

ENVIRONMENTAL JUSTICE TRAVEL TIME STUDY

In addition to identifying locations of low-income and minority residents, a key element of Title VI compliance in metropolitan transportation planning is due consideration of the transportation needs of the target populations. Access to Public transportation systems for minority and low-income individuals makes the trip to work, shopping, and medical appointments possible. It fosters self-sustainability, promotes independence, and permits spending on other household essentials.

With a few exceptions, travel time using transit is higher than travel time using the automobile. This report investigates this difference to provide a snapshot of the competitiveness of transit as compared to the automobile at one moment in time. The data contained in the appendix of this report and summarized here provides detailed information.

There are many reasons to track the competitiveness of transit. One reason is that competitive transit routes have the potential to decrease the use of the automobile. The detailed information on the competitiveness of transit that is contained within this report will allow the individual needs for each area to be addressed in future planning efforts.

The majority of the low-income and minority population have no other choice but to use public transportation. An American Public Transportation Association (APTA) survey reported less than one-half (45 percent) of those using public transportation also had a vehicle available. The most significant challenge for the Winston-Salem Transit Authority (WSTA) is winning over the largely underserved segment of potential riders who have other means of getting around – known as “choice riders.” Studies have shown that people’s perceptions of the difficulty of taking transit inhibits them from switching modes. The travel time information, which is contained here in this report, can help provide a basis from which to judge a trip’s difficulty to potential transit users.

The Winston-Salem MPO elected to examine the transportation needs of its low-income and minority population by conducting an Environmental Justice (EJ) Travel Time Study.

Purpose(s):

1. To identify a time threshold for auto travel and transit travel.
2. To identify routes where transit service is not competitive to taking the car.

Methodology

To understand the competitiveness of transit service in comparison to the automobile, travel times of both modes were measured between two Walmart’s and the Wake Forest Medical Center. Employment, retail, and medical centers are excellent trip generators, making the selection of Walmart and the Wake Forest Medical Center logical choices.

Transit travel times were then compared to the time it would take to reach the same destination at the same time of day by car. Transit and auto travel trips were measured at the times of day listed below. For the AM and PM peak, traffic congestion was factored into the auto travel times:

- Morning peak (7:20 AM-9:00 AM)
- Midday peak (11:00 AM-1:20 PM)
- Evening peak (4:00 PM-6:30 PM)

The comparison of travel time by transit to travel time by auto was calculated in the form of a ratio by dividing transit travel time by auto travel time, which is referenced in this section as the “Transit/Auto Ratio”. Ratios greater than 1.0 reflect transit travel times that exceed auto travel times.

For trips by transit, travel time includes any necessary walking and waiting time from the time the transit rider begins the trip to the time the destination is reached. Trips begin at times independent of the time of inquiry. When a bus does not serve a local destination within an hour of the time of inquiry, and a walking route is available, the trip begins or ends with a walk trip. As a general rule of thumb, Transit / Auto Ratios times of 2.0 or above for trips by transit are considered not competitive to trips by auto. A complete record of travel times can be found in the Appendix.

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Procedures

Before conducting the study, the study area was defined by selecting the control points. The control points selected were the Hanes Mill Rd Walmart, the Wake Forest Baptist Medical Center, and the Parkway Village Ct Walmart. The points were selected based on the fact that they reside in minority and low-income populated zones (Minority population greater than or equal to 36.9% and Low income population greater than or equal to 12.9%) according to 2010 Census and 2009-2013 American Community Survey information.

Control Path: Hanes Mill Rd Walmart to Wake Forest Baptist Medical Center to Parkway Village Ct Walmart. Three time periods were selected, a Morning peak (7:20 AM-9:00 AM), Midday peak (11:00 AM-1:20 PM), and an Evening peak (4:00 PM-6:30 PM). Data was collected on Thursday, March 12, 2015 and Friday, March 13, 2015.

Walmart
Oak Summit, 320 E Hanes Mill Rd
Winston-Salem, NC 27105

Wake Forest Baptist Medical Center
1 Medical Center Blvd
Winston-Salem, NC 27103
(Intersection of South Hawthorne Rd and Queen St.)

Walmart
3475 Parkway Village Ct
Winston-Salem, NC 27127

The study was conducted during reasonably good weather so that unusual conditions did not influence the study. On Thursday, March 12, 2015 the high temperature was 66 degrees with sunny conditions and on Friday, March 13, 2015 the high temperature was 52 degrees with cloudy conditions. Also, since crashes or other unusual delays will produce erroneous results, it should be noted that the study was conducted without any such occurrences.

