

- **Operational and Safety Impacts for Bicyclists Using Roadways with On-Street Parking**

- Research performed for
 - The Texas Department of Transportation
 - By
 - Center for Transportation Research,
 - The University of Texas



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Operational and Safety Impacts for Bicyclists Using Roadways with On-Street Parking

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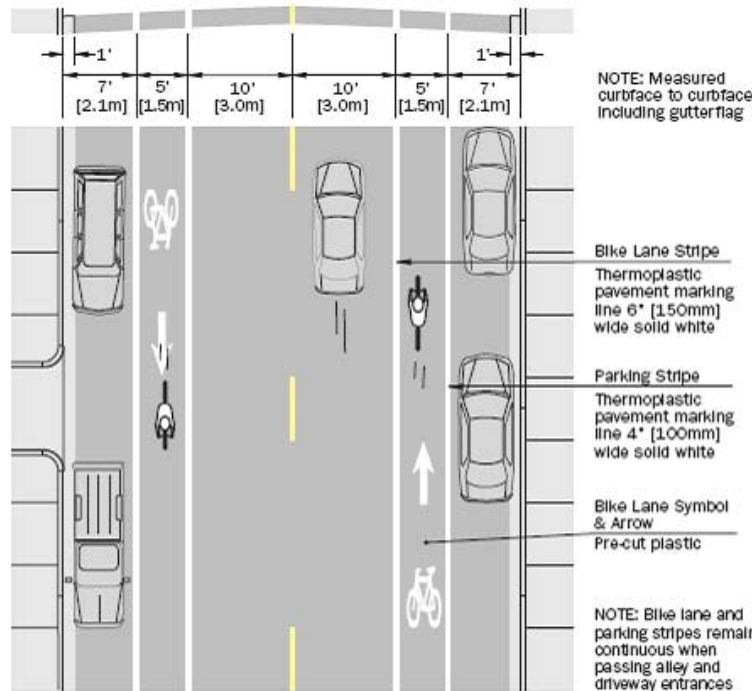
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May 2008



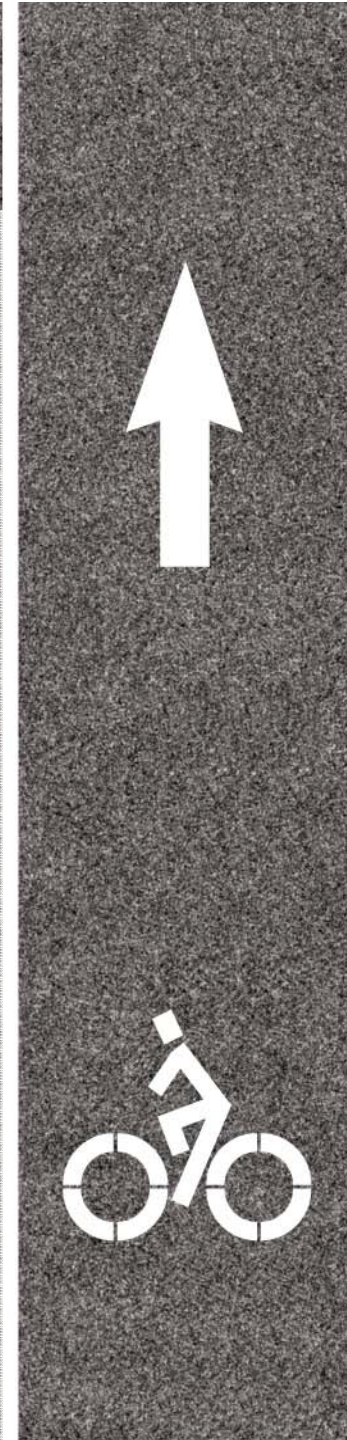
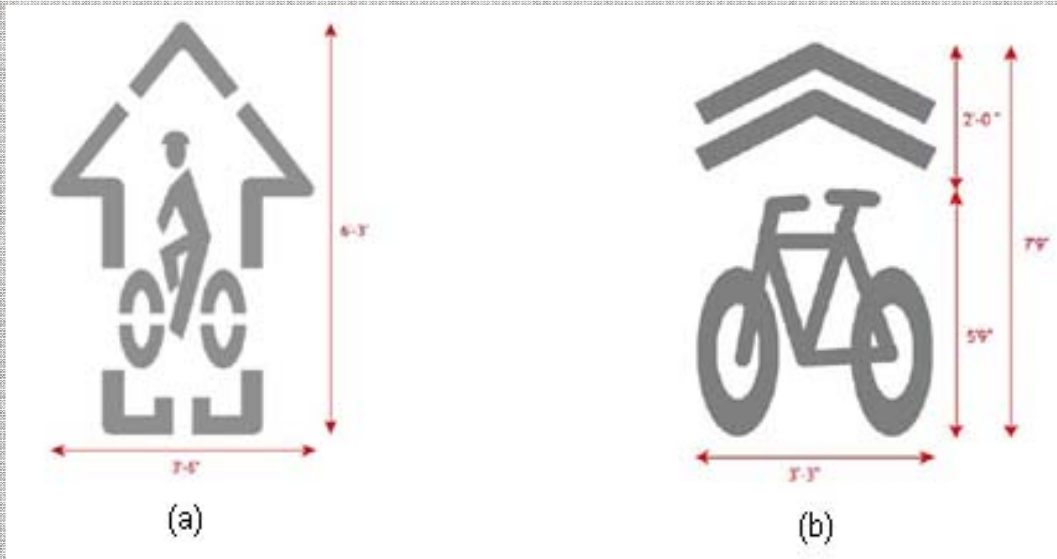
City of Chicago Bicycle Design Guide's Standard Road Striping for a Bike Lane on 44' Wide Street



Note: This example should not be construed as a TxDOT recommended or approved design for roadways with bicycle facilities and on-street parking.



Examples of (a) bike-in-house marking and (b) bike-and-chevron marking



Operational Field Studies

- Twenty-five Sites
 - Austin: 9
 - Houston: 8
 - San Antonio: 8
- Paid Bicycle Riders
 - 29 males, 10 females,
 - ages 19 to 64.
- Video data capture



A passing event with a motorist, bicyclist and parked motor vehicle (passing event)



*Only a bicyclist passing a parked motor vehicle
(non-passing event)*



*Only a motorist passing a parked vehicle
(non-passing event)*



Only the bicyclist 40 ft in front of the parked motor vehicle (non-passing event)



A passing event with a motorist and bicyclist 40 ft in front of the parked motor vehicle (passing event)



