

# SWATeam Recommendation

Name of SWATeam: SWAT Transportation Team

SWATeam Chair: Yanfeng Ouyang

Date Submitted to iSEE: February 1, 2016

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## **Specific Actions/Policy Recommended (a few sentences):**

**Differential parking pricing for shared vehicles.** One identified venue to encourage car sharing among faculty/staff and students is via differential pricing of campus parking permits. The basic idea is to sell parking permits at different prices for different lots, different vehicle types, and different users. The spots in the popular lots shall be sold at higher prices, while those sharing cars (i.e., two or more persons purchasing one permit for one vehicle) or using low-emission vehicles shall receive discounts and/or priority for getting into a popular lot. It is proposed that a study could be performed in two phases, as follows:

### Phase I: Feasibility study that

1. Conducts a series of surveys to (i) understand the attitude of the parking department, current users, and the general public toward the proposed differential pricing scheme; and (ii) collect information on the campus commute patterns (single vehicle vs. carpool vs. CUMTD transit, origin/destinations, and vehicle types).
2. Collects data on campus parking capacity, utilization pattern, and demand profile.
3. Develops statistical/econometric models based on the collected data to inform us about the likelihood for users to adapt their vehicle usage and parking preferences in the context of parking price change.

### Phase II: Pilot implementation study that

4. Evaluates the effectiveness of differential pricing on enhancing parking capacity utilization and reducing single-occupancy vehicle usage, with possible field implementation on a small scale.

## **Rationale for Recommendation (a few sentences):**

Commute travel consistently accounts for about 20% of the total campus transportation eCO<sub>2</sub> emissions. Data from FY08-14 reveal that our campus' commute travel emissions have increased in recent years. The 2015 iCAP report has correctly identified this problem and set a transportation goal on "reducing single-occupancy vehicle usage."

The current campus parking system has the following features: (i) the long-term parking permit fee is flat for all users (equitably proportional to the user's salary), all vehicle types, at all parking lots; (ii) users wait for years to get into some popular parking lots, while other lots are under-utilized in the meanwhile; and (iii) current parking permits are sold on a per-individual basis. It might be possible to use pricing as the leverage to balance demand across parking lots, increase parking revenue (and/or social welfare), and most importantly, encourage shared vehicle usage and reduce emissions. If designed properly, this system will lead to a win-win-win situation -- the increased revenue from high-price lots could be used to offset the reduced revenue from carpooling, the users may not wait as long for a desired parking space, while the campus as a whole reduces single-occupancy vehicle usage and emissions. The social equity issue would not be worse than the current status-quo because we can keep the permit price to be always a percentage of the user's salary.

## **Connection to iCAP Goals (a few sentences):**

The goal on reducing single-vehicle commute travel emissions will be very impactful on a number of sustainability objectives (e.g., emissions reduction, financial cost reduction, resource conservation, behavior

change). The proposed actions/policies directly address objectives listed in the 2015 iCAP report, and they are also relatively easy to implement (despite potential resistance from the parking agency and users).

**Perceived Challenges (a few sentences):**

It is anticipated that the campus community and administration may need some adjustment period for the new parking pricing scheme. The policy and pricing scheme must be designed carefully for this system to yield a win-win outcome.

**Suggested unit/department to address implementation:**

College of Engineering (e.g., Civil and Environmental Engineering) , Urban Planning, Facilities & Services (F&S), and the Department of Parking.

**Anticipated level of budget and/or policy impact (low, medium, high):**

Phase I of the study may take a faculty member and a graduate student 1.5 years to complete (e.g., Spring 2016 – Summer 2017). Phase II may take at least another 1 year to complete (e.g., Fall 2017 – Summer 2018). The total budget will approximately cover two months of faculty summer salary and one graduate student for 2-2.5 years.

**Individual comments are required from each SWATeam member (can be brief, if member fully agrees):**

| Team Member Name | Team Member's Comments   |
|------------------|--|
| Yanfeng Ouyang   | I believe the proposed study will be quite cost-effective in reducing campus transportation emissions. This will lead to long-term commuting behavioral changes.   |
| Pete Varney      | Parking can be a contentious issue and finding the proper balance between environment, economic and political concerns could be difficult.   |
| Bumsoo Lee       | This study is a relatively low cost project, but it can bring about a significant behavior change of the campus community. There is no better option to influence commuting mode choice than a well-designed parking policy.   |
| Claire Dodinval  | I think this study serves as a strong assessment of ways to lower transportation emissions and once implemented, constraints on parking availability would be easier to implement- and more trialable- than larger scale emission-reduction attempts to change the vehicles or fuels used on campus. |
| Zhaodong Wang    | I think this project is promising to reduce campus transportation emissions.   |
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**Comments from Consultation Group (if any; these can be anonymous):**

**Explanation and Background (can be supplied in an attachment):**

