



Technical Appendices

Garwood, New Jersey



Memo of Understanding - NJ Transit,
Borough of Garwood, Union County, NJTPA

***Preliminary Demographic and Real
Estate Market Analysis*** - 4Ward Planning

***Garwood Residential Supply-Demand
Analysis*** - 4Ward Planning

***Garwood Transit-Oriented
Development Plan Fiscal Impact
Analysis*** - 4Ward Planning

***Parking Strategies and Best Practices
For Transit Oriented Development at
Garwood Station Area*** - TimHaahs

Shared Parking Analysis - TimHaahs

***Garwood Transit Oriented
Development Plan – Traffic and
Circulation Strategies*** - Eng-Wong Taub

Environmental Site Assessment Report -
VHB

***Garwood 2015 with Parking and
Additional Train Service*** - NJ Transit
Forecasting

December 2010

Jon S. Corzine
Governor

Stephen Dilts
Board Chairman

Richard R. Sarles
Executive Director



September 11, 2009

Mayor Dennis McCarthy
Borough of Garwood
403 South Avenue
Garwood, NJ 07027

RE: Borough of Garwood Rail Service and TOD Planning Effort

Dear Mayor McCarthy:

At our last meeting on August 13, 2009, we agreed to document the basic tenets of our discussion and areas of mutual agreement concerning next steps on advancing on two levels. First, NJ TRANSIT agreed to stop more Raritan Valley Line trains at the Garwood Station. Second, the Borough of Garwood and NJ TRANSIT would advance Transit Oriented Development planning for two pieces of property to the west of the current Garwood Station and south of the railroad right-of-way. The following letter contains specifics of what we discussed in terms of key findings and actionable steps. I would ask that those noted please concur with the contents of this letter so it becomes a record of our discussions and what we will all do in the upcoming months.

The purpose of this effort is to respond to the request from the Borough of Garwood for additional train stops at the existing Garwood Station while recognizing that NJ TRANSIT needs to see improvements to ridership and accessibility at this station to justify future train service improvements along the Raritan Valley Line and at the station serving the Borough of Garwood. The Borough of Garwood has taken steps to encourage Transit Oriented Development and NJ TRANSIT is pleased to assist them further in cooperation with Union County and the North Jersey Transportation Planning Authority to advance the depth of prior planning so a Transit Oriented Development project can emerge and be implemented.

Critical Findings:

NJT was approached by the North Jersey Transportation Planning Authority, Union County and the Borough of Garwood to add train stops at the current Garwood Station along the Raritan Valley Rail Line. This coincided with NJ TRANSIT's ongoing process of evaluating improvements to station access, including encouraging Transit Oriented Developments where possible on our existing rail system.

Our discussions resulted in the following findings:

1. The Borough has taken considerable steps in its recent Master Plan effort to identify transit supportive development adjacent to Garwood Station for properties locally known as *Casale* and *Petro Plastics*. These sites offer great potential for transit-oriented development for both the community of Garwood as well as NJ TRANSIT.
2. The Borough has previously implemented transit supportive development at a location within close proximity to Garwood Station called "The Mews @ Garwood".

3. The Borough recognizes the opportunity economic and community development that transit-oriented development (TOD) presents and has agreed to undertake with NJT a TOD planning effort (draft scope included herein) for the aforementioned *Casale* and *Petro Plastics* sites. Further, the Borough recognizes that in order to enhance the station environs and provide additional economic development in the Borough, an analysis that includes enhancing ridership at Garwood Station and addressing commuter parking needs is required.
4. NJ TRANSIT, while it is not in a financial position to make major station improvements in the short-term, projects a long-term need to improve the existing Garwood Station that will need to include high-level platform and related improvements. Justifying such a major expenditure of capital funds points to the imperative to take reasonable actions to grow ridership at this station well beyond the current volume of riders using it today. A partnership for planning for Transit Oriented Development at the *Casale* and *Petro Plastics* sites will assist in advancing a long-term agenda for improvements to the rail station.
5. Crucial is the need to have the Borough as a partner in the planning, as well as the County and the North Jersey Transportation Planning Authority. This insures two things. First, the needs of the community will be communicated and incorporated into the planning work. Second, the larger needs of the County and North Jersey Transportation Planning Authority region are fed into this planning process.
6. As the planning work for this area unfolds, a comprehensive, multi-modal strategy is required whereby bus operations as well as station access issues are addressed.

Actionable Steps:

1. NJT will change the Raritan Valley Line rail schedules to add daily and weekend stops at Garwood when its schedule changes go into effect this fall 2009. This will provide evidence of NJ TRANSIT's commitment to this joint planning effort.
2. As a result of preliminary service enhancements, the Borough, utilizing NJ TRANSIT's on-call Transit Oriented Development planning consultants, agrees to fully participate in a joint planning effort along with Union County and the North Jersey Transportation Planning Authority to examine the development potential of the Petro Plastics and Casale Sites, consisting of just over 6 acres.
3. NJT will provide the majority of the funding, but will seek additional funding from Union County to engage one of its Transit Oriented Development on-call consultants, who have been selected through a competitive process meeting all current State standards, to conduct this project as suggested in the broadly defined draft scope of work that is attached to this letter.
4. Additionally, NJ TRANSIT staff will contribute in-kind staff services to manage and assist in this study. NJ TRANSIT has nationally recognized staff expertise in working with communities in Transit Oriented Development planning exercises with experience spanning over a decade and spanning about fifty communities in New Jersey. If follow-up planning or related work should be required, other funding sources, especially through the North Jersey Transportation Planning Authority, will be pursued to pay for that work.
5. NJT will expect that as part of the Transit Oriented Development planning effort, the multimodal transportation needs of the community and nearby towns will also be assessed to determine the parameters of potential future station improvements. This work will include an assessment of current and future parking needs and a plan developed to accommodate those needs. However, it is understood that the commuter parking needs are expected to positively compliment the redevelopment potential of the site and address major community concerns.
6. The effort proposed herein is not intended to include a design for a new station, but will directly inform how it might be sited in the context of surrounding the future Transit Oriented Development. Planning for specific future station improvements will follow after progress on this TOD planning and gaining developer interest has been achieved. This proposed timing insures a proper fit between any proposed development and plans for future station improvements.
7. It is anticipated that soon after NJ TRANSIT has its on-call consultants under contract this fall of 2009, NJT will finalize the scope of work with all the parties involved noted in this letter. It is expected that this joint planning effort could commence as early as November 2009 and be completed well before year's end 2010.

8. It is expected that the Borough of Garwood, Union County and New Jersey Transportation Planning Authority will also contribute staff assistance and information to this effort in specific areas that is readily available to them. In addition, the Borough, with NJ TRANSIT will develop an inclusive community outreach program that involves Garwood officials, community leaders and others. A staff level working group will also be organized to address some of the day-to-day issues that arise when studies such as this are undertaken.
9. It is expected this body of work will be used subsequently to aid the community in its future station-area redevelopment efforts. NJ TRANSIT will continue to be available to advise the community and others, as needed, as that process unfolds. None of this planning work should be construed as binding upon any of the parties to take further action related or unrelated to this effort. Rather, this is an exploratory, joint planning effort to discover potentials, seek certain common understandings and develop a course of future action.
10. This study is envisioned to include (See Attachment A for more information):
- A vision planning effort which includes direct local participation;
 - An assessment of possible development scenarios; and,
 - A high level infrastructure capacity analysis, environmental screening, analysis of costs and market potential.

Sincerely,


Richard T. Roberts, Chief Planner
New Jersey TRANSIT Corporation

Concurrence:



Dennis McCarthy
Mayor, Borough of Garwood

c: Councilwoman Kathleen Villagio
Vivian Baker, Director, Transit Friendly Planning
Chuck Latini, Principal Planner, Transit Friendly Planning
Victor Vinegra, Borough Planner

Borough of Garwood

Preliminary
Demographic and Real
Estate Market Analysis

Prepared for:
Borough of Garwood
New Jersey Transit

May 20, 2010



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General and Limiting Conditions

4ward Planning LLC has endeavored to ensure that the reported data and information contained in this report are complete, accurate and relevant. All estimates, assumptions and extrapolations are based on methodological techniques employed by 4ward Planning and believed to be reliable. 4ward Planning LLC assumes no responsibility for inaccuracies in reporting by the client, its agents, representatives or any other third party data source used in the preparation of this report.

Further, 4ward Planning LLC makes no warranty or representation concerning any of the estimated or projected values or results contained in this study materializing.

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This report is not to be used in conjunction with any public or private offering of securities or other similar purpose where it may be relied upon, to any degree by any person or entity, other than the client, without first obtaining the prior written consent of 4ward Planning LLC.

This study is qualified in its entirety by, and should be considered in light of, the above limitations, conditions and considerations.

Findings of Market Opportunity

DEMOGRAPHIC AND LABOR TREND ANALYSIS

2.4 Percent per Annum

The rate of growth for the 55 to 74-year old cohort in the Garwood PMA, which generally has a **high degree of discretionary income**, based on this age cohort's consumer expenditure profile. A high degree of discretionary income bodes favorably for certain service businesses such as restaurants, specialty retailers and entertainment venues.

One-Third or More

The share of projected 2010 households in the Garwood PMA, Union County and the Newark-Union MSA that achieved annual household incomes of **\$75,000 or greater**. By 2010, the share of these upper income households increased by an average of 23.3-, 21.6- and 27.2 percent within the Garwood PMA, Union County and the Newark-Union MSA, respectively. These significant increases in upper household income reflect **robust in-migration by highly educated and professionally employed households** – target consumers for TOD projects.

\$264 Million vs. \$120 Million

The 2010 **estimated per square mile aggregate household expenditures** within the Garwood PMA versus aggregate household expenditures within Union County. The approximately 2.2 times greater spending power concentrated within close proximity to the Garwood rail station is particularly favorable for prospective TOD retail related uses.

9.6 Percent

The percent increase from 2000 to 2010 in adult **persons possessing either a bachelors or graduate level degree** within the Garwood PMA. Over the ten-year period, adult persons possessing either a bachelors or graduate level degree **increased 8.7- and 11.1-percent**, respectively. Persons with four-year and advanced degrees have a **greater propensity to live within a TOD residential site** than persons with less formal education.

\$14.5 Million

The estimated 2010 **aggregate household expenditures per square mile** in the away-from-home food category (prepared food purchased at full- and limited-service restaurants and intended for eating on premises). This far exceeded the aggregate per square mile household expenditures in Union County (\$6.5 million) and the Newark-Union MSA (\$1.4 million). The Garwood PMA demonstrates a **strong consumer market for restaurants and cafes**.

Forty Thousand

The number of people within the Garwood PMA whose industry affiliation (*Administration, Support and Other Services, Finance, Insurance and Real Estate or Professional, Scientific and Technical Services*) make them **prospective consumers** of TOD related land-uses (e.g., purchasers or renters of residential property; and patrons of goods and services sold within the TOD complex).

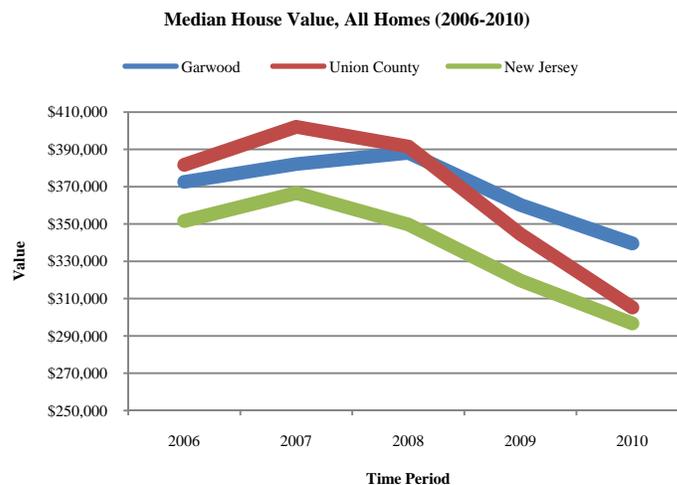
REAL ESTATE MARKET TREND ANALYSIS

Opportunity

Compared to the Westfield, Cranford, and Metuchen station areas, Garwood has a lower than average number of sit-down restaurants within a half-mile of the rail station area (14 compared to 17), provides half as many dry cleaning locations (2 compared to 4) and has only two doctor's offices compared to the average of 14 locations in each rail station area. These service-related businesses should be targeted for space within the Garwood TOD area, once increased transit service is provided.

Declined, but...

While still showing home value declines of -7.2 percent from 2008-2009 and -5.7 percent for 2009-2010, Garwood performed better and showed **less value decline** than Union County (-12.0 percent and -11.4 percent, respectively) and New Jersey (-8.60 percent and -7.19 percent, respectively) over the same period. While certainly affected by the housing crisis, Garwood **maintained values better** than Union County and New Jersey over the same period.



Source: Zillow.com, 4ward Planning LLC, 2010

Interesting Points

Existing owners highly value the accessibility to the NJ Transit train, and have interest in capitalizing on this asset.

The success of The Mews has bolstered interest in redeveloping near the train station.

Several owners cited restrictive zoning as a barrier to redevelopment. Owners would like to see higher FARs, higher heights and more flexibility within commercial zones.

There is great interest in redeveloping major parcels near the train station for mixed-use residential and commercial. It is generally felt, however, that greater densities need to be allowed to make redevelopment financially feasible.

Owners interviewed feel that proximity to transit and the overall character of Garwood are most conducive to housing and small-scale, convenience commercial opportunities (as opposed to larger format regional commercial).

METHODOLOGY

4WARD PLANNING LLC employed a combination of qualitative and quantitative techniques suitable for assessing optimal transit oriented development (TOD) land-uses within one-quarter mile of the Garwood rail station.

Our analysis began with a review of existing market and planning studies covering the Borough of Garwood and then proceeded to a supplemental baseline market analysis, examining local and regional demographic, labor, industry and real estate trends. Comparative demographic trend analysis was performed using U.S. Census data and proprietary demographic analysis software (ScanU.S.), covering three geographies – a ten - minute drive contour from the Garwood rail station (the primary market area), Union County, the Newark-Union Micropolitan area (a U.S. Census recognized sub-set of the greater New York-New Jersey-Pennsylvania Consolidated Metropolitan Statistical Area (CMSA), comprised of five counties within Northern and Central New Jersey (Sussex, Essex, Union, Hunterdon and Morris, inclusive of Union County) and one county within southeastern Pennsylvania (Pike). A ten – minute drive contour was selected for the primary market area as this time distance represents a distance radius from the Garwood station of about five-miles (see below base map depicting the drive-time contour) and likely represents 70-percent or more of the commuters and consumers who currently patronize the Garwood rail station and nearby goods and service businesses (the conventional definition of a primary market area).

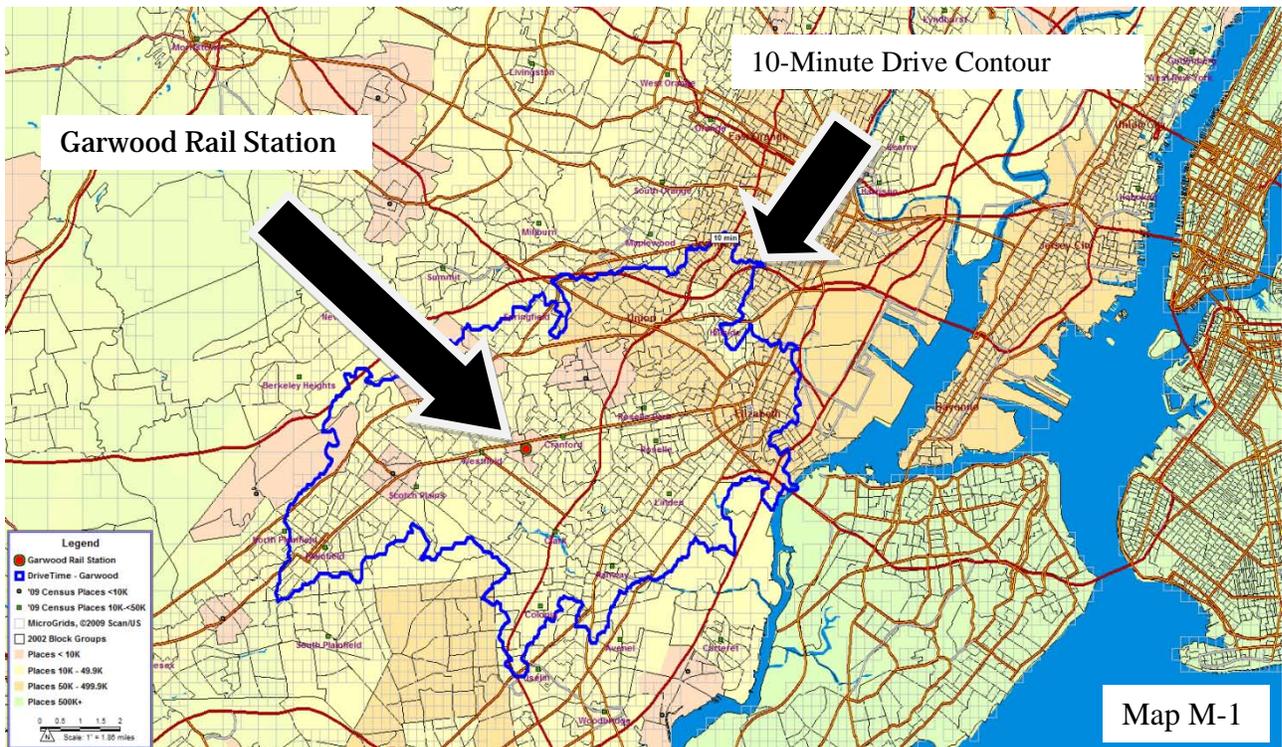
Demographic data analyzed for all three geographies covered the 2000 and 2010 (estimated) and 2015 (projected) time periods. Demographic projections are underpinned by a proprietary data analysis process from ScanUS which examines annual household migration patterns at the micro-grid level (a geography representing 1/16th of a mile in area). Annual household data migration patterns are tracked utilizing postal carrier drop counts at the nine digit postal code level (precision to the street address) and then extrapolated to larger geographies – blocks, block groups, ZIP boundaries, counties, etc.). This proprietary technique, developed and maintained by ScanUS, has been in existence for more than twenty years.

Industry and labor market data covered the 2004 to 2008 time period and is based on reported U.S. Census and New Jersey Department of Labor Data. Published residential and commercial real estate data reports were analyzed (4ward Planning utilized a combination of publicly available reports and data privately purchased), so as to gain understanding of past, present and likely future trends for housing, retail and office markets within the Union County area.

Quantitative analysis was followed by interviews with active area real estate brokers and developers (residential, retail and office), municipal land-use officials and various corridor business owners/managers.

The purpose of positioning interviews after the quantitative analysis was to both share insight and validate findings with interviewees.

Garwood Demographic Analysis Primary Market Area Base Map



DEMOGRAPHIC TREND ANALYSIS

POPULATION

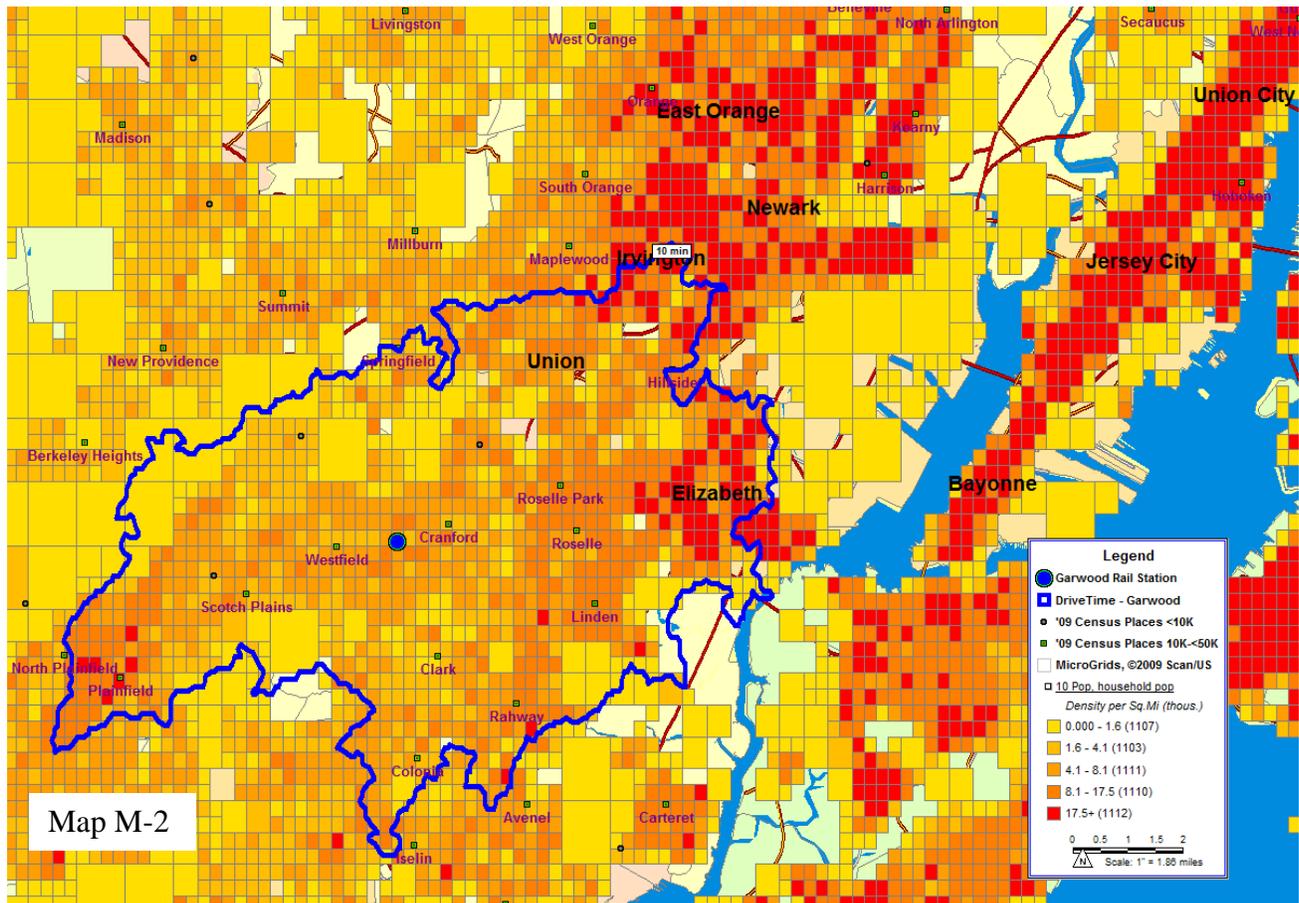
4ward Planning examined population trends for the three geographies under study – the Garwood Primary Market Area (representing a 10-minute drive-time from the station), Union County and the Newark-Union Metropolitan Statistical Area (MSA). Table A-1 exhibits population counts (The “In Households” data category is the metric under examination, here, as it excludes institutional populations (college/university dormitories, prisons/jails, hospitals, etc.), which are not of particular import for this study), estimates and projections for the years 2000, 2010 (estimated) and 2015 (projected) for all three geographies.

Table A-1: Population Trends

Garwood Market Area (10 Min Drive)				Percentage Change	
	2000	2010	2015	2000-10	2010-15
Population	481,235	479,549	480,007	-0.35%	0.10%
In Households	474,454	472,755	473,197	-0.36%	0.09%
In Families	400,693	408,482	409,305	1.94%	0.20%
In Non-family Households	73,761	64,273	63,893	-12.86%	-0.59%
Union County				Percentage Change	
	2000	2010	2015	2000-10	2010-15
Population	522,541	523,974	526,371	0.27%	0.46%
In Households	514,733	516,167	518,568	0.28%	0.47%
In Families	436,806	448,869	451,896	2.76%	0.67%
In Non-family Households	77,927	67,298	66,672	-13.64%	-0.93%
Newark-Union MSA				Percentage Change	
	2000	2010	2015	2000-10	2010-15
Population	2,098,843	2,121,746	2,124,022	1.09%	0.11%
In Households	2,052,635	2,076,545	2,079,154	1.16%	0.13%
In Families	1,741,485	1,797,414	1,804,399	3.21%	0.39%
In Non-family Households	311,150	279,131	274,755	-10.29%	-1.57%

Source: US Census Bureau; ScanUS; 4ward Planning, 2010

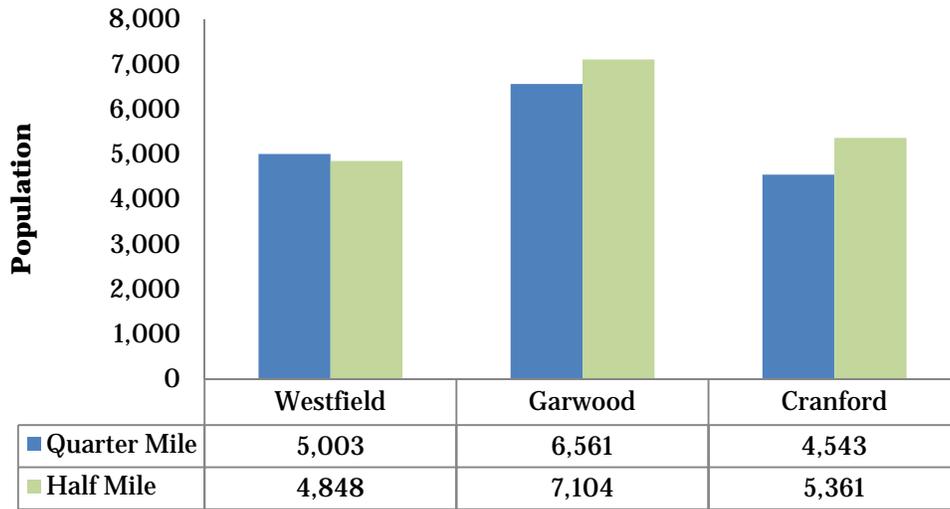
As exhibited in Table A-1, the 2000 to 2010 population in-households change, across all geographies examined, was relatively flat for the Garwood PMA (-0.35 percent), Union County (0.27 percent) and the Newark-Union MSA (1.01 percent). As of 2010, the Garwood PMA population represents approximately 92 percent of the total Union County population and nearly 23 percent of the Newark-Union MSA total in-household population. This finding demonstrates the relatively high population density within close proximity to Garwood’s commuter rail station – a positive indicator for prospective TOD activities. Map M-2, a heat map (the darker the color, the greater the population density in that geography), illustrates the relatively strong 2010 population density within the Garwood PMA.



Generally, population density within the 10-minute drive contour, representing the Garwood PMA, ranges from a low of a few hundred persons per square mile (not all micro-grid areas depicted in the above map are populated, due to topography, manmade constraints or zoning restrictions) to more than 17,500 person per square mile. The close-in density surrounding the Garwood rail station (half-mile radius) ranges between 4,000 and 17,000 persons per square mile (by comparison, estimated 2010 population density per square mile for New Jersey (consistently recognized as the most densely populated state in the nation) is 1,134). Density of this magnitude bodes well for prospective TOD activity near the Garwood commuter rail station.

Figure 1 depicts the comparative population densities within one quarter-mile and one half-mile areas surrounding the nearby New Jersey Transit stations in Westfield and Cranford (both station areas have established and successful mixed-use development close-in to their commuter rail stations), along with Garwood’s quarter and half-mile population densities.

