

# TRANSIT SCORE: New Jersey's Unique Planning Tool

For

**NJ TRANSIT**  
The Way To Go.



By

**plansmart nj** & **URS**

June 2011

**[THIS PAGE INTENTIONALLY LEFT BLANK]**

## TABLE OF CONTENTS

<b>PREAMBLE- THE LAND USE/TRANSPORTATION CONNECTION</b>	<b>1</b>
<b>SMART GROWTH AND TRANSPORTATION CHOICE</b>	<b>1</b>
<b>WHY TRANSIT SCORE?</b>	<b>1</b>
<b>CALCULATING A TRANSIT SCORE</b>	<b>2</b>
<b>THREE TYPES OF TRANSIT SCORE</b>	<b>6</b>
<b>USING THE TRANSIT SCORE</b>	<b>6</b>
<b>REGIONAL CONTEXT FOR A TRANSIT SCORE</b>	<b>7</b>
<b>INTEGRATING LAND USE AND TRANSIT SERVICE PLANNING</b>	<b>8</b>
<b>EXISTING COMMUTER RAIL AND LTR RIDERSHIP</b>	<b>10</b>
<b>CONCLUSION</b>	<b>11</b>
<b>APPENDIX A: 2005 TRANSIT SCORE MAP</b>	<b>12</b>
<b>APPENDIX B: 2035 TRANSIT SCORE MAP (Projected Trend)</b>	<b>13</b>
<b>APPENDIX C: CASE STUDIES</b>	<b>14</b>
<b>APPENDIX D: HOW WERE DETAILED INVESTMENT CRITERIA AND CONDITIONS DETERMINED? CAN THE CRITERIA BE CHANGED OR MODIFIED?</b>	<b>20</b>
<b>APPENDIX E: DEFINITION OF KEY TERMS IN CRITERIA AND CONDITIONS FOR TRANSIT SCORE</b>	<b>22</b>
<b>APPENDIX F: TRANSIT SCORE AND PLAN ENDORSEMENT</b>	<b>24</b>
<b>APPENDIX G: EXISTING COMMUTER RAIL &amp; LRT RIDERSHIP</b>	<b>27</b>

**[THIS PAGE INTENTIONALLY LEFT BLANK]**



## A Guide to the Transit Score

### PREAMBLE- THE LAND USE/TRANSPORTATION CONNECTION

Throughout history, physical characteristics of communities have been shaped by the dominant mode of transportation at the time they were being settled. In early times, settlements emerged on the coasts and on rivers and at the crossroads of coach stops. The layout of the settlements themselves reflected the fact that most people walked everywhere they needed to go. Streets were narrow and buildings were clustered close together.

The advent of the railroads created opportunities for new settlements that no longer had to be near navigable waters. Streetcars opened up suburban areas outside city centers. But the pattern *within* the settlements themselves did not change much – walking was still a primary mode of transportation. Buildings remained close together.

As automobiles came into widespread use, however, the need to have settlements near rail or water disappeared. Within settlements, automobile traffic created a need for wide streets and parking areas. Buildings were spaced further apart and walking as a means of getting anywhere became difficult and increasingly irrelevant.

As the use of the automobile grew, the practice of zoning to regulate undeveloped land came into widespread use. After World War II, rapid suburbanization took place resulting in decades of development on open land outside of cities and towns. Zoning was used to accommodate the automobile as the primary mode of transportation in these new communities. As the decades wore on, people became dependent on the automobile for almost every trip and every task.

### SMART GROWTH AND TRANSPORTATION CHOICE

New Jersey is the state closest to build-out of any in the nation. Open land to be used for development is becoming scarce. As open land for suburban-style development disappears, the interest in retrofitting and revitalizing places that

have already been developed increases. Simultaneously, New Jersey's demographics are changing. There is a growing group of senior citizens, new immigrants and young workers who prefer more dynamic living arrangements: they want vibrant, mixed-use centers where they can walk to a coffee shop and either walk, bike or take transit to work.

All this means there is an increasing demand for walkable, bikeable and transit-friendly communities in New Jersey.

Fortunately, New Jersey has one of the most extensive rail and bus services in the country and it has the planning expertise to retrofit and redevelop areas to increase transportation choices.

This Guide was developed to explain a valuable community assessment tool, the *Transit Score*, and how it can be used in planning and other areas to advance transportation choices in many places throughout New Jersey.

### WHY TRANSIT SCORE?

While demand for new transit services continues to be strong, resources are scarce and projects must be prioritized. In order to quickly and effectively identify and screen potential transit projects on a sketch planning level, Transit Score was created to simply and graphically show the significant impact of land use patterns and decisions (most notably, with regards to higher urban density) upon the potential for transit investment in an area. The Transit Score is a tool used to assess how "transit friendly" a community or region might be. The Transit Score is used to quantify characteristics (population, employment, and zero-car households) in different places to determine the **potential usage** of different types of transit services.

Areas with a higher Transit Score can potentially support a greater range of transit services, from commuter rail to various types of bus services. Conversely, areas with a lower Transit Score are likely to find it difficult to attract and/or justify frequent transit service to their location.

It is important to point out that the Transit Score measures **the potential usage of a transit service** in a particular place. It assesses the population and employment densities and other characteristics of a place to see if these characteristics could support transit usage.

Transit score is intended to be a first-cut identification of transit potential to identify possible transit projects and services for more in-depth study with MPOs and NJ TRANSIT. It is not a measure of whether there will be transit service or the public costs to provide service is justified. A detailed transit study must be conducted before advancing any project to a further step in the project development process.

Because the Transit Score connects land use information to transit service usage, it is useful for scenario planning exercises, Smart Growth, Sustainability, and vision plans for the future. It is meant to be used as a screening device to kick-off the land use and transportation planning that must precede putting new transit services or transportation facilities in place. For these reasons, the Office for Planning Advocacy has included the Transit Score as one of the tools that municipalities should consider using during the Master Plan or strategic planning processes.

## CALCULATING A TRANSIT SCORE

### ❖ The three factors

The Transit Score is based on a statistical analysis that includes three factors, each of which influences the potential for transit ridership:

1. Population Density
2. Employment Density
3. Zero Car Households Density

Current Transit Scores are based on year 2000 data. In addition, a Projected (trend) Transit Score can be calculated for the future using trend projections, and a Planned (desired) Transit Score can be calculated using policy targets instead of trend for each of the three factors. For more information, please see page 6.

The Transit Score equation, as calibrated by the Delaware Valley Regional Planning Commission in the report "Creating a Regional Transit Score Protocol", is as follows:

$$\text{Transit Score} = (0.41 \times \text{Population per acre}) + (0.09 \times \text{Jobs per acre}) + (0.74 \times \text{Zero-car households per acre})$$

All transit scores are classified into one of five categories. These five categories represent ranges based on observed land use characteristics and actual transit service patterns. Following are the five Transit Score categories and the range of transit scores for each:

**Table 1 - Transit Score Intervals**

Category	NJT Range
High	> 7.5
Medium-High	2.5 to 7.5
Medium	1.0 to 2.4
Marginal	0.6 to 0.9
Low	< 0.6

Transit Score categories rated Medium and above are approximately (but not exactly) the same as the areas the 2001 State Development and Redevelopment Plan (State Plan) targeted as locations where growth should occur and where most transit service is viable. Based on 2000 data, these areas:

- Constituted 78.2% of the population of the state.
- Constituted 75.6% of the locations where workers reported to their primary work or employment
- Had 77.1% of the Households of the state
- Had 20.9% of the land area of the state.

**Table 2- Distribution of New Jersey Population, Households, Employment, and Land Area by Transit Score Category- Year 2000**

Category	Population	Employment	Households	Land Area
High	23.4%	16.9%	22.8%	1.5%
Medium-High	31.0%	29.4%	31.6%	6.9%
Medium	23.8%	29.3%	23.7%	12.5%
Marginal	6.5%	9.5%	6.8%	7.0%
Low	15.3%	14.9%	15.1%	72.1%
<b>Total 2000</b>	<b>8,414,000</b>	<b>3,962,000</b>	<b>3,310,000</b>	<b>7,418 Sq. Mi.</b>

As Table 2 shows, the two highest categories account for just over 50% of the state population and households on about 8.4% of the land area. These areas, however, only held about 46% of the employment, reflecting the more dispersed pattern of employment in New Jersey. Appendices A and B depict the 2005 and projected 2035 transit core, respectively.



### ❖ The three types of transit service

There are three types of transit service or investment categories that can be matched with the Transit Score. Each of the three transit investment categories summarizes which modes, services, and intermodal facilities meet demographic and transportation criteria and are applicable for implementation based on a geographic area's Transit Score and other factors.

These investment categories are:

- **Fixed Guideway Transit** - New transit lines, extensions of existing lines, and the potential reactivation of historic stations along existing lines where service plans allow.

Fixed Guideway Transit requires significant capital investment, and is primarily on its own Right-of-Way, with no or limited mixing with auto traffic. Fixed Guideways often can provide time savings compared to auto travel. Each type of guideway project must meet certain minimum criteria, primarily related to having at least part of the line/service in an area with a "HIGH" Transit Score and a minimum number of jobs in a dense, mixed-use center.

- **Related Types:** Rapid Transit, High Capital Cost Electric Light Rail (LRT), Medium-Low Capital Cost Electric LRT, Commuter Rail Terminal, Commuter Rail/Diesel LRT, Monorail/Personal Rapid Transit (PRT), Ferry, Recreational Transit, Bus Lanes-Limited Access Roads, Bus Lanes-Arterials, Bus Priority Treatment, BRT (dedicated ROW or lane ONLY)

- **Bus Service Potential** – Types of bus service related to the Transit Score of an area, with a range of minimum span of service throughout the day and average daily frequency of bus service.

For some services, a minimum number of jobs in a relatively dense, mixed-use center are required, but there may be differences based on location of an area in the State Plan (see "Woolwich, NJ and the Route 322 Corridor" Case Study in Appendix C).

- **Related Types:** Express Bus as a Destination /Terminus, Express Bus-Walk Only Access, Express Bus- Park/Ride

Access, High Intensity Local Bus Service, Medium Intensity Local Bus Service, Minimum Intensity Local Bus Service, Local Circulator Bus-Rural Center, Local Social Service/Paratransit, Mini-Bus w/Line Haul Transit, Mini-Bus Express Suburban Service Vanpools & Vanpool Subsidy

- **Intermodal/Access to Transit** – Transit services and projects which provide access to transit service and facilitate intermodal or multi-modal service.

Based on the Transit Score, peak period ridership, and other factors, minimum guidelines are outlined for park-rides, shuttle buses and other intermodal facilities such as parking structures and terminals (see "Intermodal & Access to Transit" Case Study in Appendix C).

- **Related Types:** Shuttle Bus to Line-Haul Transit (Walk Access), Shuttle Bus to Line-Haul Transit (Remote Parking), Structured Park/Ride, Surface Park/Ride for Rail/LRT/ Ferry , Multimodal Terminals

Table 3 below, **Transit Score Detailed Investment Criteria & Conditions**, relates detailed threshold conditions within each Transit Score category to the three types of transit services. Appendix D describes how these investment criteria and conditions were determined and can be changed or modified. Appendix E lists definitions of key terms in criteria and condition for transit scores.

The detailed criteria in Table 3 cover the **minimum demographic and transportation conditions** required for each mode of service. If the criteria are not met, the Fixed Guideway Type, Bus Transit Service, or Intermodal Facility investment is generally not applicable or appropriate.

Again, the Transit Score does not guarantee a commitment for service or capital investment. Rather, it implies that a project or service may advance to more detailed feasibility studies, if the baseline conditions are met: favorable land uses exist or are planned. More detailed study will always be necessary to provide ridership estimates, costs, benefits, environmental and engineering feasibility, financial impacts and, ultimately, to determine if the transit mode and the capital investment associated with it is feasible in that corridor and in that location.

Conversely, not meeting the Transit Score criteria does not automatically indicate a project has no merit. Again, more detailed investigation or special

circumstances can determine that some kind of transit service may be viable outside the Transit Score criteria.

***Providing transit service is a statewide and/or regional function. Therefore a high Transit Score does not by itself lead to new transit service and a low Transit Score does not automatically rule it out.*** The Transit

Score is a planning tool that can be used as a guideline to transit investment in concert with sound land use planning for future growth and development. It is not a substitute for, but a supplement to, detailed feasibility studies and the overall on-going transportation planning process.

**TABLE 3 - TRANSIT SCORE DETAILED INVESTMENT CRITERIA & CONDITIONS**

TRANSIT SCORE CATEGORY (Score)	FIXED GUIDEWAY TRANSIT FEASIBILITY CONDITIONS	BUS & OTHER TRANSIT SERVICE CRITERIA	INTERMODAL/ ACCESS TO TRANSIT
<b>HIGH</b> (>7.5)	<ol style="list-style-type: none"> <li><b>Rapid Transit</b>-Only if direct connection to Manhattan or Philadelphia or 150,000+ jobs in center</li> <li><b>Commuter Rail</b> as a Destination or Terminal- Only if a Regional Center with 60,000+ jobs in municipality</li> <li><b>High Capital Cost Electric LRT</b>- 33% of line can be in tunnel or elevated. Must have 30,000+ jobs in center, 60,000 jobs preferred.</li> <li><b>Medium/Low Capital Cost Electric LRT</b>- Must have 30,000+ jobs in center or municipality to be terminal for line.</li> <li><b>Bus Priority Treatment</b>-On major arterials with 40+ buses/peak hr. direction</li> <li><b>Bus Only Ramps/Lanes</b>- On limited access roads/connectors to Regional Centers with 60,000+ jobs</li> <li><b>Ferry Services</b> to High Score areas with 60,000+ jobs. Fixed Guideway or Local Transit connecting service.</li> </ol>	<ol style="list-style-type: none"> <li><b>Express Bus Service</b> to areas as a Destination or Terminal if 60,000+ jobs in center or municipality.</li> <li><b>High Intensity Local Bus Service.</b> All day service span (16-24 hours) with average 20 minute frequency over the span of a day.</li> <li><b>Express Mini-Bus</b> service from High Score areas to suburban employment centers with 30,000+ jobs.</li> <li><b>Vanpools and vanpool subsidies</b> which do not compete with existing transit.</li> </ol>	<ol style="list-style-type: none"> <li>Major <b>Multi-Modal</b> Terminals</li> <li>Limited Park-Ride Facilities in Structured Parking</li> <li>Bus/Rail Transfer Centers and Feeder Bus services</li> </ol>
<b>MEDIUM-HIGH</b> (2.5 to 7.5)	<ol style="list-style-type: none"> <li><b>Medium/Low Capital Cost Electric LRT</b>-At least 50% of the line must be on pre-existing rail/utility/median etc. ROW. Must connect to High Transit Score area with 30,000+ jobs in center.</li> <li><b>Commuter Rail/Diesel LRT</b>-Must connect to High Transit Score area Terminus with 30,000-60,000 jobs.</li> <li><b>Bus Priority Treatment</b>-Queue Jumps/Bus Pullouts with 6+ Buses/ Peak Hour on Arterials and at New Development. NJDOT design standards. Bus lanes and peak direction bus only use of shoulders as in High Transit Score areas.</li> </ol>	<ol style="list-style-type: none"> <li><b>Express Bus</b> service with primarily walk access to High Transit Score Areas</li> <li><b>Medium Intensity Local Bus Service</b>- Majority of day span (12-18 Hours), with average 30 minute frequency.</li> <li><b>Mini-Bus Service</b> to suburban employment centers from line-haul transit and local area.</li> </ol>	<ol style="list-style-type: none"> <li><b>Shuttle Bus to Rail/LRT /Express Bus</b> if minimum of 500 peak period boarding riders</li> <li>Structured Parking for Fixed Guideway Transit if 1000+ peak period boarding riders at stop.</li> <li><b>Surface Park-Ride</b> for All Other Fixed Guideway /Express Bus/ Ferry Service</li> <li><b>Local Bus Transfer Points</b></li> </ol>



