

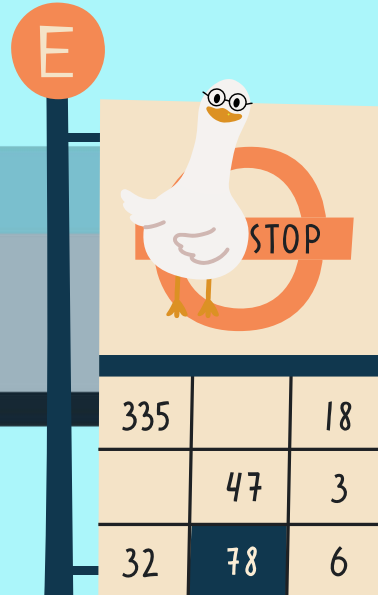
THE SOLAR GOOSE

A Revolutionary Solar-Powered Transit Solution

**SUSTAINABLE TRANSPORTATION
FOR COMMUNITIES WITH
ABANDONED RAILROADS**



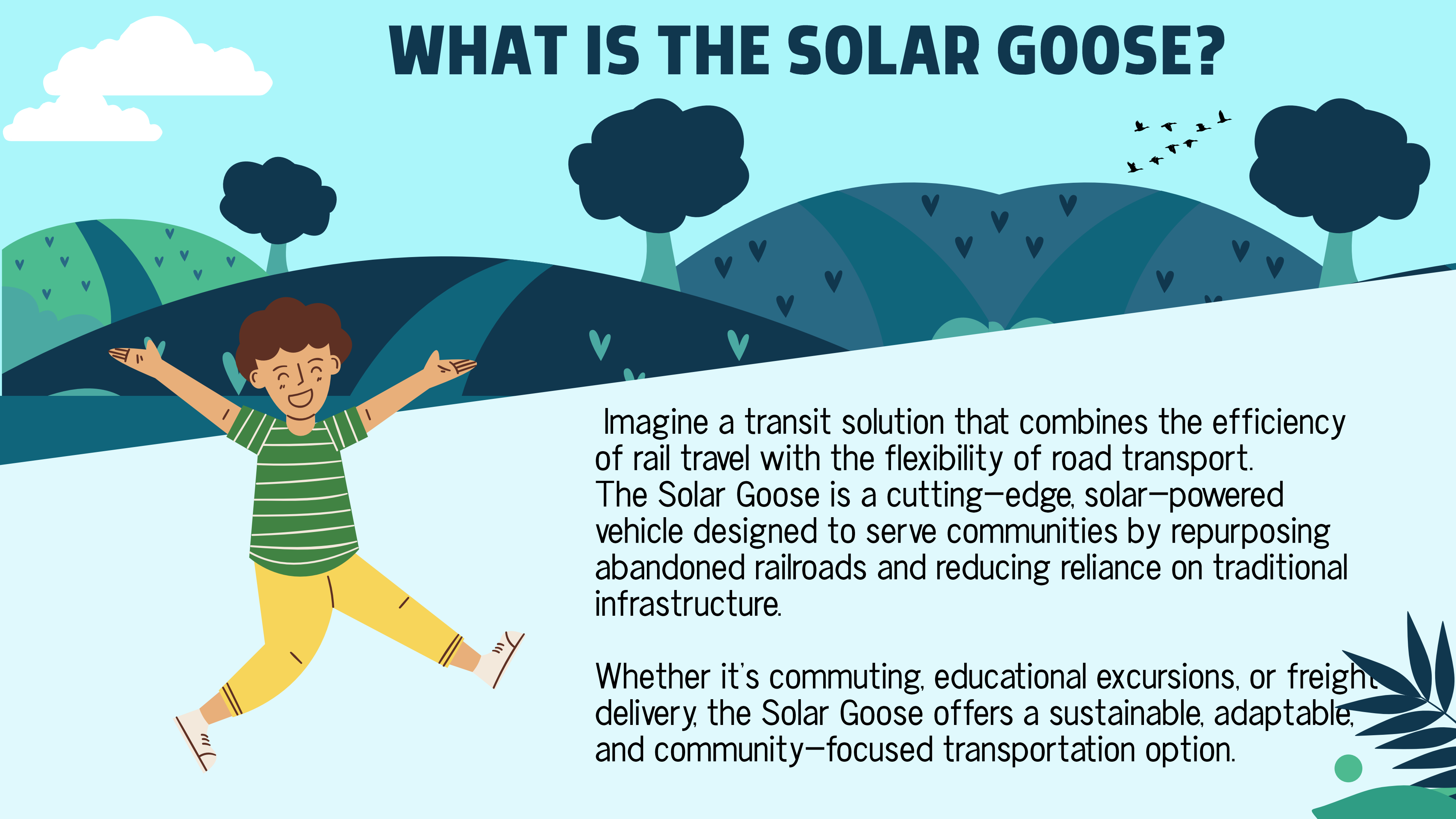
WELCOME TO THE FUTURE OF TRANSPORTATION



335		18
	47	3
32	78	6

- What is the Solar Goose?
- Key Features
- How it works
- Transforming Local Infrastructure
- Environmental Impact
- Uses
- Design & Innovation
- Vision for the Future

WHAT IS THE SOLAR GOOSE?



Imagine a transit solution that combines the efficiency of rail travel with the flexibility of road transport. The Solar Goose is a cutting-edge, solar-powered vehicle designed to serve communities by repurposing abandoned railroads and reducing reliance on traditional infrastructure.

Whether it's commuting, educational excursions, or freight delivery, the Solar Goose offers a sustainable, adaptable, and community-focused transportation option.

WHY IS IT CALLED A SOLAR GOOSE?



Road vehicles adapted to use on rails, are called Geese.

Solar is the source of power for our vehicle.

Thus, we call it the Solar Goose.

KEY FEATURES

Solar-Powered Efficiency

Equipped with a 12kW solar array for supplemental power.

Opportunistic charging at stops ensures uninterrupted operation.

