May 17, 2017

To: Provost Sarah Mangelsdorff and Dean Bill Karpus, Graduate School

From: Paul Robbins, Director, Nelson Institute

Subject: Director’s Response to the 10 Year review of the Transportation Management Program (TMP) Certificate

We are very pleased with the thorough and thoughtful review of our Transportation Management and Policy certificate and commend the committee for its excellent work. The review committee was chaired by Prof. Kurt Paulsen presently in the Dept. of Urban and Regional Planning (URPL). There are two major conclusions: 1) they believe that the certificate serves a useful purpose and should be continued; 2) to continue, it will be necessary to find a new home for it. We endorse both recommendations.

The status of the TMP certificate in brief: Until recently, the certificate was substantially underwritten by a large multi-year center grant from the U. S. Department of Transportation for which Prof. Teresa Adams was the principal investigator. She also served as academic chair for the certificate. A renewal proposal to extend the funding was unsuccessful, and as a result the resources available for the certificate dropped significantly. At present there are somewhere between two and six students in the program. Prof. Adams, for various reasons, has indicated that she is no longer able to continue as chair. This means that it will be necessary either to cancel the certificate or, as the review suggested, to find a new home for it.

It should be noted that the willingness of Nelson to part with the certificate is not because we do not value it. Issues surrounding transportation management and policy have profound consequences for the environment and solutions to its problems must be found in an interdisciplinary context. In a recent discussion in the Nelson APC, strong support for the continuance of the program was expressed by the Nelson faculty member most familiar with the program. She emphasized that the program has served its student well, with graduates going on to take responsible and well remunerated positions. At the same time, it was recognized that the centers of academic interest in transportation management, especially with respect to technical matters, are mostly in other units.

In considering the future of the program, colleagues in URPL see TMP fitting perfectly with the strategic goals for their new merged department and have indicated a willingness to take on its management. They further emphasized that they do not want the program to be suspended.
because they wish to begin to rebuild it as soon as possible. They have already identified students interested in signing up for the certificate and have given assurances that they are prepared to take on advising and student oversight as soon as their departmental merger is completed. In short, they suggest no hiatus in program oversight. There is also a possibility of a faculty hire in Planning with specific research interests in transportation; they could be expected at some time in the future to take on the position of program chair.

We therefore strongly recommend that the program be transferred to the new department of Planning and Landscape Architecture (PLA).

Following the procedures for the transfer of a program promulgated on 16 December 2016, we will proceed by taking the proposal to transfer to our Governance Committee at its first meeting in fall, 2017. In the event of a positive vote (likely), early in the fall semester, the Director’s office will submit a formal proposal to the Provost’s Office for a transfer of the certificate to PLA. We will use the summer to confer with our colleagues in the new department of Planning and Landscape Architecture and with Prof. Adams to assure that we have a strong rationale for the transfer.

We are submitting this review so as to complete the phase that is procedurally independent of the request for a transfer.

Best wishes,

Paul Robbins
Director

CC: Prof. Teresa Adams, Chair, TMP
CC: Prof. Paul Zedler, Associate Director for Research and Education, Nelson Institute
CC: Prof. Kurt Paulsen, Chair, program review committee
CC: Prof. Ken Genskow, Chair, Department of Urban and Regional Planning
CC: Jocelyn Milner, APIR
CC: Sarah Kuba, APIR
CC: Marty Gustafson, Graduate School
Date: March 15, 2017

To: Paul Robbins, Director, Nelson Institute

From: Program Review Committee for the Transportation Management and Policy graduate certificate program (TMP): Paulsen (Chair, Urban and Regional Planning (URPL)), Photenhauer (Mechanical Engineering and GFEC), Ahn (Civil and Environmental Engineering), and Gocmen (URPL).

RE: Report from the TMP Program Review Committee

As requested, the committee undertook a program review for the interdisciplinary graduate certificate program Transportation Management and Policy (hereafter TMP), currently administered by the Nelson Institute. The context for our review is different from traditional program reviews required of departments because TMP is a low-enrollment certificate program and because the governance and status of the certificate is currently uncertain, as detailed below. As a result, our review not only addresses issues required by the Graduate School and GFEC, but was subsequently tasked by Nelson administration with identifying possible governance strategies for continuation of the program.

