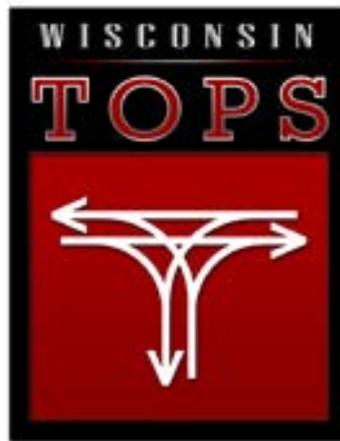


Wisconsin Bicycle and Pedestrian Trail Use Study

Research Report 2005-3

November 2005



TRAFFIC OPERATIONS AND SAFETY LABORATORY
University of Wisconsin-Madison
Department of Civil and Environmental Engineering

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by

David A. Noyce, Ph.D., P.E.
Assistant Professor
University of Wisconsin - Madison
Co-Director, TOPS

and

Arup Dutta
Graduate Research Assistant
University of Wisconsin - Madison

Research Project Number: 144-MA81
Study Title: Wisconsin Bicycle/Pedestrian Trail Use Study

Sponsored by the
Wisconsin Department of Transportation

November, 2005

TRAFFIC OPERATIONS AND SAFETY LABORATORY

University of Wisconsin-Madison
Department of Civil and Environmental Engineering
1415 Engineering Drive
Madison, WI 53706
www.topslab.wisc.edu

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ACKNOWLEDGEMENTS

This research project was conducted under a cooperative program between the Traffic Operations and Safety (TOPS) Laboratory and the Wisconsin Department of Transportation (WisDOT). The authors acknowledge and appreciate the guidance of the WisDOT Bicycle and Pedestrian Coordinator, Mr. Thomas Huber. The contributions of the graduate and undergraduate research students in the University of Wisconsin - Madison, involved in the data collection process are gratefully acknowledged.

ABSTRACT

Quantifying pedestrian and bicycle data continues to be a significant need for planning and operations decisions in transportation. This report documents the usage trends for several pedestrian/bicycle trails in the state of Wisconsin. Trail usage data was collected from sunrise to sunset at various locations selected by Wisconsin Department of Transportation (WisDOT) personnel. The data collected included the volume of users for fifteen minute intervals throughout the day, the various categories of trail users, and their estimated age groups. The two major categories of trail users were bicycles and pedestrians. Both these categories were further divided into demographic and user type subcategories in order to record more specific data for trail users. For trails intersecting with major roadways, the wait time for trail users to cross these roads was also recorded.

Although the usage volumes differed from one trail to another, the data exhibited fairly similar usage trends over time. For long trails, usage volumes differed considerably in different sections of the same trail. Considerable user wait times were discovered for some of the trails intersecting with roadways, especially during peak hour traffic conditions. This crossing delay may indicate a safety issue for some trail users if significant delays result in trail users taking ad hoc risks to cross the roadway.

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CHAPTER I

INTRODUCTION

The Traffic Operations and Safety (TOPS) Laboratory at the University of Wisconsin - Madison conducted a series of bicycle/pedestrian trail use studies under the direction of the Wisconsin Department of Transportation (WisDOT). The primary objective of these studies were to record the level of usage for selected pedestrian/bicycle trails in the state of Wisconsin. A total of ten studies were conducted for trails, and one study was conducted for paved shoulders. As part of the studies at selected higher usage trails, wait and crossing times for trail users at the point of intersection of the trails with major roads were also recorded. Trail names, locations and study dates are summarized in Table 1.

Trail usage studies took place from approximately sunrise to sunset at various trail locations in Wisconsin. The data collected included the volume of users at fifteen minute intervals throughout the day, the various categories of trail users, and their estimated age. Trail users were considered to be either bicyclists or pedestrians. Both these categories were further divided into demographic and user type subcategories in order to record more specific demographic data. Age estimates for trail users were estimated visually and quantified into pre-selected categories.

Table 1 Study Locations.

Bicycle/Pedestrian Studies					
Site No.	City	Trail Name	Location	No. of Studies	Date
1	Madison	Southwest Trail	Crazy Legs Drive	1	8/29/03 (Friday), 9/2/03 (Tuesday)
2	Wausaukee	<i>Paved Shoulders</i>	Highway 19	1	8/21/04 (Saturday)
3	Dodgeville	Unnamed Trail	Hwy 151	1	7/8/2004 (Thursday)
4	Madison	Capital City Trail	Fish Hatchery Road	2	6/29/04 (Tuesday) 8/14/04 (Saturday)
5	Janesville	Springbrook Trail	Riverside St	1	9/18/04 (Saturday)
6	Sheboygan	Plank Trail	County Highway S	1	8/27/04 (Friday)
			Highway Y near Kohler	1	
			Highway 57	1	
7	Milwaukee	Oakleaf Trail	---	1	8/5/05 (Friday)
8	Waupaca	Unnamed Trail	---	1	9/16/05 (Friday)
Total				11	

CHAPTER 2

SUMMARY OF RESULTS

This section presents a detailed graphical/tabular summary of study results. A graphical summary is provided for the movement counts. For the studies in which wait times were recorded, these data are also displayed graphically. The black and gray bars in the wait time graphs have been stacked on top of each other for clarity; however, the values for each bar should be read off the Y axis independently. Each black (or gray) bar is simply the average wait time (15 minute interval) for the entities representing the black (or gray) bar. 'Demographic' and 'User Type' information is also included in tables for each of the studies. 'Demographic' information includes the age estimation for the trail users. Age was estimated visually - these data should be considered with this in mind. 'User Type' data refers to the various subcategories of the pedestrian and bicycle users that were observed. The details for these have been summarized in tables for each of the studies. In the 'Demographic and User Type' tables, the summation of observed counts for user types is equal to the summation of the counts for the age related demographic information. Both equal to the total number of users for the trail. In some cases, however, there may be slight differences in these count totals due to demographic or user type information occasionally being missed (especially during high trail usage). Nevertheless, the count totals provide an adequate estimation of the demographic and user type.

1. Southwest Trail

TRAIL NAME: Southwest Trail

DATE: 8/29/03 (Friday), 9/2/03 (Tuesday)

LOCATION: Madison, WI - Southwest Bike Path just west of Breese Terrace

WEATHER: Partly cloudy

TEMPERATURE: 70 to 80 degrees

HUMIDITY: Low (Around 50%)

DATA COLLECTION TIME: 5:30 AM to 8:00 PM

For this trail, data was collected from 8:00 AM to 8:00 PM on August 29, 2003 and 5:30 AM to 8:00 PM on September 2, 2005. Total number of trail users for this trail was 1,130, consisting of 929 bicyclists and 201 pedestrians. The 8:00 AM to 8:00 PM study on August 29 consisted of 980 users, out of which 809 were bicyclists and 171 were pedestrians. The 5:30 AM to 8:00 AM study on September 2 consisted of 150 users, out of which 120 were bicyclists and 130 were pedestrians. There were two peak periods of usage, one in the morning (8:00 AM to 9:00 AM) and the other in the evening (5:00 PM to 6:00 PM). Morning peak was dominated by trail users moving in the west to east direction. In the evening peak period, usage in the east to west direction was more pronounced. The number of bicyclists was higher than the number of pedestrians throughout the study period.

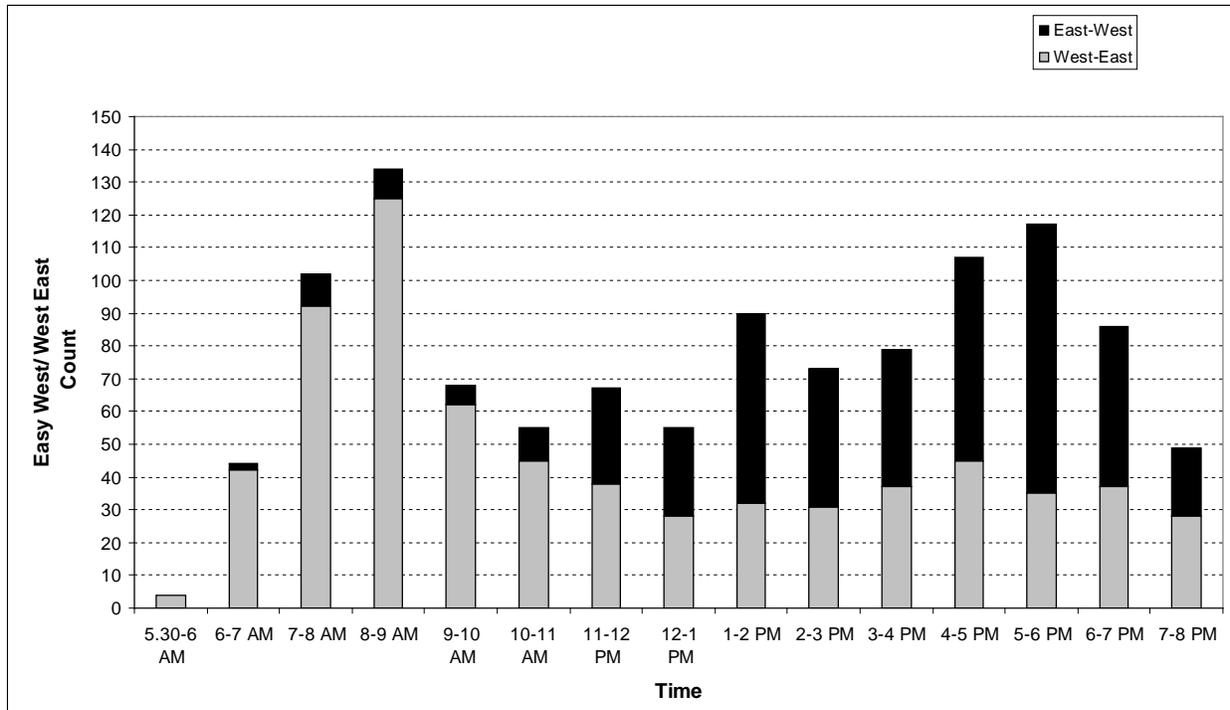


Figure 1: Total Count Split by Direction (EAST-WEST and WEST-EAST)

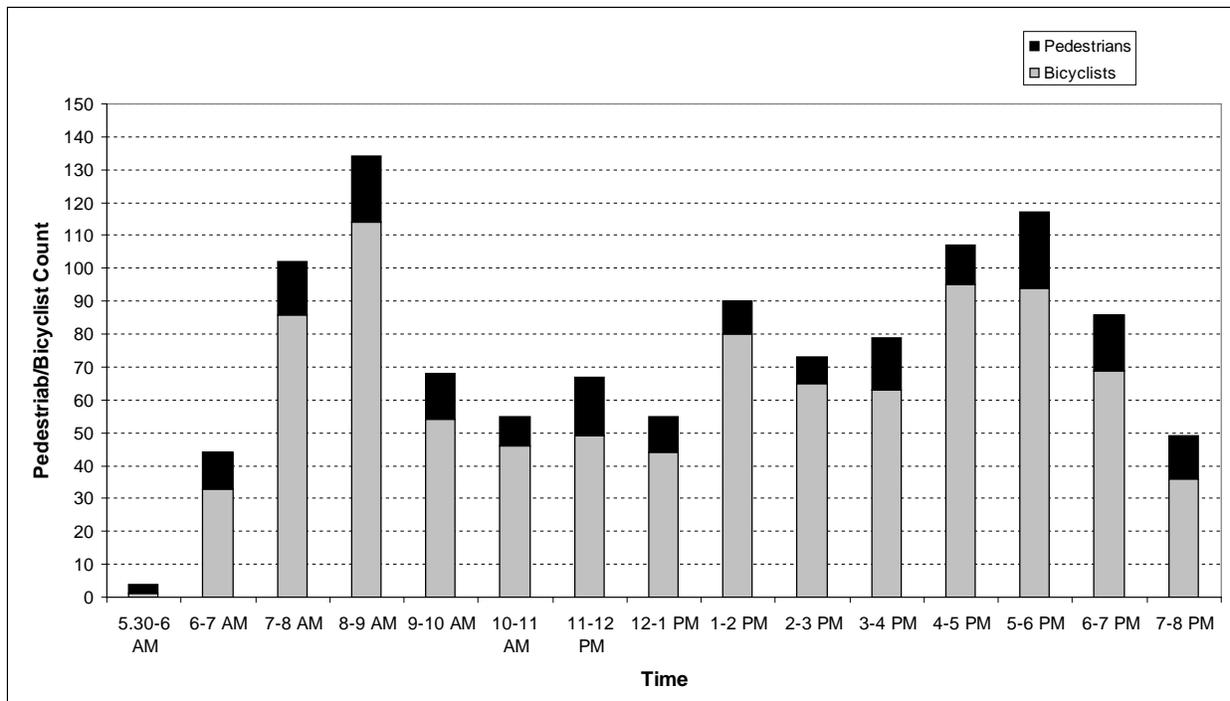


Figure 2. Total Count Split by Pedestrians and Bicyclists

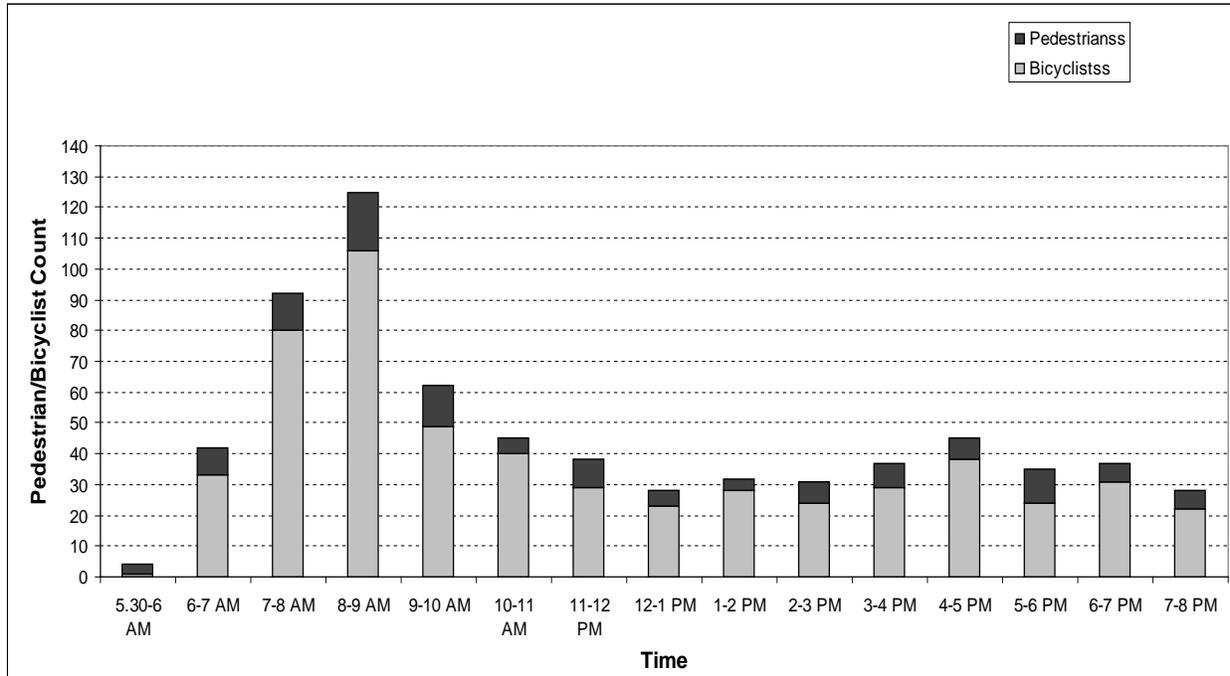


Figure 3. Total Count Split by Pedestrians and Bicycles in the WEST-EAST Direction

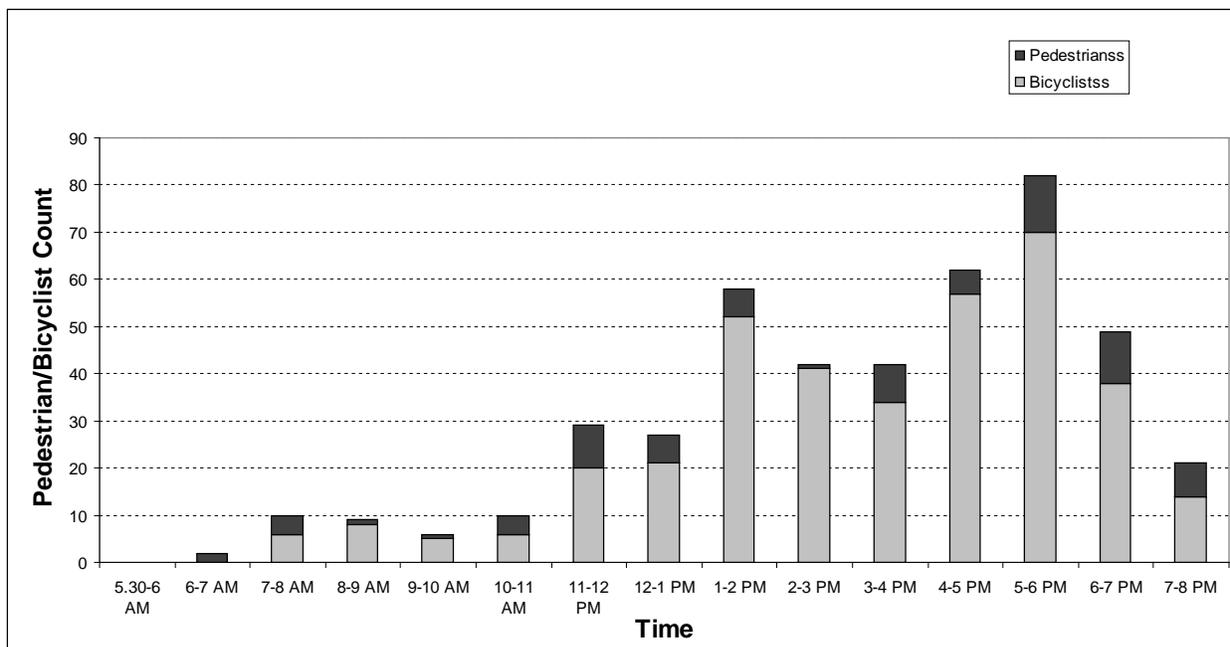


Figure 4. Total Count Split by Pedestrians and Bicycles in the EAST-WEST Direction

Table 2. Demographic and User Type Abbreviations

<u>Bicyclists:</u>					
Generic Bicyclist	Commuting/utilitarian cyclist	Racing Cyclist	With trailer bike	With kid trailer	Recumbent Bicycle
Ge	Co	Ra	Tr	Kd	Re
<u>Pedestrians:</u>					
Generic pedestrian	Dogwalker	Speed or fitness walker	Skater	Jogger	
Gep	Dop	Spp	Skp	Jop	
<u>Demographics</u>					
Child	Teenager	20-30	30-60	Senior (60+)	
C	T	Tw	Th	S	

Table 3. Demographic and User Type Information

Bicyclist Categories						Pedestrian Categories					Demographics				
Ge	Co	Ra	Tr	Kd	Re	Gep	Dop	Spp	Skp	Jop	C	T	Tw	Th	S
367	464	69	11	12	6	74	9	9	51	47	7	29	325	519	25

**Note: The demographic data was recorded inconsistently for this study, so its summation is lower than the value of total users.*

2. Highway 19 Paved Shoulders

TRAIL NAME: n/a

DATE: 8/21/04 (Saturday)

LOCATION: Highway 19 paved shoulders west of Waunakee at the intersection of Kingsley Rd. and Hwy 19. Kingsley comes up from the south and forms a "T" with Hwy 19 about 1.5 miles west of Waunakee

WEATHER: Clear skies

TEMPERATURE: 69 degrees

DATA COLLECTION TIME: 6:00 AM to 8:00 PM

The total number of paved shoulder users was 44. There were 41 bicyclists and 3 pedestrians. Usage was low throughout the day, and the number of bicyclists was higher than the number of pedestrians.