Figure 1: 2010 Population Densities Around New Jersey Transit Stations

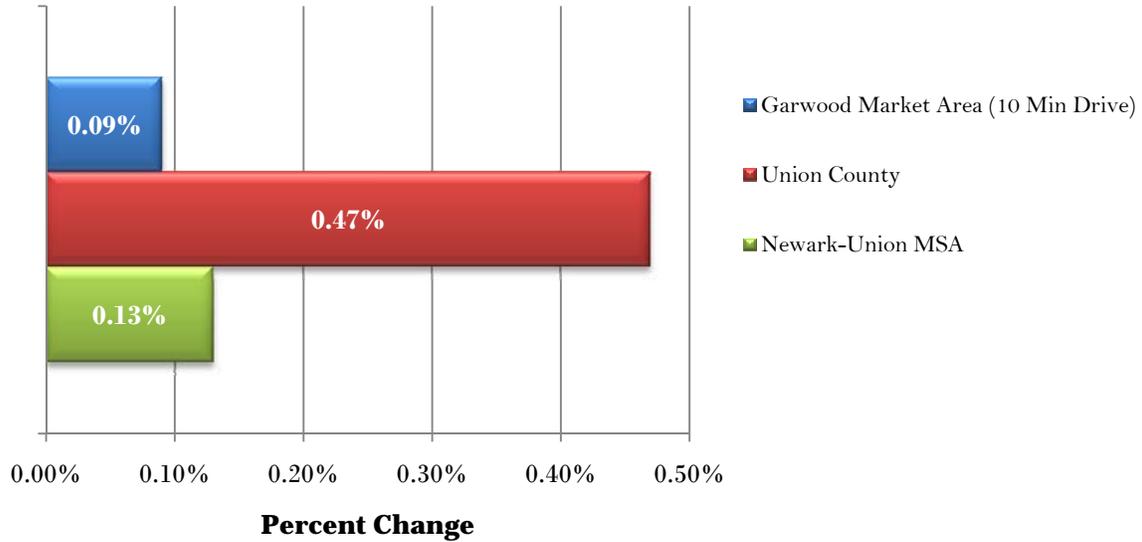


Source: U.S. Census Bureau; ScanUS; 4ward Planning, 2010

Figure 1 demonstrates Garwood’s relatively large 2010 population densities within one-quarter and one-half mile areas immediately around the commuter rail station. Indeed, Garwood’s 2010 population density within one-quarter mile of the commuter rail station is 31.1 and 44.4 percent greater than the quarter mile population densities surrounding the rail stations in Westfield and Cranford, respectively. When the area surrounding the rail station is broadened to one-half mile, Garwood’s population density is 46.5 and 32.5 percent greater than the half mile population densities in Westfield and Cranford, respectively.

As the success of TOD most often depends upon the population density within close proximity to the transit station, Garwood demonstrates that its prospective TOD area has relatively high population density within both the quarter-mile and half-mile distance from the rail station.

Figure 2: Percentage Change in Household Population, 2010-2015



Source: US Census Bureau; ScanUS; 4ward Planning, 2010

Figure 2 illustrates the projected growth of populations within households over the next five years (2010 to 2015). As can be seen, while the net change in population will be positive across all geographies examined, effective growth will be flat. However, given that current population densities will remain, effectively, unchanged, proposed TOD activities around the Garwood station area should, nonetheless, remain attractive.

HOUSEHOLDS

A household includes all persons who occupy a housing unit, such as an apartment, condominium or single-family house. Family households contain residents which are related, either by blood, marriage or legal adoption. Non-family households can contain one or more unrelated persons.

Examination of household numbers and characteristics (e.g., size, families vs. non-families, income, etc.) is, perhaps, the most quintessential within demographic analyses, as households provide a standard measure within which important metrics such as incomes, consumer expenditures, and homeownership, for example, can be meaningfully compared. Presented in Table A-2 are household statistics covering the years 2000, 2010 (estimated) and 2015 (projected) for the Garwood PMA, Union County and the Newark-Union County MSA.

Table A-2: Household Trends

Garwood Market Area (10 Min Drive)				Percentage Change	
	2000	2010	2015	2000-10	2010-15
Total Households	172,365	170,648	173,832	-1.00%	1.87%
Families	122,227	117,532	117,868	-3.84%	0.29%
Families w/Children	64,091	62,694	63,316	-2.18%	0.99%
Non-Families	50,138	53,115	55,964	5.94%	5.36%
Non-Families w/Children	423	598	653	41.32%	9.21%
Average Size HH	2.75	2.77	2.72	0.65%	-1.74%
Union County				Percentage Change	
	2000	2010	2015	2000-10	2010-15
Total Households	186,124	185,315	189,283	-0.43%	2.14%
Families	133,352	128,831	129,577	-3.39%	0.58%
Families w/Children	69,827	68,621	69,566	-1.73%	1.38%
Non-Families	52,772	56,484	59,706	7.03%	5.70%
Non-Families w/Children	471	704	819	49.47%	16.34%
Average Size HH	2.77	2.79	2.74	0.72%	-1.64%
Newark-Union MSA				Percentage Change	
	2000	2010	2015	2000-10	2010-15
Total Households	751,513	771,263	792,451	2.63%	2.75%
Families	536,425	535,955	542,860	-0.09%	1.29%
Families w/Children	286,447	285,712	289,151	-0.26%	1.20%
Non-Families	215,088	235,308	249,591	9.40%	6.07%
Non-Families w/Children	1,909	2,017	2,099	5.66%	4.07%
Average Size HH	2.73	2.69	2.62	-1.43%	-2.55%

Source: US Census Bureau; ScanUS; 4ward Planning, 2010

Consistent with the population trend exhibited in Table A-1, household formation declined (-1.0 percent) in the Garwood PMA over the 2000 to 2010 period. In comparison, Union County realized a 0.4 percent decrease in the total number of households, while the Newark-Union MSA experienced a modest 2.6 percent gain in households over the ten year period. The total number of households are projected to continue increasing at a greater rate than total population, for all geographies through 2015 – again, reflective of the increase in new, small household formations (e.g., one- and two-person households). Upon close examination of the trends exhibited in Table A-2, it becomes clear that the decrease in family households (as a subset, family households comprise 69- to 70-percent of total households across all geographies examined) was responsible for the overall decline in household formation within the Garwood PMA and Union County. A more modest percentage decline (-0.1 percent) in family households, coupled with relatively strong growth in non-family households (9.4 percent) drove the Newark-Union County’s overall growth in household formation over the 2000 to 2010 period. While the strongest

percentage growth occurred within the non-family household segment across geographies, the small relative size of this cohort (representing less than one-half of one percent across all geographies) had little bearing on total household formation.

While all geographies are projected to experience percentage gains in total household formation between 2010 and 2015, growth rates for the Garwood PMA (1.9 percent), Union County (2.1 percent) and the Newark-Union MSA (2.8 percent) will be relatively flat over this period. As with the trend observed over the 2000 to 2010 period, growth will be most robust within non-family households which, typically, are smaller in size (one- to two- persons versus two to four persons, on average, for family households).

It is important to note that non-family households, particularly those households without children, often comprise a large percentage of total households within TOD project areas (Source: *Reconnecting America – Center for Transit-Oriented Development*).

HOUSING UNITS

Table A-3 exhibits the total number and category of housing units found within each of the geographies examined for 2000, 2010 (estimated) and 2015 (projected). The estimated percentage growth in total housing units over the 2000 to 2010 period was modest for all geographies, with the Garwood PMA adding 2.5 percent more units to its inventory, and an additional three- and six-percent more housing units added in Union County and the Newark-Union MSA, respectively, over the same period.

Table A-3: Housing Tenure

Garwood Market Area (10 Min Drive)							Percentage Change	
	2000		2010		2015		2000-10	2010-15
Total Housing Units	178,756	Pct.	183,178	Pct.	186,475	Pct.	2.47%	1.80%
Owner Occupied	102,957	57.6%	102,305	55.9%	104,202	55.9%	-0.63%	1.85%
Rented	69,408	38.8%	68,343	37.3%	69,630	37.3%	-1.54%	1.88%
Vacant	6,391	3.6%	12,530	6.8%	12,643	6.8%	96.08%	0.90%
Union County							Percentage Change	
	2000		2010		2015		2000-10	2010-15
Total Housing Units	192,945	Pct.	198,807	Pct.	202,975	Pct.	3.04%	2.10%
Owner Occupied	114,638	59.4%	113,661	57.2%	116,153	57.2%	-0.85%	2.19%
Rented	71,486	37.0%	71,654	36.0%	73,130	36.0%	0.24%	2.06%
Vacant	6,821	3.5%	13,492	6.8%	13,692	6.7%	97.80%	1.48%
Newark-Union MSA							Percentage Change	
	2000		2010		2015		2000-10	2010-15
Total Housing Units	804,576	Pct.	852,849	Pct.	876,804	Pct.	6.00%	2.81%
Owner Occupied	466,471	58.0%	491,631	57.6%	505,591	57.7%	5.39%	2.84%
Rented	285,042	35.4%	279,632	32.8%	286,860	32.7%	-1.90%	2.58%
Vacant	53,063	6.6%	81,586	9.6%	84,353	9.6%	53.75%	3.39%

Source: US Census Bureau; ScanUS; 4ward Planning, 2010

Housing tenure share, referring to whether an occupied housing unit is either owned or rented, has been fairly consistent across all three geographies over the 2000 to 2010 time period, with approximately 56.8 percent of all housing units in the Garwood PMA being

owner-occupied, as compared to an average of 58.0- and 57.8 percent in Union County and the Newark-Union MSA, respectively, over the same ten-year period. During the same period, the Garwood PMA's average share of renter occupied units (approximately 38 percent of all housing units), while modestly higher than Union County's average share of renter occupied units (36.5 percent) was markedly higher than the occupied average rental share within the Newark-Union MSA (approximately 33.8 percent). The higher share of renter occupied units within the Garwood PMA, while reflective of a higher degree of transience within this market, is a favorable indicator for a prospective TOD project, as rental units often comprise a large share of such projects (**Source:** *Reconnecting America – Center for Transit-Oriented Development*).

Total inventory of housing units is projected to increase at a relatively modest pace through 2010, with the percentage growth in owner- and renter-occupied units expected to be even over this period. While vacancy rates increased rather dramatically across all markets (in part, due to foreclosure activity and general physical obsolescence), the percentage of vacant housing units is expected to remain level between 2010 and 2015. Those vacant units which are not physically obsolescent and, generally, marketable, will cause a slight drag on the housing markets in all three geographies examined until they are absorbed either through lease or sale.

AGE TRENDS

Exhibited within Table A-4 are age matrices associated with the subject geographies and covering the periods 2000, 2010 (estimated) and 2015 (projected). Figure 3 further helps to demonstrate comparative age cohort trends across geographies.

All geographies show similar distribution of population amongst the various age cohorts. For example, persons 19 years of age and younger, in 2000, accounted for 26- to 27-percent of total household population within each of the three geographies; this age cohort, as a percentage of total population, exhibits a slight declining trend over the 2000 to 2010 and 2010 to 2015 time periods. Other notable age trends include:

- The 20 to 34-year old cohort (typically symbolic of young professionals with no children or one or two very young children) represented slightly more than 20-percent of total household population in 2000, declined modestly over the 2000 to 2010 period (accounting for slightly more than 18-percent of total household population across geographies) and is projected to see relatively flat growth between 2010 and 2015.
- The 35 to 54-year old cohort (typically representing the largest share of working persons and persons in stable careers) accounted for the largest share of household population in 2000 at about 30.5 percent of total household population, across geographies. Declines experienced within this age cohort were relatively minor over the 2000 to 2010 period, with MSA losing just over four-percent of this age group and declines of 7.8 and 7.5 percent within Union County and the Garwood PMA, respectively. However, trend projection suggest relatively steep declines in the number of persons in this age cohort, across geographies, over the next five years

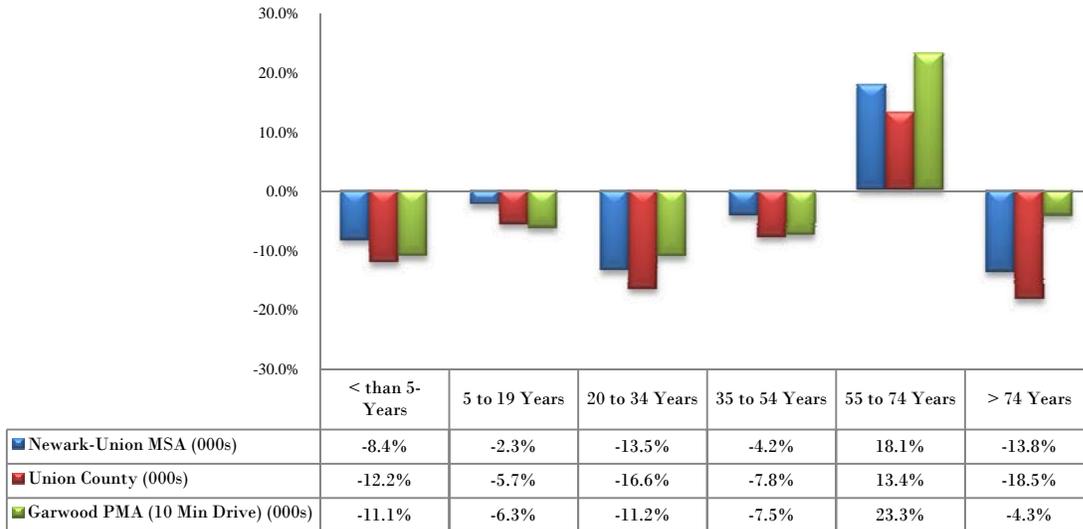
(Newark-Union MSA – (-10.3 percent), Union County – (-11.5 percent) and the Garwood PMA – (-14.1 percent).

- The 55 to 74-year old cohort, accounting for about 15.5 percent of total household population in 2000, across all geographies, demonstrated robust growth over the 2000 to 2010 period within the MSA (18.1 percent), Union County (13.4 percent) and the Garwood PMA (23.3 percent). The torrid growth (nearly 2.4 percent per annum) of this age cohort in the Garwood PMA suggests **a)** a large number of persons in this geography desiring to age in place and **b)** a high degree of discretionary income, based on this age cohort’s profile (US Census data identifies this age cohort possessing a high degree of discretionary income (after tax income and primary financial obligations)). A high degree of discretionary income bodes favorably for certain service businesses such as restaurants, specialty retailers and entertainment venues.

Table A-4: Population Age Trends						
Newark-Union MSA (000s)				Percentage Change		
	2000	2010	2015	2000-10	2010-15	
Total Population	2,431	2,361	2,324			
< than 5-Years	166 6.8%	152 6.4%	138 5.9%	-8.39%	-9.38%	
5 to 19-Years	487 20.1%	476 20.2%	453 19.5%	-2.29%	-4.84%	
20 to 34-Years	501 20.6%	433 18.4%	443 19.1%	-13.45%	2.20%	
35 to 54-Years	734 30.2%	703 29.8%	631 27.2%	-4.23%	-10.27%	
55 to 74-Years	376 15.5%	444 18.8%	514 22.1%	18.12%	15.75%	
> than 74-Years	166 6.8%	144 6.1%	139 6.0%	-13.77%	-3.22%	
Median Age	36.8	38.6	39.7	4.87%	2.78%	
Union County (000s)				Percentage Change		
	2000	2010	2015	2000-10	2010-15	
Total Population	335	311	302			
< than 5-Years	23 7.0%	21 6.6%	18 6.0%	-12.25%	-11.02%	
5 to 19-Years	67 20.1%	64 20.5%	60 19.9%	-5.67%	-5.62%	
20 to 34-Years	67 20.1%	56 18.0%	57 18.9%	-16.59%	1.91%	
35 to 54-Years	101 30.2%	93 30.0%	83 27.4%	-7.82%	-11.47%	
55 to 74-Years	52 15.6%	59 19.0%	68 22.5%	13.38%	14.79%	
> than 74-Years	24 7.0%	19 6.2%	18 6.1%	-18.47%	-4.71%	
Median Age	36.6	38.9	39.9	6.17%	2.68%	
Garwood PMA (10 Min Drive) (000s)				Percentage Change		
	2000	2010	2015	2000-10	2010-15	
Total Population	23	22	21			
< than 5-Years	2 7.0%	1 6.6%	1 6.4%	-11.09%	-6.25%	
5 to 19-Years	5 20.8%	4 20.4%	4 19.5%	-6.32%	-8.82%	
20 to 34-Years	5 19.6%	4 18.2%	4 18.9%	-11.16%	-0.80%	
35 to 54-Years	7 31.4%	7 30.3%	6 27.3%	-7.52%	-14.07%	
55 to 74-Years	4 15.4%	4 19.8%	5 23.1%	23.32%	11.17%	
> than 74-Years	1 5.8%	1 5.8%	1 6.0%	-4.33%	-1.45%	
Median Age	36.4	39.1	40.1	7.51%	2.69%	

Source: US Census Bureau; ScanUS; Award Planning, 2010

Figure 3: Percent Change in Population by Age Cohort, 2000-2010



Source: US Census Bureau; ScanUS; 4ward Planning, 2010

HOUSEHOLD INCOME

Observed household income within a given geography is the starting point for analyzing past, present and projected consumption patterns for a variety of goods and services. While the per capita income measure sometimes used within market studies provides an average measure of income for each person within a given market area, its ability to accurately reflect expenditure patterns and consumption preferences for various market goods and services is weak, given the broad diversity of individual characteristics (e.g., age, sex, marital status, housing tenure, educational attainment, etc.).

Household income, conversely, provides a sound base upon which to gauge prospective consumer expenditures and taste preferences, as household units (e.g., family and non-family) feature greater uniformity and predictability than individuals, with respect to needs and wants for goods and services.

Table A-5 presents household income data for the Garwood Market Area, Union County and the MSA for 2000, 2010 (estimated) and 2015 (projected). In 2000, a third or more of households in the Garwood PMA (32.4 percent), Union County (35.3 percent) and the Newark-Union MSA (37.8 percent) achieved annual household incomes of \$75,000 or greater. By 2010, the share of these upper income households increased by an average of 23.3-, 21.6- and 27.2 percent within the Garwood PMA, Union County and the Newark-Union MSA, respectively. These significant increases in upper household income reflect robust in-migration by highly educated and professionally employed households – target consumers for TOD projects.

Table A-5: Household Income Trends (000s)

Garwood Market Area (10 Min Drive)							Percentage Change	
	2000		2010		2015		2000-10	2010-15
Total Households	172		171		174			
< \$40,000	65	37.7%	57	33.5%	57	32.5%	-11.57%	-1.34%
\$40K to \$74.9K	52	30.0%	47	27.5%	47	26.8%	-8.71%	-1.14%
\$75K to \$99.9K	23	13.2%	23	13.4%	23	13.5%	1.30%	2.02%
\$100K to \$149.9K	21	12.2%	25	14.3%	26	14.9%	17.22%	6.05%
>\$149.9K	12	7.0%	19	11.2%	21	12.3%	59.04%	12.31%
Median HH Income	\$56,888		\$64,760		\$67,090		13.84%	3.60%

Union County							Percentage Change	
	2000		2010		2015		2000-10	2010-15
Total Households	186		185		189			
< \$40,000	67	36.1%	59	32.1%	59	31.2%	-11.67%	-0.76%
\$40K to \$74.9K	53	28.6%	48	26.1%	48	25.3%	-9.29%	-0.87%
\$75K to \$99.9K	24	13.1%	24	13.2%	25	13.2%	-0.10%	2.06%
\$100K to \$149.9K	24	12.9%	27	14.6%	29	15.1%	13.04%	5.51%
>\$149.9K	17	9.3%	26	14.0%	29	15.3%	50.33%	11.11%
Median HH Income	\$55,914		\$62,982		\$65,647		12.64%	4.23%

Newark-Union MSA							Percentage Change	
	2000		2010		2015		2000-10	2010-15
Total Households	752		771		792			
< \$40,000	262	34.8%	231	29.9%	227	28.7%	-11.82%	-1.55%
\$40K to \$74.9K	206	27.4%	189	24.5%	186	23.4%	-8.45%	-1.59%
\$75K to \$99.9K	99	13.2%	100	13.0%	101	12.8%	0.53%	1.01%
\$100K to \$149.9K	102	13.6%	124	16.1%	133	16.8%	21.60%	7.58%
>\$149.9K	83	11.0%	128	16.6%	145	18.3%	54.11%	13.46%
Median HH Income	\$58,602		\$69,396		\$73,311.42		18.42%	5.64%

Source: US Census Bureau; ScanUS; 4ward Planning, 2010

Upper income households (\$75,000 and greater) are projected to grow further (albeit, at a somewhat more modest pace than that experienced between 2000 and 2010) through 2015. The share of upper income households within the Garwood PMA, Union County and the Newark-Union MSA is projected to be 40.7-, 43.6- and 47.9 percent, respectively.

EDUCATIONAL ATTAINMENT

Trends concerning educational attainment for persons 25 and older living in the three subject geographic areas over the 2000 to 2010 (estimated) and 2010 to 2015 (projected) time intervals are exhibited in Table A-6. Observed educational attainment levels within a given geography provide an additional measure of likely consumer habits, lifestyle and income generating potential. Further, and based on research performed by the Center for Transit Oriented Development, persons with four-year and advanced degrees have a greater propensity to live within a TOD residential site than persons with less formal education.

Table A-6: Educational Attainment Trends

Garwood Market Area (10 Min Drive)							Percentage Change	
		2000		2010		2015	2000-10	2010-15
Population 25 and over	323,311		319,413		324,503		-1.21%	1.59%
H.S. Diploma or less	100,643	31.1%	110,377	34.6%	117,025	36.1%	9.67%	6.02%
Some College, no degree	56,109	17.4%	51,359	16.1%	49,835	15.4%	-8.47%	-2.97%
Associates Degree	16,042	5.0%	17,946	5.6%	19,193	5.9%	11.87%	6.95%
Bachelors Degree	52,978	16.4%	57,610	18.0%	60,774	18.7%	8.74%	5.49%
Graduate Degree	29,694	9.2%	32,989	10.3%	35,082	10.8%	11.10%	6.35%
Union County							Percentage Change	
		2000		2010		2015	2000-10	2010-15
Population 25 and over	351,130		348,576		355,457		-0.73%	1.97%
H.S. Diploma or less	104,109	29.6%	116,032	33.3%	124,198	34.9%	11.45%	7.04%
Some College, no degree	57,359	16.3%	53,237	15.3%	52,082	14.7%	-7.19%	-2.17%
Associates Degree	16,816	4.8%	18,675	5.4%	19,956	5.6%	11.05%	6.86%
Bachelors Degree	61,759	17.6%	66,078	19.0%	69,284	19.5%	6.99%	4.85%
Graduate Degree	38,526	11.0%	41,347	11.9%	43,321	12.2%	7.32%	4.77%
Newark-Union MSA							Percentage Change	
		2000		2010		2015	2000-10	2010-15
Population 25 and over	1,396,868		1,418,896		1,436,673		1.58%	1.25%
H.S. Diploma or less	386,878	27.7%	416,654	29.4%	431,665	30.0%	7.70%	3.60%
Some College, no degree	240,469	17.2%	221,781	15.6%	212,440	14.8%	-7.77%	-4.21%
Associates Degree	69,762	5.0%	81,147	5.7%	86,958	6.1%	16.32%	7.16%
Bachelors Degree	276,994	19.8%	314,768	22.2%	333,671	23.2%	13.64%	6.01%
Graduate Degree	173,853	12.4%	200,529	14.1%	213,445	14.9%	15.34%	6.44%

Source: US Census Bureau; ScanUS; 4ward Planning, 2010

As exhibited in Table A-6, adult persons (25-years and older) possessing a bachelors degree or greater and living within the Garwood PMA in 2000 represented 25.6 percent of all adult persons within the geography, as compared to 28.6- and 32.2-percent in Union County and the Newark-Union MSA, respectively. The comparatively low 2000 educational attainment level within the Garwood PMA reflects the relatively high concentration of manufacturing and warehousing workers (occupations, traditionally, not requiring more than a high school diploma) who lived in the PMA, and likely worked at one of Garwood's many manufacturing or distribution/warehousing facilities, at that time.

Over the ten-year period, 2000 to 2010, adult persons possessing either a bachelors or graduate level degree had increased 8.7- and 11.1-percent, respectively, within the Garwood PMA. The Garwood PMA's estimated percentage increase in adult persons possessing either a bachelors or graduate degree easily surpassed the estimated percentage growth in these categories for Union County (7.0 percent and 7.3 percent, respectively), but fell well

short of the estimated percentage growth in upper tier educational attainment for the Newark-Union MSA (13.6 percent and 15.3 percent, respectively) over the same period.

While the percentage share of adults possessing a bachelors degree or higher is projected to be lower within the Garwood PMA than in Union County or the Newark-Union MSA through 2015, the percentage growth in the number of persons possessing these degrees is projected to be relatively strong (better than one-percent per annum growth). This trend bodes favorably for prospective TOD activity.

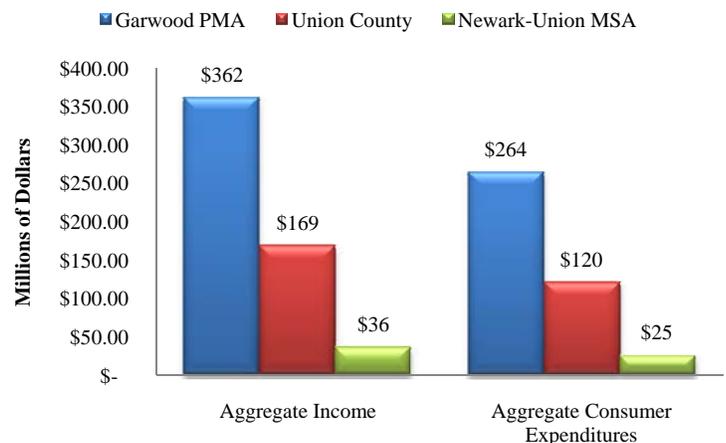
CONSUMER EXPENDITURE PROFILE

The following charts graphically illustrate the significant household spending power within the Garwood PMA, relative to that for the households within the Union County and the Newark-Union MSA. 4ward Planning utilized aggregate value per square mile as the standard comparative benchmark, so as to eliminate the bias typically present when focused exclusively on households.

Figure 4 shows that the estimated 2010 aggregate household income and expenditures per square mile (in millions of dollars), within the Garwood PMA, is greater than the estimated aggregate per square mile household income and expenditures in both Union County and the Newark-Union MSA. This is indicative of the higher household density found within the Garwood PMA.

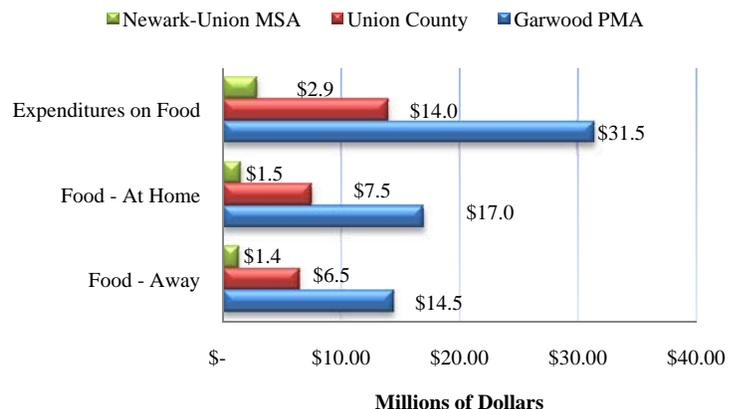
Figure 5 indicates the relative size of food expenditures made, per square mile, within the Garwood PMA, as compared to per square mile food expenditures made within the Union County and the Newark-Union MSA. The estimated 2010 expenditures on all food purchases per square mile are \$31.5 million or 224 percent greater than expenditures made per square mile within Union County (\$14 million) and approximately eleven times greater than the Newark-Union MSA's (\$2.9 million) food expenditures per square mile. The relatively high concentration of grocery and supermarket purchasing power within the Garwood PMA is indicative of three supermarkets located within one quarter mile or less of the Garwood rail station.

Figure 4: Estimated 2010 Aggregate Household Income and Expenditures (Per Square Mile)



Source: ScanUS, 4ward Planning LLC, 2010

Figure 5: Estimated 2010 Aggregate Household Food Expenditures (Per Square Mile)



Source: ScanUS, 4ward Planning LLC, 2010

In the away-from home food category (prepared food purchased at full- and limited-service restaurants and intended for eating on premises), estimated 2010 per square mile expenditures were greatest within the Garwood PMA (\$14.5 million per square mile), followed by per square mile expenditures in Union County (\$6.5 million) and the MSA (\$1.4 million). The relatively strong food-away-from home purchasing power exhibited within the Garwood PMA bodes favorably for prospective restaurants entering the local market area. In particular, restaurants or eateries located close-in to the Garwood rail station would likely capture commuter patrons predisposed to purchasing prepared foods.

Section Takeaway

The half-mile area immediately surrounding the Garwood rail station is densely populated, stable and representative of middle and upper-middle class income households – strongly favorable for TOD activity. In general, the immediate area surrounding the Garwood rail station exhibits strong demographic fundamentals necessary for TOD project activities to be successful.

Industry Trend Analysis

INDUSTRY TRENDS

Table A-9 exhibits major industry employment trend data for the three geographies under study. The employment data represents the industries in which persons living within any of the three geographies are employed. However, their place of employment may not be within the geography in which they live. The percentage change in total primary employment (representing a person's primary source of permanent employment) within the Garwood PMA between 2004 and 2008 was relatively large at negative 5.8-percent, as compared to the total primary employment percentage change of negative 4.2- and negative 0.9-percent in Union County and the Newark-Union MSA, respectively.

