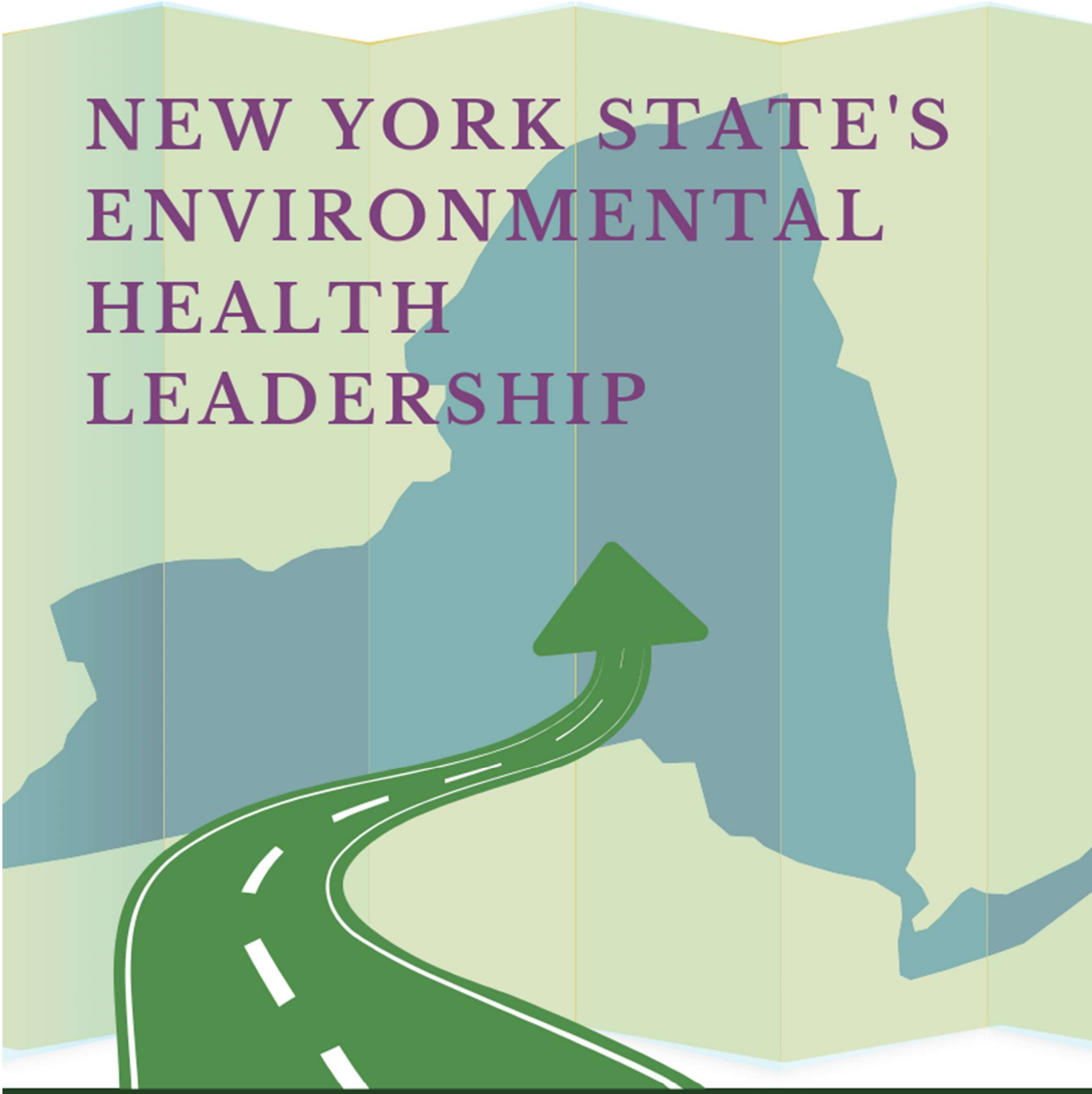
NEW YORK STATE'S ENVIRONMENTAL HEALTH LEADERSHIP



A ROADMAP TO TURN OFF THE TAP ON TOXIC CHEMICALS AND BUILD A SUSTAINABLE, JUST, CIRCULAR ECONOMY

Clean and Healthy New York

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THE ROADMAP FOR NEW YORK STATE

Transforming New York State into a national leader on environmental health requires a roadmap along "complete streets" – just as communities are making space for public transit, cars, bicycles, and pedestrians – there are many modes of travel along the Roadmap to Environmental Health Leadership. The following sections articulate the four major routes to environmental health, and the vehicles for reaching that.