**Review procedure.**

Our committee read the self-study materials and had a committee discussion as well an extended interview with Teresa Adams, the current program director. Because the list of faculty stakeholders with interest in the TMP program are scattered over many departments, we solicited feedback from identified faculty through a Qualtrics open-ended survey, inviting additional comments via email. (Faculty/staff were identified as either being listed on the current list of faculty governance of the program, previously on the governance faculty, in departments with significant enrollment in TMP and/or faculty/staff with identified interest/knowledge in the field of transportation.)¹ We did not interview current students in the program because we were told there is currently only one student formally enrolled. Moreover, we did not conduct a “demand study” of potential enrollment through a survey or marketing effort of graduate students in the various contributing departments nor a survey of alumni. We believe that is not the duty of a review committee but rather of departments and/or programs. One of our recommendations (see below) is that the program should take stronger efforts to market the program to potential students, and should more regularly contact alumni.

¹ Some of the persons surveyed may have been alumni of the TMP program as well.
**Status of Program.**
We first discuss the status of the certificate program because it is the most important issue based on recent events.

The TMP program was established in 2002 as the educational arm of CFIRE, The National Center for Freight Infrastructure Research and Education. CFIRE was, until recently, a Tier 1 University Transportation Center (UTC), where UW Madison was the lead university in a consortium of universities providing research and education in transportation. UTCs are funded by the US Department of Transportation (US DOT), and represent a high level of prestige and funding. The research funding associated with CFIRE’s designation as a UTC provided the source of funding for graduate students in TMP to work on CFIRE projects. Since 2002, 55 students have completed the certificate program, and most received funding through CFIRE.

The certificate program is formally housed in the Nelson Institute, but has been built, operated, maintained, and funded through CFIRE staff and faculty. As such, it currently has no actual costs to Nelson, other than a minimum amount of Nelson Student Services Coordinator and Graduate Advisor Jim Miller’s time. (Jim Miller estimates that TMP related activities take up no more than 10 hours per semester). Graduates of the program have taken on high-level positions of influence with top state and metropolitan transportation planning agencies and private consulting firms.

Unfortunately, CFIRE was not successful in its application for continued UTC funding from US DOT. As a result of this, some of the staff from CFIRE who administered the TMP program and advised students have left. The current TMP Program Director (and CFIRE Executive Director) Prof. Teresa Adams has indicated to our committee that she cannot continue to serve as TMP director because of the funding situation. Although Prof. Adams is interested in and willing to teach the 772 Practicum course in the future if sufficient enrollment obtains, she is not currently offering this course. Thus, for all practical purposes, the certificate program is currently in a state of uncertainty and new students are not being admitted, pending decisions on future governance.

Our review committee (and certainly those of us from URPL which has had the majority of TMP graduates) want to extend our heartfelt appreciation to Dr. Adams for her leadership and funding of the TMP program. Generations of planning, policy, engineering, and business students are making a difference in the real world because of her mentorship and leadership. She has run this program at no cost to participating departments for over 14 years. In our interview with her, she expressed deep love and appreciation for the program and hopes it can continue, but she is unable to be the main “champion” or funder at this time.
Absent a new “champion” to take over the TMP program, the certificate program cannot survive. Therefore, one purpose of this report is to outline some of the key strategic and governance issues that would be involved for a champion faculty member(s) and/or department(s) to reinvigorate the TMP program.

Our review finds that the greatest strength of the TMP program overall for the university has been its affiliation and sponsorship by CFIRE. CFIRE and Dr. Adams created the program, managed the program, advised the students, and funded the students. (The other main strength, as detailed below, is its inter-disciplinary nature).

**Costs and benefits of TMP**

Because the program would potentially need to be administered or governed by a different unit, it is worthwhile to outline the costs and benefits associated with the TMP program as currently structured. As the program is a small, interdisciplinary certificate program, the main “costs” involve some portion of a faculty member’s time to serve as director and teach required courses, and some amount of staff time to advise students, undertake marketing/recruitment, handle admissions, and ensure proper paperwork.

