Nationwide Survey of Transportation Planning Courses

Introduction, Findings, and Recommendations

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This paper reports on a nationwide survey that was conducted from November 2004 through April 2005. The survey is part of a project titled the National Transportation Planning Course Syllabus and Associated Case Studies, funded by the Dwight David Eisenhower Transportation Fellowship program at the U.S. Department of Transportation. The primary objective of the survey was to determine what topics are currently being covered and their level of emphasis. The secondary objective was to identify topics for which educators would use case studies and references provided by the U.S. Department of Transportation. Instructors of transportation planning courses from 47 universities were chosen for the survey, and they returned 32 completed survey instruments. On the basis of the survey efforts, it was found that, first, the survey and the project that it serves can be useful in improving transportation planning instruction at U.S. universities; second, the survey and the project were welcomed by most universities and educators surveyed; third, the survey results can potentially be used for multiple purposes; fourth, not having a list of the institutions offering a transportation planning course(s) posed challenges for sample selection for the survey and validation of the survey results; and fifth, it is difficult to design a survey instrument for a discipline such as transportation planning, which is dynamic and ever changing.

A survey is an indispensable component of a project titled the National Transportation Planning Course Syllabus and Associated Case Studies (NTPCS). NTPCS was funded by a grant from the U.S. Department of Transportation (USDOT), and its duration was from September 2004 to June 2005. NTPCS's primary objective was to develop a syllabus that includes the majority of (if not all) transportation planning topics that are of current interest to USDOT and that are of universal importance. Also, to increase the potential influence of this syllabus, the project has a secondary goal to collect and summarize case studies and reference sources that could facilitate the classroom instruction of selected topics. The survey was conducted, first, to identify what transportation planning topics are now covered at universities; second, to provide a possible structure for the topics that would be included in the syllabus; and third, to prioritize case studies and to reference compilation efforts. As the survey was implemented, it became clear that no single document provides transportation planning and engineering professors in the United States with a framework of transportation planning topics of interest to USDOT. If this situation persists, there is a possibility that it would

- Lead to an increasing gap between how transportation planning is taught at universities and what may be of national interest and of universal importance,
- Result in graduates who have taken a transportation planning course(s) but on completion of their studies know relatively little about related legislation and regulations at the federal level, and
- Prevent some transportation planning topics of universal significance from being adequately studied in both research and project settings.

In light of the potential consequences listed above, the NTPCS project was proposed and implemented.

METHODOLOGY AND PROCEDURE

Methodology

Ideal Situations

Ideally, the proposed syllabus mentioned above would be developed based on

- A survey of all universities and programs that offer transportation planning courses to identify what topics are covered and how intensively they are taught;
- A thorough review of current federal documents, legislation, and regulations that deal with various aspects of transportation planning to sort out and prioritize topics that are of interest to USDOT; and
- An in-depth comparison of the survey results and review findings to understand the gaps between current transportation planning instruction and emphasis in the legislation and policy arenas at the federal (particularly USDOT) level.

However, because well over 200 universities and programs offer transportation planning courses, it would be inefficient and unreasonably time-consuming to survey all of them to determine which transportation planning topics are taught. To expedite completion of the project, a special sample selection process was used, as disclosed below. It ensures that, first, even when only selected

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Transportation Research Record: Journal of the Transportation Research Board, No. 1956, Transportation Research Board of the National Academies, Washington, D.C., 2006, pp. 175–183.

programs are surveyed, the results could still represent those for all programs with satisfactory confidence levels; and, second, some policy preferences could be revealed through the survey process. For example, in deciding which universities would be included in the survey, historically black colleges and universities and higher education institutions serving a predominantly Hispanic population were given special treatment to ensure that they were adequately represented in the survey.

Methods Applied

The following measures were selected in deciding which universities and programs were to be surveyed. First, universities and programs that are most likely to offer a transportation planning course(s) were identified. This was primarily completed through online and literature searches and interviews with transportation professors, professionals, students, and state department of transportation and USDOT staff. Traditionally, urban planning (planning) and transportation planning and engineering (engineering) departments are the major providers of transportation planning courses. As a result, two initial lists of potential interviewees consisted mainly of planning and engineering professors and programs. On the basis of the lists of names of the professors and programs, the contact information and homepages of professors and programs were collected with the help of the Internet and student volunteers from different universities. In the end, 87 planning programs and 216 engineering programs were selected from the 234 universities identified.

Second, programs offering transportation planning courses were differentiated by adding more detailed descriptions. Once the two respective lists of engineering and planning programs were created, additional information for each distinct record (program) in the list was added so that the programs could be categorized on the basis of different criteria, such as the number of transportation planning courses offered, the size of the faculty and the student body, the primary sources of funding for research and daily operations, the school type (public versus private), and the school's geographical location. Because of time constraints, not all information on the number of transportation planning courses offered and the student body sizes was collected. Of the 87 planning programs, about one-half had only one transportation faculty member who either had an overt research interest in transportation or offered courses on transportation. Fifty-seven percent of the engineering programs (125 of 216) also had only one such faculty member.

