



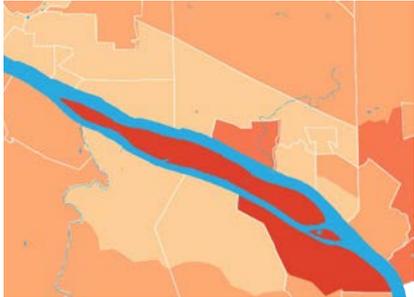
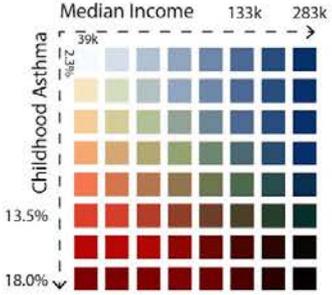
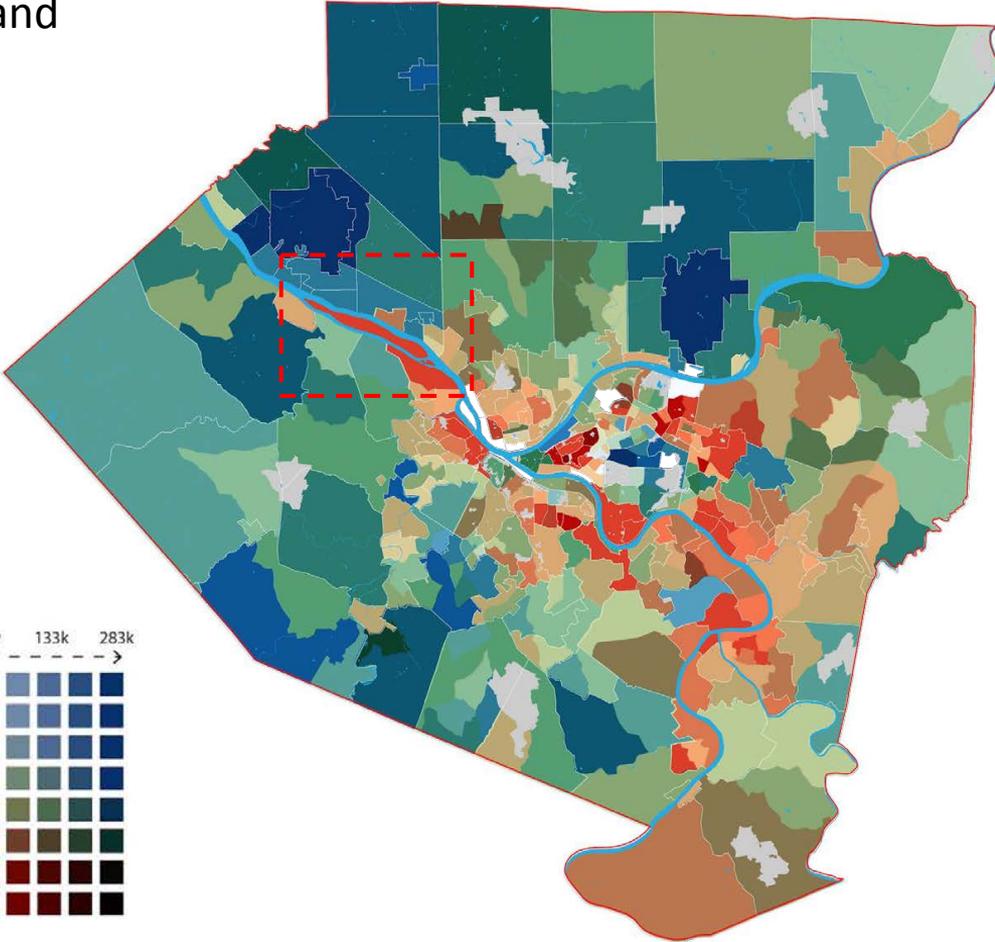
Neville island

Industrial transformation

Harvest.Su

May 8, 2020

# Neville Island



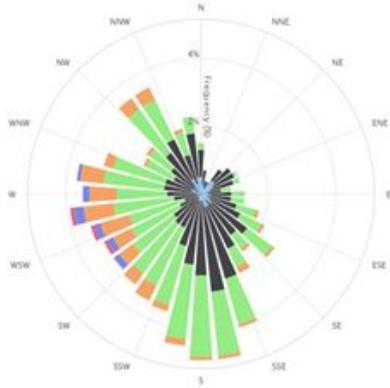
Childhood Asthma Rate



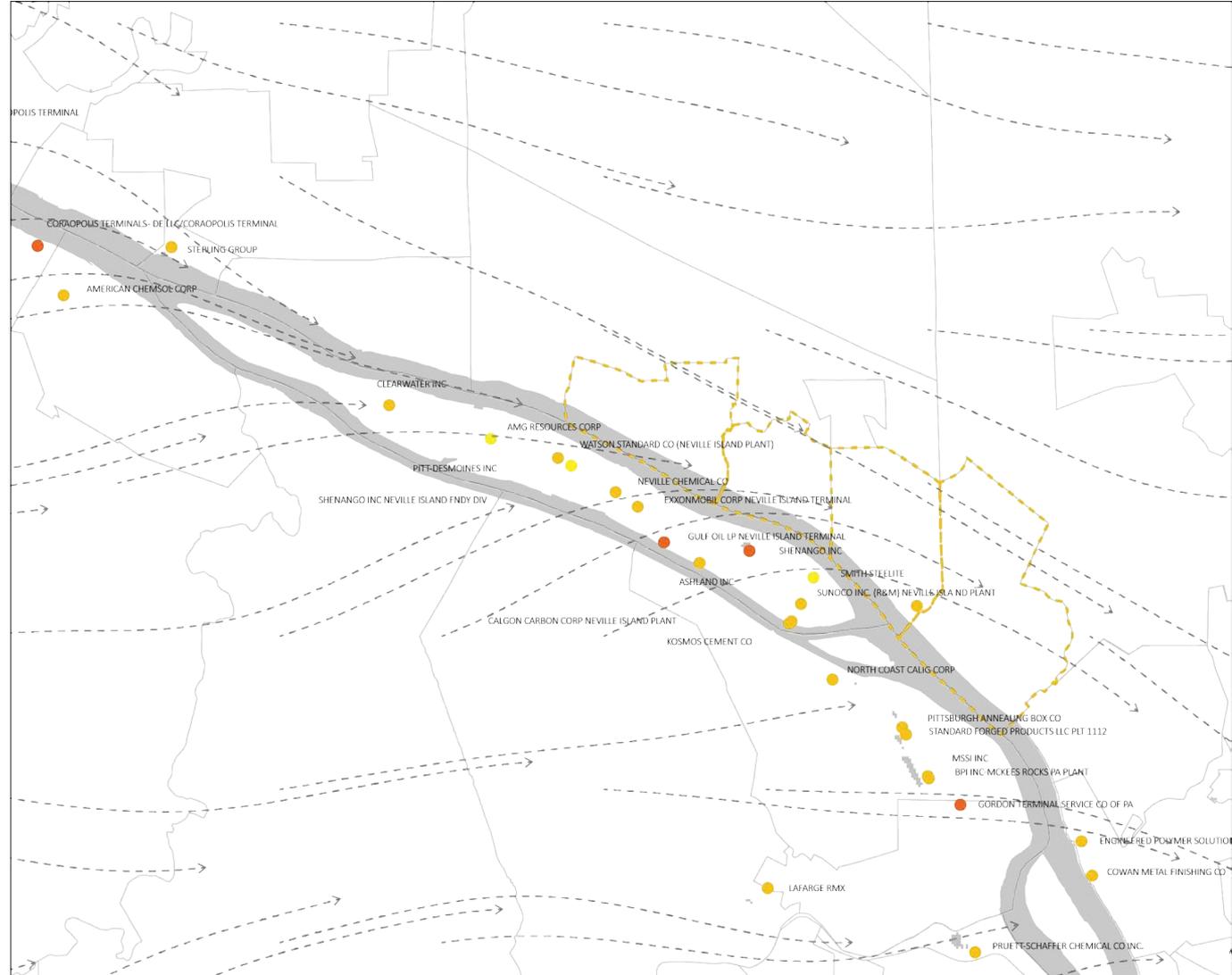
Median Income

Source: <https://data.wprdc.org/dataset/childhood-asthma-healthcare-utilization>  
<https://data.census.gov/cedsci/>

# Pollution



- Energy provider
- Raw material processing
- Machine



Source: Generated from the EPW file.

# Pollution

## ALAN HOROWITZ (Ross)

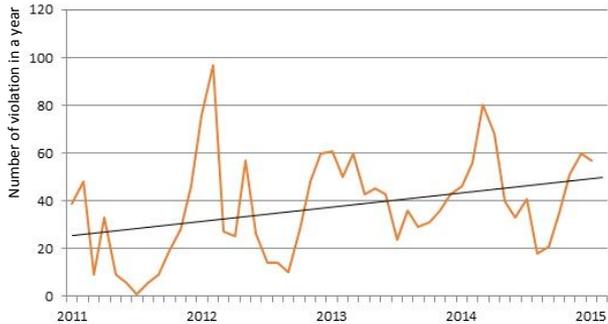
“Three of the five women I know within 3 miles of Shenango had cancer, including my wife who had breast cancer.”

## FRANK MEACCI (Ben Avon)

“Shenango is an old company. I remember going down to Neville Island in 1954 or 1955 to look for summer jobs and they were active then.”

## GASP (Organization)

“Shenango violated the applicable limitation on the sulfur content of its coke oven gas three times in the third quarter of 2015.”



Trend of violations of 20% on emission standard from Battery Combustion Stack

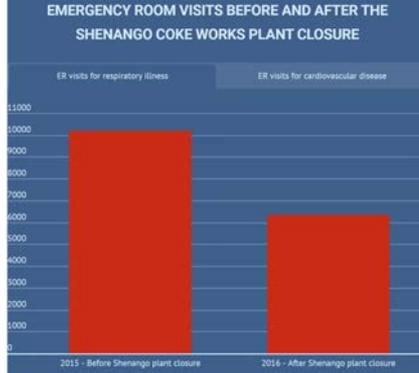


# Pollution

'The plant closed in January 2016.'

'Shenango coke plant smokestacks come crumbling down' (May 8, 2018)

'Emergency room visits for asthma and chronic obstructive pulmonary disease (COPD) dropped by 37.9 percent in the region the year after the plant closed.'



# Reimagining the future

## Post-gazette

“Sun instead of coal? Group wants owner to build solar array at shuttered Shenango Coke Works”

## Alleghenyfront

'Are we heading for a hydropower boom on the three rivers?'

## Char-West Multi-Municipal Comprehensive Plan

‘The two main roads in Neville Township, Grand Avenue and Neville Road have a surplus in traffic volume capacity for existing and future growth.’

## A citizen from Ben Avon Council

“... hope that the former Shenango Site will be redeveloped in a way that benefits the surrounding community and is compatible with our quality of life.”



February 19, 2020 Public Meeting at Robert Morris University Island Sports Center on Neville Island

Existing Conditions Reviewed	
Communities impacted by Shenango's past/the Site's future	Compliance/enforcement of environmental regulations
Local and regional planning documents	Environmental impact of local industries
Employment, jobs, workforce	Outlook for local industrial growth
Income and wages	Local trends in sustainable growth
Property tax assessment/revenue generation	

# Economic crisis

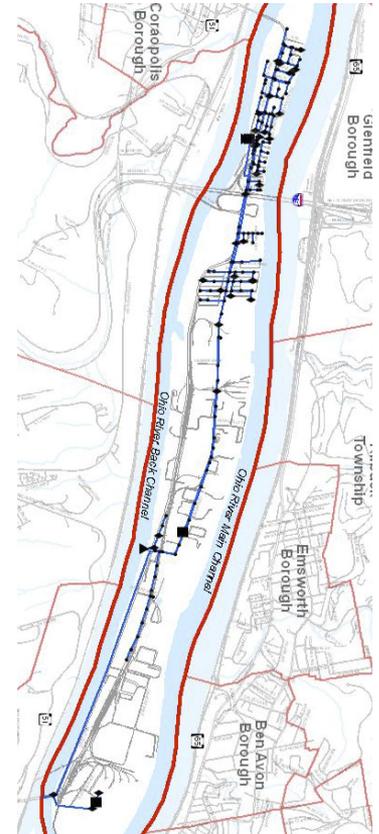
Neville is one of the richest neighborhood in 1970s.

