

# **URBPLAN-772: Pedestrian and Bicycle Transportation**

## ***Syllabus (1/16/18)***

Spring 2018—3.0 Credits  
Monday, 1:30 p.m. to 4:10 p.m., AUP Room 183

Course Instructor: Dr. Robert Schneider ([rjschnei@uwm.edu](mailto:rjschnei@uwm.edu), 414-229-3849)  
Office Hours: M, 11:00 a.m. to 12:30 p.m. & Tu, 10:30 a.m. to 12:00 p.m., AUP Room 334

### **Course Overview**

Walking and bicycling are essential components of a sustainable transportation system. In response to growing concerns about personal mobility and safety, access to transit, equity between socioeconomic groups, air quality, public health, and other issues of community sustainability, many government agencies are developing plans to improve pedestrian and bicycle transportation.

Pedestrian and bicycle transportation are influenced by micro-scale elements of the built environment, such as sidewalks, bicycle lanes, traffic speeds, and roadway crossings, as well as by macro-scale characteristics, such as community-wide pathway systems and regional land use patterns. As a result, walking and bicycling issues bridge the disciplines of urban planning, urban design, and civil engineering.

This graduate-level course is structured to provide students with information about current practices in the pedestrian and bicycle transportation field. It will cover historical and institutional frameworks, benefits and obstacles to pedestrian and bicycle planning, policy development, perceived and actual safety, facility design, network development, and practical methods of estimating demand and evaluating walking and bicycling conditions. Students will be challenged to evaluate the existing methods critically and develop ideas for improving pedestrian and bicycle planning practices. The course will focus mainly on practices in the United States, though it will include examples of innovative international strategies.

The course will include lectures, guest speakers, a field trip, and several assignments. Most classes will include a presentation by the course instructor. References from the reading list will also be discussed in class. To facilitate discussions, students will be selected to the “Expert” for specific readings in the next class period. The “Expert” should be prepared to provide a brief overview and two discussion questions for the readings. As the “Expert,” the student may also field questions on the class topic from the rest of the students. Guest speakers (and panels of speakers) will be professionals working in local, regional, and state agencies, advocacy organizations, and academic settings who will provide a practical perspective on the issues discussed in class. When guest speakers are scheduled, the last portion of the class period will be reserved for their presentation and discussion.

I am looking forward to a great term with all of you!  
Bob

## Course Objectives

By completing this course, students should be able to:

- Explain historical and institutional frameworks, including the development of roadway facilities for specific user groups, Complete Streets policies, and current state and federal policies related to multimodal transportation.
- List specific benefits of pedestrian and bicycle transportation and understand obstacles to promoting pedestrian and bicycle transportation.
- Provide at least one possible explanation of the thought process that people follow when choosing a specific mode (e.g., walking or bicycling) for routine travel.
- Understand roadway design, user characteristics, and vehicle characteristics associated with perceived and actual pedestrian and bicycle safety.
- Understand the rationale behind standard pedestrian and bicycle facility design practices as well as the debates surrounding new, innovative pedestrian and bicycle facilities.
- Apply spreadsheet formulas to evaluate pedestrian and bicycle conditions based on objective roadway measurements.
- Identify the most common factors used in pedestrian and bicycle demand (volume) models.
- Evaluate the existing pedestrian and bicycle planning and engineering methods critically and develop ideas for improving professional practice.
- Explain general differences in pedestrian and bicycle travel behavior and facility design in the United States, Europe, and Asia.
- Work with group members to propose feasible pedestrian and bicycle improvements to a local intersection.

## Readings and Class Participation

A different topic from the pedestrian and bicycle planning field will be covered each class session. The readings listed under each session below are required readings. Readings will be available under “Content” on the class D2L website (<http://d2l.uwm.edu/>). All students are expected to read all the assigned readings BEFORE class and to actively participate in the discussion. A separate list of references titled, “Supplemental References,” will also be posted online.

Active participation in class is an important component of this course. Being able to express concepts and opinions clearly and ask good questions are critical skills in the professional world. Class attendance will be recorded on a sign-in sheet. However, class participation grades are based on the quality of active participation in class discussion, not simply on attendance. In the interest of promoting a productive learning environment for all, please:

- Arrive on time and stay for the duration of class.
- Turn off or mute audible mobile devices for the duration of class.
- Turn off laptops unless instructed otherwise and refrain from accessing the internet on any other device during class.

Behaviors that detract from class learning will be penalized in the class participation grade.

