

Smart Moves Lesson 5

Form, Function, and Freeways

Overview:

Students think critically about how transportation infrastructure affects the way we live our lives. They observe the transportation facilities near their school and then analyze a transportation proposal that would affect their school's neighborhood. They write an impact statement for the proposal and examine other ways that transportation needs could be met.

Objectives:

Students will be able to:

- Read a map, locating streets and waterways on it.
- Work cooperatively in groups.
- Understand that most people are, at different times, a pedestrian, passenger, and driver.
- Explain how the different modes of transportation and the facilities that support them are often in conflict.
- Analyze the physical and social impacts of highway development in a neighborhood.
- Use observation to collect data, generate ideas, and write about transportation issues.
- Describe how land use decisions affect livability.
- Describe how natural causes, economic patterns, and ways of life affect transportation development.
- Understand the citizen's role in land use and transportation decisions.
- List solutions to meet the needs of commuters.

Time: 4-6 class periods

Materials:

- Student Handout: map of Portland (Photocopy one for each student.)
- Student Handout: *Traveling History*
- Student Handout: *Data Collection*
- Student Handout: *What Are the Impacts?*
- Overhead transparency of the Portland map
- Highlighters and fine-tipped magic marker pens

Before you begin:

This lesson takes students into the community to gather data on transportation facilities near their school. Before teaching this lesson, you should take a few moments to walk around the school and identify a location you would like your students to observe. In addition, familiarize yourself with the kinds and numbers of transportation facilities that student will see.

Some issues that might arise in class discussion include the following points:

- For the last 75 years communities have been designed to keep different parts of our lives separate – houses in one section of town, shopping in another, and offices, factories, and schools someplace else. This means to get from one place to another, we must rely on cars.
- We are now living with the consequences of these early decisions to promote and encourage the use of the automobile: huge parking lots, wide streets, freeways and other facilities that take up a lot of urban land, bumper to bumper traffic, air pollution, and more deaths per year than all the soldiers who died in Viet Nam.
- Cars have become virtually essential in our society; our economy could not function without them. Elimination of the automobile is not the goal, rather this lesson attempts to educate youth about the impact of automobiles on

neighborhoods and the choices we have in creating a balanced mix of transportation options.

Procedure:

Day One (2 class periods)

1. Begin a class discussion with the following questions:

How do you get around town?

Where do you go and why? Where did you/your family go yesterday? Last weekend?

As students respond, point out that they have identified themselves as one of the following: **a pedestrian: a person on foot; a passenger: a person who is riding in a vehicle; and as driver: a person who is operating a vehicle such as a bike or car.** Reflect their comments back to them and emphasize the reasons that they go places. For example, "Your family drives to (a restaurant) so that you can get food." Or "You ride your bike to the park to hang out." "Your mom walks to Kinko's to make copies for her job."

2. Ask students if they know how to get from home to downtown, from school to North Fort Collins, and other routes that are explored in the *Traveling History* handout. Encourage answers that identify modes of transportation as well as descriptions of the routes and names of highways.
3. Place students into groups of three. Students may generate ideas together, but will complete their own maps. Pass out *Traveling History* and a Fort Collins map to each student. Pass out the highlighters and fine-tipped markers. Read over the instructions on the handout together. The instructions direct students to highlight the highways and waterways that appear in bold type on the handout and to write with markers, along the route of the highway or pathway, the purposes for which the pathways were used.

The highways and waterways that will be highlighted and labeled include:

- I-25
 - College Avenue
 - Harmony Road
 - Timberline Road
 - Prospect Road
 - Drake Road
 - Poudre River
4. Ask the class how the highways came to be and create a list of categories on the board. Why did they travel along what is now the section of I-25.
 5. Ask students if they see any similarities in the categories they listed at the beginning of the class and those they have listed for the handout. Students should be able to see that we use the highways to get to work (economic), bring our groceries home (way of life), to go to the mountains or soccer practice (leisure), etc.
 6. Have students label the school, their homes, and the major streets identified in the discussion on their maps. Label the purposes as well. (You may need to help students find the symbol for *school* on the map.)

Day Two (2 class periods)

7. Write this definition on the board: *Platting -- the act of designing streets and land uses so that the needs of pedestrians, passengers, and drivers are met and different modes of transportation are supported.* Tell students that today they are going to think like platters.

Ask students, "If you were a planner who had been given a job to redesign a street, what is the first thing that you would do?" Encourage students to include suggestions such as: "Study what the street is like now. Look at the street. Observe the street."

Tell the class that you will be taking a walk around the school premises to study a busy street that can be observed from or near school property. Explain that students will study how the transportation facilities for pedestrians, buses, and cars interact.

