

Environmental Alert

Environmental Impacts of New Jersey's Legalized Cannabis

On January 18, 2010, the former Governor of New Jersey Jon Corzine signed into law bill S.119. This was the Compassionate Use of Medical Marijuana Act, which permitted the use of medical cannabis for persons suffering from debilitating medical conditions and patients authorized to use for medical purposes. There were many legal and ethical debates in New Jersey regarding the use of cannabis. In November of 2020, a referendum was placed on the election ballot regarding the recreational use of marijuana. New Jersey voters approved the referendum, which approved allowing an amendment to the State constitution to legalize the recreational use of marijuana by people 21 years of age and older. Sixty-seven percent (67%) of New Jersey voters voted to approve, against thirty-three percent (33%) that voted against legalization. The intent of this article is not to weigh in on the medical, moral, ethical, or legal issues of this initiative, but instead on what happens next – specifically, the potential environmental impacts of this new business to New Jersey communities.



Background

With recreational marijuana being estimated by various industry sources as a one-to-two billion dollar per year industry, many lawmakers in Trenton are seeing a potential for additional tax revenue to help cover various shortfalls in the State budget. After some contentious debates regarding the details, on February 22, 2021 Governor Murphy signed the three bills that would allow New Jersey to create a legal marijuana industry. One of these bills (Assembly Bill A 21) allows a host municipality to charge an optional “Local Cannabis Transfer Tax and User Tax” of up to 2% of the receipts from each sale by

a cannabis grower or retail sales. With a good-sized farm able to produce an expected \$150-300 million of gross sales per year, there is an obvious incentive for many municipalities to look around for vacant facilities that might be able to fit one of the expected 37 growing facilities expected to be licensed in New Jersey. Many municipalities have experienced a drop in tax revenue and higher than expected expenses due to COVID-19. The additional tax revenue will be remunerative, but it does have its potential environmental issues; the following discloses only some of the environmental issues. Large issues such as the ethical acceptance of cannabis in a community, costs, and potential legal challenges are not discussed here.

Potential Environmental Impacts

Water Use – Cannabis is a water hungry crop, with the average plant needing up to 22 liters of water per day. A single greenhouse of approximately 1,000 plants would require 700,000 liters of water per month (approximately 185,000 gallons) for the warmer months of May through September. Since the greenhouses are likely to be retrofitted to run 12 months per year, water use would continue through the colder months as well, but perhaps at a slower rate. For municipalities that rely on well water for their domestic supply, this can be a significant draw on a local aquifer, especially in areas that are already working to conserve available water for residents.

Significant water usage should be anticipated. Appropriate planning for municipal wells and connection fees.

Stormwater – For outdoor farms growing cannabis, there are the typical stormwater runoff issues that are common in most types of farming. Areas that are cultivated for a mono crop no longer have the typical plant/ground cover to prevent soil erosion and runoff, often carrying with that runoff some of the fertilizers and pesticides that are

used to control pests and boost plant growth. The adjacent waterways that receive this runoff can be damaged by excessive algae growth, reduced dissolved oxygen, and other impacts commonly ascribed to farmland runoff. Interestingly, in areas of disturbed soils, marijuana can sometimes be used to stabilize the soil due to its fairly extensive root systems, but that is not typically the case in the usual farming situation.

- Stormwater runoff should be addressed as ground cover will not be present. Engineering review is critical.

Wastewater -Water used in an irrigation system or to rinse off plants may need to be discharged to a local sanitary wastewater treatment authority. In this case, an industrial user discharge permit may need to be developed to set limits on various chemicals, especially if pesticides are used. For discharge to a receiving stream or other water body, the New Jersey Department of Environmental Protection (NJDEP) would require a New Jersey Pollutant Discharge Elimination System (NJPDES) permit for industrial users, and the water discharged may need to be treated first.

- NJDEP Discharge Permits may be required. This consideration should be required as part of the approval process.

Solid Waste -Large sections of the cannabis plant are not utilized when harvested for medical marijuana, where the focus is on harvesting the flowers and surrounding parts. The rest of the plant is then disposed of in a process monitored by the New Jersey Department of Health. For obvious reasons, the waste plant material is watched closely through the disposal, as much of the disposed of plant material could be used for recreational purposes. Growing recreational marijuana would require additional licensing and result in more product being produced, with less plant waste being disposed. For cannabis dispensaries, the solid waste is potentially less in volume, but more complex in nature. Stale or unused marijuana waste is still a controlled substance and will likely require specifically licensed waste haulers and disposal facilities that will transport the waste only to facilities designated to accept it.

- The unused product is a controlled substance and will likely require specific licensed waste haulers.