## Class Assignments

The three assignments are designed to give practical experience with elements of the active transportation realm, including policy development, research, and design. All work should have a practical focus. For example, work should be done with the intention of presenting findings to planners and engineers at a municipal agency or distributing the results to members of the Association of Pedestrian and Bicycle Professionals. Writing and producing graphics to communicate ideas are

important skills in the pedestrian and bicycle field, and the clarity and organization of all assignments will be evaluated as a part of the grading process. Sources should be referenced in all assignments. Any reference style is acceptable; the keys are to give credit to your sources and to provide support for your arguments. All assignments should be uploaded to the course D2L site by 1:00 p.m. on the due dates listed. The assignments are described below.

***Assignment #1: Attend a local transportation meeting and turn in a 2-page summary memo (Due Friday, February 16<sup>th</sup>)***

This assignment is designed as an introduction to the political realm of decision-making. The final product should be a two-page, single-spaced memorandum in a standard memo form with a meeting summary and analysis. You should address the memo to the executive director of the local advocacy organization (real or fictitious) of your choice. The final memo should be submitted as a Microsoft Word document so that comments can be provided in Track Changes. Your memo should contain the following three sections:

- A very brief description of the role and function of the organization whose meeting you attended (about 1 paragraph)
- A short summary of the purpose of the meeting and the specific topics discussed. If the agenda included a large number of items you may choose to focus on one or two key topics. (1 to 2 paragraphs)
- Your detailed comments on the following question: What did this experience teach you about citizen participation and public decision-making with regard to bicycle and pedestrian planning? (1 to 1.5 pages)

Before attending the meeting, skim a few background materials about the group sponsoring the meeting and any reports and analyses prepared specifically for the meeting. Also obtain and review any materials that are handed out or presented at the meeting. Examples of appropriate meetings include:

- City of Milwaukee Bicycle and Pedestrian Task Force Meeting (Fri., Feb. 2, 2018, 9 a.m., Milwaukee Municipal Building, 841 N. Broadway, Fifth Floor)
- Village of Shorewood Pedestrian & Bicycle Safety Committee Meeting (Tue., Feb. 13, 2018, 7 p.m., Village Committee Room, 3930 North Murray Avenue, Shorewood, Second Floor)
- City of Wauwatosa Community Development Committee (Second & Last Tuesday of each month, 7 p.m., Committee Room #1, 7725 W. North Avenue, Wauwatosa)
- Any other meeting of local municipalities, the Milwaukee County Trails Council, or the Southeast Wisconsin Regional Planning Commission that has a bicycle or pedestrian issue on the agenda (\*ask instructor first to check\*)

***Assignment #2: Summarize Local Pedestrian or Bicycle Data or Write Paper on Topic of Choice (Proposal Due Monday, February 19<sup>th</sup>; Final Submission Due Friday, March 16<sup>th</sup>)***

There are two options for this assignment:

1) Analyze local pedestrian or bicycle data. Use local data to analyze trends in pedestrian and/or bicycle activity, safety, behavior or other pedestrian or bicyclist characteristics, and summarize interesting and useful findings. Existing data sources include:

- BublR Bikes rides (origin and destination of all trips taken on the system, basic user characteristics)
- Continuous trail user counts (data are available from at least five multi-use trail locations)

- Intersection pedestrian and bicycle counts (two-hour counts are available for more than 60 intersections in the City of Milwaukee),
- Pedestrian and bicycle crashes (location and crash characteristics are available for all crashes reported in Wisconsin),
- UWM Campus Travel Survey commute trip and perception data

Your final summary document should be professional quality so that it can be shared with a local client (e.g., Bublr Bikes, the City of Milwaukee, Milwaukee County, Southeastern Wisconsin Regional Planning Commission, Wisconsin Department of Transportation). The final summary document should be 8 to 10 pages per person and must include 1) background about why your analysis approach is useful, 2) a description of the data source and how the data were collected, 3) a summary of interesting findings (and why they are useful for pedestrian or bicycle planning), 4) at least two charts, tables, or other graphics (these graphics do not count against the page limit), and 5) at least two references from the course Supplemental Reference list.