Travel Time Study Field Data (Automobile)

City: Winston-Salem
County: Forsyth County
Date: Thursday, March 12, 2015 and Friday, March 13, 2015
Weather: Thursday, March 12, 2015 the high temperature was 66 degrees with sunny conditions Friday, March 13, 2015 the high temperature was 52 degrees with cloudy conditions
Observer: Fredrick Haith (Transportation Engineer)
Control Points: Hanes Mill Rd Walmart, the Wake Forest Baptist Medical Center, and the Parkway Village Ct Walmart
Total Trip Length: 13.5 miles

Travel Time Study Field Data (Automobile)

City: Winston-Salem
County: Forsyth County
Date: Thursday, March 12, 2015 and Friday, March 13, 2015
Weather: Thursday, March 12, 2015 the high temperature was 66 degrees with sunny conditions Friday, March 13, 2015 the high temperature was 52 degrees with cloudy conditions
Observer: Chad Aldridge (Engineering Technician)
Control Points: Hanes Mill Rd Walmart, the Wake Forest Baptist Medical Center and the Parkway Village Ct Walmart
Total Trip Length: 18 miles

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Oak Summit Walmart to the Wake Forest Baptist Medical Center

Date	Period	Mode	Time	Ratio
3/12/2015	Morning	Transit	46min	2.09
3/12/2015	Morning	Automobile	22min	
3/13/2015	Morning	Transit	52min	3.06
3/13/2015	Morning	Automobile	17min	
3/12/2015	Midday	Transit	46min	2.42
3/12/2015	Midday	Automobile	19min	
3/13/2015	Midday	Transit	49min	3.06
3/13/2015	Midday	Automobile	16min	
3/12/2015	Evening	Transit	48min	2.18
3/12/2015	Evening	Automobile	22min	
3/13/2015	Evening	Transit	45min	2.05
3/13/2015	Evening	Automobile	22min	

Wake Forest Baptist Medical Center to the Parkway Village Walmart

Date	Period	Mode	Time	Ratio
3/12/2015	Morning	Transit	134min	10.31
3/12/2015	Morning	Automobile	13min	
3/13/2015	Morning	Transit	72min	7.2
3/13/2015	Morning	Automobile	10min	
3/12/2015	Midday	Transit	88min	8
3/12/2015	Midday	Automobile	11min	
3/13/2015	Midday	Transit	94min	9.4
3/13/2015	Midday	Automobile	10min	
3/12/2015	Evening	Transit	86min	9.55
3/12/2015	Evening	Automobile	9min	
3/13/2015	Evening	Transit	84min	6.46
3/13/2015	Evening	Automobile	13min	

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Conclusion

The Transit/Auto travel time analysis provides a number of insights. The difference in transit /auto ratios between regional and local trips suggests that indirect routing, transfer delays due to infrequent service and congestion on local streets, causes local transit routes to be less competitive with auto travel than regional routes. The transit trips from the Oak Summit Walmart to the Wake Forest Baptist Medical Center; and the Wake Forest Baptist Medical Center to the Parkway Village Walmart were not competitive with auto travel time. The Transit / Auto Ratio for the Oak Summit Walmart to the Wake Forest Baptist Medical Center trip ranged from 2.05 to 3.06. The Transit / Auto Ratio for the Wake Forest Baptist Medical Center to the Parkway Village Walmart trip ranged from 6.46 to 10.31. Direct routing, frequent service, and improved transfer options to the WSTA transit system would all contribute to making transit a viable competitor to the automobile. This initial Environmental Justice Travel Time Study focused on the hospital as a prime destination for both emergency and health care services for MLI populations as well as a major employer of low skilled workers with regular transit service. Likewise, the Walmarts provide affordable, full service shopping opportunities and entry level employment with regular transit service. Follow-up studies will investigate the travel times from minority and low-income neighborhoods to these destinations as well as other community services and high volume destinations.

Moving forward, it is the responsibility of the WSTA and the Winston-Salem Department of Transportation to improve public transportation for low-income and minority individuals by providing: greater transit access to employment centers, shopping and other services; more responsive reverse commute transit service from low-income neighborhoods to employment centers; easily accessible and user-friendly transit facilities and better transit connections to reduce commute times.

The bottom line, though, is that when it comes down to how low-income and minority people travel, they'll choose the most convenient, affordable option available, whether it means waiting on public transit or sitting in traffic.