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Reducing Costs of Purchased Transportation for State Agencies

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16. Abstract

The objective of this research study was to determine more efficient and effective ways to provide transportation to the consumers supported by New Jersey's human service departments and divisions. Researchers inventoried transportation used by human service consumers and investigated strategies that could be used to reduce the cost of this transportation and/or to enhance the transportation services. Study tasks focused on a comprehensive literature review, interviews with state human service divisions whose transportation programs were under consideration, and data analysis to demonstrate the potential of public and community transportation to serve human service consumers. Ultimately, the research team identified seventeen promising practices that should be considered to promote better and more efficient ways to provide transportation to human service consumers, as these strategies have the potential to yield benefits for many stakeholders. The majority of these practices attempt to negotiate the difficulty of taking consumers from their origins/destinations to where traditional transit can be accessed. Other promising practices focus on changing the nature of the relationships between and among stakeholders to promote better coordination of transportation services.

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ABBREVIATIONS AND ACRONYMS

AAA	Area Agency on Aging
ADA	Americans with Disabilities Act of 1990
ATI	Association of Travel Instruction
CBVI	Council for the Blind and Visually Impaired
CRF	New Jersey Casino Revenue Fund
CSBG	Community Services Block Grant
DoAS	Division of Aging Services
DCF	Department of Children and Families
DDD	Division of Developmental Disability Services
DDS	Division of Disability Services
DFD	Division of Family Development
DHS	Department of Human Services
DMHAS	Division of Mental Health and Addiction Services
DVRS	Division of Vocational Rehabilitation Services
FTA	Federal Transit Administration
GAO	Government Accountability Office
GTFS	General Transit Feed Specification
JARC	Job Access and Reverse Commute Program
MAP-21	Moving Ahead for Progress in the 21st Century Act
MCOTA	Minnesota Council on Transportation Access
NJCAM	New Jersey Council on Access and Mobility
NJDOT	New Jersey Department of Transportation
NTD	National Transit Database
PATH	Port Authority Trans-Hudson
RTAP	Rural Transit Assistance Program
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
TANF	Temporary Assistance for Needy Families
TBI	Traumatic Brain Injury
US DOT	United States Department of Transportation
VTC	Alan M. Voorhees Transportation Center, Rutgers, The State University of New Jersey
WisDOT	Wisconsin Department of Transportation

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EXECUTIVE SUMMARY

In 2016 the Alan M. Voorhees Transportation Center (VTC) at Rutgers, The State University of New Jersey, under contract with the New Jersey Department of Transportation and with cooperation from NJ TRANSIT, completed research that identified ways that transportation could be provided more proficiently for New Jersey's human service consumers and that might allow the state's human service divisions to more effectively utilize their limited resources.

Exploring and identifying new strategies for purchased passenger transportation services has the potential to yield benefits for many stakeholders – human service division consumers, human service divisions, and transportation providers alike. If implemented, the coordinated approaches outlined in this report and the recommendations explored have the potential to improve transportation services for many transportation-disadvantaged New Jersey state residents.

To better fulfill the transportation needs of human service consumers, the research team sought to: 1) inventory passenger transportation used by state divisions when serving their consumers, 2) evaluate strategies and identify promising practices that could be used to coordinate and improve the acquisition and provision of this transportation leading to cost savings, and 3) provide recommendations to the state divisions and transportation providers on ways to reduce costs and/or enhance services for human service consumers.

The research focused on the transportation needs of three broadly defined populations who are consumers of the NJ human service divisions:

Population	**NJ Human Service Division**
Older adults and people with disabilities	NJ Department of Human Services Division of Aging Services (DoAS)
Individuals with physical, developmental, or intellectual disabilities	NJ Department of Human Services Council for the Blind and Visually Impaired (CBVI) Division of Disability Services (DDS) Division of Developmental Disability Services (DDD) NJ Department of Labor Division of Vocational Rehabilitation Services (DVRS)
Adults and children with circumstances where state divisions provide transportation	Department of Children and Families (DCF) NJ Department of Human Services Division of Family Development (DFD) Division of Mental Health and Addiction Services (DMHAS)

The team identified promising practices through a literature review and national scan; convened key informant interviews with state division staff; gathered relevant data on division supported transportation services and known customer origins/destinations; and determined potential transportation options that could yield cost savings and/or enhance services for the human service customers.

Providing effective transportation to populations served by human service divisions is a pressing issue that affects countless stakeholders, as well as institutional relationships that govern its use. Reliable and efficient transportation has the potential to improve the lives of human service consumers as it allows these consumers to access and participate in programs and services designed to meet their needs. Transportation services sufficient for meeting consumers' needs contribute to the health and general welfare of these consumers. Although transportation typically represents a small percentage of the state divisions' overall budget, efficient provision of transportation services also helps the divisions maintain financial stability. The goal of this research effort is to provide recommendations for better ways to identify, procure, and provide transportation to consumers. There exists the need to encourage institutional change and collaboration between and among the governmental entities serving these populations and between these entities and human service and transportation providers.

Literature

A review of existing literature confirms a pattern of duplication and redundancy among transportation services purchased by human service agencies nationwide. Multiple providers (including public transit agencies, community transportation providers, and myriad private transportation companies), inconsistent coordination among transportation services, and limited cooperation between human service agencies utilizing transportation have led to inefficient utilization of resources. This is an outgrowth of past practices and reflects a time when human service transportation was a support service, necessary to bring consumers to locations where they receive human service. Transportation services are neither rationalized within agencies nor provided in a systematic manner across agencies. Adding to the current conditions is a system of funding that entails support from federal, state, and county governments, each with its own demands. Collectively these coordination challenges arise from insufficient information, due in part to differing federal reporting requirements and lack of expertise on transportation issues by the human service agencies. Institutional factors contribute to lack of progress.

