CITY OF JERSEY CITY
MORRIS CANAL GREENWAY PLAN
J4522.00

TECHNICAL MEMORANDUM 1
Data Findings, Opportunities & Constraints Mapping

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The RBA Group

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Overview
The purpose of this Technical Memorandum is to define the existing conditions, opportunities and constraints found along the former Morris Canal right-of-way, which will inform the development of selection criteria that will be used to evaluate and prioritize alignment alternatives for the proposed Morris Canal Greenway.

From 1836 until 1924, the Morris Canal in Jersey City followed a 6-mile course around the southern half of the City, avoiding the steeper grades of the upland Palisade formation and linking the Hudson and Hackensack Rivers. Most of the right-of-way has been filled in, and the fairly consistent grade of the circuitous route makes a proposed greenway manageable and attractive for walking and bicycling.

Opportunities and constraints were determined based on GIS mapping, input from the Steering Committee, and a review of related plans. The focus of the data collection and analysis was on the corridor and the area within a quarter mile of the corridor. A quarter mile is the distance that is most likely to be considered walkable by the greatest number of pedestrians.

Several general opportunity categories were identified that would support the implementation of bicycle and pedestrian facilities along the former path of the Morris Canal. The categories include proximity to schools and other community features, proximity to transit and connectivity to existing and planned facilities. The maps on the following pages represent existing conditions and a preliminary identification of opportunities and constraints.

Existing Conditions

Connectivity to Recreation Facilities & Community Features
The former Morris Canal right-of-way passes near or through residential neighborhoods, schools, parks, recreational facilities, trails, retail areas, and community centers. A greenway connecting all of these areas would encourage people to walk and bicycle for recreation as well as transportation. The path of the former Morris Canal has the potential to connect schools, neighborhoods, parks, light rail stations and bus stops as well as other bicycle and pedestrian facilities including the East Coast Greenway, Hackensack River Waterfront Walkway and Hudson River Waterfront Walkway.

Within a quarter mile of the former alignment of the Morris Canal there are:

- 20 schools
  - 18 in Jersey City, 2 in Bayonne
  - 8 public, 9 private, 3 charter
  - 11 elementary schools, 4 elementary/middle schools, 1 middle school, 3 high schools, and 1 special elementary school for children with autism
- 1 college (New Jersey City University)
- 24 municipal, county and state parks totaling 1,489 acres
- 2 planned parks which will add an additional 50 acres
- 3 ballfields
- 2 recreation centers
• 24 houses of worship
• 6 neighborhoods as defined by the Jersey City Economic Development Corporation
• 3 health centers and a hospital
• Connections to the Hudson River Waterfront Walkway, East Coast Greenway, park trails, and the planned Hackensack River Waterfront Walkway

Transportation
There are multiple opportunities to connect to public transit and alternative transportation options. Within a quarter mile of the Morris Canal alignment there are:

• 5 Hudson-Bergen Light Rail stations
• 153 NJ TRANSIT bus stops for 10 different NJ TRANSIT bus lines
• 31% of the City’s signed bicycle network

The Morris Canal alignment crosses active railroad at 7 separate locations. Many of the intersections between the railroad and former alignment along the study corridor may be relatively low-hazard crossings for bicyclists and pedestrians while other intersections may present challenges.

Historic Features, Properties & Districts
Establishment of a greenway would not only increase the recreational space in the City, it would also help to preserve culturally and historically valuable areas. The Cultural Resource Unit at RBA identified 20 historic features along the former alignment of the Morris Canal. Some of the noteworthy canal features in Jersey City include the tide lock (22 east), the Little Basin, the Tidewater Basin, the Mill Creek outlet lock, and the tide lock (21 East), the pump house, the basin, and associated features on the Hackensack River. There are remnants of physical structures visible in the field for 12 of the 20 identified features. These features offer an opportunity to “tell the story” of the Morris Canal.