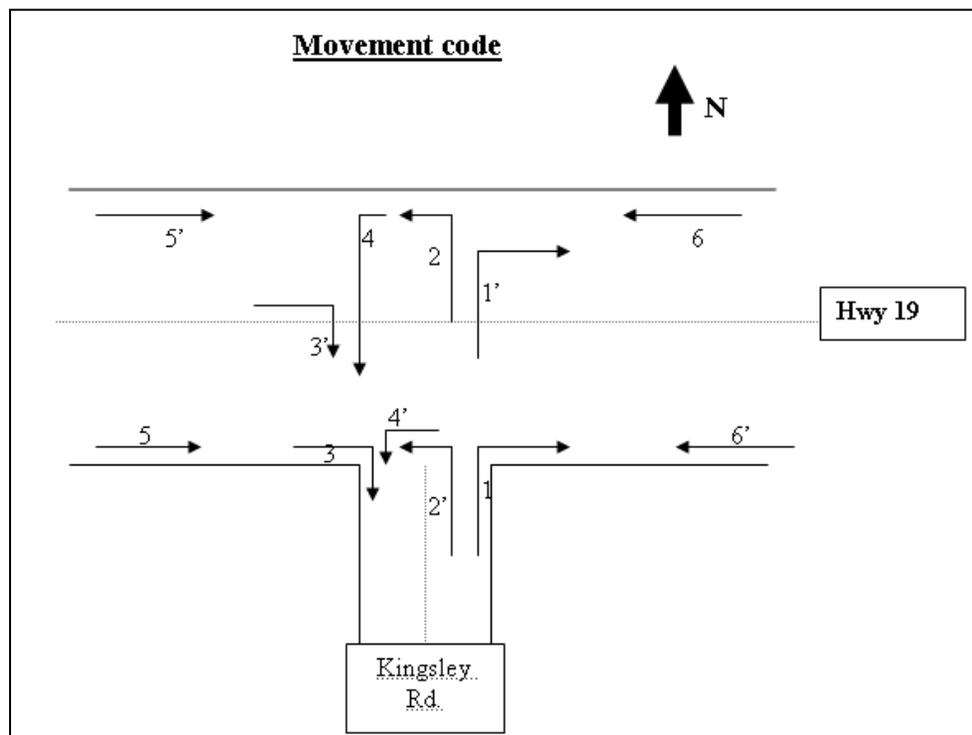


Figure 5. Movement Codes

Table 4. Count Summary Based on Movements

Movements		1	1'	2	2'	3	3'	4	4'	5	5'	6	6'
TOTAL	44	2	1	19	0	6	0	1	2	5	0	7	1

Table 5. Demographic and User Type Information

Age				User Types			
Teenager	20-30	30-60	Senior	Generic Bike	Racing Bike	Commuting bike	Jogger
2	8	32	2	22	19	2	1

3. Trail along Highway 151 between Dodgeville and Mineral Point

TRAIL NAME: n/a

DATE: 7/8/04 (Thursday)

LOCATION: East side of 151 starting at a bicycle/pedestrian overpass of Highway 151 just to the south of Dodgeville

WEATHER: Clear skies

TEMPERATURE: 75 degrees

DATA COLLECTION TIME: 5:30 AM to 8:00 PM

Total number of trail users for this trail was 26. There were 24 bicyclists and 2 pedestrians. Usage was low throughout the day, and the number of bicyclists was higher than the number of pedestrians.

Table 6. Count Summary

Data Summary for trail along 151 between Dodgeville and Mineral Point					
	Number		Age Group	Direction	Comments
6:15 AM	1	Bike	20-30	N-S	Racing Bicyclist
7:30 AM	1	Bike	30-60	S-N	Generic Bicyclist
11:44 AM	1	Bike	20-30	S-N	Racing Bicyclist
12:00 PM	1	Bike	60+	S-N	Generic Bicyclist
1:34 PM	1	Bike	30-60	N-S	Generic Bicyclist
1:52 PM	1	Bike	30-60	N-S	Generic Bicyclist
1:55 PM	1	Bike	30-60	S-N	Generic Bicyclist
4:19 PM	2	Bike	Children	S-N	Generic Bicyclist
4:21 PM	2	Bike	Children	N-S	Generic Bicyclist
6:30 PM	1	Ped	Teenager	S-N	Teenager with stroller
6:39 PM	5	Bike	30-60	S-N	Generic Bicyclist
6:39 PM	1	Bike	20-30	S-N	Generic Bicyclist
6:50 PM	5	Bike	30-60	N-S	Generic Bicyclist
6:50 PM	1	Bike	20-30	N-S	Generic Bicyclist
7:03 PM	1	Ped	Teenager	N-S	Teenager with stroller
7:23 PM	1	Bike	20-30	S-N	Racing Bicyclist
Total	26				

Table 7. Demographic and User Type Information

Age					User Type	
Children	Teenager	20-30	30-60	60+	Bicyclist	Pedestrian
4	2	5	14	1	24	2

4. Capital City Trail

TRAIL NAME: Capital City Trail
 DATE: 6/29/04 (Tuesday)
 LOCATION: Fish Hatchery Road
 WEATHER: Clear skies
 TEMPERATURE: 80 degrees.
 DATA COLLECTION TIME: 5:30 AM to 8:30 PM

For this trail, data was collected from 5:30 AM to 8:30 PM on Tuesday, June 29, 2004, and again for the same time period on Saturday, August 14, 2004. For the June 29 study, total number of trail users was 441, including 364 bicyclists and 77 pedestrians. The maximum average wait time for Fish Hatchery Road crossing was approximately 100 seconds (12:00 PM to 12:15 PM for bicyclists).

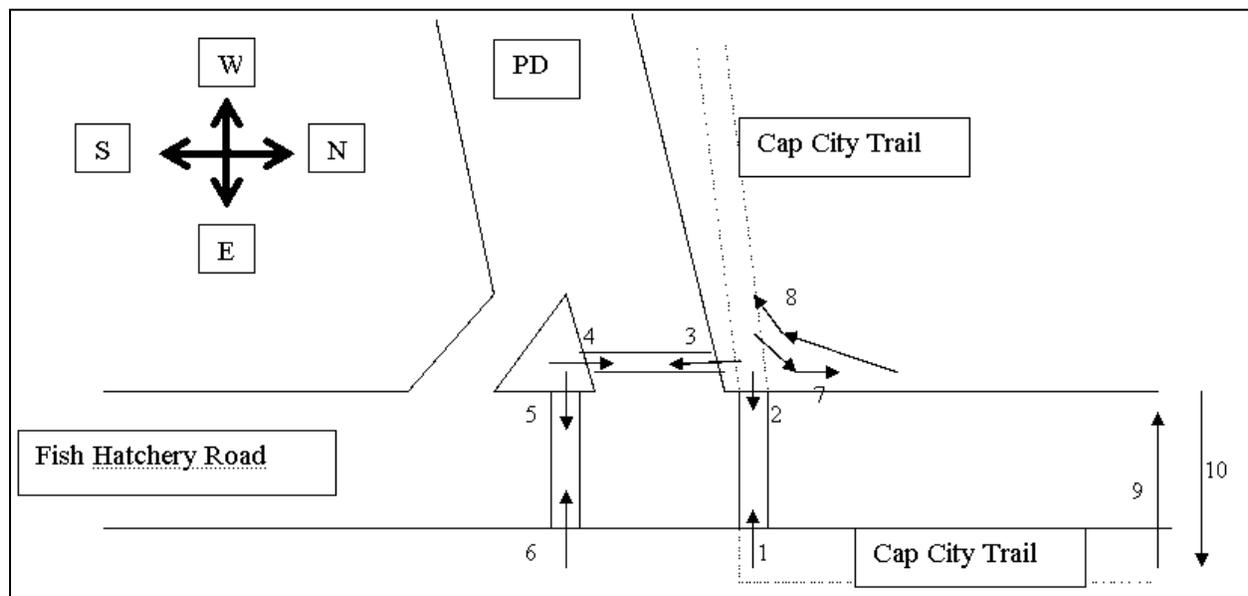


Figure 6. Movement Codes

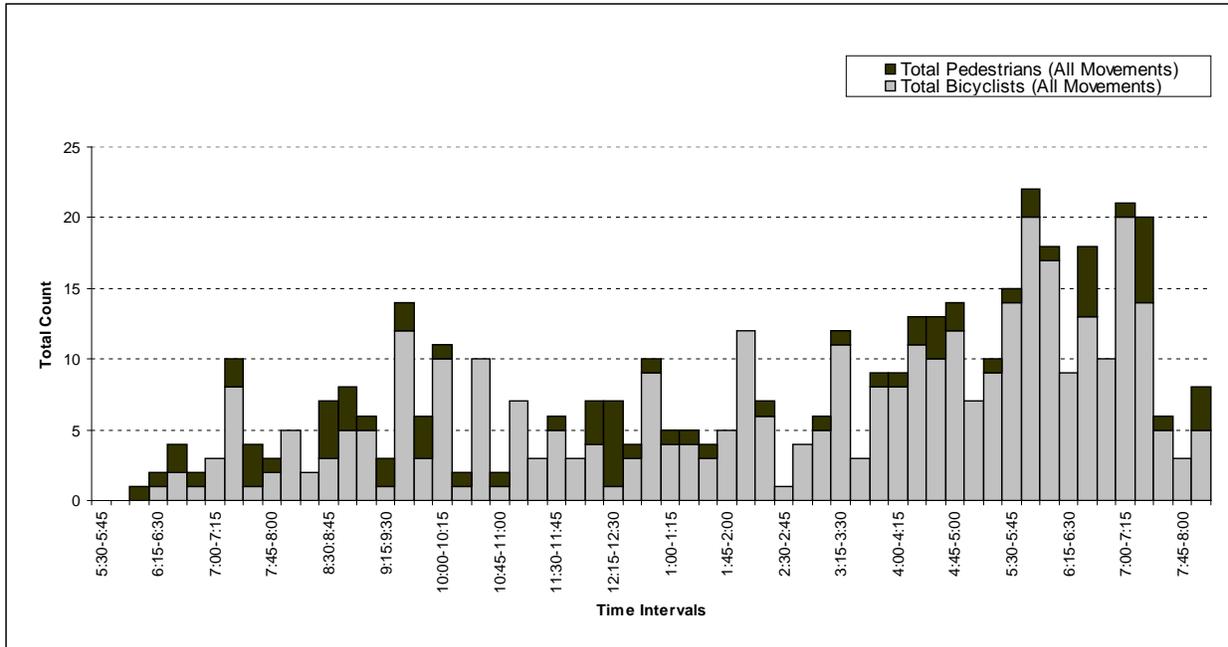


Figure 7. Total Pedestrians and Bicyclists (All Movements)

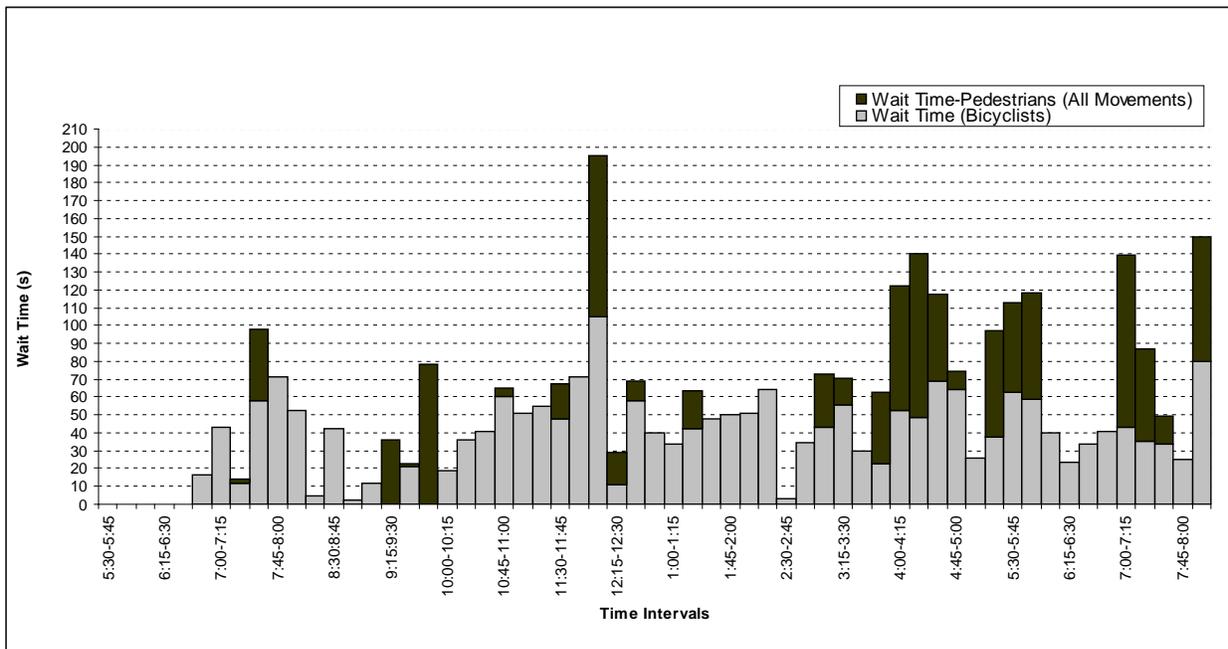


Figure 8. Wait Times- Pedestrians and Bicyclists (All Movements)

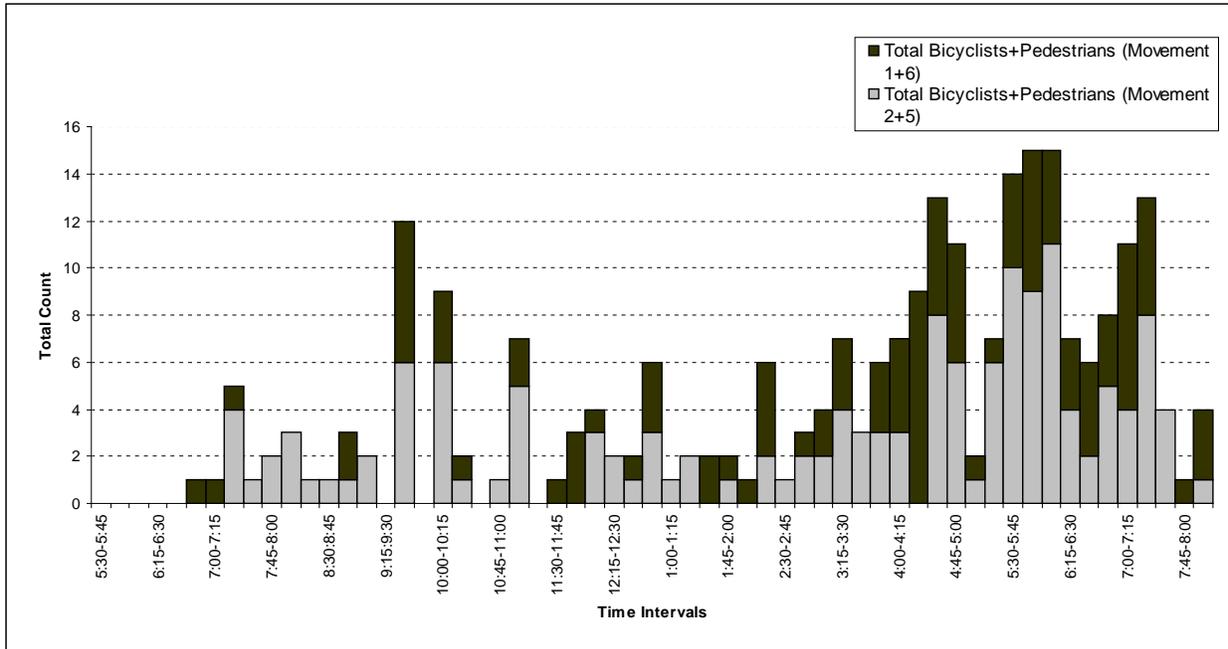


Figure 9. Pedestrians + Bicyclists WEST-EAST (2+5) vs EAST-WEST (1+6)

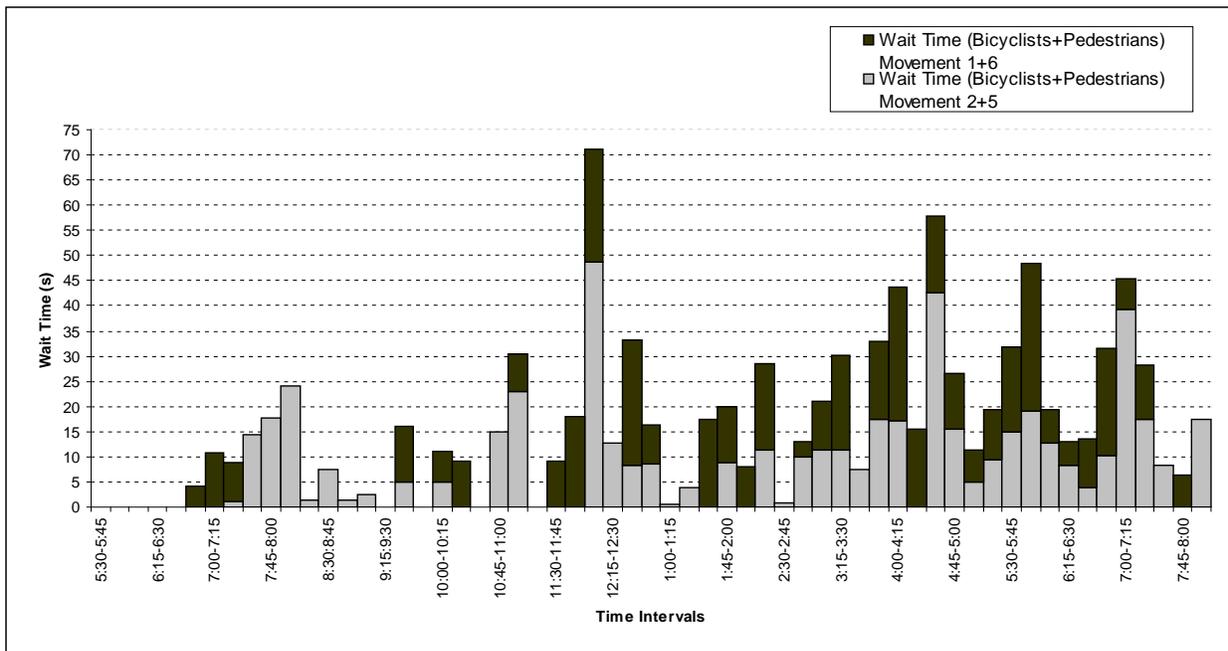


Figure 10. Wait Times- Pedestrians + Bicyclists WEST-EAST (2+5) vs EAST-WEST (1+6)

Table 8. Demographic and User Type Abbreviations

Bicyclists:					
Generic Bicyclist	Commuting/utilitarian cyclist	Racing Cyclist	With trailer bike	With kid trailer	Recumbent Bicycle
Ge	Co	Ra	Tr	Kd	Re
Pedestrians:					
Generic Pedestrian	Dogwalker	Speed or fitness walker	Skater	Jogger	
Gep	Dop	Spp	Skp	Jop	
Demographics					
Child	Teenager	20-30	30-60	Senior (60+)	
C	T	Tw	Th	S	

Table 9. Demographic and User Type Information

Bicyclist Categories						Pedestrian Categories					Demographics				
Ge	Co	Ra	Tr	Kd	Re	Gep	Dop	Spp	Skp	Jop	C	T	Tw	Th	S
235	44	74	0	2	9	34	4	8	4	25	14	34	197	158	37

TRAIL NAME: Capital City Trail
 DATE: 8/14/04 (Saturday)
 LOCATION: Fish Hatchery Road
 WEATHER: Clear skies
 TEMPERATURE: 71 degrees
 DATA COLLECTION TIME: 5:30 AM to 8:30 PM

Total number of trail users was 745, including 634 bicyclists and 111 pedestrians. Compared to the Tuesday study, there were 304 additional trail users observed in the Saturday study. The maximum average wait time to cross Fish Hatchery Road was approximately 150 seconds (11:15 PM to 11:30 PM for pedestrians).