Exact costs are hard to estimate because the costs represented only a portion of people’s time. In terms of Dr. Adams time, she taught one 3-credit course per year in the program, EnvrSt 772 Practicum in Transportation Management and Policy. This course was considered as part of Dr. Adams’ regular teaching load within the Civil and Environmental Engineering Department. This course involved finding a real-world client or clients and supervising the students to work on applied problems for the client. Students would be assigned to groups of 1 to 5 students, and there were often multiple project groups in each 772 class. Although designed primarily for TMP students, there were occasional students from other departments who would participate in practica. If teaching of 772 Practicum were to continue as an essential group project for each TMP cohort (as we recommend it does), the cost for one or more “host” departments would be one course of a professor’s normal teaching load. Dr. Adams has indicated a willingness and interest in continuing to teach 772 if sufficient enrollment allows. Other options could entail utilizing 772 as part of the UniverCity program to undertake transportation related projects.

The other course unique to TMP is a 1-credit colloquium course EnvrSt 970. For this course, the topics change every semester and the 1-credit course is organized around a series of readings on a topic and/or multiple guest speakers (working professionals in the transportation field). This colloquium was previously taught by CFIRE academic staff members but has been taught recently by Dr. Adams. Dr. Adams indicated that
the colloquium course does not entail significant time expenditure and is enjoyable to teach.

All of the other courses available in the menu of TMP options (or utilized by students as substitutes) were courses already being taught in other departments and therefore constituted no actual additional costs.

Academic advising was usually handled by CFIRE staff with Dr. Adams signing off on the plan of study forms and internship letters. The amount of time staff spent on advising varied by number of students in the program. Staff would meet with students at least once a semester to review the plan of study form and help students design their curriculum to meet program requirements. Often, this involved helping students find substitute courses when menu options were not available. Most students in TMP were also employed on CFIRE projects, so the time involved was minimal.

Dr. Adams estimates that her time as program director at most entailed no more than 5 hours of her time per week during the most intensive times.

CFIRE staff also made a limited number of outreach visits to classes in urban planning and transportation engineering classes to talk about the program and recruit students.

The TMP program is a very limited cost program as currently structured. It has also always been a low-enrollment specialized program. For any department(s) which might take over management of TMP, costs would likely be limited to a few hours per week for a faculty member as academic program director and a commitment from staff (graduate coordinator) to process applications, monitor student progress, respond to student inquiries, undertake marketing/recruitment (with the faculty director), and undertake advising appointments with students. Time commitments would vary based on the number of students in the program.

**Assessment: Strengths.**
Our assessment of strengths is a result of our faculty/staff survey, our interview with Dr. Adams, our review of the self-study report and our familiarity with the program.

Our survey asked respondents to identify the main strengths of the TMP program. Here is a summary of responses:

“being introduced to real-world transportation issues and projects- expands beyond just the theoretical,” “Exposure to a wide breadth of transportation fields and careers,” “Helping students understand the way transportation decisions are made (and projects are moved forward) and how different jurisdictions interact”
with one another,” “It forces students to work with others coming to transportation from different academic backgrounds (policy, planning, engineering, public health, etc.), which is good preparation for work following graduate school,” “it is a helpful credential on the job market, especially for students from fields where they otherwise would have had limited exposure to transportation issues,” “Interdisciplinary training in a topic of importance to society,” “Environmental implications of transportation are huge,” “The group practicum project,” “Addresses clear need with a coherent program,” “Training students for the highly employable field of transportation,” “Connects with engineering, urban planning, air quality, weather prediction, economics, biofuels, etc. Ideal for a certificate program to strengthen other graduate programs,” “Diversified backgrounds of students, diversified approach to transportation that reflects its social, economic, safety, environmental and overall broad impact to society and health,” “Provides outstanding experience to students, makes them highly valuable in workforce.”

We concur. The interdisciplinary nature of transportation and future transportation problems requires students who understand how other disciplines work and how to work on multi-disciplinary teams. To take the two departments that have supplied the most students – Civil Engineering and Urban Planning – one of the great strengths of the program is that Engineers learn policy, planning, and finance (which they will need to be effective), and Planners learn the important technical and engineering skills which they will need to be effective.

From a student perspective, it appears that the flexible nature of the program (choosing from a menu of course options with the potential for approved substitutions) is also a strength of the program. And, the practicum course was mentioned multiple times as a strength of the program.

