



Sustainable Railroad Tie Task Force Report

April 2009

The Blue Ribbon Commission on Sustainability and the MTA

MTA Railroad Tie Task Force

Task Force Background

Convened in September 2007, *The Blue Ribbon Commission on Sustainability and the MTA* was charged with developing sustainability-related recommendations for the MTA and its operating agencies. One of the recommendations of the Commission called for the expansion of the procurement of sustainable railroad ties at all MTA rail agencies.

Blue Ribbon Commission on Sustainability & the MTA

Materials Flow Recommendation 9:

Increase the Use of Sustainable Railroad Ties

The MTA should expand the procurement of sustainable railroad ties at all rail agencies. Initial goals should include reducing the purchase of tropical hardwood ties whenever possible, prioritizing alternatives, such as oak and composite plastic. A similar policy should apply to MTA vendor contracts. To the degree that the MTA must use tropical hardwood in some contexts (e.g. in switches and in areas prone to flooding), the MTA should only procure Forest Stewardship Council (FSC) certified or other sustainably harvested tropical hardwood.

Task Force Purpose

As a result of the work of the Commission, a Sustainable Railroad Tie Task Force was formed to develop increasingly sustainable railroad tie solutions. This Task Force was comprised of Track, Engineering and Procurement representatives from the three MTA rail agencies: New York City Transit (NYCT), Metro-North Railroad (MNR) and Long Island Rail Road (LIRR).

Task Force Summary

The Task Force began its work by posing the following questions:

- 1) How can the MTA use more sustainable railroad ties?
- 2) How can we promote increasingly sustainable railroad tie solutions within our respective MTA rail Agencies?

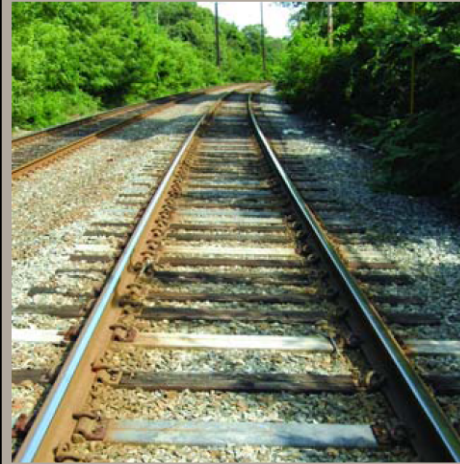
In order to meaningfully discuss these questions, it was first necessary to understand the past and present railroad tie contexts at the different MTA rail agencies; it was vital to first understand the use of tropical hardwood and other railroad ties at the agencies prior to discussing alternatives or suggesting sustainable solutions.

Current MTA Railroad Tie Usage

NYCT Context: NYCT primarily uses creosote-treated wood (oak, pine, etc.), as well as smaller quantities of tropical hardwood (non-creosoted, non-prohibited species only), concrete, and composite engineered plastic ties (small scale tests only). Oak or pine ties can be used anywhere in the NYCT system, including on elevated structures, in the subway tunnels, and in ballasted track and in the yards. Engineered composite ties, including composite plastic, can be used in ballasted track and in the subway yards and will be tested in an elevated station area. Plastic ties are not used in the subway portions of the system due to smoke and toxicity issues in case of fires. NYCT has already installed several hundred plastic ties in ballasted tracks that seem to be working well, although they have only been in place for a few years.

NYCT plans to undertake a sustainable railroad tie pilot in 2009, installing approximately 600 feet of elevated structure (open-deck) track panels with composite plastic ties in an active local track at a passenger station on the Flushing line. If successful, NYCT will explore potential opportunities to integrate additional composite plastic railroad ties into the subway system.

Saving Forests One Tie At A Time



The MTA has formed a Sustainable Railroad Tie Task Force, with both Track and Procurement representatives from three MTA rail agencies to work toward increasingly sustainable railroad tie solutions. One of the types of sustainable railroad ties being introduced and field tested is made from a composite of recycled plastic, waste tires, waste fiberglass, and structural mineral fillers. Innovations in technology and MTA's adoption of them will substantially reduce the use of conventional, non-renewable railroad ties.

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MNR Context: MNR uses both concrete and wooden creosote treated ties. The wood ties are made predominately of oak with some portion being mixed hardwoods consisting of Maple, Gum, Hickory, Ash, Beech, Cherry, and Walnut. Metro-North no longer purchases tropical hardwood railroad ties.

Metro-North Railroad also supports the removal/re-use/recycling of wood and concrete crossties. Wood crossties are sorted, graded and sold for reuse. The ties deemed not reusable/salvageable go to cogeneration facilities to create electricity. All concrete crossties are crushed and create a state approved crushed stone.

LIRR Context: LIRR railroad ties consist of creosote-treated wood (locust, oak, beech, birch, cherry, maple, etc) and concrete ties. LIRR does not purchase tropical hardwood railroad ties.

Since 2002, LIRR has installed composite plastic ties in ballasted track (with both dispersed and clustered installation). LIRR experienced issues with a large number of these ties, although approximately 2,000 composite ties installed in 2005 are still performing well today with no sign of plate cutting, push or cracking. LIRR agrees that further composite tie installations for experimentation may be warranted which might include installing sections of track that would be 100% composite ties to evaluate the real resistance to track buckling as well as characteristics to maintain track geometry.

Sustainable Railroad Tie Solutions

Once the Task Force had gained an overall understanding of the current railroad tie contexts and practices at the different agencies, the Task Force began to discuss potential realistic solutions for positive change. A number of solutions were explored and discussed, including local wood ties (oak, pine, mixed wood, etc), Forest Stewardship Council (FSC) certified wood and tropical hardwood ties, and engineered composite plastic ties or recycled plastic ties.

Engineered Composite Plastic Ties or Recycled Plastic Ties: Composite plastic railroad ties can offer improved service life under certain conditions such as on bridges, elevated structures and other unique conditions. In addition, the use of composite plastic railroad ties result in environmentally sustainable benefits as they are composed of recycled plastic, waste tires, waste fiberglass, and structural mineral fillers, reducing the need to use virgin materials, not to mention the environmental benefits associated with avoiding forestation, and the carbon emissions avoided by procuring local products. The use of recycled plastic ties also reduces environmental problems by minimizing the creation and leaching of by-products used in the preserving of wood ties. Certain issues regarding the physical characteristics if the materials need to be resolved, however, before composite plastic or recycled plastic can be more widely used.

Conclusion & Next Steps

The goal of the Sustainable Railroad Tie Task Force was to reduce the procurement of tropical hardwood railroad ties whenever possible, by promoting and prioritizing increasingly sustainable railroad tie solutions and alternatives.

The Task Force was successful in identifying a number of relevant sustainable railroad tie opportunities, resulting in potentially significant environmental benefits and decreased carbon emissions. Furthermore, the Task Force has committed to continue to explore and test the potential use of sustainable composite railroad ties and other alternatives to conventional and tropical hardwood. While this testing is underway, the Task Force has committed to minimize the use of tropical hardwood for railroad ties, with the exception of minimal use in extreme contexts (e.g. for switches and in areas prone to flooding or with chronic filtration of water). Promoting and prioritizing sustainable railroad tie solutions will result in a significant environmental impact related conserving tropical forests, and utilizing local, sustainable, and recycled materials.





Sustainable Railroad Ties Task Force Members

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