

# The Passaic River: A Growing Cultural Asset

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## **Abstract**

The Passaic River was once a picturesque and natural feature that extends from Chatham to Newark. Its downfall was due to the heavy industry, and now has left behind a plagued river. The poor status of the river has destroyed the connection between the river and its local community, which has left the river neglected. The river, which was once on the Endangered Rivers list, has become home to garbage, run off, and mutated marine life. This paper looks to assess current policies and initiatives that are being taken at local and federal levels to revitalize the river. By conducting interviews with community organizations and government programs, the issues and resolutions will be brought to light. These initiatives will lay out the future of the Passaic River and how it will be cleaned up and eventually bring the people back to the river.

## Acknowledgments

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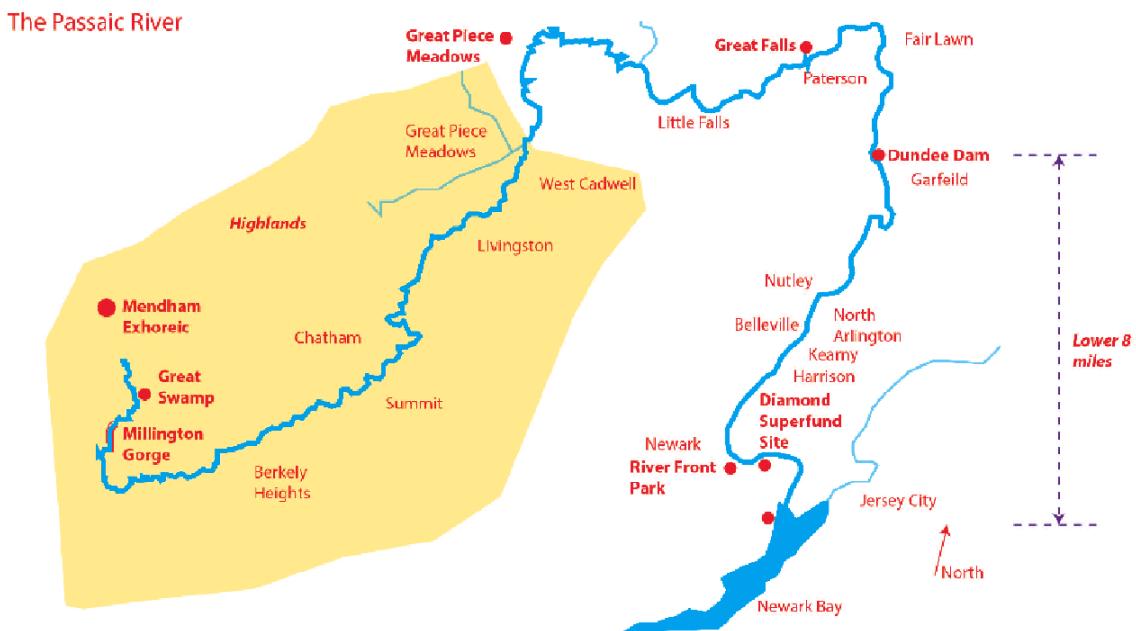
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## Introduction

The Passaic River changed hands and use during its lifetime. The large winding river carries with it one of nature's gift: water. The river is alive, snaking from the highlands to the wetlands where it empties out at New Jersey's coast. At a point in its history, it was regarded as a destination to swim, fish, and spend the summers. A place of rich culture, development, and innovation, the river housed many growing cities and industry. This spike in growth along the river led to its destruction and demise. Industry and development had declared war on the river, attempting to change its path, control its waters, and construct its strength into a source of energy and disposal. Since the end of the 1980s, many advocacy groups attempted to fix the damage that has been done to the waterfront and to preserve the natural environment still existing in parts of the river. Today, individual towns and groups such as the Passaic River Coalition are working to bring back the Passaic River to its former glory. By defining the historical and cultural significance of the river and reasons for its downfall, the paper looks to assess the current policies and actions being taken by government and small community organizations alike to benefit the river and surrounding towns.

Research on this subject of river cleanup tends to be scientific and quantitative, and focusing on the techniques and numbers associated with river cleanup. These aspects will be addressed, but there will be a focus on the community and cultural oriented relationships to the river and how these types of relationships were shaped because of the river's changing environment. The changing river has pushed people away and now many riverfront towns are looking to connect back with the river's edge. To understand the ways in which towns are trying to reconnect with the river's edge, we are looking to identify actors that are actively involved with the Passaic River. The information that is attained by conducting interviews with individual river town based organizations as well as organizations

associated with the welfare of the Passaic will give us insight as to how the Passaic River is truly an important resource. In order to become familiar with the Passaic, the research will start with a brief history of the river, that is broken down into the northern half and the southern half, and an overview of its issues. This will be followed by what is being done to help the Passaic river overall. By looking at two case studies, where two different riverfront cities will be researched, we hope to see how they are reconnecting to the community to the river, reducing dumping and other waste, as well as how they are dealing with local (or previously local) companies who contributed to the rivers demise.