Most income of Neville island comes from industrial customers.(84%)

The comparative isolated infrastructure systems imposed great challenge to the management. The cost is very high.(81 higher in sewage fund rate)

	Neville 2008/2011 <sup>1</sup>
<b>Financial Analysis</b>	
Total annual revenues	\$768,200
Annual residential revenues	\$121,400
Annual non-residential revenues	\$646,800
Annual costs (includes ALCOSAN charges)	\$679,625
Surplus/Deficit (Revenues - Expenditures)	\$88,575
Annual contribution to the sewer fund for capital expenditures <sup>2</sup>	\$66,000
Sewer fund balance	\$607,173
Quarterly residential rates/revenues	
Current quarterly rate (with ALCOSAN costs) charged per residential customer (provided by engineers)	\$160
Annual cost per mile of sewer pipe	\$90,502
Actual quarterly cost per customer (annual cost divided by number of customers)	\$269
Debt service and principal	
principal	\$32,184
interest	\$11,117
ALCOSAN annual treatment charges (to each municipality- a portion of annual costs)	\$300,387
ALCOSAN cost per customer	\$118.82
Estimated costs for level 4&5 repairs/improvements through 2016	\$100,000
Level 4 & 5 repairs percent completed	100%

Financial(2011)



Sewage system

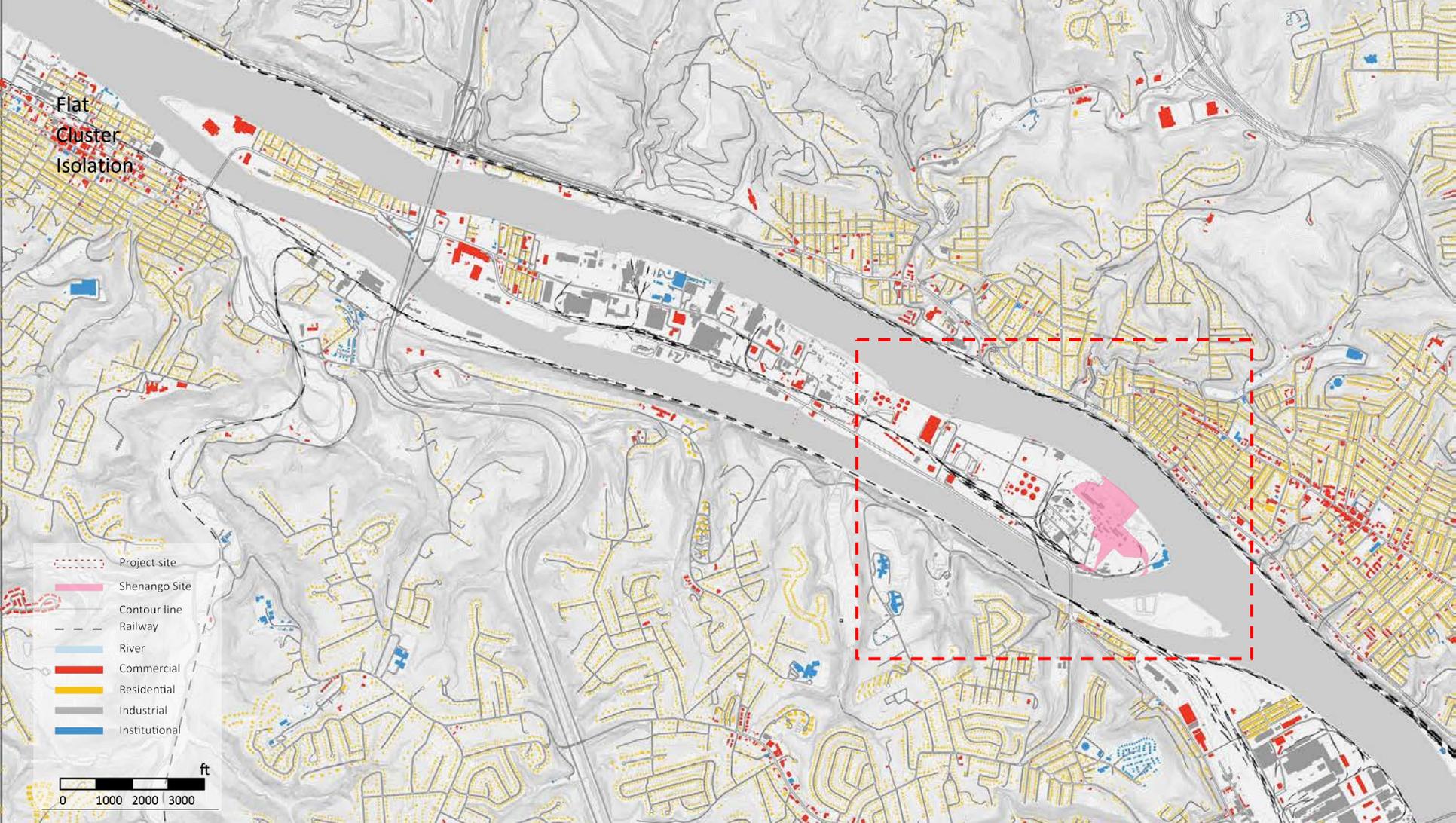
## **Vision**

No more pollution so that people's health won't be badly affected.

Township becomes more financially sustainable and residents in the neighborhood and nearby can have more job opportunities.

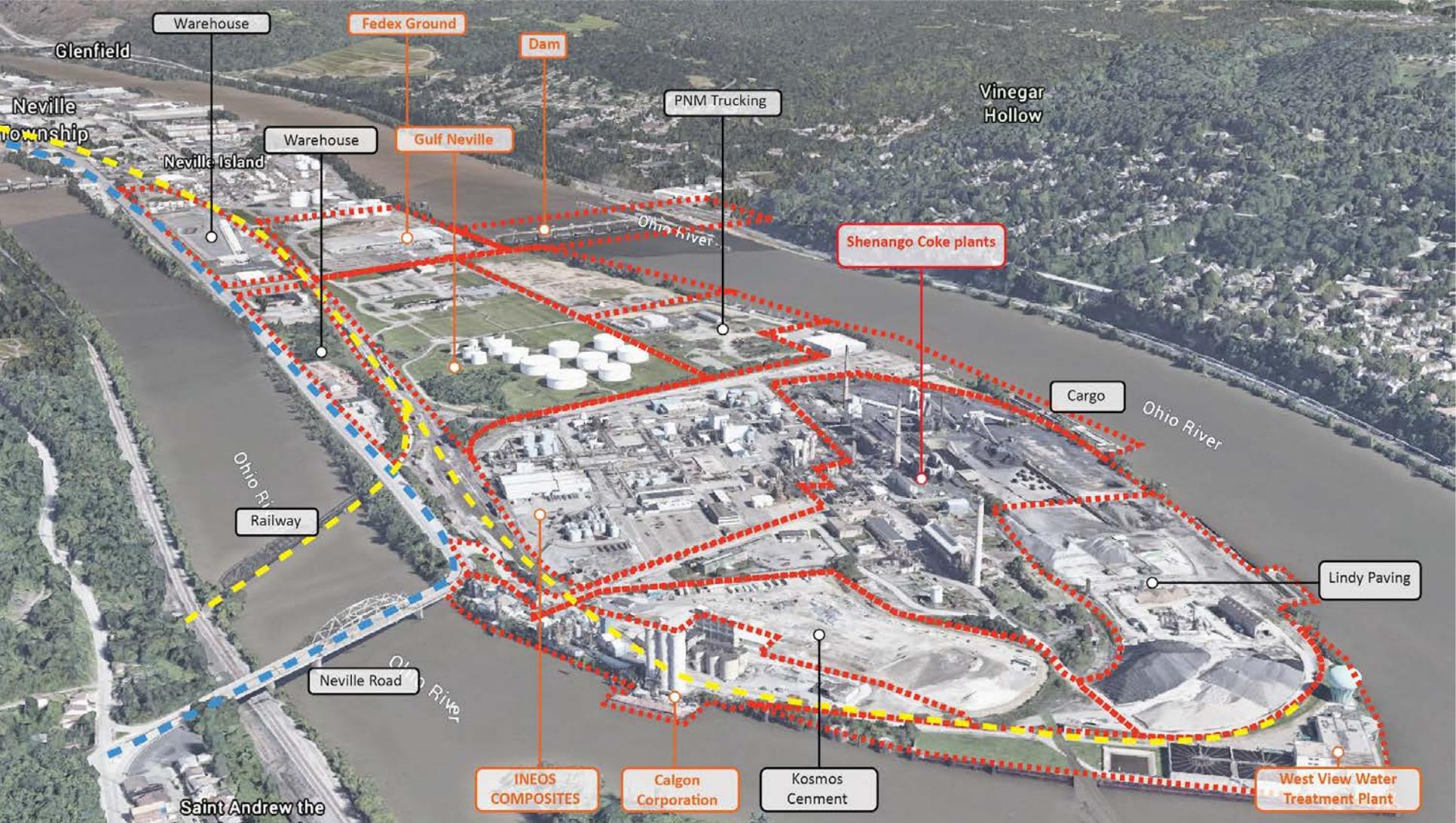
An industrial area that lead the future of the Allegheny county.

Flat  
Cluster  
Isolation



- Project site
- Shenango Site
- Contour line
- Railway
- River
- Commercial
- Residential
- Industrial
- Institutional