We call for New York State to set bold goals for reducing harmful chemicals, working within government and through business, academic institutions and individuals. New York State should renew its commitment to pollution prevention, green chemistry and engineering, and a sustainable, nontoxic circular economy. The State should demonstrate this commitment by establishing broad, bold goals for reducing use of harmful chemicals in our state, to "turn off the tap" on the flow of these chemicals into workplaces, products, homes, schools, and therefore our bodies, and into the natural resources we and all life rely upon for survival.

THE FOUR MAJOR ROADS TO ENVIRONMENTAL HEALTH LEADERSHIP

Transparency: Throughout the supply chain, purchasers including individuals need to know what is in the materials they buy so they can choose the healthiest option.

Action on harmful chemicals and their classes: When credible information indicates that chemicals are hazardous, government and businesses should act to limit their presence.

Innovation of inherently safer options: Investment in green chemistry and engineering, identifying solutions built on inherently benign, reusable, repairable, recyclable materials.

Integration of chemical considerations into broader definitions of sustainability: The petrochemical industry drives production of gases disrupting our climate, plastic pollution crowding the oceans, and toxic chemicals spreading from the equator to the poles. All rely on the same feedstock. We can only fully transition from a linear supply chain to a circular one when we detoxify the materials within it.

ADVANCING DOWN THE ROAD: KEY LEADING CONSTITUENCIES

In the following sections, we explore the individuals and entities that can move us to New York's leadership on Environmental Health. Continuing the road metaphor, we consider the following categories.

Public Transit

Government bodies can be slow to act – represented by the greater level of infrastructure needed for an efficient transit system. They can also use their capacity to address environmental injustices, and move historically disproportionately harmed communities toward environmental health and justice.

State Government: The *Governor* and the *agencies* he oversees have existing authority to act on chemicals of concern, particularly as air, water, and soil contaminants. Further, the Governor can propose funding of projects within his annual budget, and can propose legislation and seek its advancement when new laws are needed. *Legislators* can advance new policies, and hold hearings on problems to identify solutions. The *Comptroller* can use the State's investment funds to influence corporate behavior, divest from companies unwilling to change, and audit state programs to assess their efficacy. The *Attorney General* can aggressively pursue those who violate restrictions on harmful chemicals, and use legal mechanisms to preserve New York State's right to act in the best interest of its people and environment. She can use funds recouped from successful lawsuits to support green chemistry programs.

Local Government: County and city governments can use their procurement authority to choose safer materials, and have some authority over the content of materials sold. They can also pass laws restricting the sale of toxic substances in products.

Freight Vehicles

Manufactures, retailers, and service-providing businesses can have a significant impact. They can require transparency about chemicals from their suppliers, driving the transparency all the way up the supply chain. They can establish Restricted Substances Lists that go beyond government requirements, both for the contents of materials they purchase, but also in manufacturing processes. They can track their Chemical Footprint, establish goals for reducing that footprint, and track their progress. They can seek out innovative, green chemistry and engineering solutions for transitioning away from harmful chemicals. They can collaborate with partners along their supply chain or in the same sector to bring innovative solutions to marketable scale.

Buses

Academic institutions, associations, and non-profit organizations have important roles.

Academic institutions can develop innovative solutions built on green chemistry, and green engineering, with an intention that their solutions are part of a regenerative, circular economy. They can integrate chemical hazard assessment into every part of their innovation and development.

