



*"Improving the Quality of Life
by Enhancing Mobility"*

University Transportation Center for Mobility

DOT Grant No. DTRT06-G-0044

Graduate Certificate in Transportation Planning

Final Report

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16. Abstract The purpose of this project was to develop and implement a graduate Certificate in Transportation Planning at Texas A&M University. Texas A&M currently offers instruction in transportation through its Masters of Urban Planning and Civil Engineering programs. However, there is a growing need in transportation workforce development for students with a broad, interdisciplinary foundation as well as specialized instruction in three critical areas: Transportation Systems Planning, Transportation and Urban Design, and Transportation Policy. The transportation planning certificate program meets the need by offering a broad selection of existing and newly developed courses in transportation-related disciplines taught by faculty from several academic units and researchers at Texas Transportation Institute. The program was developed by the Department of Landscape Architecture and Urban Planning in the College of Architecture at Texas A&M University, in partnership with the Texas Transportation Institute and Texas A&M's Zachry Department of Civil Engineering and George Bush School of Government and Public Service. The certificate program fosters lasting partnerships between the participating departments and programs, and the certificate is an option for any graduate student at Texas A&M with an interest in transportation.			
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Graduate Certificate in Transportation Planning

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Final Report
Project #07-06

December, 2008

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EXECUTIVE SUMMARY

While the need for an interdisciplinary approach to transportation is widely recognized by the professional community, there is few, if any, educational programs that address the field of transportation in a truly comprehensive, interdisciplinary manner. The absence of such programs creates a unique opportunity for Texas A&M University to enhance its position as a national leader in the education of transportation professionals. The Graduate Certificate in Transportation Planning seeks to fill this critical need by providing students with a multi-faceted, interdisciplinary education in the field of transportation.

A proposal for an interdisciplinary Graduate Certificate in Transportation Planning was developed and approved for implementation. The proposal was developed by the principal investigators in the Department of Landscape Architecture and Urban Planning (LAUP) in the College of Architecture, in partnership with the Texas Transportation Institute (TTI) and Texas A&M's Zachry Department of Civil Engineering and George Bush School of Government and Public Service. The proposal has five components: curriculum, new course development and implementation, approval processes, administration, and marketing/recruitment.

The certificate's curriculum (15 credit hours) provides students with a substantive background on the practice of transportation planning as well as more specialized instruction in one of three interdisciplinary areas of focus: multimodal systems planning, transportation and urban design, and transportation policy. The program culminates in a comprehensive capstone course. The certificate program was designed to enable students enrolled in any graduate program at Texas A&M to receive the certificate in conjunction with a graduate degree.

Two new core courses in the certificate program were developed and delivered successfully in the Spring 2008 semester: *Transportation Investment Decisions* and *Transportation Studio and Lab (Capstone)*. Both courses now have permanent course numbers. The certificate was approved in two phases. Initial approval by the College of Architecture Executive Committee on October 16, 2007 enabled the certificate to be offered as a College of Architecture Certificate. The second phase of approval expanded the certificate university-wide. This approval was granted by the Texas A&M Faculty Senate on July 29, 2008, with a final approval by President Murano on August 6, 2008.

Dr. Eric Dumbaugh was appointed as the Certificate Coordinator once the certificate was approved by the College of Architecture Executive Committee. Administrative processes were established in Spring 2008 to process student admissions and guide students through the program. Plans are underway to establish a Certificate Council comprised of faculty from the participating units to provide advisory input into the administration of the Certificate program.

Recruitment of students began (when) and continues beyond this project's termination. Four scholarships from LAUP funds and three from this project's funds were awarded to students in the Spring of 2008 to facilitate student recruitment. Additional scholarships and fellowships are planned for recruiting students in the Spring 2009 semester. By December 2008, a total of 14 students had enrolled in the certificate program. The first student received a College of Architecture certificate in May, 2008, and another six students earned the university level certificate in August, 2008.

PROJECT SIGNIFICANCE

Few educational programs address the field of transportation in a truly comprehensive, interdisciplinary manner. Yet the issues and problems that confront transportation professionals increasingly require multi-disciplinary and interdisciplinary approaches. Students with an interest in transportation typically pursue degrees in either urban planning or civil engineering. Transportation practitioners are needed who can complement traditional areas of expertise with a broader, interdisciplinary perspective to include economics, public policy, finance and urban design.

While practicing transportation professionals are well aware of the need for an interdisciplinary approach to resolving transportation-related problems, few if any educational programs provide a curriculum that addresses transportation in an interdisciplinary manner. In filling this gap, Texas A&M enhances its position as a national leader in transportation workforce development.

The interdisciplinary graduate certificate in transportation planning developed by this project addresses this critical need. The program provides students with a substantive base of knowledge needed to be broadly successful in the transportation industry, as well as specialized instruction in one of three interdisciplinary areas of focus: *multimodal systems planning, transportation and urban design, and transportation policy*. Students enrolled in the certificate program also complete a comprehensive capstone course, partnering with students from the other focus areas to develop a multi-faceted, interdisciplinary approach to addressing a real-world transportation problem.

Students completing the Transportation Certificate Program thus graduate with both a comprehensive understanding of the role of transportation in contemporary society, as well as an interdisciplinary perspective on solving transportation problems. Students enrolled in the program receive the Certificate in Transportation Planning in conjunction with their graduate degrees. The new graduate transportation courses developed in this project expand Texas A&M's transportation curriculum and enhance the University's position as a national leader in transportation education. Lastly, this Certificate program provides the foundation for developing an Executive Certificate that will be accessible to professionals in selected urban locations in Texas as well as an interdisciplinary master's degree in transportation.

PROJECT APPROACH

The project team defined six primary activities essential to successfully developing and implementing an interdisciplinary graduate certificate in transportation. Table 1 displays the key components of these activities, benchmarks, and delivery schedules.