Table A-9: Industry Employment Trends

Garwood Market Area (10 Min Drive)							Percentage Change	
	2004		2006		2008		2004-06	2006-08
Total Primary Employment	189,316		192,963		181,792		1.93%	-5.79%
Construction & Manufacturing	43,732	23.1%	44,574	23.1%	29,814	16.4%	1.93%	-33.11%
Wholesale, Transportation & Warehousing	16,660	8.8%	17,174	8.9%	17,634	9.7%	3.08%	2.68%
Retail, Arts & Entertainment & Hospitality	35,591	18.8%	34,347	17.8%	33,995	18.7%	-3.50%	-1.03%
Professional, Scientific & Technical Svcs.	16,470	8.7%	16,402	8.5%	14,180	7.8%	-0.42%	-13.55%
Finance, Insurance & Real Estate	11,359	6.0%	11,964	6.2%	11,271	6.2%	5.32%	-5.79%
Education, Healthcare & Public Admin.	40,514	21.4%	41,873	21.7%	42,539	23.4%	3.36%	1.59%
Administration, Support & Other Services	17,417	9.2%	18,139	9.4%	17,997	9.9%	4.14%	-0.78%

Union County							Percentage Change	
	2004		2006		2008		2004-06	2006-08
Total Primary Employment	224,517		229,575		219,944		2.25%	-4.20%
Construction & Manufacturing	52,088	23.2%	52,802	23.0%	34,311	15.6%	1.37%	-35.02%
Wholesale, Transportation & Warehousing	24,697	11.0%	26,172	11.4%	26,833	12.2%	5.97%	2.53%
Retail, Arts & Entertainment & Hospitality	39,964	17.8%	38,569	16.8%	39,810	18.1%	-3.49%	3.22%
Professional, Scientific & Technical Svcs.	15,492	6.9%	15,382	6.7%	15,176	6.9%	-0.71%	-1.34%
Finance, Insurance & Real Estate	11,899	5.3%	12,397	5.4%	11,877	5.4%	4.18%	-4.20%
Education, Healthcare & Public Admin.	52,761	23.5%	54,409	23.7%	54,766	24.9%	3.12%	0.66%
Administration, Support & Other Services	18,859	8.4%	20,662	9.0%	21,335	9.7%	9.56%	3.26%

Newark-Union MSA							Percentage Change	
	2004		2006		2008		2004-06	2006-08
Total Primary Employment	894,543		907,268		898,939		1.42%	-0.92%
Construction & Manufacturing	135,971	15.2%	142,441	15.7%	117,761	13.1%	4.76%	-17.33%
Wholesale, Transportation & Warehousing	104,662	11.7%	106,150	11.7%	104,277	11.6%	1.42%	-1.76%
Retail, Arts & Entertainment & Hospitality	152,072	17.0%	148,792	16.4%	152,820	17.0%	-2.16%	2.71%
Professional, Scientific & Technical Svcs.	76,036	8.5%	76,211	8.4%	80,006	8.9%	0.23%	4.98%
Finance, Insurance & Real Estate	64,407	7.2%	67,138	7.4%	64,724	7.2%	4.24%	-3.60%
Education, Healthcare & Public Admin.	232,581	26.0%	236,797	26.1%	246,309	27.4%	1.81%	4.02%
Administration, Support & Other Services	84,087	9.4%	86,190	9.5%	86,298	9.6%	2.50%	0.12%

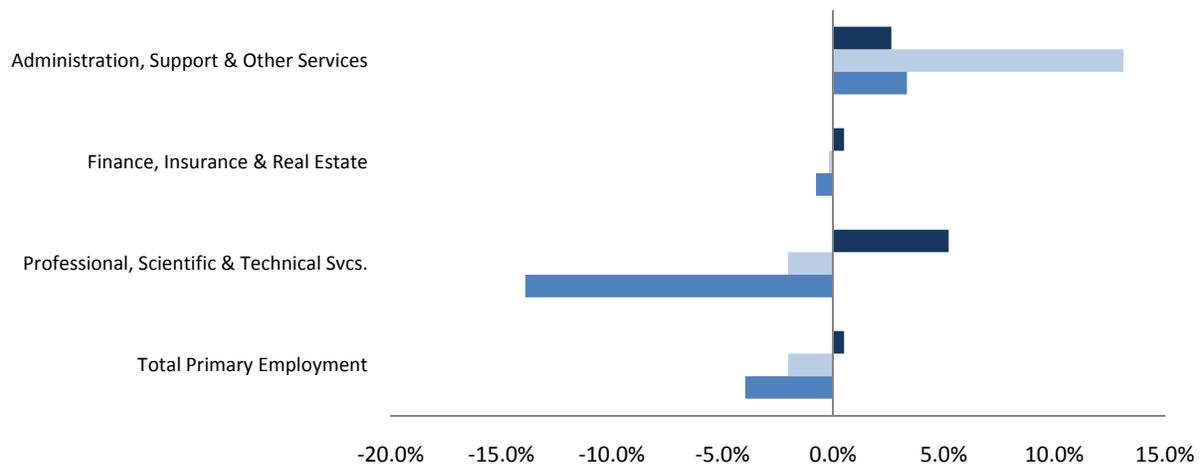
Source: US Census Bureau; ScanUS; 4ward Planning, 2010

The relatively large loss of primary employment within the Garwood PMA during the four-year period is attributable to significant industry job losses in Construction and Manufacturing (negative 31.8-percent) and Professional, Scientific and Technical Services (negative 13.9-percent).

In 2004, these two broad industry sectors represented approximately 32-percent of total primary industry employment within the Garwood PMA, as compared to 30- and 24-percent for Union County and the Newark-Union MSA, respectively. By the end of 2008, the major

effects of the national recession reduced the percentage share of total primary employment within these industries to 24.2-, 22.5- and 20.5-percent for the Garwood PMA, Union County and the Newark-Union MSA, respectively.

Figure 6: 2004 to 2008 Percentage Change in Select Industry Employment



	Total Primary Employment	Professional, Scientific & Technical Svcs.	Finance, Insurance & Real Estate	Administration, Support & Other Services
■ Newark-Union MSA	0.5%	5.2%	0.5%	2.6%
■ Union County	-2.0%	-2.0%	-0.2%	13.1%
■ Garwood PMA	-4.0%	-13.9%	-0.8%	3.3%

The most likely users of commuter rail service (e.g., persons typically travelling longer than ten to fifteen minutes to reach their place of employment) would be persons working within one of the following broad service industry sectors:

- Administration, Support and Other Services
- Finance, Insurance and Real Estate
- Professional, Scientific and Technical Services

The relatively large losses in the Professional, Scientific and Technical Services within the Garwood PMA over the 2004 to 2008 time period reflects (Figure 6) 1) the large concentration of persons living within the primary market area who are employed within this industry and 2) the degree to which their industries were impacted by the Great Recession. Importantly, however, and as of 2008, there are still more than 40,000 persons within the Garwood PMA whose industry affiliation make them prospective consumers of TOD related land-uses (e.g., purchasers or renters of residential property; and patrons of goods and services sold within the TOD complex.

Section Takeaway

The identified change in industry employment (e.g., a decline in the number of persons employed within the manufacturing and distribution/warehousing industries and significant employment increases within the broad professional services industry) bodes favorably for TOD activity as these types of workers are most likely to use commuter rail service to access employment opportunities. Further, many area residents are employed in industry related occupations which have exhibited relatively strong growth over the past few years and, with few exceptions, this growth trend should carry forward. Accordingly, local area industry labor trends should only enhance Garwood's prospective TOD efforts.

REAL ESTATE MARKET TREND ANALYSIS

4ward Planning utilized a variety of secondary data sources in examining retail, multi-family/apartment rental, office and industrial real estate market conditions, at both a regional level and within the Garwood primary market area. Secondary data sources included the following:

- Directory of Major Malls
- LoopNet.com
- Grubb & Ellis
- Cassidy Turley
- Marcus and Millichap
- Cushman and Wakefield
- REIS

In addition to examination of secondary data, 4ward Planning undertook a windshield tour within the PMA, observing existing conditions of various land-uses, and conducted a limited number of interviews with active residential and commercial real estate brokers and owners knowledgeable of the PMA.

Consistent with real estate markets, nationally, Garwood's various real estate market segments have been buffeted by a combination of cyclical and structural shifts in economic conditions, regionally and nationally. Job losses within the region (Central New Jersey employers have reduced head counts by 51,900 workers, or 4 percent over the past year according to Marcus & Millichap) have had the greatest influence over real estate market performance generally, as employment underpins the health of all real estate market segments.

Size and composition of sub-markets within the regional real estate market differs according to whether the sub-market in question is retail, residential, office or industrial.

Note: Given 4ward Planning's knowledge of the Garwood regional office and industrial markets, as well as our understanding of competitive factors underpinning site location decisions for these land-uses, we've determined that the Garwood study area is not likely to be a strong competitive location for either office or industrial land-uses within the foreseeable future, and, therefore, office and industrial market analysis, provided here, is limited to a cursory overview of present market conditions.

RETAIL MARKET SNAPSHOT

While US Census data showed a 5.4 percent increase in retail sales from 2008 to 2009, the lingering effects of recession still have challenged many retailers to achieve prior years' sales volumes. This fact has resulted in many store closures in New Jersey, including such well known chains as Fortunoff, Circuit City and Linens-and-Things, in addition to consolidations and downsizing among remaining retailers.

In the Northern and Central New Jersey retail markets, according to the 2009 Year-End Report from Cushman & Wakefield, vacancy rates increased through 2009, but are not expected to surpass 20 percent in 2010. To fill vacant spaces, average asking rental rates have been trending downward, decreasing 7.5 percent from 2008 to 2009, averaging \$22.77 per square foot.

Given significant vacancy rates within Northern and Central New Jersey retail markets, new medium to large format retail starts (e.g., community and regional shopping centers) are not likely in the near future. Neighborhood and convenience oriented retail, however, has proven more viable, particularly in well placed mixed use developments. For example, The Mews at Garwood, when completed, will include 30,000 square feet of "Main Street" retail shops ranging from 1,100-2,000 square feet. The project was completed in 2009, and more than two-thirds of the retail space is currently leased.

Rail Station Area Retail Supply Comparison

To gain an understanding of the typical businesses located within walking distance of a rail stop, 4ward Planning analyzed the half-mile area immediately surrounding the Garwood rail station and, for comparison purposes, three other New Jersey rail station half-mile areas having comparable population densities and household characteristics to Garwood's TOD half-mile area: Westfield, Cranford and Metuchen.

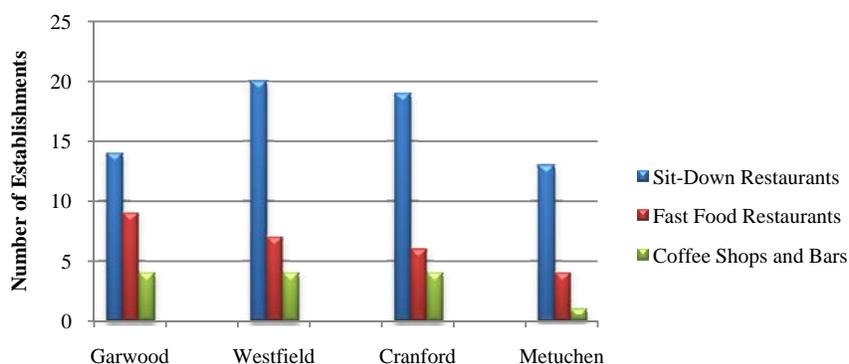
Business categories examined included dining establishments, comparison retail, personal and convenience services. Table A-8 exhibits the breakdown of dining establishments within each half-mile TOD project areas. The number of sit-down dining establishments presently within Garwood (e.g., non-fast food) is slightly below the average of 17 sit-down restaurants within the comparative TOD areas. Conversely, the number of fast-food restaurants found in Garwood exceeds the average number of establishments found within all TOD areas examined – nine locations versus the average of seven. The half-mile area surrounding the Garwood rail station currently contains, generally, the same number of bars and coffee shops as do the other rail station half-mile areas examined, save for Metuchen.

Table A-10: Restaurants within Walking Distance of Rail Station

	Garwood	Westfield	Cranford	Metuchen
Sit-Down Restaurants	14	20	19	13
Fast Food Restaurants	9	7	6	4
Coffee Shops and Bars	4	4	4	1

Source: Whitepages.com, Google Earth, 4ward Planning LLC 2010

Figure 7: Restaurants within Walking Distance of Rail Station



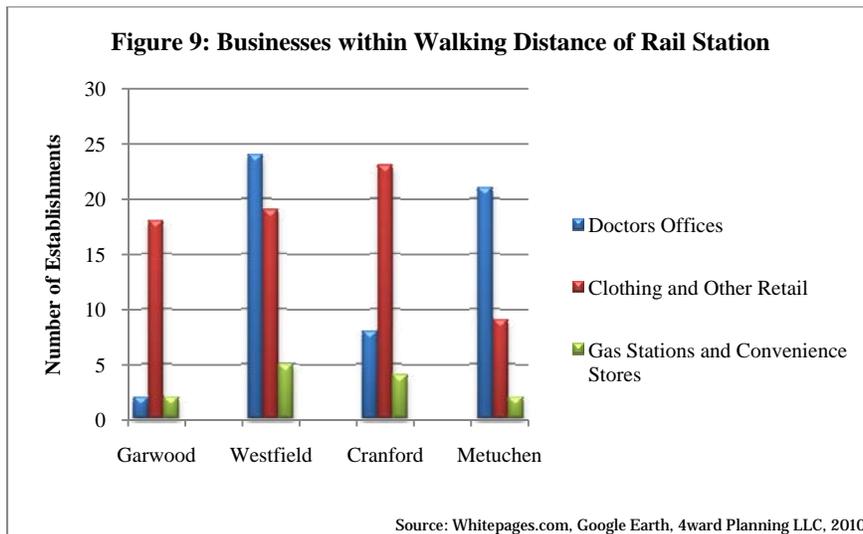
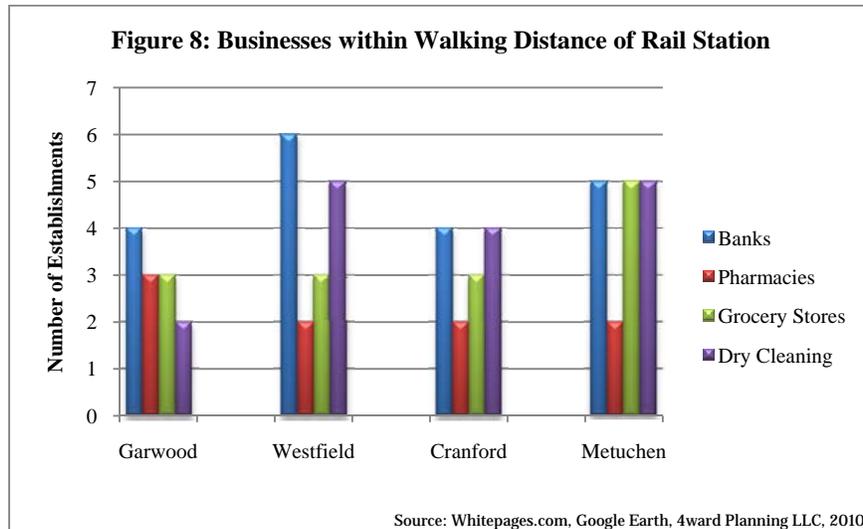
Source: Whitepages.com, Google Earth, 4ward Planning LLC, 2010

Table A-11, and Figures 16 and 17 exhibit the amount and type of general retail found within each of the rail station areas examined. The Garwood half-mile rail station area features, approximately, the same number of general retail businesses as are contained within the other rail station areas examined. Differences observed between Garwood and the comparison locations include the number of dry cleaners and doctor’s offices. Specifically, the Garwood half-mile rail station area provides half as many dry cleaning locations (2) as the average of the four locations. Presently, only two physician offices were identified within the Garwood TOD area, well below the average of approximately 14 locations for station areas examined. Given the projected growth in the population 55 and older within the Garwood PMA, in addition to the relatively limited number of medical offices present within a half-mile of the Garwood rail station, it would appear that there is pent-up demand for additional medical office space near the Garwood station.

Table A-11: Retail and Business within Walking Distance of Rail Station

	Garwood	Westfield	Cranford	Metuchen
Banks	4	6	4	5
Pharmacies	3	2	2	2
Grocery Stores	3	3	3	5
Dry Cleaning	2	5	4	5
Doctors Offices	2	24	8	21
Clothing and Other Retail	18	19	23	9
Gas Stations and Convenience Stores	2	5	4	2

Source: Whitepages.com, Google Earth, 4ward Planning LLC 2010



OFFICE MARKET SNAPSHOT

Generally, in the Northern and Central NJ markets, availability rates (a combined figure that represents vacant space and space available for sublease) stabilized or fell and absorption rose in the fourth quarter of 2009, however asking and effective rental rates declined. Grubb and Ellis attributes this to competitive lease offerings that cause a “flight to quality” trend where companies upgrade their spacing needs, while locking in financially favorable lease packages.

Table A-12: Regional Office Market Trends - 4th Quarter 2009

By Submarket	Total SF	Available SF	Available		NET ABSORPTION		Under Construction SF	ASKING RENT	
			Direct	Total	Current	Year-To-Date		Class A	Class B
Central NJ I-287/ Route 22	5,248,248	1,223,536	13.30%	23.30%	-118,645	-383,745	-	\$28.00	\$22.62
Hunterdon/ I-78	1,100,791	364,247	32.30%	33.10%	3,000	44,577	-	\$21.00	\$21.80
MetroPark/ GSP	5,722,825	1,299,514	20.30%	22.70%	-49,622	-24,704	255,433	\$29.69	\$27.42
Monmouth East/ GSP	7,976,308	1,716,559	19.50%	21.50%	-183,885	-204,413	-	\$28.21	\$24.20
Monmouth West	856,906	181,348	19.70%	21.20%	1,178	-72,528	-	\$23.00	\$25.42
Piscataway/ I-287 South	9,846,010	3,501,489	28.20%	35.60%	40,927	-36,364	-	\$22.21	\$19.82
Princeton	13,013,475	2,558,584	16.70%	19.70%	205,122	-144,614	-	\$34.40	\$24.35
Route 18/ 8A Middlesex	3,342,643	1,222,211	32.10%	36.60%	3,029	63,964	-	\$30.39	\$24.03
Somerset/ I-78	8,475,470	1,955,722	10.50%	23.10%	-1,682	113,275	-	\$29.42	\$26.00
Union Area	3,031,055	459,555	13.40%	15.20%	15,871	-30,700	-	\$29.00	\$22.73
Central NJ Subtotal	58,613,731	14,482,765	19.20%	24.70%	-84,707	-675,252	255,433	\$28.62	\$23.21

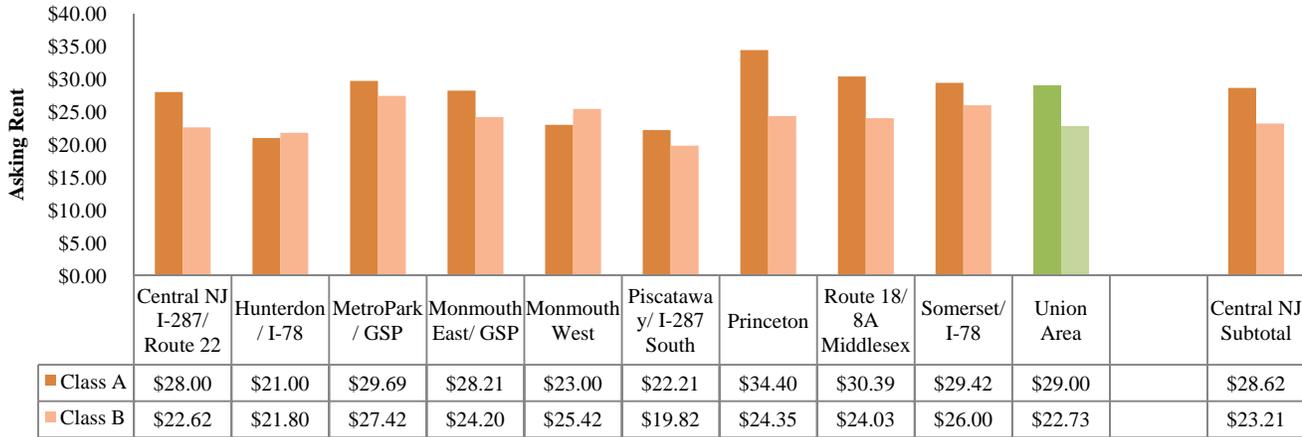
Source: Grubb & Ellis, 4ward Planning, 2010

Table A-12 shows a fourth quarter 2009 snapshot of the Central NJ regional office market. Total office inventory within the Union Area submarket market at the end of the fourth quarter, 2009, totaled slightly more than three million square feet, of which 15.2 percent (approximately 460,000 square feet) was available, according to Grubb & Ellis. This represented the lowest availability rate among all submarkets.

Nearly 14.5 million square feet of office space had become available within the Central NJ regional office market, as of the end of 2009. Most submarkets experienced positive space absorption in the fourth quarter of 2009, but negative absorption overall in 2009. The Union Area office submarket (which includes the Borough of Garwood) showed positive absorption in the fourth quarter, but yielded a net 30,700 square feet of available space (4.5 percent of the total regional net absorption for 2009) back on the market for the year. While the Union Area submarket demonstrates relative stability within the Central NJ market, there is still an overall glut of available office space in the region. This fact will likely limit future office development to either build to suit product or small speculative formats within mixed-use TOD project areas.

Figure 10 compares asking rent rates for the Central New Jersey submarkets for both Class A and Class B office space. The Union Area submarket shows average asking lease rates for Class A and B when compared to the overall Central New Jersey market.

Figure 10: Regional Office Market Asking Rent (4th Quarter 2009)



Source: Grubb & Ellis, 4ward Planning, 2010

INDUSTRIAL MARKET SNAPSHOT

Over the last few years, industrial real estate activity in Northern and Central New Jersey has been in flux, with the market slowly attempting to stabilize in order to accommodate a large supply of industrial real estate. According to Cassidy Turley, Northern New Jersey, including Union County, had nearly 429 million square feet of industrial real estate in the fourth quarter of 2009, of which 7.5 percent was vacant—the highest vacancy rate since 1996. Due to the large amount of available space, average asking rental rates have been decreasing from a 2005 third quarter high of \$6.79 per square foot to a fourth quarter 2009 metric of \$6.13 per square foot (a 9.7 percent drop). The fourth quarter 2009 rate is lowest average asking rental rate in the area since 2004, according to Cassidy Turley.

Table A-13: Regional Industrial Market Trends - 4th Quarter 2009

Submarket	Total Inventory	Direct Available	Sublet Available	Total Available	Vacancy Rate	Net Absorption	Completions	Under Construction	Average Asking Rent
Central Bergen	34,999,028	2,842,921	81,364	2,924,285	8.40%	-100,520	0	0	\$7.41
Eastern Morris	30,416,462	2,316,000	120,650	2,436,650	8.00%	-43,132	0	0	\$8.44
Hudson Waterfront	32,605,402	1,877,551	0	1,877,551	5.80%	-320,850	0	0	\$5.80
Meadowlands	78,334,289	6,683,055	573,688	7,256,743	9.30%	251,161	0	0	\$6.32
Northern Bergen	18,989,016	1,392,410	194,879	1,587,289	8.40%	-30,690	0	0	\$8.59
Passaic	58,725,819	4,081,322	273,132	4,354,454	7.40%	-216,615	0	0	\$5.83
Port/Airport	45,670,091	2,424,196	198,000	2,622,196	5.70%	102,592	0	0	\$6.07
Union County	48,733,180	3,343,720	64,000	3,407,720	7.00%	325,510	0	0	\$5.33
West Essex	24,805,447	1,184,698	212,154	1,396,852	5.60%	66,721	0	0	\$7.81
Western NJ	19,229,037	2,000,552	22,871	2,023,423	10.50%	23,083	0	0	\$5.57
Northern NJ Subtotal	392,507,771	28,146,425	1,740,738	29,887,163	7.61%	57,260	0	0	\$6.72

Source: Cassidy Turley, 4ward Planning, 2010

Table A-13 shows a fourth quarter 2009 snapshot of submarkets within the Northern NJ regional office market. The Union County industrial submarket, the 3rd largest industrial submarket in the Northern NJ Region, based on square footage under roof, tallied nearly 49 million square feet at the end of the fourth quarter, 2009. The vacancy rate at the end of the fourth quarter 2009 was 7.0 percent for the Union County submarket, as compared to 7.5 percent for the region. The Union County submarket saw the highest net absorption of all regional submarkets in the fourth quarter 2009 with 325,510 square feet net, which is juxtaposed to an almost equivalent negative absorption in the Hudson Waterfront submarket with a negative 320,850 square feet net loss. Union County's relative stability is likely related to its location to ports, as well as its relatively low lease rates. The lack of any industrial projects under construction in any of the submarkets reflects a combination of limited land availability for distribution/warehousing space and a still soft market for consumer goods – the primary driver of the warehousing development.

RESIDENTIAL MARKET SNAPSHOT

For-Sale Residential

4ward Planning examined a number of secondary real estate reports covering not only Garwood, but Union County, and the State of New Jersey as well for comparison purposes. These residential report sources included Trulia.com, Zillow.com, and REIS. In an effort to understand the movement in home values over time, we have used Zillow.com's methodology to understand home prices in the area. A discussion of this method is included below.

Residential Market Trends Methodology

Estimated Median House Value – Conventional housing market analysis has focused on average sale price trends (e.g., mean and median), over a given period, to discern the current health and likely future direction of a given housing market. While the sales price approach to understanding the current health and likely future direction of a housing market is seemingly straight forward, it's predicated on only those housing units which are selling (e.g., high-end versus starter homes; starter homes versus mid-range move up housing, etc.) and, therefore, likely to either over- or under-represent the estimated median value for all housing in that market.

Alternatively, 4ward Planning utilizes Zillow.com's proprietary methodology for estimating median housing values within a given market. This methodology, referred to as a "Zestimate", relies upon a combination of county and municipal reported housing transaction data for a given market (inclusive of sale price, date of sale, home square footage, bedrooms, house type, lot size, etc.) to derive an estimated value for all housing units within a given market (state, county, ZIP code area, and neighborhood). The data for Garwood, Union County, and New Jersey is summarized below in Table A-14.

Once having produced a value estimate for all houses in a given market (an estimate of what each housing unit could sell for in a given time period), calculating a mid-point estimated value for the entire market is straightforward. This mid-point estimated value or median (the estimated value of half of the houses in the market would be below the estimated mid-point value and half would be above the mid-point value) then is used as one benchmark for evaluating the housing market's current health and likely future direction.

Housing Demand Index Value – Based on Zillow.com's methodology for deriving an estimated value for all housing units within a given market, this metric serves as a broad indicator for past and prospective demand within a specific market. The HDIV is derived by dividing the percentage of housing units which increased in value from the previous year by the percentage of housing units which decreased in value over the same period. Healthy housing markets with increasing demand will, typically, exhibit ratio values in excess of one (e.g., a greater percentage of the market's housing units have increased in price as compared to the percentage which have decreased in price over the same time period). Reducing this metric to a ratio allows for easier comparisons across markets and over time.