ft  
0 1000 2000 3000



Warehouse

Fedex Ground

Dam

PNM Trucking

Warehouse

Gulf Neville

Shenango Coke plants

Cargo

Lindy Paving

INEOS COMPOSITES

Calgon Corporation

Kosmos Cement

West View Water Treatment Plant

Glenfield

Neville Township

Neville Island

Vinegar Hollow

Ohio River

Railway

Ohio River

Ohio River

Neville Road

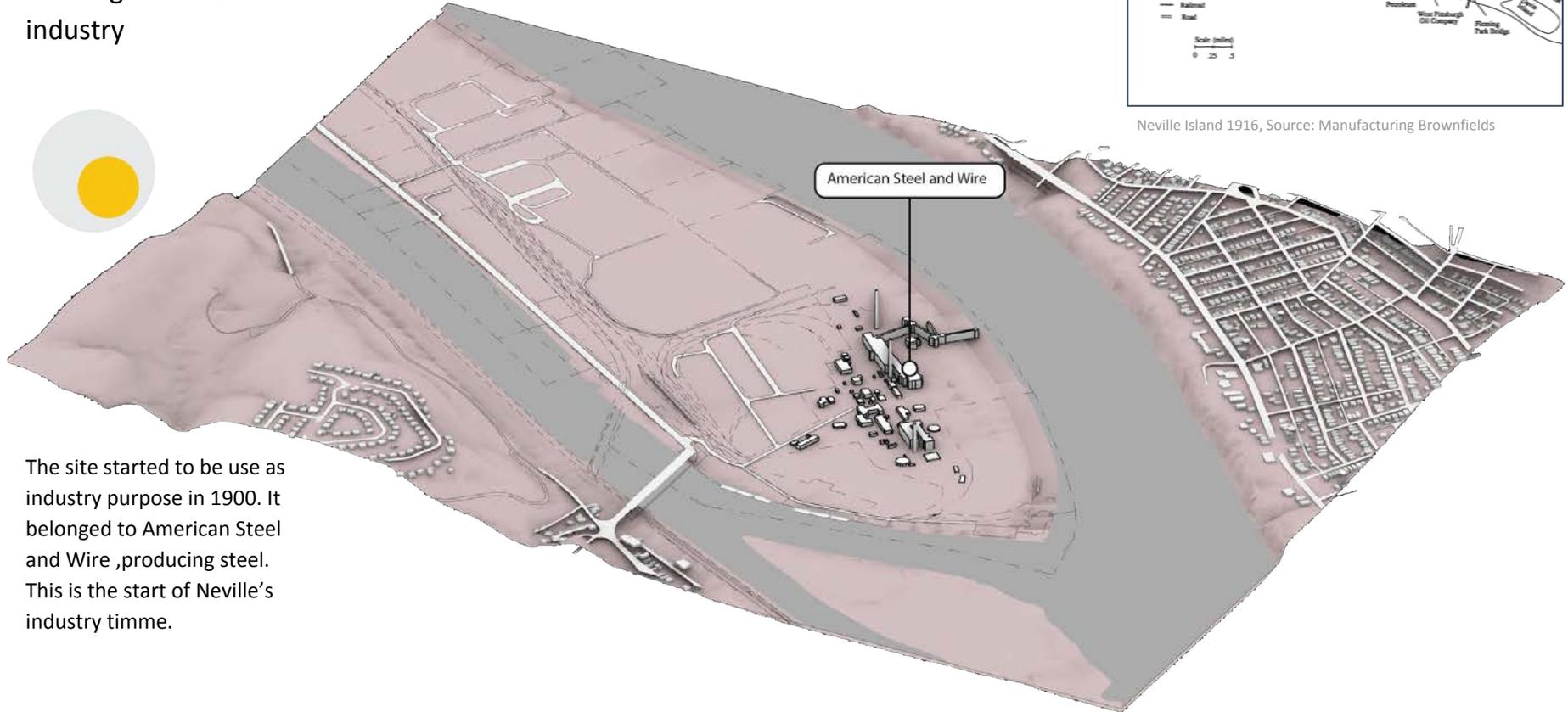
Ohio River

Saint Andrew the

# 1900-1935

## Start

From agriculture to industry



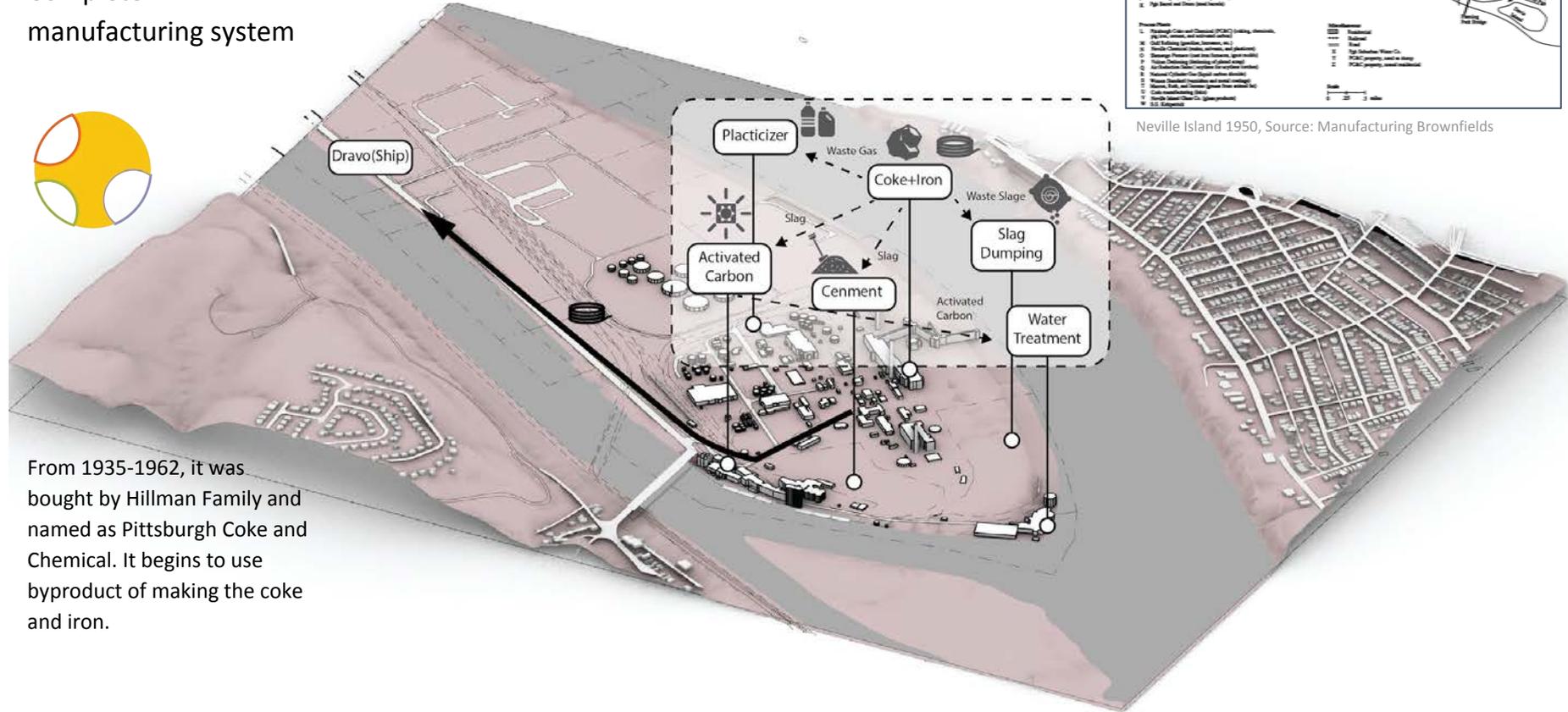
Neville Island 1916, Source: Manufacturing Brownfields

The site started to be used for industrial purposes in 1900. It belonged to American Steel and Wire, producing steel. This is the start of Neville's industrial time.

# 1935-1963

## SELF-SUFFICIENT

Complete manufacturing system



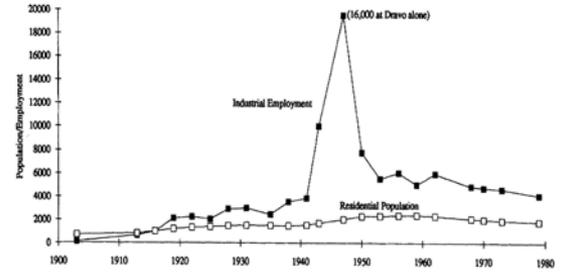
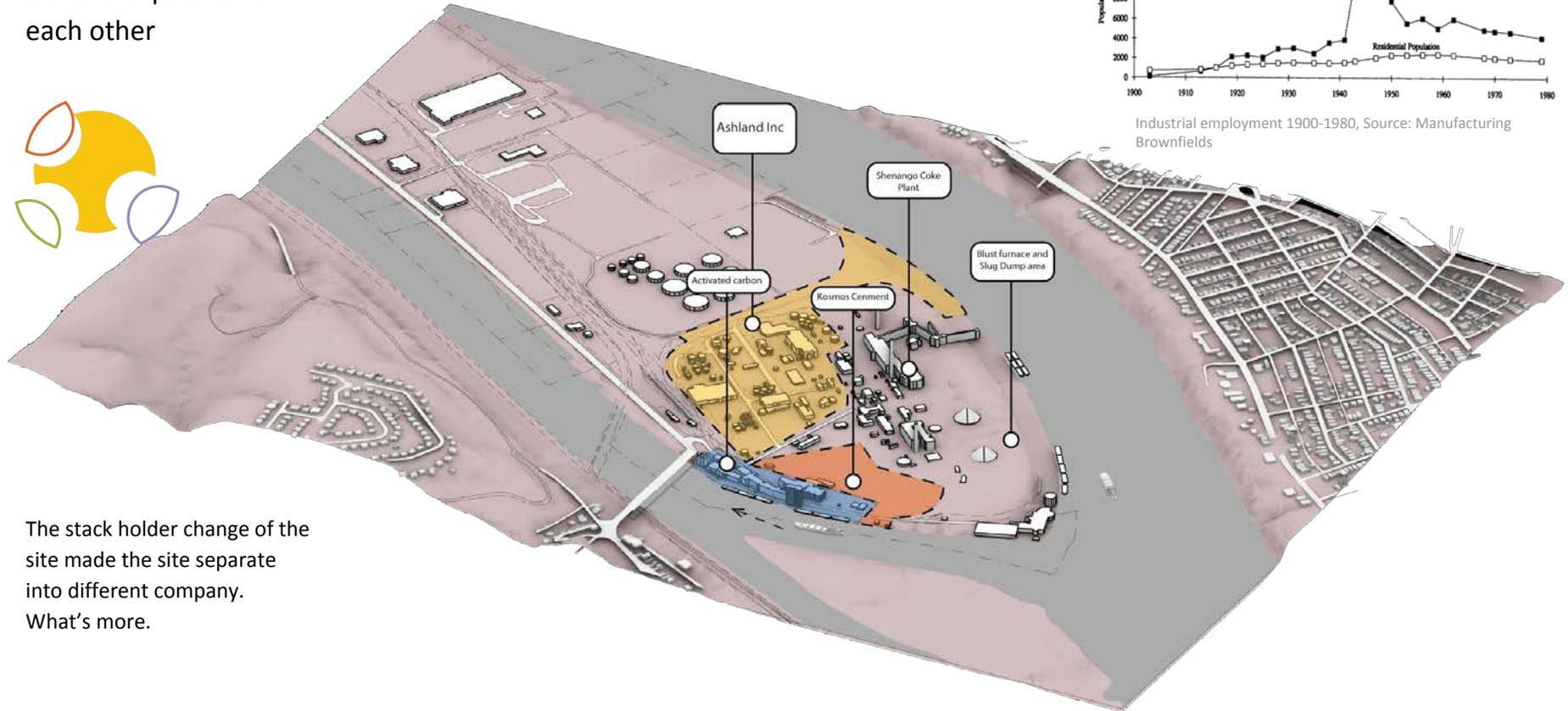
From 1935-1962, it was bought by Hillman Family and named as Pittsburgh Coke and Chemical. It begins to use byproduct of making the coke and iron.

Neville Island 1950, Source: Manufacturing Brownfields

# 1962-1994

## Seperation

Reduce dependence on each other



Industrial employment 1900-1980, Source: Manufacturing Brownfields

The stack holder change of the site made the site separate into different company.  
What's more.

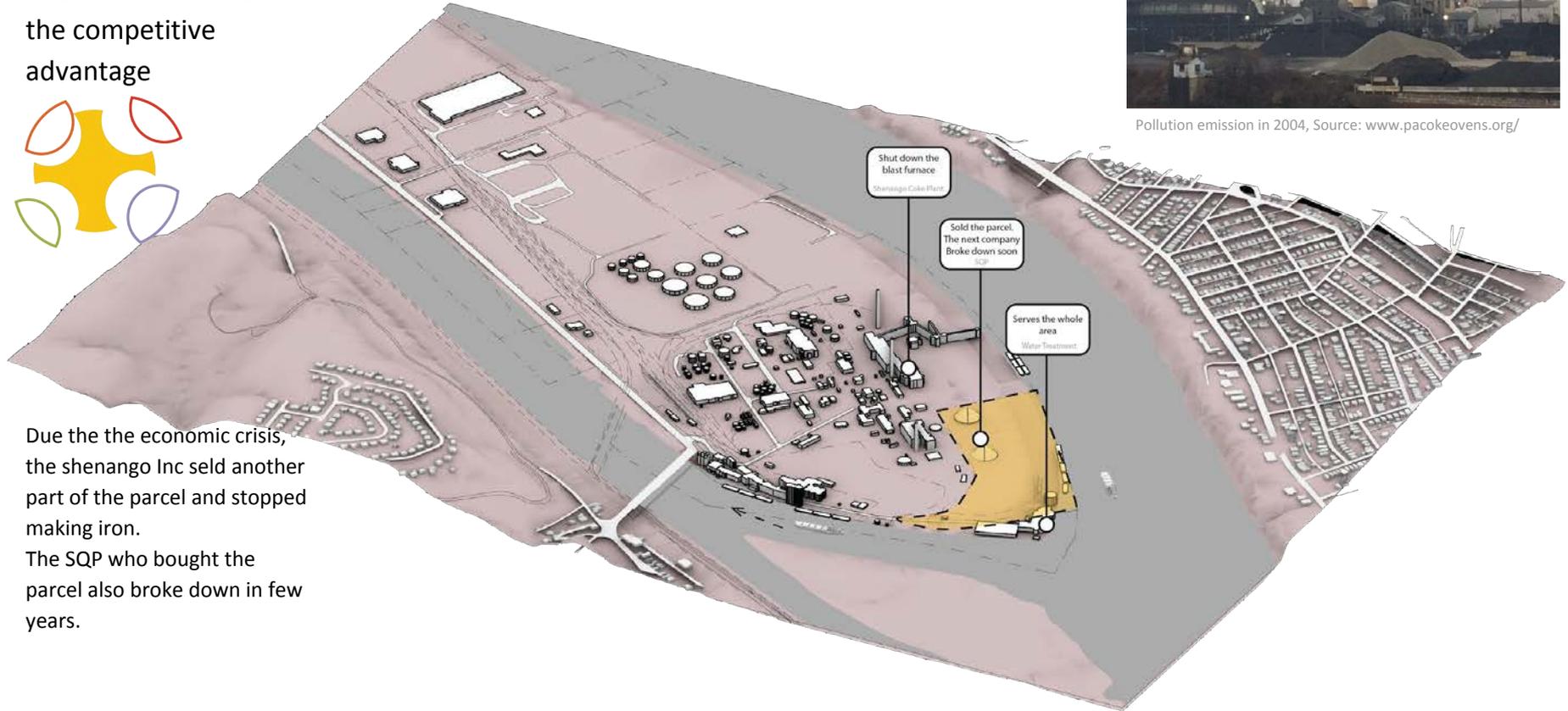
# 1994-2007

## Dilemma

Crisis and weakened of the competitive advantage



Due to the economic crisis, the Shenango Inc sold another part of the parcel and stopped making iron. The SQP who bought the parcel also broke down in few years.