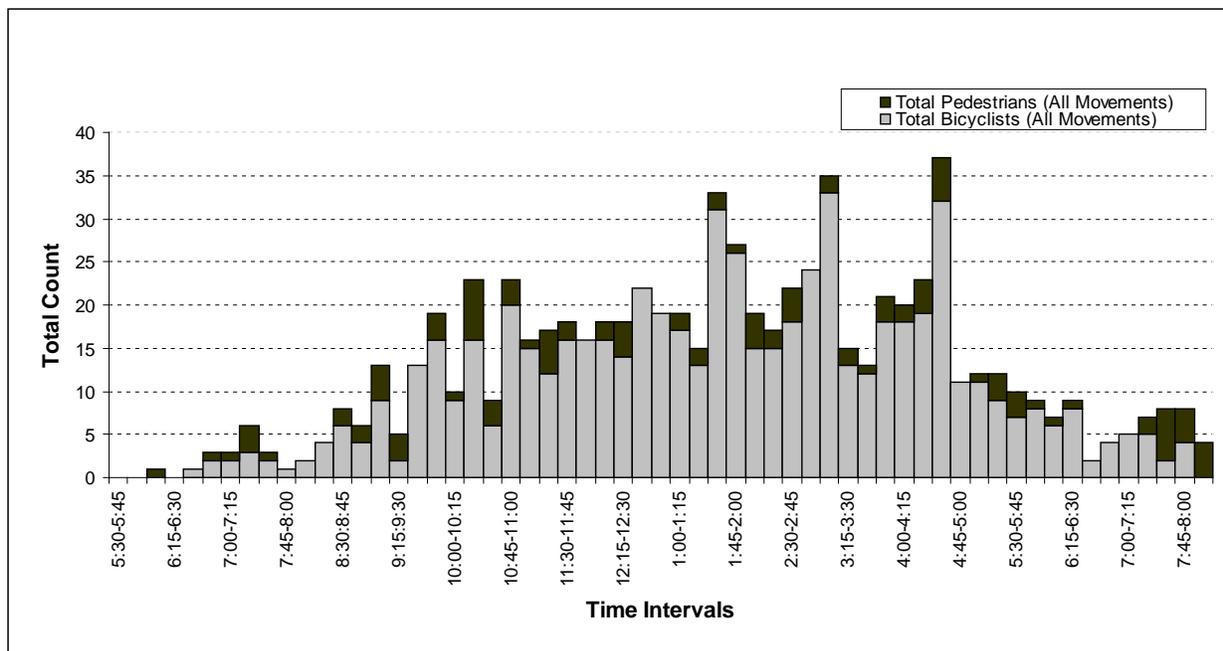


Figure 11. Total Pedestrians and Bicyclists (All Movements)

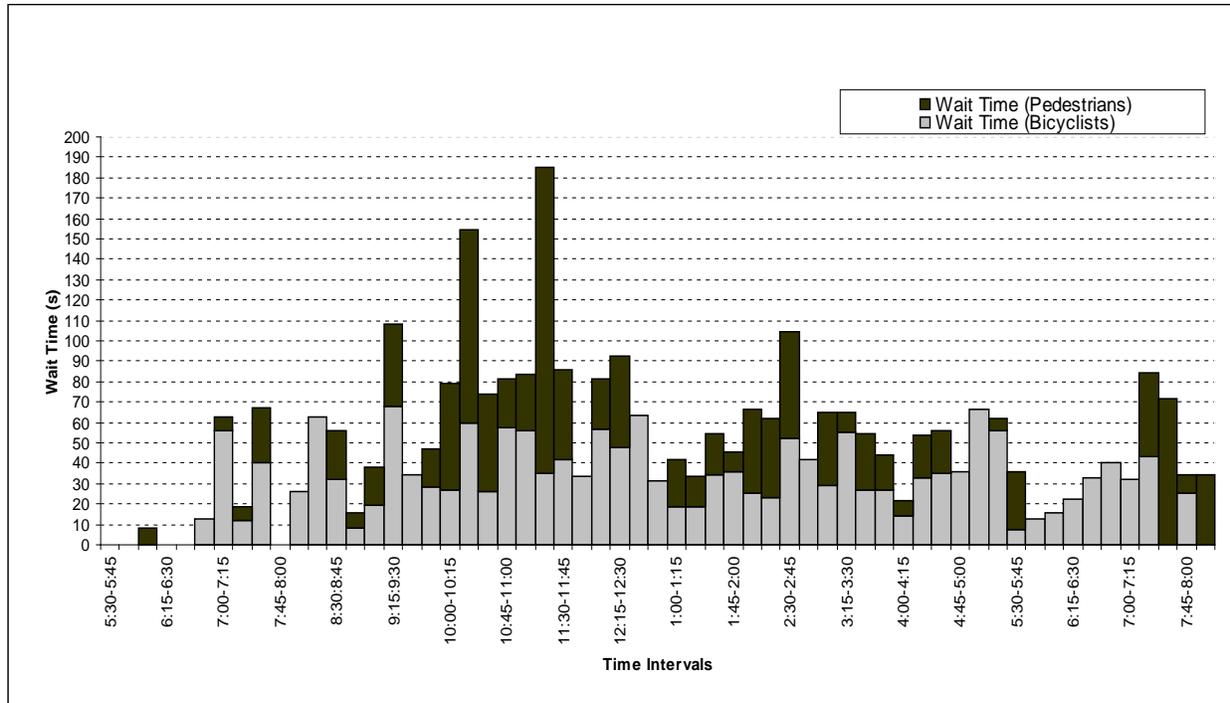


Figure 12. Wait Times- Pedestrians and Bicyclists (All Movements)

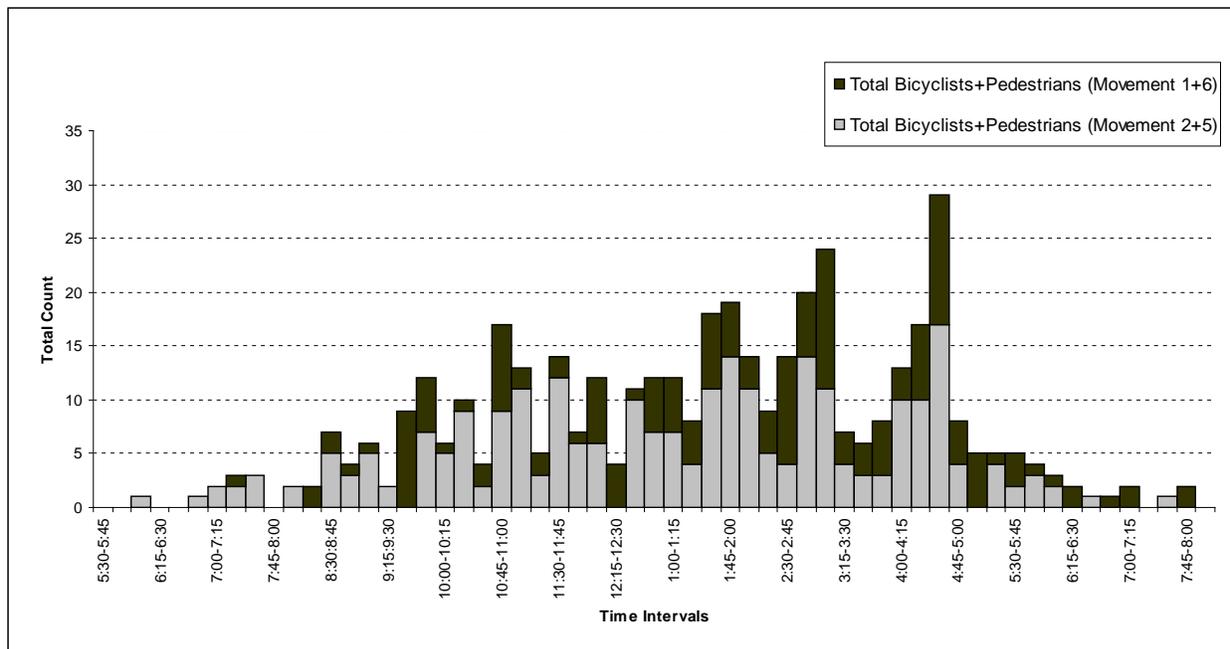


Figure 13. Pedestrians + Bicyclists WEST-EAST (2+5) vs EAST-WEST (1+6)

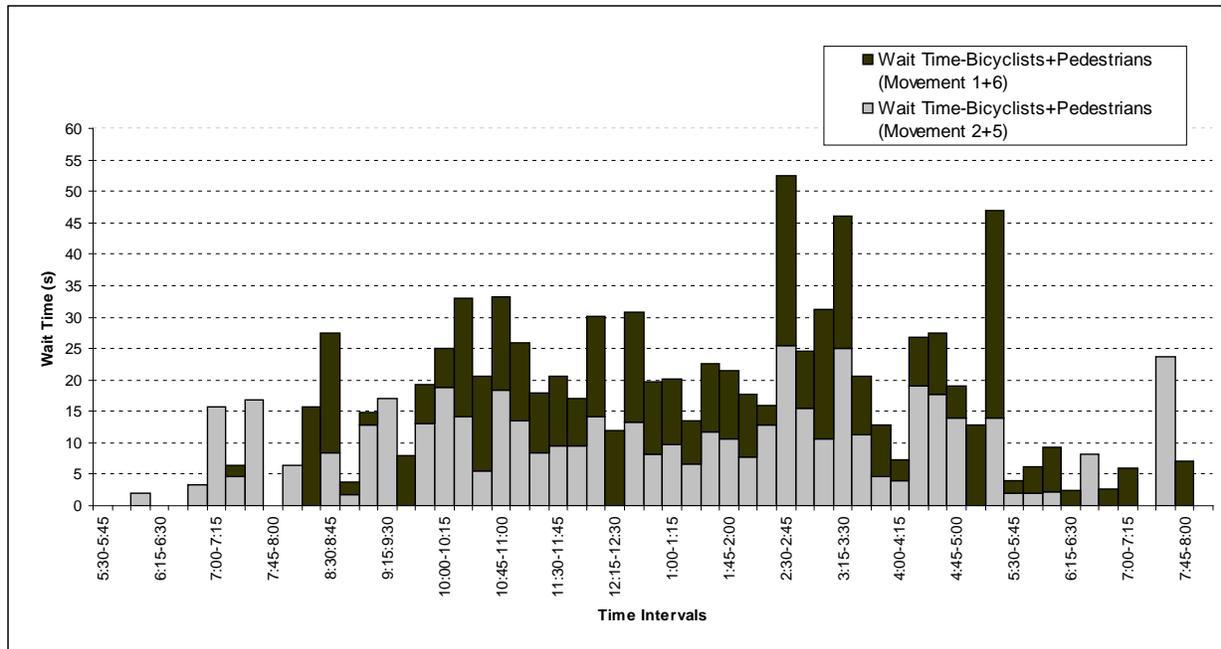


Figure 14. Wait Times- Pedestrians + Bicyclists WEST-EAST (2+5) vs EAST-WEST (1+6)

Table 10: Demographic and User Type Abbreviations

Bicyclists:					
Generic Bicyclist	Commuting/utilitarian cyclist	Racing Cyclist	With trailer bike	With kid trailer	Recumbent Bicycle
Ge	Co	Ra	Tr	Kd	Re
Pedestrians:					
Generic pedestrian	Dogwalker	Speed or fitness walker	Skater	Jogger	
Gep	Dop	Spp	Skp	Jop	
Demographics					
Child	Teenager	20-30	30-60	Senior (60+)	
C	T	Tw	Th	S	

Table 11. Demographic and User Type Information

Bicyclist Categories						Pedestrian Categories					Demographics				
Ge	Co	Ra	Tr	Kd	Re	Gep	Dop	Spp	Skp	Jop	C	T	Tw	Th	S
489	0	101	0	3	6	75	2	1	5	27	18	29	190	456	22

5. Springbrook Trail, Janesville

TRAIL NAME: Springbrook Trail

DATE: 9/18/04 (Saturday)

LOCATION: Bicycle/pedestrian bridge over the Rock River just south of downtown and Riverside Street

WEATHER: Clear skies, bright sunshine.

TEMPERATURE:

DATA COLLECTION TIME: 7:00 AM to 7:45 PM

Total number of trail users was 513 including 442 bicyclists and 71 pedestrians. The number of bicyclists was higher than the number of pedestrian trail users in almost all the intervals.

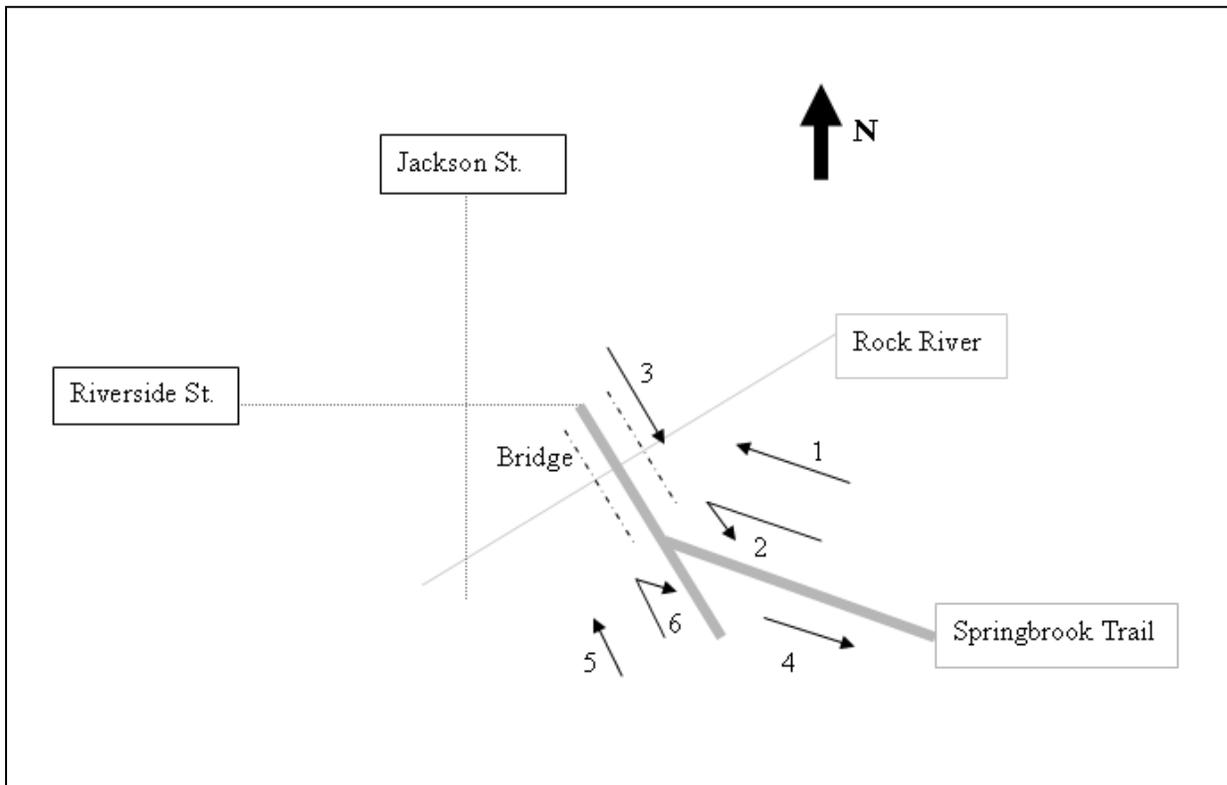


Figure 15. Movement Code

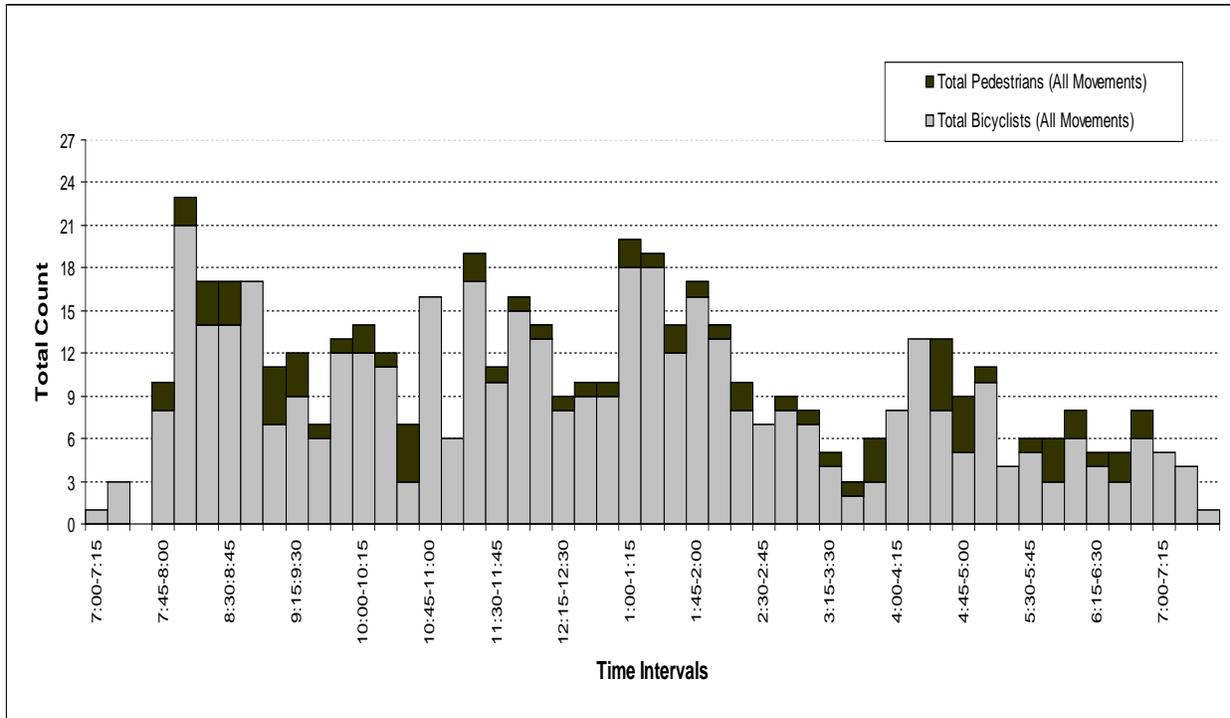


Figure 16. Total Pedestrians and Bicyclists (All Movements)