<b>TRANSIT SCORE CATEGORY (Score)</b>	<b>FIXED GUIDEWAY TRANSIT FEASIBILITY</b>	<b>BUS &amp; OTHER TRANSIT SERVICE CRITERIA</b>	<b>INTERMODAL/ ACCESS TO TRANSIT</b>
<b>MEDIUM</b> (1.0 to 2.4)	<ol style="list-style-type: none"> <li><b>1. Commuter Rail/Diesel LRT</b> to High Transit Score areas with 60,000+ jobs in center or municipality, usually with existing Rail ROW or service extension</li> <li><b>2. Medium/Low Cost LRT</b>- Only if area is surrounded by Medium-High Score areas.</li> <li><b>3. Bus Priority</b>- Same as Medium-High except limited to Primary Arterials such as State Highways with LOS "D" or worse in Peak Hour.</li> <li><b>4. Recreational Transit</b>- Rail/Express Bus/Ferry to seasonal tourist areas as a destination. Must have minimum 30% of housing units in seasonal units and 1500 seasonal units in a municipality.</li> <li><b>5. Ferry with Park-Ride</b> access to High Transit Score Areas with 60,000+ jobs</li> </ol>	<ol style="list-style-type: none"> <li><b>1. Minimum Intensity Local Bus Service</b>- Span of 8-12 Hours/Day, with average frequency of 30-60 minutes over day.</li> <li><b>2. Local Circulator Bus Service</b> in Rural Centers in State Plan. (PA 3, 4, &amp; 5) Span of 8-12 Hours/Day with average frequency of 30-60 minutes</li> <li><b>3. Mini-Bus Service</b> to Suburban Employment Centers from line-haul transit service. Preferred minimum of 10,000 jobs in employment center.</li> <li><b>4. Express "Reverse" Mini-Bus Service</b> from High Score areas to Suburban Employment Centers with 30,000+ jobs.</li> </ol>	<ol style="list-style-type: none"> <li><b>1. Shuttle Bus Walk Access to Rail/LRT /Express Bus</b> if minimum of 500 boarding riders at stop and Gross Housing Density of 2+ units per acre.</li> <li><b>2. Remote Parking and Shuttle Bus to Rail/LRT/Express Bus</b> if housing density not met.</li> <li><b>3. Surface Park-Ride Only for Express Bus/ Commuter Rail/ Ferry</b> except in constrained areas with 1000+ peak period riders</li> </ol>
<b>MARGINAL</b> (0.6 to 0.9)	<ol style="list-style-type: none"> <li><b>1. New Commuter Rail stations</b> Only with service to High Transit Score areas with 60,000+ jobs and on extensions of existing lines.</li> <li><b>2. Extensions of Existing Commuter Rail Lines.</b> (Only to High Transit Score areas with 60,000+ jobs).</li> </ol>	<ol style="list-style-type: none"> <li><b>1. Peak Period Only extensions of existing Local Bus routes.</b> Service span of 4-6 Hours/Day, Frequency of 30-60 minutes.</li> <li>Peak period only Mini-Bus shuttles to local employment from line-haul transit. Minimum 10,000 jobs at site.</li> <li>Local Circulator Bus Service in areas adjacent to Rural Centers to serve large trip generators such as malls and apartment complexes. Service 8-12 hours per day.</li> </ol>	<ol style="list-style-type: none"> <li><b>1. Surface Park-Ride for Express Bus and Commuter Rail only.</b></li> </ol>
<b>LOW</b> (<0.6)	<ol style="list-style-type: none"> <li><b>1. NONE</b>, except park-ride to existing or extended commuter rail stations which serve Marginal and above Transit Score areas.</li> </ol>	<ol style="list-style-type: none"> <li><b>1. Local Bus Service-NONE.</b> Only extensions from Marginal Transit Score areas to serve major trip generators.</li> <li><b>2. Park-Ride access to Express Bus Service to High Transit Score areas with 60,000+ jobs</b></li> <li><b>3. Local Community Social Service and Paratransit.</b></li> <li><b>4. Vanpools and Vanpool Subsidies</b></li> </ol>	<ol style="list-style-type: none"> <li><b>1. Bus/Vanpool/ Carpool surface Park-Ride.</b></li> <li><b>2. Rural Park-Ride centers with bus /vanpool/ carpool parking</b> where feasible.</li> </ol>

### THREE TYPES OF TRANSIT SCORE

#### ❖ Existing conditions Transit Score

The Transit Score can be calculated for **existing** conditions, using data from the most recent US Census at the Census Tract level. A Transit Score for every location in New Jersey has been developed by NJ TRANSIT, in collaboration with the Delaware Valley Regional Planning Commission, using the 2000 US Census. URS recently calculated 2005 Transit Score and created the 2005 existing conditions Transit Score map which is included as Appendix A.

A user can also calculate a Transit Score to describe future conditions using two different sources of information, one based on **projected (trend)** conditions or, if the projected trend Transit Score is unacceptable to local officials, they can work on changing their plans and regulations to create a **planned (desired)** Transit Score.

#### ❖ Projected (trend) Transit Score

The **projected Transit Score** uses county and municipal trend projections developed by the three regional transportation planning agencies serving New Jersey – the North Jersey Transportation Planning Authority (NJTPA), the Delaware Valley Regional Planning Commission (DVRPC), and the South Jersey Transportation Planning Organization (SJTPO). The 2035 projected Transit Score has been calculated and mapped (see Appendix B).

#### ❖ Planned (desired) Transit Score

The Transit Score tool can also calculate a score based on **planned** conditions. Government officials can have a vision for their community's future that is different from either their existing or their trend projected conditions. They can change their plans, zoning and other regulations for a specific area to make the densities and other characteristics more supportive of transit services in the future. The planned Transit Score would be calculated using the information from the planned future.

There are many benefits associated with planning for a more transit-friendly environment. These include providing more mode choices for residents, including walking and biking.

**CAUTION!** Remember, because transit service is a statewide or regional function, having or creating the conditions in one location where potential transit usage is high, **does not** guarantee that transit services will be provided.

First, conditions must support the transit service throughout the transit corridor or region, which almost always involves more than one community. Except for the most local services or facilities, such as a jitney or a sidewalk, providing transit service is a regional or statewide function.

Additionally, capital and operating funds are severely limited and must be available before new services can be created or extended. The Transit Score is only a preliminary screening tool to kick-off the land use and transportation planning that must precede putting new transit services or transportation facilities in place.

### USING THE TRANSIT SCORE

#### ❖ Existing conditions:

In some places, existing conditions may already include transit services. In this case, government officials may wish to look at their existing and projected Transit Score and investigate the current and projected ridership on existing services. Officials could then see whether more service is warranted or whether more ridership could be encouraged by providing different types, times or routes of the services serving their communities.

Government officials can also consider how features of the landscape could influence transit ridership by increasing density, adding new uses, or improving sidewalks, landscaping, lighting or other safety features to make transit more attractive and accessible.

In other communities, the existing Transit Score may be high enough to make service feasible, but it has not yet been provided. In this case, local officials could examine why services may not be in place and explore with NJ TRANSIT and other agencies, such as their county's Transportation Management Association and private sector providers, as to what considerations must be in place before the desired transit service could be provided.

In still other places, the existing conditions and/or the regional context may not support any

regular transit service at all. In this case, officials will be able to use the Transit Score as the means to see how much growth they would have to add to get certain transit outcomes.

When a community is far away from the regional system, government officials may wish to investigate how a shuttle service, jitney or other kind of “para-transit” could be created in their community to help local residents and workers access transit services that may be elsewhere within the region.

#### ❖ Projected conditions:

To explore future possibilities, local officials should look at how their existing conditions are projected to change in the future, using the projected trend Transit Score. These new conditions may or may not be consistent with what local officials expect or want.

If trend conditions are not consistent with local expectations, they may have been calculated from incorrect information or assumptions. Officials may want to explore this possibility with the regional agency that provided the trend projections. This review will take place comparing local zoning and build-out scenarios to these projections.

#### ❖ Planned (desired) conditions:

If local officials find that trend projections are not consistent with the future they envision for their municipality, they always have the option to explore their own master plans, zoning regulations and other policies that could be changed to encourage the kind of development and transportation investments that they would prefer.

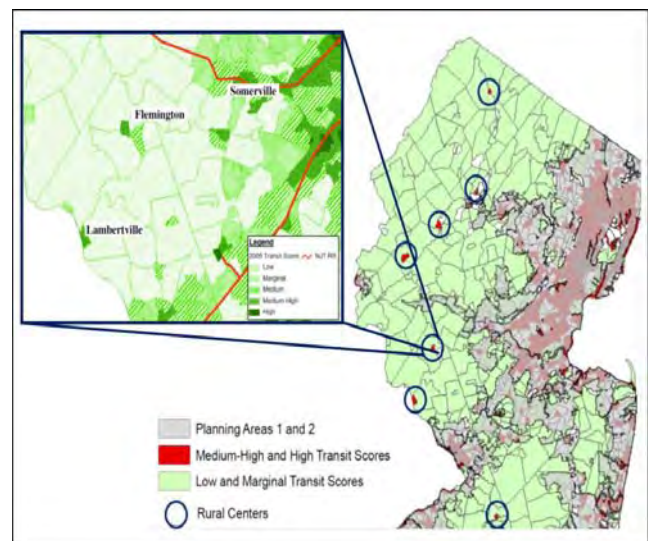
Redevelopment plans, local zoning and other kinds of land use regulations have a powerful influence on creating the conditions that will support transit services in the future. From these, a new Planned Transit Score could be calculated. Aspirations for any kind of fixed guideway or regular bus and other transit options, however, must always be pursued within a region and corridor in conjunction with regional planning agencies and NJ Transit.

## REGIONAL CONTEXT FOR A TRANSIT SCORE

Transit Scores can be useful to counties, municipalities, and state agencies who want to perform an “order-of-magnitude” screening of the transit ridership potential, for now and in the future. An example of the use of Transit Score might be to evaluate and test the economic growth potential of corridors in statewide planning initiatives. However, before they can use either their current or projected future Transit Score, or even their planned future Transit Score, public officials should understand two other factors that will affect their ability to have transit service either expanded or extended in their location.

First, the county or municipality must examine their Transit Score in relation to the region around them. What regional context does the community reside within and how can each community work to create a new opportunity. This is why the statewide map of the current and future Transit Score is so useful (See Appendices A and B).

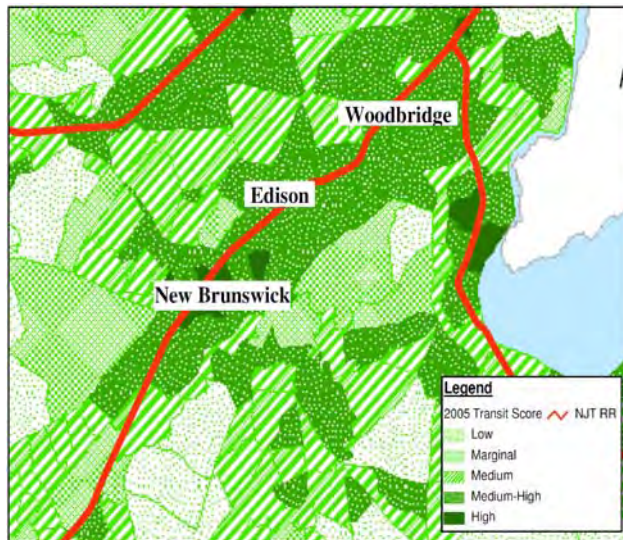
What should the county or municipality look for in their region? If, for example, their location in question has a **Medium-High** Transit Score (2.5 to 7.5) but is surrounded by **Marginal** Transit Score Census Tracts (<0.9), planners and community leaders cannot expect that the ridership potential in their own location will, by itself, support a new transit service (see Flemington, NJ Case Study in Appendix C and Illustration 1).



**Illustration 1: Medium-High Transit Score surrounded by Marginal Transit Score**

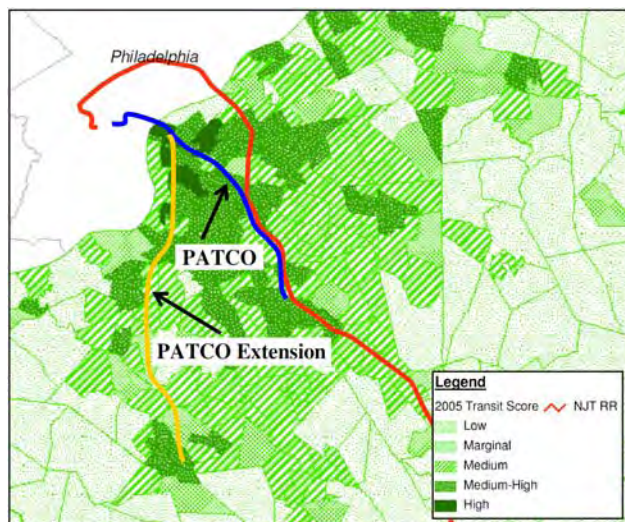


On the other hand, if a location with a **Medium-High** Transit Score is surrounded by all **Medium-High** Transit Score Census Tracts, planners and community leaders may work with NJ TRANSIT to explore services that could be extended or added to their area (see Illustration 2).



**Illustration 2: Medium-High Transit Score surrounded by Medium-high Transit Score**

Second, because the capital and operating costs of transit are substantial, the viability of new transit service is most heavily dependent on whether or not transit service – either a rail line or reasonably well connected bus service – exists currently, or could be easily extended from places near by (see Illustration 3).



**Illustration 3: Extension of transit service example**

## INTEGRATING LAND USE AND TRANSIT SERVICE PLANNING

The Transit Score is primarily intended to assist municipalities in planning for future development, and to understand the intensity of future land use that is needed to support different levels of transit services, both bus and fixed guideway. Both NJ TRANSIT and Office for Planning Advocacy (OPA) provide technical assistance to municipalities that enter into the Plan Endorsement process who wish to use the Transit Score for this purpose (see Appendix F).

Among the issues local municipalities can test with the Transit Score are the following:

- **Changing the land use type and intensity of development to justify additional existing or new bus transit service.** The Transit Score can be used to test different patterns and intensities of development in certain sections of a municipality or the entire town.

Some areas can increase their Transit Score with revised development patterns and modest increases in density. Any changes which increase housing and related population, or employment density, will increase the Transit Score and the potential for more types of transit service.

The Transit Score is a good planning tool to test different land use possibilities and "what if" land development alternatives to determine the potential for expanded transit services.

- **Changing demographics.** Revised population and employment projections or changes in demographic types (particularly households with zero cars) will change the Transit Score.

For example, zero-car households often live in housing that is age-restricted (over 65) or in price-controlled workforce housing. Also, in high transit score areas and locations with limited parking or parking constraints, above average amounts of zero car households often locate which can increase transit score. Planning for constrained parking and higher intensity residential areas can be used to increase transit score, especially when combined with locations within walking



distance of rail transit. Studies have shown there is some suppression of auto ownership within walking distance of rail transit stations, which can also increase zero car households. Sources of data on zero car households can be provided by MPO's such as DVRPC, which forecast zero car households, or from US Census data and other surveys. These data sources can be used to estimate zero car households for future development.

Changes in zoning to encourage these households to locate in transit-friendly areas can help support different types of transit service.

- **Changing the geographic unit of analysis.** Census Tracts defined in 2000 were used as a baseline because it is the only consistent statewide geographic unit of analysis. In addition, forecast data is available at this level of detail. A Census Tract typically contains between 3,000 and 4,000 people. However, if local officials, planners, or others wish to define a different geographic area, a Transit Score can be calculated. Data that needs to be provided are land area in acres and demographic information or forecasts for the three components identified in Section 1: Population density, Employment density, and Zero Car Household density. Only the land area is used, so major water bodies like larger lakes, ocean areas, etc. must be excluded to estimate the correct gross density measures.

#### ❖ **Transit-Friendly Planning & Design Considerations- Beyond the Transit Score**

Even without thinking about changing their Transit Score, communities can incorporate transit-supportive design into their land use and circulation elements in their master plans. How the various aspects of planning and community design come together will work to improve the quality and functionality of a place. The Transit Score presents communities with the ability to test land use scenarios for their likely affect on transit ridership.

In recent years, there has been increasing interest in creating Transit-Oriented Development (TOD), replacing single use and low density development. A TOD is as much

about economic sustainability and revitalization, creating jobs and housing opportunities, as it is about providing more transportation options.

A well-designed community that is supportive of transit is highly walkable. In most cases, a transit-friendly community typically has a core area that contains a train station, bus terminal, light rail station, or some combination thereof. But it could also be built simply to provide transit options in the future while creating a vibrant downtown for the community to enjoy.

The core is typically surrounded by appropriately scaled development (determined by any given community) with building scales and density maximized in the core and progressively lowering as development spreads outwards into the surrounding neighborhoods and the environs.

A TOD is generally focused within a radius of one-quarter to one-half mile (400 to 800 meters) from a transit stop, as this is considered to be an appropriate distance for pedestrians to comfortably walk. While this distance is not a hard and fast rule, it serves as a starting point for more intensive design considerations.

As a walking distance becomes lengthened beyond the half mile, it must be further enhanced by ensuring the pedestrian and bicyclist experience is pleasing, interesting, and safe. Other modes of transportation may also be coordinated to connect the distances beyond a half-mile from the core area. Communities may consider how the presence of these other modes can work to create "local circulator" routes, like community shuttles or greenways. Ideally, an approach that seamlessly coordinates all modes of available transportation can further extend the reach of the core transit asset well beyond the half mile radius, in some cases, up to 2 miles. The main goal would be to feed the main transit service to the station/stop and to encourage as many trips to be taken without an automobile as possible.

TOD design principles focus on creating livable, interesting "places" where land uses and transit are integrated: places are energized and solidified by the presence of shop keepers, employees, and residents mixed together to create a "24-hour" atmosphere. To work effectively, planning and implementing a "true" TOD is therefore complex and involves much





more than merely placing development around a station.

TOD is also about community building and how development works to create strong horizontal and vertical design relationships between diverse land uses and the transit network. A few of the considerations that a design-rich approach will focus on are as follows:

- Building orientation; how buildings are both accessed and relate to sidewalks and the connectivity to the street network,
- How buildings look and feel architecturally to people on the street,
- Reconciling the direction you want people to walk with how they may actually travel to get there, recognizing most pedestrians tend to always identify with the shortest path between two points of interest or their origin and destination,
- Coordination with economic development initiatives and the existing business community.
- Lighting and safety considerations.

It is important to note that while TOD does accommodate automobiles, they are not the “dominant” mode of transportation for people living, working or visiting the TOD neighborhood; pedestrians rule, cars do not.

A complete guide of how to plan for TOD can be found in ["Planning for Transit-Friendly Communities: A Handbook for New Jersey Communities,"](#) published in 1994 by NJ TRANSIT. While this publication outlines key design principles shared by all transit-friendly communities, it recognizes that “one size does not fit all,” and that each community – urban, suburban, and rural - must develop and adopt their own vision for how TOD will be implemented.

