

# **NEW JERSEY WIC SERVICES EFFICIENCY AND EFFECTIVENESS STUDY**

## **WIC Public Transportation Analysis Report**

PREPARED FOR

THE STATE OF NEW JERSEY

DEPARTMENT OF HEALTH AND SENIOR SERVICES (DHSS)

DIVISION OF FAMILY HEALTH SERVICES/

SUPPLEMENTAL NUTRITION PROGRAM FOR WOMEN, INFANTS, AND CHILDREN (WIC)

BY

LUCAS J. MARXEN, M.C.R.P., RESEARCH ANALYST

THE FOOD POLICY INSTITUTE, RUTGERS,

THE STATE UNIVERSITY OF NEW JERSEY

UNDER THE MEMORANDUM OF AGREEMENT

“EFFICIENCY, EFFECTIVENESS AND BIRTH OUTCOME EVALUATION IN THE NEW JERSEY SPECIAL SUPPLEMENTAL  
NUTRITION PROGRAM FOR WOMEN, INFANTS, AND CHILDREN (NJ-WIC)”

MARCH 2008

**For more information about this report, please contact:**

William K. Hallman, Ph.D.

Director

Food Policy Institute

New Jersey Agricultural Experiment Station

ASB III, 3 Rutgers Plaza

New Brunswick, NJ 08901

Telephone: 732-932-1966 x3103

Fax: 732-932-9544

hallman@rci.rutgers.edu

Jean C. Malloy

Acting Director

New Jersey WIC Services

50 East State Street

PO Box 364

Trenton, NJ 08625-0364

Telephone: 609-292-9560

Jean.Malloy@doh.state.nj.us

## TABLE OF CONTENTS

Introduction.....	1
Methods .....	1
Results for WIC Sites Visited.....	1
Bus Transportation.....	1
Rail Transportation.....	4
Potential Use of Bus and Rail Transportation by WIC Participants .....	6
Conclusions and Future Research.....	6

## INTRODUCTION

An issue to consider when determining a location for a WIC site is the mode of transportation primarily used by participants to reach that site to receive services. Given the income limitations of participants, the proximity of sites to public transportation may be a factor in determining the mode of transportation used by participants. The following analysis will investigate whether or not a correlation exists between a sites proximity to public transportation and the use of those modes by participants.

## METHODS

Data on the transportation mode used by participants was collected during site visits between May and August 2007. Rutgers research teams conducted 97 site visits among 49 sites. During site visits, the mode of transportation used and estimated travel time were recorded for participant households that received services on those days. To maximize the number of observations collected, site visits were scheduled on days primarily devoted to newborn and prenatal certifications.

A listing of current sites was provided by NJ-WIC. Sites were geographically mapped (“geocoded”) using ESRI ArcGIS software and StreetMaps USA 2006 data files. Bus stop and railroad station locations were provided by New Jersey Transit and were current as of October 2007. Due to most participants traveling to local sites for WIC services, only bus stops and light rail stations were used in the analysis as opposed to commuter rail which primarily services travel between cities. Road distances from bus stops and light rail stations were calculated using ArcGIS Network Analysis Toolkit and performing a “Service Area” analysis. Distances of .25 and .5 mile intervals were used based on a NJ Transit planning handbook designed to assist communities in planning around mass transit facilities.<sup>1</sup>

Existing WIC participants were geocoded based on addresses provided by NJ-WIC for the period January 1, 2006 to June 30, 2006. Addresses were matched with an 85% accuracy resulting in 85,363 households mapped. Potential WIC participants were mapping by census tract using 2000 U.S. Census data for the number of families under 185% of the poverty level with children under the age of 5. The number of potential WIC participants at different distance intervals of bus stops and light rail stations were estimated by applying the percent of the census tract within the given interval to the number of potential families in the tract.

