

# TRANSPORTATION YOUTH ACADEMY: SUPPLEMENTAL RESOURCES

*June, 2017*

Additional instructional resources and videos that can be used to supplement Transportation Youth Academy activities and projects.



Transportation  
Workforce  
Institute

## PBS TRANSPORTATION SERIES

<http://www.pbs.org/e2/transport.html>

The PBS e<sup>2</sup> transport series examines sustainable transportation alternatives with potentially far-reaching effects. The series introduces a broad range of ideas to address the crises of the automobile culture and fossil fuel dependence: from existing technologies, to long-term urban planning, to economic incentives. There are six e<sup>2</sup> transport “episodes” that explore”

- The transformation of London into a transit-efficient capital
- Paris’ ambitious public-private Velib’ bike initiative
- The potential for local food production to lessen the environmental impact of the global food market
- The effort to reduce traffic and pollution in Seoul, Korea by restoring the Chonggyecheon Stream as a center of public life
- Portland Oregon’s global model of transit-oriented development
- Aerospace corporations, technology firms, and administrators’ attempts to make aviation more energy efficient

The series includes video episodes and accompanying teaching materials and student projects.

## VIDEOS

### OVERVIEW OF TRANSPORTATION

#### **Transport Systems in USA - Discovery Documentary 2015**

52:40

<https://www.youtube.com/watch?v=2-s4K3cBRxk>

This PBS documentary shows all facets of the entire transportation system throughout the US. It features transportation systems in cities across the U.S. and includes all interviews with people within various occupations in each of the systems. It ends in LA and the challenges faced in this city. Great overview of transportation.

Key Concepts: Overview of Transportation

#### **Stuck: The Problem with Los Angeles Public Transportation (2015)**

25:44

<https://www.youtube.com/watch?v=v9J6gDya40k>

A short documentary about the state of Los Angeles's public transportation and what we could achieve in this city if we get people out of cars and into subways, buses, and trains.

Key Concepts: Issues with LA's current transportation system, Motivating Students to Be a Part of Creating a Better Transportation System/Future for LA

## ADVANCED TRANSPORTATION TECHNOLOGIES

### General

#### **Transportation Technology History**

[http://amhistory.si.edu/onthemove/themes/story\\_50\\_1.html](http://amhistory.si.edu/onthemove/themes/story_50_1.html)

Three short videos (produced by the History Channel for the National Museum of American History) cover the history of transportation technology in the US from 1800-1900, 1900-1950, 1950-2000

### Rail Technology

#### **Future Transportation Technology Will Blow Your Mind – need to remove banners and pop up box**

43:01

<https://www.youtube.com/watch?v=oYOmZITjsQ0>

Train/rail technology. Good overview of the future technology of train travel across the world. Includes principles of design like friction and alternative fuels.

Key Concepts: Future of Transportation, Principles and Science of Vehicle and Transportation Systems Design, Sustainability

#### **The Future of Transport: Discovery Science Documentary - Future Tense Series**

23:12

<https://www.youtube.com/watch?v=2CTHxUvkWeE>

This Documentary by the Discovery Channel shows the technology at the cutting edge and how it is expected to change the world of transport. Includes alternative-powered vehicles, magnetic train, etc. It's a little dated (2012) but provides a good overview of transportation technology in development/deployment. It's a not as engaging as the vide Future Transportation Technology with Blow Your Mind but it's shorter.

Key Concepts: Advanced Transportation Technologies

#### **SMT Rail Greenest Smart Mass Transit on the Planet**

5:35

<https://www.youtube.com/watch?v=JydTAoQuqcl>

Looks at a suspended, self-powered cart technology to run on suspended rails.

Key Concepts: Future of Transportation, Advanced Transportation Possibilities, Rail for the Movement of People and Goods

## **Incredible way of Future Transportation-Straddling Bus (3D Bus)**

3:32

<https://www.youtube.com/watch?v=t1gTzc7-lbQ>

Imagine one day you driving on road, then one huge "moving tunnel" flying overhead, carrying hundreds of people, you may think it is dream, but it is true, soon this incredible Straddling Bus(3D Bus) will appear on streets, this bus step across two lanes with hollow lower part, so cars can pass through, compared with Metro, Straddling Bus has lower cost, shorter construction period and almost same passenger capacity, it's more economical way of future urban traffic. from this video, you will see how it works, you will be shocked by this innovative way of transportation.

Key Concepts: Future of Transportation, Advanced Transportation Possibilities, Transportation Systems Design

### *“Automotive” Technology*

## **HAMO Toyota's New Urban Transport System**

3:09

<https://www.youtube.com/watch?v=k-aMerrKPgl>

Smart phone application for planning transportation on a multimodal system including a sharable electric car. For commuting – so pertains to the movement of people.