Hybrid Design

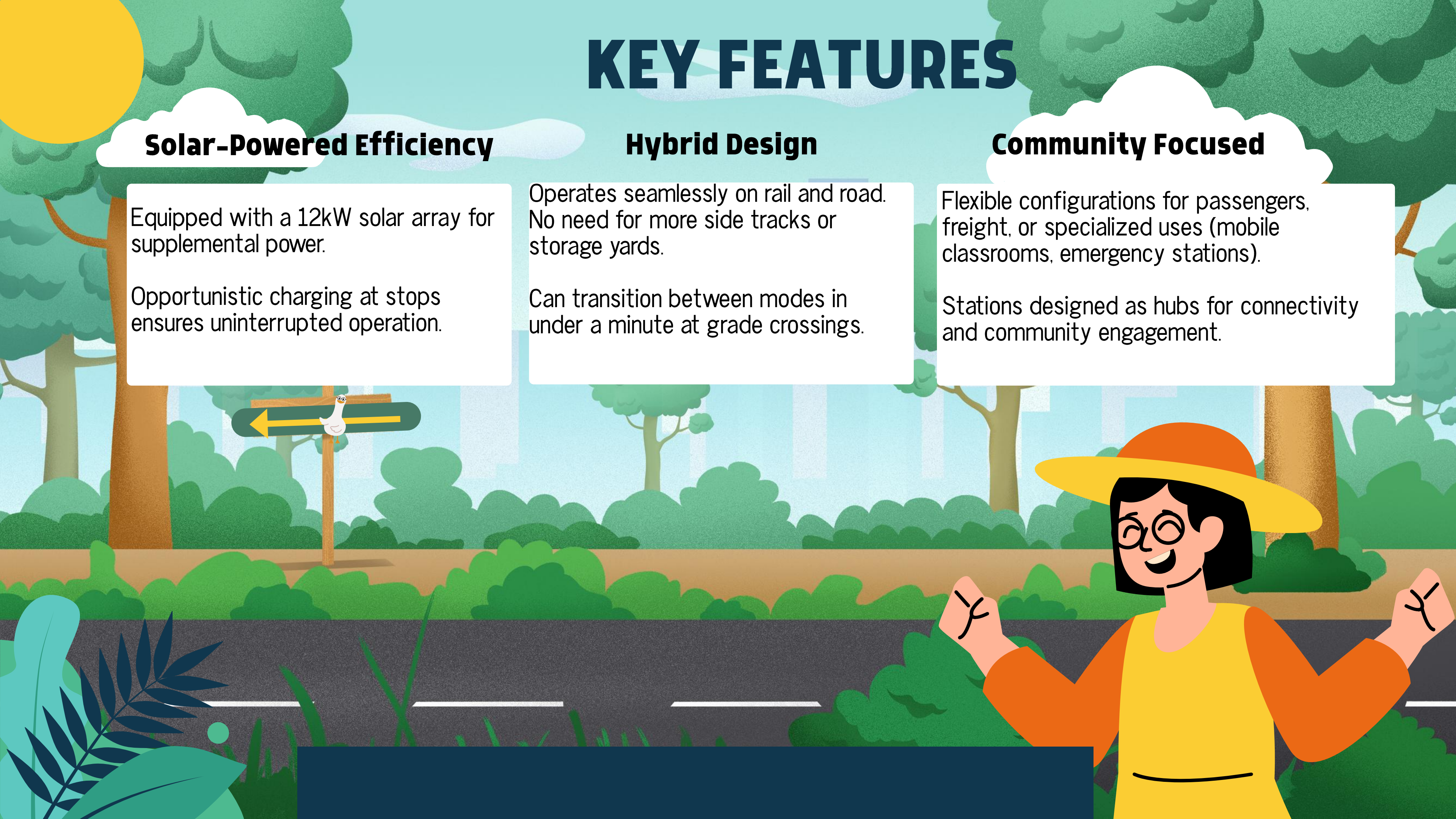
Operates seamlessly on rail and road. No need for more side tracks or storage yards.

Can transition between modes in under a minute at grade crossings.

Community Focused

Flexible configurations for passengers, freight, or specialized uses (mobile classrooms, emergency stations).

Stations designed as hubs for connectivity and community engagement.



KEY FEATURES

Locally Built & Maintained

One vehicle will be delivered and can start running immediately without switches.

Materials for the rest of the vehicles are assembled using the first one as the prototype.

Versatile

Vehicles are lightweight and can be used for multiple purposes.

Vehicles can be used as stations, communication centers, emergencies.

