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**Conservation Element**

**November 2020**

34 **Introduction**

35  
36 The Municipal Land Use Law (MLUL) permits a municipality to prepare and adopt a Conservation Plan  
37 Element as part of its Master Plan. The MLUL describes a conservation plan element as follows:  
38

39 A conservation plan element providing for preservation, conservation, and utilization of  
40 natural resources, including, to the extent appropriate, energy, open space, water supply,  
41 forests, soil, marches, wetlands, rivers and other waters, fisheries, endangered or threatened  
42 species, wildlife and other resources, and to systematically analyze the impact of each other  
43 component and element of the Master Plan on the present and future preservation,  
44 conservation and utilization of those resources. MLUL (N.J.S.A.40:55D-28.19 b(8).)  
45

46 This Conservation Element reaffirms the longstanding commitment to safeguard Long Hill’s natural resources.  
47 The Element builds upon previous conservation planning decisions and the strong, continuing public support  
48 of environmental preservation by the residents of Long Hill Township.  
49

50 Long Hill has both an Environmental Commission (Ordinance 2-31) with responsibility for the protection and  
51 development or use of natural resources, including maintaining a Natural Resource Inventory and Shade Tree  
52 Commission (Ordinance 2-23) who has broad oversight of the health and wellbeing of shade and ornamental  
53 trees and shrubbery on public lands, and maintaining a list of “Big Trees”. Both Commissions are required to  
54 conduct reviews for applications before Land Use Boards. Therefore, the involvement of the Commissions to  
55 provide input into the Conservation Element is of significant importance.  
56

57 **Summary of Local Conservation Activities**

58  
59 Long Hill has faced, and continues to face, a variety of complex conservation and environmental challenges:  
60

61 **Jet Port**<sup>1</sup>: Long Hill Township’s modern history of active conservation dates to official measures taken to  
62 oppose the Port of New York Authority’s proposal to build a major jetport in the Township in 1959. The  
63 Passaic Township Planning Board “cited the poor location, the noise, a protest of any prospects involving the  
64 water-shed of the Passaic River” who also “suggested that the area would be better suited either for a  
65 Federal or State wild life preserve”. The Passaic Township Zoning Advisory Committee stated, “that an  
66 airport of the proposed type would destroy the residential character and the planned orderly growth of the  
67 Township.” Ultimately the Jet Port proposal was defeated wherein the land obtained was added to the  
68 National Natural Landmarks program in 1966 and in 1968 became the first formally designated wilderness  
69 refuge in the United States<sup>2</sup>.  
70

71 **Passaic River Floodwall**<sup>3</sup>: In 2011 the Army Corps of Engineers proposed building a 4,000 ft wall  
72 measuring between 4 and 5 ft in height stretching along the Passaic River roughly from Lounsberry Meadow  
73 to behind the Shop-Rite Plaza. Sluices and gates would be built on a number of tributaries. The majority of  
74 the estimated \$10 million cost would be borne by Federal and State budgets with Long Hill contributing  
75 around \$875,000. Although there could be benefit to about 150 homes and businesses about a dozen  
76 homeowners on the south side of the wall could see increased flooding. The proposal was not pursued with  
77 issues around cost as well as local resident and neighboring town objections.  
78

79 **Environmental Contamination**: Like many towns in New Jersey, the Township has a number of properties  
80 (industrial, commercial or residential) that are subject to either State (NJDEP) or Federal (USEPA)

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<sup>1</sup> Daily Record – December 16,1959

<sup>2</sup> [https://en.wikipedia.org/wiki/List\\_of\\_National\\_Natural\\_Landmarks\\_in\\_New\\_Jersey](https://en.wikipedia.org/wiki/List_of_National_Natural_Landmarks_in_New_Jersey)

<sup>3</sup> Patch.com (October 19, 2011 and November 2, 2011)