Locations without a variety of public and community transportation options affect whether coordination is likely to occur. Without state mandates or legislative directives it can be difficult to move large-scale coordination efforts forward. Research demonstrates that those states with a strong mandate are more successful in making coordination work. One reason is that without resources dedicated to specific coordination activities, plans tend to languish.

Despite these challenges, opportunities exist for coordination and for improving the conditions that allow coordination to happen. For example, a pilot effort was undertaken between the nonprofit organization The Arc, NJ TRANSIT Access Link complementary paratransit service, and Gloucester County paratransit to reduce service duplication to a specific sheltered workshop site. Some NJ state divisions have long established purchase of service agreements with county coordinated transportation systems.

To increase the likelihood of successful coordination, early and frequent communication among partners is needed. To combat the abstract and elusive nature of co-

ordination, potential partners should strategize and plan specific and tangible strategies. If services are to be coordinated, a mapping effort that addresses detail on vehicle fleets, service hours in use, service territory covered, etc. should be undertaken. Issues including respective fare policies, driver and customer training as well as other service components such as trip type (e.g. curb-to-curb, door-to-door, etc.) must also be discussed. ***Also, pursuing a coordination effort as a pilot study is a wise strategy to consider, since pilot efforts are typically time limited and generally impose fewer obstacles in securing funding support.***

Improving information collection can help move agencies toward the goal of sharing resources. Small scale coordination agreements can validate coordination concepts and provide insight for making more sweeping changes. These examples indicate that opportunities exist to work together and provide more efficient, and perhaps, more advantageous transportation options that will benefit both the agencies serving human service consumers as well as the consumers themselves who receive support from human service agencies.

Much of the information presented in this report can be used to identify operational changes and coordination and contracting opportunities that may result in improved effectiveness and efficiency of mobility service delivery.

Key Informant Interviews

The research team utilized stakeholder interviews to: 1) better understand the consumer populations and services offered by NJ human service departments and divisions; 2) communicate the goals of the study to those entities; and 3) develop a working relationship with said entities to gain needed data and information for review and analysis. Each interviewed division supported different transportation disadvantaged populations and each utilized unique approaches in providing or supporting consumer transportation. ***All divisions expressed deep interest and commitment to supporting their consumer populations and an openness toward exploring how transportation might be provided differently so as to best meet efficiency goals and to better serve consumers. Hindering movement toward these goals however was limited control over transportation decisions and, in some cases, limited awareness by divisions of the transportation options available for their consumers' use.***

Most of the division representatives indicated that having better information about the geography of consumer travel and the availability of alternative travel modes could benefit their division, human service and other service providers, and, most importantly, consumers themselves. Divisions that collected and shared consumer trip data with the study team were eager to learn more detail of these trips and the potential alternative transportation modes that could be used. Interviewees offered the caveat that collected data were limited. ***Data limitations made understanding the transportation needs of human service consumers difficult.*** The study team explored increasing data collection efforts by the divisions to limited effect.

From the study team's perspective, learning the limited involvement most of the divisions had over their consumer population's transportation, even though the

divisions financially support these services, was surprising. Also unexpected was the limited data most of the agencies collected regarding their consumer transportation services. Both of these realities shaped the study's progress and limited team ability to conduct the robust analyses planned at the onset of this effort. Despite these challenges, most interviewees offered considerable cooperation to the study team and explored opportunities to more efficiently provide transportation for at least some of their respective consumer populations.

Data Analysis

To achieve this study's goals of demonstrating the potential of public and community transportation to provide services for human service consumers, the research team sought detailed transportation data from New Jersey's human service divisions. ***Four divisions (DoAS, DDD, DMHAS, and DVRS) provided data, which was supplemented with surrogate data when necessary.*** This data was analyzed three times. The research team 1) measured whether human service consumers had access to public and community transportation; 2) estimated savings that might be realized should a portion of human service consumers transition from taxi or other transportation modes to public and community transportation; and 3) determined the existing public and community transportation routes that could be used by human service consumers, where advanced reservation services might be a good fit, and transportation services might be wanting.

Our examination of consumer origins of the four divisions that shared data, or for which we identified surrogates, indicated that about half of all consumers lived within a 1/8 mile of public and community transportation services, the shortest distance investigated. Similarly about half of all identified destinations were located within a 1/8 mile of public and community transportation. This minimal distance represented a distance that can be traveled on foot in less than three minutes. We determined the number of origins and destinations served within 3/4 mile to measure the degree to which advanced reservation services could be used to serve human service consumers. We found the vast majority of consumer origin and destination locations were situated within 3/4 mile of existing transit, with all but 14 percent of origins and 14 percent of destinations located within this distance. ***This suggested that nearly all consumers served by New Jersey's human service divisions could make use of traditional transit (public and community transportation) or advanced reservation services.***

Having determined the viability of traditional transit to meet the needs of the majority of human service consumers, we investigated whether using these transportation modes could result in cost savings. We analyzed trip data that linked specific origins and destinations and that considered trip duration and determined the number of trips that could reasonably be made via traditional transit. ***We found that the savings potential could be significant, ranging from 9 to 25 percent savings overall.***

In locations where traditional transit services are more readily available, savings could be larger and more easily realized. In more sparsely-settled suburban and rural counties with more limited transportation options, however, realizing savings through mode

change may be more challenging to implement inasmuch as more costly transportation modes are more likely to be utilized than traditional transit.

We conducted an additional analysis to understand the variation of traditional transit provision throughout the state as well as the opportunities and limitations of using traditional transit and advanced reservation group rides for human service consumers. We examined the optimal routes available to consumers for travel between their origin and destination and compared these routes with available transportation services. ***We identified transportation services that may serve the needs of human service consumers and identified locations where new transit service should be explored.***

The transportation services identified should be of immediate interest to the private human service agencies looking to reduce their costs or to replace and/or supplement services. Concomitantly transportation service providers should view these routes as resources to be marketed to the human service community. Moreover these routes are assets that can be leveraged and be made more productive through additional ridership.