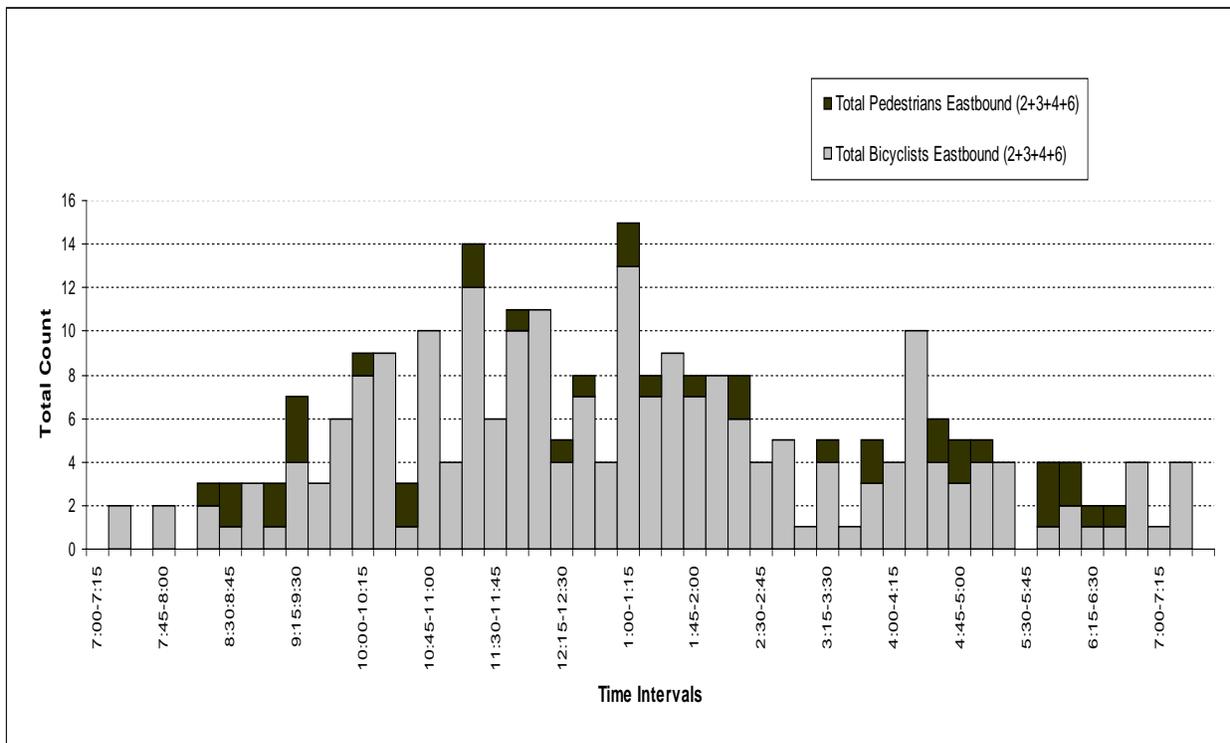


Figure 17. Total Pedestrians and Bicyclists (Eastbound)

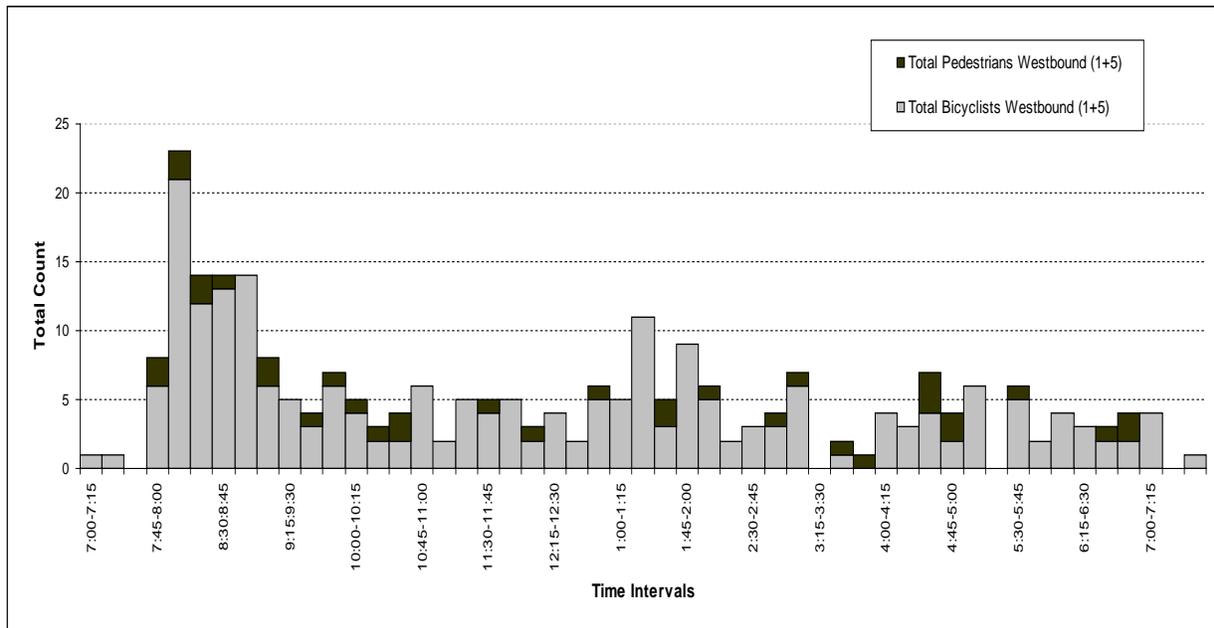


Figure 18. Total Pedestrians and Bicyclists (Westbound)

Table 12. Demographic and User Type Abbreviations

<u>Bicyclists:</u>					
Generic Bicyclist	Commuting/utilitarian cyclist	Racing Cyclist	With trailer bike	With kid trailer	Recumbent Bicycle
Ge	Co	Ra	Tr	Kd	Re
<u>Pedestrians:</u>					
Generic pedestrian	Dogwalker	Speed or fitness walker	Skater	Jogger	
Gep	Dop	Spp	Skp	Jop	
<u>Demographics</u>					
Child	Teenager	20-30	30-60	Senior (60+)	
C	T	Tw	Th	S	

Table 13. Demographic and User Type Information

Bicyclist categories						Pedestrian Categories					Demographics				
Ge	Co	Ra	Tr	Kd	Re	Gep	Dop	Spp	Skp	Jop	C	T	Tw	Th	S
303	0	129	0	0	2	27	3	3	14	24	38	64	139	269	3

6. Plank Trail

TRAIL NAME: Plank Trail

DATE: 8/27/04 (Friday); 8/28/04 (Saturday)

LOCATION: Highway Y near Kohler

WEATHER:

8/27/04: AM scattered thundershowers, PM weather clear skies, bright sunshine, maximum temperature 82 degrees, minimum 66 degrees

8/28/04: Light drizzle between 9.00 AM and 10.00 AM. Morning winds, maximum temperature 67 degrees, minimum 52 degrees

DATA COLLECTION TIME: 8/27/04 (Friday) 1:15 PM to 8:15 PM; 8/28/04 (Saturday) 5:30 AM to 1:15 PM

For this site, there were three data collection sites. The three data collection sites were located at the intersection of the trail with following roads:

- Highway Y near Kohler
- Highway 57
- County Highway S

Data was collected over two days in order to minimize data collection during adverse weather conditions since such weather conditions would not appropriately reflect usage during a 'good weather' day. The only precipitation occurred between 9:00 AM and 10:00 AM on August 28, 2004. It is acknowledged that due to cloudy skies and a chance of rain at the time the study was conducted, the observed trail usage may have been slightly lower than usual.

At the intersection of the trail with Highway Y, the total number of trail users observed was 208, including 128 bicyclists and 80 pedestrians. The maximum average wait time to cross Highway Y was over 140 seconds (6:00 PM to 6:15 PM).

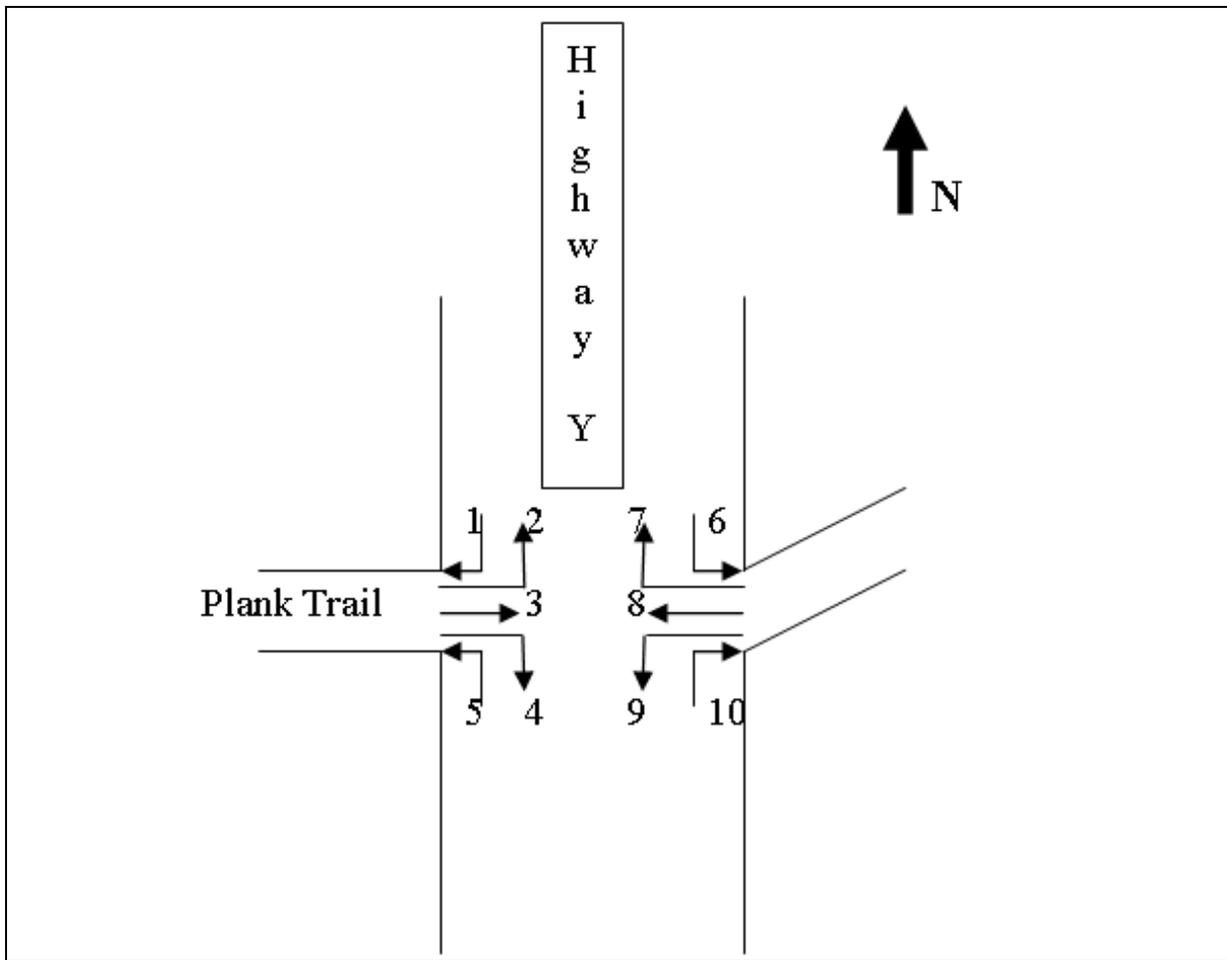


Figure 19. Movement Code

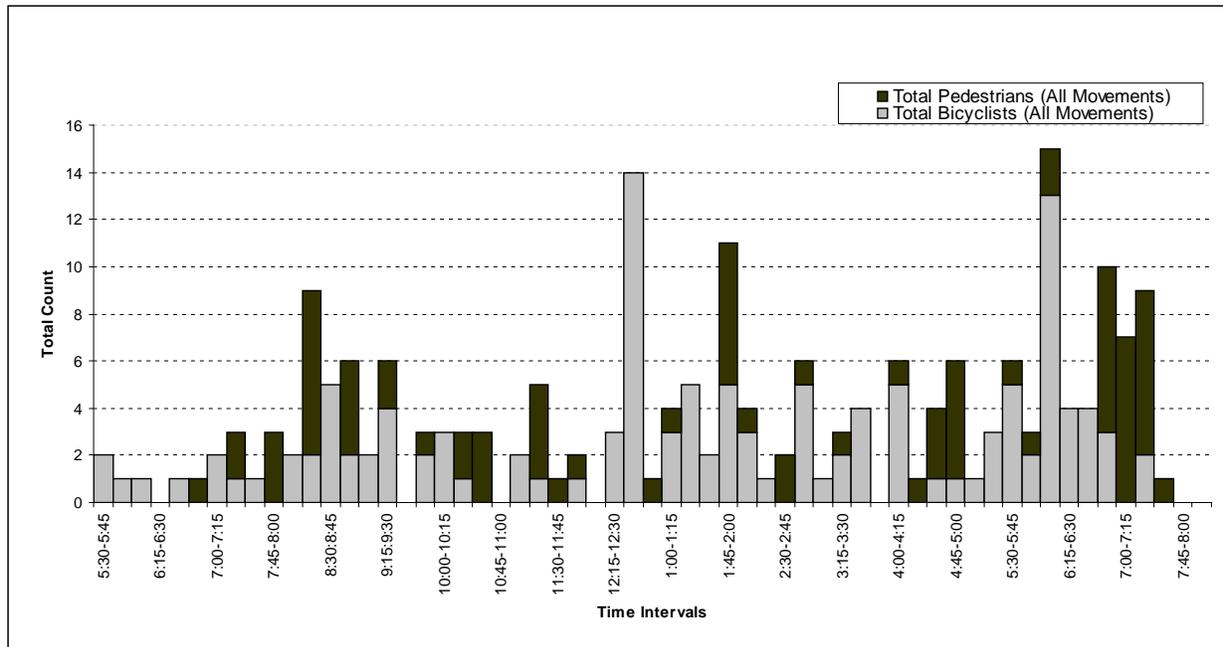


Figure 20. Total Pedestrians and Bicyclists (All Movements)

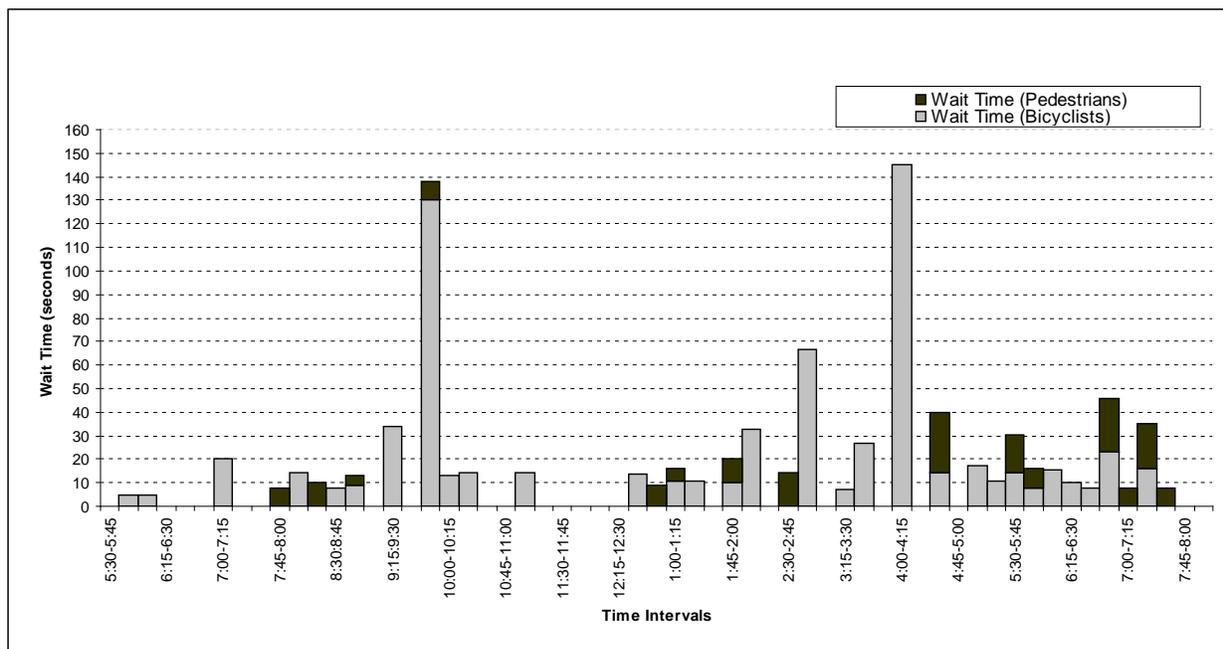


Figure 21. Wait Times- Pedestrians and Bicyclists (All Movements)