Those of us on the review committee who are in URPL (Paulsen, Gocmen) would also like to highlight a strength of the program as it relates to our department degree requirements. Students in the MS program in URPL are required to define (with their advisor) an “area of specialization” and design a program of at least 12 credits to fill this specialization. For TMP students, TMP becomes their specialization. Moreover, we require an internship (usually taken between the first and second year) and TMP also requires an internship. URPL TMP students may use the same internship to satisfy both requirements. A quick perusal of the list of URPL TMP grads indicates that many of them were able to utilize a high-quality internship as a springboard to high-quality employment.
**Assessment: Areas for Improvement.**

Our survey also asked respondents to identify the “main weaknesses” of the program, and they are summarized here:

“lack of numbers- the students gain the most by working with students from other academic disciplines than their own,” “... the focus seems so wide (from vehicular technology, to letting out highway projects for bid, to aviation, to law enforcement, to public health, private & public sector, etc.) that it can feel a bit shallow. On the other hand, this was a strength, in that it gives students broad exposure to the different aspects of the field,” “seems too driven by civil engineering faculty, it is important for planners and policy folks to help direct it as well,” “As an interdisciplinary certificate program it will always be somewhat fragile with faculty commitment to teach the required courses, financial resources to provide administration, and faculty champions to promote the program and actively develop a sense of community among the students,” “Low enrollment...”, “Lack of effective advertising, both to engage students and to recruit new faculty,” “Nelson Institute as administrator is a place of convenience, and not aligned with bulk of participants,” “The main weakness has been: 1) integration with existing degree programs; and 2) publicity,” “Many students - even working in transportation - hadn't heard of TMP. So a higher profile is needed to reach the potential audience of existing grad students on campus, and a much higher profile is needed to reach students who are considering UW-Madison and might choose UW if they were aware of TMP (which is a really unique and wonderful program),” “There were more required classes than other certificates - like EAP - limiting whether students could "add on" TMP very easily. I talked to quite a few students who were interested in TMP, but could not fit the classes into their degree,” “Not enough students, needs more rigorous rotation of emphasis areas.”

Our committee finds that the low enrollment and publicity issues are related. The program seems to have been designed as more of a niche program to fit the needs of CFIRE, and most of the TMP students were funded by CFIRE. We can see great strengths in that model: CFIRE funding was used a recruitment tool for TMP enrollment, and TMP enrollment often carried with it CFIRE funding. This kept the cohort small, but funded.

Our review takes no position on whether the required number of courses is too high, as mentioned by a respondent in comparison to the Energy Analysis and Policy (EAP)

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2 Some comments are not reported verbatim here as those comments would be easily identifiable to the respondent.
certificate. Students are required to take one 3-credit course in each of the menu categories (technology/engineering, economics, policy/management, and environmental). We cannot imagine an interdisciplinary certificate in transportation with fewer categories of coursework. Students are also required to take 772 Practicum, which we do think is essential to the program. If the certificate were to be reconfigured to be only a coursework certificate without a practicum, the students would miss a valuable experience and the program would lose coherence among a cohort of students.

We also note an area for improvement in the realm of faculty governance for an academic program. Some faculty members communicated to us that they believed themselves to have been appointed to the “governance faculty” of the TMP program, but were not consulted or asked to attend meetings. Other faculty members, when informed they were listed on the “governance faculty” for the self-study report were surprised to learn they were listed. It is our understanding that a governance group of faculty has not met to review and update the curriculum in a few years. We do recommend that TMP clarify the role and function of governance faculty, and that such faculty meet at least once a year to review the program and update the curriculum.

Moreover, a robust participation of faculty governance can build support and recruitment for the program across campus.

In regards to the curriculum, we recognize the inherent difficulty in sequencing courses among many departments, where faculty retire or move or courses are not planned to be offered in the near future, thus leading to many approved substitutions by TMP staff. Some of the courses listed on the website as options will no longer be offered by their home departments due to faculty retirement. Regular review and consultation by the governance faculty representing departments offering TMP-listed courses would help keep the curriculum up to date.

**Recommendations.**
The TMP graduate certificate program is at a crossroads. Without a new champion department(s) and faculty member(s) to drive the program, it will disappear.

Transportation-related issues (safety, technology, sustainability, equity, air quality, finance, etc.) are at the center of global, national, and state concerns with livable, sustainable, healthy, and safe cities. Transportation-related expenditures constitute one of the largest components of state and local budgets. Without adequate and safe transportation systems, civilized society would cease to function.

We simply cannot imagine a world where graduate students at UW-Madison are not provided training and research opportunities in transportation from an
interdisciplinary perspective. The need for trained graduates is huge, and the potential for impact is nearly limitless. Programs such as TMP provide an option for students to receive this training.