81 environmental cleanup regulations. The State and Federal regulatory agencies take the lead on the  
82 investigation and cleanup of these sites to protect the interests of the community and its residents. These sites  
83 are identified at the State level on the NJDEP website as part of the Known Contaminated Site List or on the  
84 USEPA Region 2 Superfund List. The current status of the cleanups at these sites are maintained by the  
85 appropriate regulatory agency and updates are provided to the Township per regulatory requirements.  
86 The status of the cleanups at the sites is publicly accessible through the websites maintained by the NJDEP<sup>4</sup>  
87 and USEPA<sup>5</sup> Region 2.  
88

89 **Asbestos Dump Superfund Site<sup>6</sup>:** An 11-acre property located south of the railroad tracks in Millington,  
90 New Jersey, and three separate satellite sites: 1) the 12-acre White Bridge Road site, 2) the 30-acre New  
91 Vernon Road site, and 3) the 7-acre Dietzman Tract site in the Great Swamp National Wildlife Refuge  
92 (GSNWR). Clean-up at the satellite site has been completed and long-term Operation and Management  
93 (O&M) at the Millington site is ongoing.  
94

95 The retaining wall and cap completed by the Army Corp of Engineers on approximately 4.5 acres of the  
96 Millington site stabilized a mound of discarded product and other waste from the manufacture of asbestos  
97 roofing shingles. This retaining wall and the cap at the Millington site continues to prevent asbestos from  
98 entering the adjacent Passaic River as it had been prior to this remedy. The Millington site has groundwater  
99 monitoring wells at various points throughout the 11-acre property. The Millington site, along with the  
100 satellites, are subject to a 5-year reviews by the EPA which can be found on the EPA website and at  
101 the Long Hill Library. All of the sites were deleted from the National Priorities List by July of 2010.  
102

103 **Stormwater Management** is of critical importance to Long Hill Township. Due to the Township's environmental  
104 setting bordered to the west and south by the Passaic River, existing and future development must utilize  
105 Best Management Practices to minimize stormwater runoff volume and to protect stormwater quality.  
106 *Attached to this Element is a Stormwater Management Sub-Element.*  
107

## 108 **Natural Resource Overview + Existing Conditions**

109

110 The abiding public interest in the protection of Long Hill Township's environment can be traced to the rich  
111 and diverse natural resources that make up the Township. There exists large expanses of contiguous  
112 Municipal, County, State and Federal government owned or controlled open space comprising  
113 approximately 50 percent of the Township's area. These include:  
114

- 115 • The northern area of the Township features the Great Swamp National Wildlife Refuge and  
116 Wilderness Area ("Great Swamp"). Most of the southern border has a large buffer of County- and  
117 State-owned parklands along the flood prone Passaic River.
- 118 • The Third Range of the Watchung Mountains forms a ridge of steep slopes through the entire central  
119 portion of the Township, with dramatic vistas to both the north and south. This ridge is the long hill  
120 that is the Township's namesake.
- 121 • The Black Brook that flows through the Great Swamp and the Passaic River that forms the westerly  
122 and southern borders of Long Hill Township are both historic waterways. The Passaic River is a major  
123 regional water supply and has a long history of recreational use for canoeing and fishing.
- 124 • The combination of steep, wooded terrain of the Watchung Mountains, the wetlands of the Great  
125 Swamp and Passaic River, and being a part of the Atlantic flyway provide rich habitat for many  
126 species of birds, mammals and reptiles, including state threatened and endangered species.

### 127 **Geology**

128

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<sup>4</sup> <https://www.state.nj.us/dep/srp/kcsnj/>

<sup>5</sup> <https://www.epa.gov/superfund/search-superfund-sites-where-you-live>

<sup>6</sup> <https://www.epa.gov/superfund-redevelopment-initiative/superfund-sites-reuse-new-jersey>

129  
130 Situated within the physiographic province of the Piedmont Plain, the Township has been shaped by a  
131 confluence of geologic events. During the Triassic Period (-250 to 200 million years ago), volcanic activity  
132 resulted in basalt flows and intrusions into the existing Passaic Formation, a slightly older formation composed  
133 of red siltstone, sandstone and shales. The more erosion resistant basalt flows formed Long Hill, one of the  
134 three principal ridges of the Watchung Mountains. The less erosion resistant Passaic Foundation formed the  
135 sediment deposits in lowland areas.