2) Write a paper on a topic of your choice. This paper should be 8 to 10 pages per person (double-spaced text). Topics include, but are not limited to:

- Detailed description of past experience working with non-motorized transportation, and lessons learned
- Evaluation of a local, small-area pedestrian and bicycle plan (roadway corridor or neighborhood)
- Profile of innovative city and its work to increase pedestrian and bicycle mode share and safety
- Summary of existing research on a category of factors related to pedestrian or bicycle activity (e.g., land use, transportation facilities, socioeconomic characteristics, weather, topography, individual attitudes, social norms, or perceptions of safety and security)
- Analysis of an existing source of national or international pedestrian or bicycle use, safety, user characteristics, or facility data (American Community Survey Commuting Data, National Household Travel Survey, International Databases, etc.)
- Photographic essay and summary of a specific pedestrian or bicycle facility design issue (e.g., median islands, bicycle lane design approaching intersections, “road diets”, etc.) (Note: if this option is chosen, there should be 6 to 8 pages of text, excluding pictures, and the total length of the document should be longer than 10 pages after the pictures are included)

For both options) Submit a brief (half-page) project proposal before starting the assignment. The instructor may provide guidance on how to refine or narrow the topic based on this proposal. Both the proposal and final paper should be submitted as Microsoft Word documents so that comments can be provided in Track Changes.

If more than one person is interested in working on the same topic, these efforts can be coordinated as a group project, but each person is responsible for producing 8 to 10 pages of final report content (this option will be discussed with the instructor).

Figures and graphics are strongly encouraged and do not count against word limits. Appendices also do not count against word limits. As expected for any professional document, you must cite sources within the text for each piece of information that you include in your paper but do not create yourself, including sentences in the text as well as graphics, photos, and other images.

***Final Project (Final Examination): Intersection Analysis  
(Proposal Due Monday, April 2<sup>nd</sup>; Final PowerPoint Presentation and Final Documentation Due on  
Monday, May 7<sup>th</sup>)***

The intersection analysis should be conducted in groups of 3 to 4 students, and it will involve planning, design, and engineering skills. The goal of the assignment is to recommend, illustrate, and justify a set of pedestrian and bicycle improvements at and near an intersection in the Milwaukee area. This location should be identified as an intersection of interest by the City of Milwaukee or a neighboring municipality (intersection options will be provided by the instructor). Project limits will include the intersection plus the street segments approaching the intersection (e.g., a four-way intersection includes four approach legs—design of the intersection approaches may be even more important for pedestrian and bicyclist safety and convenience than the intersection itself). Groups should choose an intersection where improvements are needed, not one that already accommodates pedestrians and bicyclists fairly well. The project will involve several field visits, so an accessible location is very important.

The final product will be a 15-minute professional presentation (with 10 additional minutes for questions) that is delivered during the last week of class. Time limits on presentations will be strictly enforced. The presentation should be given from a carefully-constructed PowerPoint file. This PowerPoint file will be the main product of this assignment, but it should be accompanied by necessary supporting documentation (appendices). A separate report document is not required; the presentation file is the main deliverable for this assignment. The appendices do not need to be formatted carefully, but they need to be understandable.

Required components of the project to be included in the final presentation include:

- A brief discussion of why the intersection should be improved for pedestrians and bicyclists.
- An illustration of the current design of the intersection and approaching street segments in plan view, including key roadway and sidewalk measurements.
- An illustration of the cross-section existing conditions on at least one of the approaches, including key roadway and sidewalk measurements.
- Two-hour traffic counts for autos, pedestrians, and bicyclists during a morning or afternoon “peak” travel period.
- An illustration of the proposed redesign of the intersection and approaching street segments in plan view, including key roadway and sidewalk measurements.
- An illustration of the cross-section of the proposed redesign of at least one of the approaches, including key roadway and sidewalk measurements.
- Multimodal level of service analysis of pedestrian level of service and bicycle level of service on one of the intersection approach streets under 1) existing conditions and 2) redesigned conditions. Also provide some qualitative or quantitative assessment of how the redesigned conditions could affect automobile travel.
- Rough, order-of-magnitude cost estimates for the improvements. Possible source: Bushell et al. 2013, Available online, [http://katana.hsrb.unc.edu/cms/downloads/Countermeasure%20Costs\\_Report\\_Nov2013.pdf](http://katana.hsrb.unc.edu/cms/downloads/Countermeasure%20Costs_Report_Nov2013.pdf)
- Other education or enforcement strategies that may complement the physical changes.
- Justification of the design changes: 1) appropriate for surrounding roadway and land use context (e.g., does the improvement improve route network connectivity, access to transit, a connection between activity centers?), 2) improves suitability for all roadway users without significant deterioration of conditions for a certain user group, 3) reduces crash risk, 4) is not excessively costly, 5) recommendations from previous pedestrian or bicycle plans, etc.

- Challenges to implementing the recommendations: 1) citizens or other groups who may oppose changes, 2) physical design constraints, 3) cost constraints, etc.
- Future phases of the project that could be completed with more public support and funding.
- Source information for graphics and images that are not your own.

