

# **PROJECT PROPOSAL**

## **North Carolina State University Transportation Peer University Benchmark Study**

### **Part I: Project Governance**

#### **Background**

The North Carolina State University Transportation Department (NCSU Transportation) is responsible for all aspects of transportation across NCSU's three campuses—Main Campus, Centennial Campus, and Centennial Biomedical Campus—including the management of nearly 19,000 parking spaces, the 71-system-mile (32.2 directional route miles) Wolfline transit system, and a comprehensive Transportation Demand Management (TDM) program. Because it is a financially self-sustaining department of the university, NCSU Transportation has a keen interest in delivering efficient and high-quality services to the university population in all aspects of campus transportation. To this end, a peer university benchmark study has been proposed to evaluate NCSU Transportation's parking, transit, and TDM services with respect to peer universities (those similar in any number of characteristics to NCSU, such as size, academics, provision of transportation services, etc.). A benchmark study will inform NCSU Transportation of its position among peer institutions and indicate the efficiency with which it is providing its services. Further, a benchmark study will provide a framework from which the department can evaluate its services as the university changes and grows.

#### **Objectives**

The objective of the Peer University Benchmark Study (PUBS) is to allow NCSU Transportation to evaluate its performance with respect to similar universities and identify areas in which it is currently excelling and those in which it has room for improvement. This information will be useful to the university community both within and outside of NCSU Transportation, as it will ensure continuation of successful practices and allow for the correction or alteration of practices resulting in lower-than-average performance. It may also provide insight into institutional or organizational structures that facilitate efficient, high-quality transportation services and allow the department to pursue structural or policy changes to improve service.

The major deliverables of the project include:

- . Project Proposal
- . Draft Peer University Benchmark Study Report
- . Peer University Benchmark Study Report
- . Peer University Benchmark Study Presentation

#### **The Project Team**

This project is being funded in part by the North Carolina Department of Transportation (NCDOT) Public Transit Division Internship Program. Emily Yasukochi was hired through this program with the assumption that she will hold primary responsibility for all aspects of the PUBS project. Yasukochi will assume the role of principal investigator on the project, while additional NCSU Transportation staff members will provide guidance throughout the project lifecycle. Slade McCalip, Assistant Director of Planning and Operations, is Yasukochi's direct supervisor, while Adena Messinger, Transportation Planner, and Starr Wimberly, Transit Manager, will provide direction and support on project tasks. Senior management of NCSU Transportation will retain an advisory role throughout the project.

## **Scope of Activities**

A work breakdown structure and schedule of tasks to be performed in the study are given in Appendix A. The following is a summary of each task and sub-task from the list. The principal investigator will complete all tasks unless otherwise noted.

### 1. Project Proposal

The purpose of this proposal is to outline the tasks and sub-tasks to be completed as a part of the PUBS project, and identify the major milestones and deliverables involved. The project team and project management strategy are defined, as well as a communication plan and assumptions used in the project planning process.

### 2. Research/Background data collection

The principal investigator will collect all background data needed to complete the benchmark study. This includes the process of benchmarking for universities and providers of transit, parking, and TDM services. The principal investigator will research peer selection processes so that the most appropriate peers are selected for the study. The principal investigator will also gather information on the Wolfline transit system and NCSU parking and TDM services in order to develop performance measures and record current performance levels for external (peer) and future internal (trend) analyses.

### 3. Determine performance measures to use in study

Based on data availability and NCSU Transportation staff input, the principal investigator will select a set of performance measures on which to base the PUBS. Performance measures for transit, parking, and TDM programs will be considered. The set will include measures of efficiency, effectiveness, and quality of services provided by the institutions studied. Examples of performance measures that may be used in the study are given in Appendix B. The principal investigator will work with department staff to select the most appropriate and informative measures; however, the list of performance measures to be used in the PUBS will not be finalized until the peer group has been selected and it has been determined that data can be obtained from all or most of the peer institutions.

### 4. Determine Peer Group

In order to complete the peer institution selection process, the principal investigator will define peer selection criteria based on standard practice and NCSU Transportation staff input. The peer group shall include at least five but no more than ten peer institutions. There are a number of reasons to limit the peer group size: a) determining performance measures becomes onerous with a large peer group because each institution collects different data; b) with more than ten peers, the comparison among them becomes less meaningful; and c) because each institution is unique, a limited number of institutions will share enough characteristics to be considered peers. In addition to determining the peer group for the study, the peer selection process will be documented as a part of the final report.