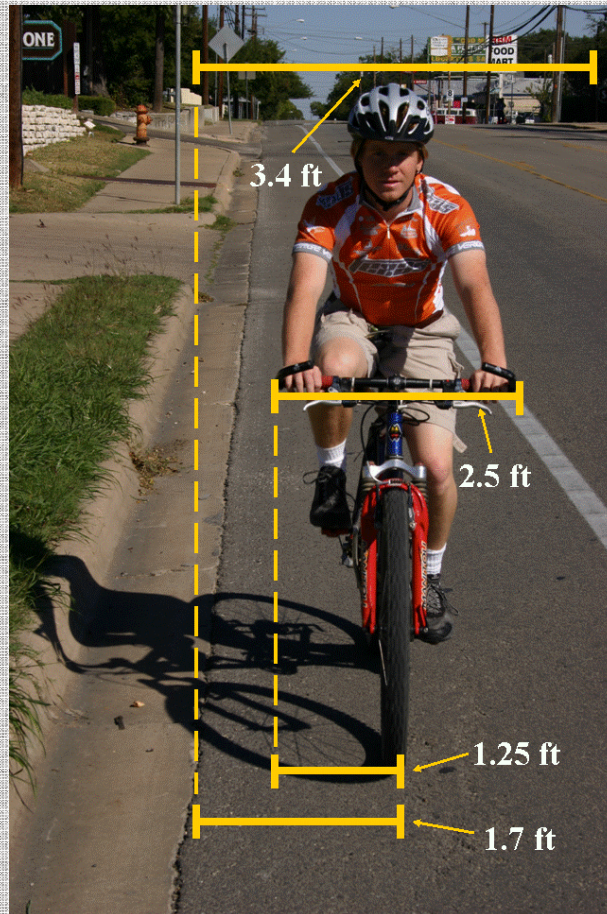
Passing motor vehicle avoids confrontation with bicyclist ("yes" or "no" recorded)



*Bicyclist avoids confrontation with motorist
("yes" or "no" recorded)*

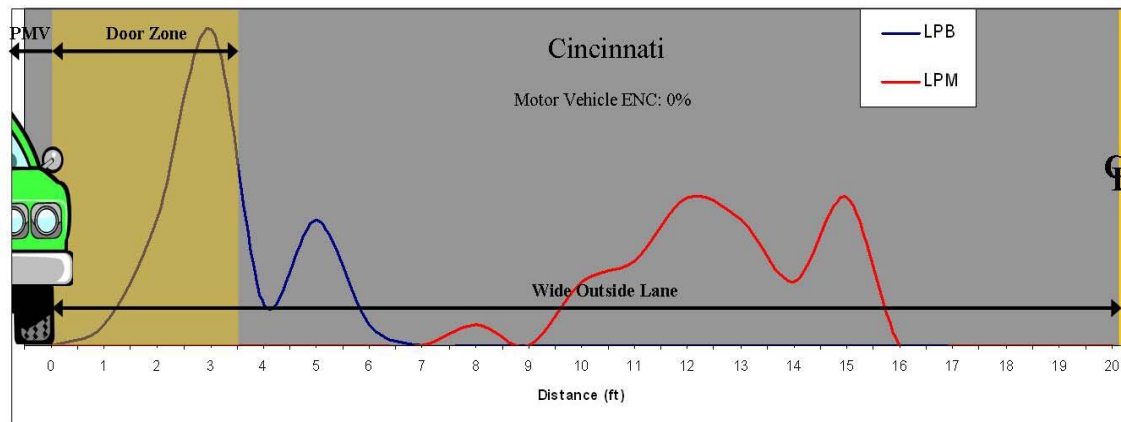
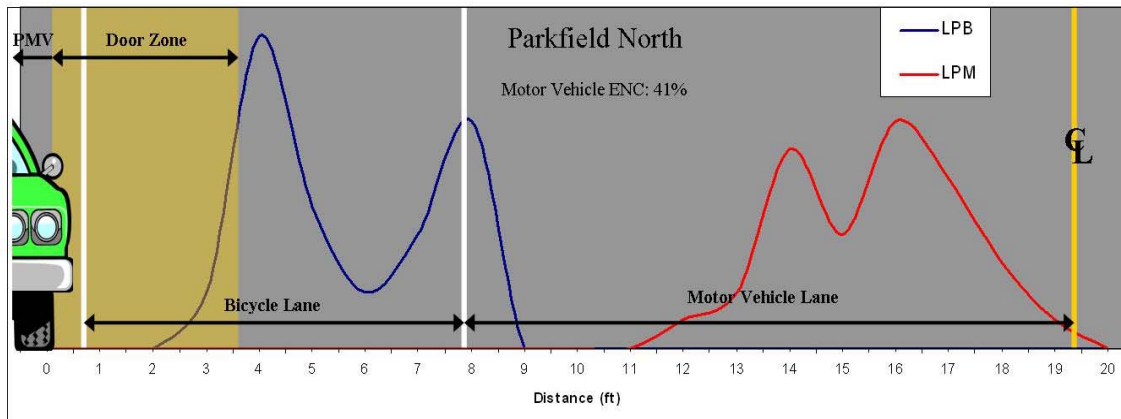


Operating space of a cyclist



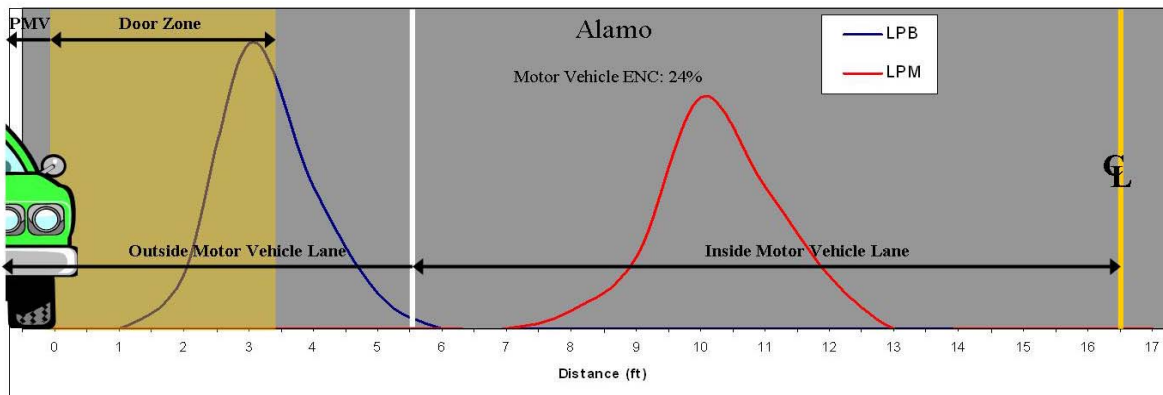
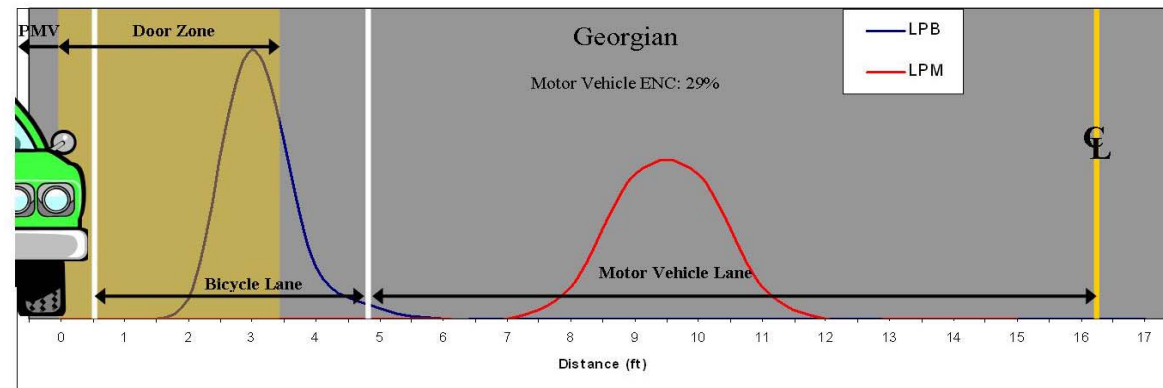
Bike Lane vs. Wide Outside Lane

