The New Jersey Turnpike Exit 8A Area

Transportation & Land Use Study

For

The New Jersey Department of Transportation

By

The Municipal Land Use Center
@
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Acknowledgements

This study was funded by the New Jersey Department of Transportation (NJ DOT). Without its funding and support in other ways the study would not have been possible. It was then Assistant Commissioner Dennis Keck, who first suggested to me the need for this study now several years ago. The helpful insights provided by the NJ DOT project manager, Paul Truban, along with his supervisor, Talvin Davis, require special mention. We met regularly throughout the one-year period of developing this report.

The many stakeholder participants who gave of their time, valuable information and wisdom, through individual interviews, the numerous stakeholder forums and even comments on earlier drafts of this report are too numerous to mention here, but should not go unnoticed. One person in this regard ought to be remembered – Mr. Joseph Montanti – who was a source of great encouragement at the outset, especially for me. Joe represented Monroe Township in those forums. Unfortunately, he passed away in April 2006, just as this project was getting underway.

Dr. Wansoo Im, principal of Vertices, Inc., provided his expertise related to the electronic mapping and graphics. Always patient, his work is integral to this project. It is important to note that much of Dr. Im's work is not immediately evident in this report. He created a tool that is now in the hands of the respective municipalities to help them improve their planning across municipal boundaries. It should also become a valuable instrument to other levels of government and the private sector as well. The Voorhees Transportation Center (VTC) at Rutgers University also provided support with respect to the municipal case studies.

Ms. Winnie Fatton, MLUC @ TCNJ executive assistant, made many editorial suggestions to improve this report. She also attended to the sometimes complicated logistics of the numerous meetings and interviews that ultimately resulted in it. She attended each of the stakeholder forums over the year, greeting one and all as is usually her style. Herman Volk, who also works with us at MLUC @ TCNJ as a special projects consultant, made valuable comments on an early draft of this report.

Finally, special mention needs to be made of Congressman Rush Holt, who saw the wisdom in establishing an entity such as MLUC @ TCNJ and secured the funding to get it started. Ted Stiles, who took the initial idea and shaped it so that the idea might become a reality. Ted served as MLUC @ TCNJ Board President until his untimely death just prior to the completion of this Report. Although Ted's interests primarily ran to open space and its preservation, he understood the need to plan more extensively and at the municipal government level where so much of the action takes place.

The analysis and synthesis of the multiple sources of information and insights are mine and for which I bear responsibility. They are reflected in the written words contained herein.

Martin A. Bierbaum, Director
Municipal Land Use Center @ The College of New Jersey
May 2007

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Executive Summary

Introduction:

An odd concentration of development – warehouse and distribution centers interspersed by age-restricted residential communities—has concentrated around New Jersey Turnpike's Exit 8A over the past two decades as a consequence of decision-making driven by strong private market forces and then fixed at different levels of government. The development mix has been impelled in part by global economic forces, but also pulled to this area by its strategic regional location – midway between Philadelphia and New York as well as midway between Washington D.C. and Boston, Massachusetts, and astride the New Jersey Turnpike within an hour of Port Newark/Port Elizabeth and Newark's Liberty International Airport. Local characteristics are also part of the attraction. These include its relatively flat topography, expansive open spaces, amenable, uncontaminated soils, the availability of water and sewers, along with local government interest in adding to property tax revenues while controlling additional expense, especially those associated with school costs.

Framing the Issues:

NJ DOT posed one set of concerns at the outset of this study. These reflected a more expansive statewide perspective. However, initial contacts with counties and municipal representatives produced a different list of issues, tied to more parochial, but just as pressing concerns from their perspectives. Currently, as warehouses and distribution centers reach critical mass, land use conflicts, the growing number of trucks and vans that are used to transport both freight and increasing numbers of employees from miles away have begun to make the costs of this development pattern more obvious in terms of traffic congestion and accumulating public health and safety concerns. Subsequent interviews with private sector interests raised additional issues related to New Jersey's economy and its relationship to the global economy.

Proposed Study Area:

The Exit 8A Study Area, for the purpose of this Study, is comprised of 2 counties and 9 municipalities in the middle of Central Jersey, a rapidly growing area of approximately 168 square miles with a population total of approximately 182,000 people according to the 2000 U.S. Census.

The Nature of the Proposed Study & its Methodology:

This Study employed a variety of methods including, but not necessarily limited to the following: individual and group interview techniques, analysis of U.S. Census data, economic data and assessment of other data drawn from other State, county and municipal sources. It involved the development of municipal case studies employing these diverse data sources. The proposed methodology also involved the conduct of a series of facilitated stakeholder forums at sites within the Exit 8A Study Area over a one-year period.

The Deliverables:

The Study's methodology was designed to lead to three deliverables:

1) A set of case studies on each of the municipalities;
2) An internet mapping tool that could be employed by the area's municipalities to improve coordination and integration of their planning activities once the study was completed, perhaps less than obvious in this report; and
3) A set of policy recommendations that would largely result from a combination of the individual and group interviews as well as the stakeholder forums.

The stakeholder forums were intended to create a multi-party dialogue, serving to be both the source of valuable information for the purposes of this study and to better inform local stakeholder participants as to the nature of the issues involved.

The Transportation/Goods Movement Planning Context:

This Study also built upon earlier NJ DOT initiatives. These initiatives included the Congestion Busters' Taskforce's efforts and more particularly the efforts of its "Goods Movement" and "Land Use and Growth Management" Sub-committees. The Congestion Busters' Taskforce was established by the New Jersey State Congestion Relief and Transportation Trust Fund Renewal Act (N.J.S.A. 27:1B-21.26) in 2000. In addition, in 2003, NJ DOT organized the NJ DOT Logistics Council, that was divided into three sub-committees concentrating upon regulation, infrastructure and land use. The NJDOT Logistics Council Land Use Sub-committee made eight policy recommendations that were relevant to this study. The efforts of the Congestion Busters' Taskforce and the NJ DOT Logistics Council, especially the Land Use Sub-committee, served as a baseline for this effort. In addition, during 2005-2006, NJDOT began work on its "New Jersey Comprehensive Statewide Freight Plan." An early draft of that plan was made available for the purposes of this report. This report was indeed informed by this variety of earlier efforts.

Three Competing Perspectives:

Three competing perspectives quickly emerged from the nine facilitated public forums and the individual and group interviews conducted for this study. They included the following:

1. **Statewide Public Sector Perspective;**

2. **Local Government Views, reflecting the diverse experiences of the Exit 8A study area counties and municipalities; and**

3. **Private Sector Outlook that mirrors the highly dynamic nature of the expanding logistics industry driven by global economic factors.**

A major challenge for this study was to synthesize these three very different perspectives.

The Major Lessons Learned:

The major lessons learned from this Study include the following:

1. ***The Land Use Pattern and Transportation Situation at Exit 8A is the result of multiple causes – natural, geographic, socio-economic, private market forces along with public policies promulgated by different levels of government over the past two decades.***

2. ***No "Silver Bullet" or single answer exists to address the many concerns raised by the diverse stakeholders who participated in this study.***

3. ***The significance of this study may have less to do with the New Jersey Turnpike Exit 8A per se, which is rapidly approaching build-out, but more to do with the knowledge transfer that will affect other locations at interchanges throughout New Jersey, to the north where significant brownfields redevelopment is occurring and to the south where such logistics-related development will likely go next.***

4. ***Local jurisdictions have an important role to play in both recognizing the needs of a growing and increasingly important element of New Jersey's economy and in reconciling those needs with maintaining and promoting an attractive quality of life in New Jersey's communities, e.g., density/intensity issues, parking issues, lighting issues, aesthetic impacts, green building, trucker services, extending hours of operation and distribution centers planning for the next generation.***

5. ***Developing, managing and sharing land-use and transportation data across government jurisdictions and with the private sector is a necessary and important planning and management function that requires explicit attention. Difficulties in these regards were in fact demonstrated by the time and energy expended in collecting data for this study.***

6. ***Some issues raised by the New Jersey Turnpike Exit 8A area experience cry out for regional solutions including, but not necessarily limited to the assessment of cumulative and secondary impacts and cost-sharing of less than direct costs as they are experienced throughout the region.***

7. ***Even simple tasks such as designating preferred truck routes and installing signage can prove difficult without appropriate forums and implementation mechanisms in place, at times fueling local frustration that may lead quickly to cynicism.***

8. ***As the Exit 8A Study Area rapidly approaches build-out, operational improvements are necessary along with an irreducible number of roadway construction projects to manage the situation.***

9. ***Ancillary concerns such as creating the opportunities for affordable housing in proximity to areas of job growth, easy access to labor and recognizing and addressing environmental constraints are important, although not a major focus of this study.***

10. ***The nature of warehouses and distribution centers does not fit neatly with the New Jersey State Development and Redevelopment Plan (NJSDRP) so that changes need to be made to that Plan to accommodate this rapidly growing sector of New Jersey's economy.***

11. ***Trucker services are desperately needed in the Exit 8A Study Area.***

12. ***Facilitated dialogue among the different levels of government and with the private sector can lead to improved mutual understanding and ultimate resolution of a number of important issues related to Exit 8A concerns.***

The Lessons Learned lead to the following Action Step Recommendations listed below.

Action Step Recommendations:

A. Planning & Regulatory Changes

1. Local Planning, Policies & Regulation

- **a. Update & modify County and Municipal Plans, Programs, Policies and Processes**
- **b. Convene an Exit 8A Study Area Forum**
- **c. Convene an Exit 8A Internet Mapping Users' Group**
- **d. Allow for the extension of warehouses and distribution centers hours of operation**

2. State & Regional Planning, Policies & Regulation

- **a. Identify & Prioritize Strategic Logistical Areas and Corridors for appropriate treatment**

b. **Identify and implement preferred truck routes along with appropriate signage**
c. **Consider regional planning, administrative mechanisms and cost/benefit allocation formulae to address legitimate regional concerns, e.g., transportation enhancement district, a strengthened county role**
d. **Enact statewide local property tax reforms to reduce municipal incentives to skew planning in terms of the ratables chase**
e. **Engage in major public education and outreach efforts**
f. **Strengthen travel demand management techniques**
g. **Institute off-peak New Jersey Turnpike discount pricing**
h. **Expand NJ Transit Services to the Exit 8A Study Area**
i. **Promote a state economic development program to facilitate warehouse and distribution center development at desired and appropriate locations**
j. **Enhance the "Planning on the Edge" Forum administered by the Delaware Valley Regional Planning Commission (DVRPC)**

B. <u>Roadway Improvements</u>

Prioritize and Implement N.J. Turnpike and New Jersey State Roadway Improvements:

1. **Widen the New Jersey Turnpike south of Exit 8A to Exit 6**
2. **Consider construction of New Jersey Turnpike Exit 8B in proximity to Route 133 (Monroe Township)**
3. **Implement appropriate roadway improvements along Route 1 to ease north-south traffic flows**
4. **Implement appropriate roadway improvements to ease east-west traffic flow, especially in light of the State's recent decision not to construct Route 92 (see more complete listing in text)**
5. **Expand and enhance existing park-and-rides and construct new park-and-rides at appropriate locations**
6. **Identify appropriate locations to site and establish adequate truck services at a location within or in close proximity to the Exit 8A Study Area**
7. **Identify and plan for an appropriate site for a short-line rail freight staging area, while simultaneously seeking additional funding from multiple sources to invest in short-line rail alternatives**

Figure 1 (Table 1):

ACTION STEP RECOMMENDATIONS

Actions	Responsible Parties	Timeframe
1. Update & Modify County, Municipal plans, programs, policies & processes, including Information Management Techniques, planning processes, and land use regulatory changes	Municipal & County Governments	Short-term & ongoing
2. Convene an Exit 8A Study Area Forum	County & Municipal Governments, NJDOT, MPO's	Short-term & ongoing
3. Convene and Exit 8A Internet Mapping Users' Group	County & Municipal Governments, NJDOT, MPO's	Short-term & ongoing
4. Allow for the extension of warehouses and distribution centers hours of operation	Municipal Governments	Short-term & ongoing
5. Identify & prioritize strategic logistical areas and corridors	State government departments & agencies with cooperation of county & municipal governments. Modify the NJ State Plan	Mid-term & ongoing
6. Identify and implement preferred truck routes along with appropriate signage	NJDOT in cooperation with county and municipal governments	Short-term & ongoing
7. Consider regional planning and administrative mechanisms to address legitimate regional concerns	Governor's Office of Economic Growth (OEG) & State Legislative Recommendation	Long-term
8. Reform Statewide Local Property Tax Structure	Governor's Office of Economic Growth & State Legislative Recommendation	Long-term
9. Engage in major public education & outreach efforts	State government departments & agencies, County & Municipal Governments	Short-term & ongoing
10. Strengthen Travel Demand Management Techniques	NJDOT, Counties, TMA's, private sector	Mid-term & ongoing

11. Institute Off-peak N.J. Turnpike discount pricing	OEG, N.J. Turnpike Authority	Short-term & ongoing
12. Expand NJ Transit Services to Exit 8A Study Area	NJ Transit along with TMA's; County & Municipal Governments	Short-term & ongoing
13. Promote a State economic development program to facilitate warehouse & distribution center development at desired and appropriate locations	Governor's Office of Economic Growth, NJDOT, N.J. EDA, N.J. DEP & other relevant State departments & agencies	Short-term & ongoing
14. Enhance "Planning on the Edge" Forum	NJTPA & DVRPC and participants	Short-term & ongoing
15. Widen N.J. Turnpike from Exit 8A to Exit 6	N.J. Turnpike Authority in consultation with County & Municipal Governments	Short- to Mid-Term
16. Consider construction of N.J. Turnpike Exit 8B in proximity to Route 133	N.J. Turnpike Authority – Strategic planning	Long-term
17. Implement appropriate roadway improvements along Route 1 to ease north-south traffic flows	NJDOT in collaboration with County & Municipal Governments	Short- to Mid-Term
18. Implement appropriate roadway improvements to ease east-west traffic in light of decision to not build Route 92	NJDOT in collaboration with County & Municipal Governments	Short- to Mid-Term
19. Expand and enhance existing park-and-rides and construct new park-and-rides at appropriate locations	NJDOT in collaboration with County & Municipal Governments	Short-to Mid-Term
20. Identify appropriate locations to site and establish truck services	NJTPA, NJDOT, N.J. Turnpike Authority in consultation with County & Municipal Governments	Short-to Mid-Term
21. Identify and plan for an appropriate site for a short-line rail freight staging area, while seeking funding from multiple sources to invest in this area	OEG, NJTPA, NJDOT, N.J. Turnpike Authority, NJ Transit and others	Long-term

Figure 2 (Table 2):

Construction & Build-out Estimates*

Municipality	1996 Estimate of Developable Land Area (in square feet)	Estimated Construction 1996-2006 (in square feet)	Pipeline Estimate (in square feet)	Remaining Available Land Estimate (in square feet)
Cranbury Twp.	12.7 million	10.5 million	0.81 million	1.39 million
East Brunswick	Approximately 1,224 acres close to build-out at time of 1991 master plan	Miscellaneous additions & adaptive re-use , little or no new construction	None	Near Build-out with one large vacant parcel with limited potential. Expect additions & adaptive re-use
East Windsor Twp.	Not Available	1 million	Not Available	Not Available, but expect only limited future impact
Hightstown Borough	Not Available	2 sites to be redeveloped with limited impact	2 sites to be redeveloped with limited impact	Almost entirely built-out. Expect only limited future impact
Jamesburg Borough	Close to build-out at start of this period.	Marginal	None	95% built-out. Expect only limited future impact
Monroe Twp.	63.2 million	48 million	1.0 million	11-14 million + 9.8 million on Route 33 corridor in the face of growing resistance
Plainsboro Twp.	Not Available	Not Available	Princeton Medical Center	7 million on Route 1 corridor
South Brunswick Twp.	62.8 million (?)	47.8 million (?)	7-8 million	7-8 million in the face of growing resistance
Washington Twp.	5 million (?)	4.4 million	6.4 million	Near build-out
ESTIMATED TOTALS:	*144 million*	*112 million*	*15-16 million*	*15-16 million*

* The numbers contained in the table are rough estimates based on data provided by municipalities and the result of interviews with informed professionals. That baseline data emanated from a study done more than a decade ago by the Regional Planning Partnership (RPP). In other cases RPP did not establish a comparable baseline, e.g., East Windsor.

Question marks indicate that professionals questioned data accuracy. With respect to South Brunswick, the planning official believed that the baseline estimate was much too high. In the case of Washington Township, construction in the past decade exceeded the RPP land estimate.

In addition, the 9.8 million square feet available in Monroe on its southern border on Route 33 was not included in the total, nor was the 7 million square feet cited by Plainsboro Township officials on its Route 1 corridor.

A standard 20% deduction to account for roads and environmental constraints reduces this estimate of available land to 12-13 million square feet of available warehouse and distribution space which is roughly the estimate obtained from industry professionals. Those same professionals expected that remaining land would be built-out in the next 5-10 years.

The difficulty in obtaining precise data, in these regards, underlines the importance of establishing and maintaining a reliable data management system going forward. (See Action Step Recommendations)

Findings & Conclusions

This study began with an understanding from a public sector statewide perspective, largely conveyed by NJDOT, but also reinforced by the views of the New Jersey Turnpike Authority (NJTA) and the North Jersey Transportation Authority (NJTPA). However, through the course of the study period, three, at times competing, perspectives emerged— statewide, local government and private sector. The challenge for this study was to synthesize those varied and sometimes competing perspectives to draw valuable lessons learned to yield a meaningful set of public policy recommendations. The results hopefully meet that challenge.

The specific lessons and recommendations strongly suggest that the Exit 8A Study Area is nearly built-out, so that its lessons may be more relevant to other locations that have yet to develop in similar fashion, but may be expected to follow its path. While this finding may not have been originally contemplated by NJDOT, its revelation does not diminish the importance of the study. The study demonstrates the importance of understanding the value of integrating local land use decision-making and transportation planning. An underlying assumption remains that New Jersey will play an expanding role as a major gateway to international and national trade and that the relative importance of goods movement to the state's economy and the nation's will continue to grow.

Epilogue: Global Freight Villages

A question that lies just beyond the scope of this study has to do with the prospective role of "global freight villages." These villages present a way to concentrate logistics systems around a node while coordinating the integration of a wide variety of logistics-related activities. They are master planned, providing high quality settings with adequate support services. In important ways, the vision for a "global freight village" poses a benchmark or standard to assess Exit 8A Study Area retrofitting and appropriate future development at other interchanges.

NJ Turnpike Exit 8A Area Transportation and Land Use Study

The Newark Star-Ledger in 2005 described the Exit 8A situation in this way:

" … Part of it is South Brunswick, part of it is Monroe. Most of it has a Jamesburg or Cranbury zip code. But to tens of thousands of workers, hundreds of thousands of truckers and the real estate agents who oversee its many million square feet of industrial space, the area is known by one name only… 8A."

"The corporate parks and warehouses that sprawl across its formerly farm-covered landscape tell the story… Call it a postmodern twist on the What exit? Jersey joke: place names that skip to the punch line… It's really like its own brand." (Newark Star-Ledger, "Exit 8A," June 6, 2005)

This odd combination of development—warehouse and distribution centers interspersed by age-restricted residential communities—that has concentrated around New Jersey Turnpike's Exit 8A over the past two decades is the consequence of decision-making driven by strong private market forces and then fixed at different levels of government. Development has been drawn to this formerly farmland region with apparent little coordination or forethought given to the gradually appearing cumulative and secondary impacts. Yet the consequential costs of these decisions have recently become more obvious.

The private sector has been drawn to this strategic location because of its proximity and access to what may be the most affluent human agglomeration in the world. The location is additionally strengthened by its "reach." For example, it has been estimated that a one-way truck drive from this location can reach upwards of 40% of the nation's population. This attraction has been reinforced by local conditions including the relatively flat, expansive open spaces with amenable soils which are largely absent the industrial contaminants so often associated with otherwise suitable sites to the north. The location's accessibility to the New Jersey Turnpike and its proximity to water and sewers with sufficient capacity also provide a major draw to this area.

Local decision-makers, seeking to lure attractive ratables, viewed the warehouses and distribution centers along with age-restricted housing as fiscally sound. Neither type of development promised to bring school children and their attendant costs. Age-restricted developments, constructed for those with incomes well above the median, also provide decided advantages to local jurisdictions. In some instances, these age-restricted communities provide a range of services, at times including recreational amenities, trash collection and other services, relieving municipalities of additional cost burdens. Warehouses and distribution centers, to a point, proved attractive. They generate substantial property tax revenues, while tending to employ relatively small numbers of people. They thereby pose advantages to local jurisdictions by having less impact on automobile traffic congestion, while they are likely to incur a less onerous municipal affordable housing obligation.

But today, the construction and expanding operations of warehouses and distribution centers are leading to circumstances in which conflicts between their use and residential uses are bound to be more intense and become more obvious. In some instances, the character of warehouses and distribution centers changes after the approval and construction phases, leaving planners with a relatively narrow window to affect situations. The altered functions that these warehouses and

distribution centers perform may increase trip generation even in the absence of substantial structural changes.

The warehouses and distribution centers in and around Exit 8A sport well-known brand names like “Crate and Barrel,” “Home Depot,” “Liz Claiborne,” “Tommy Hilfiger,” “Canon,” “Costco” and “Barnes and Noble,” among a host of others. This area has become a major hub for warehouse and distribution centers that, in effect, comprise a major-sized inland port that has been strategically located just half-way between Philadelphia and New York City and just as importantly, mid-way between Washington D.C. and Boston with an extensive market reach into the hinterlands.

Added pressures have been noted as warehouse laborers are shuttled in and out each day. Some are relatively low-wage. They commute from nearby staging areas from as close by as New Brunswick, Perth Amboy, Trenton and Freehold Borough, or perhaps from places as far away as inner city neighborhoods in Manhattan or Brooklyn. Shuttle van networks have been noticed operating just under the radar in the absence of an adequate public transit network. Laborers traveling in these ways add to both traffic congestion and public safety concerns each workday. The mismatch between the lack of affordable housing in the area for lower-wage employees and continued employment growth promises to only heighten these concerns.

Meanwhile demands are made on both the New Jersey Turnpike and the NJ DOT to build more lanes to increase roadway capacity. The New Jersey Turnpike has accommodated to a degree by planning for a major road-widening from New Jersey Turnpike Exit 8A south to Exit 6. It has also recently completed a major improvement to the Exit 8A interchange. Simultaneously, NJ DOT is in the process of undergoing a significant paradigm shift that recognizes that state transportation planning can no longer ignore local land-use decision-making. NJ DOT recognizes that travel demand has to be more effectively, strategically and aggressively managed.

An important way to achieve more effective travel demand management is by working more closely with and building planning capacity at the local government levels. This change in philosophy is in part an outgrowth of two decades of “smart growth” discussion and debate around the state since the enactment of the New Jersey State Planning Act (N.J.S.A. 18A:-196 et seq.) in 1986 and the approval of the first State Plan in 1992. It also emanates from a realistic assessment of State government fiscal constraints that make it nearly impossible to continue road-building at anything like its previous pace.

Figure 3 (Photo 1): Warehouse & Distribution Center, Monroe Township, NJ

Framing the Issues

Three important issues were identified at the outset of this study with representatives of the NJ DOT. Among the issues identified at an early stage were the following:

1) Public safety and health concerns emanating from increasing truck traffic congestion in the Exit 8A Study Area;

2) Tightening fiscal constraints were likely to limit NJ DOT ability to address those concerns in the foreseeable future, while simultaneously NJ DOT recognized that local government actions were at least in part responsible for increased truck traffic congestion so that local jurisdictions would need to become a growing part of the problem-solving process;

3) Larger international, national, state and regional market forces were affecting the situation, resulting in implications for the state's wider economy.

Initial contacts with municipal representatives led to an identification and elaboration of additional issues apart from the original NJ DOT list of concerns. In preliminary discussions with county and municipal representatives the following concerns were expressed from their perspective:

1) The pursuit of property tax revenue was a major municipal driver in seeking warehouses and distribution centers' development;

2) The lack of information, particularly with respect to neighboring municipalities' "pipeline" projects, undermined coordination across jurisdictions and resulted in an inability to assess cumulative and secondary impacts;

3) The absence of consistency and coordination with respect to regulatory policies across municipal boundaries, especially with respect to weight and road restriction requirements, but also at times with respect to land uses, created conflicts among municipalities that added both inconveniences and costs to those doing business in the area;

4) The list of municipal concerns was growing, leading to skepticism about the relative benefits of warehouse and distribution centers, including a lack of trucker services in the vicinity, contributing to a range of public health and safety concerns, a lack of affordable housing, the absence of public transit options for warehouse and distribution center employees and a growing environmental awareness related to storm water and flooding events.

5) The perception that the State of New Jersey had failed to serve as a reliable partner in addressing east-west traffic concerns, especially with respect to the issue of the construction of proposed Route 92 through the area to alleviate pressures in that regard. (South Brunswick was the exception, since it remained opposed to the construction of proposed Route 92 throughout this period.)