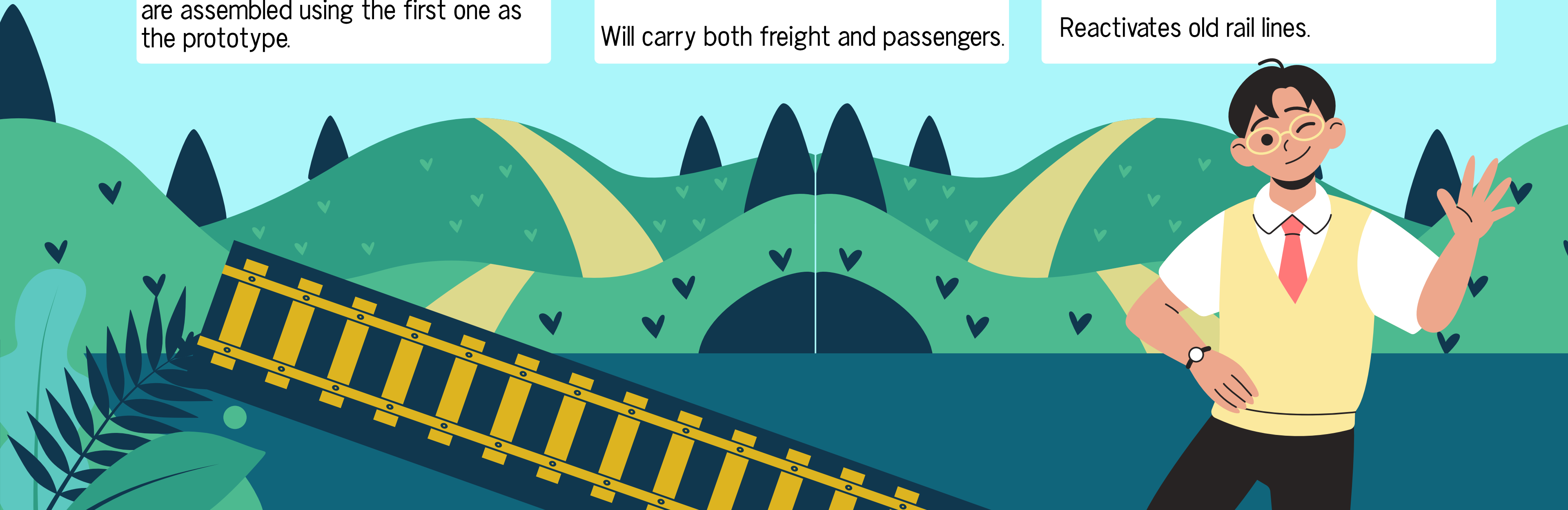
Will carry both freight and passengers.

Sustainability at Its Core!

Promotes renewable energy infrastructure.

Reduces carbon footprint with lightweight, modular design.

Reactivates old rail lines.



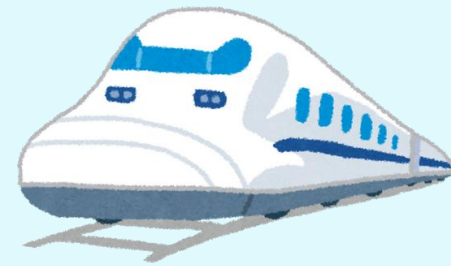
HOW IT WORKS

Rail-to-Road Flexibility



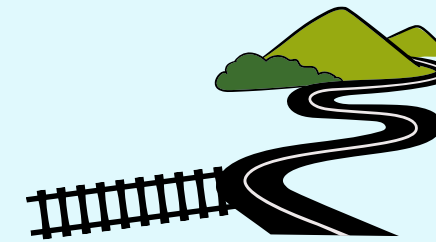
Road Mode

Functions as a standard bus, navigating streets and roadways with ease.



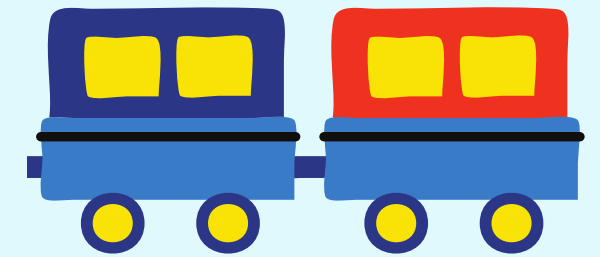
Rail Mode

Utilizes existing rail lines with minimal modifications, operating at rail speed limits.



Quick Transition

Advanced rail/road wheels ensure rapid switching at crossings.



Tandem Expansion

Cars can be connected for high travel times or to serve as stationary buildings.



TRANSFORMING LOCAL INFRASTRUCTURE

The Solar Goose repurposes underutilized railroads, bringing economic and social benefits to communities:



Reduced Infrastructure Costs

By eliminating the need for switches, sidings, and catenary systems, the Solar Goose makes rail transit more accessible and affordable.



Multi-Purpose Stations

Transit hubs can double as community centers with amenities like meeting rooms, cultural spaces, and rental services for bikes and electric vehicles.



Flexible Payment Options

Use of smart cards, vouchers, and community exchange systems (LETS). Affordable for all demographics.