Source: Brandon Gomez

Diagram 1: Passaic River Map

## History

In 1998, the Passaic River became part of the Endangered Rivers list, roughly 300 years after the first people created colonies on its banks<sup>1</sup>. The wetlands at the mouth of the Passaic River, otherwise known as the meadowlands, were once home to the delicate marsh ecosystem. This ecosystem allowed floods to evade inland without harming the local environment. The marshland soaked up excess water and through natural drainage cleansed the water of any pollutants. The system was a natural filter. When settlers first came to this coastal environment, they saw potential in the land for farming so they immediately began to take advantage of it, which resulted in damaging its fragile ecology. The attitude at the time was that these marshlands were unhealthy and bad places. Some of this land is still alive today and is known and the New Jersey Meadowlands. Seeking to eradicate these unsound lands as soon as possible, these new towns took advantage of one of the Passaic's best asset, its route to the ocean. Its access to the ocean became ports from which large cities grew such as Newark. These port cities quickly became centers of industry, and lead to the development of new centers of wealth and innovation such as Paterson more inland. These towns with new technologies became home to inventors. For example, Newark became home to a workshop run by Thomas Edison, a small lab that served his main work in Menlo Park, NJ, as well as another well-known inventor Seth Boyden.<sup>2</sup> These circumstances put these Passaic River cities at the forefront of innovation. Nevertheless, with eyes set on modernization and production, these cities were blind to the environmental consequences of their work, or they simply did not care. The

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<sup>1</sup> "Passaic River -- Background." *Passaic River -- Background*. Apr. 2016.

<sup>2</sup> "Urban Habitats -- The Meadowlands Before the Commission: Three Centuries of Human Use and Alteration of

the Newark and Hackensack Meadows. 2016

government saw the river and its surrounding resources as tools for growth and not vital parts of ecological or even human survival. For this reason, chemicals that resulted from tanneries, pesticide plants and other industries, ended up being directly poured into the river, leaving the river plagued and poisoned. Local residents could no longer eat the fish that the river produced. Eventually, just swimming in the water proved to be harmful. As a result, the growing generation rejected the river, unaware of what it could provide to the community. A cultural and historical disconnect was created between the newer generation, the history of their cities, and the river itself. As highlighted in “An American River” by Mary Bruno, many residents do not realize the importance of the Passaic as whole, its grandeur and length, as well as its prominent natural moments, such as the Great Falls in Paterson. The lower half of the Passaic River is the most damaged and talked about but, the river as whole has a story, which changes through different points along its path.

At the north end of the river in the highlands near Chatham, NJ are the great swamps from where the Passaic River originates and provides drinking water for parts of Northern NJ (Our Passaic...). Moving down, the winding river passes through many suburbs, such as East Hanover, Livingston, and Little Falls. The main pollution in the upper half of the Passaic River is due fertilizers and other non-point source pollutants.



Source: water.usgs.gov

Diagram 2: Nonpoint Source Pollution

According to the Passaic River Coalition, nonpoint source pollution is the greatest cause of water quality degradation, where it affects both reservoir and well water. The pollution comes from human activities and need to be comprehensively studied and planned to be remedied. As towns along the Passaic are further developed, the natural scape that promotes a healthy river is destroyed. The increased impermeability of the land causes water, which is supposed to be absorbed by natural landscape such as a riparian buffer, to flow directly to the river without being naturally filtered. As a result, the ecology around the river is harmed, causing trees to fall down and the river to change its shape. Constant flooding afflicts these towns because the overflow of water now tends to move farther inland than before. These waters flow through Paterson to create the Great Falls. Once large and full of wonder, the site has since undergone an ongoing change. Alexander Hamilton had meant this site to be a new industrial city, redirecting water for large infrastructure in order to “distribute the river’s power more efficiently” (Bruno 194). Although this city never materialized to his vision, the waterfall has suffered thus leaving a less beautiful yet ornamental feature to take its place. An age of neglect and resentment, the river has left the falls almost unknown to all those who are foreign to the immediate vicinity, with very few exceptions of the occasional nature buff. The perils of the southern half have called for an arms race which will slowly but surely create new opportunities for innovation in restoration, preservation, and conservation not just along the lower half but along the entire river. This could potentially lead the way for other rivers suffering the same fate of post-industrial damage.