*Some Basic Components of Transit Oriented Development (as detailed in the T-F Handbook) include:*

- "Eyes on the street" design with the pedestrian as the highest priority
- Transit facility is a prominent component of the community development centered on a core or node, containing a mixture of uses (e.g., office, residential, retail, and civic uses) in close proximity to a transit facility
- High-quality development located within 10-15 minute walk surrounding a transit facility

- Supporting transit services including trolleys, streetcars, light rail, and buses, are coordinated with development patterns and accessibility issues
- Designed to include the easy use of bicycles, scooters, and other pedestrian modes of travel to support circulation around the transit system.
- Reduced and managed parking inside 10-minute walk radius around town center / transit facility is desirable

*Some of the Published Benefits by Real Estate & Development Industry Leaders:*

- High quality of life and more stable property values
- Ability to live, work, and play within the same town
- More efficient use of public infrastructure investment
- Enhanced ability to maintain economic competitiveness
- Increased foot traffic (customers) for local businesses
- Greater mobility
- Increased transit ridership
- Reduced traffic congestion and the need to drive
- Reduced household spending on transportation, resulting in more affordable lifestyles
- Healthier lifestyle with more walking, and less stress
- Reduced dependence on gas and oil supplies
- Reduced pollution and environmental degradation
- Reduces the impacts of suburban sprawl

## **EXISTING COMMUTER RAIL AND LRT RIDERSHIP**

The ultimate goal of understanding the transit score and interpreting land use and transit services planning is to increase transit ridership. Appendix G provides information on existing transit ridership for commuter rail and light rail transit systems owned and operated by NJ Transit.



## CONCLUSION

The Transit Score is a planning tool that can be used to guide land use, transit investment and service analysis. It cannot be overstated that it is not a substitute for, but a supplement to, detailed feasibility studies and the overall ongoing land use and transportation planning process.

There are, however, a growing number of agencies using the Transit Score to great advantage: North Jersey Transportation Planning Authority and the Delaware Valley Regional Planning Commission for their long range plans; NJDOT in corridor studies; the Highlands Council in its Regional Master Plan; and NJ Office for Planning Advocacy in the Opportunities and Constraints Reports developed for Plan Endorsement.

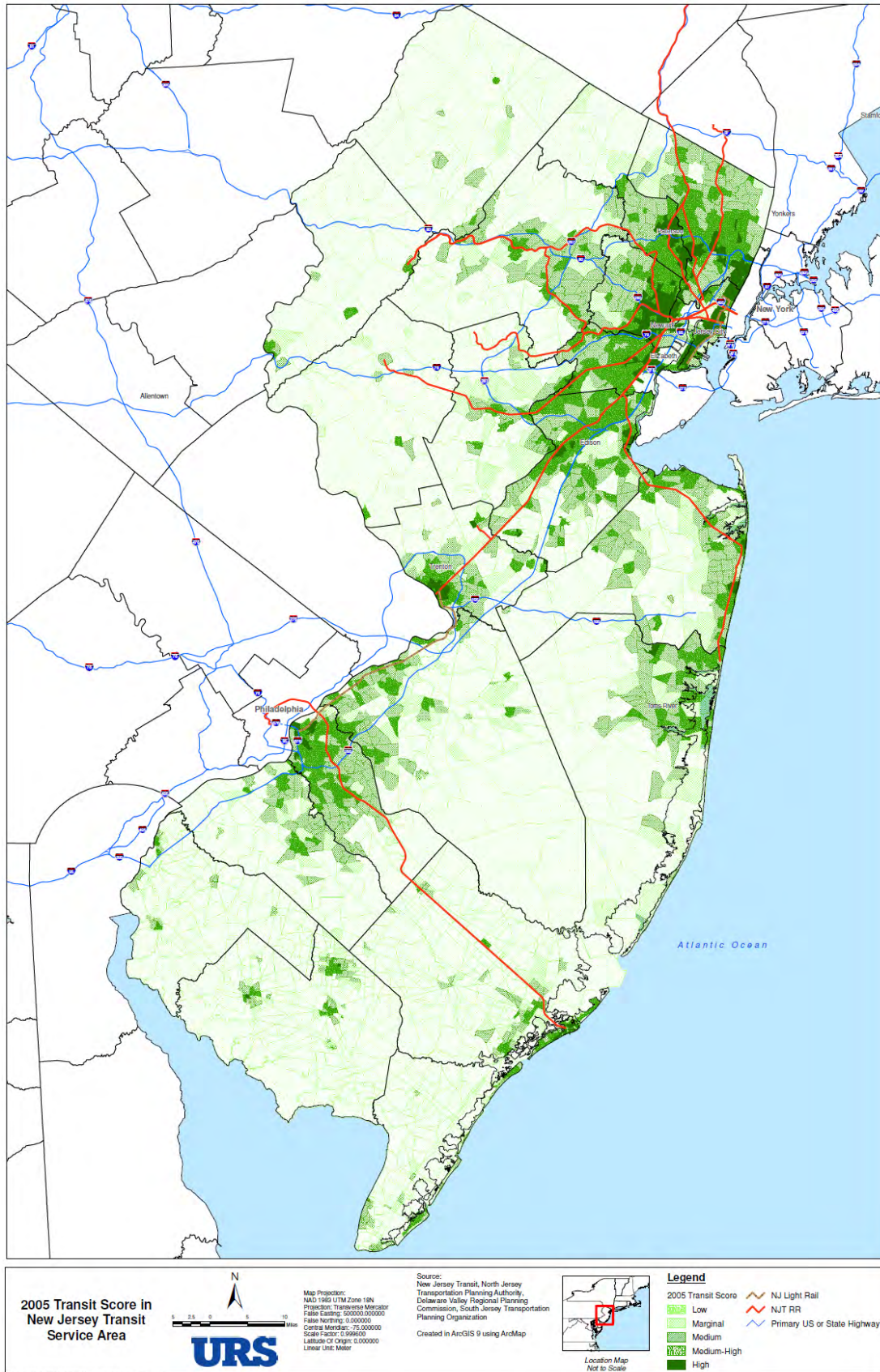
There may be other benefits from a Transit Score analysis to other agencies, particularly since encouraging compact, mixed-use development in designated growth areas that would increase a Transit Score and make it more likely to reduce auto-dependency and encourage walking, biking and public transportation. These benefits will in turn, help save open space and in reduce Greenhouse Gas emissions, a primary contributor to climate change.

For these reasons and many more, municipalities can also make good use of the Transit Score in their land use planning. They can transform existing and trend conditions to create a more walkable, bikable and transit-friendly community in the future.

• • •

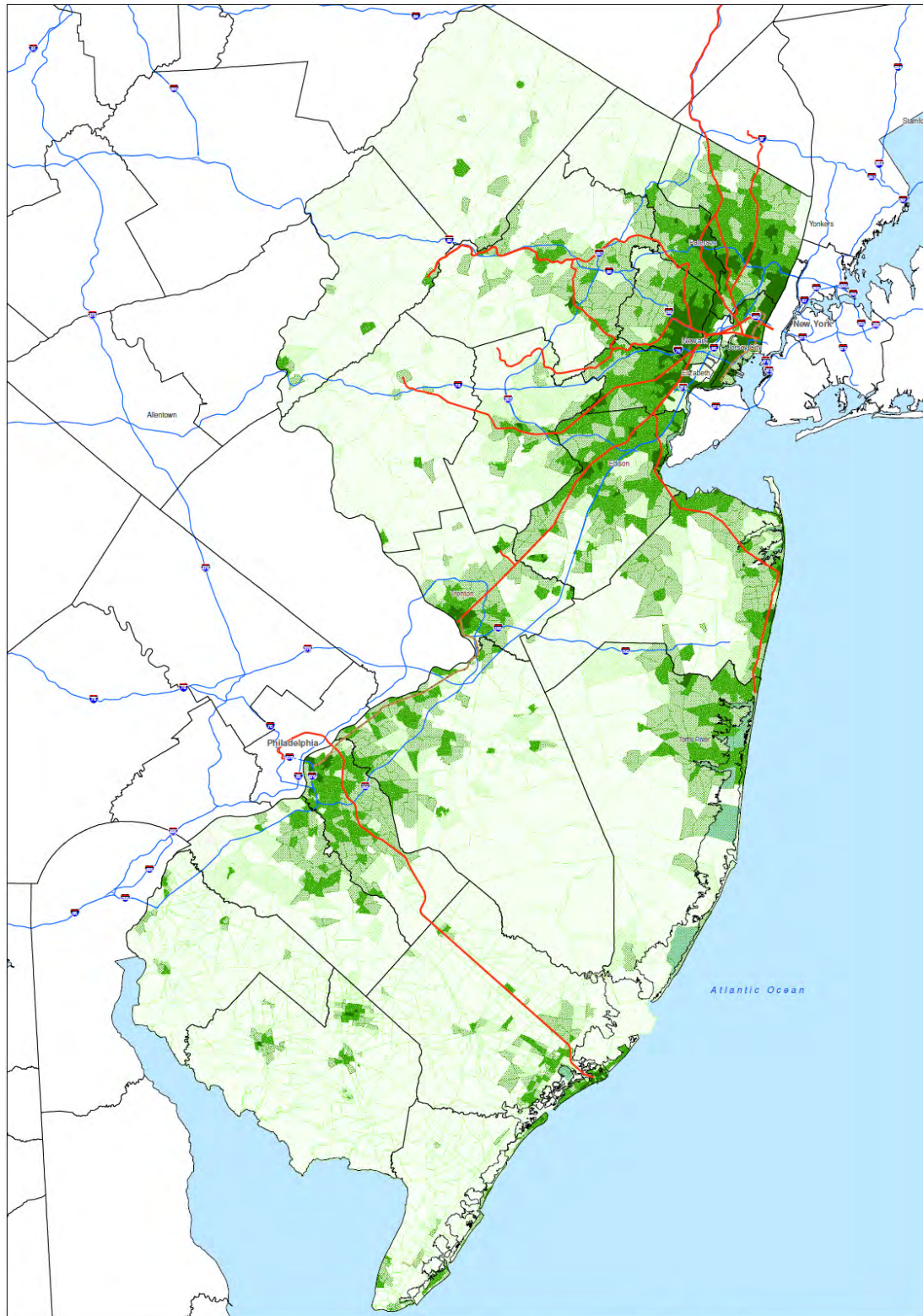
**[THIS PAGE INTENTIONALLY LEFT BLANK]**

## Appendix A – 2005 TRANSIT SCORE MAP (Existing)

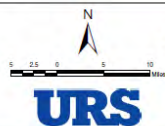




## Appendix B – 2035 TRANSIT SCORE MAP (Projected Trend)



**2035 Transit Score in  
New Jersey Transit  
Service Area**



Map Projection:  
NAD 1983 UTM Zone 18N  
Projection: Transverse Mercator  
False Easting: 500000.000000  
False Northing: 0.000000  
Central Meridian: -75.000000  
Scale Factor: 0.999600  
Latitude Of Origin: 0.000000  
Linear Unit: Meter

Source:  
New Jersey Transit, North Jersey  
Transportation Planning Authority,  
Delaware Valley Regional Planning  
Commission, South Jersey Transportation  
Planning Organization  
Created in ArcGIS 9 using ArcMap



Location Map  
Not to Scale

**Legend**

- |                    |                             |
|--------------------|-----------------------------|
| 2035 Transit Score | NJ Light Rail               |
| Low                | NJT RR                      |
| Marginal           | Primary US or State Highway |
| Medium             |                             |
| Medium-High        |                             |
| High               |                             |



## APPENDIX C – TRANSIT SCORE CASE STUDIES

### TRANSIT SCORE – FIXED GUIDEWAY TRANSIT

#### *FLEMINGTON EXAMPLE AND HOW TO INTERPERT REGIONAL CONTEXT OF TRANSIT SCORE*

##### BACKGROUND

Flemington area officials and others utilized Flemington Boro's Medium-High Transit score as one of the justifications for proposing an extension of commuter rail service down two freight lines to connect Flemington to existing Raritan Valley Commuter Rail line at Bound Brook. Based on this experience, it is apparent that there needs to be a regional perspective on the transit score; it should not be viewed in isolation. Transit score needs to be looked at in a regional context as discussed below before concluding a type of transit service is warranted.

##### Example of Actual Transit Score and Regional Context

- There is a 10-15 mile gap between the Medium-High Transit Score of Flemington and the medium Transit Score of Bound Brook and Manville, and Somerville and part of Hillsborough.
- Minimum Transit Score of Marginal must extend over the entire corridor along the freight railroads, in order to consider an extension of an existing commuter line viable to do a more detailed study.
- Transit Score alone does not indicate service is feasible or cost-effective. Detailed studies of ridership potential, capital costs, operating costs, yard, ownership, freight service requirements etc. are needed. Transit Score is a tool to rule in or out alternatives for further detailed study at the regional level.
- Regional Context- Heavy freight railroad corridor, limitations on Right of way, cost, integration with existing service. Portions of corridor overlap with West Trenton corridor, and existing area has low orientation to commuter rail

destinations in New York, Newark, Hudson Waterfront

- Corridor defined as all census tracts from Hillsborough west to Flemington not including West Trenton line overlap from Bound Brook.

##### EXISTING CORRIDOR DATA

- 47,600 Population, 17,300 DU, 22,000 jobs, 3.2% Zero Car HH in 2000
- Need to add 38,400 people, 13,700 DU and 1,300 jobs to justify entire corridor being Marginal Transit Score. Total of 5.5% of Households are zero car HH.
- This level of development would be needed to raise Transit Score to justify more detailed examination of a fixed guideway service extension.
- With increase in population and housing, total corridor now has 86,000 people, 31,000 housing units, and 23,300 jobs.
- This increase in population and density would convert all low transit score areas to Marginal, and Marginal Transit Score areas to Medium.
- 10 census tracts used, 1 medium high, and 1 medium stay the same. 7 low transit score areas are now marginal, and 1 marginal transit score area is now medium

##### LESSON LEARNED

1. Context Matters- Entire corridor needs to have marginal and above transit score to justify examination of commuter rail corridor. Express bus would require lower densities and Transit scores
2. Need for Land Use Changes- 80% increase in residential units, or 13,700 units required to increase transit score to get level identified in guidelines. One or two tracts do not make a corridor. Alternative approach would be to



identify stations and then put increased residential development in ½ to 1 mile radius around station sites, leaving rest of area as Low Transit Score. This is an alternative approach

3. Need to map freight lines to show context of which towns/areas would need to be involved in looking at a regional rail improvement like this. Individual municipalities alone are not enough to examine a fixed guideway extension because it extends beyond one or two municipal boundaries.
4. Detailed studies still needed as follow up. Transit Score alone does not constitute a study, but puts in context magnitude of land use changes that may be required. Detailed studies beyond land use issue also have a role to play in viability of new fixed guideways, or extensions of existing services.

## INTERMODAL & ACCESS TO TRANSIT

### BACKGROUND

Intermodal/Access to transit is a role that towns can and do get involved in funding and operation of services, from shuttle buses to parking spaces.

Takes advantage of existing line-haul system NJ TRANSIT and other major operators like PATCO, PATH operate. Costs to develop can be low to very high for structured parking.

### Transit Score Standards for Intermodal based on Existing Ridership at Stations or major terminals

Structured Parking is encouraged to provide more efficient usage of intermodal access at high volume or regional stations. Parking allows higher intensity development. In most cases, **Transit Score recommends that 1,000 peak period boarding riders (over 4 hour period) are required to consider parking structures.** However, special conditions such as terminals at end of line, or redevelopment, with shared parking between transit riders and other uses are also possible.

**Shuttle Bus Services range from NJT operated dedicated bus routes to municipal run community shuttles. Transit Score standards require a minimum peak period boarding ridership of 500 riders, and a medium high or above transit score for walk to shuttle bus. There are numerous examples of shuttles throughout the state.**

**For areas with a Medium Transit Score, walk access to shuttle bus is feasible if GROSS Housing Densities of 2.0 per acre (or about 6 -7 per net acre) are available in the area of the shuttle.** Without these densities, a remote parking and bus shuttle can sometimes support a shuttle bus for Medium Transit Score areas. Examples include Middletown train station. More information on shuttle buses is available on NJ TRANSIT rail schedules.