## RESULTS FOR WIC SITES VISITED

### BUS TRANSPORTATION

Out of the 49 sites visited by research teams, 38 sites (78%) were within .25 miles of a NJ Transit bus stop. The results in Table 1 show that 28 out of the 38 (74%) sites within .25 miles of a NJ Transit Bus Stop reported households that used bus transportation to access the site during the days of the site visits. Given the low cost of bus transportation relative to other modes, this result is not surprising due to the income constraints of WIC participants. The highest rate of bus use by participants was reported for sites in urban centers such as Newark, Trenton, Camden, the city of Orange, and Atlantic City. Those sites with lower proportions of participants using

---

<sup>1</sup> Skidmore, Owings, & Merrill, Lehr & Associates et al. 1994. *Planning for Transit-Friendly Land Use: A handbook for New Jersey Communities*. Federal Transit Administration. Washington, DC.

bus transportation are primarily in more rural or suburban parts of the state where bus routes are more likely to serve commuters than local residents. Those sites with lower proportions of participants using bus transportation in urban areas are most likely the result of sites being within close walking distance of residential areas such as those located in community centers or mobile van sites.

**Table 1: WIC Sites within .25 Miles of Bus Stop**

Program	Site Code	Name	City	Households Observed	Households Using Bus	Percent of Households Using Bus
Atlantic WIC Program	010101	Family Life Center	Egg Harbor City	15	0	0.00%
Atlantic WIC Program	010404	Pleasantville Family Center	Pleasantville	43	3	6.98%
Atlantic WIC Program	010505	Atlantic City WIC Program	Atlantic City	41	10	24.39%
Camden County WIC Program	040101	AFDC WIC Office - County Administration Building	Camden	61	23	37.70%
Camden County WIC Program	040202	Camden County WIC Program - Mt. Ephraim Plaza	Camden	166	14	8.43%
Camden County WIC Program	041717	Lakeland Clinic - Di Piero Center	Blackwood	53	0	0.00%
Tri-County WIC Program	050101	Bridgeton WIC	Bridgeton	47	0	0.00%
Tri-County WIC Program	050105	Millville WIC	Millville	20	0	0.00%
Tri-County WIC Program	051313	Vineland WIC	Vineland	73	1	1.37%
Tri-County WIC Program	051313	Vineland WIC (New Site - 2/08)	Vineland	73	1	1.37%
Tri-County WIC Program	054343	Salem WIC	Salem	12	0	0.00%
East Orange WIC Program	060202	East Orange WIC Office (New Site)	East Orange	61	6	9.84%
East Orange WIC Program	060707	Orange WIC Office	Orange	40	7	17.50%
East Orange WIC Program	061616	Belleville WIC Office	Belleville	11	0	0.00%
VNA of Central Jersey WIC Program	100303	Perth Amboy VNA - Central Jersey	Perth Amboy	210	7	3.33%
VNA of Central Jersey WIC Program	100806	St. Rose of Lima Church	Freehold	95	4	4.21%
VNA of Central Jersey WIC Program	100812	Trinity AME Church	Long Branch	148	0	0.00%
Newark WIC Program	110606	Division of Welfare (AFDC)	Newark	4	4	100.00%
Newark WIC Program	111515	Newark Health Department - Main Office	Newark	173	57	32.95%
Newark WIC Program	111580	Van	Newark	7	0	0.00%
Newark WIC Program	111818	Newark Beth Israel Medical Center (Health Start)	Newark	37	11	29.73%
Newark WIC Program	112009	Irvington Pediatric Association	Irvington	17	4	23.53%
Newark WIC Program	112020	Irvington Municipal Building	Irvington	40	4	10.00%
Newark WIC Program	112626	St. Michael Medical Center (Health Start)	Newark	17	3	17.65%
North Hudson C.A.P., WIC Program	120101	North Hudson WIC Program (Health Start)	West New York	186	37	19.89%
North Hudson C.A.P., WIC Program	127979	NHCAC at Union City	Union City	82	32	39.02%
NORWESCAP WIC Program	132020	NORWESCAP WIC Program - Warren County	Phillipsburg	21	0	0.00%
NORWESCAP WIC Program	132222	NORWESCAP WIC Program - People Care Center - Somerset County	Bridgewater	31	1	3.23%
Plainfield WIC Program	140101	Plainfield WIC Office	Plainfield	110	3	2.73%
St. Joseph's WIC Program	150101	Main Site	Paterson	265	23	8.68%
St. Joseph's WIC Program	150112	Hackensack Department of Health	Hackensack	184	24	13.04%
St. Joseph's WIC Program	150707	Market Street Clinic	Paterson	140	21	15.00%
Trenton WIC Program	172601	Trenton WIC Program	Trenton	157	18	11.46%
Trenton WIC Program	173002	Sam Naples Community Center	Trenton	174	1	0.57%
UMDNJ WIC Program	180303	UMDNJ WIC (Health Start) - Martland Building Room GA-06	Newark	114	44	38.60%
Ocean County WIC Program	191212	Northern Ocean Resource Center	Lakewood	176	0	0.00%
Passaic WIC Program	200101	Main Office	Passaic	129	4	3.10%
Trinitas WIC Program	220101	Main Site	Elizabeth	379	66	17.41%