## River Issues

The lower half of the river finds itself suffering the consequence up close and personal. Big chemical companies such as Occidental Chemical, DuPont, Pfizer, and Sherwin-Williams dumped dioxins, PCP, and other chemicals into the river. The most toxic, the dioxins were produced as byproducts of Agent Orange during the Vietnam War<sup>3</sup>. These chemicals proved to be causing health issues in local communities such as skin rashes, asthma, birth defects, and cancer. Sadly, these facts were known, and the people living in the area had no choice but to live there. Relocation was not an option for them due to gentrification. Naturally, they had to reside in areas that their income would permit. Being on the lower side of the income scale not only restricted their living conditions to undesirable and inadequate, but it almost predetermines their bad health.

For years, there have been studies done to understand the necessary actions to be taken with the river. However, when blame is pointed at these companies and payments are demanded responsibility is not taken. These companies avoid paying or try to divert these obligations with subpar initiatives. As a result little is done (until recently) since there is very limited funding to pay for a large-scale project that the Passaic River demands.

Other problems related to the communities that reside along the river are their involvement with the river and their disconnection from its history. Many school children in these surrounding communities do not understand or know of the magnificent history of New Jersey especially along the Passaic River<sup>4</sup>. There are stories of George Washington, the Mining towns in Morristown, and the first Major Cities of America. Without knowledge and pride in their rich history and knowing

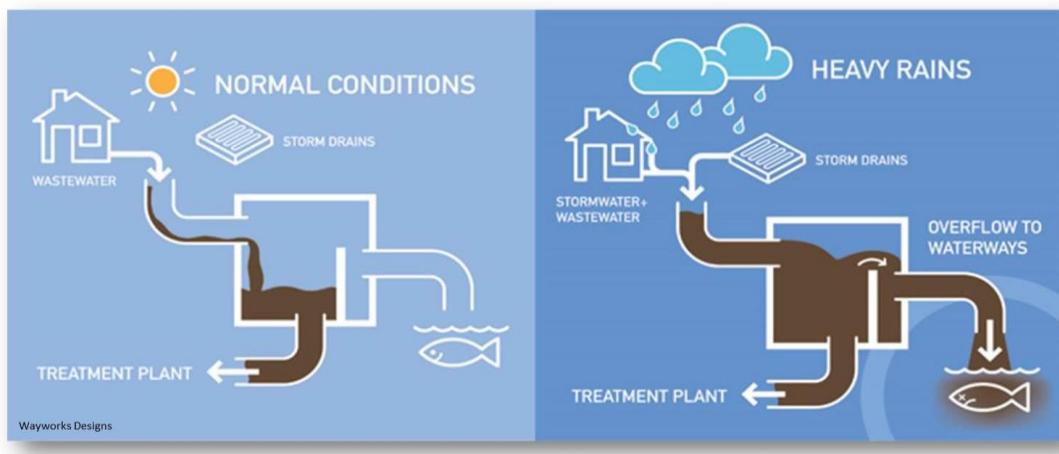
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<sup>3</sup> Enck, Judith. "The Passaic River Cleanup: Time for EPA to Play Hardball | Editorial." *NJ.com*. N.p., n.d. Web. 03 Apr. 2016.

<sup>4</sup> An interview with Nancy Zak, a prominent member of the Iron Bound Community Corporation said that because the teachers are not from the area or did not grow up with a positive relationship with the river the children know little about the river and its importance to the culture in which they live.

that their cities used to be thriving centers, there is no extra motivation to understand that it is possible to be relinked to the river and to begin prospering once again.

Another consequence of history and the industrial revolution was the implementation of combined sewer overflow systems. These systems with overtaxed release sewage into the Passaic River. As a result, pollutants are still continuously flowing into Passaic River through existing industry as well as through the cities' different sanitary systems. Historically, as cities continued to develop, more pavement and less permeable areas could absorb rainwater, resulting in more overflow into the river.



Source: [wayworks.net](http://wayworks.net)

