

Brighton Beach Boardwalk Reconstruction: Materials Review and Comparison



BACKGROUND

NYC Parks recognizes the need for a large scale reconstruction of the Coney Island Boardwalk. When funding was made available for the Brighton Beach project, which stretches from Brighton 15th Street to Coney Island Avenue, we reviewed a number of **potential boardwalk surface materials**. Though tropical hardwood is recognized as a durable and long lasting material, its use contributes to significant rainforest decline and both the previous and current Administrations no longer support use of this wood. The information below represents what alternative boardwalk surfaces were evaluated and the ratings of each.

While various softwoods and domestic hardwoods were evaluated, they each had significant drawbacks in terms of one or more factors. While concrete proved to be the most long lasting and cost-effective option, Recycled Plastic Lumber was found to provide similar aesthetic standards to wood with much higher life cycle than the wood options. The concrete carriage lane, reduced from 16 to 10 feet, is included in the current recycled plastic lumber design, as it provides a surface with traction that will accommodate emergency vehicles.

The new Coney Island Boardwalk will be enjoyable, long-lasting, and environmentally sound. The new boardwalk will maintain the look and feel of a traditional boardwalk while ensuring resilience and providing protection for Coney Island residents and businesses. As a coastal city, it's more important than ever for us to use resilient, sustainable materials.

WHICH SURFACE MATERIALS DID WE REVIEW?

Several types of materials were reviewed by the Mayor's Office of Recovery and Resiliency, Public Design Commission, New York City Department of Parks & Recreation (NYC Parks), including those suggested by the community, and evaluated against select criteria.

Softwoods

- Southern Yellow Pine
- Douglas Fir

Domestic Hardwoods

- Maple
- Black Locust
- Oak
- Ash

Treatments (Can be applied to different woods)

- **Kebony:** A proprietary alcohol pressure treatment that is only available in Europe
- **Thermory:** A proprietary heat treatment that is only available in Europe
- **Cambia:** A heat treatment that is no longer used on decking materials
- **ACQ:** Ammoniacal Copper Quaternary, a pressure treatment commonly applied to Pine

HOW DID WE EVALUATE THESE MATERIALS?

Availability

Ability for NYC Parks to procure the amount of material necessary for the project.

Life of Material or Lifecycle

The duration that the material is expected to remain in good condition for safe usability. The impact of vehicular traffic during an emergency situation was included in this category.

Cost to Build

Cost to reconstruct the boardwalk section using the specific material.

Replacement Cost

The amount of money needed to replace the boardwalk decking after its lifecycle has expired.

WHAT IS THE AVAILABILITY OF THESE MATERIALS?

Below are the findings of NYC Parks' evaluation for each material.

AVAILABILITY	Not Readily Available	Moderately Available	Readily Available
Tropical Hardwood		●	
Softwood			●
Treated Wood		●	
Domestic Hardwood	●		
Recycled Plastic Lumber			●
Concrete			●

The domestic hardwoods researched above are not readily available in the specifications needed for large-scale applications such as the boardwalk (quality, quantity, length).

WHAT ARE THE LIFECYCLES, INITIAL COSTS TO BUILD, AND REPLACEMENT COSTS FOR EACH MATERIAL?

Our experience indicates that domestic hardwoods have a significantly shorter life-span than RPL, or concrete, especially when used in high-pedestrian traffic areas like the boardwalk. A review of other boardwalks that used domestic hardwoods showed deterioration, warping, splintering and mold within a few years. This means that not only would the boardwalk need to be closed to allow repairs and more frequent reconstruction of the boardwalk, but that funds would need to be identified on a recurring basis for capital projects on the boardwalk.

Note that the costs below are only for the current project area. When considering the costs for the remainder of the boardwalk, the funding need is greatly increased.

ESTIMATED SERVICE LIFE FOR DECKING OPTIONS ON THE CONEY ISLAND BOARDWALK AT BRIGHTON BEACH



ESTIMATED LIFECYCLE COSTS FOR DECKING OPTIONS ON THE CONEY ISLAND BOARDWALK AT BRIGHTON BEACH

