

# FUTURE ROAD INFRASTRUCTURE



*Transportation's evolutionary highway beyond the 21st century*



**Let's rethink the road. In North America, the per-capita energy expended by the populations of the US and Canada onto its roads is the highest of any of the other G7 countries. In the US alone that's approximately 250 million passenger vehicles...and that doesn't count trucks and buses. The highest concentration of this traffic is in our cities. Even with the growth of electric and hybrid vehicles, the roads will still be supporting an increasing amount of vehicular traffic.**

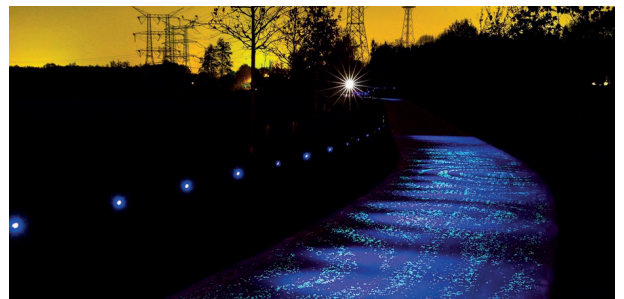
# MOBILITY

**StrongKor** has developing technologies that will capture the waste energy from traffic to produce thousands of Megawatts of electric power. By harvesting this destructive energy, vehicles will run even more efficiently, and the entire road transportation system will last longer (roads, tires, vehicles, etc). Furthermore, the roads will become even safer, and can become adaptive to the immediate conditions with anti-frost systems, anti-flood systems and adaptive directional lighting.

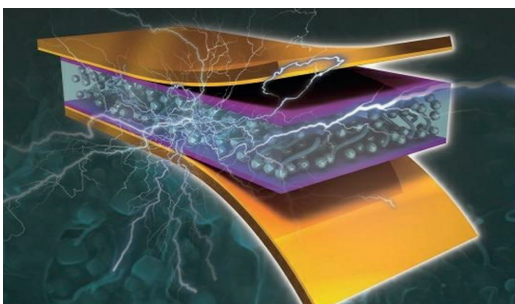


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**StrongKor** starts with its TerraTruss method of structural road support. This advanced roadway foundation also provides the decentralized wide-field electrical storage capacity for the entire system. This means that electricity harvested and stored under this method is extraordinarily efficient, saving up to 15% energy loss due to transmission and is less susceptible to power grid failure leading to black outs and brown outs.



**StrongKor** used its **PanaKor** modular road panels next to create the core of the road system. These panels are remarkably strong and flexible, and with the special piezoelectric crystals embossed into its top surface, make up half of the main energy harvesting system that is part of this unique roadway system being developed. Additionally, the advantages of these modular road elements is their hardness and the ease to which they can be replaced. This will dramatically improve road serviceability and lower overall maintenance costs.



**StrongKor** tops off the **PanaKor** panels with a special reactive road coating system that completes the piezoelectric harvesting system. This long-lasting coating will be designed to provide a travelling surface far superior to current roadway technologies. Furthermore, other developments are leading to additional characteristics within the coating to also harvest waste heat energy from vehicles as well as solar energy when there is no traffic during daylight hours.

# SAFETY

**StrongKor** is proud of its road system as it provides additional safety features not available on the current, modern highways today. First, our TerraTruss system is less prone to damage from flooding and washed out roads since our road foundation goes many times deeper into undisturbed earth rather than a standard gravel roadbed. Second, our road surfacing and engineering provides better vehicle traction and control should there be standing water, snow or ice.



# MODEL

To demonstrate what could be a working **StrongKor** road system, let's take the 225 mile (360 km) trip between New York and Washington DC. Statistics from the DC area suggest that this route may typically experience between 175,000 to 110,000 vehicles per day per mile (km) on an average annualized basis. The fact is that the amount of energy being expended on that route is tremendous with only about 25% of the energy consumed is actually moving vehicles. On an annual basis there is potentially more than 10 million, million BTU's available for harvest on this route alone.

# ENERGY

With a **StrongKor** 'energy' highway, we have the potential of harvesting 80% of the waste mechanical energy. Conservatively, we expect that this route could produce 700-800 megawatt hours on a regular basis. That's approximately equivalent to the output of a typical nuclear power or coal fired generating station, but with lower transmission costs. **The following is a quick summary of some of the energy benefits of this system:**

# ENERGY

**Energy benefits may include conservatively include:**

Piezoelectric Clean Power: 700-800 megawatt hours

Improved Fuel Efficiency: 5% - 10%

Thermal Recovery Clean Power: 150-300 megawatt hours

Solar Clean Power: 100-200 megawatt hours

Miscellaneous: Lower costs and energy expended to maintain or replace road systems, lower pollution, lower carbon emissions

Note...Does not require the change of existing vehicle technologies nor does it preclude the use of new vehicle technologies, such as hybrid electric vehicles



# COSTS

With a **StrongKor** 'energy' highway the initial capital costs are expected to be approximately \$15.9 million per mile which is considerably higher than a standard highway. Typically, a highway in the US costs approximately \$9 million per mile, a cost that we expect to almost match with mass production. However, a typical highway will not last as long, will take more resources to maintain and...most importantly...will NOT harvest any energy.

# OPPORTUNITY

**StrongKor** has developing technologies that will revolutionize the way we travel. These technologies can also be extended to rail systems and even to airports. Calculations conservatively estimate that a city of at least 1 million will be able to produce more electric power than it consumes if we use these technologies as we upgrade our infrastructure. The opportunity exists now to lead in ethical, sustainable and meaningful ways to improve how we live, work and play.