Diagram 3: Combined Sewer Overflow

# Combined Sewer Overflows Discharging to the Upper Passaic River

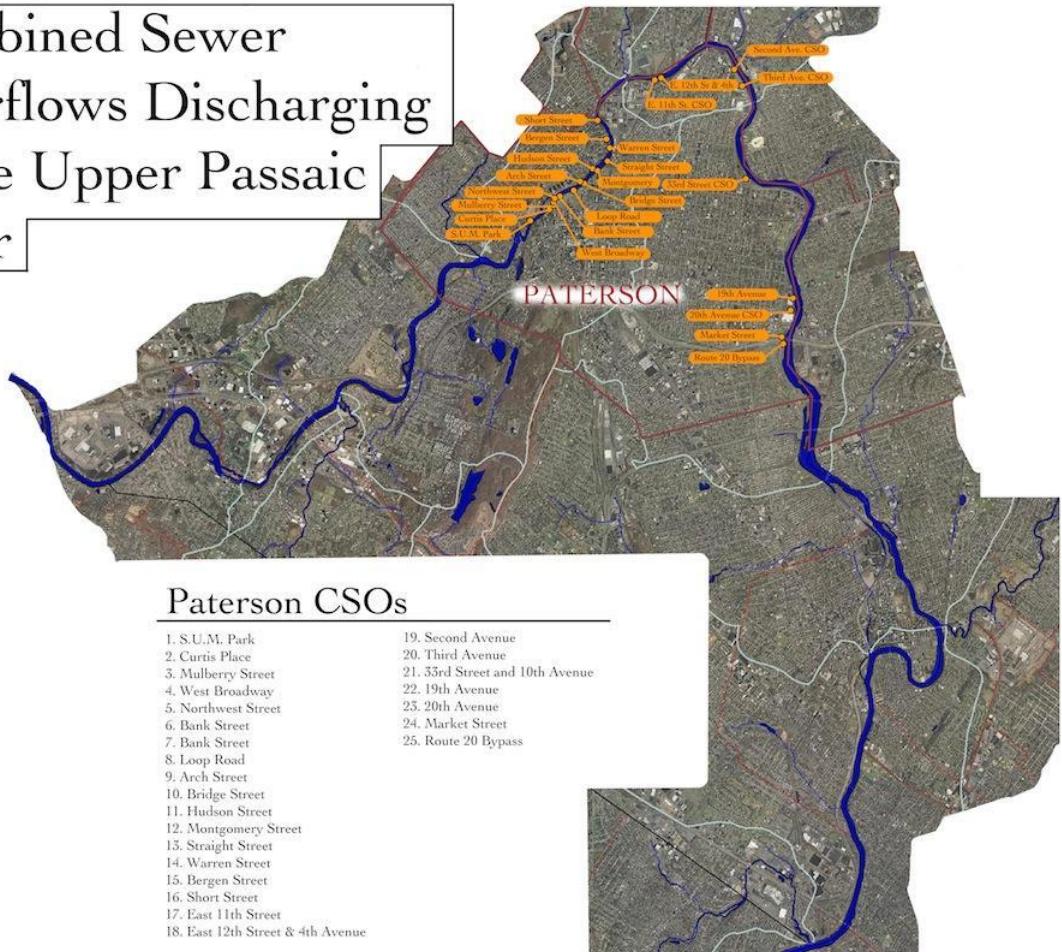
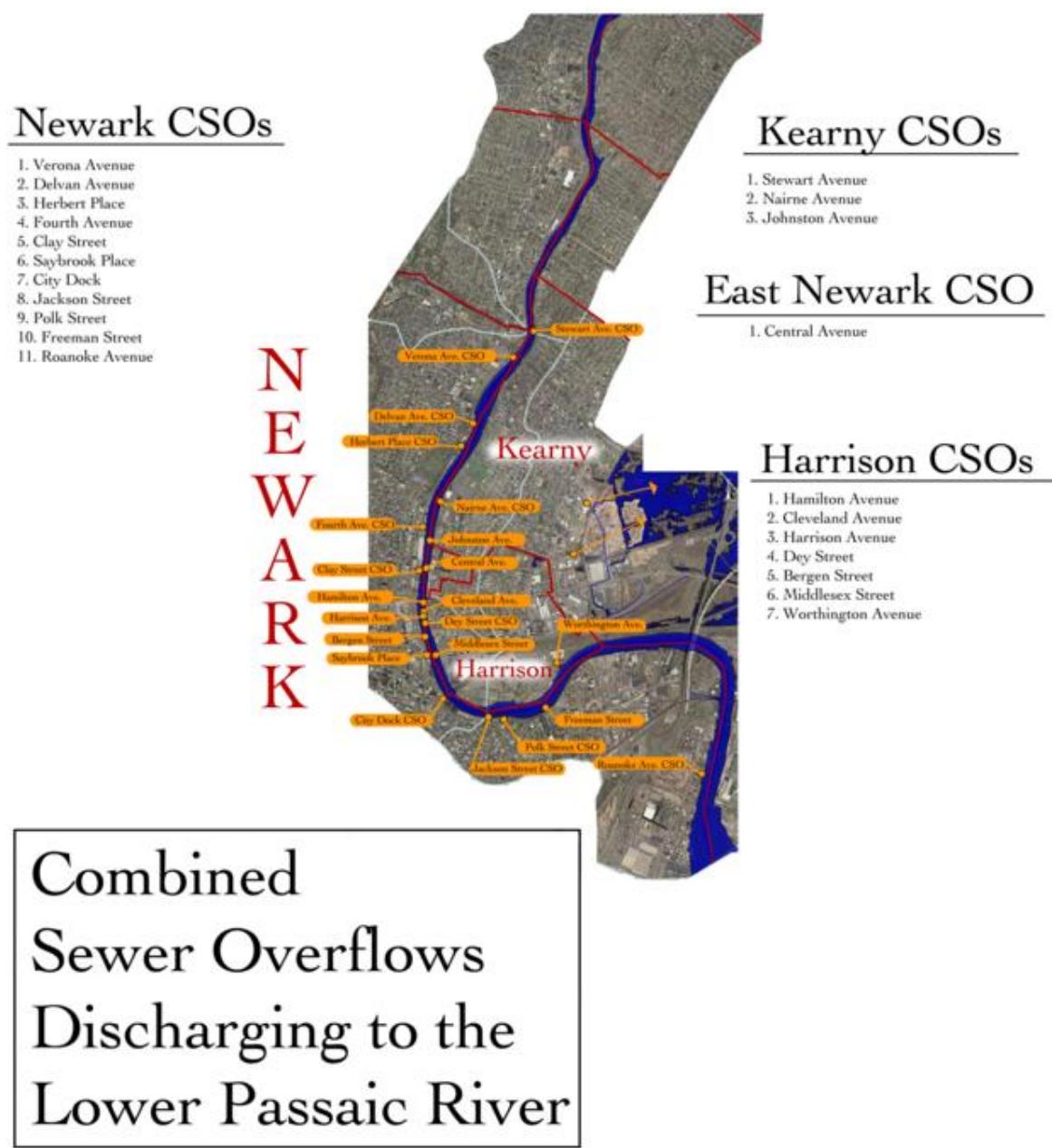