The results in Table 2 show that 6 out of 6 (100%) of WIC sites within .25 to .5 miles of a NJ Transit Bus Stop reported households that used bus transportation to access the site during the days of site visits. These sites are primarily in small urban areas located in primarily suburban or rural parts of the state, which combined with the increased travel distance from the bust stop to the WIC site results in lower levels of bus use among participants. The exception is the Department of Health and Human Services site in Jersey City which has a large proportion of its participants using bus transportation primarily due to it being a large urban center with a greater number of bus routes usable by residents.

**Table 2: WIC Sites within .25 - .5 Miles of Bus Stop**

Program	Site Code	Name	City	Households Observed	Households Using Bus	Percent of Households Using Bus
Tri-County WIC Program	056161	Cape May WIC - Crest Haven Complex	Cape May Court House	13	1	7.69%
Gloucester County WIC Program	070101	Gloucester WIC Paulsboro Site - Gloucester County Health Department	Paulsboro	146	4	2.74%
Jersey City WIC Program	091313	Department of Health and Human Services	Jersey City	405	88	21.73%
VNA of Central Jersey WIC Program	100808	Hartshorne Health Center	Belford	76	3	3.95%
VNA of Central Jersey WIC Program	100801	Asbury Park First United Methodist Church	Asbury Park	152	2	1.32%
St. Joseph's WIC Program	150129	Dover Head Start	Dover	87	2	2.30%

WIC sites further than .5 miles of a NJ Transit Bus Stop are shown in Table 3. All of these sites had few if any participants using bus transportation. The majority of these sites are located in suburban and rural areas of the state with limited bus access and routes. The exception is the How Lane Health Center site in New Brunswick which is located on the outskirts of the city and not within close proximity of the more transit heavy downtown or residential areas.

**Table 3: WIC Sites Further than .5 Miles of Bus Stop**

Program	Site Code	Name	City	Households Observed	Households Using Bus	Percent of Households Using Bus
Burlington County WIC Program	030101	Burlington County Health Department	Westampton	211	3	1.42%
Gloucester County WIC Program	070104	Gloucester WIC - Gloucester County Health Department	Sewell	115	3	2.61%
VNA of Central Jersey WIC Program	100202	How Lane Health Center	New Brunswick	208	1	0.48%
NORWESCAP WIC Program	130707	NORWESCAP WIC Program - Sussex County	Newton	14	0	0.00%
Ocean County WIC Program	190606	Ocean County Health Department	Toms River	29	0	0.00%

## RAIL TRANSPORTATION

Tables 4, 5, and 6 show the participants using train transportation to reach WIC sites within .25 miles, .25 to .5 miles, and greater than .5 miles of a light rail station respectively. Results show that very few participants use rail as a mode of transportation when traveling to the WIC sites that were visited by research teams. This may be due to the additional expense of using rail transportation, limited availability of rail stations within close proximity of WIC sites and residential areas, or rail schedules and routes not convenient for WIC participants.