Pollution emission in 2004, Source: [www.pacokeovens.org/](http://www.pacokeovens.org/)

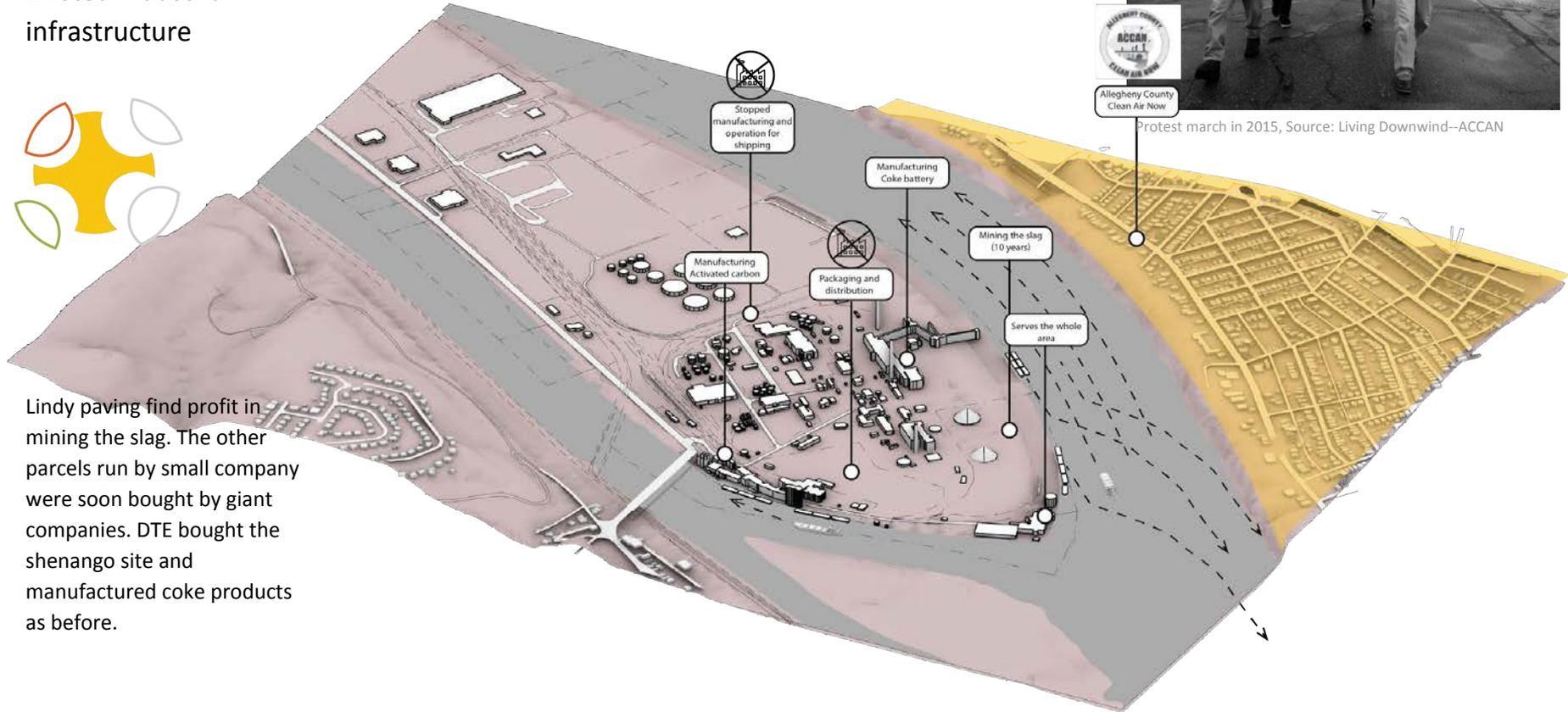
# 2007-2018

## Terminal

Existed industrial infrastructure



Lindy paving find profit in mining the slag. The other parcels run by small company were soon bought by giant companies. DTE bought the shenango site and manufactured coke products as before.

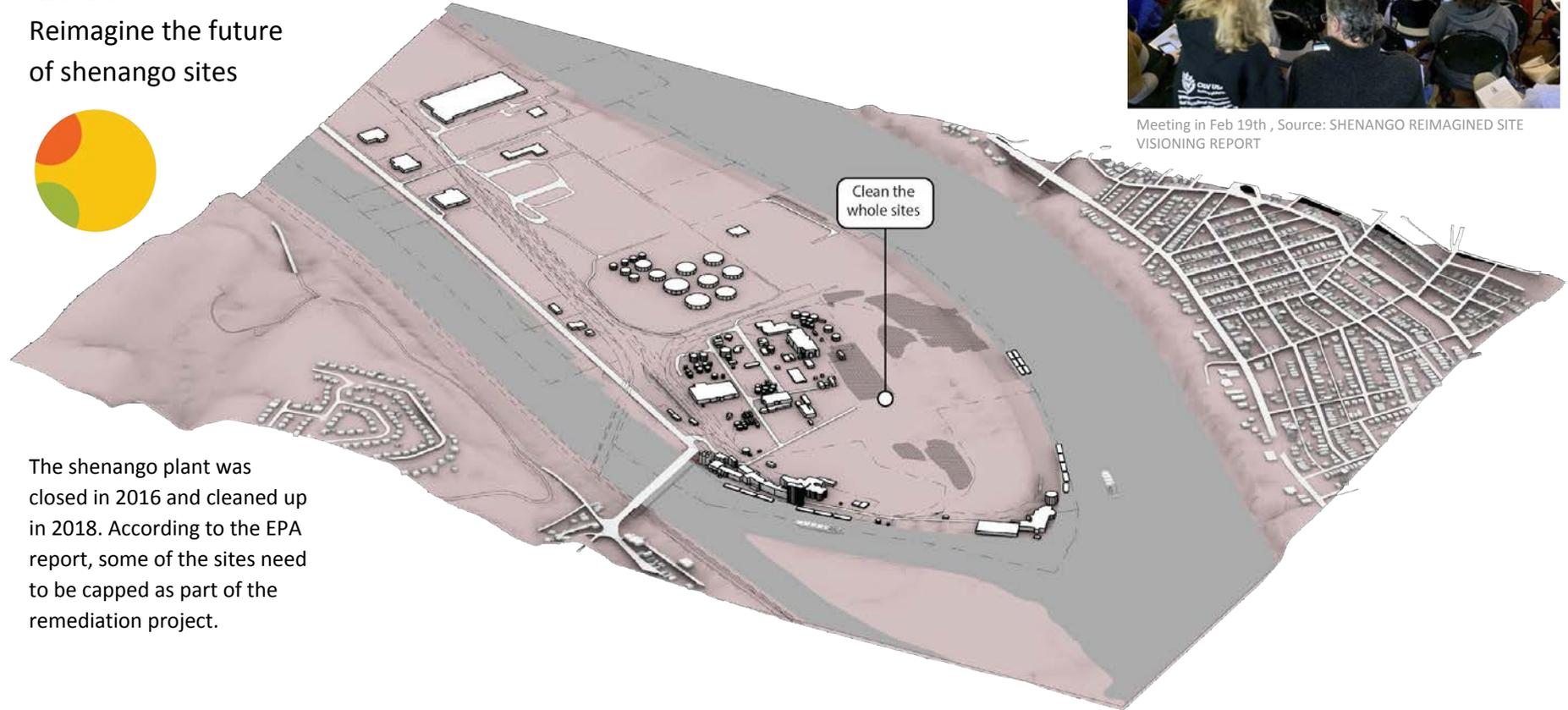


Protest march in 2015, Source: Living Downwind--ACCAN

# 2018-2020

## Clean up and evaluate the site

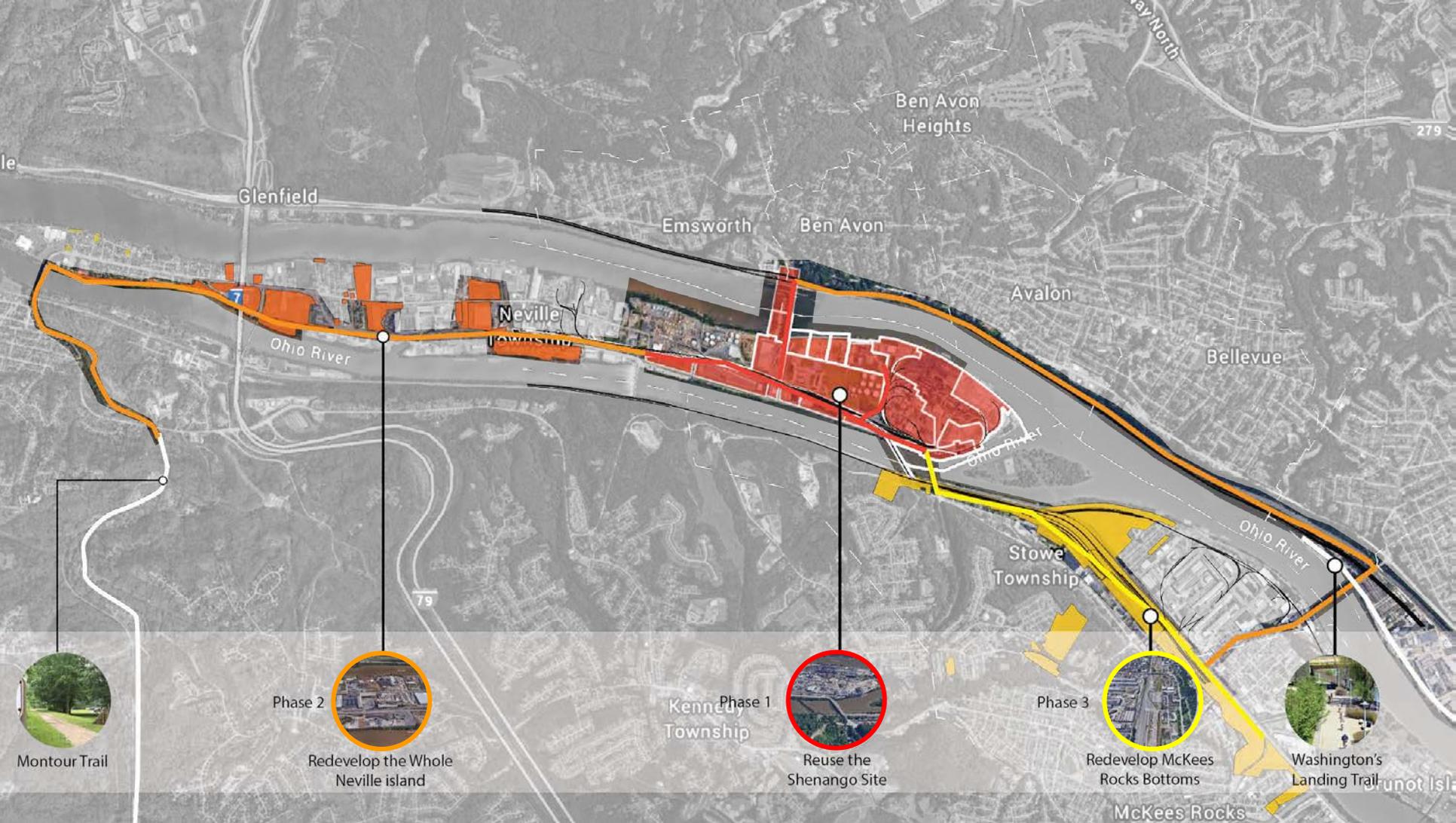
Reimagine the future of shenango sites



The shenango plant was closed in 2016 and cleaned up in 2018. According to the EPA report, some of the sites need to be capped as part of the remediation project.