## BUS & OTHER TRANSIT SERVICES CRITERIA

### BACKGROUND

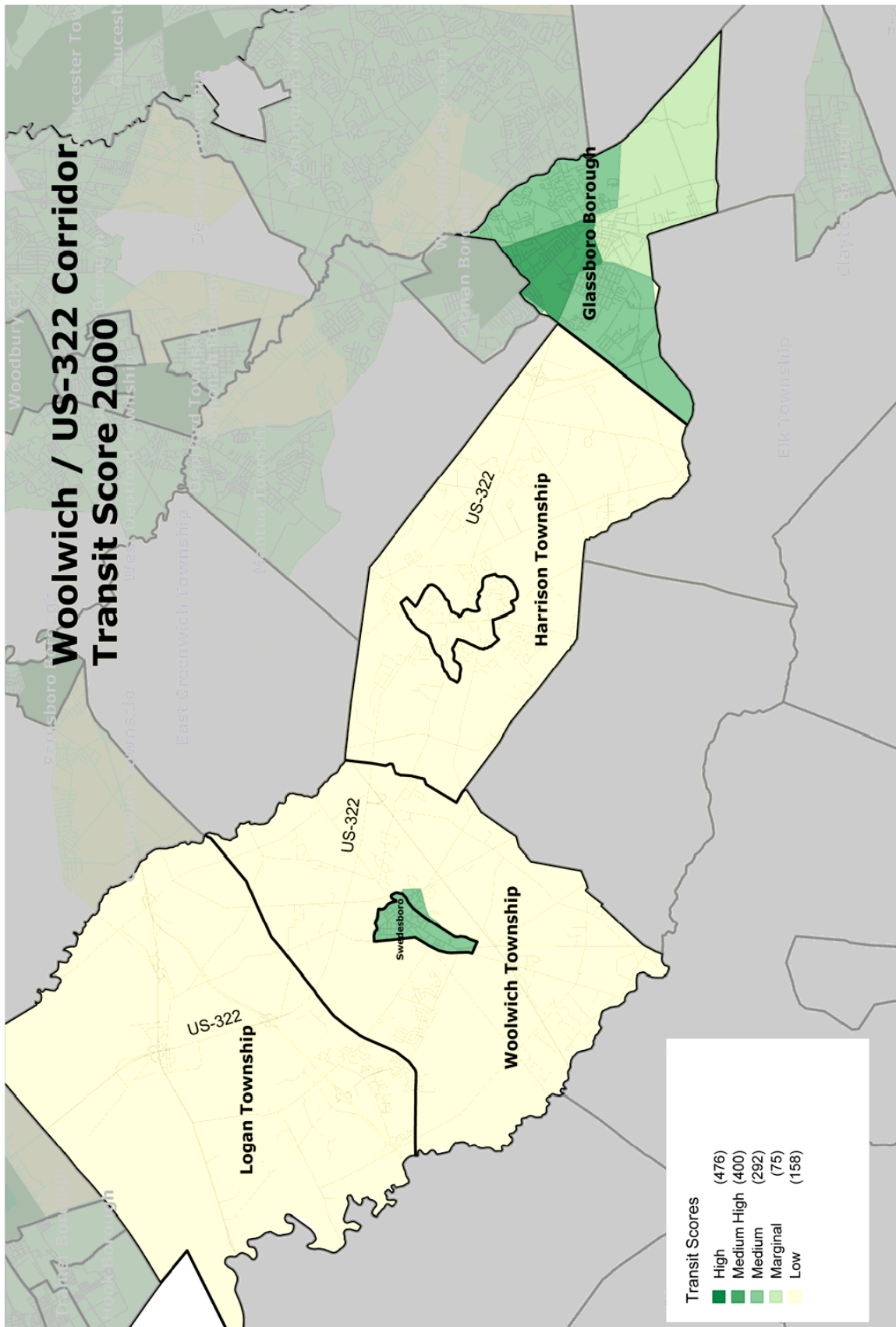
- Local Bus service provides most of the transit services and ridership throughout the state of New Jersey. Types of bus service are related to the Transit Score of an area, usually over an entire corridor or service area.
- **The Transit Score shows a range of a minimum span of service throughout the day and average daily frequency of bus service in terms of bus service per hour. Thus the span of service refers to the number of hours during the day a service operates, like 8-12 hours, typically for a Medium Transit Score area, up to 16-24 hours for High Transit Score areas.** This is based on existing NJT experience, subsidy levels, and operating costs. The span of service shows how long a time period of a typical weekday service can be supported. **The other service level indicator is approximate frequency of bus service, ranging from an average of 20 to 60 minutes per hour throughout the day.** For some services, a minimum number of jobs in a municipality/center are required, along with differences based on location of an area in the State Plan.



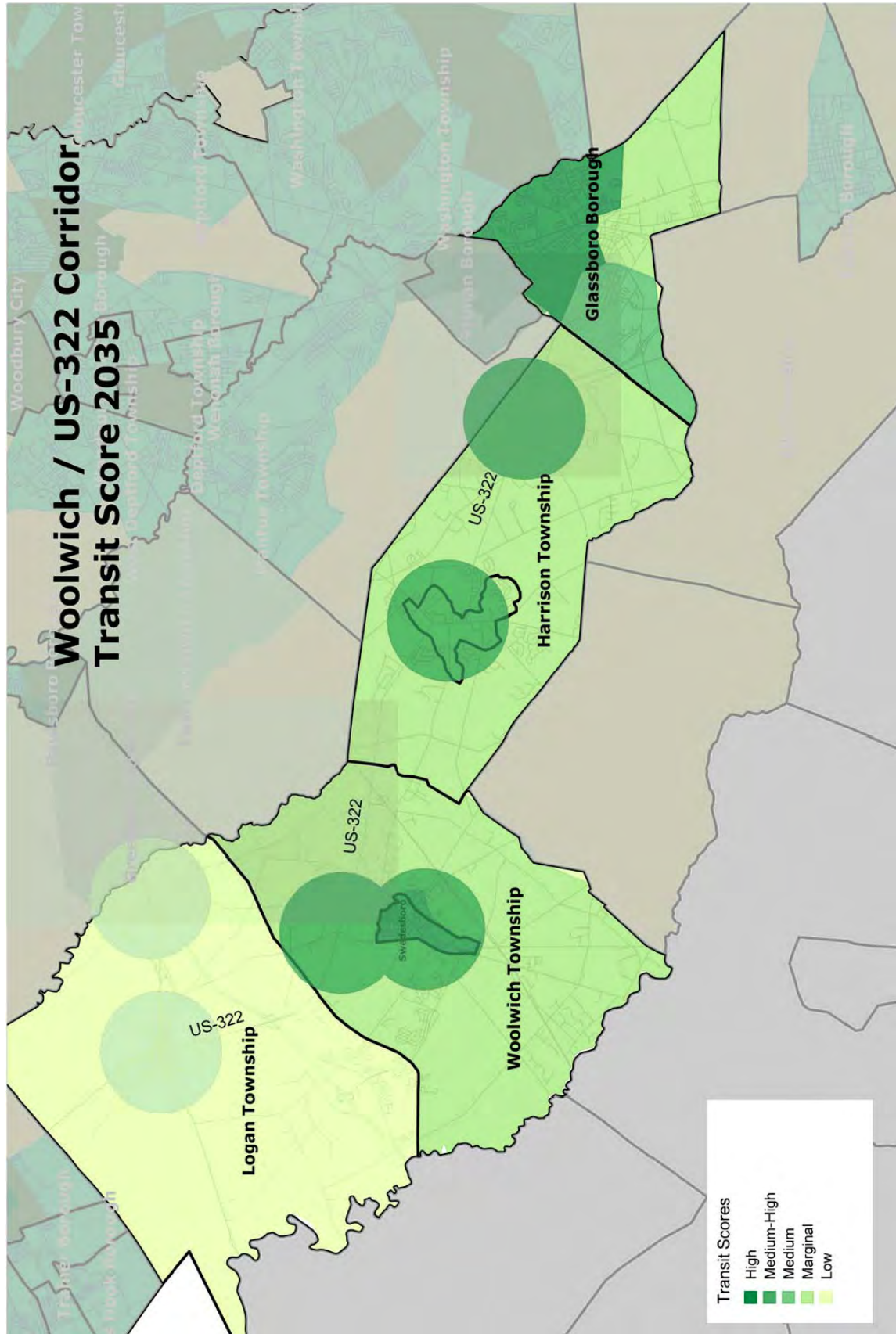
- Bus services relationship to the transit score approximates both population and employment density and the amount of transit dependent populations in an area. Thus land use intensity is used in the Transit Score to relate rough levels of bus service from the marginal, peak period only to the all day, very frequent service in most urban centers

#### EXAMPLE - Woolwich and the Route 322 Corridor

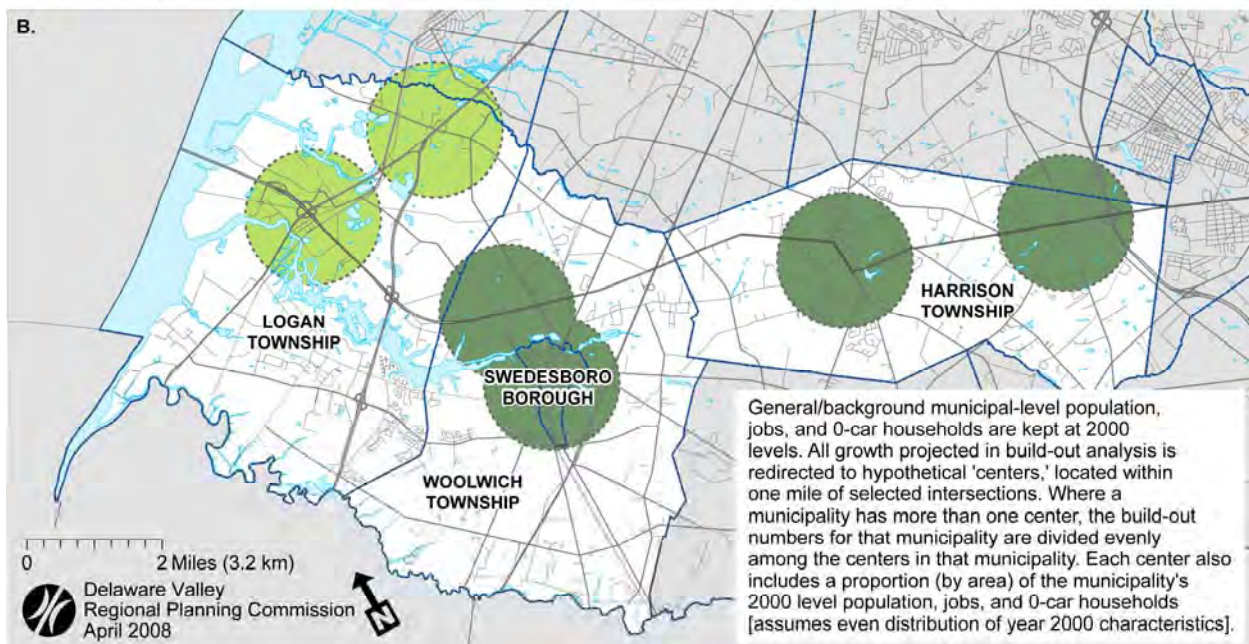
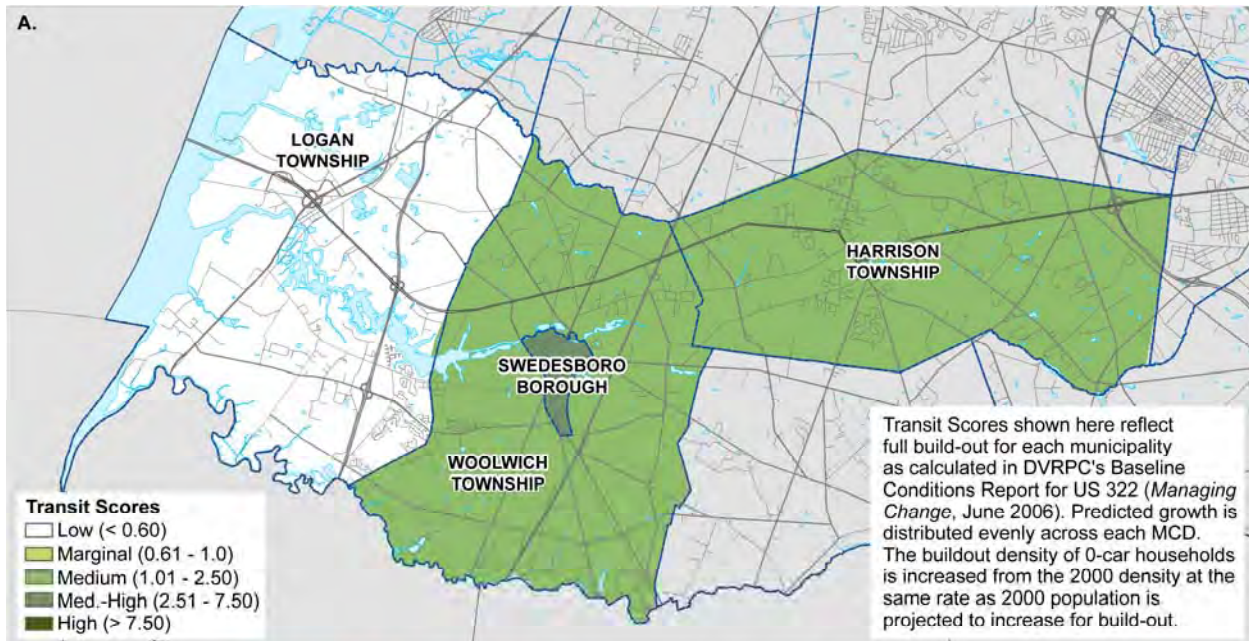
- DVRPC examined a high growth suburban corridor in Gloucester County. The area was along State Route 322, and was between the I-295 and areas east to Glassboro. Please see pages 17-19.
- Transit Score was used to show 2000, and Trend 2035 conditions. Based on working with local towns, a concentration of development within a 1 mile radius of several key centers was developed. This concentration along key nodes of development allows for higher densities to support a Minimum level of local bus service along Rt. 322 to the Glassboro employment center along with a high concentration of college students at Rowan University.
- Rt. 322 study shows how local land use planning and zoning can take the same amount of development and make it more supportive of local transit services. In this case, a new local bus route was to in the future be studied along Rt. 322 to Glassboro. This is an example of relating future land use to a possible expansion of local transit.











## APPENDIX D – HOW WERE DETAILED INVESTMENT CRITERIA AND CONDITIONS DETERMINED? CAN THE CRITERIA BE CHANGED OR MODIFIED?

Criteria were developed using National and NJT experience and data. Criteria are designed to indicate the "minimum potential" and assume the lower end of financial feasibility. Most criteria have a basis in actual observed New Jersey data. However the services and investments shown are **not fiscally constrained**. This means that although a particular type of transit service may be feasible based on the Transit Score, the overall financial resources available to operate new or expanded transit service need to be identified. The Transit Score criteria may indicate that a minimum level of financial viability has been met, but the overall resources needed to support additional service require further, detailed study and examination on a regional and statewide basis.

The criteria and conditions are guidelines, which are designed to indicate what type of bus transit services, fixed guideways by type and intermodal facilities, are appropriate over a general area. More detailed study is required to confirm these findings. **The transit score and criteria are designed to be an "order of magnitude" screening of where various modes of transportation and types and intensity of service are appropriate.** Exceptions and modifications to the criteria/conditions based on the Transit Score are possible under selected circumstances, particularly when more detailed analysis has been completed.

For relating bus service potential and intermodal facilities to the transit scores, actual local New Jersey transit experience and guidelines were used, along with data developed in several national studies which used the New York metropolitan area as a base. **The guidelines are designed to indicate a hierarchy of the minimum potential for different types of transit service, and what type of service is appropriate over a general area, not individual routes.** "Minimum Potential" assumes the lower end of actual cost-recovery exhibited by existing Shuttles/Local Bus services. **The criteria and conditions**

**represent the potential for service and still need to be subject to more detailed study and cost-benefit analysis.**

The criteria shown here can be modified based on input from detailed studies, and other information developed by actual project implementation. However, NJ TRANSIT staff believes that these criteria represent a reasonable approach to achieve order-of-magnitude guidelines for evaluating the many different types of transit services possible in New Jersey.

### WHAT CAN I DO TO CHANGE THE TRANSIT SCORE OF AN AREA?

The main part of this report outlines an example of how to change the Transit Score of an area, and how it relates to land use and development patterns and demographic factors. The report also gives the formula for the Transit Score.

### IS THERE INFORMATION INDICATING THE NUMBER OF JOBS IN CENTERS AND MUNICIPALITIES?

### HOW DOES THE TRANSIT SCORE RELATE TO ACTUAL TRANSIT MODE SHARE & AUTO REDUCTION?

### CAN I OBTAIN SOME OF THE OTHER INFORMATION REGARDING THE CRITERIA?

NJ TRANSIT has a file which can be made available which has for every census tract in the State of New Jersey the land area, number of zero car households, population, and number of jobs as defined by the 2000 Census. All of this data is from the 2000 Census. Census definition of jobs does not include second jobs and some other small limitations. Generally, the number of jobs is about 5% to 7% higher than indicated in the census. For more recent information, surveys, private databases, or estimates from county or MPO Planning departments may assist in developing more current information. Future employment forecasts at either the

census tract or municipal level are available from the three Metropolitan Planning Organizations (MPOs) in New Jersey.

The DVRPC report "Creating a Regional Transit Score Protocol: Full Report" documents the relationship and the statistical relationship between transit score and transit market or mode share. This report found that presence of a rail station, number of bus stops, and length of travel time to work in addition to population, employment, and 0-car Household density explained a large amount of the variance in transit mode share for work trips. The full Year 2000 equation is shown earlier in this document describing the Transit Score formula. The full DVRPC report is also available from DVRPC.

NJ TRANSIT has data on existing peak period station boardings, service frequencies of bus and rail services, and other data on transit. Please contact NJT for details.



## APPENDIX E – DEFINITION OF KEY TERMS IN CRITERIA AND CONDITIONS FOR TRANSIT SCORE

This section defines some of the key terms used in the Transit Score Guidebook.

- **High-Cost and Low-Medium Cost Electric Light Rail-** Refers to relative levels of capital investment in guideway and other capital costs. High-Cost Light Rail involves major tunnel and elevated structures. Typical High-Cost Light Rail as defined here is \$60 million to \$100 + million per mile excluding vehicle and land costs, in 2005 dollars.
- **Line-Haul Transit-** Longer distance transit service which serves a regional function. Commuter Rail, Express Bus, some Light Rail and Ferry services meet this standard.
- **Mini-Bus Service-** Refers to a specific group of NJ TRANSIT subsidized mini-bus route services, most of which were started in the early to mid-1990's. They typically serve suburban employment centers, and largely use mini-buses. Mini-Bus service refers to smaller vehicle bus service typically with between 20 and 29 passenger seats. These are usually used in shuttle service to provide access for riders to/from commuter rail, light rail, and express bus services.
- **Shuttle Bus-** In this document Shuttle Bus refers to primarily residential based dedicated feeder bus service to line-haul transit service. It is typically operated with mini-buses, but can include standard transit buses. NJ TRANSIT's Community Shuttle Program is an example of this mode.
- **Express Bus-** Typically a bus service that will operate non-stop for several miles to reach its downtown or final destination, where one or only a few stops are made. Most Express Bus service in the state is to New York, Philadelphia, Newark, Jersey City, and Atlantic City. While NJ TRANSIT does not have a separate "Express Bus" category of routes, buses which operate a minimum of at least 3 miles in non-stop service are defined as express. This definition can be used for planning purposes.