Dr. Forster Ndubisi served as Principal Investigator, providing overall project management for the development, approval and implementation of the certificate program. Dr. Eric Dumbaugh served as co-PI and Certificate Program Director. His responsibilities included day-to-day program administration, development of marketing and recruiting materials, student recruiting and advising, and program institutionalization and growth.

Table 1. Project Plan.

		2007	2008			2009		
		Fall	Spring	Summer	Fall	Spring	Summer	Fall
Task 1	Initiate Certificate Approval Process							
	College Level	X						
	University Level			X				
	TAMU President			X				
Task 2	Certificate Program Administration							
	Appoint Certificate Coordinator	X						
	Establish Certificate Fellow Advisory Board					X		
	Establish Certificate Policies and Benchmarks		X	X	X			
	Develop Forms and Administrative Materials		X					
Task 3	Student Recruitment and Graduation							
	Initiate Preliminary Recruitment Efforts	X	X	X	X			
	Graduate First Cohort of Students (College-wide)		X					
	Graduate Second Cohort of Students (University-wide)				X		X	X
Task 4	Marketing and Recruitment Materials							
	Develop Certificate Program Web Site			X				
	Develop Printed Recruiting Materials			X		X		
	Develop Student Recruiting Program		X	X				
	Implement Recruiting Program			X	X	X	X	X
Task 5	Certificate Course Development and Implementation							
	New Course: Transportation Certificate Studio and Lab (Capstone)		X			X		
	New Course: Transportation Investment Decisions		X			X		
	New Course: Transportation and Urban Design (Stacked Graduate and Undergraduate)						X	
Task 6	Program Institutionalization and Growth							
	Conduct Ongoing Policy Meetings with Certificate Fellows					X		X
	Initiate Transportation Symposium Program					X		
	Develop an Executive Certificate Program in Transportation							X
	Initiate Executive Certificate Approval Process							X

PROJECT OUTCOMES

The primary outcome of this project is the development of the certificate program structure. The complete program description and degree requirements as approved by Texas A&M University are included in the appendix. Additional project outcomes are highlighted at the end of this section.

Certificate Structure

The Transportation Certificate is a 15-credit course sequence comprised of one required foundational course (3 credits), three focus area courses (9 credits) and a capstone course (3 credits) providing a comprehensive overview and application of the skills and techniques acquired in the certificate program. Figure 1 (p. 11) depicts the structure of the 15-credit certificate program, comprised of the following components:

1. Foundations of Transportation Practice (3 Credit Hours)

Students begin the program with a comprehensive overview of the role of transportation in society.

Required Course:

- PLAN 612: Transportation in City Planning

2. Focus Area (9 Credit Hours)

In the second step of the program, students complete nine credits in one of three areas of professional focus. Each of the three focus areas is designed to meet critical needs within the transportation profession and is tailored towards securing students placement in appropriate transportation-related agencies and organizations.

A. Multimodal Systems Planning

This focus area addresses regional-level mobility issues with multimodal solutions. Students learn the tools and methods for designing and aligning regional-level transportation system investments. Students focusing on *Multimodal Systems Planning* are prepared for successful employment in metropolitan planning organizations (MPOs), Regional Councils of Governments (COGs), as well as the diverse array of private consulting firms that support the activities of these agencies.

Required Course: Foundation in Multimodal Systems Planning (3 Credits)

- PLAN 670: Urban Public Transportation Planning

Electives: Multimodal Systems Planning (6 Credits)

- CVEN 618: Traffic Engineering: Operations
- PLAN 626: Advanced GIS in Landscape Architecture and Urban Planning*
- CVEN 632: Transportation Systems Engineering Management
- PLAN 650: Disaster Response Planning
- PLAN 669: Urban Infrastructure Planning
- CVEN 672: Engineering and Urban Transportation Systems
- PLAN 673: Design for Sustainable Transportation

- PLAN 674: Transportation Systems Analysis
- PLAN 689: Transportation Investment Decisions
- PLAN 689: Transportation and Urban Design

* Prerequisite: PLAN 625: Geographic Information Systems in Landscape Architecture and Urban Planning, or an approved substitute.

B. Transportation and Urban Design

This focus area balances conventional mobility concerns with the needs of the built and natural environments. This area answers the call from industry leaders such as the Federal Highway Administration (FHWA), the Institute of Transportation Engineers (ITE) and the Transportation Research Board (TRB) for a more “context-sensitive” approach to transportation planning and design. Students focusing in *Transportation and Urban Design* will be prepared for employment in the growing number of private firms providing specialized transportation design services to both local governments and state departments of transportation (DOTs), as well in staff positions in public-sector agencies.

Required Course: Foundation in Transportation and Urban Design (3 Credits)

- PLAN 689: Transportation and Urban Design

Electives: Transportation and Urban Design (6 Credits):

- CVEN 617: Traffic Engineering: Characteristics
- CVEN 618: Traffic Engineering: Operations
- CVEN 632: Transportation Systems Engineering Management
- CVEN 635: Street and Highway Design
- LAND 661: Visual Quality for Design and Planning
- PLAN 669: Urban Infrastructure Planning
- PLAN 670: Urban Public Transportation Planning
- CVEN 672: Engineering and Urban Transportation Systems
- PLAN 673: Sustainable Transportation
- PLAN 674: Transportation Systems Analysis
- PLAN 689: Transportation Investment Decisions

C. Transportation Planning and Public Policy

Public expenditures in transportation infrastructure exceed \$170 billion per year,¹ with many public funding programs tied to specific program grants that govern transportation system investments. The *Transportation Planning and Public Policy* focus area develops policy innovators who can tailor public policy and finance to address emerging transportation needs. Students choosing this focus area are prepared to assume policy and managerial positions in the public sector agencies responsible for transportation planning and investments, such as state and local departments of transportation (DOTs) and federal agencies such as the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA).

¹ Source: Bureau of Transportation Statistics (2005). *Transportation Statistics Annual Report*. Washington DC: Bureau of Transportation Statistics, November.