Third, programs other than planning and engineering programs that provide transportation planning courses were included in another list. Because transportation planning is rather interdisciplinary in nature, corresponding courses may also be offered in programs such as geography, public administration, and public policy. To ensure that an appropriate number of such programs were covered in the survey, efforts were made to obtain accurate contact information and updated program descriptions. The resources used to ensure that the data collected were as current and as complete as possible included reviews of transportation planning-related publications in peer-reviewed journals in the past 5 years; interviews with the chairs or members of subcommittees related to transportation or transportation education in a few professional and academic associations; and the use of two well-known listservs, those at the University of California, Berkeley (Bowling League list), and Texas A&M University (Transportation Modeling Improvement Program list). The associations that were chosen for interviews were the Association of Collegiate Schools of Planning, ITE, the American Society of Public Administration, and TRB. As a result of the activities described above, an additional list that contained programs such as public health, social work, public administration, transportation science, and transportation technology and policy programs was created. Twelve programs and professors for which detailed contact information was available were identified and recorded in the list as of April 2005.

Fourth, a separate list indicating programs at historically black colleges and universities and higher education institutions serving a predominantly Hispanic population that offer transportation planning courses was created. This list was created to ensure the inclusion of at least two such programs on the final list of programs to be surveyed. After this list was generated, corresponding revisions were made to the lists in Steps 2 and 3 to avoid repetition. As a result, two mutually exclusive categories of programs were produced: one consisted of programs that primarily serve black or Hispanic students and the other contained the remaining programs. The universities included in the former were Morgan State University, Jackson State University, Alabama A&M University, and Texas Southern University. These institutions offer either a planning or an engineering degree with a focus on transportation, or both.

Finally, 77 professors from the two program categories were selected as the interviewees. In statistical terms, if one wants a sample to reflect the characteristics of the entire population, the sample should be randomly selected. However, because the programs offering transportation planning courses vary in many ways (such as the numbers of faculty members and students, research strengths, impacts on the transportation field, the emphasis of instruction, the number of courses offered, geographic location, and the sources of funding for research), it is extremely difficult to use a sample that is totally random. Given this situation, the selection of the sample (professors, programs, and universities) was based primarily on the willingness of professors to participate, expert opinions, and some consideration of balance among programs with different characteristics, as discussed below. The sample was roughly a stratified random sample.

Sample Selection Principles

The following factors were especially taken into account when it was determined which professors, programs, or universities would be selected for the survey:

Length of Time Period That Professor Served as Instructor The length of time that a professor served as an instructor was derived primarily from, first, the title of the professor (e.g., an assistant professor was assumed to have less teaching experience than an associate professor) and, second, first-hand information provided by the professors, when possible.

Recommendations of Professors, Professionals, USDOT Staff, and Subcommittee Chairs and Members The recommendations of professors, professionals, USDOT staff, and subcommittee chairs and members were obtained to ensure that the majority of the leading programs that offer transportation planning courses were sufficiently represented in the survey.

Sources of Funding for Transportation Research and Education Through the University Transportation Centers Program (UTCP), USDOT has been a generous sponsor of transportation education

and research in dozens of universities since 1987. To some degree, transportation planning education in these universities reflects the state-of-the-art practices in the United States. Therefore, when deciding which universities and professors were to be surveyed, another important criterion was whether the universities receive or received direct financial support from USDOT or whether the universities serve or had served as a USDOT-designated University Transportation Center.

Geographic Location For the purpose of administrative convenience and efficiency, FTA divides the country into 10 regions according to their geographic locations and the proximities of the states. The selection of the universities surveyed ensured that the final set of universities surveyed contained at least two universities from each FTA region.

Inclusion of Universities Primarily Serving Minority Populations The last measure, the inclusion of universities primarily serving minority populations, was to ensure that the survey was not exclusively carried out among universities in which minorities accounted for only a small percentage of the student body.

Willingness to Participate For quality control purposes, 25 universities were randomly selected and contacted before the survey sample was determined. Seven indicated no interest in participating in the survey or reported that they did not offer specific transportation planning courses at the time that the survey was conducted. They were not included in the final sample.

After the sample selection principles described above were fully considered, 47 universities and 71 programs were included in the survey. Figure 1 shows the spatial distributions of the universities that were contacted and those that responded to the survey. To maintain confidentiality, the names of the professors who were interviewed and who completed the survey are not disclosed.

Procedures

For quality control purposes, the NTPCS project was subjectively divided into nine correlative components (steps). The survey discussed in this report is one of these components. The components and their relationship to the specific procedures implemented in the survey process are expressed in a flowchart (Figure 2). The chart shows how Components A through F are all related to the survey. Component A is the basis of the survey. Completion of the work specified by this component provides the survey with definite goals, valid methodologies, and applicable timetables. Additionally, it forces the investigators to locate dependable intellectual and empirical support that is often indispensable to the successful completion of a survey. In the case of this specific survey, eight professors and several USDOT staff were identified and agreed to serve as all-around supporters of the survey as Component A was completed.

The primary objective of the tasks described in Components B and D was to sort out transportation topics that are of interest to USDOT and useful case studies and sources of references that could be used to consolidate classroom instructions of the topics. Although it may seem that the tasks had little to do with the survey; the results actually provided the survey with a rather complete list of topics that can potentially be covered by any transportation planning course. Such a list of topics was used in several key survey questions regarding the topics covered at the respondent's university and the respondent's preferences concerning USDOT's preparation of case studies on different topics. It helps the respondents recall specific topics that are covered in their respective courses.

