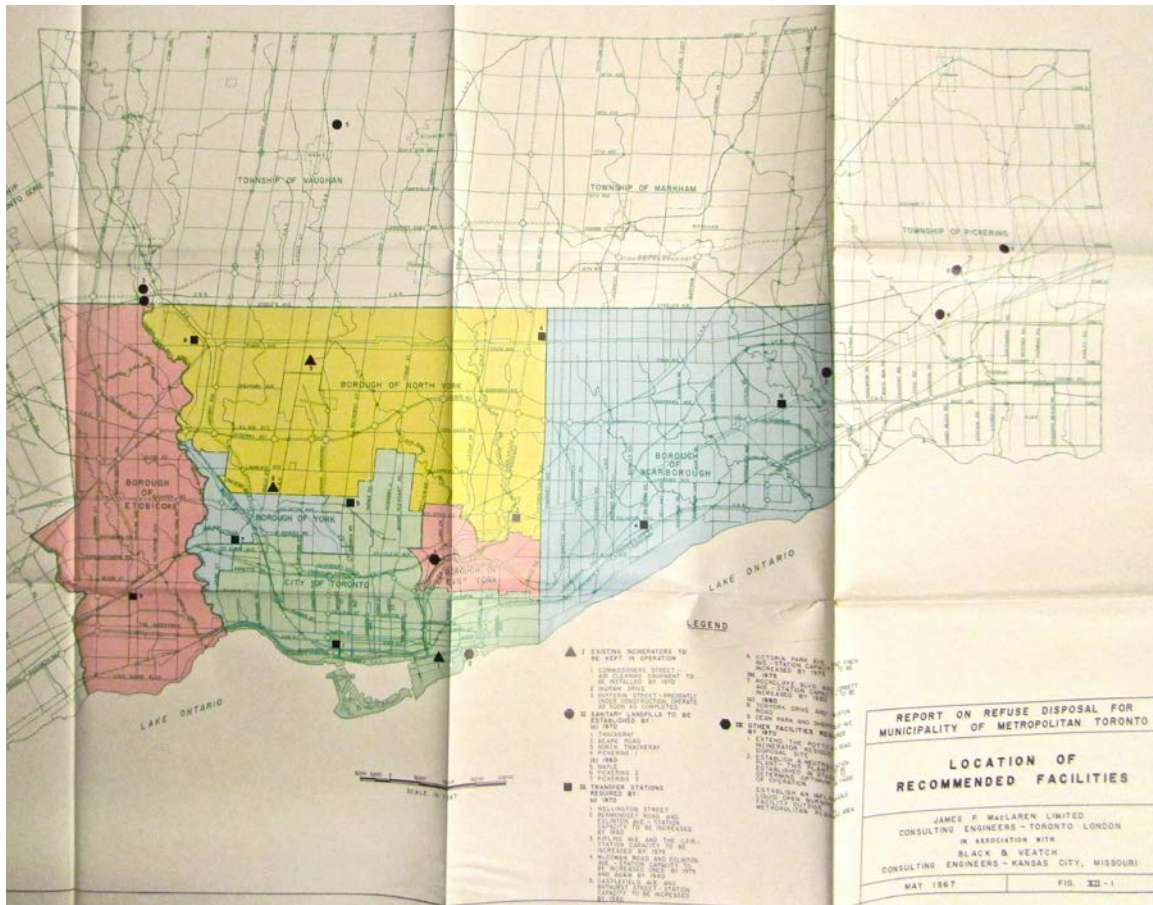


Figure 30. *Recommended Waste Disposal Sites for Metro Toronto, 1967.* Source: *The MacLaren Report*; Courtesy of the City of Vaughan Archives.

In this map the existing incinerators (there were no large-scale landfills in early 1967) are shown as triangles. The circles are the sanitary landfills to be established in the near future: Beare Road (est. 1967) is in the far right; the Thackeray sites are the two circles in the far left just above the colored sections of the map; the Maple Pits (i.e. Keele Valley) landfill is the circle in the top left-center of the map; the Brock Road landfills (North, West, South) are in the far-right section.

Like New York City (but unlike Tel Aviv), Metro used several incinerators in the 1960s. In 1967, Toronto's lack of a large-scale landfill meant that the garbage load handled by Toronto's incinerators increased from 4,200 tons daily to 6,800 tons daily—an unsustainable level.¹⁴⁵ Based on his fact-finding research, Vaughan Councilman Jim Cameron estimated that Metro incinerated one-third of its refuse

¹⁴⁵ Garbage pile up 'health hazard' warns Orlicke," *The Toronto Star*, July 15, 1966.

and landfilled the remaining two-thirds from 1967 through 1973.¹⁴⁶ In 1967 Metro Works Controller Herbert Orloff complained that Metro Works had a big job to do, and needed to get on the ball as soon as possible: “we are faced with a desperate emergency” he said because of the vast amounts of garbage piling up unable to be processed by the four antiquated incinerators owned by the city of Toronto: Wellington St.; Don Valley; Commissioner’s St.; Symes Road. Toronto’s incinerators (the Wellington St. and Don Valley incinerators were the primary ones) could not handle the garbage load even when working 24/7 now that the city no longer had any large landfills in operation (until it began dumping at Beare Road later in 1967). The new Dufferin Street incinerator was under construction in 1967 in the borough of Etibicoke, but Metro officials understood that having a landfill site was essential because incinerators can only process combustible waste, and the ash residue must still be landfilled.

The MacLaren Report provided Metro with the information it required to make an informed policy decision. Significantly, James MacLaren Ltd. concluded in its engineering report that “only sanitary landfilling and central incineration could be considered” as reasonable short-term options for Metro. Although composting had become a popular technique by the mid 1960s in nations such as Israel, “its justification economically is very much in doubt for North American communities” because the “basic fact is that in North America there is today no market for the type of humus produced in the process” of composting municipal organic waste, as

¹⁴⁶ “Toronto Garbage, 1967-1973,” Jim Cameron fonds, City of Vaughan Archives.

inorganic fertilizers had cornered the market.¹⁴⁷ In terms of land available for landfilling, the report concluded: “There is sufficient desirable sanitary landfill space to last significantly past 1986.”¹⁴⁸ The MacLaren Report also noted: “The most suitable long-range sites seem to be the Maple and Pickering [Brock Road] gravel pits. Their capacity, topographical features, accessibility, cover availability and low water pollution potential make them ideal sites to consider.”¹⁴⁹ The report estimated that the Maple Pits were capable of holding 21.0 million tons over 745 acres of land area—which was well above any other sites Metro investigated in 1967. In comparison, Brock Road could hold 3.7 million tons, over 320 land acres; Beare Road could hold 1.9 million tons, over 190 acres; South Thackeray could hold 1.7 tons over 112 acres; North Thackeray could hold 6.4 tons over 435 acres.¹⁵⁰

After reading the MacLaren Report In 1967, Metro Council was faced with the obvious conclusion that they needed to open up a new landfill as quickly as possible.¹⁵¹ So they opened negotiations for the Thackeray sites and acquired the Beare Road Landfill in the Humber River valley. Beare Road served Metro from 1967 to 1983; this landfill was 80.5-hectares, with an initial capacity of 3.3 million

¹⁴⁷ James F. MacLaren Limited and Black and Veach, *Report on Refuse Disposal for Municipality of Metropolitan Toronto, May 1967*, 9.

¹⁴⁸ *Ibid.*, 16.

¹⁴⁹ James F. McLaren Limited Consulting Engineers, *Report and Technical Discussion on Refuse Disposal for Municipality of Metropolitan Toronto, May 1967*, (1967), 70

¹⁵⁰ *Ibid.*, Revised table VII-2.

¹⁵¹ “Metro’s help for Toronto’s garbage,” *The Toronto Star*, July 19, 1966.

tons.¹⁵² Metro expanded the capacity of Beare Road by 635,000 tons in 1971 and expanded it again in 1974 to allow 5.4 million tons. The original plan had been to close Beare Road in the early 1970s, and in preparation of post-closure use local officials had even “approved obtaining advice from a recreation expert to top it off in the best possible was for a ski hill,”¹⁵³ but Metro’s acquisition of the Brock Road sites took longer to complete than expected, so Beare Road remained in use.¹⁵⁴ Metro had mixed success with the Brock Road sites in Pickering (Brock West, North, and South). Metro began dumping garbage at Brock West in 1975, but its plans for Brock North were scuttled in July 1975 by provincial rejection of Metro’s plans, and specific plans for dumping at South never materialized.¹⁵⁵

The MacLaren Report clearly identified sanitary landfilling at the Maple Pits as Metro’s best long-term solution. Maple was the largest of the available sites, but Maple was also the most expensive of the options to develop, and to monitor after closure. Maple’s very large total capacity meant that once Metro acquired it, it would last a long time. Metro Works estimated in 1967 that the total cost of establishing a landfill at the Maple Pits would be \$9,649,000, of which \$8,335,000

¹⁵²As of June 2006, the closed Beare Road landfill is part of a large ‘nature’ park along the Humber River, east of downtown Toronto; the landfill is now called Beare Hill and it is adjacent to the Beare Wetland, which borders the river. For details on this park see L. Allen Sanders and Lisa Wallace, “Conservation and Development: From Rouge Park to the Oak Ridges Moraine,” in *Urban Explorations: Environmental Histories of the Toronto Region* (Hamilton, ON: L.R. Wilson Institute for Canadian History, 2013), 313-317.

¹⁵³ A ski hill is also included in the present-day Maple Valley Plan to redevelop Keele Valley.

¹⁵⁴ Alderman Ken Lund, Metro Works Report, March 26, 1973, 43.

¹⁵⁵ “Godfrey seeks private landfills for our garbage,” *The Toronto Star*, July 23, 1975.

would be required for the capital costs of developing it and \$1,314,000 in post-closure costs.¹⁵⁶ All of this meant that Maple was an attractive possibility, but it would require great planning and capital outlay. A month prior to releasing its final report, James F. MacLaren Limited even submitted a letter to Metro Works recommending the acquisition of all three sites in Vaughan: the Thackeray sites (combined into one landfill) as an interim measure and Maple as a long-term solution.¹⁵⁷

The South Thackeray, North Thackeray, and Maple sites were the subject of contention in 1967 and 1968. After several months of negotiations, Metro obtained rights to the South Thackeray and the North Thackeray sites in Vaughan in February 1967—without ever involving the Council of Vaughan Township or voters in Vaughan.¹⁵⁸ This bypassing of the town council and voters was not a good long-term strategic move--local citizens worried that a huge landfill in Maple would be approved in their backyard before they ever knew of the plans. Vaughan, however, only approved Metro's acquisition of North Thackeray but did not approve dumping

¹⁵⁶ As comparison, Beare Road would cost 1,202,000 in total (\$754,000 to develop and \$448,000 post closure); Brock Road would cost \$2,703,000 total (\$1,263,000 to develop and \$1,440,000 post-closure); South Thackeray would cost \$960,000 (\$462,000 to develop and 498,000 post-closure); North Thackeray would cost \$6,445,000 (\$5,165,000 to develop and \$1,280,000 post closure). James F. McLaren Limited Consulting Engineers, *Report on Refuse Disposal for Municipality of Metropolitan Toronto, May 1967*, Table VII-2.

¹⁵⁷ James F. MacLaren Limited, Letter to R.L. Clark, Commissioner of Works for Metropolitan Toronto, February 23, 1967. Francis Redelmeier fonds, City of Vaughan Archives.

¹⁵⁸ Vaughan Township, Letter dated June 14, 1967, Francis Redelmeier fonds, City of Vaughan Archives.

there, because council wished to view the completed McLaren Report before making a final decision.¹⁵⁹

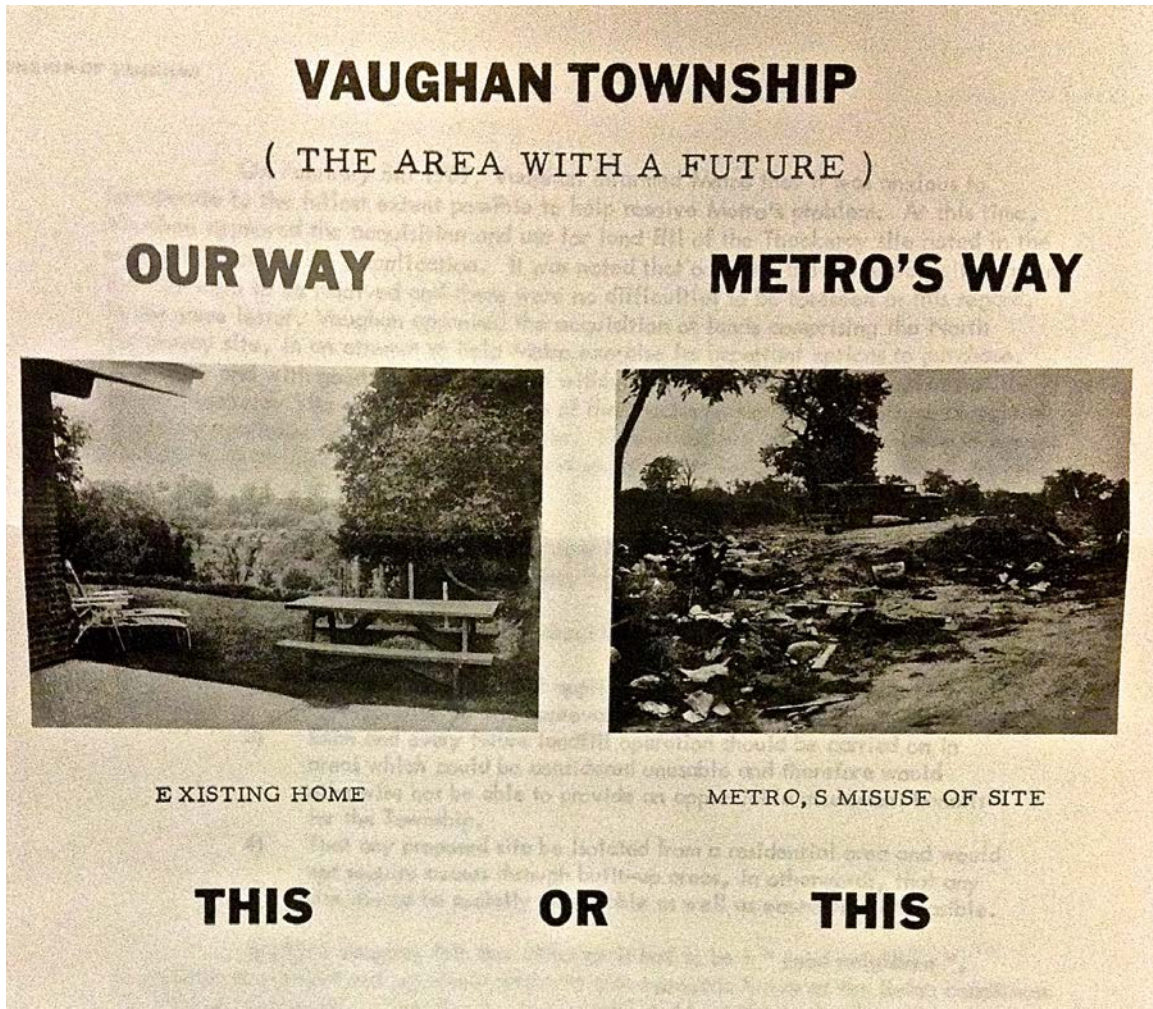


Figure 31. *Vaughan Township: Our Way vs. Metro's Way*, 1967. Source: Courtesy of the City of Vaughan Archives.

This flier was part of a campaign supported by Vaughan Township to counter Metro Toronto's proposed plan to create Canada's largest dump at the Maple Pits (per the recommendation of the McLaren Report). The campaign focused on how Vaughan was already a quiet, desirable place to live in 1967 and so opening a landfill there would not be a good policy decision, despite economic benefits to the township.

¹⁵⁹ J.M. McDonald, Clerk-Treasurer of Vaughan Township, Letter to Ross Clark, Metro Commissioner of Works, February 8, 1967. Francis Redelmeier fonds.

Upon Vaughan Township's receipt of the MacLaren Report on June 12, 1967, the council continued to stall, and questioned why Metro needed Thackeray since the Maple site seemed "as good, if not considerably better, than the North Thackeray Site."¹⁶⁰ Metro, however, continued with the process to obtain approval from the Ontario Municipal Board for North Thackeray; Metro also notified Vaughan of its intent to acquire the Maple site in addition to both Thackeray sites. In consequence, by June 1967 Vaughan Township and Metro were openly feuding over all the proposed landfill sites in Vaughan. As part of the process, the MTRCA reviewed the environmental impact of the proposed landfills; in 1967 the MTRCA owned 150 acres near the proposed 450-acre combined South Thackeray and North Thackeray site, and 90 acres of the actual site Metro sought to use for landfill.¹⁶¹ In February 1967 the MTRCA approved this proposed landfill site "in principle," but like Vaughan Township, deferred making a definitive decision until reading the MacLaren Report later that year.¹⁶² These negotiations continued for the rest of 1967, and into 1968. The Thackeray landfill was not approved until 1971.

In 1968 Metro was unable to reach an agreement about the Maple Pits site, but in large part this was due to Metro's long-term mindset. Metro was focused on other sites. Metro obtained Beare Road in 1967, and Thackeray and Brock West

¹⁶⁰ Vaughan Township, Letter dated June 14, 1967, Francis Redelmeier fonds, City of Vaughan Archives.

¹⁶¹ County of York Planning Office, "RE: Bill 81—Metro Toronto Waste Disposal—Vaughan Township," Staff Report #45, March 8, 1967.

¹⁶² Francis Redelmeier, "Letter to Reeve and Members of Vaughan Council," February 20, 1967. Francis Redelmeier fonds, City of Vaughan Archives.

soon afterward, so the Maple dump was not yet a top priority. In December 1971 the Ontario Municipal Board ruled that Metro's fringe townships, like Vaughan (the site of Thackeray) and Pickering (the site of Brock West), were legally required to provide landfill sites to Metro.¹⁶³ Further delaying Metro's acquisition of the Maple Pits was James MacLaren Ltd.'s express recommendation in a February 1967 letter to Metro Works that use of the Maple site should be postponed "until after completion of the Thackeray sites, say in 10 or 12 years' time" for two reasons. The landfill's capacity would be substantially increased by another decade's worth of gravel-pit mining, which would also allow "a revenue-producing operation" to continue "for as long as practicable," since once landfilling began the gravel-pit mining would stop. Moreover, waiting at least a decade would give Vaughan time to implement "more extensive water pollution facilities" to counteract the eventual likelihood of groundwater pollution from the landfill site.¹⁶⁴ Later in the 1970s, negotiations about establishing the Maple landfill became more serious; the next chapter will detail the establishment of the Keele Valley landfill at the Maple Pits.

Tel Aviv

The situation in Israel was different than that of the United States or Canada, because Israel did not adopt a consumer-based society after the end of World War

¹⁶³ Bill 81 was the legal basis. "Special Trains may take tons of Metro garbage to Pickering in 1972," The Toronto Star, December 29, 1971.

¹⁶⁴ James F. MacLaren Limited, Letter to R.L. Clark, Commissioner of Works for Metropolitan Toronto, February 23, 1967. Francis Redelmeier fonds, City of Vaughan Archives.

Two. Israel was only established in 1948, and its dominant political party was Labor: David Ben-Gurion, a Russian-born Zionist with socialist sympathies, was the first Prime Minister. Under Ben-Gurion's leadership, most Israelis did not pursue an aggressively capitalist lifestyle; the settlement ideal was the kibbutzim, self-sufficient communes that fit the Zionist view of hard work as the means of connection to the land of Palestine. By the late 1950s, only Jerusalem (i.e., the Western side, built by Jewish immigrants—Israel did not conquer the Eastern side of Jerusalem, including the Old City, until 1967), Haifa (Israel's third-largest city, and then-largest seaport), and Bat Yam (a city that is part of Greater Tel Aviv) operated landfills that were covered daily with dirt or ash.¹⁶⁵ Israel's reliance on open dumps was not unusual for a rapidly developing nation. The impetus for modern sanitary infrastructure like engineered waste disposal came from Europe and the United States, and it took time for these ideas to spread. At mid-century, Israel was in close contact with many European nations, but there was less pressure for policymakers to implement state-of-the-art waste-disposal techniques in Israel. Compost plants—which brought in money—were a different story: Tel Aviv established the “world's largest” compost plant at Hiriya in the late 1950s. As a landfill, Hiriya was simply an open dump for most of its history—it was not updated to a rudimentary sanitary landfill until the late 1970s.

Tel Aviv's development trajectory was affected by Israeli independence (1948) and the merger with Jaffa (1950) into the single municipality of Tel Aviv-Yafo. After 1948, immigration into Israel skyrocketed because Israel opened its

¹⁶⁵ Alon Tal, *Pollution in a Promised Land*, 247.

borders to all Jews. This meant a lack of infrastructure nation-wide to accommodate all the immigrants. In response, policymakers pushed the adoption of rural-development policies (the Sharon Plan), as well as infrastructure updates to urban areas, and implementing existing development laws such as the Public Health Ordinance Law of 1940.¹⁶⁶ It is within this context of rapid change—yet continuing commitment to European-influenced ideas of development—that Tel Aviv’s waste-disposal policies should be understood.

¹⁶⁶ In 1940—eight years before Israel declared independence—a Public Health Ordinance law was implemented, and it remained in use after Israeli independence in 1948. This law gave the Israeli Ministry of Health the authority “to control public health and environmental nuisances of various kinds,” as necessary to assist in “preventing and eliminating nuisances and insect-carried diseases.” This included “air pollution and odors or unsanitary conditions” a “person who fails to remove the nuisance may be ordered to do so” by the Ministry. After the creation of the Ministry of Environmental Protection (MEP) in 1988, the MEP and the Ministry of Health both have the authority to carry out the provisions of the updated version of this law. The quotes are from the MEP’s English-translation description of the law on its official website: <http://www.sviva.gov.il/English/Legislation/Pages/Legislation.aspx>

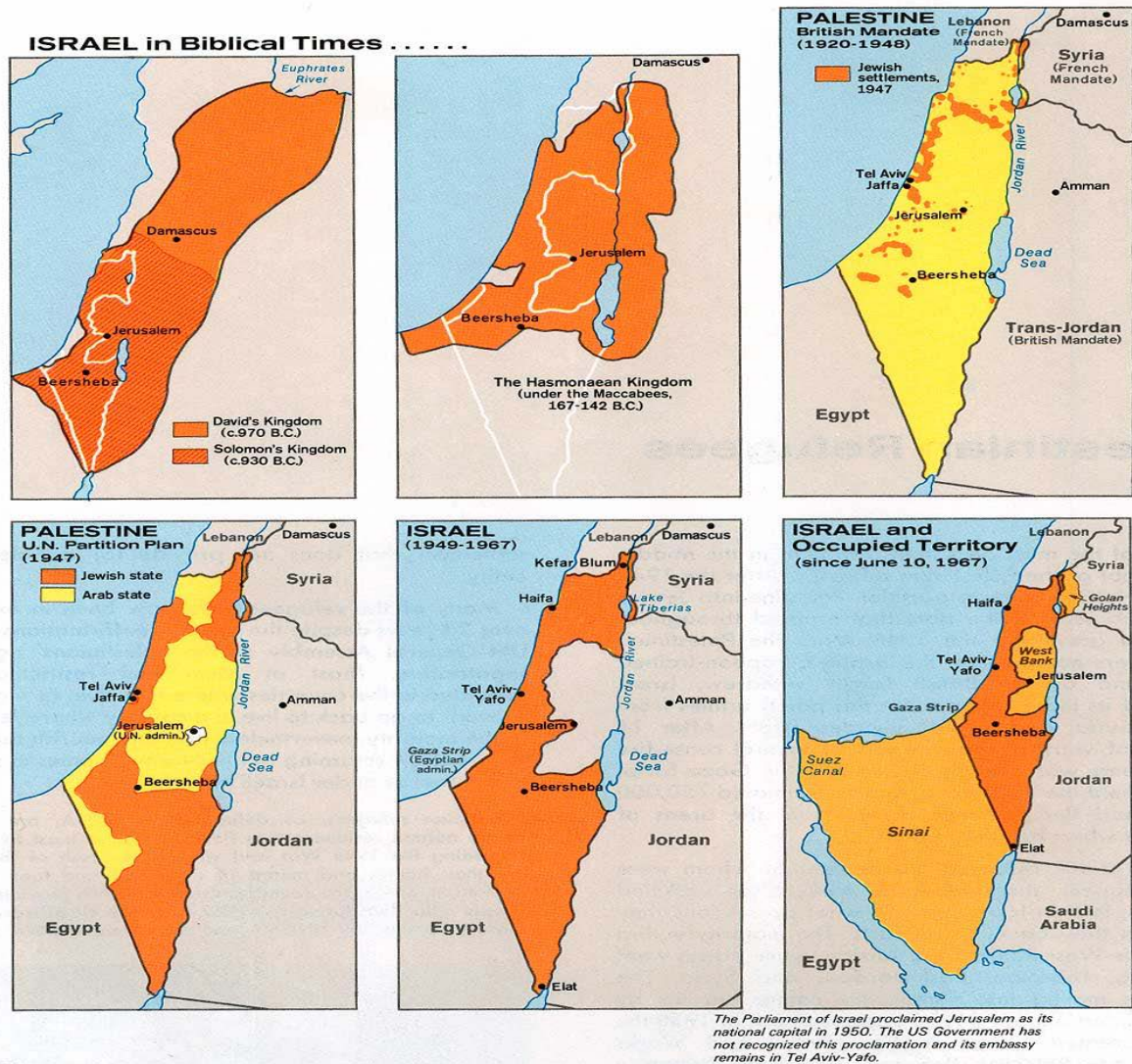


Figure 32. Israel, Historical Maps. Source: *Issues in the Middle East, Atlas*, U.S. Central Intelligence Agency, 1973. Six small maps: Israel in Biblical Times (David's Kingdom c.970 B.C., Solomon's Kingdom c.930 B.C.), Israel in Biblical Times (Hasmonaean Kingdom under the Maccabees 167-142 B.C.), Palestine British Mandate 1920-1948, Palestine U.N. Partition Plan 1947, Israel 1949-1967 and Israel and Occupied Territory since June 10, 1967. Source: Courtesy of the University of Texas Libraries.

Israel won independence in 1948. The Zionist basis of the newly established nation of Israel was the Jews' historical claim to the land of Palestine (shown in the first two maps). The British-Mandate government grudgingly allowed European-Jewish (Zionist) immigrants into Palestine (map 3). The proposed UN partition of Palestine (map 4) was rejected by both Arab-Palestinians and the Jews in Palestine. After the War of 1948, in which Israel defeated the Arab-Palestinian armies, Israel had the boundaries shown in map 5. During the 1967 war, in which Israel defeated Egypt, Syria, and Jordan, Israel took control of Old City and Eastern Jerusalem and also the West Bank and the Gaza Strip. The territories occupied and not returned after this 1967 war are at the heart of continuing tension between Israel, the UN, and the Arab nations.

Tel Aviv was one of the major ports-of-entry to Israel, and so the metropolitan area was an initial refuge for many immigrants. Cheap housing, basic sanitation, and also makeshift refugee camps, or *ma'barot* (מעברות), were common in the area. Tel Aviv grew steadily from the late 1930s through the mid 1960s. In 1931, Tel Aviv had 46,000 persons; in 1939 it had 160,000 inhabitants. The immigration levels had skyrocketed in the wake of Nazi Germany's persecution of Jews, and because of tensions in Europe on the eve of World War Two. In 1939, Tel Aviv had roughly 30 percent of all Jews living in Palestine; by war's end (1945) it had 222,000 inhabitants. In contrast, in 1947 Jaffa had 85,000 inhabitants, mostly Arab; at the end of the 1948 War of Israeli Independence, Jaffa had only 4500 Arabs left. In 1948 Tel Aviv had 248,000 persons; in 1951, after merging with Jaffa, it had 345,000. The growth of the city of Tel Aviv peaked in the 1960s: the 1961 population was 386,100 and in 1964 it was 394,000 inhabitants.¹⁶⁷ Tel Aviv-Yafo municipal policymakers' mindset in the 1950s and 1960s was finding a way to accommodate rapid growth in the most sanitary and efficient way possible.

¹⁶⁷ Moshe Goldstein, *Breve Historia de Tel-Aviv*, Biblioteca Popular Judia, (Buenos Aires: Congreso Judio Mundial), 1969.



Figure 33. *Jaffa to Jerusalem. Jaffa from the sea, circa 1950-1977.* Source: Matson Photo Service, photographer; Public Domain, Library of Congress Prints and Photographs Division Washington, D.C., USA.

After the creation of Tel Aviv-Yafo in 1950, the ancient city of Jaffa was only a shell of its former self. Most of the city's Arab residents (who had made up about 90% of the population before 1947) fled or were forced out of their homes and the new nation of Israel. Jaffa became a tourist area, where Israelis and Christian tourists (the House of Simon the Tanner is a major Christian site in Jaffa), felt they were experiencing the "Orient."

The negative public-health impact of Tel Aviv's older dumpsite in Mikve Israel became apparent to municipal officials in the late 1940s. The story as described by Rachel Bornstein, one of the citizen-activists who successfully convinced the Tel Aviv municipality to find another dump in 1950, is as follows.¹⁶⁸ Rachel and her husband, Dr. Mordechai Bornstein, moved to Tel Aviv's Rothschild Street—one of Tel Aviv's most fashionable boulevards--in 1938. They were

¹⁶⁸ "Tel Aviv Smells: A Saga," *The Jerusalem Post*, September 21, 1973.

immediately struck by a horrible smell in the district, which was bad enough to keep them awake at night. Their neighbors speculated that the smell was from a nearby chemical plant, so the people protested against the plant. After the chemical plant was closed by court order, however, the smell remained, and it then became obvious that the Mikve Israel garbage dump was the source of the smell.¹⁶⁹ This led to citizen protest, of which the Bornsteins were leaders. In 1951, the “nature of concentrations of trash” at the Mikve Israel dump caused fires with “billowing smoke” and air pollution that, according to the Israel Public Medical Association, was sickening “the area residents who breathe the polluted air” which “poisons their bodies, dims their energy and dulls their spirituality.” Tel Aviv closed the dump at Mikve Israel, but opened a compost plant at the site instead, when it began dumping at Hiriya.¹⁷⁰

¹⁶⁹ In 1951, the very fumes arising from the decomposing waste at Mikve Israel were poisonous to humans. “Municipal Dump Fumes Poisonous,” *The Jerusalem Post*, April 10, 1951.

¹⁷⁰ “Medical Institutions warn of health danger to the Gush Dan,” *Al Hamishar*, June 19, 1951. The Mikve Israel compost plant was a test plant, necessary to assess whether constructing a large plant at the Hiriya site was a viable economic option. This article describes the concern of the Israel Public Medical Association about the plan to build a compost plant. The Association was afraid that the compost plant would, like a landfill, endanger the health of area residents.



Figure 34. *Tel Aviv-Yafo - North Tel Aviv-Yafo, 1958.* Source: U.S. Army Map Service; Courtesy of the University of Texas Libraries.

In the 1950s Tel Aviv rapidly grew in terms of population and in area. The northern sections of Tel Aviv were developed in the 1950s as a newer, more affluent, section of the city. The Yarkon River formed the northern boundary of the city, and the HaYarkon Park (shown as green in the top of the map) was one of the city's most pleasant and sought-after areas for relaxation. Not far north of the Yarkon River is Tel Aviv University, and some suburban areas.

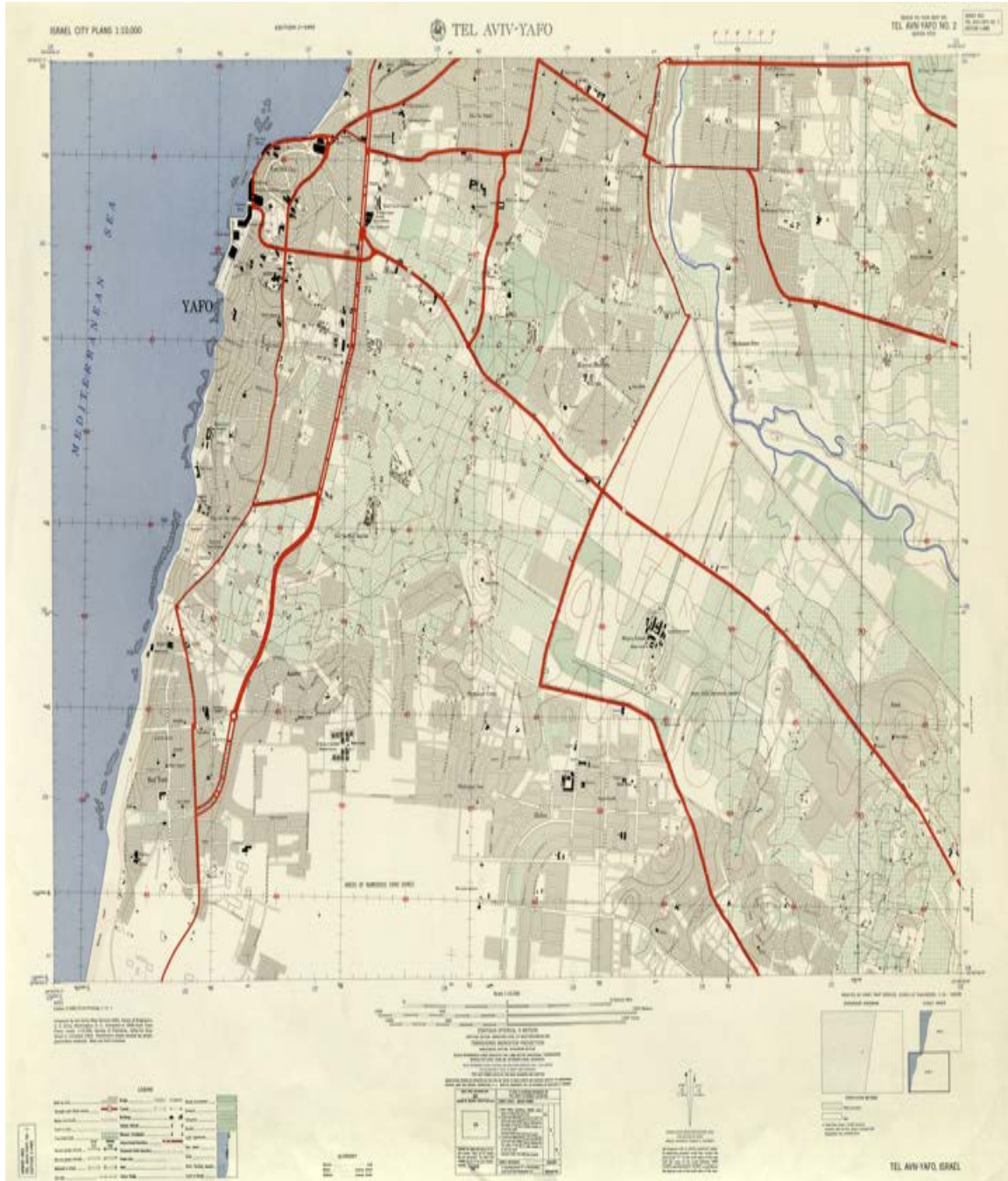


Figure 35. *Tel Aviv-Yafo - South Tel Aviv-Yafo, 1958.* Source: U.S. Army Map Service; Courtesy of the University of Texas Libraries.

Southern Tel Aviv tended to be the poorer area of the city; much of the area to the southeast of Jaffa was agricultural land (orange groves in Jaffa's late-nineteenth century heyday). The site of the Hiriya landfill is literally just outside the area shown this map. The green area in the bottom right of the map is the agricultural land that preceded the approach to Hiriya. The landfill would also be to the north of the highway shown in red that runs out at the bottom-right corner; this is the highway to Jerusalem.

Prior to the 1948 war, the geographical site of the (later) Hiriya landfill was the site of the Arab village of Al-Khayriyya.¹⁷¹ The pre-state Israeli army captured this village during the 1948 War, after its inhabitants fled during a military onslaught. In the 1950s Hiriya was the site of a Jewish-immigrant refugee camp, the Hiriya *Ma'bara*. *Ma'barot* were common across the newly formed nation because of Israel's policy of opening its borders to all Jews. There was a particularly large amount of Iraqis at the Hiriya *Ma'bara*.¹⁷² The plan to establish a dump at the Hiriya site was proposed in 1951. In early 1952, the Tel Aviv Public Hygiene Committee lodged a complaint with the Knesset contesting the proposed garbage dump, on the grounds that locating the dump there "would endanger the health of the [ma'bara] residents of the area."¹⁷³ Heavy rains and damaging flooding in late December 1954 expedited the removal of many of this camp's inhabitants in early 1955—but many still remained, because they had nowhere else to go.¹⁷⁴

The Ministry of Health was in charge of the landfill site-selection process. The site of Hiriya was chosen because at that time it was far enough outside city limits to not be a nuisance to Tel Aviv's permanent residents, and was close enough

¹⁷¹ For details about Palestinian villages, including Al-Khayriyya, see Walid Khalidi, *All That Remains: The Palestinian Villages Occupied and Depopulated by Israel in 1948* (Washington, D.C.: Institute for Palestinian Studies, 1992).

¹⁷² Jerusalem Post Reporter, "Easterners Cling To Their Spices," *The Jerusalem Post*, August 15, 1958.

¹⁷³ "Plan Protested" *The Jerusalem Post*, March 3, 1952.

¹⁷⁴ H. Aryay, "Ma'bara Trotting" *The Jerusalem Post*, January 25, 1952; and "Jobless from Ma'barot Join Sit-in Strikers," November 11, 1954; Jerusalem Post Bureau, "1,000 Moved from Homes in Flooded Coastal Plain," *The Jerusalem Post*, December 30, 1954.

to the city as to not be a significant trip: trucking waste was a major expense of landfilling. Hiriya seemed like a good physical geographical location in environmental terms (although it turned out not to be, due to Tel Aviv's urban sprawl and groundwater pollution due to "the vulnerability of the permeable Coastal Aquifer").¹⁷⁵ Garbage dumping began at the Hiriya landfill in 1952; Hiriya was Tel Aviv's primary landfill, but it was an open dump and not a sanitary landfill.