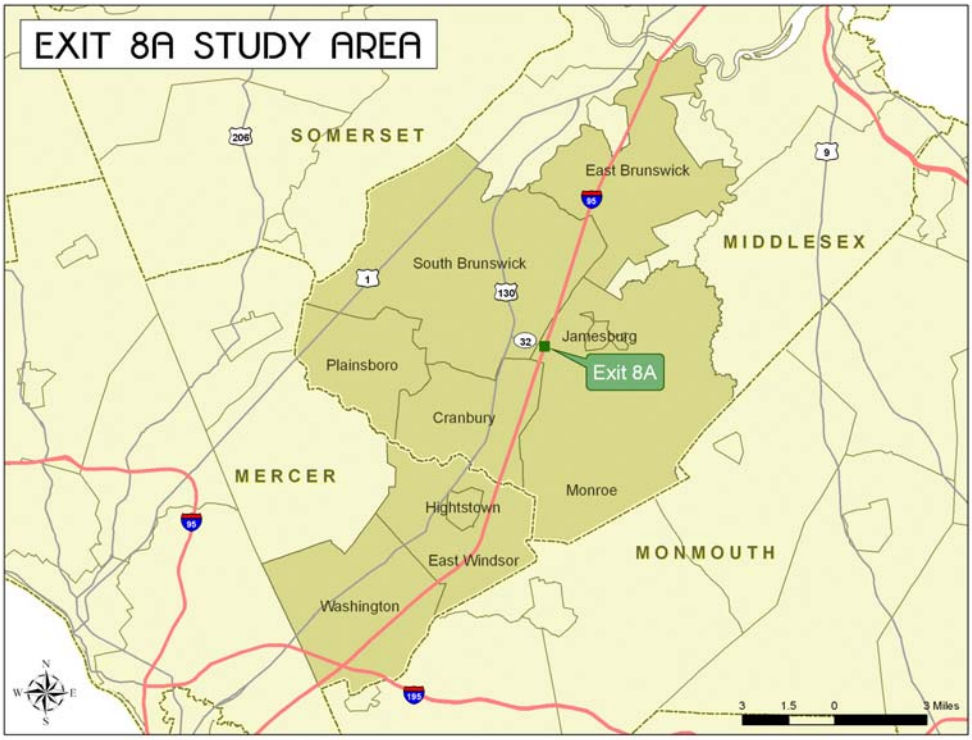
Proposed Study Area

The Exit 8A Study Area, for the purpose of this Study, is comprised of two counties and nine municipalities --Cranbury, East Brunswick, Jamesburg, Monroe, Plainsboro, and South Brunswick in Middlesex County; and East Windsor, Hightstown and Washington Township in Mercer County. These municipalities extend from north of Exit 8A and south to Exit 7A on the New Jersey Turnpike where the New Jersey Turnpike and I-195 intersect. The region, defined in this way, was intended to capture the area that comprises the key Central Jersey freight hub and its major corridors. The hub is defined by the area that spreads out in proximity to the New Jersey Turnpike Exit 8A, which is then dissected by the twin north-south corridors --the New Jersey Turnpike and State Highway Route 130. It consists of approximately 168.4 square miles with a total population for the nine municipalities of approximately 182,366 people according to the U.S. Census in 2000.

The Nature of the Proposed Study

This study analyzed the initially identified issues in a collaborative way, seeking to enlist county and municipal representatives throughout the Study Area to review their respective policies, plans and regulations to begin to understand local causes along with regional implications. Through this examination, it was anticipated that the participating municipalities would become aware of their own contributions to these issues, and begin to identify reasonable means to address them. It was expected that the need for changes in local land-use policies including zoning regulations would become obvious. NJ DOT expected that the need for improved coordination across municipal and county boundaries would also become self-evident. Simultaneously, it was expected that the policy and project recommendations resulting from facilitated dialogue and directed at the New Jersey Turnpike and NJ DOT would prove to be more measured, including actions that might be taken by not only those entities, but also by local jurisdictions.

Figure 4 (Map 1): Exit 8A Study Area



Methodology

To achieve these ends, this study employed a variety of methods including, but not necessarily limited to individual and group interview techniques, analysis of U.S. Census data, economic data and assessment of other data layers drawn from State, county and municipal sources. Geographic Information Systems (GIS) technology was employed to facilitate discussions and to serve as a foundation for municipalities and counties to improve future coordination and integration of information across jurisdictional boundaries. In addition, a more user-friendly internet mapping format was explored to encourage municipalities and counties to employ the tool to improve coordination across their respective boundaries.

The methodology contemplated three different aspects for this study. The first was to devise characterizations for each of the nine municipalities engaged in the study. The characterizations were designed to provide insights into municipal cultures derived from brief sketches of each of the nine municipalities. The characterizations include, in some detail, demographic, economic, housing and environmental features that currently exist, along with a short narrative based on individual and group interviews. Where possible, and with municipal cooperation, estimates related to future build-out scenarios along with identification of pipeline data development were incorporated into these sketches. Where a baseline could be established, it was.

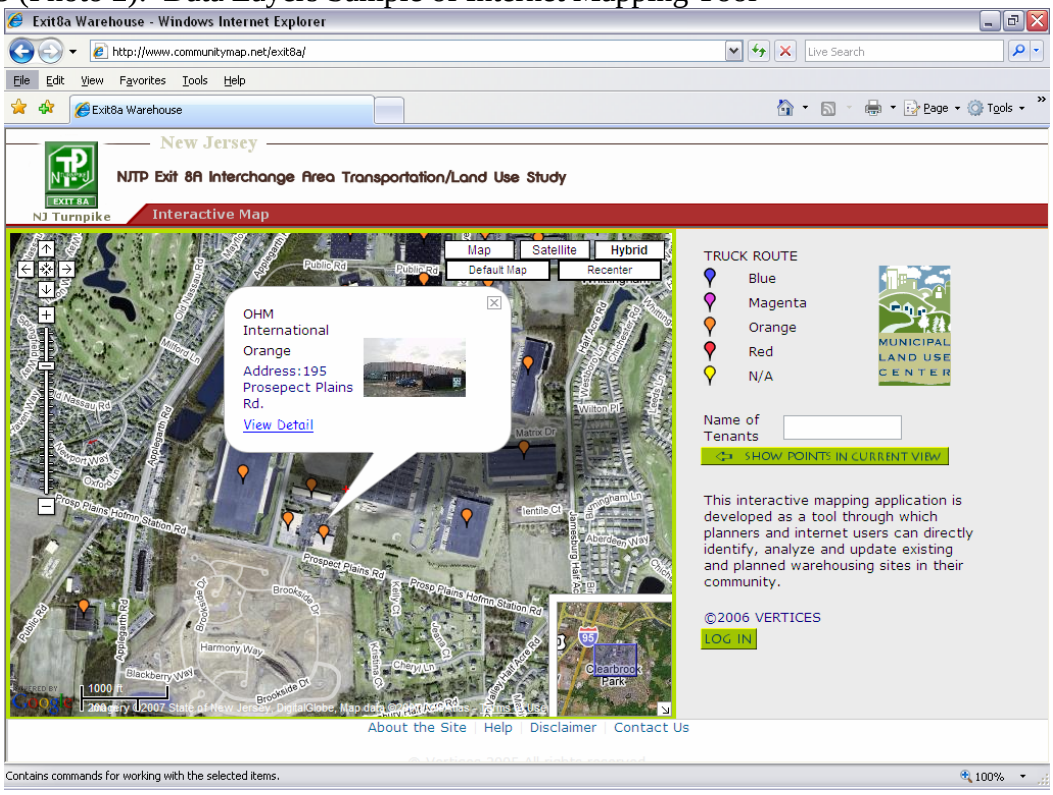
The second aspect of this study was to devise an internet mapping tool containing a variety of data layers to provide a useful means to improve future coordination across county and municipal boundaries. The assumption is that with increased access to timely information, the planning process would be significantly improved throughout the region as a result of this effort. The internet mapping tool is expected to be a dynamic one and that additional data layers will be

added to it over time. Today, only a skeletal framework is provided, but its information and usefulness is expected to grow exponentially. A future arrangement will need to be made to ensure the ongoing quality of the data and maintenance of the internet mapping site. This aspect of the tool extends beyond the scope of this initial study. The municipal characterizations are designed to inform the internet mapping. Importantly, three municipalities stepped forward to participate in the internet mapping aspect of this study. They are Cranbury, Monroe and South Brunswick, the three municipalities in close proximity to the Exit 8A Interchange.

The study's third aspect included a major community outreach effort involving individual and group interviews of county and municipal stakeholders along with private sector representative interviews. There were more than one dozen public sector interviews and nine private sector interviews conducted for this study over an eight month period from February through October 2006. An important aspect of this effort was also to conduct nine stakeholder forums to present the purposes of the study, to discuss its preliminary findings, to devise a set of meaningful policy and project recommendations and to make comments on the draft report. These forums provided facilitated dialogue over a one-year period at municipal buildings throughout the Exit 8A Study Area.

Perhaps more importantly, these forums served to educate local stakeholder participants within the two counties and nine municipalities about the nature of these issues, their links to wider global, national and statewide concerns and the nature of likely impacts in the foreseeable future. The desired salutary effects of these forums were consciously intended, but concededly difficult to measure.

Figure 5 (Photo 2): Data Layers Sample of Internet Mapping Tool



The Deliverables

The deliverables of this study are at least three-fold. The first is to provide this written report that includes the characterizations, identifies and elaborates on the issues, lists a set of valuable lessons learned and leads to a set of public policy and project recommendations in an action-oriented format. The second is a power point along with presentations summarizing the findings, the lessons learned and action-step recommendations related to the study as it has been described. Presentations have been made to NJ DOT staff, New Jersey Turnpike staff and at public forums such as the American Planning Association—New Jersey Chapter's Annual Forum in November 2006, the American Planning Association's National Conference in Philadelphia in April 2007 and at Transaction in April 2007. The third deliverable is an important and dynamic interactive mapping tool to be left in the hands of the three municipalities that immediately stepped forward to assist in its development and to engage in its early use—Cranbury, Monroe and South Brunswick. This third deliverable is expected to significantly enhance local planning capacity over time.

The Transportation/Goods Movement Planning Context

NJ DOT has placed itself at the forefront of national transportation planning trends. As a department, it has been undergoing a significant paradigm shift by which it recognizes that continued road construction and highway capacity expansion is simply incapable of keeping up with increasing travel demand. This recognition emanates from a half-century of road building experience now underscored by current public fiscal constraints. The inability to keep up with travel demand is a function of continued population and employment growth, the state's economic affluence and its sprawling land use patterns that have combined to result in a heavy reliance on the private automobile, often with a single driver, to move people, and on trucks as the overwhelmingly predominant means to move goods throughout the region.

NJ DOT now consciously promotes the notion that State transportation planning has to take into account and to address local land-use decision-making, which primarily occurs at the municipal government level and beyond the immediate control of NJ DOT. The expectation is that by engaging local land-use decision-makers through a more collaborative approach, the NJ DOT can encourage more judicious land-use planning and decision-making that will ultimately ameliorate and perhaps even reduce travel demand and thereby traffic congestion.

This approach is an outgrowth of long-standing public discussion and debate surrounding principles of "smart growth" that have occurred at least since the enactment of the New Jersey State Planning Act (N.J.S.A. 52:18A-196 et seq.) in 1986. That Act's passage was followed by the New Jersey State Planning Commission's approvals of the first and second New Jersey State Development and Redevelopment Plans (NJSDRP) in 1992 and 2001. The NJSDRP process in New Jersey is a highly interactive and participatory one, requiring collaboration by county and municipal government jurisdictions through a process dubbed "cross-acceptance" and thereby leading to a discussion about "smart growth" throughout the state even before it became fashionable in other states. (N.J.S.A.52:18A-202)

In addition, NJ DOT has acknowledged the growing importance of "goods movement" to the health of New Jersey's economy. In 2000, NJ DOT authorized a study to document the value of freight to the State's economy. That report concluded that New Jersey's strength in freight movement emanates from the state's world-class ports and airport, highways and railroads along

with its substantial number of warehouses and distribution centers. However, it warned that New Jersey had to build upon its competitive strengths to require that all parties – private freight transportation providers, government agencies, businesses, communities and other stakeholders work closely together. (Voorhees/Strauss-Wieder: 2001)

Consequently, NJ DOT modified its planning, adding a group devoted to freight planning. Its efforts concentrated on the development of a New Jersey Comprehensive Statewide Freight Plan. That freight plan has undergone development for the past several years. It is currently undergoing high-level internal review before its public release.

In addition, the New Jersey State Legislature enacted the Congestion Relief and Transportation Trust Fund Renewal Act, (N.J.S.A. 27:1B-21.26) in 2000. The Act led to the establishment of the "Congestion Busters' Taskforce." That Taskforce issued a final report with findings and recommendations in October 2002 after a year of taskforce and sub-committee meetings.

That report included 24 general recommendations, along with more specific recommendations emanating from its 7 sub-committees. The sub-committees of relevance to this study were the "Goods Movement Sub-committee" and the "Land-use and Growth Management Sub-committee."

The Congestion Busters' Taskforce's "Goods Movement Sub-committee" made the following policy recommendations:

1. Support the development of a comprehensive freight plan for the State;

2. Conduct a survey to determine the feasibility of expanding hours of operation to coordinate truck movements during off-peak hours;

3. Provide incentives for more carriers to use the New Jersey Turnpike, e.g., truck/bus only lanes rather than truck and automobile lanes, expand the use of congestion pricing strategies, support plans to increase parking spaces for trucks in identified rest areas;

4. Support specific roadway improvement projects;

5. Experiment with truck-only lanes on highly congested roadways;

6. Invest more State and Federal Transportation funds in an expanded and efficient rail freight and barge network.

The Congestion Busters' Taskforce's "Land Use and Growth Management Sub-committee" made the following policy recommendations:

1. Amend the New Jersey State Planning Act to mandate that municipal master planning and zoning comply with the goals, strategies, policies and planning area policy objectives of the State Development and Redevelopment Plan;

2. Resurrect earlier proposed county planning enabling legislation, which would give counties authority to approve or disapprove development, based upon existing infrastructure capacity;

3. Create incentives for municipalities to integrate Travel Demand Management techniques or requirements into their zoning/planning requirements;

4. Expand the use of Transfer of Development Rights (TDR) in order to preserve open space while concentrating development in areas which, in turn, may sustain transit;

5. Create financial, density, parking, clean-up or other incentives to encourage new commercial, office, industrial development to locate where it can be served by transit services (either existing or viable new services);

6. Allow municipalities to deny development applications where the existing off-site roadway network cannot support the needs of the proposed development, or alternatively, allow municipalities to pursue timed-growth planning or assess impact fees so that appropriate improvements with developers can be negotiated.

In 2003, the NJ DOT Logistics Council was formed. It divided into three subcommittees concentrating upon regulation—"Regulatory, Statutory and Finance Sub-committee," infrastructure needs—"Infrastructure and Operations Sub-committee" and land-use issues—"Land-Use Sub-committee." *The NJ DOT Logistics Council met for approximately one year with each of its sub-committees eventually promulgating their own policy recommendations from the perspectives of the three substantive policy areas.

Among the recommendations of the Land-Use Sub-committee were the following:

1. Develop a State strategic logistics land use policy map to identify strategic sites for logistics uses, e.g., warehouses, distribution centers, truck stops, etc;

2. Invest in appropriate information technology related to logistics concerns;

3. Devise a comprehensive statewide freight plan as part of a continuous statewide freight planning process;

4. Establish a set of performance metrics with targets and milestones with respect to the freight planning process and the comprehensive statewide freight master plan;

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* The author of this Report served as Chair of the NJ DOT Logistics Council – Land Use Subcommittee.

5. Devise and disseminate goods movement–related case studies to enhance understanding and draw the appropriate lessons learned;

6. Devise and disseminate public education materials to raise the level of public awareness in these regards;

7. Upgrade the connectivity between port areas and their transportation links, both highways and railways, as part of the "Portway" initiative;

8. Declare as a matter of State policy that brownfields redevelopment is a significant factor with respect to the State's economy, while also establishing a stable source of funding for brownfields redevelopment and creating sufficient linkages between brownfields redevelopment and the "Portway" initiative to be known as "Portfields."(NJ DOT: December 2003)

In addition, in 2005-2006, NJ DOT embarked on an effort to develop a New Jersey Comprehensive Statewide Freight Plan. A draft of this Plan also contributed to aspects of this study. With respect to warehouses and distribution centers, the New Jersey Comprehensive Statewide Freight Plan makes the following strategy recommendations that are of special relevance to this study:

1. Promote Rail Shuttles to serve warehouses and distribution centers;

2. Promote an Economic Development Program at the State Level that would facilitate distribution center development;

3. Identify and give priority to road and rail freight improvements that would support warehouse and distribution centers as well as better connect clusters with port facilities;

4. Determine where warehouses and distribution center facilities can be best located within the state;

5. Develop an under-utilized property/brownfield-reuse program that targets warehouse and distribution center functions.

(New Jersey Comprehensive Statewide Freight Plan, February 2006, Chapter 10)

Figure 6 (Table 3):

NJ DOT Policy Studies Comparison

Policies/NJ DOT Studies	*Congestion Busters*	*Logistics Council*	*State Freight Plan*	*Exit 8A Study*
Coordinate & Integrate with NJ State Plan	State Plan should be mandatory on local jurisdictions	YES	Modify State Plan to address freight needs	Modify State Plan to address freight needs
Devise & Implement Freight Master Plan	YES	YES	- -	YES
Integrate Travel demand mgmt. into local planning & zoning	YES	YES	YES	YES
Devise & Disseminate Public Education & Showcase Studies	YES	YES	YES	YES
Invest in & Employ Information Technologies	YES	YES	YES	Devised Internet mapping tool
Employ Transfer Development Rights	YES	N.A.	N.A.	Unlikely to have impact
Strengthen Regional Solutions	Resurrect County-Municipal Partnership Act and TED's	N.A.	Strengthen regional corridors & nodes	YES explore TED's and county role expansion
Employ Phased-growth Ordinances & Impact Fees	YES	YES	N.A.	Unlikely to have impact on Exit 8A
Extend Hours of Operations to optimize efficiencies	YES	YES	YES	YES
Provide Incentives to Truckers for Increased NJ Turnpike Use	YES	YES	YES	YES
Support Specific Roadway Improvements especially Strategic Links	YES	YES	YES	YES - specific recommendations
Experiment with Truck-only Lanes & Preferred Truck Routes	YES	YES	YES	YES
Invest in Freight Rail and Barges	YES	YES	YES	FREIGHT RAIL
Provide Incentives for increased Public Transit Use & Park-and-Rides	YES	YES	YES	YES
Invest in Brownfields Clean-ups & Redevelopment	YES	YES	YES	YES, but expected limited impact

Three Competing Perspectives

From this history and drawing from this study, at least three competing perspectives emerge:

1. Statewide Public Sector Perspective

2. Local Government Views

3. Private Sector Outlook

The challenge of this study is to collect the important information, and then clarify and synthesize these different perspectives so as to lead to a set of significant policy and project recommendations.

Statewide Public Sector Perspective

The Statewide Public Sector perspective was gleaned from meetings and interviews with representatives of the NJ DOT, the North Jersey Transportation Authority (NJTPA), New York/New Jersey Port Authority (NY/NJPA) and from published sources. The evolving consensus forming this perspective calls for a more systems-based, multi-modal agenda involving regional coordination and public-private partnerships rather than the balkanized approaches of the past. (Robins, M.E., Strauss-Wieder, A.: January 2006) This perspective may be summarized in terms of the following major points:

A. ***Competing on the Global Stage*** -- To compete on the global stage, New Jersey needs to be an efficient component of the global economy. Historically, New Jersey has played a significant logistics role, with the state serving as the third largest commercial industrial warehouse center in the nation, trailing only Los Angeles and Chicago. However, it is currently facing significant challenges. Efficient supply chain management practices place enormous demands on transportation systems. "Just-in-time" inventory controls in both manufacturing and retailing lead to large increases in the volume of truck shipments and deliveries. Recent dramatic growth in transportation-dependent warehousing/distribution functions is connected to the recent resurgence in ship traffic to New Jersey's ports. (Hughes, J.W., Seneca, J.J.: April 2005) (Levinson, M.:2006)

   A harsh corporate discipline of cost minimization results from global competition that has developed and is likely to be projected into the foreseeable future. Comprehensive logistical systems are critical to this cost discipline. Information technology makes it possible to specify optimum daily inventory levels in both the production and consumption sides of markets through strict cost efficiency criteria. Yet the adjustment of those inventories frequently leads to many more deliveries of smaller quantities of product on a more frequent basis than was the case previously. Cost-efficient internet shopping, both consumer- and business-related, adds to this volume. (Hughes, J.W., Seneca, J.J.: April 2005)

B. ***Meeting the Landside Challenges*** -- While the challenges facing the New York/New Jersey Port are significant, New Jersey poses significant landside challenges to future growth at its port and air terminals. Both road and rail infrastructure tend to be heavily congested, especially during peak travel hours. The main roadways in proximity to the Port and Newark Liberty International Airport pose a significant challenge. Accordingly, a consortium of Federal, state and regional agencies, along with numerous public interest groups under the acronym of "CPIP" for "Comprehensive Port Improvement Program," has been studying landside needs and the feasibility of continuing port growth.

This group is exploring the possibility of establishing peripheral terminals immediately outside the region to handle its growing cargo manifest. These terminals are commonly referred to as the "Port Inland Distribution Network" (PIDN). A separate effort in the State of New Jersey is one to strengthen and coordinate transportation plans to support port growth in the area under the aegis of the "International Inter-modal Transportation Corridor," an advanced industrial and distribution corridor stretching from the George Washington Bridge (I-80/195) in the north through central Jersey. A transportation information center has been established at the New Jersey Institute of Technology (NJIT). (NJTPA/NJIT: January 2003)

U.S. Senator Robert Menendez has also identified the importance of the "Liberty Corridor" and presented a strategy for port-related improvements under his aegis. Although the details remain to be completed, the notion of the "Liberty Corridor" is that it will provide an economic engine benefiting all of New Jersey whereby research and development, manufacturing, warehousing and export facilities will co-exist along a single corridor to provide resources and incentives needed to take products from idea to market. An amount in excess of $100 million has reportedly been set aside for these purposes as part of the latest Federal Transportation Act. (Draft "N.J. Comprehensive Statewide Freight Plan," Page 4-7; "The Liberty Corridor: An International Inter-modal Transportation Corridor" as proposed by U.S. Congressman Robert Menendez: 2004)

The State of New Jersey also committed itself to a series of infrastructure improvements collectively designated the "Portway" project. The project is focused on a 17-mile, semi-dedicated trucking corridor that is intended to provide more efficient goods movement between key port, airport and inter-modal rail terminals. It will be further enhanced by other Federal and State funded projects to improve the Route 1&9 corridor, roadway improvements proposed by Union County just south of the Port area and major railroad investments contemplated in the state by CSX and NS railroads.

Finally, discussion has also commenced about what the appropriate mix might be between the amounts of goods that move by truck as opposed to

goods movement by rail. It is reported that approximately 90% of the current cargo volume leaves Port Newark/Port Elizabeth by truck, and only 10% or less by rail. Other ports currently competing with Port Newark/Port Elizabeth have a more robust mix that includes a higher percentage of rail. Arguments are currently being advanced to increase the rail percentage mix, acknowledging that increased movement by rail will require considerable public investment and subsidy and likely public resistance in the near term.

C. ***Brownfields Clean-ups*** -- Further augmenting these improvements have been decisions to promote the redevelopment of brownfields sites in close proximity to Port Newark/Port Elizabeth and Newark's Liberty International Airport. While it is acknowledged that there may be significant environmental hurdles to redeveloping these sites, they offer location advantages to shippers and importers. This view suggests that within the urban environment of the port district, thousands of acres of former industrial sites are available to build a network of warehouses and distribution centers. It is also expected that redevelopment of these currently contaminated sites, either in the port district or within an easy ride from it, will allow New Jersey to derive greater economic benefits from rapidly rising international trade flowing through its terminals. (NJTPA/NJIT: 2003)

D. ***NJ DOT Paradigm Shift*** -- NJDOT is in the process of undergoing a major paradigm shift in its outlook. No longer does NJDOT expect to keep pace with travel demand through new road construction and existing roadway capacity expansion. Instead, it is seeking to manage demand through a variety of means, including more collaborative approaches with local jurisdictions with an emphasis on "smart growth" and efforts to influence the improvement of local land-use decision-making. NJDOT has promoted this new approach, in part, under the heading of "Smart Choices/NJFIT, which translates as New Jersey's Future in Transportation. This paradigm shift is hardly a fad as it is driven by harsh fiscal realities. NJDOT is simply incapable of keeping up fiscally with the demands for road construction and capacity enhancements. Encouraging local authorities to more closely examine and review their local land-use practices make good sense from the State's perspective when confronted by such harsh realities.

Local Government Views

The local government perspective was drawn from individual and group interviews with representatives of municipal governments throughout the Exit 8A Study Area; informal conversations with county planning officials throughout the duration of this study; and the nine Exit 8A Working Group forums held between December 2005 and December 2006 throughout the region in which counties, municipalities and private sector stakeholders participated on a regular basis. These meetings were attended regularly by approximately two dozen participants with most of the municipalities and the two counties represented at each of the nine forums.