In addition, within a quarter mile of the corridor there are:
• 509 listed, identified or eligible Historic Properties
• 10 listed, identified or eligible Historic Districts including the Morris Canal Historic District

Listed Historic Properties and Districts are included in the New Jersey or National Registers of Historic Places. Eligible Properties and Districts have been determined eligible for inclusion through federal or state processes as administered by the Historic Preservation Office. Identified Properties and Districts have been identified through cultural resource survey or other documentation on file at the Historic Preservation Office.

Environmental Conditions
Within a quarter mile of the Morris Canal alignment there are:
• 161 known contaminated sites
• 47 chromate sites
• 12 groundwater contamination locations
• 9 areas of NJDEP wetlands
• 4 areas of species-based habitat including:
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- Rank 5 federal listed – shortnose sturgeon  
- Rank 4 state endangered – peregrine falcon  
- Rank 3 state threatened – black-crowned night-heron  
- Rank 3 state threatened – cattle egret  

The presence of environmentally-sensitive areas on or near the former Morris Canal right-of-way does not necessarily preclude a greenway; mitigation may be possible. Below is additional information from an environmental screening of the corridor.

**Geology and Soils**: The project area lies in New Jersey’s Piedmont Physiographic Province, in an area underlain by the “Rahway Till” geological formation. The Rahway Till formation, which was formed during the Late Pleistocene period, primarily consists of clayey and sandy silts that were deposited during the Late Wisconsinan glaciation period. The area along both the Hackensack River and Newark Bay are located within an area that long ago was characterized by salt marsh and estuarine deposits.

**Vegetation**: The project area, which currently follows the alignment of the old Morris Canal route, traverses both highly developed sections of Jersey City as well as natural park area and forested, scrub shrub and herbaceous communities that border the original Canal alignment and still exist today. The vegetated community types being impacted by the project, therefore, include forested, scrub shrub and herbaceous communities. Given the relatively small size of these areas, however, vegetative community impacts are not anticipated to be a significant adverse impact.

**Freshwater Wetlands**: Based upon a review of NJDEP GIS based environmental mapping and aerial photography, the project area minimally impacts wetlands and/or wetland transition area in two locations, one along Caven Point Road and one near the US 1&9 Bridge. Due to the NJDEP GIS-mapped presence of threatened/endangered species/habitats within the immediate vicinity of these two areas, there is the potential that these two wetland areas will be considered to be classified as exceptional resource value with an associated 150’ wide wetland transition area. Wetlands and/or Waters impacted by proposed project improvements will require wetlands permits and/or transition area waivers from NJDEP in accordance with the New Jersey Freshwater Wetlands Protection Act.

**Wetland transition areas**: Wetland transition areas, which extend perpendicularly from the actual wetland boundaries to a width depending on the wetlands resource classification, are associated with both of the identified project area wetlands. As mentioned above, the majority of the on-site wetlands will be classified as exceptional resource value wetlands. These wetlands have a 150 foot wide wetland transition area surrounding them. Should wetland transition areas be impacted by proposed project improvements, said impacts will require transition area waivers from NJDEP as outlined above.

**Watercourses**: With the exception of the Hackensack River that bounds the west side of Jersey City and the Hudson River/Upper New York Bay, which bounds the east side, there are no other regulated watercourses within the Morris Canal Greenway project limits mapped by NJDEP. The Hackensack River is tidally flowed where it borders the Canal alignment and has a Surface Water Classification of SE (State Estuarine). The Hudson River/Upper New York Bay area is also tidal and estuarine.
Floodplains (regulated) - Based upon NJDEP GIS mapping, there are no mapped or regulated non-tidal floodplains within the project area. There is a tidal floodplain associated with both the Hackensack River and the Hudson River/Upper New York Bay.

Threatened and Endangered species - Based upon NJDEP GIS based records and mapping there is a previous live sighting of a state protected Bobcat on-site as well as federally protected habitat for the Indiana Bat. Federally protected species are protected under the federal Endangered Species Act. Proposed work planned within habitat used by a federally protected species must be reviewed by the US Fish and Wildlife Service prior to any work related disturbances occurring. State protected species are protected by the New Jersey Department of Environmental Protection. Timing restrictions enforced by the New Jersey Department of Environmental Protection must be adhered to. Said timing restriction may be waived by NJDEP provided additional investigations and/or best management practices are completed and/or incorporated prior to the start of any habitat disturbance.