The "progressive" approach of the municipality of Tel Aviv-Yafo was to establish a large compost plant at the Hiriya site to reduce the amount of refuse landfilled. Tel Aviv's interest in alternative disposal methods such as compost in the 1950s and 1960s was not an isolated fad. Recycling, scavenging, and scrap-metal salvage were also important trends in Israel; Tel Aviv and other Israeli cities, such as Haifa and Jerusalem, pursued other methods of recycling and reuse in the early 1950s.¹⁷⁶ Compost offered the promise of producing fertilizer to serve local

¹⁷⁵ Ramat Gan is one of the townships of Greater Tel Aviv, and a member of the Dan Region Union. The quote is from Alon Tal, *Pollution in a Promised Land*, 247.

¹⁷⁶ Scavenging the municipal dumps had long been a means of subsistence, and treasure hunting—just not for the middle classes and elites of society. In 1935 at Tel Aviv's old Mikve Israel dump, for example, "a considerable stock of curious objects including odd pieces of cutlery, violins, and other musical instruments" were scavenged by "various Arabs" and sold to wealthier patrons. See Anonymous Correspondent, "Finds in the Refuse Dumps of Tel Aviv," *The Palestine Post*, October 28, 1935.

The difference in the 1950s and 1960s was that scavenging and re-use of waste materials became an organized operation, because of the new awareness that wanton, and unregulated, waste disposal was directly causing public health problems due to pollution and financial loss due to lack of planning.

The interest in recycling was spurred by private entrepreneurs. One such entrepreneur, Leo Hirschenhauser, stated in an interview: "When I arrived here [in Israel, in 1949], I was amazed to find that the utilization of waste materials—a highly developed business in Europe and U.S.A.—was practically non-existent." He explained further: "In Tel Aviv I saw how they buried old bread with the help of a tractor, because they didn't know what else they could do with it. Outside the towns, I saw large refuse dumps with materials worth a lot of money go up in flames. Nobody here knew that old hemp rope and old linen can be processed into cigarette paper, that animal hair can be used for textile manufacture, or that old bread can be converted into chicken feed." Hirschenhauser's

agriculture from Tel Aviv's organic refuse.¹⁷⁷ A composting plant also made sense for Tel Aviv because "Israel's trash has always had an unusually high organic content," ranging from 60 to 70 percent moisture in household garbage during the 1960s.¹⁷⁸ The huge amounts of waste—due to the city's rapidly expanding population—seemed to make a compost plant a lucrative business venture.

The feasibility of composting was first tested in 1953 at the old Mikve Israel city dump, after which a 1.2 million dollar plant at Hiriya was approved and constructed. A Dutch engineering firm, Dur Oliver Co. of Amsterdam, developed Tel Aviv's compost plant at Hiriya. The firm's representative, Henry Wafbein, said the plant "would handle all of Tel Aviv's daily waste in a few working hours each day."

statements were motivated by his desire to promote his own private salvage business, and so the "ignorance" he describes was likely based on specific examples he saw, and not an indication that nobody knew about these activities before his arrival. The quotes are from Yaakov Ardon, "Money in Waste Materials," *The Jerusalem Post*, May 18, 1950. For other similar examples, see also Gerda L. Cohen, "Waste Not Want Not," *The Jerusalem Post*, June 14, 1953; Yaacov, Friedler, "Haifa's Refuse Will Grow Food," *The Jerusalem Post*, September 23, 1954.

¹⁷⁷ An article in *Al Hamishmar* from August 1951 described the process of creating fertilizer in the proposed plants for Tel Aviv, and noted that a huge compost plant may be "located near garbage dumps," such as Mikve Israel or Hiriya. The compost process began by "hermetically" sealing the waste "for twenty days in order to speed up the process of decay and destruction" inside "two open tanks." Then, "for several days gauge lifting into fresh air, using pressure pumps" in order to remove "the odors, the stench from the trash." This process creates "black and organic manure." Then the process "removes the non-organic ingredients, garbage using a magnetic device that resembles a drum" to "take out the trash, make organic manure" and then "spread it across the magnetic drum removing all metals." This is the "recommended method of municipal garbage sorting" to use compost "facilities to process garbage into fertilizer" which is essential to the "agricultural systems of our country." The quoted sections are my translation from the Hebrew. "Shipments Endanger the Health of Residents" in *Al Hamishmar* from June 19, 1951.

¹⁷⁸ In the early 1950s, other cities in Israel like Jerusalem also opened composting plants, but, little more than a decade later the composting rage began to fade and many of these sites closed. Most of Israel's compost plants failed because they could not operate at a rate fast enough to produce a profit; see Alon Tal, *Pollution in a Promised Land*, 247-8.

Israel's compost plants and attempts to manufacture fertilizer from waste and manure were part of a larger trend. For details on the fertilizer business in Great Britain and the United States, specifically as related to the disposal of human excrement, see Daniel Schneider, *Hybrid Nature: Sewage Treatment and the Contradictions of the Industrial Ecosystem* (Cambridge, MA: MIT Press, 2011).

In addition, he said the plant “would give off no odour nor would it constitute a danger to public health.” Unfortunately, this optimism was unfounded in the long run—the plant’s major problems were its noxious smell and its inability to effectively process Tel Aviv’s waste. The compost plant at Hiriya was only officially ready to open in late 1959—after obtaining approval from the Tel Aviv Municipality, and funding support from a private investor in New York and an Israeli Government Development loan. Community protests—which led to the closure of the compost plant in the early 1970s--were also present at this initial stage in 1958. Wafbein’s remarks about his firm’s compost plant were made in court “as a witness for the Tel Aviv Municipality in the hearing of a request for an injunction against the putting up of compost processing plants in the garbage dumps in Hiriya and Mikve Israel, lodged by 30 Tel Aviv residents.”¹⁷⁹

When the Hiriya compost plant first opened it produced a “black, odorless hummus” that could be sold as fertilizer for five dollars a cubic meter.¹⁸⁰ According to a press release in 1963, the newly opened Hiriya compost plant was the largest in the world; the Deputy mayor of Tel Aviv, Mr. S. Ehrlich, stated the plant would rid the city from “pollution, fires, and stench which characterized the old [Mikve Israel] dump.” The plant was owned privately; much of the technical know-how and financing came from foreign investors: the Dutch-American firm of Dor-Oliver provided the know-how. The Organic Fertilizers Corporation had a 49-year

¹⁷⁹ Jerusalem Post Reporter, “Tel Aviv Compost Plant to be Ready by 1960.” *The Jerusalem Post*.

¹⁸⁰ Alon Tal, *Pollution in a Promised Land*, 248.

concession from Tel Aviv, during which the city would pay 1L200,000 and the plant would also serve the neighboring townships of Ramat Gan, Bat Yam, Givatayin, and Bnei Brak, each of which would also pay a fee. In early 1963, the Hiriya compost plant received “500 tons of material every day which it processes (within three months) into 350 cubic metres of compost.” Over-idealistically, the press reported that this new compost plant at Hiriya would allow Tel Aviv to “liquidate” the garbage dump at Hiriya (which then held an estimated 300, 000 cubic metres of trash) “within six to eight months.”¹⁸¹ In the early 1960s, the media coverage of the compost plant was mostly positive, and the plant was seen as an effective means of producing fertilizer to aid local agriculture.¹⁸² By 1965, however, Hiriya’s compost plant had come under attack from regional officials (the Emek Lod District Council) and area residents as a “health hazard.”¹⁸³

Circa 1960, many residents of Tel Aviv were dissatisfied with the unsanitary nature of the city. Many residents decried the vast amounts of garbage and litter associated with Tel Aviv’s vibrant commercial establishments, and argued for the need for street cleaning machines and new disposal bins on city streets.¹⁸⁴ The Hiriya garbage dump was steadily growing, and, like the compost plant, was not

¹⁸¹ Jerusalem Post Reporter, “New Compost Plant For Tel Aviv’s Waste,” *The Jerusalem Post* May 6, 1963.

¹⁸² “The Production of Compost,” *Herut*, May 06, 1962, page 3.

¹⁸³ “Hiriya termed health hazard,” *The Jerusalem Post*, December 20, 1965.

¹⁸⁴ A 1960 report lamented the “unhappy fact that, only a few hours after municipal street sweeps finish their work, the streets are already littered with paper and all kinds of refuse.” See “Sanitation Situation Must Be Improved: Public Cooperation Essential,” *The Jerusalem Post*, May 13, 1960.

necessarily a sanitary operation. Nearby residents complained that the Tel Aviv-Yafo municipality was doing very little to maintain the overall sanitary operation of the dump site, as “municipal garbage and rubbish spills over” near area-residents’ homes and no sanitary inspector had been checking up on the site’s operation.¹⁸⁵

Local politics about sanitation in Tel Aviv were polarized based on social class by the 1960s. Tel Aviv-Yafo’s workers and impoverished residents focused on issues of environmental justice as a means of criticizing policy. First, impoverished immigrants often lived next to dumpsites; second, Tel Aviv relied on Arab-Palestinians and recent immigrants for much of its sanitation work, which intensified tensions. In 1964, for example, Tel Aviv-Yafo’s sanitation workers struck “over a pay increase they claimed had been promised them.” In response, the Tel Aviv Municipality decided to “send out loud speakers ahead of its garbage vans and ask residents to dump their refuse themselves into the trucks.”¹⁸⁶ Just prior to this incident, Tel Aviv had ordered state-of-the-art sanitation equipment, including garbage trucks that compressed waste inside them, and hence could carry more waste per trip, and fifteen mechanical street-cleaning tractors to address general cleanliness concerns. In sum, the municipality of Tel Aviv-Yafo presented its policy of progress through better sanitation technology such as purchasing state-of-the-art sanitation trucks and creating huge compost plants to lessen the reliance on

¹⁸⁵ “Tel Aviv opposes further Hiriya dump,” *Davar*, April 5, 1965. The quotes provided are my translation of the Hebrew article.

¹⁸⁶ “Hunger Strike Gains Jobs,” *The Jerusalem Post*, August 21, 1964.

landfills.¹⁸⁷ For Tel Aviv's working class, however, the question was a matter of local-policymakers' lack of compassion, and therefore incompetence. For example, an article in *Herut* asked rhetorically: "what is the purpose of the mayor in critical situations when he does not take responsibility for the situation [of health-problem-causing pollution] in the city. If the municipality does not address the problem, then it should be required [by law] to employ outsiders to do so."¹⁸⁸ Little action was taken, and in the 1970s recent immigrants and other impoverished residents continued to live alongside dumps and pollution hazards.¹⁸⁹ But the 1960s public debate was significant: whereas the municipality focused on new technology and proclaimed it had everything under control, many residents argued that behind the

¹⁸⁷ The political problems were exacerbated by a lack of general awareness of environmental practices nationwide in the 1960s. In Tel Aviv-Yafo, the affluent areas were cleaner and better serviced by the city; 2) litter is more of a problem if rubbish cans are not available in public space; 3) part of the problem has to do with ideals of the modern concrete/sanitary city—like people classifying sand or soil as "dirty." These were the conclusions of a report from 1965 that humorously addressed the serious question: What makes Tel Aviv so dirty in one day? First, "Israelis, like horses, mules, jackasses, and other mammals, like to eat on the run." Second, "If a dustbin is nearby, well and good. If not, the waste is thrown onto the pavement, or into the street gutter, to join a variety of items: banana and orange peels (in season), cigarette butts, match sticks, odd pieces of paper—man's ingenuity in this field seems endless." Third, Tel Aviv's natural location, on sandy ground near the beaches, made the modern concrete urban environment seem dirtier. Fourth, Tel Aviv "just grew—or was planned so haphazardly that it should be razed at once. There are still slums full of dilapidated shacks, cabins, and shanties. Their streets are only narrow alleys; often not paved, and generally used for sewers." As an aside, the report admitted: "Conditions in North Tel Aviv [the affluent area] are of course much, much better." Macabee Dean, "Mechanical means to 'keep cities clean," *The Jerusalem Post*, 1964.

¹⁸⁸ This quote is from *Herut*, a Hebrew-language newspaper; the quoted translation is my own.. Judith Winkler, "Emergency Tel Aviv!," *Herut*, August 24, 1964.

¹⁸⁹ This was a problem throughout the Tel Aviv region, and also throughout Israel—Tel Aviv-Yafo was a special case only in that it was an abnormally large city and metropolitan area. To see examples in the Israeli press, see for example, "Danger to the health of residents," *Davar*, January 31, 1971. See also, No Title, *Davar*, November 13, 1971. My translation of the remarks of a Labor Council official cited in this article is: "The biggest problem of all problems in this region is the largest regional landfill close to residential buildings."

“pretentious language” the reality was that Tel Aviv was a “smelly and polluted city.”¹⁹⁰ This distance between the positions of the municipality and many residents showed the lack of suitable policy mechanisms to address pollution adequately; it also showed holes in the municipality’s “progress through technology” narrative.

Pollution was an overarching concern in Tel Aviv-Yafo in the 1960s. In 1961, the Knesset passed the Abatement of Nuisances Law in order to address air, odor, and noise pollution.¹⁹¹ Israeli courts, however, were loath to interpret the law as binding, and often refused to grant standing to persons and groups seeking to utilize it as the basis for legal action.¹⁹² Therefore, there was little legal basis at this time to force the municipality of Tel Aviv-Yafo to take specific action that it was not otherwise inclined to take. In the 1960s air pollution was on the rise: general sources such as automobiles and fires as well as a site-specific source--the Reading D power station--were the main culprits; environmental historians commonly cite the late-1960s expansion of the Reading D power plant as the major watershed of

¹⁹⁰ Judith Winkler, “Emergency Tel Aviv!,” *Herut*, August 24, 1964.

¹⁹¹ The English-translation text of the legislation is (as still legally applicable in 2014): “A person shall not cause any considerable or unreasonable noise, from any source whatsoever, if the same disturbs or is liable to disturb a person in the vicinity or a passerby”; “A person shall not cause any considerable or unreasonable odor, from any source whatsoever, if the same disturbs, or is liable to disturb, a person in the vicinity or a passerby”; “A person shall not cause any considerable or unreasonable pollution of the air, from any source whatsoever, if the same disturbs, or is liable to disturb, a person in the vicinity or a passerby” and “Air pollution, for the purposes of this section – pollution by smoke, gas, fumes, dust or the like.” Quoted sections are from Abatement of Nuisances Law 5721-1961.

¹⁹² See “Administrative Cases Under Judicial Order: Oppenheimer \$ ors. v. Ministers of Interior and Health,” *Israel Law Review*, 1 (1966): 462-506.

the environmental movement in Tel Aviv.¹⁹³ The dump at Hiriya and the old Mikve Israel dump both spawned several fires, billowing black smoke, which added to the sense that Tel Aviv's sanitation needed serious improvement.¹⁹⁴ The deterioration of the city's waterfront and rivers was another serious environmental issue. The beachfront had been "allowed to degenerate in many parts to an odious rubbish dump," and the city's sewage pipes were too short, so they commonly spewed raw sewage along the beachfront.¹⁹⁵ In 1961 Tel Aviv began a project to increase the

¹⁹³ There was much local-media coverage of Reading D, including the following examples. "Technology expert: Split power plant will not prevent air pollution in North Tel Aviv," *Davar*, December 10, 1967; "The decision regarding Reading," *Davar*, March 25, 1968; Avraham Rotem, "Reading D 'pollution unchecked,'" *Maariv*, July 01, 1970; "Control Commission offers urban Reading" *Davar*, July 08, 1970; "In the shadow of the chimney," *Davar*, August 06, 1970.

Environmental histories, as well as environmental-law narratives of Israel tend to focus on Reading D (located at the mouth of the Yarkon River) as the time when grassroots environmentalism took hold in Tel Aviv. In my research, I noticed that concerns about the environment existed previously, as I have described in this chapter about the Mikve Israel dump and the environmental justice argument of Tel Aviv's impoverished residents. Nevertheless, Malraz, Tel Aviv's most influential environmentalist organization, was founded and came to prominence because of the fight against Reading D in the late 1960s, so that is the main reason historians focus on Reading D as a 'seminal' case study.

¹⁹⁴For pollution from automobiles see: Oded Zarai, "Air pollution over the skies of Tel Aviv," *Herut*, May 23, 1961. For dump fires see: Jerusalem Post Reporter, "1 Death, Heavy Damage in T.A. Fire," September 25, 1962; "Garbage Dump Still Burning in Tel Aviv," *The Jerusalem Post*, September 27, 1962. On a related note, in 1963 there was a proposal to install an incinerator at Hiriya in order to dispose of large waste objects like "carrion and large objects not suitable for processing by the [compost] plant, and [also because] the problem of disposal of inorganic industrial wastes has yet to be solved." This proposal was never realized. "Improvements in Municipal Sanitation Services," *The Jerusalem Post*, June 4, 1963.

¹⁹⁵ There were many articles in the local press about the issue of marine pollution, and unsafe beaches in Tel Aviv. Here are some examples. Paul Kohn, "Tel Aviv Seafront Is in Sorry State," *The Jerusalem Post* May 18, 1962. No Author listed, "Doctors beachcombing, Tel Aviv," *Davar*, June, 30, 1955. Nangi Magac, "Where washed up this year?" *Davar*, May 28, 1957; Acraf Rots, "Prosecutors to take action against marine pollution in Tel Aviv," *Maariv*, June 22, 1968; "Shape of the beach area of Tel Aviv will change completely within 3 years," *Davar*, June 02, 1969; "Beaches closed today," *Maariv*, October 15, 1974.

length of the pipes from 50 to 150 meters off shore to over 800 meters.¹⁹⁶ The heavy pollution of Tel Aviv's rivers--especially the Yarkon River, which emptied into the sea at the city's northern limit—was a similarly disastrous pollution concern.¹⁹⁷

Israel's general policy focus was on encouraging development, not on environmental issues such as abating pollution. In 1965, Israel implemented the Planning and Building Law.¹⁹⁸ This was a comprehensive statute to monitor and regulate "all building and land use designations in Israel." This law created "a hierarchy of planning bodies (national, regional, and local) responsible for land-use planning, taking into consideration all potential impacts, including environmental impacts." Israeli legislation largely favored industry, however, and in practice environmentalist groups--like Malraz in its fight against Tel Aviv's proposed Reading Power Station in 1968—had little legal power. According to one Israeli legal expert, much government legislation, like the 1965 version of the Planning and Building Law, was in fact passed to facilitate specific development projects: the 1965 law was "specifically designed to remove legal obstacles and the public's rights of objection to the construction of a major thermo-electric power station [Reading

¹⁹⁶ In 1963, plans were underway to "establish a sewage purification transferred through pumps and correcting crushing solids" to carry sewage "to sea in the tube, will keep the sewage 800 meters from the beach." Quote is my translation from the Hebrew. "Sewage program changes in the Dan Region," *Davar*, April 11, 1955.

¹⁹⁷ See, for example: Fofed Defrahaysor, "City of Tel-Aviv-Jaffa Hayarkon pollution alerts on water-waste," *Davar*, December 06, 1964. This article describes a local Tel Aviv protest movement to stop the flow of raw sewage from "water drainage of communities far from Tel-Aviv through wadis to the Yarkon River, which will lead to contamination of the river." See also Avraham Rotem, "Give fish to Yarkon River," *Maariv*, June 24, 1970.

¹⁹⁸ Planning and Building Law, 5725-1965.

D] in a residential area of Tel Aviv.”¹⁹⁹ Clearly, on the policy-making level environmental concerns took a backseat to pro-development interests.

Conclusion

The end of World War Two in 1945 ushered in a consumer-focused society, in the United States and Canada, which created new problems for urban waste disposal. The popularity of disposable consumer goods and packaging led to huge amounts of garbage, and strained existing waste-disposal infrastructure. These trends eventually forced cities to develop larger, more complex garbage-disposal infrastructure. Policymakers often promoted alternative methods such as incinerators or compost plants, but, in practice, relied on landfills. In economic terms, policymakers in New York City, Toronto, and Tel Aviv understood that having a cheap, local landfill was essential. In all three cities, government (national, state/provincial) regulation was not a large factor at this time (prior to the 1970s), so local, municipal policymakers were able to devise policies as they saw fit. Local environmental awareness, especially expressed as anti-landfill or anti-incinerator activism, was the main source of critique of municipal waste-disposal policy. Environmentalism, however, tended to be a niche movement, focused on specific

¹⁹⁹ Ariel Bin-Nun, *The Law of the State of Israel: An Introduction* (Jerusalem: Ruben Mass Ltd., 1990), 96. Later revisions of the Planning and Building Law required the public to be notified about any project plans, and have the opportunity to “inspect plans submitted to regional and local planning authorities and to file opposition during the deposition period of any given plan” as well as have recourse to an “appeal process in case an objection is rejected.” The quotes are from the MEP’s official English-language commentary about the law.

places or practices--e.g. specific sites or sources of obvious pollution. In the 1960s, in New York, Toronto, and Tel Aviv there were warning signs that existing waste-disposal sites and strategies were inadequate. The success of the environmental movement, which became mainstream in the late-1960s, was a huge factor in the sharp rise of government legislation and regulation of waste disposal since the 1970s.

CHAPTER 4

THE RISE OF ENVIRONMENTAL REGULATION AND LEGISLATION

As metropolitan growth, the limits of existing waste disposal options, and environmental concerns collided, national and state/provincial governments stepped in. Prior to the 1970s, in New York, Toronto, and Tel Aviv, municipal policymakers had had the authority to decide what regulations to implement, or decide not to implement. Due to increased awareness of pollution—especially in terms of public health and environmental degradation--the 1970s and early 1980s saw a surge in environmental law and regulation. This legislation was generally focused on the implementation of more advanced engineering methods, such as mandating the most-recent standards for sanitary landfills. Environmental legislation was a significant step, but did not change everything overnight; due to complications between the national, state/provincial, and municipal/local levels of government, many cities continued to rely on existing (and noncompliant) landfills. Put simply, cheap and large-scale landfills became more necessary than ever at the same time they were more difficult (and more expensive) to establish.²⁰⁰

²⁰⁰ The key to understanding the political-economic context of late-twentieth century waste-disposal history is: the economic costs of waste-disposal skyrocketed at the same time the reliance on consumer goods meant that tonnages of waste were steadily increasing.

Another way to describe this is as follows. As nearby landfill space dwindled, talk about impending “waste crisis” took hold, and in turn pushed policymakers to consider “green” technologies (e.g. recycling). Public rhetoric often focused on environmentalist sentiment (e.g. curtailing pollution), but rising economic costs of waste disposal were the real foundation of the unease. As landfills became significantly more expensive to establish and operate, local policymakers were forced to consider alternative techniques like recycling, resource recovery, and composting as substitutes for the now economically unsustainable reliance on landfilling. Even so, this was an uneasy transition, and local policymakers preferred to keep open their existing, local landfills,

The rise of environmentalist sentiment and continuing concerns about public health were behind the increased governmental legislation and regulation in the 1970s.²⁰¹ By the mid-1960s, it was clear that in environmental terms open dumps were not satisfactory; sanitary landfills were the clear alternative. The realization that leachate (polluted fluids) seepage from municipal landfills was directly causing health issues through the pollution of groundwater (and thus impacting the drinking water of many localities) was an impetus for government regulation of landfills. The most significant aspect of the revised engineering approach of the 1970s (as opposed to the “sanitary landfills” of the 1930-1960s) did not involve new

because keeping open old landfills was substantially cheaper, and it was as yet unclear whether municipal-sponsored recycling was a viable large-scale method.

²⁰¹ The Solid Waste Act of 1965 was the United States’ first significant legislation—it was enacted due to rising awareness among engineers that many municipalities did not possess effectively run landfills or incinerators. This law, however, lacked regulatory power, and it was most important as a precursor to the 1976 Resource Conservation and Recovery Act (RCRA). Even though engineers had a standardized understanding of what sanitary landfilling entailed prior to RCRA (which finally legally required sanitary landfills instead of open dumps in the USA), many cities’ officials were hesitant to spend the extra money to use sanitary landfill instead of an open dump. Before RCRA, deciding between sanitary landfills, open dumps, or incinerators was a local-government decision. Even when “sanitary landfills” were in use, however, there was a wide variation in effectiveness, because the effectiveness of any sanitary landfill depended on the knowledge and resources of the municipality’s waste-management personnel.

Environmental legislation was boosted by high-profile pollution disasters such as at Niagara, New York’s Love Canal toxic-waste landfill (1979), and popular-audience publications like Rachel Carson’s *Silent Spring* (1962), which demonstrated how environmental problems were also moral and public health problems. Rachel Carson’s *Silent Spring* (New York: Houghton Mifflin, 1962) was only one aspect of the growing environment movement, but it is a convenient place-marker of the growing awareness that human actions had real ecological and health costs. As part of the USA’s Cold War mentality, consumption was an indicator of high quality of life; consumerism was a major selling point politicians like Richard Nixon pointed to in his 1959 Moscow speech “What Freedom Means to Us” when he argued that the USA was inherently better than the USSR due to the USA’s higher material standard of living; transcript available at http://www.speeches-usa.com/Transcripts/richard_nixon-freedom.html.

These events in the United States affected the fledging Canadian Environmentalist movement. For details on the rise of the Canadian environmental movement since the 1950s, see Neil S. Forkey, *Canadians and the Natural Environment to the Twenty-First Century* (Toronto: University of Toronto Press, 2012), 84-106. Pollution Probe was the most influential early Canadian environmentalist group. This organization emerged as a “lightning rod” for the “chorus of voices” for environmental action among Canada’s universities in the late 1960s: for example, in 1969 Pollution Probe “staged a mock funeral” for Toronto’s Don River; see Neil Forkey, *Canadians and the Natural Environment to the Twenty-First Century*, 97.

technology, but careful attention to physical geography (such as avoiding porous ground that would easily lead to polluted groundwater) in order to limit ecological degradation and negative public health effects of landfills.²⁰² The engineering of non-permeable base liners—also to reduce spread of leachate into the groundwater--was the most significant new technology.²⁰³ In the 1970s, the United States, Canada, and Israel created national government agencies that addressed the environmental impacts of waste disposal.²⁰⁴ Despite these new national bodies, the local or metro-region level remained where New York, Toronto, and Tel Aviv determined actual waste-disposal policy.

The United States' Environmental Protection Agency (EPA), the nation's most significant regulatory body, was created in 1971.²⁰⁵ The 1976 Resource

²⁰² Stricter regulation to ensure rigorous geographical-siting of landfills to prevent groundwater contamination, for example, has significantly reduced pollution in sensitive areas. This more environmentally attuned approach to engineering enabled the new technologies to work effectively. Overall, these approaches have been successful. Most present-day pollution of waterways (e.g. groundwater, rivers, and lakes) comes from nonpoint sources (e.g. runoff containing oil residue from roadways and parking lots) that are harder to regulate.

²⁰³ For details on the engineering of landfills (e.g. siting, base liners, and leachate control), see Hans Tammenagi, *The Waste Crisis: Landfills, Incinerators, and the Search for a Sustainable Future* (New York: Oxford University Press, 1999), 89-124.

²⁰⁴ In general, Israeli environmental policy and law lagged behind these fields in the United States and Canada, although concern for sanitation was similarly influential. In the mid 1960s, for example, Israeli courts were assessing the arguments concerning pollution (such as from a smelly compost plant or a power station) and what constituted legal standing. In general, Israeli judges were loath to enforce environmental legislation very strictly. For an example of a specific debate (with full transcripts) see "Administrative Cases Under Judicial Order: Oppenheimer & Ors. v. Ministers of Interior and Health," *Israel Law Review*, 1 (1966): 462-506.

²⁰⁵ On environmental law questions, the U.S. courts typically have given the government agency-- the EPA--the benefit of the doubt on technical matters. Most environmental-regulatory legal issues hinge on understanding of technical matters. Judges are not experts in these fields, so they have tended to accept the testimony of the best-available technical experts, many of whom are directly involved in creating agency policy. In the courts, the EPA has generally had the benefit of

Conservation and Recovery Act (RCRA)—which gave the EPA explicit regulatory authority--altered the entire landscape of waste disposal policy, engineering, and economic context. In the United States, most states decided and mandated the waste-disposal policy for rural areas, but allowed larger cities and towns to craft their own policies—subject to review that the city met minimum requirements. This relatively lax approach to cities was significant, because if the state was soft in its review or enforcement, cities could effectively ignore legislation. This is exactly what happened in New York.

In Ontario, the Ministry of Environment (MOE) was also established in 1971—and the MOE was the agency that was most directly involved in Metropolitan Toronto’s policies. The Environmental Protection Act of 1971 was the watershed legislation for Ontario; it was revised and updated over the decades, with considerable changes in both 1980 and 1990. In Ontario, local municipal policymakers (such as Vaughan Council) and Metro policymakers determined their policy, and then sought provincial approval for their plans. For Metro Toronto, unlike New York City, obtaining provincial approval was a serious matter; New York City could afford to ignore state rules, but Metro Toronto could not.

Whereas Canada and the United States passed legislation regulating garbage dumps in the 1970s, Israel waited. Israel, in fact, had no regulatory environmental ministry until 1988, when the Ministry of Environmental Protection (MEP) was

having the other party shouldering the need to “prove” the inadequacy of agency policy. Often, the EPA is at odds with environmentalists about policy; the EPA tends to be more moderate and willing to work with industry. It is not uncommon for the EPA to be in court defending its policy against environmentalists, at the same time that the EPA is also being criticized by industry for requiring economically costly regulations. The complications outlined here are further defined by the deeply political nature of recent national politics about larger issues such as defining the role of government, and seeking to reduce government debt.

established; due to environmentalists' rising influence, a sub-ministry was created in 1973, the Environmental Protection Service (EPS), but the EPS had very little influence.²⁰⁶ Prior to the MEP, Tel Aviv's policymakers corresponded with national-government officials (e.g. the Minister of Health and the Ministry of the Interior), but the national government usually did not force Tel Aviv officials to follow a specific waste-disposal policy. Tel Aviv struggled to close Hiriya and find a new dumpsite for policy and economic reasons; regional cooperation among the regional policymaking body, the Dan Region Association of Towns, did a little to make waste disposal easier.

Toronto and Tel Aviv both strengthened regional coordination of waste disposal; New York did not, and hence experienced the worst problems. New York's regional isolation, because it was competing with and not cooperating with its neighboring cities for disposal space, meant that the city had fewer options. In Tel Aviv and Toronto, regional coordination had benefits, but it was not a panacea. Tel Aviv struggled to find alternatives to its Hiriya dump, and so local policymakers allowed it to grow higher and higher. Metro Toronto dealt with its problems by searching for new dumpsites, although this process was becoming more difficult due to expanded provincial regulations and local resistance. In all three cities, waste disposal—especially in economic and environmental terms--was a major concern by the mid 1980s.

²⁰⁶ Alon Tal, *Pollution in a Promised Land*, 260.

New York City

The 1970s were a tough time for New York City. In the mid-1970s the city was nearly bankrupt, and only federal loans—grudgingly given by President Gerald Ford—kept the city financially afloat. New York’s size was also a factor. In the 1970s New York was the largest city in the United States, located within the largest metropolitan area, and part of North America’s largest “megalopolis” on the eastern seaboard. Urban populations along the Northeast Seaboard had risen considerably since the nineteenth century, and the area had been heavily industrialized. By the 1970s, however, much of the industry had left, or was leaving, the area for the Sunbelt (the South and the West of the U.S.) and to locations overseas. This meant a declining tax base, deteriorating infrastructure (e.g. abandoned factories), and rising poverty. In terms of waste-disposal, this context meant that in New York City, engineering and environmental principles were overshadowed by economic woes. Despite mandatory new environmental regulations for waste disposal in the 1970s, New York City’s policy response was to increase its reliance on the outdated Fresh Kills landfill.

In the 1970s, the United States Congress began focusing on environmental legislation with new vigor. Environmental law only became a well-defined field in the 1970s and 1980s, and Congress passed several significant new laws during these decades. The first significant bill was the National Environmental Policy Act (NEPA) of 1970,²⁰⁷ which required an environmental impact statement (EIS) for all

²⁰⁷ More details on NEPA are available at the following U.S. government official NEPA websites: <http://www.nepa.gov> or <https://ceq.doe.gov>. The EPA also has information about NEPA at: <http://www.epa.gov/compliance/basics/nepa.html>.

developments as a matter of policy, but stopped short of making this step legally binding. The most important bill concerning waste disposal was RCRA (1976), of which Section C covered hazardous waste and Section D covered municipal waste.²⁰⁸ In the 1980s hazardous-waste cleanup was a major policy question, so Congress implemented the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), also known as the Superfund Act, to cover toxic waste cleanup; since many municipal landfills include toxic waste (due to uncontrolled dumping of toxics and also the nature of commodities like nail polish and batteries), many landfills are Superfund sites.²⁰⁹

RCRA was based on sound engineering principles. By the mid 1970s, engineers had reached a consensus on what sanitary landfilling entailed (e.g. base liners to prevent the spread of leachate, geographical restrictions, regulations for daily fill cover) and agreed that open, unregulated landfills had caused serious environmental problems. New York's traditional practices of filling marshland and reclaiming land along its waterfront were no longer legal after RCRA, because RCRA mandated that landfills could only be located in areas considered environmentally

²⁰⁸Section D of RCRA applied to municipal solid waste (MSW); Section C focused on hazardous waste. The importance of RCRA was 1) it provided essential funding 2) it jumpstarted the process in areas/states that had not been as affected by pollution and had not taken steps on their own 3) it established the federal government as having a regulatory role (the EPA had this explicit authority under RCRA) on pollution levels and municipal waste (which was a big imposition on economic, political, private systems). The EPA maintains an electronic database on RCRA at: www.epa.gov/rcraonline/.

²⁰⁹ Superfund status leads to many complications, and huge funds necessary for cleanup, so municipalities wish to avoid 'toxic waste' label for these sites. Municipalities can help avoid Superfund status for their landfills by implementing the best-available engineering standards and by taking steps to ensure that toxic waste is not dumped illegally. The EPA website on CERCLA is: <http://www.epa.gov/superfund/policy/cercla.htm>. For some of the legislation and policy concerning CERCLA: <http://www.epa.gov/superfund/policy/index.htm>.

sound--*i.e.* dry areas, with a low water table, out of flood zones, and not seismically active. Fresh Kills had been established in a tidal salt marsh, and had no base liner to prevent the spread of leachate, so it clearly did not meet RCRA siting requirements.

The passage of RCRA in 1976, in theory, should have ended U.S. cities' reliance on open, unregulated dumps. RCRA provided essential funding to states and municipalities. It also established the federal government as having a regulatory role--the EPA had this explicit authority under RCRA--on pollution levels and municipal waste. RCRA was the law that finally outlawed open dumping on land in the United States. After 1976, up-to-date sanitary landfills were legally required, but these new requirements necessitated much more expensive sites: therefore, RCRA had a provision allowing existing landfills to remain open long enough to allow municipalities to make the change without suffering harsh economic penalties. This loophole was significant. The EPA's requirements for landfills, based on its interpretation of RCRA went into effect in 1979. After 1979, all new landfills had to meet specific standards. Since RCRA did not mandate the closure of preexisting dumps, however, RCRA did not directly apply to New York City's operation of Fresh Kills. By 1979 this dumpsite was so large, and New York City had so few alternatives, that New York City had little incentive to comply with the environmental standards of RCRA.

In practice, RCRA made New York City less inclined to close Fresh Kills.²¹⁰ Increased environmental regulation under RCRA complicated the already unwieldy

²¹⁰ New York City struggled to manage its waste in an economic, yet still legally compliant, manner. Its ultimate solution was to ignore state and federal regulations as much as possible. Yet NYS

problem of New York City's waste disposal.²¹¹ Not only was land suitable for waste-disposal sites extremely scarce locally, such land was also scarce throughout the region. Neighboring states like New Jersey²¹² were major waste-exporting states, and the largely rural areas of upstate New York and Western Pennsylvania required long-hauling distances and trucking waste there was complicated and expensive. Communities in these states were mostly uninterested in accepting the

officials largely turned a blind eye to New York City's waste-disposal situation. The DOS never even bothered to obtain a state permit until 1996, when it enlisted state aid in the closure process. Even after New York State adopted legally binding landfill regulation requirements in 1977 (with the passage of 6 NYCRR 360), New York City made almost no pretense of compliance.

²¹¹ Environmental legal decisions often depend on laws originally intended for a different purpose. Several important court rulings impacting municipal waste disposal have hinged on the commerce clause of the Constitution. *Philadelphia v. New Jersey*, from 1978, firmly established that MSW is subject to the interstate commerce clause of the Constitution. Another hugely significant case, from 1994, *Corbonne, Inc. v. Town of Clarkstown* banned laws prohibiting garbage exports (laws which have been passed in an attempt to protect expensive waste-disposal plants). After *Corbonne*, state and local governments were unable to pass legislation on 'flow control'; essentially, this decision meant that local governments could not create 'monopolies' on waste disposal, even in the attempt to build high-cost environmentally friendly infrastructure. In response, Congress passed short-term laws to ease the transition, because many local governments had relied on flow-control legislation and bonds, and had already invested huge sums on infrastructure that required flow-control to be economically feasible. In practice, these makeshift laws meant that Congress could regulate the flow of MSW, but the specific loopholes were somewhat loosely defined

Despite the new environmental legislation of the 1970s, existing laws and court decisions continued to influence public policy. To determine the relevance of past laws, as well as the relevance of recent laws, lawyers looked to two federal publications intended to present the standing laws on the books: the Federal Register (FR), published since 1935, includes explanations of agency rules and the Code of Federal Regulations (CFR) is an annual register of all approved final rules. Environmental lawyers look to these sources as a starting point; sometimes, less published sources (like agency correspondence) holds the legal key; sometimes, court decisions hold the interpretive key to the legal requirements.

²¹² Citizens and Officials in Staten Island were aware of developments in New Jersey—in part, because Staten Island saw nearby New Jersey as a rival for industrial developments. In 1970 the State of New Jersey passed two Solid Waste Management Acts (Senate No.745, Chapter 39 and Senate No. 746, Chapter 40, both from the Laws of 1970), because it felt "grave concern" about current conditions. This legislation gave the state's Public Utilities Commission power to regulate both collection and disposal of solid waste in the cities and towns in New Jersey. For details, see Louis Slesin, "A Perspective on Solid Waste Management in Essex County New Jersey," *Essex County Environmental Problems and Resources*, 17 April, 1971.

city's garbage, except for a large sum. Further complicating matters, other infrastructure policies (e.g. drinking water) conflicted with waste-disposal.²¹³



Figure 36. Trucks Unloading Garbage at Fresh Kills Landfill, 1973. Source: U.S. National Archives; Public Domain.

