

Alan Pierce

pierceaj@techtoday.us; on Twitter @ TechToday_US

Elon Musk's Boring Company

Some of Elon Musk's projects seemed impossible when he first proposed them, but none of his ideas have ever been boring. His Boring Company is a play on words, where the name of the company sums up what this company will do; that is bore tunnels to move new transportation systems underground. It is no accident that Godot, the new boring machine that his engineering teams have created (see Photos 1 and 2), actually bore tunnels that are the exact size needed for the hyperloop's giant tubes. My May column covered Hyperloop and you will find it online at: www.omagdigital.com/publication/?i=406477&ver=html5&p=8.

Once all the engineering problems and feasibility studies necessary to build a Hyperloop system are completed it is reasonably easy to weld together a system on barren land. However, to connect the city

centers of metropolitan areas you would either need to create a construction corridor by ripping down

Photo 1—
Hyperloop
One test
track



Hyperloop One

buildings and displacing their inhabitants or move the construction into tunnels underground. People don't want new highways in their backyard; imagine their reaction to their neighborhood being cut in half by the super large steel tubes of a hyperloop system. Look at the photos in my May column and try to imagine such large tubes running down your main street.

The New York City subway system has been up and running since 1904. It is the perfect example of how efficiently people can be moved from one place to another, through a metropolitan area, without destroying neighborhoods if you build the transportation system underground. Elon Musk's ultimate objective when he proposed Hyperloop was the creation of a 21st century land transportation system that could link major cities. Now that it is becoming a

reality, Musk has created the Boring Company to dig the tunnels necessary to send Hyperloop or other 21st century transportation systems underground.

He wants to alleviate traffic by using a system of tunnels that will connect multiple points within a metropolitan area. He is now proposing a two prong approach. Where feasible build the transportation system above ground on barren

land between cities. When you reach civilization move the transportation system underground so it has access and exit points throughout a metropolitan area just like the NYC subway system.

Elon Musk's Godot boring machine weighs 1,200 tons. What makes it significantly different than other boring machines is its size and efficiency at cutting through all different types of rock and soil that it will hit while boring a tunnel anywhere on earth. Godot is now drilling a tunnel near LAX (Los Angeles International Airport) on land that is part of SpaceX's sprawling headquarters. Check out the video at <https://www.youtube.com/watch?v=bOHdGp9-0Jo>. You can also view a test run through this first tunnel at https://www.youtube.com/watch?v=QI_4HWF42NQ.

As this column went to press, Chicago Mayor Rahm Emanuel just requested a proposal from the Boring Company for an underground

Alan Pierce, Ed.D., CSIT, is a technology education consultant. Visit www.technologytoday.us for past columns and teacher resources.



Hyperloop One

Photo 2—The Hyperloop One test track has 11' diameter cylinders. You can see how big it is compared to team members standing inside and around it.



Photo 3— Side view of Godot, the boring machine that Musk's engineers have created.

transportation system that will connect O'Hare Airport to downtown Chicago (<https://www.youtube.com/watch?v=1piaadkGxRM>). It is clear that a new transportation system is definitely needed to alleviate traffic congestion and air pollution. U.S. cities and foreign governments might soon keep the employees of the Boring Company from ever having a chance to get bored.

Elon Musk's Hyperloop idea sounded more like science fiction than an engineering proposal when he first published it five years ago. He has proposed another new transportation system when he started the Boring Company that utilized sleds to move people in their own vehicles through Boring Company tunnels. Access and egress from these tunnels would be through street elevators. Since a video is worth thousands of words please watch the video that his team created: https://www.youtube.com/watch?v=u5V_VzRrSBI.

Taking it a Step Further

1. Research the process that the U.S. government uses to acquire land to build a new highway. A possible approach to this research activity is to select a new highway that was built in your area in the last 60 years and determine how your local government procured the land for its construction.

2. Do you feel the sled transportation system that moves personal cars through Musk's tunnels will ever be feasible? Why? Before you answer, remember the Hyperloop sounded just as sci-fi five years ago when Musk

first proposed it. Before you answer this question be sure to watch all the videos.

3. In your opinion, would such a system be too claustrophobic for most people to use?

4. If you are in your own vehicle on the sled, how could they create the illusion that you are not flying



Photo 4 —Cutting end of Godot. It can cut through all kinds of rock and soil, and not get bogged down in mud or other impediments that clog other machines.

through an underground tube at nauseating speed?

5. If the sled transportation system was built, would it, in your opinion, alleviate traffic or just cause new lines as people wait their turn for access?

6. Could such a system be safe if non-electric vehicles also have access to this system? ☹

LUCIFER FURNACES

Dual Chamber Furnaces

Complete Heat Treat Installation



- Safe, Simple, Dependable Operation
- Ideal for Schools
- Harden, Draw, Quench
- Upper Chamber to 2300°F
- Lower Chamber to 1200°F
- Customized for Your Needs & Budget

(800) 378-0095
www.luciferfurnaces.com



New Edition!

Machinists' Ready Reference

Enhanced readability and expanded content! Durable book provides essential procedures, charts, tables, and formulas used by machinists, toolmakers, mechanical engineers, and designers. Handy 4-1/4" x 6" book is spiral bound to lie flat when open. **\$39.95**

School discounts available on phone orders.

To order: www.techdirections.com/booksmach.html

Fax: 734-975-2787

Call: 800-530-9673 x300