Required Course: Foundation in Transportation Planning and Public Policy (3 Credits)

- PLAN 689: Transportation Investment Decisions

Electives: Transportation Planning and Public Policy (6 Credits)

- BUSH 611: Public Policy Formation
- BUSH 612: Public Policy Administration
- BUSH 614: Organization for the Public Sector
- CVEN 632: Transportation Systems Engineering Management
- BUSH 634: Public Management
- PLAN 650: Disaster Response Planning
- PLAN 669: Urban Infrastructure Planning

3. Capstone Course (3 Credit Hours)

The Certificate in Transportation culminates in a second-year capstone course in which students from each of the three focus areas work collaboratively to develop comprehensive real-world solutions to transportation problems on local and regional scales. As growth and demand in individual focus areas permit, additional capstone courses may be added that are tailored towards students in specific focus areas.

Required Course (3 Credits):

- PLAN 689: Transportation Studio and Lab

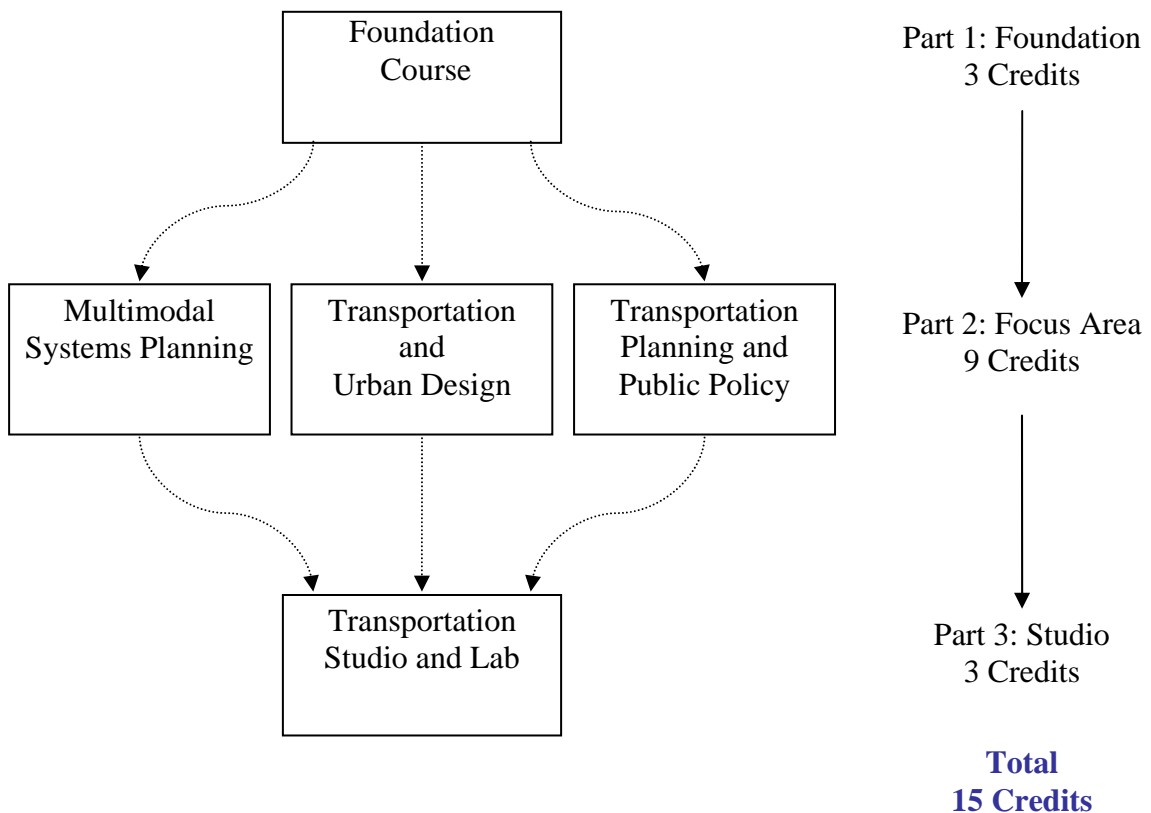


Figure 1. Curriculum Structure

Other Project Outcomes

In addition to developing the certificate structure, the research team succeeded in laying a firm foundation for the continuation and growth of the transportation planning certificate program.

Highlights of project outcomes include:

- Secured approval of the certificate program at Texas A&M University in a two-stage process: 1) The certificate was approved by the College of Architecture on October 16, 2007 and 2) it was approved as a university-wide certificate by the Texas A&M Faculty Senate on July 29, 2008, with a final approval by President Murano on August 6, 2008.
- Dr. Eric Dumbaugh was appointed Certificate Program Coordinator (1st Qtr FY 08); developed forms and administrative materials for student admission and advising (2nd Qtr FY 08); and began the process for establishing a Certificate Council (to be completed 1st Qtr FY 09).
- Developed and delivered two new core graduate courses (2nd Qtr FY 08): PLAN 676 *Transportation Investment Decisions* and PLAN 679 *Transportation Studio and Lab (Capstone)*. These courses were delivered successfully by Dr. William Eisele and Dr. David Ellis of Texas Transportation Institute.
- Enrolled a total of 74 students in transportation planning certificate courses (see Table 2).

Table 2. Transportation Planning Certificate Course Enrollment

Course	1 st Qtr FY 08	2 nd Qtr FY 08	3 rd Qtr FY 08	1 st Qtr FY 09
PLAN 670	10			
PLAN 673		18		
PLAN 674		10		
PLAN 676		7		
PLAN 678		10		
PLAN 684/693			9	
PLAN 670				7
TOTALS	10	45	9	7

- Initiated recruitment of certificate students; developed text for recruiting brochure and web site. These materials are undergoing final editorial changes and are scheduled to be completed 1st Qtr FY 09.
- Awarded four departmental scholarships and three UTCM scholarships to recruit students into the certificate program 1st Qtr FY 09. One graduate assistantship is dedicated to recruiting a student for Fall 2009 and six \$1,000 scholarships and fellowships supported by UTCM are targeted for recruiting Masters of Urban Planning students in the Spring and Fall 2009.
- Enrolled a total of 14 students in the certificate program; these students are in various stages of the program; more students are considering a commitment to

the program. One student graduated in May 2008 with a college-wide certificate and six students completed the requirements of the university-wide certificate in August 2008.