²¹³ New York relies on sourcing clean water for its drinking water supply, rather than try to filter nearby heavily polluted water sources such as the Hudson River. Per this policy, New York City owns large sections of land north of the metropolitan region in order to ensure a clean supply of drinking water for the city. A landfill would represent a serious threat to such endeavors, because of groundwater pollution, and so no landfill in these areas is feasible.



Figure 37. Dumping Area at Fresh Kills Landfill, 1973. Source: U.S. National Archives; Public Domain.

New York City was able to slip through the cracks in landfill regulation because of disconnection and confusion between national, state, and municipal governments. States struggled to understand what the implications of RCRA were for them: specifically, what they needed to do in order to retain control of waste-disposal policies in their state. New York State only adopted legally binding landfill regulation requirements in 1977 (6 NYCRR 360)--although under the 1973 Environmental Conservation law the Department of Environmental Conservation (DEC) had the authority to regulate solid waste disposal, and some landfill-regulation measures had existed in the 1960s.²¹⁴ New York City had always

²¹⁴ The State of New York (NYS) was a leader in requiring sanitary landfills rather than

operated somewhat independently of the state government, however, and NYS officials had a huge task in dealing with the rest of the municipalities in the state.

New York State authorities mainly took a blind-eye approach to Fresh Kills. In 1980 the DEC issued its first "Consent Order" to bring Fresh Kills into partial compliance, and also to conduct an EIS and obtain a permit.²¹⁵ New York City's Department of Sanitation (DOS) did not complete the permit application and so the EIS plan was shelved by the DEC in November 1985. In December 1985, the DEC issued a second Consent Order. This one also fell through, despite the DEC's awareness of and documentation of the city's failures to comply with DEC regulations. The state threatened the city with "imminent closure of Fresh Kills and penalties of \$76 million" but did not act. From 1983 through 1989 state and federal legal action was also taken against Fresh Kills; the end result was that the DOS was

open dumps, but its focus was primarily on rural areas. As reported by a sanitary engineer working for the Bureau of General Engineering and Sanitation Services of the New York State Department of Health: in 1959 "only 85 communities in the State, excluding New York City, operated sanitary landfills or incinerators. Since there are some 1,546 towns, villages, and cities in the upstate area, it was obvious that much of the 5 million tons of refuse produced each year was being disposed of at open dumps." Salvatore Pagano, "Sanitary Landfill Operations in New York State," *Public Health Reports*, 79, 6 (June, 1964): 543-548.

In 1970, New York State passed a Public Health Law relevant to waste-disposal facilities, A. 5980-A. This bill sought to address the issue of NIMBY protests by requiring municipalities to plan for the long-term, post-closure use of the waste-disposal site as a means of demonstrating to area residents that a proposed landfill was only temporary. See "Public Health Law: Waste Disposal Facilities," *New York State Legislative Annual, 1970* (New York: New York Legislative Service Inc., 1971), 509-510. On a related note, throughout the 1970s there were several New York State bills proposed and implemented to encourage "resource recovery" instead of reliance on landfilling.

²¹⁵ Mark Green, New York City Public Advocate. "Unhealthy Closure: the need for a full environmental impact statement of DOS's long-term plan to control pollution from Fresh Kills," Sept 17, 1997, pages 13 and 14.

required to better control leachate and litter from escaping the site—which was a minor concession.²¹⁶

In the 1970s and 1980s New York City's DOS sought to downplay its continued use of Fresh Kills--despite RCRA--by portraying the landfill as a well-run, modern, and sanitary operation, but Staten Islanders were not convinced. The local newspaper, *The Staten Island Advance*, regularly ran articles condemning Fresh Kills; for example, articles commonly mentioned the landfill's constant stench and tendency to catch fire: "Not a day goes by out here that we don't have at least one fire," because "When the garbage isn't covered up, the gases [released by decomposing refuse] ignite and it burns."²¹⁷ Moreover, in 1978 talk of transforming Fresh Kills into a park resurfaced, in part as a means for Staten Islanders to analyze the landfill's unexpectedly long history. Over 75 million tons had been dumped at the landfill by then (up from 36 million tons in 1965). The DOS had revised its tentative closure date for Fresh Kills to 1985. The park-development plan floated in 1978 was to "place a final two-foot deep cover of clay and let the marshland grass take over once again."²¹⁸ By the late 1970s, such park plans were

²¹⁶ An example of a Federal Court Order: *Township of Woodbridge v. City of New York*, Civil Action No. 79-1060. An example of a State Order: *In the Matter of Alleged Violations of Environmental Conservation Law*. Sections 27-0707, 17-0501, and 25-0401; 6 N.ASSOCIATION OF TOWNS.C.R.R. parts 360, 751, and 661 in DEC File No. 2-0527. Eric Goldstein and Mark Izeman discuss the ramifications of such legal action in *The New York Environment Book*, (Washington, DC: Island Press, 1990).

²¹⁷ In July 1975, for example, a fire "deep in the landfill, inaccessible to fire engines" burned for several days and thus temporarily put Fresh Kills out of operation. In result, 35 tons of garbage began piling up on New York City streets and "was approaching the 'health emergency' level." "Landfill fires spread stench to Island Communities," *The Staten Island Advance*, July 3, 1975.

²¹⁸ Janice Kabel, "The Fresh Kills Landfill. Thank Robert Moses for idea of transforming marsh to park," *The New York Times*, October 2, 1978.

despite growing concerns about pollution (e.g. installing poison pumps). That the park plans were purely speculation at this time was made clear in 1982 when the DOS again revised its plans for Fresh Kills's closure and extended its plans to use the site through the year 2000.²¹⁹

When waste from all sources was totaled up (private haulers could dump at Fresh Kills for a fee), "by 1986 Fresh Kills was receiving 21,200 tons per day of waste--most of the city's garbage."²²⁰ Rather than find a new landfill, New York City policymakers decided instead to raise tipping fees (the charge for non-municipal dumping) in order to reduce the waste totals being dumped, and thus extend use of Fresh Kills for as long as possible. Higher tipping fees lessened the waste tonnage dumped at Fresh Kills enough that in 1989 the DOS proposed extending the dump through 2020. In 1990, however, disposal at Fresh Kills still covered "75 percent of the city's total garbage output"; higher tipping fees were only delaying the inevitable.²²¹

²¹⁹ The continued expansions of Fresh Kills were, seemingly part of the 1980s 'waste crisis' mindset: but the basic rhetoric from 1946 of Fresh Kills as the stopgap policy, used only until the City could construct high-tech incinerators (such as at the Brooklyn Navy Yard), had not changed. Lori Weintraub, "Fresh Kills landfill to be used until year 2000," *The New York Times*, September 16, 1982.

²²⁰ Mark Green, "Unhealthy Closure: the need for a full environmental impact statement of DOS's long-term plan to control pollution from Fresh Kills," 9.

²²¹ The DOS proposed the 2020 extension in March 1989 to the City Council. Eric Goldstein and Mark Izeman, *The New York Environment Book*, 11-12.



Figure 38. Daily Cover, Fresh Kills Landfill, 1973. Source: U.S. National Archives; Public Domain.

Staten Islanders resented the dump as an imposition that they had been “powerless” to prevent. This feeling was intensified by the complex municipal policy structure of New York City: each of the five boroughs has a President, who has a vote in the Board of Estimate, which is the real policymaking body of the City-- unless, as in Robert Moses’s case, an extraordinary individual has managed to obtain inordinate power. As the politics of establishing Fresh Kills in the 1940s made clear, local citizen activism had little impact; the vote of Staten Island’s Borough President was all New York City’s officials needed to open the dump. In the mid-1980s, local protests were going on all over the city, and were at cross purposes--as the concurrent protests against the Brooklyn Navy Yard incinerator and Staten Island’s

anger about New York's extensive use of Fresh Kills made clear. Residents of New York City's other boroughs had their own environmental problems to contend with, and so Fresh Kills for them was less important than local issues. Staten Islanders felt especially ill-treated, however, because Fresh Kills not only remained in use after passing several proposed-closure deadlines, but New York City was becoming more dependent on the landfill every year.²²²

One side effect of increased governmental legislation was increased public discourse about the benefits of alternative waste-disposal methods such as recycling and waste-to-energy incinerators. Government offices like the EPA (and State offices like the DEC) created public-education campaigns extolling the benefits of recycling, of not littering, and of not being wasteful. In practice, Fresh Kills was where the vast majority of New York's garbage went, but during the 1980s there was a clear switch in the focus of plans for future waste-disposal policy.

A major result of the higher costs of landfilling in the 1980s was that recycling and waste-diversion gained support; this trend has only gained momentum over the following decades since waste-disposal costs have continued to rise. This has tended to be a local government, or private-company affair. In the early 1980s, under the direction of Norman Steisel, the New York City's DOS underwent significant overhaul. Steisel streamlined the department, eliminated

²²² The archives of Mayor Koch held by the New York City Municipal Archives are full of letters and official memoranda detailing the woes of New York City's dependence on Fresh Kills, and struggles to move forward on the plan to construct several high-tech resource recovery incinerators. A clear example of Staten Island's displeasure about the continuing use of Fresh Kills (and the local newspaper—the *Staten Island Advance*—also had many articles about the problems with New York's reliance on Fresh Kills) is the letters from Guy V. Molinari (a U.S. Congressman in the mid-1980s and the Borough President of Staten Island in the mid-1990s) to Mayor Koch. For example, see the letter from Molinari to Koch dated February 3, 1984; Mayor Koch files, New York Municipal Archives.

Mob influence on New York's garbage collection (the City had relied on private cartmen, many of whom answered to the Mob for their position), and proposed a new waste-to-energy incinerator (i.e. a Resource Recovery plant) to dispose of the city's garbage. Grand plans for Resource Recovery dominated garbage talk of the early 1980s, but in the meantime the DOS increased dumping at Fresh Kills as older incinerators and smaller landfills were closed.²²³

The DOS's flagship project of the 1980s and 1990s was the Brooklyn Navy Yard WTE incinerator. The Board of Estimate approved the initial plans for this incinerator in October 1980.²²⁴ In 1981 the DOS expressed hope in newly passed legislation in New York State, which facilitated the city's initial process of setting up guidelines to establish the project by giving the city power to select one proposal for all aspects of the project and streamline its implementation. This initial optimism, however, turned sour as the Brooklyn Navy Yard incinerator proved to be a lightning rod for public dissent, surprisingly effective protest, legal fights, and the ultimate defeat of the DOS's vision. In hindsight, so much public attention, and work hours of city officials like Sanitation Commissioner Steisel, was sapped by the incinerator proposal that its defeat in 2001 (the same year Fresh Kills closed) condemned New York to the worst possible waste-disposal predicament. If less energy had been spent on the incinerator plan, perhaps the city could have avoided the worst effects of the landfill's closure in 2001.

²²³ New York City Department of Sanitation, *1981 Annual Report*. Mayor Koch files, New York Municipal Archives.

²²⁴ Ibid.

Toronto

Large-scale landfills were the foundation of Metro Toronto's waste-disposal in the 1970s and 1980s. In the years following the 1967 McLaren Report, Metro obtained the Beare Road landfill (1967) and the Brock Road (1975) landfills. This gave Metro a solid short-term foundation for its waste disposal. In the 1970s private corporations worked with Vaughan Council, Metro, and the Ontario provincial government to broker a deal at the Maple Pits, which would become Keele Valley in 1983. Many citizens of Vaughan, however, were less than impressed with the McLaren Report's endorsement of the Maple Pits as Metro's long-term waste-disposal solution. Their fears were justified. By the mid 1980s, Metro was in the midst of a "waste crisis" from which finding new landfills—and perhaps promoting recycling as well--seemed to be the only viable escape.

Throughout the 1970s, Vaughan's Garbage Sub-Committee weighed the pros and cons of transforming the Maple Pits into a huge garbage landfill that would serve Metro.²²⁵ The Committee mediated between the private corporations that wanted to establish garbage dumps, activist groups who protested against the proposed landfill, and other levels of government (e.g. Ontario, Metro, and York Region) that also had a say in Vaughan's policies. In 1973, Superior Sand and Gravel and another local corporation, Crawford Allied Industries, each submitted unrelated large-scale landfill (roughly 500 acres each) proposals to use land at the Maple Pits that they already owned. Combined, these two proposals created a 1000-

²²⁵ Jim Cameron and D. Fraser were the Council members; other members were Robert Kraft, J. Dewar, T. Jackman, and Jim MacDonald.

acre landfill, which would make the Maple Pits the site of Canada's largest dump. These companies spent the following years negotiating with Vaughan's Garbage Sub-Committee, Metro, and the relevant provincial offices like the MOE.²²⁶

In early April 1980, after a period of deliberation, Ontario's Environmental Appeals Board decided to accept the Vaughan-Council-approved Keele Valley landfill proposal.²²⁷ The accepted commission was for a combined corporation including both Crawford and Superior/Disposal Services, under the aegis of the USA-based Waste Management Inc. The response in the village of Maple was largely resignation; the response from Metro was relief that positive action had been taken to deal with the region's massive wastes, although there was some concern about

²²⁶ The specific proposals in the 1970s to establish landfills in Maple came from private corporations, and not actually from Metro; Metro took an administrative and not an engineering role. The private corporations saw the Maple site as a lucrative opportunity, because they would sign a contract with Metro. Disposal Services was one of the first contenders, but the situation quickly became complicated. In 1972, the USA-based corporation Waste Management Inc. acquired Disposal Services. At that time Norman Goodhead—a former reeve of North York--was the President of Disposal Services. In 1972 Goodhead and Associates acquired Superior Sand and Gravel—another Maple-based company. Goodhead remained President of Disposal Services so there was a direct connection between three companies. Disposal Services already owned and operated the 43-acre private landfill on the land that eventually became the Keele Valley site, in the township of Maple; this private dump had been established in 1952 adjacent to Vaughan's town dump. Through 1972, the borough of North York was Disposal Services' primary client. In 1973 Superior Sand and Gravel (now affiliated with Disposal Services) presented a proposal to redevelop the old dumpsite, and as part of its proposal it explained the dump's layout: "the original pit into which the wastes are disposed was excavated [by 1952] to a depth of 70' below the original ground level, and the base of the pit was dry" because the groundwater table was likely 20 feet below that level. By 1974, Disposal Services' Maple landfill towered 70 feet, and because it "was the loftiest hill for miles," the locals called it "Mt. Goodhead."

Like Disposal Services, Crawford Allied Industries had strong local political connections: in the mid 1970s, when these proposals were being considered, Tony O'Donohue, the chairman of the Metro Works committee, was an executive of Crawford Sand and Gravel Co., an affiliate of Crawford Allied Industries. John Sewell, a rival for the Works Commissioner position, charged that O'Donohue's connection with Crawford was a conflict of interest, and evidence of corruption, but Sewell's challenge was ignored. "Metro Spurns Mayor's Advice on CNE Job," *The Toronto Star*, December 17, 1975.

²²⁷ The certificate for the landfill was authorized under *Environmental Protection Act, R.S.O. 1990, c. E.19*.

the landfill's private ownership.²²⁸ In August 1982, the Ontario Municipal Board formally approved the landfill.²²⁹ In September 1982 Metro bought rights to the newly approved landfill—Metro's ownership eased concerns about having to rely on international private corporations to handle Greater Toronto's garbage disposal. Disposal operations at Keele Valley began on November 28, 1983 after over a decade of negotiations.

²²⁸ Neil Louttit, "Maple resigned to 'progress'," *The Toronto Star*, April 7, 1980.

²²⁹ The Ontario Municipal Board's (OMB) rationale for approving the Keele Valley Landfill is clearly explained in that governing body's official report "RE TOWN OF VAUGHAN RESTRICTED AREA BY-LAW 205-80." In summary, the OMB ruled that the landfill was clearly necessary, and that the landfill proposal showed a clear plan to address the potential detractions (e.g. traffic congestion, environmental problems). The OMB's report was printed in *Ontario Municipal Board Reports*, Robert T. Beaman editor and Nancy Phelps associate editor, Vol. 13, (Aurora, ON: Canada Law Book Limited, 1982), 420-431.

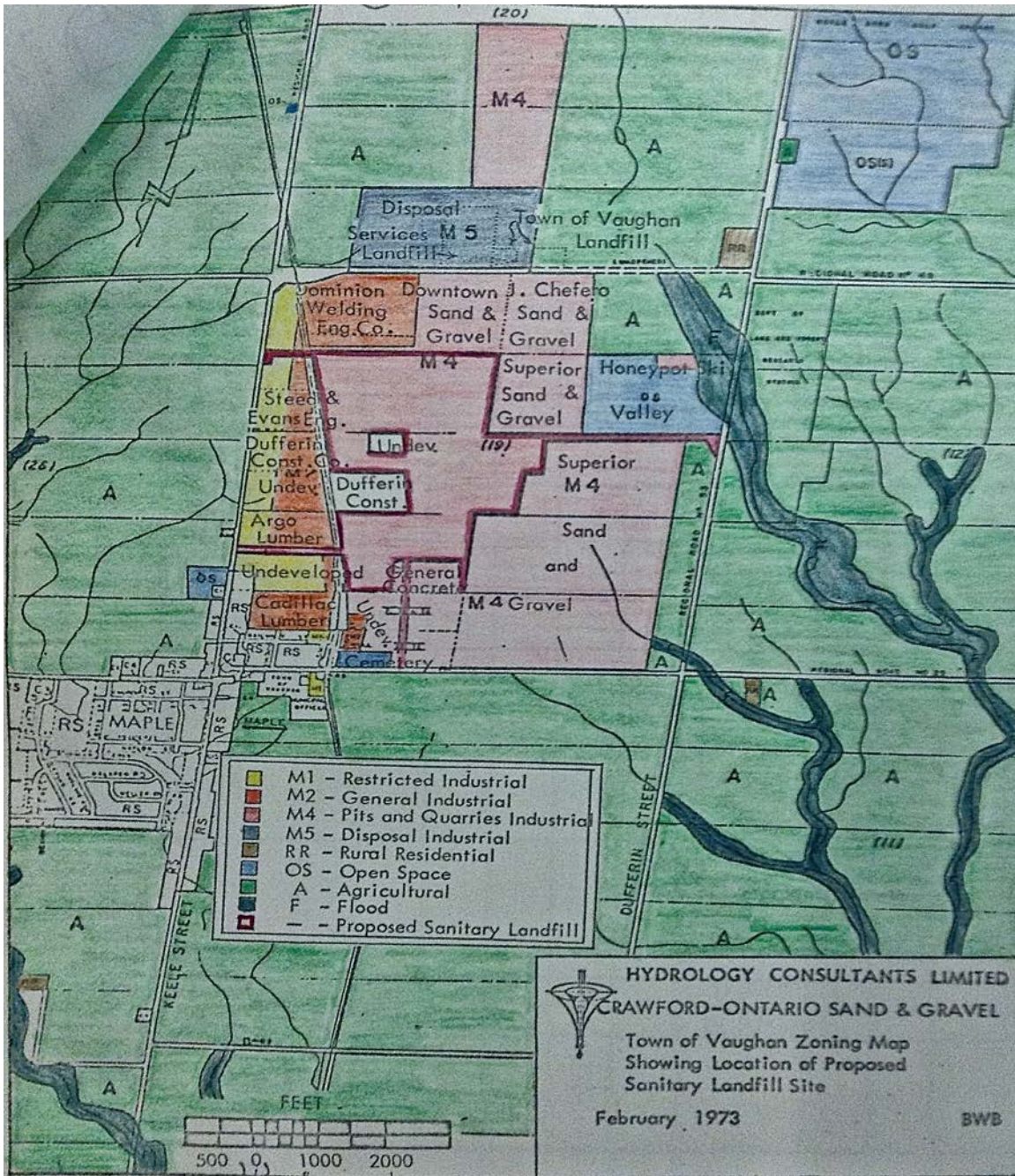


Figure 39. Proposed Landfill at the Maple Pits (Keele Valley) Site, 1973. Source: Courtesy of City of Vaughan Archives; Jim Cameron fonds.

This image, from the collection of Vaughan Councilman Jim Cameron, is a hand-colored map of the proposed landfill sites at the Maple Pits. Two corporations—Crawford-Ontario Sand & Gravel and Superior Sand and Gravel and Disposal Services—both submitted landfill proposals in 1973. Cameron and other members of Vaughan’s council met and debated with both corporations over the next few years. This hand-colored map shows both landfill schemes’ area, as well as the area of the Town of Vaughan landfill (colored green); it therefore shows the entire land-area of the scheme (which eventually took shape as the Keele Valley landfill in 1983).

The York Region Municipality—which Vaughan is part of—sought to ensure that it had some control over the newly approved garbage dump in Maple: in 1981 the York Region implemented a new master plan for solid waste disposal, which it had begun working on in 1974.²³⁰ Under this new legislation, among other things, York Region clearly defined its rights and power to negotiate with private waste-disposal firms.

Both Vaughan and the York Region benefitted from selling the Keele Valley site to Metro Toronto for use as a dump. The agreement gave Vaughan a royalty of 40 cents for each \$13.25-per-ton fee that Metro initially charged for dumping waste at Keele Valley; Metro also guaranteed that York Region could dump its garbage at Keele Valley for 20 years.²³¹ In addition, the York Region Municipality did not have to pay the extensive capital costs to open a landfill at Keele Valley, which was a lucrative boon: Metro spent \$38 million to buy the site in 1983 and spent another \$60 million to develop the site.²³² Vaughan could use the money it received and saved from the Keele Valley landfill to fund other civic projects.

²³⁰ Victoria Stevens, “Proposed plan will let York control dumps,” *The Toronto Star*, February 12, 1981.

²³¹ Victoria Stevens, “York to study waste-management” *The Toronto Star*, May 19, 1987.

²³² Victoria Stevens, “Region won't pay dump levy,” *The Toronto Star*, March 24, 1987.



Figure 40. Keele Valley Landfill, Final Contours, 1982. Source: Courtesy of the City of Vaughan Archives.

From the outset, Keele Valley was a highly engineered landfill; it was upgraded over time because of changing environmental-legal regulations and in order to limit its noxious effects.²³³ Nearly every detail of the Keele Valley site was meticulously planned prior to the first load of garbage dumped there in 1983. Metro

²³³ Keele Valley was meticulously planned. Yet, journalists and community activists protesting the dump typically emphasized the environmental and noxious effects of the dump. This was hyperbole. For example, a 2002 article in *Toronto Life* wrote that from 1983 and 1992 Keele Valley “was just a dump, environmentally hostile, ugly, a site whose 125-foot-deep gravel pit was gradually filled with unsorted, stinking miscellanea.” “Every day [from 1983 through 1992], a procession of garbage trucks would enter from Keele [Street] to offload outmoded refrigerators, crags of dusty drywall and can of glutinous, petrifying paint.” “Leachate—rainwater filtered through the garbage—made the mounds collapse periodically, causing exhalations of methane, giving off its pungent rotten-egg, hydrogen sulfate stench.” Matt Beam, “Keele Valley Landfill, 1983-2002,” *Toronto Life*, 2002.

updated Keele Valley to keep up with Ontario's new environmental regulation standards and with new engineering techniques. In 1985 a landfill-gas collection system was implemented to reduce emission of gases from decomposing waste and to reduce noxious smells. In December 1986, the Vaughan council approved Metro's request to expand the dumpsite. Metro sought to extend the dump's capacity by removing clay from a buffer zone between the Keele Valley Landfill Site and Dufferin Street. Some Maple residents protested this plan, saying: "the clay buffer is a backstop against the spreading of toxics from the dump and that removal of the clay might result in open-pit mining of the gravel beneath the buffer. Metro needs the clay to line the dump and prevent seepage."²³⁴ At first, Vaughan's city council concurred with the protestors, but Vaughan's Mayor Lorna Jackson, "who represented the deciding vote, changed her mind after Metro officials assured her the clay along Dufferin St. would be replaced with other material and the strip would never become a gravel pit."²³⁵ In fact, Jackson's decision made sense: enabling Metro to develop the site into a better landfill clearly fit Vaughan's economic interests at this time, as long as noxious impacts on the surrounding area were minimal. Due to its per-ton royalty agreement with Metro, Vaughan received more money when more garbage was dumped at Keele Valley.

Within years of its establishment, Keele Valley was quickly becoming Metro's primary waste-disposal site. In May 1987 Metro Councilor Richard Gilbert reported

²³⁴ "Vaughan councillors okay dump request," *The Toronto Star*, December 9, 1986.

²³⁵ "Metro gets Vaughan approval for continued use of dump," *The Toronto Star*, December 16, 1986.

to Ontario's provincial government that "there are days when there is a lineup of dump trucks two kilometres long" at Keele Valley.²³⁶ In 1987 there were "10,000 tons of garbage produced daily by its six member municipalities" dumped at Keele Valley and Brock West landfills. As early as 1987, Metro was "actively searching for new landfill sites outside its boundaries as the life of the 372-hectare (920-acre) Keele Valley site shortens."²³⁷ Metro was unable to find an alternative site, so it began considering alternative solutions, including Resource Recovery and recycling.

Keele Valley was not enough--within five years of its founding, Metro hit a new "waste crisis" of worries that its existing disposal infrastructure was insufficient. In the late 1980s, Metro officials began searching for a new dumpsite to take Brock West's place. Brock West had already been on operation for nearly a decade by the time Keele Valley was established; Metro officials expected to close it by "the end of 1989." The impending closure of Brock West meant that Metro would "have nowhere to put 45 per cent of our garbage," except to dump more at Keele Valley.²³⁸ Metro's inability to find a new site to take Brock West's place meant that Keele Valley was Metro Toronto's only large-scale dumpsite from the early 1990s to 2002. The "waste crisis" in 1987 was the abundance of rumors that Keele Valley was nearing capacity and would soon be closed. When asked by the *Toronto Star*, Metro's director of refuse disposal, Ian McKerrecher, "wouldn't speculate" on how

²³⁶ David Israelson, "Metro choking on garbage, official warns," *The Toronto Star*, May 7, 1987.

²³⁷ Victoria Stevens, "Region won't pay dump levy," *Toronto Star*, March 24, 1987.

²³⁸ Michael Smith, "Garbage crisis near, council told" *The Toronto Star*, May 13, 1987.

long Keele Valley would last, but the another regional official (Durham Region Chairman Gary Herrema) told the *Star* he had heard that Keele Valley was receiving such large quantities of waste that it “would close in 1996 or 1997.”²³⁹

The main reason Toronto and the smaller regional communities faced significant difficulties finding landfill sites in the late 1980s was because there was a paradigm switch in waste disposal—as there also was in New York and Tel Aviv at this time. Metro had become used to simply dumping garbage nearby, typically just outside city boundaries. By the late 1980s, environmental concerns and government regulation largely prohibited that practice, and surrounding communities were less likely to accept a commission for a new garbage dump. At the same time, consumerism had increased. In 1987 the *Toronto Star* summed up the dilemma this way: “Until recently, landfills were readily available, and cheap. But now, opposition to landfills is so universal and concerted that a term has been coined for it: NIMBY,

²³⁹ Many Metro-fringe municipalities used Keele Valley rather than establish local dumps. York Region politics about landfills raged in December 1986: What it came down to was that few towns wanted to have a dump in their area; and finding the cheapest option was the other primary concern. Townships like Newmarket (currently where the main York Regional Municipality offices are located) disliked having to pay high tipping fees to dump their garbage at the Keele Valley landfill. Yet, Newmarket’s mayor, Ray Twinney, stated in December 1986 that landfills are “still the safest and most economical answer for garbage till who knows when.” Prior to 1986, Newmarket had sent its waste “to a dump in Aurora, which closed more than a year ago,” and sending waste to Keele Valley meant “a 60 per cent increase in garbage collection costs over the past year.” Twinney also noted his concerns that Keele Valley was “filling up at an alarming rate.” Another regional mayor, Fran Sainsbury from Whitchurch-Stouffville, disagreed with Newmarket’s stance, and said the region should have “invested money in the new technologies available to handle municipal waste [rather] than go through the expense and ‘aggravation’ of trying to find and develop another landfill site”; it is “Far better to spend money on transfer stations, recycling programs, incineration and buying garbage compactors that reduce the number of loads taken to landfill sites.” These mayors’ contradictory views illustrated the growing concerns of the late 1980s about whether landfilling was a viable future option for municipalities in the Greater Toronto region. It bears reminding that these municipalities were primarily concerned with cost: economics, not environmentalism was at the heart of the push towards recycling and away from landfilling. Victoria Stevens, “Region won’t pay dump levy,” *The Toronto Star*, March 24, 1987.

or Not In My Backyard. That opposition, plus ever-stiffer environmental regulations, have so far stymied Metro's hunt for a new site to replace the Brock West landfill in Pickering, scheduled to close in 1991." Ian McKerrecher also expressed his frustration at Metro's inability to find a new dumpsite by referring to Metro's search as "a nightmare," because "There are just too many problems."²⁴⁰

Newspapers like the *Toronto Star* were playing off public fears. Metro's initial agreement with Vaughan, in 1983, was to use Keele Valley for twenty years, until 2003. The speculation about the landfill closing in 1996 or 1997 was driven in part by the "waste crisis" mentality of the late 1980s and not by logical analysis. This crisis mentality, in turn, led to a new policy focus: putting recycling at the forefront of public rhetoric and municipal policy.

Tel Aviv

Until the 1980s, Israel relied on general environmental goodwill, and not waste-disposal legislation to regulate offensive practices.²⁴¹ This was not a naïve ideal in light of Israel's Zionist founding myth (that Palestine was the true Jewish

²⁴⁰ Peter Cheney, "Metro's garbage costs soar as sites run out," *The Toronto Star*, March 14, 1987.

²⁴¹ Most laws were pro-business. Therefore, the 1960s environmental organizations like Malraz (The Public Council Against Noise and Air Pollution) faced a steep uphill battle against polluters. In fact, in the 1960s and early 1970s, the Knesset's policy and hence the weight of Israeli law was firmly against environmental protests: in the case of Tel Aviv's Reading Power Station—approved in 1968--the judge ruled in favor of the power plant because "he feared that recognizing vague *public*-nuisance actions would open the proverbial floodgates and allow citizens to harass Israeli industry at will." Alon Tal, *Pollution in a Promised Land*, 371.

homeland, because of an ancient/biblical connection with the land), but ideals of respecting the land did not always translate into action.²⁴² By the 1970s, Hiriya was a clear example of how urbanization and large-scale development in Israel violated the ideal of maintaining a positive environmental relationship with the land.

The 1970s and 1980s marked the time when Israel unabashedly became a consumer nation, and the Tel Aviv metropolitan area—as Israel’s major economic, artistic, and industrial metropolis--was the epicenter.²⁴³ This led to changing patterns of waste-production and disposal. This trend began when Israel allied with the United States after the 1967 war, and support for the Labor government was further eroded by the perceived debacle of the 1973 October (Yom Kippur) War.²⁴⁴

The embrace of American-style consumerism led to environmental problems. By the mid 1970s, many areas in Israel, and especially metropolitan areas like the Dan Region (i.e., Greater Tel Aviv), faced a serious problem about how to manage

²⁴² For details on Judaism’s complex relation with environmentalism, and nature, see Manfred Gerstenfeld, *Judaism, Environmentalism and the Environment* (Jerusalem, IL: The Jerusalem Institute for Israel Studies, 1998).

²⁴³ Tel Aviv was still a consumer center of Israel before the 1970s. The *Ha’areetz* newspaper, for example, in the 1950s ran many advertisements for consumer goods, including women’s and men’s fashion, automobiles, and various foods and beverages. These, and many similar advertisements, were common in the *Ha’areetz* (Hebrew-language) daily newspapers from 1950-1969, and of course this trend continues through the present day. The present-day (English-translated) website for Ha’areetz is: <http://www.haaretz.com>.

²⁴⁴ The initial unpreparedness of the Israeli government and military for the October 1973 War further exposed the (perceived) weaknesses of the Labor government. The Likud party had already been gaining prominence before 1973, but Likud officially won control of the Israeli government after the 1977 elections. For an analysis of how this political switch affected (or more accurately failed to affect) Israeli environmentalism see Orr Karassin, “The Battle of the ‘True Believers’: Environmentalism in Israeli Party Politics” from *Between Ruin and Restoration: An Environmental History of Israel*, edited by Daniel Orenstein, Alon Tal, and Char Miller (Pittsburg: University of Pittsburg Press, 2013), 168-189.

their rapidly increasing wastes.²⁴⁵ This problem, however, was economic and pollution-based—and not based on a lack of land suitable for dumping—such as New York City faced. Geographically, sand dunes (along the Mediterranean coast) and desert (e.g. the Negev, in southern Israel) were the primary sites for dumping. Environmental concerns aside, these dunes and deserts offered sufficient land area for dumping.

The key to understanding Greater Tel Aviv's waste disposal policy since the 1970s is the shift in importance from the central city to the suburbs and neighboring cities.²⁴⁶ Since the 1970s, the metropolitan area has been more significant than the city of Tel Aviv. Although the central city declined in population, the surrounding municipalities rapidly gained population: these areas' population increased by 104% from 1961 through 1976.²⁴⁷ Tel Aviv-Yafo remained

²⁴⁵ "Solid Wastes Management in Israel: Facts and Figures 2006," Solid Waste Management Division, Ministry of Environmental Protection. [Association of Towns.sviva.gov.il](http://AssociationofTowns.sviva.gov.il), accessed May 2009.

²⁴⁶ After Tel Aviv peaked in size in 1964 (394,000 persons) it experienced a decline, relative to its immediate suburbs, which continued to expand. This was because of several factors: 1) reduction of population because of center-city reduced birthrate and slow-rise trend of mortality (ageing population); 2) emigration of people from the city's core to the suburbs or elsewhere in Israel. In 1969 Tel Aviv had 390,000 inhabitants, and municipal officials had not yet realized that the city had already reached its zenith. That year, the Tel Aviv-Yafo municipality commissioned a long-term plan for growth, "Planning For The Future": this plan was for the year 2000 to accommodate 600,000 inhabitants, as part of a Greater Tel Aviv of a million and a half. Tel Aviv-Yafo's planners understood their miscalculation by the late 1970s, and revised their plans. In 1969, Tel Aviv had 237,000 workers—and 31% of all of Israel's industrial workers. In 1969 there were 261,000 houses (of all sizes) and the plan was to increase that number to 650,000 by 2000. Moshe Goldstein, *Breve Historia de Tel-Aviv*, Biblioteca Popular Judia, (Buenos Aires: Congreso Judio Mundial), 1969.

²⁴⁷ Tel Aviv-Yafo had 48% of the metropolitan-region's total population in 1961, 33% in 1972, and 29% in 1976. By 1976 the geographic pattern of the core-city of Tel Aviv-Yafo and the 'outer-circle' settlements was clearly evident in the metropolitan area. In 1961 the metro region had 804,375 persons (the suburbs already outnumbered the city with 418,275 persons as compared to the city's 386,100). By 1972 the total had risen to 1,102,273 (suburbs 840,248 as compared with 363,750 in the city) and in 1977 it was 1,183,448 (840,248 in the suburbs compared to the city's

administratively independent--except for the Dan Region Association of Towns--but was “an integral part of the vast metropolis.”²⁴⁸

The creation of the Dan Region Association of Towns was an attempt to address Greater Tel Aviv’s sanitation policy at the regional scale. The failures of many other municipalities to deal adequately with sanitation led the Interior Ministry in 1966 to propose that the municipalities of the Greater Tel Aviv region to join together as a regional association--i.e., the Dan Region Association of Towns. In 1966, however, the Tel Aviv-Yafo municipality unanimously opposed the measure because of the argument that Tel Aviv-Yafo had an overwhelming “majority, in terms of population.”²⁴⁹ Since the other municipalities of the Dan Region lacked the ability to establish dumps of their own (because of NIMBY and high costs) the Interior Ministry’s proposal was implemented despite Tel Aviv-Yafo’s dissent.²⁵⁰

In 1974, the mayors of Tel Aviv, Ramat Gan, Petah Tikva, and Bnei Brak solidified this regional agreement as a “loose confederation” to handle their

343,200)—and the discrepancy between suburb and city continued to rise in the following years. Tel Aviv-Yafo Municipality, *The Population of T.A.-Yafo in the 1970s Development and Trends*, November 1978.

²⁴⁸ Since 1966, the Dan Region Association of Towns has served the Tel Aviv metropolitan area. In 1966, Tel Aviv-Yafo municipality voted against the Interior Ministry’s proposal of the formation of the Association. The Dan Region Association of Towns was an effort to coordinate policymaking to address the infrastructure challenges created by the metropolitan region’s urban sprawl. The English names for this regional policymaking entity have changed multiple times, and the towns represented in it have also expanded since the 1970s. In the text, I am only going to refer to it as the Dan Region Association of Towns. The quote is from Tel Aviv-Yafo Municipality, *The Population of T.A.-Yafo in the 1970s Development and Trends*, November 1978. See also “Municipality Council requires the Dan Cities Association,” *Davar*, July 12, 1966.

²⁴⁹ “Municipality Council requires the Dan Cities Association,” *Davar*, July 12, 1966. *Davar* was a Hebrew-language publication, so the quote is my translation. In the mid-1960s the Tel Aviv-Yafo municipality wanted instead to restrict the use of the Hiriya dump to Tel Aviv and Jaffa only; See “Tel Aviv opposes further Hiriya dump,” *Davar*, April 5, 1965.

²⁵⁰ “Municipality Council requires the Dan Cities Association,” *Davar*, July 12, 1966.

municipalities' garbage disposal.²⁵¹ This move made sense because most regional municipalities already used Hiriya. Environmental law and legislation has become much more significant in Israel since the 1970s;²⁵² but, prior to 1989 no national regulatory municipal solid waste (MSW) standards existed in Israel.²⁵³ The Dan Region Association of Towns gave some stability to the Tel Aviv area's waste disposal—the group dealt directly with mayors of the townships (who were not always in agreement) and with national Knesset officials about garbage policy.

