



## Pedestrian and Bicycle Volumes

A video recorded May 16, 2013 at the intersection of State Street and Lake Street was reviewed to gather bicycle and pedestrian volume information and identify trends in bicycle and pedestrian interactions. Bicycle volumes over a 12 hour period from approximately 5:30 AM to 5:30 PM were counted by City of Madison Traffic Engineering with the following results:

Total Bicycles: 1,040  
 Eastbound bicycles: 472  
 Westbound bicycles: 568

Of the total bicycles counted, 93, or only about 9% were being walked through State Street Mall. The rest were ridden despite posted ordinances prohibiting riding bicycles.

Pedestrian volumes were determined by first identifying trends in the volumes of pedestrians by scanning through the 12 hours of video. After determining periods with consistent volumes of pedestrians, pedestrian counts were manually done for a short period within each. This small count was then used to calculate the number of people per hour during each period. Manual counts were done for 9:00 AM to 11:30 AM, 11:30 AM to 1:30 PM, and 5:00 PM to 6:00 PM. The 6:00 AM to 9:00 AM and 1:30 PM to 5:00 PM periods were estimated relative to the other periods based on video observations. The following table provides a summary of the information obtained:

Time of Day	Pedestrian Volume (people/hour)	General Pedestrian Comments	General Bike Comments
6:00 AM to 9:00 AM	<100	Few pedestrians use entire mall area.	Bikes travel fast through center of state street
9:00 AM to 11:30 AM	1,100	Pedestrian traffic in entire mall area	Bikes travel fast through center of state street
11:30 AM to 1:30 PM	3,265	Pedestrians using outer edges of mall to avoid food cart congestion	Bikes travel slow, weaving through middle or walk
1:30 PM to 5:00 PM	2,820	Increased pedestrian traffic in entire mall area.	Bikes travel slow, weaving through middle or walk
5:00 PM to 6:00 PM	2,375	Pedestrian traffic in entire mall area	Bikes travel fast through center of state street



Based on the above table, it is estimated that the total 12 hour volume of pedestrians is approximately 22,000 pedestrians. It is important to note that the volume of bicycles and pedestrians that used State Street Mall between 6:00 PM and 10:00 PM is greater than the hours of 6:00 AM to 9:00 PM; however these hours were not recorded.

### **Trends and Concerns**

The pedestrian and bicycle trends are largely affected by the presence or absence of operating food carts. In the morning, before food carts are set up pedestrians and high speed bicycles cross paths, but in low volumes. The bicycle speed is due in part to bicycles disregarding traffic control on State Street. When traveling west on State Street, many bicycles do not obey the stop sign and continue their fast speed up the driveway apron onto the mall.

After the food carts are placed, but still not open, a safety concern is created. Because the main area of the mall is not congested with users of the food carts, pedestrians continue to travel through the middle of the mall and bicyclist continue to move fast through this area. Pedestrians stepping out from behind food carts may not see bicyclists and vice versa and a conflict may occur. With the speed of the cyclists traveling through this area, a conflict may result in harm to one or both of the participants. This trend is most prevalent 9:00 AM to 11:30 AM and 5:00 PM to 6:00 PM.

During the lunch hour, 11:30 AM to 1:30 PM, most pedestrians passing through the mall travel on the outsides to avoid the food cart line congestion of about 75 people at any given time standing in the middle of the mall. At this time bicyclists were observed weaving through the food cart customers and on the outsides with the high pedestrian volumes. Many bikes did however choose to responsibly walk their bikes during this period.



Video clips showing specific bicycle and pedestrian movements that were observed as trends and/or incidents that should be noted. The following clips are noted:

7:44:48 AM

- Bike traveling through middle of empty mall early morning
- Very little conflict
- Space is not being heavily used and visibility is fine to determine safe route

8:39:26 AM

- Bike traveling through middle of mall early morning
- Some pedestrian and bicycle path crossing, but visibility still decent.

11:53:41 AM

- Bike taking advantage of short opening in mall area and traveling through the middle of mall through pedestrians using food carts
- Visibility reduced because of presence of food carts.

12:01:10 AM

- Bike weaving through middle of mall through pedestrians using food carts
- Unsafe situation for both users

12:04:09 AM

- Bike weaving through middle of mall through pedestrians using food carts
- Unsafe situation for both users

12:20:15 AM

- Example of lunch hour pedestrian movement and distribution

4:39:03 AM

- Example of late afternoon pedestrian and bicycle movements
- Visibility reduced because of presence of food carts.