- Developed a plan for program institutionalization and growth; the first initiative is establishing a Transportation Symposium Program. The first lecture in the series is scheduled for Spring 2009.

CONCLUSIONS AND RECOMMENDATIONS

The interdisciplinary certificate program in transportation planning advances Texas A&M and Texas Transportation Institute in their positions as national leaders in the education of transportation professionals. The following opportunities and challenges still exist to fully accomplish the goals of this project:

1. Increase student enrollment in the certificate program. The enrollment target is 25 students from across the university. The 14 students enrolled at project end are primarily from the Masters of Urban Planning program in the College of Architecture. Marketing efforts must be strengthened and expanded to include students from other graduate programs, especially civil engineering, geography, and the George Bush School of Government and Public Service.
2. Establish a Certificate Council to oversee administration of the program and a Certificate Fellow Advisory Committee to monitor progress of the students in the program. These activities are planned for FY' 09.
3. Develop an Executive Certificate program, extending similar training to practicing professionals across the State of Texas and beyond.
4. Establish consistency and sustainability in supervising the increasing number of graduate thesis and dissertations resulting from the certificate program, as well as in the delivery of the two courses developed specifically for the certificate program by this project: *Transportation Investment Decisions* and *Transportation Studio and Lab (Capstone)*. It is intended for the College of Architecture to assume responsibility for teaching these courses. To that end, the Department of Landscape Architecture and Urban Planning (LAUP) conducted a search in Spring 2008 for a faculty position in transportation to strengthen faculty expertise in transportation planning. The intent was that the new faculty would teach these courses and supervise graduate students with interests in transportation. Unfortunately, the search was not successful and the position was suspended indefinitely as a result of a leadership transition at the Dean's level in August, 2008. LAUP currently has funding to teach these classes in Spring 2009. After that, the department will be challenged to deliver these courses until another faculty position becomes available.

APPENDIX

THE GRADUATE CERTIFICATE IN TRANSPORTATION PLANNING

Program Description and Degree Requirements

March 5, 2008

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PART I: Program Description

Purpose

The Graduate Certificate in Transportation Planning (CTP or “the Certificate”) is a multi-disciplinary program aimed at providing students with a substantive base of knowledge needed to be broadly successful in the transportation profession, as well as with specialized instruction tailored to building student skills and capabilities in three critical areas: Multimodal Systems Planning, Transportation and Urban Design, and Transportation Planning and Public Policy. This program will be open to any graduate student at Texas A&M University with an interest in transportation. The Certificate in Transportation Planning Program is developed as a partnership between the College of Architecture, the Zachry Department of Civil Engineering, the Texas Transportation Institute (TTI), and the George Bush School of Government and Public Service. The Certificate will be housed in the Hazard Reduction and Recovery Center, College of Architecture.

The Certificate in Transportation Planning (CTP) Council

The CTP Council is comprised of at least five (5) faculty members who are experts in the field, including representatives from the participating units---Department of Landscape Architecture and Urban Planning (LAUP), Hazard Reduction and Recovery Center (College of Architecture), Department of Civil Engineering, Texas Transportation Institute (TTI), and George Bush School of Government and Public Service. These faculty members will be appointed by the Dean of the College of Architecture to advise on all matters relating to the program.

The Graduate Advisory Committee for each student, with the oversight of degree coordinators, department heads, and the Office of Graduate Studies, is responsible for the academic program of the student. However, the CTP Council is charged with ensuring that students recommended for the certificate have met content standards.

The program can be accomplished within the minimum number of hours required for any of the graduate degrees offered within the College of Architecture. However, the fit with programs in other colleges will need to be assessed on a case-by-case basis. Moreover, the student’s Graduate Advisory Committee might require or the student may choose to take additional hours not on the degree plan in order to meet the requirements for the certificate.

The Certificate Program

The Certificate is to be awarded after completion of a prescribed program of study, and it must be signed by the head of the student’s academic department and the dean of the college. The certificate contains the seal of the university and appropriate text. It will normally be presented at college ceremonies prior to the official university graduation exercises.

PART II: Criteria and Course Requirements

The College of Architecture will award the Certificate to students meeting the criteria listed below:

1. All students should declare intent to seek the Certificate at the time of filing a Degree Plan, but in any event must submit an application as soon as possible after filing a Degree Plan. Application forms are available in the Graduate Programs Office in the College of Architecture, and are also available at the Hazard Reduction & Recovery Center and from the Certificate Program Coordinator.

2. The student must complete a minimum of fifteen (15) credit hours of course work in transportation planning. This 15-credit sequence of courses is comprised of a foundational course in transportation planning (Foundation: 3 credits), a course providing a foundation in the student's area of focus (Focused Foundation: 3 Credits), two electives in the student's chosen area of focus (6 credits), and a studio and lab course that provides a comprehensive, multidisciplinary application of the skills and knowledge gained during the completion of the certification program (Capstone Course: 3 Credits) The courses must be applicable toward a graduate degree in the College of Architecture, but may not necessarily be included on the student's degree plan. At least three (3) credit hours of course work with transportation content must be from outside the student's major department.
3. The student must complete a professional study, thesis, or dissertation with a transportation focus approved by the CTP Council or the Certificate Coordinator if required by the student's major program. A one (1) page abstract detailing the proposed study or thesis will be submitted at the time the student applies for admission into the Certificate program.
4. On completion of all the requirements for the graduate degree, the student will receive the Certificate signed by the dean and the appropriate department head. A certificate in Transportation Planning will be offered through Continuing Education/Distance Education [Executive Program] at Texas A&M University for professionals and others who are not currently enrolled in a master or doctoral degree program at Texas A&M University.