Diagram 4: Upper Passaic River CSOs



Source: nynjbaykeeper.org

Diagram 5: Lower Passaic River CSOs

As a way of transforming the primitive open sewer system, the open systems became closed systems<sup>5</sup>. Dating before the innovation of separate systems for sewage and run-off, cities such as Newark are stuck with combined systems. The rationale for the combined system was because it was cheap; and since these cities tend to be relatively old, sewage treatment plants were not conceived yet. Today, many of the river front towns still utilize a sanitary sewer over flow system. The problem continues today and when it rains and the amount of storm water stresses the systems' capacity, the mixed storm water and sewage is dumped into the Passaic River.

### **Overall Plans for the Passaic River**

After years of studying the Passaic River, past and current initiatives are finally getting started. The Environmental Protection Agency, Community Advisory Group (CAG), the Passaic River Coalition, and other local and state groups organize these initiatives. Over the past thirty years, advocates from these groups have been pushing for change, hoping to help bring back the life, cleanliness, and culture the Passaic once exhibited.

The Passaic has a huge Superfund history according to a recent report put out by the EPA. Beginning in 1984 the Passaic River has undergone eight studies about the necessary action that should be taken to clean up the site. With this in mind, the EPA in communication with community groups such as the Community Advisory Group or CAG and the Passaic River Coalition have come up with a plan to clean up the lower eight miles of the river, where it was discovered that most of the chemicals were buried in sediment. Because natural processes cannot break down the dioxins,

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<sup>5</sup> "Sanitary Sewer Overflow." *Orange County Sanitation District* . 2016.

PCBs, Lead, Mercury and other chemicals, they are trapped in the sediment at the bottom of the river, therefore moving up and down the river contaminating the water with every tide.

In order to deem any necessary actions, the EPA conducted a study to understand how much waste was in the river, what type of activities were going to take place on the river, and if the activities were going to involve ingestion of the water at all, no matter how small. Most human related contamination the study found was ingested through the consumption of crab or fish. To this date, it is recommended, according to the NJDEP Fish advisory, that an adult only can consume one fishmeal per month<sup>6</sup>. This study allowed the EPA to select the premise of their report saying that the mission of the cleanup is to lower the concentration of chemicals in fish, stop chemicals from moving upstream (above the 8.3 miles) , and lower impact of chemical of the ecology of the river. Humans and animals alike can once again take in the benefits of the river as a home, recreation site, and as a means of sustenance. With this in mind, the EPA plans to dredge between 3' and 33' deep of river sediment and then cap the bottom of the river, all within 11 years. By dredging the river, the contaminated sediment will be removed and disposed of leaving the river clean.

Furthermore, the plan has been revised and released on multiple occasions, the most recent document is the *Record of Decision*. This document calls for the engineering of the river cap, dredging, dredged material disposal, and the monitoring and the maintenance of the lower 8.3 miles post-dredging<sup>7</sup>. Previously, a flaw in the EPA's plan lied with their method of implementation.

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<sup>6</sup> "Higher Consumption of Livestock and Fish Products." *Fish Smart, Eat Smart* (2013)

<sup>7</sup> U.S. Environmental Protection Agency. "Lower 8.3 Miles of the Lower Passaic River Part of the Diamond Alkali Superfund Site Essex and Hudson Counties, New Jersey." *RECORD OF DECISION* Apr. 2016.

They have identified more than 100 companies that were deemed liable for the pollution. Out of the 100, 70 companies<sup>8</sup> have agreed to comply with the EPA's plan, but not much progress has been made so far. Among these companies are "the best legal foot-draggers," but the most recent plan takes on a more aggressive approach. The Superfund Unilateral Order now compels the responsible parties to take action and will imposes massive penalties, treble damages<sup>9</sup>, for the lack of compliance to the agreement<sup>10</sup>.