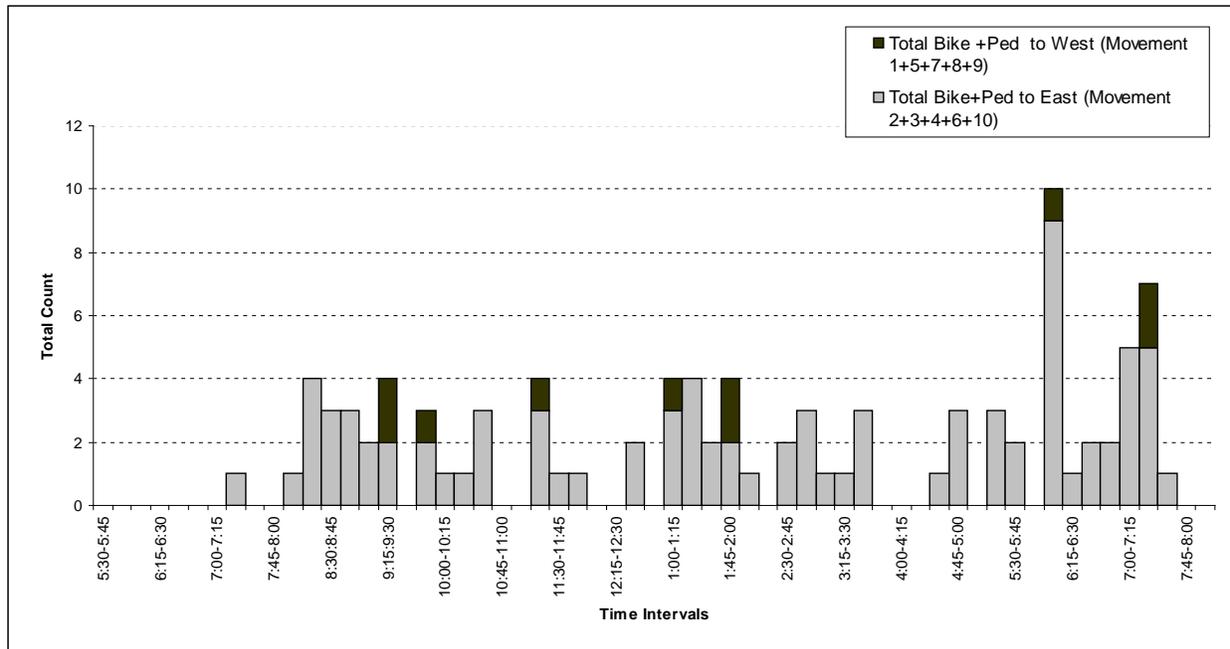


Figure 22. Pedestrians and Bicyclists WEST vs EAST

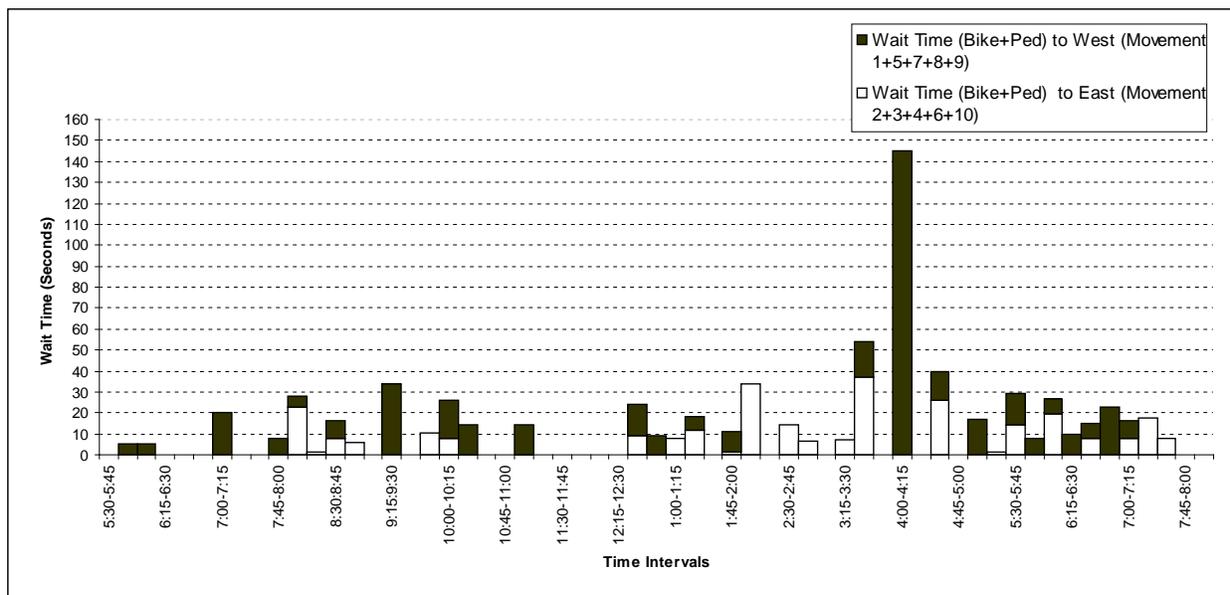


Figure 23. Wait Time- Pedestrians and Bicyclists WEST vs EAST

Table 14. Demographic and User Type Abbreviations

<u>Bicyclists:</u>					
Generic Bicyclist	Commuting/utilitarian cyclist	Racing Cyclist	With trailer bike	With kid trailer	Recumbent Bicycle
Ge	Co	Ra	Tr	Kd	Re
<u>Pedestrians:</u>					
Generic pedestrian	Dogwalker	Speed or fitness walker	Skater	Jogger	
Gep	Dop	Spp	Skp	Jop	
<u>Demographics</u>					
Child	Teenager	20-30	30-60	Senior (60+)	
C	T	Tw	Th	S	

Table 15. Demographic and User Type Information

Bicyclist categories						Pedestrian Categories					Demographics				
Ge	Co	Ra	Tr	Kd	Re	Gep	Dop	Spp	Skp	Jop	C	T	Tw	Th	S
107	2	9	0	4	2	36	14	3	0	25	12	22	50	107	8

TRAIL NAME: Plank Trail

DATE: 8/27/04 (Friday); 8/28/04 (Saturday)

LOCATION: Highway 57

WEATHER:

8/27/04 AM: Scattered thundershowers, PM weather clear skies, bright sunshine, maximum temperature 82 degrees, minimum 66 degrees

8/28/04: Light drizzle between 9:00 AM and 10:00 AM. Morning winds, maximum temperature 67 degrees, minimum 52 degrees

DATA COLLECTION TIME: 8/27/04 (Friday) 1:15 PM to 8:15 PM; 8/28/04 (Saturday) 5:30 AM to 1:15 PM

At the intersection of the trail with Highway 57, the total number of trail users observed was 73, including 59 bicyclists and 14 pedestrians. The maximum average wait time to cross Highway 57 was approximately 45 seconds (11:15 AM to 11:30 AM).

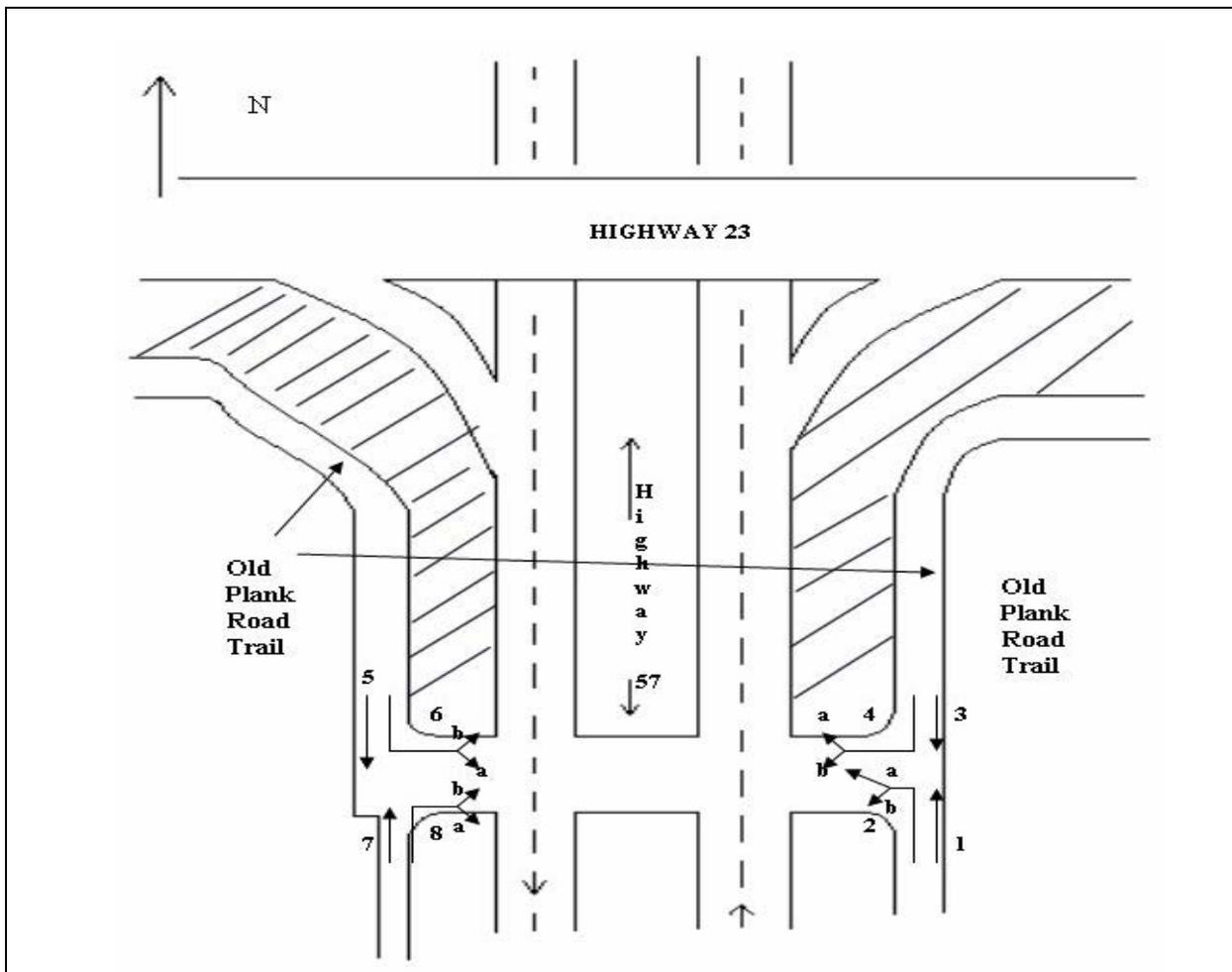


Figure 24. Movement Code

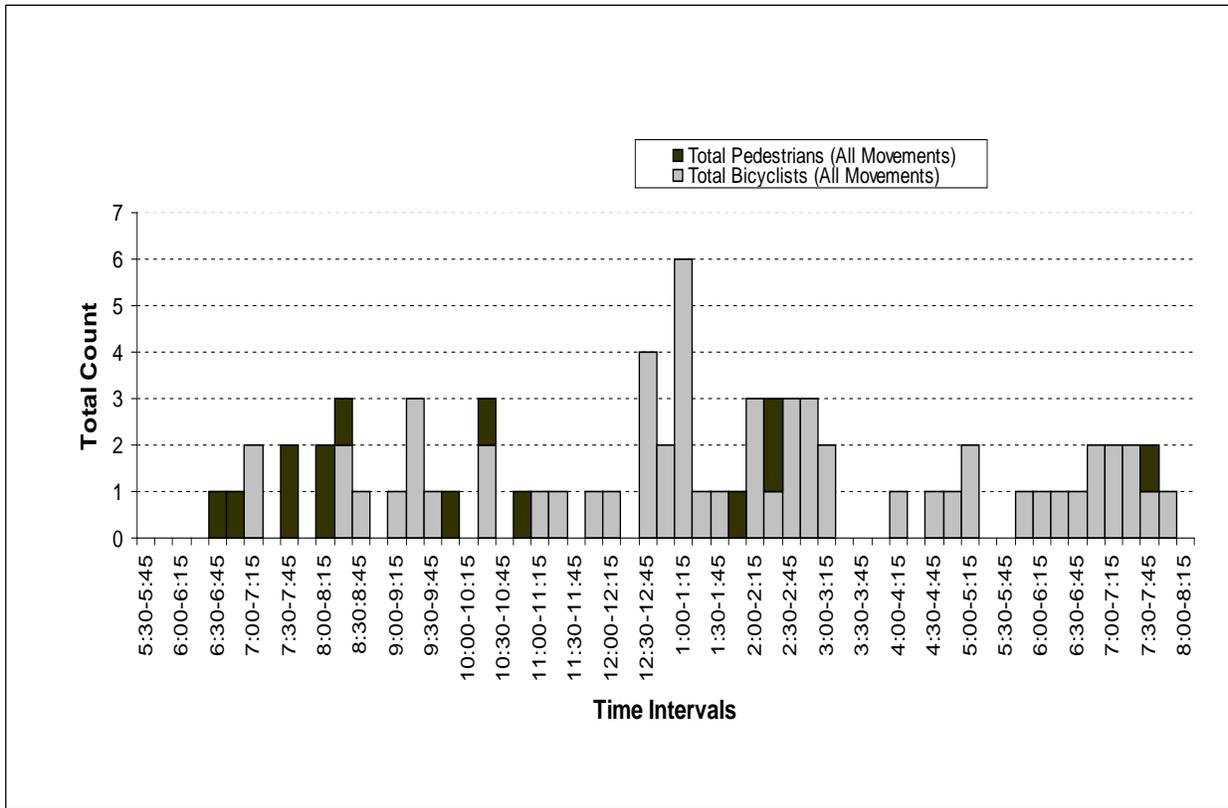


Figure 25. Total Pedestrians and Bicyclists (All Movements)

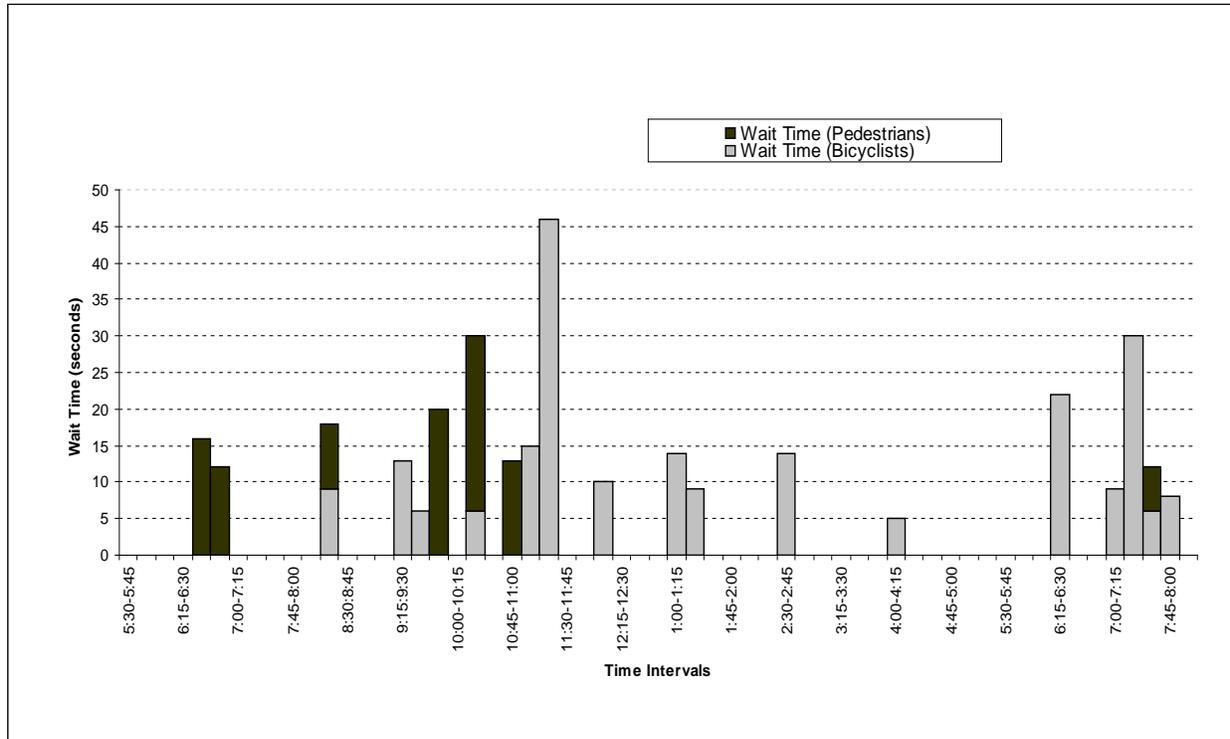


Figure 26. Wait Time- Pedestrians and Bicyclists (All Movements)