The student's Graduate Advisory Committee remains the primary body for recommending the degree plan content. Courses required or intended for the Certificate may be used in the degree plan with the concurrence of the Graduate Advisory Committee. Students also may add courses beyond their normal degree requirements in order to fulfill the Certificate requirements. Students are encouraged to consult with their Graduate Advisory Committee *and* the Coordinator of the Certificate as they develop their degree plans.

PART III-A: Approved Courses for the Certificate

The CTP Council will pre-approve a list of courses that meet the requirements for transportation planning content. The list, together with associated syllabi and names of instructors, will be on file in the Transportation Planning Certificate Program Office, which is located in the LAUP Office. The list will be available also in the Hazard Reduction & Recovery Center Office.

Students who identify a course not on the list of pre-approved courses, or who wish to transfer courses from another institution, must submit a written statement that clearly describes how a course lacking prior approval is related to the student's course of study in transportation planning. This written statement, supported by a copy of the course syllabus, will be reviewed by the CTP Council. Where a course has a generic topic (for example a design studio in architecture, or a capstone studio course in land development or planning), the written statement of the transportation planning content and the student's specific role in working with that content must be co-signed by the course instructor. Courses that are not acceptable for use toward a graduate degree at Texas A&M University will not be approved under any circumstances. The CTP Council may seek input from faculty concerning course content and/or the specific contribution of a student in a course with team activity.

Where the CTP Council makes a negative finding as to applicability of a course, or a final project, the finding will be made in writing with copies to the student, student file, and chair of the

student's Graduate Advisory Committee. Appeals against findings of the CTP Council will be made to the academic dean of the College of Architecture.

PART III-B: Curriculum

The curriculum for the Certificate is represented graphically in Figure 1.

1. Foundations of Transportation Practice (3 Credit Hours)

Students pursuing the Certificate will begin their study by taking PLAN 612: Transportation in City Planning, which provides a comprehensive overview of the role of transportation in society. Required Course:

- PLAN 612: Transportation in City Planning

2. Focus Area (9 Credit Hours)

The second step in the completion of the Certificate is the completion of nine (9)-credits in one of three specific areas of professional focus. Each of the three focus areas is designed to meet critical needs within the transportation profession, and is tailored towards securing students placement in appropriate transportation-related agencies and organizations.

A. Multimodal Systems Planning

The focus area in *Multimodal Systems Planning* is intended for students seeking to address regional-level transportation issues. This focus area builds upon the foundational curriculum by providing an in-depth examination of multimodal solutions for addressing regional mobility, as well providing students with instruction on the tools and methods used for designing and aligning regional-level transportation system investments. Students focusing on *Multimodal Systems Planning* will have the educational background needed for successful employment in metropolitan planning organizations (MPOs), Regional Councils of Governments (COGs), as well as the diverse array of private consulting firms who provide support for the activities of these agencies. Courses for students focusing on Multimodal Systems Planning are:

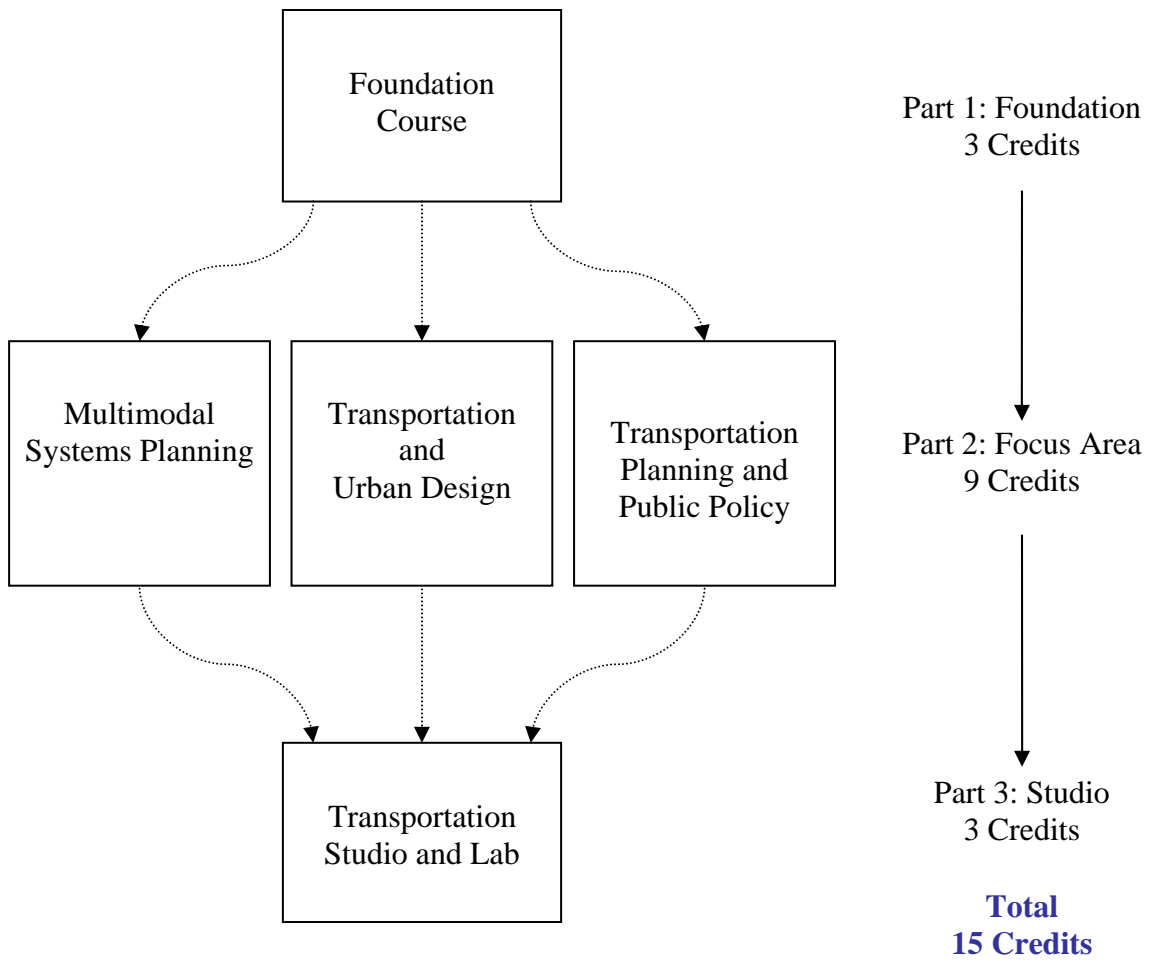
Required: Focused Foundation in Multimodal Systems Planning (3 Credits)