8. Pass out the *Data Collection* handout. Read the directions together. Ask students to name a few of the transportation facilities that they are sure to see. Using two of these, model what they might write about when describing the interactions among the facilities and modes of transportation. For example, students might describe the interaction between a pedestrian who is crossing the street and a car that is driving by on the street.

Possible entries for transportation facilities include:

crosswalks

bus stops

bus shelters

street lights

trash cans

sidewalks

bike paths

bike stands

speed bumps

streetlights

benches

medians

planters

curb extensions

refuge islands

beacons

9. Discuss safety rules with your class and then begin the walk. Have a busy street in mind. Take the long way to it and as you walk ask leading questions such as: "Where does this street lead to?" "How many lanes is it?" "Is it busy?" "Do you travel this street? Why or why not?" Point to transportation facilities and ask, "What is that used for?"
10. When you get to the destination street, have students sit down and record their observations on the *Data Collection* handout.
11. Return to the classroom and share observations. Use the students' observations to emphasize the challenge of meeting the needs of various modes of transportation. If the observations don't point to conflicts between the modes of transportation, mention that the planners have done a good job. Ask students to explain why the modes of transportation worked well together. For example, a new crossing signal may ensure safe movement for pedestrians.
12. Next, ask students to pull out their city maps and connect the streets around the school with the highways that students identified on the map. Have them highlight routes for getting from school to the highways. Ask students, "Where do your parents or relatives work?" Discuss how the highways lead to major employment centers such as Denver Tech Center and downtown. You could point to the areas on the overhead transparency.
13. Now tell students they will be solving a hypothetical, but very common, problem. Explain that the city has received many complaints from citizens, like their parents, who use one of the streets near the school to get on the freeway to go to work. The city is proposing to widen this street to make it easier for commuters to get to (name of street). Use a street that includes transportation facilities that are

- important to the school population. Explain that citizens have the right and responsibility to give input on transportation decisions in their community.
14. Pass out the *What Are the Impacts?* handout. Review the handout together. Direct students to write an impact statement that describes the effects of the street widening on the school property and community. Put students into small groups and give them plenty of time to develop their impact statements. Tell them to use the data and observations that they collected during the *Data Collection* observation to create their statements. For example, they might have identified facilities such as sidewalks and planters that would have to be removed if the proposal was implemented.
 15. Have students share their recommendations and solutions in class. Each group could choose a representative to present their findings.

Assessment Opportunities:

- Class discussions
- Completed maps
- Observations from *Data Collection* handout
- Impact statements

Extensions:

Land Use

- Help students find and attend a community meeting where a land use issue is being discussed or invite a civic leader who is involved with the issue to visit the classroom. Have students study the issue in advance of the visit.
- Have students make a list of the characteristics of a good neighborhood, including not only what it looks like, but how people in the neighborhood interact with each other. Then ask students to design a neighborhood that promotes those

characteristics. Students could create a cardboard model of an ideal neighborhood or simply sketch one. Have them consider the following elements in their design:

- Houses – Do they have front porches? Where are the garages located in relation to the houses?
- Streets – Are they wide or narrow? Do they include bike paths and place for pedestrians to cross?
- Stores and other commercial buildings – Are they within walking distance of the houses? How do the streets connect to the stores?
- Transportation facilities – Are there transit stops? Big or small parking areas?
- People places – Are there places for people to play, talk, and sit? Or is the design of the neighborhood aimed at cars only?

Transportation

- Have students study Fort Collins bus routes. This can be done online or by bringing Transfort maps to class. Direct students to highlight specific bus routes on their maps. Have students explain how people who live and work in different parts of the Fort Collins area can get to their destinations. Students could create scenarios of people with different transportation needs and develop recommendations for these people. For example, Pam works near Old Town Square downtown and lives on South College Avenue. Every morning she drops her 3-year-old son off at a daycare center that is located off of Mason and Horsetooth. How can she use public transportation to meet her commuting needs? How long will the commute take her?
- Discuss the concept of watershed in regards to the map. Locate watershed maps and compare them to the maps that students completed in class.

Benchmarks:

Career-Related Learning

Problem Solving

Apply decision-making and problem-solving techniques in school, community, and workplace.

- Use information to make decisions and solve problems related to family, school, and community situations.

Teamwork

Demonstrate effective teamwork in school, community, and workplace.

- Use strategies to work effectively with team members (e.g., negotiation, compromise, consensus, conflict resolution).

English

Reading

Demonstrate literal comprehension of a variety of printed material.

