

Sample essay on the use of electricity and magnetism in our future transportation...

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4. 2. Tube

The main Hyperloop route consists of a partially evacuated cylindrical tube that connects to the stations of Los Angeles and of San Francisco in a closed loop system (Figure 2). The size of the tube is specific which helps the air flow be optimal. It flows around a capsule which in turn helps in the improvement of the capsule's performance. It also increases the speed, as compared to the expected speed of travel, at which energy is consumed. The inside of the tube has a pressure expectations will be maintained around 0.015 psi (100 Pa, 0.75 torr), which is about 1/6 the pressure on Mars or 1/1000 the pressure on Earth. Drag force is minimized of the capsule. This is done with the maintenance of relative ease with which the air is to be pumped out of the tube.. The efficiency of industrial vacuum pumps decreases exponentially as the pressure is reduced (Figure 13), so further benefits from reducing tube pressure would be offset by increased pumping complexity.

Maintaining the route as close as possible to currently operated highways. The requirement for the amount of land in the Hyperloop is also decreased. Further details for this route can be found in section 4. 4.

Because of the direct guidance of the capsule, the Hyperloop Travel Journey will turn out to be smooth. This will happen because the capsule would be guided through the insides of the tube using the suspension and air bearings; this also prevents the need for costly tracks. There will be a control system included in the capsule for the mentioned smooth return which will be to the nominal location of the capsule. It will also bank off from the walls. The stationary motor element will be incorporated by a section of the tube. It

will also help in the guidance and acceleration (or the opposite) of the capsule. In section 4. 3 there can further details found on of the propulsion system. With the help of air bearings the capsule will glide from between the linear motor stations.