Business associations can help members identify the safest solutions, and help transfer knowledge across sectors.

Non-profit organizations play a critical role of educating, empowering, and representing the public and its interests, engaging with each of the other "vehicles" on these roads. All of the accomplishments of government and the business community are in part due to pressure from public interest advocates, ranging from small community organizations to large, global NGOs. NGOs connect scientists and their research with government and corporate policy, and with individual choices. They identify problems and accompanying solutions.

Ambulances

Doctors, nurses, and other health care professionals are critical to achieving environmental health. They can educate themselves about the impacts of chemicals in their patients' environments, share preventative strategies with patients and their families, drive changes within their institutions, and know symptoms of chemical exposures when they see them to help prevent further harm. They can advocate for policies that improve the health of their patients by preventing chemical exposures.

Bikes

Small businesses do not command the market share that larger companies can, but they are often started to solve a problem left unaddressed by more established businesses. Small businesses can start with the foundation of green chemistry and engineering, and they often serve as laboratories to demonstrate the feasibility of new ideas.

Walkers and Wheelers

Residents. Each action taken by a New Yorker can have positive or negative impacts on our common and individual health, but they are, by and large, small steps. Given the ubiquity of toxic chemicals in our daily lives, it simply isn't possible to shop, eat, or exercise your way out of this problem.

TRANSPARENCY

Throughout the supply chain, purchasers including individuals need to know what is in the materials they buy so they can choose the healthiest option.

Only when one really knows what is in a product, can one fully compare between products and express a market preference. Some consumers may be satisfied with the knowledge that companies are revealing all – transparency itself builds trust and is a feature. Others may seek to choose among products with different sets of ingredients, using their own chemical avoidance list.

As one moves out of the realm of individuals, transparency becomes even more powerful. Retailers with full information about chemicals in products can apply screens to avoid chemicals. Product makers with full information about the contents of the components they purchase can start with safer materials, and choose solutions that aren't simple swaps of one chemical for another (especially true for those who make durable goods, where products are solid articles, like apparel, furniture, and toys). Formulators providing full transparency can respond to business-to-business demand. Chemical producers can benefit from innovating new, safer options.

This transparency must go beyond "intentionally added" chemicals and include byproducts, contaminants, and impurities. This captures, through the supply chain, information about the purity of raw or recycled materials, the use or generation of harmful chemicals in the manufacturing process, and chemicals used in packaging and during transportation (such as fumigants sprayed on furnishings or anti-wrinkling agents applied to apparel).

Government bodies, able to require full lists of chemicals present (including byproducts and contaminants), can use a hazard-based assessment to determine a variety of actions: incentives for innovation of new solutions to materials of concern, restrictions of chemicals in certain products, or in-state production, or, at the very least, assessment and action on these chemicals in waste and drinking water, preferably before there is evidence of harm.

Actions:

New York State should reassert the right to know what materials and chemicals are present in our environment and products by establishing sweeping chemical disclosure laws:

1) The legislature should require disclosure in key consumer products, starting with personal products and children's products.. Other next product categories could include menstrual care products, apparel, and food (including packaging). It should modify the State's definition of confidential business information such that information regarding the names of chemicals that appear on hazard lists are not eligible for confidentiality by the State.
2) The Office of General Services and Department of Environmental Conservation should use their procurement power to prefer products for which full chemical information is disclosed
3) As a step to full transparency, children's product manufacturers and brands should be required to disclose chemicals harmful to human health and the environment.

4) The **Comptroller** should use its power as an investor of the State Employee Pension Fund to move major companies to conduct Chemical Footprint assessments, adopt restricted substances lists, and develop methods of providing full chemical information to consumers.
5) The **Attorney General** must vigorously defend New York State's right to collect information on chemicals in products produced or offered for sale in the state, and oppose efforts to enact federal legislation that would strip this right.
6) The **New York State Congressional Delegation** must collectively and individually oppose federal efforts to undermine New York's rights,
7) The **Governor** must include adequate staffing at the Departments of Environmental Conservation and Health to oversee programs that involve increased transparency, reporting, and confidential business information claims by regulated companies, and provide sufficient funds to the Interstate Chemicals Clearinghouse to hold information about chemicals in products in shared databases with other states.