136  
137  
138 Glacial Lake Passaic, the 200 to 250 foot deep temporary surface water impoundment created by the  
139 Wisconsin Stage of the last glacial epoch to impact this area (-19,000 to 14,000 years ago), left behind  
140 the Great Swamp as a minor remnant of its extensive coverage. The lake was formed during the melting  
141 and retreat of the Wisconsin ice sheet and the damming of southern flowing drainage channels against the  
142 north side of Long Hill. As time passed, glacial meltwaters slowly eroded geologic materials forming the  
143 Passaic River and the lake slowly drained and transitioned into today's Great Swamp.

144  
145 *Topography*

146  
147 The Township is characterized by rolling terrain, expansive lowlands and higher elevations along the Third  
148 Watchung ridge or Long Hill, which is one of three parallel ridgelines of the Watchung Mountains. Long Hill  
149 divides the lowlands of the Great Swamp to the north from the Passaic River along the southern boundary  
150 of the Township. Significant topographic relief is observed across the Township, with elevations ranging from  
151 El 449 feet above mean sea level near the intersection of Long Hill Road and Gillette Road to lower  
152 elevations along the Passaic River floodplain.

153  
154 Steep slopes in the Township are most prominent above the Passaic River and along Long Hill (both north  
155 and south facing) posing particular challenges to protect suitable drainage patterns, native vegetation, slope  
156 stability, pollution and sediment from stormwater runoff. Published sources (U.S. Natural Resources  
157 Conservation Service and the NJDEP) indicate that slopes 10-25 percent should be left in their natural  
158 condition, maintained in grass or tree cover, and slopes greater than 25 percent should be left undisturbed.

159  
160  
161 *Water Resources*

162  
163 Understanding and protecting our geologic and hydrologic resources are critical to maintaining good quality  
164 groundwater and surface water resources. Protection of groundwater resources requires the definition and  
165 characterization of sensitive recharge areas, where surface water can infiltrate more permeable soil and  
166 flow into deep subsurface aquifers. Protection of surface water resources requires the preservation of  
167 wetlands for flood storage capacity and contaminant filtering, along with vegetative buffers between  
168 impervious development and surface water bodies. It also requires maintaining tree canopy cover and a  
169 healthy understory of native trees, plants and shrubs.

170  
171 The Passaic River is a 90-mile waterway, traversing 45 municipalities and provides drinking water for more  
172 than 2 million people. The river flows south from the Great Swamp and then turns east following the valley  
173 between the Third and Second Watchung Ridges. Tributaries of the Passaic crisscross the Township. All of  
174 these unnamed tributaries, as well as the portions of the Black Brook and Passaic River which border or run  
175 through the Township are classified as fresh water non trout producing (FW<sub>2</sub>-NT). While they do not currently  
176 provide proper conditions for wild trout, the Passaic River in Long Hill is regularly stocked with rainbow trout  
177 by the State of New Jersey.

178

179 The health of the riparian buffer is very important to the well-being of the Passaic River ecosystem and its  
180 floodplain. Substantial areas of riparian buffer are publicly owned by the State, County, or Municipality<sup>7</sup>.  
181 State and County owned properties are largely protected and preserved by regulation. The publicly owned  
182 riparian buffers are generally healthier than areas under private ownership<sup>8</sup>. The quality of the riparian  
183 buffer, especially in many privately owned areas, has been compromised by landscaping practices such as  
184 the replacing native vegetation with turf grass to create views of the river. Protecting and restoring riparian  
185 buffers while providing access to the natural beauty of our waterways creates recreational resources that  
186 add to the appeal of our community.

187  
188 The protection of its flood plain provides important flood storage capacity and buffers to protect water  
189 quality. This river is prone to flooding because of its very shallow gradient and meandering path. The  
190 Township has purchased flood prone properties utilizing Blue Acres fund as part of the Township's proactive  
191 work to address flood hazards.