**Table 4: WIC Sites within .25 Miles of a Light Rail Station**

Program	Site Code	Name	City	Households Observed	Households Using Train	Percent of Households Using Train
Camden County WIC Program	040101	AFDC WIC Office - County Administration Building	Camden	61	4	6.56%
Newark WIC Program	110606	Division of Welfare (AFDC)	Newark	4	0	0.00%

**Table 5: WIC Sites within .25 - .5 Miles of a Light Rail Station**

Program	Site Code	Name	City	Households Observed	Households Using Train	Percent of Households Using Train
Newark WIC Program	111515	Newark Health Department - Main Office	Newark	173	0	0.00%
Newark WIC Program	112626	St. Michael Medical Center (Health Start)	Newark	17	1	5.88%

Table 6: WIC Sites Further than .5 Miles of a Light Rail Station

Program	Site Code	Name	City	Households Observed	Households Using Train	Percent of Households Using Train
Atlantic WIC Program	010101	Family Life Center	Egg Harbor City	15	1	6.67%
Atlantic WIC Program	010404	Pleasantville Family Center	Pleasantville	43	0	0.00%
Atlantic WIC Program	010505	Atlantic City WIC Program	Atlantic City	41	0	0.00%
Burlington County WIC Program	030101	Burlington County Health Department	Westampton	211	0	0.00%
Camden County WIC Program	040202	Camden County WIC Program - Mt. Ephraim Plaza	Camden	166	1	0.60%
Camden County WIC Program	041717	Lakeland Clinic - Di Piero Center	Blackwood	53	0	0.00%
Tri-County WIC Program	050101	Bridgeton WIC	Bridgeton	47	0	0.00%
Tri-County WIC Program	050105	Millville WIC	Millville	20	0	0.00%
Tri-County WIC Program	051313	Vineland WIC	Vineland	73	0	0.00%
Tri-County WIC Program	054343	Salem WIC	Salem	12	0	0.00%
Tri-County WIC Program	056161	Cape May WIC - Crest Haven Complex	Cape May Court House	13	0	0.00%
East Orange WIC Program	060707	Orange WIC Office	Orange	40	0	0.00%
East Orange WIC Program	061616	Belleville WIC Office	Belleville	11	0	0.00%
Gloucester County WIC Program	070104	Gloucester WIC - Gloucester County Health Department	Sewell	115	0	0.00%
Gloucester County WIC Program	070101	Gloucester WIC Paulsboro Site - Gloucester County Health Department	Paulsboro	146	0	0.00%
Jersey City WIC Program	091313	Department of Health and Human Services	Jersey City	405	0	0.00%
VNA of Central Jersey WIC Program	100202	How Lane Health Center	New Brunswick	208	0	0.00%
VNA of Central Jersey WIC Program	100303	Perth Amboy VNA - Central Jersey	Perth Amboy	210	3	1.43%
VNA of Central Jersey WIC Program	100808	Hartshorne Health Center	Belford	76	0	0.00%
VNA of Central Jersey WIC Program	100801	Asbury Park First United Methodist Church	Asbury Park	152	0	0.00%
VNA of Central Jersey WIC Program	100806	St. Rose of Lima Church	Freehold	95	0	0.00%
VNA of Central Jersey WIC Program	100812	Trinity AME Church	Long Branch	148	1	0.68%
Newark WIC Program	111818	Newark Beth Israel Medical Center (Health Start)	Newark	37	0	0.00%
Newark WIC Program	112020	Irvington Municipal Building	Irvington	40	0	0.00%
Newark WIC Program	112009	Irvington Pediatric Association	Irvington	17	0	0.00%
North Hudson C.A.P., WIC Program	120101	North Hudson WIC Program (Health Start)	West New York	186	1	0.54%
North Hudson C.A.P., WIC Program	127979	NHCAC at Union City	Union City	82	0	0.00%
NORWESCAP WIC Program	130707	NORWESCAP WIC Program - Sussex County	Newton	14	0	0.00%
NORWESCAP WIC Program	132020	NORWESCAP WIC Program - Warren County	Phillipsburg	21	0	0.00%
NORWESCAP WIC Program	132222	NORWESCAP WIC Program - People Care Center - Somerset County	Bridgewater	31	0	0.00%
Plainfield WIC Program	140101	Plainfield WIC Office	Plainfield	110	0	0.00%
St. Joseph's WIC Program	150101	Main Site	Paterson	265	0	0.00%
St. Joseph's WIC Program	150112	Hackensack Department of Health	Hackensack	184	0	0.00%
St. Joseph's WIC Program	150129	Dover Head Start	Dover	87	1	1.15%
St. Joseph's WIC Program	150707	Market Street Clinic	Paterson	140	0	0.00%
Trenton WIC Program	172601	Trenton WIC Program	Trenton	157	1	0.64%
Trenton WIC Program	173002	Sam Naples Community Center	Trenton	174	0	0.00%
UMDNJ WIC Program	180303	UMDNJ WIC (Health Start) - Martland Building Room GA-06	Newark	114	0	0.00%
Ocean County WIC Program	190606	Ocean County Health Department	Toms River	29	0	0.00%
Ocean County WIC Program	191212	Northern Ocean Resource Center	Lakewood	176	1	0.57%
Passaic WIC Program	200101	Main Office	Passaic	129	0	0.00%
Trinitas WIC Program	220101	Main Site	Elizabeth	379	4	1.06%
Tri-County WIC Program	051313	Vineland WIC (New Site - 2/08)	Vineland	73	0	0.00%
East Orange WIC Program	060202	East Orange WIC Office (New Site)	East Orange	61	0	0.00%
Newark WIC Program	111580	Van	Newark	7	0	0.00%