These analyses had limitations to the extent that they did not provide a complete picture of the travel patterns of consumers across the range of human service divisions in the state. Several divisions did not collect the kinds of data necessary, and others divisions were unable to share detailed data with the research team. This suggested that the New Jersey divisions and the agencies that serve human service consumers should improve their collection and sharing of transportation utilization data.

Even with these limitations, however, the analyses showed the potential that existed to reduce the costs of transportation for these consumers and it indicated what the cost savings were likely to be. This potential for savings should be considered by those making transportation policies and decisions within the State, especially in light of transportation funding constraints and increasing demand for mobility services.

Promising Practices

The research team identifies a broad range of opportunities to promote more efficient transportation for human service consumers that benefit both the divisions and the consumers. ***Seventeen promising practices are discussed and more than half attempt to negotiate the difficult transition between consumer origins/destinations and where traditional transit is accessed. These practices attempt to overcome the first-/last-mile barrier that prevents consumers from utilizing public and community transportation.*** Among the strategies that bridge this gap are expanded route-deviation, e-hailing, flexible routing, demand response feeder service, and demand responsive collector strategies.

Practices that change the nature of the relationships between and among stakeholders are equally important. Making operational changes or introducing new means of access are not likely to result in significant changes in behavior or in savings unless there are also realignments in stakeholder relationships. For example, coordination of

transportation services within a given geography requires operational changes and changes in stakeholder relationships as well as significant information sharing between/among interested parties. One potential promising practice that has the power to reshape the way that transportation decisions are made for human service consumers is the adoption of mobility management in the form of single-point clearinghouses for transportation allocation. This will entail the creation of offices of mobility management on a county or multi-county level. These offices would be tasked with the evaluation of individual consumer transportation requirements, the identification and evaluation of transportation resources within a region, and the matching of consumer requirements with transportation resources. Such an office of mobility management would be a repository of information concerning consumer need/use and available transportation services. Mobility management may enable higher level coordination than might otherwise be possible.

Recommendations

The report recommendations are for NJ human service divisions, New Jersey's public and private transportation providers, and other stakeholders. These recommendations include strategies to achieve the goal of providing efficient and accommodating transport services to New Jersey's human service consumers.

The recommendations include:

Increase Awareness for Public Transit Services

One vital step toward improving transportation options for human service consumers is to increase awareness of existing accessible public and community transportation options available in the state. This is a critical first step toward increasing usage. The research team recognizes that these options are not a feasible travel mode for every consumer due to issues including but not limited to residence locations, desired destinations, and the nature of an individual consumer's particular disability. However, many of these services may meet some to all of the transport needs of a percentage of the consumers served by the state divisions considered in this study.

Improve Familiarity & Instruction with Public Transit Services

A key path to increasing awareness, familiarity and increased usage of public transit services is through travel training/instruction. Travel instruction has been employed since the 1970s and has become more widely available with the passage of the ADA in 1990. The core intent of travel instruction is to facilitate access to desired and needed sites – such as employment, education, medical, daily living and recreational/social destinations – by teaching students how to safely and independently utilize public transit services.

Many of the consumers of the human service divisions considered in this study could benefit from individual travel instruction and/or group instruction. In addition to benefiting consumers, many of the divisions' front-line staff as well as personnel at the human service agencies under contract by divisions – anyone who works directly with consumers

– could also benefit from travel orientation/familiarization services so that they can better inform consumers as to potential public and community transit modes that may be able to meet their needs.

Offer Financial Incentives for Using Public Transit Services

For the Consumer:

Awareness of the financial benefits to using public transit services could help contribute to increased utilization of these services by division consumers. Specifically, consumers could experience cost savings through NJ TRANSIT's reduced fare program.

For the Divisions:

State divisions and county transportation providers could also purchase NJ TRANSIT tickets at a bulk-rate discounted price that never expire (even with fare increases) that they can give or sell to consumers. Such action benefits both parties, making efficient use of NJ TRANSIT's existing accessible transit infrastructure while providing cost savings to both consumers and divisions and/or county transportation providers who purchase and distribute bulk NJ TRANSIT tickets.

Expand Practices that Improve Access and Use of Public and Community Transportation Service by Human Service Consumers

Several promising practices are aimed at improving the ways that human service consumers can identify and access existing transportation services. Providing better ways to connect human service consumers from their homes to the public or community transportation vehicle can be a significant step toward more efficient use of existing transportation services. Practices that address these first-/last-mile concerns and that better prepare consumers to utilize public and community transportation services can help address this condition.

Placing human service facilities and housing aimed toward human service consumers in transit accessible locations is one key practice that can support the use of public and community transportation services. When planning new facilities, decision makers would be wise to consider the long term costs of the transportation services necessary to convey consumers to otherwise unserved locations.

Practices such as e-hailing and mobility management can help to address the issue of identifying alternative ways to reach one's destination. For consumers who might have difficulty reaching established public and community transportation stops and routes, several practices can be employed to bring them to the route. These include using demand response transportation to deliver consumers to traditional transit and employing natural supports to transport consumers from their homes to bus stops and/or group ride pick up locations.

Further, transportation providers should consider exploring how expanded deviated fixed route transportation services and flexible route transportation modes could be em-

ployed to extend the reach of existing services to overcome distances that might be a barrier for some human service consumers.

Encourage Coordination among New Jersey Human Service Divisions and Between the Divisions and Public and Community Transportation Providers

Throughout this investigation, it was demonstrated that coordination between divisions, human service providers, and transportation providers is a cumbersome and, often, difficult process. Lack of information and the difficulties in sharing information among the various stakeholders make this even more burdensome. Data that could be used to more effectively understand where human service consumer travel occurs and the transportation services they use is difficult to obtain.