One member from each group should email the instructor with the group members' names and the proposed intersection before Monday, April 2nd. The final group presentations will be given in the final class on Monday, May 7th. These presentations will be delivered professionally, as they would be given to public agency staff and elected officials. The final PowerPoint presentation plus supporting documentation for cost estimates, level of service analysis, and other conclusions should also be submitted on Monday, May 7th.

Grading will be done based half on the formal presentation and half on the final materials submitted. Note that each group member will evaluate the other members' contributions to the group. This assessment will be anonymous. If particular group members are evaluated as contributing to substantially more or less than their share of the work, their overall grade will be adjusted up or down from the rest of the group members.

Note that accuracy will be more important than precision in this exercise (i.e., it is more important to demonstrate knowledge of the difference in magnitude of costs between various infrastructure types, rather than know exactly how much each type costs). In addition, Illustrations should include key dimensions, such as street and lane widths, to communicate the existing conditions and proposed changes accurately, but they do not need to be developed using special software. Base aerial photos from Google Earth plus PowerPoint illustrations are sufficient for this project. AutoCAD, Adobe Illustrator and other design software is optional but can increase the attractiveness of the final recommendations.

## Course Policies

This course adheres to campus policies regarding students with disabilities, religious observances, active military service, incompletes, discriminatory conduct, academic misconduct, complaints about the course, grade appeals, and firearms. For details about these policies, see [http://www4.uwm.edu/secu/news\\_events/upload/Syllabus-Links.pdf](http://www4.uwm.edu/secu/news_events/upload/Syllabus-Links.pdf).

Students are expected to follow the Guide for Students at [http://uwm.edu/deanofstudents/conduct/conduct\\_procedures/academic-misconduct/](http://uwm.edu/deanofstudents/conduct/conduct_procedures/academic-misconduct/).

Cite your sources. If you get information from a printed, online, video or other source, cite it. If you cite a reference word for word, put those words in quotes. Don't use someone else's work as if it was your own without citing it. Citing sources, even if it takes extra time, enhances your professional credibility.

According to the Guide for Students, "Plagiarism includes: 1) Directly quoting the words of others without using quotation marks or indented format to identify them; or, 2) Using sources of information (published or unpublished) without identifying them; or, 3) Paraphrasing materials or ideas of others without identifying the sources."

–University of Wisconsin-Milwaukee Graduate School, "Academic Misconduct," Website, Available online: [http://uwm.edu/deanofstudents/conduct/conduct\\_procedures/academic-misconduct/](http://uwm.edu/deanofstudents/conduct/conduct_procedures/academic-misconduct/), August 2017.

All work in this course should be your own. In written work, cite your sources for quotes, facts, and opinions, both in the body of your work and in the reference list. Do not copy word for word unless you place the words in quotation marks. Any plagiarism will be dealt with as a serious ethical breach. If you have questions about whether you are crossing an ethical line, ASK ME. Here is a link to some good information on plagiarism from the Harvard Guide to Using Sources:

<https://usingsources.fas.harvard.edu/>.

## Grading

Grades will be given on an A to F scale based on the following components of the class:

- Overall class attendance and participation (10%)
- Assignment #1: Memo summarizing agency pedestrian or bicycle meeting (10%)
- Assignment #2: Paper on topic of your choice (40%)
- Final Project (Final Examination): Group intersection analysis project (40%)

Assignments are due by 1:00 p.m. on the dates listed above. Each calendar day late will result in loss of one grade (i.e., an "A" assignment will be given a "B"). A paper received at 5:01 p.m. on the due date is considered one day late.

The grading scale will be based on points earned out of 100 possible points in each component area. This scale is:

98 and above = A+

93 to 97.9 = A

91 to 92.9 = A-

88 to 90.9 = B+

83 to 87.9 = B

81 to 82.9 = B-

78 to 80.9 = C+

73 to 77.9 = C

71 to 72.9 = C-

(and so on)

In general, it is expected that students will spend approximately three hours in class per week plus an additional six hours per week on readings, assignments, and other preparation.