In the 1970s Hiriya was the Dan Region's main site for waste disposal. Despite the suggestion of the Knesset's Health Minister to consider an incinerator,²⁵⁴ in 1977 the Dan Region Association of Towns decided to convert

²⁵¹ "Dan Region mayors move toward loose confederation" *The Jerusalem Post*, April 5, 1974.

²⁵² Israeli law is based on the British-Mandate and Ottoman legal system as a matter of tradition and practicality—when Israel declared independence in 1948 the plan was to disrupt the legal system as little as possible. Israel has no specific Constitution document, but rather a system of Basic Law and Knesset legislation that are creating a sort of working Constitution on a piecemeal basis. Ultimate executive and legislative authority lies with the majority coalition of The Knesset, headed by the Prime Minister, who has the authority to appoint individuals to lead government Ministries. The Ministries have power to oversee specific issues—such as the Ministry of Health and Ministry of Environmental Protection's interest in matters of public health and environmental pollution. For the most part, local and regional authorities and municipal councils have the power to craft their own policies, but a Ministry has the authority to supersede local power when desired. As in the United States and Canada, Judges have the ultimate authority to interpret laws through court decisions.

For details on the legal powers of The Knesset, see Eliahu S. Likhovshi, *Israel's Parliament: The Law of the Knesset* (Oxford: Clarendon Press), 1971. For an English-language concise outline of Israeli Law, see Ariel Bin-Nun, *The Law of the State of Israel: An Introduction* (Jerusalem: Ruben Mass Ltd.), 1990. For a more in-depth account see Amos Shapira and Keren DeWitt-Arar, ed., *Introduction to the Law of Israel* (Boston: Kluwer Law International), 1995.

²⁵³ The Knesset's present-day Ministry of Environmental Protection (MEP) was not created until 1988. A precursor to the MEP, however, the Environmental Protection Service (EPS) was created in 1973. The EPS was not well-supported, and its "formal mandate granted by the government was in fact extremely narrow." Alon Tal, *Pollution in a Promised Land*, 260.

²⁵⁴ Arthur Kemelman, "Hiriya garbage freshened up for guests," *The Jerusalem Post*.

Hiriya into a sanitary landfill as a means to keep the site open longer. Even with regional policy coordination, the Dan Region Association of Towns had problems finding an alternative dumpsite nearby, and the open dump at Hiriya was attracting enough seagulls to pose a safety hazard to the nearby Ben-Gurion airport. The outlying areas of Tel Aviv, and area municipalities like Ramat Gan, were the communities most affected by the continued use of Hiriya--mainly by noxious fumes and fires that belched black smoke. Hiriya was well on its way to becoming the garbage mountain so embarrassing to Israeli officials.

Controversies about Hiriya's noxious environmental impact came to a head in 1971. That April, the Israeli Ministry of Health drew up a lawsuit against the site's owners, which included the Dan Region Association of Towns.²⁵⁵ Earlier that year the Knesset's Health Ministry had refused to renew the compost plant's license, because at that time the site's "evil smell is a major nuisance to residents of south-eastern Tel Aviv" and the smaller nearby communities. Yet the compost plant continued to operate without a license.²⁵⁶ The main problem was that the Dan Region Association of Towns was unable to "come up with any practical alternative to Hiriya, and trucks full of refuse" continued to arrive there, because Hiriya was also a waste-transfer station then (as it still is today).²⁵⁷ The extensive use of Hiriya incited a series of strikes through the 1970s. Sanitation workers felt entitled

²⁵⁵ Jerusalem Post Reporter, "Garbage Dump Stands to be Sued," *The Jerusalem Post*, April 2, 1971.

²⁵⁶ Operating without a license was not uncommon; New York's Fresh Kills did for decades as well.

²⁵⁷ Jerusalem Post Reporter, "Garbage Dump Stands to be Sued," *The Jerusalem Post*.

to more pay for trekking out to Hiriya, which was outside Tel Aviv City limits, but the City denounced such claims as “unthinkable that the drivers should get extra pay for doing simply what they are hired to do.”²⁵⁸ Hiriya was a source of frustration and controversy.

In the early 1970s, the “perfume” of the Hiriya site pervaded the surrounding region. In late 1972, one commentator complained about “the stench from the Hiriya garbage dump: nice citizens hold their noses as they drive past.” Residents of the surrounding area, however, have become accustomed to “live with it, and as we [the inhabitants of the Tel Aviv region] throw out more and more and more, the stink reaches [the nearby communities of] Kiryat Shalom, Yavneh, East Ramat Gan” and sometimes even the affluent areas of Tel Aviv.²⁵⁹ In 1973, Hiriya was listed as one of Tel Aviv’s environmental “13 Black Spots” because it was privately owned, but operating without a license, and produced an intense “foul and harmful stench which sweeps the countryside for miles.”²⁶⁰ By the mid 1970s the public health problem at Hiriya attracted government attention, specifically of the Knesset

²⁵⁸“Striking garbage drivers ordered back to work,” *The Jerusalem Post*, October 5, 1973; “T.A. garbage drivers call 3-day strike,” *The Jerusalem Post*, June 22, 1973.

²⁵⁹Helga Dudman, “Quality of Environment,” *The Jerusalem Post*, November 17, 1972.

²⁶⁰ Air pollution was a major concern for Tel Aviv in the early 1970s—and Hiriya was not the main cause. According to a local environmental spokesman, David Sivan, in 1973: “Smog is no unusual phenomenon in this city with cars” contributing a substantial part of the pollutants; as a result, he said “Tel Aviv is beginning to develop its own ‘micro-climate’ due to the city’s large hotels, constructed directly on the beach, forming a wall which cuts off the weatherly breeze.” “13 Black Spots,” *The Jerusalem Post*, May 25, 1973; Sarah Honig, “T.A. Smog said dissipating, but ecology man disagrees,” *The Jerusalem Post*, January 12, 1973.

Ecology Commission; the need for reform was attributed mainly to smells, and the feeling that the smells were a direct cause of illness.²⁶¹

Because of these environmental concerns, in 1974 the Dan Region Association of Towns began actively searching for a new dump location. Hiriya, by 1974, was primarily a garbage dump, although the compost plant still operated: of the roughly 1000 tons of garbage brought there per day, only 250 tons were composted.²⁶² Trucking garbage south, to sand dunes near the city of Ashdod was their most promising lead, but Ashdod residents and officials objected.²⁶³ In response, a Knesset Committee assisted the Dan Region's search for a new garbage-dump site; the commission estimated that Hiriya itself was nearly full. The "compost heap, to which some of the Hiriya garbage dump is devoted, has been ordered closed by December 31, [1974] by the District Court here [in Tel Aviv]. Experts have estimated that the Hiriya trash site itself, can only absorb trash for another 12 to 15 months."²⁶⁴ The compost plant was closed at this time, but the plans for closing Hiriya's garbage dump did not materialize.

Concerns about pollution and unpleasant smells spawned local protests, but had done little to change the Tel Aviv region's continued, and in fact increased, use

²⁶¹ This was the main argument of the late 19th C. Miasma theory, and of recent Environmental-Justice protestors; the Germ theory has discredited this view in public health terms. Jerusalem Post Reporter, "Koor takes action on polluters," *The Jerusalem Post*, April 16, 1973.

²⁶² "Bottle Blues: Marketing with Martha," *The Jerusalem Post*, June 21, 1974.

²⁶³ "Dan Region refuse may get buried in Ashdod dunes," *The Jerusalem Post*, October 24, 1974.

²⁶⁴ "Looking for Likely Garbage Dumps" *The Jerusalem Post*, October 25, 1974.

of Hiriya; however, the dump's aviation threat to the nearby Ben-Gurion airport, the main international port of entry to Israel, added a threat-level national officials could not simply ignore.²⁶⁵ Authorities recognized that seagulls were "attracted by the garbage disposal plant at Hiriya, near the airport," and that this emergency landing was a serious aviation threat—such as the deadly crash due to a flock of birds in Boston in the 1960s.²⁶⁶ In fact, international airport regulations at the time required "that no garbage dump may be located within 20 kilometres of an airfield. The Hiriya dump is only a few kilometres from Ben-Gurion."²⁶⁷ Despite these warnings, the dump remained open, and similar events—damaged planes and crash landings--continued to occur.²⁶⁸ The aviation concerns, as well as ensuing lawsuits from airline companies (like TWA in 1978) led to Knesset debates over Hiriya, as a safety and economic concern, and just not a matter for waste-disposal

²⁶⁵ On December 31, 1975 a Boeing 707 plane made an emergency landing at Ben-Gurion after flying into a flock of seagulls. "Maintenance men repairing the plane found hundreds of mangled seagulls in one jet engine" and the "plane's wings also were damaged in the bird collision." "Article 3—No Title," *The Jerusalem Post*, December 31, 1975.

²⁶⁶ "It's only a matter of time. Some dreadful accident is bound to happen sooner or later" Ben-Gurion's airport's deputy director Ya'acov Wachtel declared in early 1977. Zeev Schul, "Close Hiriya, says airport man," *The Jerusalem Post*, January 17, 1977.

²⁶⁷ Heinrich Mendelssohn, head of Tel Aviv University's Zoology Department, concurred with Wachtel's assessment, adding that due to Hiriya's unsafe proximity to the airport, "since 1967, birds frequently have been sucked into aircraft engines." Mendelssohn explained that the seagulls at Hiriya, especially between December and March, were part of a massive inter-continental migration of millions of gulls, and that site-specific deterrents were insufficient: closing the Hiriya dump immediately was his prescription. Wachtel agreed: "Something must be done very soon. Closing Hiriya will be cheaper than the cost of engine repairs, let alone some unspeakable tragedy." Schul, "Close Hiriya, says airport man," *The Jerusalem Post*.

²⁶⁸ "Gulls cause blaze in engine of TWA jet at Ben-Gurion," *The Jerusalem Post*, January 26, 1978.

experts.²⁶⁹ No immediate solutions to deterring birds or finding an alternate dumpsite were found at the national level.

The temporary solution, adopted by the Dan Region Association of Towns, for Hiriya was to transform it from an open dump into a sanitary landfill by 1977. This effort was not without qualifications and lingering concerns. The most serious practical concerns were Hiriya's growing size and dwindling shelf life because by 1977 roughly "1,000 tons of waste are buried there daily, and it will be filled up completely in a matter of years."²⁷⁰ Tel Aviv regional officials continued searching for a new dumping site, but relocation efforts were focused more on the long-term.

In July 1977, the Minister of Health, Eliezer Shostak, sent a message to the mayors of towns in the Dan Region (Tel Aviv, Ramat Gan, Petah Tikva, and Bnei Brak) to "put an end to the pollution and environmental hazards originating from the Hiriya dump."²⁷¹ The minister's message was sent in response to Ramat Gan mayor Dr. Yisrael Peled's telegraphs to the Ministers of Interior and Health in protest against the continued use of the Hiriya open dump. Ramat Gan was especially affected by a recent wave of fires at Hiriya (as was common at open dumps like Hiriya still was) that emitted black smoke and foul smells which "have been making the lives of nearby residents unbearable." Health Minister Shostak

²⁶⁹ In response to these talks, the Transport Ministry released an official report on Ben-Gurion's safety hazards, including bird threats from Hiriya in May 1978. David Lennon, "MK charges 'no one cares' about hazards at Ben-Gurion," *The Jerusalem Post*, January 31, 1978. Aryeh Rubinstein, "Safety Hazards at Ben-Gurion Airport," *The Jerusalem Post*, May 22, 1978.

²⁷⁰ Martha Meisels, "Waste Not Want Not," *The Jerusalem Post*, February 4, 1977.

²⁷¹ Jerusalem Post Reporter, "What can be done about Hiriya dump," *The Jerusalem Post*, July 27, 1977.

suggested that the local officials of the Dan Region Association of Towns should “start immediately to implement its undertaking to cover the refuse with earth in order to prevent future fires,” by transforming Hiriya from an open dump into a rudimentary sanitary landfill. Mayor Peled objected, however, because such measures—covering garbage daily—had “proved ineffective” at Hiriya in the past since the amount of garbage dumped daily at Hiriya “greatly exceeds the amount of sand available to cover it.” According to Peled, the “ultimate solution lies in moving the dump to an area with sandy soil where it could be buried.” To Peled, closing Hiriya was the clear decision. Although the Dan Region Association of Towns was still seeking to obtain a dumpsite in the summer of 1977 at the sand dunes of Ashdod, they had little success and so Hiriya remained open.²⁷²

The decision to keep Hiriya open as a sanitary landfill was motivated by economic considerations and the lack of an alternative site--as well as the lack of national regulations to require better methods.²⁷³ The new technology that would solve Hiriya’s problems, according to the chairman of the Dan Region Association of

²⁷² Presciently, in August 1977, despite claims by Knesset and Tel Aviv municipal officials that the Hiriya dump would be closed near the end of that year, a group of “several hundred persons” organized by Malraz (the Public Council for the Prevention of Noise and Air Pollution in Israel) staged a public protest to “demand the dump’s closure.” Their suspicions that government officials would not make good on their claims to close Hiriya proved justified. By November 1977, the Dan Region Association of Towns had announced its decision to continue using Hiriya. Jerusalem Post Reporter, “Hundreds protest Hiriya garbage dump,” *The Jerusalem Post*, August 5, 1977; Arthur Kemelman, “New mill to eliminate stench from Dan dump,” *The Jerusalem Post*, November 30, 1977.

²⁷³ After the decision to continue using Hiriya in 1978, the Dan Region Association of Towns sought to simultaneously sell its improved management of the Hiriya landfill and propose a new long-term engineering solution. 1) Sanitation workers “sprayed the Hiriya garbage dump with deodorant shortly before reporters were brought to the scene to see how the dump had been cleaned up” and 2) the Dan Region hoped to obtain approval of their waste-shredder proposal from the Interior Ministry. In 1978, 1,000-1,200 tons of garbage was dumped at Hiriya daily, for a total of 400,000 tons per year. All of this garbage was by then covered with a layer of earth. Arthur Kemelman, “Hiriya garbage freshened up for guests,” *The Jerusalem Post*, July 2, 1978.

Towns, Arye Kremmer, was to build a new mill at Hiriya to “shred and compress all the refuse before it is covered with a layer of earth.”²⁷⁴ In other words, this process would finally transform Hiriya from an open dump into a sanitary landfill. As a sanitary landfill, the stench would not be as bad; fires would be less common; and birds would be less attracted to the dump because the rubbish would no longer be strewn openly at the site. As part of the process to transform Hiriya into a sanitary landfill, the Dan Region Association of Towns sought to acquire an additional 41 dunams (10.13 acres) from the JNF. These measures had been only “partially successful” and had done little to deter the airport management from continuing its “desperate battle” to relocate Hiriya.²⁷⁵ Likewise, fires spewing noxious gases continued to break out at Hiriya, causing literally sickening stench.²⁷⁶

The decision to extend Hiriya’s use was made without specific regard to the site’s future—but, ironically, the site’s continued use spawned the first explicit, although offhanded, remark that the ever-expanding Hiriya site could become a park after closure. By late 1977 Hiriya was “surrounded by 20-metre-high hills of earth-covered garbage.” But, according to Kremmer, the hills were “no longer the eyesore they once were,” because “after the rains began, they would be covered with greenery.” When asked “what would happen to the dump once it is packed full with garbage,” Kremmer said “it would be returned to the JNF which could turn it into a

²⁷⁴ Kemelman, “New mill to eliminate stench from Dan dump,” *The Jerusalem Post*.

²⁷⁵ “Gulls cause blaze in engine of TWA jet at Ben-Gurion,” *The Jerusalem Post*, January 26, 1978.

²⁷⁶ “Hiriya stench causes headaches,” *The Jerusalem Post*, June 13, 1978.

park.”²⁷⁷ This remark was speculative; but twenty years later, a much more ambitious park plan did emerge.

The decision to continue using Hiriya was shaky; national officials sought to close the site and invest in new technologies, including a renewed interest in composting.²⁷⁸ When visiting Hiriya in summer 1978, Health Minister Shostak asked why not implement an incinerator instead?²⁷⁹ He cited data showing that most “modern” and wealthy cities in Europe, and also in the United States, were moving toward incinerators. But Tel Aviv officials were wary of one. They already faced air pollution problems, from automobile smog, and the city’s much-hated Reading power plant. According to national officials, like Shostak, who were not primarily concerned with local economic and siting concerns, even a dressed-up and perfumed Hiriya was obviously temporary. Constructing a high-tech WTE incinerator or turning Hiriya into a waste-transfer station, from which garbage would be sorted and shipped out to compost plants and rubbish dumps, seemed to be the most likely future course.²⁸⁰ For example, in September 1979, the National Council for Planning and Building decided to close Hiriya’s garbage dump and

²⁷⁷ Kemelman, “New mill to eliminate stench from Dan dump,” *The Jerusalem Post*.

²⁷⁸ Abraham Rabinovich, “Rotten riches,” *The Jerusalem Post*, July 27, 1978.

²⁷⁹ Kemelman, “Hiriya garbage freshened up for guests,” *The Jerusalem Post*.

²⁸⁰ This course is what did happen at Hiriya beginning roughly 20 years later, after the 1998 closure. Rabinovich, “Rotten riches,” *The Jerusalem Post*.

convert it into a transfer station only, but like similar efforts beforehand, this proposal fell through.²⁸¹

Dan Region officials could find few alternatives to dumping at Hiriya. In the early 1980s, Hiriya, now updated into a rudimentary sanitary landfill, continued to serve as the Dan Region's primary means of garbage disposal. By 1985, Hiriya covered 500 dunams (123.55 acres); of which 100 dunams (24.71 acres) was a plateau packed with garbage reaching 45 meters above the ground level of the site. The Dan Region Association of Towns' chairman, Arye Kremmer, stated: "We are running out of space [at Hiriya]." ²⁸² Kremmer's emphasis on Hiriya's declining space was motivated by his desire to promote a new plan to update Hiriya, so the site could better serve the region's needs. The scheme was to implement a methane gas-fueled power plant, and also to focus on recycling garbage—paper, plastic, and glass. ²⁸³ As in the 1970s, this proposal did not yet materialize. Hiriya continued to receive all of Tel Aviv's garbage in the 1980s, and although talk about closing Hiriya cooled down until the early 1990s, the trash mountain steadily grew upward.²⁸⁴ No clear solution was in sight.

²⁸¹ Hiriya Garbage Dump Finally on its Way Out," *The Jerusalem Post*, September 5, 1979.

²⁸² Yitzhak Oked, "Plan to build power plant at garbage dump," *The Jerusalem Post*, October 30, 1985.

²⁸³ Oked, "Plan to build power plant at garbage dump," *The Jerusalem Post*.

²⁸⁴ Rosenberg, Robert. "The messy business of keeping TA clean," *The Jerusalem Post* August 20, 1986. This article also discusses the effect of "Moslem" holidays on Tel Aviv's sanitation, because many of the sanitation workers were "Gazan" Arabs.

Conclusion

The limited immediate impact of national/state legislation in the 1970s and early 1980s was partly due to the fact that the municipal/regional level was where actual policies were devised and implemented, so the impact of federal and state regulation in recent decades was less direct than it may seem on paper. Meeting stricter environmental standards required municipal planners, engineers and policymakers to draft policies in a manner compliant with legislative requirements, but they had considerable freedom—as long as public debate did not sidetrack their efforts. Put simply, local authorities had legal authority to choose what disposal method they saw fit, as long as it met minimum state and federal requirements—and just as critically, if state or national officials did not follow up on regulatory statutes with penalties, there was little incentive for the city to comply.

In environmental terms, the pressing policy task by the late 1980s was to force cities to comply with existing legislative/engineering standards and consider “green” policy alternatives (e.g. recycling and waste-to-energy incinerators) as a counter to the near-total reliance on landfills. The “waste crisis” of 1987 and the contemporaneous coining of “sustainable development,” which, among other things, argued for finding an economically viable solution to environmental and related public health problems, provided the needed incentive to jumpstart this process.

CHAPTER 5

SUSTAINABLE DEVELOPMENT AND LANDFILL PARK REDEVELOPMENT

In 1987 a barge full of Greater New York City's garbage wandered from port to port looking for someone willing to accept and dispose of its load; eventually the *Mobro 4000* returned to New York and the refuse was buried in Staten Island's Fresh Kills landfill. The *Mobro* received international press coverage, and many policymakers in other large metropolitan areas referred to it as a worst-case scenario of what would soon happen to their cities if better waste-disposal policies like recycling were not adopted. The barge was a symbol of New York's "waste crisis." The events of 1987 were not unique, however, but merely the crest of negative public opinion (fuelled by the media) about the economic and environmental inadequacy of existing waste-disposal methods.

Municipal officials elsewhere took note of the *Mobro's* plight and its implications. A 1987 report from Toronto summed up the relevance of New York's waste crisis to Ontario's situation.

The most poignant symbol of our throw-away society is the barge that's been wandering the Caribbean and Atlantic for more than a month now, searching for a place to dump 3,186 tons of rotting Long Island garbage. So far, the barge has been turned away from at least four states, Mexico and Belize. But, in the process, it has drawn attention to one of the most serious urban problems of the 1980s. [A similar problem faces Greater Toronto because] Metro Toronto residents and businesses alone generate some 2.2 million tons of refuse every year. Less than 1 per cent is recycled; about 5 per cent is incinerated and the rest goes directly into one of two landfill sites - the Brock West site northeast of Metro, which will be full in two years, and the Keele Valley site northwest of Metro, which, at the current

rate of use, will be full by 1999.²⁸⁵

Ontario implemented its Blue Box recycling program soon afterward, but recycling alone did not solve Greater Toronto's problems. Metro Toronto was forced to expand Keele Valley's capacity in 1992.

Similarly, in 1993 Israeli officials argued for the need to recycle by referencing New York's problems as a metaphor for what Greater Tel Aviv (the Dan region) would soon face.

Saving the world is a great slogan for youth and so on," says [Yossi] Inbar, of the [Israeli] Environment Ministry, "But for us, recycling is not an ideology but a reality to protect our land and our environment. In the US, true awareness of the depth of the problem only arose in 1987 when a boat carrying waste from New York was refused a place to dump anywhere else. For six months, every day people followed reports of the whereabouts of the ship which eventually returned to New York. Just like the New Yorkers, we are close to a situation when we will one day wake up and find that what we throw out has not gone away because there is nowhere for it to go. But we haven't yet realized how bad the situation is, even though we drive past that mountain [of waste] called Hiriya. Hiriya is so full," says Inbar, "that with the winter storms we feared the rains would cause a landslide which could have blocked access to Ben-Gurion Airport and bring the whole country to a halt."²⁸⁶

In the late 1980s and 1990s Tel Aviv, like New York City and Toronto, was in the midst of an unsuccessful bid to find a new landfill to manage the massive amounts of refuse that its metropolitan area generated each year. Keeping Hiriya open for as long as possible was their only short-term option, although promoting recycling offered a potential long-term solution.

²⁸⁵ "Unwanted garbage" *The Toronto Star*, May 6, 1987.

²⁸⁶ Liat Collins, "Features." *The Jerusalem Post*, July 23, 1993.

The situations in New York, Toronto, and Tel Aviv varied on specifics, but were otherwise similar. Officials in all three metropolises recognized the irony that landfills were the cheapest waste-disposal method, but that throwing away millions of tons of refuse represented a significant economic waste. In the late 1980s, therefore, local officials in Toronto and Tel Aviv referenced *Mobro* as a means to galvanize support for implementing recycling and waste-reduction programs. It was no coincidence that ‘sustainable development’ became a popular international catchphrase in 1987, at the same time that talk of waste crisis was in vogue.

Advocates of sustainable development emphasize contemporary society’s need to limit waste and pollution in order to promote health and preserve natural resources for future generations.²⁸⁷ Landfills are not areas fit for conventional development, because of the leachate and gases released by decaying garbage, which polluted the surrounding area and makes the ground unstable (for roughly thirty years). Fresh Kills, Keele Valley, and Hiriya, were therefore symbols of non-sustainable policy. According to booster discourse about the landfill park redevelopments, redeveloping a landfill into a park (promoted as a place for public gathering, tourism, and fun) does much more than change the use of the site.²⁸⁸ If successful, these projects will change how people view, talk, and feel, and gives the

²⁸⁷ In economic terms, pollution is typically regarded as an “externality,” a cost that—in normal market transactions—buyers and sellers are able to avoid; a pro-environment economic strategy would add the environment as one of the “variables” assessed when analyzing which policies would best reach the desired ends.

²⁸⁸ As noted in previous chapters, redeveloping former landfills into parks has long been common practice; what is new about Fresh Kills, Keele Valley, and Hiriya, is the aggressive and multi-faceted promotion of the projects as a “green lung” or a symbol of pro-environment policy (which the chapter argues is part of post-1987 “sustainable development”) and the huge scale of the projects (Fresh Kills, Keele Valley, and Hiriya were much larger than earlier landfills).

city a “progressive” image. In terms of urban design and policy, the concept of sustainable development is most useful as a shorthand way of conveying the view that “green” policies are a viable policy choice.

Despite sustainable development’s popularity, sanitary landfills remain the primary waste-disposal method of many cities, even though landfills are not widely regarded as a sustainable option by the general public and by politicians seeking to land environmentalist votes. In New York, Toronto, and Tel Aviv, using large local landfills made the most economic sense. For many decades, New York City, the Dan region (the Tel Aviv region) and Greater Toronto were absolutely dependent on these huge local landfills. There was not cause for a “waste crisis” mentality until local landfill sites became scarce. For all three urban areas the impending closure of their large local landfills directly led to political panic; this attitude, in terms of the short-term (economic) need for a local landfill was not completely unjustified.

By the late 1980s it was very difficult to find land suitable for landfilling near large cities--especially for coastal cities. After closing Fresh Kills, New York was unable to find a replacement: it now ships its garbage to other states, especially Ohio, Pennsylvania, and Virginia. After closing Keele Valley, Toronto shipped its waste over the international border to Michigan for several years before obtaining another local landfill in Ontario—near the city of London, about a two-hour drive from Toronto. Even though Hiriya closed in 1998, Tel Aviv still uses the site as its main waste-transfer station, where garbage is loaded and trucked to a landfill in the Negev Desert about an hour away. The closure of these landfills has led to renewed analysis of waste-disposal policy, including a push toward recycling and

composting, but has yielded few revolutionary changes.

New York City

In the 1990s, New York State (NYS), buoyed by stricter federal regulations, sought to bring New York City, and specifically the Fresh Kills landfill, into partial compliance with RCRA and the following legislative updates. By this time, Fresh Kills was hopelessly outdated, so partial compliance was the only possible course. New York State never regulated Fresh Kills, and city did not comply with state law, so an Environmental Impact Statement (EIS) was never undertaken at the landfill while it operated; consequently Fresh Kills never had a permit to operate.

No one can say for sure exactly what kinds of waste are buried at Fresh Kills. During the first 28 years of its operation, government essentially was not watching. For nearly 40 years, almost two-thirds of the waste disposed at Fresh Kills came from commercial and industrial sources--including unregulated hazardous waste. DOS also dumped incinerator ash at Fresh Kills until 1992. After that 11,500 to 15,000 tons of hazardous waste each year was [illegally] dumped there.²⁸⁹

The lack of regulation at Fresh Kills led to general uncertainty about the site's operation; Staten Islanders began to fear that the landfill was the cause of their health problems—another Love Canal toxic-waste disaster.

In response to growing concerns, in April 1990 the DEC issued its third and final Consent Order about Fresh Kills. This order required the DOS to take special measures, like "use special booms and skimmer boats to prevent litter from

²⁸⁹ Mark Green, "Unhealthy Closure: the need for a full environmental impact statement of DOS's long-term plan to control pollution from Fresh Kills," September 17, 1997, 9.

contaminating surface waters around the dump," install nets on barges to reduce litter, apply odor-nixing chemicals to garbage, construct a leachate-control system, monitor landfill-gas, perform a EIS, and apply for a permit by March 15, 1995. This order did not set a closure date, and actually allowed DOS open-access to the dumpsite, as if it would remain open indefinitely.²⁹⁰

Because of the blind-eye approach, violations were common at Fresh Kills, but such infractions rarely led to direct action. For example, in 1991 the City Comptroller's Office noted a serious violation: the DOS did not have control over access to dump, so unauthorized dumping was common, and as a result, thousands of pounds of toxic waste had been wrongly dumped each year from 1987 to 1991. Fresh Kills was not a suitable place for toxic waste because its lack of a base liner meant that toxics could more easily leach into the water table. Despite these and other infractions, in 1992 the DEC allowed the DOS to increase the height of section 3/4 from 140 feet to 170 feet: the DOS had asked for 191 feet high, and in the end the DOS stopped dumping here at 150 feet.²⁹¹

In the early 1990s, New York State slowly upped its concerns about Fresh Kills, but the state still balked at taking direct action. New federal and state regulations led to renewed concern about regulating Fresh Kills. On November 9, 1992, the DEC released a *Draft Environmental Impact Statement for revisions to SW*

²⁹⁰ Ibid., 16.

²⁹¹ Another infraction was that the Interstate Sanitation Commission (ISC) documented that DOS failed to comply with federal court order--the city improperly allowed uncovered trucks at the site 68.4% of the time between January 1 to March 31 in 1997. The DOS also failed to properly perform maintenance/upkeep at the Fresh Kills site and failed to carry out water quality inspections as required. Ibid., 17.

facilities. This was a proposal intended to bring New York City into partial compliance with the new EPA regulations (Final Rule, 40CFR Parts 257 and 258), which came into effect on October 9, 1991, and in compliance with state regulations required since Dec 31, 1988 (6 NYCRR part 360).

These new EPA regulations established new minimum landfill requirements for states to regulate; states had little choice but to comply if they wished to become an "approved" state." The benefits of being an approved state were significant; non-approved states had to cede authority to the EPA—instead of receiving federal funding to administer its own affairs--and so non-approved states would suffer financial penalties and have less control over policy. New York State noted that the EPA would allow approved "State[s] to retain control of the management of our own solid waste programs in a technically and environmentally appropriate manner." State control would provide "a minimum of confusion and delay to the regulated community." Therefore, NYS legislators had "no reasonable alternatives to making these changes" to ensure compliance.²⁹²

New York State described its 1992 update to NYCRR Part 360 (from 1988) as a helpful clarification of the law that "will assist municipalities and industries...to better manage their solid waste in an environmentally sound manner."²⁹³ The new policy implemented rules for "a solid waste management hierarchy of waste reduction, reuse, and recycling, energy recovery, and finally, land burial" (ECL

²⁹² New York State, Department of Environmental Conservation, Draft Environmental Impact Statement for revisions to SW facilities, Nov 9 1992, 4-5.

²⁹³ Ibid., 4-5.

Section 27-0106). Alterations in NY 360-2 (which covered landfills) to comply with the new federal rule, published in October 9, 1991, included: regulations to "ensure better containment" of landfill gases and also of leachate; "A section on landfill reclamation" to give "landfill operators and owners more options regarding final end use and ultimate closure requirements."²⁹⁴ Significantly, NYS's 1992 legislation was "not intended to mandate implementation of any elements" of the state's Solid Waste Management Policy, so New York City successfully ignored all these policy statements for the most part.²⁹⁵ What was most important about these legislative changes was that they marked a switch in the previously lax enforcement of state regulations at Fresh Kills. The state recognized that the situation in New York City reflected badly on them, and not just on the city.

In the 1990s, New York State and New York City officials openly recognized the indignity Staten Islanders had put up with for decades because of Fresh Kills, and determined to include Staten Islanders in the post-closure decision-making process. As New York City's Public Advocate, Mark Green, stated: closing Fresh Kills "could be great news--an end to the horrific odors that have plagued Staten Island residents, a chance for tidal marshes to recover from the daily onslaught of contaminated water that leaks from the dump, and grass-covered mounds where the constant sight of dirt and debris had blighted the neighborhood." In short, state and city politicians sought to regain the "trust" of Staten Islanders once the

²⁹⁴ Ibid., 16.

²⁹⁵ Ibid., 2.

likelihood of keeping Fresh Kills open much longer seemed low.²⁹⁶

This new political climate gave Staten Island activists and policymakers new leverage for their calls to close Fresh Kills. Staten Island is New York City's only Republican-dominated borough, and so the election of a Republican mayor, Rudy Giuliani, was also significant; Giuliani was more favorably disposed to close the dump than his democratic predecessors. Long-time Staten Island Borough President Guy Molinari had been seeking such an opportunity to obtain leverage. Parallel with his negotiations with Giuliani, Molinari had his aides file a lawsuit against New York City to force the dump's closure.

On May 29, 1996 Mayor Giuliani and New York Governor Pataki announced the plan to close Fresh Kills by Dec 31, 2001. The New York State Legislature then passed laws (Bill A. 10418-! and S. 6669-B) to make this official and binding.²⁹⁷ On Nov 29, 1996 Mayor and Gov. released the report of their joint task force "A Plan to Phase Out the Fresh Kills Landfill." Then proposed timetable to curtail dumping was: 1996 (13,000 tons dumped daily); 1997 (10,900 tons daily); 1998 (8,500); 1999 (6,500); 2000 (4,000); 2001 (0 tons daily).²⁹⁸

²⁹⁶ Mark Green, "Unhealthy Closure: the need for a full environmental impact statement of DOS's long-term plan to control pollution from Fresh Kills," 1.

²⁹⁷ For the memorandum of Senator J. Marchi—the senator who proposed S. 6669-B—explaining these bills, see "Solid Waste Management: Fresh Kills Closing," *New York Legislative Annual, 1996* (New York: New York Legislative Service, Inc., 1997), 88.

²⁹⁸ Mark Green, "Unhealthy Closure: the need for a full environmental impact statement of DOS's long-term plan to control pollution from Fresh Kills," 11.



Figure 41. The Destruction of Staten Island's Wetlands, Fresh Kills. Source: <https://catalog.archives.gov/id/555753>.

This image shows the desolate effects of landfill at Fresh Kills; before landfill, the area had been saltwater wetland and wildlife habitat.

Fresh Kills was still New York City's primary waste-disposal site when the decision to close it was announced. In 1996, New York had eight Marine Transfer Stations (MTS), which loaded refuse from the city's other boroughs onto barges to be shipped to Staten Island's Fresh Kills. Average barge capacity was 600 to 700 tons of waste, or sixty to seventy truckloads. Huge cranes at the landfill unloaded the refuse. After deposition in landfill, the waste was covered with 12 inches of cover. Overall, in 1996 Fresh Kills received approximately 13,000 tons per day, and operated 24 hours for six days a week; Fresh Kills was then 3000 acres in size and 771 acres were still an active dumpsite. In 1996 Fresh Kills was New York City's only remaining landfill.

Closing Fresh Kills raised many more questions than it answered. The most pressing concerns were: what to do with Fresh Kills after closure; how to address the landfill's ongoing pollution concerns; and where would New York City dispose of its waste. The problem with all three of these questions was the lack of objective information and the glut of emotional reactions and half-factual opinions. The city's proposed answer to the third question, how to dispose of waste, was to construct a system of high-tech incinerators, beginning with the Brooklyn Navy Yard Incinerator; this proposal crumbled amid community protests and legal questions.²⁹⁹

In order to answer the first two questions, a full-scale Environmental Impact Statement (EIS) at Fresh Kills was essential. An EIS would provide specific information including: what exact types of pollution was at the site, how bad it really was, what measures would best address these problems, and when the site would be safe to reopen for public use. New York's Public Advocate, Mark Green, emphasized that closing Fresh Kills was a needed step, but it would not produce environmental miracles overnight; many problems would remain, and he argued that New York City officials should now do whatever was necessary to address the problems that they had largely ignored for decades.³⁰⁰

²⁹⁹ The activist and legal fight against the Brooklyn Navy Yard Incinerator is a fascinating story, and has been well covered in books such as Matthew Gandy, *Concrete and Clay: Reworking Nature in New York City* (Cambridge, MA: MIT Press. 2002).

³⁰⁰ By 1997, "The City of New York has never issued a full environmental impact statement on Fresh Kills landfill." State law now requires closure of the landfill on Jan 1, 2002. But "the dump will not truly be closed until systems are in place to capture the contaminated water and fumes that escape from the site each day."

By 1997 the DOS had managed to comply with New York State's permitting requirements for Fresh Kills--it was a special case, as an older unlined dump, so the requirements were less stringent than normal.³⁰¹ That year, engineering steps were planned in preparation for the landfill's closure: re-engineer the progressive fill plans and drainage systems; shift plans for placement of garbage in active sections; complete installation of environmental control systems like leachate

Public Advocate Mark Green emphasized that environmental problems would remain after closing Fresh Kills. First, shutting down the dump will not end odors, as gas will continue for many years. By 1997, "Fresh Kills emits approximately 35 million cubic feet of methane each day" and "produces on a daily basis about 100, 000 cubic feet of "volatile organic compounds"--smog-forming chemicals that can also be toxic, odorous or harmful to respiration--including acrolein (a respiratory irritant), benzene (a human carcinogen), carbon tetrachloride (a suspected human carcinogen), hydrogen sulfide (a probable human carcinogen) and other substances." "Burning the landfill gases in flares on-site, as currently planned, will destroy 98% of the volatile organic compounds emitted by the dump, but the flares will also create inhalable dust, carbon monoxide, sulfur dioxide and nitrogen oxides." "Because DOS cannot install pollution control devices on the flares, the burning system will release approx. 585,000 pounds a year of inhalable dust--nearly three times the amount" that would have been released from the Brooklyn Navy Yard incinerator's stack (with pollution control equip installed) if it had been approved. Second, "Shutting down operations at the dump will not mean an end to leachate; long-term management of contaminated water will be required for decades." "Fresh Kills releases over 1.5 million gallons of leachate each day; this leachate contains coliform bacteria, arsenic, lead, and other contaminants which degrade groundwater quality and nearby coastal wetlands and coastal habitats." Third, there was no guarantee that post-closure methods like the final cover would in fact work to prevent the spread of toxics—as in the 1979 Love Canal tragedy in Niagara, New York. Green was especially concerned about trees (which was a common technique at closed landfills). Planting trees on top of the closed landfill "would offer an aesthetic benefit, but there is concern that the tree roots could penetrate small rips and defects in the final cover materials over time or could put the final cover at risk if trees are blown down by strong winds in a storm. In addition, it may be more beneficial for wildlife management purposes to establish a treeless meadow environment on the site."