### 5. Research/collect data on peer institutions

The principal investigator will contact and collect information on selected performance measures from peer institutions.

### 6. Analysis of peer group data

In the analysis process, the principal investigator will compare the results of data collection efforts from all peer institutions. NCSU transit, parking, and TDM performance will be compared to the peer group averages and ranked within the peer group. The second part of the analysis procedure will involve identifying institutional and program characteristics that facilitate efficient, high-quality performance.

### 7. Draft report

The principal investigator will compile the findings from the peer group analysis (Task 6) into a written report for review by senior NCSU Transportation staff. The report will include sections on: 1) methodology used in the PUBS process, 2) results of the data collection and analysis tasks, 3) recommendations for improving transit, parking, and associated TDM program services at NCSU, and 4) an outline of the procedure to be used for future performance assessment. Transportation staff will be asked to review and comment on the draft report.

### 8. Final report and presentation

The principal investigator will incorporate NCSU Transportation staff comments into a final report and prepare a presentation based on the report. The final report and presentation shall be of a quality appropriate for dissemination to a wider NCSU audience.

## **Part II: Project Details**

### **Project Schedule**

The project began on May 15, 2006 and is scheduled for completion on December 15, 2006. For a detailed depiction of the schedule, see the work breakdown structure in Appendix A.

The project is divided into eight tasks, as described in the scope. Milestones on the critical path of the schedule are shown in Table 1.

**Table 1. Milestones on the Critical Path**

<i>Milestone</i>	<i>Date</i>
Approval of project proposal	June 9, 2006
Finalization of peer group and performance measures	July 7, 2006
Completion of draft PUBS report	October 27, 2006
Receive comments on draft PUBS report	November 10, 2006
Completion of final PUBS report and presentation	December 15, 2006

### **Project Costs**

The direct cost related to the PUBS project will be approximately \$9,900 and is associated solely with the principal investigator's labor (estimated at 720 hours). The NCDOT Public Transit Division internship program covers 90% of this cost, while the department is responsible for the remaining 10%, or approximately \$990. Additional time will be required of department staff, and the department is expected to cover all overhead costs of the principal investigator's position. A detailed budget estimate of direct costs can be found in Appendix C.

**Communications Plan**

Internal communications will include a weekly progress meeting with the project team. The primary purpose of these meetings will be to discuss technical or administrative problems and review work progress. Internal communications with advisory staff members (the project team and senior management) will consist of meetings scheduled around important project milestones. A summary of these meetings and approximate dates can be found in Appendix D.

**Assumptions**

The project plan described in this proposal is subject to a number of internal and external influences, many of which can neither be projected nor controlled by the project manager and project team. This plan is based on the following assumptions:

- ❖ The principal investigator will operate on a full-time schedule from May 15, 2006 to August 18, 2006.
- ❖ From August 21, 2006 until project completion, the principal investigator will work on a part-time schedule of 10-15 hours per week.
- ❖ The majority of the principal investigator's time can be dedicated to the project (80% or greater effort).
- ❖ Staff input requested is received in a timely manner.
- ❖ Peer universities respond within the scheduled time period to requests for information.

**Summary**

This project proposal has outlined the plan for completion of the Peer University Benchmark Study for NCSU transit, parking, and TDM services. Its purpose is to maximize the probability that the project will be completed on time, on budget, and to the satisfaction of NCSU Transportation staff and management. The approval of this proposal is requested by June 9, 2006, in order to maintain the project schedule.

**Reference**

Fielding, G. J., et al. *Indicators and Peer Groups for Transit Performance Analysis*. Report no. UMTA-CA-11-0026-2. Washington, D.C.: U.S. Department of Transportation, Urban Mass Transportation Administration, 1984.



## APPENDIX B

### Sample Performance Measures for Transit, Parking, and TDM

This is a list of *possible* performance measures that can be used in the benchmarking process. Ideally, between five and ten indicators should be chosen for each element to be benchmarked (transit, parking, TDM). Indicators should be reliable, easily understood, highly representative of the aspect of performance we are attempting to measure, and relatively easy to collect from both NCSU and peer universities.