## Class Topics and Reading List

### Class 1: Pedestrian and Bicycle Transportation Institutions and Trends (1/22/18)

- 1.1. Federal Highway Administration. *Strategic Agenda for Pedestrian and Bicycle Transportation*, Authors: Twaddell, H., L. Martin, J. Dill, N. McNeil, T. Petritsch, P. McLeod, D. Dickman, and J. Gilpin, FHWA-HEP-16-086, Available online, [https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/publications/strategic\\_agenda/](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/strategic_agenda/), September 2016. (Read pp. 8-21)
- 1.2. Sandt, L. and J.M. Owens, J.M. *Discussion Guide for Automated and Connected Vehicles, Pedestrians, and Bicyclists*, Pedestrian and Bicycle Information Center, Federal Highway Administration and National Highway Traffic Administration, Available online, [http://www.pedbikeinfo.org/pdf/PBIC\\_AV.pdf](http://www.pedbikeinfo.org/pdf/PBIC_AV.pdf), 2017.
- 1.3. Pucher, J., R. Buehler, and M. Seinen, "Bicycling Renaissance in North America? An Update and Re-Assessment of Cycling Trends and Policies," *Transportation Research A*, Vol. 45, No. 6, pp. 451-474, 2011.
- 1.4. Baumgaertner, E. "Bike-Sharing is Flourishing in Washington. Can the City Handle It?" *New York Times*, Available online, <https://www.nytimes.com/2017/10/01/us/politics/washington-bike-share.html>, October 1, 2017.

### Class 2: Benefits of Pedestrian and Bicycle Transportation & Advocacy Movements (1/29/18)

- 2.1. Alliance for Biking and Walking. *Bicycling and Walking in the United States: 2016 Benchmarking Report*, Available online, [http://www.bikingandwalkingbenchmarks.org/backend/sites/default/files/2016benchmarkingreport\\_web.pdf](http://www.bikingandwalkingbenchmarks.org/backend/sites/default/files/2016benchmarkingreport_web.pdf), 2016. (Skim pp. 28-75)
- 2.2. de Hartog, J.J., H. Boogaard, H. Nijland, and G. Hoek. "Do the Health Benefits of Cycling Outweigh the Risks?" *Environmental Health Perspectives*, Volume 118, pp. 1109-1116, 2010.
- 2.3. Frontier Group and U.S. PIRG Education Fund. *Who Pays for Roads? How the "Users Pay" Myth Gets in the Way of Solving America's Transportation Problems*, Authors: T. Dutzik, G. Weissman, and P. Baxandall, Available online, <http://www.uspirg.org/sites/pirg/files/reports/Who%20Pays%20for%20Roads%20vUS.pdf>, 2015. (read pp. 19-23)

### Class 3: Travel Behavior: Shifting Automobile Travel to Walking and Bicycling (2/5/18)

- 3.1. Schneider, R.J. "Theory of Routine Mode Choice Decisions: An Operational Framework to Increase Sustainable Transportation," *Transport Policy*, Volume 25, pp. 128-137, 2013.



3.2. Dill J. and N. McNeil. "Revisiting the Four Types of Cyclists: Findings from a National Survey," *Transportation Research Record: Journal of the Transportation Research Board*, Volume 2587, pp. 90-99, 2016.

#### **Class 4: Pedestrian and Bicycle Data Collection and Performance Measures (2/12/18)**

4.1. Federal Highway Administration. *Strategic Agenda for Pedestrian and Bicycle Transportation*, Authors: Twaddell, H., L. Martin, J. Dill, N. McNeil, T. Petritsch, P. McLeod, D. Dickman, and J. Gilpin, FHWA-HEP-16-086, Available online, [https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/publications/strategic\\_agenda/](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/strategic_agenda/), September 2016. (Read pp. 24-25)

4.2. Alliance for Biking and Walking, *Bicycling and Walking in the United States: 2016 Benchmarking Report*. Available online, [http://www.bikingandwalkingbenchmarks.org/backend/sites/default/files/2016benchmarkingreport\\_web.pdf](http://www.bikingandwalkingbenchmarks.org/backend/sites/default/files/2016benchmarkingreport_web.pdf), 2016. (pp. 10-17)

4.3. Federal Highway Administration. *Guidebook for Developing Pedestrian & Bicycle Performance Measures*, Authors: Semler, C., A. Vest, K. Kingsley, S. Mah, W. Kittelson, C. Sundstrom, and K. Brookshire, Available online, [https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/publications/performance\\_measures\\_guidebook/pm\\_guidebook.pdf](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/performance_measures_guidebook/pm_guidebook.pdf), March 2016. (pp. 12-21, pp. 36-37)

**>>>Memo for Assignment #1 due on Friday, 2/16/18.**

**>>>Paper Topic for Assignment #2 due on Monday, 2/19/18.**

#### **Class 5: Pedestrian and Bicycle Safety: Crash Data and Risk Perceptions (2/19/18)**

5.1. Jacobsen, P.L. "Safety in Numbers: More Walkers and Bicyclists, Safer Walking and Bicycling," *Injury Prevention*, Volume 9, pp. 205-209, 2003.