Components C, E, and F are the primary assignments of the survey itself. Specifically, tasks detailed in Component C were primarily accomplished on the basis of, first, findings from Components B and D; second, the synthesis of the suggestions and comments provided by the supporters identified in Component A; and third, comments and suggestions collected at the Education and Training Committee meeting during the 84th Annual Meeting of TRB and other local, regional, or nationwide meetings held at the University of Illinois at Chicago, the University of Minnesota at Twin Cities, and the Massachusetts Institute of Technology. Components of E and F are both routine procedures in any survey. Component E mainly consisted of determining how to allocate time and monetary resources for the survey, and Component F deals with how to handle unresponsive interviewees and missing data in the survey. At the time that this document was drafted, the tasks described in Components A to F were completed, the survey results were digitized, and an exploratory analysis of the results was completed. Because of length constraints, the final survey instrument is not appended here but is available on request to interested readers.

CHARACTERISTICS OF POPULATION, SAMPLE, AND RESPONDENTS

To give readers some indication of the effectiveness and the validity of the survey and its results, selected characteristics of three groups of programs and universities were analyzed. The three groups were the majority of potential programs (population) that may offer transportation planning courses in the United States, the programs and universities chosen for the survey, and the programs and universities (respondents) that had returned completed survey instruments as of the date that this document was drafted. For each group the investigators analyzed the ratio of engineering, planning, and other programs; the geographic distribution (FTA-designated Regions 1 to 10); the school type (public versus private); and the percentage of UTCP beneficiaries. Tables 1 and 2 show the results. Although efforts were made to include universities in Region 6 in the survey, no completed responses were received from these universities. Student volunteers from two universities in the sample indicated that they were not aware of specific courses titled Transportation Planning offered at their respective universities at the time that the survey was conducted.

SURVEY ANALYSIS

Data Used

The analysis was based on the completed replies to the survey, which included seven categories of questions: how intensively transportation planning is taught, information about course takers, the contents of the courses, the use of USDOT resources, attitudes toward case studies, dissemination of survey results, and provision of syllabi. Altogether, the survey contained 17 questions in the survey. In February and March 2005, electronic or hard-copy survey instru-