OPPORTUNISTIC CHARGING

- Solar panels and local power stations work together for efficient energy management.
- Stops feature “PowerPoles” for fast energy transfer during passenger loading.

ENERGY STORAGE SYSTEM

- A combination of flywheels, ultracapacitors, and lightweight batteries.
- Sufficient energy storage to travel 6 miles between charging points.



ENVIRONMENTAL IMPACT

A Green Revolution in Transit

- Supports renewable energy initiatives by integrating solar power with local grids.
- Encourages the development of distributed energy systems in communities.
- Reduces reliance on fossil fuels, contributing to global climate goals.

Energy Metrics:

- Solar Array Efficiency: 30%
- Energy Storage: Flywheels, lightweight batteries, and ultracapacitors ensure reliable performance even under variable conditions.



USES

1 Mass Transit

Connects communities via rail corridors, reducing urban traffic and emissions.

2 Education

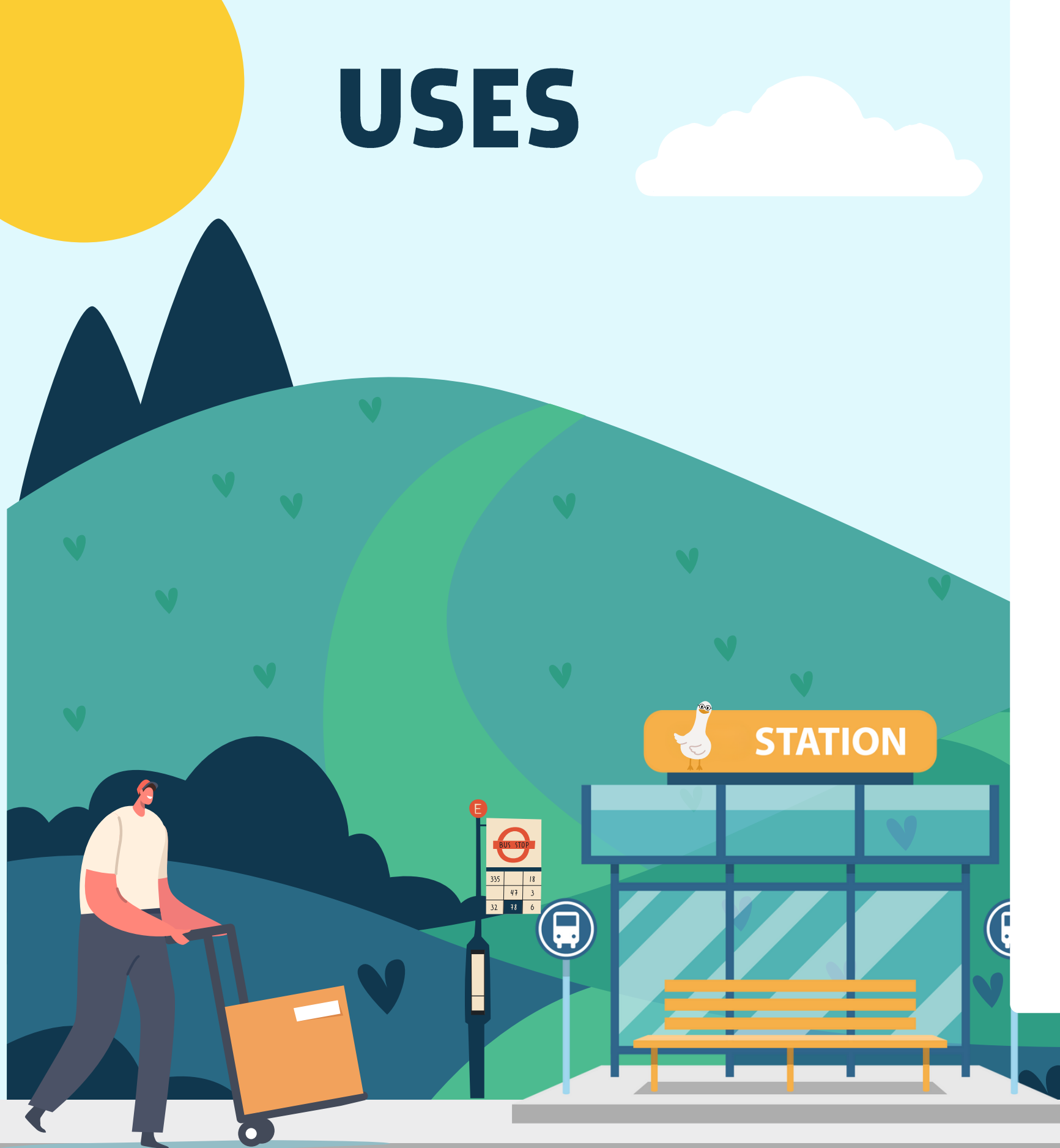
Mobile classrooms bring learning to life, allowing students to explore nature or cultural sites en route.