- **Commuter Rail/Diesel Light Rail-** Both of these types of services are similar, except that Diesel Light Rail must be separated from freight or commuter rail service by either time separation or operation on its own tracks. This is due to the strength of the vehicle and its possible impact during collisions. Except for this difference, and some minor difference in vehicle design, these two modes are considered interchangeable for non-Electric services. There are also differences in operating costs between the two modes.
- **Intensity of Bus Service-** This refers to the span of service or hours of the day when bus service operates. The higher the intensity of the bus service, the longer the time period served. The frequency of bus service is given in an all-day frequency for the span of service indicated.

As an example, Minimum Intensity Bus Service has a service span of 8 to 12 hours over a day. With a 30-60 minute frequency all day, this results in a total of 8 to 24 buses in each direction per day (8 hours at one bus per hour is the minimum (8), 12 hours at 2 buses per hour is the maximum (24)). This relates the amount of bus service to the Transit Score areas indicated for local bus service. Actual individual routes and areas will vary due to operational and other issues (garage location, minimum service standards, location of approved bus stops, ridership etc.).

- **Monorail Special Case-** Monorails and Personal Rapid Transit (PRT) are special types of transit that do not fit easily into the Transit Score categories. Monorails have capital costs and operating characteristics similar to rapid transit. Monorails also can serve a longer haul trip like a rapid transit line, or they can serve a distributor function like the Newark Airport Monorail or other types of monorail to special trip generators such as airports and sports arenas. Personal Rapid Transit (PRT) is usually used for special applications like a



distributor in a downtown area, or connecting remote parking to a constrained employment site.

Based on the wide range of types of service, two types of criteria are proposed for Monorails, depending on the type of application:

**1. Regular Route Service** (typically 3 miles or greater)- Rapid Transit criteria apply. This means they should be located only in High

Transit Score Areas and with direct service to an employment center of 150,000 + jobs.

**2. Distributor Service or Service to Special Generators (typically less than 3 miles).**

Need to have 60,000 jobs in a center or 40,000 daily trips (20,000 one-way trips, about the number of trips to a typical arena). It is applicable to High or Medium-High Transit Score areas only. For Personal Rapid Transit (PRT), individual case studies would be required.



## APPENDIX F – TRANSIT SCORE AND PLAN ENDORSEMENT<sup>1</sup>

The following is a description of the planning process – limited to its relationship to using the Transit Score as a planning tool -- which a municipality or region might undertake to seek Plan Endorsement from the State Planning Commission. ***(See Transit Score Analysis in the Plan Endorsement Process Flow Chart)***

### PRE-PETITION

Upon submittal of Pre-Petition for Plan Endorsement, NJ TRANSIT will provide a packet of material to assist the NJ Office for Planning Advocacy (OPA) in reviewing the material submitted.

The packet will include:

- Existing and Projected Transit Scores
- Regional Context Overview
- Methodology for scenario planning

At this stage, the OPA will involve the metropolitan planning organization (MPO), to ensure data and planning scenarios are coordinated and because they have the potential to synthesize funding for potential transit infrastructure projects.

NJ TRANSIT and OPA will then meet with the petitioning town to discuss existing conditions and potential outcomes based on different planning scenarios and the feasibility of providing new or expanded transit services.

### PLAN ENDORSEMENT ADVISORY COMMITTEE

The municipality or region will establish an Advisory Committee that will act as the liaison with OPA to conduct the Plan Endorsement Process.

### MUNICIPAL SELF-ASSESSMENT

Municipality will provide a self-assessment that meets the requirements of the Plan Endorsement Process.

At this step, municipalities can review the existing and projected transit scores to determine whether zoning changes will be needed or desirable to support potential new or expanded public transit project(s) with an efficient landscape.

### OPPORTUNITIES AND CONSTRAINTS ASSESSMENTS

NJ TRANSIT will conduct an Opportunities and Constraints Analysis in respect to public transit based on the Municipal Self-Assessment. A Regional Context Analysis including the entire system and identification and impact of current and proposed projects and studies in the pipeline will also be conducted. This Opportunities and Constraints Assessment will be supplied to the petitioner to assist the decision-making process during the Community Visioning.

### COMMUNITY VISIONING

Within this step, municipalities will determine the land use changes needed to obtain the desired public transit service outcome.

If Community Visioning has already been completed prior to a Transit Score Analysis, the Petitioner will perform a Transit Score Analysis by comparing the Vision to the Projected Transit Score and report the differences and findings.

If Community Visioning is yet to be completed, the Petitioner will conduct scenario or conceptual planning as part of the Community Visioning to produce a desired "Future" Transit Score.

### COMPLETED VISION PLAN

At the completion of Community Visioning, the Petitioner will submit the Transit Score Analysis as part of the Completed Vision Plan.

### CONSISTENCY REVIEW

At this step, NJ TRANSIT will review the Transit Score Analysis. NJ TRANSIT will decide to

- Accept the Transit Score Analysis
- Accept the Transit Score Analysis with caveats
- Reject the Transit Score Analysis with caveats

NJ TRANSIT will then submit its recommendations, such as actions that state agencies and MPO should take, including taking such steps as funding an MPO Study and Development Work Plan, etc. These recommendations will be included in the Action Plan that is developed and agreed upon by all

<sup>1</sup> The goal of NJ TRANSIT's proposal to integrate the use of Transit Score into the Municipal Plan Endorsement process was to inform this community "self-assessment" activity in accordance with the NJ Office of Smart Growth's State Development & Redevelopment Plan "cross acceptance" process. In late 2010, the Christie Administration repositioned the Office of Smart Growth as the Office for Planning Advocacy, now housed in the Lt. Governor's office. It is NJ TRANSIT's intent to work with OPA, as needed, to incorporate the use of Transit Score into any future version of Municipal Plan Endorsement that may be established.

parties at the conclusion of the Plan  
Endorsement Process.

**AGENCIES CONSTRUCT ACTION PLAN /  
AUTHORIZATION AND COMPLETION**

In accordance with the OPA Plan Endorsement  
Process

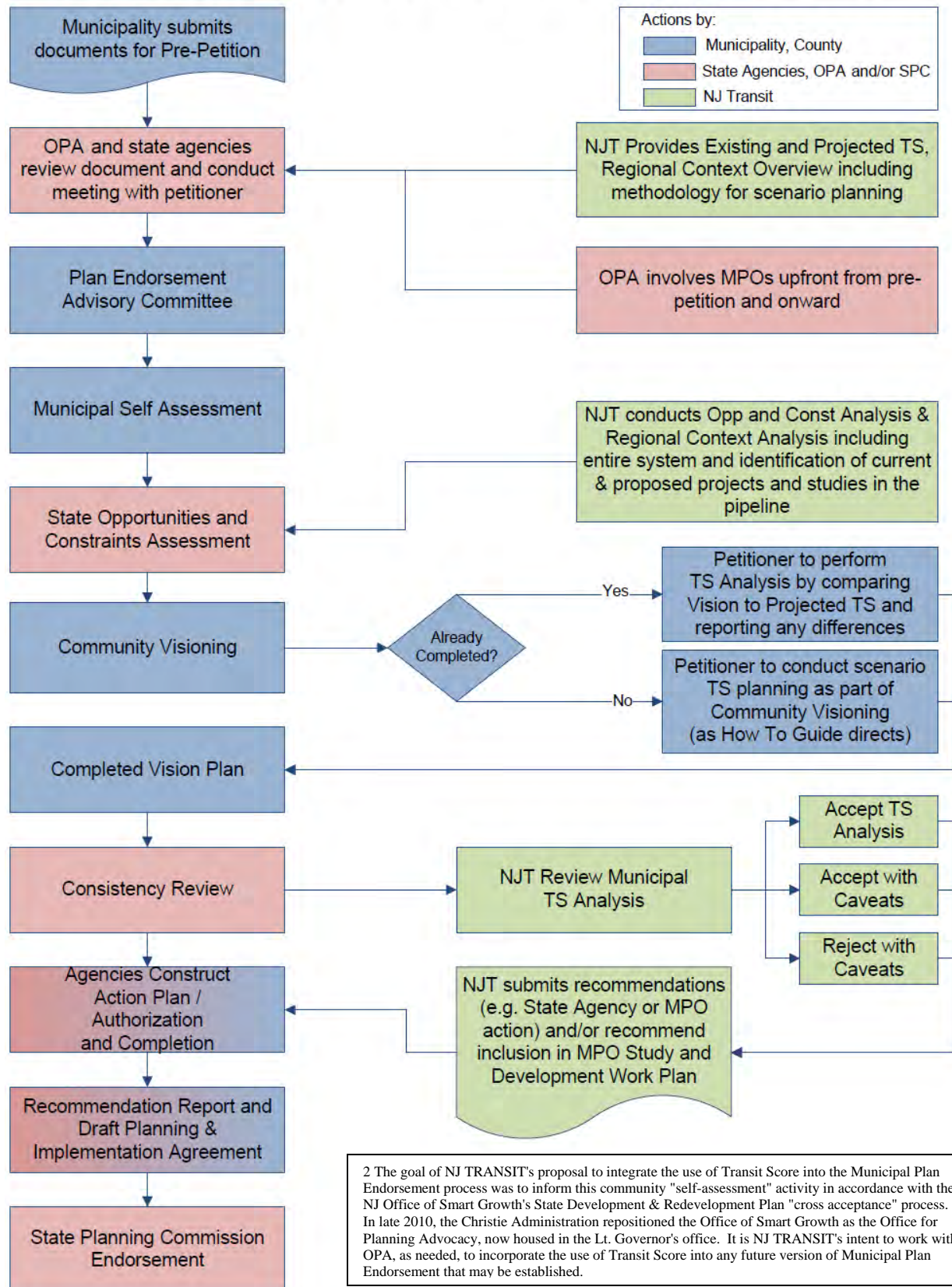
**RECOMMENDATION REPORT AND DRAFT  
PLANNING & IMPLEMENTATION  
AGREEMENT**

In accordance with the OPA Plan Endorsement  
Process

**STATE PLANNING COMMISSION  
ENDORSEMENT**

In accordance with the OPA Plan Endorsement  
Process

## Transit Score Analysis in the Plan Endorsement Process<sup>2</sup>



## APPENDIX G – EXISTING COMMUTER RAIL & LRT RIDERSHIP

### NJT COMMUTER RAIL AND LRT RIDERSHIP

This section presents the current ridership flow and station activity for the Fixed Guideway System owned and operated by New Jersey Transit (NJT). This includes the following commuter rail lines (Rail) and light rail transit (LRT) systems:

Commuter Rail Lines	Light Rail Lines
1. North Jersey Coast Line (NJCL)	1. Hudson-Bergen LRT (HBLR)
2. Northeast Corridor (NEC)	2. Newark Light Rail (NLR)
3. Raritan Valley Line (RVL)	3. Riverline LRT (RVLR)
4. Gladstone Branch (GSB)	
5. Morristown Line (MTL)	
6. Montclair-Boonton Line (MBL)	
7. Main Line (ML)	
8. Bergen County Line (BCL)	
9. Pascack Valley Line (PVL)	
10. Port Jervis Line (PJL)	

Note: Atlantic City Rail Line (ACRL) data available upon request to NJ Transit.

### COMMUTER RAIL SYSTEM RIDERSHIP

For each of the rail lines listed above, NJT staff provided the number of passengers boarding (on) and alighting (off) at each rail station of the rail system. This information was compiled during 2007 or 2008 for various lines and provided for the morning-peak (6 am to 10 am) and off-peak (10 am to 8 pm) in inbound direction (towards Newark/New York). URS calculated the ridership flow between two stations. For the common segments, where many line serve the same segment of the tracks such as between Newark and New York Penn stations, ridership flows were combined to develop link (between two stations) level flows.

Figure G1 depicts the ridership flow for the entire commuter rail system. Table G1 lists the same information in tabular format which are

organized by rail line. Figure G2 and Table G2 shows the station boarding and alighting activities for the inbound rail service between 6 am and 8 pm for all stations in the system.

### LRT SYSTEM RIDERSHIP

The ridership activity for each LRT system was compiled from 2007 and 2008 information to develop daily station activity and link level flow. The data provided to URS included 24-hour passenger counts which included three time periods: 6-10 am, 10 am-8 pm, and 8 pm to 6 am. LRT ridership numbers are also provided in both directions of travel.

Figure G3 and Table G3 shows the daily ridership flow between each station pairs by direction. Figures G4 and Figure G5 depicts the station boarding (On) and alighting (Off) for each LRT station in northbound and southbound directions respectively. Table G4 provides the same information in tabular format.

### TRANSFER LOCATIONS

NJ Transit staff also provided a database of locations where high number of transit riders are transferring to other bus routes or train lines. Figure G6 depicts top 57 locations with number of total transit routes available for transfer at each location.



**Table G1 - NJ Transit - Existing Rail Ridership**  
Inbound between 6 am to 8 pm \*

Name	Line	From Station	To Station	Flow Rail
North Jersey Coast Line	NJCL	Bayhead	Point Pleasant	137
North Jersey Coast Line	NJCL	Point Pleasant	Manasquan	445
North Jersey Coast Line	NJCL	Manasquan	Spring Lake	601
North Jersey Coast Line	NJCL	Spring Lake	Belmar	774
North Jersey Coast Line	NJCL	Belmar	Bradley Beach	994
North Jersey Coast Line	NJCL	Bradley Beach	Asbury Park	1,095
North Jersey Coast Line	NJCL	Asbury Park	Allenhurst	1,412
North Jersey Coast Line	NJCL	Allenhurst	Elberon	1,544
North Jersey Coast Line	NJCL	Elberon	Long Branch	1,687
North Jersey Coast Line	NJCL	Long Branch	Little Silver	2,793
North Jersey Coast Line	NJCL	Little Silver	Red Bank	3,716
North Jersey Coast Line	NJCL	Red Bank	Middletown	4,750
North Jersey Coast Line	NJCL	Middletown	Hazlet	6,056
North Jersey Coast Line	NJCL	Hazlet	Matawan	6,862
North Jersey Coast Line	NJCL	Matawan	South Amboy	9,687
North Jersey Coast Line	NJCL	South Amboy	Perth Amboy	10,934
North Jersey Coast Line	NJCL	Perth Amboy	Woodbridge	11,586
North Jersey Coast Line	NJCL	Woodbridge	Avenel	13,072
North Jersey Coast Line	NJCL	Avenel	Rahway	13,238
Northeast Corridor	NEC	Trenton	Hamilton	5,012
Northeast Corridor	NEC	Hamilton	Princeton Jct	9,607
Northeast Corridor	NEC	Princeton Jct	Jersey Ave	16,711
Northeast Corridor	NEC	Jersey Ave	New Brunswick	18,536
Northeast Corridor	NEC	New Brunswick	Edison	22,615
Northeast Corridor	NEC	Edison	Metuchen	25,378
Northeast Corridor	NEC	Metuchen	Metropark	28,102
Northeast Corridor	NEC	Metropark	Rahway	34,820
NJCL / NEC	NJCL / NEC	Rahway	Linden	50,124
NJCL / NEC	NJCL / NEC	Linden	Elizabeth	51,955
NJCL / NEC	NJCL / NEC	Elizabeth	N. Elizabeth	54,036
NJCL / NEC	NJCL / NEC	N. Elizabeth	Newark Airport	54,614
NJCL / NEC	NJCL / NEC	Newark Airport	Newark Penn	55,738
NJCL / NEC	NJCL / NEC	Newark Penn	Secaucus	50,538
NJCL / NEC	NJCL / NEC	Newark Penn	Hoboken	1,023
NJCL / NEC / GSB / MTL / MBL	NJCL / NEC / GSB / MTL / MBL	Secaucus	New York Penn	75,105
Gladstone Branch	GSB	Gladstone	Peapack	203
Gladstone Branch	GSB	Peapack	Far Hills	299
Gladstone Branch	GSB	Far Hills	Bernardsville	465
Gladstone Branch	GSB	Bernardsville	Basking Ridge	577
Gladstone Branch	GSB	Basking Ridge	Lyons	683
Gladstone Branch	GSB	Lyons	Millington	1,112
Gladstone Branch	GSB	Millington	Stirling	1,263
Gladstone Branch	GSB	Stirling	Gillette	1,355
Gladstone Branch	GSB	Gillette	Berkeley Heights	1,479
Gladstone Branch	GSB	Berkeley Heights	Murray Hill	1,899
Gladstone Branch	GSB	Murray Hill	New Providence	2,376
Gladstone Branch	GSB	New Providence	Summit	2,837
MTL / MBL	MTL / MBL	Hackettstown	Mt Olive	72
MTL / MBL	MTL / MBL	Mt Olive	Netcong	127
MTL / MBL	MTL / MBL	Netcong	Lake Hopatcong	221
MTL / MBL	MTL / MBL	Lake Hopatcong	Mt Arlington	350
MTL / MBL	MTL / MBL	Mt Arlington	Dover	418
MTL / MBL	MTL / MBL	Dover	Denville	1,805
Morristown Line	MTL	Denville	Mount Tabor	1,808
Morristown Line	MTL	Mount Tabor	Morris Plains	1,866
Morristown Line	MTL	Morris Plains	Morristown	2,501
Morristown Line	MTL	Morristown	Convent Station	3,881
Morristown Line	MTL	Convent Station	Madison	4,802
Morristown Line	MTL	Madison	Chatham	5,639
Morristown Line	MTL	Chatham	Summit	6,811
GSB / MTL	GSB / MTL	Summit	Short Hills	11,946
GSB / MTL	GSB / MTL	Short Hills	Millburn	13,204
GSB / MTL	GSB / MTL	Millburn	Maplewood	14,719
GSB / MTL	GSB / MTL	Maplewood	South Orange	17,131
GSB / MTL	GSB / MTL	South Orange	Mountain Station	19,652
GSB / MTL	GSB / MTL	Mountain Station	Highland Ave	19,863
GSB / MTL	GSB / MTL	Highland Ave	Orange	19,905
GSB / MTL	GSB / MTL	Orange	Brick Church	20,272
GSB / MTL	GSB / MTL	Brick Church	East Orange	21,219
GSB / MTL	GSB / MTL	East Orange	Newark Broad St	21,272
Montclair-Boonton Line	MBL	Denville	Mountain Lakes	494
Montclair-Boonton Line	MBL	Mountain Lakes	Boonton	506
Montclair-Boonton Line	MBL	Boonton	Towaco	574
Montclair-Boonton Line	MBL	Towaco	Lincoln Park	667

