

## MEMORANDUM

To: Course Participants

From: Patrick Siegman

Date: February 24, 2009

Subject: **Parking & Transportation Cost Data for Campus Transportation Demand Management (TDM) Planning**

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### Preparation

For our session on Assessing the Most Cost Effective Mix of Transportation Investments to meet your campus' goals, it will be helpful have the following information available:

1. Your best available data on the costs of the existing and proposed parking and transportation facilities and programs at your campus. (If you have little or no data available, don't be worried. This session will help you discover the kinds of information together in the future.)
2. A laptop computer equipped with Microsoft Excel or a similar spreadsheet program. (A calculator or a very good head for numbers will also suffice, but requires more work.)

For this exercise, perfection is not required (and is rarely, if ever, achievable). The goal is to provide usable, practical assessments to help guide your everyday work, rather than to start in on a Ph.D. thesis. Partial or incomplete data is fine as a starting point. The remainder of this memo provides some additional detail about the kinds of data that will be useful, the questions to ask, and a few suggestions about how to determine the answers.

### What kinds of data should conference attendees have available?

Ideally, you should get data on the costs (both capital and operating costs) of the facilities and programs for each mode of transportation on your campus. In addition, bring figures describing the revenue (if any) brought in by each of these facilities and programs. **For this exercise, we are primarily interested in costs and revenues from the point of view of your institution's budget.**

It can also be very useful to think about how campus parking and transportation policies affect the budgets of other institutions (for example, a public transit agency serving your campus)

and how they affect individuals (such as your students, faculty and staff). Given the limited time for this exercise, however, we will focus almost entirely on costs from the point of view of your institution's budget.

### **Capital costs versus operating costs**

For each mode of transportation, we are interested in both capital costs and operating costs. *Capital costs* include costs for land, buildings, construction and equipment. Unlike operating costs, capital costs are normally one-time expenses, although loans may be used to spread payments out over time. For a physical facility, such as a parking structure, for example, capital costs normally include:

- *Hard costs.* Hard costs are the brick-and-mortar expenses. Hard costs include all the costs for visible improvements, such as grading the site, pouring concrete, steel and steel workers, electrical work, carpentry and plumbing.
- *Soft costs.* Soft costs are the costs that you cannot visibly see, such as architectural and engineering fees, environmental reports and any government fees, such as building permits.
- *Land costs.* At universities, assessing land costs is often a matter of considerable debate. Ordinarily, parking operators assess land costs by determining the market value of the land occupied by the facility. To estimate this, they ask questions such as:
  - What would it cost to purchase this parcel of land, or a similar one, on the open market today? (Or conversely, what price would this parcel of land fetch on the open market?)
  - If the parcel cannot be sold, how much revenue could be produced by leasing the land for another purpose?
  - What is the opportunity cost of using this land for parking, rather than for another purpose? (For example, could the institution save money, or earn additional revenue, by using the land for housing, office space or another facility?)

For all capital costs, we will be interested in translating the cost into present-day dollars, so if the facility was built and paid for some time ago, it is useful to know the construction date.

*Operating costs* are recurring expenses related to operating a transportation facility or program. For a typical campus parking structure, for example, operating costs include ongoing maintenance, electric bills for elevators and lighting, insurance, personnel (e.g., for parking permit sales and enforcement, snow removal and so on).

### **Lifecycle cost estimates**

Oftentimes, parking facilities have high capital costs and relatively low operating costs, while transit routes and other alternative transportation programs have low capital costs and relatively high ongoing operating costs. In this exercise, we will be developing lifecycle cost estimates, which allow for a fair comparison of different transportation facilities and programs, taking into account both capital and operating costs over the entire useful lifetime of the facility or program.

## Borrowing costs for your institution

In developing lifecycle cost estimates, it is useful to know the interest rate that your institution would typically pay when borrowing money to pay for the capital cost of transportation facilities. (Often, public institutions can issue tax-exempt bonds, allowing them to borrow at lower interest rates than the typical private business.)

## Questions to ask about each mode of transportation

Taking each mode of transportation in turn, here are some questions to ask. For simplicity's sake, we recommend that in the case of facilities that are shared by many modes of transportation and many types of commuters (such as roads, which are typically used by single-occupant vehicles, buses and cyclists, and sidewalks, which are often used not only by those walking to school but also by drivers going from parking lot to building), you do not attempt to allocate the cost of these shared facilities to particular transportation modes.

Providing the number of commuters using each mode of transportation makes it possible to estimate the annual cost per commuter for each mode. At many institutions, it is useful to break down costs, revenues and numbers of commuters by group (e.g. faculty, staff and students), since different groups often are entitled to different benefits and/or pay different rates for parking and other services.