192  
193 *Wetlands*

194  
195 Wetlands form a critical landscape type in the Township with the largest contiguous area of wetlands found  
196 within the Great Swamp. Wetlands are also found along the floodplains of Black Brook and the Passaic  
197 River, along with many unnamed tributaries leading to these surface water features. Wetlands within the  
198 Township play a critical role in filtering non-point surface water runoff contaminants, as well as providing  
199 storage capacity for direct precipitation and surface water flooding events. Long Hill also hosts a number  
200 of vernal pools which provide critical habitat for many amphibian species.

201  
202 *Woodlands*

203  
204 In addition to the Great Swamp N.W.R., Long Hill Township contains over 800 acres of municipal, county or  
205 state-protected forested bottomlands that includes floodplains and riparian habitats. These act as an  
206 important buffer zone for the Great Swamp and are of particular importance to migrating songbirds and  
207 raptors.

208  
209 The Township also protects over 100 acres of upland forest, lying on either side of Long Hill Road. Upland  
210 forest areas can host priority bird species such as wood thrush, several migrating wood warbler species and  
211 various neotropical migrants which utilize the resources of this important habitat. These forests are also  
212 important for fall migrating raptors. The greatest threat is that of invasive plant species such as Japanese  
213 barberry, garlic mustard, multiflora rose, bamboo and Japanese honeysuckle. These species thrive along  
214 forest edges and spread from surrounding residential encroachment.

215  
216 Elsewhere across the Township, there are some old growth trees reminiscent of woodlands which once covered  
217 the area. The locations of most of these have already been recorded by the Shade Tree Commission and  
218 details are on offer to the public as a tour package. Apart from their aesthetic and historic significance, such  
219 old growth trees offer a greater diversity of microhabitats and act as reservoirs for species of insects, lichen,  
220 and fungi not commonly found elsewhere.

221  
222 *Wildlife*

223  
224 The woodlands of Long Hill offer critical habitat for a variety of high priority bird species such as red-  
225 headed woodpeckers, a species regarded as "imperiled in New Jersey because of rarity" (Office of Natural  
226 Lands Management 1998). Several other State-listed species such as barred owl and red-shouldered hawk

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<sup>7</sup> The Upper Passaic River Riparian Conservation Project. Conservation Master Plan. Township of Long Hill. Pages 40 and 41. Dated: 2/25/2000.

<sup>8</sup> The Upper Passaic River Riparian Conservation Project. Conservation Master Plan. Township of Long Hill. Page 42. Dated: 2/25/2000.

227 also occur. The bottomland forests may also host the State-listed blue-spotted salamander, or federally  
228 listed bat species such as Indiana bat.  
229

230 The Great Swamp is the best studied area in the Township, and is home to 240 bird, 39 mammal, 42 reptile  
231 and amphibians, and 29 fish species. Twenty-six species in total are listed by the State of New Jersey as  
232 threatened or endangered. Approximately 109 bird species have been recorded nesting within the refuge,  
233 including important State populations of barred owls, American woodcock, wood ducks, and eastern  
234 bluebirds. Many of these species occur on Township properties. Studies focusing on specific federal and  
235 State Threatened and Endangered species are regularly conducted at the refuge. The habitat utilization  
236 and demography of Indiana bat, bog turtle, wood turtle, and blue-spotted salamander have all been studied  
237 there. Information from these studies is incorporated into management strategies on the refuge.  
238

239 Ten bat species, including the federally listed endangered Indiana bat, have been identified at the refuge.  
240 Other species of concern include eastern red bat, Eastern small-footed bat, and Hoary bat. The Indiana bat,  
241 a State and federally listed endangered species and the northern long-eared bat utilize riparian corridors  
242 at Great Swamp for foraging and warm season roosting. It is quite probably that most of these bat species  
243 breed in or forage over areas of forests along the Passaic River and the slopes above.  
244

