

READING PASSAGE

You should spend about 20 minutes on **Questions 1–13**, which are based on the Reading Passage below.

Cycling for Transportation and Health: The Role of Infrastructure



- A** To help address health and other policy concerns, policy makers and professionals are looking at ways to increase the use of walking and cycling for everyday travel. While most of the focus on “active living” has been on walking, cycling may have a greater potential to substitute for motorized vehicle trips because of its faster speed and ability to cover greater distances. Bicycle commuting has been shown to be an activity that meets recommended intensity levels and to be related to lower rates of unhealthy weight and obesity.
- B** The potential for cycling as a transportation mode has been recognized nationally through objectives to raise cycling rates and significant increases in funding for building new infrastructure. Several states and cities have also adopted aggressive policies and programs to increase cycling. However, the United States lags far behind many other developed countries, particularly several European countries, with respect to the share of people traveling by bicycle. Moreover, most bicycle travel in the United States, particularly among adults, is for recreation, not daily travel. This is in contrast to cycling in countries such as the Netherlands, Denmark, and Germany.
- C** This research aims to provide insight on whether cycling for everyday travel can help US adults meet recommended levels of physical activity and what role public infrastructure, particularly bicycle lanes, paths, and bicycle boulevards, may play in encouraging this activity. Using global positioning system (GPS) technology, the study collected information on cycling behavior from a convenience sample of 166 bicyclists from March to November 2007 in the Portland, Oregon metropolitan area. The results can lead to policy recommendations for infrastructure investments and planning and zoning policies to encourage more cycling for everyday travel.
- D** Each participant in this study was provided with a specially programmed personal digital assistant with GPS to carry on all bicycle trips for 7 days. These units were chosen because they could be programmed for the participant to enter some data. Several actions were taken to try to improve the accuracy of the GPS data. Prior to use, the units and software were tested in different weather conditions, in various parts of the city, including downtown and under tree cover, and on different places on the bicycle. With location points collected every 3 seconds, the remaining points usually provided enough data to recreate the route. Participants were also asked to turn the unit on and wait for satellites to be detected before starting their trip. At the start of each bike trip, the participant tapped on the screen to enter his or her trip destination (e.g., work, shopping, exercise) and the weather details.
- E** The study does have several limitations. First is the under-representation of people who cycle only occasionally or even less than 5 days a week. Most of the participants were everyday bicyclists. Therefore, they are likely to be more confident than less frequent bicyclists. This is likely to affect route choices. Second, the data collection method may have influenced behavior. Six of the 164 participants noted that they bicycled more or on different routes than intended because of the GPS device. Third, at least 8% of the bicycle travel was not recorded by the GPS units. It is unknown whether or how the missed travel might have differed from the recorded travel in terms of route choice. Malfunction of the GPS units, including dead batteries, accounted for about half of the missed travel.
- F** The study demonstrated that cycling for transportation can be used by adults to meet the recommendations for daily physical activity. A supportive environment, like that found in the Portland region, appears necessary to encourage cycling for everyday travel, allowing more adults to achieve active living goals. The first part of that environment is bicycle infrastructure that addresses people's concern about safety from motor vehicles. In Portland, this includes a network of bike

lanes, paths, and boulevards. Building such a network requires a comprehensive plan, funding, and political leadership. In Oregon, state law requires that both bicycle and pedestrian infrastructure be built whenever roads are built or rebuilt (with few exceptions), and that cities, counties, and the State spend a reasonable share of their state highway funds, usually defined as 1%, on pedestrian and bicycle features.

A network of different types of infrastructure appears necessary to attract new people to cycling. Simply adding bike lanes to all new major roads is unlikely to achieve high rates of cycling. For people concerned with safety and avoiding traffic, a well-connected network of low-traffic streets, including some bicycle boulevards, may be more effective than adding bike lanes on major streets with high volumes of motor vehicle traffic. Opportunities to build separate paths are often limited in existing neighborhoods due to space constraints

and costs. Public agencies can, however, look for such opportunities when building other infrastructure, such as new rail transit lines, along existing transportation corridors, and when expanding to new undeveloped areas.

G The findings and limitations of this study point to additional analysis and research. The detail of the data allows for more extensive analysis than presented here. Comparing different types of cyclists (e.g., men and women) may provide insights into how to increase cycling among groups that traditionally do not bicycle for transportation in the United States. Comparing the actual bicycle routes to shortest path or other possible routes can provide estimates of how much cyclists value different types of infrastructure, based on how far they went out of their way to use it. Collecting similar data from other locations and from a larger number of different types of cyclists would be a valuable addition to this work.

Questions 1–6

The Reading Passage has seven sections, **A–G**.

Choose the correct heading for each section from the list of headings below.

List of Headings

- i How the scope of the research is limited
- ii The impact of constructing more bike lanes
- iii Possible advantages of cycling for daily travel
- iv What the research showed
- v Potential for increasing cycling for transport purposes
- vi The need for more research
- vii An improvement in the accuracy of GPS
- viii The research methodology
- ix What the aim of the study is

1 Section A

Example	Answer
Section B	v

2 Section C

3 Section D

4 Section E

5 Section F

6 Section G