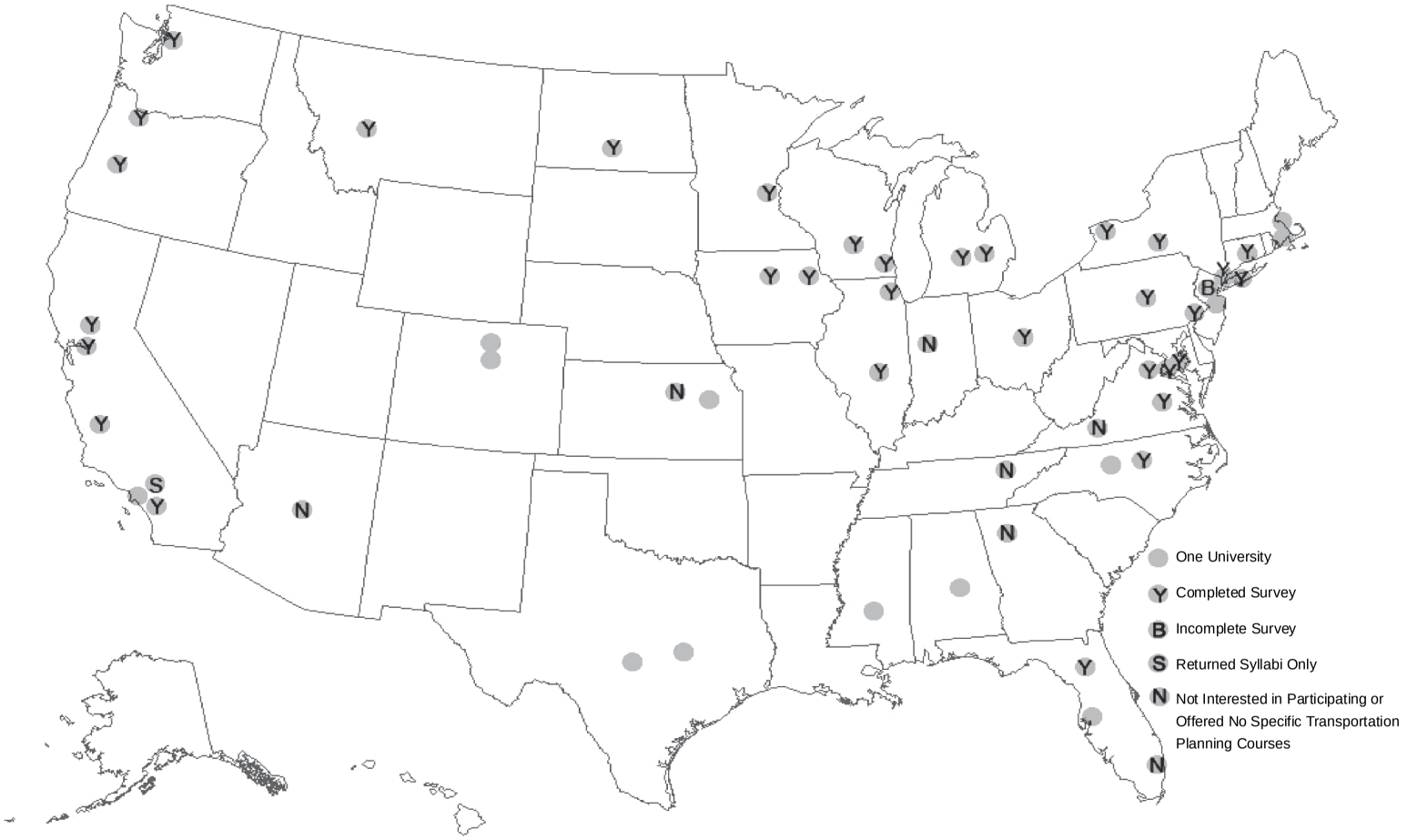

FIGURE 1 Spatial distributions of universities contacted and surveyed and of returned survey instruments. Full names of universities are available on request.

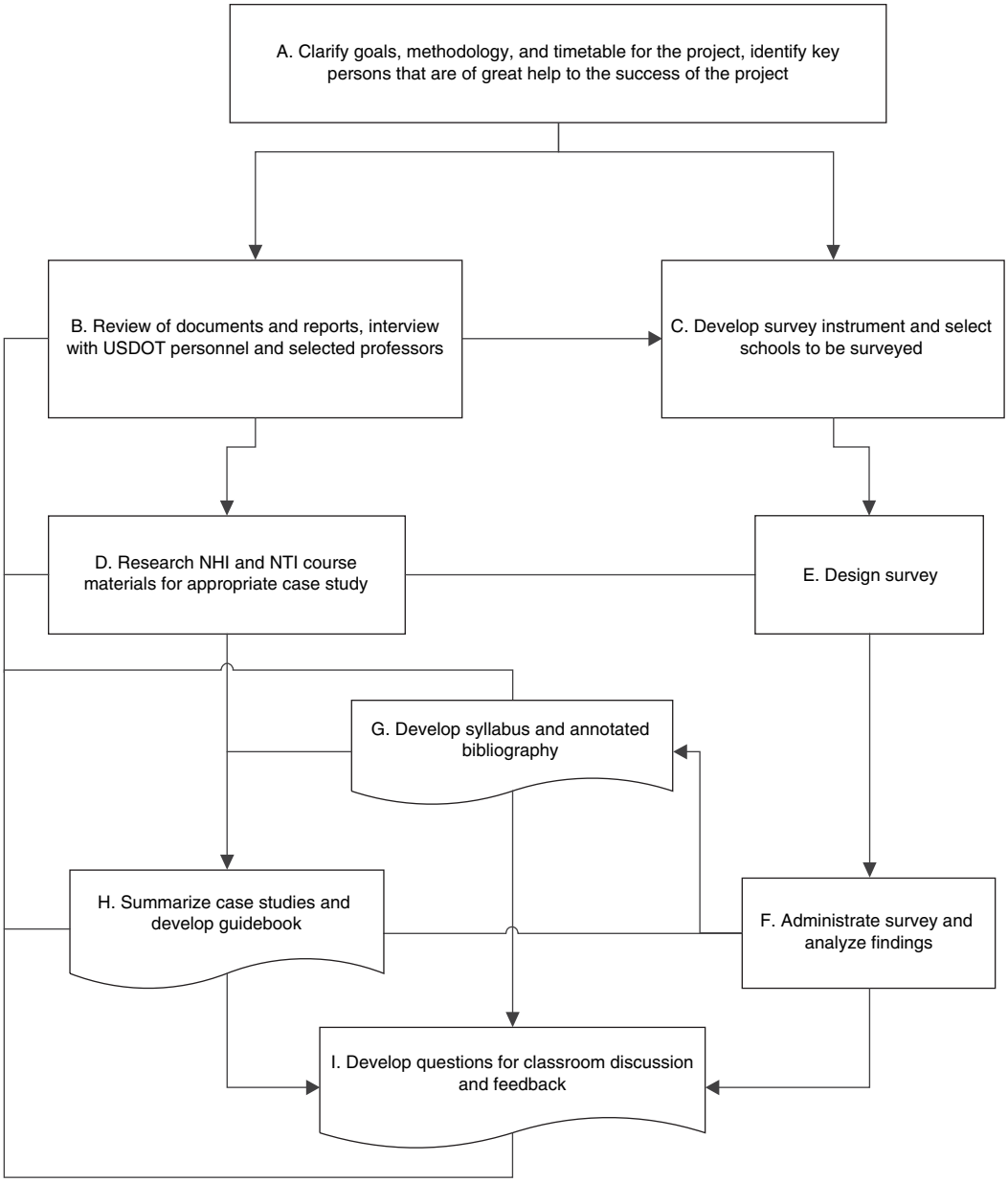

FIGURE 2 NTPCS project procedures (NHI = National Highway Institute; NTI = National Transit Institute).

ments were sent to transportation planning course instructors at 47 universities. Follow-up calls to each instructor surveyed were then made at least once to ensure that he or she was aware of the survey and had received the survey instrument. In some cases, student volunteers were solicited to follow up if the e-mailed or mailed instrument was returned or transportation planning course instructors at the universities could not be identified. As of May 10, 2005, instructors from 33 universities responded, and 32 returned completed instruments. The instructors' responses to each of the 17 questions were analyzed on the basis of the 32 replies. Tables 1 and 2 detail the key information associated with the returned survey instruments, and Figure 1 indicates the spatial distributions of the respondents. By and large, the responses have a rather satisfactory distribution pattern across space and different programs.