- PLAN 670: Urban Public Transportation Planning

Electives: Multimodal Systems Planning (6 Credits)

- PLAN 650: Disaster Response Planning
- PLAN 674: Transportation Systems Analysis
- PLAN 673: Design for Sustainable Transportation
- CVEN 672: Engineering and Urban Transportation Systems
- CVEN 618: Traffic Engineering: Operations
- PLAN 626: Advanced GIS in Landscape Architecture and Urban Planning*
- PLAN 669: Urban Infrastructure Planning
- PLAN 689: Transportation Investment Decisions
- PLAN 689: Transportation and Urban Design
- CVEN 632: Transportation Systems Engineering Management

* Prerequisite: PLAN 625: Geographic Information Systems in Landscape Architecture and Urban Planning, or an approved substitute.



Certificate in Transportation - Curriculum Structure

B. Transportation and Urban Design

The focus area in *Transportation and Urban Design* seeks to address the growing demand for transportation professionals who can balance conventional mobility concerns with the needs of the built and natural environments. Despite the call from industry leaders such as the Federal Highway Administration (FHWA), the Institute of Transportation Engineers (ITE), and the Transportation Research Board (TRB) for a more “context-sensitive” approach to transportation planning and design few, if any, University programs provide specific instruction in this area. The focus area in *Transportation & Urban Design* seeks to build upon TAMU’s reputation as a leader in transportation education by providing specialized instruction aimed at addressing this critical professional need. Students focusing in *Transportation and Urban Design* will typically find employment in the growing number of private firms providing specialized transportation design services to both local governments and state departments of transportation (DOTs), as well in staff positions in public-sector agencies. Courses for students focusing in *Transportation & Urban Design* are:

Required: Focused Foundation in Transportation and Urban Design (3 Credits)

- PLAN 689: Transportation and Urban Design

Electives: Transportation and Urban Design (6 Credits):

- PLAN 674: Transportation Systems Analysis
- PLAN 670: Urban Public Transportation Planning
- PLAN 673: Sustainable Transportation
- LAND 661: Visual Quality for Design and Planning
- PLAN 689: Transportation Investment Decisions
- PLAN 669: Urban Infrastructure Planning
- CVEN 617: Traffic Engineering: Characteristics
- CVEN 632: Transportation Systems Engineering Management
- CVEN 635: Street and Highway Design
- CVEN 618: Traffic Engineering: Operations
- CVEN 672: Engineering and Urban Transportation Systems

C. Transportation Planning and Public Policy

Total public expenditures in transportation infrastructure total more than \$170 billion per year,¹ with many public funding programs tied to specific program grants that direct how transportation system investments are made. The *Transportation Planning and Public Policy* focus area is intended to develop policy innovators who are able to tailor public policy and finance to address emerging transportation needs. Students focusing in this area will have the educational background needed to assume policy and managerial positions in public-sector entities responsible for transportation planning and investments, such as state and local departments of transportation (DOTs), as well as in the Federal agencies tasked with oversight over the nation’s transportation system, such as the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA), among others. Proposed courses for this focus area include:

Required: Focused Foundation in Transportation Planning and Public Policy (3 Credits)

- PLAN 689: Transportation Investment Decisions

¹ Source: Bureau of Transportation Statistics (2005). *Transportation Statistics Annual Report*. Washington DC: Bureau of Transportation Statistics, November.

Electives: Transportation Planning and Public Policy (6 Credits)

- BUSH 611: Public Policy Formation
- BUSH 612: Public Policy Administration
- BUSH 614: Organization for the Public Sector
- BUSH 634: Public Management
- CVEN 632: Transportation Systems Engineering Management
- PLAN 669: Urban Infrastructure Planning
- PLAN 650: Disaster Response Planning

3. Capstone Course (3 Credit Hours)

The Certificate in Transportation will culminate in a second-year capstone course that synthesizes the knowledge obtained during the course of the certificate program. As envisioned, the Capstone Course will require students from each of the three focus areas to work collaboratively to develop comprehensive real-world solutions to transportation problems at the local and regional scales. As growth and demand in individual focus areas permits, additional capstone courses may be added that are tailored towards students in specific focus areas.