5.2. Schneider, R.J. and R.L. Sanders. "Pedestrian Safety Practitioners' Perspectives of Driver Yielding Behavior across North America," *Transportation Research Record: Journal of the Transportation Research Board*, Volume 2519, pp. 39-50, 2015.

5.3. Marshall, W.E. and N.W. Garrick. "Evidence on Why Bike-Friendly Cities Are Safer for All Road Users," *Environmental Practice*, Volume 13, Number 1, pp. 16-27, 2011.

5.4. Harford, T. "Crash: How Computers are Setting us up for Disaster," *The Guardian*, Available online, [https://www.theguardian.com/technology/2016/oct/11/crash-how-computers-are-setting-us-up-disaster?CMP=share\\_btn\\_tw](https://www.theguardian.com/technology/2016/oct/11/crash-how-computers-are-setting-us-up-disaster?CMP=share_btn_tw), October 11, 2016.

## **Class 6: Pedestrian Design Fundamentals (2/26/18)**

6.1. US Department of Transportation, Federal Highway Administration. *Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations*, FHWA-RD-04-100, Authors: Zegeer, Charles V., J. Richard Stewart, Herman Huang, and Peter Lagerwey, John Feaganes, and B.J. Campbell, Available online: <http://www.fhwa.dot.gov/publications/research/safety/04100/04100.pdf>, 2005. (pp. 1-11; pp. 51-61)

6.2. Toole Design Group. *Information for our Staff and Clients Regarding the Federal Highway Administration's Recent Rescission of Interim Approval for Rectangular Rapid Flashing Beacons*, [http://www.tooledesign.com/sites/default/files/TDG\\_RRFB%20Memo\\_20180103.pdf?utm\\_source=Newspage\\_Summary&utm\\_campaign=RRFB\\_Info](http://www.tooledesign.com/sites/default/files/TDG_RRFB%20Memo_20180103.pdf?utm_source=Newspage_Summary&utm_campaign=RRFB_Info), 2018.

6.3. National Cooperative Highway Research Program. *Application of Pedestrian Crossing Treatments for Streets and Highways*, NCHRP Synthesis 498, Authors: Thomas, L., N. Thirsk, and C.V. Zegeer, Available online, <http://www.trb.org/Publications/Blurbs/175419.aspx>, 2016. (Read pp. 35-60)

## **Class 7: Bicycle Design Fundamentals (3/5/18)**

7.1. Association of American State Highway and Transportation Officials, *AASHTO Guide for the Planning, Design, and Operation of Bicycle Facilities*, Fourth Edition, 2012. (Skim assigned sections)

7.2. Pedestrian and Bicycle Information Center. "Facility Design," Web page, Available online: <http://www.pedbikeinfo.org/planning/facilities.cfm>, 2018. (read all pages under Section 2: "Bicycle Facilities")

7.3. Association of Pedestrian and Bicycle Professionals. *Essentials of Bike Parking*, Available online, [http://c.ymcdn.com/sites/www.apbp.org/resource/resmgr/Bicycle\\_Parking/EssentialsofBikeParking\\_FIN\\_A.pdf](http://c.ymcdn.com/sites/www.apbp.org/resource/resmgr/Bicycle_Parking/EssentialsofBikeParking_FIN_A.pdf), 2015.

## **Class 8: Pedestrian and Bicycle Facility Design Innovations and Cost Considerations (3/12/18)**

8.1. National Association of City Transportation Officials. *NACTO Urban Bikeway Design Guide*. Available online: <http://nacto.org/publication/urban-bikeway-design-guide/>, 2011. (skim through several designs)

8.2. National Association of City Transportation Officials. *NACTO Urban Street Design Guide*. Available online: <http://nacto.org/publication/urban-street-design-guide/>, 2013. (skim document)

8.3. Federal Highway Administration. *Separated Bike Lane Planning and Design Guide*, FHWA-HEP-15-025, Available online, [http://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/publications/separated\\_bikelane\\_pdg/page00.cfm](http://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/separated_bikelane_pdg/page00.cfm), May 2015. (skim document)

**>>>Paper for Assignment #2 due on Friday, 3/16/18.**

## **Class 9: Anatomy of a Pedestrian and Bicycle Plan & Pedestrian and Bicycle Equity (3/26/18)**

9.1. Eight to Eighty Cities. *Macon Connects: Findings from the World's Largest Pop-Up Bike Network*, Available online, <http://www.880cities.org/images/macon-connects-street-makeover-report.pdf>, November 2016. (skim document)

9.2. People for Bikes. "For Bikers of Color, the Barriers go Far Beyond Infrastructure," by Michael Anderson, Available online, <http://www.peopleforbikes.org/blog/entry/for-bikers-of-color-the-barriers-go-far-beyond-infrastructure>, 2017.