Successful coordination with the aim of providing better and more efficient transportation for human service consumers will require the divisions, human service providers, and transportation providers to better collect and share information about consumer transportation needs, including origin and destination data. Establishing mobility management practices is one compelling means to achieve this goal. Mobility management has the potential to centralize the transportation decision making process for many human service consumers and can coordinate the use of transportation of services across many divisions. Shared use of transportation services by human service consumers, regardless of which division those consumers might be served by, can allow for better allocation of scarce resources. Collecting information via a designated entity with the expressed purpose of coordinating the use of transportation services has the potential to more easily connect human service consumers in a user friendly manner with a wider range of transportation options, to enable more efficient use of existing public and community transportation services, and to yield cost savings to state human service divisions.

INTRODUCTION

This comprehensive research investigation endeavors to identify ways to improve the acquisition and use of transportation services that New Jersey human service departments and divisions[1] purchase in support of their consumers. The ultimate goal of this work is to help transportation providers, and the New Jersey human service divisions the transport providers serve, reduce the costs of providing these transportation services, identify potential efficiencies, and improve services to better serve the diverse array of human service consumers.

Providing effective transportation to populations served by human service divisions is a pressing issue that affects and is affected by myriad stakeholders as well as institutional relationships that govern its use. Reliable and efficient transportation can potentially improve the lives of human service consumers as it allows these consumers to access and participate in programs and services designed to meet their needs. Transportation services sufficient for meeting consumers' needs contribute to the health and general welfare of these consumers. Although transportation typically represents a small percentage of the state divisions' overall budget, efficient provision of transportation services also helps the divisions maintain financial stability. **Finally, as one goal of this research effort is to provide recommendations for better ways to identify, procure, and provide transportation to consumers, there exists the need to encourage institutional change and collaboration between and among the governmental entities serving these populations and between these entities and human service and transportation providers.**

This study examines public transportation options as well as transport options provided by agencies whose primary function is not the provision of transportation. Agencies supply these transportation services through financial support or contracted services on a regular or semi-regular basis.

Report Purpose & Organization

The intent of this report is to share the culmination of work conducted by the research team to help identify and discuss viable strategies that should be considered by NJ human service divisions, both public and private transportation providers operating in the state, and other related stakeholders as they seek to provide the most efficient and accommodating transport services to the nearly 700,000 human service consumers residing throughout New Jersey. This population represents about 8 percent of the state's population, or about 1 in 13 people.

This report is organized into the following sections:

- **Section one** provides the literature review and overall context for the report.

[1] We will use divisions throughout this narrative to describe all of the state-level stakeholders, including the Department of Children and Families.

- **Section two** presents an overview of the interviews conducted with eight New Jersey departments and divisions.
- **Section three** discusses the data that was collected, cleaned, and geocoded to provide an understanding of the extent of human service consumer transportation need and the availability of public and community transportation services. The data analysis measures whether human service consumers have access to public and community transportation; estimates what kinds of savings might be realized should a portion of human service consumers transition from taxi or other transportation modes to public and community transportation; and determines the public and community transportation routes that exist that might be used by human service consumers, where advanced reservation services might be a good fit, and transportation services might be wanting.
- **Section four** offers a range of promising practices identified by the research team that hold promise for better and more proficient provision of transportation to meet the needs of human service consumers.
- **Section five** offers concluding recommendations targeted to NJ human service divisions, New Jersey's public and private transportation providers, and other stakeholders regarding strategies to be pursued to achieve the goal of providing efficient and accommodating transport services to New Jersey's human service consumers.

LITERATURE REVIEW

Introduction

This research effort is set within a particular context – a desire to increase efficiency and quality of transportation services, while simultaneously considering the essential nature of these services in meeting the needs of consumers. As such, this examination of the literature also endeavors to identify approaches that potentially could hold costs to the current levels needed to meet the transportation needs of consumers and explores ways to accommodate increasing numbers of consumers as well as the trip purposes served within current and projected budgetary constraints.

Examination of the transportation utilized by the diverse populations served by New Jersey human services divisions, themselves a widely varying assortment of public entities, requires intensive and circumspect consideration of a wide breadth of literature focused on three distinct areas: the nature of populations served, the transportation resources utilized, and the factors affecting state departments/divisions' use of transportation services (including their relationships with other divisions and service providers and their ability to operationalize change).

This review also examines the characteristics and unique needs of the populations served (herein known as consumers or human service consumers) and how transportation helps to satisfy these needs. Additionally, we seek to identify methods, policies, and practices that could be utilized to increase efficiency and quality of transportation services provided to these consumers.

Populations Served by State Department/Division Funded Transportation Programs

As shown in Table 1, three broadly defined populations comprise the transportation consumers of the NJ human service divisions examined in this research effort. The first group comprises older adults and some people with disabilities who receive subsidies and services, including transportation, from the Division of Aging Services (DoAS) in the Department of Human Services (DHS). DoAS estimates that over 500,000 individuals receive services funded under the Older Americans Act.[(1)] This represents about a third of the nearly 1.7 million people age 60 or older living in New Jersey who could potentially seek services from DoAS.[(2)]

The second group comprises those with physical, developmental, or intellectual disabilities who are unable to find their own transportation accommodations without assistance, either physical or financial. This is a diverse group with a large variety of needs, including newly visually-impaired persons who require short term assistance with transportation while they transition to a new life without sight. This group also includes those with long-term transportation needs such as people with developmental disabilities, who may need lifetime assistance. Several state divisions in New Jersey assist this group of individuals, including: the Division of Disability Services (DDS), the Division of Developmental Disability Services (DDD), the Division of Vocational Rehabilitation Services (DVRS), and the Council for the Blind and Visually Impaired (CBVI). According to the American Community Survey, in 2013, an estimated 416,400 people between the ages of 18 and

64 reported a disability in New Jersey. In addition, 391,800 persons over the age of 65 also are estimated to have a disability in the state; however, persons over the age of 65 with a disability may receive services from the DoAS.[3]

The third group of consumers includes adults of all ages as well as children who may typically utilize public transportation or private automobiles but have special circumstances where state-provided services may provide them with transportation. This group includes Temporary Assistance for Needy Families (TANF) recipients who receive assistance from the Division of Family Development (DFD), those in need of special child care assistance served by the Department of Children and Families (DCF), and mental health or addiction-related consumers served by the Division of Mental Health and Addiction Services (DMHAS). The DFD December 2013 quarterly report indicates that 34,700 families received TANF and 33,700 individuals received general assistance through WorkFirst NJ.[4] The report specifies that in calendar year 2012, on average, Child Protection and Permanency, an office within DCF, had 52,538 children under the age of 21 under supervision either in home or in out-of-home placement.[5] Data shared by the DMHAS indicates that the division funds transportation services to partial day programs to more than 3,500 individuals.