Required (3 Credits)

- PLAN 689: Transportation Studio and Lab

PART III-C: Program Faculty

The following faculty members have special expertise appropriate to transportation planning and should be considered for inclusion on student guidance committees:

- Elise Bright, Landscape Architecture & Urban Planning
- Mark Burris, Civil Engineering
- Eric Dumbaugh, Landscape Architecture & Urban Planning
- Bill Eisele, Texas Transportation Institute, Landscape Architecture & Urban Planning
- David Ellis, Texas Transportation Institute, Landscape Architecture & Urban Planning
- Gene Hawkins, Civil Engineering
- Chanam Lee, Landscape Architecture & Urban Planning
- Ming Han Li, Landscape Architecture & Urban Planning
- Michael Lindell, Landscape Architecture & Urban Planning
- Eric Lindquist, George Bush School of Government and Public Service
- Tim Lomax, Texas Transportation Institute, Landscape Architecture & Urban Planning
- Forster Ndubisi, Landscape Architecture & Urban Planning
- Dennis Perkinson, Texas Transportation Institute, Landscape Architecture & Urban Planning
- Luca Quadrifoglio, Civil Engineering
- Katherine Turnbull, Texas Transportation Institute, Landscape Architecture & Urban Planning
- Douglas Wunneburger, Landscape Architecture & Urban Planning
- Arnold Vedlitz, George Bush School of Government and Public Service

PART III-D: Model Degree Plan for Master of Urban Planning Students*

Fall Semester I	PLAN 601: Introduction to Urban Planning	1
	PLAN 604: Planning Methods I	3
	PLAN 610: Structure and Function of Settlements	3
	<i>PLAN 612: Transportation in City Planning</i>	<u>3</u>
		13
Spring Semester I	PLAN 613: Planning Methods II	3
	PLAN 640: Law and Legislation	3
	<i>PLAN 673: Design for Sustainable Transportation</i>	3
	<i>PLAN 674: Transportation Systems Analysis</i>	<u>3</u>
		12
Fall Semester II	PLAN 684: Professional Internship	1
	PLAN 662: Applied Planning I	3
	<i>PLAN 670: Urban Public Transportation Planning</i>	3
	Elective	3
	Elective	<u>3</u>
		13
Spring Semester II	PLAN 663: Applied Planning II	3
	PLAN 693: Professional Study	1
	<i>PLAN 689: Transportation Studio and Lab</i>	3
	Elective	<u>3</u>
		10
Minimum Hours Standard Degree		48

* CTP classes in *italics*

* Note: Specific course sequences may vary given the focus area selected by the individual student. The above sequence represents the anticipated schedule for a student focusing on Multimodal Transportation Systems Planning.

PART III-E: Model Degree Plan for Master of Landscape Architecture Students*

Fall Semester I	LAND 620: Open Space Development 1	5
	LAND 640: Research Methods in Landscape Arch.	3
	RLEM 602: Ecology and Land Uses	3
	<i>PLAN 612: Transportation in City Planning</i>	<u>3</u>
		14
Spring Semester I	LAND 621: Open Space Development II	5
	LAND 681: Seminar	1
	<i>PLAN 673: Design for Sustainable Transportation</i>	3
	<i>PLAN 674: Transportation Systems Analysis</i>	<u>3</u>
		12
Summer Semester I	LAND 684: Professional Internship	<u>4</u>
		4
Fall Semester II	LAND 646: Professional Practice	3
	LAND 693: Professional Study	3
	<i>PLAN 670: Urban Public Transportation</i>	3
	Elective	<u>3</u>
		12
Spring Semester II	LAND 646: Professional Practice	3
	LAND 693: Professional Study	4
	<i>PLAN 689: Transportation Studio and Lab</i>	<u>3</u>
		10
Minimum Hours Standard Degree		48

* CTP classes in *italics*

* Note: Specific course sequences may vary given the focus area selected by the individual student. The above sequence represents the anticipated schedule for a student pursuing a Master of Landscape Architecture Degree that is focusing on Transportation and Urban Design.

PART III-F: Model Degree Plan for Master of Architecture Students*

Fall Semester I	ARCH 605: Design I	6
	ARCH 631: Structure Elements III	3
	ARCH 633: Environmental Systems 3	<u>3</u>
		12
Spring Semester I	ARCH 606: Design II	6
	<i>PLAN 673: Design for Sustainable Transportation</i>	3
	ARCH 638/9: Architectural History	<u>3</u>
		12
Summer Semester I	ARCH: Architecture Elective	<u>3</u>
		3
Fall Semester II	ARCH 607: Design III	6
	<i>PLAN 670: Urban Public Transportation</i>	3
	<i>PLAN 612: Transportation in City Planning</i>	3
	ARCH 685: Final Study Prep	<u>1</u>
		13
Spring Semester II	ARCH: Professional Practice	3
	LAND 693: Professional Study	4
	<i>PLAN 689: Transportation Studio and Lab</i>	<u>3</u>
		10
Minimum Hours Standard Degree		52

* CTP classes in *italics*

* Note: Specific course sequences may vary given the focus area selected by the individual student. The above sequence represents the anticipated schedule for a student pursuing a Master of Architecture Degree that is focusing on Transportation and Urban Design.

PART III-G: Model Degree Plan for Master of Science in Civil Engineering Students*

Fall Semester I	CVEN 617: Traffic Engineering – Characteristics	3
	CVEN 681: Seminar in Transportation	1
	<i>CVEN 672: Engineering and Urban Transportation</i>	3
	CVEN 601: Statistical Analysis	<u>4</u>
		11
Spring Semester I	<i>CVEN 632: Transportation System Management</i>	3
	CVEN 618: Traffic Engineering - Operations	3
	CVEN 635: Street and Highway Design	<u>3</u>
		9
Summer Semester I	CVEN 691: Research	<u>3</u>
		3
Fall Semester II	<i>PLAN 670: Urban Public Transportation</i>	3
	<i>PLAN 612: Transportation in City Planning</i>	3
	<i>PLAN 689: Transportation Studio and Lab**</i>	<u>3</u>
		9
Minimum Hours Standard Degree		32

* CTP classes in *italics*

*Note: Specific course sequences may vary given the focus area selected by the individual student. The above sequence represents the anticipated schedule for a student pursuing a Master of Science and Civil Engineering that is focusing on Multimodal Systems Planning.