Bike Lane vs. Wide Outside Lane



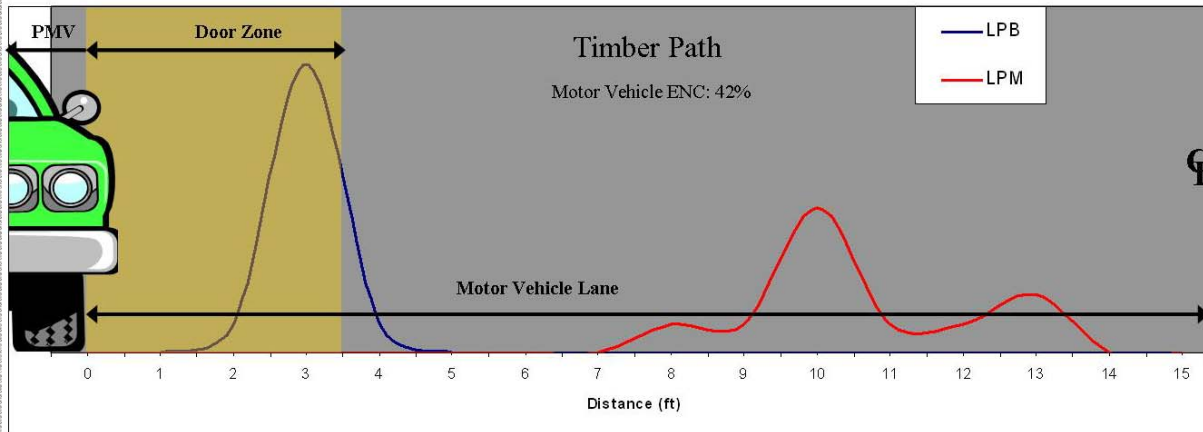
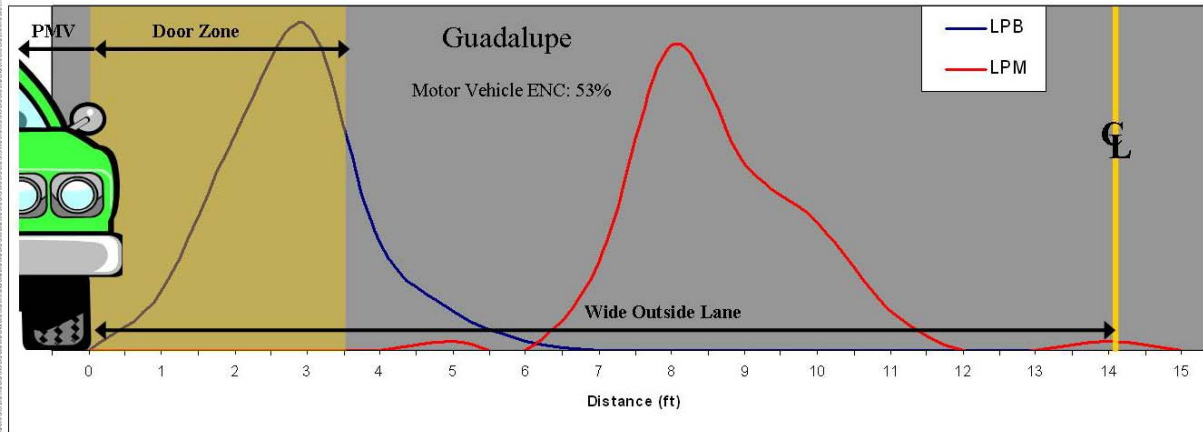
Bicycle Lane vs. Parking in an Outside Lane

Bicycle Lane v. Parking in an Outside Lane



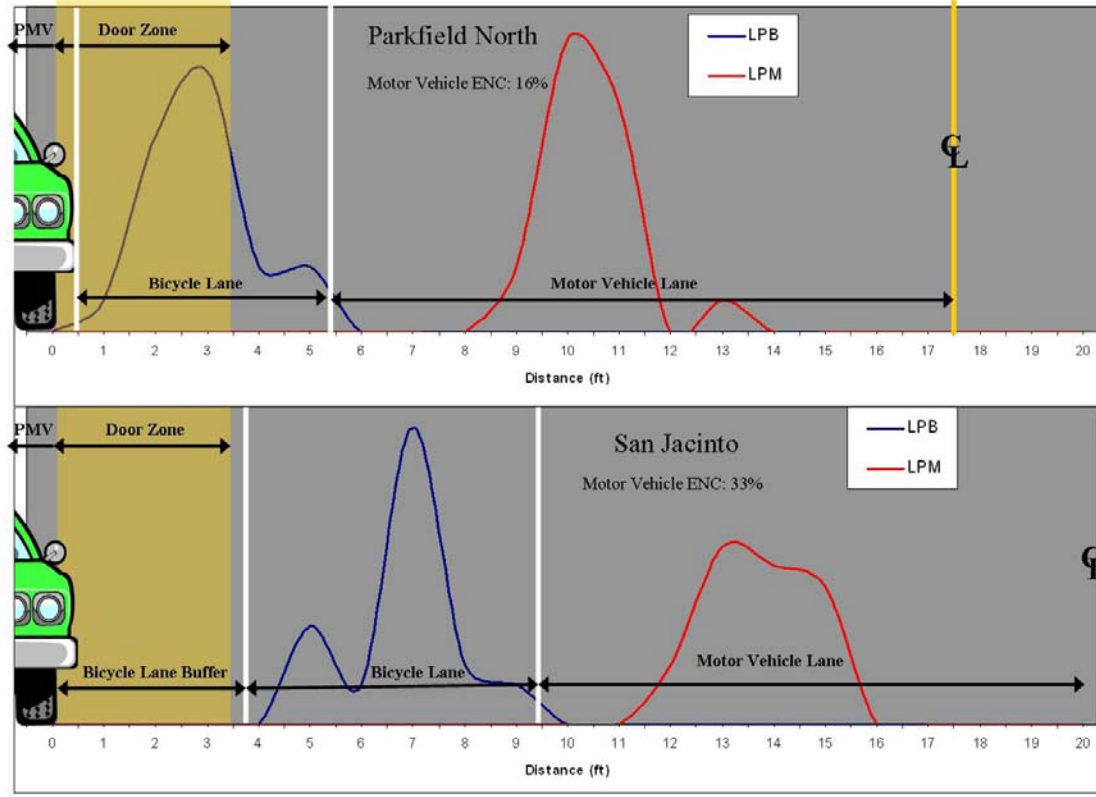
Wide Outside Lane vs. Parking in a Bike Lane