Ahead of legal requirement, **businesses** should implement methods to track chemical components of all materials through the supply chain, both internally, and through up- and downstream business-to-business relationships. Companies should track their Chemical Footprint and set goals for reducing harmful chemicals, adopting known safer solutions.

Health care professionals should be trained through the Children's Environmental Health Centers of Excellence to identify and treat diseases with environmental contributors, particularly through nursing and pediatrician curriculum. They should be able to talk with patients about prevention methods (including choosing safer products, particularly for pregnant women and babies).

Individuals should ask about chemical components in products they buy, and prefer companies that fully disclose this information. They should urge legislators to require such transparency.

Advocacy **organizations** and community groups must share information as it is disclosed, and advocate for corporate and government policies that increase transparency.

Urgent Policy Action for 2019

The Governor and Legislature must pass Article 7 legislation in the Fiscal Year 2019-2020 Executive Budget requiring full disclosure of chemicals present in all consumer products, and the hazards they pose to human health and the environment.

The Attorney General must vigorously defend the cleaning product ingredient disclosure from the lawsuit filed against the Department of Environmental Conservation by the companies that do not want to provide full information about their products.

2 ACTION ON HARMFUL CHEMICALS AND THEIR CLASSES

When credible information indicates that chemicals are hazardous, government and businesses should act to limit their presence.

Rather than allowing one harmful chemical to gain attention and action, while very similarly structured, equally concerning, chemicals are moved in as replacements, we need to learn from our experience on the Toxic Treadmill, and drive the national agenda for action on harmful chemicals.

WHAT'S THE TOXIC TREADMILL?

When one single chemical structure is restricted, but similar, potentially less studied chemicals remain unregulated, chemical manufacturers move to those similar but legally permissible formulations. When scientific research catches up – which can take years – and demonstrates potential harms from the new chemicals, the process repeats. Examples include:

BPA in receipt paper and drink containers is replaced with BPS, now shown to be more hormonally active than BPA.

PBDEs: penta- and octa-bromodiphenyl ethers caused harm to human health and animals, and persisted in the environment. Efforts to regulate the chemical class faced pushback, as chemical makers argued larger PBDEs molecules would not pose the same threats. It took years to determine decaBDE also entered human and animal bodies, and EPA reached voluntary agreements to end its use. Today, nearly identical decabromodiphenyl ethane remains legal.

Actions

New York State is on the path to leadership. The **Governor and the Legislature** should:

- Create an infrastructure for eliminating harmful chemicals in children's products as part of the Child Safe Products Act.
- Pass legislation to end use of classes of chemicals concern in product sectors, such as organohalogen flame retardants in furniture, electronics, children's products, and bedding, bisphenols in children's products, and PFAS in food packaging and firefighting foam.
- Restrict harmful chemicals in personal care products aimed at communities of color (such as mercury in skin-lightening creams),
- Take a comprehensive approach to addressing current and legacy sources of lead (in paint, soil, water, products) that goes beyond matching federal thresholds for action on children with BLLs at 5 ug/dL or above. This includes investing resources for further remediation in places children live, learn, and play.
- Codify the successful Green Procurement program now operating under Executive Order 4 from 2008 into law, to ensure its continued functioning.
- Acknowledge that the waste from oil and gas refining, as well as petroleum-contaminated soil, is hazardous, not solid waste, to close the "hazardous waste loophole."