The local perspective revealed a relatively diverse, yet bounded set of views. In some ways, the range is defined along a historic-geographic continuum with East Brunswick in Middlesex County located at its northern end and Washington Township in Mercer County located at its southern end. Jamesburg chose not to participate in the process, most likely a result of its small size and limited staff. East Windsor Township commented on forum summaries and a preliminary draft of this report, but did not participate in the forums.

THE BOOKENDS -- East Brunswick & Washington Township

East Brunswick, Middlesex County

East Brunswick reported that it is primarily oriented towards New Jersey Turnpike Exit 9 rather than Exit 8A. However, it was affected and concerned about traffic congestion on the New Jersey Turnpike that might affect East Brunswick's local roads. Its more critical concern, however, remained traffic back-ups at the New Jersey Turnpike Exit 9 toll entrance and the public safety hazards that might result from back-ups onto Route 18.

In addition, East Brunswick's active participation in this study provided valuable historic insights into warehouse and distribution center development in this part of Middlesex County. Its warehouse and distribution centers were for the most part constructed in the 1970's. They are now viewed by the industry as dated and in some cases obsolete when compared to newer, more modern, larger and heavily automated structures. The East Brunswick facilities have undergone two to three generations of re-use, currently providing space for light industry – computer repair, auto body detailing, limited recreational uses, e.g., racquet ball and/or more traditional warehouse functions, e.g., government records storage.

The Township has been successful in segregating its warehouse and distribution center functions from its residential areas. It has also been less dependent on these uses for raising tax revenues, as the Township relies on its Route 18 commercial strip development to offset the costs attendant to its residential development. The East Brunswick warehouse and distribution center locations are currently built-out. The East Brunswick case provides a warning to municipalities that have undergone more recent warehouse and distribution center development, pointing to the highly dynamic nature of the logistics industry and the importance of planning for the "recycling" and "adaptive reuse" of warehouses and distribution centers as they turned "obsolete" in less time than what might have been first expected. These warehouses may be subject to future redevelopment and modernization.

Figure 7 (Map 2): East Brunswick Twp., NJ

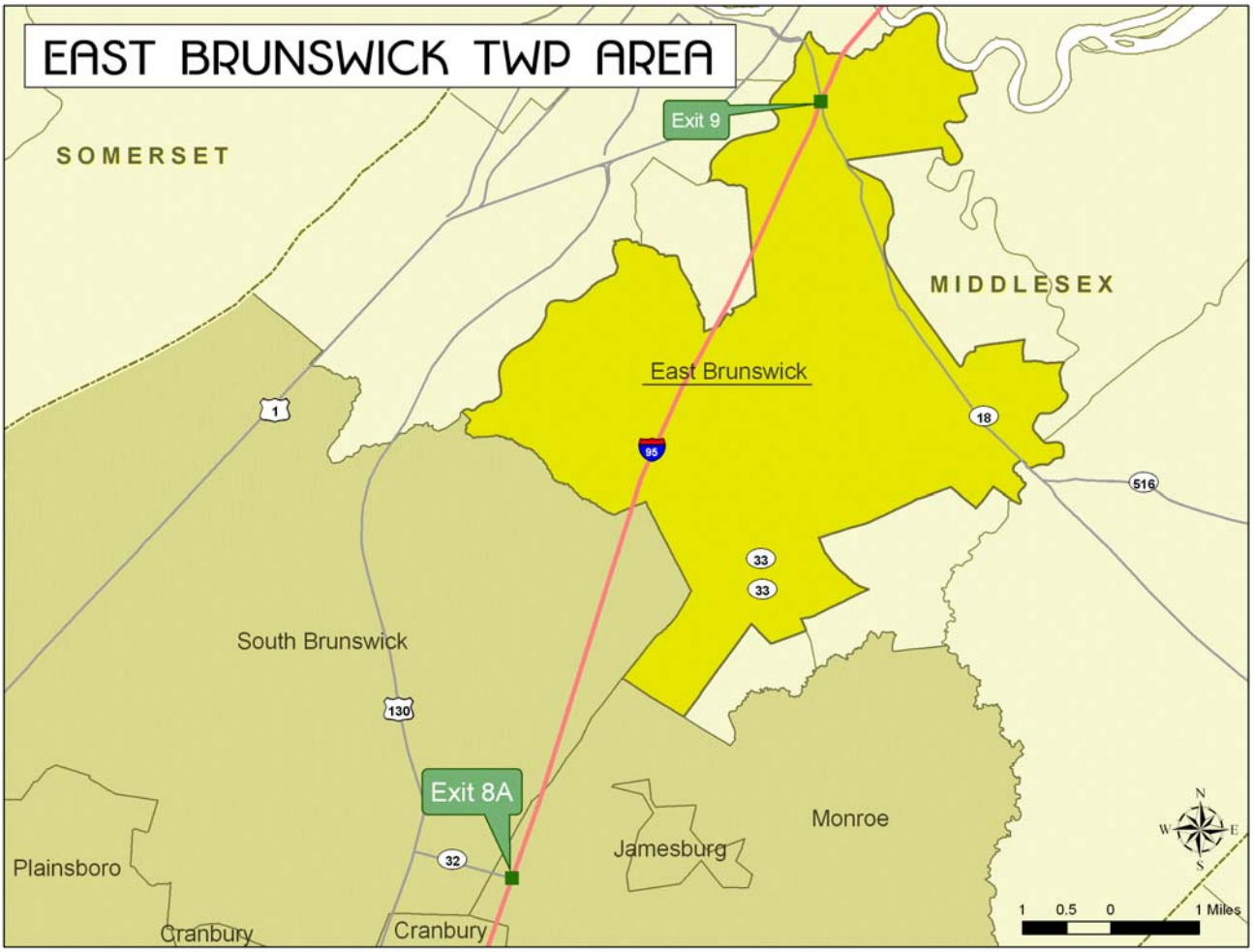


Figure 8 (Photo 3): East Brunswick Warehouse

Source: www.loopnet.com

Washington Township, Mercer County

Washington Township, at the southern end of the Study Area, has not yet fully confronted concerns that will likely arise from its warehouse and distribution center development. As East Brunswick tended to look north to New Jersey Turnpike Exit 9, Washington Township reports that it is primarily oriented and most concerned about what transpires to its south at New Jersey Turnpike Exit 7A, where the New Jersey Turnpike and Interstate 195 intersect. Until recently, Washington Township was preoccupied with its suburban subdivision development, its aggressive efforts to preserve significant amounts of open space and the development of its neo-traditional town center.

Washington Township's population has grown significantly and its community character has been transformed dramatically over the past two decades. From 1980 to 2004 its population has approximately quadrupled, and all that was prior to the more recent development of its town center. Looking ahead, Washington Township expects that commercial development will be given a higher priority than it has in the past as the need to attract tax ratables to offset fiscal pressures from significant residential development and school costs have increased.

Nevertheless, Washington Township has already ventured into the world of warehouse and distribution centers development. It designated two districts that are zoned for truck warehousing: The Office Warehouse (OW) District is located along the northern stretch of Route #130, and the Planned Commercial Development (PCD) district is adjacent to Exit 7A on the New Jersey Turnpike. Each seems ideally situated for this use.

Today, there are reportedly thirteen distribution center structures in Washington Township, representing approximately five million square feet of distribution center space. An additional five distribution centers are under construction, amounting to 3 million square feet of additional space devoted to this use. Furthermore, Washington Township reports that another approximately 3.4 million square feet of distribution centers space has been proposed and is awaiting approval.

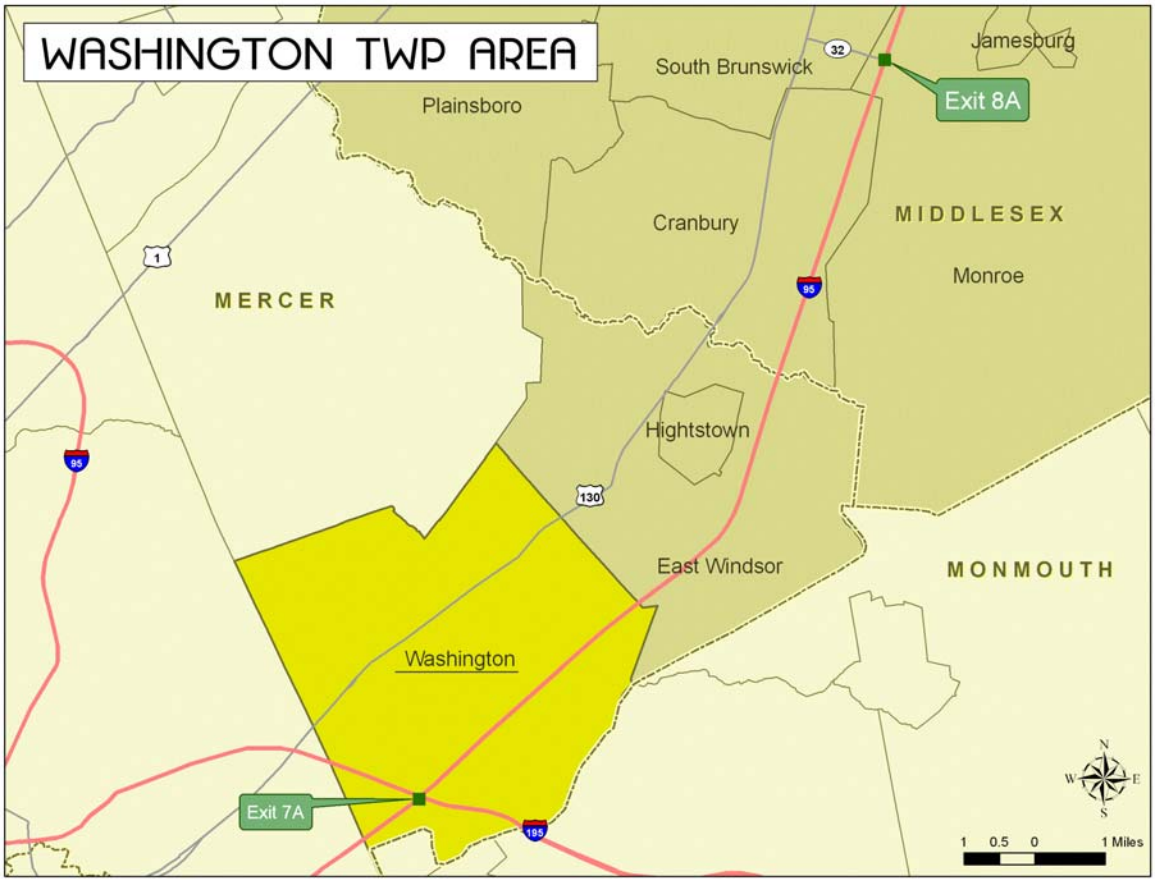
These facilities are being concentrated near New Jersey Turnpike 7A interchange in proximity to where that road intersects with Interstate 195. This location provides those facilities with convenient access to the interstate highway system and also separates these uses from Washington Township's residential development.

While Washington Township takes pride in its planning efforts to date, it is concerned that it will be adversely affected by increased traffic congestion on Route 130 as a result of its recent growth in warehouses and distribution centers development. Washington Township representatives expected limited, if any, future development along its Route 130 strip, which is constrained by an existing rail right-of-way and wetlands. Plans to widen the New Jersey Turnpike throughout the region are expected to eventually mitigate the Route 130 traffic congestion concerns as well. However, the impacts of the widening are still unknown, especially during the construction phase.

The PCD district consists of approximately 750 acres of developable land. It is intended to be a hub for warehousing and distribution center development in the foreseeable future. It is rapidly approaching build-out. Washington Township's neighbors to the south and east of Exit 7A have raised concerns about the overspill effects of that development on their communities. Washington Township believes that it is addressing their concerns.

In a follow-up interview, the Washington Township Business Administrator pointed to the lack of public transit to the area which was exacerbating labor shortages for the distribution centers. Mercer County reported that it was working on a shuttle van plan to address the issue. The Washington Township official urged greater NJ Transit involvement to solve this problem.

Figure 9 (Map 3): Washington Twp., NJ



The Core –South Brunswick, Monroe, Jamesburg, and Cranbury in Middlesex County

South Brunswick, Middlesex County

South Brunswick is located in southern Middlesex County. It is the location of New Jersey Turnpike Exit 8A and therefore at the center of this Study Area. The Township is a large, sprawling one comprised of 41 square miles. Between 1990 and 2000 its population increased by more than 46% from 25,792 to 37,734 people. According to its Master Plan, which was last updated in 2001, approximately 15% of its land area is industrial, while more than twice that amount is zoned as agricultural. The New Jersey Turnpike cuts through the eastern edge of the Township and is a major truck corridor. Route 130 also runs north-south through South Brunswick, closer to the center of the Township. The Township's industrial zones are predominantly located in its eastern portions in proximity to the New Jersey Turnpike and Route 130.

At the outset of this study, the South Brunswick planner reported that development in South Brunswick had been trending away from industrial and more toward residential and commercial development. In fact, residential development increased by over 42% between 1994 and 2001. By 2006, municipal officials foresaw only limited opportunities for major additional residential development other than modest infill projects for the future. However, in checking back with the South Brunswick planner at the time that this study was going to conclude, he indicated that there had been a significant and sudden surge in warehouse and distribution center development over the past six months. Despite growing resident resistance to additional warehouse and distribution center development, a significant number of applications had been received. A few older industrial properties have been vacated with hopes for redevelopment in the near future – the Brunswick Rubber and Occidental Petroleum sites.

In addition to those two sites, the Township estimated its potential warehouse and distribution center space for its Council on Affordable Housing (COAH) Fair Housing Certification in 2004. At that time, it estimated that it had approximately 15 million square feet of potential warehouse and distribution center space. The South Brunswick planner reported that approximately 5 million square feet of warehouse and distribution center space was approved between 2004 and 2006, leaving just under 10 million square feet remaining. However, he most recently reported that South Brunswick has just received applications for approximately 2-3 million additional square feet, which if approved, would leave approximately 7-8 million square feet remaining as of the spring 2007. (See Appendix – South Brunswick)

South Brunswick representatives also pointed to the Township's struggle with truck traffic concerns and the ways that those concerns may impair municipal residents' quality of life. Concerns were raised about truck drivers becoming lost and mistakenly wandering into residential neighborhoods. The municipality lacks authority to restrict truck traffic on state or county roadways. The 2001 Master Plan proposed designating preferred truck routes and improvements to those roads in conjunction with truck traffic restrictions on local roads with heavy residential development. Through Exit 8A forums, local representatives reported on the need to be sensitive to incumbent residents' concerns. South Brunswick police officers in attendance underscored the difficulties

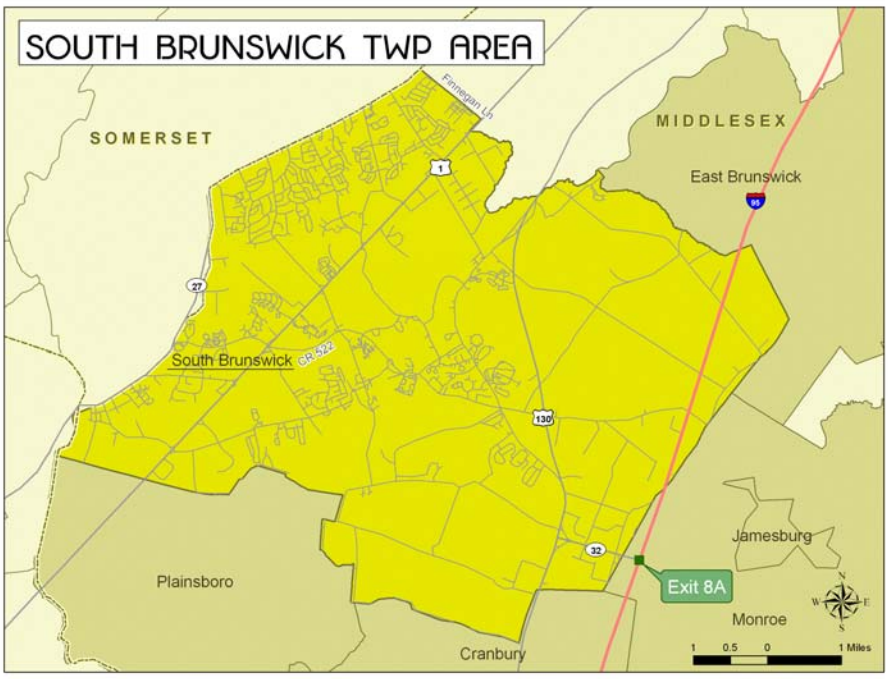
posed by the lack of consistency with respect to ordinances and their enforcement across municipal boundaries.

South Brunswick police officers raised concerns about the van transportation for laborers into the area and the threats to public safety posed by informal van shuttle arrangements. Middlesex County responded to this concern by indicating that it was working with "Keep Middlesex Moving," the county's transportation management agency (TMA) to continue to expand shuttle options as a way of getting residents and workers to and from major transportation hubs and employment centers. Federal funding was approved for the planning and implementation of a shuttle operation during the winter 2006.

Other South Brunswick Township representatives called for improved signage and truck routing mechanisms including the use of information technology and generally more effective public education and outreach targeted to carriers and their truck drivers. While a preferred truck route has not yet been officially designated, South Brunswick reports that it has posted over 50 informational signs guiding trucks over the best routes to reach local destinations. South Brunswick officials also pointed positively to the potential for restoring rail freight with respect to some of the warehouse and distribution center facilities in the Township.

In part, to address these concerns, South Brunswick has proposed major roadway expansions including those that will improve east-west travel in the area between Route 1 and the New Jersey Turnpike including the following: Finnegans Lane extension between Routes 27 and 130; and an extension of County Route 522 to link Route 27 and the New Jersey Turnpike area. Despite its search for multiple ways to ease east-west traffic congestion in the area, South Brunswick has been historically opposed to the construction of Route 92 along its proposed alignment, which would have cut through the Township.

Figure 10 (Map 4): South Brunswick Twp., NJ



Monroe Township, Middlesex County

Monroe Township is located in southern Middlesex County, immediately adjacent to South Brunswick and immediately adjacent to New Jersey Turnpike Exit 8A. It, too, is a large sprawling community comprised of 41.8 square miles and characterized by its mix of residential, commercial, industrial and shrinking agricultural uses. In 2000, it had a population of 27,999 people, up from 22,255 people just 10 years earlier.

Mainly as a result of history and poor timing, Monroe appears to suffer more from land-use conflicts between residential developments and more recently constructed warehouses and distribution centers, than its neighbors. The Township contains a mix of development types that includes suburban subdivisions and village-like, age-restricted communities along with commercial, industrial/warehouse and environmentally sensitive areas. The age-restricted villages were built in the 1970's with industrial/warehouse facilities constructed in the last decade. Trucks exiting and entering the New Jersey Turnpike at Exit 8A often travel past these developments on their way to making deliveries or pick-ups, often on county roads.

Monroe Township is served by several major state and county highways. State Route 33 and County Route 612, both four lanes wide, are the two largest arterial roadways in the Township. The New Jersey Turnpike cuts through the eastern edge of the Township and is a major truck corridor. New Jersey Turnpike Exit 8A is located at its border with South Brunswick. Route 130, which runs north-south through the middle of Monroe Township, is also a major regional corridor and carries heavy truck traffic, especially when back-ups are experienced on the New Jersey Turnpike.

Increased resistance to additional warehouses and distribution centers is leading Monroe Township to trend more towards residential and alternative commercial development. Consequently, municipal officials consider Monroe Township largely built-out with respect to any future industrial development.

The one exception pointed to by Monroe Township representatives is a one thousand-acre site along Route 33 near the Township's southern border. As infrastructure was extended eastward along that highway, the area has become ripe for development. A concept plan calls for mixed-use -- residential, commercial/retail, a park-and-ride, a minor league baseball stadium, warehouse and distribution center space at that site. For the remainder of the Township, local officials anticipate only small-scale development projects. Municipal officials also pointed to preliminary plans for the designation of a conservation area that would comprise a substantial amount of the municipality's total land area.

Nevertheless, Monroe Township officials voiced an ongoing wariness in light of recent prior experiences with warehouses and distribution centers. Often cited was the situation at the Costco facility, which was described as operating more like a "terminal" than a warehouse or distribution center, with rapid inventory turnover generating perhaps as many as three times the number of truck trips anticipated. With respect to that facility, carriers are apparently often given a tight timeframe during which they must make their drop-offs and pick-ups. If that timeframe is missed, which may occur frequently due to

traffic congestion delays throughout the region, truck drivers may park, or worse, idle alongside the road on shoulders. This situation is a symptom of the lack of truck services in the immediate vicinity.

In addition, Monroe Township officials participating in the Exit 8A Study Area forums were sensitive to the dynamic nature of the logistics industry, noting that not only were structures growing in size, becoming fully automated and adding bays, but the demands of "just-in-time" inventories and internet shopping were combining to increase truck trips each day associated with each square foot of warehouse and distribution center space. The political volatility of this situation is heightened in Monroe Township by the significant number of politically aware and actively involved senior citizen residents living in age-restricted villages in close proximity to the warehouses and distribution centers.

Although the Monroe Township data set remains incomplete, similar to South Brunswick, the changing political climate within Monroe Township will likely militate against future development of warehouses and distribution centers. Township officials reported that it was in the process of upgrading and updating its parcel and tax maps. At the time of this study, neither was integrated and information was difficult to obtain. Information technology issues were underscored as a major concern.

Nevertheless, data obtained from Monroe Township's planning consultant identified nearly 30 major projects developed in the past decade including at least one, Costco, at more than 1.2 million square feet. Monroe Township's engineer estimated that the unconstrained available developable land on its southern border along Route 33 to be approximately 644 acres or 9.8 million square feet, a small portion of which would likely be additional warehouse and distribution center space once decisions were made about the nature of its development. In addition, the Township engineer estimated that existing building expansions currently taking place in and around Exit 8A amounted to one million square feet, believed that there was approximately 11 million square feet remaining to be developed in Monroe Township. (See Appendix – Monroe Township).

Monroe Township representatives acknowledged an improved situation that resulted from recent improvements at the Exit 8A interchange. Nevertheless, at the Exit 8A Study Area forums and in individual interviews, a number of Monroe Township representatives made recommendations, including the following:

1. Upgrade the Township's information technology capacity;

2. Employ the Exit 8A Study Area Internet Mapping Tool to better coordinate planning with neighboring jurisdictions, especially Cranbury and South Brunswick;

3. Conduct a follow-up traffic study that will yield an assessment of trip-generation/acre;

4. Complete the protection of the conservation areas;

5. Adopt appropriate storm water regulations related to drainage concerns with respect to future large-scale development;

6. Devise alternative development scenarios for the Route 33 site, carefully taking into account likely traffic impacts along with the inclusion of a park-and-ride facility on that site;

7. Press the New Jersey Turnpike Authority to create an Exit 8B to reduce the pressure on Monroe Township and Hightstown Borough that will be caused by future Route 33 development;

8. Address the need for adequate truck stop services within the immediate Exit 8A Study Area vicinity;

9. Draw a valuable lesson learned in comparing Cranbury to Monroe experiences – work with, rather than fight with the existing geography and road network;

10. Complete roadway extensions as indicated in the latest version of Monroe Township Master Plan, which was completed in 2003 and included as part of its circulation element extensions of three roadways--Spotswood/Gravel Hill Road, Schoolhouse Road and Federal Road, and the re-alignment of Wykoffs Mills-Applegarth Road along with an addition of service roads parallel to Route 33.