3 Emergency Services

Solar Goose vehicles can transform into command centers during natural disasters, with onboard power and communication capabilities.

4 Freight Transport

Modular storage units make it easy to transport goods efficiently across neighborhoods and cities.



DESIGN AND INNOVATION

A Modular, Adaptable Approach

Customizable Seating:

Configurations for passengers, freight, or special purposes.

Plug-in Features:

Mobile conference rooms, classrooms, and environmental monitoring stations.

Lightweight Design:

Stress-skin panels and modular construction for easy local assembly.

Cutting-Edge Technology:

- Integrated ITS (Intelligent Transportation Systems):
- Real-time tracking, passenger updates, and navigation via onboard tablets.

Advanced Propulsion:

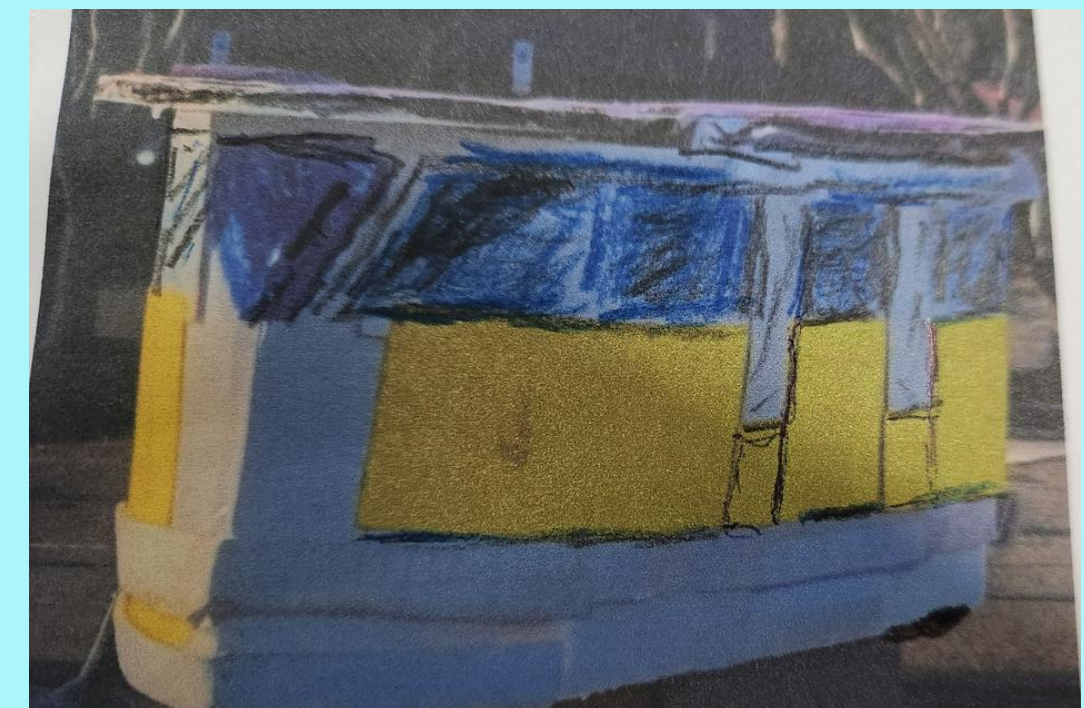
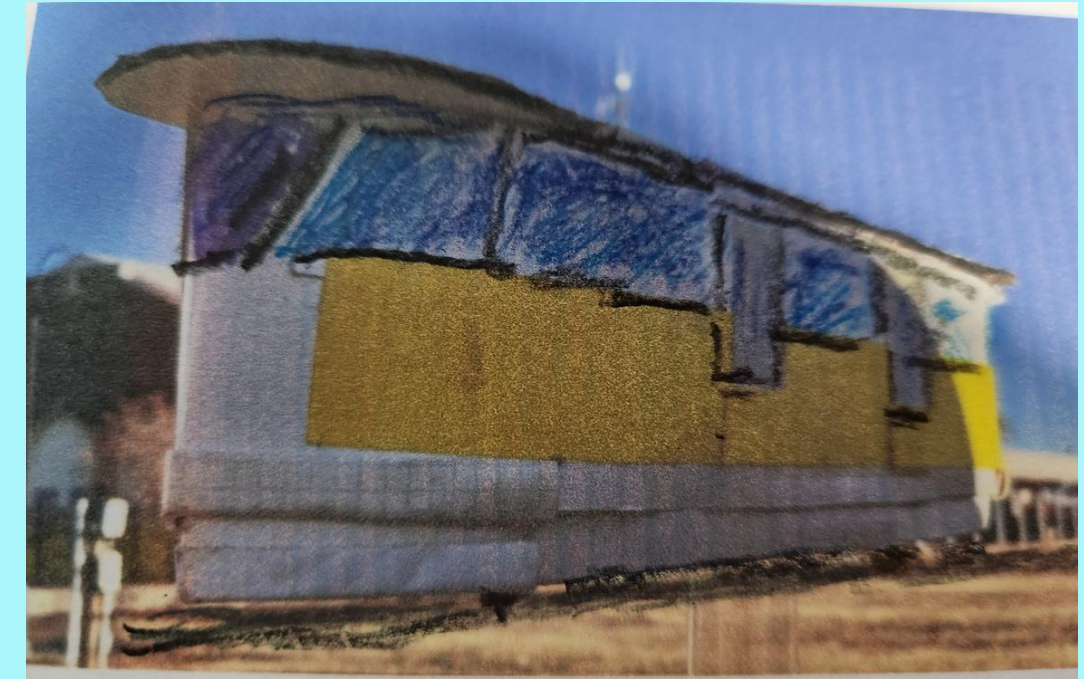
Hub motors directly mounted on rear wheels provide efficient and quiet operation.



AWARD-WINNING DESIGN

These are images of a model of the Solar Goose which won the 2002 Federal Transit Administration Innovation Award.