The **Governor, and Departments of Environmental Conservation and Health** should not wait for the next set of "emerging chemicals of concern" to contaminate drinking water sources, and must proactively identify a more comprehensive list of chemicals that require monitoring and action:

- Direct the Department of Environmental Conservation to reassess the list of "hazardous substances," expanding the definition to include chemicals that pose health concerns during use or in new uses following material recycling, and reassessing existing information beyond those chemicals the federal government has identified under CERCLA.
- Provide resources to the Agency to hire the staff necessary for this assessment and changes in regulation, and implementation to follow.
- Ramp up use of Hazardous Waste Reduction Plans to minimize the flow harmful chemicals as inputs, outputs, or processing chemicals. This should include an aggregated periodic report for the public and legislature.
- Empower the Department of Health's Center for Environmental Health to communicate to the public and physicians about known chemicals of concern, using the lists generated for the Household Cleansing Ingredient Disclosure form.
- Agencies should cease approvals for "Beneficial Uses" of materials composed of harmful chemicals. Beneficial Use Determinations can return materials containing toxic chemicals back into general use, including waste tires as crumb rubber for artificial turf, mulch, and playground surfaces. Instead, agencies should push companies, wherever possible, to ensure products can be returned to beneficial use – recycled – by addressing the chemical composition and production of materials.
- Promote recycling and return of materials to productive use that are not made with harmful chemicals, and direct companies needing disposal of materials containing chemicals of concern to invest in innovative solutions that remove the chemicals of concern from production in the first place.
- Continue to use New York State's procurement budget as an economic driver.

The **Attorney General** must vigorously enforce violations of the law, and defend New York State's ability to restrict chemicals within its borders as is necessary to protect human health and the environment.

The **Comptroller** should use his investment power to drive companies to use a Chemical Footprint described in Route 1: Transparency to set and meet measurable goals for reducing demand for, and therefore production of, chemicals of concern to human health and the environment. They should also expand the pool of funds they use to support companies investing in green chemistry solutions and paying attention to materials selection.

Individuals should choose products they know are made with inherently safer materials, and those that can last a long time, be safely recycled or composted, and thus returned to a nontoxic, sustainable circular economy.

Community groups and advocacy organizations should access information about harmful chemicals and safer solutions and share this information with the public. They should continue to advocate for the changes described above. They should provide accountability by testing products and revealing

those that contain chemicals of concern. They should also promote independent, third-party certification programs that identify products made without chemicals of concern.

Small businesses and entrepreneurs must continue to seek new solutions, develop solutions, and make products that fit within a nontoxic, sustainable and just circular economy.

Urgent Policy Action for 2019

The Governor and Legislature must pass new Article 7 budget legislation requiring full disclosure of chemicals present in all consumer products, particularly those to which a pregnant woman or child may be exposed, as well as the hazards such chemicals pose to public health and the environment.

The Governor and Legislature must also pass new Article 7 budget legislation that lowers the definition of elevated pediatric blood lead to 5 ug/dL.

The Legislature must pass legislation addressing chemical classes in products, including organohalogens, bisphenols and per- and poly-fluorinated chemicals.

3 INNOVATION OF INHERENTLY SAFER OPTIONS

Investment in green chemistry and engineering, identifying solutions built on inherently benign, reusable, repairable, recyclable materials.

"Innovation" is a popular word right now. But any innovative design or process that does not fit into a nontoxic, sustainable, just and circular economy will have to be redesigned at some point. Otherwise, today's innovations create tomorrow' problems. New York State has recently focused economic development funds on technology companies producing "innovative" products or processes. Instead of pouring money into an interim solution, New York State should promote long-term problem solving, to support innovations and solutions that will last for generations.

What is necessary for transformative innovation is development and use of inherently benign materials designed with their return to a productive economy in mind. If they need to be durable, they should design for ease of repair, and disassembling at the end of product life for recycling. If they need to be temporary, they should design for recycling or return to the earth as a nutrient. Base materials shouldn't rely on the extractive, linear economy. All the materials throughout the product life (including for packaging and repair) must likewise be able to return safely to productive use.