Public Advocate Green also pointed out that proper closure technique and post-closure management were essential to protect public health and the environment. He argued The DOS "must capture and manage the gases--created as refuse decays--and the contaminated water ("leachate") that seeps out of the dump. It must also cover the site with an impermeable final "cap" and monitor the pollution control systems to make sure they remain effective for three or more decades." Earlier in 1997 the DOS proposed a landfill cap at Fresh Kills, estimated at \$773 million to cover and stabilize the landfill; this figure included gas and leachate control systems and long-term monitoring. Green noted: "The size of the sum today is a measure of the City's neglect of this landfill over the years. The leachate collection system, for example, should have been in place more than a decade ago."

For more details, see Mark Green, "Unhealthy Closure: the need for a full environmental impact statement of DOS's long-term plan to control pollution from Fresh Kills."

³⁰¹ 1998 DOS Annual Report, "NYC Department Of Sanitation Countdown to Fresh Kills Closure," (1998), 31.

collection and gas emissions; refine operation plans as needed to fit reduced tonnage levels and the 2001 closure date.

Post-closure planning commenced soon thereafter. In 1998 the DOS released a report detailing its plan for reducing the city's reliance on Fresh Kills and preparing the landfill for the post-closure stage. The first step was the diversion of waste (the diversion of an additional 2400 tons per day from 1997 diversion totals) in Brooklyn to reduce dependence on Fresh Kills. There was a bidding process, and Waste Management Inc., which operated two facilities in the Williamsburg/Greenpoint area of Brooklyn, won with a bid of \$57.72 per ton.³⁰² Also in 1998, the city's Bureau of Solid Waste Management and Engineering (BSWME) took charge of long-range solid waste planning, facility development, permitting, keeping city departments in compliance, and maintaining compliance of city's marine solid-waste disposal infrastructure. The BSWME was in charge of "the coordination of state and city environmental review and community relations relating to facility Uniform Land Use Review Procedures (ULURP) applications, permitting, regulatory compliance, landfill gas recovery and re-use efforts...and capital construction programs at the Fresh Kills and Edgemere landfills."³⁰³

³⁰² Ibid., 14.

³⁰³ Ibid., 27.



Figure 42. Methane Pumps at Fresh Kills. Source: Google+ non-copyrighted image: <https://plus.google.com/photos/at/110251794531052310408?hl=en-US>.

In 1997 and 1998 the BSWME began its project to implement landfill-gas flaring systems, as well as on-site composting. In July 1997, a private company, GSF Energy LLP (GSF) a division of ECOGAS, won the contract to construct and manage the system at Fresh Kills. The contract was finalized in Nov 1998 after meeting conditions for federal tax credits (valued at \$80 million over ten years). GSF was given a 20-year concession, "with exclusive rights to explore for, collect, treat, remove, flare, process, sell and produce gas and gas products derived from Fresh Kills" as long as this was in compliance with legal requirements. GSF paid the City a \$25 million fee as a 20-year note, and also agreed to a \$1million per year fee, which might increase if the city felt that was necessary. The gas flares were

delivered in June 1998, and construction of them began. This led to reduced odors in Staten Island.³⁰⁴ In spring 1998 the department also completed the design and permitting of a compost plant at Fresh Kills. At this point initial plans for post-closure use of the landfill were underway. An April 1998 symposium, for example, of the Landfill Engineering Unit, co-held with the DOS and specialists in ecology and landscape architecture, met with federal, state, and New York City regulators; the symposium focused on "restoring native ecosystems in the context of end-use goals." In 1998 the Landfill Engineering Unit and New York City's Department of City Planning also revived a \$200,000 state matching grant for the proposal and completion of a "Fresh Kills Re-Use Study."³⁰⁵

At the beginning of 1998, the Fresh Kills landfill sections were mostly full. Section 3/4 covered 131 acres; it had closed in 1992 at a final height of 150 feet. Section 2/8 covered 147 acres; it had closed in 1993, with the north mound towering 145 feet, and the south mound at 106 feet. Section 6/7 covered 309 acres, of which 202 was completed and 107 acres remained open; its expected closure was later in 1998 for the north mound (at 120 feet tall) and in 1999 for the south mound (90 feet tall at closure). Section 1/9 was the site with the most remaining capacity. It covered 455 acres, of which 262 were full, and 193 remained open; its expected closure was in 2001, at a height of 270 feet.

Fresh Kills was a monumental site by 1998. Dumping had been continuous

³⁰⁴ Ibid., 27-28.

³⁰⁵ Ibid., 37-38.

for 40 years, for six days a week and 24 hours a day. The landfill had been in use for decades longer than even Robert Moses ever dreamed in the 1940s. Rather than laud government officials for their “heroic efforts” in closing the dump (as official press releases would have you believe),³⁰⁶ it is more accurate to say that the dump should have been closed decades earlier and the officials were too lax to do anything until they were forced to—and then they presented their past failure as a present-day triumph.



Figure 43. Fresh Kills, 2013. Source: photo by Benjamin Lawson.

Fresh Kills is not just one landfill, but eight different sections, and four distinct mounds. This mound (pictured off an exit from the West Side Expressway) is the mound on the southwest of the landfill complex.

³⁰⁶ The Staten Island Borough President’s Office would have you believe that they get the full credit for closing Fresh Kills; the BP’s website is: <http://www.statenislandusa.com/#>. See for example the promotional video “The Fresh Kills Story” prepared by the Staten Island Borough President’s Office. This video credits Borough President Guy Molinari for craftily convincing the newly elected Republican Mayor Rudy Giuliani to close the site—as a moral victory and a public service since the Staten Island voting public had wrongly suffered the indignity of the dump for so long. My favorite line is a quote from Giuliani: he says that he always told his underlings to “do the impossible,” because that ability was what made them “the best and brightest.” The video is available (as of November 2013) at: <http://vimeo.com/channels/statenisland/49872287>

The decision to immediately redevelop Fresh Kills into a park should be seen in this context: as a dump, Fresh Kills was a symbol of the city's policy failure. New Yorkers typically like parks. Parks are easier to build than implementing wholesale structural changes. A major impediment to building parks in New York is the inflated cost of land; parks make the most economic sense when land is available cheaply, or for free--as in, land that is already city-owned—such as the city's former landfills. Therefore, it made a lot of sense to transform Fresh Kills into a park: the mayor and elected policymakers in office when the park is announced and underway will receive a political boost. Why not announce the park as early as possible—in fact, before the landfill is even closed! The above sequence is exactly what happened at Fresh Kills.



Figure 44. View of Fresh Kills redevelopment from above, *The LIFESCAPE Draft Master Plan for Freshkills Park*, 2006. Creator: Field Operations landscape-architecture firm. Source: Google+ non-copyrighted image: <https://plus.google.com/photos/at/110251794531052310408?hl=en-US>.

The redevelopment of Fresh Kills began in May 1999 when the New York City Department of City Planning (with the support of the Municipal Arts Society, New York State Department of State, New York City Department of Sanitation, New York City Department of Parks & Recreation, and the New York City Department of Cultural Affairs) announced an international design competition to develop a master plan for Fresh Kills Park. The tragedy of September 11 did not halt plans for redevelopment. In December 2001, three finalists were chosen, and in June 2003, the Field Operations landscape architecture firm officially became the project's "planning and design consultant." Field Operations is a landscape architecture firm headed by James Corner, of the University of Pennsylvania; its LIFESCAPE Draft

Master Plan was released in June 2006. In recent years, New York City officials have publically praised the Freshkills Park site as symbolic of the city's commitment to "sustainable development."³⁰⁷

The LIFESCAPE plan for Freshkills Park breaks the park into five distinct locales: the Confluence, North Park, South Park, East Park and West Park. The Confluence is "the cultural and waterfront recreation core of the park" and has two central areas. These are Creek Landing, a 20-acre area "for waterfront activities, including an esplanade, canoe and boat launch, restaurants, a visitor center and a large event lawn for gatherings, picnics and sunbathing," and a 50-acre section called The Point, which will "accommodate sports fields, event spaces, lawns, artwork and educational programming." The Point will also have "a long promenade

³⁰⁷ Changing the park's name to Freshkills instead of Fresh Kills is also part of the public-relations re-casting of the park's image.

In September 2003, Mayor Michael Bloomberg announced the "the official kick-off of the \$3.38-million Master Plan process." According to the Department of City Planning's official press release, "[t]he creation of a Master Plan will in two years create a blueprint for reclaiming the largest landfill in the country for public uses, and will begin with a public outreach program" which signified the Bloomberg's commitment to involving the public in the planning process. Field Operations oversaw the design aspects, but many New York City officials also had great influence. These were Staten Island Borough President Jim Molinaro, City Planning Director Amanda M. Burden, Sanitation Commissioner John Doherty, Parks & Recreation Commissioner Adrian Benepe. According to Bloomberg in 2003, the project "mark[ed] the beginning of a new era for the site," which he described as an area "long considered by Staten Islanders to be a blight to the borough" which would now become "an asset for generations to come. New Yorkers can look forward to a day when they can enjoy its open spaces and the recreational uses that will be provided here." Likewise, Sanitation Commissioner John Doherty "hop[ed] that this plan once developed will provide a template for other landfill and brownfield sites. The City intends Fresh Kills to be recognized internationally as a case study for landfill reclamation." Parks Commissioner Benepe expanded on this sentiment: "The reclamation of Fresh Kills is the biggest expansion of the Parks system since the creation of the 5,000 Bronx parks network in the 1890's." He noted that the redevelopment "set a new standard for the transformation of former landfills into beautifully landscaped public parks. With its undulating topography, extensive wetlands and navigable waterways, Fresh Kills will provide New Yorkers with a vast array of recreational amenities, while it expands the rich habitat of the Staten Island Greenbelt and William T. Davis Wildlife Refuge." Press Release, "MAYOR MICHAEL R. BLOOMBERG KICKS OFF THE TRANSFORMATION OF FRESH KILLS IN STATEN ISLAND: *Mayor Calls on Public to be Part of Planning for New York's Newest Parkland.*"

along the water's edge [and] will support restaurants, a banquet facility and an open-air market roof. Old machinery and artifacts from Fresh Kills Landfill operations will act as outdoor sculptural pieces, and the old barges will be re-imagined as floating gardens." In contrast to the social amenities of the Confluence area, the 233-acre North Park section will provide "simple, vast natural settings—meadows, wetlands and creeks," a wildlife refuge, and biking/walking trails that encircle the northern garbage mound, from which there will be scenic overlooks where visitors may observe the layout of the park. The 425-acre South Park will house "active recreational spaces, including soccer fields, an equestrian facility and mountain biking pathways" as well as "picnic areas, fields and trails" and possibly a "major sports and recreation center for track and field and/or swimming." East Park will encompass 482 acres, much of which will be accessible from the major park road, which will be "a scenic route integrated into the landscape." East Park will also have a "nature education area with specially designed wetlands, boardwalks and exhibits and public art installations. The large mound in this area lends itself to a variety of recreational uses, from golf and field sports to archery, informal pickup games, frisbee and picnicking." Covering 545 acres, West Park is the largest, but also the most ominous section of the park, because this is the area with the largest garbage mound and the section used to hold the debris immediately after September 11, 2001. The plan describes this section as "a vast hilltop wildflower meadow" that is "open to the sky and offer[s] spectacular 360-degree views of the region, including a direct line of sight to lower Manhattan."³⁰⁸

³⁰⁸ The quotes are from the New York City Parks department websites:



Figure 45. View of Freshkills Park. Source: Google+ non-copyrighted image: <https://plus.google.com/photos/at/110251794531052310408?hl=en-US>.

The focus at Fresh Kills Park is on recreating a “natural” salt-marsh environment and restoring the ecosystems destroyed by the landfill, as well as building trails, promenades, and recreational fields, all without attempting to completely disguise the area’s former function. Freshkills Park is part of Staten Island’s larger-scale redevelopment plans. The borough is seeking to transform Staten Island’s western coastline into a “Greenbelt” with corporate space, industry, and light-rail transit. Time will tell how successful the redevelopment is.

<http://home2.nyc.gov/html/dcp/html/about/pr092903.shtml> and http://www.nycgovparks.org/sub_your_park/fresh_kills_park/html/fresh_kills_park.html.



Figure 46. Freshkills Park sign, 2013. Source: photo by Benjamin Lawson. Pictured is the logo for the Freshkills Park redevelopment project. The name was altered from Fresh Kills to Freshkills Park as a means of separating the park from the landfill. The sign pictured was on the fence of the newly built Owl Hollow sports complex adjacent to one of the landfill's mounds.

Toronto

Greater Toronto's concerns about a "waste crisis" in the late 1980s, which were based on the region's near-total reliance on the Keele Valley landfill, led to initiatives to find more sustainable alternatives. Ontario provides a good example of the effectiveness of a regional push for recycling policy in the wake of the waste crisis mentality. International sustainability conferences, in the wake of the 1987

Brundtland Report³⁰⁹ and Canadian participation and “leading role” in the Rio (1992) and Kyoto (1997) conferences on climate change symbolized Canada’s commitment to sustainable development policies.³¹⁰ The new focus on sustainability made a big impression on Canada, including Ontario’s provincial government. In 1991 the Waste Reduction Action Plan (WRAP) “included a number of initiatives to promote waste diversion and the 3Rs: regulatory measures; financial and technical support; public education; and the development of markets for recyclable materials.”³¹¹ The election in 1993 of the Chrétien Liberal national government, however, meant that sustainability took a backseat to issues like balancing the budget and transferring payments to the provinces.³¹² Later in the 1990s, Ontario’s Ministry of the Environment (MOE) implemented a program of recycling, reuse, and reduced consumption. The MOE’s Waste Diversion Act of 2002 continued this recycling trend.³¹³ Today, municipalities like Toronto and Vaughan

³⁰⁹ This report was by the World Commission on Environment and Redevelopment to the United Nations, which argued that economic development was in fact compatible with environmental protection for both developed and developing countries.

³¹⁰ Trevor Price identifies Canada’s “leading role” in sustainability in his chapter “Sustainable Cities,” in *Urban Policy Issues, Canadian Perspectives*, 2nd edition, Edmund Fowler and David Siegel, editors, (Oxford University Press, 2002). In 2011 Canada decided to withdraw from its Kyoto promises.

³¹¹ Canadian Institute for Environmental Law and Policy, “A Brief History of Waste Diversion in Ontario: A background paper on the review of the Waste Diversion Act,” November 2008.

³¹² Trevor Price, “Sustainable Cities,” 141.

³¹³ The “MOE introduced new regulations in 1994: the 3Rs (Reduction, Reuse and Recycling) Regulations under the Environmental Protection Act were intended to be an integral means of achieving the objectives of WRAP” and included the Blue Box recycling program.

have comprehensive recycling programs that are much more advanced than many U.S. cities can boast.



Figure 47. View of the Keele Valley landfill, 1989. Source: Courtesy of the City of Vaughan archives; Francis Redelmeier fonds.

The Keele Valley landfill was Metro Toronto's primary landfill by the mid-1980s, as the older Brock West landfill began to reach its limit.

In the 1980s, however, landfills were the primary waste-disposal method. The rising tonnage of waste and declining availability of landfill sites in the Greater Toronto region led officials to consider implementing wide-ranging waste-diversion strategies as well. Recycling was becoming a policy issue in the mid-1980s, but was

"The Waste Diversion Act became law on June 27, 2002 in order to promote the reduction, reuse and recycling of waste and to provide for the development, implementation and operation of waste diversion programs." Canadian Institute for Environmental Law and Policy, "A Brief History of Waste Diversion in Ontario: A background paper on the review of the Waste Diversion Act," November 2008.

nowhere near to being a viable alternative to Keele Valley: a 1986 article in the *Toronto Star* reported that “a maximum 20 per cent of all garbage is considered recyclable, but Metro now is recycling only about 2 per cent.” This article was reporting the policy view of Ontario’s New Democratic Party leader Bob Rae (Rae became Premier of Ontario in 1990 and held that position until 1995). Rae argued in 1986 that Ontario needed to implement “a major recycling program to avoid mounting garbage disposal problems” resulting from a consumer-based “throw-away society.” Rae went on to state that “Millions in tax dollars could be saved if the province deals properly with the garbage problem, which is particularly bad in Metro” and that Ontario “should avoid the creation of new landfill sites” because landfill sites “cause bad feelings among people living nearby - and can cost up to \$100 million for excavation and preparation.” Rae issued a joint statement with Local 43 of the Toronto Civic Employees Union, which stated “a comprehensive recycling program in Metro would cut \$2 million from the annual cost to taxpayers of garbage disposal.” This \$2 million estimate includes profits from the sale of recycled material and an estimated \$15 per tonne saved by diverting garbage from landfill sites.” Citizen participation would be strengthened by not expecting people to take the time out of their busy lives to take recyclables like paper, glass or cans “to special drop-off points”; instead, citizens would be asked to “put their recyclable trash out on the street to be picked up certain days of the week.”³¹⁴ This plan was, in effect, promoting what would soon become Ontario’s Blue Box recycling

³¹⁴ William Walker, “Rae calls for major push to encourage recycling,” *Toronto Star*, October 21, 1986.

program.³¹⁵ A few months later, the Toronto City Council's five-member New Democratic Party caucus released a report concurring with Rae's statements: "The throw-away society, lamented but accepted for decades, has simply become too expensive for our environment and too expensive for our public pocketbooks."³¹⁶ This report pushed for the establishment of a Metro-wide recycling program based on the Blue Box program already established in the Toronto-area communities of Kitchener and Mississauga.

Recycling caught on quickly. In the first week of May 1987, the City of Toronto City Council's services committee authorized a staff report looking into setting up a recycling program similar to Mississauga's Blue Box program.³¹⁷ In May of 1987 the Regional Municipality of York also authorized its regional engineer to develop a "wide ranging study on waste management" that did not focus on landfills, but emphasized the role of recycling and waste-diversion. In its report to the council the York Region's engineering department stated: "10 to 15 per cent of residential

³¹⁵. Ontario's Blue Box Program is a good example of a systematic recycling program. Ontario's MOE officially adopted Blue Box as the provincial policy in 2003As described by the Canadian Institute for Environmental Law and Policy: "After convening multi-stakeholder discussions in the mid-1980s, the provincial government made Regulations 340 and 357 under the Environmental Protection Act to promote recycling while trying to ensure that refillable soft drink containers would continue to be sold. The regulations initially required soft drink distributors and brand name owners to bottle only 40 % (and later 30%) of soft drinks in refillable container." Environmentalists' initial push was in 1977, but this effort stalled. In 1986 the Ontario government worked with a private company, the Ontario Soft Drink Association, to create Ontario Multi-Materials Recycling Incorporated (OMMRI). OMMRI developed the Blue Box program. See the Canadian Institute for Environmental Law and Policy, "A Brief History of Waste Diversion in Ontario, November 2008.

³¹⁶ "Unwanted garbage" *The Toronto Star*, May 6, 1987.

³¹⁷ David Israelson, "Metro choking on garbage, official warns," *Toronto Star*, May 7, 1987.

refuse can be diverted from landfill sites through recycling programs.”³¹⁸ The Ontario provincial government became involved in June 1987, when it approved a \$8.5 million program for municipalities and industries based on the "four Rs" of recovery, recycling, reduction and re-use. This program offered local governments grants in order to establish methods of recovering paper, compost, aluminum, steel, glass, and plastic.³¹⁹ In 1988, Metro established the Avondale composting plant at the Keele Valley Landfill complex: in 1988 6300 tons were composted at Avondale; by 1995 that number had risen to 65,000 tons.³²⁰

³¹⁸ York had developed its first waste management study in 1981, but the new challenges of the “waste crisis” of the late 1980s necessitated a new recycling-based plan. The desires of the towns of Newmarket and Whitchurch-Stouffville (previously mentioned) to either develop a new landfill in the region besides Keele Valley or expand recycling programs were also behind this new study. Victoria Stevens, “York to study waste-management” *The Toronto Star*, May 19, 1987.

³¹⁹ “The garbage problem,” *Toronto Star*, June 25, 1987.

³²⁰ “Re City of Vaughan Official Plan Amendment 332 and Zoning By-Law 364-91,” *Ontario Municipal Board Reports*, Roger T. Beaman, John G. Chipman, Ian James Lord, editors (Aurora, ON: Canada Law Book Inc., 1996), 352.



Figure 48. Notice of Official Zone Change at Keele Valley, 1989. Source: Courtesy of the City of Vaughan archives; Francis Redelmeier fonds.

Compost and recycling did not preclude the need for landfills, so Metro also expanded Keele Valley’s capacity. In 1988, the process of upgrading the Keele Valley landfill into a state-of-the art “wet landfill” was underway; a wet landfill was a somewhat controversial method of using pumps to suck leachate (polluted fluids) underneath the landfill, and then recirculating the collected leachate back through the landfill as a means of expediting decomposition of waste inside the landfill; this upgrading process was completed in 1992.³²¹ From 1992 through 2002, Keele Valley was Metro’s only large-scale landfill site. By 1996, about 17 million tons of

³²¹ For specific details of the upgrading process at Keele Valley, see A. Bacopoulos, “Operation and Maintenance of the Keele Valley Landfill Site-1988” in Murray E. Haight, editor, *Municipal Solid Waste Management: Making Decisions in the Face of Uncertainty* (Waterloo, ON: University of Waterloo Press, 1991), 125-159.

waste, over an area of 25 million cubic meters of landfill space, was full; under the EPA license another 8 million cubic meters remained available for future landfill (to reach the total of 33 million cubic meters allowed).³²²

The dissolution of Metro in 1998 significantly impacted waste-management policies throughout Greater Toronto. Within Toronto, amalgamation put stress on the new-megacity's administration: Metro had been in charge of garbage-disposal, but now Toronto had to take control. Ownership of Keele Valley (the primary waste-disposal site for most municipalities in Greater Toronto) shifted from Metro to the City of Toronto; however, Vaughan's garbage-disposal policy was now separate from Toronto's. The lessening of Vaughan's stake in using Keele Valley led to increasingly vocal citizen calls in Vaughan to close the landfill; anti-dump activists in Vaughan also found political traction with environmental appeals to the Ontario Provincial government. Environmental law—specifically measures to prevent the pollution of groundwater—was the most significant method the activists used to fight Toronto's use of Keele Valley. In 2002, the Ontario MOE closed Keele Valley due to groundwater-pollution concerns.³²³

The closure of Keele Valley led to the next step: post-closure remediation and

³²² "Re City of Vaughan Official Plan Amendment 332 and Zoning By-Law 364-91," *Ontario Municipal Board Reports*, Roger T. Beaman, John G. Chipman, Ian James Lord, editors (Aurora, ON: Canada Law Book Inc., 1996), 337-356. The quoted figures are from page 340.

³²³ In 1997 30,000 residents filed a class action lawsuit protesting the noxious impact of Keele Valley; this lawsuit perhaps influenced Toronto's officials in 1998 to begin shipping much of its waste to Michigan. The environmental-law strategy eventually was successful: a decision, by the Ontario MOE, led to Keele Valley's closure in 2002 because of groundwater contamination concerns. Toronto's newspapers carried many articles about Keele Valley's final years, and Toronto's decision to ship waste to Michigan. See for example, Matt Beam, "Keele Valley Landfill, 1983-2002," *Toronto Life*, 2002.

planning. Since 2002, Toronto has been responsible for the remediation of the Keele Valley landfill; this process is ongoing. Vaughan, meanwhile, is sprawling, booming, and the landfill had long been seen as “blight” on the city’s image. Creating a park was floated as an idea: the concept began in 2000, revised in 2008, and updated and voted on successfully in 2013. The 2013 park-redevelopment project is for a small part of the landfill complex--it does not yet include the Keele Valley mounds.

Even before the Keele Valley landfill was closed in 2002, Vaughan was planning for the site’s reuse: the Maple Valley Plan of 2000 was a major milestone.³²⁴ The focus on parkland and “natural” area was because the landfill area was unfit for more conventional development. The Maple Valley Plan called for new land use patterns, including a park on the old Vaughan Town and Avondale landfills, which were on the fringes of the Toronto-owned Keele Valley landfill.³²⁵

³²⁴ Here are some quotes from then City of Vaughan’s website promoting the Maple Valley Plan “*What is the Maple Valley Plan?*” John Zipay, Commissioner of Planning, City of Vaughan. Web (Accessed January 2011). “The Maple Valley Plan was approved by Council in July 2000 following extensive community consultation and is implemented through Official Plan Amendment 535 which was approved by the Region of York on November 22, 2000.” “The Maple Valley Plan embraces a diverse area comprising approximately 245 ha. and containing the following features: The Keele Valley Landfill site, which is now closed, including its primary and secondary buffer areas; The old Township and private landfill sites which are now closed; The Avondale composting and extraction site which is now closed; The former “MNR lands” on the east side of Dufferin St.; and, The Environmentally sensitive area of the east branch of the Don River; City Council directed the undertaking of the Maple Valley Plan in recognition of a number of individual initiatives which collectively relate to the longer term parks and open space planning for the north Vaughan-Maple area.”

³²⁵ 1. The “Passive recreation and natural rehabilitation on the closed landfill sites, including Keele Valley.” 2. Develop a “major active park known as “North Maple Park” on the lands formerly used for composting by the City of Toronto (Avondale site).” 3. Begin “A major conservation/day camp area on the east side of Dufferin St., formerly the MNR District office and research station.” 4. Approve the construction of a “privately owned public golf course and practice facility on lands north of Major Mackenzie Dr. and west of Dufferin St. (Eagle’s Nest Golf Course).” 5. Implement “Commercial and Industrial development at defined nodes along Major Mackenzie Dr.” 6. “Protection of a major natural area to the south west of the Teston Rd. – Dufferin St. intersection which includes a portion of the East Don River valley and the Maple Uplands environmental area.” 7.

Under this plan, the Keele Valley landfill mounds would be left undeveloped as a natural area, and eventually used as a ski hill, but would not become a park on the same scale as Fresh Kills or Hiriya. The Maple Valley Plan was handicapped by the fact that Vaughan did not own the landfill. After the 1998 dissolution of Metro, the City of Toronto owned Keele Valley. In 2000, Vaughan was more focused on closing the landfill than on redeveloping it. Vaughan updated its city-wide plan with the adoption of the 2008 Active Together Master Plan, which “identified changing priorities,” and strengthened resolve to implement a park near the landfill.³²⁶ In 2010 Vaughan took action, and purchased the site of the City of Toronto’s Avondale Composting Facility (adjacent to the Keele Valley mounds), which was 81 hectares, or roughly 200 acres in size.³²⁷ This purchase began the then-estimated twenty-eight-million-dollar park-development process. Although in 2011 Vaughan had reached no agreement with Toronto to acquire the Keele Valley site, creating a smaller park in this specific section was a pragmatic way of creating a park. After Toronto has successfully remediated the Keele Valley garbage mounds, Vaughan has the option of purchasing that site as well.

“The extension of McNaughton Rd. and Rodinea Rd.” *“What is the Maple Valley Plan?”* John Zipay, Commissioner of Planning, City of Vaughan.

³²⁶ City of Vaughan, “North Maple Regional Park Community Meeting,” January 31, 2013. http://www.vaughan.ca/services/recreation/special_projects_plans_and_studies/General%20Documents/North%20Maple%20Regional%20Park%20Community%20Meeting%20January%2031,%202013%20Presentation.pdf.

³²⁷ The 2011 figures are from: Jenny Yuen, “Toronto's old dump slated for parkland,” *Toronto Sun*, January 23, 2011.



Figure 49. The Maple Valley Plan. Source: Courtesy of City of Vaughan Archives.

The Maple Valley Plan was an effort by the City of Vaughan, beginning in 2000, to plan for the redevelopment of the Keele Valley site.

On January 31, 2013 Vaughan hosted a community meeting to discuss specifics of cost, possible taxation, and a plan for action of building North Maple Regional Park. Vaughan's City Council approved the funding of the park, and construction is slated to begin. The January 2013 estimate for the North Maple Regional Park was a cost of thirty-one million dollars, and the park-creation process will take seven to nine years. A Public-Private Partnership scheme will provide the funding to create the park. In 2013 Vaughan "issued an Expression of Interest to solicit possibilities for potential public-private partnerships to help realize the vision" in order to "to reduce the cost to taxpayers for the development or operation of all or a portion of the site, while maintaining the overall vision for the park and public access." The 2013 park vision calls for "a Regional Park site for active and passive recreational amenities." These include: "community sports fields, including a premier location for soccer and baseball"; "District Park-level and multi-season amenities, such as outdoor skating, skateboarding, and splash pad"; miscellaneous "possible city-wide facilities" and general recreational facilities like "Trailhead and open space" and teaching tools to broaden public awareness of "Environmental restoration/sustainability" at the park.³²⁸

Significantly, the 2013 plan for North Maple Regional Park does not include the garbage mounds of Keele Valley, but only the adjacent landfills and compost sites. Some Vaughan councilors and citizens have expressed interest in a larger park that would include Keele Valley's mounds, but actual plans will (if ever) be conducted once remediation of Keele Valley is nearly completed. Vaughan's piece-

³²⁸ City of Vaughan, "North Maple Regional Park: Community Meeting," January 31, 2013.

by-piece process is similar to plans to redevelop Fresh Kills and Hiriya in that those landfills will also require several decades of remediation before their garbage mounds are safe for public use. But the difference is that the initial plans for New York's and Tel Aviv's landfills were more ambitious at the outset, and the garbage mounds played a significant role in their park-redevelopment plans from the beginning. Vaughan's plan is less ambitious in that it does not, currently, include Keele Valley's large garbage mounds. This is due, in part, to Toronto's ownership of the Keele Valley landfill site; Vaughan will have to purchase the site before any redevelopment is possible.

This small-scale park, however, sets the stage for future plans. Vaughan is booming. Keele Valley was at the outskirts of Toronto's sprawl, but that is changing. Much of the area near to the landfill has become residential neighborhoods and retail space including a Wal-Mart Supercenter and a Lowe's Garden Store. The development of the area next to Keele Valley is primarily a result of Vaughan's rising population and commercial growth; by 2011 Vaughan had 288,301 residents, up 20.7 percent from the 2006 data. It makes sense to view North Maple Regional Park in conservation terms, as a protection against urban sprawl.



Figure 50. Keele Valley site, southern side, 2013. Source: Photo by Benjamin Lawson.

In June 2013 the area around the Keele Valley site was beginning its transformation. A funeral home and golf course (neither shown here) were the two businesses adjacent to the closed landfill's southern side. Two big-box stores--a Wal-Mart and a Lowes--were located across the street from the landfill (generally looking the opposite way from the spot of this photograph). Much of the land immediately adjacent to the landfill in this area was for sale, as shown in this sign. Note the landfill mounds are visible in the distance, as is the Keele Valley Landfill Administration Building (top right corner).

Tel Aviv

Greater Tel Aviv's Hiriya landfill is a clear example of how municipal policymakers in Israel turned a blind eye to solid-waste management until pollution and environmental deterioration were already huge problems, and then, in the 1990s, rushed into action to correct their mistakes. The problem was that there was

no coordinated effort: the comparatively late entry of national regulations (passed in 1989 and implemented in 1993) meant that municipal policymakers, or the private firms they contracted with, had little incentive to implement more expensive, but more sustainable methods. Israel's environmental problems in the later twentieth century hit especially hard for those Israelis who recognized the symbolic significance of the land of Palestine at the heart of Israel's national foundation. For this reason, the redevelopment of Hiriya has also taken on nationalist symbolism as it is transformed into Ariel Sharon Park.³²⁹

By the late 1980s, Israel's many environmental problems were a national embarrassment. Negative international press coverage in the 1990s (for example, a 1998 article in *Time* titled "Trashing the Holy Land") was especially embarrassing; as was the fact that Hiriya, by then a garbage mountain towering above the coastal plain, was the first thing international travellers saw in Israel due to its proximity to Ben-Gurion International Airport. Hiriya was also the first thing they smelled. As a 1990 editorial in *The Jerusalem Post* decried:

"IS IT APPROPRIATE that one of the first sights encountered by a newcomer to Israel arriving by plane is the tel of Tel Aviv garbage known as Hiriya? After all, so much of the [Israeli] claim to the land [of Palestine] is based on the archeological imperative, and so much of archeology is the search through ancient dumps."³³⁰

³²⁹ Ariel Sharon was a influential but controversial general, who also served as Prime Minister. Sharon was famous for his hard-line Zionist beliefs in Israel's right to hold Palestine; he advocated settlements in the predominately Arab West Bank and Gaza as a means of spreading Israel's control of these areas.

³³⁰ Robert Rosenberg, "Welcome," *The Jerusalem Post*, February 16, 1990.

Within this context—of the significance of the land to Zionism, and the sense that Israel had defiled that land through lax policies--it becomes clear why Hiriya drew such vocal criticism in the 1990s, and why Israeli officials and boosters have been so keen to redevelop it as a park. Awareness of Hiriya’s visibility and “symbolism”³³¹ in the 1990s meant that the landfill could no longer just be ignored. Consequently, a new sort of positive-thinking public dialogue began taking place.

In the mid 1990s, the Israeli Press (especially *The Jerusalem Post*, which is less critical of policymakers than *Ha’areetz* is) began commenting on how beautiful Hiriya was, even though it was still in use. This was part of Knesset officials’ attempt to obtain support for the idea of transforming the dump into a park.

“Standing on top of the Hiriya garbage dump is like being on another planet. The dirt surface measures over 250 dunams [about 62 acres], most of it empty except for a thin blanket of plastic bags, paper and every other kind of detritus. The topography angles up and down in plains, heights and valleys, which are divided by dirt ridges, and the whole surface is enclosed by a high dirt wall. From within the wide, evenly spaced indentations cut into the wall, 60 to 80 meters above ground, you can look out and see the Mediterranean and the Samarian hills.”³³²

Technically, this description is correct: Hiriya does dominate the landscape of the Dan region, because the surrounding area is flat.

³³¹ The symbolism of Hiriya in 1990 was negative: a dump. But some boosters saw a means to turn this negative into a positive. For example, Martin Weyl expressed his view of Hiriya’s Zionist symbolism (how it reminded him of Masada) in his essay for *Hiriya in the Museum*—an exhibit at the Tel Aviv Museum of Art that he curated.

³³² Larry Derfner, “In the Dumps,” *The Jerusalem Post*, December 6, 1996.



Figure 51. View from atop of Hiriya garbage mound, 2010. Source: Wikimedia Commons; https://commons.wikimedia.org/wiki/Category:Ariel_Sharon_Park#/media/File:View_from_Parek_ayalon.jpg.

The positive booster view of how Hiriya would make a nice park, however, had a significant flaw that was unique to Israeli history: the booster rhetoric downplayed the site's past uses in a way that offended persons sensitive to Greater Tel Aviv's contested history. As an angry reader complained in a Letter to the Editor in response to Derfner's article about Hiriya in *The Jerusalem Post*, "One must dig

back more than 50 years when talking about issues concerning a country with a history of over 4,000 years,” because prior to becoming a landfill in 1952, the Hiriya site—like many areas in Israel--was the site of an Arab village prior to the 1948 Arab-Israeli War. Consequently, Chanie Luz from the village of Beit El decided to inform *The Jerusalem Post* of its oversight: “Larry Derfner's article about the Hiriya garbage dump,” although poetic, “fails to mention one important fact: the origin of its name. The largest garbage dump, holding huge amounts of trash generated by the Dan-region inhabitants, was built on what once was an Arab village named Khiriya, hence the name. This may be due to ignorance, but more so it is a result of Mr. Derfner's choice to ignore pre-1967 "imperialism." Hiriya’s redevelopment has added political significance/symbolism because of this historical context.³³³

In the early 1990s, Hiriya served Tel Aviv and ten other regional cities and received an average of 3,250 tons of garbage a day; it was the largest landfill in the Middle East. Israeli officials estimated in 1993 that the nation produced 2,800,000 tons of waste a year.³³⁴ The Knesset pressed for the closure of Hiriya again in 1993, but regional NIMBY protests once again prevented the Dan Region Association of Towns from finding a practical alternative landfill site. As late as

³³³ Greater Tel Aviv’s (i.e., the Dan region) disconnect with the pre-Israel, pre-Zionist past, yet claim to the land because of it, is one of the central ironies illustrated at Hiriya. It is not a coincidence that boosters for the project to redevelop Hiriya into a park made little explicit connection with the pre-1948 past. The destruction of Palestinian villages, is a common theme in the history of Israeli-Palestine relations. For a good starting point for additional reading about the complex history of the Arab villages, see Susan Slymovics, *The Object of Memory: Arab and Jew Narrate the Palestinian Village* (Philadelphia, PA: University of Pennsylvania Press, 1998).

³³⁴ Liat Collins, “News,” *The Jerusalem Post*, October 13, 1993.

1998, the year Hiriya finally closed, nearly 1,000 garbage trucks daily dumped garbage at Hiriya.³³⁵ In 1998 Hiriya received an average of 3,000 tons of domestic waste per day. At its closure, the Hiriya garbage mountain sprawled approximately 111.2 acres (450 dunams) and towered 60 meters above the surrounding plain.³³⁶



Figure 52. Hiriya, 2002. Source: Wikimedia Commons; Public Domain

Hiriya finally closed in 1998—in part because of the implementation of national solid-waste regulations that specifically targeted outdated landfills. By

³³⁵ Larry Derfner, “Buried in Garbage,” *The Jerusalem Post*, January 2, 1998.

³³⁶ The Hiriya landfill-covered area was roughly 450,000 square meters; the landfill rose 80 meters above sea level. Dan Region Association of Towns. “Ayalon Park,” website assessed April 2008.

1998 there were many reasons necessitating Hiriya's closure. Among the most important of these were over-packing, which led to instability and toxic landslides; pollution, such as tainted groundwater and methane gas affecting area residents; the possibility of a major gas explosion; and the dangers posed by birds to the nearby Ben-Gurion international airport. But there were many pragmatic concerns that forced officials to wait until the last possible moment before closing the site. The most important were questions about where else to dump waste—the temporary solution was to place greater burden on other regional landfills until other arrangements could be made.