Wide Outside Lane vs. Parking in a Bike Lane



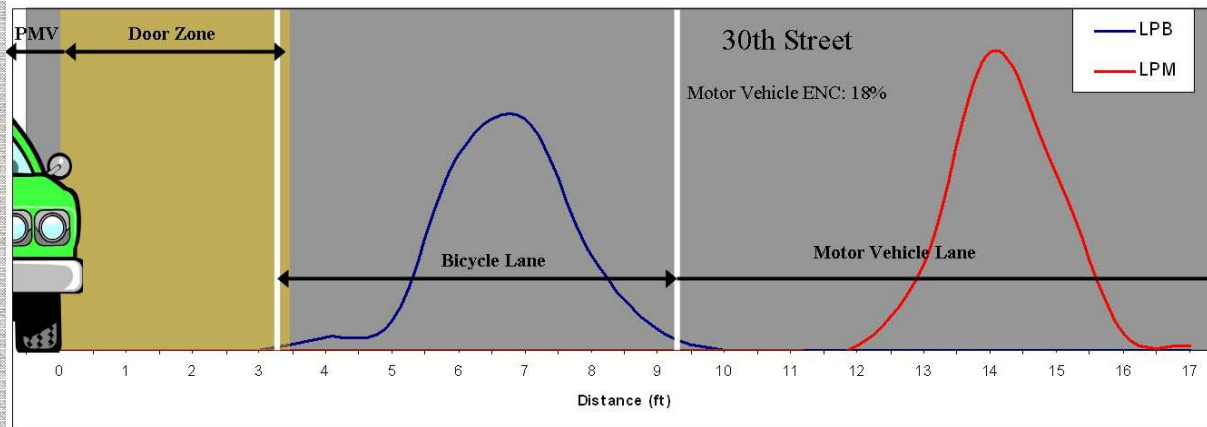
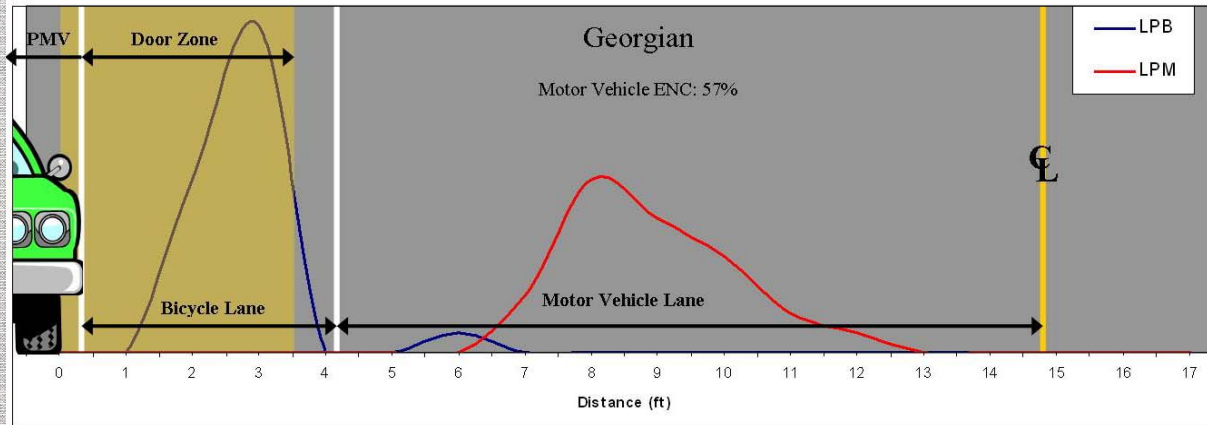
Bike Lane vs. Bike Lane and Buffer

Bike Lane vs. Bike Lane and Buffer (Same Total Lane Width)