Survey Result Analysis

Number of Transportation Planning Courses Offered

The first question in the survey asks the professors how many graduate-level transportation planning courses are offered at their universities. Ninety-one percent of the professors responded that their universities or programs provided at least one such course. One-half of the universities that did offer transportation planning courses provided three or more courses on the topic. To follow up about why no transportation planning course was offered at some universities, the investigators contacted two professors, who reported that no transportation planning courses were offered at their respective

TABLE 1 Comparison of Three Groups of Programs and Universities

Group	Ratio of CE, PL, and Other Programs	Public vs. Private Universities	% of UTPC Beneficiaries*
General characteristics			
Population**	87:216: ?	160:74	37.6%
Sample	34:32:11	40:6	54.3%
Respondents	23:25:8	30:3	56.3%

Geographical distribution											
FTA-designated region	1	2	3	4	5	6	7	8	9	10	Total
Population***	21	20	35	27	41	21	10	13	31	15	234
Sample size****	3	6	8	5	8	2	3	3	6	3	47
Respondents	1	4	7	2	8	0	2	2	4	3	33

*UTPC beneficiary information collected from: http://utc.dot.gov/UTC-list.htm, 02-20-2005.
**Data collected and calculated by the investigator, data on all potential programs other than civil engineering (CE) and urban and regional planning (PL) were not collected largely because of time and budget constraints.
***Included only universities that have transportation planning courses offering through either CE or PL programs.
****For quality control purpose, 25 universities were randomly selected and contacted before determining the survey sample. Seven indicated no interest in participating in the survey or reported that they did not offer specific transportation planning courses at the time the survey was conducted. Therefore, they were not included in the finalized sample.

universities. In these cases, it was reported that general transportation planning instructions are integrated into other more specific transportation courses, such as travel demand modeling and mass transit planning. Figure 3 details the percentages of the universities that offered different numbers of courses. It can be deduced from Figure 3 that transportation planning is well taught at most universities solely on the basis of how many such courses are provided rather than what specific topics are actually covered and how intensively they are taught.

Backgrounds of Course Takers

The second question asks the professors about the academic backgrounds of the students who take transportation planning courses. The underlying implication of this question is that, first, if the courses are taken by students from more than one academic program, one could probably conclude that the course instructors must work harder to diversify the contents of the courses to accommodate the students' diversified needs as a result of having different knowledge bases and different emphases of study. Second, on the basis of the responses, one could also gain an idea about how attractive transportation planning courses are to students in different programs at different universities.

On the basis of the 32 completed responses, it was found that 38% and 31% of the universities have courses taken exclusively by engineering or planning students. Less than 38% of the respondents reported that they have both planning and engineering students in a particular course. Of all the respondents, only 12.5% indicated that some of the course participants are from neither engineering nor planning departments. Except for the traditional programs, such as engineering and planning, that offer transportation planning courses, three interdisciplinary transportation programs provide transportation planning courses as well. Besides the students in these programs, students from many other disciplines register for these courses as well.

TABLE 2 Selected Characteristics of Respondents

		Sample Size	Respondents	Response Rate
Spatial distribution	East	19	13	68.42%
	Midwest	15	12	80.00%
	West	8	7	87.50%
Program composition*	PL	34	25	73.52%
	CE	30	23	76.67%
	Others	12	8	66.67%

*PL: urban–city and regional planning; CE: civil–transportation engineering; and others: other programs that could not be categorized into PL or CE such as public health, public administration, social work, and transportation sciences.

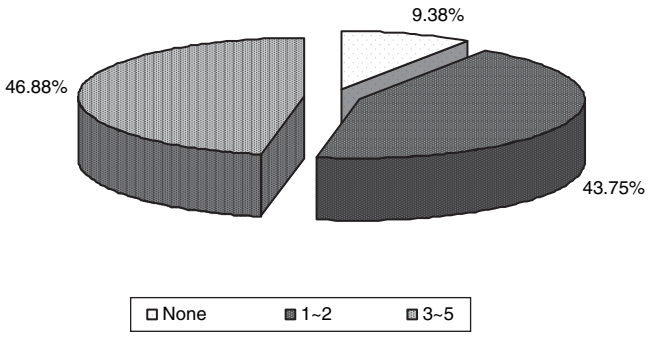

FIGURE 3 Percentages of universities that offer different numbers of transportation planning courses.

Topics Covered in Courses

As mentioned above, a rather long initial list of potential transportation planning topics was created to facilitate the survey. This list was sent to a number of transportation professors, professionals, students, academic and professional association members, and USDOT staff for review and comment. On the basis of the comments received from these individuals, a revised list of potential topics that should be covered by the majority of transportation planning courses in the United States was generated. The list was then used in the survey questions to help the respondents recall and choose the topics covered in their courses. For clarity, the candidate topics were categorized into two groups in the final survey instrument. Legislation and related regulations were grouped together, whereas the others were categorized as general topics.