Closing the Hiriya landfill did not end the site's use for waste-disposal; it remains Israel's largest waste transfer station. In 2007, for example, an average of 2,700 tons per day of the Dan Region's waste—primarily from the municipalities of Tel Aviv-Yafo, Holon, Ramat Gan, Bat Yam, Bnei Brak, and Givatayim--was trucked to Hiriya's waste transfer station. There the garbage was: unloaded into the site's designated reception pit; loaded onto special large-capacity trucks; trucked south about sixty miles (approximately 100 km) to the Ganei Hadas municipal solid waste landfill in the Negev Desert.



Figure 53. Waste Transfer facility at Hiriya, after closure of the landfill, 2010. Source: Wikimedia Commons; https://commons.wikimedia.org/wiki/File:Trash_facility_in_Hiria.jpg.

A push for recycling has occurred in Tel Aviv, and Israel as a whole, over the last few decades. Since the late 1980s, Israel has implemented legislation mandating better environmental practices, such as recycling and the use of sanitary landfills instead of unregulated dumps. But until “the late 1980s, some 96% of Israeli municipal waste found its way to about 500 unregulated garbage dumps.”³³⁷ This statistic included Hiriya. Recognition of Israel’s environmental problems led to the 1989 proposed National Outline Plan for Solid Waste Treatment. The 1989 proposal became Israel’s official policy with the 1993 passage of national solid-waste

³³⁷ Dr. Miriam Haran, “SEPT 2003 Newsletter,” Ministry of the Environment (Israel).

legislation that mandated the closure of unregulated dumps; a 1994 amendment addressed specific loopholes. Israel continued its environmental legislative push in 1999 with a national beverage container deposit law, which is similar to programs in the United States like the ones in Iowa or Massachusetts (the 0.25 shekels deposit equals 0.06 U.S dollars).³³⁸ Israel's goal was to reach a 50% recycling rate by 2010. In 2003, the last of the unregulated dumps closed (from 77 in 1993, 41 in 1996, 6 in 1999). In 2006 the Knesset passed a new Government National Solid Waste Master Plan because it realized both the success of, and continuing loopholes in, the 1993 Solid Waste legislation. Today, Israel is an international leader of environmentally friendly policies—and the redevelopment of Hiriya into Ariel Sharon Park is the flagship project.

³³⁸ Solid Wastes Management in Israel: Facts and Figures 2006," Solid Waste Management Division, Ministry of Environmental Protection. www.sviva.gov.il, accessed May 2009.



Figure 54. Recycling Bin, Tel Aviv, 2014. Source: photo by Benjamin Lawson.

By 2014, Tel Aviv has many recycling bins across the city. It was my personal impression that, overall, north Tel Aviv had cleaner streets and emptier recycling bins than central and southern Tel Aviv, where some of the bins were sometimes overflowing and sometimes rubbish was strewn alongside the bins.

Not all Israelis were convinced by the effectiveness of the policy switch. As noted by Tel Aviv's liberal newspaper *Ha'areetz* in 2009: "Compared to many cities it would like to resemble, Tel Aviv's environmental situation is disgraceful. Environmentally speaking, Tel Aviv is not a bubble but rather a mirror of Israel's reality."³³⁹ The only problem with this statement is that Tel Aviv's Dan Region is by far the most populous area in Israel, and so the development patterns there are

³³⁹ Zafir Rinat, "Tel Aviv: A mirror of Israel's environmental reality," *Ha'areetz*, April 14, 2009.

unique in Israel. It is also true that the Hiriya park-redevelopment project is on a scale unprecedented in Israel—and Fresh Kills and (perhaps) Keele Valley are the only landfill redevelopments in the world on a similar scale. If nothing else, therefore, Tel Aviv’s policymakers are making an effort.

The process to transform Hiriya began in 2002 with a plan by the Dan Region Association of Towns to develop a 62-acre recycling park there, as a means of promoting Israel’s new pro-recycling policies. By 2003, the center processed 100 tons of garbage daily through an innovative process to separate different types of waste—such as metal, plastic, glass, and organic substances--for recycling. According to the local company that operated the recycling center, the plant could “redeem 90 percent of available energy” from the garbage processed.³⁴⁰

The most important initial step in creating a large public park at Hiriya was obtaining approval from high-ranking national officials. In early July 2003 Prime Minister Ariel Sharon and Environment Minister Yehudit Naot visited Hiriya. Naot used the visit as an opportunity to obtain Sharon’s support for Hiriya’s symbolic foregrounding of recycling and environmental rehabilitation as a “national strategic target.” In particular she “explained how, pending cabinet approval, the 680-dunam (170-acre) site, formerly the country’s central garbage dump, will become a recreational park, including tennis courts and a bowling center.”³⁴¹ This quote also illustrates the expansion of the area included within the park, more than doubling

³⁴⁰ Stuart Winer, “Environmentalists Plan to Rehabilitate Hiriya Dump,” *The Jerusalem Post*, August 15, 2003.

³⁴¹ Dan Izenberg, Nina Gilbert, Stuart Winer, Etgar Lefkovits, and AP, “News in Brief,” *The Jerusalem Post*, Wednesday, July 9, 2003.

the size of the 2002 proposal. A few months later, members of the Knesset's environment caucus visited Hiriya to oversee rehabilitation plans. The consensus vision was to first "reinforce the steep slopes of the mound which are in danger of collapsing onto the adjacent Route 4" (one of Israel's main national highways) to prevent a recurrence of landslides, such as happened in 1997, that "poured thousands of tons of garbage into the Ayalon and Shapirim rivers which circle the site."³⁴²



Figure 55. View of Hiriya from Highway 1, 2014. Source: Photo by Benjamin Lawson

The Hiriya landfill is clearly visible from Highway 1, the main highway that connects Tel Aviv with Jerusalem. Hiriya is located at an intersection of major highways, as well as next to the Ben-Gurion Airport.

³⁴² Winer, "Environmentalists Plan to Rehabilitate Hiriya Dump," *The Jerusalem Post*, Friday, August 15, 2003.



Figure 56. Hiriya seen from the Ben-Gurion Airport, 2014. Source: Photo by Benjamin Lawson
Hiriya is adjacent to Israel's primary international port of entry: the Ben-Gurion Airport; the landfill is located in the top left side of the image, and the Tel Aviv skyline is visible in the distance.

Obtaining funding was of critical importance during these early stages. The 2003 Knesset's environmental delegation included a wealthy private donor: Martin Weyl, a retired curator of the Israel Museum and the curator of the 2000 exhibit "Hiriya in the Museum" at the Tel Aviv Museum of Art. In 2003 Weyl was the director of the Beracha Foundation, which had pledged eight million dollars to fund the reinforcement process of the north face of the garbage mountain and the subsequent rerouting of the Ayalon and Shapirim rivers.³⁴³ At this point Ayalon

³⁴³ *Ha'areetz* published an interview and article about Weyl's promotion of the Hiriya park in 2010, after the scandal with Olmert surfaced. Weyl was promoting his just-published book *On*

Park was the proposed name; the park was later renamed to honor former Prime Minister Ariel Sharon.

The gases released from decomposing waste inside Hiriya made the garbage mountain too unstable for immediate solid development, but regarding the land surrounding it Tel Aviv officials considered several options.³⁴⁴ Transforming the area into a large-scale public park was not the only, nor for Tel Aviv's powerful business community, the most popular plan. Hazera Genetics, a private company that was leasing the farmland adjacent to Hiriya, posed the biggest obstacle to the park project.

Public conflicts over the direction of the project raged after the Israel Land Authority (ILA) decided in 2002 to grant the Hazera company permission to plan and develop a real estate project "of more than 10,000 housing units on an area of some 1,100 dunams [roughly 271 acres] in the center" of the by-then 8,000-plus dunams [roughly 1,976 acres] designated for the park project. The idea to partition a section of the land near the Hiriya garbage mountain served pragmatic purposes; it is also significant that the land area allocated to the park was steadily increasing, even with these proposed developments. Hazera argued that "by building a residential area on the edge of the park, it will [still] be possible to build a park bigger than HaYarkon Park [a successful park area in Northern Tel Aviv]" and "that

Stench and Beauty (in Hebrew only) about his view of the park project at Hiriya. See Noam Divir, "The Magic Mountain," *Ha'areetz*, May 27, 2010.

³⁴⁴ Editorial, "Unity Saves a Park," *The Jerusalem Post*, January 6, 2005.

the funds necessary for setting up the park, around \$100 million, can be raised by developing a residential area on just 12% of the intended area.”³⁴⁵

The situation escalated in March 2003, when Hazera filed an objection to the entire park plan, claiming “that in view of the high cost of developing the park, the only way to make the project feasible would be to build a residential project which would generate income.” Environmental activists reacted to this news with a series of protests and demonstrations, such as the one staged in September 2004 outside the Ministry of Industry and Commerce in Tel Aviv.³⁴⁶ The viewpoint of these protestors won out over the economic benefits of Hazera’s proposals. In September 2004 a subcommittee of the National Planning and Building Council (the officials in charge of approving this stage of the project) rejected Hazera’s proposal and reaffirmed their commitment to Ayalon Park. In response, the disgruntled company spokesperson stated that lack of funds would stall the park’s development, which they estimated would cost over fifty million dollars. Hazera argued: “If they [the state] proceed with the current plan there won't be a park in 50 years.”³⁴⁷

³⁴⁵ Harari, “City Beat,” *The Jerusalem Post*.

³⁴⁶ Ibid.

³⁴⁷ Stuart Winer, “Building Council Okays Ayalon Park Plan,” *The Jerusalem Post*, Wednesday, November 24, 2004.



Figure 57. Ayalon Park Model, created by Latz+Partner. Source: Wikimedia Commons; https://commons.wikimedia.org/wiki/File:Model_of_Park_Ayalon.jpg

This victory for environmental activists led to a renewed interest in the site, in political, environmental, but also nationalist terms. According to a 2005 article in *The Jerusalem Post*, the decision to overlook immediate financial concerns and continue with the development of Ayalon Park illustrated a manifestation of a “national unity of sorts,” manifested in the officials’ “rare show of goodwill” of voting unanimously “to keep the projected green lung for the less privileged sections of Tel

Aviv and its neighbors immune from persistent predations by construction contractors.”³⁴⁸ According to this article, the National Building and Planning Council’s rejection of Hazera’s proposal “ma[de] history and preserv[ed] the last potential for a green lung in the Tel Aviv region for this and future generations.” As these debates show, planning the redevelopment of the former landfill was not a simple process--it nearly broke down at several points--but the eventual decision to build a large public park there carried symbolic and political meaning.

Focusing on the image of the park sounded good, but realistically, closing Hiriya merely distributed Tel Aviv’s waste-disposal problems to other areas. For example, in 2003, Hiriya continued to function as a waste transfer facility that processed a quarter of Israel’s total garbage, transported by nearly a thousand garbage trucks.³⁴⁹ Moreover, Hiriya’s new compost plant and recycling center, although green technologies, are still waste-disposal sites.

³⁴⁸ Editorial, “Unity Saves a Park,” *The Jerusalem Post*, Thursday, January 6, 2005.

³⁴⁹ In 2003 Hiriya continued to process “over 2,700 tons of garbage, a quarter of the national total” transported by nearly a thousand garbage trucks; this garbage was mostly sent to other landfills, although some of the organics were diverted to Hiriya’s new compost facility.



Figure 58. Visitor Center, Ariel Sharon Park, 2015. Source: Wikimedia Commons; https://commons.wikimedia.org/wiki/File:חירייה_-_המבקרים_מרכז.jpg.



Figure 59. Hiriya Waste Processing Plant, 2008. Source: Wikimedia Commons; https://he.wikipedia.org/wiki/קובץ:Hiria_waste_processing.jpg

Environmental issues were highly charged politically. Tel Aviv officials understood that green projects, like transforming Hiriya into a park, would land them votes.³⁵⁰ Despite the general awareness of the political importance of environmental issues, there were still roadblocks. Interested organizations presented a positive environmental image of Hiriya's redevelopment. An example is a statement from the Dan Region Association of Towns about Hiriya's redevelopment: "This is the Ayalon Park...by the year 2020, there will be some 3.3

³⁵⁰ Ehud Zion Waldoks, "Next Tel Aviv mayor's big challenge is to clear the air. Pollution leads list of environmental concerns that must be addressed in November election," *The Jerusalem Post*, August 14, 2008.

million residents of this area [...and many of these residents...] particularly, of South Tel Aviv, do not have any substantial open space which is similar in quality to the Yarkon region in North Tel Aviv.”³⁵¹ Ariel Sharon Park would redress this lack of green space. Touting the creation of Ariel Sharon Park, the Israeli Ministry of Tourism declared in 2008 that the park at Hiriya would be a “front door to Tel Aviv’s amazing natural landscape.”³⁵² The reality was more complicated than these booster statements suggested; it is especially difficult to accept the idea that Hiriya’s garbage mountain is a “natural landscape.”

Despite the “national unity” approving the park, actual construction was slow to begin.³⁵³ Conflicts over land and funding were the clearest reasons for the delay. In 2007 President Shimon Peres and Prime Minister Ehud Olmert declared the creation of Ariel Sharon Park, and designated it a “project of national importance” and created a government corporation to oversee the project.³⁵⁴ The catch was that it was unclear who had rights to the land. Although the city of Tel Aviv held rights to dump waste at the site, the municipality’s lease from the Israel Lands Administration (ILA) had expired in 2001. By February 2008 the ILA and the Tel Aviv officials had not arranged a way to transfer the land back to the ILA, which

³⁵¹ Dan Region Association of Towns. “Ayalon Park” Website Assessed April 2008.

³⁵² Statement by Arie Sommer in the Israeli Ministry of Tourism, quoted in *Ha’aretz* Service, “Indulge in green tourism at Israel’s landfill turned park,” *Ha’aretz*, November 20, 2008.

³⁵³ Zafirir Rinat, “Five years after cabinet approval, Ariel Sharon Park finally moving ahead,” *Ha’aretz*, January 9, 2010.

³⁵⁴ Guy Leshem, “The most precious garbage heap in the land,” *Ha’aretz*, February 19, 2008.

would then transfer rights to the land to the government corporation in charge of the park-redevelopment project.

In early 2009 the Tel Aviv municipality and the ILA reached an agreement, and the ILA began mapping the lands in preparation to begin the park redevelopment. The major obstacle at this point was wresting control of the land surrounding Hiriya designated for the park, but which was in the hands of private contractors (like Hazera) and of farmers who had leased land from the ILA for decades.³⁵⁵ In 2010, Hazera still refused to vacate the tracts of land it had leased from the ILA for agricultural purposes, but had sought to develop into housing tracts. Hazera demanded “hundreds of millions of shekels in compensation and is in violation of an Israel Lands Administration order to leave;” in response, the Israeli State Prosecutors Office took up legal action against Hazera.³⁵⁶ But the political fallout of Hazera’s proposed housing development reached even higher: in 2010 the Israeli Prime Minister, Ehud Olmert, stepped down due to corruption charges due in part to his dealings with Hazera.

³⁵⁵ Zafirir Rinat’s “Sharon’s legacy” *Ha’areetz*, March 20, 2009. For details on the ILA and land-grab politics in Israel see Shuki Sadeh, “Getting a grip on the land grab,” *Ha’areetz*, June 25, 2010.

³⁵⁶ For conversion reference: one million shekels equal \$271,628 in U.S. dollars (in February 2013).



Figure 60. Observation Point at Ariel Sharon Park, 2012. Source: Wikimedia Commons; https://commons.wikimedia.org/wiki/File:Ariel_Sharon_Park_Observation_Point.JPG.

These sun-shades, which offer a view of the high-rise buildings of Tel Aviv, Ramat Gan, and surrounding municipalities, were part of Latz+Partner's prize-winning plan for Ayalon Park.

At Hiriya, moving from plan to actual construction of the park has proved tricky. Yet the boosters of Ariel Sharon Park were unfazed by such roadblocks. As park-booster Martin Weyl explained in 2010: "The [Ariel Sharon] park is a success story and it is wrong to focus solely on the bad aspects."³⁵⁷ While such optimism is laudable, critical analysis (i.e., examining the positives and negatives within their historical context) of the landfill parks provides deeper insight.

³⁵⁷ Noam Divir, "The magic mountain," *Ha'areetz*, May 27, 2010.

Conclusion

The closure and proposed redevelopment of Fresh Kills, Keele Valley, and Hiriya raised many questions. What does the closure and redevelopment of these giant landfills prove? Does the plan to create a park at the recently closed (and highly contested) landfills represent a “healing” of the site and an achievement of “sustainable” policy? Do the landfill park-redevelopments absolve (if such absolving is necessary) policymakers from the past decades of environmental neglect? These questions are not entirely rhetorical, because they (and others like them) are pervasive in booster promotion and media coverage of the landfill park redevelopments. The following chapter will analyze the artistic (i.e. works of individual artists, the role of museums, galleries and the “art world”) and cultural (i.e. political rhetoric and symbolism and mass-media coverage) aspects of the redevelopments in some detail.

The practice of changing landfills into parks is not at all new; park redevelopment has been a common strategy for brownfield areas (such as recently closed garbage dumps) that are unfit for more conventional development.³⁵⁸ What is new about Fresh Kills, Hiriya, and to a lesser extent Keele Valley, is the scale, the commission of well-known contemporary artists, and the sustainable-development

³⁵⁸ Wealthy cities like New York, Toronto, and Tel Aviv are seeking to simultaneously conserve parkland from urban sprawl and challenge the perception that landfills are a dangerous or marginal space by redeveloping their recently closed landfills into parks. This seems like a radical idea. But the simple fact that cities would transform landfills into parks is not surprising—it was common for cities to do so in the past. What is unusual is the size of the landfills in today’s redevelopments. In addition, prior to the 1970s, cities would level old landfills and use the garbage mounds as fill for low-lying areas; this is no longer possible today. Today’s towering mountains of garbage, which cannot be leveled or flattened because of the dangers of exposing contaminants and toxins, requires more engineering steps to become a pleasant public park.

mindset/rhetoric that justifies and defines the projects. The rhetoric of sustainable development has influenced not only the redevelopment of towering landfills into parkland after closure, but also the promotion of such redevelopments as “progressive” and “green.” The boosters act as if the construction of parkland automatically negates the decades of anger, pollution, and delay. The reality of course is not so simple.³⁵⁹ For local residents who lived alongside the dump for much of their lives it will take years—if not decades—to view the site as a park and not as a dump.

³⁵⁹ A garbage landfill has typically been seen as a marginal space. In many developed nations, landfills are highly engineered spaces where visitors are unwelcome, and security keeps people out. In many developing nations, garbage dumps are places where impoverished persons squat or set up makeshift homes and communities. Finding new or better ways to manage garbage, in a manner conducive to ecological habitats and human health, is a major aspect of the recent discourse on sustainable development.

CHAPTER 6

ART, DESIGN, AND PARK REDEVELOPMENT

Contemporary art provides a window into the complex symbolism of landfill redevelopments. Artists have been directly commissioned for exhibitions promoting the redevelopment of Fresh Kills and Hiriya, due to the sustainable-development symbolism that park boosters hope to attribute to the landfill redevelopments. Fresh Kills and Hiriya are very ambitious public-park redevelopments--and symbols or artworks in their own right--and so their success is largely dependent on how the public reacts to them. After completion, if people go to the parks regularly, and tell their friends outside of Tel Aviv and New York how wonderful the sites are, the parks will be enormous successes. On one level, art is part of the public-relations campaign. On the other hand, art also functions as a critique of boosterism. The fact that Keele Valley's redevelopment does not have a comparable art and museum booster campaign has much to do with the park plan's piecemeal approach; nevertheless, Toronto's art festivals have included several works dealing with urban-garbage themes.

The exhibitions relevant to Fresh Kills, Keele Valley, and Hiriya are related to socially conscious public art, where "the boundaries between art and social/political places are increasingly blurred, to the degree that art in public spaces is often inextricable (and sometimes indistinguishable) from social engineering, activism, or

political action.”³⁶⁰ Put simply, art does not strictly mean created objects, such as paintings or sculptures, but may take on a more expansive meaning due to context. The definition of art is multi-faceted, but among its public-oriented facets are: it functions as “propaganda”; it serves as a “moral exemplar”; it is a “mirror” for our society and ourselves; selling and buying and producing art is a “celebration of consumption and wealth.”³⁶¹ When an art exhibition or festival is held in a public space, or if the exhibition directly deals with political questions (such as promoting the redevelopment of a landfill into a park), city officials, boosters, or activists may use art as a means of (potentially) influencing public opinion.

New York, Toronto, and Tel Aviv are international and regional centers of the arts; these cities all have well-established museums and galleries, and devote public funding to arts programs. There are, however, some significant differences in the level of reputation and arts infrastructure among these cities. New York City undoubtedly has the broadest, most critically acclaimed, and best-supported arts scene. Toronto and Tel Aviv are both seeking to rival the world’s leading arts cities—such as New York, Paris, or Berlin—but it is perhaps most accurate to

³⁶⁰ Annie Gérin “Introduction: Off Base,” *Public Art in Canada: Critical Perspectives*, ed. Annie Gérin and James S. McLean (Toronto: University of Toronto Press, 2009), 6.

³⁶¹ The business of buying and selling art is significant, as is the advertising power and symbolism of the “art world” (i.e. the institutions and people involved in assessing, buying, selling, critiquing and promoting art styles and specific artists). Lewis Biggs, the coordinator of the Liverpool Biennial in the 2000s and a former Director of the Tate Liverpool museum, defined Art as a complex entity, and among his fifteen points were the four I singled out. See Lewis Biggs, “Art, Money, Parties’ and Liverpool Biennial” in *Art, Money, Parties: New Institutions in the Political Economy of Contemporary Art*, ed. Jonathan Harris (Liverpool: Liverpool University Press, 2004), 39-53.

describe them instead as regional centers of the arts.³⁶² Nevertheless, public and private organizations in Toronto and Tel Aviv have commissioned art works, boast well-known museums and galleries, and have established festivals to celebrate the arts, just as has happened in New York.

New York City's gallery system is one of the best developed in the world, and as a result, New York is an international leader of buying, selling, and promoting the arts. The 1940s and 1950s were the essential decades when New York transformed from the center of the United States' art scene to the number-one art city, and art market, in the world.³⁶³ The burgeoning post-war economy ensured a ready market for buying and selling art in New York--especially for Modern Art,

³⁶² The common perception is that arty areas of metropolitan areas are concentrated in the city's historic center, and that the outlying areas are hostile to art and culture; this view, however, is overly simplified because the location of clusters of artist studios and art galleries is fluid, and some outlying areas have begun competing with central-city arty areas.

The simplest description of how arty areas typically form in metropolitan areas is: artists are attracted to low-rent areas with ample space for studios; as many artists congregate in a suitable area, art galleries and collectors, and the local press, take notice and the area attains a reputation; the arty reputation increases rent and housing prices in the area, because affluent non-artists are attracted to the arty reputation and so choose to live there; the artists find another suitable area and the process continues.

For specific details of a case study (i.e. a descriptive history of how this process occurred in New York City), see Ann Fensterstock, *Art on the Block: Tracking the New York Art World from SoHo to the Bowery, Bushwick and Beyond* (New York: Palgrave MacMillan, 2013). For speculation on how older suburban areas may become arty areas in the near future, see Shawn Micallef, "Artburbia," *The State of the Arts: Living with Culture in Toronto: uTOPIa Volume Two*, ed. Alana Wilcox, Christina Palassio, Jonny Dovercourt (Toronto: Coach House Books, 2006), 312-319.

³⁶³ In the early twentieth century, American artists commonly travelled to Europe's main art centers, such as Paris, in order to attain international legitimacy; America was perceived as provincial and inferior artistically to Europe. The exact reasons for the change were complex, but a cursory description is that by 1950 New York City had displaced European cities such as Paris as the place to be. Artists from around the world—and especially European artists fleeing the persecution and censorship of Nazi Germany or the USSR—congregated in New York during these decades. Thus by 1951, many artists and art galleristas thought: "The whole art world was right there between Madison [Avenue] and Fifth [Avenue] on Fifty-Seventh Street" because at this location "one could see every exhibition of importance." Joan Washburn as quoted in Laura de Coppet and Alan Jones, *The Art Dealers: The Powers behind the Scene Tell How the Art World Really Works*, rev. ed. (New York: Cooper Square Press, 2002), 65.

exemplified by the Abstract Expressionist genre and artists such as Jackson Pollock—and so galleries sprang up to meet this demand.³⁶⁴ Despite changes in the fashionable locations (e.g. SoHo, Chelsea, or Williamsburg) and genres during the following decades, today New York remains one of the world's most significant centers of practicing artists, art galleries, and art collectors. Galleries and museums in New York regularly display works/installations by avant-garde artists who use unconventional media.

Toronto, until recently, was not commonly viewed as a major international art center.³⁶⁵ Canadian art, in general, has been somewhat overshadowed by American art and European art. There is, however, a distinctive Canadian art history and art style or scene.³⁶⁶ Recent municipal and private-institution

³⁶⁴ For details on the 1950s art scene in New York, see Ann Fensterstock, "Moderns in Midtown," *Art on the Block: Tracking the New York Art World from SoHo to the Bowery, Bushwick and Beyond*, 15-26.

³⁶⁵ In 1970, for example, Toronto was "very much on the international cultural margins." Jayne Wark, "Conceptual Art in Canada," *The Visual Arts in Canada: The Twentieth Century*, ed. Anne Whitelaw, Brian Foss, Sandra Paikowsky (New York: Oxford University Press, 2010), 336. At that time Toronto was in the midst of identity and ethnic change, due to the influx of non-British immigrants to the metropolitan area. For details on the architecture and built environment of pre-1960 Toronto, see Eric Arthur, *Toronto: No Mean City* (Toronto: University of Toronto Press, 1964). The primary art styles of Toronto until then were landscape painting and portraiture, with a heavy Anglo-cultural emphasis; Modern art (e.g. colorful abstract painting, as was popular in Europe and the United States) was also common. For more information, see Lora Senechal Carney's chapter (pages 99-117) "Modern Art, the Local, and the Global, c. 1930-50" and Christine Boyanoski's chapter (pages 233-254) in *The Visual Arts in Canada* (Oxford, 2010).

³⁶⁶ The best starting point to studying Canadian art is Anne Whitelaw, Brian Foss, Sandra Paikowsky, editors, *The Visual Arts in Canada* (Oxford, 2010). This book is a collection of essays written by specific experts on diverse topics; the overall theme is that Canadian art is a distinct field, that has diversified in the twentieth century from its beginnings in British cultural expressions, and now embraces First Nations art, as well as offering its own distinct take on contemporary art. Another theme of this book is that earlier Canadian art history had focused too much on Ontario, especially Toronto, and Vancouver, to the detriment of the arts in other parts of Canada, such as the Atlantic Provinces.

initiatives and grassroots art-scene organizing have transformed Toronto into an artistic city, and boosted local morale that Toronto is a “world class” and diverse city.³⁶⁷ As part of renewed interest in “culture” (i.e. the visual, performing, and literary arts), and the tourism, money, and attendant international acclaim, the municipality of Toronto has recently stepped up its efforts to promote the city’s cultural and artistic amenities.³⁶⁸ The art-world infrastructure in Toronto included several arts districts boasting cutting edge galleries and the remodeling of the Royal Ontario Museum (ROM) in downtown Toronto.³⁶⁹ But the clearest example of Toronto’s rebranding as an international city of culture is the annual (since 2006) Nuit Blanche contemporary-arts festival.³⁷⁰

³⁶⁷ In fact, Toronto has long been a center of art production, and was where the most Canadian artists lived until Vancouver took that title during the 1990s. John Loric, “The city as cultureshed,” *The State of the Arts: Living with Culture in Toronto: uTOpia Volume Two* (Toronto: Coach House Books, 2006), 14-22. Vancouver has the reputation of being Canada’s most artistic avant-garde city, in large part because of the innovative policies and exhibitions of the Vancouver Art Gallery (VAG) during the 1960s and 1970s. See Anne Whitelaw, “Art Institutions in the Twentieth Century,” *The Visual Arts in Canada: The Twentieth Century*, Anne Whitelaw, Brian Foss, Sandra Paikowsky, editors (New York: Oxford University Press, 2010), 8-9.

³⁶⁸ For example, the municipality of Toronto declared 2006 a “Year of Creativity” with specially organized festivals and focus on the performing and visual arts: the municipality predicted the project would attract “500,000 visitors, create 2000 jobs and generate \$120 million in economic activity.” 2006 was the year Nuit Blanche began in Toronto. Emily Chung, “The ‘year of creativity’ designed to draw tourists—Local creativity a draw for tourists, businesses: Miller City will spend extra \$2 million on culture this year,” *Toronto Star*, June 14, 2005.

For an account of how Toronto’s pro-culture policy has nourished an architectural renaissance in recent decades, see Sean Stanwick and Jennifer Flores, *Design City: Toronto* (Chichester, England: John Wiley and Sons, 2007).

³⁶⁹ For details on Toronto’s up and coming galleries, see Alana Wilcox, Christina Palassio, Jonny Dovercourt, editors, *The State of the Arts: Living With Culture in Toronto: uTOpia Volume 2* (Toronto: Coach House Books, 2006). See also Robert Fulford’s chapter “Monumental Success” in *Accidental City: The Transformation of Toronto* (Boston: Houghton Mifflin Company, 1996), 167-184.

The ROM had been a traditional museum, but the new remodeling was of a cutting-edge “postmodern” style, which caused great controversy. For an analysis by a resident Torontonian journalist and critic, see Robert Fulford, “Home on the Grange,” *Accidental City: The Transformation of Toronto* (Boston: Houghton Mifflin Company, 1996), 145-166.

Tel Aviv is an up-and-coming player in the international art-world.³⁷¹ Israeli art has long been caught between European or North American trends and the desire to produce a specifically Israeli art that was based more on the experience of living in Palestine.³⁷² There are several sections of Tel Aviv known for art galleries: most notably, Gordon Street in the north, Rothschild Boulevard in the center of downtown, and Old City Jaffa in the south.³⁷³ Art museums, including

³⁷⁰ The official website for the annual Nuit Blanche festival describes it as: "Nuit Blanche was originally conceived in Paris, France in 2002, in an attempt to bring contemporary art to the masses in public spaces" [...and...] "Toronto was the first North American city to fully replicate the Paris model." "Nuit Blanche is a 12-hour event with a mandate to make contemporary art accessible to large audiences, while inspiring dialogue and engaging the public to examine its significance and impact on public space. Nuit Blanche is both a "high art" event and a free populous event that encourages celebration and community engagement. From sunset to sunrise city spaces and neighbourhoods are transformed into temporary exhibitions. Unusual or forbidden spaces become sites of contemporary art open for all-night discovery and rediscovery. Cultural institutions, from museums to galleries to artist run centres, open their doors and offer free access to contemporary art. The everyday is suspended as the city's landscape is changed to welcome a variety of artistic experiences." The quoted text is from: <http://www.scotiabanknuitblanche.ca/about/event-history.html>.

³⁷¹ Robert Goff, "Is Tel Aviv Ready to Crash the Global Art Party?," *The New York Times*, November 2, 2008. Nneya Richards, "Why Tel Aviv is one of Street Art's most important Hubs right now," *Paper*, May 14, 2005.

Gideon Ofrat's *One Hundred Years of Art in Israel* (Boulder, CO: Westview Press, 1998) offers an analysis of how Tel Aviv's art-gallery scene developed (and differed from Jerusalem's art scene). See especially "Two Cities with Two Epistemologies, 1970-1985", pages 257-300.

For an account of how London's gallery system relates to New York's and also to Tel Aviv's gallery system (from the perspective of a gallerist who moved from New York City to London), see "Sadie Coles HQ: Anatomy of a Gallery in the Age of Globalized Contemporary Art," *Art, Money, Parties: New Institutions in the Political Economy of Contemporary Art*, ed. Jonathan Harris (Liverpool: Liverpool University Press, 2004), 75-114.

³⁷² In the early twentieth century, the dominant sources for art among the Jewish communities of Palestine (of which Tel Aviv was the largest and most important) were: "Orientalist" influenced models of Palestine (and often its Arab inhabitants) as a pre-modern, uncivilized, but colorful and cheerful place; trends in European art centers like Paris that were imported by artists who had visited Europe. For details, and specific examples, see Gideon Ofrat, *One Hundred Years of Art in Israel* (Boulder, CO: Westview Press, 1998); see also Ronald Fuhrer, *Israeli Painting: From Post-Impressionism to Post-Zionism* (New York: The Elephant's Eye, 1998).

³⁷³ There are many online resources that provide an overview of Tel Aviv's art-gallery scene. Artis Contemporary, "Articles about Israel's Art Scene," provides links to relevant articles in the international and local press; accessed August 2015,

several contemporary-art museums in the satellite cities of the Greater Tel Aviv area (e.g. the Herzliya Museum of Contemporary Art) have also contributed to the area's flourishing arts scene. The Helena Rubenstein Pavilion—part of the Tel Aviv Museum of Art—often has exhibitions that pose challenging political or societal questions and that use unconventional art media: it hosted two exhibitions (in 2000 and in 2005) concerning the redevelopment of Hiriya into a park.

Art, in cities like New York, Toronto, and Tel Aviv, is a powerful shaper of public attitudes and public policy.³⁷⁴ Contemporary art is often politically engaged; museum or gallery exhibitions can form a front line of public debate and eventually policy action. Boosters of the landfill park redevelopments wish to promote a specific symbolic and aesthetic interpretation to showcase the success of the landfill parks. Government officials, boosters, the media and quite often (but not always) artists, present the parks-to-be in glowing terms: successful parks bring in political kudos. Exhibition space—whether a gallery, a museum exhibition, or a festival—is essential to a city's art scene flourishing. Often, artists depend on contracts with galleries as the means of making a living. Talented galleristas (i.e. gallery operators) will secure contracts with up-and-coming artists who are producing the “next big

<http://www.artiscontemporary.org/resources/articles-on-art-from-israel/>. A relevant blog about Israel's art scene is: Sarah Peguine, “Oh -So-Arty: Your Guide to the Israeli Contemporary Art Scene,” accessed August 2015, <http://ohsoarty.com>.

³⁷⁴ Public money for programs to promote cultural activities is common in all of these cities. Moreover, many of the individuals powerful in the art world are also wealthy and powerful in terms of political influence; private foundations—with connections to the art world—were one of the primary sources of funding for landfill parks. Exhibitions about landfill park redevelopments merged the art world with the business and policy worlds: individuals from all of these sectors work together at projects like Hiriya and Fresh Kills.

thing” before it becomes popular.³⁷⁵ As a consequence, galleries are often where truly avant-garde artworks are displayed, performed, or installed, before museums will decide to exhibit them. Museums are more visible to the casual art observer, but tend to be a step behind—unless they hire a curator who is in touch with and interested in new trends. Art festivals, such as Nuit Blanche, tend to be more informal, and may include a mixture of well-established and up-and-coming artists, but the focus is on general reverie and entertainment.

Pro-art public policy does not in itself create a good art scene, but policy decisions may foster an environment where artists flourish, and in turn provide benefits to the city as a whole. The policy intent is to create a reputation for that city as a creative and dynamic place, which in turn brings in tourist revenue and attracts new companies.³⁷⁶ The key link between the examples of New York, Toronto, and Tel Aviv is that municipal policymakers and local businesses recognize that art exhibitions and cultural festivals can improve the city’s image (i.e. present it as a place that promotes values of creativity, original thinking, and diversity), which in

³⁷⁵ Of course, well-established galleries may focus on securing well-known artists for more expensive contacts. Artists moving “up” from a less-established but focused-on-new-talent gallery to an established big-name gallery was a common practice in New York City’s gallery system, for example; for an engaging and detailed narrative of the galleries and rise or fall of art areas in New York City, see Ann Fensterstock, *Art on the Block: Tracking the New York Art World from SoHo to the Bowery, Bushwick and Beyond* (New York: Palgrave MacMillan, 2013).

³⁷⁶ Public officials may provide funding to arts organizations, host festivals, or give funding to individual artists, but this is a tenuous link, because innovation in the arts often has nothing to do with policy initiatives: individual actions, vision, and talent, as well as informal meetings between artists, are what matter. This is not to suggest that public money or grants are not welcome, or helpful to the arts community. Many artists and arts organizations seek to convince the government to allocate more funding opportunities to the arts. See, as an example, Natalie de Vito, “Mom, dad, will you co-sign my mortgage? Creating a new home for Toronto’s small arts organizations,” *The State of the Arts*, 264-272.

turn signals that it is a community favorable to innovative businesses.³⁷⁷

Policymakers and civic leaders in New York, Toronto, and Tel Aviv have all sought to promote their art and culture scenes at the same time that they sought to enhance development (including landfill parks) and attract businesses and corporations.

Art and Garbage

Eco art is among the most politically engaged and diverse contemporary art genres: eco art spans disparate media and genres, and at its heart is a re-thinking of what is a “work of art.”³⁷⁸ Eco-aware artwork was part of a fundamental shift in attitude many people have had about human’s interrelation with the environment since the 1960s—but it does not refer to one specific artistic medium.³⁷⁹ Rather than see the Earth as a collection of resources or a blank slate upon which human-directed actions occur, eco-focused artists document and represent the awareness that the earth is alive— humans are part of ecological webs, and it is in humans’

³⁷⁷ This line of reasoning was described succinctly by Dylan Reid in “The challenges of the creative city” in *The State of the Arts* (Coach House Books, 2006), 50-57. Reid quotes studies by Richard Florida and by Marc Gertler that compiled vast amounts of data to make the argument that creative businesspersons value creative or artistic communities.

³⁷⁸ Conceptually, eco art’s foundations are with early-twentieth-century artists like Marcel Duchamp who questioned the very definition of art and the role of the artist—and thus allowed greater experimentation in media, expression, and form.