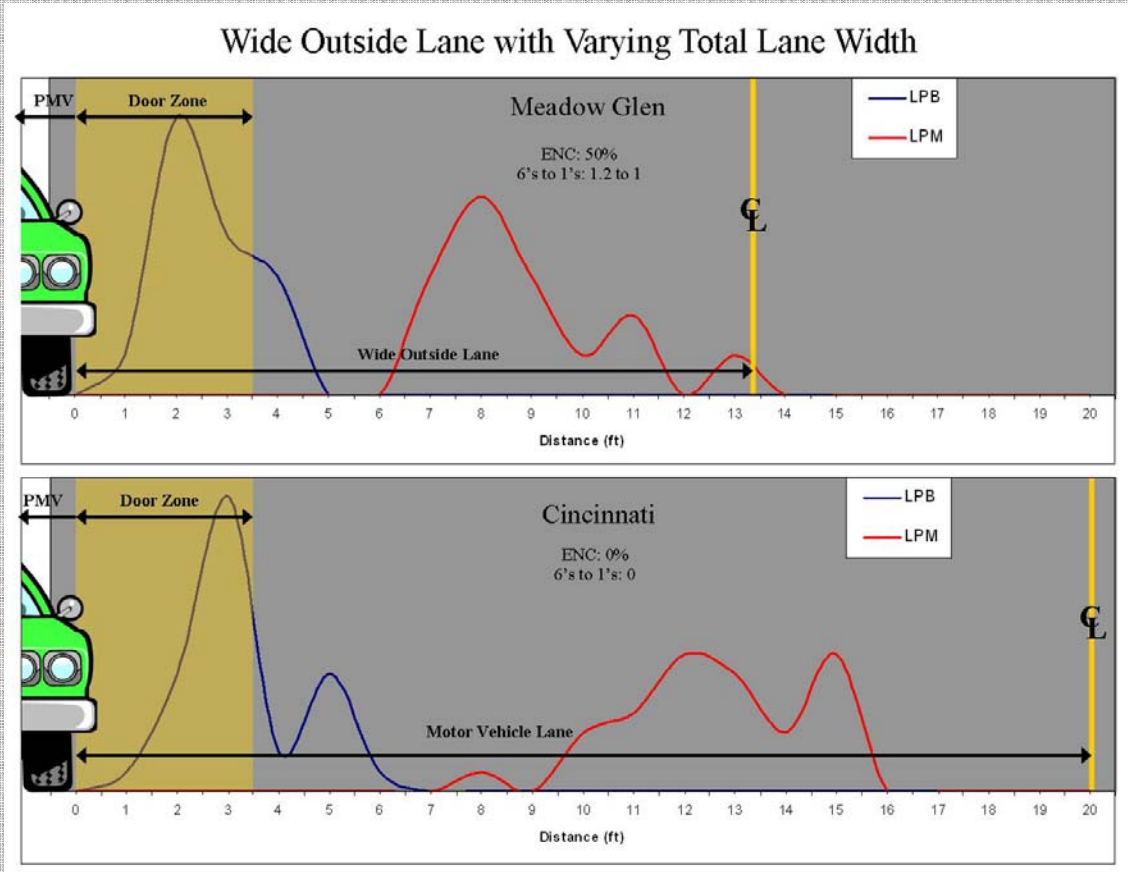


Bike Lane with Varying Total Roadway Width

Bike Lane- Changing Total Roadway Width



Wide Outside Lane with Varying Roadway Width



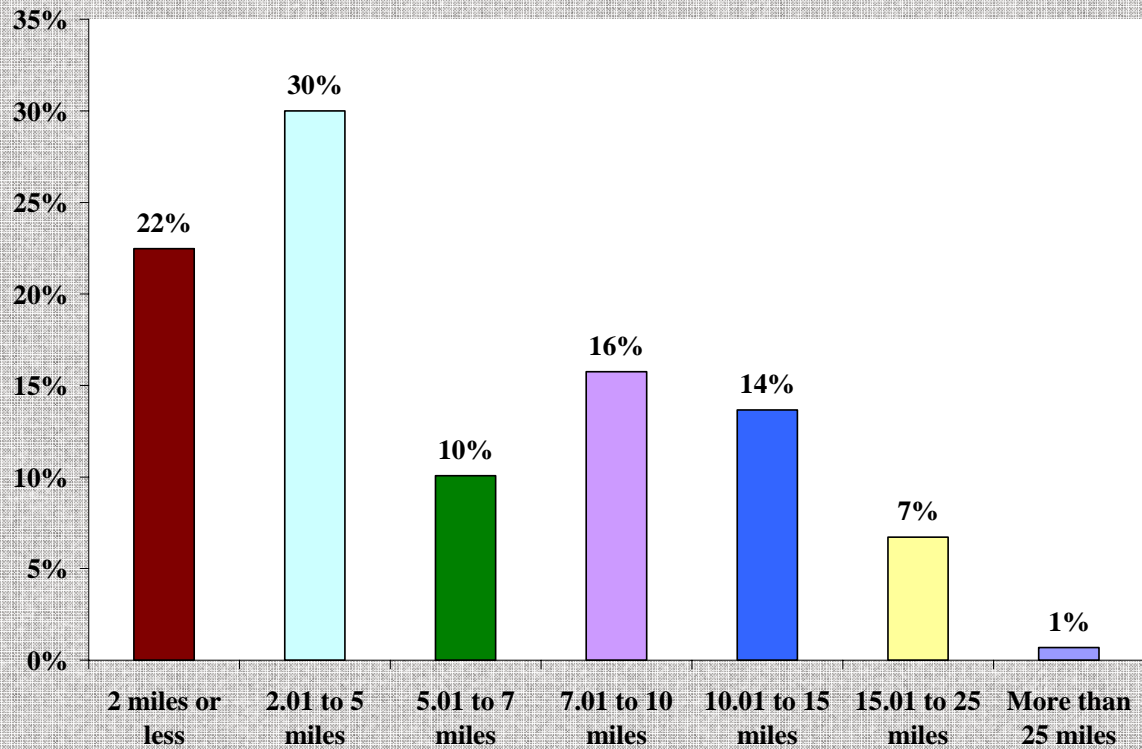
- 1) Motorist and cyclist behavior is significantly different in the presence of on-street parking.
- 2) Operationally, marked bicycle lanes are superior to wide outside lanes (without marking).
- 3) Total roadway width is critical to safety and operations for both cyclists and motorists.
- 4) Where parking is allowed, a bicycle lane with a buffer space is the only way to ensure that cyclists are removed from the door zone of parked vehicles.



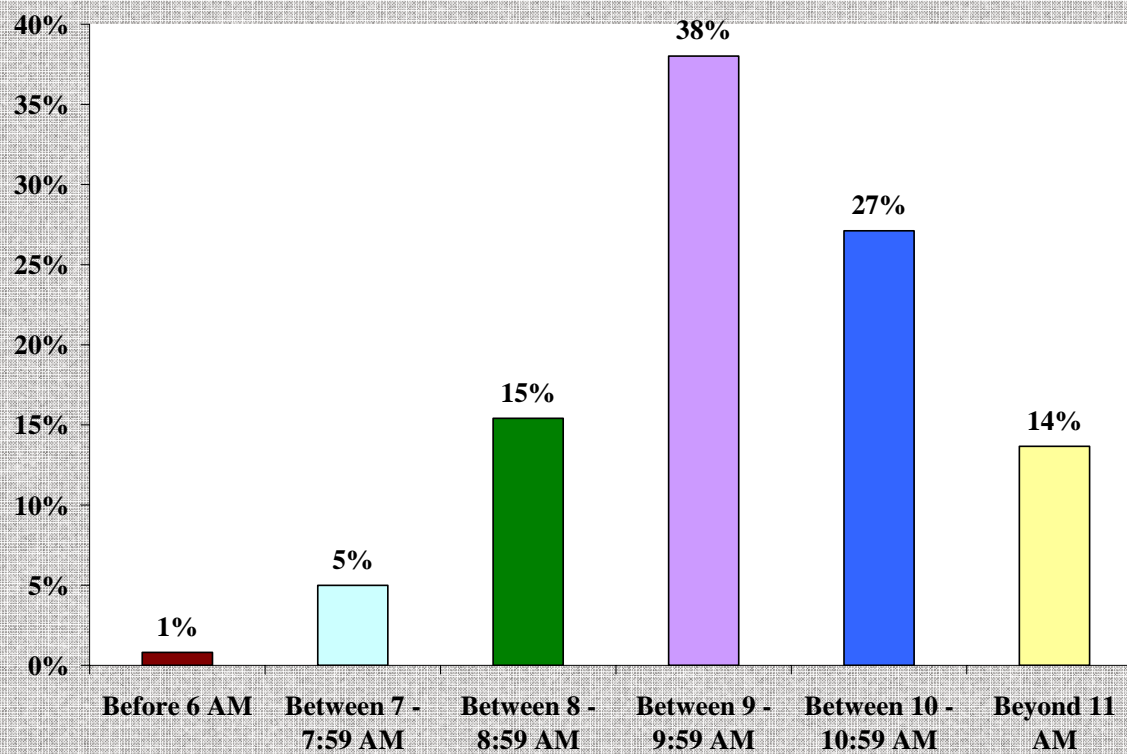
- 5) The new information has been incorporated into a revised edition of the *Texas Guide for Planned and Retrofit Bike Facilities* and associated Excel Workbook.