Figure 11 (Map 5): Monroe Twp., NJ and Jamesburg Borough, NJ

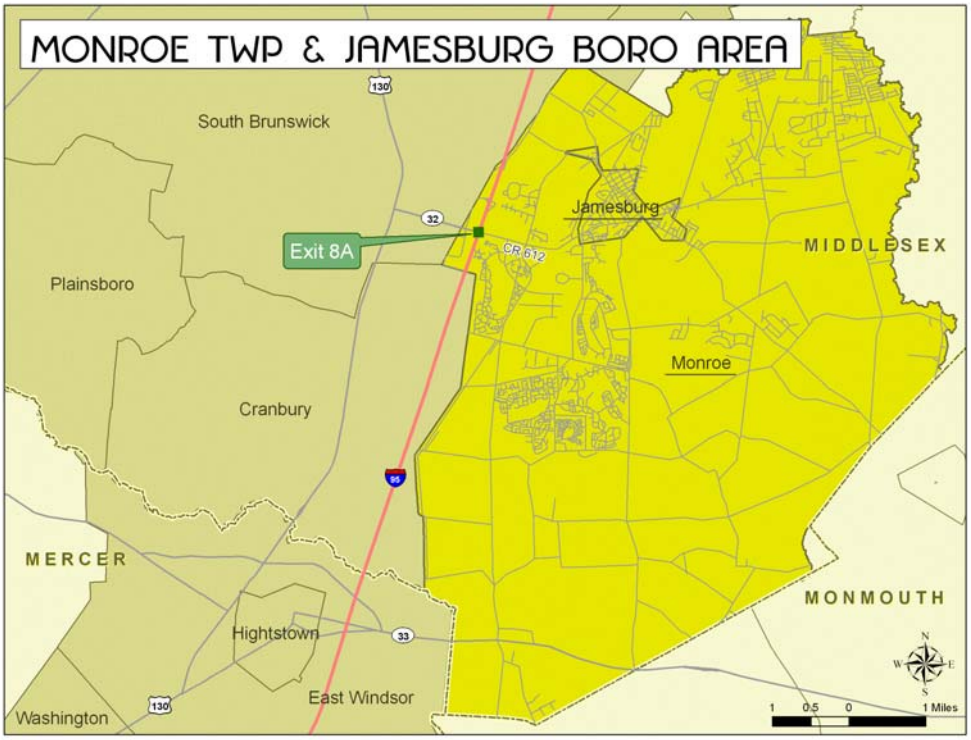
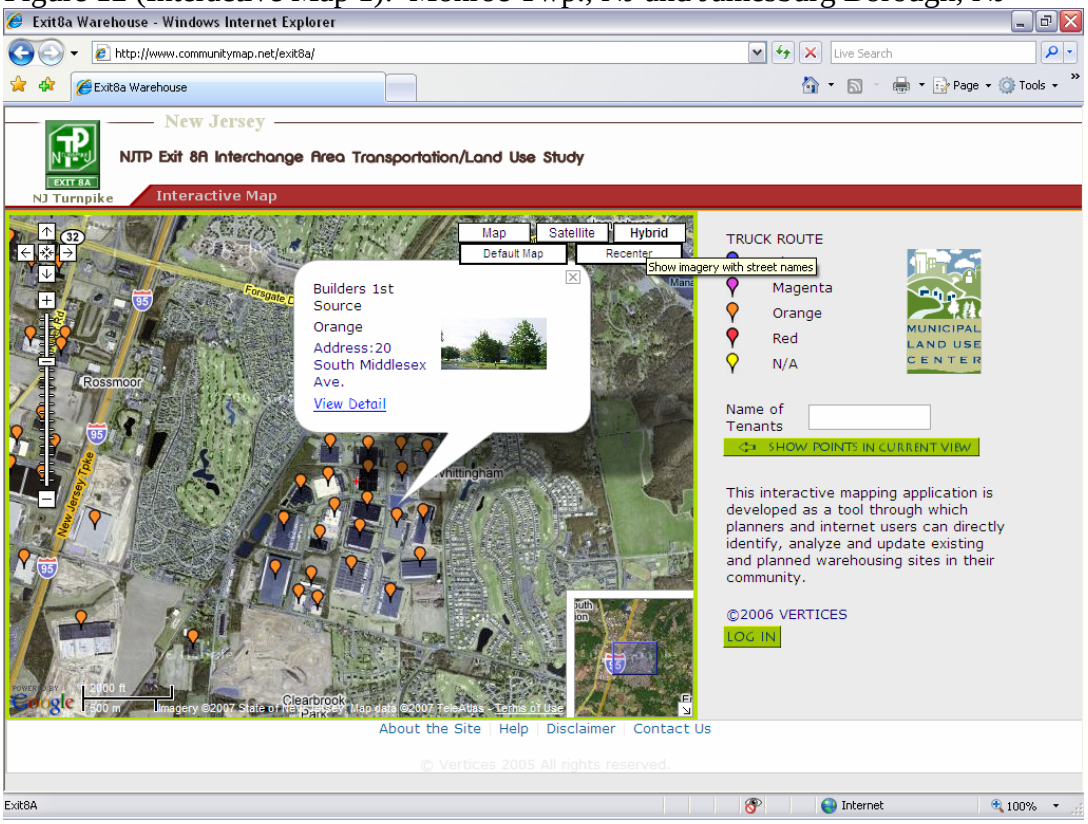


Figure 12 (Interactive Map 1): Monroe Twp., NJ and Jamesburg Borough, NJ



Jamesburg Borough, Middlesex County

Jamesburg is approximately one-mile square, completely surrounded by Monroe Township. Settled in the 1700's, at one time it provided a compact town center, completely surrounded by a productive agricultural community. Today, farming in adjacent areas is gone, but Jamesburg remains as a compact, nearly fully built-out municipality, the hole in Monroe's donut. It contained 6,391 people in 2002, a significant increase over prior decades. Indeed, an estimated 95% of its land area is developed, with the remaining land devoted to parkland or not developable because of wetlands and flood hazards. Its future is connected to redevelopment and selected infill.

In light of Jamesburg's built-out character, its small downtown and neighborhood business areas, along with its pre-World War II gridiron street pattern east of its rail line and a post-World War II residential development pattern west of it, there is little way for Jamesburg to capture the benefits of warehouses and distribution centers. Yet, the traffic generated by such facilities at times passes through Jamesburg on its way through Monroe. In this way, Jamesburg is more similar to the next category of municipalities that tends to incur the costs of this type of development without reaping many of the benefits.

Cranbury Township, Middlesex County

Cranbury Township is located in southern Middlesex County. The Township occupies 13.4 square miles near New Jersey Turnpike Exit 8A. The Township is currently a mix of an 18th century historic village, suburban residential development in proximity to the village, preserved farmland and industrial warehouse and distribution center uses. According to the 2000 United States Census, it had just 3,227 people, up from 2,500 people a decade earlier. In addition to the New Jersey Turnpike, it is served by several major state and county roads, including Route 130, and Middlesex County roads 535, 539, 614 and 615.

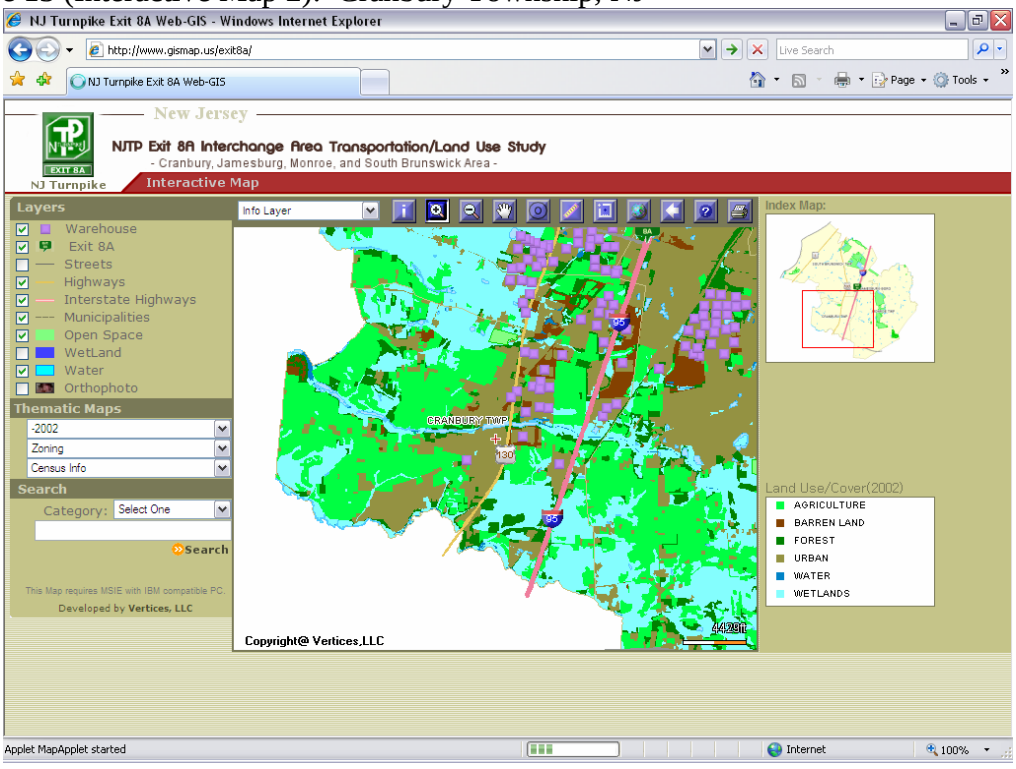
Over the past decade and a half, Cranbury planners have taken advantage of both their history and geography. The Cranbury Township Master Plan was last updated in 1993 with an update to its circulation element also in that year. The Master Plan has recently undergone a re-examination in November 2005. Its Land Use element was revised earlier in 1996 to allow for warehousing and distribution centers. In 2000, a new farmland preservation and recreational plan was adopted. Township representatives contend that most of its Master Plan goals have been realized since the adoption of the Master Plan in 1993. The Master Plan has been adhered to and implemented by the municipal zoning ordinance and by the ability of the Township to raise considerable revenue from both State and local sources to preserve a considerable amount of its farmland. In fact, revenue generated by its warehouses and distribution centers were deliberately employed to purchase a significant amount of farmland. Simultaneously, the Township has successfully separated the very walkable residential and commercial uses that comprise Cranbury Village, along with other residential uses, from its warehouse and distribution center developments. The warehouse and distribution centers are concentrated within a strip that is bound by the New Jersey Turnpike on the east and Route 130 on the west.

Municipal officials take pride in the way the Master Plan has been devised and implemented along with what has been produced on the ground.

Today, those same officials contend that Cranbury is close to build-out. Cranbury plans to re-write its Master Plan in the near future. Data provided by the municipality and compared with an analysis done by the Regional Planning Partnership (RPP) in 1996 indicate that over the past 10 years, Cranbury has developed 10,484,315 square feet of industrial/warehouse space of the 12,722,970 square feet then anticipated as available. That leaves a remainder of 2,238,655 square feet, a substantial portion of which, according to local officials, is already in the Cranbury planning pipeline. A relatively minor exception may be that along the Route 130 corridor, Cranbury has a small number of under-utilized properties that may undergo more intensive development/redevelopment in the foreseeable future. Mixed-use development is likely to develop in that area with little or no additional land available for warehouse or distribution center use in the foreseeable future.

Nevertheless, municipal officials note that challenges remain. Although Cranbury has planned carefully to buffer its warehouses and distribution centers with what appears to be considerable success, officials are concerned that too much regional truck traffic finds its way into its village. East-west traffic also remains an issue as trucks seek to get from either the New Jersey Turnpike Exit 8A or Route 130 to the west and Route 1. There are fears that weight restrictions and preferred truck routes established by surrounding communities may lead to Cranbury's disadvantage since it has not weight-restricted its roads. Cranbury has urged a cooperative regional resolution of this concern.

Figure 13 (Interactive Map 2): Cranbury Township, NJ



East Windsor & Hightstown in Mercer County & Plainsboro in Middlesex County: Feeling the Pain, but Reaping Few Benefits

Plainsboro Township

Plainsboro is a predominantly suburban municipality comprised of 11.838 square miles with a population of 20,215 people, according to the 2000 United States Census. According to the Mayor, the Township will likely reach its maximum population of approximately 23,000 people in the near future. The Township is divided by the AmTrak Northeast Corridor. East of the rail line is largely residential. West of the rail line are its office and research complexes. Among them are the Princeton Forrestal Center and substantial parcels owned by Princeton University.

Plainsboro takes considerable pride in its planning efforts. It has made a commitment to sound planning, which includes attaining State Plan endorsement, meeting its affordable housing obligations and making a strong commitment to the preservation of open space. Approximately one-half of the Township's land area has been preserved either through farmland preservation or Green Acres. The Plainsboro Preserve is managed through a contract with the Audubon Society. Substantial amounts of open space have also been preserved by commercial developers, such as the Forrestal Center.

The Plainsboro Master Plan was updated approximately three years ago. The Township has attained most of its master planning goals. It considers itself nearly built-out in terms of residential units. It does expect additional office space development along Route 1, which may amount to as much as an additional 7 million square feet of office space and an additional 13,000 more jobs on top of the approximately 17,000 jobs that exist currently in Plainsboro.

A current Plainsboro preoccupation is the completion of its village center, designed to provide Plainsboro with a mixed-use, pedestrian-friendly town center. The village center has a population of approximately 2,209 people, according to the 2000 United States Census. It is unincorporated, but designated as an area within Plainsboro Township.

The Mayor maintains that Plainsboro has little or no interest in future warehouse or distribution center development. However, the overspill truck traffic from those facilities from neighboring municipalities, mainly to its east, is a major concern. The Plainsboro Mayor believes that there should be a concerted effort to address obvious traffic needs, the primary one emanating from New Jersey Turnpike Exit 8A and exiting truck traffic making its way west, often along Dey Road through Plainsboro in search of Route 1. He pointed to the amount of attention paid to north-south movement on Route 1 with relatively less effort expended to address east-west traffic movement, which is what primarily plagues Plainsboro. This situation is likely to be exacerbated by the Princeton University Medical Center's recent announcement that it plans to relocate from Princeton Borough to a 160-acre location in Plainsboro Township.

The Mayor believes that the best remedy and most effective source of traffic relief from Plainsboro's perspective would have been the construction of Route 92. Construction of

this road, according to the Mayor, would have greatly reduced traffic congestion currently experienced on Dey Road. He adamantly asserted that "No combination of local improvements can equal its beneficial impact, not the widening of Dey Road, nor the expansion of County Road 522." He characterized the State's decision to not build Route 92 as a "failure to perform as a reliable partner."

In addition to the high priority the Plainsboro Mayor placed on the construction of Route 92, he presented a list of project recommendations that he believed would improve regional traffic flow and especially mitigate the traffic situation in Plainsboro Township. These recommendations included the following:

1. Route 1 widening through South Brunswick along with the improvement of selected intersections along Route 1 in South Brunswick;

2. Route 1 improvements in West Windsor and Lawrence in proximity to the Wyeth Property;

3. Expansion to the park-and-ride at Routes 130 and 32 in South Brunswick in proximity to the Exit 8A interchange;

4. Public transit for employees in warehouse and distribution centers throughout the Exit 8A interchange vicinity.

East Windsor, Mercer County

East Windsor is a growing suburban municipality in eastern Mercer County. It has experienced significant amounts of growth while also preserving substantial amounts of open space and farmland. It reflects a mix of residential, commercial, industrial and agricultural uses located in proximity to New Jersey Turnpike Exit 8. East Windsor had 22,353 residents, according to the 1990 United States Census. That number increased to 24,919 residents according to the 2000 United States Census. The Borough of Hightstown is entirely located within a small area at East Windsor's center – "the hole in the donut," and historically served as East Windsor's downtown.

East Windsor issued its last Master Plan update in 2002. Its revised zoning map is dated December 16, 2004. Under its Master Plan vision, East Windsor Township considers itself nearly built-out in terms of residential units. New Jersey Turnpike Exit 8 is an important interchange at Route 33. Twin Rivers, constructed in the 1970's with a population of approximately 10,000 residents, is located close to Exit 8 of the New Jersey Turnpike. Twin Rivers was New Jersey's first planned unit development (P.U.D.). The Route 133 by-pass road is relatively new and is reportedly useful in relieving traffic. Route 130 also runs north-south through the Township and is used as an alternative route to the New Jersey Turnpike by regional truck traffic. Route 130 is also developing as a commercial strip.

In communications received from the Township, East Windsor indicated that it expects to continue to experience commercial growth in retail, office and warehouse/distribution centers in the three major commercial areas of the Township. The Township's primary commercial goals are to grow an attractive "user-friendly" Route 130 corridor retail area, and to attract additional high-tech research and development companies, not warehousing or distribution centers, especially in the Route 571 corridor and Twin Rivers Business Park. The Route 130 corridor, the Township's main shopping district, remains the subject of robust retail activity. Enhancements such as median plantings and decorative pavers and sidewalks have been installed.

East Windsor Township has also experienced significant growth in corporate office, research and warehouse/distribution facilities in two other commercially zoned areas: 1) the Route 571 corporate office corridor, which includes the McGraw-Hill Companies' Office campus; and 2) the Twin Rivers Business Area south of Route 33. The latter has direct and convenient access to Exit 8 of the New Jersey Turnpike.

Additional industrial zones have been designated along a section of the Route 133 By-pass and near the southern border of Hightstown between County Road 533 and York Road. The East Windsor Mayor indicated that the Township is not interested in attracting warehouse or distribution center development. Instead, it has concentrated on approving attractive campus-type office development to bolster its tax revenue base. The Township's website promotes East Windsor as an office development hub and lists sites of various sizes that are available for lease and construction.

Traffic and transportation issues and the ways that they may affect the quality of life of East Windsor's residents are significant concerns according to the Mayor. East Windsor enjoys excellent access to the regional road network. The New Jersey Turnpike runs north and south through the Township east of Hightstown Borough. The Exit 8 interchange is located at Route 33. Other highways important to providing regional accessibility are Route 140, a four-lane divided highway running north and south through the Township and Route 33 and Route 133, which together with County Route 571, provide east – west access. County Route 571 provides direct access to U.S. Route 1.

Township officials noted that a major concern is the proposed widening of the New Jersey Turnpike between Exits 8A and 6 and the ways that the widening will affect truck traffic as it seeks alternative routes throughout the Township. Several county roads including 535, 539, 571 and 630 cross East Windsor along with Route 130 that runs parallel and to the west of the New Jersey Turnpike. The fear is that these roads will become congested during an anticipated lengthy period of New Jersey Turnpike road construction. This fear has been heightened with the judicial lifting of the previously imposed New Jersey truck ban. To in part address these concerns, a number of transit options have been launched. These initiatives include the East Windsor Community Bus, serving primarily seniors, the Princeton Junction Train Shuttle, operated by East Windsor and Hightstown, and the Route 130 Connection Shuttle, administered by Mercer County.

In communications received from the Mayor, several subjects of continuing concern to the Township were emphasized. These issues included the following:

1. Trucks traveling to the warehouses and distribution centers located around Exit 8A often use Route 130 as a toll-free and at times less congested alternative to the New Jersey Turnpike;

2. While East Windsor Township generally supports the proposed widening of the New Jersey Turnpike, the Township is concerned about the design of the relocated Exit 8 Interchange which may adversely affect local traffic circulation and nearby homes and businesses;

3. The inadequacy of local public transportation is a concern to East Windsor Township as residents often cannot get to jobs or shopping within the Township and the immediate region, or to the Princeton Junction Train Station.

Data on East Windsor warehouse/distribution center development over the past decade was requested from East Windsor Township to update the Regional Planning Partnership's (RPP) 1998 build-out analysis. Unfortunately, the RPP analysis did not include a warehouse/industrial category for East Windsor, so no baseline could be established. However, the post 1996 warehouse development figures have been provided by the Township indicating that a relatively modest level of industrial land development has taken place. This situation is consistent with the information provided by the Mayor and others interviewed about this situation.

Hightstown, Mercer County

Hightstown is located in central Mercer County, entirely surrounded by East Windsor Township. It is the proverbial "hole in the East Windsor donut." Its population is relatively small with just 5,200 residents. Hightstown reported no population growth between the 1990 and 2000 census. It is also relatively small in size, just 1.2 square miles in area. It contains a high-density mix of residential and commercial/retail uses.

The most significant roadway through Hightstown is Route 33. County roads also traverse the municipality including 539, 571, 633, 685. These county roads serve as local streets running through the town center. The Route 133 by-pass does not enter Hightstown, but serves an important purpose in re-routing regional circulation, and thereby relieving traffic congestion within Hightstown.

Hightstown does not possess significant amounts of vacant land. Two sites offer redevelopment potential – a former Minute Maid bottling plant; and an old mill site that formerly served as a manufacturing site for rugs and carpets. The Mayor expects these sites to be redeveloped as mixed use—housing and commercial/retail.

Hightstown's Mayor articulated a small town vision with Hightstown as a community that is walkable, friendly and historic. Its nemesis is traffic congestion that has grown worse with the proximity of warehouses and distribution centers in the surrounding municipalities. The Mayor estimates that Hightstown experiences approximately 20,000 automobiles and 700 large trucks passing through its town center each day. In addition to the wear and tear on local roads, he pointed to the way this situation detracts from the pedestrian-friendly image Hightstown seeks to promote, while also adding both noise and air pollution to Hightstown's otherwise attractive downtown, village-like environment.

The Hightstown Mayor also pointed to what he feels is the unfairness imposed by the property tax structure. Hightstown is required to absorb a portion of the cost created by the location of warehouses and distribution centers in its immediate vicinity as vehicles pass through Hightstown's town center, yet it receives no benefit. He contends that Hightstown is built-out except for the two redevelopment sites which he identified.

The Mayor's recommendations to address this situation include a regional solution to more equitably share the cost burdens as well as regional revenues. He also believes that closer cooperation with East Windsor, both in terms of shared services and in re-thinking the development taking place along Route 130 in East Windsor, is important to Hightstown achieving and building upon its vision as a friendly, walkable, historic town center.

Private Sector Outlook

The representatives of the logistics industry who attended the Exit 8A forums and agreed to be interviewed posed yet another perspective. Nine interviews were conducted with private sector stakeholders. These interviews were, for the most part, individual interviews conducted on-site in the offices of the interviewees. Two interviews were conducted over the telephone. One interview involved two representatives of the same company. (See Bibliography – Interviews) These interviews produced the results that follow.

A. Market logic led to Exit 8A development. Middlesex County in general and New Jersey Turnpike Exit 8A more specifically are major hubs for warehouse and distribution center space in New Jersey. As recently as 25 years ago there was approximately 15 million square feet of office space in the Exit 8A Study Area. Much of that space was owner-occupied by light or heavy industry. Today, there is more than 60 million square feet of warehouse and distribution space within 5 to 6 miles of New Jersey Turnpike Interchange Exit 8A. There is a roughly estimated 15 million square feet remaining of developable land to build, but much of that is already committed and in the pipeline. The area will likely build-out in the next 5-10 years. There is a logic to the development of the Exit 8A Study Area from the nature of its soils, its topography, its strategic location and market reach, the lack of soil contaminants, combined with global market demand and local government willingness to accept warehouses and distribution centers. Land is more expensive and development costs are higher closer to the port areas. It also takes longer to get building approvals in

North Jersey. Exit 8A works well from both market and truck traffic perspectives. These reasons need to be acknowledged. (Prologis) (Forsgate Industries) (Rockefeller Group) (Matrix)

B. ***No single solution will address all the issues raised by Exit 8A.*** A reasonable approach to addressing the issues raised by the Exit 8A Study Area requires a combination of remedies and the need to give up the search for a "silver bullet." None of the remedies taken individually is adequate. Instead, solutions need to be taken together, incrementally leading to multiple meaningful solutions. A multi-modal approach is necessary, employing truck, transit and rail freight. Congestion pricing on the New Jersey Turnpike ought to be used to provide incentives for truckers to travel in off-peak hours. Hours of operation ought to be extended at distribution centers so that truckers will take advantage of existing highway capacity during off-peak times.

All the trucks will never be eliminated as a substantial number of the trucks do not emanate from just the New Jersey port areas, but also come from the south and west to regional distribution centers. A need exists to capitalize on existing assets through improved coordination, regulation and operational changes. Extending hours of operation of warehouses and distribution centers is just one facet of what needs to be changed. New Jersey was characterized as "having too many moving parts, too many transportation agencies and local authorities." Coordination is very difficult and more than a full-time job. Yet it is the key to facilitating goods movement in this state. (N.Y. Shippers Association)

C. ***Macro changes in zoning will not work at Exit 8A***. It is simply too late for macro zoning changes to make a significant difference at New Jersey Turnpike Exit 8A. For example, it is difficult to understand how a transfer development rights (TDR) program could work at Exit 8A at this late date. The development pattern has been set for nearly 10 years. The different levels of government need to accept what is and acknowledge that the clock will not be rolled back. The land closest to the New Jersey Turnpike interchanges is already developed. Increased pressure to build warehouse and distribution centers is going to migrate further south on the New Jersey Turnpike and spread out at the more northern interchanges as they undergo significant redevelopment. Exit 8A is close to build-out, or will be completely built-out in the next 5-10 years. (Matrix; Cushman & Wakefield; Prologis; Forsgate Industries; Maher Terminals; Frank Greek and Sons, Inc.; N.Y. Shipping Association)

D. ***The logistics industry is a highly dynamic one.*** The warehouse industry no longer exists as it once did. The industry is no longer comprised of static, dusty storage facilities. Instead, the industry translates into different kinds of distribution centers. Their differences need to be taken into account as they lead to different transportation and traffic congestion impacts. Each type of

facility will generate different numbers of trips. Costco is more like a "terminal" where goods move in and out within an hour. Others do light assembly where the bulk is broken down and re-packaged. Inventories may originate from multiple sites throughout the world. The goods are often assembled with value added in New Jersey. Previous generations of warehouses were built to 24-26 feet high and involved a few hundred thousand square feet of warehouse space. Today's distribution centers are being built in excess of one million square feet and stand 36-40 feet high. Formerly there was little or no inventory control. Boxes came into a warehouse to sit. Eventually they would move. Today, computers with bar codes have made inventory controls a reality. (Matrix; Prologis).

On the opposite extreme from terminal-like distribution centers are older, now obsolete warehouses that store government records. They may average no trips per day. Yet increased truck traffic is a function of new distribution facilities that have greatly expanded in size and have added shipping and receiving bays. They are larger and taller. They hold greater volumes of inventory. They are automated. Their "through-put" has been greatly increased. Even in the absence of additional construction, these facilities may be generating increased truck traffic as the nature of the business changes. Shippers, in particular, voiced concern about the ability of increasing "cargo velocity" from port areas to the inland port; and whether New Jersey will remain competitive with its east coast rivals. (N.Y. Shipping Association)

This situation is astounding when compared with what the industry was like just 25 years ago. East Brunswick provides a good example of a location where warehouses are now obsolete. They were built in the 1970's. They are now being used for other functions – light industry and recreational uses -- racquet ball, auto body detailing, computer repair, government archives. The more modern, later generation warehouses are evident in Monroe, South Brunswick and Cranbury.