³⁷⁹ The eco art field is based more on ideas than on materials or art-genres. Eco art grew out of the renewed ecological awareness of the 1960s and 1970s. In the wake of books like Rachel Carson’s 1962 *Silent Spring*, which detailed the devastating effects of pesticides (specifically DDT) and of consumer-based society. As environmentalists and scientists began asking new questions about humans’ interaction with “nature,” artists joined in.

interest to understand that.³⁸⁰ Whereas land art often involved drastic human alterations to the environment—and so were ecologically invasive—eco art focused attention on respecting, restoring, and preserving Earth’s ecosystems. Much eco art has a strong ideological/conceptual basis; it questions the very basis of contemporary society’s industrial/consumer foundation—and hence, does not rely on traditional artistic mediums or genres.³⁸¹ Eco art is typically society-focused, so it often overlaps with the public art genre. Public art with an eco-art theme often engages with urban space, and asks questions about past, present, and future use of sites. Public art has historically been sculptural and place-specific in form. New trends, such as landfill-redevelopment art, is pushing public art to a more eco-conceptual level—i.e. posing questions about the meaning of individuals’ and society’s role in the production of garbage.

Garbage art (i.e., art using garbage as a medium or topic) is a sub-genre of contemporary eco art. Garbage art first became widespread as a sub-theme of 1960s Pop Art’s celebration and critique of consumerism, because the ability to waste is a symbol of prosperity.³⁸² Interest in “waste” or “found objects” as art was part of

³⁸⁰ An eco-centered perspective breaks free from a human-centered (anthropomorphic) view, and allows one to see humans as part of complex interactions with other species and habitats. Linda Weintraub’s *To Life! Eco Art in Pursuit of a Sustainable Planet* (Berkeley: University of California, 2012) is a good introduction to this complex field.

³⁸¹ Many eco artists use materials not commonly associated with art—such as Andy Goldsworthy’s snowballs or Ant Farm’s old rusty automobiles. Nor do eco artists necessarily rely on exhibition in museum or gallery space; these details depend on the taste of the individual artist. For more information, see Ben Tufnell, *Land Art* (London: Tate, 2006). For a clear, concise description of environmental and eco art, see Chapters 2 and 3 in Barbara C. Matilsky, *Fragile Ecologies: Contemporary Artists’ Interpretations and Solutions* (New York: Rizzoli, 1992), 36-59.

³⁸² For example, the well-known American sculptor Claes Oldenburg used “mundane, mass-produced and discarded commodities as art objects and as subjects for contemplating and

the 1960s and 1970s reaction against the 1950s valorization of the Abstract Expressionist view of art.³⁸³ Abstract Expressionism's trope of the artist-as-tortured-genius seemed ludicrous to many other artists, and hence ironic works including garbage and discarded mundane objects took hold.³⁸⁴

Other artistic mediums that came to the forefront in the 1960s and 1970s were land art (using the Earth as the medium of art) and conceptual art (the idea, not the material product was the primary artistic medium) and performance art (the action, not the material product was the artistic medium). These new mediums allowed artists to expand their range of influence beyond the limitations of traditional media such as painting or sculpture, and create politically themed work.³⁸⁵ Land art, such as Earthworks, highlighted the artist's interaction with or

commenting on consumer society." The quote is from Mira Engler, *Designing America's Waste Landscapes* (Baltimore: Johns Hopkins Press, 2004), 95.

³⁸³ The influential 1950s-critic Clement Greenberg had championed the artist as a tormented and nearly god-like tragic genius--a view that was bolstered by the Abstract-Expressionist painter Jackson Pollock in his statement "I am nature" when asked about whether he considered painting from nature, as earlier artists like the French Impressionists had done. For a concise overview of Modern Art, see David Hopkins, "The Politics of Modernism: Abstract Expressionism and the European *Informal*," *After Modern Art: 1945-2000* (New York: Oxford University Press, 2000), 5-36.

³⁸⁴ For example, Italian artist Piero Manzoni took the sarcastic side of rejecting the Abstract-Expressionist artist-centered trend to a humorous extreme. In 1961, for *Merda d'artista*, Manzoni canned his own excrement in a slickly designed container (that referenced the new commercial trend of selling pre-packaged supermarket goods) and had himself photographed in his studio holding his "work"; for Manzoni, *Merda d'artista* was also a sly way to shed awareness of how art had become a commercial item, not unlike "supermarket commodities." David Hopkins, *After Modern Art: 1945-2000*, 84.

³⁸⁵ Many contemporary artists do not neatly fit into only one category. An example of this cross-boundary art is Gordon Matta-Clark's 1972 video performance *Fresh Kills*, which he filmed at Staten Island's landfill. The overall point is that the boundaries of art have greatly expanded, and there is much blending between art's subgenres. Matta-Clark filmed his vehicle being destroyed by a garbage bulldozer, loaded onto a garbage truck, and dumped at the landfill site: the Fresh Kills landfill is the environment or site in which the action takes place. The Museum of Modern Art

the manipulation of the Earth, and were not environmentalist-themed works (Eco art is the term for environmentalist-themed works). Land art refers to artworks where “not only is the site of an environmental work an environmental site, but the site itself is an aspect of the work.”³⁸⁶ Over time, some land art has merged with eco art; land art remains a distinct sub-genre, but there is much overlap.³⁸⁷

Land artists and eco artists often collaborated with landscape architects. ³⁸⁸

(MoMa) owns rights to Gordon Matta-Clark’s *Fresh Kill*, 1972. It is 16mm film transferred to video (with color and sound), and runs for 12:56 minutes.

³⁸⁶ Allen Carlson, “Is Environmental Art an Aesthetic Affront to Nature,” *Canadian Journal of Philosophy* 16 (1986): 636.

Works such as Michael Heizer’s *Double Negative* (1960-1970) and Walter De Maria’s *Lightning Field* (1977) were “permanent” sites, far away from galleries and cities, but still open to visitors. Robert Smithson’s work—such as *Spiral Jetty* (1970) in Utah’s Great Salt Lake similarly manipulated the land to create art—but, significantly, the work itself was not intended to remain visible for more than a brief moment (rising water levels submerged it soon after completion). Moreover, British artist Richard Long represented another aspect of land art where, in contrast, in works such as *A Line Made by Walking* (1967) he made no lasting imprint on the landscape, but rather “recorded” his interaction with the environment through gallery-friendly means such as photography, maps, and installations. Artists such as Long, Heizer, Smithson, and De Maria set the foundation for other artists to use the Earth itself as a medium for art, and thus broaden the definition of what was art—as opposed to merely a design decision for professional landscape architects.

Land art, however, was often ecologically harmful, in the sense that artists like Heizer actually destroyed the natural landscape in order to create their work. The artistic statement and the artwork itself was important to land art, not conveying a message about human’s impact on the environment. Heizer said: “you might say I am in the construction business”; similarly, Smithson sought to invoke how the “disruption of the Earth’s crust is at times very compelling” and the “processes of heavy construction have a devastating kind of primordial grandeur.” *Ibid.*, 639.

³⁸⁷ In his analysis of land art, Ben Tufnell describes the change from artists like Michael Heizer to land art/eco artists like Andy Goldsworthy. See Ben Tufnell, *Land Art* (London: Tate, 2006).

³⁸⁸ The merging of art with the design professions (e.g. landscape architecture) blurs traditional boundaries between disciplines. Didactic public art—and politically engaged art—is likely to not fit within traditional art categories such as painting, drawing, or sculpture (although it could).

Art and design are related, but unique disciplines. Both deal with aesthetic presentations, but unlike in design, in contemporary art it is a mistake to accept the surface presentation at face value. Design is fundamentally pragmatic, but much contemporary art is about reflection, ideas and symbols, and calling attention to the complexities involved in the construction of meaning. Art encourages people to break free from preconceptions and see things in novel ways.

The differences between design and art are clearly demonstrated in the approach of the design disciplines like landscape architecture, architecture, and urban planning versus artists toward landfill park redevelopment. Put simply, designers without irony portrayed the landfills redeveloped

For example, a leading figure of both Israeli eco art and landscape architecture was Itzak Danziger.³⁸⁹ Danziger had been one of Israel's most accomplished artists (sculpture and painting) since the 1930s, but he turned to a large-scale environmental-restoration project in 1970, and recruited landscape architects and ecologists to participate in the *Rehabilitation of the Nesher Quarry* (1971).³⁹⁰ In his introduction to the 2000 *Hiriya in the Museum* exhibition, Martin Weyl noted how the Nesher Quarry rehabilitation project was "a cooperative effort, involving the artist, scientists, and students."³⁹¹ Nor was the reclamation of Nesher Quarry unique in contemporary art: Danziger could look to American artists for guidance, e.g. Robert Smithson's plans for *Bingham Copper Mining Pit—Utah Reclamation*

as a "green lung" or an "oasis" of parkland with beautiful green landscaping, with views of the city skyline, and where people will have a good time. Though similarly hopeful about the redevelopments, many artists called attention to the ambiguous meanings and symbols of redeveloping landfills that for decades had been negative symbols for neighboring communities.

³⁸⁹ Itzak Danziger was one of Israel's most well known twentieth-century artists. For details on Danziger's visual art and the Nesher Quarry, see Ronald Fuhrer, *Israeli Painting: From Post-Impressionism to Post-Zionism* (New York: The Elephant's Eye, 1998) pages 12-13, 139. See also Gideon Ofrat, *One Hundred Years of Art in Israel* (Boulder, CO: Westview Press, 1998). Danziger was an influential artist, so Ofrat returns to Danziger repeatedly in his analysis. Especially noteworthy are pages 112-115, which analyze his early "Cananite" sculptures from the late-1930s and early 1940s; and pages 301-303 detail The Nesher Quarry project of the early 1970s.

³⁹⁰ Danziger also focused on creating specifically "Israeli" gardens. As defined in a recent Israeli conference: "the Garden is undoubtedly the heart of landscape architecture." "A garden is a place of order in the midst of chaos." The garden is also "a system, a language which attributes importance to structure and to everything inside it—fauna, flora, and the inanimate with all of their different locations." Mordechai Omer, *Point of View: Approaches to Landscape Architecture in Israel*, Tel Aviv University, The Genia Schneiber University Art Gallery, 17 May-31 July, 1996.

³⁹¹ *Hiriya in the Museum*, The Tel Aviv Museum of Art (Tel Aviv, 2000), 148-147. As described in the "Ends of the Earth: Land Art to 1974" exhibition website, "From February to November of 1971 Danziger worked with ecologist Zeev Naveh and soil and erosion expert Yosef Morin to 'rehabilitate' Nesher Quarry, an abandoned mine located near Haifa in northern Israel." Geffen Contemporary at MOCA, "Ends of the Earth: Land Art to 1974," accessed May 2015, <http://moca.org/landart/>.

Project (1973).³⁹² Reclamation-as-art-projects such as Neshor Quarry are at once environmental remediation, landscape architecture, and art: Danziger's project provides a good example of the overlap between landscape architecture and land art and eco-art, because it was a land-based environmental-remediation project with art implications.

Landscape architects have been willing to work with artists and architects, in part, due to a reshuffling of the discipline's emphasis on landscape as a separate and distinct entity; "landscape urbanism" is the key term for landscape architects (such as James Corner and Peter Latz) who are working to remediate urban brownfields.³⁹³ The major difference between landscape architects and artists is the intent of the work: landscape architects have more of a focus on developing a functioning infrastructure of site that will achieve a better future (i.e. achieving progress through intelligent designs) and typically do not use irony or make strong social or political statements. Artists, on the other hand, span a broader spectrum of political and ironic statements: with contemporary art, it is a mistake to take the

³⁹² Robert Smithson's *Bingham Copper Mining Pit—Utah Reclamation Project* (1973) was a conceptual drawing, and Smithson produced it shortly before his untimely death. Later artists, such as Harriet Feigenbaum's *Serpentine Vineyard* (1982) and *Black Walnut Forest* (1983) in the Lackawanna Valley of Pennsylvania were similar projects to Smithson's conceptual drawing and Danziger's reclamation project for Neshor Quarry. For details on art-as-reclamation, including Smithson and Feigenbaum, see Barbara C. Matilsky, *Fragile Ecologies*, 34-55.

³⁹³ James Corner, the designer of Freshkills Park, wrote: "I believe that landscape urbanism suggests a reconsideration of traditional conceptual, representational, and operative techniques" and so is essential for creating a holistic, ecological, model for planning urban infrastructure. Corner explains: "the critically minded landscape urbanist cannot afford to neglect the dialectical nature of being and becoming, of differences both permanent and transient," which create an "ever-diversifying source of human enrichment and creativity." James Corner, "Terra Fluxus," *The Landscape Urbanism Reader*, ed. Charles Waldheim (New York: Princeton Architectural Press, 2006), 32-33.

surface at face value, because quite often there is a playful, ironic, or political intent.

Redeveloping and remediating actual polluted sites is a common aspect of eco art. This sort of art is not about aesthetics and gallery/museum exhibitions so much as the process of the remediation and redevelopment itself. The art is a statement about the meaning and symbolism of the redevelopment process, which is, of course, a clear precedent for landfill park redevelopments.³⁹⁴ The assumption in these projects—because constructing greenbelt park-systems out of formerly industrial areas is very common in North America and Europe—is that parks represent a “healing” of the polluted land. While this assumption is true to an extent, some artists search for more exacting definitions. Helen and Newton Harrison are perhaps the clearest example of artists who do the work of urban planners or scientists, but with a much more critical/questioning intent.³⁹⁵

³⁹⁴ One of the famous examples of this sort of project is the *International Building Exposition at Emscher Park* (1989-1999) in the Ruhr Valley. This redevelopment project transformed the area’s former coalmines and steel factories into a “green” area and an inter-connected park system. For additional information see the park’s website. DAC& Cities, “Emscher Park: From Dereliction to Scenic Landscapes,” accessed October 2014. <http://www.dac.dk/en/dac-cities/sustainable-cities/all-cases/green-city/emscher-park-from-dereliction-to-scenic-landscapes/>

³⁹⁵ Helen and Newton Harrison—a husband and wife team—were groundbreakers in eco art. They produced art that was a mixture of science and art: they applied rigorous scientific and philosophical standards to their work, and placed more importance on the “correctness” of their work than on its aesthetics or irony. For example, they abandoned their critically acclaimed *Survival Piece* series, because they felt unable to “carry the complexity of the information necessary to communicate the global ecological trauma they saw on the horizon.” Linda Weintraub, *To Life!*, 74-80.

The Harrisons were also opinionated about expressing what they saw to be correct, even to scientists who probably saw art as a novel influence: they received a prestigious grant from the Scripps Institute of Oceanography (a grant typically given to marine biologists) and proceeded to lecture the Institute’s head about how he was incorrectly underestimating humans’ negative ecological impact on the oceans. Craig E. Adcock, “Conversational Drift: Helen Meyer Harrison and Newton Harrison.” *Art Journal* 51 (Summer 1992): 37.

Landfills have become a common medium for eco art.³⁹⁶ In 1969, Patricia Johnson proposed *Garden Cities: Turtle Mound* (a drawing published in *House and Garden* magazine) to redevelop a landfill into an earthwork in the shape of a turtle; this work was not completed, but it did attract some attention³⁹⁷--most notably, Erez Rota Sishoka's *Bird Park* plan for Hiriya references it.³⁹⁸ In 1972, Israeli artist Dov Orner combined garbage politics with broader politically contentious issues. Orner confronted the "green line" border between Israel and the Occupied Territories (the West Bank) by burying "hundreds of packages of rotting garbage and waste" at the Arab village of Misser "sent, at his request" from Kibbutz Metzger, a Jewish village located on the Israeli side of the border.³⁹⁹ Agnes Denes's *Wheatfield: A Confrontation* (1982) was thought-provoking in a more straightforwardly ecologically manner: it was a project to farm the land of a former dump in Lower Manhattan near the (now-destroyed) World Trade Towers; it symbolized, among other things, the feasibility of urban farming as a means of

³⁹⁶Art that relates with landfill park redevelopment takes many forms, but its primary marketable point is its symbolic identification with "Green" lifestyles and hence "Earth-friendly," yet "feel-good" in style and tone. When garbage and landfills are transformed into art, or put on display in a gallery through media like photography and video, the message becomes diluted into just such a feel-good message. Even if the artist is calling attention to wastefulness and decay and toxicity, the art representations and art-gallery display tends to mediate and provide a 'safe' distance. This distance, or "ivory tower of the gallery and museum exhibition approach" is exactly what Martin Weyl sought to overcome when he curated the *Hiriya in the Museum* exhibition. *Hiriya in the Museum*, 143.

³⁹⁷ For details on Johanson's work see Barbara C. Matilsky, *Fragile Ecologies*, 60-65. See also Mira Engler, *Designing America's Waste Landscapes*, 95-123, as well as Patricia Johnson's website, accessed October 2014, <http://patriciajohanson.com>.

³⁹⁸ Erez Rota Sishoka's *Bird Park* plan does not make explicit textual reference to Patricia Johnson's Turtle Mound plan, but the similarities are inexcusable—not least the concept of transforming a landfill into an animal-shaped park. See *Hiriya in the Museum*, 127.

³⁹⁹ Gideon Ofrat, *One Hundred Years of Art in Israel*, 302-305.

general urban sustainability.⁴⁰⁰ Denes also worked on a landfill project at *North Waterfront Park* (begun 1988) in Berkeley, California. Nancy Holt's *Sky Mound* (begun 1985) was a partially realized remediation-based work on an 85-acre dump in Kearney, NJ: work was suspended at an early stage and never resumed. Holt was a big-name artist, and so even as an unrealized work, *Sky Mound* caught people's attention. Mel Chin's *Revival Field* (1990-1993) at Pig's Eye Landfill in St. Paul, Minnesota—a joint project with Dr. Rufus Chaney, a heavy metals specialist of the U.S. Department of Agriculture--was a significant step toward pollution-remediation: Chin's art was simply using bacteria to remediate the pollution at the site; Chaney, however, viewed the project as a "scientific-research project."⁴⁰¹ *Revival Field* is noteworthy as an extreme example: Chin's funding for the project from the National Endowment for the Arts was briefly rescinded amid a heated debate over whether in fact Chin's project was art.⁴⁰² The redevelopment of Palo Alto, California's landfill into Byxbee Park (126 acres)⁴⁰³ and Cambridge,

⁴⁰⁰ Ben Tufnell, *Land Art* (London: Tate, 2006), 101.

⁴⁰¹ Ben Tufnell, *Land Art*, 102. See also Barbara C. Matilsky, *Fragile Ecologies*, 94-111.

⁴⁰² The director of the National Endowment for the Arts, John E. Frohnmeyer, temporarily rescinded Chin's 10,000 dollar grant, but then changed his mind and returned the money; see Barbara C. Matilsky, *Fragile Ecologies*, 111.

⁴⁰³ In 2006, architect Julia Czerniak described the park plan of landscape-architecture firm Hargreaves Associates as based on a sophisticated understanding of landforms: "Rising sixty feet out of the site's context of marsh and slough, these garbage mounds—which form the park's major topography—provide the base for landforms [constructed by the firm] that echo their presence." Julia Czerniak, "Looking Back at Landscape Urbanism: Speculations On Site," *The Landscape Urbanism Reader*, 110-111.

But the story of Byxbee Park is of a mixed success. In 1990, the City of Palo Alto, California, hired the landscape architecture firm Hargreaves Associates, and artists Peter Richards and Michael Oppenheimer to design the park. The 29-acre park opened in 1991, and was deemed a huge success

Massachusetts's landfill into Danehy Park (50 acres)⁴⁰⁴ are other examples of landfill park projects, which include works by specific artists as well as urban planners and landscape architects. The common theme of all these art projects is that garbage landfills have been, as a topic or site for art, representative of a polluted or negative site in need of cleansing or redeeming. The art, it may be argued, is the symbolic and unexpected cleansing of the landfill site, and thus an affirmation of environmental or ecological principles. Often, the hand of the artist is less evident in eco art, such as landfill remediation, because the artistic goal is the restoration of an ecologically damaged site.

(it won a "a national ASLA Honor Award in 1993.") However, changed policies have led to the park's "dismemberment" by 2013. See Brad McKee, "The Dismemberment of Byxbee Park," *Landscape Architecture Magazine*, October 29, 2013.

<http://landscapearchitecturemagazine.org/2013/10/29/the-dismemberment-of-byxbee-park/>

⁴⁰⁴ City of Cambridge (Massachusetts) Annual Report, 200002001. Accessed May 2010. http://www.cambridgema.gov/CityOfCambridge_Content/documents/annualreport00_01.pdf Danehy Park in Cambridge, Massachusetts, which covers 55 acres of land formerly occupied by a landfill near the city center. Public space is valuable but rare in Cambridge, the sixth densest city in the United States; the site added 20 percent more open space to the city. Cambridge city officials closed the landfill in 1970, and over the next two decades implemented a comprehensive effort to transform the site into a safe and usable area for public recreation. Landscape architect John Kissida oversaw the redevelopment plan for Danehy Park, which opened in 1990. Environmental artist Mierle Laderman Ukeles created *Turnaround/Surround*, for which she decorated the low-grade walking path that spirals to the top of the earth mound with glassphalt (colored bits of broken glass) for aesthetic effect and to call attention to the usefulness of recycled materials. The park as a whole is an example of a successful project to transform a polluted and decrepit area into a useful public space. For details on Ukeles's work at Danehy Park, see Barbara C. Matilsky, *Fragile Ecologies*, 74-79.



Figure 61. Nancy Holt, *Sky Mound*, begun in 1985. Source: <http://clui.org/ludb/site/sky-mound>; no known restrictions on publication.



Figure 62. Mel Chin, *Revival Field*, begun 1991. Source: <http://clui.org/ludb/site/revival-field-pigs-eye-landfill>; no known restrictions on publication.



Figure 63. Hargreaves Associates, Peter Richards, and Michael Oppenheimer, *Byxbee Park*, begun 1990. Source <http://clui.org/ludb/site/byxbee-park>; no known restrictions on publication.

Mierle Laderman Ukeles is the best example of the subgenre of garbage art: her work combines conceptual and performance and eco art. She has served as the artist-in-residence of the New York Department of Sanitation (DOS) for nearly four decades, and has also received funding from New York's Percent for Art program. Ukeles began as a feminist artist and became an environmental artist through the theme of work, and maintenance.⁴⁰⁵ Garbage became the primary theme of her

⁴⁰⁵ Ukeles's 1969 exhibition proposal *Manifesto: CARE!* picked up on Duchampian questions about what art is. In *Manifesto CARE!*, Ukeles posited that, due to her credentials as an artist (earned in part by having a art degree from the University of Colorado), what work she did qualified as art, and as a new mother and housewife, the actions she did in her household chores therefore were her art. It did not follow that the actions done in the house were art; only when she, as an artist, exhibited

work in *The Social Mirror* (1983) and *Flow City* (begun 1983), which called attention to the general public's role in creating garbage mountains; Ukeles first became directly involved at Fresh Kills in 1990, when she received "a commission from the New York City Percent for Art Program to design, intercept, interpret, and ameliorate the Fresh Kills Landfill."⁴⁰⁶ In her garbage-themed works, Ukeles exposes often-hidden processes of waste collection and disposal in order to show that individual actions (i.e. buying products and mindlessly discarding when finished) have consequences. Ukeles has an explicit social message, or teaching, in her eco art.

Non-artists, such as landscape architects involved in the remediation of "brownfields" (i.e., polluted land), regularly cite Ukeles as the zenith of environmental-themed art. The general art public is a bit more ambivalent. Ukeles's gallery exhibits are usually well-received, although her focus on garbage, and especially on maintenance, or the necessity of the "dirty" work in life, continues to make art-critics pause, and muse about how she makes something as "boring" as

them in public were they art. Exhibiting works in a museum or gallery space was crucial to both Duchamp's and Ukeles's conception of art. The fast-growing fields of Performance and Conceptual art meant that, by the 1970s, a public performance was also adequate.

Ukeles tested new boundaries that did not require art-performance to take place at a museum or gallery: for example, *Touch Sanitation* (1984), for which Ukeles broadened her conception of "maintenance work" and personally shook hands with all of New York City's sanitation workers, and had the photographs of this action exhibited as a means of focusing attention on the hidden, but essential, work they did for the city.

For details on Ukeles's biography and work, visit her profile on the gallery that represents her, New York City's Ronald Feldman Gallery. "Mierle Laderman Ukeles Biography." Accessed April 2008. <http://www.feldmangallery.com/pages/artistsrffa/artuke01.html>.

⁴⁰⁶ For a concise description of Ukeles's work, see the artist bio "Mierle Laderman Ukeles: Reclaiming Waste" in Barbara C. Matilsky, *Fragile Ecologies*, 74-79. The quote is from page 78.

garbage actually interesting and thought-provoking. For example, a critic wrote about her gallery-exhibition on Fresh Kills in 2001 (the year that Fresh Kills closed):

If it is to change, if the [Fresh] Kills [landfill] is to become something that enhances life (further), that relieves people of the burden, everything [about the 'dirty details' of the site] should be known, and that is precisely how Ukeles approaches the project. She calls it "a journey of learning which leads to multiple paths that open up to shape the future." It is clear throughout that though most of us are fairly oblivious, or even disdainful, of the issues (i.e. what has garbage to do with us?), the people involved with the landfill are, by degrees, passionate, thoughtful, and extremely knowledgeable. All of these meanderings and thoughts Ukeles has brought together create something extraordinary and beyond what it is possible to think of in a line.⁴⁰⁷

The point that Ukeles makes in her art is: everyday people create garbage through everyday activities, and so it is important to recognize that, take responsibility for one's actions, and hence not look down at the maintenance workers who have to process your garbage. Ukeles's work is a good example of a "didactic art" that is as more about ideas than about images. That helps explain why waste-genre landscape architects find her work so enthralling—her art is accessible to them. Yet, artists such as Ukeles provide a more complex questioning of urban waste disposal and landfill park redevelopment, compared to what landscape architects and city officials present.

Mierle Laderman Ukeles's art is also a good example of the connection between New York and Tel Aviv's landfill park redevelopments. Ukeles's took part in museum and gallery exhibitions concerning both Fresh Kills and Hiriya; she also

⁴⁰⁷ Donald Goddard, "Mierle Laderman Ukeles: Penetration and Transparency: Morphed (with videographers Kathy Brew and Robert Guerra)." *New York Art World*, 2001. As of January 2015, this article is available at: <http://www.newyorkartworld.com/reviews/ukeles.html>.

published many interviews with the explicit intention of publicizing these projects. Ukeles had a more direct influence at Fresh Kills, where she headed the plan's Arts commission and designed several permanent exhibits that correspond with James Corner's LIFESCAPE design.⁴⁰⁸ One of Ukeles's projects at Fresh Kills is *Morphing Timelines: Energy*, on the park's East Mound. This project emphasizes the infrastructure necessary to release the built-up methane gas beneath the ground, reminding viewers that the area is the former site of a landfill. *Morphing Timelines* consists of "small mirrors [which] move in tandem, slowly tracking the sun's passage overhead," during the day, while at night "cobalt blue solar-powered lights pulse softly." With these strategically placed lights and mirrors, Ukeles seeks to call attention to the possibility of harnessing "alternative energy from methane produced from waste decomposition," at Fresh Kills. The plan also describes the project as a "timeline" of the transformation of Fresh Kills from a polluted landfill into a "productive landscape." Another of Ukeles's projects, intended to facilitate public awareness of the redevelopment process, is *LANDING*, which includes two earthworks (*Earth Bench and Earth Triangle*) and "a series of berm overlooks located around the perimeter" of the construction sites transforming Fresh Kills. These overlooks enable interested persons to see the site and view the process of transformation. As the park nears completion, these overlooks will "morph into staircases, ramps and points of access all around" the park. The ideological foundation of this project is Ukeles's conception of Fresh Kills as a "social sculpture,"

⁴⁰⁸Ukeles's was involved in the LIFESCAPE draft master plan for Fresh Kills. Her works are described on pages 26-27. The LIFESCAPE plan is available on the New York City website at <http://www.nyc.gov/html/dcp/pdf/fkl/dmp.pdf>

which challenges viewers to recognize their role in building Fresh Kills through the everyday activity of discarding trash.⁴⁰⁹ Ukeles’s proposal for the 2000 *Hiriya in the Museum* exhibition, entitled *Evapotranspiration-This Land Lives and Breathes*, also sought to focus attention through specific lighting techniques during both night and day. In her project proposal, Ukeles described Hiriya as Israel’s “belly button,” around which “the shirt’s been yanked up, [and] the pants have dropped” due to its embarrassing visibility.⁴¹⁰ Her project was a way to expose the site’s nakedness as a way to shock initial awareness and transition into healing. This project at Hiriya was not realized—Ukeles took part in the early stages of the park-redevelopment planning, but was not a winner of the design competition.

Representing Redevelopment

Brownfield redevelopments, such as Fresh Kills, Keele Valley, and Hiriya have utilized art and exhibitions as a medium to focus public awareness and support. At Fresh Kills, the art was not part of a museum exhibit, but relevant instead through the participation of Mierle Ukeles in the LIFESCAPE redevelopment project, and at “Sneak Peak” events (i.e., one-weekend openings of the park to help

⁴⁰⁹ Another of Ukeles’s projects at Fresh Kills is *Public Offerings Made by All, Redeemed by All*, for which “the idea is that one million people will select something of great personal value to be donated and captured in glass blocks that will be displayed at the site.” London-based art critic and curator Kate Forde described her impression of Fresh Kills while viewing Ukeles work there as: “I visited Fresh Kills last summer. There was a faint whiff of sulfur in the air and the odd goose-necked gas pipe here and there, but it wasn’t immediately obvious that I was standing on millions of tons of garbage; it was actually quite lush, green, and fertile, and with a view of its maker, Manhattan.” See Ford’s comments as told in an interview to Megan Heuer, “Kate Ford talks about Dirt,” *Artforum*, June 15, 2011.

⁴¹⁰ *Hiriya in the Museum*, 91.

people feel excited about the future park) at which temporary artworks have been on display. In Toronto, art festivals such as Nuit Blanche have tackled waste-related themes. At Hiriya, eco artists played a direct role in promoting, critiquing, and planning the park, especially as mediated by Martin Weyl, the head of the Beracha Foundation (a private organization in charge of overseeing the redevelopment of Hiriya); the *Hiriya in the Museum* exhibition held in 2000 at the Tel Aviv Museum of Art marked a significant step forward in the pushing of ecological politics and landfill park development into the public mind and municipal policy.⁴¹¹ These art exhibitions and festivals were part of a larger switch toward popularizing garbage and ecological issues as worthy of artistic and policy attention.

The *From Farm to City: Staten Island, 1661-2012* exhibit hosted at the Museum of the City of New York from September 13, 2012 through January 21, 2013—and co-hosted with the Staten Island Museum--was a history-themed presentation of the borough's past, present, and probable future. Staten Island has retained a separate identity from the rest of New York City, and this sense of independence has a streak of both defiance and victimhood. Staten Island has borne the brunt of New York City's pollution problems, and the Fresh Kills landfill is merely the most visible recent example. The exhibition sought to portray the positive side of Staten Island's rural past alongside the progress of the present-day redevelopment of the Fresh Kills landfill. The press release stated: "Through maps,

⁴¹¹ As described by the president of the Tel Aviv Museum of Art: "The deteriorating quality of the environment—an existential problem of the first order in our world—has not received the attention it deserves in the public mind and hence also on the agenda of art. Only here and there have 'ecological' anxieties filtered into the range of concern of the various arts." Mordechai Omer, "Foreword," *Hiriya in the Museum*, The Tel Aviv Museum of Art (Tel Aviv, 2000), 157-156.

photographs, newspapers, government documents, and original artifacts, the exhibition presents Staten Island's historical transformation and its changing roles as a farming center, as a rural retreat, as the site of rapidly residential communities, as a center for industry, and as an increasingly dense urban environment.”

Moreover, the exhibition “also enables visitors to explore current debates about land preservation, environmental sustainability, and redevelopment on the island, including through a special case study of the Fresh Kills landfill redevelopment.”⁴¹²

From Farm to City was about feel-good local history—not critical analysis. The exhibition showed how Staten Island became an urbanized area—and the landfill is shown less as a past problem than as a success story because it is becoming a park. The main theme of *From Farm to City* was about “Large-scale housing development, an historically unmanageable force on the Island,” which is now “largely over” because the majority of the borough's land has now been “claimed, occupied or sidelined by protective designation.” Despite that, “a new use is being developed for the old Fresh Kills Dump, which will become — at a sizable 2200 acres — a big, new city park.”⁴¹³ Put more succinctly, the exhibition implies that brownfield redevelopment is the answer to Staten Island's continuing redevelopment. Former industrial land, including former landfills, offer the borough the best chance for new development—and for Staten Island's business

⁴¹² *Mapping Staten Island*, The Museum of the City of New York. Website in conjunction with *From Farm to City: Staten Island, 1661-2012*. Accessed October 2014. <http://mappingstatenisland.mcnyc.org/exhibition.php>.

⁴¹³ Michael J. Fressola, “Review: 'From Farm to City' highlights Staten Island at Museum of the City of New York,” *Staten Island Live*, January 13, 2013. http://www.silive.com/entertainment/arts/index.ssf/2013/01/from_farm_to_city_to_sandy.html.

community, increasing development is a good thing.



Figure 64. Fresh Kills, post-closure (Not Dated). Source: <http://clui.org/ludb/site/fresh-kills-dump>; no known restrictions on publication.

The *From Farm to City* exhibition had a few limiting factors, which affected its ability to critically analyze. The exhibition was funded by local bank directors, who “encouraged” Museum staff “not to overlook the borough's alternative name, Richmond County, or to miss the significance of the bank[‘s]” name: the Richmond County Savings Bank. Moreover, the exhibition’s co-curator, Liz McEnaney, felt that she had to assure potential visitors that Staten Island “is more interesting than most New Yorkers realize.”⁴¹⁴ Staten Island truly does feel it needs to remind New

⁴¹⁴ While it is common for sponsors to give money for museum exhibitions, this quote is pretty blatant. “Museum staff were encouraged not to overlook the borough's alternative name, Richmond County, or to miss the significance of the bank. Michael F. Manzulli, chief executive officer

Yorkers that it exists, and that it is important. *From Farm to City* worked on that general thesis, of promoting Staten Island's importance, so it is not a coincidence that this museum exhibition focused on public-history archives like photographs and mementos: the mood was nostalgic and praiseworthy.

Toronto's art festivals—in contrast to New York's local-history exhibition on Fresh Kills--allowed more freedom for critical-thinking analysis and aesthetic experimentation, but sometimes at the cost of promoting a specific vision, theme, or plan for the future. Toronto's Nuit Blanche festival is a case in point.⁴¹⁵ Overall, Nuit Blanche was a successful celebration of contemporary art, in an accessible format to the general public; the works tended to ask questions rather than provide answers.⁴¹⁶ The relevance of Nuit Blanche to Keele Valley (which is a project to

of the bank and chairman of the foundation, said that "the history lives on here." See Michael J. Fressola, "From Farm to City': Staten Island's 351-year history will be on exhibit at Manhattan museum," *Staten Island Live*, April 27, 2012. Accessed November 2014.
http://www.silive.com/news/index.ssf/2012/04/from_farm_to_city_staten_islan.html

⁴¹⁵Like New York's *From Farm to City* exhibition, Toronto's Nuit Blanche was sponsored by a bank: Scotiabank. "Scotiabank Nuit Blanche is produced by the City of Toronto's Economic Development and Culture Division. Cultural City Events coordinates the submission process."

Nuit Blanche has two types of exhibitions: Independent Projects and Open Call Projects. The City of Toronto described these two types of exhibitions as follows. "An Independent Project does not receive any funding and is responsible for its own staffing, security and other project costs. An Independent Project must find their own venue (a gallery, concert hall, hotel, parking lot, café, park, alleyway, etc.). City of Toronto cannot find you a venue, but we can consult with you on ideas and considerations...Independent Projects can be located anywhere within the city of Toronto." And "Open Call projects will be selected based on a number of criteria including artistic merit and how the project relates to the curatorial and artistic visions. Open Call projects are part of the Exhibitions. The City of Toronto will work with the artist to produce the piece. Open Call projects that are selected for inclusion in the event will receive an artist honorarium of \$1,000 CAD and up to \$10,000 CAD towards project and production expenses. Open Calls will be located within the Exhibition Area." City of Toronto, "Scotiabank Nuit Blanche FAQ," Accessed August 2015. City of Toronto, "Scotiabank Nuit Blanche FAQ," Accessed August 2015.
<http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=a569174d17422410VgnVCM10000071d60f89RCRD&vgnnextchannel=8dab7cc3b5e91410VgnVCM10000071d60f89RCRD>

⁴¹⁶ The CCCA Canadian Art Database has the original curatorial statements from Toronto's Nuit Blanche festivals, as well as artist bios and links to images, audio and visual tracks. For details

redevelop a conspicuous urban brownfield into a pleasant area for public gathering) is that the contemporary-arts festival was also part of Toronto (and also Greater Toronto) policymakers' project to re-brand the Toronto area as a cultural center, and a tourist destination. The format (a street art festival) was different in Toronto than in New York or Tel Aviv, but the intent—promoting the area as a progressive community, and to provide entertainment--was similar.

Toronto has coordinated many cultural events and festivals since the early 2000s, and although Nuit Blanche (which is sponsored by Scotiabank—one of Canada's leading banks) was only one of many, it has had a lasting impact on Toronto's arts scene, in part, because it has been an annual event since then. Nuit Blanche first occurred in Toronto in 2006.⁴¹⁷ It was a transplant from Paris; a

on the artworks at Toronto's Nuit Blanche festivals, visit the database at <http://ccca.concordia.ca/nuitblanche/>.

⁴¹⁷ The curators of the inaugural festival in 2006 stated: "For one sleepless night – from sunset on Saturday, September 30 to sunrise on Sunday, October 1 – the familiar was discarded and Toronto became the artistic playground for a series of exhilarating contemporary art experiences. Over 425,000 people encountered the city in a unique way and explored Toronto through public art commissions, all-night exhibitions, live performances and creative programs featured throughout the city. This cultural rendezvous opened the doors to hundreds of museums, galleries, institutions and unusual spaces each featuring free art programs all night long." Canadian Art Database, "Scotiabank Nuit Blanche, Toronto Canada 2006," Accessed August 2015.