- Identify sequences of events, main ideas, facts, supporting details, and opinions in literary, informative, and practical selections.

Demonstrate inferential comprehension of a variety of printed material.

- Examine relationships, images, patterns, or symbols to draw conclusions about their meanings in printed material.

Draw connections and explain relationships between reading selections and other texts, experiences, issues, and events.

- Extend and deepen comprehension by relating text to other texts, experiences, issues, and events.

Writing

Communicate knowledge of the topic, including relevant examples, facts, anecdotes, and details.

- Convey clear, focused main ideas supported by details and examples in ways appropriate to topic, audience, and purpose.

Communication

Communicate knowledge of the topic, including relevant examples, facts, anecdotes, and details.

- Convey clear, focused main ideas with accurate relevant supporting details, including documentation of sources, appropriate to audience and purpose.

Social Science

History

Understand and interpret relationships in history, including chronology, cause and effect, change, and continuity over time.

- Represent and interpret data and chronological relationships from history, using timelines and narratives.

Civics and Government

Understand the roles, rights, and responsibilities of citizens in the United States.

- Understand citizens' roles and ways of participating responsibly in the political process.

Geography

Locate places and explain geographic information or relationships by reading, interpreting, and preparing maps and other geographic representations.

- Read, interpret and prepare maps, charts, graphs, and other visual representations to understand geographic relationships.

Understand the distribution and movement of people, ideas, products.

- Identify patterns of population distribution, migration, and cultural interaction in the United States.

Explain how humans and the physical environment impact and influence each other.

- Explain how human modification of the physical environment in a place affects both that place and other places.

Social Science Analysis

Identify, research, and clarify an event, issue, problem, or phenomenon of significance to society.

- Clarify key aspects of an event, issue, or problem through inquiry and research.

Identify and analyze characteristics, causes, and consequences of an event, issue, problem or phenomenon.

- Examine the various characteristics, causes, and effects of an event, issue or problem.

English

Writing

- Convey clear, focused main ideas supported by details and examples in ways appropriate to topic, audience and purpose.

Resources:

To access maps of bus routes and bike routes as well other information about meetings and events related to transportation issues, see:

Transfort Web site

<http://fcgov.com/transfort/>

Fort Collins Bicycling

<http://fcgov.com/bicycling/>

For information and photos that show Portland's streets from decades past, contact:

Fort Collins Historical Preservation

Physical Address: 281 N. College Ave., Fort Collins, CO 80524

Mailing Address: PO Box 580, Fort Collins, CO 80522-0580

Phone: (970) 221-6376

Fax: (970) 224-6111

HANDOUT:

Handout 1 - Traveling History

Directions:

1. On your map of Fort Collins, highlight all of the highways and waterways that appear in **bold** type below. Write the name of the highway or waterway with a marker.
2. What was the highway or waterway used for in the past? Summarize the purposes in short labels or phrases along the course of the highway or waterway.

Handout 2 - Data Collection

Your Name:

Date:

A. List Transportation Facilities.

Make a list of all of the transportation facilities that you see that support these modes of transportation:

Walking/Skateboarding

Car

Bus

Other Modes

B. Observe How Transportation Facilities Work

Sit quietly and observe how the transportation facilities affect the neighborhood. Answer the questions below, using another sheet of paper if you need more room to write.

1. How wide is the street? How much parking is there? What is the speed limit? Do cars seem to be moving safely and well? Or are there dangerous or problem areas?
2. Are the buildings too far or too close from the curb? When cars pull out of a driveway or side street, how easy is it to see pedestrians or traffic?
3. How do pedestrians and the various vehicles interact? How do pedestrians get across streets? How do cars deal with bicyclists? Observe a pedestrian, bus, or bicyclist. Watch what they do and record it.
4. For which mode of transportation are the facilities most functional, convenient, and accommodating? Why do you think this is?
5. How does a street that serves only cars affect a neighborhood? Why might people want a mix of transportation facilities on a major street?

6. Do the transportation facilities work well together on this street? Are there some problems? What would you improve?

Handout 3 - What are the Impacts?

An impact statement is a document that describes all of the consequences of implementing a proposal. Respond to the following questions to develop your impact statement.

1. What would have to be removed in order for the highway to be widened?
2. What else would be changed near the school? Consider factors such as noise, pollution, school events, safety, etc. How would this impact how people meet and congregate around the school?
3. How do you feel about the proposal? Do you think it is a good idea? Why or why not?
4. What are your recommendations? Think of ways to make commuting better for a mix of transportation modes. Suggest a way to solve the problem of moving people about without having to widen neighborhood streets.