Meeting in Feb 19th , Source: SHENANGO REIMAGINED SITE VISIONING REPORT



Montour Trail

Phase 2



Redevelop the Whole Neville island

Phase 1



Reuse the Shenango Site

Phase 3



Redevelop McKees Rocks Bottoms



Washington's Landing Trail

# Context of the site

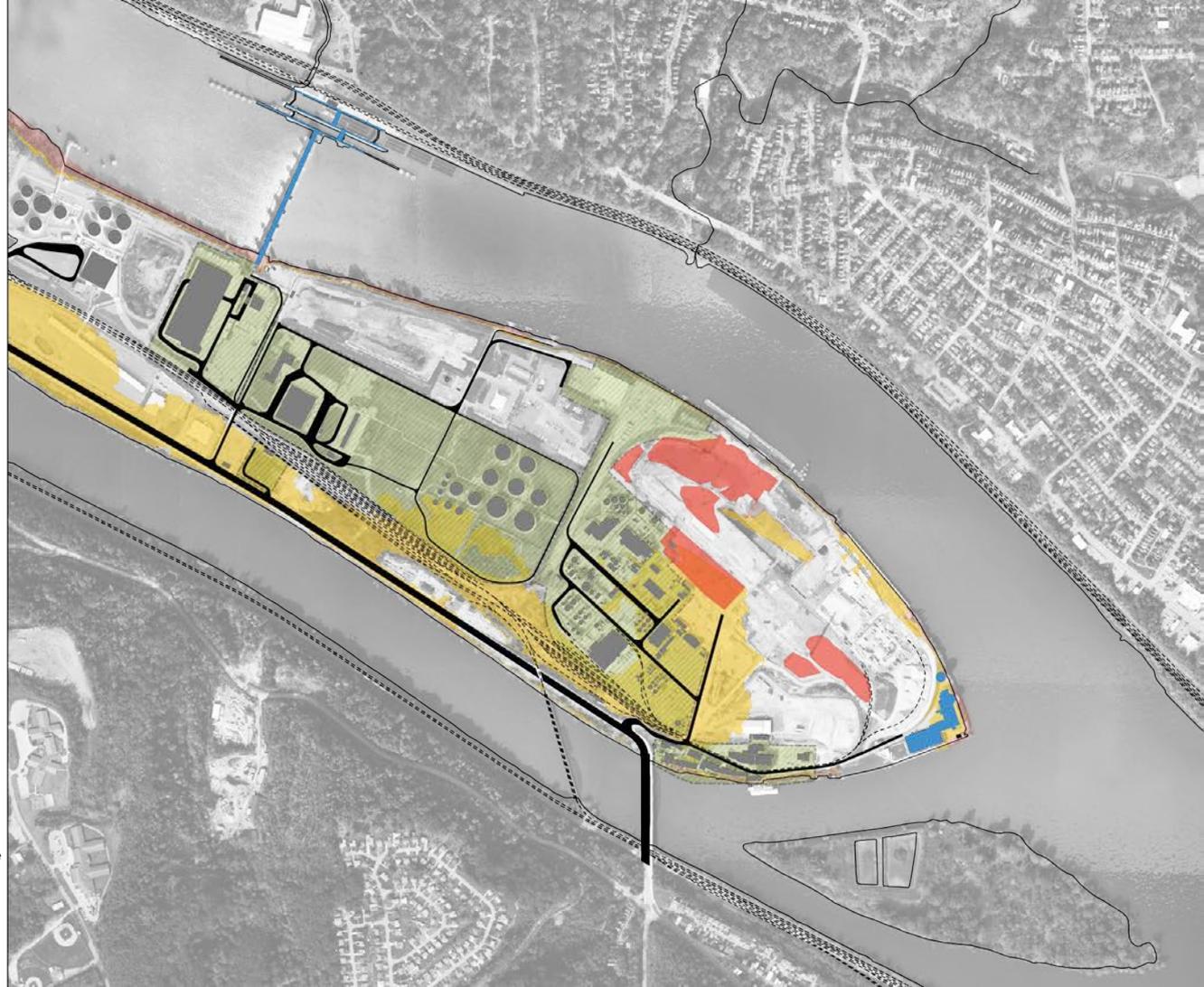
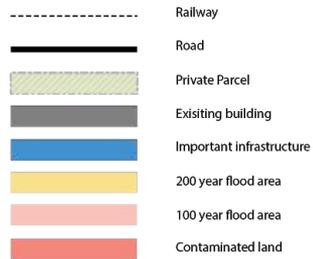
Parcel owned by private

Contaminated land that need to cap

Existing industrial infrastructure

Flood zone

Existing public facility



# Guide lines for design



Existing Dam



Parcel line



Railway



Contained land border

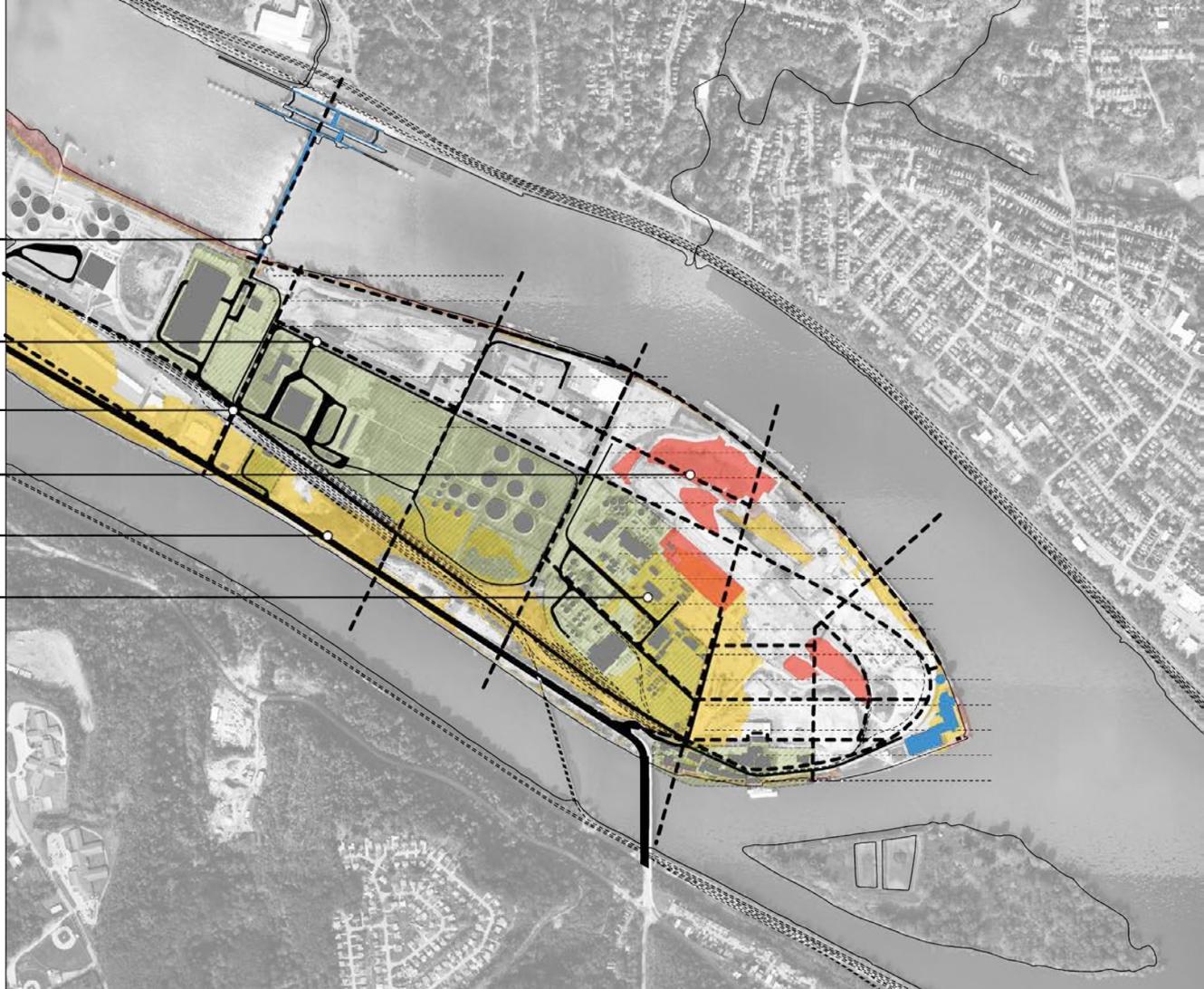


Main Road



Direction of solar panels

- Grid Line for Solar array
- Railway
- - - - - Design reference line
- Road
- ▨ Private Parcel
- Existing building
- Important infrastructure
- 200 year flood area
- 100 year flood area
- Contaminated land