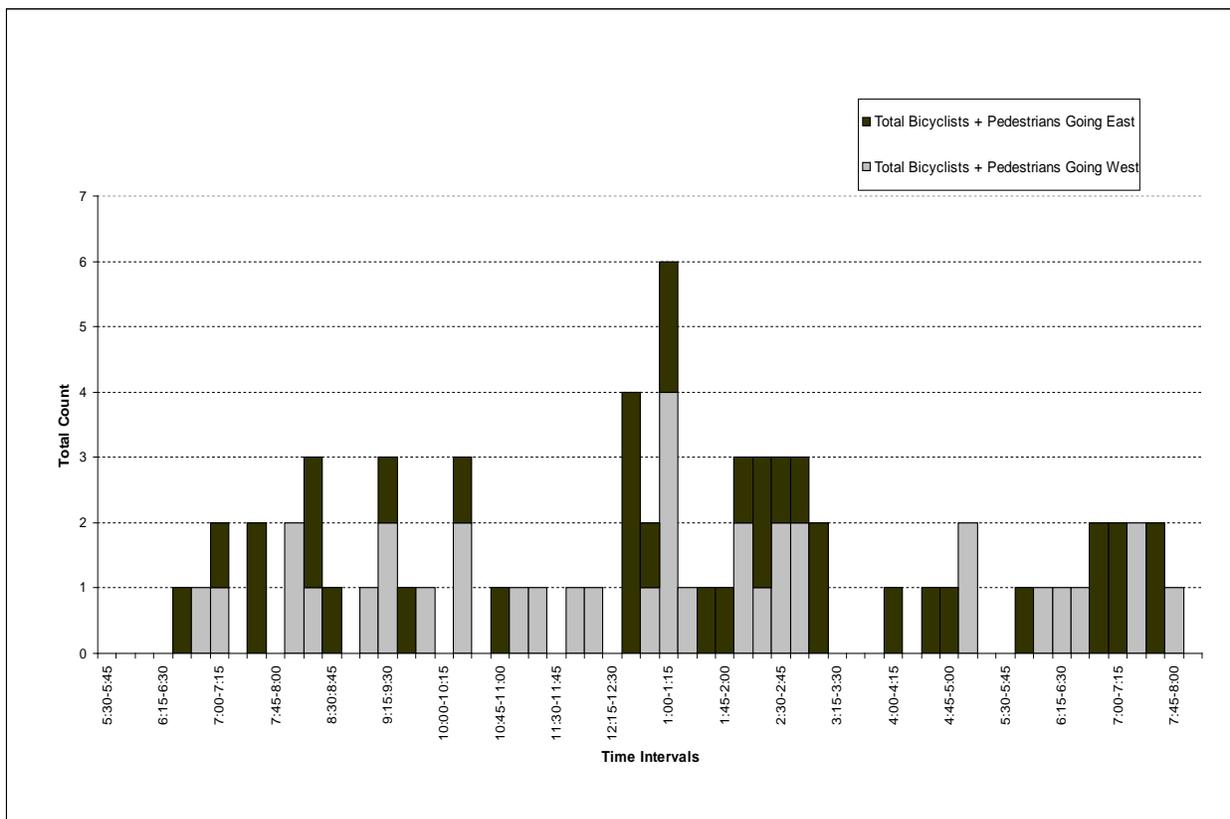


Figure 27. Pedestrians and Bicyclists WEST-EAST vs EAST-WEST

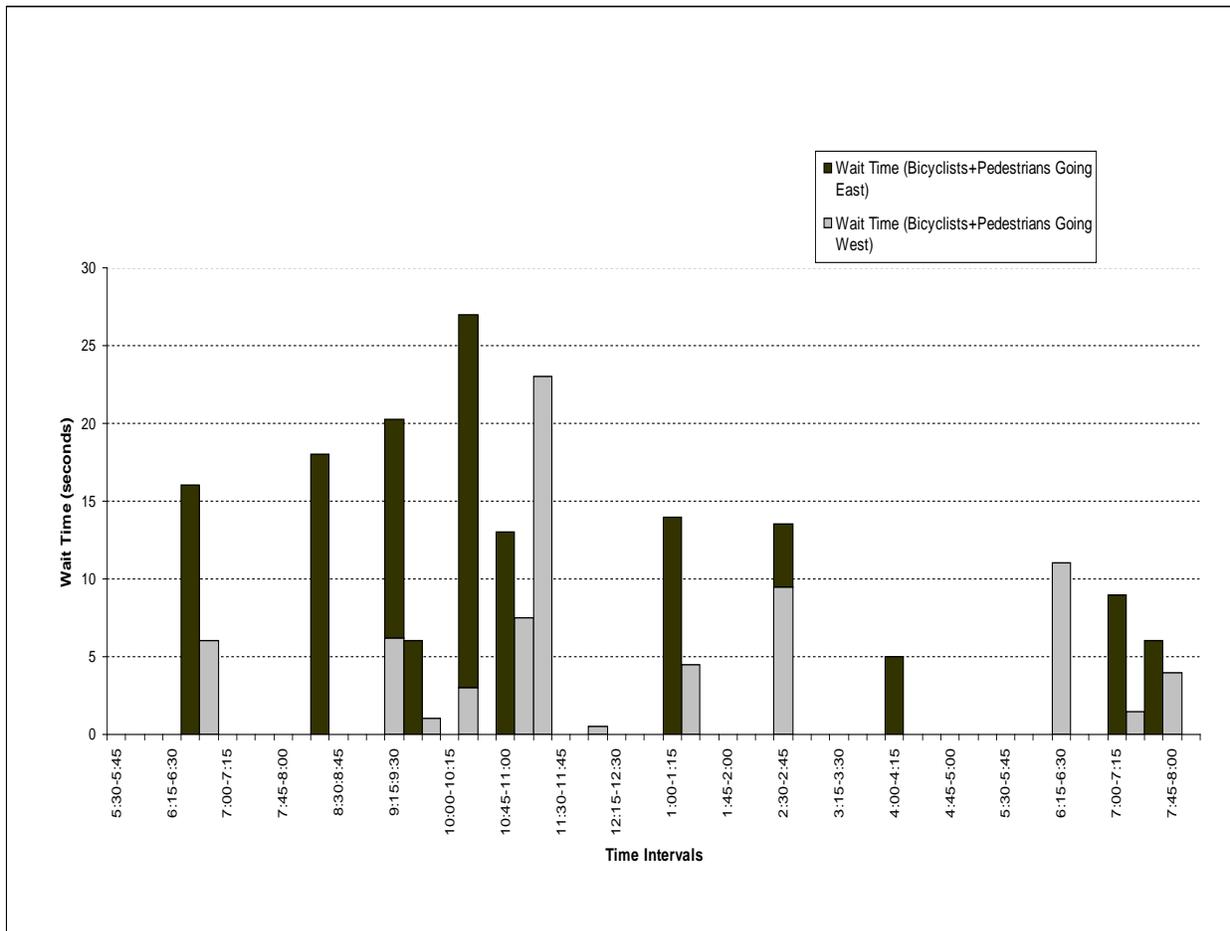


Figure 28. Wait Times- Pedestrians and Bicyclists WEST-EAST vs EAST-WEST

Table 16. Demographic and User Type Abbreviations

<u>Bicyclists:</u>					
Generic Bicyclist	Commuting/utilitarian cyclist	Racing Cyclist	With trailer bike	With kid trailer	Recumbent Bicycle
Ge	Co	Ra	Tr	Kd	Re
<u>Pedestrians:</u>					
Generic pedestrian	Dogwalker	Speed or fitness walker	Skater	Jogger	
Gep	Dop	Spp	Skp	Jop	
<u>Demographics</u>					
Child	Teenager	20-30	30-60	Senior (60+)	
C	T	Tw	Th	S	

Table 17. Demographic and User Type Information

Bicyclist Categories						Pedestrian Categories					Demographics				
Ge	Co	Ra	Tr	Kd	Re	Gep	Dop	Spp	Skp	Jop	C	T	Tw	Th	S
25	0	28	0	0	6	6	2	1	1	4	4	0	13	50	6

TRAIL NAME: Plank Trail

DATE: 8/27/04 (Friday); 8/28/04 (Saturday)

LOCATION: County Highway S

WEATHER:

8/27/04 AM: Scattered thundershowers, PM weather clear skies, bright sunshine, maximum temperature 82 degrees, minimum 66 degrees

8/28/04: Light drizzle between 9:00 AM and 10:00 AM. Morning winds, maximum temperature 67 degrees, minimum 52 degrees

DATA COLLECTION TIME: 8/27/04 (Friday) 1:15 PM to 8:15 PM; 8/28/04 (Saturday) 5:30 AM to 1:15 PM

At the intersection of the trail with County Highway S, the total number of trail users observed was 46, including 30 bicyclists and 16 pedestrians.

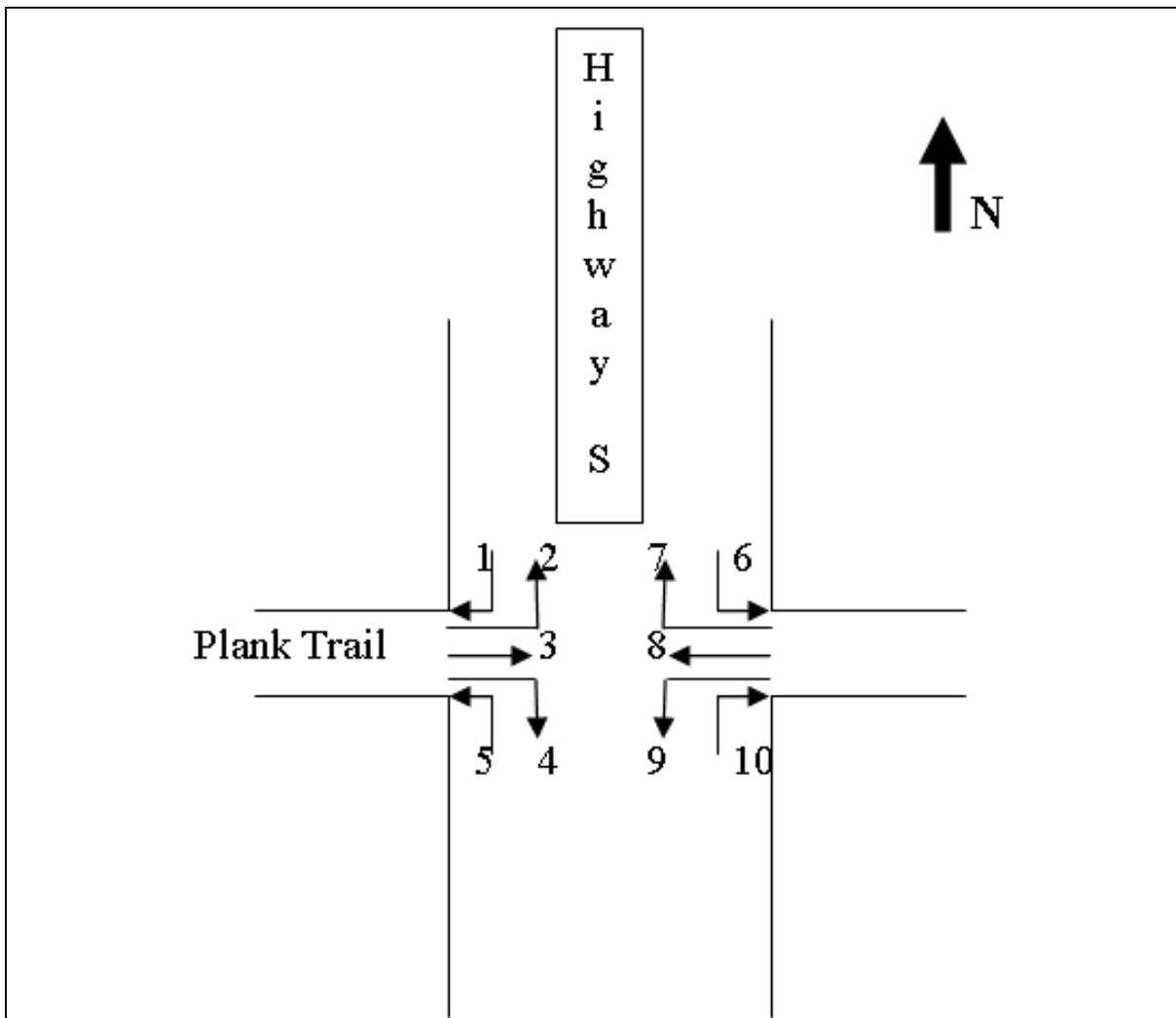


Figure 29. Movement Codes

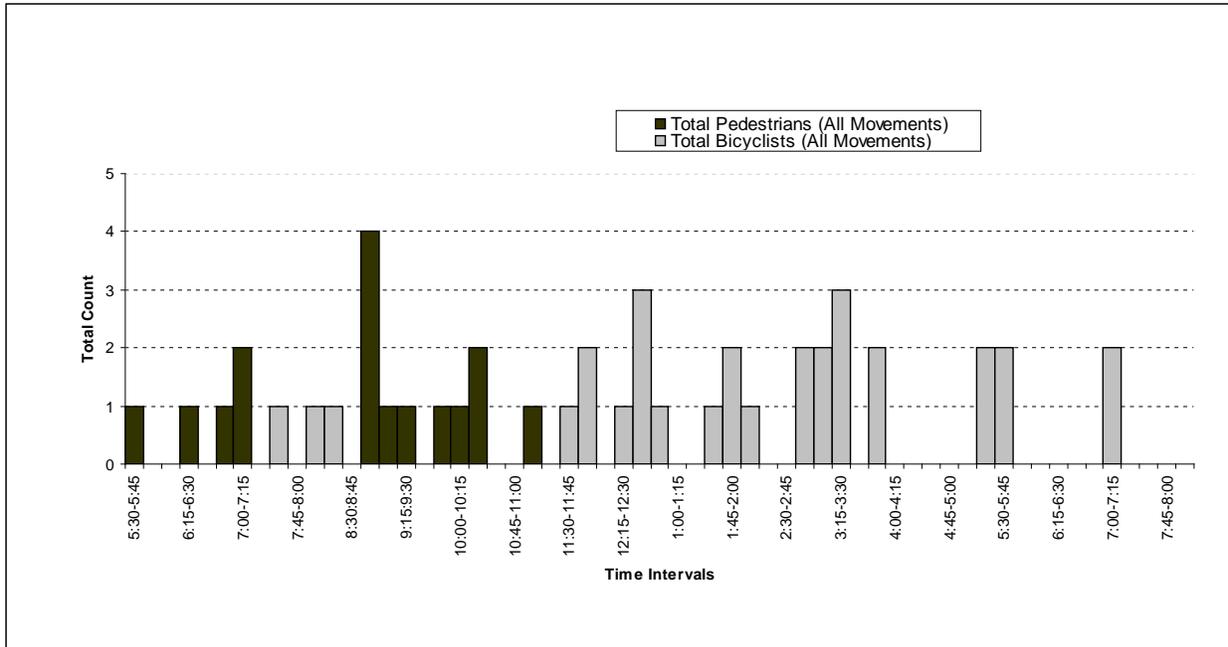


Figure 30. Total Pedestrians and Bicyclists (All Movements)

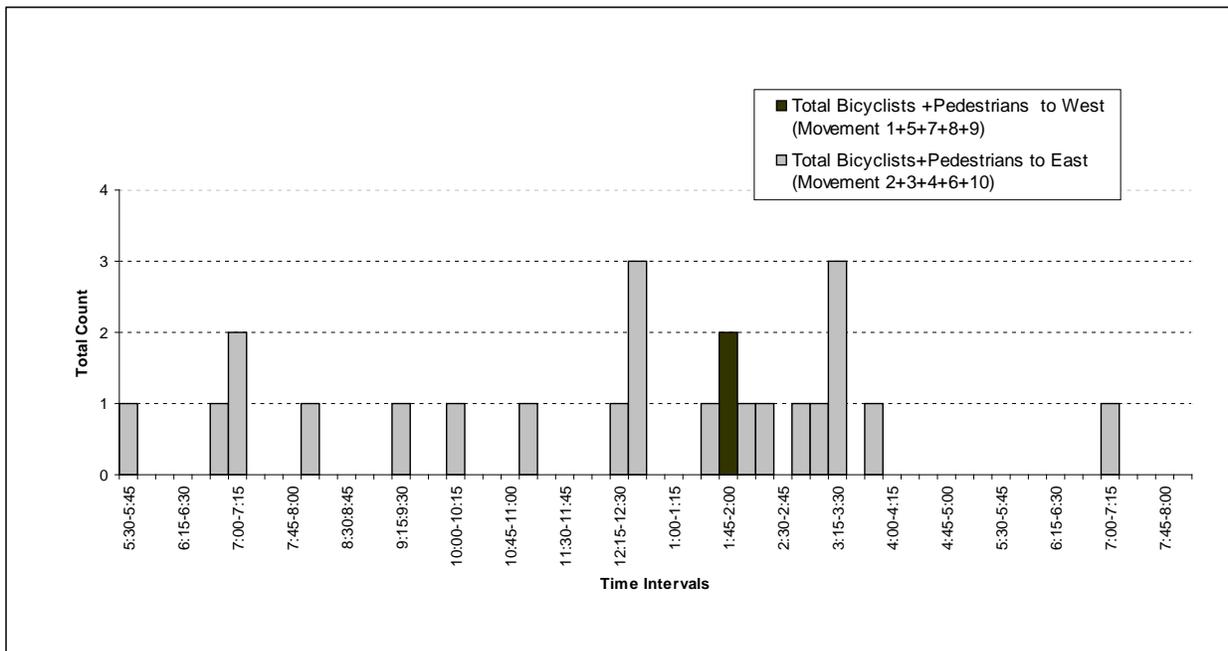


Figure 31. Pedestrians and Bicyclists WEST-EAST vs EAST-WEST

Table 18. Demographic and User Type Abbreviations

<u>Bicyclists:</u>					
Generic Bicyclist	Commuting/utilitarian cyclist	Racing Cyclist	With trailer bike	With kid trailer	Recumbent Bicycle
Ge	Co	Ra	Tr	Kd	Re
<u>Pedestrians:</u>					
Generic pedestrian	Dogwalker	Speed or fitness walker	Skater	Jogger	
Gep	Dop	Spp	Skp	Jop	
<u>Demographics</u>					
Child	Teenager	20-30	30-60	Senior (60+)	
C	T	Tw	Th	S	

Table 19. Demographic and User Type Information

Bicyclist categories						Pedestrian Categories					Demographics				
Ge	Co	Ra	Tr	Kd	Re	Gep	Dop	Spp	Skp	Jop	C	T	Tw	Th	S
10	0	17	0	0	2	0	4	3	0	9	0	0	33	13	0

7. Oakleaf Trail

TRAIL NAME: Oakleaf Trail

DATE: 8/5/05 (Friday)

LOCATION: Hwy 100 and the intersection of the Oakleaf Trail in Milwaukee County

WEATHER: Clear skies.

TEMPERATURE: 78 degrees

DATA COLLECTION TIME: 5:45 AM to 8:00 PM

The total number of trail users observed was 491, including 394 bicyclists and 97 pedestrians. The maximum average wait time to cross Highway 100 was over 120 seconds (2:45 PM to 3:00 PM for pedestrians). Please note that data collection study was disrupted between 6:00 PM and 6:15 PM.