## POTENTIAL USE OF BUS AND RAIL TRANSPORTATION BY WIC PARTICIPANTS

Further supporting the results in the previous section, Table 7 provides the number of existing and potential participants within .25 miles, .25 to .5 miles, and greater than .5 miles from NJ Transit bus stops and light rail stations. More than half of the estimated potential WIC participant families are within .25 miles of a NJ Transit bus stop and more than two-thirds are within .5 miles. More than two-thirds of existing WIC participant households are within .25 miles of a NJ Transit bus stop and more than 80% are within .5 miles.

These results illustrate an opportunity for WIC agencies to locate site near NJ Transit bus stops on routes that are easily accessible by WIC participants. This in turn could increase caseloads by removing a potential barrier to participation for eligible households.

With regards to use of light rail by participants, this is not as viable of a transportation solution for accessing WIC sites. Table 7 shows less than 8% of both existing households and potential families living within .5 miles of a light rail station. With the increased cost associated with other rail transportation, such as commuter rail, the use of train transportation by WIC participants seems unlikely.

**Table 7: Potential and Existing WIC Participants Distance to Mass Transit**

		< .25 miles	.25 - .5 miles	> .5 miles
Bus Potential Participant Families	Number	20,637	6,930	13,453
	% of Total	50.31%	16.89%	32.80%
Bus Existing Participant HH	Number	57,509	13,036	14,818
	% of Total	67.37%	15.27%	17.36%
Light Rail Potential Participant Families	Number	715	1,993	38,312
	% of Total	1.74%	4.86%	93.40%
Light Rail Existing Participant HH	Number	1,398	5,043	78,922
	% of Total	1.64%	5.91%	92.45%

## CONCLUSIONS AND FUTURE RESEARCH

In conclusion, WIC agencies should consider the proximity to bus stops and routes when determining the location of WIC sites. With a large proportion of participants residing within walking distance of bus stops, proximity of sites to related route stops could effectively increase participation in WIC services. The results support this showing a significant proportion of participants using bus transportation to access WIC services at sites within walking distance of a NJ Transit bus stop. Since federal funding of WIC services is tied to caseload numbers, increasing participation in WIC services through better transportation access would not only assist more families in need, but could increase funding levels to WIC agencies to improve the delivery of services.

Rail transportation was found to be an insignificant mode of transportation for almost all sites visited during this study. This is most likely due to higher transportation costs, the inflexibility of routes and schedules, and limited access to this mode of transportation throughout much of the state.

Future research should look to conduct a thorough analysis of the transportation modes used by participants at all sites within an agency to look for regional variations, seasonal variations, and variations due to demographic differences and the type of participant. Additional research should also focus on geographic analysis of transportation modes and barriers facing participants through use of participant surveys and participant addresses collected during the same period of time, allowing NJ-WIC to pinpoint areas where transportation barriers exist. Such research should assist agencies in fully understanding the transportation barriers facing participants and allow them to strategically use resources to reduce these barriers and increase participation in WIC services. Results could also help agencies in petitioning NJ Transit and the New Jersey Department of Transportation to make changes to mass transit routes and stops to better serve WIC participants throughout the state.