The types of transportation services needed to serve this diverse group of consumers makes this particular issue very difficult to fully document or to rationalize. Because transportation services are split between a number of divisions, and each division approaches provisioning of those services differently, overall coordination or a single solution is unlikely despite the obvious efficiency benefits. Each of the divisions is rightly focused on their primary purpose and the needs of their individual consumers rather than on providing the most cost-efficient transportation.

For this reason, it is important that the benefits of cost-efficiency to human service consumers be made clear. The focus of this work is to investigate alternatives to high cost transportation services both in terms of more cost effective mode choices and more cost effective contractual and/or operational agreements. With reference to the former, the substitution of deviated fixed route or regularly scheduled public transportation for livery and taxicab trips may yield cost efficiencies in some cases, for example. Additionally, making more effective use of regularly scheduled demand response trips or subscription trips may also prove cost efficient. Many of these divisions already make use of multiple modes of transportation when available, but some of them may not be aware of or are limited in their use of all of the available options and thus are likely to have underutilized some options including the smaller, more local public transportation carriers (i.e., county-run) or those provided by local non-profits that may be available in their service areas. Therefore, one goal of this research is to provide better information to the New Jersey human service agencies and divisions that support transportation for their consumers. This information could help these organizations make better transportation decisions for all of their consumers, or when feasible, allow their consumers to make informed choices about their own transportation needs.

Table 1 – Populations utilizing transportation services funded by New Jersey human service divisions under investigation

Department / Division	Population served
NJ Department of Children and Families (DCF)	Children, youth, families
NJ Department of Human Services Division of Aging Services (DoAS)	Older adults Persons with disabilities
NJ Department of Human Service NJ Division of Disability Services (DDS)	Persons with disabilities acquired as adults
NJ Department of Human Services Division of Developmental Disabilities Services (DDD)	Persons with disabilities manifested before adulthood
NJ Department of Human Services Commission for the Blind and Visually Impaired (CBVI)	Blind and visually impaired across the lifespan
NJ Department of Human Services Division of Family Development (DFD)	Low-income individuals and families
NJ Department of Human Services Division of Mental Health and Addiction Services (DMHAS)	Persons receiving care for mental health or addiction-related conditions
NJ Department of Labor Division of Vocational Rehabilitation Services (DVRS)	Persons with disabilities to prepare for, obtain, and maintain employment

Note: Other departments/divisions support transportation services in support of their primary missions, for example the NJ Veterans Administration. These entities have not been included as part of the current investigation.

Nature and Support of Transportation Services for Human Service Consumers

The transportation needs of human service consumers vary widely and require that the divisions fund the use of several different modes to satisfy their consumers' transportation needs. How decisions about transportation services utilized are made are not immediately obvious as these decisions are often made in concert with decisions regarding other human services provided to consumers or by entities other than the consumers themselves – typically the human service providers – meaning the facilities that provide human services directly to consumers.

Decisions about the appropriate mode to be utilized are necessarily affected by a number of criteria. Most importantly, selection of a transportation mode and transportation provider must necessarily reflect and accommodate the nature and extent of any disability experienced by consumers.

However, other considerations and constraints also occur. Just as with other travelers, constraints affecting transportation modes and services utilized by human service division consumers must take into account those that are typically considered when making transportation decisions – travel distance, locations of origins and destinations relative to available transportation, frequency of available transportation, and convenience factors, for example. Unlike most travelers, the question of cost rarely enters into the decision making process, at least for most human service consumers, as these costs are usually borne by the division.

Still another set of constraints arise out of the relationship between the NJ human service divisions and the human service providers contracted to serve consumers as well as the relationship between those human service providers and the consumers themselves. The separation of need from decision making processes allows for the possibility that transportation decisions (as well as other service decisions) may occur without prioritizing the wishes of consumers.

This means that the characteristics of transportation services required to meet needs of the diverse group of people served by human service divisions creates a unique challenge for the many providers around New Jersey who offer these services.

In general terms, human service divisions fund four distinct types of transportation services for their consumers through contract arrangements and reimbursement including those classified as door-to-door or curb-to-curb, deviated fixed route, public transportation, and, to a limited degree, private taxi service.

The first type of transportation is door-to-door or curb-to-curb demand-response transit. This service is usually provided for clients without the means to travel on their own. In many cases, these trips include medical emergencies or other medical related travel covered under Medicaid.

A variant of the demand-response model are those trips that occur through standing orders, or advance reservations. Under this model, while vehicles are not governed by a fixed route, they may in fact travel by the same route most days. Additionally, given the regularity of usage and the advance notice of travel, transportation providers may be able to plan efficient use of resources. Optimization of advance reservation demand response is one means of achieving cost savings.

The second type of transportation service is deviated fixed route transit. This is usually a paratransit service that operates on a fixed schedule but will respond to reservations to deliver clients to locations nearby but not necessary on the fixed route. Most of these services require 24-hour advance reservations for route deviations and fares are often highly subsidized through state and federal programs.

The third type of transportation service is general public transit including rail, light rail, and bus services. Many clients are perfectly capable of trip making, but lack the financial resources to pay for trips. In this case, many clients receive subsidized transit passes or tickets through their human service agency for certain types of trips, such as job access/interviews, medical appointments, or counseling.