Table A-14: Estimated Average Yearly Median Home Value, Year-End January

Garwood						Percentage Change			
	2006	2007	2008	2009	2010	2006-07	2007-08	2008-09	2009-10
All Homes	\$372,608	\$382,117	\$388,183	\$360,208	\$339,625	2.55%	1.59%	-7.21%	-5.71%
Single Family Homes	\$372,608	\$382,117	\$388,183	\$360,208	\$339,625	2.55%	1.59%	-7.21%	-5.71%
Middle Tier	\$383,842	\$398,325	\$400,642	\$369,608	\$350,900	3.77%	0.58%	-7.75%	-5.06%
Bottom Tier	\$349,000	\$344,158	\$358,800	\$334,075	\$302,558	-1.39%	4.25%	-6.89%	-9.43%
Studio	\$372,192	\$381,750	\$387,692	\$359,442	\$338,642	2.57%	1.56%	-7.29%	-5.79%
Union County						Percentage Change			
	2006	2007	2008	2009	2010	2006-07	2007-08	2008-09	2009-10
All Homes	\$381,725	\$402,133	\$391,550	\$344,575	\$305,225	5.35%	-2.63%	-12.00%	-11.42%
Single Family Homes	\$381,792	\$402,183	\$391,542	\$344,575	\$305,225	5.34%	-2.65%	-12.00%	-11.42%
Middle Tier	\$433,842	\$451,100	\$434,175	\$394,942	\$372,642	3.98%	-3.75%	-9.04%	-5.65%
Bottom Tier	\$320,808	\$343,550	\$335,758	\$294,142	\$247,683	7.09%	-2.27%	-12.39%	-15.79%
Studio	\$380,350	\$400,617	\$389,808	\$342,783	\$303,442	5.33%	-2.70%	-12.06%	-11.48%
New Jersey						Percentage Change			
	2006	2007	2008	2009	2010	2006-07	2007-08	2008-09	2009-10
All Homes	\$351,642	\$366,600	\$349,775	\$319,692	\$296,708	4.25%	-4.59%	-8.60%	-7.19%
Single Family Homes	\$356,625	\$371,733	\$354,350	\$323,633	\$300,500	4.24%	-4.68%	-8.67%	-7.15%
Middle Tier	\$396,817	\$406,933	\$390,775	\$363,675	\$341,167	2.55%	-3.97%	-6.93%	-6.19%
Bottom Tier	\$279,400	\$290,308	\$288,125	\$264,675	\$239,692	3.90%	-0.75%	-8.14%	-9.44%
Studio	\$351,592	\$366,392	\$349,642	\$318,992	\$296,008	4.21%	-4.57%	-8.77%	-7.20%

Source: Zillow.com, 4ward Planning LLC, 2010

Table A-14 summarizes the price trend movement within the Garwood, Union County, and New Jersey markets for various housing typologies and tier levels. As is expected, all three of these markets reflect the softening of home values throughout the U.S. In all of the categories surveyed, home values decreased consistently from 2008 through 2010. Union County, as a whole, exhibited the largest drops in values over this time with double-digit

declines for almost all categories selected. Also of note, Garwood, while still showing value declines of -7.2 percent from 2008-2009 and -5.7 percent for 2009-2010, performed better and showed less value decline than Union County and New Jersey. While certainly affected by the housing crisis, Garwood maintained values better than Union County and New Jersey over the same period.

Figure 11: Median Home Value, All Homes (2006-2010)

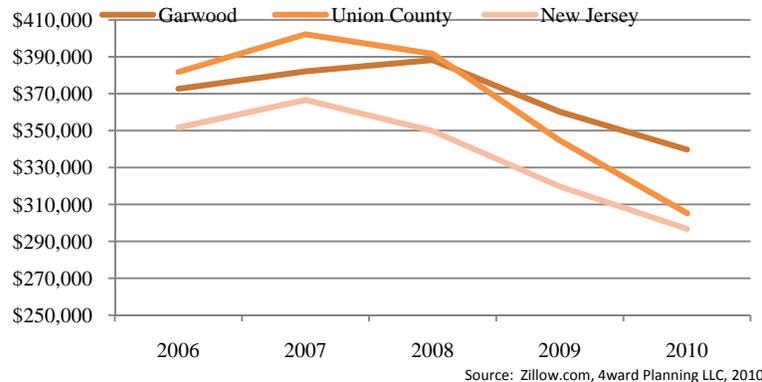
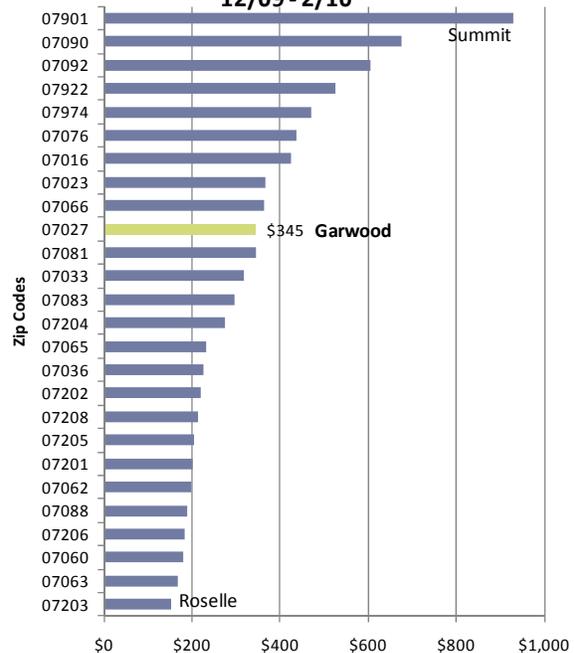


Figure 11 charts the broad decline in home values for the three markets selected. Although all markets declined, one should note Garwood’s relative stability when compared to Union County and New Jersey. Current (2010) median home value for homes in Garwood is currently \$339,625, a decline of 8.9 percent since 2006. Figure 12 shows the median sale price for all of the zip codes within Union County for the period December 2009 to February 2010. Median sale prices in Garwood (\$345,000) ranked just above the middle of the zip codes surveyed and show its position in relation to other areas in the county.

Figure 12: Median Sale Price ('000s) 12/09 - 2/10



A comparative measure of housing market demand over the five-year period from March 2006 to March 2010 is depicted in Figure 13 where the annual ratio of housing units increasing in value to those decreasing in value is shown for Garwood. A ratio of 1.0 indicates that the number of housing units increasing in value is equal to the number of housing units decreasing in value. While demand has certainly decreased dramatically from a high in

2007, there are signs that demand is picking up in the first quarter of 2010, albeit still shy of previous years' levels.

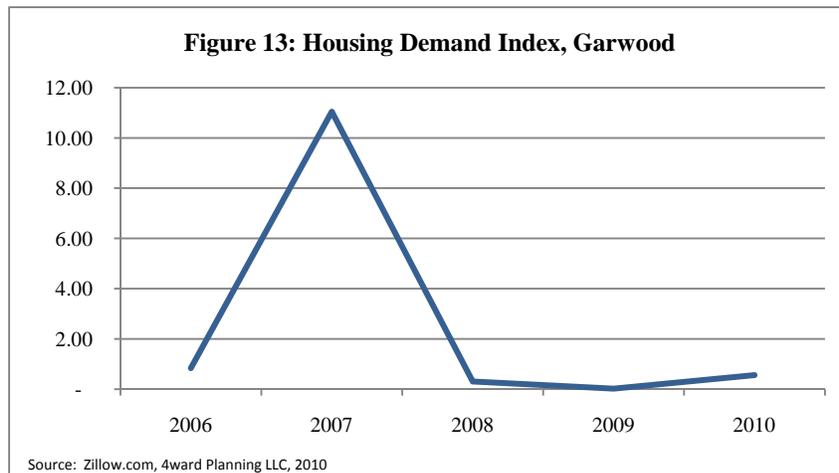
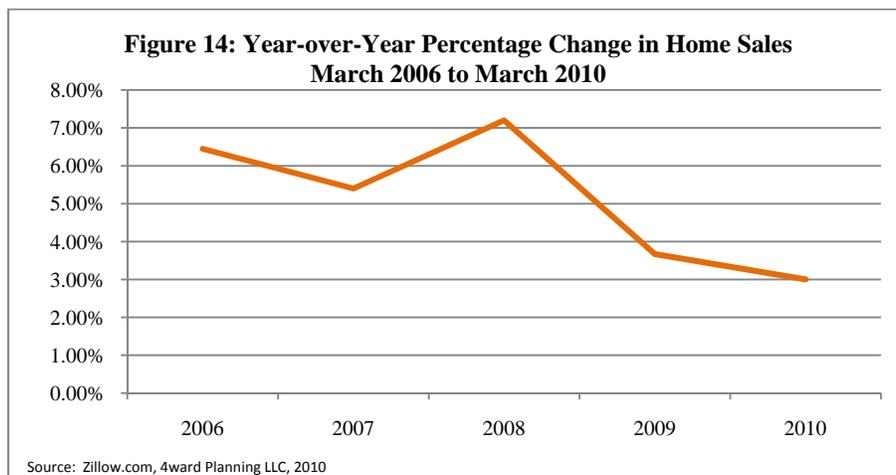


Figure 14 shows the year-over-year change in the percent of homes sold in Garwood, from March 2006 through March 2010. The percentage change in homes sold peaked in early 2008 with a year-over-year change of 7.2 percent. Since this period, the percentage change in year-over-year home sales has steadily declined and, as of March 2010, reflected at three-percent year-over-year change. However, and based on reported data, the downward home sales trend appears to be leveling off.



Rental, Multi-family Residential

Garwood is located within the Union County multifamily submarket within the larger Northern New Jersey market area. Using data from REIS, we have summarized the recent trends within the Union County market and also presented projections through the year 2014.

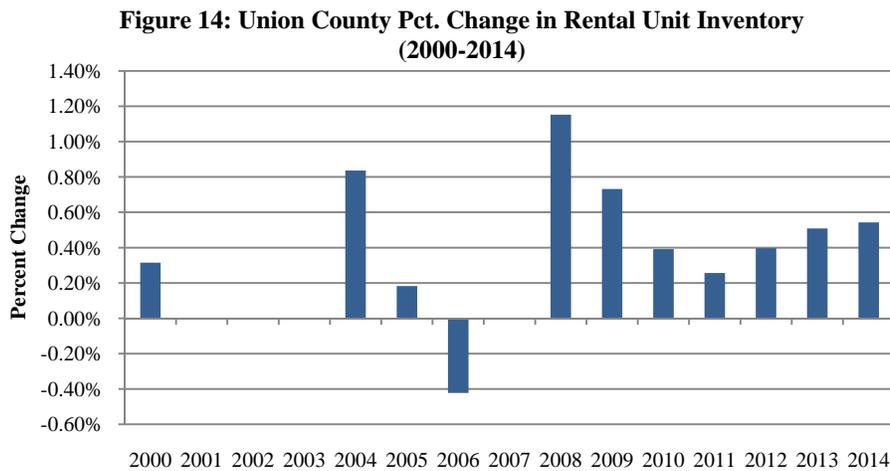
Table A-15 summarizes key historical data for Union County and projects data for five years from 2010 to 2014. Although we discuss further in the subsequent sections, one can quickly see that for most metrics, a steady decline occurs until around 2011 at which point a small recovery is projected to begin.

Table A-15: Union County Apartment Market Trends, 1999-2014

Year	Inventory		Occupied Stock	Vacant Stock	Percent Vacant	Net Absorption	Asking Rent	Asking Rent Change	Effective Rent	Effective Rent Change	Construction /Absorption	Absorption as a		Gross Revenue per Unit	Gross Revenue Change
	(SF/Units)	Completions										Conversions	Percent of Occupied Stock		
1999	23,829	0	n/a	23,090	739	3.1%	\$910		\$897	5.9%	0.2	1.9%	\$882		
2000	23,904	75	n/a	23,545	359	1.5%	455	\$960	5.5%	\$950	5.9%	0.2	1.9%	\$946	7.2%
2001	23,904	0	n/a	23,450	454	1.9%	-95	\$989	3.0%	\$950	0.0%	0.0	-0.4%	\$970	2.6%
2002	23,904	0	n/a	23,211	693	2.9%	-239	\$998	0.9%	\$933	-1.8%	0.0	-1.0%	\$969	-0.1%
2003	23,904	0	0	23,211	693	2.9%	0	\$1,022	2.4%	\$982	5.3%	0.0	0.0%	\$992	2.4%
2004	24,104	200	0	23,309	795	3.3%	98	\$1,045	2.3%	\$991	0.9%	2.0	0.4%	\$1,011	1.8%
2005	24,148	44	0	23,496	652	2.7%	187	\$1,081	3.4%	\$1,027	3.6%	0.2	0.8%	\$1,052	4.1%
2006	24,046	0	-102	23,301	745	3.1%	-195	\$1,121	3.7%	\$1,060	3.2%	0.0	-0.8%	\$1,086	3.3%
2007	24,046	0	0	23,637	409	1.7%	336	\$1,161	3.6%	\$1,110	4.7%	0.0	1.4%	\$1,141	5.1%
2008	24,323	277	0	23,447	876	3.6%	-190	\$1,185	2.1%	\$1,128	1.6%	-1.5	-0.8%	\$1,142	0.1%
2009	24,501	178	0	23,325	1,176	4.8%	-122	\$1,174	-0.9%	\$1,103	-2.2%	-1.5	-0.5%	\$1,118	-2.2%
2010	24,597	96	n/a	23,416	1,181	4.8%	91	\$1,176	0.2%	\$1,106	0.3%	1.1	0.4%	\$1,120	0.2%
2011	24,660	63	n/a	23,748	912	3.7%	332	\$1,189	1.1%	\$1,118	1.1%	0.2	1.4%	\$1,145	2.3%
2012	24,758	98	n/a	23,792	966	3.9%	44	\$1,213	2.0%	\$1,141	2.1%	2.2	0.2%	\$1,166	1.8%
2013	24,884	126	n/a	24,237	647	2.6%	445	\$1,245	2.6%	\$1,174	2.9%	0.3	1.8%	\$1,213	4.0%
2014	25,019	135	n/a	24,293	726	2.9%	56	\$1,278	2.7%	\$1,209	3.0%	2.4	0.2%	\$1,241	2.3%

Source: REIS, 4ward Planning LLC, 2010

Figure 14 shows rental unit inventory percentage change for Union County has been uneven over the past ten years. The greatest gains in rental unit inventory happened in 2004 (gain of 0.8 percent) and 2008 (gain of 1.2 percent) with a decline in 2006 of -0.4 percent. Change in inventory declined in 2009 to a gain of 0.7 percent and a steady decline is projected through 2011 (0.3 percent), at which point gains in inventory are expected to climb slowly (approximately a half a percentage point) by 2014.



Source: REIS, 4ward Planning LLC, 2010

Figure 15 illustrates rental vacancy rates, over time, with projected rates for the period 2010 to 2014. Historically, vacancy has hovered around three percent except for lowered vacancy in 2000 (1.5 percent) and 2007 (1.7 percent). Since 2007, vacancy rates have climbed nearly two fold to 4.8 percent in 2009. According to REIS projections, vacancy rates are predicted to remain flat and then steadily decrease through 2014.

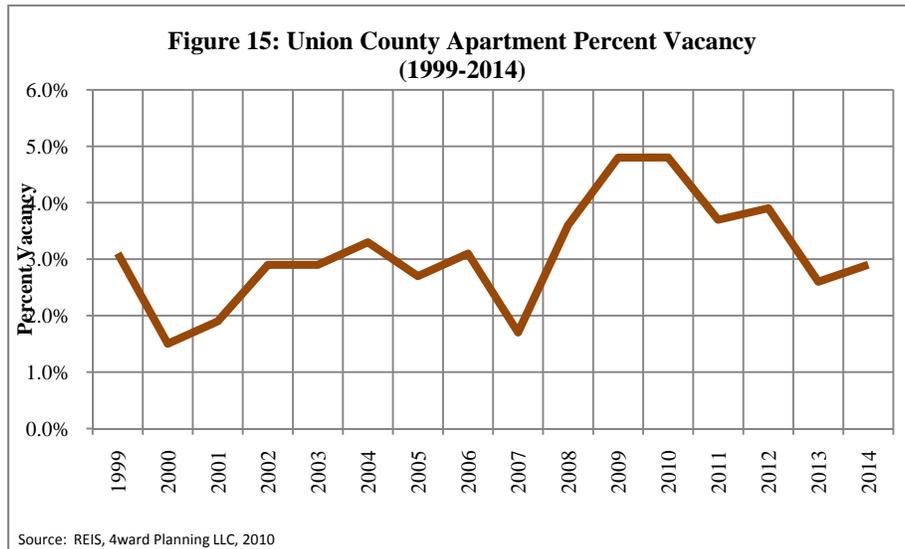
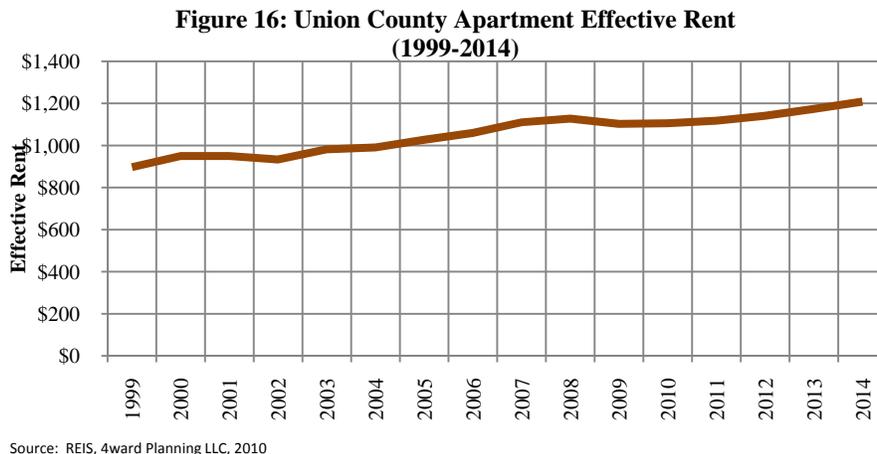


Figure 16 shows the relative stability of rental rates over time for Union County. From 2000 to 2008, rental rates increased annually on average at a three-percent rate, with a few extreme fluctuations in 2000 (5.5 percent increase) and 2002 (0.2 percent increase). This rate increase trend reversed in 2009, when rents fell nearly one percent. As projected by REIS, rents are anticipated to be effectively flat (0.2 percent increase) for 2010, with steady rental increases thereafter to a projected high of 2.7 percent in 2014. Notably, this rate of increase still remains lower than the average for the previous period of 2000 to 2008. The current effective rent for Union County is \$1,103 per month.



Interview Findings

4ward Planning conducted several interviews, including interviews individuals representing existing real estate owners and users within the study area (Casale Industries/Petro, Garwood Mall, Garwood Paper, The Goldstein Group and a private commercial lot owner). All interviews were conducted via telephone, with the exception of the interview conducted with Garwood Mall and Garwood Paper, which was conducted in person and on-site).

As a means of providing as comprehensive a perspective about the study area, 4ward Planning provided cursory demographic and economic data, as well as maps for orientation (essential for those interviewees less familiar with the study area and region) to each of the interviewees, in advance of speaking with them.

Interviewees were asked a series of questions, concerning their knowledge of the study area and surroundings, their opinions on redevelopment opportunities and challenges within the study area, and, plans for additional investment and what additional uses they would encourage for the study, area.

Following are key findings from the interviews:

- Existing owners value the accessibility to the NJ Transit train, and have interest in capitalizing on this asset. The infrequency of service and limited parking were seen as inhibitors.
- The success of The Mews has bolstered interest in redeveloping near the train station.
- Several owners sited restrictive zoning as a barrier to redevelopment. Owners would like to see higher FARs, higher heights and more flexibility within commercial zones.
- There is great interest in redeveloping major parcels near the train station for mixed-use residential and commercial. It is generally felt, however, that greater densities need to be allowed to make redevelopment financially feasible.
- The owners feel that proximity to transit and the overall character of Garwood are most conducive to housing and small-scale, convenience commercial opportunities (as opposed to larger format regional commercial).



Memorandum

To: Mike DiGeronimo, LRK
From: Jay Gillespie
CC: Jim Constantine, LRK
Todd Poole
Date: 2 June 2010
Re: Garwood Residential Supply-Demand Analysis

EXISTING RESIDENTIAL SUPPLY

The Garwood transit-oriented development (TOD) study area, a 0.5-mile radius from the location of the Garwood transit station, is defined by a mix of single-family homes, duplexes, and small scale rental apartments. Single-family homes sit on relatively small lots (50' x 100'), are approximately two stories, and in most instances provide off-street parking. According to the last U.S. Census (2000), the median age of owner-occupied residential structures within the TOD study area is 64 years (meaning half the owner-occupied units are less than 64 years of age and half were constructed more than 64 years ago). Renter-occupied structures were identified as being slightly older, with a median build date of 1942 (median age of 68 years). Notwithstanding that many of the residential units within the TOD study area are well-maintained, the age of many of the structures will require either significant upgrades or renovations in the coming years. Also, current tastes for particular features or modern amenities for housing will require upgrades or redevelopment to create marketable and desirable units. Total housing units vacant currently stand at 6.84-percent. In our projections and analysis, 4ward Planning used a vacancy rate of 5-percent for the Garwood 10-minute drive area in light of an improving environment for real estate in the next five years.

PLANNED & PROPOSED DEVELOPMENT

Other than the recently completed Garwood Mews development, our site visits and market research did not identify any proposed or planned residential development, of scale, within the Garwood TOD study area. This finding suggests that developers have been unable to identify sufficiently sized and appropriately located developable acreage within the study area. Alternatively, the current depressed market for residential and commercial real

estate has likely slowed development plans and caused investors and developers to reassess potential acquisitions and development activity for the near-term.

PROJECTING FUTURE RESIDENTIAL DEMAND

Methodology

In projecting future residential demand, 4ward Planning created three possible housing demand scenarios, using different assumptions for household formation, as exhibited in Tables A-1, A-2 and A-3. In the first scenario, we assumed a modest growth rate for household formation of 1.00-percent per annum. The second scenario assumed a slow annual rate of growth of 0.05-percent and the third scenario assumed a flat growth rate for household formation (e.g., zero or near zero change in household formation). These scenarios were developed for the 10-minute drive area surrounding the Garwood rail station, an area that radiates approximately five miles from the station.

We then determined the amount of marketable housing units (units which could either be rented or sold, regardless of whether or not they are or would be currently listed as available) by reducing the total amount of residential units in the study area by 2.0-percent, to account for those units that, based on physical condition or configuration, are unlikely to be leased or sold. Recognizing that all housing stock wears out over time, particularly housing stock which is relatively old and demonstrates a significant amount of deferred maintenance, 4ward Planning assumed an annual obsolescence rate of 1.0-percent. Our assumption for annual obsolescence rate of 1.0-percent per year is based on the finding that a majority of the residential units within the Garwood PMA were built during the 1940s (Source: US Census Bureau). Finally, after assuming an average annual residential vacancy rate of 5.0-percent, we calculated the amount of net available units which could either be leased or sold (e.g., marketable housing units).

The estimated number of marketable units was then compared against each of the three projected household formation scenarios – annual modest growth (1.00-percent), annual slow growth (0.05-percent) and annual flat growth (0.0-percent). Comparing these numbers produced either a residual demand for additional housing units or showed an excess amount of units in the study area (e.g., supply exceeds demand). From these figures, we further segmented demand for residential units that would come from replacement of obsolete units and demand generated by household growth. Further, 4ward Planning determined the amount of demand for rental housing units versus owner-occupied housing units by looking at historical tenure rates for the area. Although the current tenure rates for rental and owner-occupied units are 37.3-percent and 55.9-percent, respectively, we assumed a higher percentage of rental households (43-percent) in the future, based on tighter home lending standards resulting, in part, from the subprime mortgage crisis and recession.

Along with household tenure type, we further segmented the additional housing units by number of bedrooms and household income. To determine figures for one-, two- and three-bedroom units, we assumed a mix of 20-percent one-bedroom units, 70-percent two-bedroom units, and 10-percent three-bedroom units, based on observed current and future demographic trends. 4ward Planning utilized a similar procedure to project demand for housing units based on household incomes of \$39,999 and less (34-percent of demand), \$40,000 to \$74,999 (28-percent), \$75,000 to \$99,999 (13-percent), \$100,000 to \$149,999 (14-percent), and household incomes of \$150,000 and greater (11-percent). For purposes of this study, we assume most or all of low- and moderate-income housing (affordable) units will be accommodated within the \$39,999 and less housing demand category.

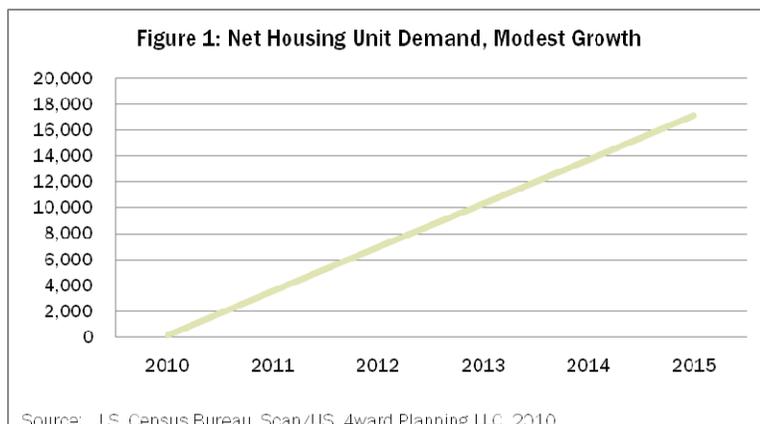
The above analysis was performed for the 10-minute drive area surrounding the Garwood rail station. To understand demand within a smaller area surrounding the station, we developed a TOD area analysis comprised of the area within a half-mile radius from the station. This area is both a walkable distance from the station (and thus, ideal for transit-oriented development) and includes a substantial portion of the Garwood PMA. To determine the population of the 10-minute drive area that would be captured by the TOD area, we developed a series of prospective capture rates for various age cohorts within the 10-minute drive area. Given the majority of persons who move annually do so within their current home county (source: US Census), it is reasonable to assume that the majority of demand for new residential units will come from persons within Union County, generally, and the Garwood PMA, in particular.. Prospective market capture rates were developed for adult age cohorts within the Garwood PMA, based on the propensity of each age group to demand transit-oriented residential units (based on 2007 research performed and published by Reconnecting America – Transit Oriented Development Center). Estimated age group capture rates were developed for persons 20 to 34 years of age (10-percent), 35 to 54 years (2-percent), 55 to 74 years (5-percent), and > 74 years (1-percent). Age cohorts for children and youth (< 5 years, 5 to 19 years, respectively) were not included because these persons are typically part of an adult household and, on their own, do not generate housing demand.

After demand from each age cohort was determined, these figures were summed to determine overall population captured within the proposed TOD half-mile area. The derivation of new households captured was achieved by dividing total population captured by an average household size -- in this case 2.2 persons. (The smaller average household size used reflects current and projected regional and national trends of smaller households based on declining birth rates, greater formation of non-family households and an aging population.). After determining the total amount of residential unit demand for the TOD area, we further detailed demand by tenure, bedroom number, and household income, similar to the methodology used for the 10-minute drive area.

Findings

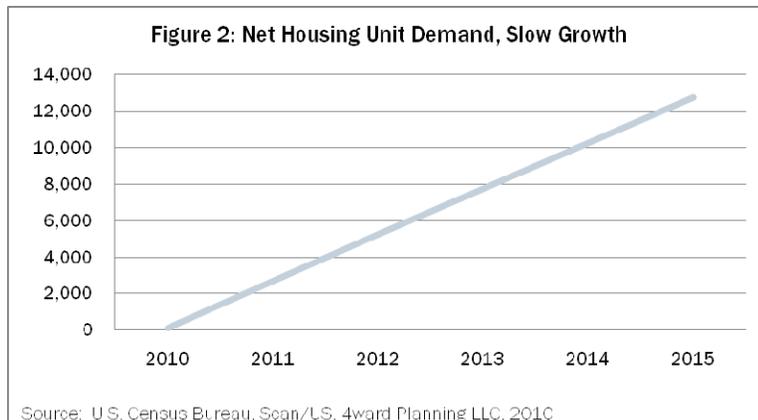
Based on the above assumptions and methodology, net new residential housing demand is a function of the annual housing obsolescence rate (1.0-percent) and household formation growth scenarios (moderate, slow or flat). For example, in the first scenario, annual modest household growth (1.0-percent) shows that by the year 2015, 17,172 new and/or substantially rehabilitated residential units will be demanded (1,724 or 10-percent replacing obsolescent units). The second scenario, annual slow household growth (0.05-percent) indicates a smaller increase (12,776) in net residential units, 13-percent of which (1,724) being replacement units. In the third scenario, flat or zero annual household formation causes a smaller number of units demanded (8,467). The above methodology and analysis demonstrates that demand for residential units is generated not only by new household formations (e.g., in-migration from outside of the 10-minute drive area, recently separated or divorced couples, and adult children moving out from their parent’s house), but also from obsolescent housing stock.