Here's how the World Economic Forum summarized the need for a circular economy: "Estimates suggest that the global population will reach close to 9 billion by 2030 – including 3 billion new middle-class consumers. This places unprecedented pressure on natural resources to meet future consumer demand. The circular economy is a redesign of this future, where industrial systems are restorative and regenerative by intention. Nothing made in a circular economy becomes waste, moving away from our current linear 'take-make-dispose' economy. The circular economy's potential for innovation, job creation and economic development is huge: estimates indicate a trillion-dollar opportunity."[133]

New York State can lead this innovation of solutions to meet a nontoxic, sustainable circular economy in the following ways:

The **legislature** can codify the state's Green Procurement program into law, increase requirements for agency compliance with making purchases conforming to green specifications, and sharpen the focus on specification criteria that limit greenhouse gas emissions and harmful chemicals. This will help accelerate the market transition to inherently safer materials.

Governor Cuomo should issue an Executive Order on Green Chemistry, building on those enacted in Oregon, Minnesota, and Michigan, to move our state beyond preventing harmful chemicals from entering the environment (pollution prevention) to innovating solutions that meet society's needs with chemicals that can safely return to industry or the earth for regeneration. This Executive Order should also build upon the two five-year roadmaps developed by a large consortium of government and non-government organizations in the Pacific Northwest, led by the State of Washington.

They identified the following categories of actions:

1) **"Fund research and establish a green chemistry technology center."**[134] New York State embedded requirements for the New York State Pollution Prevention Institute to include work to

address “emerging chemicals of concern” and “green chemistry.” This is an important step. However, it should devote additional resources to address green chemistry solutions that are important to support growing economic sectors within the State. Food production is one area where the State has already provided support, and could be a starting sector.

2) **“Enhance research and education opportunities.”** New York is home to world-class science and engineering schools. However, very few offer a focus on green chemistry and engineering. Academic institutions should support and encourage the next generation of innovators by making green chemistry and engineering an overt focus, and incorporating those principles into its mainstream chemistry and engineering programs. The State should invest resources into expanding and promoting the Department of Environmental Conservation’s green chemistry curriculum training for K-12 educators that it developed under a grant from the US Environmental Protection Agency.

3) **“Promote safer chemicals, processes, and product innovation.” New York State’s Pollution Prevention Institute** is well-positioned to promote this, and is already connected to key national coalitions that advance green chemistry and innovation, including the Green Chemistry and Commerce Council (GC3), BizNGO, and the Interstate Chemicals Clearinghouse. The P2I should help companies conduct alternatives assessments on known harmful chemicals.

   The **Department of Environmental Conservation** enforcement staff should promote green chemistry resources to the entities they regulate. The DEC should ensure all Green Business companies incorporate green chemistry considerations before becoming a member of the State’s program. As the State catches up to others regarding promoting safer solutions, it should draw upon numerous existing tools, including the GreenScreen, and the Interstate Chemicals Clearinghouse’s Alternative Assessment guidance.

   In the past, NYS has awarded businesses and others with Pollution Prevention awards, and then broadened them to “Environmental Excellence Awards.” The State should include at least one award a year for companies leading the way using green chemistry and engineering, and for fitting into a nontoxic, sustainable, circular economy.

   The state academic institutions should direct their energies into nontoxic, sustainable, circular economy-focused solutions. Some already are, such as the Materials Design and Innovation Department at SUNY Buffalo.[135]

4) **“Accelerate Economic Development and Workforce Training”[136]** New York’s post-secondary academic institutions should integrate green chemistry and engineering principles into their mainstream courses, so that new chemists and engineers integrate considerations of hazard and identification of safer solutions into their overall approach. New York State Department of Environmental Conservation should continue to educate elementary and secondary level educators about green chemistry.

   In the recent past, the Environmental Facilities Corporation provided grants through its Environmental Investment Program, which has now ended. New York State should revive this

program and incorporate criteria to drive use of inherently safer materials and processes into all grant and loan funds that support innovation.

Economic development funds should include criteria for consideration that address transparency, reduction of known hazards, and investment in innovations that fit within a nontoxic, sustainable circular economy framework, to raise awareness and drive companies seeking economic development support to consider these issues. The State should insert green innovation explicitly into Centers for Advanced Technology.[137]

5) **"Green Chemistry Policy Options."** Recommendations that would benefit New York State that the **legislature** should advance include: incentives to promote green chemistry and promotion of procurement policies that incentivize nontoxic products. (see Route 1: Transparency).