Clients seek bigger warehouses, both in terms of footprint and height. They expect additional parking spaces for trailers, which older warehouses lack. More clients are looking to own rather than lease because they expect to make substantial investments for improvements in these warehouses. It is still unclear in what ways these later generation warehouses and distribution centers will be "recycled" or adaptively reused. Some redevelopment might occur in the foreseeable future. The dynamic nature of this industry also suggests that even if the Study Area is built-out, additional truck traffic may be generated by rapidly changing technology. (Cushman & Wakefield; Frank Greek and Sons, Inc.; Matrix; Prologis)

Of special note, distribution center facilities that have high turnover of inventory, e.g., Costco, typically require higher exterior trailer storage

requirements than lower turnover distribution centers. Yet local governments do not always account for these differences. (Matrix)

E. ***Major institutional forces act as development drivers.*** Driving this industry are important institutional forces. Those forces include the pressures of a highly competitive global marketplace. Other factors include rapidly changing technology, both information technology and warehouse automation. This situation leads to more value per square foot. (Forsgate Industries) The question of financing is also important. A decade ago distribution centers were discovered by Real Estate Investment Trusts (REITS). A critical mass of investors now wants to invest in distribution centers, which they view as relatively low-risk investments. The financial markets are driving this type of development. (Forsgate Industries) These distribution centers represent a relatively low-risk, lucrative investment. They offer comparative investment advantages to office space because they are less costly to build and less risky as investment vehicles. (Cushman & Wakefield) Corporate Real Estate officers no longer make decisions about constructing distribution centers. Instead, these decisions are made by corporate chief financial officers looking at cost-efficiencies and the bottom-line. They are preoccupied with the velocity of the "through-put." (Cushman & Wakefield; Forsgate Industries; Matrix)

F. ***The private sector perspective favors a regional view, unconstrained by municipal boundaries and exceeding the New Jersey Turnpike Exit 8A Study Area.*** The view of the region from the private sector perspective is one that transcends the Exit 8A Study Area. It stretches north to Poughkeepsie, New York west to Allentown and Bethlehem, Pennsylvania cutting south to Harrisburg, Pennsylvania and then back east to south of Philadelphia, finally cutting north up the New Jersey Turnpike. (Maher Terminals) New Jersey Turnpike Exit 8A represents a relatively deep penetration into the core of the metropolitan region, perhaps the most affluent metropolitan region in the world. The New Jersey warehouse and distribution center market has grown dramatically in the past decade. It is now larger than either Atlanta or Dallas, placing it just behind Los Angeles and Chicago nationally. (Cushman & Wakefield) (Maher Terminals)

Examining the regional market in an over-simplistic way, analyses would likely reveal that rentals in the New Jersey Meadowlands are approximately $8/square foot; immediately around the Newark Airport they are $7/square foot; in Woodbridge, Edison and Carteret, warehouse space is $6/square foot; and between New Jersey Turnpike Exits 8A and 7A rentals are approximately $4-$5/square foot. Allentown, Pennsylvania rents for about a $1 less/square foot than Exit 8A. (Cushman& Wakefield) If New Jersey makes it more difficult to do warehousing and distribution, the goods will still get here. However, New Jersey will get the trucks, but lose the tax ratables. The

question is not whether the goods will get here, but rather how they get here. (Maher Terminals)

For these reasons, New Jersey's dominance in warehouse and distribution center activity cannot be taken for granted. It is being challenged by the availability of attractive, competitively-priced space at other locations beyond the state's borders.

According to private sector stakeholders, valid and urgent needs for regional planning and permit approval exist. The ideal posed by at least one private sector stakeholder would be to have a regional board granting approvals even if it were based on municipal zoning. The Meadowlands was suggested as a model. A worst case scenario would be to add another layer of bureaucracy at the regional level. (Prologis) Recognition of the difficulty of "thinking like a region" and engaging in a rational regional planning and permitting process was frequently voiced.

Thinking regionally requires a reframing of the issues on the part of local jurisdictions when the value of working across municipal borders is not always apparent or shared. Moreover, operating from a regional platform will take time, energy and other resources in a world in which all of those items come in short supply to the stakeholder participants. (McKinney, M., Essington, K.: January 2006)

Nevertheless, regional planning will be essential in identifying preferred truck routes; to improve coordination of hours of operation; to site truck services; and if rail freight is ever going to be re-activated to site and develop a rail freight staging area. An important first step is to create a forum for discussion that would lead to a draft "discussion agreement" whereby interested parties would begin to meet regularly to devise a number of important voluntary agreements to improve coordination activities. (N.Y. Shippers Association)

G. ***Brownfields site remediation may not meet market demand.*** Brownfields site remediation will not provide enough land to fill the warehouse and distribution center demand. Essex and Union counties do not have enough acreage and the parcels are too difficult to assemble to meet the demand. (N.Y. Shippers Association) (Maher Terminals) The industry estimated demand is for approximately 2,300 additional acres of additional distribution center development. (Maher Terminals) Brownfields site remediation is often difficult and expensive. Sites near the port area are likely to require building on wetlands that will add to approval times and will also incur additional costs because of pilings that may be necessary. (Frank Greek and Sons, Inc.) There is a national market discipline imposed on these projects because of the way these projects are financed. Capital will avoid the more expensive projects. (Prologis) In addition, places like Elizabeth and Newark do not have the necessary infrastructure. Roads are frequently in a state of

unattractive disrepair at those locations. Inadequate sewers and chronic flooding present additional difficulties at those locations. Developers and building occupants will make trade-offs. Exit 8A is not so far away from the port areas that it is adversely affected by this trade-off in rental and transportation cost differentials. (Frank Greek and Sons, Inc.) (Forsgate Industries) (New York Shippers Association)

H. Rail potential is limited, but should be added to the mix. Perhaps a short line railway from the port through Raritan Center and down to Monroe is possible. However, very few structures in the Exit 8A Study Area are currently equipped to handle rail. A staging area or freight yard will have to be identified and designed. At least one potential site for a rail yard has already been identified. (Maher Terminals) As much as 99% of the goods coming into the Exit 8A area travel by truck. (Forsgate Industries) Rail seems to work well in moving few commodities, usually in bulk. Rail lost out a half-century ago and is unlikely to return with any real force in the foreseeable future. Most of the materials coming in today to New Jersey are from the Pacific Rim. Most containers coming in by ship are placed on trucks. Too much of the economy is built around trucks for rail to threaten trucking predominance at this point in history. (Frank Greek and Sons, Inc.; Prologis) Yet the percentage of goods that moves by rail ought to be increased to keep Port Newark/Port Elizabeth competitive with its rivals. To increase that percentage, there will need to be a substantial upfront capital investment and increased and better informed public sector attention. (Matrix)

I. Cranbury Township ought to be showcased and emulated. Cranbury has approved its warehouses and distribution centers in a thoughtful fashion. Washington Township has also demonstrated reasonableness. These municipalities demonstrate that both developers and municipalities can get what they want. How do they do it? Cranbury holds a pre-planning meeting. It lets developers know what they need to do. The Township acts quickly, efficiently and effectively. In two to three meetings, basic mutual understandings are reached and approvals are generally granted, subject to appropriate conditions. (Cushman & Wakefield) Cranbury has a well-written Master Plan to which it closely adheres, and the zoning is consistent with the Master Plan. The planning board tends to be reasonable and asks important questions. Cranbury has had the same engineer, planner and planning board chair for many years, and they work well together. The Master Plan wisely separated residential and warehouse locations. Cranbury is also flexible in that it will negotiate such items as the number of parking spaces and allow some to be banked to gauge what the demand may be. The entire process usually takes between 90 to 120 days. (Matrix) (Prologis) (Rockefeller Group) Monroe and South Brunswick seem to be on a different path. (Rockefeller Group) (Prologis) Monroe seems to pose special problems. Traffic concerns have become political issues to both developers and local politicians in Monroe. Monroe suffers because it built its housing two

decades before the warehouses and distribution centers arrived. Trucks ride past age-restricted housing to get to warehouses and distribution centers. Senior citizen residents are politically vocal and active. (Matrix) (Prologis)

J. ***Trucker services are sorely needed.*** Although the Exit 8A Study Area for the most part works reasonably well, to be viable as a distribution center hub, trucker services are essential. New Jersey Turnpike Exit 8A has little or no services with respect to retail, banking, food or rest facilities that truckers need. Truckers travel to Bordentown to meet those needs. Most trucks want to stay on the New Jersey Turnpike, but they need adequate services. Currently, truckers park and idle on shoulders alongside the road. The situation will worsen as the area becomes more congested. (Cushman & Wakefield) Trucker services should be a public responsibility. Security issues attendant to such services also need to be addressed. (Matrix) These concerns could be reasonably resolved by requiring that services be built into building designs. Existing buildings ought to be retrofitted. Distribution center and warehouse operations have an obligation to provide such services. It is unclear whether developers have been asked to provide these services. According to one developer, if asked, developers would comply. (Prologis)

K. ***Labor and affordable housing issues need to be addressed.*** The change in the Council on Affordable Housing (COAH) formula linking affordable housing obligation to "growth share," is beginning to have an impact and serve as a drag on warehouse and distribution center development. The industry's fear is that municipalities that want to avoid affordable housing obligations will either not permit growth or make exorbitant demands on developers to pay for its cost. (Matrix)

Nevertheless, the lack of affordable housing throughout the Exit 8A region and the lack of regular public transit service between major labor pool source locations and Exit 8A is a growing concern on the part of distribution center operators. Access to a competent and reliable labor pool is a strong selling point in the logistics industry where jobs are becoming increasingly skilled with continuing automation. (Cushman & Wakefield)

L. ***The present is the prologue to the future.*** Powerful global market and institutional forces persist. These trends will continue into the foreseeable future. Higher fuel prices may have some impact, but the situation is still far from a "tipping point." (Matrix) There will be no stopping these trends for at least the next 20 years. (Forsgate Industries) Dredging Port Newark/Port Elizabeth to 50 feet will increase demand for warehouse and distribution center space. It will lead to some warehouse infill. It will also increase pressures to extend hours of operation. (Frank Greek and Sons, Inc.) (New York Shipping Association) (Maher Terminals) Some tear-downs and distribution center redevelopment should be expected. (Forsgate Industries) The competitive pressures for warehouse and distribution centers will increase

as ships entering and leaving New Jersey port areas increase in size and so long as this region maintains its relative level of affluence. Ultimately, it is the fact that the region's affluent consumers still want to consume at current levels that creates the demand. The "stuff" will continue to come here. The "stuff" will flow through one gateway or another. The economic function has a way of locating in ways that are most cost-efficient. (Maher Terminals)

The Lessons Learned

What have been the important lessons learned that might be drawn from the experience of New Jersey Turnpike Exit 8A? A number of important lessons were synthesized as a result of document review, interviews and the facilitated group discussion at the nine Exit 8A Study Area Forums held between December 2005 and December 2006.

1. ***The Land Use Pattern and Transportation Situation at Exit 8A is the result of multiple causes--natural, geographic, socio-economic, private market forces along with public policies promulgated by different levels of government over the past two decades.*** The strategic location of New Jersey Turnpike Exit 8A, its soil type, drainage, topography, access to sewers and water supply, the absence of soil contamination, proximity to the New Jersey Turnpike, combined with the state's property tax structure that drives local government decision-making, and global market forces have combined to produce the land use patterns currently evident at this location. Warehouses and distribution centers, as well as age-restricted housing, share in common the absence of school-aged children and the costs associated with them, providing an odd attraction for local government decision-makers. Non-local participants in this study were surprised to learn that municipalities welcomed warehouses and distribution centers. Municipalities find warehouses and distribution centers attractive from a tax revenue/cost-benefit perspective. It is the trucks and the traffic congestion they inevitably bring to which municipal representatives object, suggesting that this responsibility is primarily that of state government, especially NJ DOT, or to lesser extents the New Jersey Turnpike or NJ Transit. Meanwhile, changes in the global economy and the emergence of New Jersey as a major gateway to foreign trade have heightened this concern and elevated its importance in terms of its impact on New Jersey's economic growth and future prosperity.

2. ***No "Silver Bullet" or single answer exists to address the many concerns raised by the diverse stakeholders who participated in this study.*** To improve the situation at Exit 8A, a multi-faceted approach is required, ranging from the completion of a number of road construction projects to land use regulatory changes to operational changes that may require government initiatives on different levels. While the initial intent and hope by NJ DOT in sponsoring this study may have been to explore and concentrate future efforts on local land use decision-making, at this point in time, such changes, at least with respect to the Exit 8A case, are likely to have only limited impact. Other partial solutions include signage and preferred truck routing improvements, New Jersey Turnpike off-peak pricing, extending hours of operation, van pooling and ride-sharing and the expansion and enhancement of park-and-ride facilities. The re-introduction of freight rail may also provide a partial solution that needs to be further explored. Government jurisdictions at

multiple levels will need to be involved to improve regional coordination and integration of these activities.

3. ***The significance of this study may have less to do with New Jersey Turnpike Exit 8A per se, which is rapidly approaching build-out, but more to do with the knowledge transfer that will affect other locations at interchanges throughout New Jersey, to the north where significant brownfields redevelopment is occurring and to the south where such logistics-related development will likely go next.*** In light of the near build-out at New Jersey Turnpike Exit 8A, and the insights related to the growth of the logistics industry in New Jersey, the significance of this study will likely be its impact on other locations such as other New Jersey Turnpike interchanges and other similarly situated interchanges on New Jersey's other major highways. The private sector's best guess of available developable land in and around Exit 8A is only 10 – 15 million square feet. This estimate appears to be corroborated by public sector estimates as well. The remaining available developable area is likely to be built-out in the next 5 to 10 years. Yet jurisdictions at similar locations may draw and more effectively apply valuable lessons from the New Jersey Turnpike Exit 8A experience. The application of those lessons to other locations may prove helpful in reducing costs and optimizing benefits to be derived from warehouse and distribution center development as that development begins to affect those places.

4. ***Local jurisdictions have an important role to play in both recognizing the needs of a growing and increasingly important element of New Jersey's economy, i.e., goods movement, and in reconciling those needs with maintaining and promoting an attractive quality of life in New Jersey's communities.*** The logistics industry is an important and robust aspect of New Jersey's changing economy. An acknowledgement of industry needs by local jurisdictions is important to the industry's future growth and prosperity with implications for the state's economy. Simultaneously, those needs have to be reconciled with the maintenance and promotion of an attractive quality of life to which local public officials are acutely attuned. For the purposes of this study, logistics industry interviewees identified a list of municipal land-use issues that require further consideration by local jurisdictions to better meet the needs of this highly dynamic industry.

    a. ***Density/Intensity Issues*** – Private sector stakeholders, in particular, pointed to the importance of clustering warehouses and distribution centers closer to highway interchanges at greater density and intensity. At least one described the land use pattern at New Jersey Turnpike Exit 8A as the "suburbanization" of warehouses and distribution centers. This development pattern leads to more truck traffic and congestion further off the interstates, rather than less. (Forsgate Industries). More recently, the prospect of building up instead of horizontally has been suggested, positing that it may be cost-

competitive to have warehouses increase their height, from 40 to 80 feet in height. This situation may become a reality in light of rising land values. Trade-offs may be made with respect to land costs versus increased costs in terms of construction, automation, fire protection, and travel costs. (Lee, Evelyn, "A Tall Warehouse Order for a National Retailer: Whitesell is Building the State's Loftiest Distribution Center," New Jersey Biz, April 30, 2007, pp. 19, 20)

b. ***Parking Issues*** **–** Owners of warehouse and distribution centers recommended that facilities be required to have less automobile parking for employees, but more parking area dedicated for trailer storage. They expressed the view that added flexibility in these regards would be helpful. The proximity of Park-and-Rides and establishment of trucker services may contribute to a more satisfactory resolution of this issue. Park-and-Rides were cited as useful for both commuters from the area as well as for "staging areas" for warehouse and distribution center employees. Park-and-Ride expansions with enhancements were also advocated at the Exit 8A public forums.

c. ***Lighting Issues*** **–** Owners and operators of warehouses and distribution centers expressed the belief that lighting standards may have been drawn from more conventional retail operations requiring them to "over-light" their facilities, resulting in additional, and sometimes costly, energy use as well as light pollution.

d. ***Aesthetic Impacts*** **–** Municipalities are concerned about aesthetic impacts of large distribution centers. The way that these structures appear from the roadway is a major concern of local governments. Efforts need to be taken to develop a set of models and design guidelines from which municipalities might more wisely choose than is currently the case.

e. ***Green Building*** **–** The issue of "green building" occasionally arose through the Exit 8A Study Area facilitated forums. A representative of the New Jersey Green Building Council did participate in these forums to a limited extent. When questioned about the prospect of employing more environmentally sensitive, "green-building" techniques, industry representatives expressed an interest, providing that techniques could be justified on a cost-competitive basis. This topic was recently explored in a New York Times article entitled "A Starring Role for 'Green' Construction," quoting Exit 8A distribution center developer Prologis, which is now using, among other devices, photovoltaic solar panels, wind turbines, low-energy heating and cooling systems, and landscaping irrigation that incorporates recycled rainwater. Prologis is also replacing incandescent light bulbs with fluorescent lights to reduce electric energy usage. (Marino, Vivian, "A Starring Role for

'Green' Construction," N.Y. Times – Real Estate Section – April 29, 2007). Some municipal ordinance changes may be necessary to facilitate and accommodate "green building" energy alternatives.

f. ***Trucker Services*** **–** The provision of trucker services either in the location and development of trucker rest stops or by requiring individual warehouses and distribution centers to provide essential services is important and frequently overlooked. The absence of these services leads to public health and safety concerns. The problem resulting from the lack of trucker services seems to be particularly acute in Monroe Township. However, this dilemma is more widespread than just New Jersey Turnpike Exit 8A. The Wall Street Journal recently reported that the trucking industry voted New Jersey as the nation's worst state in terms of rest stops with only five public rest stops with bathrooms on its interstates and main state roads. The article pointed to the difficulty of locating rest stops in urban areas, a situation that has led to significant public health and safety concerns as well as difficulties for local law enforcement. (Mathews, Robert Guy, "Rigs Keep on Trucking, Searching for Parking," Wall Street Journal, May 1, 2007, pp. B-1, B-8.)

g. ***Extending Hours of Operation*** – Although most of the municipalities stated that they did not have prohibitions on extended hours of operation currently in place, this was an issue to which both the private sector participants and those representing statewide interests were very concerned. Industry participants raised the question as to whether local noise ordinances would be employed to reduce hours of operation. The point frequently made was that it made little sense to extend hours of operation at the Port Newark/Port Elizabeth if trucks cannot deliver to warehouses and distribution centers during those extended periods of operation. Furthermore, it was strenuously argued, both in the forums and through private sector interviews, that extended hours of operation allow trucks to travel at off-peak hours, thereby optimizing the use of existing roadway capacity.

h. ***Distribution Centers: The Next Generation?*** - Forum participants learned about the generational aspects of warehouse and distribution centers and ways to address the changing needs of a highly dynamic industry by listening to and learning from the range of experiences of different municipalities. Early 1970's and 1980's experiences of East Brunswick provided valuable insights into the industry's recent history and the potential for adaptive re-use of structures now considered obsolete by the industry. Monroe Township and South Brunswick have begun to lose enthusiasm for the "ratables chase," becoming more aware of the costs associated with increased truck traffic

congestion. Washington Township still views such development as an antidote to its recent "growth pains."

5. ***Developing, managing and sharing land-use and transportation data across government jurisdictions and with the private sector is a necessary and important planning and management function that requires explicit attention. Difficulties in these regards were in fact demonstrated by the time and energy expended in collecting data for this study.*** It was a surprise to most participants involved in this process that the Exit 8A Interchange area is nearly built-out and that future warehouse and distribution center growth will likely take place at other interchanges perhaps further south along the New Jersey Turnpike and to the north where significant redevelopment is taking place. While municipalities seemed to be aware of the approximate amounts of developable land available within their own jurisdictions, none professed knowledge of land availability in adjacent municipalities. All acknowledged the lack of shared information and the major difficulties in coordinating land-use planning across municipal boundaries. The difficulty in collecting data made this study more difficult than first anticipated. This situation suggests aspects of these concerns which cannot be managed by municipalities alone and begs for at the very least county-level, if not multi-county, information sharing. Initial Forum Sessions witnessed sharing of local ordinances on specialized concerns. In the absence of such sharing, even simple tasks become difficult, e.g., preferred truck routes and signage. The resulting paralysis, delay and inaction appeared to fuel local frustration which quickly turned to cynicism.

6. ***Some issues raised by the New Jersey Turnpike Exit 8A Study Area experience cry out for regional solutions including, but not necessarily limited to the assessment of cumulative and secondary impacts and cost-sharing of less than direct costs as they are experienced throughout the region.*** While thoughtful municipal land-use planning and zoning may be instrumental in maintaining and enhancing the quality of life for local residents by reducing land-use conflicts, other concerns cry out for regional solutions. Municipalities pointed to the benefits of simply sharing information and experiences across municipal boundaries throughout the Study Area. The exchange of ordinances at early forum sessions was evidence of this benefit. However, coordinating regulatory policies, locating truck services or siting a rail yard are examples of more difficult issues that require decision-making at a greater than local jurisdictional level. Questions of regional equity were also raised by municipalities Hightstown and Plainsboro. Representatives did not believe that their municipal interests were adequately taken into account, as they experienced externalized costs imposed on them, yet lacked the ability to internalize the benefits of the emerging warehouse and distribution center development pattern. Even Cranbury, which was lauded by most, was faulted by its neighbor, Monroe Township, for locating too many facilities too close to its Monroe border. These

examples point to a need to better understand the indirect, secondary and cumulative impacts of land development and transportation costs across the region. A fuller understanding may lead to the development of cost-sharing mechanisms that begin to better match the benefits with the costs incurred. Furthermore, warehouse and distribution center developers underscored the need to expedite local permit approval processes, which can vary tremendously by municipality, even when local zoning is respected. Developers seemed willing to concede to the prerogatives of local zoning if an expedited, regional permit approval process could be established, even when premised on local zoning authority.

7. ***Even simple tasks, such as designating preferred truck routes and installing signage, can prove difficult without appropriate forums and implementation mechanisms in place at times fueling local frustration that may lead to cynicism over time.*** Preferred truck routes and signage coming off the New Jersey Turnpike were discussed on a number of occasions at the stakeholder forum meetings. Apparently, complete agreement had not been reached with respect to preferred truck routes across municipal boundaries. Although signs had been manufactured, it was unclear who was responsible for their posting. The failure to address such simple tasks fueled local cynicism in reaction to what was perceived to be yet another study that would not necessarily lead to effective action.

8. ***As the Exit 8A Study Area approaches build-out, operational improvements are necessary along with an irreducible number of roadway construction projects to manage this situation.*** If actions had been taken previously over the past 10-20 years with respect to emerging land use patterns throughout the Exit 8A Study Area, a more effective coordination and integration between land use decision-making and transportation planning might have reduced the number of roadway projects now viewed as essential remedial steps to address growing concerns. In addition, a number of operational changes may be required to improve the situation at this time. It is for these reasons however, that the major significance of this study of the Exit 8A Study Area may be the lessons it provides to other areas that may undergo similar transformation in the foreseeable future. A major finding uncovered by this study is how close Exit 8A is to build-out. Nevertheless, interviews with private sector representatives suggest that even if construction slows in the Exit 8A Study Area, the dynamic nature of this industry will likely continue to lead to increasing truck traffic due to continued automation, "just-in-time" inventory and internet sales.

9. ***Ancillary concerns such as creating the opportunities for affordable housing in proximity to areas of job growth, easy access to labor and recognizing and addressing environmental constraints are important, although not a major focus of this study.*** These concerns need to be mentioned, although they were not a major focus of this study. Transporting

relatively low-wage workers into this area from distances away is a factor that adds to traffic congestion, especially during peak hours of operation, and results from the housing/jobs imbalance. This issue needs to be addressed. Washington Township stressed this concern and pointed to solutions that involved NJ Transit in building improved connections to Trenton. Environmental issues were also raised as a concern during the course of facilitated discussions and interviews. Throughout the course of these conversations, points were stressed that warehouse and distribution centers areas are located over aquifers and that stormwater management concerns and occasional flooding issues were not adequately addressed. This situation was raised by representatives from Monroe Township.

10. ***The nature of warehouses and distribution centers does not fit neatly with the New Jersey State Development and Redevelopment Plan (NJSDRP) so that changes need to be made to that plan to take into account this rapidly growing sector of New Jersey's economy.*** The interrelationship between land use and transportation is a complex issue facing the freight industry and public providers of the infrastructure for goods movement. The New Jersey State Development and Redevelopment Plan seeks to promote growth in mixed-use, higher-density locations to take advantage of existing infrastructure. The nature of warehouses and distribution centers that frequently evolve as single-use agglomerations in urban, suburban and rural areas frequently appear to be inconsistent with the State's growth management plan. This situation arises in part because so little attention was paid to goods movement needs during the previous iterations of the State Plan. This situation remains to be addressed through the State Plan's current cross-acceptance process.

11. ***Trucker services are desperately needed in the Exit 8A Study Area.*** It was generally agreed that there was a lack of adequate support facilities to serve the trucking industry in the Exit 8A Study Area. Truck rest stops along major truck corridors are essential. Locating these facilities has historically met with resistance. Individual interviews with private sector developers indicated that there may be innovative ways to provide these services that have not been explored.