<http://ccca.concordia.ca/nuitblanche/nuitblanche2006/>

Here is the text from the promotional history of the inaugural 2006 event, written by the event's boosters. "From dusk until the early pre-dawn hours on September 30, 2006, Toronto buzzed with excitement as Scotiabank Nuit Blanche was first unleashed on an unsuspecting city. Torontonians left behind the comfort of their beds en masse, as 425,000 people ventured out onto the city's streets for an all-night exploration and celebration of contemporary art. As remarkable and distinctive as the art was, the magic came from the audience response and interaction. Most importantly, through this event a new audience was introduced to contemporary art by making it fun, engaging and accessible. This event brought together a wide range of sectors and the exceptional talents of more than 400 artists and curators, 300 onsite logistical staff, 200 docents and volunteers, 87 galleries, museums and art institutions, and 13 corporate sponsors and media partners. Within hours of the sun rising on October 1, hundreds of enthusiastic e-mails, letters and phone calls poured in from artists, participants, volunteers, councillors and event attendees. The inaugural edition of this event received widespread acclaim and accolades." Scotiabank Nuit Blanche, "Event History," Accessed August 2015. <http://www.scotiabanknuitblanche.ca/about/event-history.html>

conscious attempt to replicate Paris's success; it has also spread to other cities, including the Greater-Toronto area municipality of Kitchener, Ontario.⁴¹⁸

The general theme of Toronto's Nuit Blanche festivals has been representing the "urban experience" in its myriad forms and manifestations, and as part of this theme several artworks have addressed the theme of garbage. In 2007, "Sculptures such as the *Cloud of Doubt* - made up of garbage and powerful lights - sat suspended on trees."⁴¹⁹ In 2009, Alexandra González's *NITE-LITE* used discarded plastic bottles and "repurposed materials" to focus attention on recycling and environmental issues.⁴²⁰ In 2013, John Notten's *Shrine*⁴²¹ used garbage bins as a

⁴¹⁸ Kitchener's Nuit-Blanche-affiliated festival is named Night\Shift. For details see "Night\Shift," Accessed August 2015. <http://nightshiftwr.ca>.

A listing of all the international locations of Nuit Blanche festivals is available at: Scotiabank Nuit Blanche, "International network," Accessed August 2015. <http://www.scotiabanknuitblanche.ca/about/international-network.html>

⁴¹⁹ Debra Black, "Early to bed? Here's just a taste of what you missed yesterday at Nuit Blanche," *The Toronto Star*, September 30, 2007. *Cloud of Doubt* was: "[Found] Objects and lights sources wrapped in place along the street to create lingering clouds by JP King and Stephen Marie-Rhodes." It was located on Bloor Street from Lansdowne to Margueratta, and was part of Bloor NIGHTLIGHT. As described by the promoters of the event: "Bloor NIGHTLIGHT, a festival of lights along Bloor Street from Margueretta to Lansdowne unleashes a dynamic series of artworks that work to vitalize this at-risk area for Nuit Blanche. BIG: Bloor Improvement Group, with initiating artist Dyan Marie, and dozens of contributing artists, offer "BLOOR NIGHTLIGHT" an event that will involve wide local support and participation within this multi-problemmed community. The event will work to help build a better Bloor. The 2 block-area BLOOR NIGHTLIGHT location between Lansdowne Ave and Margueretta Street is best known recently for its negative press coverage: 94 crack dealers charged in one month, toxic lands, struggling and vacant storefronts. Our event intends to be an overall catalyst to start to change all that. It is a Nuit Blanch project to "take back the night" and works from now until September to clean, repair and improve the street and help local business. BLOOR NIGHTLIGHT invites the city to witness the start-up of the vitalization of Bloor. The Artworks will create lighting, lighting events and activities along Bloor that will encompass the street in a creative glow that provides an exciting, beautiful and lively night as part of Nuit Blanche." http://www.digin.ca/v1/digin_welcome.html

⁴²⁰ "NITE-LITE is a free-standing light installation which uses re-purposed materials and water bottles, stained and lit to act as 'pixels', which create visuals as well as awareness to the environmental issues surrounding plastics and BPA. Some 'visual facts' that will be shared by NITE-LITE are directly connected to the effects that water bottles are having on our environment, such as

metaphor for contemporary society's "religion" of consumer goods, and Maggie Groat's *Free Land* focused on "the implications of relocating and repurposing land" at one of Toronto's former landfill sites.⁴²²

their lack of bio-degradability in landfills and the harmful BPA chemical that they release and its damaging effects. The images/messages are intended to be engaging and a starting point for dialogue." <http://ccca.concordia.ca/nuitblanche/nuitblanche2009/artists/c16.html>

⁴²¹ "Shrine is the destination of an unexpected nocturnal pilgrimage. The most humble of objects, the common garbage bin, rises up in monumental stacks to form a sacred space: that of a Gothic Cathedral. The worlds of debris, recycling and overabundant products collide with the elegantly vaulted ceilings and stained glass windows of the cathedral as viewers are lured into an alternative experience of church. Each garbage bin forms a building block that parallels the proportions of a traditional cathedral in an ironic way. In so doing, this lowly receptacle for the products of humanity's excess is elevated to a level of architectural grandeur. The insatiable appetite for and the mass consumption of meaningless objects, first treasured and then discarded, forms the basis for a dialogue about our need to worship. This shrine is symbolically unclean and yet seductively beautiful, offering an immersive experience that challenges notions of faith and the idols we revere. John Notten is a Toronto artist and educator. He creates participatory installations that immerse the viewer in alternative environments through the re-crafting and repurposing of multiple, prefabricated objects. This is his 4th installation for Scotiabank Nuit Blanche since 2010." <http://ccca.concordia.ca/nuitblanche/nuitblanche2013/artists/43.html>

⁴²² Simcoe Park, 270 Front Street West, "FREE LAND activates the marginalized green space of Simcoe Park as a site for temporary occupation and collective intervention through the excavation and dispersal of public soil. The park is located along what was once the original shoreline of Lake Ontario, and aptly named for John Graves Simcoe, one of the major developers of early Canada. The built environs of the park resemble nothing of its indigenous roots, and its recent history is one of landfill, concrete and urban development. FREE LAND wonders: What are the implications of relocating and repurposing land? How do the lasting impacts of settler-colonialism and associated attitudes surrounding land use and the commodification of natural resources affect the places we live? Are civic spaces really ours? From sunset to sunrise, a hole will be dug in this small city park and what is uncovered will be made available for relocation and repurposing. Taking away small parcels of this liberated soil, participants are entrusted with the removed land and agree to become the stewards of both its history and future potentiality. The resulting vacant space in the ground will ultimately be filled with 'new' purchased soil, rendering the marks of this gesture invisible, as the traces of it live on elsewhere. Maggie Groat works in a variety of media including sculpture, collage, site-specific interventions and field studies. Forming an ongoing research-based practice, Groat's work explores studies for possible futures, the interdisciplinary potential of artistic envisioning, salvage practices, and relationships and reconnections to place and ancient knowledge systems from an Indigenous perspective. She is a graduate of the MFA program at the University of Guelph (2010)." <http://ccca.concordia.ca/nuitblanche/nuitblanche2013/artists/60.html>



Figure 65. A Child observing NITE-LITE (Lite Brite) from Toronto's 2009 Nuit Blanche. Source: Non-copyrighted image from Wikimedia Commons, https://commons.wikimedia.org/wiki/File:Lite_brite_Toronto_Nuit_Blanche.jpg

The success of Nuit Blanche, and other festivals such as the renowned Toronto International Film Festival (established in 1975), led to a blossoming of arts/cultural festivals; Toronto's art galleries and "alternative" venues also got into the action.⁴²³ In terms of garbage art, the most relevant example is the R.R.R.R.

⁴²³ "Whippersnapper is excited to welcome Urban Trash Art to Toronto. Over the course of three weeks in July and August UTA will be working on various installations and public interventions with a featured piece presented on July 31st at RRRRR Trash Art Festival. Stay tuned for updates and ongoing documentation. Coming all the way from Sao Paulo, Brazil, artist collective Urban Trash Art will be exploring the street corners and back alleys of Kensington Market and ChinaTown, installing public trash sculptures and murals as they go. Working with the belief that artists not only have the ability, but also the social responsibility to make artworks from reclaimed materials, UTA craft wonderfully imaginative street masterpieces solely from scrap wood, wire, plastics and other waste. Throughout late July watch out for a wooden bird sculpture or bottle cap portrait on a sidewalk near you. And if you happen to spot UTA out and about why not say hello or even join in. They love to collaborate and everyone is welcome. The Urban Trash Art project began in January 2009 in Sao

Trash Art and Music Festival, co-hosted by the Whippersnapper art gallery in July 2001, 3:00. The R.R.R.R. title meant: *Reused, Repurposed, Re-imagined, Reclaimed, Re-framed*.⁴²⁴ This festival took place in Toronto's Kensington Market and included the work of the Brazilian-based Urban Trash Art collective.⁴²⁵ The collective's work sought—not unlike the previous generations' concern with “found art”—to make art displays for the festival out of garbage rummaged from Toronto's city streets.⁴²⁶

Tel Aviv's landfill park redevelopment has the clearest connection between the art world, art-museum exhibitions, and public policy. The *Hiriya in the Museum*

Paulo, Brazil, and is the result of a partnership between the artists Cleber Padovani and Rodrigo Machado. Their practice is based on a belief that art materials should be accessible to all, and centres around issues of sustainability; transforming trash as a means and end. They return garbage found in dumpsters and sidewalks to the city as transformed art works that affect the urban landscape and offer a critical look at the issue of over-consumption and waste.” Whippersnapper Gallery, “Introduction to: Urban Trash Art (Brazil),” Accessed August 2015. <https://vimeo.com/26902572>

⁴²⁴ As described on a promotional website: “R.R.R.R.R is the central event of Whippersnapper [gallery]'s TAKE ME WITH YOU summer programming series, which focuses on the Art of the lost and found. It has been brought together by three Toronto based indi arts and music organizations; Whippersnapper, Wavelength and Snakes & Ladders. Imagine walking around the corner of a familiar building and stumbling into a totally new space where murals grow before your eyes, bands surprise the crowds from the rooftops and a giant trash sculpture presides over the whole ordeal. Welcome to R.R.R.R.R. Its real and hidden away in the heart of Kensington Market. Featuring a stellar line-up of bands from Toronto, Montreal and New York; artists from Toronto and Sao Paulo, Brazil; this event, taking place on July's pedestrian Sunday, is an all day happening of radical enthusiasm, inspiration and community.” <http://www.wavelengthtoronto.com/show/2011/05/rrrrr-trash-art-and-music-festival>

⁴²⁵ *The Toronto Star* published some articles about the event: including Murray Whyte, “Urban Trash Art: Recycling the Streets,” *The Toronto Star*, August 01, 2011. http://www.thestar.com/entertainment/2011/08/01/urban_trash_art_recycling_the_streets.html

The Urban Trash art collective rummaged the streets of Toronto's Chinatown and Kensington sections, which they used to make their works. Images of the collective's art in Toronto may be found at the following blog, which is an informal account of the festival and includes photos of the art and of the bands (much of the festival was a music/party venue): http://www.blogto.com/arts/2011/08/photos_of_the_urban_trash_art_in_toronto/ and http://www.blogto.com/music/2011/08/rrrrr_trash_art_festival_rocks_kensington/.

⁴²⁶ Images and further information about the Urban Art Collective's works are available at <http://urbantrashart.blogspot.com>.

exhibition at the Tel Aviv Museum of Art in 2000 fore-fronted ideas, with park-redevelopment proposals as a message of a potentially positive future. This exhibition took place at the Museum's Helena Rubenstein Pavilion, which commonly hosts more "cutting edge" exhibitions that push the accepted boundaries of art. As described by a critic:

The exhibit, [...] is as disturbing, strangely compelling and attention-grabbing as Hiriya itself. It opens with a short film, run in a loop all day, that is a pastiche of the dump itself: scavengers, bulldozers, turkeys and maggots amid stupendous piles of steaming garbage being dumped, trodden, crunched and sifted. Then the exhibit moves from descriptive to prescriptive and straight on to utopian, and things get interesting. For the theme of the exhibit, "Hiriya in the Museum," is not merely the fact of one of the region's most enormous trash heaps, but what to do about it. Can Hiriya be cleaned up? Made fit for human habitation? Transformed into a nature reserve? An aviary? A suburban neighborhood? A monument to destruction and renewal? Those are the themes explored by a variety of international artists who were commissioned to concoct ideas for Hiriya's rehabilitation.⁴²⁷

The proposals exhibited at *Hiriya in the Museum* were a diverse collection of pragmatic, whimsical, optimistic, and critical proposals from both artists and landscape architects, from many nations. Several, like Ulrik Plesner, David Guggenheim, and Mordechai Kaplan's "8000-Dunam Green Lung" proposal were serious forerunners to the eventual plan chosen by Tel Aviv officials. Plans such as this focused on creating a pleasant, idealized park space. Some proposals were serious, but playful, like Erez Rota's "Bird Park": reminding viewers of the threat posed to Ben-Gurion international airport by the thousands of birds that circled Hiriya, Rota suggested a park shaped like a bird. A few of the exhibition's proposals

⁴²⁷ Lee Hockstader, "An Israeli Museum Wallows in Trash," *Washington Post Foreign Service*, Saturday, March 18, 2000; A13.

were intended only as critiques; for example, well-known Israeli artist Igael Tumarkin's⁴²⁸ "Hiriya as the Absurd," designated the garbage mountain "Mount Sisyphus" due to the (pre-closure) daily trek of garbage trucks up and down the landfill, and Mark Dion and Nils Norman proposed a dual-sided Theme Park with a utopian "Green Park" and a dystopian "HotZone Biohazard Extreme Theme Park." Dion and Norman parodied the upbeat tone of redevelopments, with statements such as: "WELCOME to a world of toxic adventure!" The proposal also mimicked a park guide: "Wander back and forwards in time as you stroll down a path filled with fascinating examples of man-made hazardous waste; past, present and future. You'll encounter asbestos, lead dioxide, pesticides and much much more. It's hands on here so feel free to explore." Another participant, Israeli-American landscape architect Mira Engler, drew from her experience with this Hiriya exhibition to write her book about the aesthetics and philosophy of redeveloping "waste landscapes."⁴²⁹ As these examples show, the proposals both supported and criticized the officials' perspective; in general, the artists tended to call attention to the site's history and environmental abuses, while the landscape architects tended to downplay the site's past and emphasize a pleasant future use.

⁴²⁸ Igael Tumarkin was one of the leading figures in Israel's version of Pop Art in the 1960s—he was especially influenced by European Pop artists like Yves Klein and Arman and American artists like Robert Rauschenberg and Jasper Johns. His works were in varied media, but installation was probably his most famous contribution, such as *Bedouin Crucifixion* (1976), but he also did mixed-media collage/paintings such as *Trouser Panic* (1962). The common factor in Tumarkin's work is the focus on political statements, presented in a outlandish, gory, or garish way. For details on Tumarkin's pivotal role in Israel's art scene, see Gideon Ofrat, "Ten Plus: Pop Art and the Americanization of Israel, 1965-1970," in *One Hundred Years of Art in Israel*, 221-256. Some of Tumarkin's painting/collage works—including *Trouser Panic*--are included in Ronald Fuhrer, *Israeli Painting: From Post-Impressionism to Post-Zionism*, (New York: The Overlook Press, 1998).

⁴²⁹ See Mira Engler, *Designing America's Waste Landscapes*, 2004.

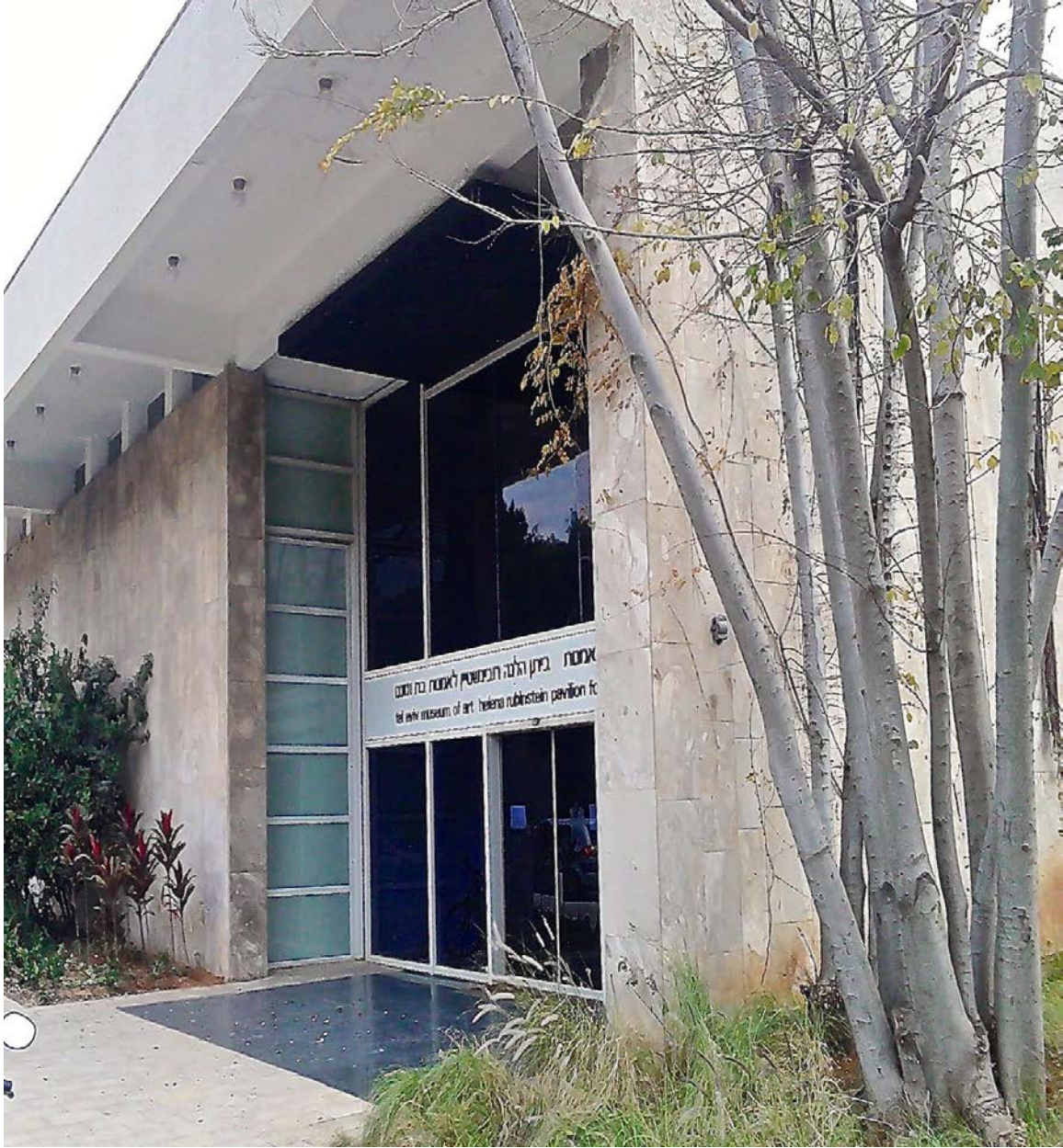


Figure 66. The Helena Rubinstein Pavilion, Tel Aviv Museum of Art. Source: Photo by Benjamin Lawson.

The 2000 Hiriya exhibition was more successful as a government-policy tool than as an art exhibition. The reception to the Hiriya exhibition was divided along political and professional lines. One of the participants, Mira Engler wrote: “On the one hand, some art critics dismissed it as a weak performance of ‘applied art.’ An

architectural critic of a major newspaper expressed skepticism about the effectual and operative potential of such an art exhibition making any social or environmental difference. On the other hand, other cultural and environmental writers blessed the freshness and boldness of such a daring project.” In contrast, government officials warmly embraced the exhibition. “Environmental groups and the Ministry of the Environment of Israel have endorsed and welcomed the exhibition, using it as a public relations tool.” Engler summed up her assessment as: The Hiriya art-museum exhibition “shed light on the garbage issue and has changed the image of Hiriya forever. It has not only contributed to a new sense of consciousness but has also served as a critical act through and in which the social, economic, and political import of various concepts and practices are exposed and challenged.”⁴³⁰ In short, the exhibition fore-fronted ideas and design to such a degree that many traditional-minded persons from the art world struggled to see what the art was.

In time, even critics began to revisit their initial assumptions. As a writer for Tel Aviv's *Ha'areetz* newspaper wrote in 2005:

The [*Hiriya in the Museum*] event came across at the time [in 2000] as just another spoiled, self-obsessed affair emerging from the Tel Aviv art world, romanticizing the garbage rather than the more serious effort to advance the nascent zoning plan for the Ayalon Park and a campaign against the construction plans that were being made for it. In retrospect, however, the conceptual art project served as a real catalyst for advancing the outline of the plan for the Ayalon Park. It, together with the professional meetings that came in its wake at the initiative of the foundation, certainly contributed significantly to

⁴³⁰ Mira Engler, “Hiriya in the Museum: Tel Aviv Museum of Art”, *Public Art Review* 11, 2 (Spring/Summer 2000): 31-4.

placing the issue on the public agenda and kick-starting the process that eventually led to its initial approval in November [2004].⁴³¹

It is important to note, however, that this article in *Ha'areetz* valued only the real-world applications of the project. Art, according to this article, was easily written-off if it did not advance solutions to the more "serious" political issues.

The real significance of the exhibition was, still, its ideological and social-message, and not aesthetics. The *Hiriya in the Museum* "exhibition significantly helped to change the image of Hiriya in the public consciousness - from being a symbol of an area of ecological disaster into a place associated with terms such as 'open public expanse,' 'park' and even 'beauty.' The exhibition brought to the fore the inherent potential in rehabilitating 'brown fields' such as waste dumps, abandoned industrial areas, contaminated land and crime-infested urban areas, and turning them into active public expanses." This is significant because in "the post-industrial age and in a world in which open areas are continually disappearing, this [topic of redevelopment] today is a central issue in the field of urban and environmental planning, and a subject that has recently moved from being behind the scenes in the area of infrastructure to center stage of the cultural world."⁴³²

⁴³¹ Esther Zandberg, "High hopes for Hiriya," *Ha'areetz*, March 14, 2005.

⁴³² Ibid.



Figure 67. Ariel Sharon Park (Hiriya), 2014. Source: Wikimedia Commons; PikiWiki, Israel Ministry of Tourism. [https://commons.wikimedia.org/wiki/File:Ariel_Sharon_Park_\(8121481959\).jpg](https://commons.wikimedia.org/wiki/File:Ariel_Sharon_Park_(8121481959).jpg)

After the 2000 exhibition, curator Martin Weyl—in his capacity as the head of the Beracha Foundation—continued to work with the artists and landscape architects to determine a feasible yet ambitious park-proposal plan.⁴³³ Mierle Laderman Ukeles and the landscape-architecture team of Ulrik Plesner, David Guggenheim, and Mordechai Kaplan, for example, helped with this work-shopping process. Weyl solicited help from artists and experts by writing: “The Southern Tel

⁴³³ Weyl described his interest in Hiriya as: ““There is something in us that’s fascinated with garbage,” said Weyl. “It is at the same time so ugly and so fascinating. And I’ve become interested in its role in the modern world. Often garbage is out of view. Here it is in the very center of the country, at the navel of the country. For me it became a symbol of neglect and of how to deal with neglect.” Lee Hockstader, “An Israeli Museum Wallows in Trash,” *Washington Post Foreign Service*, Saturday, March 18, 2000; A13.

Aviv area contains an open space on circa 2000 acres. On the eastern side of it there is a large landfill (garbage dump). Recently a number of artists were asked to come up with proposals to change the dump into an interesting new site open to the public...Simultaneously the district planning office of the Tel Aviv area started promoting the idea of turning the whole area around and including the landfill into the main metropolitan park upgrading the southern part of the metropolitan area.”⁴³⁴ This post-2000 exhibition workshop set the foundation for the official international-competition; the proposals for which were the subject of a follow-up exhibition, *Hiriya in the Museum 2*, at the Tel Aviv Museum of Art in 2005.

The international competition for Hiriya’s redevelopment included many interdisciplinary design teams, some of which included artists. Mierle Ukeles, for example, took part in one of the not-accepted proposals. These proposals were noticeably more pragmatic, and included Peter Latz’s proposal, which is the plan currently under construction as Ariel Sharon Park. Latz publically described his park-plan for Hiriya as an “oasis” within the sprawling urbanscape: Latz’s remarks paralleled the language of the international design competition.⁴³⁵

The Hiriya park-redevelopment competition, in fact, required the view of the

⁴³⁴ Laura Starr, one of the participants in this stage of the Hiriya project, published an article about her experience—including this excerpt from the letter that Weyl sent her. Laura Starr, “Ayalon Park,” “Extreme Sites: The Greening of Brownfields,” Deborah Ganz and Claire Weisz editors, *Architectural Design*. Volume 168, 2004: 69-76.

⁴³⁵As Latz stated in a 2009 interview about Hiriya: “Human society has changed the landscape, and today it is beginning to regain responsibility for it. The Ayalon Park is, I believe, a fascinating effort by a society seeking to create its environment. It is a place that combines wasteland and human involvement. I think that the results will be very interesting; it will be a very artificial, yet also very natural place.” Latz’s quote is from Noam Divar’s article “The Magic Mountain,” *Ha’areetz*, 2009.

park as a “healing” of the Hiriya site. The competition’s prompt described the ideal proposal as one that transformed Hiriya into “a site of tranquility and relaxation” that “should convey a feeling of spirituality” and “should not be only a natural site, but also a cultural manifestation.”⁴³⁶ This seems like a tall order. It is simple enough to say that creating a pleasant park represents a “healing” of the polluted site. Whether any landfills have previously been redeveloped into areas that “convey a feeling of spirituality” is another matter entirely.⁴³⁷ Boosters, wealthy individuals, and government officials directed the park redevelopments’ image because there are political and financial benefits for policymakers and local businesses (such as banks) to ally themselves with the park-promotion process.⁴³⁸

In New York, Toronto, and Tel Aviv, cultural events were utilized as a means

⁴³⁶ The international design competition, which Latz won, required this view, of the park as a “healing” of the Hiriya site. A 2005 exhibition at the Tel Aviv Museum of Art, “Hiriya In the Museum\2,” included the actual proposals along with the official guidelines for the competition. The competition prompt, among other things described the ideal proposal as one that made Hiriya “a site of tranquility and relaxation” that “should convey a feeling of spirituality” and “should not be only a natural sit, but also a cultural manifestation.” See *Hiriya in the Museum\2: Proposals Submitted to the Public Competition for Detailed Landscape Design of the Landfill*, (Tel Aviv: Tel Aviv Museum of Art, 2005).

⁴³⁷ Historical analysis of cities’ landfills and redevelopment schemes reveals the tension between opposing themes/ideals. Is converting a landfill into a park best described as an environmental corrective or a cover up? How have changing historical meanings of artifice or nature affected park creations and waste disposal? Do the projects to make towering garbage mountains public parks disguise or make waste sites more visible; could such projects increase awareness of urban sustainability? Questions such as these are best addressed through attention to historical rhetoric, policies, and developments—and not simple acceptance of contemporary boosters’ remarks.

⁴³⁸ The park-development process allies corporations in the public mind with successful organizations (like local museums, which have a respected brand name), and adds an air of respectability to their own name. This allows them to appear to be civic-minded individuals and institutions For details on this line of reasoning about the use of Museum’s brand names in corporate advertising, see Mark Rectanus’s *Culture Incorporated: Museums, Artists, and Corporate Sponsorships* (Minneapolis: University of Minnesota Press, 2002).

to promote the city as an international destination, or a progressive community. *From Farm to City: Staten Island, 1661-2012* and *Hiriya at the Museum* (and *Hiriya at the Museum 2*) are good examples of how museums hosted exhibitions intended to “teach” the public about the benefits of landfill park redevelopment. Whereas the Hiriya exhibitions drew from eco artists as well as landscape architects, the exhibition about Fresh Kills was focused on material culture and history instead of art. Both exhibitions relied on boosters’ private-money support, and presented a politicized representation of landfill park redevelopment. Keele Valley has not attracted a specific museum exhibition, but its transformation into a park is part of Greater Toronto’s attempt to present itself as an attractive area for cultural and business investment; cultural festivals, such as Nuit Blanche, are a clear attempt to boost tourism, investment, and the artistic reputation of the Toronto area.

Will the Landfill Parks be Successful?

To be successful the landfill parks will need to address the environmental degradation at the former landfill and become places that people actually use in the near future (i.e., once the parks are opened to the public). Future analyses of these landfill parks will likely hinge on whether people actually use these parks, as well as whether policymakers have implemented “sustainable” waste-disposal solutions that most city residents are satisfied with. The inclusion of art at these landfill-redevelopments will do little to sway public attention positively toward the landfill parks, if the actual parks do not become busy, aesthetically pleasing, and social-class

mixing places. The geographical location of the landfill parks may affect this scenario.

Hiriya and Fresh Kills, like Keele Valley, are on the fringes of the city, and most park patrons will need to drive to the parks. Tel Aviv and Toronto's park plans are part of combatting urban sprawl: the still-undeveloped areas by Hiriya and Keele Valley are lucrative for sprawling development. Market forces will likely lead to the development of all this land in the near future. It makes sense, therefore, to plan ahead to save pockets of undeveloped land for parks--the landfill areas fit that need perfectly. Staten Island fits the urban sprawl model less: an essential difference is that while Staten Island seeks to attract new development, Vaughan and Tel Aviv-area municipalities like Ramat Gan are succeeding, in large part due to their geographical location on the edge of the metropolitan area.

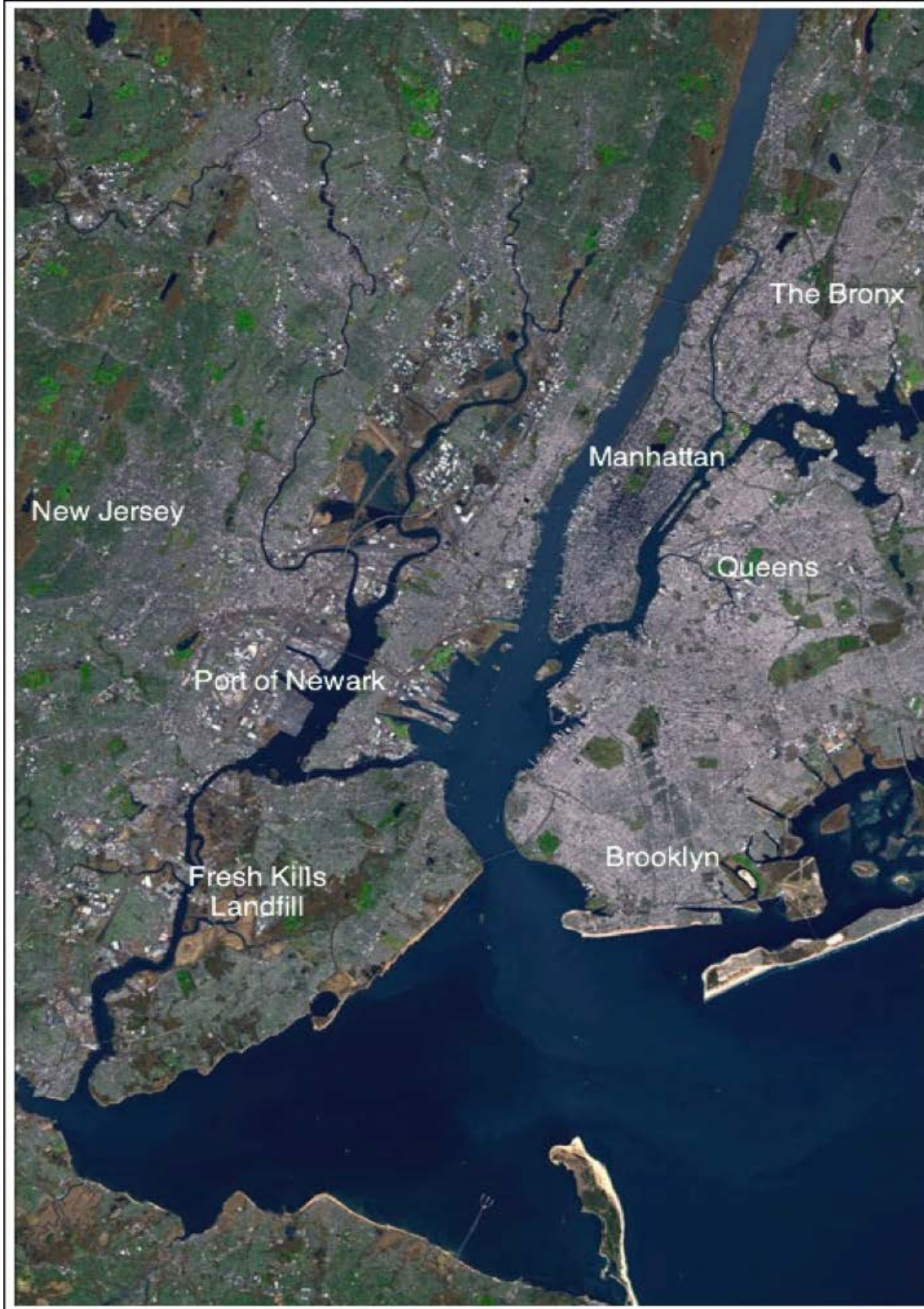


Figure 68. Satellite Image of New York City, 2002. Source: Adapted from a public domain image from Wikipedia.



Figure 69. Satellite Image of Toronto, including Vaughan, 2004. Source: Adapted from a public domain image from Wikipedia.



Figure 70. Satellite image of Greater Tel Aviv in 2002. Source: Adapted from a public domain image from Wikipedia.

The geographical location of Fresh Kills is different than Keele Valley and Hiriya because it is officially located in one of the world's largest cities; this matters in terms of redevelopment patterns. True, parts of Staten Island have a less-urban atmosphere from the other boroughs, and the western side of the island by Fresh Kills is not very developed; the landfill park is part of a larger development plan. The

catch is that Staten Island has a history of development: it has high land values, even when the land is currently vacant or occupied by a closed factory; much of the coast is zoned industrial, but it faces steep competition from New Jersey; redeveloping Fresh Kills could rejuvenate the area and make it more attractive to private developers.

Freshkills Park may very well be a local, Staten Island park—because most New Yorkers go to parks in their own boroughs, and most tourists do not leave the Ferry Terminal after taking the ride across the harbor to Staten Island. The interest in Freshkills Park is, therefore, focused on the landfill’s place in Staten Island’s past and future—as the exhibition *From Farm to City: Staten Island, 1661-2012* illustrated. The booster-focus about Hiriya’s Ariel Sharon Park is about grand ideals of Israeli national unity, but at Fresh Kills the focus is very local. Staten Island wants to compete with the rest of New York City and show that it is not “the forgotten borough,” and boast a “world-class park” of its own that is bigger, better, and newer than Manhattan’s Central Park.⁴³⁹

To achieve their aims, city officials and planners focus on environmental benefits of the current park plan, and downplay the past. In boosters’ promotions, landfill parks are “natural” places to enjoy—most, but not all, traces of the former garbage dump will be downplayed. Very little about urban environments is natural, if that term means untamed by humans. Landfill park redevelopments merely showcase the human-constructed aspects of the urban environment more clearly

⁴³⁹ The New York City Department of Planning’s website about the LIFESCAPE plan refers to the project as creating a “world class park.” See http://www.nyc.gov/html/dcp/html/fkl/fkl_index.shtml

than usual. The promotional materials for Freshkills Park, North Maple Regional Park, and Ayalon Park emphasize how the sites will serve as “a green lung” for the city, allowing it to safely progress without sacrificing environmental thresholds.

The park redevelopments also allow policymakers to focus public attention on the parks, and not on the ongoing waste-disposal problems. Parks bring votes; pollution does not. Because landfills remain one of the primary means of waste disposal, being able to redevelop closed landfills into a “useable” space like a public park is a helpful save-face policy. Like the campaign promoting recycling, the boosters’ presentation of landfill parks is not necessarily incorrect, but overly optimistic: the best-case scenario is assumed to be fact. Most persons, even environmental activists, are not questioning whether the parks are a good idea—hence the widespread usage of terms like “green lung” and “oasis” and “natural” and “home for wildlife” to describe the future parks.

What the booster promotion of Freshkills Park, North Maple Regional Park, and Ariel Sharon Park fails to emphasize is that landfill parks do not address many of the continuing problems of urban waste disposal. The question is whether it is a good long-term answer to continue using large landfills, and then redeveloping them into parks after closing them. Yet, park boosters talk and act as if this whole context is beside the point.⁴⁴⁰ They focus instead on how successful projects need

⁴⁴⁰ Since the closure of Fresh Kills in 2001, New York City has no domestic disposal options, and impoverished communities outside the state of New York now dispose the city’s waste for financial gain. Building Freshkills Park will not address New York’s fundamental problems of waste disposal. Much of Toronto’s garbage is still trucked to a landfill a few hours away in southern Ontario. The park will only cover the scars at Keele Valley. Hiriya still functions as a waste-transfer station, where garbage is unloaded, reloaded, and trucked to another landfill about an hour south. All three of these cities—and their surrounding metropolitan areas—continue to rely on landfills.

to make people feel good about their community, and that is exactly what landfill parks provide. The park-construction projects not only stimulate development, provide jobs, make locals feel proud of their area, and excite artists and design professionals, but they do so in a way attuned to the gospel of sustainable development. The simple fact is that the projects have the necessary support to succeed. Only time will tell if, in fact, they do.

Landfill park redevelopments are positive projects. Art provides a context for commentary and criticism and support. The planning process for these parks has also been going on for years, and is very detailed. Public support for the park development is also high, and with the aid of public and private money, the parks at present have sufficient funding. The parks also provide a forum for public discourse about garbage, conservation, and sustainable urban policy. Increasing public awareness of issues such as how peoples' everyday habits have an impact on the environment--such as how buying consumer goods and mindlessly discarding them is harmful and has a directly visible effect in the massive landfill--is a good development in itself. If the public does use Freshkills Park, North Maple Regional Park, and Ariel Sharon Park, then the landfill park projects are in fact examples of progress. Continuing to use new landfills, while redeveloping some of the older ones into large-scale public parks with eco-art implications is not a perfect solution, but it represents the sort of creative thinking necessary to begin addressing the ongoing issues of waste disposal in large, sprawling metropolises.

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