245 Approximately 300 species of Lepidoptera (butterflies and moths) have been recorded in the Great Swamp,  
246 as well as many other insect species. The refuge also plays host to hundreds of species of trees, shrubs,  
247 flowers and other vascular plants, as well as an impressive list of mosses, liverworts, fungi and other flora.  
248 Many of these species will be present outside of the refuge in the relatively undisturbed habitats mentioned  
249 earlier.  
250

## 251 Conservation + Environmental Issues

252  
253 Long Hill faces a number of conservation challenges. Some are local, while others are the result of influences  
254 outside of Long Hill Township's control.  
255

256 **Air Quality:** While there are few uses within the Township that would release harmful pollutants into the air,  
257 its location in the densely populated northern New Jersey region, which includes many long-standing  
258 industrial uses, still results in potentially harmful conditions for residents. The Township should continue to  
259 recognize the importance of Air Quality which is addressed within the Sustainability Element.  
260

261 **Climate Change:** Extreme weather events are happening more frequently than expected, for example the  
262 Hurricane Irene and Superstorm Sandy storm events in back to back years of August 2011 and October  
263 2012. More recently, 2018 set a record for the most precipitation in one year for our area. The Millington  
264 Flood Gauge uncommonly was within inches of the action stage several times over the winter of 2018-19.  
265 More frequent thunderstorms have a greater rainfall intensity leading to more significant erosion, especially  
266 on unprotected steep slopes. On the other extreme are more frequent droughts that stress or kill critical  
267 vegetation that is needed to mitigate erosion which, in turn, poses a threat to water supplies.  
268

269 **Flooding:** Significant portions of the Township lie within the 100-year floodplain and are susceptible to  
270 flooding. The prevalence of water bodies throughout the Township as well as a high water table creates  
271 unique land use challenges and poses threats to both private properties and critical Township facilities. The  
272 maps contained herein show the extent of these flood-prone areas.  
273

274  
275 **Invasive Species:** Diseases and harmful insects are an increasing threat to our trees. Ash trees throughout  
276 the Township are susceptible to the fatal ash yellows disease and the invasive emerald ash borer.  
277 Streetscape and forest trees are threatened by the Asian longhorn beetle, gypsy moth and the spotted  
278 lanternfly, which was found in NJ for the first time in 2018. The spread of invasive plant species pose a  
279 threat to the ecosystem as well, aided by the consumption of native plant species by herbivores such as deer,

280 whose populations thrive in the wooded suburbs of New Jersey where they are largely unimpeded by their  
281 natural predators.  
282

## 283 **Recommendations**

284  
285 Conserving, protecting and enhancing Long Hill Townships natural resources is central to land use and  
286 planning decisions. The specific recommendations for the Conservation Plan Element of this Master Plan are:  
287