**May be substituted for CVEN 691.

PART III-H: Model Degree Plan for Master of Public Service and Administration *

Fall Semester I	BUSH 601: Leadership and Public Administration	3
	BUSH 621: Economic Analysis	3
	BUSH 631: Quantitative Methods in Public Mgmt I	3
	<i>BUSH 611: Public Policy Formation</i>	<u>3</u>
		12
Spring Semester I	BUSH 632: Quantitative Methods in Public Mgmt II	3
	<i>BUSH 634: Public Management</i>	3
	<i>PLAN 689: Transportation Decision Making (New)</i>	3
	Elective	<u>3</u>
		12
Summer Semester I	Professional Internship	
Fall Semester II	BUSH 675: Capstone I	3
	Bush 615: Policy Analysis	3
	<i>PLAN 612: Transportation in City Planning</i>	3
	Elective	3
		12
Spring Semester II	BUSH 676: Capstone II	3
	<i>PLAN 689: Transportation Studio and Lab</i>	3
	Elective	3
	Elective	<u>3</u>
		12
Minimum Hours Standard Degree		48

* CTP classes in *italics*

* Note: Specific course sequences may vary given the focus area selected by the individual student. The above sequence represents the anticipated schedule for a student pursuing a Master of Public Service and Administration degree that is focusing on Transportation and Public Policy.

PART IV: Summary of Steps Required for Obtaining the Certificate

Students are strongly encouraged to meet with a member of the CTP Council (in particular, the Certificate Coordinator) prior to filing an application and completing a degree plan.

Step One: *Initial Application for the Certificate.* At the time a degree plan is filed, the student will complete an Initial Application for the Certificate and attach to it to a copy of the Degree Plan signed by the student's Graduate Advisory Committee and the head of the student's department. The CTP Council will review the Initial Application for compliance with the requirements for content. Initial Applications for the Certificate submitted after filing a degree plan can usually be expected to require a revision of the degree plan and may delay timely progress toward degree completion.

Step Two: *Review of the Final Application.* Master's level students must provide the CTP Council with an abstract and any supporting justification as may be required to evaluate the topical relevance of transportation planning to their professional study, professional paper, or thesis, if such a product is required in their degree program. This information must be submitted after the manuscript has been approved by the student's Graduate Advisory Committee. Doctoral students must provide the CTP Council with an abstract and any supporting justification as may be required to evaluate the topical relevance to transportation planning to their dissertation. This information must be submitted after the defense of the dissertation proposal. The CTP Council will review the Final Application for compliance with the requirements for content and forward its recommendation to the Graduate Programs Office.

Step Three: *Issue of the Certificate.* At the time the student is approved for receipt of a relevant graduate degree, the Graduate Programs Office in the College of Architecture (COA) will review the approved certificate courses and advise the Dean of the College of Architecture of successful completion. The Dean of the COA will then authorize the granting of the Certificate.

PART V: Policy for Maintaining Student Records

Official Graduate Transportation Planning Certificate Program records consist of the *Application*, a copy of the approved *Degree Plan* (and any subsequent *Petitions* that may impact the previously approved program), an *Abstract* of the final project topic, and any official correspondence. These records will be kept in the official student folders in the COA Graduate Programs Office. For reference purposes the COA Graduate Programs Office will create and maintain a database showing all students who have received, or are currently enrolled in the Certificate Program.

Name
Degree Program
Date of Application
Date of Actions For Each Step Above
Title of Project, Paper, Thesis, Or Dissertation
Name Of Chair Of Graduate Advisory Committee
Date Of Degree/Certificate Awarded
Permanent/Current Address/E-Mail
Employment Data

This database will be accessible by the Transportation Planning Program Office and the HRRC, which also maintains hardcopy files for developing data on the career histories, addresses, email address, etc. of certificate holders and current students. Student grades will not be available outside the COA Graduate Programs Office, and personal data will not be released, except in accordance with state law and university guidelines.

**APPLICATION FOR ADMISSION TO THE
GRADUATE CERTIFICATE IN TRANSPORTATION PLANNING PROGRAM**

Submit this form to the Program Assistant of the Hazards Reduction and Recovery Center

Student Information:

Name: _____ Student ID Number: _____

Address: _____

Phone(s): _____ Email: _____

Date of application: _____

Degree Information:

Department: _____

Degree Program: (please circle)

Doctoral Degree

Ph.D. (ARCH)

Ph.D. (URSC)

Ph.D. (Other)

Master's Degree

M.ARCH

MS(Arch)

MLA

MSCE

MUP

MSLD

MPSA

MA/MS (Other)

Expected Graduation Date: _____

Approved (Faculty Use Only):

Graduate Advisor

Certificate Coordinator

**STUDENT DEGREE PLAN FOR THE
GRADUATE CERTIFICATE IN TRANSPORTATION PLANNING**

Submit this form to the Program Assistant of the Hazards Reduction and Recovery Center

Part A. List the courses you propose to meet the Transportation Planning Certificate requirements in the table below.

Department Abbreviation	Course Number	Course Title	Credit Hours

Signature of Student

Date

Approval Recommended (Faculty Use Only):

Certificate Coordinator

Date

<u>Graduate Programs Office</u>	<u>CTP Program Office</u>	<u>Student</u>	<u>Chair, Student's Graduate Advisory Committee</u>

**PETITION TO GRADUATE AND FINAL PAPER PROPOSAL
GRADUATE CERTIFICATE IN TRANSPORTATION PLANNING PROGRAM**

Submit this form to the Program Assistant of the Hazard Reduction and Recovery Center

Student Information:

Name: _____ Student ID Number: _____

Address: _____

Phone(s): _____ Email: _____

Date of application: _____

Degree Information:

Department: _____

Degree Program: (please circle)

Doctoral Degree

Ph.D. (ARCH)

Ph.D. (URSC)

Ph.D. (Other)

Master's Degree

M.ARCH

MS(Arch)

MLA

MSCE

MUP

MSLD

MPSA

MA/MS (Other)

Scheduled Graduation Date: _____

Approved (Faculty Use Only):

Graduate Advisor

Certificate Coordinator

If a dissertation, final study, thesis, or professional report is required for your degree, attach a 1-page abstract to this form.



University Transportation Center for Mobility

Texas Transportation Institute

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