9.3. Sandt, L., T. Combs, and J. Cohn. *Pursuing Equity in Pedestrian and Bicycle Planning*, Pedestrian and Bicycle Information Center, Available online, [http://www.pedbikeinfo.org/cms/downloads/PBIC\\_WhitePaper\\_Equity.pdf](http://www.pedbikeinfo.org/cms/downloads/PBIC_WhitePaper_Equity.pdf), 2016.

9.4. League of American Bicyclists. *Women on a Roll: Benchmarking Women's Bicycling in the United States — and Five Keys to get more Women on Wheels*, Written by C. Szczepanski, Available online, [http://www.bikeleague.org/sites/lab.huang.radicaldesigns.org/files/WomenBikeReport\(web\).pdf](http://www.bikeleague.org/sites/lab.huang.radicaldesigns.org/files/WomenBikeReport(web).pdf), August 2013. (skim document)

9.5. PeopleForBikes and Alliance for Biking and Walking. *Building Equity: Race, Ethnicity, Class, and Protected Bike Lanes: An Idea Book for Fairer Cities*, Available online, [http://b.3cdn.net/bikes/60e4ef1291e083cada\\_8ym6ip7pw.pdf](http://b.3cdn.net/bikes/60e4ef1291e083cada_8ym6ip7pw.pdf), 2015. (skim document)

Groups will be assigned one of the following plans to read and review:

A. Village of Shorewood, WI. *Village of Shorewood Pedestrian and Bicycle Master Plan*, Available online, <http://villageofshorewood.org/DocumentCenter/View/2991>, 2015.

B. City of Wauwatosa, WI. *City of Wauwatosa Bicycle & Pedestrian Facilities Plan*, Available online, <http://www.wauwatosa.net/DocumentCenter/View/2915>, 2014.

C. Chicago Department of Transportation. *Chicago Streets for Cycling 2020 Plan*, Available online, <http://www.cityofchicago.org/content/dam/city/depts/cdot/bike/general/ChicagoStreetsforCycling2020.pdf>, 2012.

D. City of Milwaukee, WI. *Milwaukee By Bike: 2010 Bicycle Master Plan*, Plan and Maps, Available online, <http://city.milwaukee.gov/ImageLibrary/Groups/cityBikePed/MilwaukeebyBike2010-Plan.pdf> (plan) and <http://city.milwaukee.gov/ImageLibrary/User/milbtf/MilwaukeebyBike2010-Appendix.pdf> (appendix) and <http://city.milwaukee.gov/ImageLibrary/User/milbtf/MilwaukeebyBike2010-Maps.pdf> (maps), 2010.

E. Portage County, WI. *Portage County Countywide Bicycle and Pedestrian Plan*, Available online, <https://portagecobikepedplan.files.wordpress.com/2014/10/poco-bike-ped-plan-plan-final-pz-recommended.pdf> (plan) and <https://portagecobikepedplan.files.wordpress.com/2014/10/poco-bike-ped-plan-maps-final-pz-committee-recommended.pdf> (maps), 2014.

F. Chicago Department of Transportation. *Chicago Pedestrian Plan*, Available online, <http://chicagopedestrianplan.org/>, 2012.

Small group discussion questions will include:

- Why did the agency develop the plan? (What motivated them to develop the plan?)
- What was your favorite part of the plan? What was the “strongest” part of the plan?
- What was your least favorite part of the plan? What was the “weakest” part of the plan?

Full class discussion will address:

- Common strengths & weaknesses (2-3 from each group)
- Differences between local and regional plans

**>>>Proposed intersection and group members for Assignment #3 due on Monday, 4/2/18.**

### **Class 10: Field Trip—Field Trip in area south of UWM (4/2/18)**

10.1. Hoehner, C. and R. Brownson. “Active Neighborhood Checklist and Protocol,” Available online, [http://activelivingresearch.org/sites/default/files/Protocol\\_ActiveNeighborhoodChecklist.v2.pdf](http://activelivingresearch.org/sites/default/files/Protocol_ActiveNeighborhoodChecklist.v2.pdf), 2011.