General Topics Figure 4 shows how well each specific topic is covered in current courses. For 70% of the respondents, the top topics of priority, in descending order, are travel demand forecasting, land use and transportation, project evaluation, environmental issues, public involvement, intelligent transportation systems, multimodal transportation, and transit planning. Topics such as pedestrian and bicycle planning, software applications, safety, and environmental justice are also frequently covered in transportation planning courses. About half of the respondents responded that they cover these topics in class. The need for transportation activities to conform to air quality goals and the need for federal agencies to adhere to the requirements of the National Environmental Policy Act of 1969, important as they might be in the federal legislative agenda, are taught by only 43% of the universities. Not too surprisingly, emerging topics such as professional ethics, gender, health, physical activity, and transportation are covered by a relatively smaller fraction of the courses. The results show that only one-third of the professors would include these topics in their respective courses. Surprisingly, although great efforts have been made at the federal level to improve the nation's overall security, less than 10% of the professors reported that they discuss transportation security issues in their classes.

Legislation and Regulations On the legislation and regulation side, the most popular subjects among the transportation planning professors are the Transportation Equity Act for the 21st Century, the Clean Air Act (and its amendments), the National Environmental Policy Act, and the Americans with Disabilities Act. Sixty percent or more of the professors cover these topics in their respective courses. Topics that are covered by approximately one-third of the universities are mostly regulations or executive orders, such as FHWA planning regulations, the Environmental Justice Executive Order, environmental streamlining, and FTA planning regulations. The only exceptions to this group are Title VI of the Civil Rights Act and the Water Quality Act. The least popular topic is the Limited English Proficiency

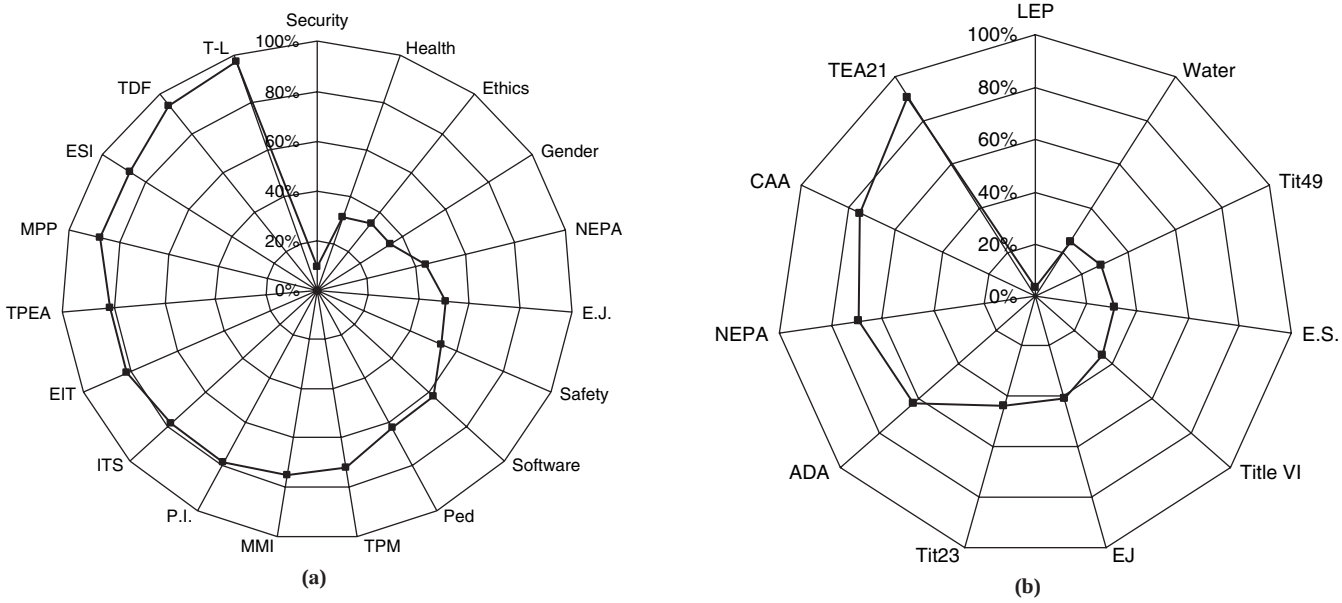

FIGURE 4 Transportation planning topics covered: (*a*) general topics and (*b*) regulations and legislation. TDF: Travel Demand Forecasting; T-L: Transportation and land use connections; MPP: Metropolitan planning procedures and process; TPEA: Transportation project evaluation and assessment; ESI: Environmental and Sustainable issues; EIT: Environmental impacts of transportation; P.I.: Public involvement in transportation planning; ITS: Intelligent Transportation Systems; MMI: Multi-model integration; TPM: Transit Planning and Management; Ped.: Pedestrian and bicycle planning; Software: Software Applications in Transportation; Safety: Safety and Planning; E.J.: Environmental justice and equity in transportation; NEPA: National Environmental Policy requirements for transportation planning; Ethics: Professional ethics of transportation planners; Gender: Gender and transportation planning; Health: Health, physical activity and transportation planning; Security: Security in transportation systems; TEA21: the Transportation Equity Act of the 21st Century; CAA the Clean Air Act; NEPA: the National Environmental Policy Act; ADA: the Americans with Disabilities Act; Tit23: Title 23—The Federal Highway Administration (FHWA) Planning Regulations; EJ: the Environmental Justice Executive Order; E.S.: Environmental Streamlining; Tit49: Title 49—The Federal Transit Administration (FTA) Planning Regulations; Title VI: Title VI of the Civil Rights Act; Water: the Water Quality Act; LEP: the Limited English Proficiency Executive Order.