# TRANSIT SCORE: New Jersey's Unique Planning Tool

For **NTRANSIT**  
The Way To Go

By **plansmart nj**  
& **URS**

Name	Line	From Station	To Station	Flow_Rail
Montclair-Boonton Line	MBL	Lincoln Park	Mountain View	801
Montclair-Boonton Line	MBL	Mountain View	Wayne Rt 23	1,043
Montclair-Boonton Line	MBL	Wayne Rt 23	Little Falls	1,092
Montclair-Boonton Line	MBL	Little Falls	Great Notch	1,280
Montclair-Boonton Line	MBL	Great Notch	Montclair State Univ	1,292
Montclair-Boonton Line	MBL	Montclair State Uni	Montclair Heights	1,690
Montclair-Boonton Line	MBL	Montclair Heights	Mountain Ave	1,928
Montclair-Boonton Line	MBL	Mountain Ave	Upper Montclair	2,074
Montclair-Boonton Line	MBL	Upper Montclair	Watchung ave	2,609
Montclair-Boonton Line	MBL	Watchung ave	Walnut Street	3,321
Montclair-Boonton Line	MBL	Walnut Street	Bay Street	4,188
Montclair-Boonton Line	MBL	Bay Street	Glen Ridge	5,036
Montclair-Boonton Line	MBL	Glen Ridge	Bloomfield	5,936
Montclair-Boonton Line	MBL	Bloomfield	Watsessing	6,827
Montclair-Boonton Line	MBL	Watsessing	Newark Broad St	7,028
GSB / MTL / MBL	GSB / MTL / MBL	Newark Broad St	Secaucus	19,891
GSB / MTL / MBL	GSB / MTL / MBL	Newark Broad St	Hoboken	7,558
Port Jervis Line	PJL	Port Jervis	Suffern	2,035
Main / Bergen Line	ML / BCL	Suffern	Mahwah	3,077
Main / Bergen Line	ML / BCL	Mahwah	Ramsey Route 17	3,244
Main / Bergen Line	ML / BCL	Ramsey Route 17	Ramsey	3,995
Main / Bergen Line	ML / BCL	Ramsey	Allendale	4,584
Main / Bergen Line	ML / BCL	Allendale	Waldwick	4,872
Main / Bergen Line	ML / BCL	Waldwick	Ho-Ho-Kus	5,265
Main / Bergen Line	ML / BCL	Ho-Ho-Kus	Ridgewood	5,634
Main Line	ML	Ridgewood	Glen Rock	1,107
Main Line	ML	Glen Rock	Hawthorne	1,231
Main Line	ML	Hawthorne	Paterson	1,537
Main Line	ML	Paterson	Clifton	1,662
Main Line	ML	Clifton	Passaic	2,209
Main Line	ML	Passaic	Delawanna	2,559
Main Line	ML	Delawanna	Lyndhurst	2,936
Main Line	ML	Lyndhurst	Kingsland	3,339
Main Line	ML	Kingsland	Secaucus	3,697
Bergen County Line	BCL	Ridgewood	Glen Rock	5,756
Bergen County Line	BCL	Glen Rock	Radburn	6,466
Bergen County Line	BCL	Radburn	Broadway	7,481
Bergen County Line	BCL	Broadway	Plauderville	7,758
Bergen County Line	BCL	Plauderville	Garfield	7,999
Bergen County Line	BCL	Garfield	Rutherford	8,189
Bergen County Line	BCL	Rutherford	Secaucus	8,842
ML / BCL / PVL	ML / BCL / PVL	Secaucus	Hoboken	10,979
Raritan Valley Line	RVL	High Bridge	Annandale	70
Raritan Valley Line	RVL	Annandale	Lebanon	212
Raritan Valley Line	RVL	Lebanon	White House	243
Raritan Valley Line	RVL	White House	North Branch	344
Raritan Valley Line	RVL	North Branch	Raritan	451
Raritan Valley Line	RVL	Raritan	Somerville	952
Raritan Valley Line	RVL	Somerville	Bridgewater	1,642
Raritan Valley Line	RVL	Bridgewater	Bound Brook	2,210
Raritan Valley Line	RVL	Bound Brook	Dunellen	2,685
Raritan Valley Line	RVL	Dunellen	Plainfield	3,476
Raritan Valley Line	RVL	Plainfield	Netherwood	3,952
Raritan Valley Line	RVL	Netherwood	Fanwood	4,471
Raritan Valley Line	RVL	Fanwood	Westfield	5,175
Raritan Valley Line	RVL	Westfield	Garwood	6,884
Raritan Valley Line	RVL	Garwood	Cranford	6,953
Raritan Valley Line	RVL	Cranford	Roselle Park	7,705
Raritan Valley Line	RVL	Roselle Park	Union	8,447
Raritan Valley Line	RVL	Union	Newark Penn	8,974
Pascack Valley Line	PVL	Spring Valley	Nanuet	173
Pascack Valley Line	PVL	Nanuet	Pearl River	528
Pascack Valley Line	PVL	Pearl River	Montvale	742
Pascack Valley Line	PVL	Montvale	Park Ridge	848
Pascack Valley Line	PVL	Park Ridge	Woodcliff Lake	962
Pascack Valley Line	PVL	Woodcliff Lake	Hillsdale	1,054
Pascack Valley Line	PVL	Hillsdale	Westwood	1,329
Pascack Valley Line	PVL	Westwood	Emerson	1,638
Pascack Valley Line	PVL	Emerson	Oradell	1,790
Pascack Valley Line	PVL	Oradell	River Edge	2,039
Pascack Valley Line	PVL	River Edge	North Hackensack	2,433
Pascack Valley Line	PVL	North Hackensack	Anderson St	2,789
Pascack Valley Line	PVL	Anderson St	Essex St	3,054
Pascack Valley Line	PVL	Essex St	Teterboro	3,270
Pascack Valley Line	PVL	Teterboro	Wood-Ridge	3,300
Pascack Valley Line	PVL	Wood-Ridge	Secaucus	3,473

Source: New Jersey Transit 2007-2008

Note: \* Ridership for outbound direction is similar to inbound direction.

**Table G2 - NJ Transit - Existing Rail Station Activity**  
Inbound between 6 am to 8 pm \*

Name	Line	Station	On	Off	Total
North Jersey Coast Line	NJCL	Bayhead	137	0	137
North Jersey Coast Line	NJCL	Point Pleasant	313	5	318
North Jersey Coast Line	NJCL	Manasquan	174	18	192
North Jersey Coast Line	NJCL	Spring Lake	180	7	187
North Jersey Coast Line	NJCL	Belmar	246	26	272
North Jersey Coast Line	NJCL	Bradley Beach	180	79	259
North Jersey Coast Line	NJCL	Asbury Park	374	57	432
North Jersey Coast Line	NJCL	Allenhurst	138	6	144
North Jersey Coast Line	NJCL	Elberon	150	7	157
North Jersey Coast Line	NJCL	Long Branch	1,574	468	2,042
North Jersey Coast Line	NJCL	Little Silver	945	21	966
North Jersey Coast Line	NJCL	Red Bank	1,195	161	1,356
North Jersey Coast Line	NJCL	Middletown	1,396	90	1,487
North Jersey Coast Line	NJCL	Hazlet	864	58	922
North Jersey Coast Line	NJCL	Matawan	2,910	84	2,994
North Jersey Coast Line	NJCL	South Amboy	1,306	60	1,366
North Jersey Coast Line	NJCL	Perth Amboy	804	151	955
North Jersey Coast Line	NJCL	Woodbridge	1,542	57	1,598
North Jersey Coast Line	NJCL	Avenel	175	8	183
Northeast Corridor	NEC	Trenton	5,012	0	5,012
Northeast Corridor	NEC	Hamilton	4,618	23	4,641
Northeast Corridor	NEC	Princeton Jct	7,265	161	7,426
Northeast Corridor	NEC	Jersey Ave	1,825	0	1,825
Northeast Corridor	NEC	New Brunswick	4,607	527	5,134
Northeast Corridor	NEC	Edison	3,115	352	3,467
Northeast Corridor	NEC	Metuchen	3,077	353	3,430
Northeast Corridor	NEC	Metropark	7,085	367	7,452
NJCL / NEC	NJCL / NEC	Rahway	2,647	583	3,230
NJCL / NEC	NJCL / NEC	Linden	2,132	300	2,432
NJCL / NEC	NJCL / NEC	Elizabeth	2,850	769	3,619
NJCL / NEC	NJCL / NEC	N. Elizabeth	642	65	707
NJCL / NEC	NJCL / NEC	Newark Airport	1,558	434	1,992
NJCL / NEC / RVL	NJCL / NEC / RVL	Newark Penn	10,244	23,395	33,640
NJCL / NEC / GSB / MTL / ML / BCL / PVL	NJCL / NEC / GSB / MTL / ML / BCL / PVL	Hoboken	0	19,559	19,559
NJCL / NEC / GSB / MTL / ML / BCL / PVL	NJCL / NEC / GSB / MTL / ML / BCL / PVL	Secaucus	5,941	6,296	12,237
NJCL / NEC / GSB / MTL / MBL	NJCL / NEC / GSB / MTL / MBL	New York Penn	0	75,105	75,105
Gladstone Branch	GSB	Gladstone	203	0	203
Gladstone Branch	GSB	Peapack	96	0	96
Gladstone Branch	GSB	Far Hills	169	3	172
Gladstone Branch	GSB	Bernardsville	192	80	272
Gladstone Branch	GSB	Basking Ridge	106	0	106
Gladstone Branch	GSB	Lyons	440	11	451
Gladstone Branch	GSB	Millington	155	4	159
Gladstone Branch	GSB	Stirling	96	4	100
Gladstone Branch	GSB	Gillette	133	9	142
Gladstone Branch	GSB	Berkeley Height	426	6	432
Gladstone Branch	GSB	Murray Hill	491	14	505
Gladstone Branch	GSB	New Providence	470	9	479
MTL / MBL	MTL / MBL	Hackettstown	72	0	72
MTL / MBL	MTL / MBL	Mt Olive	56	1	57
MTL / MBL	MTL / MBL	Netcong	95	1	96
MTL / MBL	MTL / MBL	Lake Hopatcong	129	0	129
MTL / MBL	MTL / MBL	Mt Arlington	70	1	71
MTL / MBL	MTL / MBL	Dover	1,423	37	1,460
MTL / MBL	MTL / MBL	Denville	550	53	603
Morristown Line	MTL	Mount Tabor	69	11	80
Morristown Line	MTL	Morris Plains	725	90	815
Morristown Line	MTL	Morristown	1,645	266	1,911
Morristown Line	MTL	Convent Station	1,114	192	1,306
Morristown Line	MTL	Madison	1,069	232	1,301
Morristown Line	MTL	Chatham	1,289	117	1,406
GSB / MTL	GSB / MTL	Summit	3,093	794	3,887
GSB / MTL	GSB / MTL	Short Hills	1,297	40	1,337
GSB / MTL	GSB / MTL	Millburn	1,578	63	1,641
GSB / MTL	GSB / MTL	Maplewood	2,537	125	2,662
GSB / MTL	GSB / MTL	South Orange	2,744	223	2,967
GSB / MTL	GSB / MTL	Mountain Statio	257	46	303
GSB / MTL	GSB / MTL	Highland Ave	141	99	240
GSB / MTL	GSB / MTL	Orange	635	268	903
GSB / MTL	GSB / MTL	Brick Church	1,218	272	1,490
GSB / MTL	GSB / MTL	East Orange	131	77	208
GSB / MTL / MBL	GSB / MTL / MBL	Newark Broad St	1,085	1,936	3,021



# TRANSIT SCORE: New Jersey's Unique Planning Tool

For **NTRANSIT**  
The Way To Go

By **plansmartnj**  
& **URS**

Name	Line	Station	On	Off	Total
Montclair-Boonton Line	MBL	Mountain Lakes	28	15	43
Montclair-Boonton Line	MBL	Boonton	78	10	88
Montclair-Boonton Line	MBL	Towaco	98	5	103
Montclair-Boonton Line	MBL	Lincoln Park	137	3	140
Montclair-Boonton Line	MBL	Mountain View	254	12	266
Montclair-Boonton Line	MBL	Wayne Rt 23	51	2	53
Montclair-Boonton Line	MBL	Little Falls	193	5	198
Montclair-Boonton Line	MBL	Great Notch	12	0	12
Montclair-Boonton Line	MBL	Montclair State	413	15	428
Montclair-Boonton Line	MBL	Montclair Heigh	254	16	270
Montclair-Boonton Line	MBL	Mountain Ave	146	0	146
Montclair-Boonton Line	MBL	Upper Montclair	541	6	547
Montclair-Boonton Line	MBL	Watchung ave	727	15	742
Montclair-Boonton Line	MBL	Walnut Street	880	12	892
Montclair-Boonton Line	MBL	Bay Street	857	9	866
Montclair-Boonton Line	MBL	Glen Ridge	935	36	971
Montclair-Boonton Line	MBL	Bloomfield	913	21	934
Montclair-Boonton Line	MBL	Watessing	211	11	222
Main / Bergen Line	ML / BCL	Suffern	921	5	926
Main / Bergen Line	ML / BCL	Mahwah	182	14	196
Main / Bergen Line	ML / BCL	Ramsey Route 17	801	50	851
Main / Bergen Line	ML / BCL	Ramsey	628	39	667
Main / Bergen Line	ML / BCL	Allendale	329	41	370
Main / Bergen Line	ML / BCL	Waldwick	417	24	441
Main / Bergen Line	ML / BCL	Ho-Ho-Kus	385	16	401
Main / Bergen Line	ML / BCL	Ridgewood	1,331	103	1,434
Main Line	ML	Glen Rock	137	13	150
Main Line	ML	Hawthorne	335	29	364
Main Line	ML	Paterson	244	119	363
Main Line	ML	Clifton	598	50	648
Main Line	ML	Passaic	381	31	412
Main Line	ML	Delawanna	386	8	394
Main Line	ML	Lyndhurst	421	18	439
Main Line	ML	Kingsland	372	14	386
Bergen County Line	BCL	Glen Rock	731	21	752
Bergen County Line	BCL	Radburn	1,022	7	1,029
Bergen County Line	BCL	Broadway	285	8	293
Bergen County Line	BCL	Plauderville	242	2	244
Bergen County Line	BCL	Garfield	199	8	207
Bergen County Line	BCL	Rutherford	697	45	742
Raritan Valley Line	RVL	High Bridge	70	0	70
Raritan Valley Line	RVL	Annandale	143	0	143
Raritan Valley Line	RVL	Lebanon	31	0	31
Raritan Valley Line	RVL	White House	105	4	109
Raritan Valley Line	RVL	North Branch	109	2	111
Raritan Valley Line	RVL	Raritan	501	0	501
Raritan Valley Line	RVL	Somerville	713	22	735
Raritan Valley Line	RVL	Bridgewater	580	12	592
Raritan Valley Line	RVL	Bound Brook	527	52	579
Raritan Valley Line	RVL	Dunellen	841	50	891
Raritan Valley Line	RVL	Plainfield	610	134	744
Raritan Valley Line	RVL	Netherwood	555	35	590
Raritan Valley Line	RVL	Fanwood	726	22	748
Raritan Valley Line	RVL	Westfield	1,809	100	1,909
Raritan Valley Line	RVL	Garwood	79	10	89
Raritan Valley Line	RVL	Cranford	809	57	866
Raritan Valley Line	RVL	Roselle Park	784	42	826
Raritan Valley Line	RVL	Union	703	175	878
Pascack Valley Line	PVL	Spring Valley	173	0	173
Pascack Valley Line	PVL	Nanuet	374	19	393
Pascack Valley Line	PVL	Pearl River	217	3	220
Pascack Valley Line	PVL	Montvale	111	6	117
Pascack Valley Line	PVL	Park Ridge	114	0	114
Pascack Valley Line	PVL	Woodcliff Lake	93	1	94
Pascack Valley Line	PVL	Hillsdale	282	7	289
Pascack Valley Line	PVL	Westwood	315	5	320
Pascack Valley Line	PVL	Emerson	156	4	160
Pascack Valley Line	PVL	Oradell	248	0	248
Pascack Valley Line	PVL	River Edge	402	8	410
Pascack Valley Line	PVL	North Hackensac	361	5	366
Pascack Valley Line	PVL	Anderson St	277	13	290
Pascack Valley Line	PVL	Essex St	220	4	224
Pascack Valley Line	PVL	Teterboro	56	26	82
Pascack Valley Line	PVL	Wood-Ridge	173	0	173

Source: New Jersey Transit 2007-2008

Note: \* Ridership for outbound direction is similar to inbound direction.