### **Class 11: Pedestrian and Bicycle Suitability Assessment Methods (4/9/18)**

11.1. Dowling, R., D. Reinke, A. Flannery, P. Ryus, M. Vandehey, T. Petritsch, B. Landis, N. Roupail, and J. Bonneson. *Multimodal Level of Service Analysis for Urban Streets*, National Cooperative Highway Research Program Report 616, Transportation Research Board, Available online: [http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp\\_rpt\\_616.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_616.pdf), 2008. (pp. 1-16; pp. 82-91)

11.2. Mekuria, M.C., P.G. Furth, and H. Nixon. Low-Stress Bicycling and Network Connectivity, Mineta Transportation Institute, Report 11-19, Available online, <http://transweb.sjsu.edu/PDFs/research/1005-low-stress-bicycling-network-connectivity.pdf>, May 2012. (pp. 1-27)

11.3. Risom, J. "Public Space Public Life Studies: The Foundation for People First Design," Presentation to National Association for City Transportation Officials, Available online, [http://nacto.org/wp-content/uploads/2012/10/RisomJeff\\_NACTO.pdf](http://nacto.org/wp-content/uploads/2012/10/RisomJeff_NACTO.pdf), 2012. (pp. 17-38)

### **Class 12: Pedestrian and Bicycle Demand Estimation Methods (4/16/18)**

12.1. Schneider, R.J., T. Henry, M.F. Mitman, L. Stonehill, and J. Koehler. “Development and Application of the San Francisco Pedestrian Intersection Volume Model,” *Transportation Research Record: Journal of the Transportation Research Board*, Volume 2299, pp. 65-78, 2012.

12.2. Strauss, J. and L.F. Miranda-Moreno. “Spatial Modeling of Bicycle Activity at Signalized Intersections,” *Journal of Transport and Land Use*, Volume 6, Number 2, pp. 47-58, 2013.

### **Class 13: Pedestrian and Bicycle Prioritization Methods (4/23/18)**

13.1. Lagerwey, P.A., M.J. Hintze, J.B. Elliott, J.L. Toole, and R.J. Schneider. *Pedestrian and Bicycle Transportation Along Existing Roads: ActiveTrans Priority Tool Guidebook*, National Cooperative Highway Research Program Report 803, [http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp\\_rpt\\_803.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_803.pdf), 2015. (skim pp. 1-11; review spreadsheet tool)

13.2. City of Seattle, WA. *Seattle Pedestrian Plan*, Appendix A: Methodology and Analysis, 2009. (skim appendix)

13.3. City of Alexandria, VA. *City of Alexandria Pedestrian and Bicycle Mobility Plan*, "Appendix I: Prioritization of Recommended Improvements," Available online: [http://www.alexandriava.gov/uploadedFiles/localmotion/info/gettingaround/Appendix\\_060108.pdf](http://www.alexandriava.gov/uploadedFiles/localmotion/info/gettingaround/Appendix_060108.pdf), 2008. (skim appendix)

### **Class 14: International Pedestrian and Bicycle Transportation & Work Session (4/30/17)**

14.1. Van Der Zee, R. "How Groningen Invented a Cycling Template for Cities all over the World," *The Guardian*, Available online, <http://www.theguardian.com/cities/2015/jul/29/how-groningen-invented-a-cycling-template-for-cities-all-over-the-world>, 2015.

14.2. Pucher, J. and R. Buehler. "Cycling to the Future: Lessons from Cities Across the Globe," Presentation available online, [http://bloustein.rutgers.edu/wp-content/uploads/2014/10/Pucher\\_BikeUrbanism\\_SeattleUW\\_18June.pdf](http://bloustein.rutgers.edu/wp-content/uploads/2014/10/Pucher_BikeUrbanism_SeattleUW_18June.pdf), 2013.

14.3. Gowen, A. "City of Kolkata Bans Bikes to Reduce Traffic, but India's Environmentalists, Workers Protest," *Washington Post*, Available online, [http://www.washingtonpost.com/world/city-of-kolkata-bans-bikes-to-reduce-traffic-but-indias-environmentalists-workers-protest/2013/10/15/f07ac840-3189-11e3-ad00-ec4c6b31cbcd\\_story.html](http://www.washingtonpost.com/world/city-of-kolkata-bans-bikes-to-reduce-traffic-but-indias-environmentalists-workers-protest/2013/10/15/f07ac840-3189-11e3-ad00-ec4c6b31cbcd_story.html), October 15, 2013.

14.4. Chrisafis, A. "All-Blue Skies in Paris as City Centre goes Car-Free for First Time," *The Guardian*, Available online, <http://www.theguardian.com/cities/2015/sep/27/all-blue-skies-in-paris-as-city-centre-goes-car-free-for-first-time>, September 27, 2015.

### **Class 15: In-Class Presentations of Class Projects/Course Wrap-Up (5/7/18)**

**>>>Presentation file and supporting documentation for Assignment #3 due on Monday, 5/7/18.**