- 288 1. Development and redevelopment should minimize the disruption of critical natural, agricultural,  
289 scenic recreation and historic resources.  
290
- 291 2. Update the Township wide Natural Resources Inventory (NRI) dated 2000 to include and expand  
292 policies for conservation development, the Passaic River riparian buffer and habitat restoration. The  
293 NRI was performed with the Great Swamp and other organizations forming a factual database of  
294 all environmental assets, threatened and endangered species (for example Indiana bats), and  
295 valuable environmental attributes, such as recording the location of specific microhabitats (for  
296 example vernal pools). The NRI should also include GIS data-layers of natural resource information  
297 and be utilized in the creation of/ modification to land use ordinances for the protection of riparian  
298 buffers and other natural resources.  
299
- 300 3. Review and revise, where necessary, ordinances regarding the protection of environmentally critical  
301 areas (steep slopes, wetlands and areas of special flood hazard), important environmental habitats  
302 and the riparian buffer.  
303
- 304 4. Encourage the ongoing strategic acquisition of open space, as recommended in the Open Space  
305 Element, to include land for conservation, flood protection and critical habitats that support  
306 Threatened and Endangered Species as listed under the Endangered Species Act (ESA) and the  
307 Township's NRI. Long Hill Township should utilize County programs, such as the Morris County  
308 Preservation Trust Fund and State programs such as the New Jersey Green Acres Program, The New  
309 Jersey Blue Acres Program or the Easement Purchase Program available through the Morris County  
310 Farmland Preservation Program.  
311
- 312 5. Encourage greater tree preservation and planning efforts in the Township through the  
313 implementation of the Township's Community Forestry Plan and explore creating supporting  
314 ordinances that include the Big Trees list as identified by the Township's Shade Tree Commission.  
315
- 316 6. Co-operate with local municipalities, county governments, government agencies, and environmental  
317 organizations who, like Long Hill Township, seek to protect, restore and improve the:  
318
  - 319 a. Ecosystems of the Great Swamp and Passaic River corridor
  - 320 b. Tree cover canopy and riparian buffer
  - 321 c. Quality of our water  
322
- 323 7. Encourage diversity of native plant species, where possible, to avoid same species clustering that  
324 may help the spread of diseases, invasive insects and expansion of aggressive non-native plant  
325 species.  
326
- 327 8. Evaluate Environmental Commission Planning Application Review process as it pertains to NJDEP  
328 "Known Contaminated Sites" database.  
329
- 330 9. Explore opportunities for grants to fund a Township wide assessment of streams, identifying problem  
331 areas and opportunities for stream restoration projects.  
332

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10. The Township should allocate funds to:

- a. The Environmental Commission to address the recommendations outlined in this Element.
- b. The Shade Tree Commission for the preservation and enhancement of Long Hill's tree canopy cover.



## 374 **STORMWATER MANAGEMENT SUB-ELEMENT**

375

### 376 **Introduction**

377

378 The proper management of stormwater is critical to a Township with significant wetlands and surface water  
379 resources. Historically most towns handled stormwater by moving it downstream as fast as possible, using  
380 storm and sanitary drains to feed unfiltered stormwater directly to streams and rivers. This often contributed  
381 to catastrophic flooding and destruction of natural and man-made resources.

382

383 Our understanding of flood processes and stormwater management has come a long way since then. In  
384 2000, the Long Hill Environmental Commission and the Passaic River Coalition prepared a document entitled  
385 “The Upper Passaic River Riparian Conservation Project Master Plan” with a detailed analysis of the  
386 interaction of land use, development patterns, riparian forest health and their impacts on the overall health  
387 of the Passaic River.

388

389 More recent publications such as the NJDEP Stormwater Best Management Practices (BMP)<sup>9</sup> recommend  
390 separating storm from sanitary drain systems, and slowing down stormwater closer to the source where  
391 possible. A subset of these BMPs is called Green Infrastructure<sup>10</sup> (GI) which are management practices that  
392 address stormwater runoff through soil infiltration, or reuse. These practices filter stormwater into the  
393 groundwater, streams, and rivers, even encouraging its re-use by homeowners for landscaping and gray-  
394 water use. GI practices include, but are not limited to, pervious paving, bioretention basins, vegetated swales,  
395 and cisterns. The use of green infrastructure encourages the idea that stormwater is a resource that can be  
396 reused, instead of being treated as a nuisance that needs to be removed as quickly as possible.

397

### 398 **Stormwater Management Goals**

399

400 Incorporating BMPs into all land use development and redevelopment, and absorbing GI methods into wider  
401 Township stormwater management practices will help the Township derive the following benefits:

402

403 1. **Reduce flood damage.** Most of Long Hill Township’s commercial district, several municipal buildings,  
404 a number of residential homes, and the Township’s wastewater treatment plant are situated within  
405 the floodplain of the Passaic River. The Township has suffered significant losses as a result of several  
406 serious floods such as the Northeaster of 1996 and Tropical Storms Floyd in 1999 and Irene in  
407 2011, which inundated much of the above-mentioned areas.

408

409 2. **Reduce sedimentation in stormwater runoff.** Though sedimentation is a natural process which  
410 enriches river valley soils, excessive sedimentation can block drainage channels, make areas more  
411 flood prone, lead to variability in stream and river flow and impact the riparian buffer.