	2010	2011	2012	2013	2014	2015
Table A-1 - Scenario 1: Modest Annual Growth						
Population	479,549	484,344	489,188	494,080	499,021	504,011
Households	170,648	172,354	174,078	175,818	177,576	179,352
Owner Households	88,737	89,624	90,520	91,426	92,340	93,263
Renter Households	73,378	74,112	74,853	75,602	76,358	77,121
Housing Units	183,178					
Net Marketable Housing Units	179,514	177,719	175,942	174,183	172,441	170,716
Households	170,648	172,354	174,078	175,818	177,576	179,352
Estimated Housing Unit Demand	170,648	172,354	174,078	175,818	177,576	179,352
Add: Average Number of Vacant Units	8,976	8,886	8,797	8,709	8,622	8,536
Net Housing Unit Demand (Excess Units)	109	3,521	6,933	10,345	13,758	17,172
Replacement Demand	1,832	1,795	1,777	1,759	1,742	1,724
Household Growth Demand	(1,723)	1,726	5,155	8,585	12,016	15,447
Demand - Owner-Occupied	57	1,831	3,605	5,379	7,154	8,929
Demand - Rental	47	1,514	2,981	4,448	5,916	7,384
Demand - One Bedroom (20%)	22	704	1,387	2,069	2,752	3,434
Demand - Two Bedroom (70%)	76	2,464	4,853	7,241	9,630	12,020
Demand - Three Bedroom or Greater (10%)	11	352	693	1,034	1,376	1,717
Demand - HH Income \$150,000 and Greater (11%)	12	387	763	1,138	1,513	1,889
Demand - HH Income \$100,000 to \$149,999 (14%)	15	493	971	1,448	1,926	2,404
Demand - HH Income \$75,000 to \$99,999 (13%)	14	458	901	1,345	1,789	2,232
Demand - HH Income \$40,000 to \$74,999 (28%)	30	986	1,941	2,897	3,852	4,808
Demand - HH Income \$39,999 and Less (34%)	37	1,197	2,357	3,517	4,678	5,838



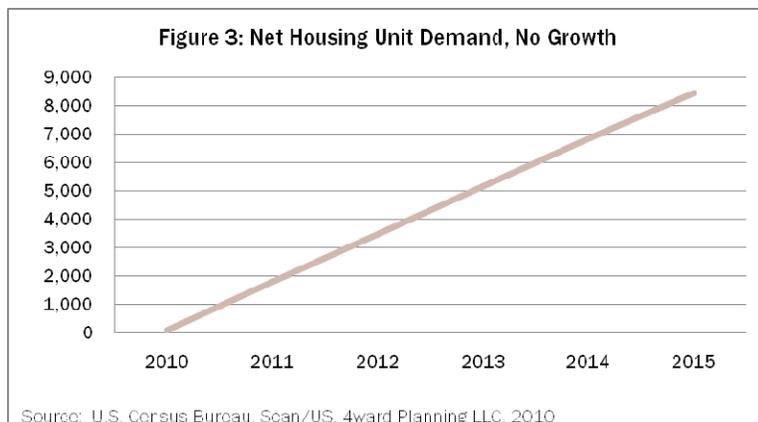
Garwood Residential Supply-Demand Analysis

	2010	2011	2012	2013	2014	2015
Table A-2 - Scenario 2: Slow Annual Growth						
Population	479,549	481,947	484,356	486,778	489,212	491,658
Households	170,648	171,501	172,358	173,220	174,086	174,957
Owner Households	88,737	89,180	89,626	90,074	90,525	90,977
Renter Households	73,378	73,745	74,114	74,485	74,857	75,231
Housing Units	183,178					
Net Marketable Housing Units	179,514	177,719	175,942	174,183	172,441	170,716
Households	170,648	171,501	172,358	173,220	174,086	174,957
Estimated Housing Unit Demand	170,648	171,501	172,358	173,220	174,086	174,957
Add: Average Number of Vacant Units	8,976	8,886	8,797	8,709	8,622	8,536
Net Housing Unit Demand (Excess Units)	109	2,667	5,213	7,747	10,267	12,776
Replacement Demand	1,832	1,795	1,777	1,759	1,742	1,724
Household Growth Demand	(1,723)	872	3,436	5,987	8,526	11,052
Demand - Owner-Occupied	57	1,387	2,711	4,028	5,339	6,644
Demand - Rental	47	1,147	2,242	3,331	4,415	5,494
Demand - One Bedroom (20%)	22	533	1,043	1,549	2,053	2,555
Demand - Two Bedroom (70%)	76	1,867	3,649	5,423	7,187	8,943
Demand - Three Bedroom or Greater (10%)	11	267	521	775	1,027	1,278
Demand - HH Income \$150,000 and Greater (11%)	12	293	573	852	1,129	1,405
Demand - HH Income \$100,000 to \$149,999 (14%)	15	373	730	1,085	1,437	1,789
Demand - HH Income \$75,000 to \$99,999 (13%)	14	347	678	1,007	1,335	1,661
Demand - HH Income \$40,000 to \$74,999 (28%)	30	747	1,460	2,169	2,875	3,577
Demand - HH Income \$39,999 and Less (34%)	37	907	1,773	2,634	3,491	4,344



Garwood Residential Supply-Demand Analysis

	2010	2011	2012	2013	2014	2015
Table A-3 - Scenario 3: Flat Annual Growth						
Population	479,549	479,549	479,549	479,549	479,549	479,549
Households	170,648	170,648	170,648	170,648	170,648	170,648
Owner Households	88,737	88,737	88,737	88,737	88,737	88,737
Renter Households	73,378	73,378	73,378	73,378	73,378	73,378
Housing Units	183,178					
Net Marketable Housing Units	179,514	177,719	175,942	174,183	172,441	170,716
Households	170,648	170,648	170,648	170,648	170,648	170,648
Estimated Housing Unit Demand	170,648	170,648	170,648	170,648	170,648	170,648
Add: Average Number of Vacant Units	8,976	8,886	8,797	8,709	8,622	8,536
Net Housing Unit Demand (Excess Units)	109	1,814	3,503	5,174	6,829	8,467
Replacement Demand	1,832	1,795	1,777	1,759	1,742	1,724
Household Growth Demand	(1,723)	19	1,725	3,415	5,087	6,743
Demand - Owner-Occupied	57	943	1,821	2,690	3,551	4,403
Demand - Rental	47	780	1,506	2,225	2,936	3,641
Demand - One Bedroom (20%)	22	363	701	1,035	1,366	1,693
Demand - Two Bedroom (70%)	76	1,270	2,452	3,622	4,780	5,927
Demand - Three Bedroom or Greater (10%)	11	181	350	517	683	847
Demand - HH Income \$150,000 and Greater (11%)	12	200	385	569	751	931
Demand - HH Income \$100,000 to \$149,999 (14%)	15	254	490	724	956	1,185
Demand - HH Income \$75,000 to \$99,999 (13%)	14	236	455	673	888	1,101
Demand - HH Income \$40,000 to \$74,999 (28%)	30	508	981	1,449	1,912	2,371
Demand - HH Income \$39,999 and Less (34%)	37	617	1,191	1,759	2,322	2,879



The findings above were compiled for the 10-minute drive time area centered on the Garwood rail station. Analysis of the half-mile TOD area showed captured household demand for new residential units at 398 units by 2015. This figure assumes that no developer of residential units will have delivered any units within the half-mile TOD area by this date. While it is reasonable to assume that some of this demand will be absorbed by marketable vacant units within the half-mile TOD area, there should still exist sufficient demand for additional residential units. Considering the scarcity of available land for new construction, it is reasonable to assume that these new residential units could be built close-in to Garwood's rail station. Table A-4 below summarizes the TOD area analysis and further details demand in this area by tenure, bedroom number, and household income.

Garwood Residential Supply-Demand Analysis

Table A-4 - Residential Supply-Demand Analysis: Garwood TOD Area (0.5 Mile Radius)

Population Capture					
Age Cohort	2010		2015		Change
	Pop. 10 Min. Drive	Pop. 10 Min. Drive	2010-15	Capture Rate	
< 5 Years	30,989	28,530	(2,459)	0.00%	-
5 to 19 Years	97,087	93,861	(3,226)	0.00%	-
20 to 34 Years	88,318	91,697	3,379	10.00%	338
35 to 54 Years	143,348	130,668	(12,680)	2.00%	(254)
55 to 74 Years	90,558	106,493	15,935	5.00%	797
> than 74 Years	29,250	28,758	(492)	1.00%	(5)
TOTAL Population Captured					876
Average Household Size					2.20
TOTAL Households Captured					398
Estimated Housing Unit Demand (Garwood TOD Area)			398	units	
Demand - Owner-Occupied			207		
Demand - Rental			171		
Demand - One Bedroom (20%)			80		
Demand - Two Bedroom (70%)			279		
Demand - Three Bedroom or Greater (10%)			40		
Demand - HH Income \$150,000 and Greater (12%)			48		
Demand - HH Income \$100,000 to \$149,999 (15%)			60		
Demand - HH Income \$75,000 to \$99,999 (14%)			56		
Demand - HH Income \$40,000 to \$74,999 (27%)			108		
Demand - HH Income \$39,999 and Less (32%)			127		

Assumptions	
Modest Growth Rate	1.00%
Slow Growth Rate	0.50%
Flat Growth Rate	0.00%
Annual Obsolescence Rate	1.00%
Unmarketable Housing (Physically Obsolescent)	2.00%
Vacancy Rate	5.00%
Tenure Rates	
Owner	52.00%
Renter	43.00%

Source: U.S. Census Bureau; Scan/US; 4ward Planning LLC, 2010

GENERAL AND LIMITING CONDITIONS

4ward Planning LLC has endeavored to ensure that the reported data and information contained in this report are complete, accurate and relevant. All estimates, assumptions and extrapolations are based on methodological techniques employed by 4ward Planning LLC and believed to be reliable. 4ward Planning LLC assumes no responsibility for inaccuracies in reporting by the client, its agents, representatives or any other third party data source used in the preparation of this report.

Further, 4ward Planning LLC makes no warranty or representation concerning the manifestation of the estimated or projected values or results contained in this study. This study may not be used for purposes other than that for which it is prepared or for which prior written consent has first been obtained from 4ward Planning LLC. This study is qualified in its entirety by, and should be considered in light of, the above limitations, conditions and considerations.



Memorandum

To: Jim Constantine, LRK

Mike DiGeronimo, LRK

From: Todd Poole

Date: 15 October 2010

Re: Garwood Transit-Oriented Development Plan Fiscal Impact Analysis

Introduction

As part of the larger Garwood transit-oriented development (TOD) study, 4ward Planning was tasked with providing a fiscal impact analysis of the corresponding proposed development surrounding the New Jersey Transit station in Garwood. Completed at the end of the planning process, this fiscal impact analysis is intended to demonstrate to the Borough of Garwood and New Jersey Transit the comparative costs and revenues of additional development associated with the TOD plan. As defined, a fiscal impact analysis “compares the public costs and public revenues associated with residential and/or non-residential growth” (*Burchell, Listokin, and Dolphin, 1991*). Care has been taken to carefully compile data and make educated assumptions to assure that this analysis is an accurate snapshot of a net fiscal impact and will give community and agency leaders a solid analysis on which to base future development decisions.

While the project team completed a thorough process of stakeholder interviews, real estate market analyses, demographic analyses, and urban design concepts, the proposed TOD plan is meant to be a general direction for future development and, consequently, further due diligence would be necessary before undertaking a comprehensive redevelopment strategy. Accordingly, the findings from this report should be weighed in context of a future market for transit oriented development and market realities that are not apparent to the project team, at this time.

Fiscal Impacts

A community or fiscal impact analysis examines the linkage between local government revenue generated by new development and its resultant municipal service costs (e.g., police, fire, schools, sanitation, etc.). The outcome of such an analysis is to produce a project related estimate of community service costs to projected revenues, a “cost-revenue ratio”, which will be positive (a revenue surplus), negative (a revenue shortfall) or neutral (break-even).

As part of its analysis of the Garwood TOD Plan project, 4ward Planning evaluated projected full build-out fiscal impacts (utilizing current cost and revenue metrics), based on the preferred development/redevelopment projects identified through the study effort led by Looney Ricks Kiss. 4ward Planning utilized a variety of data sources and conventional fiscal impact methodologies, including the incorporation of the latest residential multipliers developed by the Center for Urban Policy Research at Rutgers University for the New Jersey Department of Community Affairs (NJ DCA), Office of Smart Growth (OCE). Garwood’s current year general fund revenue and expenditure data were also examined and incorporated within the analysis.

The objective of this fiscal impact analysis was to estimate:

- Development generated municipal and county service costs/revenues
- Development generated school district costs/revenues
- Development generated public school age children
- Development generated employment
- Development generated capital needs/costs

Further, these impacts were estimated over a phased, ten-year time period, in recognition of the likely schedule to plan, construct and absorb newly built residential and commercial space. The net present value of the overall fiscal impact takes into account the time value of money and therefore discounts the cumulative financial impacts back to 2010 dollars.

Fiscal Impact Analysis - Key Findings

\$1.1 Million

The estimated cumulative net fiscal impact, in 2010 dollars, of the proposed Garwood TOD through completion of build-out in 2020.

\$328,000

The year 2020 projected net fiscal impact value, in 2010 dollars, of the proposed Garwood TOD project.

596

Estimated net new residents attributable to full build-out of Garwood TOD residential units.

23

Projected increase in primary-age public school children (K-8).

239

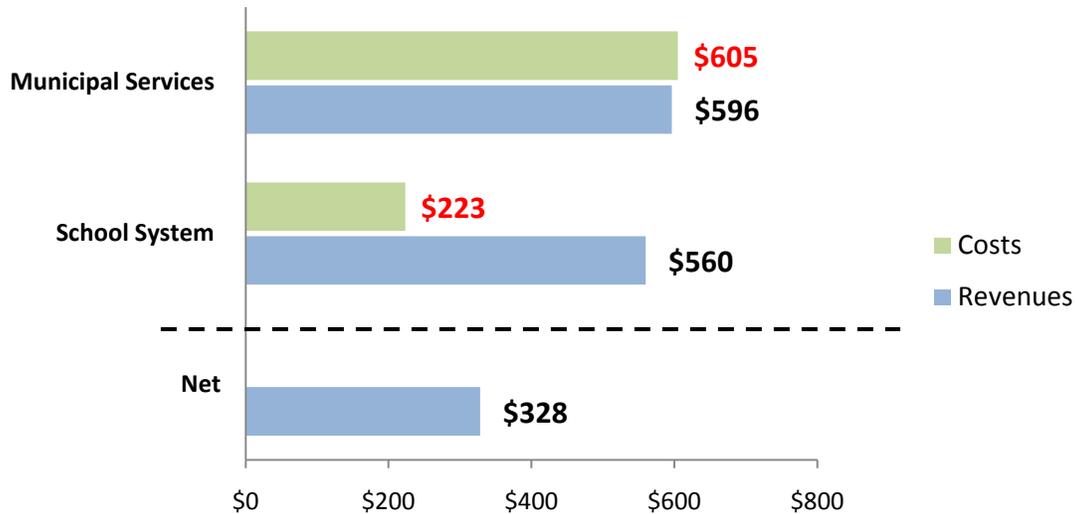
Projected number of new jobs created at full build-out of TOD project.

None

Required expansions of existing infrastructure (e.g., sanitary sewer, storm sewer, public schools, etc.).

The annual net fiscal impact at full build-out in 2020 is projected to exceed more than **\$328,000**, in 2010 dollars. (Figure 1). (Note: a rate of five-percent was used to discount future dollars (2020) back to current dollars (2010)).

Figure 1: Garwood TOD Fiscal Impact ('000s)



Source: LRK; 4ward Planning LLC, 2010

Real property tax revenues, at full build-out, are projected to generate over **\$596,000** for use for municipal services and nearly **\$560,000** for the school district, in 2010 dollars. See the *Fiscal Impact Analysis - Details and Methodology* section and Tables A-5, A-6, A-7, and A-8 for details of these figures.

Over the seven-year build-out period, cumulative net overall fiscal impact of the plan totals nearly **\$1.1 million** in 2010 dollars. Tables A-1, A-2, and Figure 2 display the anticipated phasing of these impacts over time. Additional details of these construction phases and associated values are presented in Table A-9, in the *Fiscal Impact Analysis - Details and Methodology* section.

Table A-1: Garwood TOD Phased Build-Out Program

<u>Construction Phase</u>	<u>Land Use</u>	<u>Amount</u>	<u>Metric</u>
Phase 1 2013-2015	Residential	16	units
	Retail	9,000	s.f.
	Parking (Surface)	266	spaces
	Parking (Garage)	36	spaces
Phase 2 2015-2017	Residential	207	units
	Retail	39,250	s.f.
	Professional Office	14,980	s.f.
Phase 3 2017-2019	Residential	228	units
	Retail	14,325	s.f.
	Medical Office	20,400	s.f.
	Assisted Living/Rehab	150	beds
	Parking (Garage)	319	spaces

Source: LRK; 4ward Planning LLC, 2010

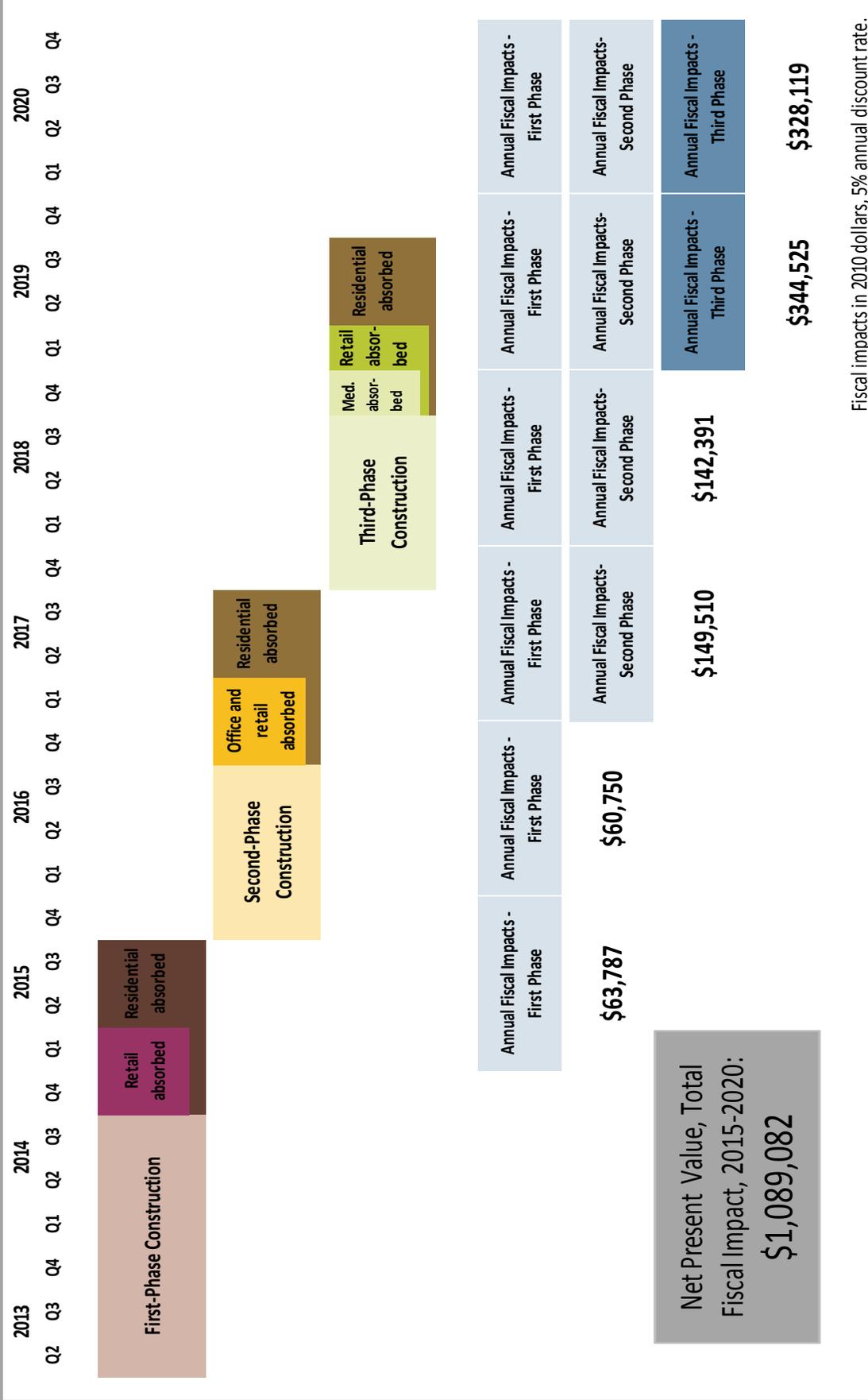
Table A-2: Garwood TOD Annual and Cumulative Fiscal Impacts

	<u>Impact Years</u>	<u>Net Fiscal Impact, 2010 Dollars¹</u>	
		<u>Annual</u>	<u>Cumulative</u>
(Phase 1 completed)	2015	\$63,787	\$63,787
	2016	\$60,750	\$124,537
(Phase 2 completed)	2017	\$149,510	\$274,047
	2018	\$142,391	\$416,438
(Phase 3 completed)	2019	\$344,525	\$760,963
	2020	\$328,119	\$1,089,082

Source: LRK; 4ward Planning LLC, 2010

1. Impacts adjusted with respect to time using 2010 base year and 5% discount rate

Figure 2: Garwood TOD Construction Phasing and Related Fiscal Impacts



Total housing-generated population increase is estimated at **596** persons (Table A-3). Total development-generated permanent employment, at stabilization, is projected at **239** workers (Table A-4). Of those, an estimated 17 will be transfer workers from existing jobs within Garwood, while the remaining 222 will be new workers.

Based on the prospective residential development program, the projected total number of development-generated public school-age children is 31 (22 allocated for elementary school, five for junior high school, and four for high school. 4ward Planning estimates that four of these students already would be attending Garwood schools). A net increase of **23** primary age school students (K-8) is estimated at full-build out. Note that the Garwood superintendent indicated that there is a possibility that not all of these additional students could be accommodated within the current school system capacity.

Table A-3: Garwood TOD Impact on Municipal Population

Proposed Development	Approx # of Units¹	Persons Per Unit²	Public School Children Per Unit²		
			K-6	7-9	10-12
One-bedroom units	265	1.6	0.04	0.01	0.01
Two-bedroom units	186	2.0	0.06	0.01	0.02
Total Persons	795				
Total public school children	31.1				
Primary school (K-8)	26.7				
High school	4.4				
Increase in Garwood residential population	596³				
Increase in Garwood primary school students	23⁴				

Source: LRK; 4ward Planning LLC, 2010

1. Distribution of one-bedroom and two-bedroom units provided by LRK.

2. Multipliers source: Listokin, D. "Who Lives In New Jersey Housing?" Rutgers University, 2006.

3. Assumes that 25% of occupants in new development relocated from elsewhere within Garwood

4. Assumes that 15% of students occupying new development are already attending Garwood schools

Table A-4: Garwood TOD Projected New Permanent Employment

Proposed Development	Total SF¹	Jobs Per 1,000 SF GLA^{2, 3}
Office	14,980	3.5
Medical office	20,400	3.0
Retail	62,575	2.0
Total Workers	239	
Office	52	
Medical office	61	
Retail	125	
Transfer Workers⁴	17	
New Workers	222	

Source: LRK; Award Planning LLC, 2010

1. Commercial square feet numbers provided by LRK.

2. Gross Leasable Area

3. Multipliers source: Center for Urban Policy Research, Fiscal Impact Model, Rutgers University.

4. Assumes 7-percent of total workers will transfer from existing jobs in Garwood.

Fiscal Impact Analysis - Details and Methodology

4ward Planning used a combination of qualitative and quantitative methods to conduct this fiscal impact analysis, based on the “per capita” fiscal impact method. The per capita approach starts by determining current public services cost on a per unit basis (i.e. per student for the school district). With non-educational services, however, merely to divide incurred service cost outlays by the local population is incorrect; such services benefit both residential and non-residential (local business properties) land uses. Service costs must consequently be allocated between these two types of development. To achieve this, 4ward Planning determined a service cost factor of 0.2053. This calculation was done by determining the residential service cost factor based on the percentage of residential assessed property value and the percentage of residential parcels in Garwood. These two percentages were averaged to determine the residential service cost factor. The inverse of this number was used for the non-residential service cost factor. This factor approximates what is typically an average service cost ratio for non-resident workers in many communities, nationally. In addition to employing the per capita method, we have estimated the gradual impact of project phases over time to get a better sense of an overall net fiscal impact that has been discounted to today’s dollars.

Data inputs and associated information were obtained through a variety of sources, including interviews with the Garwood municipal engineer and school officials, review of on-line municipal tax and finance records, and review of the current Garwood city budget.

The tables on the following pages detail the various factors used in performing this fiscal impact analysis.

Table A-5: Garwood TOD Development-Generated Service Costs, Full Build-Out (Year 2020)

	<u>Total</u>	<u>Per Capita</u>
Current Municipal Expenditures	\$7,035,667 ¹	\$2,169
Residential uses	\$5,591,534 ²	\$1,346
Non-residential uses	\$1,444,133 ²	\$823
Municipal Service Costs		
New residents	\$802,754	
New non-resident workers	\$182,730	
Total annual cost, year 2020	\$985,484	
Present value (2010 dollars using 5% discount rate)	\$605,002	

Source: LRK; 4ward Planning LLC, 2010

1. Garwood Finance and Tax Department

2. Allocation based on the average of: (a) the percentages of total assessed value of residential and non-residential uses, and (b) percentages of residential and non-residential parcels. Data source: 2009 NJ Municipal Data Book

Table A-6: Garwood TOD Development-Generated School Costs, Full Build-Out (Year 2020)

School expenditures per student	\$13,435 ¹
Additional K-9 students from development	26.7
Additional 10-12 students from development	4.4
K-9 students in new development already attending Garwood schools	4.0 ²
Additional cost to Garwood schools (elementary)	\$304,668
Additional cost to district (high school)	\$58,886
Total annual cost, year 2020	\$363,553
Present value (2010 dollars using 5% discount rate)	\$223,190

Source: LRK; 4ward Planning LLC, 2010

1. www.greatschools.com

2. Assumes that 15% of students occupying new development are already attending Garwood schools

Table A-7: Garwood TOD Development-Generated Revenues, Full Build-Out (Year 2020)

	Total	Per Capita	
		Resident	Non-Res. Worker
Current Municipal Revenues	\$7,035,667 ¹	\$5,591,534	\$1,444,133
Surplus, direct state aid, fees, misc.	\$1,958,926	\$1,556,839	\$402,087
Property taxes	\$5,076,741	\$4,034,695	\$1,042,046
Per Capita Allocation of Revenues (Excluding Property Tax)			
Surplus, direct state aid, fees, misc.		\$375	\$229
Eq tax rate Per \$100 of assessed value	\$0.73 ²		
Market value of proposed development	\$95,895,250		
Revenues from new resident population	\$223,509		
Revenues from new non-resident workers	\$50,877		
Property taxes from development	\$697,158		
Total annual revenues, year 2020	\$971,545		
Present value (2010 dollars using 5% discount rate)	\$596,444		

Source: LRK; 4ward Planning LLC 2010

1. Garwood Finance and Tax Department

2. NJ DCA Divison of Local Government Services, "Property Taxes 2009," www.state.nj.us/dca/lgs/taxes/09_data/09taxes.xls

Table A-8: Garwood TOD Development-Generated School Revenues, Full Build-Out (Year 2020)

Equalized school tax and levy	\$0.95 ¹
Market value of proposed development	\$95,895,250
Total annual revenues, year 2020	\$911,964
Present value (2010 dollars using 5% discount rate)	\$559,867

Source: LRK; 4ward Planning LLC, 2010

1. NJ DCA Divison of Local Government Services, "Property Taxes 2009," www.state.nj.us/dca/lgs/taxes/09_data/09taxes.xls

Table A-9: Garwood TOD Market Value Estimates

<u>Construction Phase</u>	<u>Land Use</u>	<u>Metric</u>	<u>Units</u>	<u>Est. Cost/Unit</u>	<u>Est. Market Value¹</u>
Phase 1 2013-2015	Residential Flats	16	units	\$188,656	\$3,018,500
	Retail	9,000	s.f.	\$129	\$1,158,500
	Parking (Surface) ²	266	spaces	\$2,000	\$532,000
	Parking (Garage)	36	spaces	\$55,722	\$2,006,000
Phase 1 Total					
\$6,715,000					
Phase 2 2015-2017	Residential Flats	187	units	\$115,350	\$21,570,500
	Stacked Apartments	20	units	\$277,675	\$5,553,500
	Retail	39,250	s.f.	\$99	\$3,885,000
	Professional Office	14,980	s.f.	\$215	\$3,223,500
Phase 2 Total					
\$34,232,500					
Phase 3 2017-2019	Residential Flats	194	units	\$115,108	\$22,331,000
	Stacked Apartments	34	units	\$271,250	\$9,222,500
	Retail	14,325	s.f.	\$114	\$1,639,500
	Medical Office	20,400	s.f.	\$224	\$4,575,500
	Assisted Living/Rehab ³	150	beds	\$12,137	\$1,820,500
Parking (Garage)	319	spaces	\$20,818	\$6,641,000	
Phase 3 Total					
\$46,230,000					
Total, all Phases					
\$87,177,500					

Source: LRK; RS Means; 4ward Planning LLC, 2010

1. Value based on estimated construction cost via RSMeans Quick Cost Estimator: www.rsmeans.com

2. Assumes an average of 300 s.f. per parking space for all parking, based on values from VTPI

3. Assumes 200 s.f. per bed

Parking Strategies and Best Practices For Transit Oriented Development at Garwood Station Area

Introduction

The implementation of transit oriented development (TOD) in Garwood will enhance the station area's vibrancy, offer a sustainable employment center, provide desirable housing options and a pedestrian oriented environment, will require the utilization of smart parking planning and development strategies and "best practices" for TOD. It is critical to TOD that proper parking development and management strategies are utilized to maximize the economic viability of these projects and to ensure that parking assets effectively serve residents, businesses and commuters in the Garwood Station area.