While this EPA plan was in development, the Passaic River Coalition put together a document called "A River for the People: A Public Access Plan for the Lower Passaic River"<sup>11</sup>. The plan is different in its approach then the EPA, which is really a technical, logistical, and time oriented document. Ultimately, the goal of the plan, in their words "is to improve water access and enjoyment in a manner that benefits the long term sustainability of the river towns through quality of life, environmental and economic improvements." The towns included in the document are Harrison, Wallington, Kearny, East Rutherford, Garfield, Rutherford, Lyndhurst, and North Arlington, (Appendix pictures of towns?) all of which are cities along the river who needed development as well as guidance. The plan also took into account the consequences of recent infrastructure projects have had an impact on the river including recent highways (Route 21), dams, channels and bridges. Additional statistical information such as household density, parcel value, land use, arable land, flood potential, and transportation networks are also included in the document.

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<sup>8</sup> The list of 70 companies can be found here:  
<http://www.gelmans.com/ReadingRoom/tabid/65/ctl/ArticleView/mid/372/articleId/579/US-EPA-Reaches-Agreement-With-70-Companies-to-Clean-Up-Passaic-River-NJ-Pollution.aspx>

<sup>9</sup> Three times the cost of cleanup.

<sup>10</sup> Enck, Judith. "The Passaic River Cleanup: Time for EPA to Play Hardball | Editorial. Apr. 2016

<sup>11</sup> Passaic River Coalition. "A Public Access Plan for the Lower Passaic River." *A River for the People*

With this in mind a set of new proposals at the aforementioned locations were created to make parks, residences, boat docks, paths, and commercial ventures all connecting the cities along the riverfront. For example, some already established regional plans were integrated creating plans for a kayak river action plan that created kayak docks and natural take off points.

#### The Passaic River Canoe & Kayak Trail



Source: *A River for the People: A Public Access Plan for the Lower Passaic River*

Diagram 6: Passaic Kayak Trail

The EPA and Passaic River Coalition in conjunction with other local community organizations created a framework that makes a livable and sustainable river front community possible. The EPA framework takes care of the river, cleans it, eases sickness, and provides opportunity for new development. The Passaic River Coalition takes the EPA framework and puts it

to good use to make the Passaic River alive again for the human community. It takes into account other factors and proposes new changes to be made as cleanup is being done in the river. This way current generations and new generations to come appreciates the river. However, these overall plans are just suggestions and do not apply to all towns along the river. The municipalities can choose whether to follow these plans. In some cases, these plans did not incorporate areas that have already taken an initiative to fight for their own rights and start to bring about change to their city and well-being.

### **Newark, New Jersey**

Newark, New Jersey is home to a motivated and hardworking community organization. By talking to Nancy Zak, the Community Outreach Director of the Ironbound Community Corporations (ICC) of Newark, it became apparent that there were many movements and initiatives that the city undertook. The city aimed to paint a more sustainable outlook towards the river and city itself. During the late 1980s, Newark faced chemical dumping along their borders in the Passaic River as well as in their internal lands of the Ironbound. The city faced sickness and birth defects as a result. In time, the organization fought against the companies, specifically Diamond Alkali plant that stood on 80 Lister Avenue in the Ironbound. With the help of Michael Gordon, their lawyer, they were able to win one million dollars in damages from the company. Many argued this was not enough but agreed that this would set the stage for a bigger battle concerning the wellbeing of Newark, their people and the Passaic River.



Source: *A River for the People: A Public Access Plan for the Lower Passaic River*

Diagram 7: Riverfront Park Plan

The Ironbound community corporation believes that the people of Newark need a place to escape and more open space, and they believe the answer to this is in and around the river. Recently, Riverfront Park has been built in conjunction with a path that is along the river's edge. Right across from Red Bull stadium, it provides the open space that the residents desired while bringing activity to the riverside that reconnects the community to the river. The riverside path is lined with information about Newark's history, the story of the river, and how the city works. In addition to activating the river, the path becomes an educational tool that informs its users about the significance of the river. (Insert picture) According to Nancy Zak the initiative to bring the community back to the river is working out perfectly. First, they needed to conceive the idea and build a usable park, which they did; from there, more development will come and complete a connecting spine that links the Iron Bound to NJPAC. The "second step is to involve the community" and bring people to the park.