Although the TMP program is currently a low-enrollment certificate program, it is also a relatively low-cost program that builds on existing courses in other departments and provides an important learning experience for students. Therefore, we find that the TMP certificate program is a valuable program at UW Madison that should continue. However, we repeat our concern that if a motivated faculty member(s) and department home cannot be found, the program would have to be suspended.

Should the TMP program continue, we would make the following recommendations for possible future actions, both in terms of governance/administration and curriculum/students:

**Governance and administration.**
1. The TMP certificate is currently housed in Nelson, even though very few Nelson students have participated, and even though CFIRE/Civil undertake the administrative work. If TMP is to continue on a more permanent basis, it would ideally be administered within one or more of the departments that contribute a larger number of students.

2. TMP governance faculty should be more clearly defined, and convened to undertake a strategic planning exercise to determine the future (re)direction of the program. This should include identifying additional potential contributing departments and faculty interested in transportation, as well as updating the potential list of courses for students to take. Governance faculty should meet at least annually.

3. If TMP is to thrive, efforts need to be undertaken to create a group of alumni (either formally or informally) who will serve as advisors and represent developments within the field back to the program. TMP should also consider an employers’ advisory council (including private transportation firms, MPO and/or DOT employees, etc.) to help identify ongoing issues within the field of transportation and to serve as ready conduits for internship and employment opportunities.

**Curriculum and students.**
1. If TMP is to continue, the first task of the new director is to develop a strategic recruitment and marketing plan. This would also include a demand assessment and an attempt to find out why students in contributing departments might not be interested in
Such a recruitment plan should also consider actions and strategies to increase the diversity of program participants.

2. TMP should consider (as some comments made clear) reducing the number of required courses in the certificate. Although the 1-credit colloquia courses were interesting and beneficial to both the faculty and the students, perhaps reducing the required credits to the 4 category classes and the practicum would increase enrollment.

3. TMP should consider a more specified link between the practicum course and the UniverCity projects.

4. TMP enrollment should not be specifically tied to expectations of funding from CFIRE. Funding of professional graduate students would be tied to their home departments (if any). This could increase enrollment.

5. As far as we could tell, there is not currently a “student handbook” for graduate students in the program, a recommended best practice of the graduate school. Many of these materials are already available on the web on in person from the advisors, but centralizing all this information onto one website or a student handbook would improve the student experience. Both Nelson and the Civil and Environmental Engineering departments already have good models of student handbooks available.

6. Related to number 5 above, the future student handbook should also detail various grievance and appeal procedures, consistent with graduate school and university policies and resources. As it stands now, presumably students with complaints or grievances would be covered under the Nelson Institute policies, but this is not necessarily clear to the students. As a interdisciplinary certificate program, there is no need for TMP to create procedures, but simply to clarify where students may go to find information on relevant procedures.

7. To the best of our knowledge, the TMP program does not have a formally adopted program of student learning assessment. While such an assessment would likely focus

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3 The review committee chair (Paulsen) would like to add this personal note, not necessarily shared by the other committee members. “For the past 9 years at our orientation for new graduate students, I have announced my connection to TMP and offered to serve informally as the TMP advisor within URPL. While not a scientific sample, I would say that the number one reason offered by URPL students as to why they do not participate in TMP is that they perceive the required courses in engineering to be too difficult for those without an engineering or math background. I have never been sympathetic to students who express this concern, because I have told every one of the students who express this concern that they are unlikely to be successful as transportation planners if they cannot demonstrate a passing knowledge of the material offered in these classes. I would personally strongly resist any efforts to weaken or eliminate an engineering requirement in the curriculum. But that may keep it a low-enrollment program.”
heavily on the practicum course, the program should complete a student learning assessment plan. Again, it appears that Nelson, URPL, and Civil Engineering have good models of student learning assessment on which to base TMP’s.

**Summary.**
The greatest strength of the TMP certificate program was its close connection to CFIRE. This also turned out to be the source of its potential disappearance because of the loss of UTC funding. TMP, however, is a valuable educational program at UW Madison and should continue if a new director or team can be found to continue the excellence of the program.
Certificates and Doctoral Minors: Counts

This visualization was created by Academic Planning and Institutional Research (APIR), Office of the Provost, UW-Madison. Visit [http://apir.wisc.edu](http://apir.wisc.edu) for more information about APIR. Questions should be directed to McKinney Austin, mckinney.austin@wisc.edu.