Hazardous materials - Based upon a review of NJDEP GIS-mapped data, there are approximately 25 to 30 Known Contaminated Sites within or immediately adjacent to the former Canal alignment as well as approximately 13 Chromate Sites. Impacts to these areas will require coordination and potential approvals from NJDEP’s Bureau of Site Remediation. This work may be completed by a Licensed Site Remediation Professional (LSRP), with proper notification to NJDEP.

EO-215/NEPA Environmental Clearance Documents - If more than $1 million dollars in State money is spent on a project (and in the absence of federal money), an Executive Order 215 Environmental Assessment or Environmental Impact Statement may be required. If Federal monies are used, either solely or in combination with State monies, then a federal National Environmental Policy Act (NEPA) Environmental Document (Categorical Exclusion, Environmental Assessment or Environmental Impact Statement) must be prepared instead. Given that the current work is just for the purposes of initially assessing the work to be done, neither an EO-215 or NEPA document is required for this initial phase of work.

Soil Erosion and Sedimentation Control - If more than 5,000 square feet of soil is disturbed, then the project will required a formal Soil Erosion and Sedimentation Control Plan, which must be approved by the Hudson-Essex-Passaic (HEP) County Soil Conservation District. In addition, if more than one (1) acre of soil disturbance or one quarter (1/4) acre of new impervious surface is added, then a NJPDES permit for construction stormwater will also be required.

Parcel Ownership
The following is a summary of the property class by parcel for the area within a quarter mile of the Morris Canal alignment. While privately-owned parcels can be potential constraints, publicly owned properties may provide opportunities for greenway development or serve as access points.

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1 Morris Canal right-of-way and ownership information will be determined for the Preferred Alternative. Right-of-way information may be determined in advance to qualify selected segments during the development of preliminary alternatives.
The property class was determined by matching the Hudson County parcel shapefile from the NJ Office of Information Technology, Office of Geographic Information Systems with the MODIV data from the NJ Department of Taxation. 16% of the property class within the area is unknown because the parcel did not match the MODIV data.

<table>
<thead>
<tr>
<th>Property Class</th>
<th>Acres</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>304.7</td>
<td>18%</td>
</tr>
<tr>
<td>Exempt</td>
<td>84.6</td>
<td>5%</td>
</tr>
<tr>
<td>Railroad</td>
<td>43.6</td>
<td>3%</td>
</tr>
<tr>
<td>Vacant</td>
<td>204</td>
<td>12%</td>
</tr>
<tr>
<td>Commercial</td>
<td>135.9</td>
<td>8%</td>
</tr>
<tr>
<td>Industrial</td>
<td>208</td>
<td>13%</td>
</tr>
<tr>
<td>Residential</td>
<td>385.8</td>
<td>23%</td>
</tr>
<tr>
<td>Apartment</td>
<td>25</td>
<td>2%</td>
</tr>
<tr>
<td>No Match</td>
<td>259</td>
<td>16%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1650.6</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Redevelopment Plan Areas**

There are 88 redevelopment plan areas in the City of Jersey City. Thirty-two of them are located within or located partly within a quarter mile of the Morris Canal alignment. The requirements of redevelopment plans may include reservation of the Morris Canal right-of-way for a future greenway or facility for bicycles and pedestrians.

**Conclusion**

General constraints along the former path of the Morris Canal include railroad and roadway crossings, diversity of ownership, and environmental constraints. While staying on or near the former path of the Morris Canal is a priority, there are constraints that will make it impossible for the entire greenway to be off-road. Sections of the Greenway that will be on-road may have their own constraints.

Potential alignments will be evaluated and qualified based on the following criteria, which are not in a ranking order. Ranking of alternatives will be based on multiple conditions and the perspectives of Jersey City, the Steering Committee, and the interested public.