# Future of manufacture

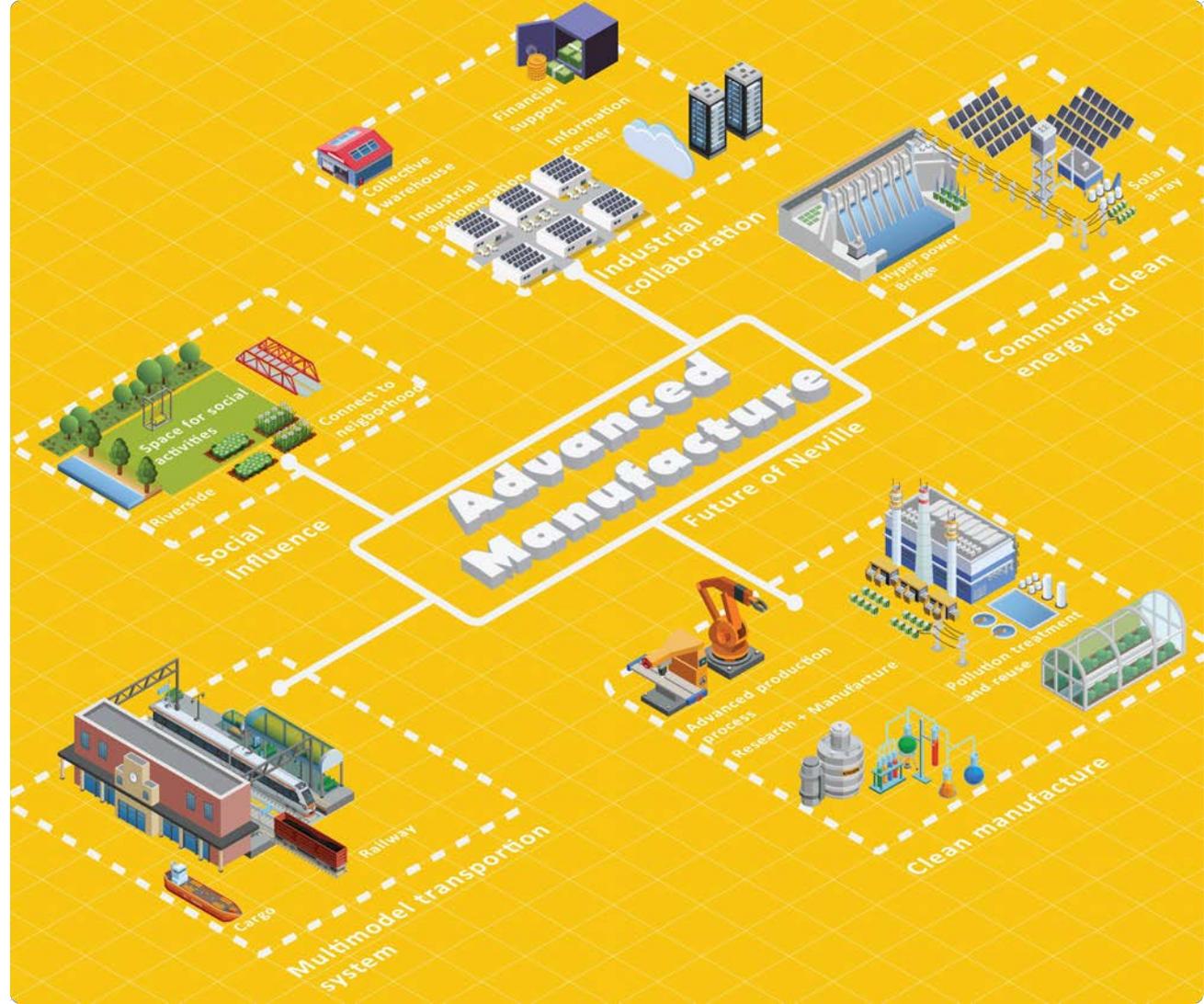
## Clean energy

**Clean Manufacture**  
(waste treatment)

**Industrial collaboration**  
(Finance, Collective use warehouse, policy, commercial)

**Social influence**  
(better connection with nearby neighborhood)

**Multimodal transportation**  
(Cargo, Railway for materials. Railway for passengers, Van, Car)



# Multimodal transportation

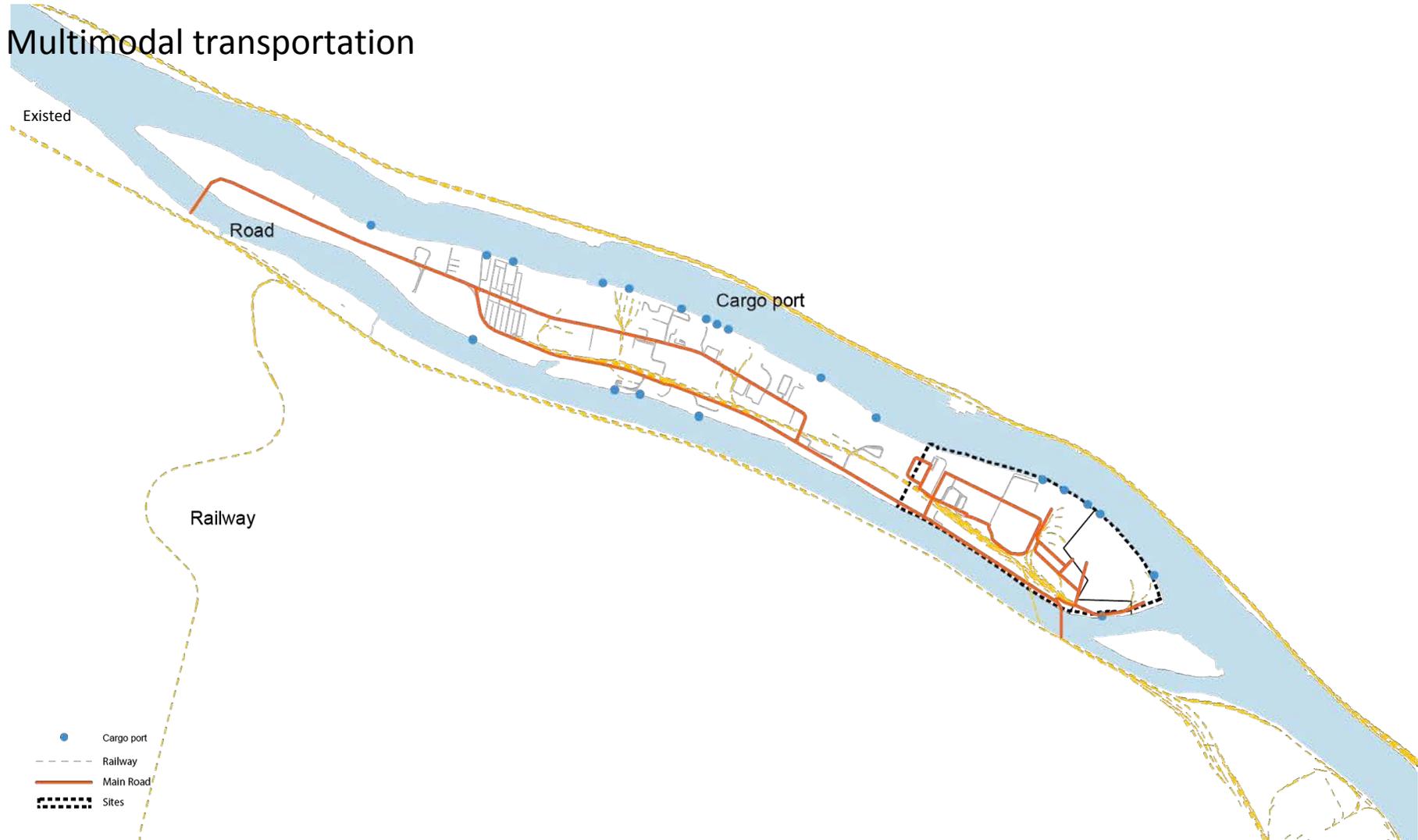
Existed

Road

Cargo port

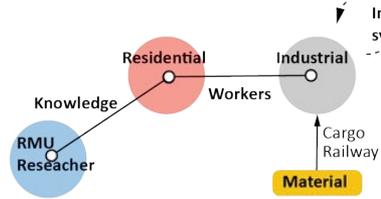
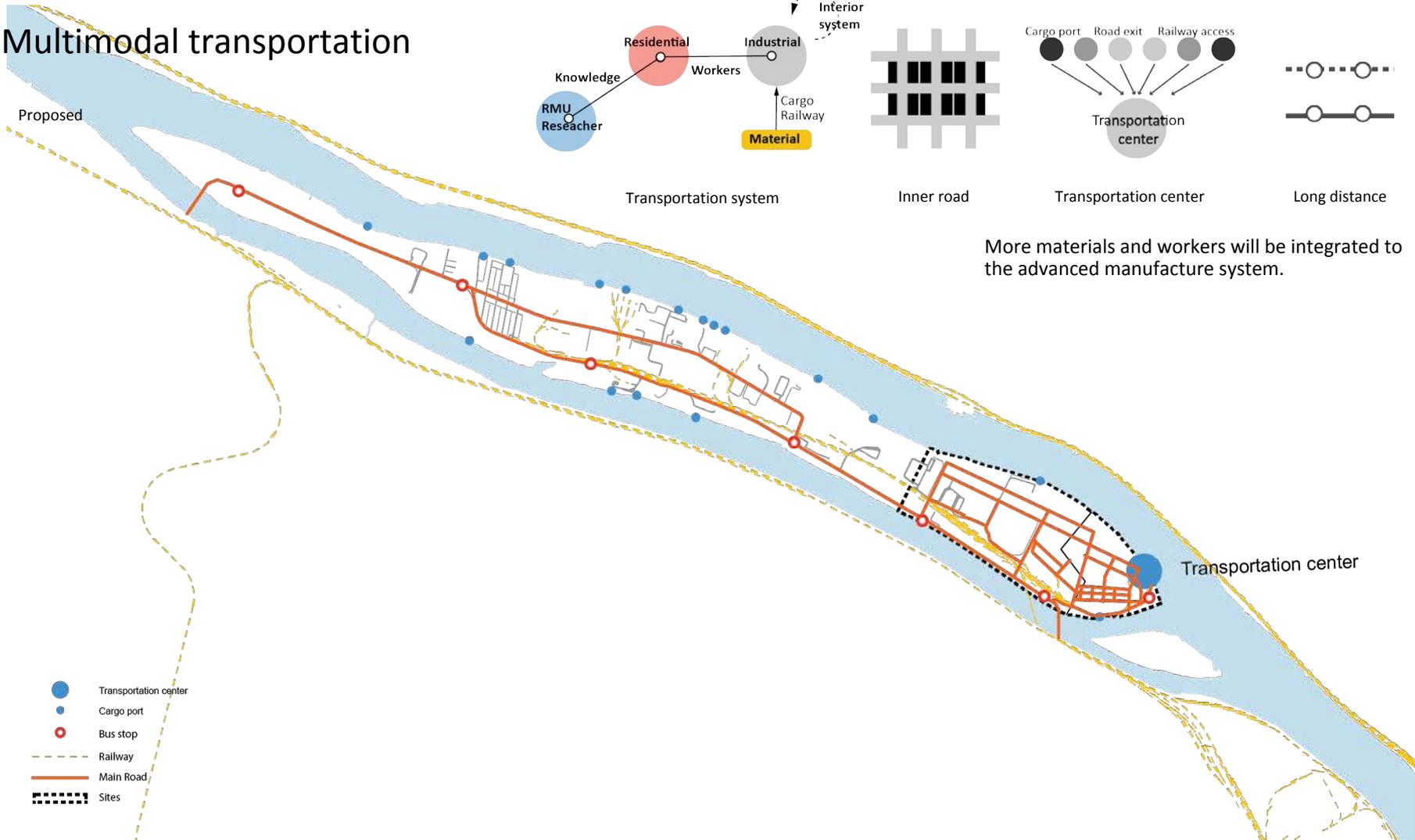
Railway

- Cargo port
- - - Railway
- Main Road
- ▣ Sites

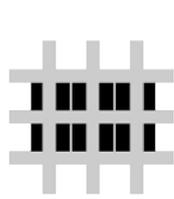


# Multimodal transportation

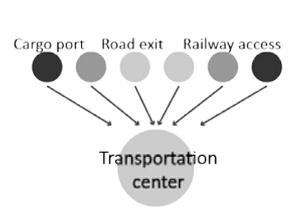
Proposed



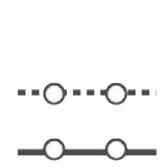
Transportation system



Inner road



Transportation center



Long distance

More materials and workers will be integrated to the advanced manufacture system.

- Transportation center
- Cargo port
- Bus stop
- Railway
- Main Road
- Sites

# Industrial collaboration

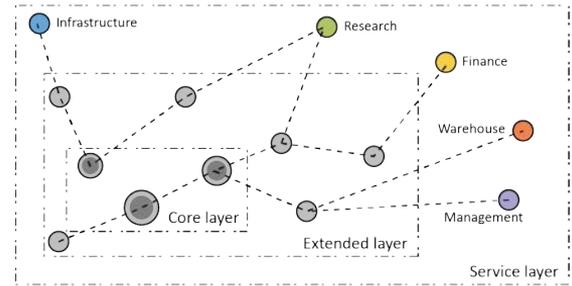
Existed



- Factory
- Service (Truck providers and equipment providers)
- Sites

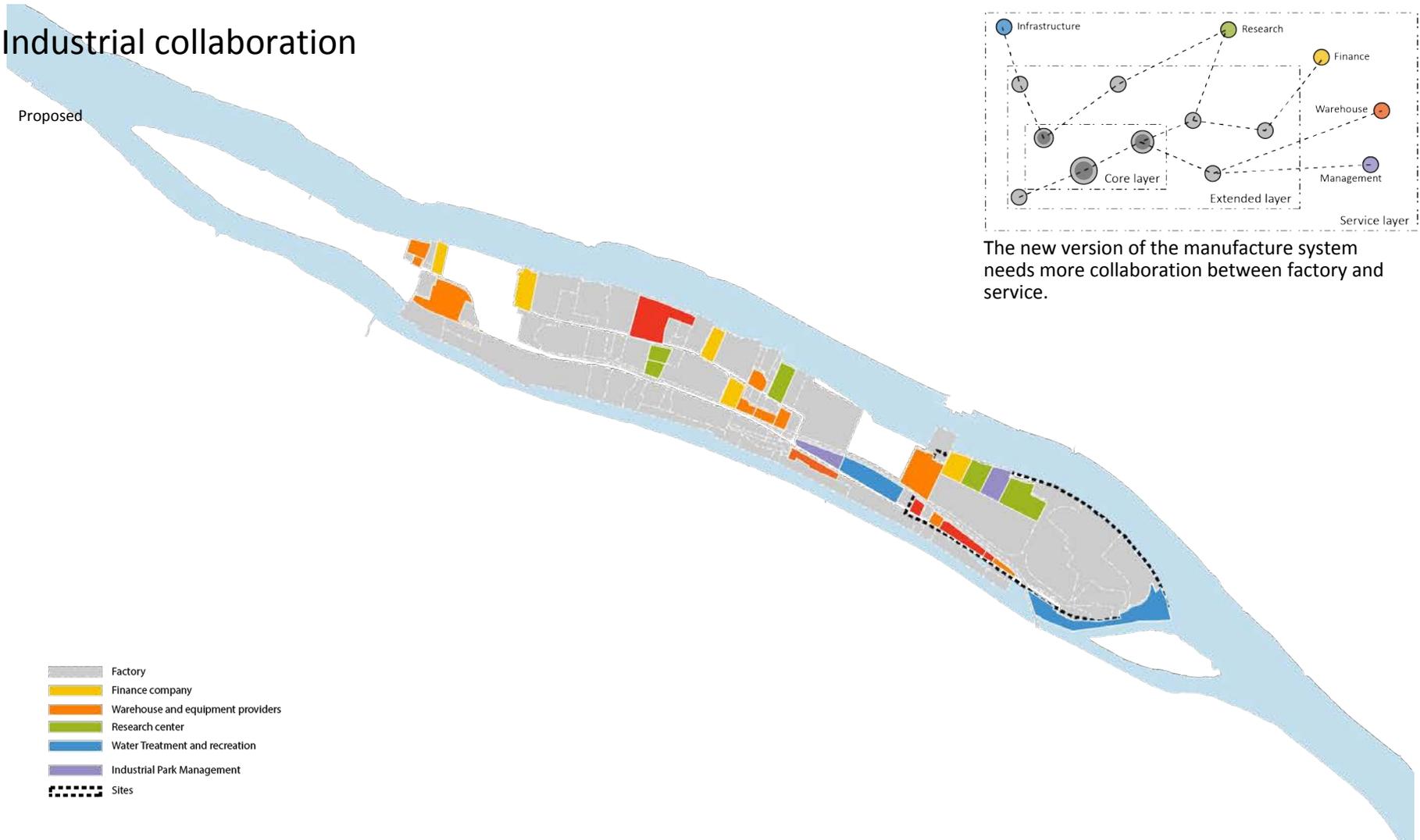
# Industrial collaboration

Proposed



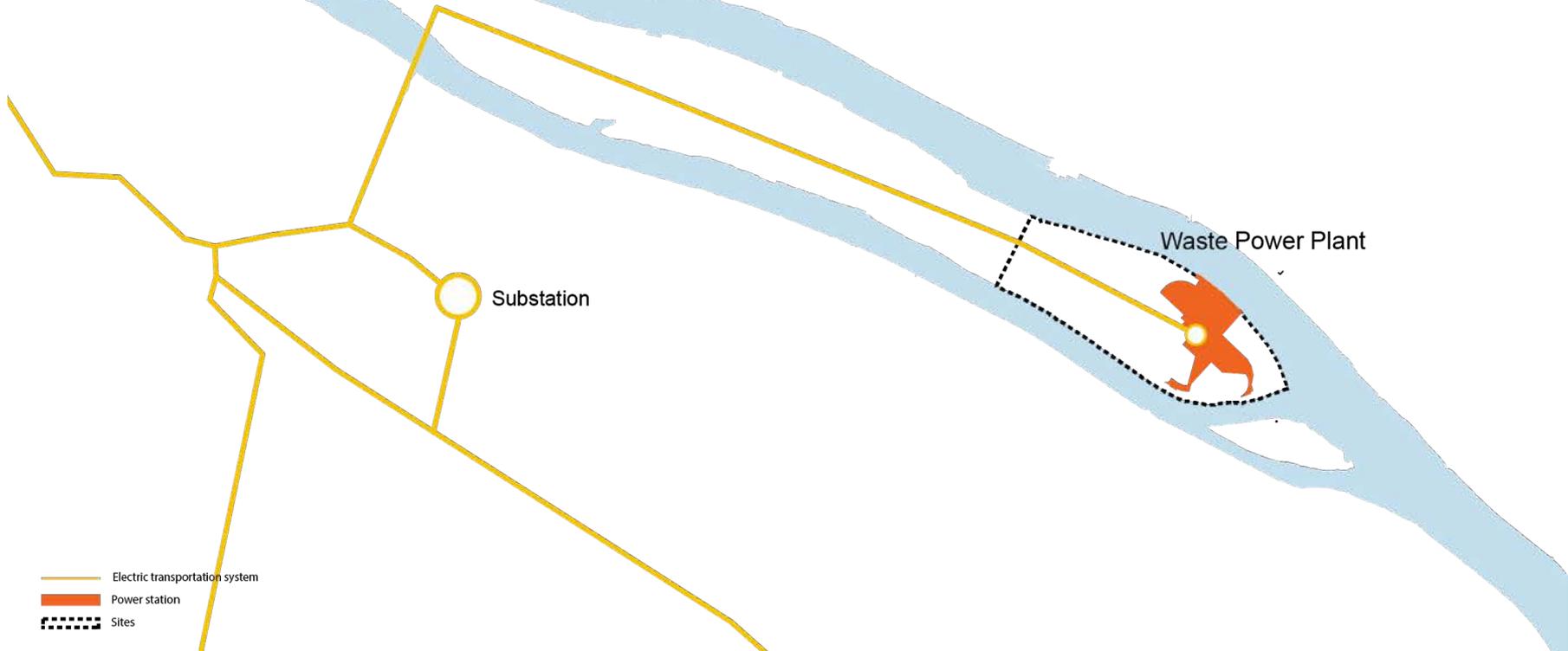
The new version of the manufacture system needs more collaboration between factory and service.