Lighting -Cannabis grown in a greenhouse is usually grown under artificial grow lighting, often fluorescent or high intensity discharge (HID) lights, with LED grow lights starting to make an appearance due to their much lower energy costs. Regardless of the lighting type, it would be reasonable to expect a grower to keep their plants growing throughout all 12 months of the year to maximize profits. With grow light periods reaching 18 hours of light per day, this means a fairly bright neighbor in a residential neighborhood – especially in winter months with short daylight hours. Light pollution is seldom considered as seriously as other pollutants, but it can be a concern.

- Cannabis requires artificial grow lighting for up to 18 hours/day. Lighting considerations and impact on residential neighborhoods should be considered.



Traffic –One of the benefits of any new business of this size is the number of jobs that can be created. But with those jobs comes the related traffic – not just the added employees that will work at a facility, but the trucks that will be coming back and forth to manage supplies, deliver products to their dispensaries, and remove solid waste.

Trucks will be transporting supplies, products and solid waste. Plan for appropriate hours and routes.

Odor –Cannabis plants emit a number of volatile chemicals during their growth cycle, especially when the flowers of the plant are budding and during harvest. Several of those chemicals (a group known as terpenes) have been known to produce an odor described as “skunky.” Since greenhouses can heat up inside (especially in warmer months) and considering added heat from internal grow lamps, the air inside the greenhouse must be exhausted almost continuously to control the internal temperature. If the inside of the greenhouse gets too warm the plants will die. The odor from exhaust is the most common complaint from people living in and around commercial cannabis growing facilities, and a potential huge source of complaints from residents to officials in Town Hall. There are various filters and treatment devices for controlling odors in the exhaust stream, but these need to be chosen and sized correctly to be effective.

This is the most common off-site complaint. Review of filters, air quality and monitoring should be required.

Ozone formation - The terpenes emitted by the growing and harvesting of cannabis are volatile organic compounds (VOCs) that can interact with sunlight, heat, and nitrogen oxides (from vehicle exhaust or other combustion sources) to form ground level ozone, specifically during the summer months. Ozone is a lung irritant and criteria pollutant under the U.S. Environmental Protection Agency’s Clean Air Act. This means these facilities would contribute additional ozone in a State that already has multiple days during the summer where air quality is listed as “unhealthy,” according to the NJDEP.

Energy Use –The lighting alone in a year-round cannabis greenhouse is energy intensive, especially when using high intensity lighting for the best production rates. This type of lighting not only uses a lot of energy, but also requires additional ventilation to cool the facility, equipment to manage humidity inside the greenhouse, and other associated equipment for protecting the plants. With this additional energy use arguably comes an increase in greenhouse gas (GHG) emissions. And although the growing of green plants can absorb carbon dioxide and assist in GHG reduction, the management, shipment, handling and potentially burning (for personal consumption) of the plant material are likely to outweigh this positive contribution.

Conclusion

Although these issues do not necessarily represent insurmountable environmental challenges, it is still worth addressing the potential environmental issues before considering the possibility of permitting a cannabis growing facility to set up in your municipality. On the following page, is our Cultivation of Cannabis environmental consideration checklist for municipal officials. There will also be the inevitable land use planning issues, ethical challenges, and the ultimate consideration of whether the additional tax revenue is worth the effort. It is likely that as the industry matures, these issues will become better managed and may in fact be reduced to commonplace. However, that is likely still a few years off.

This newsletter is for information purposes only and does not represent legal or technical advice.

If you need a more detailed explanation of this topic or need assistance in interpreting how it may impact your municipality, the EJIF suggests that you contact the EJIF environmental consultants for further information.

All EJIF members please feel free to contact Richard Erickson at rerickson@firstenvironment.com or Sunita Dhar at sdhar@firstenvironment.com of First Environment, respectively or 973.334.0003.

This Alert does not intend to convey, imply, or promise in any way, EJIF insurance coverage for the matters contained herein.

Cultivation Of Cannabis Environmental Consideration Checklist For Municipal Officials

These considerations should be part of the legislative process and drafting of local land use ordinances, applications for land use or when considering the location of cultivation sites.

	Water Usage	Significant water usage should be anticipated. Appropriate planning for municipal wells and connection fees.
	Stormwater	Stormwater runoff should be addressed as ground cover will not be present. Engineering review is critical.
	Wastewater	NJDEP Discharge Permits may be required. This consideration should be required as part of the approval process.
	Solid Waste	The unused product is a controlled substance and will likely require specific licensed waste haulers.
	Lighting	Cannabis requires artificial grow lighting for up to 18 hours/day. Lighting considerations and impact on residential neighborhoods should be considered.
	Traffic	Trucks will be transporting supplies, products and solid waste. Plan for appropriate hours and routes.
	Odor	This is the most common off-site complaint. Review of filters, air quality and monitoring should be required.