The final type of transportation service common among agencies is private taxi cab or livery service. These services are often necessary for those that live in rural areas or areas poorly served by transit and paratransit services. The costs associated with these types of services are usually shared between the client and the human service division, but in some cases these trips may be able to be substituted in whole or in part by linking with existing transit services.

Using more than one mode during a single trip may produce efficiencies that allow for both cost savings and better travel for consumers. One means of doing this is to use

more personalized services such as demand-response and taxi/livery to transport consumers to more centralized locations where they can transfer to less costly options like deviated fixed route, regular transit, or transportation specifically put in place to serve a predetermined need.

Difficulty in meeting the needs of these diverse groups is one significant factor contributing to the use of "special transportation" (such as door to door or private taxi) rather than the public transportation system, often with unintended consequences including high costs and social isolation. Fischer and Sullivan provide a sound synopsis of these issues:

> *But for certain members of society, including persons with cognitive disabilities, the elderly, and the unfamiliar or out-of-town visitor, these [public transportation] systems can be complex and daunting to learn or use. For those with cognitive disabilities and the elderly, the freedom to live independently, socialize, or hold a steady job is tightly coupled with their ability to use these complex systems. Because of shortcomings in current systems, fleets of "special access" vehicles are often dedicated to supplement mainstream systems. While sound in intention, these special vehicles also separate users from mainstream experiences and require advanced reservations, thus preventing flexible ad hoc travel.*[6]

Funding Sources

Federal Sources

Many federal funding sources are available and used by human service agencies to provide transportation services. These sources most often depend on type of program and population being served by the agency. Accounts of the number of programs funding transportation services differ depending on definitions. As many as 80 different Federal programs fund transportation services for the transportation disadvantaged, while 42 federal programs can be used for nonemergency medical transportation.[7, 8]

The three primary categories of human service agencies are those serving people with disabilities, aging adults, and poor individuals or families.

The last several years witnessed a changing landscape of funding opportunities. One of the most utilized programs, the Job Access and Reverse Commute (JARC) Program of the Federal Transit Administration, provided funds for operating and capital costs associated with transportation focused on increasing access to employment opportunity for low income persons. Operating costs were covered up to 50 percent with a local match necessary. Capital costs were covered up to 80 percent. Sixty percent of funds were allocated to large urbanized areas, with the remaining allocated to states for use in small urbanized, suburban, and rural areas.[9] This federal program was eliminated with the 2012 enactment of the Moving Ahead for Progress in the 21st Century Act (MAP-21). However, NJ TRANSIT made the decision to continue the program through a new state funded NJ-JARC program, which continues to require the 50 percent match and gives priority to continuation of existing successful projects.

Much like the JARC program, the federal government also provided support through the New Freedom Program, which was intended to support transportation for people with disabilities beyond the requirements in the Americans with Disabilities Act of 1990 (ADA). This program used the same funding formula as the JARC program, but the funds were directed toward a different population.[(10)]

Passage of the MAP-21 legislation in July 2012 ended JARC and New Freedom as distinct programs. Projects previously been funded under JARC gained funding eligibility under the Section 5311 and 5307 programs. Projects, whose capital and operating costs were funded by New Freedom, gained funding eligibility under the Section 5310 program.[(11)]

To address the needs of seniors and people with disabilities, the most recent incarnation of FTA's Section 5310 program is now known as Enhanced Transportation for Elderly Persons and Persons with Disabilities. This program is a formula program in that funds are allocated to states based on their respective populations of the targeted groups. Funds from this program are used for capital and operations.[(12)]

The federal government has additional resources set aside under the Rural Transit Assistance Program (RTAP) for non-urbanized areas to improve transportation for those without access to a private automobile. Though not specifically dedicated to particular populations served by human service agencies, RTAP can be used by states to address the needs of people with disabilities, aging adults, and poor individuals or families. The funds for this program are distributed based on the relative populations of non-urbanized areas in each of the states, with a minimum amount for each state and Puerto Rico.[(13)]

Medicare, the federal health insurance system for adults 65 and older and certain younger persons with disability, only provides transportation funding for health emergency trips, which are billed by the hospitals to the patient's account. Medicaid transportation services are funded for both emergency and non-emergency transport of eligible participants. In New Jersey, these services have been contracted since 2009 through LogistiCare, a logistics company that brokers the provision of more than 18 million trips per year through its relationships with more than 1,000 transportation providers. In NJ, LogistiCare provides approximately 5 million trips a year. Rides using Medicaid-funded transportation must be for medical purposes and reserved two days in advance.

The transition of Title XIX Medicaid transportation administration to a brokered service presents the opportunity for county transportation providers to bring in new revenues and increase efficiencies by covering some of the costs of existing medical trips for non-Medicaid customers by filling empty seats with Medicaid passengers.

State Sources

In addition to the federal resources allocated to the states through the programs above, many states have additional programs to support human service transportation for their residents. Unique to New Jersey is a dedicated funding stream for community transportation from the NJ Casino Revenue Fund (CRF), a tax on casino receipts.

Established in 1977, this fund provided approximately $18 million in 2015 for transportation services in New Jersey. However, reliance on this revenue source diminished in recent years as casinos in New Jersey faced more competition from those in Pennsylvania, New York and other gaming outlets. In 2008, the CRF provided over $36 million in transportation assistance.[14] As a result many NJ county transportation providers struggled to maintain services in the face of this diminishing and once reliable revenue source.

In 2013, the State of New Jersey began to collect revenue from internet gambling. This additional revenue was seen as a way to offset some of the losses incurred in the casino revenue stream. However, initial revenues for internet gambling were only about 3 percent of casino revenues. While this change managed to offset year-over-year losses in revenue for FY2016, further decreases were expected in FY2017.[15]

Many states use general revenues to cover the costs of human service transportation programs. In addition, some states offer grant programs that target disadvantaged groups or particular regions with additional funds from gas taxes or transportation user fees. North Carolina, for example, has a Transportation Demand Management program that gives grants for ridesharing and other congestion mitigation programs on a dollar-for-dollar matching basis with local governments. WisDOT in Wisconsin administers and coordinates twelve programs to assist public transportation, about 10 percent of which is directed specifically toward human service agencies for older adults and people with disabilities.