Inside



VISION FOR THE FUTURE

Scaling Up the Solar Goose

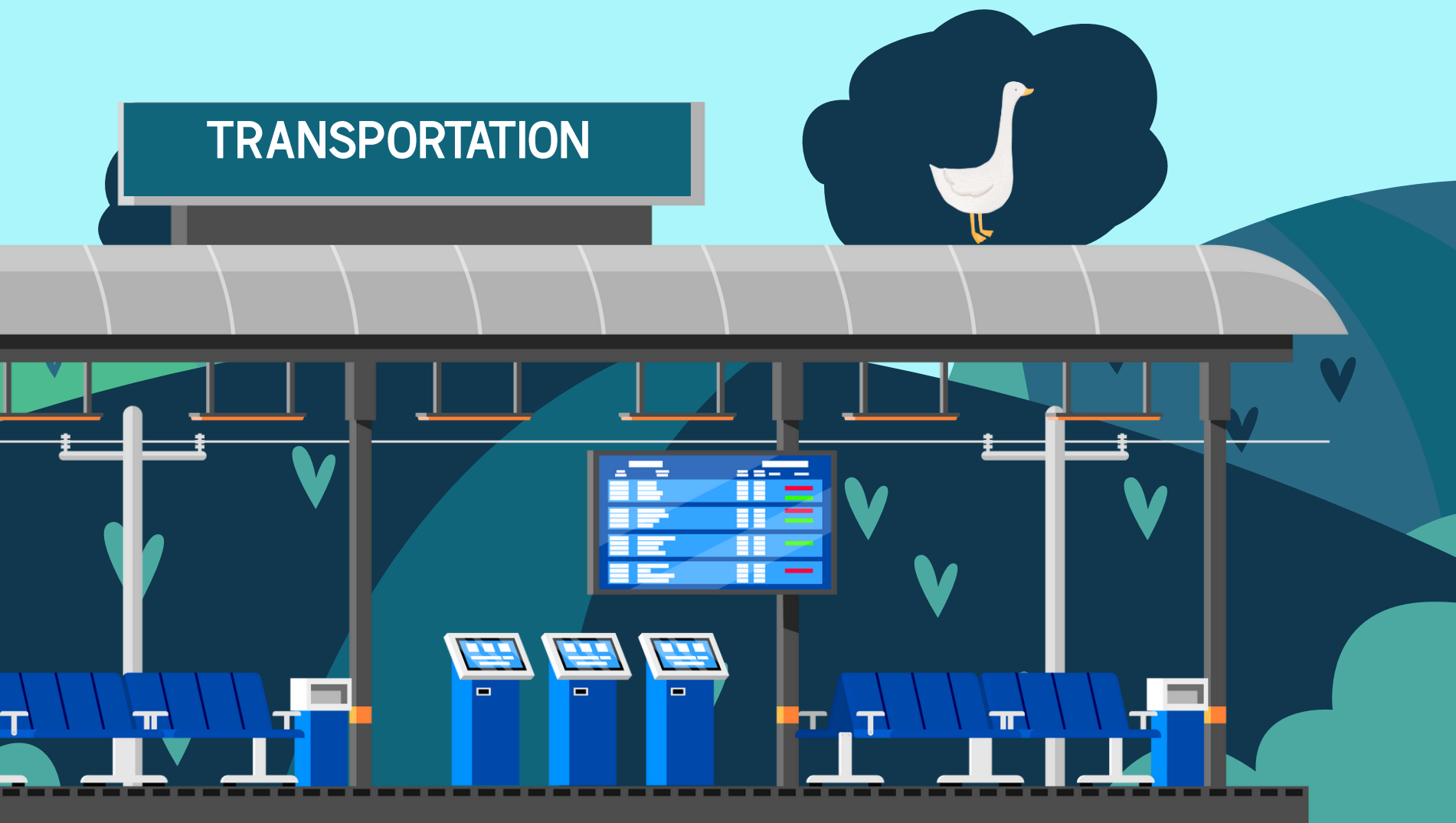
With its modular and adaptable design, the Solar Goose is poised to become a cornerstone of sustainable transportation worldwide.

Future developments include:

Increased Solar Efficiency: As technology evolves, the Solar Goose can become even more energy-independent.

Expanded Use Cases: From mobile healthcare to disaster relief, the possibilities are endless.

Integration with Urban Planning: Supporting mixed-use developments and reducing urban sprawl.



A COLLABORATIVE EFFORT



The Solar Goose project is a testament to the power of collaboration, with contributions from:

- Appalachian State University
- Triad Electric Vehicle Association of NC
- Local businesses and government agencies

Opportunities for Involvement:

Partner with us to bring Solar Goose to your community.
Invest in sustainable transit solutions.



Join the Solar Goose Movement
The Solar Goose is more than a vehicle—it's
a vision for a sustainable future.

Be part of the change:
Together, we can make transportation
cleaner, more efficient, and more
community—focused.

THANK YOU



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Sustainable Jack Martin**

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