Key Concepts: Future of Transportation, Advanced Transportation Possibilities, Basics for Transportation Systems Design

## **Flying Car Already Exist**

4:35

<https://www.youtube.com/watch?v=7-1pXbW5wVg>

Traffic jams are the bane of any commuter. Many of us spend an hour or so stuck in traffic every week. The growing population is partly to blame for our congested roads, but the main problem is that we are not expanding our transportation systems fast enough to meet ever increasing demands. One solution is to create a new type of transportation that doesn't rely on roads, which could one day make traffic jams a 20th century relic. To do this, we must look to the sky. A flying car is hypothetical personal aircraft that provides door-to-door aerial transportation as conveniently as a car but without the requirement for roads, runways or other specially prepared operating areas. In addition, the aircraft lacks any visible means of lift (unlike fixed-wing aircraft and helicopters), thus allowing it to be operated in urban areas and close to buildings, people and other obstructions. Fulfillment of some of these goals is being attempted by personal air vehicles being developed. The term "flying car" has also been used to refer to roadable aircraft and hovercars. This video shows the 3 Flying Car Already Exist. Very catchy and eye-appealing video that would appeal to youth.

Key Concepts: Future of Transportation, Advanced Transportation Possibilities – for personal travel

## **The Terrafugia TF-X™**

3:08

<https://www.youtube.com/watch?v=wHJTZ7k0BXU>

Flying Car - Terrafugia is excited to premier the new Outer Mold Line for the TF-X™, Terrafugia's vision for the future of personal transportation. The TF-X™ will be a four-seat, vertical takeoff and landing (VTOL) hybrid electric aircraft that makes flying easier and safer than ever before. Very futuristic and catchy video.

Key Concepts: Future of Transportation, Advanced Transportation Possibilities – for personal travel

### **Intelligent Systems – Information Technology**

## **Smart Transportation: Integrating Systems for More Efficient Transportation**

3:24

<https://www.youtube.com/watch?v=bUyourDcWzw>

How information technology is integral to transportation (all forms). How this information can be used to design broad transportation system. Like its futuristic look – would appeal to youth. Would be good to give students an overview of the comprehensiveness of the transportation system, how technology is utilized within it.

Key Concepts: Orientation to Transportation, High-Tech Nature of Advanced Transportation, Transportation Planning/Design

## **Intelligent Transportation Systems: Your Road to the Future**

10:18

<https://www.youtube.com/watch?v=WcdoOUHBb9c>

This video explores careers in intelligent transportation systems (ITS).

Key Concepts: Use of Technology in Transportation Systems

## **Experiencing the Future of Intelligent Transportation**

4:00

<http://www.intel.com/content/www/us/en/automotive/experiencing-future-intelligent-transportation-video.html>

See the intelligent transportation future, with sensing, interconnectivity, and intelligence in the car to cooperatively make driving safer and more efficient.

### **Other**

## **Future Transport: TUBE TRAVEL is REAL!**

3:33

<https://www.youtube.com/watch?v=t3aC-9PBM5k>

Tech presents Future Transportation: Elon Musk's HYPERLOOP transport system will make travel from LA to NY as short as 45 minutes!

Key Concepts: Future of Transportation, Advanced Transportation Possibilities, Rail for the Movement of People and Goods, Transportation Planning

## Transportation Systems Planning, Design

### Stuck: The Problem with Los Angeles Public Transportation

25:44

<https://www.youtube.com/watch?v=v9J6gDya40k>

A short documentary about the state of Los Angeles's public transportation and what we could achieve in this city if we get people out of cars and into subways, buses, and trains.

Key Concepts: Issues with LA's current transportation system

### DOT Smart City Challenge

:55

<https://www.youtube.com/watch?v=14adE8pVakI>

Learn about DOT's Smart City Challenge, where cities connect transportation assets into an interactive network. Use this video as an introduction to the design the future transportation systems.

### Transportation - A New Approach

6:10

<https://www.youtube.com/watch?v=yD-cbV2LT2U>

Notes: this is good at laying out what are key considerations in transportation design/solutions of the future. It's a little boring but it's short so may not be an issue.

Key Concepts: Orientation to Transportation, Basics for Transportation Systems Design

### What is a Smart City?

3:27

<https://www.youtube.com/watch?v=Br5aJa6MkBc>

These modern cities, capable of implementing infrastructures (of water, electricity, gases, transport, etc.) communicating and sustainable to improve citizens' comfort while developing in the environmental protection.

### Smart City - The interconnected city: improving the quality of life of citizens

4:42

<https://www.youtube.com/watch?v=qvGuw2zZ3qc>

How technology is helping cities to step up to the challenge of growing urbanization by delivering city wide solutions that offer better and more integrated transport, safety, and security infrastructure that increases efficiency and improves quality of life. Shows all modes of transit/transportation and how they are interconnected through technology.

## **Future Transport**

24:11

<https://www.youtube.com/watch?v=pGC30wjVrs0>

Critics claim the UK transport system is at breaking point. Fiona Foster examines some of the solutions being considered, from motorway tolls and cycle paths to driverless cars. This video does a great job of outlining the issues and considerations for expanding the system. Useful for comparing transportation systems in other countries.

