Topics for Discussion

*If the book is being used in a course these questions are intended to help focus classroom discussion, highlight material to be emphasized, and provide a selection of additional case studies.*

Chapter 1

1) Where do you work within the process shown in Figure 1.1? If you don’t work within the public transport industry and are planning to do so, do you have a particular level in mind?

2) Where have you learned about public transport engineering/planning to date: from general transportation engineering/planning courses? From transit-specific courses? On the job?

3) Have you studied engineering economics or cost-benefit evaluation? Were there any transportation examples in the case studies?

Chapter 2

1) What are the basic differences in evaluation criteria and decision-making processes between major infrastructure projects designed for private use in the for-profit sector and projects that will be open to use by the general public?

2) Are there any categories of possible goals for public transport projects that you feel are missing from the list?

3) Are there any categories of goals that you feel are clearly more important or less important for the region where you live? What difference does it make how wealthy the majority of citizens of a country are?

4) In the US, and some other of the richer countries, air quality and congestion relief are almost always cited as two of the most important goals for transit (and highway) projects. Why do you suppose this is the case?

5) If elected officials, professional project planners and significant portions of the general public all seem to disagree on the relative importance of the major goals of a project, can it still proceed without further resolution?

6) If a project alternative is evaluated through the official process to be one of the poorest options, yet it also clearly seems to be the most popular with the public, what is the role of the will of the people?

7) Can you describe a transportation project where the alternative seems to have been inordinately influenced by the source(s) and restrictions on how the funding can be used?
Chapter 3

1) Are there any transit routes or lines in the region where you live or attend school that use more than one standard of Right of Way (RoW)? If so, is the percentage of each RoW type on these routes or lines changing over time?

2) How would you characterize the topology of this transit network? Is it the same over the entire region? Do route maps distinguish services that operate on a higher standard of RoW?

3) Are there any routes or lines that exhibit severe peaking either spatially or temporally or both? Are there any that seem to be almost equally busy all day long?

4) What is the policy headway of the regional system? Is it the same for all types of routes or lines? If there isn’t a regional system, does it vary between the different providers?

5) Can you name any transit networks anywhere in the world you have tried that especially impressed you? What was it about their design and/or operations that made it exceptional?

6) If you own a car or bicycle, do you tend to use it more frequently for short urban trips or for longer urban trips? What makes you decide in favor of it and against transit?

7) Are there any transit trips you take regularly that involve a connection that you feel are onerous? Can you be specific about your complaint? If you own a car, what is preventing you from switching to it? If you don’t own a car, is it tempting to want to get one to avoid this transit trip?

Chapter 4

1) Are Intelligent Transportation Systems (ITS) mature enough that cities in developing countries can “leapfrog” to the state of the practice in fare technologies and real-time information technologies?

2) How useful are advanced ITS traffic control technologies such as Transit Signal Priority in an environment of frequently severe congestion and weak traffic enforcement? To what extent can ITS contribute to improving enforcement?

3) In the region where you live or go to school, how important do you think the perception of security is to the use of transit? Does ITS help the perception and perhaps even the reality? What kind of ITS?

4) Is it possible that the information collected about your travel and continuous monitoring can become excessive? What about the future?
Chapter 5

1) What is wrong with the argument that transit in suburbs is less fuel efficient than driving a personal auto and therefore it should be eliminated?

2) How meaningful is it to compare the energy efficiency of switching from gasoline to an electric car in Norway, where there is 100 percent hydroelectricity, with the same switch in a place where coal is the majority fuel?

3) What transit fuel sources can be expected to reduce over the next 10 years in the local mix where you live or go to school? Which can be expected to increase? Which will generate electricity remotely and which will be used onboard the vehicle? On balance, will carbon dioxide and pollution emissions go up or down?

4) Critique the argument that transit only carries 2 percent of the trips in the region and therefore it wouldn’t make much difference to invest in expanding it.

5) Describe the walking conditions you faced when you went to elementary school. If you rode a bus, could you have walked or bicycled all of the way to school instead if the available infrastructure was different?

6) Compare aerial photographs of villages in Spain or Italy to those in the United States. How does the different urban form affect the ability to supply public transport to connect the villages?

Chapter 6

1) Compare aerial photographs of some of the central areas of Sao Paulo, Brazil, with Manhattan. Why do you suppose that Manhattan has so many contiguous buildings while Sao Paulo has large gaps between many of them? Keep in mind that the pressure from population increases is actually much higher in Brazil.

2) What role does local taxation to support local services play in regional cooperation about land use planning?

3) What is the evidence one can find that Jane Jacob’s “positive feedback” has occurred in an older city? How does the urban form differ from newer cities that never had a downtown heavily dependent upon access by transit?

4) Until early in the twentieth century many large European and North American cities had overcrowded tenements. These were alleviated by “streetcar suburbs” when transit operating costs decreased dramatically. Today, China has many “handshake buildings” where one can literally reach over to a person in the high-rise building next door. What are the prospects for future reduction in crowding of these modern day tenements?
5) What are some of the techniques being used to reduce the disruption of the urban ecosystem when new transport infrastructure is being built and old infrastructure is being rehabilitated?

Chapter 7

1) Find a few major regional transport plans for cities in Europe or North America that were developed from the mid-1950s to about 1970 (when the first environmental impact rules started to affect analysis). What were their projections for the annual rate of motorized trip growth for the next 20 to 30 years? How does this compare with the rates that actually occurred?