- Factory
- Finance company
- Warehouse and equipment providers
- Research center
- Water Treatment and recreation
- Industrial Park Management
- Sites



# Energy

Existed



Waste Power Plant

Substation

Electric transportation system

Power station

Sites

# Energy

Proposed



Hydro power

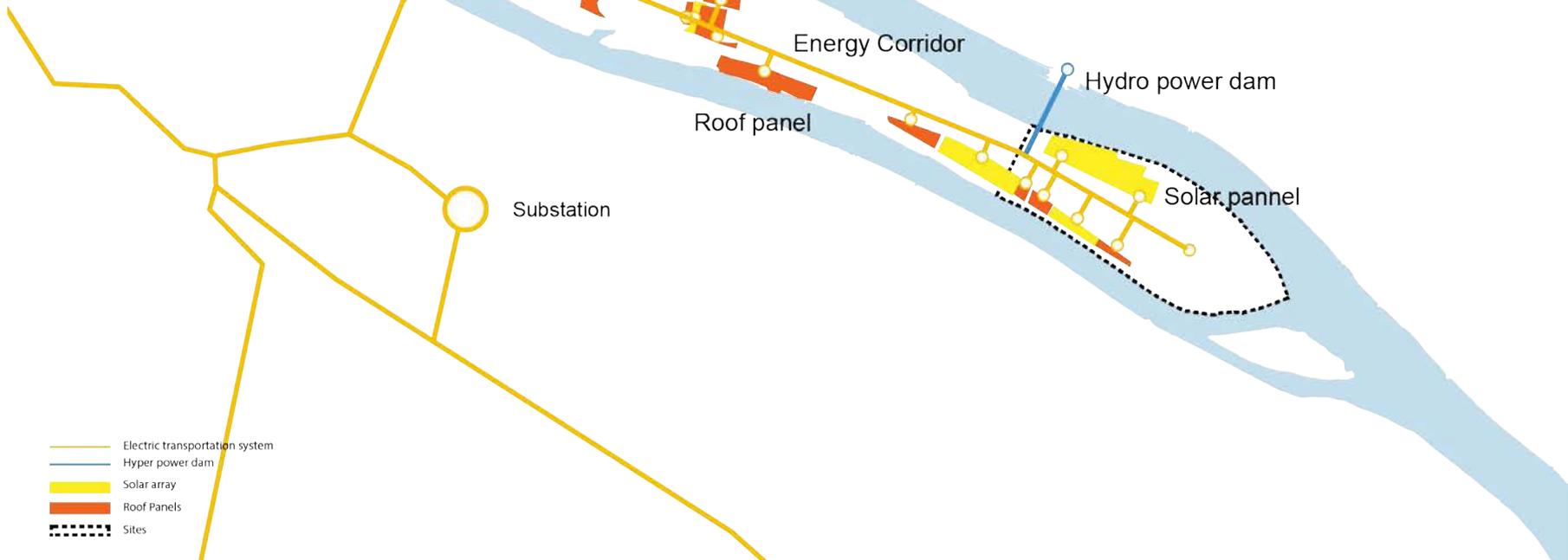


Roof Panel



Solar Panel

Due to a large number of vacant land in the island, there is great opportunities to build solar array and roof panel to provide clean energy for industrial use.

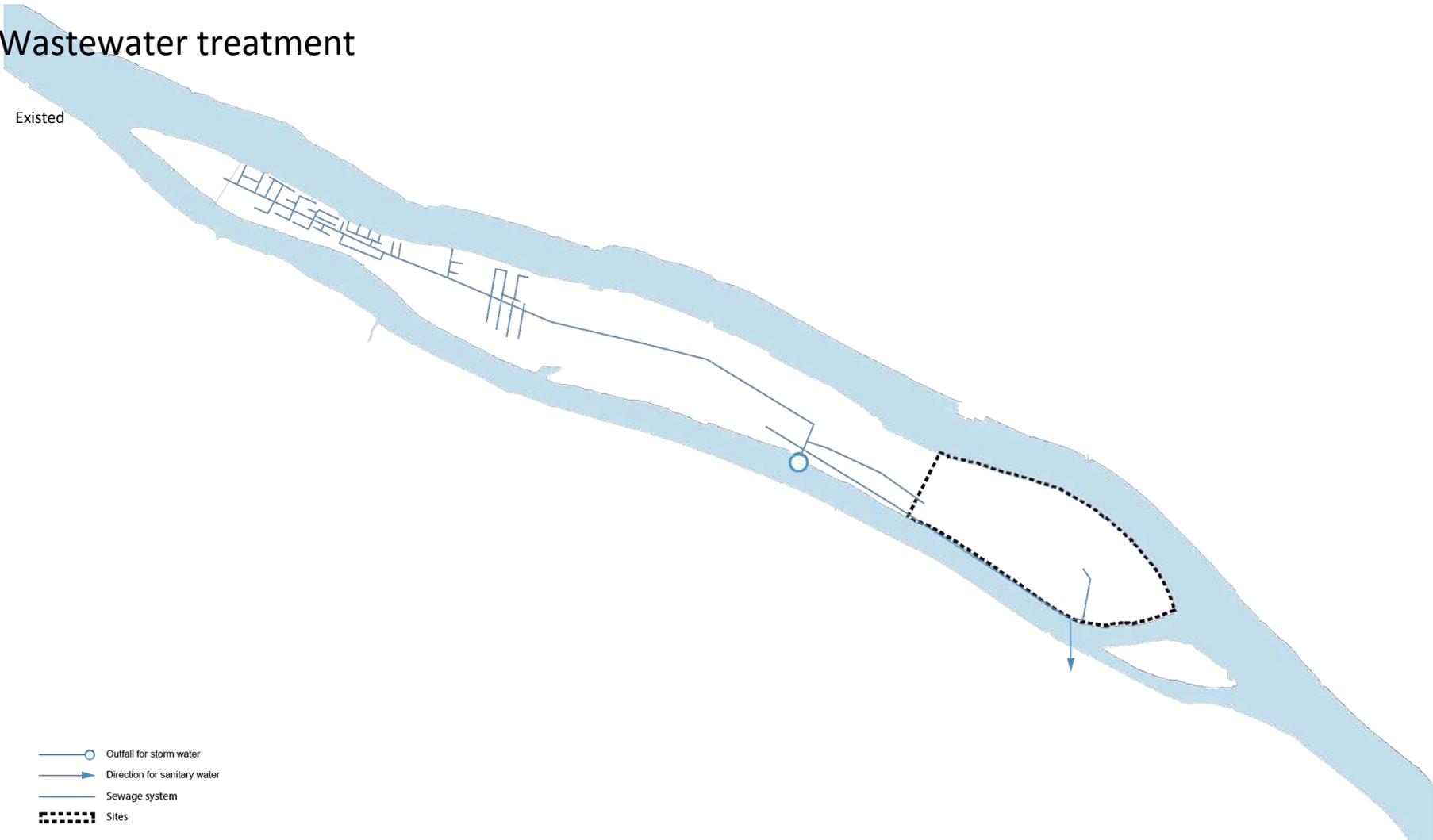


- Electric transportation system
- Hyper power dam
- Solar array
- Roof Panels
- Sites

# Wastewater treatment

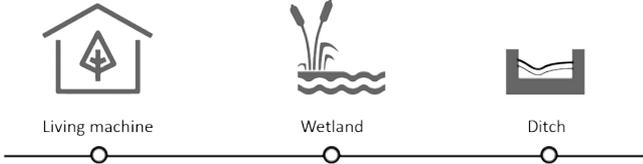
Existed

- Outfall for storm water
- ➔ Direction for sanitary water
- Sewage system
- ▬ Sites



# Wastewater treatment

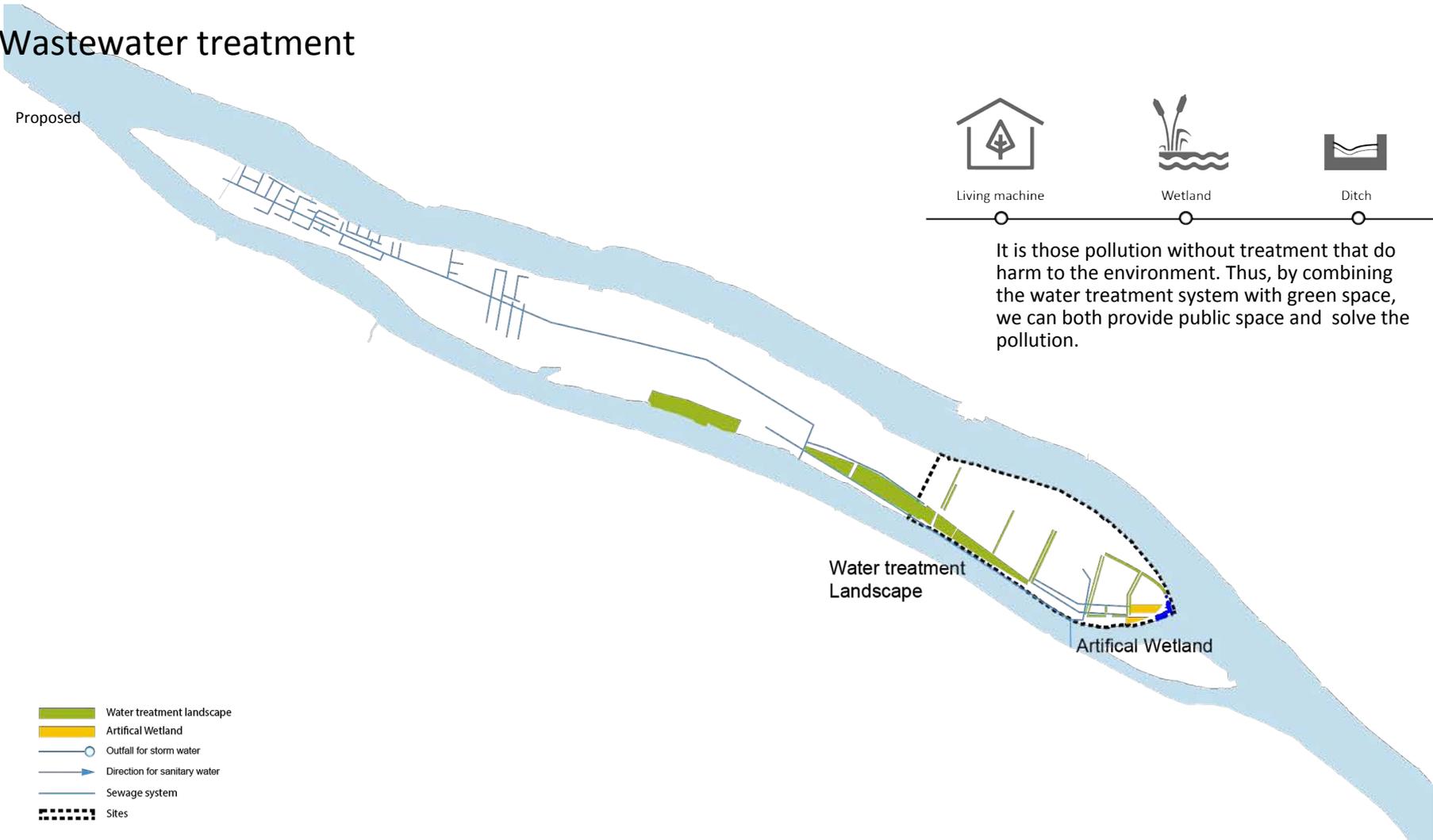
Proposed



It is those pollution without treatment that do harm to the environment. Thus, by combining the water treatment system with green space, we can both provide public space and solve the pollution.

