

CEE 123 Transport Systems 3: Planning & Forecasting

Winter 2023: Dr. Pierre Auza [15465]

Homework 2. The Transportation Planning Process

Problem 1. Planning Process (Lab Team Project: 30 points)

Miasma Beach, a seaside town with a population of 15,500, is considering implementation of a **land use policy** to manage projected growth in the City. Land use decisions are tied to future transportation system alternatives. Your lab team is to apply the Transportation Planning Process and complete the following tasks:

1. Assume and **describe** some basic community values and, based on these values, prepare a **set** of (a) broad goals and (b) specific objectives for the City, regarding future development of the City's land use **and** transportation systems.

Remember: your team is free to create any (reasonable) set of community values for Miasma Beach, but this assignment, and the rest of the quarter, must be consistent with this vision.

2. There are currently limited land use restrictions in the City. Land prices are more expensive in TAZ 2, 3, and 6 along the coast. Historically, TAZ 4 has been dedicated to agricultural purposes but land is available for agricultural purposes in TAZ 5.

Develop a Land Use plan for the City, focusing on the amount of future population and employment than you want to be accommodated in each TAZ. Recent projections suggest that population may increase by as much as 25% by 2030. Due to significant anticipated growth in the agricultural and tourism industries, employment growth may be 40 percent by 2030.

Identify **1 or 2** transportation problems associated with your **proposed** land use plan that suggest potential gaps between City transportation objectives and actual system performance. If your identified objectives are not consistent with proposed land use changes, then you will need to either revise your objectives or develop a revised land use plan that is consistent with your objectives.

3. For your defined problems, develop **3** transportation system alternatives (A1, A2, and A3) that have potential to address the defined problems. One of these alternatives must be public or active transportation options. One of the options must be a "thinking outside the box" option. Be creative.

Think broadly when you propose alternatives: either conventional or innovative options are welcome. The description of each alternative should include the technology, type of operations, service area, and other relevant system characteristics. The alternatives **must** be consistent with the values, goals, objectives, and defined problems for a city of 15,500 residents (albeit, growing significantly by 2030). **Note** that your grade will be based on your team's creativity so do not share your ideas with other teams!

4. While you will not actually analyze these alternatives, propose and define **2 or 3** performance measures (Measures of Effectiveness or MOEs) that can be used to assess impacts. The measures can relate to level-of-service (e.g., average travel time), environmental quality (level of emissions), equity (mobility of carless households), walkability, or other impacts. These MOEs **must** be applicable to the proposed alternatives, problems, and objectives.
5. Develop **rough cost estimates** for each alternative (ballpark figures -- do **not** spend too much time on this). Search the web for cost information or use your judgement to estimate appropriate values. Consider both capital and annual operating costs (state assumed project life).
6. What are the next steps in this Planning Process?

Your opinion is probably based on very little real-world experience. First, read the background information on Miasma Beach (on the website's Project page). Next, search the web for supporting information or simply come to some general agreement with your teammates. There's no "right" answer; this is a thinking exercise that you will re-visit at the end of the course. Throughout the course, we'll present and discuss methods and models to formally estimate and evaluate the performance of system alternatives. You will apply this process again in your lab report.

Problem 2. Sister City (Lab Team Project: 10 points)

Miasma Beach is a fictional community that is loosely based on real seaside cities. Find a west coast, seaside community with similar population, land area, and/or other characteristics similar to those for Miasma Beach. Review material available on-line to find out more about a community of this size and nature. Please use this exercise as a means to scale the issues that you will be discussing for Miasma Beach. Some potential communities include Grover Beach, Half Moon Bay, Laguna Beach, Malibu, Morro Bay, Seal Beach, and Solana Beach. **Summarize** your findings relative to the **Transportation** and **Activity** system information provided for Miasma Beach. This "Sister City" information may prove useful throughout the quarter.

Table 2. 2020 Miasma Beach Demographic Data

ZONE	POP	LABF	CARS	HINC	HH	EBAS	ERET	EOTH	ETOT	AREA
1	3000	1100	900	29850	700	400	150	1000	1550	1.56
2	1550	1300	600	44850	800	300	225	1300	1825	2.53
3	3500	1200	2500	83100	1000	0	350	250	600	3.10
4	0	0	0	0	0	1400	150	200	1750	2.83
5	2450	1400	2000	49500	950	0	100	50	150	1.27
6	5000	1800	2250	57000	1550	0	425	500	925	3.09
Tot	15500	6800	8250		5000	2100	1400	3300	6800	14.38
Mean	2583	1133	1375	55050	833	350	233	550	1133	2.40

Note: Weighted mean used for income

POP = zone population EBAS = basic employment
 LABF = labor force (by residence) ERET = retail employment
 CARS = total cars in zone EOTH = other employment
 HINC = median zone household income ETOT = total zone employment
 HH = number of households in zone Area = zone area (sq.mi.)

Note: basic employment includes agricultural and industrial

Last Updated: 1 January 2023