### An Example: Supporting Transit at Cal Poly San Luis Obispo, San Luis Obispo, CA

San Luis Obispo (SLO) Transit provides bus service within the City of San Luis Obispo. Cal Poly San Luis Obispo subsidizes the fare for all students, staff and faculty, who may ride for free by using their Cal Poly ID card. Cal Poly's cost for this service in fiscal year 2003-2004 totaled \$254,124 in payments from the university to SLO Transit. Ridership figures show some 1,100 daily Cal Poly riders (2,200 roundtrips), which corresponds to approximately 5 percent of the total Cal Poly population.

Dividing the total cost of the program to Cal Poly by the number of daily transit commuters among the university's population results in an estimated cost to Cal Poly of \$234 per transit commuter per year. In this example, the university had no data available on the breakdown between faculty, staff and students using the service, so the first two columns of the table are marked "n/a", for "data not available".

Investments in transit	Students	Faculty /Staff	Total Population
A. Cal Poly cost per year	n/a	n/a	\$254,124
B. Cal Poly revenue per year	n/a	n/a	\$0
C. Cal Poly net cost per year (C=A-B)	n/a	n/a	\$254, 124
D. Percentage riding transit	n/a	n/a	5%
E. Number of transit riders	n/a	n/a	1086
F. Cal Poly net cost per commuter per year (F=C/E)	n/a	n/a	\$234

## **Bicycle facilities and programs**

1. What were the capital costs for each of your investments in bicycle facilities? When was each facility purchased? Bicycle facilities may include bicycle lockers and racks, clothes lockers for bicycle commuters, etc.
2. What are the annual operating costs for your bicycle programs?
3. What are the annual revenues from your bicycle programs?
4. How many bicycle commuters does your institution have?

## **Pedestrian facilities and programs**

5. Pedestrian Facility Capital Costs: As noted earlier, we suggest that sidewalks and pathways that are shared by many types of commuters (from those who walk to work to drivers simply making the last leg of their trip, from parking lot to building) be excluded from the analysis. Therefore, many campuses will list no capital costs for pedestrian facilities.
6. What are the annual operating costs for your pedestrian programs? This may include parking cash-out programs or other rewards for walking to work, marketing programs, etc.
7. What are the annual revenues from your pedestrian programs, if any?
8. How many pedestrian commuters does your institution have?

## **Carpool facilities and programs**

9. What were the capital costs for each of your investments in carpool facilities? When was each facility purchased? Carpool facilities may include the cost of any parking spaces (either free or subsidized) occupied by carpoolers.
10. What are the annual operating costs for your carpool programs? This may include ride matching services, marketing, etc.
11. What are the annual revenues from your carpool programs?
12. How many carpool commuters does your institution have?

## **Vanpool facilities and programs**

13. What were the capital costs for each of your investments in vanpools? When was each item purchased? Vanpool program capital costs may include the purchase of vans and/or the cost of any parking spaces (either free or subsidized) occupied by vanpools.
14. What are the annual operating costs for your vanpool programs?
15. What are the annual revenues from your vanpool programs?

16. How many vanpool commuters does your institution have?

### **Transit facilities and services**

17. What were the capital costs for each of your investments in transit? When was each facility or piece of equipment purchased? Transit capital costs typically include buses, bus shelters and vehicle storage and maintenance facilities.

18. What are the annual operating costs for your transit services?

19. What are the annual revenues from your transit programs?

### **Parking facilities and programs - surface lots**

(For these facilities, it may be helpful to refer to the discussion on page 2 of this memo regarding capital and operating costs.)

20. What were the capital costs for each of your investments in parking lots? When was each lot built and paid for?

21. What are the annual operating costs for your parking lots?

22. What are the annual revenues from your parking lots?

### **Parking facilities and programs - parking structures**

(For these facilities, it may be helpful to refer to the discussion on page 2 of this memo regarding capital and operating costs.)

23. What were the capital costs for each of your parking structures? When was each structure built?

24. What are the annual operating costs for your parking structures?

25. What are the annual revenues from your parking structures?

26. For each structure: how many total parking spaces are in the structure? How many surface parking places were displaced when the structure was built? (Alternatively, if there were no parking spaces on the site previously, how many surface parking spaces *could* fit on the land occupied by the structure?) Subtracting the number of surface parking spaces displaced from the total number of spaces in the structure gives the net number of spaces gained. Calculating the net number of spaces gained allows one to calculate the net cost per space, a figure which is especially useful when no figures for land value are available.

Finally, to reiterate, complete and perfect data is neither expected nor required. Use any figures that you have at hand that appear relevant.

I look forward to answering your questions during the Q & A session at the conclusion of my presentation on March 18th.