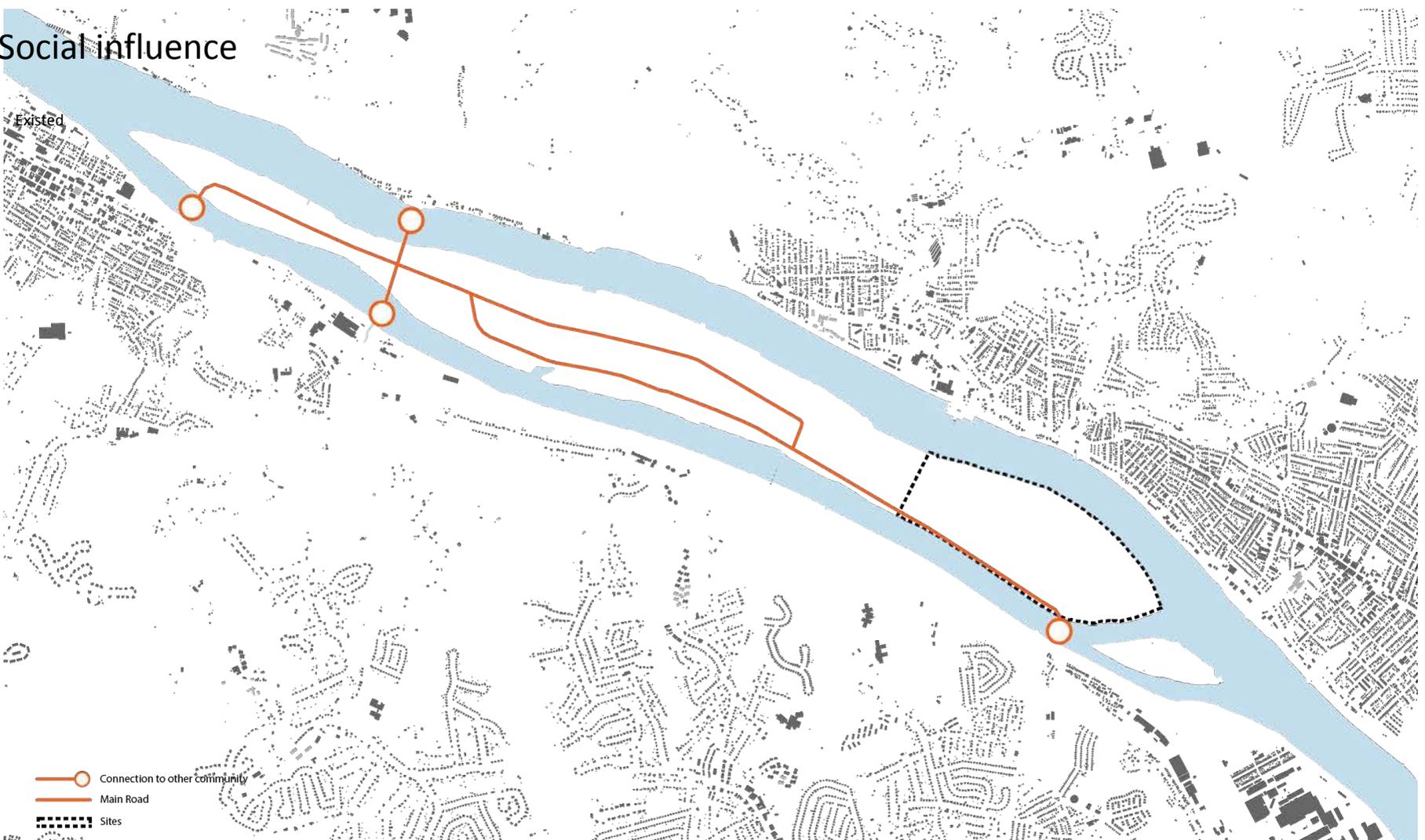
- Water treatment landscape
- Artificial Wetland
- Outfall for storm water
- Direction for sanitary water
- Sewage system
- Sites

Water treatment Landscape  
Artificial Wetland



# Social influence

Existed



- Connection to other community
- Main Road
- Sites

# Social influence

Proposed



Hyper power



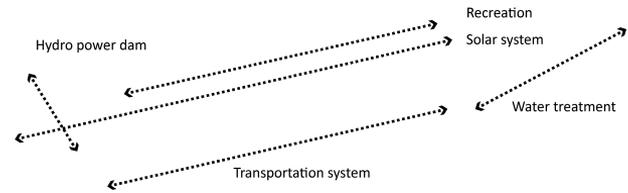
Bridge



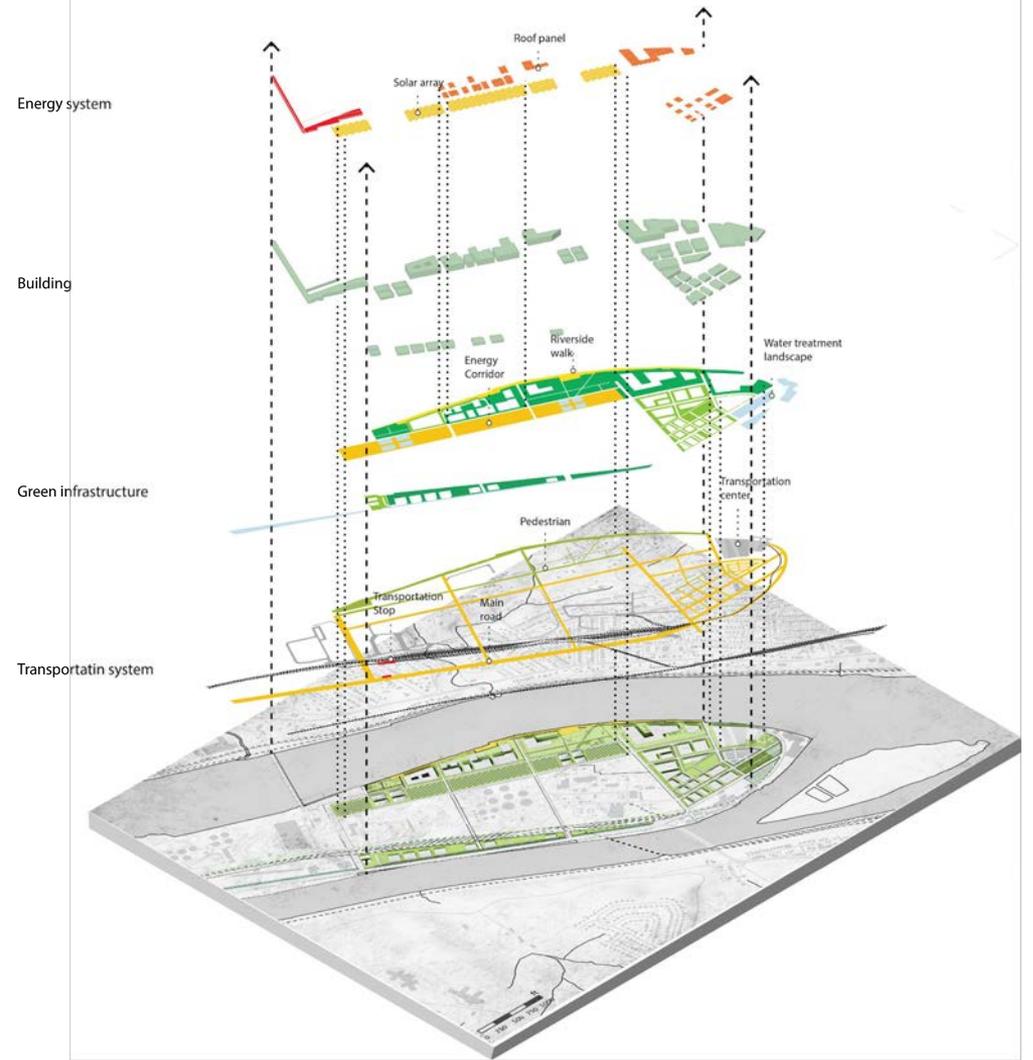
Recreation space

The island's isolation reinforces the opposition between the island and the residents of the North Shore. Thus, it is with great importance to connect to the north shore and create some public space for them.

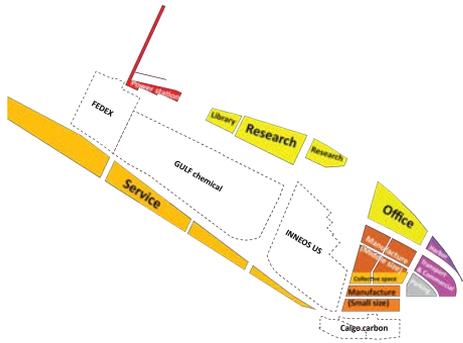
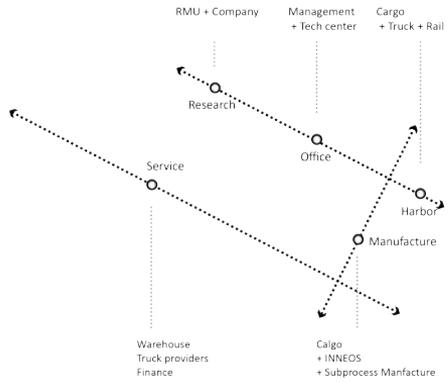
- Public space for North borough
- New Connection
- Connection to other community
- Main Road
- Sites

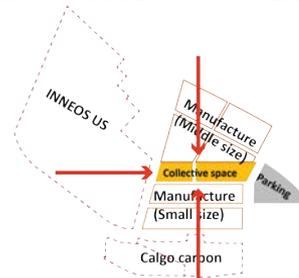


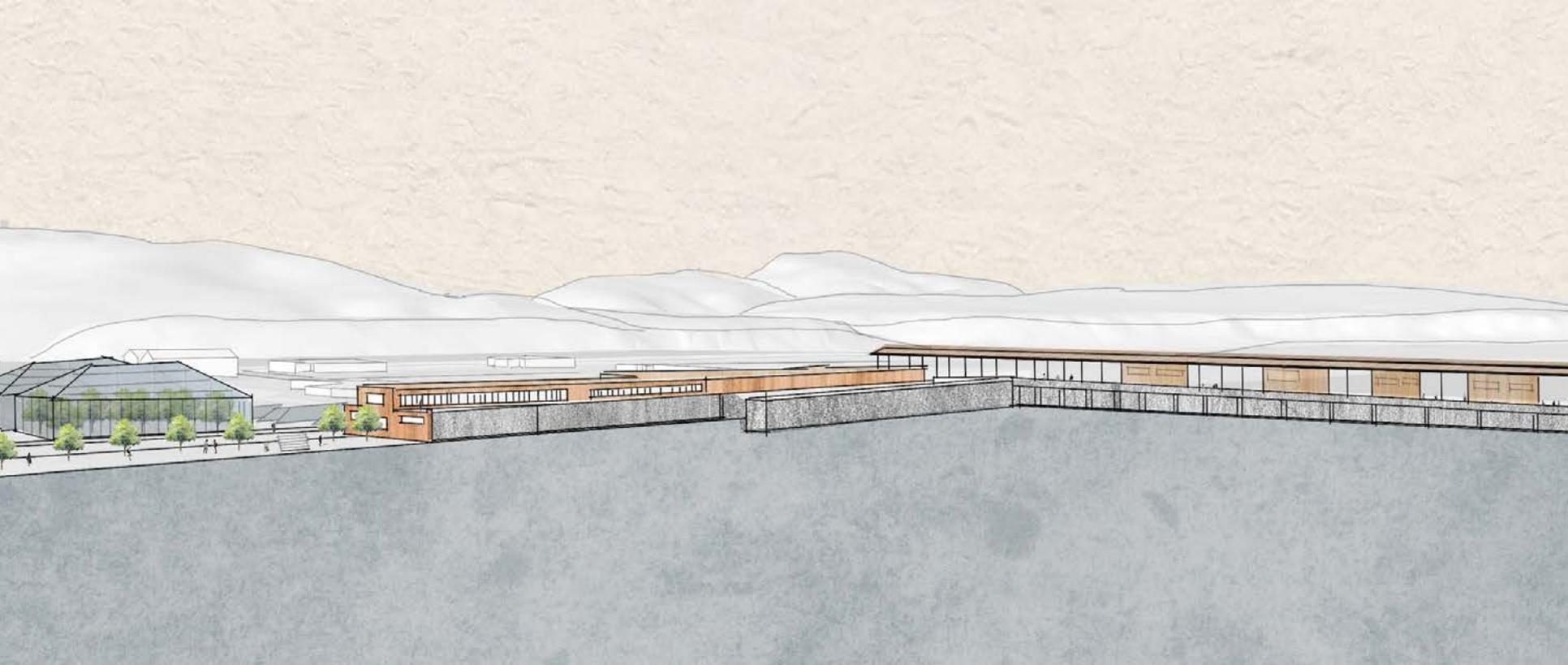
System Diagram











At 12 megawatts, the Emsworth dam is a modest-sized project. It could power 6,000 to 12,000 homes

Source: <https://www.alleghenyfront.org/are-we-heading-for-a-hydropower-boom-on-the-three-rivers/>