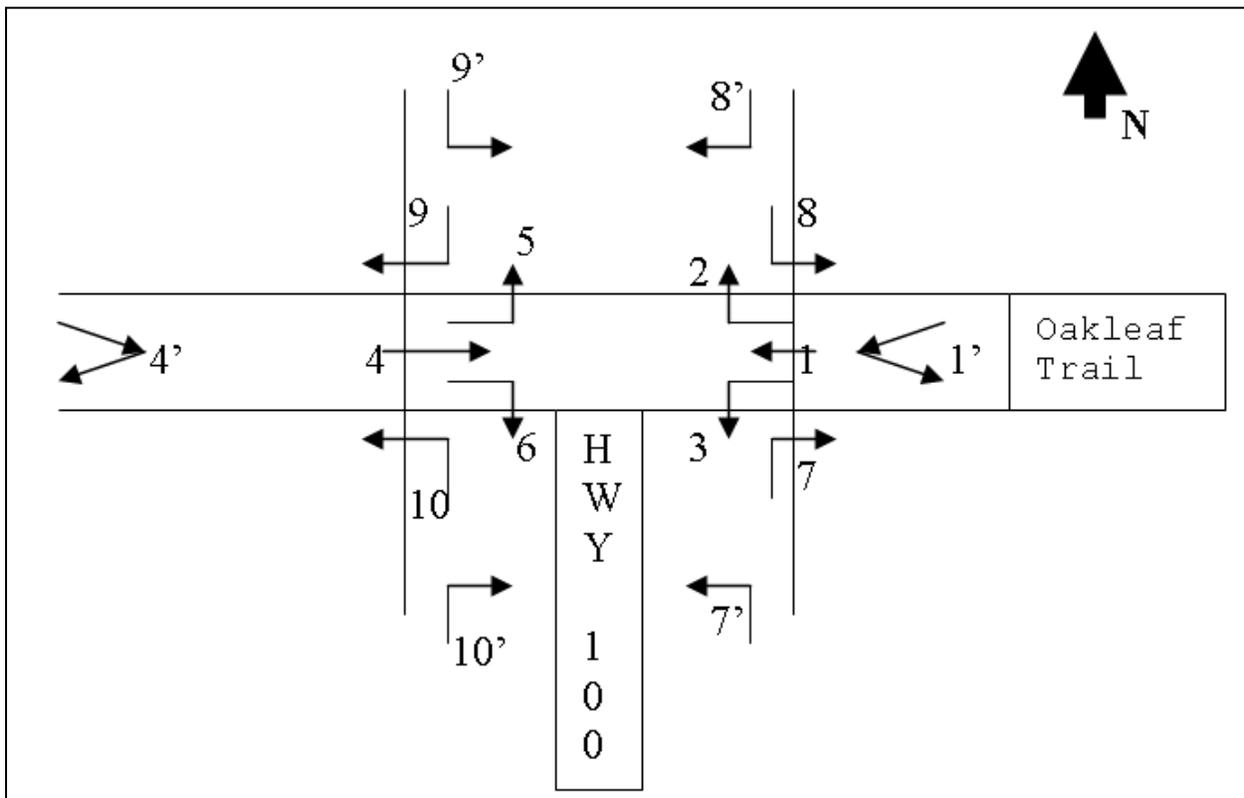


Figure 32. Movement Code

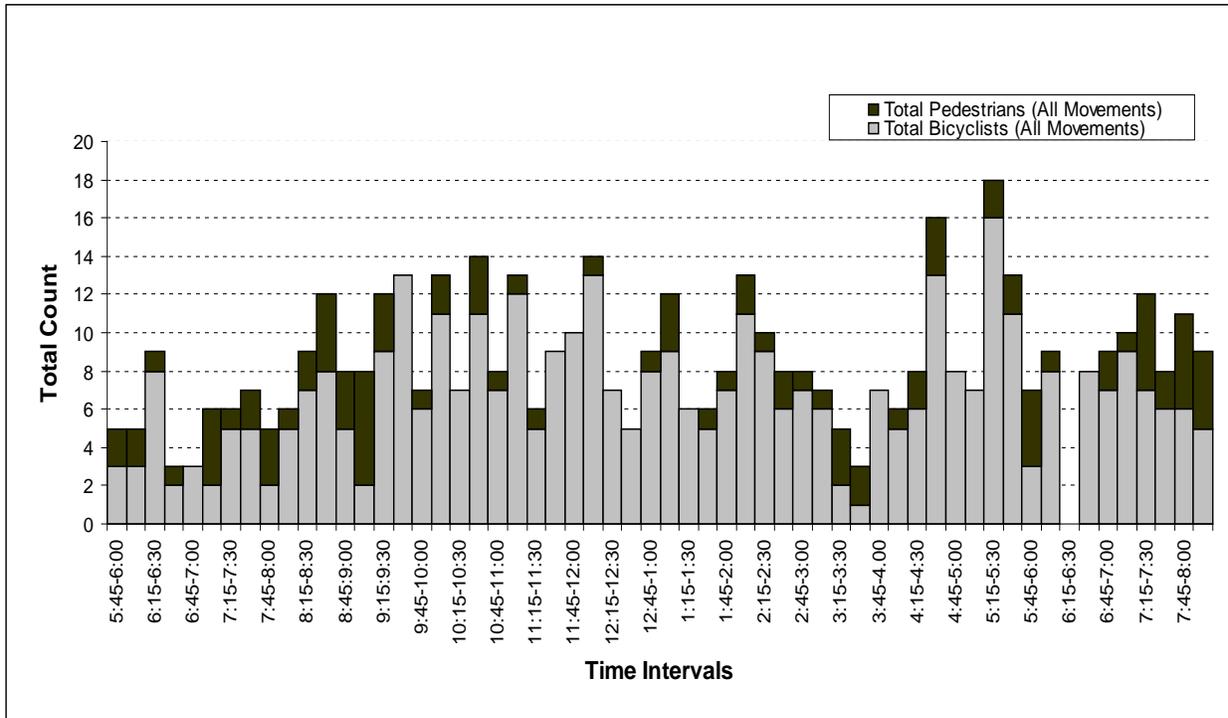


Figure 33. Total Pedestrians and Bicyclists (All Movements)

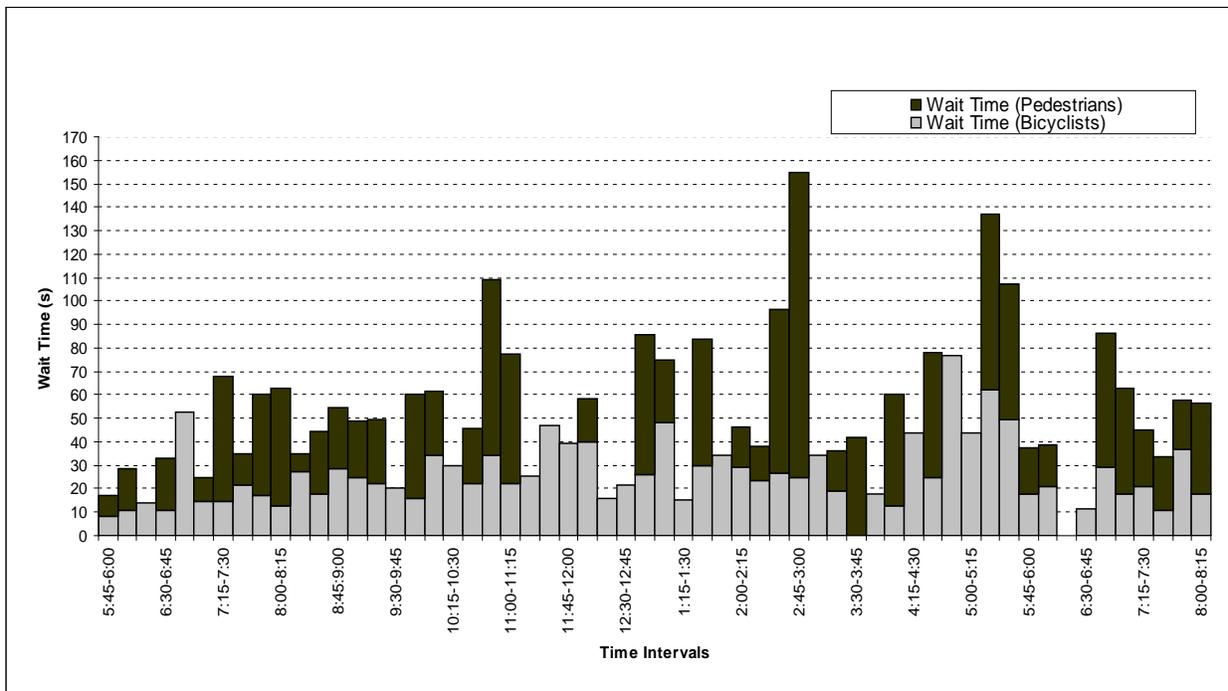


Figure 34. Wait Times- Pedestrians and Bicyclists (All Movements)

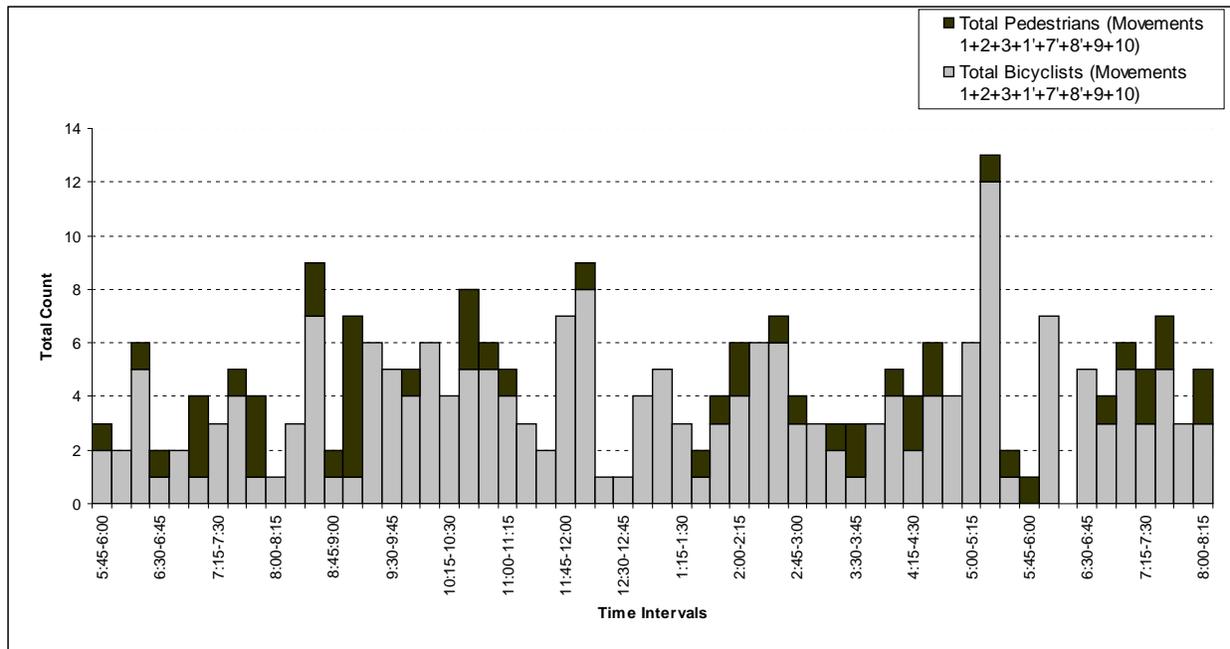


Figure 35. Total Pedestrians and Bicyclists (Movements 1+2+3+1'+7'+8'+9+10)

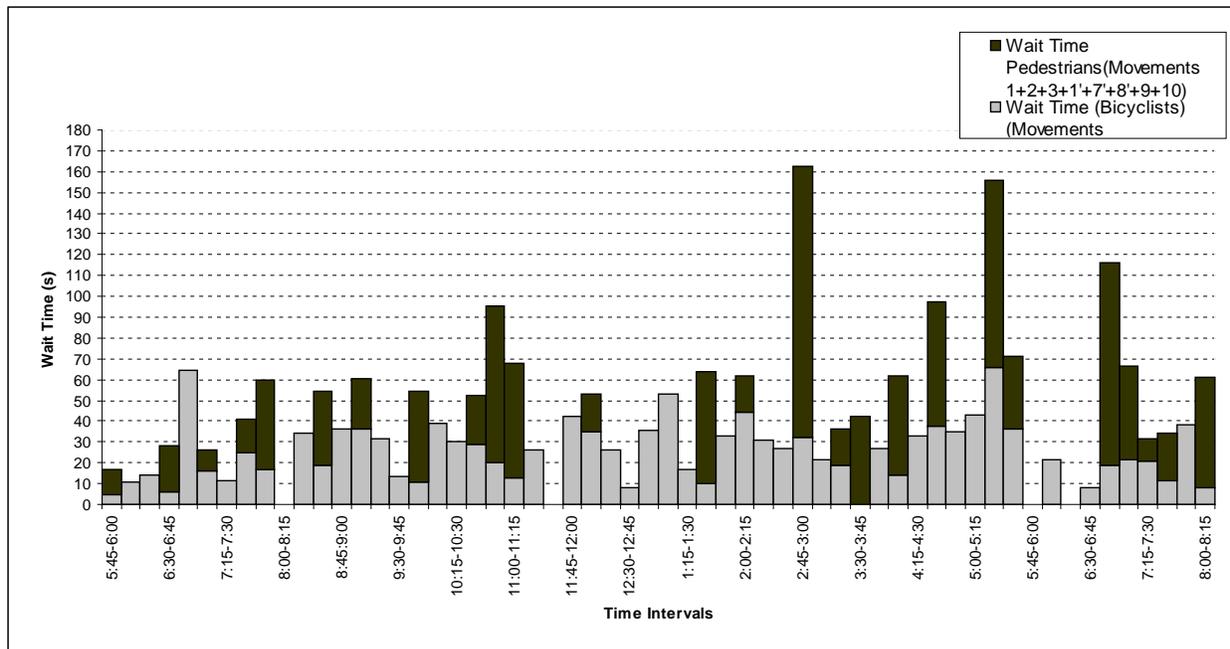


Figure 36. Wait Times-Pedestrians and Bicyclists (Movements 1+2+3+1'+7'+8'+9+10)

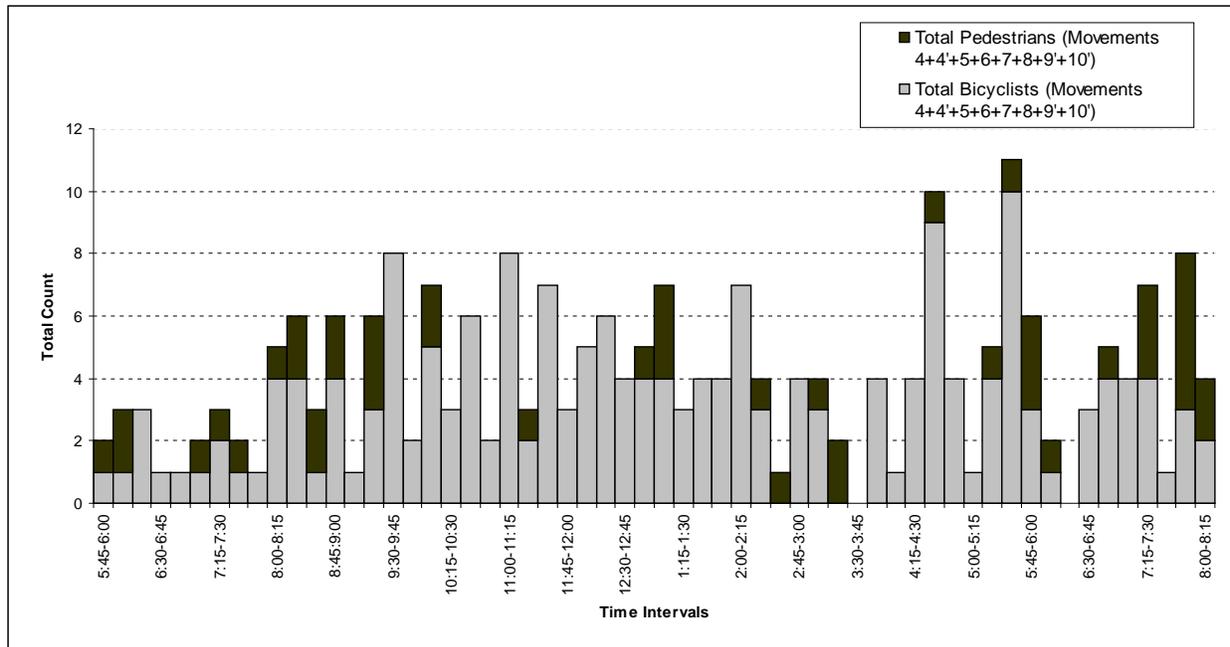


Figure 37. Total Pedestrians and Bicyclists (Movements 4+4'+5+6+7+8+9'+10')

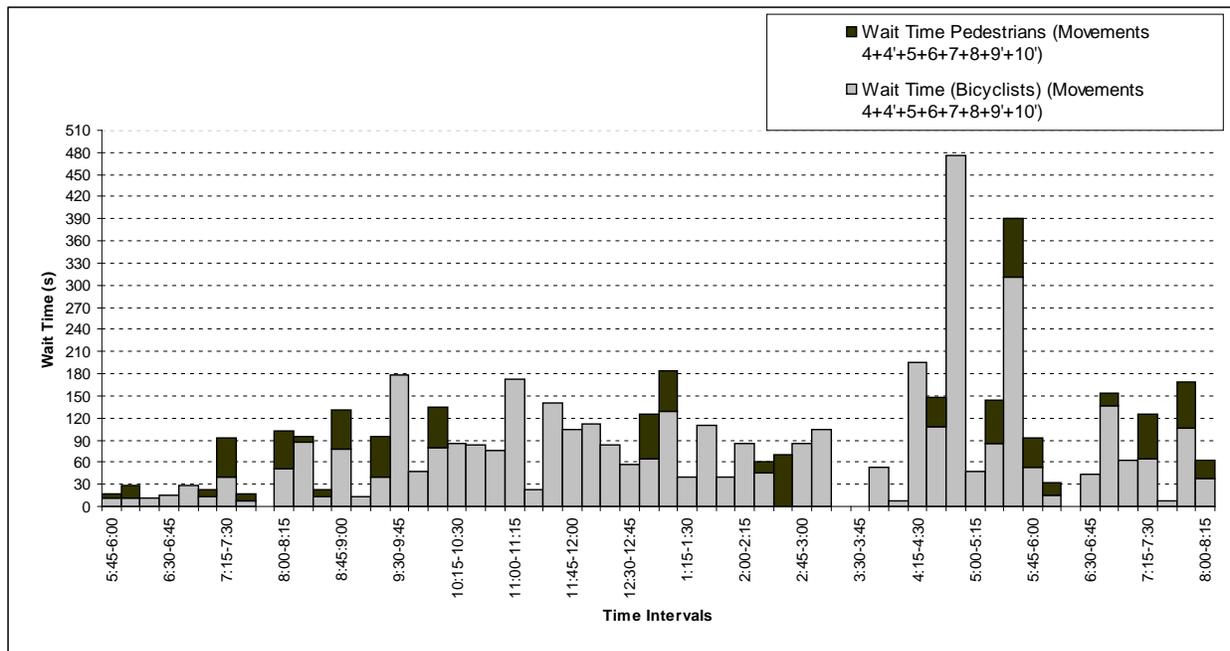


Figure 38. Wait Times Pedestrians and Bicyclists (Movements 4+4'+5+6+7+8+9'+10')

Table 20. Demographic and User Type Abbreviations

<u>Bicyclists:</u>					
Generic Bicyclist	Commuting/utilitarian cyclist	Racing Cyclist	With trailer bike	With kid trailer	Recumbent Bicycle
Ge	Co	Ra	Tr	Kd	Re
<u>Pedestrians:</u>					
Generic pedestrian	Dogwalker	Speed or fitness walker	Skater	Jogger	
Gep	Dop	Spp	Skp	Jop	
<u>Demographics</u>					
Child	Teenager	20-50		>50	
0	1	2		3	

Table 21. Demographic and User Type Information

Bicyclist categories						Pedestrian Categories					Demographics			
Ge	Co	Ra	Tr	Kd	Re	Gep	Dop	Spp	Skp	Jop	0	1	2	3
307	1	62	0	2	15	32	7	5	22	30	9	20	361	75

SUPPLEMENTARY NOTES FOR OAKLEAF TRAIL:

The graphs shown above provided a summary of all the movements at the intersection. The movements were broadly classified based on whether the general direction of travel within the trail was closer to East-West or West-East. Since movements 1' and 4' are U turn movements, they were simply classified according to initial direction of travel. The wait time graphs of course only apply to the movements which required crossing Hwy 100. These are:

East-West: Movements 1, 7' and 8'.

West-East: Movements 4, 9' and 10'.