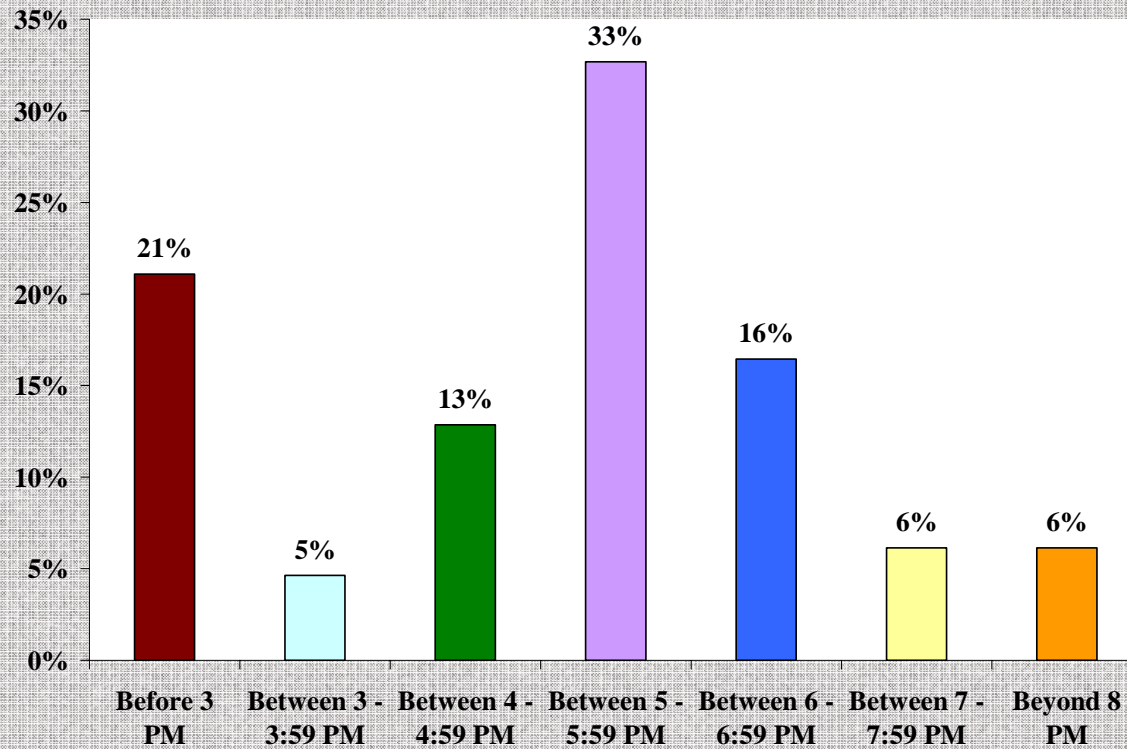
Distribution of Commute Distance for Commuter Bicyclists



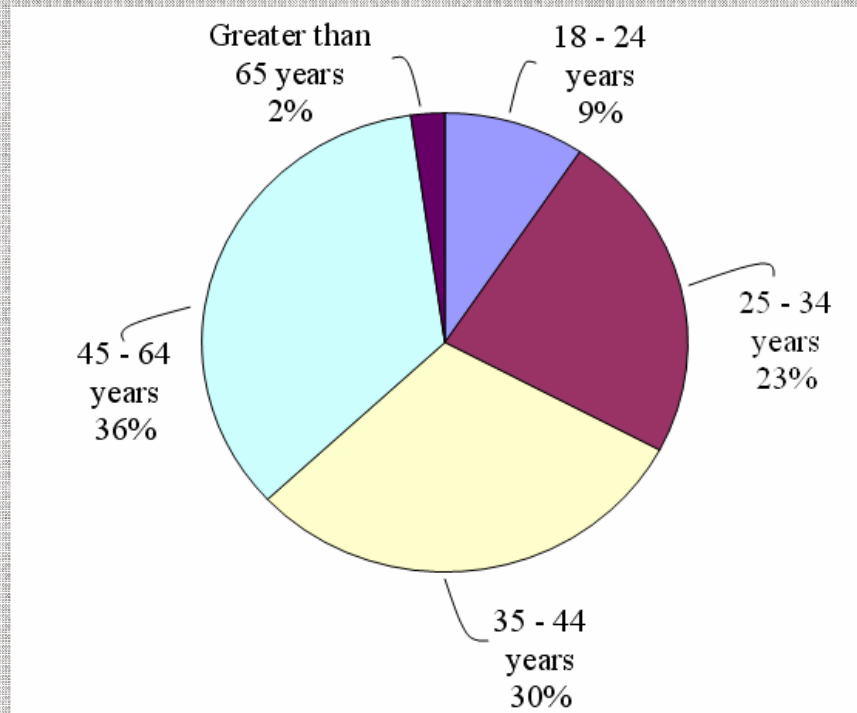
Work Start Time Distribution of Commuter Bicyclists



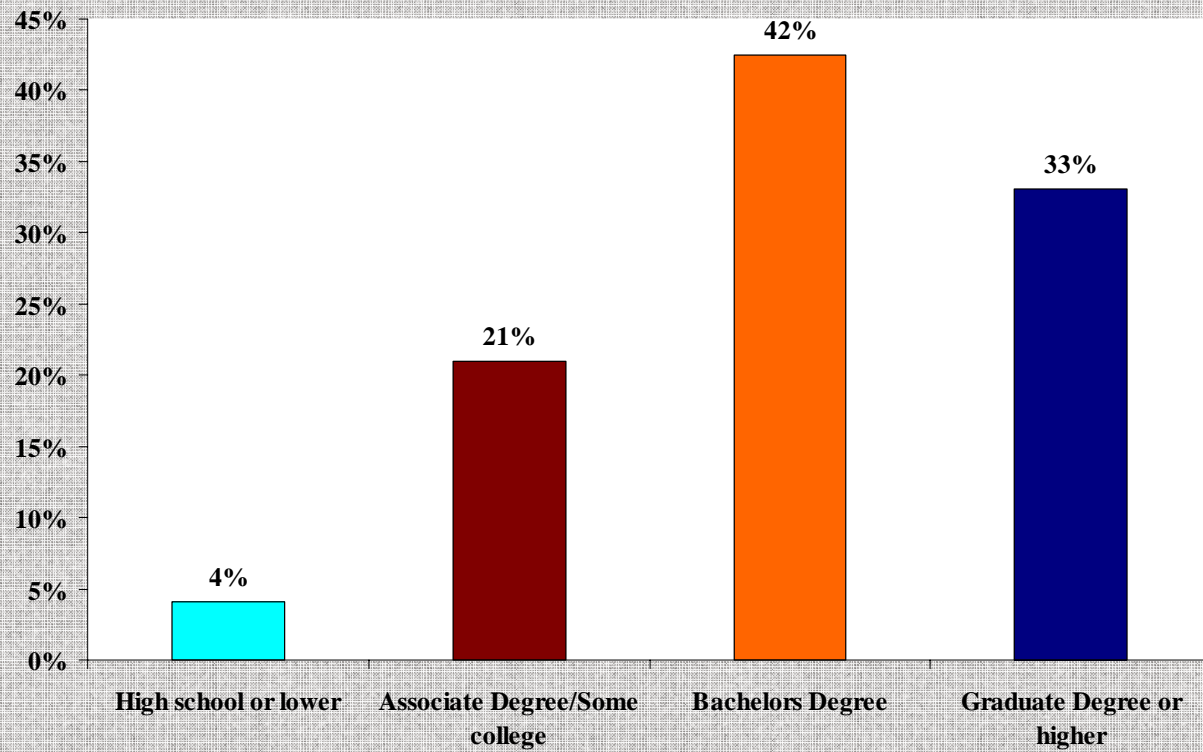
Work End Time Distribution of Commuter Bicyclists