Executive Order. Only one professor indicated that he covered the Limited English Executive Order with his students. The primary reason behind this is probably the order's somewhat oblique connection to transportation planning.

After the question of what legislation and regulations are covered, a supplementary question concerning how intensively the corresponding topics are studied followed. Of the 29 universities (about 85% of the total respondents) that reported the specific amounts of time devoted to the discussion of legislation and regulations, about one-half indicated that they spend more than one class meeting specifically discussing laws and regulations, whereas approximately 40% responded that they dedicate less than 15 min of class time to the discussion of laws and regulations.

Importance of Case Studies

As mentioned previously, the NTPCS project also has an explicit objective to provide transportation planning educators with some applicable case studies and sources of references that might improve their transportation planning course instructions. Here, the definition of case study is an in-depth study of certain aspects of a single project or program in the context of its environment and a process of identifying some universal implications. Toward this end, three questions about case studies were included in the survey. The first question asked whether the professors think that the case study method is a valuable tool for reinforcing transportation planning instruction and learning. The second question requested that professors confirm whether they used the case study method to help the students apply specific course objectives. The final question was a multiple-choice question, in which a list of candidate case study topics was offered. Professors were asked to choose which topics are the most appropriate, should USDOT provide case studies aimed at reinforcing classroom instruction of specific topics.

In response to the first of these questions, all professors agreed that they hold a positive attitude toward the case study method. One professor added that responding to the importance of case studies in transportation planning education is difficult, as his response would vary depending on the population targeted in the course, the backgrounds of the students, and the definition of "transportation planning."

Regarding the application of case studies, 88% of the professors confirmed that they use case studies in their courses to help students apply the specific objectives of the courses. Of these professors, two professors provided additional comments on the case study method. One reported that she employs the method only when she can find some "useful" cases. For example, she explained that her students were using the method to study different types of regional planning organizations. The other argued that case studies may be less useful for undergraduate students than for graduate students. Approximately 10% of the professors reported that they are not using case studies in their courses. Only one respondent answered why he did not use case studies. He indicated that the case study method did not fit in with the way in which his class is structured. The others did not provide comments.

When requested to select topics on which USDOT could potentially provide case studies, two professors left the answer sheet blank, whereas the remaining ones either chose some topics or commented that it was not appropriate for USDOT to provide the case studies. Figure 5 shows how much support that each topic received from the respondents. Overall, most respondents would like to see USDOT provide case studies on various topics. However, there appears to be some inconsistency between the case study topics on which respondents desired support and the topics that they covered in their courses. For example, even though some professors do not cover topics such as the security of transportation systems and gender and transportation in their current courses, they would still like USDOT to provide case studies of the topics. By putting Figures 4 and 5 together, for instance, one can see that less than 35% of the respondents discuss subjects such as transportation security and transportation and health, whereas more than 45% of the respondents would like USDOT to provide case studies on these subjects. Somewhat similar to the overall trend of the popularity of different topics among transportation planning professors, most of the case study topics recommended by the respondents are the ones that enjoy popularity in their teaching agendas. Specifically, case study topics such as metropolitan planning procedures and processes, transportation and land use connections, and multimodal integration are also in the respondents' favored list of subjects that should be covered in class.

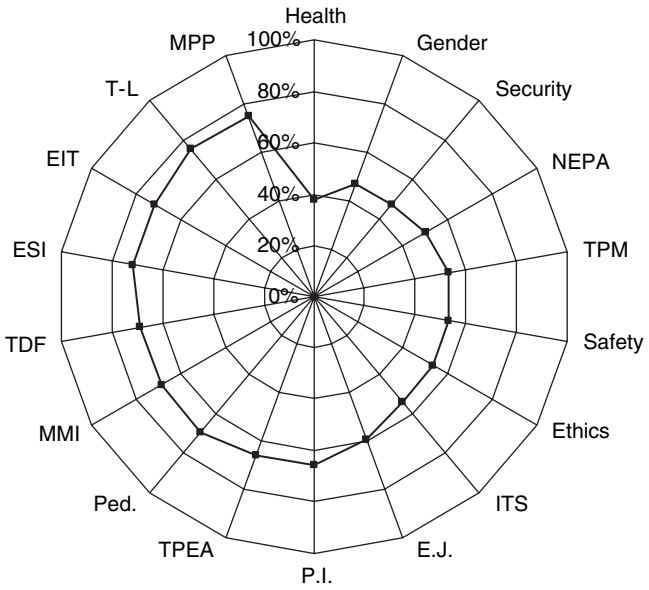

FIGURE 5 Percentage of professors supporting USDOT development of case studies.

Provision of Syllabi

To observe in depth how different topics are taught at universities, a survey question requested transportation planning course syllabi. About one half of the surveyed professors sent the syllabi along with the completed instruments.

