

12th grades

Time- 1-2 class periods

Guiding Questions:

- What is public transportation?
- What is the agency responsible for the majority of public transportation in New York City?
 - What is the Metropolitan Transportation Authority (MTA)?
 - Who runs the MTA?
 - Where does their budget come from?
- What is the history of public transportation in New York City?
- How can I be a responsible rider of public transportation?
- How do new subway lines and stations get built? How do bus routes get designed?
 - How does the process happen?
 - Who is involved in the process?

Slide Notes:

Slide 2 Key Information

- This slide is intended to start a discussion of the impact of public transportation on New York City and surrounding regions.

Slide 3 Key Information

- This slide provides an overview of what the MTA is and what forms of transportation it operates in New York City and surrounding regions.
- The Metropolitan Transportation Authority is North America's largest transportation network, serving a population of 15.3 million people across a 5,000-square-mile travel area surrounding New York City, Long Island, southeastern New York State, and Connecticut. The MTA network comprises the nation's largest bus fleet and more subway and commuter rail cars than all other U.S. transit systems combined.

Slide 4 Key Information

- A few exciting stats and facts about the MTA and if you want to share more:
 - The MTA employs more than 70,000 people.

- The Bridges and Tunnels overseen by the MTA serve more than 920,000 vehicles on an average day.
- There are 6,553 subway cars, which collectively traveled 355.5 million miles in 2023.
- 665 miles of track in the subway system which is the same number of miles if laid out end to end as driving from New York City to Charlotte, North Carolina.
- Over 6,000 buses, which collectively traveled 152 million miles in 2023

Slide 5 Key Information

- This chart details where the MTA gets its funding from and share the annual operating budget of the MTA. While the MTA operates under the authority of NY State and the NY State governor the budget is separate from the state's budget.
- For more optional information on the MTA's governance structure:
 - The MTA is a considered a public benefit corporation under the authority of NY state.
 - Public benefit corporations are governed by a board of directors appointed by various areas of government at the city, state, and county level. Board members have set terms in their positions.
 - The MTA is run by a Chair and CEO and governed by a 23-member board. Voting members are nominated by the governor, NYC Mayor, and the county executives of the counties serving the MTA's service area.
 - For more information on the MTA's governing structure go to the Additional Resources section of this guide.

Slide 6 Key Information

- New York City grew to be one of the most populated cities in the world in large part because of its public transportation. Public transportation made it a city that was easy to live and get around in. It enabled the growth of the city from its densely populated center in Lower Manhattan outwards into boroughs like the Bronx, Queens and Brooklyn and into surrounding areas like Long Island and Westchester. The history of the city and the history of public transportation are linked.
- Public Transportation first began on the water with steam engine powered ferries taking passengers across the East River in 1814 and on the land in 1827 with the

introduction of the Omnibus, a carriage that could carry about twelve people and was pulled by a horse.

- There were trains that went high above the streets called elevated trains that started running in 1868 before they went underground in 1904 and were called the subway. The earliest elevated trains were powered by steam engines and eventually electricity. The underground trains in New York City have almost always been powered by electricity with a few early exceptions. New York City was the 2nd city in North America to have a subway (Boston was first in 1897). London was the first city in the world to open an underground passenger railway in 1863.
- Today we have subways that both go underground and above the streets on tracks built over a hundred years ago in some instances. There are 23 different subway lines and 472 subway stations.
- On the streets there were horse-drawn buses called omnibuses then trolleys, street cars and cable cars and eventually motor buses like we see today.
- In the MTA's fleet today, there are over 6,000 buses with 238 local routes and 75 express routes.

Slides 7-9

- These slides detail how students can plan and navigate their travel, ride safely, and be a responsible rider.
- For older students who already travel on their own these slides may serve more as a reminder but younger students who are in the process of learning independent travel may find this helpful.

Slide 10

- This slide shows a time lapse video of the construction of the subway in NYC over time as a primer for the case studies and activities.

Slide 11

- Phase 1 of the Second Ave Subway was the biggest expansion of the subway system in 50 years. It opened for service on January 1, 2017.

- Phase 1 extended the Q line from 63 St to 96 St, with additional stations at 72 St, 86 St, and 96 St. That project was the first phase of a long-term plan to extend the line up to 125 St (Phase 2), and down to Lower Manhattan (Phases 3 and 4).
- Despite its density, the East Side of Manhattan is relatively poorly served by the subway system. Plans to build a subway under Second Avenue have been on the books for nearly a century, since the tearing down of the elevated train tracks that carried the 2nd avenue elevated line. This long-term plan has been broken down into four phases. Phase 2 would extend the line from 96 St to 125 St. Preliminary design and engineering are now underway.
- Phase 2 of the Second Avenue Subway is a transportation option that is long overdue for the residents and businesses of East Harlem. Phase 2 will bring a subway line back to the neighborhood by extending Q service north from 96 Street to 125 Street, creating three new stations at 106, 116, and 125 streets. Phase 2 of the Second Avenue Subway will improve mobility for commuters and residents of East Harlem, with all new stations being ADA accessible. In addition, the project will improve service and reliability on all transit in East Harlem and reduce overcrowding along the 456 lines on Lexington Avenue.