12. ***Facilitated dialogue among the different levels of government with the private sector leads to improved mutual understanding and can yield an enriched set of public policy recommendations and ultimate resolution of important issues related to Exit 8A concerns.*** County and municipal issues raised through the Exit 8A Study Area stakeholder forums can be connected to wider concerns that are global and national in scope. In this way, the three sometimes competing perspectives were enhanced and synthesized. The transformed understanding provides a valuable context for better informed and improved decision-making. Changes taking place today at the county and municipal government levels are connected to the transformation of the global economy and the nation's and New Jersey's role in it. Simultaneously, state

and regional planners, including representatives from NJ DOT, New Jersey Department of Community Affairs (NJDCA) - Office of Smart Growth (OSG), North Jersey Transportation Planning Authority (NJTPA) and New Jersey Turnpike Authority (NJTA) shared their varied perspectives and became better informed about diverse pressures by listening to local government decision-makers and planners. Public and private sector decision-makers became more aware of sometimes conflicting concerns from those perspectives through these meetings. It is also noteworthy that while this study built upon earlier efforts, e.g., "Congestion Busters' Taskforce," NJ DOT Logistics Council, Draft New Jersey Comprehensive Statewide Plan, that it was important to establish a dialogue to begin to shape previously promulgated high-level recommendations so that they could acquire greater place-based meaning and relevance.

Action Step Recommendations

A. Planning& Regulatory Changes

1. Local Planning, Policies & Regulation Strengthen county and municipal planning capacity throughout the Exit 8A Study Area to facilitate information sharing, planning, policies and regulatory coordination across municipal boundaries.

a. Update & Modify County and Municipal Plans, Programs, Policies and Processes -- Ensure that county and municipal plans, programs, policies and processes are up-to-date and incorporate provisions that address the concerns raised in this report, especially with respect to local land-use decision-making regulation and permit approval processes. In addition to land-use related changes, operational traffic management concerns ought to be addressed with solutions devised, implemented and coordinated across municipal boundaries, e.g., preferred truck routes, signage, weight restrictions, etc. Specific land use changes also seem to be in order including, and especially, but not necessarily limited to the treatment of exterior trailer storage and increased building and site coverage closer to major interchanges.

b. Convene an Exit 8A Study Area Forum – Institute a working forum of Exit 8A Study Area municipalities, counties, transportation management agencies, the New Jersey Turnpike Authority, the two relevant metropolitan planning organizations and representatives of the private sector to meet regularly, to share information, exchange ordinances, review and comment on land-use and transportation policies, programs and regulations, and coordinate land-use practices and transportation planning across municipal boundaries in ways that acknowledge the importance of this functional region.

c. Convene an Exit 8A Internet Mapping Users' Group – Organize an internet mapping users' sub-group of the Exit 8A Study Area Forum to ensure that the internet mapping tool and website is maintained, nurtured and appropriately marketed through continued data base development and management, standards development and implementation, along with public education and outreach.

d. Extend Warehouses and Distribution Centers Hours of Operation Extend hours of operation at warehouses and distribution centers to ease truck traffic congestion and improve logistics efficiencies where and when they can be achieved without posing a threat to public health or safety. In situations where a clear separation exists between industrial and residential uses this will be more easily achieved and should be encouraged.

2. ***State & Regional Planning, Policies & Regulation*:** Acknowledge the importance of state and regional planning functions with respect to the Exit 8A Study Area along with the increased prominence of the logistics industry to the State of New Jersey. That industry needs to be better understood as an integral aspect of New Jersey's economy and an important part of state, regional and local government planning.

    a. ***Identify & Prioritize Strategic Logistical Areas and Corridors for appropriate treatment*** Recognize the importance of the logistics industry to the New Jersey economy by expanding capacity for planning and operations in these regards within NJDOT and other State departments and agencies; and by identifying logistical strategic areas and corridors in relevant and appropriate official documents and related planning and regulatory processes for appropriate priority treatment by public agencies, e.g., the Governor's Office of Economic Growth, (OEG); the New Jersey Department of Community Affairs Office of Smart Growth (OSG); and the appropriate divisions within the New Jersey Departments of Transportation, (NJDOT), Environmental Protection (NJDEP) and Commerce.

    b. ***Identify and implement preferred truck routes along with appropriate signage*** This improvement appears to be relatively easy to accomplish in the short-run, yet it has continued to frustrate local stakeholders. Municipalities need to coordinate preferred routes. Signs need to be provided to designate those routes.

    c. ***Consider regional planning, administrative mechanisms and cost/benefit allocation formulae to address legitimate regional concerns*** For example, locating truck services, permitting facilities with regional impacts and reallocating revenues based on formulae that take into account an equitable distribution of costs and benefits, secondary and cumulative impacts rather than simply relying on warehouse and distribution center locations and the state's local property tax structure. In this regard, a transportation enhancement district might be considered for the Exit 8A Study Area.

    d. ***Enact Statewide local property tax reforms to reduce municipal incentives to skew planning in terms of the ratables chase***

    e. ***Engage in a Major Public Education & Outreach Efforts*** Ensure that the lessons of New Jersey Turnpike Exit 8A Study Area are transferred to other New Jersey Turnpike interchanges and other interchanges on major routes where similar warehouse and distribution centers are likely to locate in the foreseeable future through a major public education and outreach effort. Showcase the Cranbury Township experience as part of that effort.

f. ***Strengthen Travel Demand Management Techniques*** Enhance the capacities of the two county TMA's to work with the public and private sectors to devise and implement more effective travel demand management strategies and policies to reduce vehicle miles traveled (vmt's) and reduce traffic congestion in the area.

g. ***Institute off-peak New Jersey Turnpike discount pricing*** Employ pricing mechanisms to use existing infrastructure more effectively and efficiently.

h. ***Expand NJ Transit Services to the Exit 8A Study Area*** Plan and implement adequate NJ Transit services to and from park-and-rides employing combinations of bus and shuttle/van services to operate from major pick-up areas in proximity to employee locations and drop-off locations at warehouses and distribution centers throughout the Exit 8A Study Area.

i. ***Promote a state economic development program to facilitate warehouse and distribution center development at desired and appropriate locations*** The establishment of a state economic development program led by someone in a senior-level position would provide a focus on the recruitment and retention of warehouse and distribution center facilities, so that New Jersey can compete more effectively in these regards with its rivals in other states.

j. ***Enhance the "Planning on the Edge" Forum administered by the Delaware Valley Regional Planning Commission (DVRPC)*** Broaden the role and elevate the importance of this forum which brings together the North Jersey Transportation Authority (NJTPA) and the DVRPC to discuss issues that overlap in the Exit 8A Study Area, which is located at the edge of the two metropolitan planning organizations.

3. Prioritize and Implement N.J. Turnpike and New Jersey State roadway Improvements:

a. Widen the New Jersey Turnpike south of Exit 8A to Exit 6.

b. Consider construction of New Jersey Turnpike Exit 8B in proximity of Route 133.

c. Implement appropriate roadway improvements along Route 1 to ease north-south traffic flows.

d. Implement appropriate roadway improvements to ease east-west traffic flow, especially in light of the State's recent decision not to construct Route 92, i.e., either resurrect Route 92, or address the concern it was

intended to address in an equivalent manner so as to reduce east-west traffic congestion. The widening of CR 522 has been recommended in this regard. Absent the construction of Route 92, it was also recommended that a grade separation is necessary to alleviate traffic congestion at the intersections of U.S. Route 130/Friendship Road and Route 32, and CR 535/Route 32. The Exit 8A interchange ramp from Route 32 eastbound to the New Jersey Turnpike will need to be widened to two lanes to sufficiently handle the projected growth.

e. Expand and enhance existing Park-and-Rides and construct new park-and-rides at appropriate locations. (The park-and-ride at Routes 130 and 32 has reportedly already been expanded by 400 parking spaces (May 2007)).

f. Identify appropriate locations to site and establish adequate truck services at a location within or in close proximity to the Exit 8A Study Area.

g. Identify and plan for an appropriate site for a short-line rail freight staging area, while simultaneously seeking additional funding from multiple sources to invest in this area.

Findings and Conclusions

This study began with an understanding of a statewide perspective that resulted from early conversations with the study's sponsors, NJDOT. That perspective concentrated on statewide economic concerns directly related to goods movement, although complicated by tightening State government fiscal constraints. Initially, only limited attention was paid to global and national market forces or local public health and safety concerns in these early conversations. However, the facilitated dialogue encouraged by NJ DOT led to a more profound understanding of the multi-dimensional nature of these issues and the ways they affected people on the ground within the Study Area.

At least three perspectives emerged as a result of the document review, individual and group interviews and the facilitated public dialogue that together contributed to this study. These three perspectives –1) a statewide public sector view; 2) local government public sector views; and 3) private sector outlook, a perspective that transcends not just the Exit 8A Study Area, but also New Jersey, sensitive to regional, national and international market forces. The challenge for this study was to synthesize those varied and sometimes competing perspectives to draw the valuable lessons learned and to yield a meaningful set of public policy recommendations. The results hopefully meet that challenge.

The specific lessons and recommendations suggest that the Exit 8A Study Area is nearly built-out. Consequently, its lessons may be more appropriately applied to other locations that have yet to develop the way that it already has. While this finding may have not been originally contemplated by NJDOT, its revelation does not diminish this study's value. Furthermore, this study demonstrates the need and importance of understanding the value of integrating local land use decision-making and state transportation planning. The dearth of accurate data gathered, managed and shared in consistent ways needs to be stressed, hopefully leading to changes going forward. The internet mapping tool devised for this study will hopefully be employed to facilitate that process. It is expected that improved coordination across local boundaries will lead to more regionally rational and equitable arrangements. An underlying assumption remains that New Jersey is expected to continue to play an expanding role as a major gateway to national and international trade and that the relative importance of goods movement to its economy will continue to grow.

An Epilogue: Global Freight Villages

A question that lies just beyond the scope of this study involves the prospective role of "global freight villages." These villages present a way to concentrate a logistics system around a node while coordinating the integration of logistics-related activities. They are generally defined as a cluster of freight-related businesses within a secure perimeter with a single management structure. They are master planned in proximity to large urban centers. They provide high quality, well-planned settings with adequate support services. There are reportedly more than 40 examples of such villages in Europe today. (Weisbord, R., 2005)

Global freight villages include important functional characteristics such as inter-modal operations, integrated distribution approaches, smart warehousing, customs facilities, showrooms and support services. Among services included at these locations are security and maintenance operations, vehicle repair and leasing services, conference centers, internet access, training facilities, hotels/motels, restaurants, banking, insurance, postal and employment services and public internal transit facilities. (Weisbord 2005; Weisbord, Swiger, Mller, Rugg and Murphy, undated; "The Global Freight Village Concept—Union County, New Jersey, Tremley Point," Undated, Seventh Annual Freight and Logistics Symposium, University of Minnesota, 2003)

These freight villages may provide benefits to businesses and communities. They can relieve congestion and reduce vehicle miles traveled, help to address public safety concerns, promote logistics as a growth sector of the economy, facilitate employment searches and job training, improve aesthetics, reduce negative environmental impacts, and include a management entity that can better coordinate the interface between the private sector and multiple levels of government. (Weisbord, R., 2005)

Many of the issues being raised by this report may be addressed prospectively by well-planned global freight villages. Addressing these concerns with respect to the New Jersey Turnpike Exit 8A situation comes largely after the fact. It suggests some redevelopment and retro-fitting in the future. However, in its nearly built-out condition, it is difficult to apply the global freight village concept in a comprehensive way.

Yet to the extent that this Exit 8A Study is relevant to other similar locations, a global freight village concept may serve as a convenient benchmark, a helpful vision. It can provide an instructive alternative to what was experienced at Exit 8A over the past two decades. Careful examination of both generic and site specific factors will be required. A number of important questions will need to be posed. Included among them--What will be the benefits and downsides of particular sites with respect to the development of a global freight village? How will the designated global freight village relate to and connect with existing logistics clusters and port areas? What will be the likely returns on both public and private investments for such global freight villages? Furthermore, siting in metropolitan areas as densely developed as this one will not be easy. Yet the concept as suggested here has merit and requires additional consideration.

Figure 14 (Satellite Image 1): Port of Barcelona, Spain

Figure 15 (Concept Drawing 1): Global Freight Village, Barcelona, Spain

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7. Monroe Township Municipal Building, June 22, 2006.
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Exit 8A Individual & Group Interviews

A. Public Sector Interviews:

1. Jack West, Community Development Director, Washington Township, February 23, 2006.
2. Leslie McGowan, Planning Director & Debbie Rainwater, Assistant Planning Director, East Brunswick, February 27, 2006.
3. Joseph Montanti, Special Assistant to the Mayor, Monroe Township, March 20, 2006.
4. Richard Preiss, Planning Consultant, Cathy Marcelli, Engineering Consultant for Cranbury Township, April 4, 2006.
5. Craig Marshall, Planning Director, Elena Boundina , Ronald Schmalz, Special Assistant to the Mayor, South Brunswick, April 4, 2006.
6. Robert Patten, Mayor, Hightstown, April 5, 2006.
7. Janice Mironov, Mayor, and Tom Ogren, Planner, East Windsor, April 18, 2006.
8. Peter Cantu, Mayor, Robert Sheehan, Township Administrator, Ernest Freeman, Community Development Director Plainsboro Township, May 16, 2006.
9. Michael Francois, Director of Portway Planning, New York/New Jersey Port Authority, May 22, 2006.
10. Dr. Mark Stout, Assistant Commissioner, New Jersey Department of Transportation, June 7, 2006.
11. Allen Schechtel, Planning Director, Hamilton Township, October 10, 2006.
12. Harvey Moskowitz, Retired Planner, former Planning Consultant to Cranbury Township, November 28, 2006.
13. Interview with Mary Caffrey, Business Administrator, Washington Township, May 3, 2007.
14. Follow-up telephone interviews with Craig Marshall, South Brunswick Township Planner; Ernie Feist, Monroe Township Engineer; Mathew Lawson, Mercer County Planner, George Ververides, Middlesex County Planning Director, May 7, 2007.

15. Interview with Paul Gleist, former planning consultant for Monroe Township, May 7, 2007.

B. Private Sector Interviews

1. Gilbert Medina, Cushman and Wakefield, CEO, April 19, 2006.
2. Frank A. Greek, President, Frank Greek & Sons, Inc., May 4, 2006.
3. Alex Klatzin, President, Forsgate Industrial Partners, May 8, 2006.
4. Stanley Danzig, Cushman and Wakefield, Broker, May 15, 2006.
5. Alec Taylor, President & Richard Johnson, Senior Vice-President, Matrix, May 25, 2006.
6. Michael Nachamkin, Senior Vice-President, Prologis, June 9, 2006.
7. Clark Machemer, Project Manager, The Rockefeller Group, June 26, 2006.
8. Sam Crane, Vice- President, Maher Terminals, July 5, 2006.
9. Frank McDonough, New York Shipping Association, Inc., October 6, 2006.

Appendices — Page

Appendix 1

Appendix 2

Figure 2 (Table 2):

Construction & Build-out Estimates*

Municipality	1996 Estimate of Developable Square Feet	Estimated Construction 1996-2006	Pipeline Estimate	Remaining Acreage Estimate
Cranbury Twp.	12.7 million	10.5 million	0.81 million	1.39 million
East Brunswick	Approximately 1,224 acres close to build-out at time of 1991 master plan	Miscellaneous additions & adaptive re-use , little or no new construction	None	Near Build-out with one large vacant parcel with limited potential. Expect additions & adaptive re-use
East Windsor Twp.	N.A.	1 million	N.A.	N.A. , but expect only limited future impact
Hightstown Borough	N.A.	2 sites to be redeveloped with limited impact	2 sites to be redeveloped with limited impact	Almost entirely built-out. Expect only limited future impact
Jamesburg Borough	Close to build-out at start of this period.	Marginal	None	95% built-out. Expect only limited future impact
Monroe Twp.	63.2 million	48 million	1.0 million	11-14 million + 9.8 million on Route 33 corridor in the face of growing resistance
Plainsboro Twp.	N.A.	N.A.	Princeton Medical Center	7 million on Route 1 corridor
South Brunswick Twp.	62.8 million (?)	47.8 million (?)	7-8 million	7-8 million in the face of growing resistance
Washington Twp.	5 million (?)	4.4 million	6.4 million	Near build-out
TOTALS:	*144 million*	*112 million*	*15-16 million*	*15-16 million*

* The numbers contained in the table are informed estimates based on data provided by municipalities and the result of interviews with informed professionals. That baseline data emanated from a study done more than a decade ago by the Regional Planning Partnership (RPP). In other cases RPP did not establish a comparable baseline, e.g., East Windsor.

Question marks indicate that professionals questioned data accuracy. With respect to South Brunswick, the planning official believed that the baseline estimate was much too high. In the case of Washington Township, construction in the past decade exceeded the RPP land estimate.

In addition, the 9.8 million square feet available in Monroe on its southern border on Route 33 was not included in the total, nor was the 7 million square feet cited by Plainsboro Township officials on its Route 1 corridor.

A rule of thumb 20% deduction to account for roads and environmental constraints reduces this estimate of available land to 12-13 million square feet of available warehouse and distribution space which is roughly the estimate obtained from industry professionals. Those same professionals expected that remaining land to be built-out in the next 5-10 years.

Cranbury Township, N.J.

Cranbury Profile

Location: at the southern border of Middlesex County; land area: 13.413 square miles; population: 2,500 (1990), 3,227 (2000), 3,553 (2005); race (2005) 87.1% White, 1.7% Black, 9.3% Asian, 1.9% Hispanic; density: 264.9 persons/square mile; income per capita: $58,944 (2005); median household income: $134,787 (2005); poverty rate: 1.6% (2000); households: 1,091 (2000); employment: 1,943 (2004); unemployment rate: 1.9% (2004); median single-family home value: $552,752 (2005); median rent: $673/month (2000); median housing age: 25 years (2000); characterization: a mix of preserved farmland, suburban residential, a walkable, historic village along with a major warehouse and distribution centers concentrated in locations between the New Jersey Turnpike and Route 130.

MASTER PLAN (1993)

The Cranbury Township Master Plan was last updated in 1993, with an Update to the Circulation Element focusing only on the light industrial areas east of Route 130. The Master Plan underwent a Reexamination in November 2005. The Township Land Development codes were updated in February 2006 and are current for the purposes of this analysis. In addition, Cranbury Township has been involved in other studies including, but not necessarily limited to the following: New Jersey Turnpike Authority land use data analysis; and the Route 1 Smart Growth Analysis under the auspices of the Governor's Office.

Town Character

Cranbury Township contains a mix of development types, largely segregated into residential and farmland preservation in the western portions of the Township and warehousing and distribution centers east of Route 130, closer to the Turnpike. Cranbury also contains the Village of Cranbury with a dense mix of historic residential and retail buildings in a small, colonial-type, downtown setting. Of Cranbury Township's total land area, approximately one-third is zoned for light industrial (LI) or research, office and light industrial (RO/LI) Of the remainder, approximately two-thirds is zoned for agricultural preservation, thereby restricting future residential development to a relatively small area of the Township.

Land Use Issues

Cranbury appears to experience few, if any, problems with respect to its land use planning and zoning. The municipality is often cited as a "showcase" in terms of what it has done with its land use planning. Cranbury segregated its residential and commercial land uses from its industrial—warehouse and distribution centers development throughout the 1990's. Tax revenues generated by the warehouse and distribution centers have been employed to underwrite portions of farmland preservation on the western side of Cranbury. The warehouse and distribution centers have been largely concentrated in an "island" between the New Jersey Turnpike and Route 130. Cranbury Village, its colonial, mixed-use, walkable downtown, is buffered by this highway separation.

Circulation Issues

Cranbury is situated in proximity to the New Jersey Turnpike Exit 8A. It is served by several major state and county roads, including Route 130 and County Road 535, 539, 614 and 615. Cranbury has not restricted truck size or weight on its major roadways, leading to some concerns. The municipality is situated along a crucial east-west corridor for regional truck and commuter traffic. Concerns were raised in the stakeholder forums conducted for this study about trucks that become lost and wander into Cranbury Village. This situation is considered a major quality of life issue throughout the Township. Heavy east-west traffic through Cranbury is perceived as inevitable due to geographic and economic factors. Opinions expressed in the stakeholder forums suggest that weight restrictions on roadways imposed by neighboring municipalities have had detrimental traffic impacts on Cranbury's roads, which are not restricted. Officials have expressed a willingness to work with other municipalities to address this concern.

Development trends

Cranbury Township's 2005 Master Plan Reexamination Report notes that the Township has realized most of the goals set forth in its 1993 Master Plan. However, development and transportation challenges remain. While Cranbury officials view its development pattern as consistent with its Master Plan goals, warehousing and distribution centers and residential development have created increased stress on the Township's roadway network. In addition, challenges remain from the 1999 Master Plan Update and remain to be achieved, e.g., underutilized properties along Route 130.

While local officials consider and Cranbury's re-examination report indicates that Cranbury is nearly built-out, additional warehouse and distribution center sites have recently been approved or are under construction. Additional housing is being constructed as well.

Based on documents reviewed and informal interviews conducted with municipal officials and consultants, Cranbury's development goals include consideration of more residential infill development and the strengthening of commercial zones. The underutilized properties along the Route 130 corridor will undergo more intensive development/redevelopment. Properties in this corridor currently zoned for research or office are expected to undergo mixed-use development in the foreseeable future. The new Master Plan process, about to be embarked upon, may also include provisions for future cluster development within agricultural areas. With respect to those sites, some scatter-site, "blended" affordable housing units are likely to also be included.

Although Cranbury has managed to avoid many of the truck traffic-residential conflicts that burden nearby municipalities, traffic congestion issues are an increasing concern as the Township approaches build-out in terms of both its warehouses, distribution centers and residential mix. The Master Plan Reexamination recommends additional traffic studies focusing on east-west commuter and truck traffic to better determine what steps should be taken in the foreseeable future to address this growing concern.

The data collected on warehouse and distribution centers development over the past decade from Cranbury Township was compared to Regional Planning Partnership's (RPP) 1996 build-out analysis. RPP analyzed development build-out scenarios in composite categories such as "warehouse/industrial" or "business/commercial."

Data on 24 completed and/or approved warehouse and distribution center projects was collected from the Cranbury Township tax assessor. The total square footage developed since 1996 was summed and subtracted from the RPP total available land area to update the amount of square footage available for development as of 2006. RPP's land use assumptions were carried through in this way, including constrained land and a 20% set aside for roads and environmental constraints, which was a rule-of-thumb modeling convention that was employed by RPP.

The build-out update demonstrates that after the warehouse and distribution center space developed over the past 10 years is deducted from what was estimated to exist in 1996, only about 2.2 million square feet of industrial/warehouse land is still available in Cranbury Township for future development. In 1996, RPP estimated that there was approximately 12.7 million square feet of available industrial space in Cranbury. The post-1996 developed figure collected from the Cranbury Tax collector indicates that approximately 10.5 million square feet has been built in the past decade. Furthermore, an additional 810,000 square feet was in the Cranbury pipeline in 2006. If approved, this suggests that Cranbury has approximately 1.4 million square feet to be developed as industrial or warehouse and distribution center space in the foreseeable future.

Findings

Cranbury was frequently cited as a municipality that has planned correctly from a variety of quarters surveyed for this study. Cranbury segregated its land uses in an effective manner. It successfully generated considerable tax revenues in attracting warehouse and distribution centers that it then employed to underwrite a significant amount of preserved farmland. The agriculturally preserved lands are located to the west of its village center to buffer that center. The warehouse and distribution centers have been largely concentrated in an "island" between Route 130 and the New Jersey Turnpike.

In addition, the private sector developers laud Cranbury's planning process for its predictability and lack of delay. Developers reported an ability to get through the process within 60 to 90 days. They attributed the situation to the experience of the governing body, the planning board, professional staff and consultants and the quality of the master plan and the zoning ordinance. Nevertheless, Cranbury is approaching build-out, having experienced significant warehouse and distribution center development over the past decade. Traffic concerns resulting from conflicts between residential and distribution center roadway use remain to be addressed. Monroe Township representatives raised concerns about the overspill effects that result from the location of Cranbury's distribution centers in proximity to Monroe's border.

East Brunswick, N.J.

East Brunswick Township Profile:
Location: central Middlesex County; land area: 21.954 square miles; population: 43,548 (1980), 46,756 (2000), 49,033 (2005); race: 73.1% White, 3.1% Black, 19.5% Asian, 5.1% Hispanic; Density: 2,233.5 persons/square mile; per capita income: $37,404 (2005); Household Median income: $85,134 (2005); poverty rate: 2.8% (2000); employment, 27,193 jobs (2004); unemployment rate: 4% (2004); median single-family house: $212,800 (2000); rent: $877/month (2000).