**Table G3 - NJ Transit - Existing Daily LRT Ridership**

Name	Line	Between Stations		Flow_LRT	
				NB	SB
Newark Light Rail - Bloomfield	NLRBL	Grove Street	Silver Lake	1,006	1,165
Newark Light Rail - Bloomfield	NLRBL	Silver Lake	Branch Brook	1,471	1,948
Newark Light Rail - Bloomfield	NLRBL	Branch Brook	Davenport	4,113	5,302
Newark Light Rail - Bloomfield	NLRBL	Davenport	Bloomfield	4,518	5,949
Newark Light Rail - Bloomfield	NLRBL	Bloomfield	Park	5,561	7,545
Newark Light Rail - Bloomfield	NLRBL	Park	Orange	6,345	8,901
Newark Light Rail - Bloomfield	NLRBL	Orange	Norfolk	6,715	9,826
Newark Light Rail - Bloomfield	NLRBL	Norfolk	Warren	6,860	10,021
Newark Light Rail - Bloomfield	NLRBL	Warren	Washington St.	8,021	10,811
Newark Light Rail - Bloomfield	NLRBL	Washington St.	Military Park	8,810	10,746
Newark Light Rail - Bloomfield	NLRBL	Military Park	Penn	7,660	9,284
Newark Light Rail - Broad Street	NLRBR	Penn (originates)	NJ PAC/Center St.	1,412	0
Newark Light Rail - Broad Street	NLRBR	NJ PAC/Center St.	Atlantic St.	1,415	0
Newark Light Rail - Broad Street	NLRBR	Atlantic St.	Riverfront Stadium	1,011	0
Newark Light Rail - Broad Street	NLRBR	Riverfront Stadium	Broad St.	861	0
Newark Light Rail - Broad Street	NLRBR	Broad St.	Washington Park	0	1,123
Newark Light Rail - Broad Street	NLRBR	Washington Park	NJ PAC/Center St.	0	1,535
Newark Light Rail - Broad Street	NLRBR	NJ PAC/Center St.	Penn (terminates)	0	1,514
Hudson-Bergen Light Rail - South	HBLRS	22nd St.	34th St.	1,641	1,795
Hudson-Bergen Light Rail - South	HBLRS	34th St.	45th St.	2,999	3,020
Hudson-Bergen Light Rail - South	HBLRS	45th St.	Danforth Ave.	3,624	3,591
Hudson-Bergen Light Rail - South	HBLRS	Danforth Ave.	Richard St.	4,141	4,047
Hudson-Bergen Light Rail - South	HBLRS	Richard St.	Liberty P/R	4,425	4,229
Hudson-Bergen Light Rail - West	HBLRW	West Side	MLK Drive	1,761	1,577
Hudson-Bergen Light Rail - West	HBLRW	MLK Drive	Garfield	2,445	2,360
Hudson-Bergen Light Rail - West	HBLRW	Garfield	Liberty P/R	2,892	2,722
Hudson-Bergen Light Rail - Central	HBLRC	Liberty P/R	Jersey Ave.	8,486	7,977
Hudson-Bergen Light Rail - Central	HBLRC	Jersey Ave.	Marin Blvd.	8,430	7,860
Hudson-Bergen Light Rail - Central	HBLRC	Marin Blvd.	Essex St.	8,273	7,816
Hudson-Bergen Light Rail - Central	HBLRC	Essex St.	Exch Pl.	8,375	8,093
Hudson-Bergen Light Rail - Central	HBLRC	Exch Pl.	Harborside	7,415	7,972
Hudson-Bergen Light Rail - Central	HBLRC	Harborside	Harsimus	7,988	8,603
Hudson-Bergen Light Rail - Central	HBLRC	Harsimus	Newport	7,957	8,473
Hudson-Bergen Light Rail - Central	HBLRC	Newport	Hoboken	7,090	8,082
Hudson-Bergen Light Rail - North	HBLRN	Hoboken	2nd St.	5,429	6,156
Hudson-Bergen Light Rail - North	HBLRN	2nd St.	9th St.	5,167	5,903
Hudson-Bergen Light Rail - North	HBLRN	9th St.	Lincoln Harbor	4,264	4,507
Hudson-Bergen Light Rail - North	HBLRN	Lincoln Harbor	Port Imperial	3,618	3,881
Hudson-Bergen Light Rail - North	HBLRN	Port Imperial	Bergenline Ave.	3,134	3,271
Hudson-Bergen Light Rail - North	HBLRN	Bergenline Ave.	Tonnelle Ave.	986	1,013
Riverline Light Rail	RVLR	E Center	Aquarium	21	16
Riverline Light Rail	RVLR	Aquarium	Cooper	185	187
Riverline Light Rail	RVLR	Cooper	Walter Rand	485	522
Riverline Light Rail	RVLR	Walter Rand	36th St.	2,130	2,196
Riverline Light Rail	RVLR	36th St.	Rt.73/Penn	2,152	2,240
Riverline Light Rail	RVLR	Rt.73/Penn	Palmyra	2,152	2,271
Riverline Light Rail	RVLR	Palmyra	Riverton	2,153	2,253
Riverline Light Rail	RVLR	Riverton	Cinnaminson	2,118	2,203
Riverline Light Rail	RVLR	Cinnaminson	Riverside	2,025	2,104
Riverline Light Rail	RVLR	Riverside	Delanco	1,972	2,042
Riverline Light Rail	RVLR	Delanco	Beverly	1,927	2,003
Riverline Light Rail	RVLR	Beverly	Burl/South	1,852	1,974
Riverline Light Rail	RVLR	Burl/South	Towne Ctr	1,842	1,963
Riverline Light Rail	RVLR	Towne Ctr	Florence	1,770	1,844
Riverline Light Rail	RVLR	Florence	Roebing	1,709	1,757
Riverline Light Rail	RVLR	Roebing	Bordentown	1,772	1,792
Riverline Light Rail	RVLR	Bordentown	Cass St.	1,854	1,838
Riverline Light Rail	RVLR	Cass St.	Hamilton	1,730	1,717
Riverline Light Rail	RVLR	Hamilton	Trenton	1,601	1,585

Source: New Jersey Transit 2007-2008

Notes:

1. For Newark Light Rail - Bloomfield, going from Newark Penn station to Grove Street is considered northbound.
2. For Newark Light Rail - Broad Street, going from Newark Penn station to Broad Street is considered northbound.
3. For Hudson-Bergen Light Rail - West going from West Side station to Liberty P/R is considered northbound

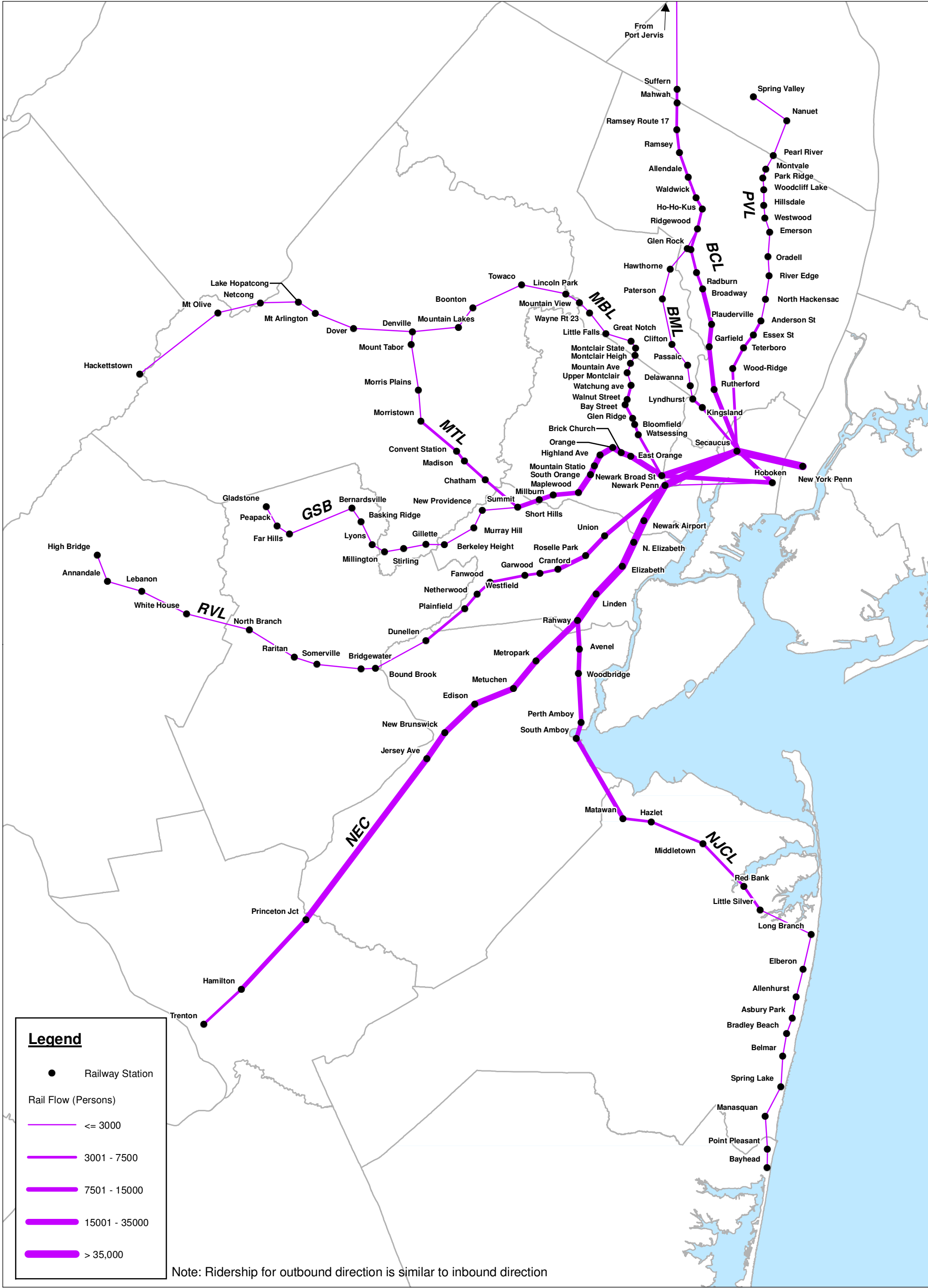
**Table G4 - NJ Transit - Existing Daily LRT Station Activity**

Name	Line	Station	NB			SB			Total Station Activity
			On	Off	Total	On	Off	Total	
Newark Light Rail - Bloomfield	NLRBL	Grove Street	0	1,006	1,006	1,165	0	1,165	2,171
Newark Light Rail - Bloomfield	NLRBL	Silver Lake	38	503	541	813	30	843	1,384
Newark Light Rail - Bloomfield	NLRBL	Branch Brook	256	2,898	3,154	3,484	130	3,614	6,768
Newark Light Rail - Bloomfield	NLRBL	Davenport	91	496	587	772	125	897	1,484
Newark Light Rail - Bloomfield	NLRBL	Bloomfield	250	1,293	1,543	1,840	244	2,084	3,627
Newark Light Rail - Bloomfield	NLRBL	Park	381	1,165	1,546	1,768	412	2,180	3,726
Newark Light Rail - Bloomfield	NLRBL	Orange	386	756	1,142	1,215	290	1,505	2,647
Newark Light Rail - Bloomfield	NLRBL	Norfolk	254	399	653	616	421	1,037	1,690
Newark Light Rail - Bloomfield	NLRBL	Warren	307	1,468	1,775	1,190	400	1,590	3,365
Newark Light Rail - Bloomfield	NLRBL	Washington St.	744	1,533	2,277	1,024	1,089	2,113	4,390
Newark Light Rail - Bloomfield	NLRBL	Military Park	1,851	701	2,552	499	1,961	2,460	5,012
Newark Light Rail - Bloomfield	NLRBL	Newark Penn	7,660	0	7,660	0	9,284	9,284	16,944
Newark Light Rail - Broad Street	NLRBR	Newark Penn	1,412	0	1,412	0	1,514	1,514	2,926
Newark Light Rail - Broad Street	NLRBR	NJ PAC	41	38	79	53	74	127	206
Newark Light Rail - Broad Street	NLRBR	Atlantic St.	16	420	436	0	0	0	436
Newark Light Rail - Broad Street	NLRBR	Riverfront Stadi	0	150	150	0	0	0	150
Newark Light Rail - Broad Street	NLRBR	Broad St.	0	861	861	1,123	0	1,123	1,984
Newark Light Rail - Broad Street	NLRBR	Washington Park	0	0	0	449	37	486	486
Newark Light Rail - Total			13,687	13,687	27,374	16,011	16,011	32,022	59,396
Hudson-Bergen Light Rail - South	HBLRS	22nd St.	1,641	0	1,641	0	1,795	1,795	3,436
Hudson-Bergen Light Rail - South	HBLRS	34th St.	1,392	34	1,426	74	1,299	1,373	2,799
Hudson-Bergen Light Rail - South	HBLRS	45th St.	693	68	761	94	665	759	1,520
Hudson-Bergen Light Rail - South	HBLRS	Danforth Ave.	587	70	657	95	551	646	1,303
Hudson-Bergen Light Rail - South	HBLRS	Richard St.	363	79	442	107	289	396	838
Hudson-Bergen Light Rail - West	HBLRW	West Side	1,761	0	1,761	0	1,577	1,577	3,338
Hudson-Bergen Light Rail - West	HBLRW	MLK Drive	834	150	984	88	871	959	1,943
Hudson-Bergen Light Rail - West	HBLRW	Garfield	528	81	609	106	468	574	1,183
Hudson-Bergen Light Rail - Central	HBLRC	Liberty P/R	1,798	629	2,427	822	1,848	2,670	5,097
Hudson-Bergen Light Rail - Central	HBLRC	Jersey Ave.	283	339	622	425	308	733	1,355
Hudson-Bergen Light Rail - Central	HBLRC	Marin Blvd.	142	299	441	206	162	368	809
Hudson-Bergen Light Rail - Central	HBLRC	Essex St.	703	601	1,304	450	727	1,177	2,481
Hudson-Bergen Light Rail - Central	HBLRC	Exch Pl.	1,925	2,885	4,810	2,575	2,454	5,029	9,839
Hudson-Bergen Light Rail - Central	HBLRC	Harborside	1,107	534	1,641	567	1,198	1,765	3,406
Hudson-Bergen Light Rail - Central	HBLRC	Harsimus	356	387	743	430	300	730	1,473
Hudson-Bergen Light Rail - Central	HBLRC	Newport	2,231	3,098	5,329	2,664	2,273	4,937	10,266
Hudson-Bergen Light Rail - Central	HBLRC	Hoboken	1,596	3,257	4,853	3,896	1,970	5,866	10,719
Hudson-Bergen Light Rail - North	HBLRN	2nd St.	235	497	732	564	311	875	1,607
Hudson-Bergen Light Rail - North	HBLRN	9th St.	415	1,318	1,733	1,788	392	2,180	3,913
Hudson-Bergen Light Rail - North	HBLRN	Lincoln Harbor	169	815	984	751	125	876	1,860
Hudson-Bergen Light Rail - North	HBLRN	Port Imperial	133	617	750	672	62	734	1,484
Hudson-Bergen Light Rail - North	HBLRN	Bergenline Ave.	169	2,317	2,486	2,390	132	2,522	5,008
Hudson-Bergen Light Rail - North	HBLRN	Tonnelle Ave.	0	986	986	1,013	0	1,013	1,999
Hudson-Bergen Light Rail - Total			19,061	19,061	38,122	19,777	19,777	39,554	77,676
Riverline Light Rail	RVLR	E Center	21	0	21	0	16	16	37
Riverline Light Rail	RVLR	Aquarium	166	2	168	0	171	171	339
Riverline Light Rail	RVLR	Cooper	304	4	308	0	335	335	643
Riverline Light Rail	RVLR	Walter Rand	1,680	35	1,715	44	1,718	1,762	3,477
Riverline Light Rail	RVLR	36th St.	193	171	364	169	213	382	746
Riverline Light Rail	RVLR	Rt.73/Penn	168	168	336	169	200	369	705
Riverline Light Rail	RVLR	Palmyra	227	226	453	211	193	404	857
Riverline Light Rail	RVLR	Riverton	52	87	139	126	76	202	341
Riverline Light Rail	RVLR	Cinnaminson	70	163	233	180	81	261	494
Riverline Light Rail	RVLR	Riverside	180	233	413	199	137	336	749
Riverline Light Rail	RVLR	Delanco	68	113	181	119	80	199	380
Riverline Light Rail	RVLR	Beverly	235	310	545	272	243	515	1,060
Riverline Light Rail	RVLR	Burl/South	190	200	390	190	179	369	759
Riverline Light Rail	RVLR	Towne Ctr	271	343	614	345	226	571	1,185
Riverline Light Rail	RVLR	Florence	132	193	325	195	108	303	628
Riverline Light Rail	RVLR	Roebbing	131	68	199	92	127	219	418
Riverline Light Rail	RVLR	Bordentown	212	130	342	144	190	334	676
Riverline Light Rail	RVLR	Cass St.	149	273	422	281	160	441	863
Riverline Light Rail	RVLR	Hamilton	25	154	179	163	31	194	373
Riverline Light Rail	RVLR	Trenton	0	1,601	1,601	1,585	0	1,585	3,186
Riverline Light Rail - Total			4,474	4,474	8,948	4,484	4,484	8,968	17,916