Providing adequate and convenient parking presents a significant challenge to the planning, design and financial feasibility of TOD. Due to the required density for TOD, the scarcity and high cost of available property, and the application of transit friendly planning and development principles, structured parking is often the necessary and appropriate solution to meet the project's parking needs. However, the cost of structured parking can significantly strain the project's economic viability.

Cost effectively addressing parking requirements for TOD projects is critical to the success of the project. Too much parking creates inefficient land use disconnected from transit friendly principles, negatively impacts the environment, and adds a financial burden that threatens project feasibility.

Best Parking Planning Practices for Transit-Oriented Development

To promote and advance TOD projects in Garwood, it is vital to apply innovative, best practice parking strategies that support both access to mass transit and TOD. Outlined herein are strategies and practices to assist Garwood and its future private sector development partners to effectively plan, develop, and manage parking for both TOD and commuters. Appropriate parking planning and mitigation strategies include the following:

1. Apply appropriate TOD parking ratios that reflect the presence and reliance of the NJ Transit rail and bus system.
2. Limit the amount of parking built for TOD by applying parking maximums instead of minimums.
3. Construct the right amount of parking to eliminate overbuilds by sharing both commuter and TOD parking to the greatest extent feasible.
4. Plan and design parking with people in mind, to create attractive, welcoming, and secure destinations.
5. Implement car sharing services to reduce the need for car ownership.

6. Maximize the use of on-street parking to meet TOD project parking requirements.
7. Incorporate sustainable parking principles to reduce environmental impacts and long term operational costs.
8. Unbundle parking fees - charge appropriate, market-based parking fees that do not incentivize and subsidize car and parking utilization.
9. Ensure proper parking management, security, and wayfinding to ensure a positive parking experience.

Best Parking Planning Practices for Transit-Oriented Development

1. TOD Parking Ratios

Many TOD projects apply parking ratios and standards more typical of areas not served by transit, creating excess parking. Overbuilt parking is a waste of costly infrastructure that occupies valuable land, consumes energy, increases occupancy costs, and can be perceived as unsafe. To combat unnecessary overbuilds and advocate for proper parking planning, local municipalities must apply appropriate parking ratios recognizing the accessibility of the NJ Transit Rail and Bus System.

Parking requirements for higher density projects at or near transit stations are significantly less than areas not served by transit. A Transit Cooperative Research Program (TCRP) study found that TOD residents made 44 percent less automobile trips than estimated by the Institute of Transportation Engineers (ITE) manual. The same study recommended reducing parking ratios in residential TODs by as much as 50 percent (Arrington, 2008). Parking ratios can be reduced as neighborhoods near stations develop. At Bay Area Rapid Transit's (BART's) Fruitvale station in Oakland Ca., parking was reduced to allow for a higher density, mixed-use, mixed-income transit village. The lower parking requirements reduced development costs, which reduced the cost of housing and commercial space - resulting in a vibrant mixed-use pedestrian corridor with high-quality public space and plazas leading from the BART station to Fruitvale's nearby commercial center.

Parking Strategies for TOD

- Advocate for appropriate parking ratios for higher density projects at or near transit
- When planning a project, undertake a parking utilization survey of built TODs near NJ Transit stations to identify parking ratios and actual parking utilization to inform parking requirements
- Document "drive out" ratios at these projects where a certain percentage of residents use their vehicles to commute despite access to transit
- Use this information to further inform the opportunity for sharing parking between mixed-use development and NJ Transit commuters

The cost of owning and maintaining a car is real motivation, if you live in proximity to mass transit, to reduce your dependency on a car, or at least a second household car. According to the Department of Labor's Bureau of Labor Statistics, car ownership costs are the second largest household expense in the U.S. and the average household spends almost as much on their cars as they do on food and health care combined. The reduction of household vehicle dependency, due to availability of mass transit, provides additional household income, thereby increasing TOD housing affordability. A 2002 working paper (Cervero and Duncan) estimates that households within a ½ mile of transit stations are significantly less likely to own a car and even more likely to own only one.

2. Apply Parking Maximums Instead of Minimums

To reduce off-street parking and its impacts, some jurisdictions set the maximum amount of parking given the availability of mass transit, car sharing and other modes of transportation, as opposed to dictating the minimum amount of parking a developer needs to build for a project. Allowing the development of only a certain amount of off-street parking limits the number of spaces, promotes more efficient use of land, encourages the use of alternative modes, and provides for better pedestrian movement.

Parking Strategies for TOD

- Support the implementation of parking maximums for joint development projects
- Advocate for appropriate parking ratios, consistent with higher density TOD or parking utilization studies
- Link parking maximums with the availability of alternative modes

In Cambridge, Massachusetts (2006), parking maximums are utilized to create adequate parking facilities to meet the "reasonable" needs of all building and land users, without regulations that unnecessarily encourage automobile usage. Most cities link parking maximums with the availability of alternative modes. Cities such as Portland, Oregon, San Diego, California, Bellevue, Washington, Boston, Massachusetts, Cambridge, Massachusetts, Toronto, Canada and San Francisco, California have established maximum parking requirements for new development as part of "transit first" or auto trip reduction policies and goals. Many cities have established parking maximums based upon parking utilization studies, rather than relying on typical parking ratios based on national standards. In Oregon, the cities of Portland, Bend, and Hood River have taken this approach. (MTC Best Practices - Wilbur Smith and Associates - 2007)

3. "Right-Size" with Shared Parking

The mix of land uses typical in TOD provides meaningful opportunities for shared parking, defined as “the use of a parking space to serve multiple land uses without conflict.” The utilization of the same parking space by multiple user groups (i.e., parking for commuters during the day, and residents or retail patrons in the evening and weekends) maximizes the use of the parking structure, reduces the amount of parking to be built, and if parking fees are charged, financially supports the facilities’ capital and operating expenses.

Shared parking is an extremely valuable and effective method to reduce the number of spaces required, as well as maximize the use of limited land resources. Through the application of shared parking principles for TOD projects and commuter parking, the amount of parking to be built can be reduced, thereby enhancing the project’s economic viability, and benefits to Garwood.

Shared parking reduces the land devoted to parking and provides more developable area, open space, and amenities. Less parking increases the areas sense of place, reduces the cost of developing and maintaining parking, and increases the security and sense of comfort in a parking facility due to increased user activity.

According to the Parking Management Comprehensive Implementation Guide, Victoria Transport Policy Institute 57, the Tri-County Metropolitan Transportation District, which manages transportation in the Portland, Oregon area, has implemented various parking management strategies around transit stations to support transit oriented development. The strategies include sharing commuter parking with other types of land uses, including apartments, churches, movie theaters and office buildings near transit stations, using lower minimum parking requirements around transit stations, and allowing commuter parking to be reduced if the land is used for TOD, thus allowing walk/bike trips to replace car trips.

4. Parking Structure Design

Parking Strategies for TOD

- Apply shared parking analysis of commuter parking with proposed joint development land uses to determine parking needs on a case-by-case basis
- Enhance the economic viability of project through the reduction in parking requirements and increased development density
- Increase parking facility activity through shared-use spaces, and additional parking turnover
- Identify the opportunity to share TOD parking for commuters through shared parking analysis and identification of “drive out ratio”
- Quantify the capital costs saved through the application of shared parking and the increase in revenues from shared use strategies

The integration, design and user convenience of structured parking requires the application of sound TOD planning principles and attention to detail. These parking facilities will serve several user groups, and provide a meaningful impression to those throughout the community including restaurant patrons, residents, visitors and commuters. As such, certain components of the structures should be planned and designed as "places," not as warehouses for cars. To the extent possible, retail and mixed-use development should be integrated at the ground level of the garage to enliven the streetscape and maintain the connectivity between the land uses adjacent to the garage.

Pedestrian and vehicular access and exits and sections of the façade may be adorned with architectural elements that contribute to the aesthetic character of the community. Stair and elevator towers serve as desirable architectural features, and should be designed using glass with maximum visual access and exposure to vibrant streets to enhance user comfort and security. Lighting levels may be increased beyond typical levels, and components of the structure should be painted or stained to promote brightness. Passive security measures include long, clear sight lines; bright lighting; and the elimination of dark areas. These measures should be incorporated to provide patrons with a high level of user comfort.

The interior elevator and stair vestibules can be aesthetically enhanced to reflect the quality and design of the TOD project. Paint, graphics, lighting, wall and floor treatments should be utilized to project the design sense of the entire community.

TOD parking planners should use the associated pedestrian activity to create "people places". Given the amount of pedestrians that come and go from a parking structure, the access and egress areas should be designed as public spaces with adjacent retail and quality hardscape, water, and landscaping elements. This activity, coupled with passive security design features such as glass backed elevators and stair towers, clear lines of sight and open design features, enhance security and user comfort. Lastly, it is important to recognize that the design of the structure will represent the community, the station area and the architectural character of the surrounding neighborhood for decades to come. Thus, appropriate investment and attention should be incorporated into the façade and public areas of the parking facility.



Parking Strategies for TOD

- Locate parking conveniently to create "people places"
- Integrate retail or commercial uses at grade, or wrap with residential or commercial space
- Invest in façade design and public spaces
- Design to enhance user comfort and security with quality lighting, glass backed elevator and stair towers, and other passive security features



5. Implement Car Sharing Services

According to an Arizona State University Study, the average car is parked 23 hours per day thus it is understandable why car sharing programs are becoming popular, especially in areas with access to mass transit. Car sharing allows commuters, residents and employees in a transit-served area (who may not want or need to own a vehicle or a second vehicle) to access one when needed. Integrating car sharing into TOD projects is an effective strategy to reduce parking requirements and provide residents, commuters, and employees with a vehicle. Car sharing is highly effective in reducing the need of car ownership, especially when combined with accessibility to mass transit. The San Francisco Planning Department granted a variance to construct the 141-unit Symphony Towers apartments with only 51 spaces (rather than the required 141) in part because of the commitment for two car sharing parking spaces and the use of unbundled parking (Shoup, 2005).

Parking Strategies for TOD

- Utilize car sharing programs for both commuters and TOD residents and employees where feasible
- Consider and evaluate car sharing programs when developing parking studies and shared-use models

6. Maximize the Use of On-Street Parking

On-street parking adds vibrancy, convenience, and a buffer to street level activity. It contributes to the overall vitality and viability of a TOD project. On-street parking can also be designed and integrated with a transit station so that it serves as short-term, drop off parking during the commuter rush period, and is available for downtown merchant parking during off peak hours. On-street parking areas adjacent to a transit plaza, civic, or open space (often a planned component of a TOD) can also be utilized as open space during public events to expand the size of the public venue without permanently dedicating land for this non-revenue producing use.

Many jurisdictions do not count adjacent on-street parking towards meeting parking code requirements for a land use. On-street parking, regulated and enforced to meet retail parking requirements, is critical to providing convenient, high turnover parking. Utilizing on-street parking is tantamount to reducing the amount and cost of structured parking. On-street parking will be used by patrons of multiple retail and commercial establishments in a TOD, so this resource should be counted as meeting a portion of the parking requirement, thereby reducing the amount of parking to be constructed.

7. Apply Sustainable Parking Strategies

Parking facilities serving TOD and transit projects should set the standard for sustainable design practices. Sustainable parking design features include renewable on-site energy, energy efficient lighting, storm water capture and reuse for wash downs, maintenance, and landscaping irrigation, and bicycle storage facilities, to name a few. Solar arrays can provide the predominant amount of electricity for lighting and other electrical equipment. Preferred parking and charging facilities for alternative fuel vehicles and preferred parking for fuel efficient vehicles can be established. Lastly, incentives for carpoolers such as preferred parking spaces or discounted fees can effectively reduce the number of parking spaces required at a commuter parking

Parking Strategies for TOD

- Advocate for on-street parking resources to meet project parking requirements
- Price and regulate convenient on-street parking for high turnover
- Design on-street parking to be converted to public space for civic events
- Employ smart parking management technologies to collect revenue, provide occupancy data and enforce on-street parking regulations

Parking Strategies for TOD

- Utilize practices to contribute to LEED certification of TOD projects
- Incorporate energy saving and renewable energy strategies to reduce carbon footprint and future operation costs
- Seek grant funds that financially support green initiatives

Parking Strategies and Best Practices for Transit Oriented Development at Garwood Station

facility.

8. Unbundle Parking Fees

Many zoning laws and development standards require a large parking supply to accommodate the needs of the development program. However, these requirements often require people who rent housing or lease commercial space to pay for the parking as part of their rent, regardless of their actual needs. This practice reduces the affordability of housing and commercial space and negatively impacts the economic viability of the project by requiring more parking than is needed. This is especially true in developments with proximity to mass transit.

Parking Strategies for TOD

- Charge residents for parking separately, not as part of their rent
- Provide commercial tenants with a base rent, not including parking
- Sell any excess parking to commuters at market rate

Parking fees in TOD projects should be unbundled - allowing opportunities for renters who do not utilize parking to pay a lower rate than those who do.

9. Parking Management

Often a parking structure in a TOD community will be used and shared by multiple users and serve as a gateway to the community as well as providing commuter parking for the transit system. As a result it must be managed and maintained to a high standard. The facility should be clean, well-secured and convenient to use.

Given the regular flow of new visitors, signage and graphics should be well-designed and easy to understand. The parking access and revenue control system (PARCS) should be able to accommodate various users conveniently and efficiently, especially commuters who time their access to the mass transit system to the minute. The PARCS system should accept convenient payment options and allow for quick entry and exit to avoid long queues.

Parking Strategies for TOD

- Operate parking in a commercial manner that maintains the facility to a high standard representative of the TOD community
- Implement pricing strategies that enhance facility revenue while still maximizing commuter parking
- Increase the return on parking assets to generate revenue to provide necessary capital reserve fund to ensure long term upkeep and maintenance of parking facility

Security cameras and personnel should be deployed appropriately to dissuade criminal activity and increase the level of comfort for residents, commuters and visitors alike.

Ultimately, the parking facility must reflect the ambiance, comfort and security of the entire TOD community. A well managed parking operation is critical to the success of the development as a whole, and not merely to bottom line revenue.

Parking Strategies and Best Practices for Transit Oriented Development at Garwood Station

By implementing the TOD parking strategies described herein, the quality and viability of TOD projects in Garwood will be significantly enhanced. Using appropriate TOD parking ratios, applying parking maximums, utilizing on-street parking and sharing parking amongst commuters and TOD will reduce the amount of parking to be constructed. Reducing parking will result in significant cost savings regarding both the initial capital outlay to construct the parking and the on-going operational and maintenance costs.

September 2, 2010

Mr. Mike DiGeronimo, AICP, PP
LRK Inc.
182 Nassau Street, Suite 302
Princeton NJ, 08542

RE: Parking Consulting Services
Garwood, NJ

Dear Mr. DiGeronimo,

Timothy Haahs and Associates (TimHaahs) has reviewed the program details for the proposed development in order to determine the estimated number of parking spaces needed for the entire development. We understand that the site will contain professional office, medical office, retail, restaurant, assisted living, and residential units. The professional and medical office will contain 14,980 and 20,400 square feet, respectively, and will be used by tenants with hours primarily Monday through Friday, 8am to 5pm. There will also be 46,650 square feet of retail space, 6,363 square feet each of quick/counter service restaurant and family full-service restaurant, an assisted living/rehabilitation facility (ALF) with 50 beds, 54 stacked condo units, 277 1-bedroom apartments, and 136 2-bedroom apartments.

The program mix allows for a sizeable amount of shared parking. We have made the following assumptions in our model which utilizes standard ULI parking demand ratios along with calibrations based on your specific program and our experience:

1. The NJT Garwood train station is located within close proximity to the development site and provides service along the Raritan Valley Line. Due to limited service, the associated mass transit adjustments were conservative.
2. All 1- and 2-bedroom residential units will utilize 1.0 and 1.5 spaces/unit, respectively and will not have reserved or designated parking.
3. We have not included the stacked condo units as they will each have their own reserved and designated parking.
4. The assisted living/rehabilitation facility will have 0.5 employees per bed working 24 hours per day, 7 days a week.
5. 5% of retail and restaurant customers and 20% of retail and restaurant employees will utilize an alternate mode of transportation. This may include the train, bus, carpool, bicycle, or walk.
6. 30% of weekday and 10% of weekend retail and full-service restaurant customers are already on-site for other reasons.

Garwood, NJ
September 2, 2010

7. 70% of weekday and 60% of weekend quick/counter-service restaurant customers are already on-site for other reasons.

8. 5% of the professional and medical office employees will utilize an alternate mode of transportation and 2% will reside nearby.
9. 5% of the medical office visitors and patients will utilize an alternate mode of transportation.

The assumptions previously described are summarized in the table below.

User/Dem and Group	Project Units	Base Ratio	Modal ¹ Adjustment	Captive ² Adjustment	Project Based Adjusted Ratio
Residential1-bd	277	1.0	100%	100%	1.0 perunit
Residential2-bd	136	1.5	100%	100%	1.5 perunit
Assisted Living/Rehab	50	0.5	100%	100%	0.5 perbed
RetailEm pbyee	46,650	3.2	95%	90%	2.7 perKSF
RetailCustom er	46,650	0.8	80%	100%	0.6 perKSF
Quick/CounterRestaurantEm pbyee	6,363	12.75	95%	40%	4.8 perKSF
Quick/CounterRestaurantCustom er	6,363	3.0	80%	100%	2.4 perKSF
Full-Service RestaurantEm pbyee	6,363	12.0	95%	90%	10.3 perKSF
Full-Service RestaurantCustom er	6,363	2.0	80%	100%	1.6 perKSF
ProfessionalO ffice Em pbyee	14,980	2.6	95%	98%	2.4 perKSF
ProfessionalO ffice Visitor	14,980	0.2	100%	100%	0.2 perKSF
MedicalO ffice Em pbyee	20,400	1.5	95%	98%	1.4 perKSF
MedicalO ffice Visitor	20,400	3.0	95%	100%	2.9 perKSF

¹ ModalAdjustm ent: The percentage of users arriving by private vehicle.

² Captive Adjustm ent: The percentage of users arriving from off-site.

Without adjusting for shared parking, approximately 1,050 parking spaces would be needed during peak hours. After adjusting for the capability of these users to share the same space, the peak parking demand is estimated at 800 spaces which reflects 23% reduction. Should the residential units require reserved parking, we would expect the overall reduction to be reduced and the overall peak demand to increase. Therefore, utilizing these assumptions, it is our opinion that approximately 880 parking spaces (800 plus a 10% cushion) would provide enough parking for the entire project to operate at full occupancy. Based on this program mix and shared analysis, we estimate approximately 150 to 200 spaces will be available for commuter use during peak weekday commuter hours.

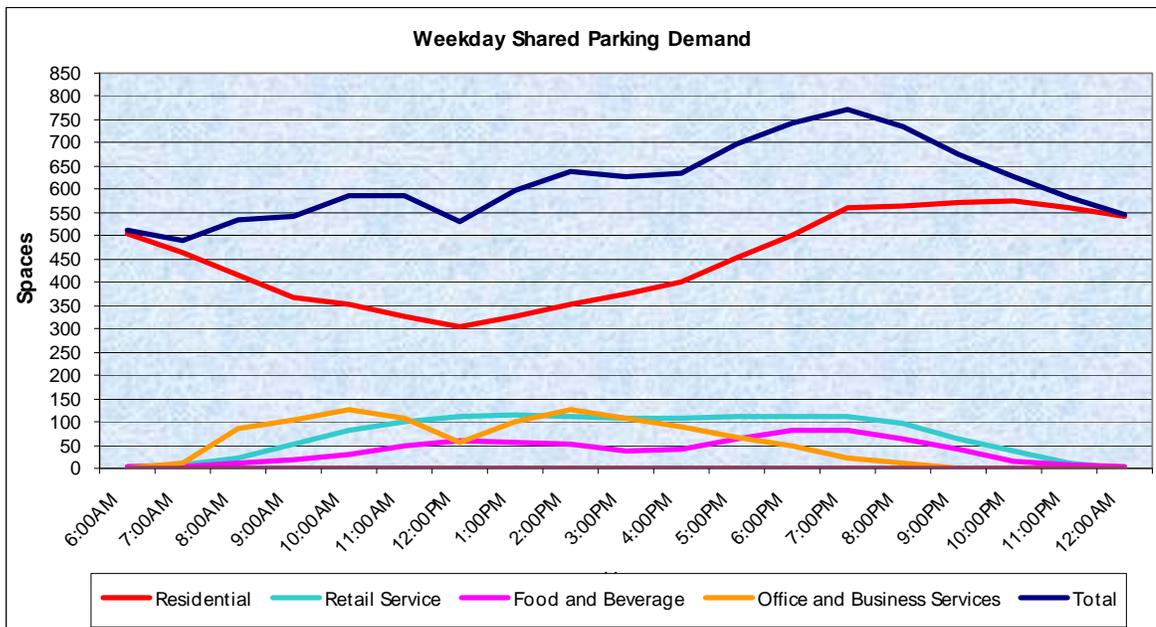
A cushion between 5% and 15% is typically applied in order to account for the flow of vehicles, construction, misparked vehicles, and spaces used for snow removal. Due to the mixture of users, we have used a cushion of 10%. A higher cushion of 15% would increase the level of service to the patrons parking in the facility.

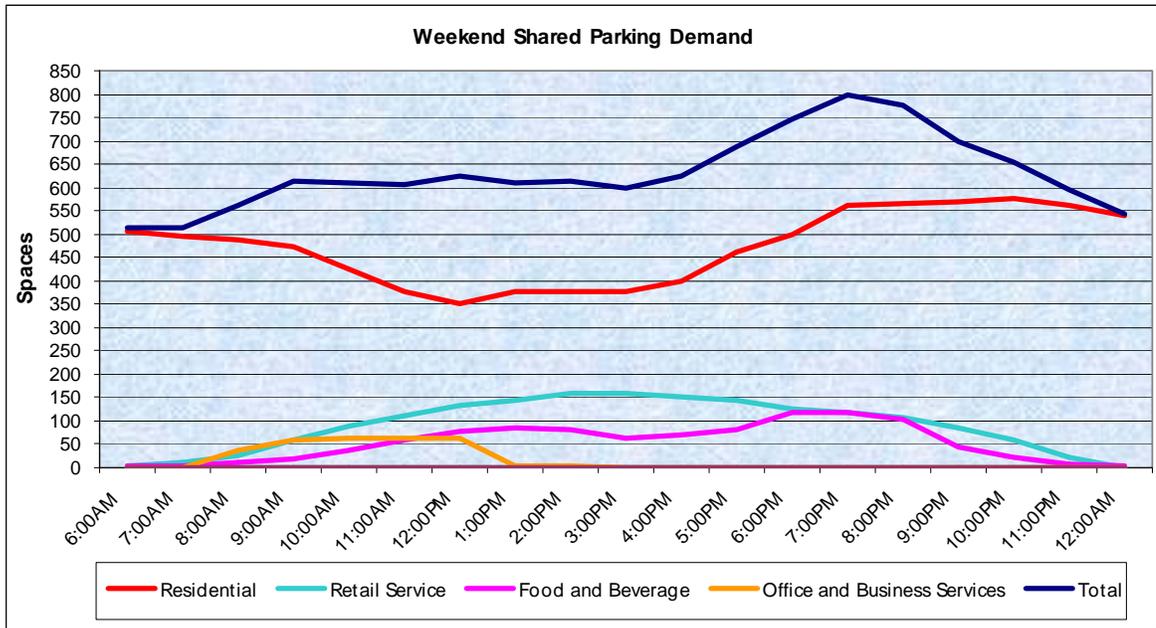
We have also provided a breakdown of the peak hour parking demand by land use which occurs at 7pm on both the weekday and weekend.

Land Use	Peak Demand	
	Weekday	Weekend
Residential/ALF	561	561
Retail	110	120
Restaurant	81	117
Office	22	0
Total	774	798

As noted in the table above, the large majority of parking spaces are occupied by residential use with retail and restaurant requiring a small portion of parking spaces. Further, since the peak demand occurs on a weekend at 7pm, the office demand is absent.

To illustrate the hourly demand, below are two graphs depicting the parking demand patterns for a typical busy weekday and weekend day.





Based on the planned parking for the development with 1,034 general spaces (1,088 total parking spaces minus 54 stacked condo spaces), we anticipate sufficient parking to accommodate the peak parking demand. Please note, once again, should the 1- and 2- bedroom residential units receive reserved and designated parking, the above figures and analysis will change and the peak demand will increase.

To: Michael DiGeronimo, Looney Ricks Kiss (LRK)

From: Susan O'Donnell, Eng-Wong Taub & Associates (EWT)

Subject: Garwood Transit Oriented Development Plan – Traffic and Circulation Strategies

Date: Revised September 23, 2010

INTRODUCTION

As part of a consultant team, Eng-Wong, Taub & Associates (EWT) has conducted a qualitative analysis of the pedestrian, bicycle, and traffic conditions in the vicinity of the redevelopment area around Garwood Station. This memo identifies transportation improvement recommendations that encourage additional usage of non-motorized modes, promotes a complete streets environment, and maximize benefits to the Borough of Garwood and NJ Transit.

During the course of this project, several visits to the study area were conducted to observe traffic, bicycle, and pedestrian activity. We have reviewed the *Master Plan Existing Traffic & Circulation Element*, the *2009 Master Plan and Re-examination Report*, the recommended development plan and other documents. We also participated in the "Walk and Talk" Tour with Advisory Committee and the Open Houses to gather additional input from the community regarding perceived traffic, bicycle, and pedestrian issues around the station area.

According to the New Jersey Department of Transportation's (NJDOT's) straight line diagrams, within Garwood North Avenue is designated as New Jersey Route 28, is under New Jersey Department of Transportation (NJDOT) jurisdiction, and the speed limit is 35 miles per hour. There are two travel lanes – one in each direction (except at some intersection approaches) with some on-street parking. The pavement width is about 40 feet wide.

Within Garwood, South Avenue is designated as County Route 610 and is under Union County jurisdiction. According to the straight line diagrams the speed limit is 35 miles per hour. There are two travel lanes – one in each direction (except at some intersection approaches) with some on-street parking. The pavement width is about 40 feet wide.

This remainder of memorandum is divided into four sections: Pedestrian Access, Bicycle Access, Complete Streets Policy, and Funding Sources. The first three sections discuss existing issues and recommendations for improvements and the last section discusses possible sources for funding improvements to bicycle, pedestrian, transit and traffic access.

Pedestrian Access

In general, pedestrian access to the Garwood Train Station and in the study area is good. Most residents live within walking distance of the Station and study area. Most sidewalks are five feet wide or wider and in reasonably good condition. The key intersections at North Avenue and South Avenue all have pedestrian buttons with adequate signage regarding how to use the pedestrian activation. The traffic signals also have countdown timers to alert pedestrians to how much time they have to cross before the signal will change. There are, however, several areas that could use improvement.

Crosswalks – all of the crosswalks at the North and South Avenue intersections could be repainted. Some of the paint is faded and worn. Also, the crosswalks at South Avenue and Center Street are painted in the “zebra” style which has a higher visibility than the crosswalk at North Avenue and Center Street/Walnut Street so that intersection should be upgraded to the “zebra” style crosswalk.



The crosswalks on North and South Avenues are in need of repainting and should be repainted in the “zebra” style

Near the proposed Paperboard development site, new crosswalks should be installed at Oak Street and North Avenue to provide safe access for pedestrians from the Paperboard development to the retail establishments across North Avenue

Signage – in addition to repainting the crosswalks additional signage should be placed near the crosswalks to alert drivers of the presence of pedestrians. There is currently a sign on Center Street approaching North Avenue but additional signs should be added on all the North and South Avenue intersection approaches.



Additional “Stop for Pedestrians” signs should be added to North and South Avenue intersections similar to the one on Center Street.

Tunnel Underpass – the railroad underpass tunnel on Center Street between North and South Avenues is dark and unattractive. With additional lighting and some façade improvements it could be more attractive and inviting – similar to the Route 71 underpass at Monmouth College.