Slide 12

- It takes many years for a project like this to come together. Studies have to be done on the land, existing Infrastructure as well as input gathered from the community on the impact construction will have on the neighborhood.
 - The process to begin Phase 2 of the 2nd Ave Subway project began in April 2004 and concluded in November 2018 with a pre-planning process that included environmental impact assessments.
 - Planning began in January 2022 as the project went into the engineering phase to begin to understand how it would be built safely and efficiently.
 - Funding for the project was procured via a federal grant for 3.4 billion dollars.
 - The MTA awarded two major contracts for the project in 2024 and 2025. One was to relocate and upgrade existing infrastructure underground in preparation for the project to begin. The other was for the contractor building the actual tunnel.
 - In 2026 work on the new tunnel will begin.
 - In 2027 tunnel boring from 120 street and 2nd Ave to 125 Ave begins along with the construction of the 116th Street station.

Slide 13

- One of the most important aspects of any additions or changes to the transit system in New York and to the day-to-day operations is involving the riders in decision making.
- When a new project is undertaken the community impacted by the project is always consulted. Construction can be challenging for a community but many projects like the 2nd Ave subway also provide lots of benefits for a community by making it a more accessible place to live.
- All New Yorkers are able to make their voices heard at the MTA. Here a few ways to share your ideas and thoughts:
 - Attend a board meeting
 - Contact MTA via <https://www.mta.info/contact-us>
 - Attend community board meetings and presentations
 - Get involved in local organizations that advocate for public transportation (Permanent Citizens Advisory Committee to the MTA, Riders Alliance, Transportation Alternatives)

Slide 15

- In preparation for the activity this is case study #2 showing the recent redesign of the Queens Bus Network. This slide lays out the issues the project was trying to address and shows what bus riders were asking for in improving bus service. Over five years the MTA gathered input from 1,000s of bus riders and studied the issues with the routes.
- The project:
 - Improved connections and simplified the network to decrease travel times and make trips simpler for riders
 - Increased frequencies to create a better all-day frequent network to meet rider needs
 - Balanced stop spacing, to help speed up buses and improve reliability
 - Maximized travel time savings and improved the quality of service on targeted corridors. A corridor is a lane specifically for buses.

Slides 16-18

- These slides show the planning process for the Queens Network Bus redesign and show the changes and the impacts of those changes.

Slide 19-20

- Activity Extension. In groups students will decide on a new subway extension they would like to see. It could be just one station, the extension of an existing line, or an entirely new subway line. You can direct them to research on projects currently under consideration by the MTA here: <https://future.mta.info/expand/>
- They should create a brief presentation- could be done on computers or on verbally making their case on why this project should happen. Some inspiration on existing presentations can be found here: <https://www.mta.info/document/126041> or here <https://www.mta.info/document/24156>

Extension Activity: Pitch Your Subway Addition or Bus Redesign Idea

Materials:

- Paper, notecards, pencil/pens
 - Optional computer access for research and presentation creation
1. Break students into teams or small groups. They can choose whether to propose a subway addition or a bus route redesign.
 - a. The subway extension group will need to consider:
 - i. What existing line would you add to or are you proposing a new line?
 - ii. Where will the station or stations go?
 - b. The bus route redesign will need to consider:
 - i. What route are you changing or are you creating a new bus route?
 - ii. Are you adding new stops or moving existing stops or both?
 2. Students should spend a little time looking at existing MTA project presentations for the [2nd Ave Subway Phase 2 plan](#) and [Queens bus redesign project](#). What are some common pieces of information included in these projects? How did the MTA make their case?
 3. Using a computer or paper they should lay out their plan and talking points to make their pitch to their classmates. The presentations should include:
 - a. What: What is the project? What change are they proposing?
 - b. Why: Why are they advocating for this change? Why will this improve service?
 - c. How: How will this project happen? How will they get the community support they need to make this project possible?
 - d. Who: Who would benefit from this change? Who might be negatively impacted by the change?

- e. Where: Where is your proposed change located on a map? Create a visual of the change using an existing map either of the neighborhood or one of the [MTA maps](#).
4. Have students present their idea to their classmates. They have 10 minutes or less to get your point across and win support from their community of students.

Additional Resources:

Websites and Videos

Learn more about the [MTA](#)

Take a virtual visit of the [New York Transit Museum](#)

Find addition lessons on the history of transportation at the [New York Transit Museum](#)

Play short videos of different jobs at the [MTA](#)

Get [inspiration](#) from the recent bus redesign in Queens

Learn more about [Phase 2 of the Second Ave subway project](#)

Learn more about the [Arts and Design](#) in the system

Learn more about [climate resilience](#) at the MTA <https://www.mta.info/climate>

Learn more about [subway routes are designed](#).

Check out MTA's [Open Data](#) program to find out how the MTA uses data to make informed decisions.