The park has become a hot spot with residents. The park is home to a new football, soccer, and baseball field as well as basketball courts. Throughout the year, events are held for both students and residents of the Newark. The purpose in Nancy's mind is to produce a generation that

has grown up along the river. She says that they do not learn about the river or their history in school because the teachers are either not from around the area or did not associate themselves with the river either. To remedy this problem, the ICC holds workshops by Riverbank Park as well as in the Riverfront Park to teach young kids. Riverfront Revival often supports these workshops. This group manages and funds the parks near the riverfront, and was responsible for saving the historical Riverbank Park, which at one point was one of few open spaces for Newark Iron Bound Residents. Just as there are programs for the youth, older residents can enjoy free Newark Downtown Riverfront Walkshops that give a tour of the downtown area and the river. The objective of the walkshops is to inform the residents about the possibilities, stories, and issues with the area. Getting the community involved is not only about teaching it is about spending time along the river and about being in it. During the warmer season, events are held at Riverfront Park including movie nights, concerts, performances, and



Source: [RiverfrontRevival.org](http://RiverfrontRevival.org)

Diagram 8: A Cultural Event at the Riverfront Park

carnivals. The Park also has a boat deck, where kayaks can be rented out allows people direct access the river.

The municipal government is also doing its part to help the Passaic River through initiatives such as the Newark DIG project<sup>12</sup>. The city is working to limit the amount of impermeable surfaces by using green and grey infrastructure. Some examples of green infrastructure would be bio-swales, rain gardens, and additional greenery along the streets. The benefits of these interventions is that by soaking and holding rain water, less water gets released into the sewage/storm water system. This prevents the sewage system from overflowing into the Passaic River while helping the city accomplish the mandate by the state to fix its outdated sewage system

These initiatives by the Newark have created the platform for other cities to enact strategies to tackle cleanup and activate the waterfront that has lost its cultural significance over time.

### **Harrison, New Jersey**

On the opposite side of the river, facing the Ironbound and its Riverfront Park is the town of Harrison. A town rich in culture, under a lot of upcoming development, and it is the home of the Red Bull's soccer stadium. Located on the border of the city and adjacent to the Passaic River. The stadium was only constructed six years ago in 2010. It has become a destination for surrounding towns and cities especially during game days. Much like Newark, Harrison is burdened with a heavy industrial past. Because of its history, Harrison was left with contamination, vacant land, and an underdeveloped riverfront.

The Red Bull Stadium has become what the Prudential Center is to Newark, a great place for economic revenue not only for the building, but also for the city as a whole. Like the Prudential

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<sup>12</sup> "Newarkdig." *Newarkdig*. Apr. 2016

Center, the Red Bull Stadium has sprung a sea of business around the stadium as well as the Harrison Train Station. The stadium has brought an opportunity for the town to reinvent itself and therefore become a better place to live. At this point the part of Harrison under development, is subject to vast amounts of land.



Source: *A River for the People: A Public Access Plan for the Lower Passaic River*

Diagram 9: Actual and Rendered aerial pictures of Harrison, NJ

The redevelopment in the area includes retail, restaurants, residential apartments and hotels. The current condition of Harrison is currently comprised of vast areas of construction. The train station is receiving a facelift to accommodate for the current commuters as well as the predicted commuters, those of whom use public transportation for events at the stadium, while residential apartments are being developed in bulk. The last piece of Harrison's redevelopment phase would be anchored by the waterfront. By utilizing the views of the Passaic River, the waterfront is to take from its predecessor, the Newark Riverfront Park, all the advantages of revitalizing through the reconnection of the community to the water. By using the Riverfront Park as a catalyst, Harrison hopes for creating a new face of the lower part of the Passaic River.

By taking a closer look at what the Passaic River Coalition has in plan for Harrison in *A River for the People: A Public Access Plan for the Lower Passaic River*, it is noted that the goal of this plan is “to create a vibrant mixed use transit oriented pedestrian scale development that will make Harrison a regional destination for years to come.” The aim for the proposed areas of redevelopment is to improve Harrison both economically and as a social status for people to visit, mingle, and enjoy. With the improvements of these areas, the goal of the masterplan is to design a pedestrian friendly area, which would accommodate the human scale. The human scaled is achieved by wide sidewalks at least 15’ which create space for groups of people to walk simultaneously as seen in the picture below.