Existing Center Street pedestrian underpass



Monmouth College pedestrian underpass

Sidewalks and Street Furniture – The newer sidewalk toward Westfield just past the Mews needs to be continued to connect with the remaining sidewalk. Right now there is a gap as shown in the photo below. Thought should be given to the placement of street furniture like benches and sidewalks so it promotes more of a community feel rather than just randomly placed. It is recommended that sidewalks in the redevelopment area be at least five feet wide and provide for some separation from adjacent motor vehicle traffic.



The sidewalk needs to be extended so that it is continuous.



Street furniture should be placed with a purpose to provide an inviting community feel.



Areas of new development should have wider sidewalks and provide some separation from adjacent motor vehicle traffic similar to the existing locations shown above.



Traffic Signals – Further study should be conducted to determine whether a Leading Pedestrian Interval (LPI) could be incorporated into the traffic signal phasing particularly at the intersections of South and North Avenue with Center/Walnut Streets. At those intersections there are a lot of turning movements which conflict with pedestrians crossing the street. A LPI gives pedestrians an advanced walk signal before motorists get a green light, providing pedestrians several seconds to start walking across the street before motor vehicles start their advance.

Bicycle Access

During visits to the study area, moderate bicycle activity was observed including bicycles traveling on the roadway with traffic (as is the preferred method), bicycles traveling against traffic and bicycles traveling on the sidewalk. Bicycles were also observed locked to poles at various locations. Bicycling is a good alternative to driving and/or walking and should be encouraged in the community. There are several measures that could encourage additional biking and make it safer.

Bicycle Racks - Bicycle racks could be placed at key locations near business and bus stops where bicycle are seen locked to poles. Safe and secure bicycle parking can help encourage more travelers to bike to their destination in place of driving. With up to 10 bicycles filling the space of one motor vehicle, this can be extremely attractive to businesses. Bicycle parking can be in the form of bike racks, lockers, shelters and cages.

Municipal Code – the municipal code should be modified to require that the site plans for all new developments include:

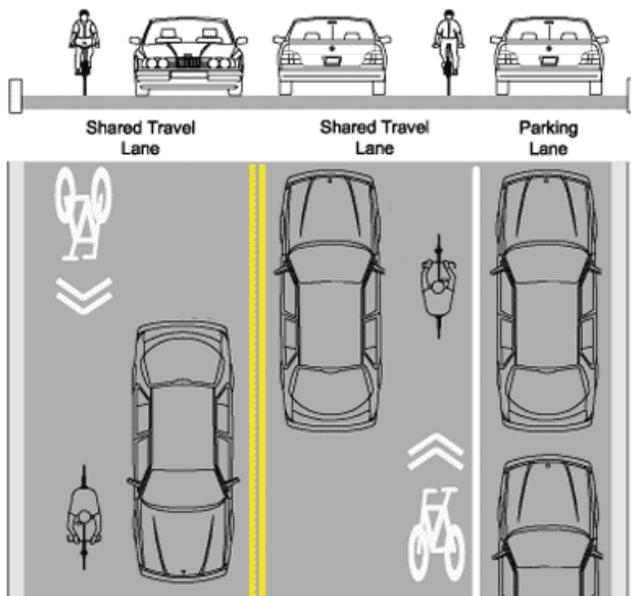
- secure bicycle parking to equal a minimum of 10 percent of car parking;
- bicycle parking located in an accessible and visible location; in proximity to or visible to building entranceways;
- all streets shall be bicycle compatible or include a designated bike facility; and
- all drainage grates should be “bicycle-safe.”

Bicycle Racks on Buses - A person’s choice to use public transportation can often hinge on the trip to and from the station or stop. The Garwood Station has bicycle racks already so a compliment to that would be bicycle racks on the Route 59 and 113 buses that serve the study area. Being able to ride your bicycle to the bus stop and then load your bike on the bus bike rack and ride it when you exit the bus to get to your final destination would further encourage cycling in the community.



Bus Bicycle Racks

Sharrows – It may be challenging to install a dedicated bicycle lane in the study area because some of the roadways are not wide enough or have sections too narrow to accommodate a dedicated bicycle lane but shared lane pavement markings (or “sharrows”) could be considered. Sharrows are bicycle symbols carefully placed to guide bicyclists to the best place to ride on the road, avoid car doors and remind drivers to share the road with cyclists. Unlike bicycle lanes, sharrows do not designate a particular part of the street for the exclusive use of bicyclists. They are simply a marking to guide bicyclists to the best place to ride and to remind motorists that they need to share the lane with bicyclists. The sharrow or shared lane arrow has undergone a human factors analysis and it is the design that has been adopted into the 2009 Manual on Uniform Traffic Control Devices (MUTCD). At a minimum “Share the Road” signs should be installed along North and South Avenues and Center Street since those roadways are already in use by bicyclists. Sharrows could also be installed along 2nd Avenue.



Shared Lane Markings or Sharrows



Share the Road sign

Complete Streets Policy

Garwood should consider adopting a complete streets policy similar to what was adopted by the New Jersey Department of Transportation and other communities like Montclair. A Complete Street is defined as a means of providing safe access for all users by designing and operating a comprehensive, integrated, connected multi-modal network of transportation options. The benefits of Complete Streets are many and varied:

- Complete Streets improve safety for pedestrians, bicyclists, children, older citizens, non-drivers and the mobility challenged as well as those that cannot afford a car or choose to live car free.
- Provide connections to bicycling and walking trip generators such as employment, education, residential, recreation, retail centers and public facilities.
- Promote healthy lifestyles.
- Create more livable communities.
- Reduce traffic congestion and reliance on carbon fuels thereby reducing greenhouse gas emissions.
- Complete Streets make fiscal sense by incorporating sidewalks, bike lanes, safe crossings and transit amenities into the initial design of a project, thus sparing the expense of retrofits later.

A good complete streets policy:

- Includes a vision for how and why the community wants to complete its streets.
- Specifies that 'all users' includes pedestrians, bicyclists, and public transportation passengers of all ages and abilities, as well as trucks, buses, and automobiles.
- Encourages street connectivity and aims to create a comprehensive, integrated, connected network for all modes.
- Is adoptable by all agencies to cover all roads.
- Applies to both new and retrofit projects, including design, planning, maintenance, and operations, for the entire right of way.
- Makes any exceptions specific and sets a clear procedure that requires high-level approval of exceptions.
- Directs the use of the latest and best design standards while recognizing the need for flexibility in balancing user needs.
- Directs that complete streets solutions compliment the context of the community.
- Establishes performance standards with measurable outcomes.
- Includes specific next steps for implementation of the policy.

Funding Sources

The New Jersey Department of Transportation's (NJDOT) State Aid Program provides funding for County and Municipal Governments to improve the efficiency and effectiveness of the State's transportation system. NJDOT's Local Aid and Economic Development District Offices administer the State Aid Programs. Following are the State funded programs administered by Local Aid:

- Municipal Aid
- County Aid
- Centers of Place
- Local Aid Infrastructure Fund (Bikeways)

- Historic Bridge Preservation
- Safe Streets and Neighborhoods
- Safe Streets to Transit
- Transit Village

The Local Aid programs with funding available at the municipal level include:

Municipal Aid

In the municipal aid program, funds are appropriated by the Legislature for municipalities in each county based on a formula contained in legislation. Each Spring, NJDOT announces the program for that fiscal year and municipalities can apply for grants for road improvement projects such as resurfacing, rehabilitation or reconstruction and signalization.

Centers of Place

The Centers of Place program is designed to assist municipalities who have formally participated in implementation of the New Jersey State Development and Redevelopment Plan (SDRP). The program provides an opportunity to apply for funds to support non-traditional transportation improvements that advance municipal growth management objectives. The Department notifies eligible municipalities as to the application process administered through the Division of Local Aid and Economic Development.

Local Aid Infrastructure Fund

The Local Aid Infrastructure Fund is established to address emergencies and regional needs throughout the State. Any county or municipality may apply at any time but funding availability is subject to funding appropriation. Under this program a county or municipality may also apply for funding for pedestrian safety and bikeway projects.

Bikeways

NJDOT's Bikeway Grant Program provides funds to counties and municipalities to promote bicycling as an alternate mode of transportation in New Jersey. A primary objective of the Bikeway Grant Program is to support the State's goal of constructing *1,000 new miles* of dedicated bike paths (facilities that are physically separated from motorized vehicular traffic by an open space or barrier either within the highway right of way or within an independent right of way). In an effort to establish regionally connected bicycle networks, this program is available to every municipality and county throughout New Jersey. Although priority will be given to construction of new bike paths, the proposed construction or delineation of any new bicycle facility will be considered.

Safe Streets and Neighborhoods

NJDOT's Safe Streets and Neighborhoods program is designed to provide funding to eligible cities and municipalities for Advanced Traffic Management Systems (ATMS) that will allow communities to better manage congestion and incidents at key intersections, improve transportation mobility, efficiency and safety, and provide timely information to emergency operation centers through the installation and integration of traffic and surveillance cameras.

Safe Streets to Transit

One element of the comprehensive Pedestrian Safety Initiative is the Safe Streets to Transit (SSTT) program. This program provides funding to counties and municipalities in improving access to transit facilities and all nodes of public transportation. The objectives of the SSTT program are:

- To improve the overall safety and accessibility for mass transit riders walking to transit facilities.
- To encourage mass transit users to walk to transit stations.
- To facilitate the implementation of projects and activities that will improve safety in the vicinity of transit facilities (approximately one-half mile for pedestrian improvements).

Transit Village

The Transit Village Grant Program is designed to assist municipalities who have been formally designated as Transit Villages by the Commissioner of Transportation and the inter-agency Transit Village Task Force. These are municipalities which have made a commitment to grow in the area surrounding a transit facility. The facility can service commuter rail, bus, ferry, or light rail. Growth in areas where infrastructure is already in place and where multi-modal transportation options are readily available helps to advance vital goals of the State of New Jersey such as reduced auto-dependency and cleaner air and water.

Additional funding sources include:

Safe Routes to School (SRTS)

The SRTS program is another source of funding but at this time, grants are not being awarded. Should additional grant programs be issued, grant money could be used for the design and construction of physical improvements to the transportation infrastructure used by children to travel to school.

Comprehensive Traffic Safety Programs (CTSP)

Grants are available to police departments to initiate a comprehensive traffic safety program. Under the guidance of a steering committee or task force at the county level, CTSP funds can be utilized to address a variety of traffic safety issues including impaired driving, pedestrian safety, bicycle safety, school bus safety, work zone safety, aggressive driving, speed enforcement, occupant protection, and child passenger safety. These are Section 402 Safety Funds administered by the New Jersey Department of Law and Public Safety, Division of Highway Safety.

County Aid Program

The New Jersey Department of Transportation's (NJDOT) County Aid Program provides funding to counties for general design, right of way and road construction. The amount of money distributed to each of New Jersey's 21 counties is based on total county road mileage and population. NJDOT administers this program.

Federal Community Development Block Grant Program

Counties and municipalities may apply for pedestrian improvements where they benefit areas classified by the Department of Housing and Urban Development as low or moderate income areas or special needs groups, including the disabled.

Local Bicycle/Pedestrian Planning Assistance

NJDOT has multiple consultant teams under contract with expertise in bicycle and pedestrian planning. They may provide bicycle and pedestrian planning assistance to counties and municipalities that want to develop bicycle/pedestrian facilities.

Municipal Development Impact Fee Authorization Act

This law authorizes municipalities to assess developers for the costs of public infrastructure expansions and improvements necessitated by their new development. Such impact fees are calculated and charged on an incremental basis, so larger developments, which will have larger off-site impacts, are assessed more.

Pedestrian Safety Grant

Funding is available to counties, municipalities or districts with a pedestrian safety problem for pedestrian safety education and enforcement. The education component provides funding for materials to educate high-risk pedestrian groups such as children and senior citizens. The enforcement component provides overtime funding to police agencies to enforce traffic laws at high-risk pedestrian locations. Grants are typically given to police departments for program development and implementation through the New Jersey Department of Law and Public Safety, Division of Highway Safety, Section 402 funds. The funds are allocated to and administered by the states by the National Highway Traffic Safety Administration (NHTSA).

Section 402 Safety Funds

This program has funded programs that improve the safety of the general traveling public in counties and municipalities through the National Highway Traffic Safety Administration. Pedestrian education and signing and striping of roadways are some examples. This program is administered by the New Jersey Department of Law & Public Safety's Division of Highway Safety.

Transportation Enhancements (TE)

This Federal Highway Administration (FHWA) program focuses on projects for state, county, municipal and non-profit groups that are designed to promote alternative modes of transportation while preserving and protecting environmental resources. The results must to promote more livable communities, enhance overall travel experience and promote new transportation partnerships. Ten percent of Surface Transportation Funds are eligible for Transportation Enhancements. NJDOT is the Administrator.

Additional detailed information about various funding sources can be found in the State Aid Handbook (<http://www.state.nj.us/transportation/business/localaid/descrfunding.shtm>)

Transit-Oriented Development

Garwood Borough,
Union County, New Jersey

Prepared for **Looney Ricks Kiss - Jersey Transit Garwood NJ**

Prepared by



/Vanasse Hangen Brustlin, Inc.

Transportation, Land Development, Environmental Services
110 Fieldcrest Avenue
Edison, New Jersey 08837-3620
732 512 0999

July 2, 2010

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1

Executive Summary

The following report presents the findings of the Environmental Site Assessment (ESA) performed by Vanasse Hangen Brustlin, Inc. (VHB) for the properties to be part of the proposed Transit-Friendly Redevelopment (TOD) area. The Study Area is located in Borough of Garwood, Union County, NJ. The general purpose of this ESA was to evaluate the environmental condition of the Site, being area part of the new TOD, to find evidence of a release or Threat of release of oil or hazardous materials (OMS), and to provide professional opinion regarding evidence of recognized environmental conditions (RECs) relating to the potential TOD.

The Study Area that VHB has been asked to evaluate is centered on intersection of Center Street and Raritan Valley Line (Formerly Central Railroad of New Jersey - Main Line Conrail) and encompasses the area extending between:

- North Avenue on the northerly side
- South Avenue (County Route 610) on the southerly side
- West Street on the westerly side
- East Street (including Garwood Mall) on the easterly side

The Area to be evaluated is in the direct vicinity of the existing Garwood Train Station. The intend at the TOD Study (being performed by others) is to evaluate development alternatives for the area.

In preparation of this report, VHB used information gathered during site visit, on-line data base search, available GIS information, and review of the documents provided by the Department of Environmental Protection – Office of Records Access.

The Study Area is a highly developed urban area identified in the Tax Map of as:

- Tax Block 112 - Lots 7 & 8
- Tax Block 113 - Lots 1 & 2
- Tax Block 114 - Lots 1 & 9
- Tax Block 401 - Lots 1 to 5
- Tax Block 402 - Lots 1, 2, 4.01 & 5
- Tax Block 1000 - Lots 1 to 3

The Study Area is a mix of Community Commercial, Light Industrial and Central Business Zoning Districts. The Study Area includes typical community business as:

Musical Discount Center, Station Bar & Grill (restaurant), Turnabout (game shop), Hess Station, Sew & Show (learning center), Garwood Mall and on the westerly side the Steel Manufacturers - Casale Industries Inc. and Petro Plastics. The Study Area is presently completely covered by buildings and the associated parking area resulting in an impervious coverage of 81-100%. No undisturbed areas are part of the Study Area.

All properties, part of the Study Area, appear to be currently connected to the municipal sanitary sewer and to the public water systems. No evidence of domestic water wells or septic systems were observed. Therefore, there is limited potential exposure to existing contamination from subsurface sources.

Our research found several abandoned or removed underground oil tanks indicating that at least some of the buildings on the Site were heated by fuel oil. No extensive fuel tank issues were found.

Our research also found Hess Service Station, located at 431 North Avenue, being identified as Groundwater Contamination Areas (CEA) and several parcel being identified as Known Contaminate Sites listed in different stages of the remediation. The largest question is the status of the Casale Industries/Petro Plastics site for which no significant environmental information was available. The previous use of the aforementioned site would indicate potential environmental issues that need to be investigated to confirm presence or absence of contamination.

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I-MAP NJ Findings

The location of proposed project was reviewed on i-Map NJ to identify any environmental constraints including:

- NJEMS Sites
- Chromate Sites
- Public Community Water Supply Wells
- CAFRA zone
- Air Monitoring Stations
- Freshwater Wetlands
- Category One Waters
- Streams and Water Bodies
- Groundwater Contamination Areas
- Known Contaminated Sites
- Critical Environmental and Historic Sites
- Highlands
- Landscape Project
- Land Use

The following constraints were identified on site:

- In the general area of redevelopment we identified some parcels as **Known Contaminated Sites**. This list of Known Contaminated Sites may include sites where remediation is either currently under way, required but not yet initiated or has been completed. The data included here dates from 2001. It is important to note that some of the cases listed may have been fully remediated and should no longer be listed as known contaminated sites. Additionally new contaminated sites have been identified since the creation of this list and are not included here. See map attached.

The following sites were identified as Known Contaminated Sites:

- 114 CENTER ST & WILLOW AVE

REM LEVEL: B = Single Phase RA - Single Contamination Affecting Only Soils

STATUS: Pending

- FIRST UNION BANK - 100 CENTER ST

CATEGORY: A = Sites with On-Site Sources of Contamination

REM LEVEL: C2 = Formal Design Known Source or Release with GW Contamination

STATUS: Active

- SOUTH AVENUE APARTMENT BUILDING - 331 SOUTH AVE

CATEGORY: A = Sites with On-Site Sources of Contamination

REM LEVEL: C2 = Formal Design Known Source or Release with GW Contamination

STATUS: Pending

- PETRO PLASTICS CO INC - 450 SOUTH AVE, Garwood, NJ 07027

CATEGORY: A = Sites with On-Site Sources of Contamination

REM LEVEL: C1 = No Formal Design - Source Known or Identified-Potential GW Contamination

STATUS: Active

- HESS STATION #30230- 431 NORTH AVE & CENTER ST

CATEGORY: A = Sites with On-Site Sources of Contamination

REM LEVEL: C1 = Formal Design - Source Known or Identified-Potential GW Contamination

STATUS: Active

- In the general area of redevelopment we also identified some parcels as **Groundwater Contamination Areas (CEA)**: This data layer identifies those Known Contaminated Sites or sites on the Site Remediation Program (SRP) Comprehensive Site List where groundwater contamination has been identified and, where appropriate, the NJDEP has established a Classification Exception Area (CEA). See map attached.

The following areas were identified as Groundwater Contamination Areas (CEA):

- HESS SERVICE STATION #3023 (1.2083 Ac) – NORTH AVE. & CENTER ST. –

BLOCK 112 LOT 7

Lead: BOMM

Depth: 50'

Closed: No

Duration: Indeterm.

Final Rem: No

- The area to be redeveloped is in no proximity to a Category One Waters Streams or Body Waters. See map attached.
- No part of the redeveloped area is part of the Landscape Project 3.0 - Landscape Version. This data set is a product of the Landscape Project, a pro-active, ecosystem-level approach to the long-term protection of imperiled and priority species and their important habitats in New Jersey. The Landscape Version layer provides users a guide to determine which version of the Landscape Project to reference for a particular area. See map attached.
- In the general area of redevelopment we identified some parcels as a **NJEMS Site**. NJEMS Sites are points representing sites regulated by NJDEP under one or more regulatory permitting or enforcement programs, or sites that are otherwise of some interest to a NJDEP program.
- The area is shown to have a General 2002 Land use Category – URBA. See attached map.

No other environmental constraints were found on site. NJDEP Maps for the site are attached at the end of this report.

To be noted that Cassale Industries/Petro Plastics parcel was a previous steel manufacturing site owned by ALCOA and was converted to a light industrial use. Although no significant information was found in the available data base and NJDEP review, based on the previous use it is anticipated that environmental issues may be present and need to be investigated.

NJ DEP - Office of Record Access Findings

In our effort to collect more information regarding the types and sources of contamination, the status of the remediation and the relevant permits related to the sites in question further investigation included the review of the recorded documents identified by the NJ DEP.

Our research revealed the following:

- **Sites with Oil Underground Storage Tanks:**

- SEWING COMPANY - 401 NORTH AVE. - BLOCK 113 LOT 2

AREA OF CONCERN: 550 Gallon Heating Oil Underground Storage Tank

STATUS: Removed and remedial action pursuant to the Technical Requirements for Site remediation completed.

DOCUMENT: Unrestricted Use No further action Letter and Covenant Not to Sue

DATE: 10/24/2000

- GARWOOD MALL - 300 SOUTH AVE. - BLOCK 402 LOT 5

AREA OF CONCERN: 550 Gallon No. 2 Fuel Oil Underground Storage Tank

STATUS: Abandoned in Place

DOCUMENT: Underground Storage Tank Facility Certification Questionnaire

DATE: 11/26/2002

- PETRO PLASTICS COMPANY - 450 SOUTH AVE. - BLOCK 401 LOT 1

AREA OF CONCERN: four (4) 10,000 Gallon No. 2 Fuel Oil Underground Storage Tank

STATUS: Abandoned in Place

DOCUMENT: Underground Storage Tank Facility Certification Questionnaire

DATE: 12/10/1998

Sites with Applicability determinations (more commonly known as LNA's) for assistance in determining Industrial Site Recovery Act (ISRA) applicability:

- DENTAL & MEDICAL OFFICE - 91 CENTER ST. - BLOCK 402 LOT 1

TYPE OF APPLICATION: LNA Application

DATE: 06/06/2001

- COMMERCIAL COMPLEX - 97-99 CENTER ST. - BLOCK 402 LOT 4

TYPE OF APPLICATION: LNA Application

DATE: 07/10/2002

- RETAIL SALE-THE LEATHER WAREHOUSE - 99 CENTER ST. - BLOCK 402 LOT 4.01

TYPE OF APPLICATION: LNA Application

DATE: 02/22/1999

- SILLIKER LABS (prior used as office space by CASALE IND and laboratory by SANDOZ) - 400 SOUTH AVE. - BLOCK 401 LOT 4

TYPE OF APPLICATION: LNA Application

DATE: 08/08/2003

- CASALE INDUSTRIES - 100 CENTER ST. - BLOCK 401 LOT 5

TYPE OF APPLICATION: LNA Application

DATE: 08/17/1999

- **Sites with Groundwater Contamination Areas (CEA):**

- HESS SERVICE STATION #3023 (1.2083 Ac) - NORTH AVE. & CENTER ST. - BLOCK 112 LOT 7

4

Conclusions

Within the Study Area, as a result of our research, we found sites to be documented **Contaminated Sites** as per NJDEP and sites identified as **Groundwater Contamination Areas (CEA)**. It appears that the identified Sites are under NJDEP case management at different levels of completion. None of the abovementioned sites appears to pose a significant issue to the redevelopment within the Study Area. The documented contamination is typical for a developed area of this type.

During our research we did find out that some of sites in the area have or had **Oil Underground Storage Tanks (UST)**. Our finding let us to expect that other underground storage tanks may be found, in case that the more extensive redevelopment scenario is preferred. The identified tanks appear to be heating oil tanks for individual facilities.

The central area of concern is the Cassale Industries/ Petro Plastics site for which little is known. The interviews with residents and historical information regarding the Cassale Industries/ Petro Plastics site show that the site was previous used to fabricate metal (and foundry) for ALCOA. The previous use indicates the potential for soil and groundwater contamination. Based on the information obtained during this assessment, VHB concludes that if the selected redevelopment option will include the aforementioned sites further evaluation will be required to determine status. Considering the identified known contamination, no major impediments exist.

Appendix A: Site Exhibit



Appendix B: New Jersey i-Map

GARWOOD i-MAP



Scale 1:6866

- Selected Features
- NJEMS Sites
- Municipalities
- Counties
- Critical Environmental and Historic Sites**
- Environmental/Historic Site
- Environmental Site
- Historic Site
- Inholding
- Roads (Tele Atlas)
- Surface Water Quality Standards
- Streams
- Landscape Project 2.1 - Emergent Wetlands
- Surtable Habitat
- Priority Concern
- State Threatened
- State Endangered
- Federal T & E
- Landscape Project 2.1 - Forest
- Surtable Habitat
- Priority Concern
- State Threatened
- State Endangered
- Federal T & E
- Groundwater Contamination Areas (CEA)
- Aerial Photos 2002**
- Mid-Atlantic States**
- New Jersey
- Other States

(C) NJDEP
 NJDEP makes no representations of any kind, including, but not limited to, the warranties of merchantability or fitness for a particular use, nor are any such warranties to be implied with respect to the digital data layers on this map. All scales noted are approximate.