Local and Non-Government Sources

Projects funded by federal or state grants often require significant local matching contributions. These contributions typically range from 20 to 50 percent of the overall project cost. For many local governments or transportation providers, this is a very difficult challenge to overcome, since many do not have revenues available beyond the fares collected, and often the goal is to keep fares low for disadvantaged riders. Organizations such as the National Center on Senior Transportation collect and spread information on how local funds can be raised through creative mechanisms. Some examples of local funding include using service contracts from other sources, advertising revenues on vehicles, establishing supportive for-profit businesses to funnel profits into transit, and using non-profit foundations to raise money from other philanthropic groups.[16] Other similar innovative strategies are suggested in the 2012 Voorhees Center Report entitled “A Strategy for Getting People with Disabilities to Work: Supporting New Jersey County Transportation”. These include non-grant revenue from fares, on-vehicle advertising, and Medicaid contracting.[17]

Efforts to Affect Change in the Provision of Human Service Transportation

Compliance with Federal Planning Requirements (United We Ride)

Under the federal transportation authorization act, 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), a mandate was put into place for the development of coordinated human service transportation plans as

a requirement for the receipt of federal funds. This led to initiatives both at the state and metropolitan planning organization levels across the United States to identify the issues facing human service transportation provision. In some cases, the planning effort was only cursory in scope, but in others, such as in Washington State, much progress was made in identifying the existence of coordination of transportation needs among the many disparate human service agencies.

Potential benefits of transportation coordination include generation of additional revenue, enhanced mobility, increased efficiency and productivity, improved service quality, as well as other economic and management benefits.[18] There are challenges to achieving coordination that must be considered and addressed, such as resistance to coordinate, difficulty establishing workable cost sharing agreements, and insurance issues.

Some of these concerns were cited by community transportation provider respondents of a national survey effort conducted by the Voorhees Center in 2012. Specifically, over half of the respondents who reported experiencing difficulties with coordination efforts indicated resistance by other agencies to coordination was an issue and over 40 percent mentioned difficulty in establishing a workable cost sharing agreement.[17]

Forms of Coordination

Researcher Jon Burkhardt describes coordination as:

> *"A technique for better resource management, coordination means working together with people from different agencies and backgrounds. It requires shared power – shared responsibility, management, and funding. Many transportation functions can be coordinated, including planning, purchasing, vehicle operations, maintenance, and marketing".*[18]

According to Sundeen et al, coordination of human service transportation can take several forms – from "comprehensive coordination", i.e., full, across-the-board, coordination of all human service transportation within a state to more localized efforts that address the needs of two or a few agencies or that of a small region. Sundeen et al discuss five distinct forms of coordination: 1) comprehensive, 2) stove-pipe, 3) consolidation, 4) local and 5) broad coordination authority. In addition the authors explore the planning for these sorts of efforts as well as the abandonment of previous adopted practices upon reevaluation, encountering opposition or acknowledging unanticipated barriers.[19]

Comprehensive Coordination

Comprehensive coordination entails the involvement of many agencies, organizations, and stakeholders in an effort to rationalize services provided throughout a state. Sundeen et al documents that a total of 21 states have undertaken this sort of effort.[19]

Of this group, 13 states adopted legislation in order to encourage increased levels of cooperation between funding agencies, providers, and transportation users. One of the most extensive examples of state-wide comprehensive coordination existed in Florida where enabling legislation spurred a state-wide system of coordination for the provision

of human service transportation in 1989.[20] In 1979, law established the Transportation Disadvantaged Program. Amended in 1989, this Florida law created a Commission for the Transportation Disadvantaged to improve coordination and find cost-effective ways to provide transportation for the state's transportation disadvantaged populations. The commission, which was comprised of high-level administrators from seven state departments as well as community stakeholders, acted as a state-wide steering committee responsible for a large number of necessary tasks including: policy and rule setting, performance standards determination, information clearinghouse, and local government coordination.[19, 21]

Each Florida County was required to institute a "community transportation coordinator", a designated entity responsible for the efficient provision of transportation services to a number of transportation-disadvantage populations.[2] Community (or county) transportation coordinators could serve as direct providers of transportation services or act as a broker to satisfy client needs, or use both approaches.[20]

[2] The Florida Code §427.011(1) defined transportation-disadvantaged populations as "… those persons who because of physical or mental disability, income status, or age are unable to transport themselves or to purchase transportation and are, therefore, dependent on others to obtain access to health care, employment, education, shopping, social activities, or other life-sustaining activities, or children who are handicapped or high-risk or at-risk."