#### **Transit**

##### ***Cost Efficiency***

Cost by route

Operating expense per (service) mile

\*Operating expense per (service) hour [COST EFFICIENCY]

\*Total vehicle hours per total employees (full-time equivalent) [LABOR EFFICIENCY]

\*Total vehicle miles per peak vehicle [VEHICLE EFFICIENCY]

\*Total vehicle miles per maintenance expense [MAINTENANCE EFFICIENCY]

##### ***Cost Effectiveness***

Operating expense per unlinked passenger trip

##### ***Service Effectiveness***

\*Unlinked passenger trips per vehicle hour [SERVICE UTILIZATION]

Unlinked passenger trips per vehicle mile

##### ***Quality/Safety of Service***

Adherence to route schedule

Bus stop spacing

Service frequency

Service span

Accidents per 100,000 bus miles

Preventable accidents per 100,000 bus miles

Bus stop amenities

##### ***HNTB Recommended Measures***

- . Service: Percentage of campus are covered by transit; capacity provided by buses—peak hour and daily
- . Ridership: Annual/monthly ridership by route; ridership per route mile; ridership per service hour

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\* Indicates industry standard performance measures. Brackets indicate the dimension of performance measured. (Source: Fielding et al., 1984)

## **Parking**

Average occupancy rate of lots/structures (%)  
Revenues as a percentage of operating expenses  
Ratio of employees to employee parking spaces  
Ratio of students to student parking spaces  
Ratio of university parking spaces to university population  
Visitor parking rates or other measure of visitor parking service  
Number of employee, student, visitor, and other parking spaces  
Cost of employee parking permit (monthly or yearly)  
Cost of student parking permit (monthly or yearly)  
Are first-year students allowed to have cars? (yes/no)  
Salary-based scale for parking permits? (yes/no)  
Parking subsidy per person or parking space  
Service/departmental vehicles—reserved parking?  
Cost of service/departmental vehicle permits

## **TDM**

Park and ride usage  
Number of park and ride spaces  
Vanpool/carpool designated parking (NCSU has none)  
Number of people participating in alternative modes  
Different types of U-Pass programs  
Bike programs  
Bike facilities  
Multi-modal facilities

## **Organizational Structure**

Is transit run by the university?  
Funding source for transit/TDM services  
Are transit and parking in the same department?  
Decision-making power within the University (org. chart)  
Departmental empowerment within the larger University setting  
Is a long-range transportation/parking plan in effect?  
Marketing budget  
Relationship between parking proceeds and transit service

**APPENDIX C**  
**Budgeted Hours and Project Cost Breakdown**

Task	Budgeted hours	90% Share NCDOT	10% Share NCSU	Total Wages*
<b>1</b> Project Proposal	60	\$740.59	\$82.29	\$822.88
1.1 Draft Proposal				
1.1.1 Work Breakdown Structure				
1.1.2 Schedule				
1.1.3 Budget				
1.1.4 Documentation				
1.1.5 SMR Meeting				
1.2 Final Proposal				
<b>2</b> Research/collect background data	100	\$1,234.31	\$137.15	\$1,371.46
2.1 Benchmarking				
2.2 Wolfline				
2.3 NCSU Parking				
2.4 NCSU TDM				
<b>3</b> Select Performance Measures	40	\$493.73	\$54.86	\$548.58
3.1 SMR Meeting				
<b>4</b> Select Peer Group	80	\$987.45	\$109.72	\$1,097.17
4.1 Define Peer Selection Criteria				
4.2 Select Peer Institutions				
4.3 Documentation				
4.4 SMR Meeting				
<b>5</b> Research/collect data on peer institutions	200	\$2,468.63	\$274.29	\$2,742.92
<b>6</b> Analyze peer group data	80	\$987.45	\$109.72	\$1,097.17
<b>7</b> Draft report	100	\$1,234.31	\$137.15	\$1,371.46
7.1 Receive comments on draft report				
<b>8</b> Final report and presentation	60	\$740.59	\$82.29	\$822.88
8.1 SMR Meeting				
<b>Total</b>	<b>720</b>	<b>\$8,887.07</b>	<b>\$987.45</b>	<b>\$9,874.52</b>

\* Wages calculated as follows: \$12.74/hour plus federal withholding of 7.65% of wages

**APPENDIX D**  
**Senior Management Review Meeting Schedule**

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Week Beginning	Meeting Purpose
6/5/2006	Obtain comments on project proposal, including scope, schedule, and budget; review performance measures to be used in study
6/19/2006	Review peer selection criteria and peers selected to date
7/10/2006	Approve final performance measures and peer institutions
8/18/2006	Progress check: data analysis*
9/25/2006	Progress check: draft report*
11/6/2006	Obtain comments on draft report
12/18/2006	Wrap-up and project review

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\* Optional