6) **"Establish a Green Nanotechnology Partnership."** Ensuring nanotechnology is environmentally benign is especially important in New York State, with so much investment in the nanotechnology industry. New York State should work to build a consortium of academic, business, NGO, and government bodies to ensure New York's nanotech investment is "green" – so that this new industrial revolution does not lead to the same harm to human health and environment that the last revolution did.

7) **"Green Chemistry Program Support."** New York State must revive and refocus existing support programs established in law: Revive and refocus the Pollution Prevention Coordinating Council to promote pollution prevention, green chemistry innovation, and preparation to fit into a nontoxic, sustainable and just circular economy across state agencies to reduce production and use of harmful chemicals and support innovation.

Urgent Policy Action for 2019

The legislature and the Governor should codify the State's Green Procurement program. Executive Staff should draft and the Governor should sign a Green Chemistry Executive Order, integrated with other State environmental and energy goals (see Route 4 below).

4 INTEGRATION OF CHEMICAL CONCERNS INTO SUSTAINABILITY AND THE CIRCULAR ECONOMY

The petrochemical industry drives production of gases disrupting our climate, plastic pollution crowding the oceans, and toxic chemicals spreading from the equator to the poles. All rely on the same feedstock. We can only fully transition from a linear supply chain to a circular one when we detoxify the materials within it.

It is not enough to end extraction of oil, gas, and coal for energy production. As the world invests in renewable energy sources, petrochemical companies are turning more to producing plastics and synthetic chemicals. This is also driven in the US by shale gas, extracted primarily by hydrofracking, which requires toxic inputs. As we can expect that companies will continue to extract fossil fuels – coal, petroleum, gas – and seek markets, they will need customers, and synthetic chemistry is a known large downstream user.

The broader Sustainability movement has focused on meeting the needs of today without compromising the ability to meet needs in the future. This has focused on having energy sources that continue to be available, on addressing climate change, and on reducing use of non-renewable resources in general. It must incorporate considerations of the toxicity of materials in use, because they will be the feedstock of the future, and because our current reliance on harmful chemicals has resulted in its spread to the far reaches of the globe. Harmful chemicals have no place in a society that can be truly regenerating and renewing.

New York State needs to renew its commitment to pollution prevention, green chemistry and engineering, and a sustainable, nontoxic circular economy. This commitment must be demonstrated by establishing broad, bold goals to reduce harmful chemicals, to "turn off the tap" on their flow into workplaces, products, homes, schools, and therefore our bodies, and into the natural resources we and all life rely upon for survival.

Businesses should look holistically at their environmental footprint, and set goals for all impacts. They should seek to understand the connections between the feedstock of products they make or use, climate change, and impacts on human health and the environment. Green business associations should explicitly incorporate consideration of chemical inputs and outputs as part of their definition of "green."

Organizations should recognize the common drivers of climate change, plastic pollution, and the impacts of chemicals, and use that to leverage policy change.

Academic institutions should embed toxicology and consideration of the impacts of materials into programs for chemistry, biology, medicine, engineering, business management, and more. Programs that focus on "sustainability" or "green economy" should ensure consideration of toxicity and chemical impact within the full lifecycle of materials is incorporated into curricula.

The **Pollution Prevention Institute** can help connect dots between agencies by providing space during advisory board meetings for each agency to connect the pollution prevention and green chemistry work to the goals of their agencies. This would stand in for the now-defunct Pollution Prevention and Environmental Compliance Coordinating Council, and could offer a lively space for meaningful

implementation of integrated considerations into each agency and authority that participates and provides input. That is, feedback and strategizing could both guide the Pollution Prevention Institute and guide agency and authority staff.

Urgent Policy Action for 2019

The Governor should fold together State action on environmental priorities by weaving together materials concerns, green innovation, and climate and energy.