Key Concepts: Transportation Systems Design

## **Transportation Infrastructure**

### *General*

## **Transportation Infrastructure History**

[http://amhistory.si.edu/onthemove/themes/story\\_47\\_1.html](http://amhistory.si.edu/onthemove/themes/story_47_1.html)

Three short videos (produced by the History Channel for the National Museum of American History) cover the history of transportation infrastructure in the US from 1800-1900, 1900-1950, 1950-2000

Key Concepts: Transportation Infrastructure

## **Infrastructure: The Unsung Hero**

<http://youtu.be/QkgT2A4FYcw>

2:26

2014 ARTBA Student Video Contest Winning Entry by Ty Miller Boyertown Area Senior High School, Pennsylvania

Key Concepts: Transportation Infrastructure

## **Our Deficient Transportation Infrastructure**

3:50

<http://youtu.be/9rzqc6BzJkl>

2014 ARTBA Student Video Contest - Category 2 Winning Entry by Aubury Erickson, Florida Polytechnic University, Lakeland, Florida

Key Concepts: Transportation Infrastructure

## **At a Crossing: California High Speed Rail**

1:19:16

<https://www.youtube.com/watch?v=IWooOYqPHiU>

California is one of the largest states in the US. It's resident to more than 38 million people and as time forges ahead, it will continue to get bigger. Transport in California is already strained and with a growing population, the state faces a crisis in the coming decades. How can this transportation crisis within California be addressed? And how does High Speed Rail fit into this large, complex, equation? This documentary helps answers those questions and show how important High Speed Rail is to the future of California.

Key Concepts: Transportation Infrastructure, California High Speed Rail

## **The World's Future MEGAPROJECTS (2015-2030's)**

31:07

<https://www.youtube.com/watch?v=yOCpo10zQIM>

A documentary on the ten most ambitious mega-projects currently under development around the world, featuring: Dubai World Central Airport (United Arab Emirates); Songdo International Business District (South Korea); Tokyo-Osaka Maglev Train (Japan); Masdar City (United Arab Emirates); The Grand Canal (Nicaragua); National Trunk Highway System (China); International Thermonuclear Experimental Reactor [ITER] - Fusion (France); World's Tallest Building (Azerbaijan); Delhi-Mumbai Industrial Corridor (India); King Abdullah Economic City (Saudi Arabia). There are some projects that are not transportation related, but most are. Don't know if it could be edited for only the transportation ones. These are actual projects being developed for the future. Includes many modes of transportation.

Key Concepts: Transportation, Infrastructure, Transportation System Planning and Design

## **China's Super Highway: MEGAPROJECTS (Part 6)**

3:01

<https://www.youtube.com/watch?v=HTrg9fTJvMA>

China is building the largest highway system in the world. With over 65,000 miles completed in just 25 years, the project is the largest infrastructure initiative in world history and will be complete around 2020. This video, coupled with some of the other transportation systems in China, show that future of transportation isn't all about the advanced technologies/modes...still need roads, etc.

Key Concepts: Transportation, Infrastructure, Transportation System Planning and Design

## **The Longest Structure on Earth - Super Highway - DOCS CHANNEL**

43:40

<https://www.youtube.com/watch?v=WJaQoSWMStU>

Includes how highways are designed, constructed, and all related occupations including first responders to accidents. Good overview of road transportation and all it takes to make the system work.

Key Concepts: Transportation, Infrastructure, Transportation System Planning and Design

## Transportation Sustainability

### **The Future of Transport: Discovery Science Documentary - Future Tense Series**

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Key Concepts: Advanced Transportation Technologies

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Key Concepts: Future of Transportation, Advanced Transportation Possibilities, Rail for the Movement of People and Goods

## History of Transportation

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## **Taken for a Ride - The U.S. History of the Assault on Public Transport in the Last Century**

56:24

<https://www.youtube.com/watch?v=p-l8GDklsN4>

History of how the automobile industry influenced the transportation system we have today with the overreliance on the automobile.

## **The Business of Transportation**

### **Tesla Motors: The Future of Electric Cars – Documentary**

42:59

<https://www.youtube.com/watch?v=yRGy74AyT6A>

Includes the entire lifecycle of bringing the TESLA to market. Manufacturing---robotic manufacturing, management, finance, etc. Also depicts the occupations in the design/manufacturing of vehicles, some management principles.

Key Concepts: All the Facets of Bringing New Vehicles to Market

## **The “Science” of Transportation**

### **Nasa Building Future Most Advanced Aircrafts Ever #Full Documentary**

44:16

<https://www.youtube.com/watch?v=wbdYVU88AZc>

Includes materials technology and NASA’s role in development. There’s a woman who is featured as the lead scientist which shows women in a non-traditional role. A little dry but does get into science, design, etc.

Key Concepts: Future of Transportation, Principles and Science of Vehicle Design

## **Transportation Issues**

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## Transportation - Other

### **Bridging the Divide: Connecting People to Opportunity**

2:44

<https://www.youtube.com/user/usdotgov>

The U.S. Department of Transportation is working to expand access to opportunity for all Americans.

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