**PRIMARY**

1. Located on or in proximity to the historic Morris Canal alignment
2. Off-road facility
3. Potential for positive user experience

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2 This could include access to: existing or planned sites that offer especially pleasant or interesting views; to places of historic importance; to complementary recreation in parks; to comfortable resting spots; to public art, and to visitor destinations and services. These types of opportunities add value to the alignment as they contribute directly to the experience of future greenway users.
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**ORIGINS AND DESTINATIONS**
4. Access to civic destinations (schools, houses of worship, hospitals, health centers, community centers and recreation centers)
5. Access to major places of employment
6. Access to parks and trails
7. Access to tourism sites

**LINKAGES**
8. Proximity to designated bicycle routes
9. Proximity to transit and bus routes
10. Proximity to amenities and services (restaurants, bike shops, etc.)

**INTERPRETIVE OPPORTUNITIES**
11. Proximity to sites related to Morris Canal/Jersey City history

**IMPLEMENTATION FEASIBILITY**
12. Implementation Feasibility
13. Extent of regulatory requirements
14. Number and types of properties required for acquisition or easement
15. Positive relationship to proposed development projects
Signed Bikeway Network
PATH Station
HBLR Station
Signed Bikeway Network
NJ Transit Bus Route
Active Rail
LPA for HBLR Extension
Inactive/Abandoned Rail
Trail - Existing
Trail - Interim; Unimproved
Trail - Proposed
Morris Canal Alignment

Legend

Morris Canal ROW crosses Rail
PATH Station
HBLR Station
Signed Bikeway Network
NJ Transit Bus Route
Active Rail
LPA for HBLR Extension
Inactive/Abandoned Rail
Trail - Existing
Trail - Interim; Unimproved
Trail - Proposed
Morris Canal Alignment

Data Sources: NJDEP - Morris Canal alignment; NJTRANSIT - PATH stations, HBLR stations, NJ Transit Bus Routes; City of Jersey City - Bikeway Network, LPA for HBLR Extension; NJDOT - Rail lines.

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Map 3: Historic Features, Properties & Districts along the Morris Canal in Jersey City, NJ

Legend

- **Miles**

- **Morris Canal Alignment**
- **Historic Properties - Eligible; Identified; Listed**
- **Historic Features**
- **Historic Districts - Eligible; Identified; Listed**

1. Morris Canal Lock 21 East Complex
2. Lehigh Valley Railroad / Morris Canal Bridge
3. Pennsylvania Railroad / Morris Canal Bridge
4. Central R.R. of NJ / Morris Canal Bridge Abutments
5. Standard Oil Co. Pipeline / Morris Canal Bridge
6. Morris Canal Fiddler’s Elbow
7. Lehigh Valley R.R. / Morris Canal Bridge Abutments
8. Whitlock Cordage Company Complex
9. Morris Canal Halladay Street Basin
11. Mill Creek Aqueduct/Sluice Gate/Outlet Lock
12. Jersey City Steel Works
13. Adirondack Steel Works
14. Jersey City Glass Works
15. Morris Canal Tide Lock 22 East
16. American Sugar Refining Company Complex
17. Morris Canal Tidewater Basin
18. Morris Canal Packers Dock (South St Pier)
19. Morris Canal Little Basin
20. Morris Canal Scranton Dock (Hudson St Pier)

- Physical structure visible in the field

Data source: NJDEP - Morris Canal Alignment, Historic Properties (listed & eligible), Historic Districts (listed & eligible); RBA Cultural Resource Unit - Historic Features
Map 5: Property Class by Parcel

Legend

- Morris Canal Alignment
- MODIV Property Class
- Public
- Exempt
- Railroad
- Vacant
- Commercial
- Industrial
- Residential
- Apartment
- No match

Data sources: Parcels - Hudson County, Meadowlands Commission, Meadowlands Environmental Research Institute NJ Office of Information Technology (NJOIT), Office of Geographic Information Systems (OGIS); MODIV - NJ Dept. of Treasury NJ Office of Information Technology (NJOIT), Office of Geographic Information Systems (OGIS); Morris Canal alignment - NJDEP

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