Appendix C: Known Contaminated Sites - Map

GARWOOD - KNOWN CONTAMINATED SITES



Scale 1:3433

- Selected Features
- Chromate Sites
- Known Contaminated Sites List
- Municipalities
- Roads (Tele Atlas)
- Streams
- Aerial Photos 2002
- Mid-Atlantic States
- New Jersey
- Other States

(C) NJDEP
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Appendix D: Ground Water Contamination (CEA) - Map

GROUND WATER CONTAMINATION (CEA)



Appendix E: Deed Notice Areas - Map

GARWOOD DEED NOTICE AREAS



Scale 1:3433

- Selected Features
- Municipalities
- Counties
- Deed Notice Areas
- Aerial Photos 2002
- Mid-Atlantic States
- New Jersey
- Other States

Appendix F: NJEMS Sites – Map

GARWOOD - NJEMS SITES



Appendix G: Land Use - Map

Land Use - New Jersey Map



Scale 1:1716

-  Municipalities
-  Land Use 2002
-  WATER
-  BARREN LAND
-  AGRICULTURE
-  FOREST
-  URBAN
-  WETLANDS
- Aerial Photos 2002**
- Mid-Atlantic States**
-  New Jersey
-  Other States

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Appendix H: Photograph Log



HESS

REGULAR 259
MID-GRADE 273
DIESEL 283

HESS

HESS

PAID





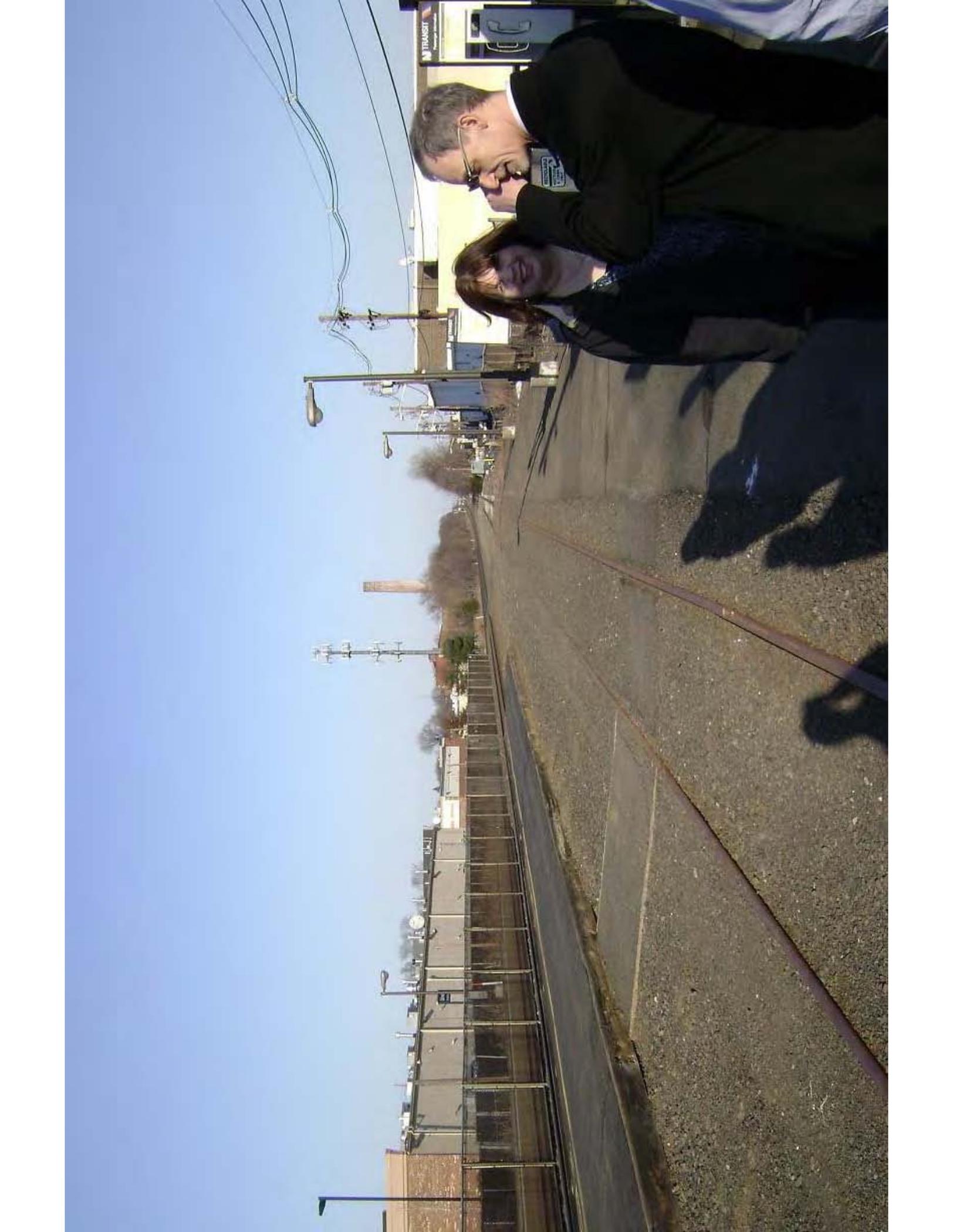


CASA
SHEET METAL & MFG

N TRANSIT

Welcome to
Garwood

STATION

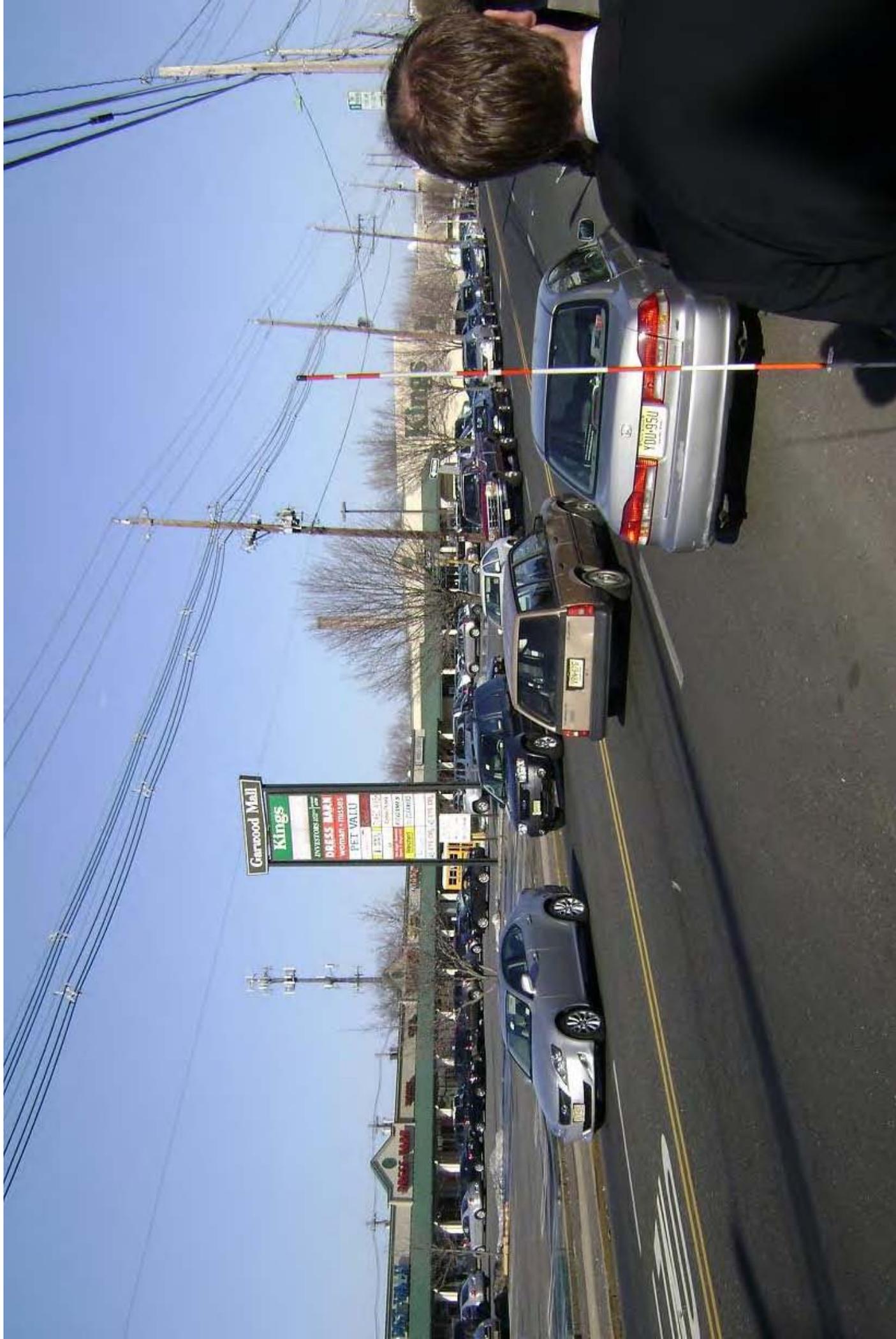




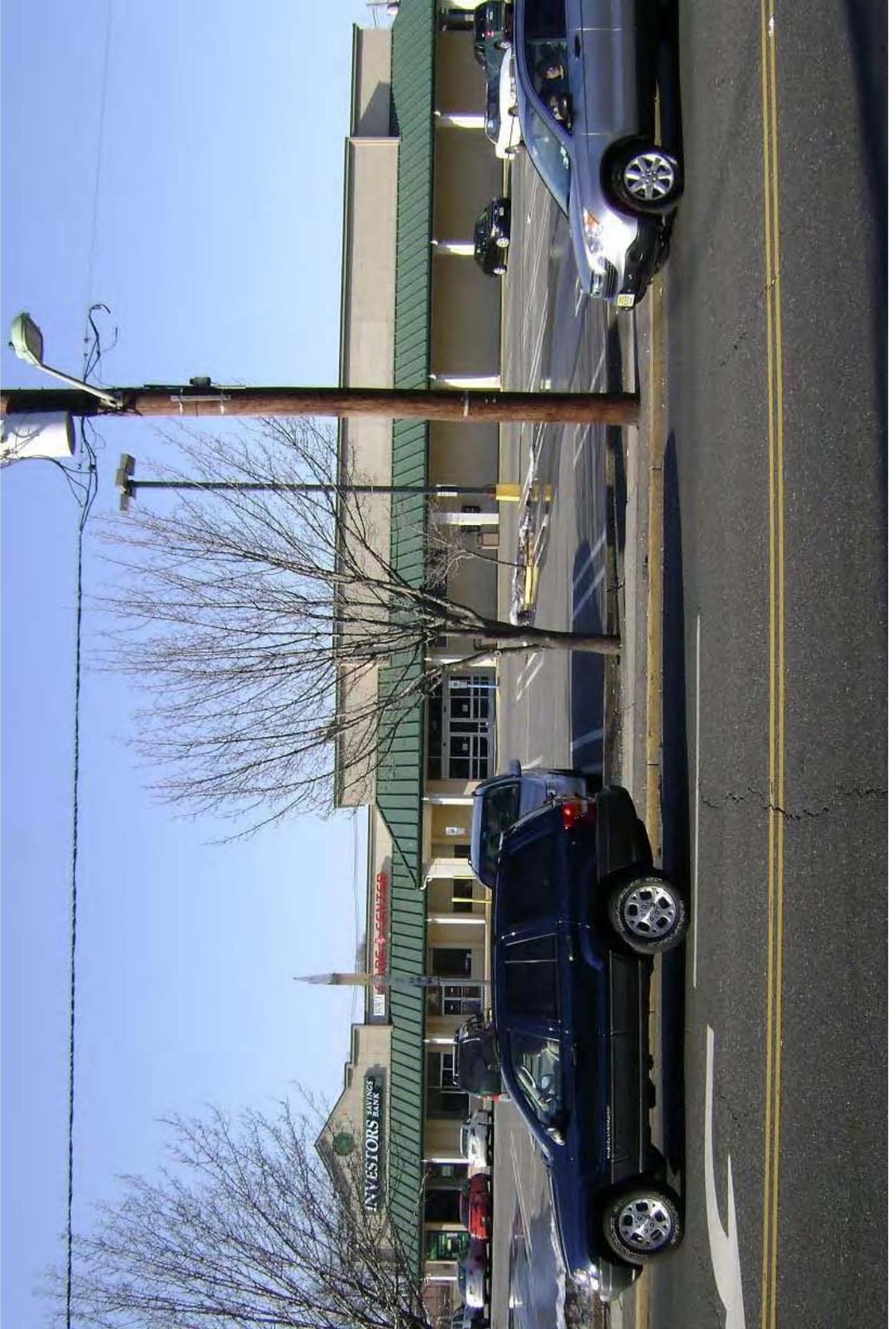


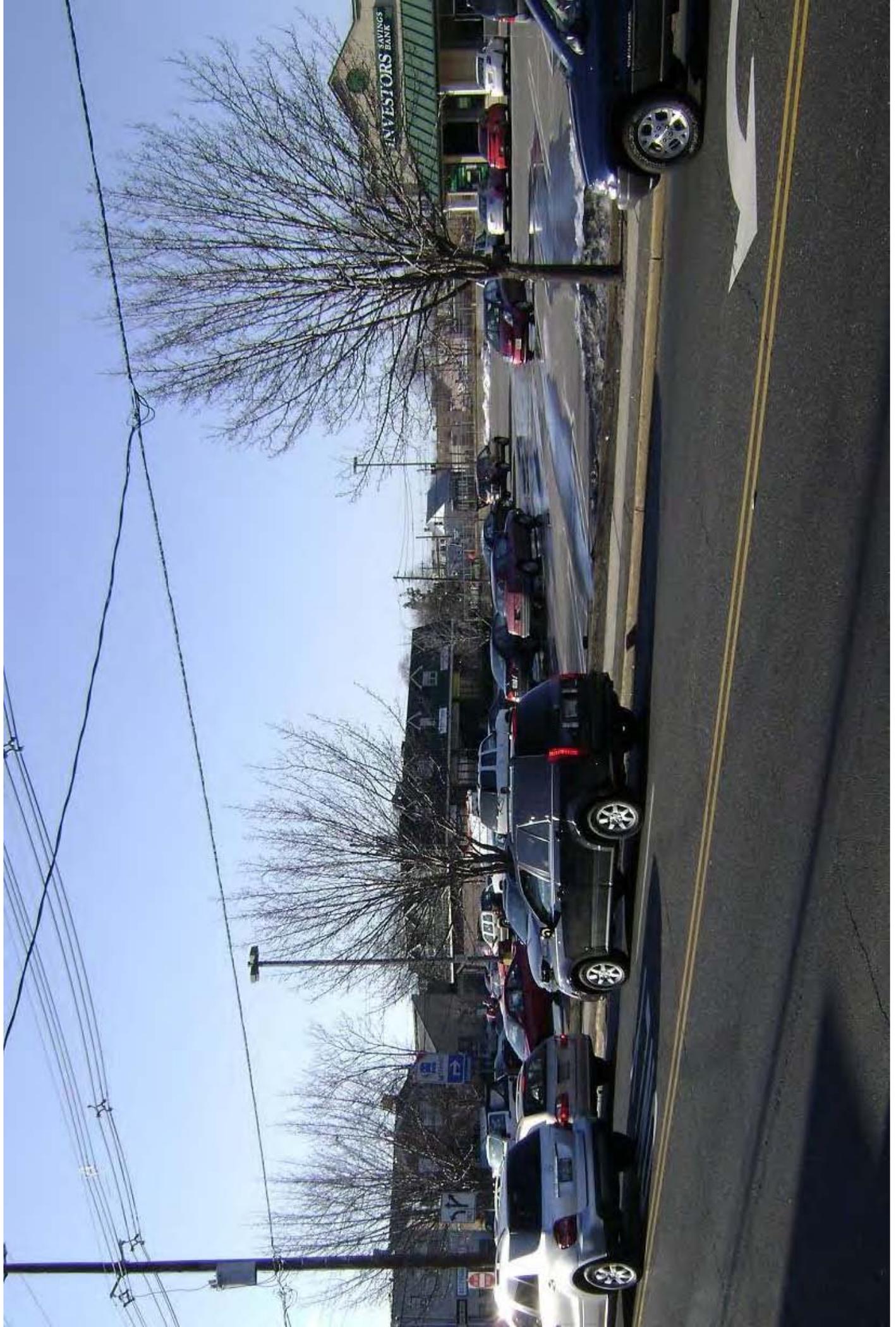








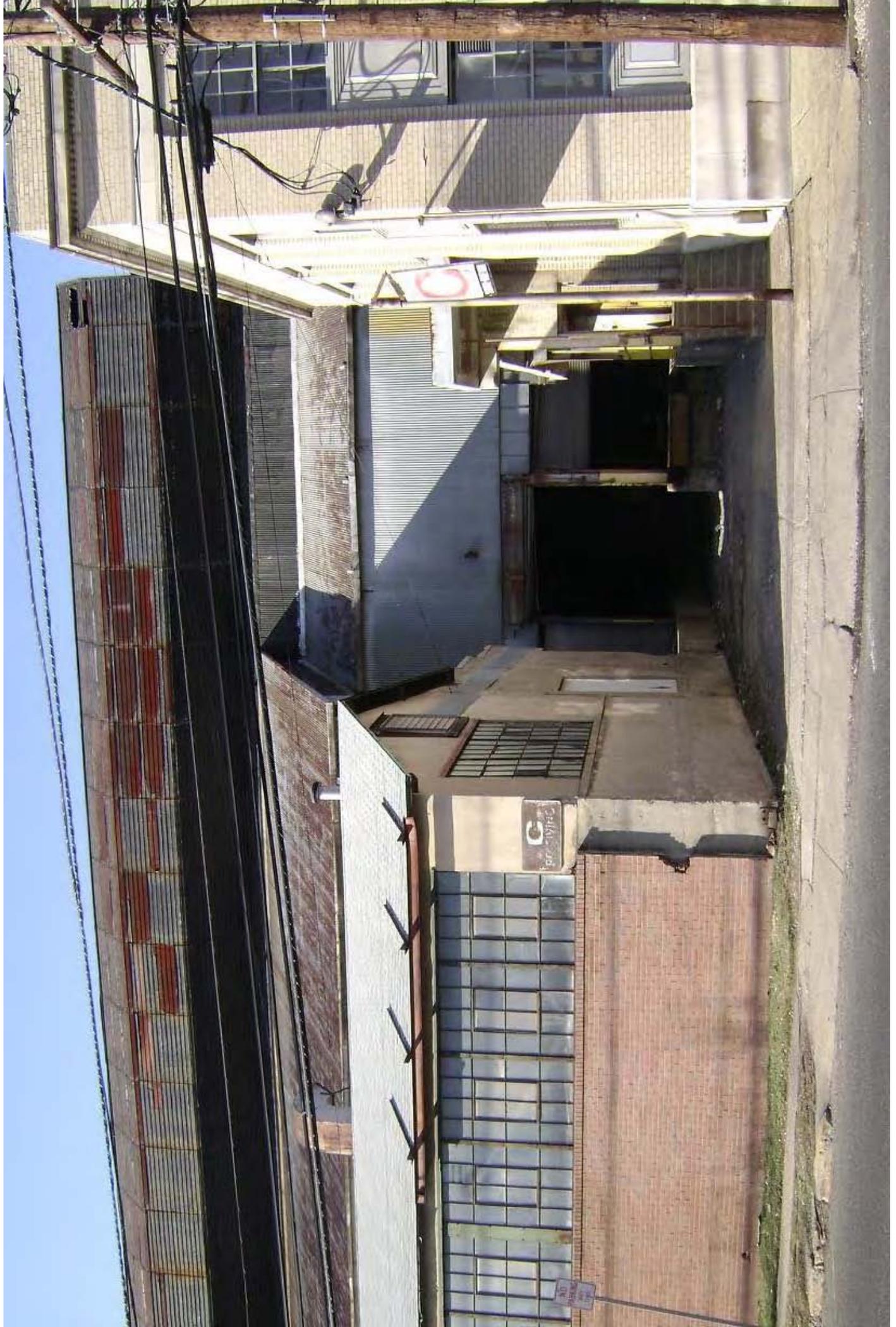








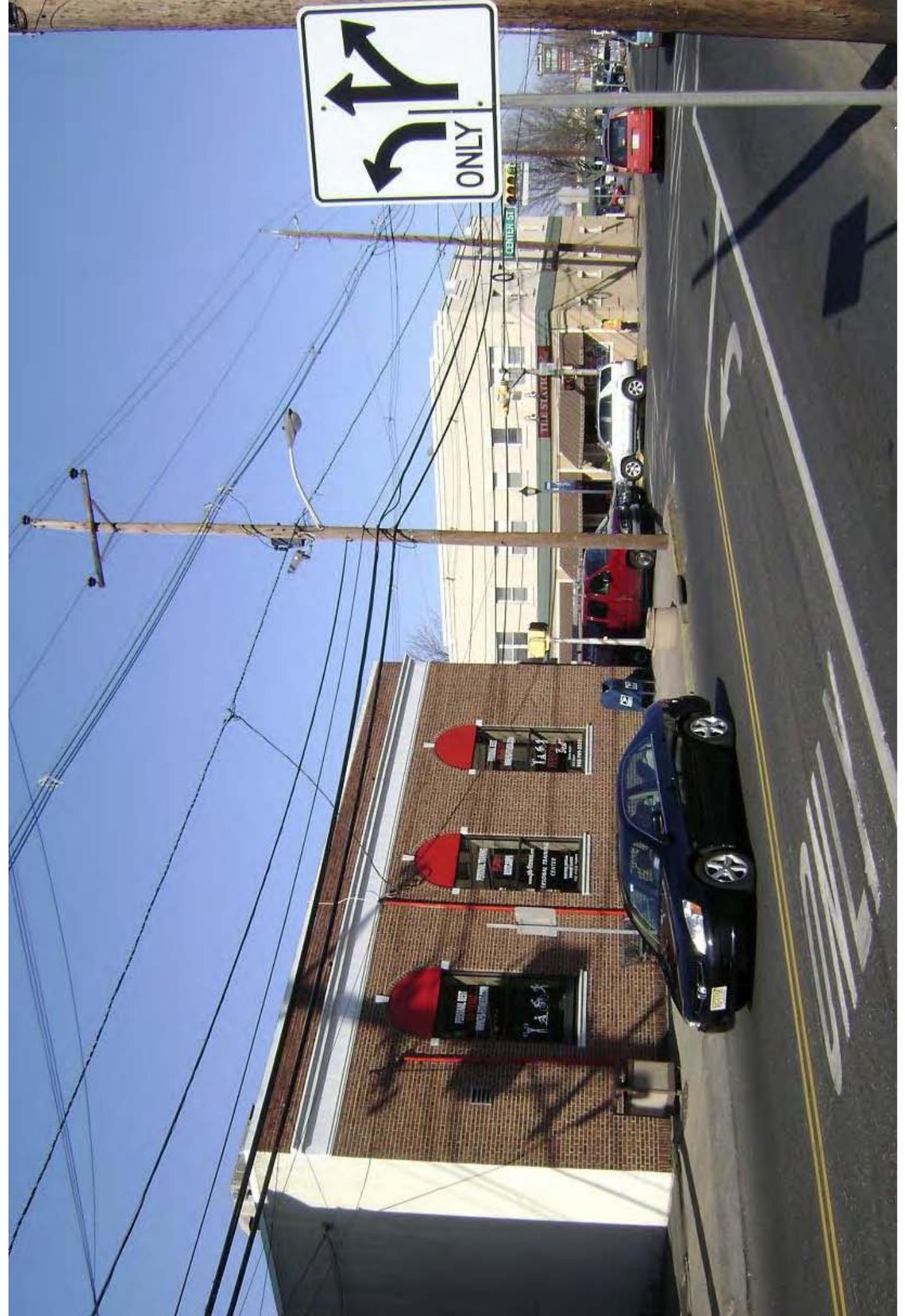






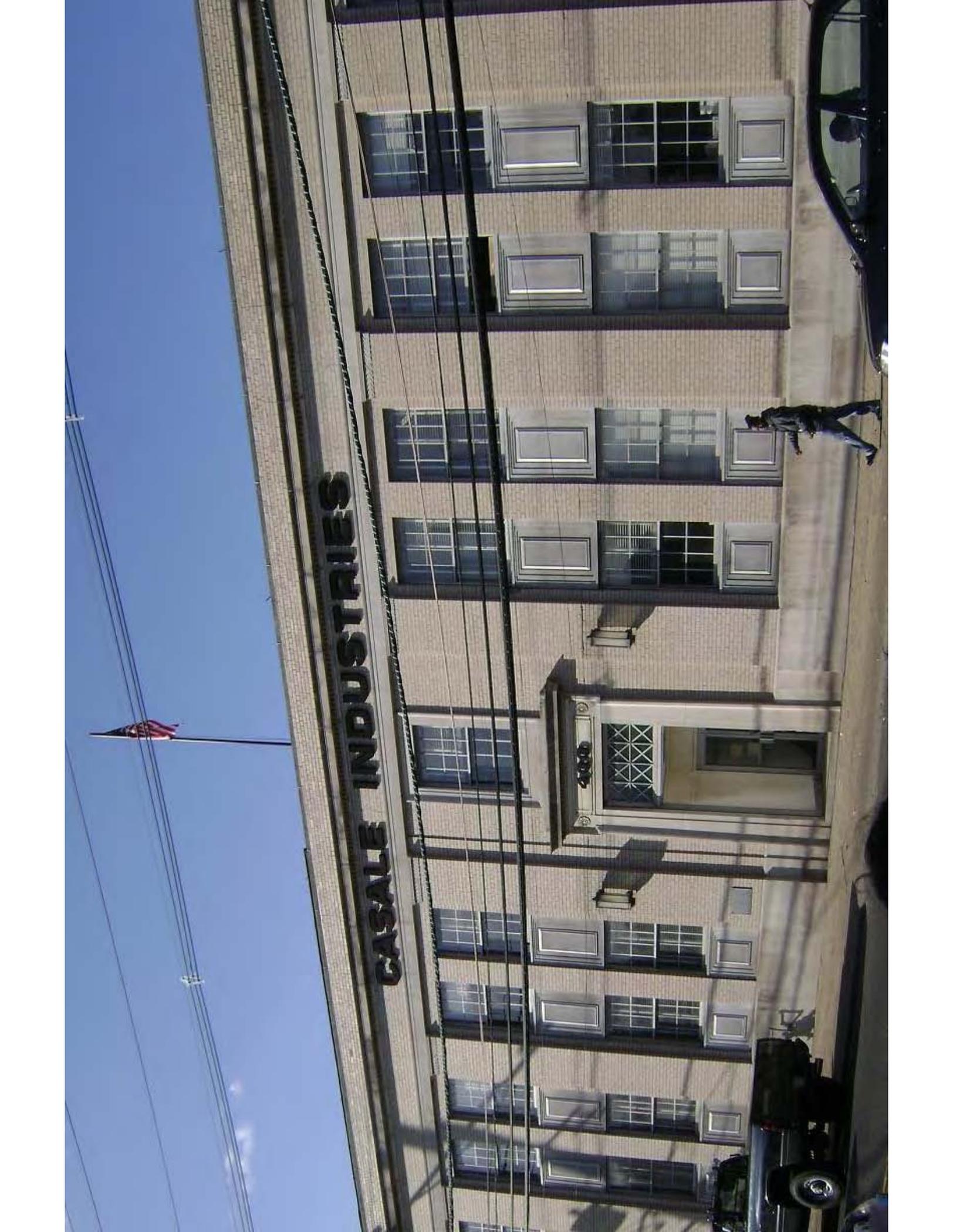
CENTER ST

FILE SHED



CASALE INDUSTRIES

4000



GARWOOD 2015 WITH PARKING AND ADDITIONAL TRAIN SERVICE

- Ridership estimated with additional parking spaces and one new peak period train in each direction (AM Eastbound, PM Westbound), plus 2 hourly midday and late evening service.
- Modified areas that could drive to Garwood to include parts of Cranford, as well as Clark, parts of Scotch Plains, and Mountainside. These towns all do not, with the exception of Cranford, have train stations.

Table 1- Summary of Ridership ORIGINS with Parking Demand 2015. Added Train Service and Parking Spaces

ORIGIN TOWN	2015 Daily Boarding Riders	2015 Parking Demand	Stations Shifted From (Partial)
Scotch Plains	157	141	Rahway, Fanwood
Clark	54	50	Rahway, Fanwood, Westfield
Cranford	24	17	Cranford
Westfield	13	9	
Garwood*	56	11	
Mountainside	6	5	
Others	5	4	
TOTAL	315	237	

76% of riders are park and ride, requiring about 250 parking spaces. Approximately 75 riders are diverted from Rahway, and another 100 from Fanwood, Westfield, and Cranford.

* Does not include ridership or parking demand related to new development.

GARWOOD 2035 WITH PARKING AND ADDITIONAL TRAIN SERVICE

- Ridership estimated with additional parking spaces and additional peak period train(s) in each direction (AM Eastbound, PM Westbound) accessing New York Penn Station.
- Estimates assume current full post-ARC service plan (with 1 peak train to NYC and 1 peak train to Newark)
- Modified areas that could drive to Garwood to include parts of Cranford, as well as Clark, parts of Scotch Plains, and Mountainside. These towns all do not, with the exception of Cranford, have train stations.

Table 2- Summary of Ridership ORIGINS with Parking Demand 2035. Added Train Service and Parking Spaces

ORIGIN TOWN	One Additional Peak Train to NYC		Two Additional Peak Trains to NYC		Stations Shifted From (Partial)
	2035 Daily Boarding Riders	2035 Parking Demand	2035 Daily Boarding Riders	2035 Parking Demand	
Scotch Plains	178	160	259	233	Rahway, Fanwood
Clark	61	57	89	83	Rahway, Fanwood, Westfield
Cranford	27	19	40	28	Cranford
Westfield	15	10	21	15	
Garwood*	36	12	92	18	
Mountainside	7	6	10	8	
Others	6	5	8	7	
TOTAL	357	269	520	391	

76% of riders are park and ride. Approximately 75 riders are diverted from Rahway, and another 100 from Fanwood, Westfield, and Cranford.

* Does not include ridership or parking demand related to new development.

IMPACT OF DEVELOPMENT SCENARIOS ON POTENTIAL RIDERSHIP

- Three development strategies have been analyzed for their effects on transit ridership
 - Scenario 1 – 9,000sf Retail, 16 Residential Units
 - Scenario 2 – 48,250sf Retail, 14,980sf Office, 223 Residential Units
 - Scenario 3 – 62,575sf Retail, 35,380sf Office, 451 Residential Units

- These impacts take into account only additional development, and exclude any changes to service or parking.

- Estimates here do not include shift to rail mode due to ARC. Therefore, these impact estimates are valid for use with both pre- and post-ARC estimates regarding augmented service and parking.

Table 3- Summary of Potential Ridership Created by New Development Scenarios

By Riders	Scenario 1		Scenario 2		Scenario 3	
	Low	High	Low	High	Low	High
Additional Rail Riders						
Residential	3	4	49	59	99	119
Office & Retail	0		4		7	
TOTAL	3	4	53	63	106	126
Add'l Parking Spaces Needed	3	3	40	47	80	95
Additional Bus Riders						
Residential	1		8		22	
Office & Retail	1		7		15	
TOTAL	2		15		37	
TOTAL ADDT'L TRANSIT RIDERS	5	6	68	78	143	163

SUMMARY

Table 4 – Summary of Additional Rail Ridership Potential

Development Scenario	Pre-ARC		Post-ARC			
	Additional Peak Train		Additional Peak Train		2 Additional Peak Trains	
	Low	High	Low	High	Low	High
Parking Only						
Rail Riders	315		357		520	
Rail Trips	630		715		1040	
Parking Spaces Needed	240		270		395	
Scenario 1						
Rail Riders	318	320	360	360	523	525
Rail Trips	635	640	720	720	1045	1050
Parking Spaces Needed	240	240	270	270	395	395
Additional Bus Riders	2		2		2	
Additional Bus Trips	4		4		4	
Scenario 2						
Rail Riders	368	378	410	420	588	598
Rail Trips	735	755	820	840	1175	1195
Parking Spaces Needed	245	245	275	275	400	400
Additional Bus Riders	15		15		15	
Additional Bus Trips	30		30		30	
Scenario 3						
Rail Riders	420	440	463	483	625	645
Rail Trips	840	880	925	965	1250	1290
Parking Spaces Needed	245	245	275	275	405	405
Additional Bus Riders	37		37		37	
Additional Bus Trips	75		75		75	

Assuming a full build Scenario 3, we can expect Garwood to have similar ridership as nearby stations such as Netherwood, Bound Brook, and Bridgewater, both in pre-ARC and post-ARC conditions.