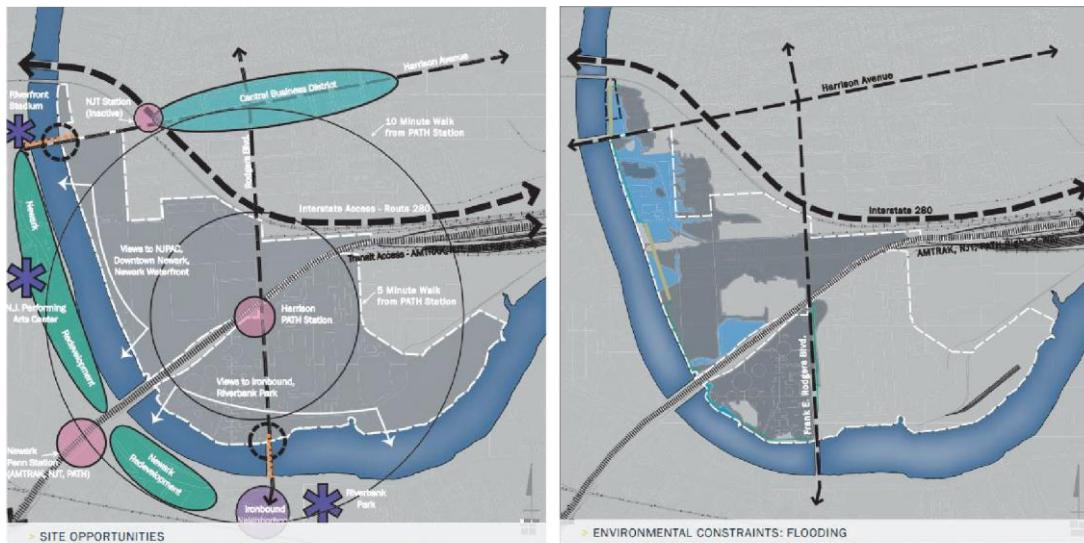


Source: *A River for the People: A Public Access Plan for the Lower Passaic River*

Diagram 10: Section demonstrating the wide sidewalks of the “human scale”

The proposed park would line the boarder of the town with a walking path along the whole side of the park much like Newark’s Riverfront Park. Once completed the Harrison and the Ironbound Riverfront parks would bring live back to the Passaic River by encompassing the river with a multitude of trees and recreational areas for its users and visitors. As a way of keeping the users in mind, the blocks have been issued a height limit. The buildings closest to the river are shorter and as the blocks move away from the river, the buildings get taller. While the majority of these buildings will be residential, there is a potential to bring office buildings to the area with views not only to the

developing Passaic River, but also to New York City because of the quick connection provided by the Harrison Train Station.



Source: *A River for the People: A Public Access Plan for the Lower Passaic River*

Diagram 11/12: Possible connections/ 100 year flooding plan

One of the major problems when it comes to redeveloping sites around the Passaic River is the fact that these areas are flood prone. One of the design intents is to prevent any sort of flooding on the redeveloped areas as well as the town itself. The town of Harrison has been closely working with the Passaic River Tidal Flood Control Project of the U.S. Army Corps. The PRC supports the plans that have been laid out by the town of Harrison. Following hurricane Sandy, there has been a major technological push in flood prevention and Harrison hopes to take advantage of these innovations to further the design of the riverside park. Along with the design and technology that could be used by the town of Harrison, across the river lies the most important catalyst for their redevelopment efforts.

As stated before, the Ironbound Riverfront Park is a successful park which would serve as a design starting point for not only the Harrison project but for many other masterplans being developed for the Passaic River. Not only is the design of the park itself important, but the ways in which the park operates through its activities is essential. The goal in the end is to activate the river to use its merits and the only way that can happen is if people see the value of the river and have access to all its benefits.

## **Implications**

It seems that decades of fighting has resulted in the plan that will begin cleanup the Passaic River, but the doubts and questions have not changed. Is the cleanup enough? Did the plan miss something this is the one big chance? What if the companies do not comply? These doubts are all valid, since these situations have happened in the past. Like the EPA report mentions, there were eight “studies” done in the past 30 years, and only two clean up occasions <sup>13</sup>in those 30 years. Now something bigger is happening but what is going to stop this initiative from becoming a dead end. In the Newark Case, Diamond Alkali resulted in a compromise that left the company free of liability. Yes, they paid one million dollars but they were not responsible for the cleanup. If they could get out that easy considering all the lives they destroyed and put in jeopardy what is stopping these other companies from following suit. The EPA needs to stick to its plans to be aggressive towards those responsible for the cleanup. Companies need to start their clean up immediately and stop beating around the bush. Currently, the most effective method of the river cleanup is dredging, and some of the polluters are funding other methods to clean up the river. Although the intent is admirable, the

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<sup>13</sup> The first cleanup was in 2012 at the Diamond Alkali Plant where 40,000 cubic feet of sediment was dredged. The second cleanup was in 2013 by Lyndhurst where 16,000 cubic feet of sediment was dredged.

time has passed for research. The river needs to be flushed of the contaminated sediment promptly. It is not a matter of preserving a natural feature anymore, the health of those who rely on the river is at stake.

As far as redevelopment of the Passaic River, there is an overall plan certain cities along the riverfront in conjunction with a kayak trail that is in each city. However, the plan does not address all the cities along the river. The prospect of the river cleanup is to invoke an understanding of the importance of the river as well as its benefits. The cities and towns without a river reconnection plan can take from what Newark as well as the Passaic River Coalition's plan. There is a lot of potential in these plans not only for the beautification but also for the health and well-being of those who live in the area.

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