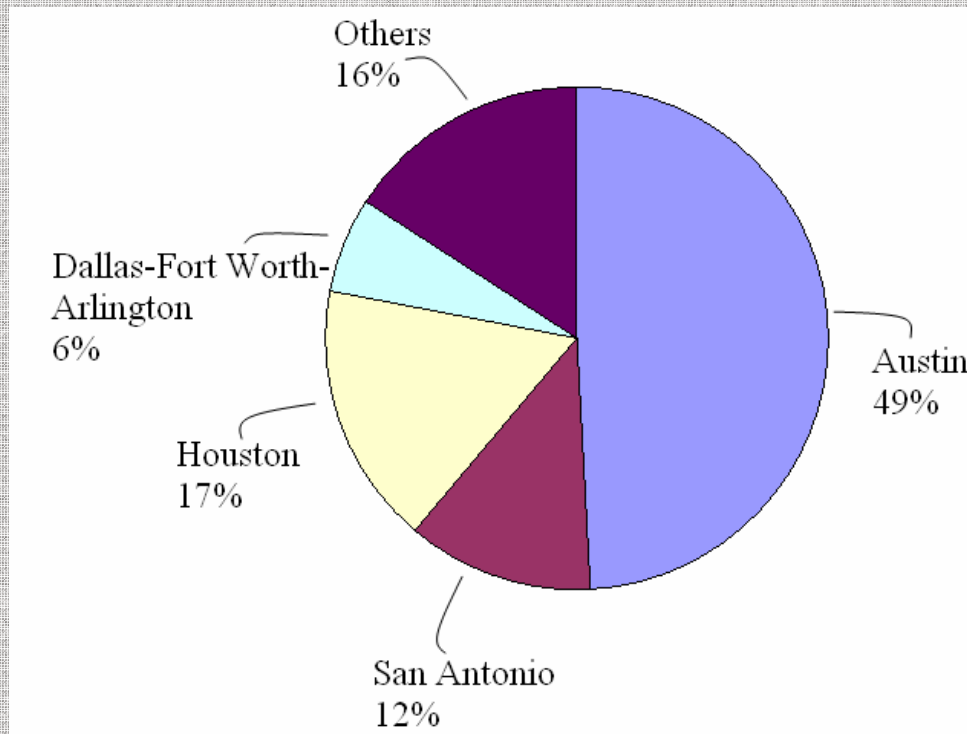
Age Distribution of Respondents



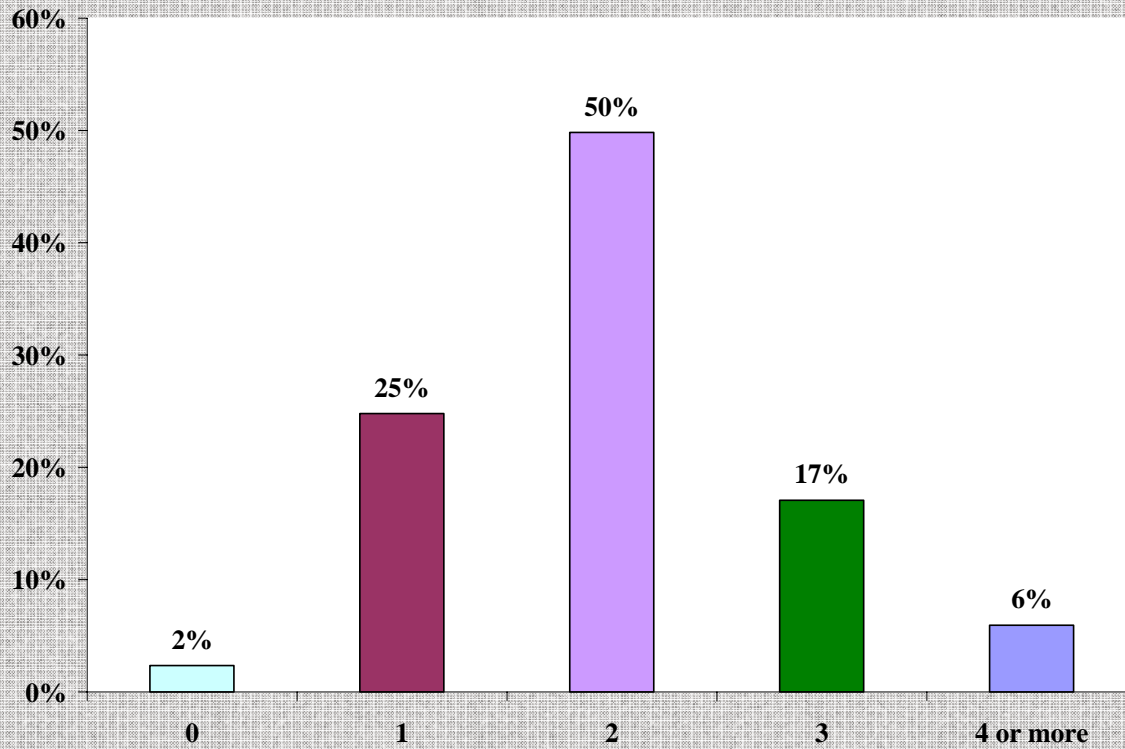
Distribution of Highest Level Education



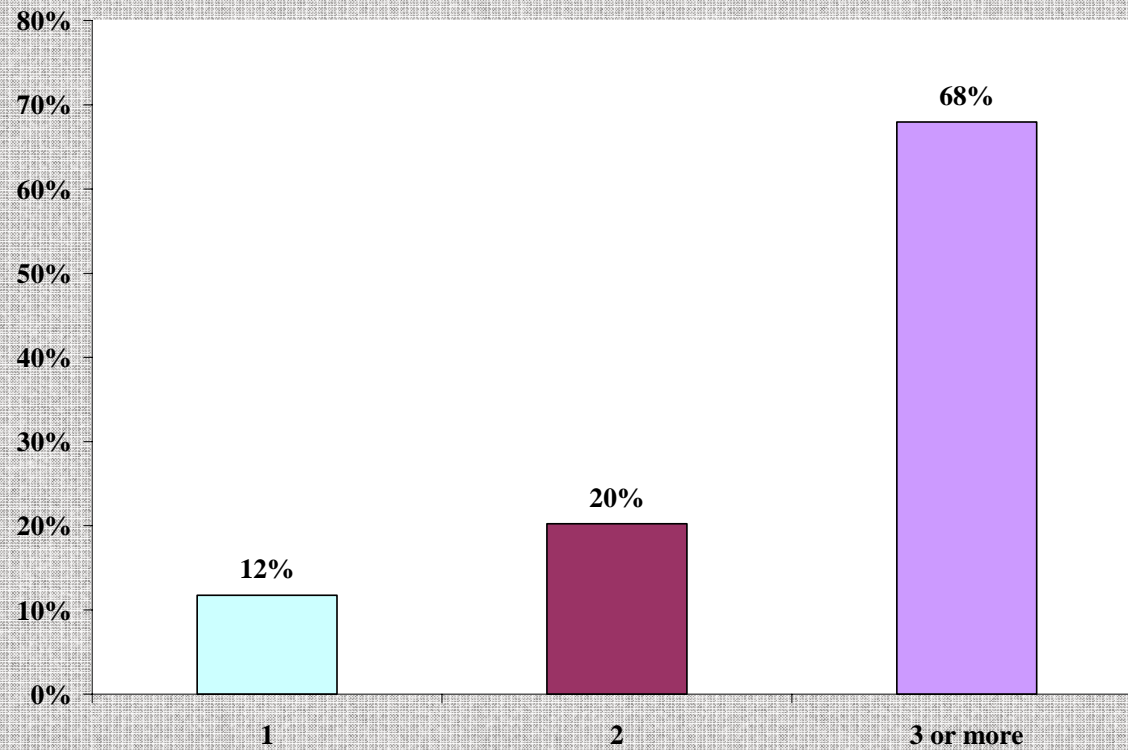
Residential Location of Survey Respondents