412

413 3. **Improved Groundwater Recharge.** Groundwater is an important water resource; it is an important  
414 source of potable water, and it is crucial for regulating water body base flow, particularly during  
415 dry conditions when it may be the sole source of water feeding streams or ponds. When soil is  
416 compacted or covered by impervious surfaces, or when stormwater runs off the land too quickly, less  
417 precipitation is able to infiltrate, resulting in less groundwater recharge. Long Hill Township and  
418 many other communities in the region rely upon the Passaic River Basin as a source of drinking water.

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<sup>9</sup> BMP applies to Major Development as defined by N.J.A.C. 7:8-1. 1 et seq., which governs any land disturbance of one acre or more or one quarter acre or more of development. [https://www.njstormwater.org/bmp\\_manual2.htm](https://www.njstormwater.org/bmp_manual2.htm)

<sup>10</sup> <https://www.nj.gov/dep/gi/index.html>

419 Increased infiltration of stormwater will help to increase groundwater reserves while facilitating the  
420 restoration of more normal flow patterns in the Passaic River.

421  
422 4. **Reduced wastewater treatment costs.** Excessive flooding affects wastewater treatment plants in  
423 many ways. Loss of power, asset damage, and dangerous conditions for personnel have large  
424 economic and public health impacts on these facilities. Stormwater runoff can also carry a variety  
425 of pollutants and sediments, and places an additional burden on the wastewater treatment plant  
426 and processes. The use of BMP serves to reduce the volume of stormwater reaching the treatment  
427 plant and lessens the impacts of storm events.  
428

## 429 **Recommendations**

430  
431 To meet the Goals as indicated in this sub-element and to recognize the important role the Long Hill  
432 community has in the preservation and restoration of valuable natural resources, the recommendations are  
433 as follows:  
434

- 435 1. Use BMP practices as a key component of all land development projects, with a goal for each  
436 project site of having no net increase in rate, volume, or pollution levels of stormwater following  
437 development.  
438
- 439 2. Consider the formal adoption of practices as suggested within the NJ Stormwater Best Management  
440 Practices (BMP) such as Green Infrastructure<sup>11</sup>.  
441
- 442 3. Outside of major development projects, focus efforts on the reduction and improvement of  
443 stormwater runoff such as rehabilitating existing impervious cover to interrupt and infiltrate  
444 stormwater.  
445
- 446 4. Educate landowners and businesses about GI landscaping practices such as wildflower meadows  
447 and rain gardens that will enhance the environment, reduce local flooding and sedimentation, and  
448 slow stormwater runoff. To this end, Long Hill should actively engage the community through:  
449
  - 450 a. Promoting water conservation, water re-use, and stormwater management.
  - 451 b. Promoting the use of; indigenous plants that provide natural habitat; chemical free lawn  
452 maintenance; the reduction of impervious cover; rain gardens and other BMPs.
  - 453 c. Expanding its efforts to raise awareness and protection of our natural resources by hosting  
454 more events centered on the Passaic River.
  - 455 d. Facilitating volunteer groups to participate in river cleanups and volunteer water quality  
456 monitoring activities.
  - 457 e. Conduct annual BMP and land use educational programs for Township volunteers,  
458 employees and officials.
  - 459 f. Partner with a local environmental conservation group, such as the Great Swamp Watershed  
460 Association to install a Green Infrastructure demonstration project in a high-profile part of  
461 the Township that can serve as an educational tool for how to better manage stormwater  
462 runoff.  
463
- 464 5. Consider undertaking an assessment of Stirling Lake and its watershed in order to identify  
465 opportunities to mitigate the impacts of stormwater runoff.  
466
- 467 6. Evaluate the application and development of a local or regional stormwater utility and fee collection  
468 structure with the goal to offset costs for existing stormwater drainage system operation,  
469 maintenance and permitting costs.

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<sup>11</sup> <https://www.nj.gov/dep/gi/index.html>