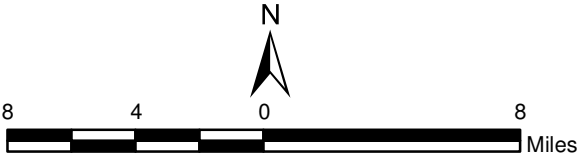
Source: New Jersey Transit 2007-2008

Notes:

1. For Newark Light Rail - Bloomfield, going from Newark Penn station to Grove Street is considered northbound.
2. For Newark Light Rail - Broad Street, going from Newark Penn station to Broad Street is considered northbound.
3. For Hudson-Bergen Light Rail - West going from West Side station to Liberty P/R is considered northbound

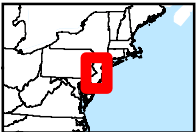


**Figure G1**  
**NJ Transit**  
**Existing Rail Ridership:**  
**Inbound 6 AM to 8 PM**



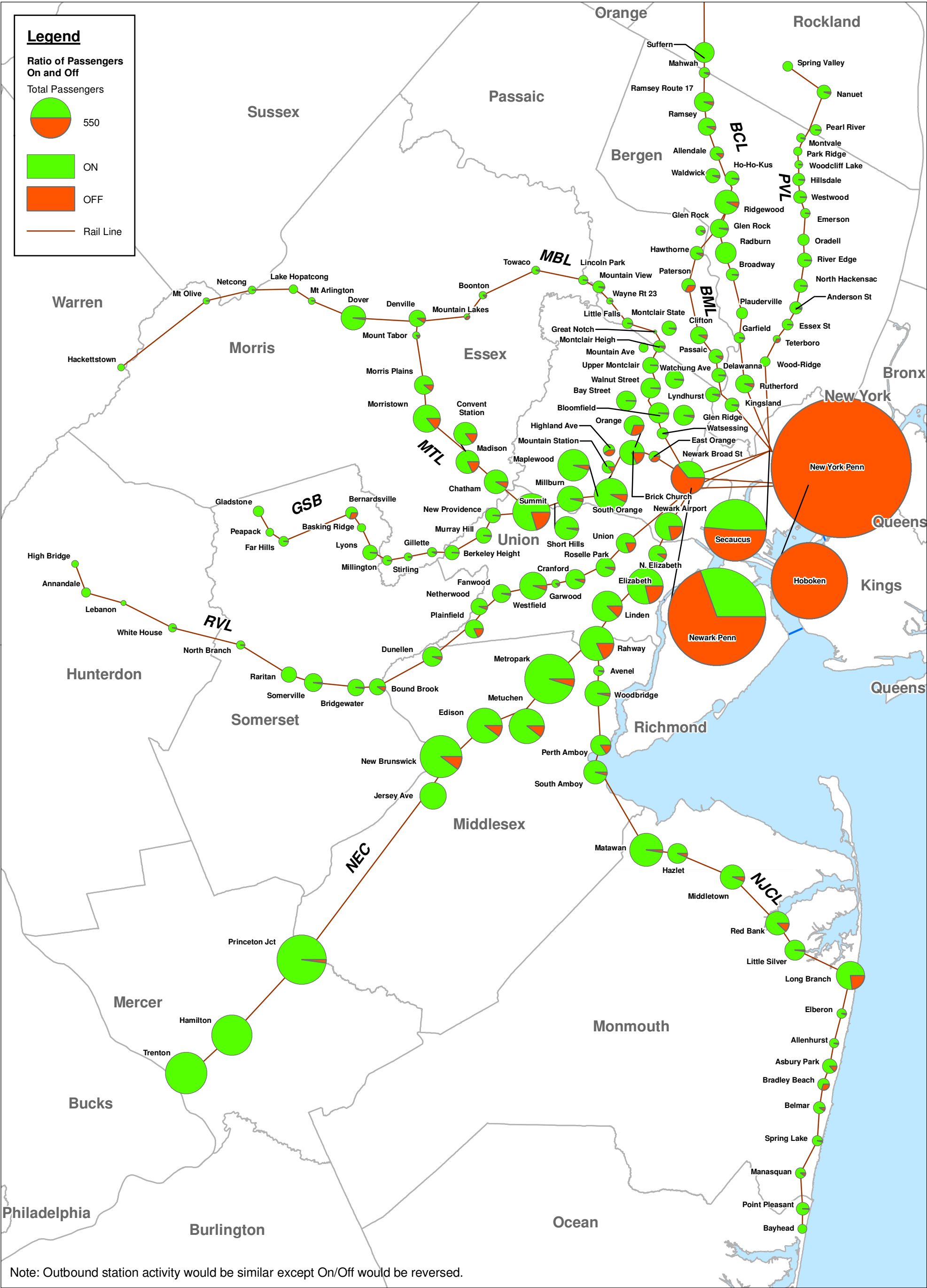
Map Projection:  
NAD 1983 UTM Zone 18N  
Projection: Transverse Mercator  
Linear Unit: Meter

Source:  
New Jersey Transit, 2007-2008  
Created in ArcGIS 9 using ArcMap

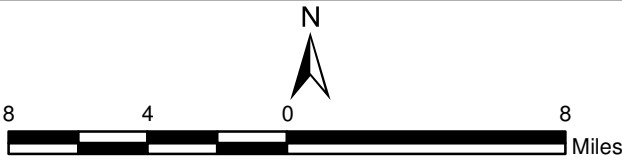


Location Map  
Not to Scale





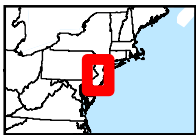
**Figure G2**  
**Existing NJT Rail**  
**Station Activity:**  
**Inbound 6 AM to 8 PM**



**URS**

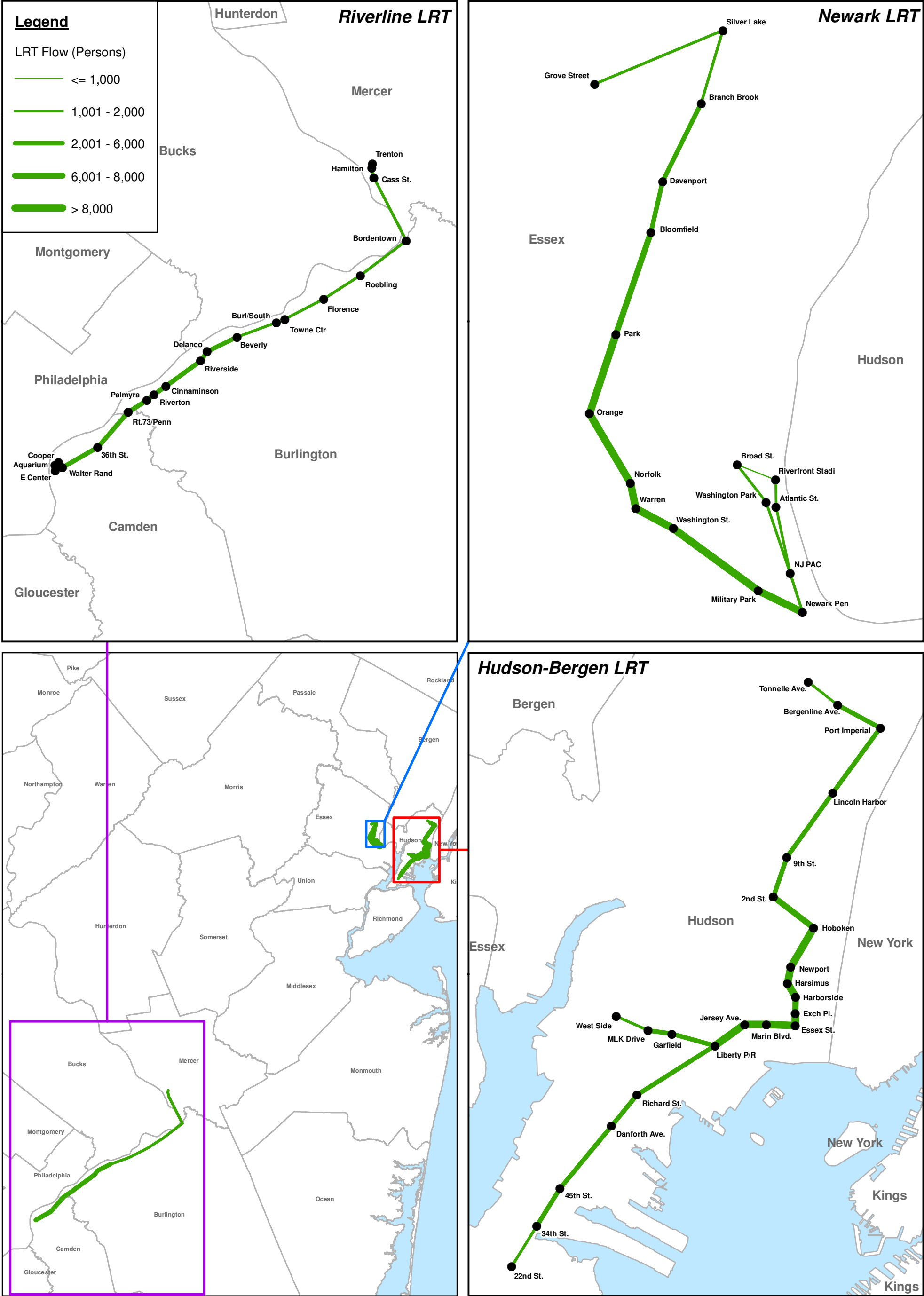
Map Projection:  
NAD 1983 UTM Zone 18N  
Projection: Transverse Mercator  
Linear Unit: Meter

Source:  
New Jersey Transit, 2007-2008  
Created in ArcGIS 9 using ArcMap



Location Map  
Not to Scale









ID	No. of Lines Served	Location	Municipality
1	54	Port Authority Bus Terminal	New York
2	31	Penn Station - Newark	Newark
3	26	Walter Rand Transit Center	Camden
4	25	Military Park Light Rail Staion	Newark
5	23	Bergenline Ave @ Rt 495 Locale - Union City	Weehawken Twp
6	21	Hoboken Terminal	Hoboken
7	20	Broad St - Downtown Newark	Newark
8	18	Broad Street Station - Newark	Newark
9	18	Washington Park Light Rail Station	Newark
10	14	Journal Square	Jersey City
11	14	Willowbrook Mall / Park&Ride	Wayne Twp
12	13	Atlantic City Bus Terminal	Atlantic City
13	13	Bloomfield Station & Municipal Plaza	Bloomfield Twp
14	13	Bridge Plaza Camden	Camden
15	13	Hackensack Bus Terminal Locale	Hackensack
16	13	Newark Musuem	Newark
17	13	Fairview - Bergenline Ave @ Kennedy Blvd	North Bergen Twp
18	13	Paterson City Hall Locale	Paterson
19	13	Patterson Broadway Bus Terminal	Paterson
20	13	Secaucus Transfer Station	Secaucus
21	13	Trenton Rail Station/ Light Rail	Trenton
22	12	Passaic Main Ave Bus Terminal Locale	Passaic
23	12	Sears Roebuck and Co Hackensack	Teaneck Twp
24	11	George Washington Bridge Plaza	Fort Lee
25	11	Irvington Bus Terminal	Irvington Twp
26	11	Exchange Place	Jersey City
27	11	Downtown Trenton	Trenton
28	11	Union City - Rt 495 @ Summit Ave	Union City
29	10	Elizabeth RR Station	Elizabeth
30	10	Newark Riverfront Stadium Light Rail Station	Newark
31	10	Paterson Market Street Station	Paterson
32	9	Bloomfield War Memorial Monmument	Bloomfield Twp
33	9	Grove Street Patch Station	Jersey City
34	9	Lincoln Park - Newark	Newark
35	9	Panther Academy	Paterson
36	8	Atlantic City City Hall	Atlantic City
37	8	Orange Rail Station	City Of Orange
38	8	Brick Church Rail Station	East Orange
39	8	FREEHOLD CENTER BUS TERMINAL	Freehold
40	8	Washington St Light Rail Station	Newark
41	8	Plainfield RR Station	Plainfield
42	8	QUEEN ANNE RD & CEDAR LANE	Teaneck Twp
43	8	Bergenline Light Rail Station	Union City
44	8	Miller Park	West New York
45	7	Asbury Park Transportation Center	Asbury Park
46	7	Bloomfield Ave @ Liberty St	Bloomfield Twp
47	7	East Orange Rail Station	East Orange
48	7	Meadowlands Race Track & Sports Complex	East Rutherford
49	7	Anderson Street Station Hackensack	Hackensack
50	7	Route 23 @ Main Street	Little Falls Twp
51	7	CLINTON AVE & ELIZABETH AVE	Newark
52	7	Pleasantville Bus Station	Pleasantville
53	7	Redbank Rail Station	Red Bank
54	7	US HWY 46 & RIDGEFIELD AVE	Ridgefield Park
55	7	Garden State Plaza	Rochelle Park Twp
56	7	Lincoln Harbor	Weehawken Twp
57	7	Erie Loop: West Orange Municipal Complex	West Orange Twp

Legend

No. of Lines Served

7 - 9

9 - 14

14 - 23

23 - 31

31 - 54

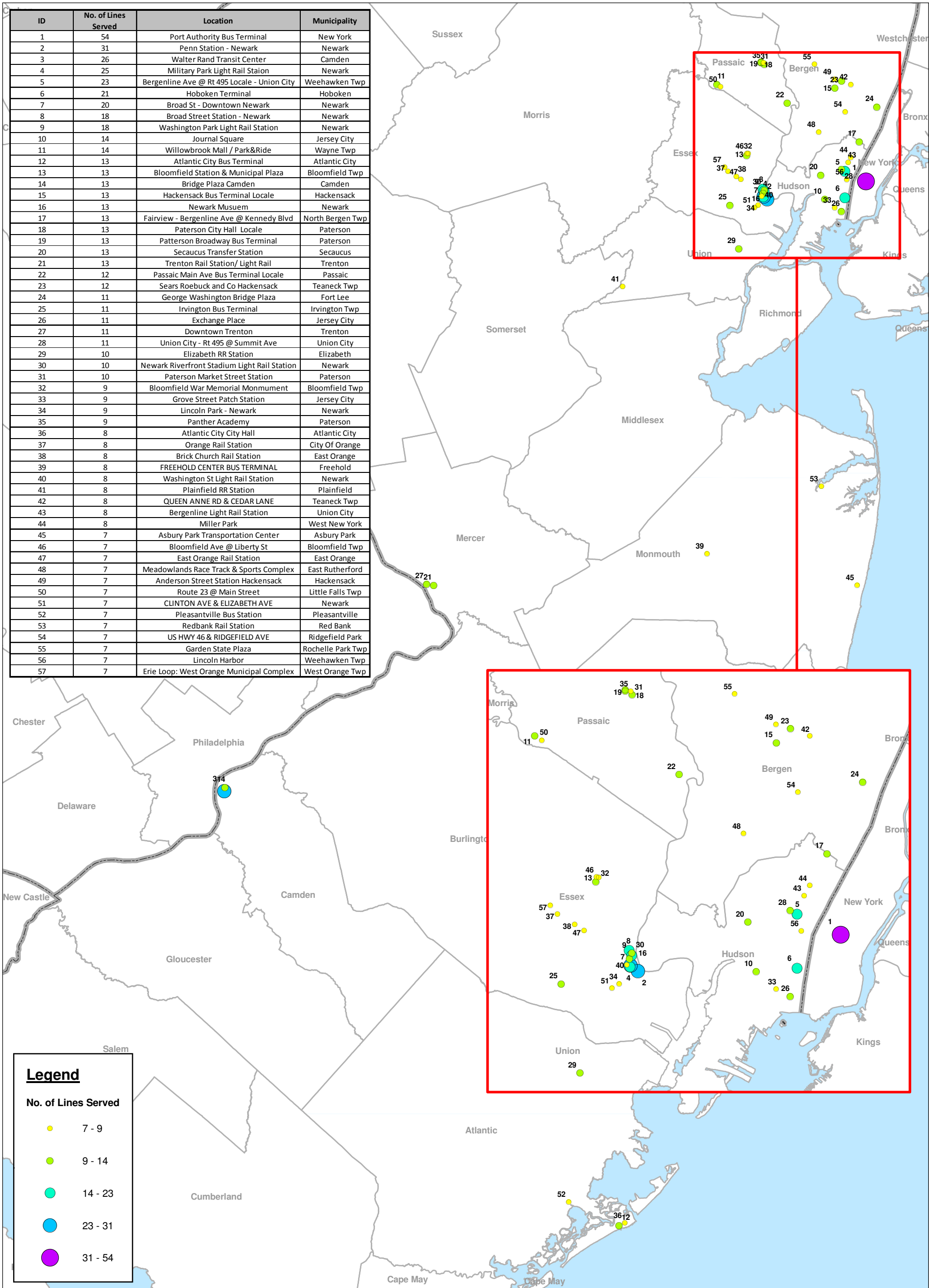
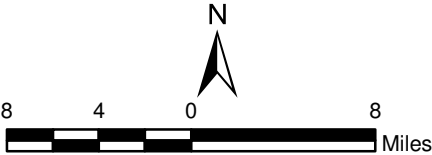


Figure G6  
NJ Transit  
Top 57  
Transfer Locations



URS

Map Projection:  
NAD 1983 UTM Zone 18N  
Projection: Transverse Mercator  
Linear Unit: Meter

Source:  
New Jersey Transit, 2007-2008  
Created in ArcGIS 9 using ArcMap



Location Map  
Not to Scale



**[THIS PAGE INTENTIONALLY LEFT BLANK]**



**NJ TRANSIT**  
The Way To Go.

plan**smart** nj & **URS**

June 2011