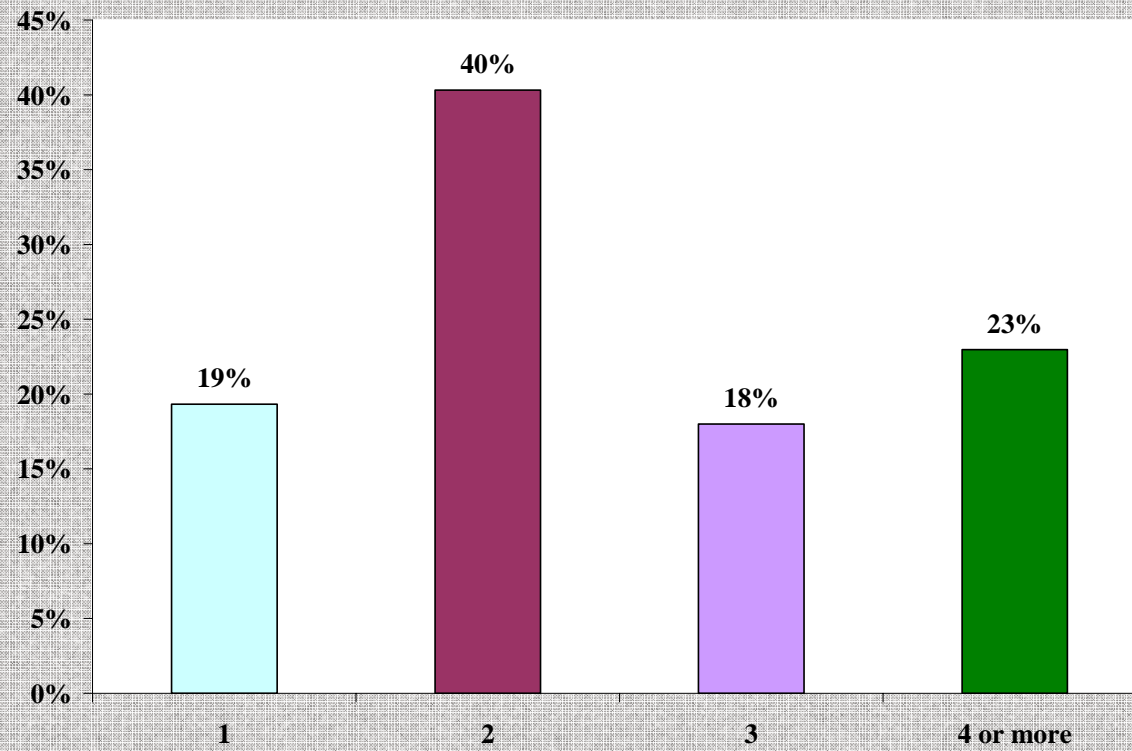
Distribution of Auto Ownership



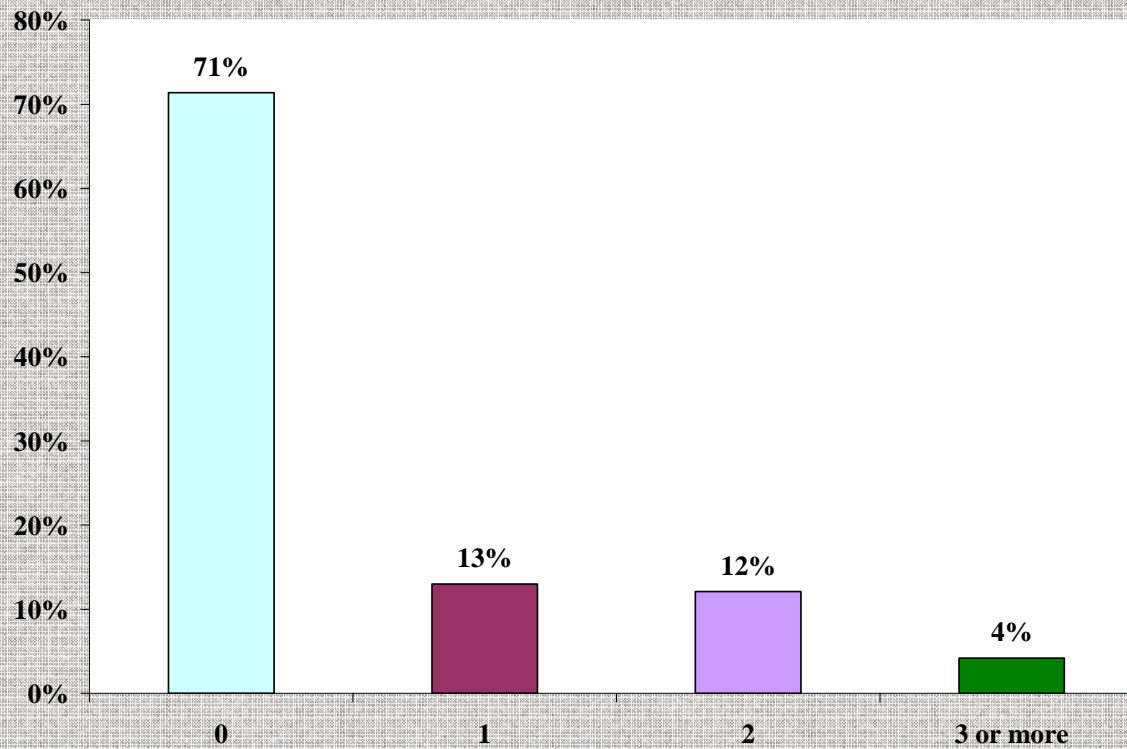
Distribution of Bicycle Ownership



Distribution of Household Size



Distribution of Number of Children in Bicyclists' Households



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