2) Do you agree with Amartya Sen that the “willingness to pay” concept is flawed because value often can’t be translated into a per-unit basis (his saving a bird species from extinction example)? What about his other point that it is also flawed because the answer depends upon what others are willing to pay?

3) Find a recent example of a major roadway being removed where the majority of the traffic never re-appeared on surrounding streets. Is there any research publicly available about whether the trips became non-motorized, went to transit, or simply were not taken? How important is such information for improving public transport demand modeling?

4) Do you see any practical or theoretical difficulties in applying the generalized time or generalized monetary cost concepts? They are very important in assigning trips to a network since all used paths have equal generalized times or costs. In the first case, money spent on tolls and fares has to be converted to a time equivalent. In the second case, time has to be converted to a monetary equivalent.

5) Is the steady improvement in tools to help visual model outputs going to improve public knowledge and insight about the consequences from various project alternatives? Or will it just provide new and improved opportunities to mislead the public into acquiescing with what the official planners want to do?

6) In your experience, do many transit planners or engineers get exposure to topics such as agent-based simulation, discrete choice modeling or optimization theory while still at the university? Do you think it is important to get a deep understanding or do only “specialists” need to learn such topics?

Chapter 8

1) Are there cases where there are some other factors in addition to those listed in Table 8.1 that need to be considered before one can have a meaningful comparison using the NPV method?
2) The items in Table 8.2 are assumed to be attributable only to a particular transit project. Are there cases when it is not clear where to draw the line on what belongs to a particular project?

3) Does the country where you reside provide detailed instructions on how to perform a cost-benefit analysis? If it does, are they specific to public transport only, applicable to all transport projects regardless of mode, or to all public works projects in general? What are the advantages and disadvantages of trying to make all analysts follow the same instructions?

4) Can you describe some major transportation projects where the cost-benefit analysis seemed to indicate a good project, yet it clearly involved major environmental injustice?

Chapter 9

1) Is engineering economics that includes cost modeling a required course for transportation planners at the university you attended or are attending? What about for transportation engineers? Do you think it would improve the design and planning process if this topic was mandatory?

2) What are the likely consequences for transit system planning if the P(CRF) term in an annual operating and maintenance cost model is treated as zero (or a small percentage of the actual)?

3) If you have worked at a transit agency or a contract operator, what was the percentage of total operating cost attributed to vehicle operating staff for each mode operated? What percentage to mechanics? How has this changed over time?

4) The rail mode is often used to cut vehicle operator costs through the use of long trains. But the percentage of cost that is attributable to labor on an annual basis can still be almost as high as for buses. Where and how is the labor being used?

5) A simplified model with only vehicle-hours or vehicle-distance, but not both, is sometimes used. Under what circumstances will this cause little difference in the results?

Chapter 10

1) If a transit agency or operator has a mixed fleet of newer, less expensive to operate vehicles and older, more expensive to operate vehicles, how should the vehicles be used to best address the peak service requirements?

2) What happens to system efficiency if one purchases new vehicles that can’t operate for the entire daily service span like the old ones used to do? (This can happen, for example, with new vehicles that operate with compressed natural gas instead of diesel fuel.)
3) If two connecting routes or lines are operated by different companies and a joint fare is to be distributed between these two companies in proportion to how far the passenger rides on each, what kind of information about the rider is needed?

4) If cutting cycle time is an extremely effective way to cut operating costs and hence the operating subsidy required, why do you suppose so many cities and regions go decades without any investment in transit speedup measures?

Chapter 11

1) Have you ever lived in or had an extended visit to a city or region with a deregulated transit service or weakly enforced regulations? Where and at what times of day is service plentiful? Where and when is it not? Can you give an explanation?

2) Have there been transit strikes where you live or go to school? If so, what was the impact on the functioning of the city? What do you feel about the right to strike? Is transit provided by public employees a vital service analogous to police and fire protection?

3) If a private company is given a DBOM with a net contract for a new line in a region where there is no integrated fare system, what are the issues that might arise when an integrated fare system is contemplated? (Hint: The Croydon Tramlink in London is a good example of what might happen.)

4) How realistic is it to try to implement strong regulations when the local or regional governance and enforcement structures are weak? Can regulations be implemented gradually? Can they be implemented in only one part of the region at a time?

5) If you live or go to school in a large region with one large agency responsible for service in all of it, are there towns or districts where it seems there are serious demands for local service that are going unmet? Have there been attempts to negotiate new locally oriented services?

6) Are you aware of any stand-alone transit projects that have been completed recently by a private firm, or by any other newly formed entity separate from the regional authority, which have been successfully integrated into the regional system? Was the integration considered from the start or was it done later after some years of operation?

Chapter 12

1) In practice, how often would one really expect to see totally dominant alternatives or totally dominated alternatives such that no further evaluation was necessary?
2) Is there any nation or region in which a hard sustainability constraint has actually forced a project to be cancelled? Will this be necessary in the future if global warming is to be taken seriously?

3) Is benchmarking a promising technique for improving transit systems in developing countries?

4) Boss Tweed once said that “I don’t care who does the voting as long as I do the nominating.” Does this pertain to public votes that approve major transportation projects?

5) What is your opinion on the AHP process? Is it too complicated to be used to gather public opinion about the relative importance of various project goals? When comparing effectiveness of various alternatives towards meeting specific goals, are there types of goals where this can be performed objectively?

6) The EcoMobility (EM) method currently involves holding a Decision Conference (DC) made up of very select public officials. Can this process be improved by allowing additional parties to participate? If so, do they participate in the same one or should there be multiple DCs?