MASTER PLAN (1990)

East Brunswick adopted its Master Plan in 1970. It was re-adopted in 1982. That Master Plan anticipated a build-out by 2000. A subsequent Master Plan was adopted in 1990 after a re-examination in 1976 and review and update took place in 1984. The 1990 Master Plan was re-examined in 1995, and again in 2005. In addition, a Housing Element was developed in 1995 and certification was conferred by the New Jersey Council for Affordable Housing (COAH) in 1997. In February 1999, a re-examination report on the Land use Element was adopted. It included a re-zoning to lower density areas in proximity to environmentally sensitive areas. In March 2001, an open space and recreational plan element was adopted. During that time, farmland and open space was acquired and preserved. In May 2004, a redevelopment plan was adopted that concentrated on areas around Route 18 and Tices Lane, calling for mixed-use and a transit village with new housing near this proposed transportation center. In 2004, a bikeway was completed along Ryders Lane which connected the municipal complex with the Brunswick Square Mall on Route 18.

Town Character

In an application for a planning grant to the New Jersey Department of Community Affairs (NJDCA) in 1972, municipal officials described East Brunswick as "an exciting and active community with tremendous potential for growth as a model for suburban community development. As a fast growing municipality of 38,000 with somewhat less than 50% of its land developed, East Brunswick can still substantially shape its future while at the same time correct past inadequacies in planning concepts and designs. The community is ready to take hold of its future and mold a truly fine suburban environment."

East Brunswick seems to have developed to meet those expectations. It is an attractive maturing post-World War II suburb. Its largest single land use category, which comprises approximately 27.5% of the municipality or 3,902 acres, consists of residential single-family and two-family dwellings. The Township also includes 499 acres or 3.5% for multi-family townhouses and apartments. The predominant residential use is single-family homes. The housing is mainly located on the eastern side of the municipality.

The western portion of the Township is less developed and includes a 6.7 square mile rural preservation zone. Its major commercial area is largely located along its Route 18 five-mile strip. It includes retail stores, offices, three very large and numerous smaller malls. The Tower Center Complex just off Route 18 includes two office towers, a Hilton Hotel, a convention center and a commuter park-and-ride facility. Development towards the center of the township, away from the heavily traveled and developed commercial strip area on Route 18, has been characterized by an influx of doctors, dentists and other medical professional providers in proximity to Cranbury Road.

East Brunswick also has two subsidized senior living developments with 232 apartments. Additional facilities are presently proposed that would make available more than 1,000 rental units for the area's seniors in addition to operating assisted living facilities in various stages of development.

Land Use Issues

East Brunswick is a reasonably well-planned suburban municipality. It is overwhelmingly residential, relying on its Route 18 strip for tax ratables to stabilize the costs generated by its residential uses. Its industrial zone has remained largely unchanged over the past two decades. The Township seems to take pride in its planning efforts in shaping an attractive, suburban community. It appears to have succeeded in balancing growth with resource conservation through responsible land use planning.

Circulation Issues

The 1990 Master Plan pointed to a number of necessary road widenings and signal improvements related to Summerhill Road, Hardenburg Lane, Ryders Lane and the importance of a bikeway. Most have been achieved. The Master Plan also called for the need to manage traffic over the long-range, particularly with respect to traffic peaks in the mornings and afternoons. It listed a number of possible traffic management techniques. It also pointed to the need to coordinate circulation with its neighbors in light of the regional roadway network.

Development Trends

Today, East Brunswick is nearly built-out. Its Route 18 five-mile strip and more recent medical professional development offsets the costs associated with residential developments. Its industrial zone, which largely developed in the late 1970's and 1980's has remained relatively unchanged since that period. For purposes of this study, it provides testament to an earlier generation of warehouse experience.

Findings

East Brunswick is the northern "book end" of the Exit 8A Study Area. Representatives voiced greater concern with New Jersey Turnpike Exit 9 than with Exit 8A. The main concern with Exit 8A was back-ups that might affect traffic congestion at Exit 9. The East Brunswick experience provides valuable insight into an older generation of warehouses and distribution centers, the municipality's success in locating them away from residential uses and their potential for their adaptive re-use.

East Windsor Township, N. J.

East Windsor Profile

Location: eastern Mercer County; land area: 15.645 square miles; population: 22,583 (1990); 24,919 (200); 27,376 (2005); race (2005) 68.8% White, 9.4% Black, 12.8% Asian, 18.3% Hispanic; density: 1,749.8 persons/square mile (2005); income per capita: $33,927 (2005); median household income $74,074 (2005); poverty rate: 5.3% (2000); Households: 9,448 (2000); employment: 14,340 (2000); unemployment rate: 2.7% (2004); median single-family home value: $152,600 (2005); median rent: $791/month (2000); characterization: mostly suburban with a mix of residential, commercial, industrial and agricultural uses with Route 130 developing as a major commercial strip in contrast to Hightstown which historically served as the Township's market center.

MASTER PLAN (2002)

East Windsor issued its last Master Plan update in 2002 and its zoning map labeled as revised as of December 16, 2004 is considered current. In addition to this study, the Township is also participating in a land use data gathering effort by the New Jersey Turnpike Authority (NJTPA) and a Route 130 visioning study being managed by DVRPC and the Mercer County Chamber of Commerce.

Town Character

East Windsor Township contains a mix of development types, including single-family and planned unit residential, commercial, industrial/warehouse and environmentally-sensitive areas. Residential development has grown rapidly as evidenced by recent significant population growth. Most notably, East Windsor Township is the location of Twin Rivers, a sizable planned unit development (p.u.d.) that sits astride Route 33. An industrial district exists along Route 33 near Twin Rivers and was initially planned as part of it. Additional industrial land exists along a section of the Route 133 By-pass and near the southern border of Hightstown Borough between CR 533 and York Road. Historically, Hightstown served as East Windsor's town center. More recently, East Windsor has experienced robust commercial strip development along its Route 130 corridor.

Land Use Issues

Development in East Windsor has been trending away from industrial and more toward residential and campus-type office development, although several significant industrial sites have been constructed in the past few years. East Windsor is also part of foreign trade zone. Conflicts between warehousing and resulting truck traffic and various residential developments have been cited as major concerns. East Windsor Township is also monitoring the Monroe Township planning process on its Route 33 corridor as it will have an impact on East Windsor. The East Windsor Mayor has indicated that it has only a few vacant parcels that are not likely to be developed any time soon. Consequently, East Windsor views itself as largely developed. The most recent Master Plan Reexamination recommended a concentration of industrial and commercial sites at strategic locations, rather than scattered locations. The East Windsor website continues to promote the Township as a hub for office development and even lists sites that are

available for lease or under construction. A handful of sites zoned for industrial-office use are listed ranging from less than one acre to 73 acres in size.

Circulation Issues

East Windsor is served by several major interstate, U.S. state and county highways. The New Jersey Turnpike cuts through the eastern edge of the Township and New Jersey Turnpike Exit 8 is a major point of entry and important interchange with Route 33. The Route 133 bypass road has reportedly been useful in relieving north-south traffic since its opening. Route 130 also runs north-south through the Township and is often used as an alternative route to the New Jersey Turnpike for regional truck traffic. East Windsor Township officials have noted that a major concern is the proposed widening of the New Jersey Turnpike between Exits 8A and 6. This improvement is expected to affect truck traffic patterns through East Windsor. The concern has been heightened as a result of lifting of a truck ban that was overturned in court. Several county roads including, Routes 535, 539, 571, and 630 traverse East Windsor. To help alleviate congestion, several transit options are currently offered by the Township including the East Windsor Community Bus (serving primarily seniors), the Princeton Junction Train Station Shuttle (operated by East Windsor and Hightstown) and the Route 130 Connection Shuttle (administered by Mercer County and serving locations on Route 130 from Exit 8A to the Hamilton Train Station).

Development trends

East Windsor officials contend that truck traffic will persist as a major concern. They anticipate conflicts with residential uses for the foreseeable future and at least until the New Jersey Turnpike widening is completed. The East Windsor Mayor expects traffic congestion on local roads resulting from New Jersey Turnpike traffic congestion overspill and remains outspoken about this situation.

Data on warehouse development over the past decade was requested from East Windsor Township to update Regional Planning Partnership's (RPP) 1996 build-out analysis. RPP analyzed development build-out scenarios in composite categories such as "warehouse/industrial" or "business/commercial". The RPP build-out analysis unfortunately did not include a warehouse/industrial category for East Windsor, despite evidence that an industrial zone has existed for over 15 years in the Township. Lacking a 1996 projection, a build-out analysis comparison for East Windsor is not possible. However, the post 1996 warehouse development figures indicate that there was relatively small industrial land development in East Windsor since 1996 as indicated by the table below. There has been additional warehouse development approved, however, since that time.

Figure 16 (Table 4):

Warehouse & Distribution Centers East Windsor Twp. (1996-2005*)

Firm/Constructed	Square feet	Year
Conair	175,000 square feet (warehouse addition)	2001
Firm/Approved		
Conair (Warehouse)	454,000 square feet	2004
East Windsor Business Park (Warehouse)	162,760 square feet	2005
Coastal Insulation (Warehouse)	29,550 square feet	2005
Shiseido (Warehouse addition)	53,100 square feet	2005
East Windsor Associates (Warehouse complex)	206,481 square feet	2005

*Source: East Windsor Township

Findings

An examination of East Windsor Township planning documents and interviews indicate that this municipality has undergone significant population and economic growth since 1996. The absence of RPP build-out projections prevented an updated estimate of available land. Nevertheless, the information provided by the Township indicates that East Windsor has trended away from warehouse and distribution center development in favor of campus office and commercial retail development. It is rapidly approaching build-out as local officials consider the Township to be nearly fully developed.

Hightstown Borough, N. J.

Hightstown Borough Profile

Location: central Mercer County; land area: 1.227 square miles; population: 4,896 (1990); 5,216 (2000); 5,352 (2005); race (2005) 73.8% White, 7.6% Black, 2.9% Asian, 25.1% Hispanic; density: 4,362.8 persons/square mile (2005); income per capita: $34,634 (2005); median household income $$76,906 (2005); poverty rate: 7.3% (2000); households: 2,001 (2000); employment: 3,417 (2000); unemployment rate: 4.5 %; median single-family home value: $141,300 (2005); median rent: $820/month (2000); characterization: small town with historic feel, settled in 1721 and incorporated in 1853, completely surrounded by East Windsor, for many years it served as the market center for the surrounding agricultural area.

MASTER PLAN (1998)

The most recent Borough of Hightstown Master Plan, was completed in 1998 with a Reexamination in 2004. Its land use ordinance, currently available for download through the Borough's Website has been updated as of September 12, 2005.

Town Character

Hightstown Borough prides itself on its historic charm and walkability. It has taken actions in the past few years to enhance its historic village-like quality and to bolster its economic viability. Its population is small, a little more than 5,000 residents. Its population growth has been slow from 4,896 people in 1990 to approximately 5,352 people in 2005. Major roadways through Hightstown include State Route 33 and County Routes 539, 571, 633 and 685. Route 133, known as the "Hightstown Bypass" passes through East Windsor in proximity to the Borough.

Land Use Issues

Hightstown Borough's zoning policies aim to enhance the economic strength of Hightstown as a center and redevelop former industrial sites with additional housing, retail and office space.

Circulation Issues

Hightstown Borough has experienced an increased volume in large trucks that traverse its downtown on the major State and county roadways that cross this historic village. It is strongly believed that these trucks are either traveling to or from the warehouses and distribution centers located in neighboring East Windsor, Monroe, Cranbury and South Brunswick.

Development trends

Hightstown Borough has no large undeveloped tracts of land within its boundaries for future large-scale development to occur. Continued revitalization, including new and renovated housing has become the focus of municipal planning efforts. A former bottling plant and a former mill in the Borough include plans for redevelopment. It is yet unclear just what form this redevelopment will take.

The completion of Route 133 has eased traffic in the eastern part of Hightstown Borough. However, other traffic-related issues continue to concern local officials. Warehouse and distribution center construction in adjacent and neighboring municipalities has resulted in increased truck traffic throughout the region. The Hightstown Borough Mayor repeatedly voiced concerns of additional expense related to the fact that the Borough has had to accommodate increased truck traffic. He also asserted the borough is incapable of benefiting from the attractive ratables that other municipalities are capable of attracting, i.e. warehouse and distribution centers. He has expressed a need to re-route truck traffic; or in the alternative, at the very least, to share the municipal expense caused by that traffic with those who have benefited from those additional revenue sources.

As the Hightstown Borough Master Plan Reexamination notes, all growth in Hightstown will be accommodated on currently developed lots through redevelopment. Development densities will increase by subdividing lots and converting single-family dwellings to multi-family, adding commercial development in residential zones and building new commercial above what currently exists through the adoption of new height limits. Hightstown has met its Council on Affordable Housing (COAH) obligations through regional contribution agreements (RCA's) and inclusionary zoning. Hightstown Borough expects a modicum of additional affordable housing obligation emanating from the redevelopment of its two former industrial sites.

The Borough's Reexamination Report also recommends redevelopment of properties within its Industrial Zone. It specifically makes mention of the former Minute Maid bottling plant, advising redevelopment in the form of a mix of retail, residential and perhaps office uses. An old mill site, formerly a rug and carpet factory, is also expected to be redeveloped with a mix of residential and retail uses.

Hightstown's major concerns relate to anticipated increases in warehouse and distribution facilities in nearby municipalities that are likely to add to the already existing truck traffic that passes through its downtown on State and county roads. The proposed New Jersey Turnpike widening along with an about to be built hospital in Plainsboro are expected to further exacerbate this situation. It is reported that truck traffic congestion currently slows peak-hour driving times significantly, especially in the southern part of the Borough. This situation is expected to worsen with any additional warehouse and distribution center construction.

Findings

Hightstown Borough's modest redevelopment plans will not add significantly to regional traffic congestion. Nevertheless, despite the improvement to traffic circulation resulting from the construction of the "Hightstown By-pass," Hightstown continues to pay the cost of the over-spill effects of the development and operation of warehouses and distribution centers throughout this region. The Borough's Mayor repeatedly points to the additional costs it incurs, without the ability to compensate through the attraction of these structures as lucrative ratables. The truck traffic congestion also undermines the Borough's quality of life and its vision as an attractive, walkable historic village.

Jamesburg, N.J.

Jamesburg Borough Profile

Location: southern Middlesex County completely surrounded by Monroe Township and nestled in its northwest corner; land area: 0.843 square miles; population: 5,294 (1990), 6,025 (2000), 6,661 (2005); race: 80.3% White, 9.0% Black, 2.6% Asian, 13.9% Hispanic; density: 7,902.8 persons/square mile (2005); income per capita: $26,184 (2005); median household income: $65,810; poverty rate: 3.5% (2000); employment: 3,257 (2004); unemployment rate: 3.2% (2004); median single-family home value: $257,100(2000); median rent: $777/month (2000); characterization: Jamesburg Borough is a compact, less than mile square business district with two residential areas, one pre-World War II, gridiron settlement pattern and a second which is more typical of post World War II subdivisions. It is completely surrounded by Monroe Township.

Master Plan (2002)

Jamesburg Borough adopted its most recent Master Plan in October 2002. The Borough considers itself completely built-out, entirely surrounded by Monroe Township.

Town Character

Jamesburg Borough is a mixed-use, compact community. No large-scale development can take place at this time. It was incorporated in 1887 when it withdrew from Monroe Township, which at the time was a predominantly agricultural community. Jamesburg was its town center. Jamesburg today is 95% developed. Its future emphasis will be on modest redevelopment and infill. It views its challenges as those related to preservation and redevelopment. It is primarily a residential community and will remain dedicated to that purpose for the foreseeable future. It may be interested in promoting a modest-sized senior citizen development in proximity to the county park, while upgrading the existing housing stock and maintaining zoning and housing code standards through enforcement. It is sewered and makes use of a public water system. It has been certified by the Council on Affordable Housing (COAH) in 2000 with a surplus of 27 affordable housing units.

Land Use Issues

As a fully developed municipality, Jamesburg Borough has limited issues in terms of land use. Its Master Plan acknowledges the importance of carefully coordinating its activities with surrounding Monroe Township. Its Master Plan's most ambitious goals have to do with housing, downtown revitalization and open space. With respect to housing, it expects to engage in modest redevelopment that will remain sensitive to existing uses and accommodating to existing infrastructure capacity. For its open space goal, Jamesburg Borough expects to maintain the Borough's image as a green treed community with adequate open space and ample recreational opportunities.

Circulation Issues

Jamesburg Borough expects to maintain its road and transportation system which will enable the safe and efficient of its people and movement of goods. It does have an historic rail line that runs through the center of its downtown business district.

Development Trends

Jamesburg Borough is a 95% built-out. Its downtown was once the commercial center for an expansive and highly productive agricultural area that has since been suburbanized. It is completely surrounded by Monroe Township. It faces some local challenges with respect to the physical age of its dwelling units, a few incompatible, adjacent uses and improper conversion activity. It also has an area of wetlands and a floodplain that serve as environmental constraints. It acknowledges that any future development or redevelopment activity will have to be closely coordinated with Monroe Township.

Findings

Jamesburg Borough, despite numerous efforts to reach out to Borough planning consultants, did not participate in the stakeholder forums. The Borough has a small staff and only limited planning capacity. In light of its built-out nature, its future redevelopment plans will have limited, if any, impact on the issues raised by this study.

Monroe Township, N.J.

Monroe Township Profile

Location: southern Middlesex County in close proximity to New Jersey Turnpike Exit 8A; land area: 41.943 square miles; population: 22,235 (1990), 27,999 (2000), 33,224 (2005); race (2005): 92.2% White, 3.1% Black, 2.8% Asian, 2.9% Hispanic; density: 792.1 persons/square mile (2005); income per capita: $36,727 (2005); median household income: $61,248 (2005); poverty rate: 3.3% (2000); employment: 9,680 (2004); unemployment: 5.5% (2004); median single-family home value: $174,100; median rent: $877 (2000); characterization: mostly suburban, with a mix of residential, including a number of master planned, age-restricted communities, along with commercial, industrial and decreasing agricultural uses. In addition, the Borough of Jamesburg is located entirely within a small area and completely surrounded by Monroe Township, nestled in its northwest corner.

MASTER PLAN (2003)

Monroe Township adopted its most recent Master Plan in July 2003. Its land development ordinance labeled as "current through October 4, 2004" is considered current. In addition to this study, the Township is also participating in a land use data gathering effort by the New Jersey Turnpike Authority.

Town Character

Monroe Township contains a mix of development types, among them are suburban and village residential, including age-restricted planned villages, commercial, industrial/warehouse and environmentally sensitive areas. Residential development has grown rapidly as evidenced by recent population growth, although development of new residential uses, along with other development types within the Township, is now generally limited to redevelopment and infill.

Monroe Township has a large undeveloped district along Route 33, currently zoned for industrial and commercial. Since the adoption of the 2003 Master Plan, utilities have been extended along this corridor and various development options are in the process of being considered for those properties. Discussions for the area have included major commercial retail, residential, industrial – warehouse and distribution centers, a minor league baseball stadium and a park-and-ride. The precise nature of this development remains inconclusive at this time.

The 2003 Master Plan reported that the Township's land area included approximately 639 acres, or 2.4 percent, as industrial, while a much larger percentage was either vacant/agriculture (51 percent) or residential (24 percent). Public/recreational lands accounted for 12.2 percent of total land use.

Land Use Issues

Monroe Township is overwhelmingly residential with some commercial and preserved open space. According to the zoning map adopted July 26, 2005, industrial development

is limited to the eastern area of the Township close to the New Jersey Turnpike in addition to several small districts along the Northeast Corridor rail line.

Of all the municipal participants in this study, Monroe Township representatives raised the strongest concerns about the conflicts between truck traffic and existing land uses. Monroe had the historic misfortune of witnessing the approval and construction of a number of age-restricted villages in the 1960's and 1970's two decades before warehouse and distribution center development exploded in the 1990's. Truck traffic to and from the warehouses and distribution centers often drive past these villages. Inevitable conflicts arise, arousing vocal and politically active senior citizen residents. Monroe Township representatives at the stakeholder forums were also outspoken in raising concerns about trucks frequently parked and sometimes idling on shoulders along roadways, thereby raising serious public health and safety concerns. The situation led to additional demands for more stringent law enforcement.

Monroe Township representatives raised specific concerns with respect to the Costco facility. According to those representatives, the facility operates more like a "terminal" than a distribution center. In addition, it was reported that the Costco facility permitted truckers only a limited window of opportunity to load and unload. This situation sometimes resulted in truckers parking and idling along side of the road awaiting entry to the facility.

Circulation Issues

Monroe is served by several major state and county highways. Route 33 and County Route 612 (Matchaponix Road), both four lanes wide, are the two largest arterial roadways in Monroe Township. The New Jersey Turnpike cuts through the eastern edge of the Township and is a major truck corridor. New Jersey Turnpike Exit 8A is located at the Township's border with South Brunswick. U.S. Route 130, which runs north-south through the center of Monroe Township is an important regional travel corridor. Several other county roads including, Routes 522, 535, 614, 615 and 619 traverse Monroe.

The Master Plan Circulation Element recommends extensions of three roadways: Spotswood/Gravel Hill Road, Schoolhouse Road, and Federal Road. It also recommends realignment of Wykoffs Mills-Applegarth Road and addition of service roads parallel to Route 33 once a development plan for the corridor is implemented. Improvements at the New Jersey Turnpike Exit 8A interchange including a new ramp that allows inbound trucks to avoid nearby residential streets. The construction of Costco Way through the Monroe-Cranbury border creates an additional east-west corridor in an area that is heavily occupied by warehouses and distribution centers, but surrounded to the north, south and east by residential districts.

Monroe Township representatives have noted the continuing conflict between the desire to build more age-restricted residential developments and the desire to accommodate existing and new distribution centers. The Docks Corner area contains both age-restricted housing and distribution centers, raising truck traffic congestion concerns, there as well.

Another issue frequently voiced is related to truck back-ups on the New Jersey Turnpike, resulting in vehicles exiting the New Jersey Turnpike and using regional roads and local streets as alternatives. While weight restrictions on selected roads have limited these effects in some cases, Monroe Township representatives continued to express the view that this problem will persist until the New Jersey Turnpike widening south of Exit 8A is completed.

Development trends

Development in Monroe Township has been trending away from industrial construction and more toward residential and commercial developments, according to local planning officials. This trend was noted, although large industrial sites, e.g., Costco, have been constructed in the past few years. Monroe Township is also in the process of creating a watershed/wetlands conservation area that will cover approximately 25 percent of the municipality's total land area. In the summer 2006, the Township was still discussing the potential for major development, approximately 1,000 acres, along Route 33 east of East Windsor on Monroe Township's southern border. Warehouses and distribution centers were likely to be a part of that development when it finally takes shape.

Aside from anticipated future development along Route 33, Monroe Township officials anticipate only small scale development projects throughout most of the Township in the future. Nevertheless, additional age-restricted housing has been constructed in recent years and will likely increase in the foreseeable future. The Docks Corner area in the northwest corner of Monroe contains both old and new industrial/warehouse sites as well as residential and recreational districts. Some of the land is contaminated. The concept of rezoning the land as commercial has been met with concern by homeowners who object to the possibility of additional warehouses that may bring additional truck traffic. Township representatives expect to reach agreement on an "optimal mix" to minimize any future conflicts between residents and truck traffic.

Township officials expect that truck traffic will continue to be a problem and conflict with residential uses for the foreseeable future. It is hoped that the New Jersey Turnpike widening south of New Jersey Turnpike Exit 8A will ease this situation. The amount of likely future warehouse and distribution center construction in Monroe Township is unclear. Local public resistance has grown and has been noted. Yet the precise zoning for Route 33 and Docks Corner areas have yet to be determined. A park-and-ride lot as part of the Route 33 development concept has been discussed and is expected to alleviate traffic congestion by intercepting commuters from points east that may be traveling through the Township.

Data related to warehouse and distribution centers development over the past decade was requested from the Township to update Regional Planning Partnership's (RPP) 1996 build-out analysis. RPP analyzed development build-out scenarios in composite categories such as "warehouse/industrial" or "business/commercial." The warehouse/industrial category in this region includes the large warehouses that are one of the focal points of this study.

Unfortunately, a complete list of warehouse properties developed post-1996 was not provided by the Township. Therefore a build-out analysis update of the RPP available warehouse/industrial land total could not be conducted for Monroe Township. In 1996, RPP estimated that Monroe Township had approximately 63.2 million square feet of industrial warehouse space available for future development based on 1996 zoning. In conversations with the Township's engineer and former planning consultant, 38 major distribution centers constructed since 1996 were identified. It was estimated that they amounted to approximately 48 million square feet, including Costco, which exceeded 1 million square feet alone. The Monroe Township engineer also estimated that an additional 1 million square feet was currently under construction. He estimated that approximately 10-11 million square feet remained available for such uses. That figure did not include the 9.8 million acres that he judged to be developable on Route 33. However, with respect to the Route 33 land, only a small portion was anticipated to be used as warehouses and distribution centers.

Findings

Discussions with Monroe Township officials and examination of planning documents made available indicate that this fast growing municipality has undergone significant population and economic growth since 1996. The absence of warehouse development records data prevented a more reliable update of RPP's previous build-out analysis. However, the information and data analyzed indicates that Monroe Township has undergone significant growth over the past decade, with respect to sizable distribution centers. Sensitivity to local residents' concerns may slow similar building over the course of the next decade, despite the facts that approximately 10 to 11 million square feet of potential distribution center space remains, plus some portion of the 9.8 million square feet that exist along Route 33.