Below is a summary of the pedestrian and bicycle data for only these movements:

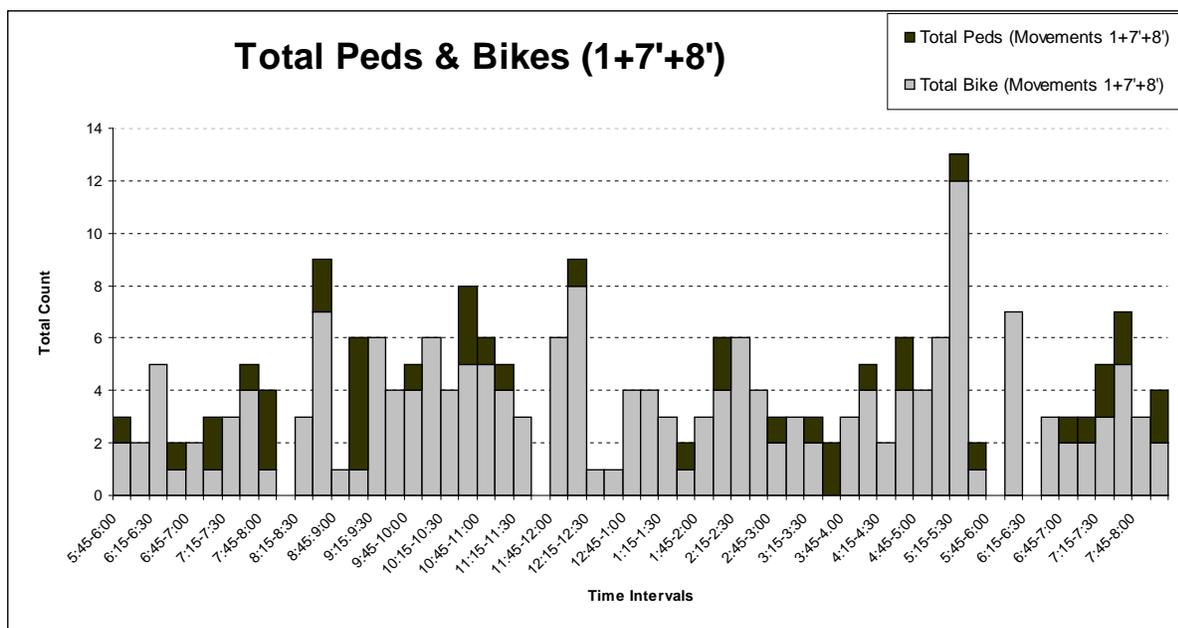


Figure 39. Direct movement across Hwy 100 from East to West= 1+7'+8'

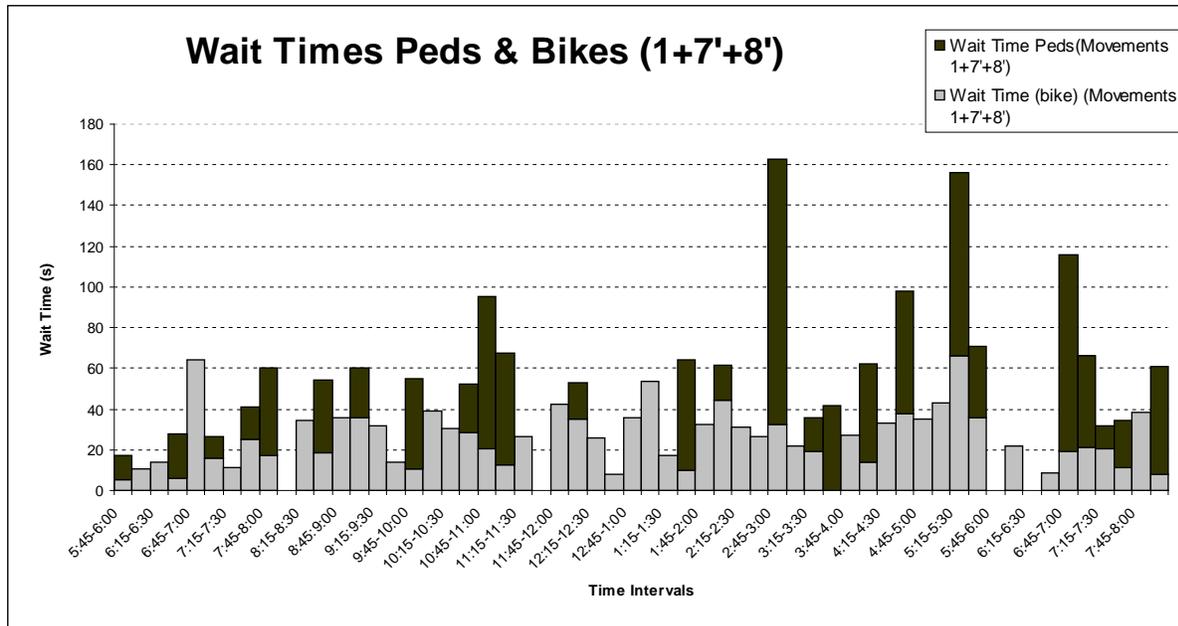


Figure 40. Wait times for Direct movement across Hwy 100 from East to West= 1+7'+8'

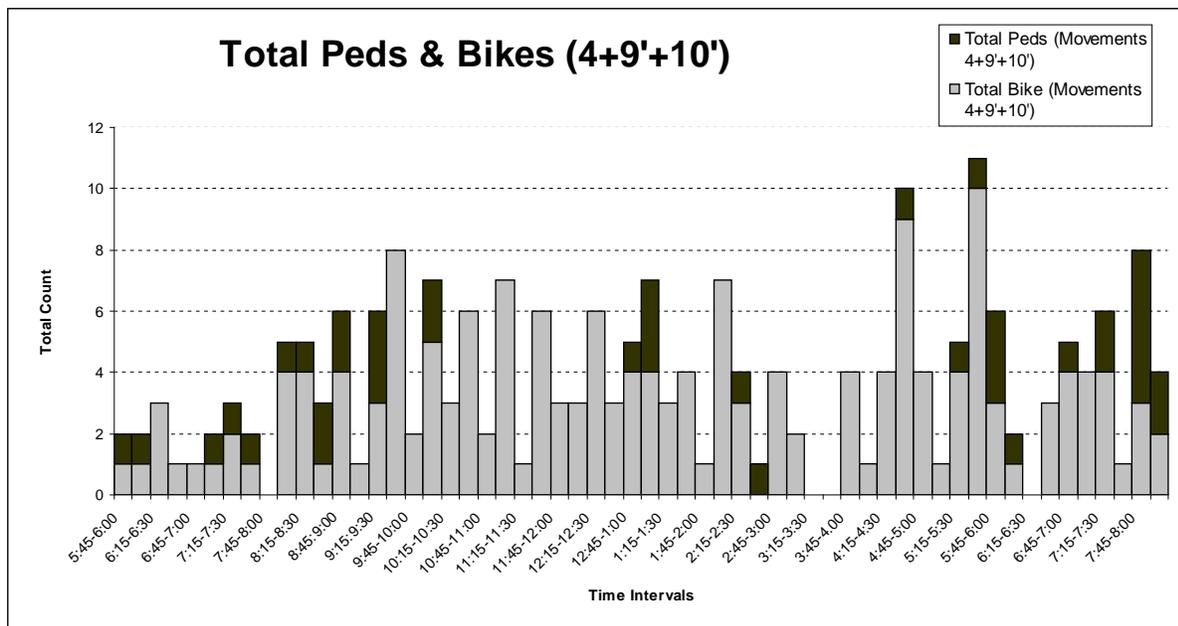


Figure 41: Direct movement across Hwy 100 from West to East=4+9'+10'

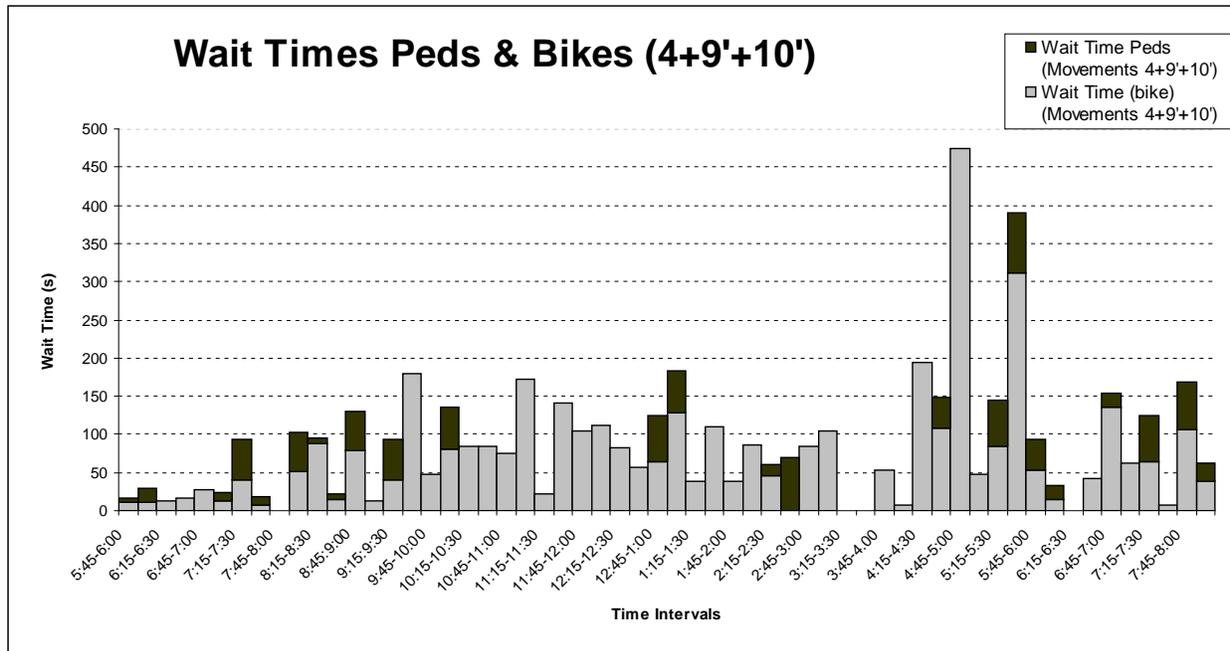


Figure 42: Wait times for Direct movement across Hwy 100 from West to East=4+9'+10'

8. Waupaca

TRAIL NAME: n/a

DATE: 9/16/05 (Friday)

LOCATION: Bike trail near the intersection of 10E and 22S

WEATHER: Clear skies.

TEMPERATURE: 79 degrees

DATA COLLECTION TIME: 5:45 AM to 6:00 PM

The total number of trail users observed was 133, including 43 bicyclists and 90 pedestrians.

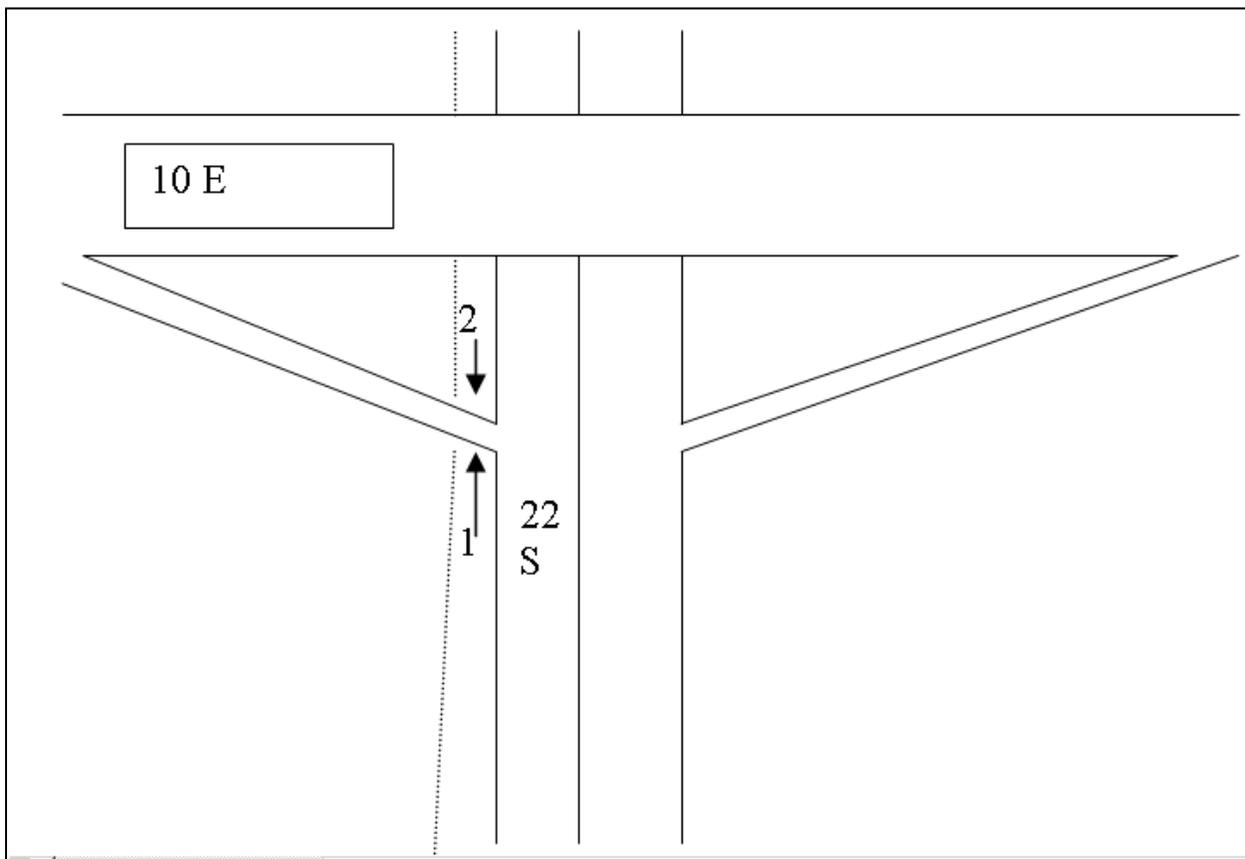


Figure 43. Movement Code

Table 22. Count Summary

Time	Bicyclist	Pedestrian	Age	Direction	Dir 1 Bicyclists	Direction 1 Peds	Dir 2 Bicyclists	Direction 2 Peds
6:15 AM	1		2	1	1	0		
6:38 AM		2	2	1	0	2		
8:00 AM		2	2	2			0	2
9:19 AM		1	T	2			0	1
9:56 AM		1	T	2			0	1
10:15 AM		1	T	2			0	1
10:46 AM	1		2	2			1	0
10:58 AM	1		3	2			1	0
11:09 AM	2		2	1	2	0		
11:19 AM	1		3	2			1	0
12:10 PM	2		2	2			2	0
12:26 PM	1		2	2			1	0
12:46 PM	1		2	1	1	0		
12:55 PM	1		2	2			1	0
12:57 PM	2		3	2			2	0
1:05 PM	1		2	2			1	0
1:20 PM	2		2	1	2	0		
1:42 PM	1		2	1	1	0		
2:00 PM	1		2	2			1	0
2:18 PM	1		2	2			1	0
2:30 PM	1		2	2			1	0
2:45 PM	1		2	1	1	0		
2:58 PM	1		3	2			1	0
2:58 PM	1		3	1	1	0		
3:24 PM		1	2	1	0	1		
3:31 PM	2		T	1	2	0		
3:37 PM		1	2	1	0	1		
3:50 PM	1		T	1	1	0		
3:54 PM	1		T	2			1	0
3:58 PM	1		2	2			1	0
4:01 PM		37	T	1	0	37		
4:05 PM	4		T	1	4	0		
4:05 PM	2		T	2			2	0
4:13 PM		1	2	2			0	1
4:23 PM		1	2	2			0	1
4:26 PM	2		2	2			2	0
4:32 PM	1		2	1	1	0		
4:37 PM		1	2	2			0	1
4:37 PM		1	2	1	0	1		
4:42 PM	1		2	2			1	0
4:45 PM		37	T	2			0	37
4:59 PM	1		2	1	1	0		
5:10 PM		1	T	1	0	1		
5:37 PM	1		2	2			1	0
5:40 PM		1	2	2			0	1
5:43 PM		1	C	1	0	1		
5:45 PM	1		2	1	1	0		
5:53 PM	2		T	1	2	0		
Total	43	90			21	44	22	46

Table 23. Demographic and User Type Information

User Categories		Age			
Bicyclists	Pedestrians	Child	Teenager	20-50	>50
		C	T	2	3
43	90	1	90	36	6

CHAPTER 3

OBSERVATIONS AND CONCLUSIONS

The following trends were observed:

- The Southwest Trail (1) exhibited distinct AM and PM peaks with the AM peak occurring primarily in the west to east direction and the PM peak occurring in the east to west direction.
- Highway 19 paved shoulders (2) and the Highway 151 trail (3) were low usage compared to the other selected trails (Less than 50 trail users throughout the day).
- Tuesday study for the Capital City Trail (4) exhibited a distinct PM peak and a marginal AM peak. Saturday usage was high (over 10 users every 15 minutes) from noon through early evening.
- Springbrook Trail (5) exhibited relatively high usage from morning to evening. This was a Saturday study.
- Plank Trail (6) study, which was distributed between a Friday (1:15 PM to 8:15 PM) and a Saturday (5:30 AM to 1:15 PM) exhibited different degrees of usage at different study locations (counting was done at 3 sites in this trail). Overall, the maximum usage occurred at the intersection with Highway Y near Kohler with a higher usage (over 10 users every 15 minutes) occurring in the evening.
- Oakleaf Trail (7) study was performed on a Friday. This trail exhibited a high usage (over 10 users every 15 minutes) almost throughout the day, with the periods of maximum usage occurring in the evening.
- Usage in the Waupaca Trail (8) was generally low with 49 bicyclists and 90 pedestrians throughout the day. The pedestrian volume was a little higher than expected due to a group of 37 joggers (presumably from the adjacent high school) who were counted twice (first going northbound and later southbound). The site and date for the study were purposely selected to see if this relatively new trail connection to the high school had an impact on trail usage. Summer usage would likely be higher.

The total number of users (usage volumes) for each of the trails and paved shoulders is summarized in Table 24.

Table 24: Total Usage Volume Summary

Bicycle/Pedestrian Studies					
S. No	City	Trail Name	Location	Usage Volume	Date
1	Madison	Southwest Trail	Crazy Legs Drive	1,130	8/29/03 (Friday), 9/2/03 (Tuesday)
2	Wausaukee	<i>Paved Shoulders</i>	Highway 19	44	8/21/04 (Saturday)
3	Dodgeville	Unnamed Trail	Hwy 151	26	7/8/2004 (Thursday)
4	Madison	Cap City Trail	Fish Hatchery Road	441 (Tue) 745 (Sat)	6/29/04 (Tuesday)
					8/14/04 (Saturday)
5	Janesville	Springbrook Trail	Riverside St	513	9/18/04 (Saturday)
6	Sheboygan	Plank Trail			8/27/04 (Friday)
			Highway Y near Kohler	208	
			Highway 57	73	
			County Highway S	46	
7	Milwaukee	Oakleaf Trail		491	8/5/05 (Friday)
8	Waupaca	Unnamed Trail		133	9/16/05 (Friday)