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Hyperloops, Nuclear Spacecraft, and the New York City Subway

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Frustrated by the speed and high cost-per-mile of the California High-Speed Rail project linking Los Angeles with San Francisco, Elon Musk proposed the Hyperloop: a high-speed train running in a sealed, partially-evacuated tube. Musk released a white paper that described the technology and concluded that the Hyperloop could be built for less than a tenth of a cost of the California High-Speed Rail. Musk's white paper focused heavily on the scientific and technical questions that must be answered, but public transportation is a domain at the intersection of science and society. Public transportation infrastructure is shaped as much by the pressures of government and citizens as by the technology behind the transportation. Tube-based transport like the Hyperloop has been proposed before, but has never gone further than words on a page. Why? Historical examples like the development of the New York City subway and the proposed nuclear-powered Orion spacecraft shed light on the societal barriers that new transportation must overcome, and help illuminate why technology-based answers are not a full response to transportation questions.