Figure 17 (Table 5):

Monroe Township Distribution Center Construction (1994-2006*)

Name	Square Feet	Developer	Address (Block & Lot)
Davlyn Industries	N.A.	N.A.	58:22.10, 22.14
Grainger	N.A.	N.A.	47:18.09
Tyler Distribution	N.A.	N.A.	58: 22
Hann Financial	N.A.	N.A.	57.01: 7
Matrix	N.A.	Matrix Developmt.	3.07
Boy Scouts	N.A.	N.A.	57:3.07, 3.09
Rhone-Polenc	N.A.	N.A.	57:17
Matrix	N.A.	Matrix Developmt.	57: 3.08
Matrix	N.A.	Matrix Developmt.	57:3.10
Setco	N.A.	Morris-Englehard	58:02-21.02
Hunt-Wesson	324,540	Matrix Reality	47.01-2.02, 2.03
Davlyn Industries	152,729	Davlyn Industries	58:22.10,22.14
Rhone-Polenc	N.A.	Gen. Building	56:9.01
So.Middlesex Ind.Pk.	324,540	So.Middlesex Ind.Pk.	47.01, 2.02
Matrix	N.A.	N.A.	58:30
SMPA	N.A.	N.A.	57.01, 9
Cigna	528,441	So.Middlesex Ind. Pk.	46.01, 1.02, 8.03
Costco	1,227,123	Herbert Material	13-18/2.2,3
OHM	87,841	OHM Logistics	47.02,1
Matrix	204,000	Matrix Construction	47:18.12
Stainless	28,060	Stainless Place of NJ	58:28
Matrix	229,524	Matrix Realty Assocs.	47:18.12
Matrix	N.A.	Matrix Realty Assocs.	47.01, 1.02, 8,9
Prologis	N.A.	N.A.	47.8.06
USA Facility	288,420	Greenfield Realty	1.01/p.o.15.03
Greenfield	N.A.	N.A.	47.02, 4
Barnes & Noble	N.A.	N.A.	78.01, 2.01
Greenfield	983,230	Greenfield Realty	78:15.01-15.04, 17

*Source: Paul Gleist of Heyer & Gruel, planners for Monroe Township

Plainsboro, N.J.

Plainsboro Profile

Location: southwest corner of Middlesex County; land area: 11.838 square miles; population: 14,213 (1990), 20,215 (2000), 21,335 (2005); race (2005) 49.6% White, 6.5% Black, 39.6% Asian; 5.2% Hispanic; density: 1,802.3 persons/square mile; income per capita: $47,133(2005); median household income: $87,374 (2005); poverty rate: 3.0% (2000); households: 8,742 (2000); employment: 10,919 (2000); unemployment rate: 3.0% (2004); median single-family home value: $257,100(2000); median rent: $942/month (2000); characterization: an historic agricultural community that undergone rapid growth over the past three decades, including three distinctive areas—commercial campus offices along its Route 1 corridor and west of the Amtrak Northeast Corridor line, a village center and residential areas east of the Amtrak Northeast Corridor, and preserved open space and farmland to the east of the residential areas.

MASTER PLAN (1982) (2003)

The Master Plan was initially adopted in 1982. Since that time, Plainsboro has engaged in well-planned growth management, acquiring and maintaining large amounts of open space and preserved farmland and the development of its village center, which covers a land area of 0.672 square miles and was designed to be a mixed-use, pedestrian-friendly center. In 1998, Plainsboro underwent a major Master Plan Review. As part of that Review, the central portion of the Township was designated as the town center. An integrated plan for the village area that addressed land use, circulation, housing and other Master Plan elements was devised and eventually adopted through a participatory planning process. Plainsboro's Master Plan underwent a major update in the past three years.

Town Character

Plainsboro takes pride in being a well-planned community. It was historically an agricultural community. However, since 1970, it has undergone considerable growth which has altered its rural character. In the 1970's, three large developments were constructed including the Princeton Forrestal campus, a major office campus complex. More recently, Merrill-Lynch and Bristol-Myers Squibb have added to Plainsboro's office campuses. It is now a diverse community with a range of land uses and lifestyles. The Route 1 corridor contains the major office research, shopping and medium density residential developments. In contrast to these developed areas are secluded woods and preserved farmland east of the railroad. More recently, the municipality has concentrated efforts on the development of its mixed-use, neo-urban town center. It has sought to accommodate its anticipated suburban growth in managed ways, concentrating residential development, while simultaneously optimizing the use of protected open space and farmland, attempting to buffer its agricultural lands from incompatible uses.

Land Use Issues

Plainsboro, through its Master Plan, reviews and updates, has taken a comprehensive and managed growth approach to its land use. It has sought to segregate uses in rational ways, concentrating campus offices near its Route 1 corridor, clustering mixed-use in a village-like, pedestrian-friendly way near its geographic center and preserving open space

and agricultural lands in other locations further east and south. Plainsboro considers itself to be largely built-out at this time, expecting to accommodate a modicum of additional suburban growth to reach a population of approximately 23,000 people in the next few years.

Circulation Issues

Plainsboro views its major circulation issues as emanating from overspill or externalities from the growth of the Route 1 corridor on its west and from the area around Exit 8A on its east. The Mayor is an outspoken advocate on behalf of Plainsboro with respect to east-west traffic that moves between those two locations through Plainsboro. The principal east-west arterials are Plainsboro Road, Scudders Mill Road and Dey Road further to the east. The Mayor has long urged the construction of Route 92 to alleviate traffic congestion moving east-west on these arterials. In addition to the construction of that road, the Mayor advocated management of traffic growth especially during peak demand periods. Concerns about future office campus growth along Route 1 and continued warehouse and distribution center development in proximity to the New Jersey Turnpike Exit 8A are viewed as major issues, affecting Plainsboro's quality of life.

Development Trends

Plainsboro is expected to build-out with respect to residential development in the next few years. It has little interest in warehouse or distribution center development. However, it expects to absorb additional office space along its Route 1 corridor. Future office space may include as much as an additional seven million square feet which, according to the Mayor, may translate into an additional 13,000 jobs. The transfer of Princeton University's Medical Center to a Plainsboro site will further complicate this situation.

Findings

Plainsboro is a well-planned municipality that has taken steps to separate its land uses, lure attractive office campus ratables, preserve considerable amounts of open space and farmland and concentrate on a pedestrian-friendly, compact, mixed-use village center. Yet it now views itself as caught between extensive commercial development on its west along the Route 1 corridor and expanding development on its east around Exit 8A. Trucks move east-west between those two north-south corridors through Plainsboro to the extent that Route 92 is no longer an option. The Mayor continues to advocate for effective state and county actions to address these concerns.

South Brunswick Township, N.J.

South Brunswick Profile

Location: southern Middlesex County; land area: 40.860 square miles; population: 25,792 (1990), 37,734 (2000), 41,061 (2005); race (2005): 64.0% White; 8.7% Black, 22.8% Asian, 6.2% Hispanic; density: 1,004.9 persons/square mile (2005); income per capita: $38,628 (2005); median household income: $93,875 (2005); poverty rate: 3.1% (2000); households: 13,428 (2000); employment: 17,051 (2004); unemployment rate: 3.1% (2004); median single-family home value: $202,000 (2005); median rent: $ 969/month (2000); median housing age: 16 years (2000); characterization: a rapidly growing sprawling municipality that includes a mix of residential, commercial and major warehousing and distribution centers land uses that is in fact the location of New Jersey Turnpike Exit 8A.

MASTER PLAN (2001)

The South Brunswick Township Master Plan was last updated in 2001. The Township land use codes were last updated in 2004 and appear to be up to date. In addition to this study, the Township is also participating in a land use data gathering effort by the New Jersey Turnpike Authority. It embarked on a re-examination of its Master Plan in the beginning of 2007 and expects to complete that process by the end of the 2007 calendar year.

Town Character

South Brunswick Township contains a mix of development types, including suburban and village residential, commercial, industrial/warehouse and environmentally sensitive areas. Residential development has grown rapidly as evidenced by the Township's population growth. However, new residential uses are expected to be limited to redevelopment and infill. South Brunswick Township also includes such areas as Kingston, Monmouth Junction and Dayton, which contain older residential and neighborhood commercial land uses. These areas allow for higher densities than newer developed areas of the Township. The 2001 Master Plan reports that out of the Township's total land area, approximately 15 percent of land use was designated as industrial, while a much larger percentage was either vacant/agriculture (33.2 percent) or residential (26.4 percent). Public/recreational lands accounted for 21.8 percent of land use. The Township has been fairly successful in separating its warehouses and distribution centers from its residential areas, locating the warehouses and distribution centers for the most part in the eastern portion of the Township closest to the New Jersey Turnpike.

Land Use Issues

South Brunswick land use issues arise from a strongly perceived need to better separate truck traffic from residential areas. Overall, the majority of South Brunswick Township is residential, commercial, preserved farmland and open space. According to the zoning map adopted July 26, 2005, industrial development is limited to the eastern area of the Township near the Turnpike and a few small districts along the Northeast Corridor rail line toward the center of town. The eastern industrial areas appear largely buffered from

residential zones by public lands or commercial development, although some lands in the Rural Residential zone does abut an industrial zone just west of the Turnpike.

A second set of zoning concerns in South Brunswick that were voiced through the stakeholder forums were border issues along the South Brunswick-East Brunswick border. Among these issues were concerns expressed by East Brunswick representatives over storm water runoff and drainage associated with warehouse development. Zoning changes on that border to eliminate warehouses and distribution centers from that area should be helpful in these regards.

Circulation Issues

South Brunswick is served by several major U.S., State and county roadways. The New Jersey Turnpike cuts through the eastern-most edge of South Brunswick Township and is a major truck corridor. U.S. Route 130, which runs north-south through the center of town is also an important regional travel corridor. Proposed roadway expansion plans by the Township appear to be focused on improving east-west travel in the area between the New Jersey Turnpike at Exit 8A and Route 1 to its west. At least one project, the extension of Finnegans Lane east to Route 130, is expected to improve access between Routes 27 and 130 and is also tied to a transit-oriented development project. Another, the extension of Route 522, will eventually connect Route 27 to the New Jersey Turnpike Exit 8A location. Historically, South Brunswick has been opposed to the construction of Route 92, which was supposed to link the New Jersey Turnpike with Route 1. However, in the stakeholder forums for this study, South Brunswick municipal representatives expressed Township support for a highway extension from New Jersey Turnpike Exit 8A to Route 130 along with a Park-and-Ride expansion at that location, which has by now reportedly been completed.

Through the stakeholder forums for this study as well as individual interviews, South Brunswick representatives expressed the need to grapple with ways to improve the truck traffic situation affecting the Township. A major concern that was expressed was conflicts between major interstate haulers and South Brunswick's residential neighborhoods. It was notable that South Brunswick police officers frequently attended these forums to express concern about inconsistent motor vehicle regulations with neighboring municipalities within the Exit 8A Study Area, the lack of signage, public safety concerns related to van shuttles, and other oft-repeated concerns related to conflicts between truck traffic and South Brunswick's residential neighborhoods. The South Brunswick police officers present underlined the Township's lack of authority to restrict truck traffic on state or county roads. The 2001 Master Plan proposed designating a series of truck routes and improvements to those roads, in conjunction with restrictions on truck traffic on certain township roadways that contain heavy residential development. While an official truck network has not yet been implemented, the Township reports that it has posted over 50 informational signs guiding trucks over the best routes to reach their local destinations.

South Brunswick officials lent a high priority to addressing truck traffic concerns. The Township expected to address these concerns through the implementation of

informational/directional signage for truckers; and additional shuttle van and bus services to reduce vehicles mile traveled by single occupancy vehicles on local roadways. South Brunswick expressed its intention to work closely with Middlesex County to expand bus and shuttle options, including the Intra-Municipal Transit System. Funding was approved in 2006, reportedly for the planning and implementation of a shuttle operation that would serve local travel needs within South Brunswick.

Development trends

South Brunswick Development has been trending away from industrial and more toward residential and commercial development. It was estimated that between 1994 when the Master Plan Re-examination took place and 2001 when the Master Plan was adopted that approximately 875 acres of industrial development occurred, although concededly, a portion of that development included automobile dealerships and corporate centers. In addition, it was reported that several older industrial properties have recently been vacated. These sites are expected to be redeveloped for commercial and/or residential uses. Included among these and worthy of special note are the Brunswick Rubber and Occidental Petroleum sites. One was being considered for commercial shopping center redevelopment. The Occidental Petroleum site is under consideration for some commercial and a planned adult community. Both may require significant site remediation.

Residential development reportedly increased by an estimated 42 percent between 1994 and 2001. However, South Brunswick Planning officials now perceive only limited opportunities for future residential development, expecting the future to include an increasing number of small redevelopment and infill projects to meet South Brunswick's housing needs. No major residential subdivision developments are anticipated at this time. South Brunswick planning officials expect the future to include relatively small residential cluster developments in appropriately designated areas of the municipality.

Data on warehouse development over the last 10 years was requested from South Brunswick on numerous occasions. Despite repeated expressions that data would be forthcoming, the data was unfortunately never provided. A direct comparison with earlier work conducted by the Regional Planning Partnership's (RPP) in 1996 was therefore not possible. Nevertheless, as part of the 2001 Master Plan, the Township prepared a listing of the total vacant land for each of the zoning categories, including several types of industrial uses. This Master Plan-related work, based on tax maps and 2001 zoning, shows that there was a combined total of 1,172 acres of vacant land in all zones that included industrial development. Of that number 931 acres were located in upland areas, as opposed to wetlands. Essentially this gives a five year old estimate of all vacant land. This vacant land roughly translates into 40.5 million square feet, or with a 20% rule-of-thumb reduction for roads and environmental constraints, translates into 32.4 million square feet of additional industrial construction. The 1996 RPP build-out analysis projected approximately 62.8 million square feet of industrial warehouse space that might be available.

The South Brunswick Planning Official asked to verify the accuracy of these numbers questioned their validity. Instead, a recommendation was made to rely more heavily upon more recent warehouse and distribution centers data that were developed for South Brunswick's Council on Affordable Housing (COAH) Fair Housing Certification in 2004. That petition identified approximately 15 million square feet of potential warehouse and distribution center space. That same official reported that approximately 5 million square feet was approved for those purposes during the period 2004 – 2006, leaving just under 10 million square feet of remaining space by the spring 2007. However, he also reported that South Brunswick received applications for an additional 2-3 million square feet of space for warehouse and distribution centers in the past four months. The expectation is that there is now approximately only 7-8 million square feet of remaining space that may be developed in the next five years for those purposes.

Findings

Discussions with South Brunswick Township officials and a close examination of current planning documents indicate that this fast growing municipality has undergone significant population and economic growth since 1996. The absence of warehouse development records data prevented an update of RPP's build-out analysis. Nevertheless, unofficial estimates point to South Brunswick rapidly approaching build-out in terms of warehouse and distribution centers space, an occurrence likely to happen in the next five years according to both local officials and industry sources. This situation will likely transpire, despite reports that local officials are beginning to resist additional warehouse and distribution center development. In addition, South Brunswick officials appear to be adopting a "smart growth"-type approach to future development – more aggressively exploring the potential for infill, redevelopment and increasing transit options to continue to develop more sensitively to maintaining the Township's quality of life. Ways to retrofit the existing development pattern will be a major challenge.

Washington Township, N.J.

Washington Township Profile

Location: southeastern Mercer County; land area: 20.475 square miles; population: 3,487 (1980), 5,915 (1990), 10,275 (2000), 11,584 (2005); race (2005): 88.9% White, 32.0% Black, 6.2% Asian, 3.1% Hispanic; density: 565.8 persons/square mile (2005); income per capita: $40,8097 (2005); median household income $88,180 (2005); poverty rate: 3.7%; households: 4,074; employment: 3,960; unemployment rate: 2.2%; homeownership rate: 89.0%; median single family home value: $298,801 (2005); median rent: $711/month (2000); median housing age: 11 years (2000); characterization: growing suburban, formerly agricultural, with a mix of residential, commercial, industrial and continuing agricultural uses.

MASTER PLAN (2000)

Washington Township approved its Master Plan in 2000. It underwent a re-examination and upgrade throughout 2006, a process that was completed at the start of 2007. The re-examination and upgrade strengthened the emphasis on economic development, including recommendations for a single commercial zone and prohibition of housing along the Route 130 corridor. The emphasis on economic development is in keeping with the municipality's efforts to seek additional ratables to offset its increasing fiscal pressures. The Master Plan re-examination also directed paying greater attention to Washington Township's gateways on the northern boundary with East Windsor and to the south with Hamilton Township. Attention was also paid to the transition area between the warehouses and distribution centers in Washington Township and agricultural lands adjacent to Allentown. Finally, the plan endorsed the future development of the Gordon-Simpson tract near the center of the municipality that will support mixed-use, age-restricted housing and preserved open space in the future. Permit applications have since been made to the New Jersey Department of Environmental Protection (NJDEP) pursuant to the Master Plan.

Town Character

Washington Township has undergone dramatic population growth over the past three decades. It currently contains a mix of development types, largely segregated into residential and farmland preservation in the central and western portions and warehousing on the southwest and northern fringes in proximity to Route 130. Washington's "Town Center", located along Route 33, contains a mix of residential and commercial development, including higher density townhouses. It is the municipality's testament to "smart growth" in accordance with the New Jersey State Development and Redevelopment Plan (NJSDRP).

Washington Township includes two districts that are zoned for warehousing: the Office Warehouse (OW) District located along the northern stretch of Route 130; and the Planned Commercial Development (PCD) in proximity to Exit 7A of the New Jersey Turnpike. Large portions of these districts have been granted Foreign Trade Zone (FTZ) status. The Township promotes the FTZ as offering businesses substantial duty and insurance savings.

Washington Township has attempted to carefully balance development with open space preservation. It has successfully preserved approximately 5,300 of 13,000 acres as either farmland or open space.

Land Use Issues

Washington Township has planned carefully to segregate incompatible land uses, including residential and warehousing and distribution centers. Its zoning ordinance restricts truck access to residential districts with the exception of delivery and privately owned commercial vehicles. Washington Township continues to support and actively promote residential and commercial growth. In recent years, agricultural preservation efforts have clashed with residential development pressures. Fiscal pressures have recently led to a more aggressive pursuit for ratables. The fiscal pressures are in part to the result of new school construction and the fact that the town center has not yet been able to accommodate or attract new commercial development in phase with its rapid residential growth.

Circulation Issues

Washington Township is situated on the southern fringe of the Exit 8A Study Area at Exit 7A of the New Jersey Turnpike. It is served by several major roads, including the New Jersey Turnpike and I-195, State Routes 33 and130 and County Routes 526, 539 and 641. Routes 33 and 130 operate as one north of Main Street/Robbinsville-Allentown Road near the southwest edge of the Township. Trucks are restricted by municipal ordinance on roadways in most residential districts. Proposed traffic calming projects are designed in part to restrict large trucks from using certain roads. The municipality is situated along a crucial east-west corridor for regional truck and commuter traffic. Nevertheless, regional truck and residential traffic is considered a quality of life concern especially on and in proximity to Route 130 and along County Route 526.

Development trends

Washington Township views it development patterns as consistent with its Master Plan goals. However, both warehousing and residential development have placed increased stress on the Township's roadway network. Additional growth is expected in both sectors. Large warehouse sites have recently been approved or are under construction and additional housing is also being built. The Washington Township Town Center is an example of the effort to accommodate residential and commercial development in the form of a neo-traditional style downtown. The Town Center, now entering its final phase of construction, features approximately 1,000 housing units on small lots in a grid-like pattern. It will feature 95,000 square feet of high-density retail development including pedestrian-oriented shops and restaurants and 70,000 square feet of attractive office space.

Washington Township municipal officials consider Washington Township to be "planned out." These officials are proud of the careful steps taken in the past to promote numerous land uses within its borders, while trying to avoid negative impacts, such as truck traffic on local streets. Transfer Development Rights (TDR's) have been considered with

respect to encouraging more warehouse development in the PCD zone near Exit 7A. This approach would be consistent with the Township's development goals of concentrating various land uses in appropriate clusters, including the Town Center and designated areas for office, warehouse and distribution centers along major highway corridors.

The Planned Commercial Zone (PCD), consisting of about 750 acres near Exit 7A is intended to be a hub for warehousing and large scale commercial development. Most development approvals have occurred since the 2000 Master Plan was written. For much of the time since, the majority of parcels remained vacant. The other industrial district is the Office/Warehouse District located in two relatively small areas along Route 130 at the northern and southern borders of the Township. The northern zone is constrained by residential development and roadway geometry issues, while the southern location has environmental constraints that will likely limit future large-scale development opportunities.

Although Washington Township has managed to avoid the traffic/residential conflicts that burden other municipalities in the Exit 8A Study Area, traffic congestion concerns are likely to grow due to the anticipated increase in both local and regional commuter trips and goods movements. Municipal officials suggest that County Road 526 will likely experience increasing conflicts between truck traffic and local residential traffic. The Master Plan recommends numerous improvements to the south end of Route 130 to accommodate the higher density mix of uses emerging from the Town Center's development. Further study is also needed to determine appropriate means of access improvements to the two OW districts. Local officials have also expressed strong support for the Route 33 by-pass which has been long discussed with the NJ DOT.

Data on warehouse and distribution center development over the past decade was collected from the Township to update the Regional Planning Partnership's (RPP) 1996 build-out analysis. RPP conducted theoretical development build-out scenarios for numerous municipalities using several composite categories of land use such as "warehouse/industrial" or "business/commercial".

With respect to Washington Township, data on 21 completed or approved warehouse projects was collected and compared to a land availability estimate made by RPP in 1996. RPP's land use assumptions were carried through in this analysis, including constrained lands and a 20 percent set aside for roads, with only one exception.

Using RPP's Industrial/Warehouse available land figure as a baseline, the developable square footage in Washington Township was significantly less, showing a difference of more than 4.8 million square feet less than the actual amount of warehousing developed or approved by the Township between 1996-2006. Warehouse zoning has not changed in at least 20 years. The figures provided by Washington Township are assumed to be accurate; and the RPP baseline rejected.

The total amount of warehouse and distribution centers constructed and currently in the pipeline over the past decade amounts to approximately 7.4 million square feet. Another 3.4 million square feet is expected to be proposed shortly, which may bring Washington Township near its build-out capacity, at least with respect to its PCD zone.

Findings

Although Washington Township has carefully planned its development, concentrating different types of development in clusters to avoid land use conflicts while also preserving significant amounts of farmland and open space, future traffic congestion emanating from residential commuters and truck traffic from proposed and future warehouse and distribution center operations will add to Washington Township's traffic concerns. Its PCD zone at the intersection of the New Jersey Turnpike and I-195 may build-out in the near future at about 10 million square feet of distribution center space. It may develop its other industrial areas in similar ways, but most likely less intensely.

Figure 18 (Table 6):

Washington Township PCD Zone (2007)* **

Occupied		Under Construction		Proposed	
Bindrite	200,017 s.f.	OPUS	471,200 s.f.	Matrix 100	179,200 s.f.
Levitz	1,000,573 s.f.	KTR	1,016,300 s.f.	Matrix 500	750,063 s.f.
TAH	138, 956 s.f.	Matrix 200	241,662 s.f.	Matrix 600	203,219 s.f.
LtHoan	699,600 s.f.	Matrix 300	480,420 s.f.	Matrix 700	629,288 s.f.
Mercedes	459,973 s.f.	Matrix 400	800,311 s.f.	McM Carr	574,795 s.f.
Borhens	172,609 s.f.			Matrix 800	1,039,500 s.f.
McM Carr	408,729 s.f.				
Sleepy's	257,082 s.f.				
Denby	151,580 s.f.				
Grainger	396,416 s.f.				
C & I	264,845 s.f.				
McClean	230,868 s.f.				
TOTALS:	*4,379,248 s. f.*	*3,009,893 s. f.*		*3,376,065 s. f.*	

*Source: Washington Township Community Development Director

** Interviews with Washington Township officials suggest that taking already approved projects into account, this development is nearly built-out.

Appendix 2

Internet Mapping Tool Description & Explanation

The New Jersey Turnpike Exit 8A Area Transportation/Land Use Study employs two interactive mapping applications. The first (http://www.communitymap.net/exit8a) is based on Google Maps API. The second interactive map (http://www.gismap.us/exit8a) uses Vertices' Interactive Maps engine.

The first interactive mapping application is a tool through which planners or warehouse and distribution centers' owners or operators may directly identify, analyze and update existing warehouse and distribution center sites and also add new sites in the New Jersey Turnpike Exit 8A Study Area based on the public participatory GIS approach. Authorized members log in with a unique ID and password and have the ability to add and edit data. Each warehouse is coded with a truck designated route symbol. Users can view the warehouse or distribution center sites which includes detailed information as well as aerial photography.

The second interactive mapping application provides secure access for planners. The application utilizes updated warehouse and distribution center information from the other interactive maps and has many other GIS data layers for spatial analysis, including municipal boundaries, open space, wetland, water, land use and land cover as well as additional census data. The application has search functions, spatial query, and measuring tools to calculate distance and area. Both interactive mapping applications can be viewed with regular Internet web browsers.

A reliable means to operate this tool and maintain and manage the accuracy of its data remains to be created. It is included among the recommendations of this report.