Dissemination of Survey Results

To maximize the effectiveness of the survey, an effort was made to ensure that the final results of the survey were accessible to all transportation planning professors as well as the general public. However, different segments of interested parties might have different preferences on the means by which they access the results. With this in mind, one survey question was designed to determine the preferred method. Sixty-five percent of the professors responded to this question. Of these respondents, 71% would like to see the results and especially the corresponding reports provided online, 9% would

like hard-copy results or for the reports to be available upon request, and 12% would prefer the results to be presented at conferences.

IMPLICATIONS OF SURVEY RESULTS

The survey results contain substantial information and data that could be used for a variety of purposes. For example, students who want to pursue a career in or related to transportation planning can use the survey results to find out what topics they will be learning and whether there are gaps in their transportation planning knowledge as they approach graduation. Employers may use the results to help understand how transportation planning is taught at universities and design appropriate on-the-job training. Professors can refer to the results to modify their syllabi and improve their current classroom instruction accordingly. In other words, depending on the specific objective, the results could have useful and probably unlimited implications. From the point of view of developing a national transportation planning course syllabus, the following implications of the survey results are especially meaningful.

First, the high response rate of the survey indicates that most professors hold a positive attitude toward the survey and the syllabus that it will help create. In other words, most transportation planning educators are expecting a syllabus that will provide them with a framework of topics that are of interest to USDOT or that are of universal importance.

Second, the gaps between what is taught at universities and what is of national interest that have been identified reconfirm the notion that there is a demand for the syllabus proposed earlier, should one desire a match between them. For example, there is a distinct mismatch between transportation security education at the universities surveyed and how much emphasis that the country has put on security. The factors contributing to this mismatch need to be investigated and remedies need to be proposed to avoid the creation of a negative impact on the country's transportation security as a result of the mismatch. As the first step, special attention should be given to these factors when the proposed national transportation planning syllabus is designed and the associated case studies are developed. Similarly, it may also be important to promote classroom instruction on legislation and regulations, such as the FHWA planning regulations, the Environmental Justice Executive Order, environmental streamlining, FTA planning regulations, Title VI of the Civil Right Act, and the Water Quality Act, by integrating them into the proposed syllabus. On the basis of the survey results, one could argue that more than half of the professors who responded do not spend sufficient amounts of time on these laws that are applicable nationwide and that have practical importance.

Third, the survey results indicate how professors value and prioritize transportation planning topics that are of interest to USDOT. Analysis and understanding of their preferences and the priorities that they give to different topics can help USDOT design better strategies for improving awareness of certain transportation planning topics among students, professionals, and officials, as well as for associated training and continuing education programs.

Last, but not least, the expectation of most respondents that USDOT should provide case studies about various topics has provided impetus for USDOT-initiated efforts to develop more related case studies. Additionally, the respondents' preferences for case study topics have provided useful references for USDOT to help structure and prioritize future case study compilation efforts.

CONCLUSIONS

This report has provided an overview and the principal results of a survey serving the NTPCS project funded by USDOT. The objectives, significance, methodologies, procedures, and sample selection process of the survey were each discussed. A systematic analysis of the completed responses was also conducted. The implications of the analysis results were explored. On the basis of all the above, a few points are worth emphasizing.

First, the survey and the project that it serves are critical to improving transportation planning instructions at universities in the United States. The survey findings can help with the creation of a syllabus that covers the majority (if not all) of the transportation planning topics that are of interest to USDOT or that are of universal importance. Transportation planning educators and students, in turn, could refer to the syllabus as a framework of topics that are worth including in their own teaching or learning agendas.

Second, because the survey results could potentially have a multitude of uses, broad and convenient access to the results and more in-depth studies of the results are needed to realize these potential benefits. Currently, the results are used only to identify gaps between how transportation planning is taught and what is of interest to USDOT or of national interest. Additional efforts should be made to take full advantage of the results.

Third, before the survey was conducted, there was no nationwide effort aimed at determining how many programs actually provide transportation planning courses and what these programs are like in terms of the size of the student body, the emphasis of education, the strengths of faculty members, geographic locations, sources of funding, and so forth. This adds difficulty to the justification of the process of sample selection for the survey and estimation of the confidence level of the corresponding results. It is thus strongly recommended that a data set that provides information about all programs that offer transportation planning courses be created and updated regularly to overcome the difficulties and ambiguity described above.

Fourth, the NTPCS project lasted only 9 months, whereas transportation planning education and practice are dynamic and ever changing processes. Therefore, it is difficult to design an appropriate survey instrument for the discipline and practice. It is highly recommended that a similar survey be conducted on a regular basis, at least once every several years. Only in this way can one expect that the survey results reflect the dynamic nature of transportation planning education and that the syllabus established on the basis of the results appropriately includes the most current topics that are truly valued.

ACKNOWLEDGMENTS

The authors are grateful to all professors who took their time to complete and return the survey instruments. Their willingness to help is highly appreciated. Special thanks go to Robert Ritter and Sherry B. Ways of FHWA and Piyushimita Thakuriah of the University of Illinois at Chicago for their substantial assistance.

The Transportation Education and Training Committee sponsored publication of this paper.