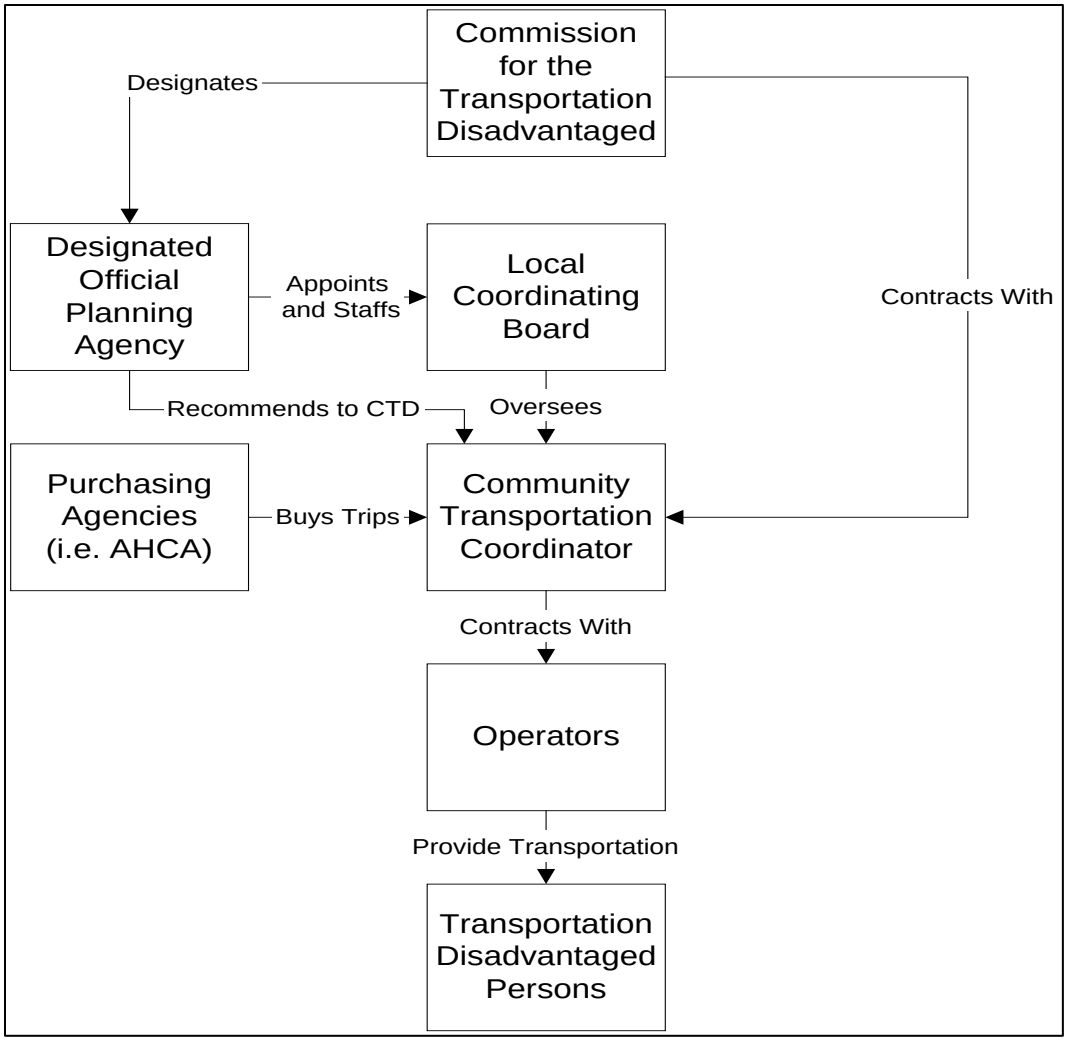

Figure 1. The roles of state and local entities in Florida's transportation disadvantaged system.[22]

Stove-Pipe

This coordination approach implies that a single agency or department is tasked with coordinating transportation for a specific population such as seniors or persons with disabilities. According to Sundeen, New Jersey is one of at least 20 states that have undertaken this approach. This approach can act as a form of consolidation so long as the task agency or department is responsible for meeting many or all of the needs of the population served and those needs were previously addressed by several or many entities.[19]

Consolidation

Merging the programs of two or more agencies has the potential to improve efficiency through the elimination of duplication and streamlining of processes. In practice, this method of coordination has rarely been implemented on a large scale, in part due to the

difficult nature in gaining support for such change among agency and client stakeholders.

Sundeen et al cited only Nebraska and Texas as having consolidated human service transportation instituted through legislative means. Legislation passed in 1997 spurred Nebraska to fold several agencies' services into a program managed by that state's Health and Human Services System.[19]

More commonly, consolidation comes through smaller ad hoc practices where one agency is asked by another to absorb certain functions or one agency contracts with another to perform these functions. Consolidation, when proposed by agencies themselves, can offer good means for increasing efficiency through the elimination of duplicative services and through pooling the use of fixed resources – particularly those that would go underutilized.[19]

Local

One common practice is to coordinate transportation through local governments or nonprofit organizations. More than a quarter of all states require or encourage this practice through legislation, and it is likely that many more utilize this practice to provide transportation to their senior and disabled consumers.[19] This form of coordination, while it has the potential to be more responsive to consumer needs, may not necessarily result in consistent transportation provision across jurisdictions or in improved efficiency.

Broad Coordination Authority

Many states authorize or require human service programs to coordinate their activities, though these provisions may not specify how transportation services coordinate.[19] Some authorizing statutes give agencies the power to cooperate, while others require agencies to coordinate.

Factors Affecting Coordination

Beyond the form in which coordination can occur, those pursuing such activities may need to take other considerations into account. Schlossberg (2003) describes four areas of concern when developing coordination policy: definition, pertinent governmental agencies, political climate, and support. Schlossberg offers that determining the definition of coordination may be an important first step in any coordination process. This is due in part because the term coordination itself can be used to describe a large set of activities and have different meanings to various stakeholders. This variation in meaning and goals, which might be set out during a coordination effort, requires that all parties involved be explicit about their desired outcomes and the nature of the changes sought and recognize that miscommunication and differences in expectations can lead to frustration and poor results.[23]

What governmental entities are involved is an equally important determinant when undergoing a coordination effort. Being cognizant of the political milieu is necessary both to understand the universe of coordination that could be pursued as well as the limitations that might be encountered in pursuing these changes.[23]

New ways of providing services to the transportation disadvantaged that can be achieved through coordination are likely only to flourish when supported by state government or other concerned entities. Support comes in many forms and can be crafted to meet different needs and/or outcomes. Financial, technical, and legislative supports are some of the ways that state government can encourage coordination activities. Support can be long-term and ongoing, or come in the form of seed money that encourages exploration and experimentation.[23]

Using these areas of concern as a framework, Schlossberg evaluates three broad categories of action or regimes through which coordination (in its various guises) can occur in the US: 1) state mandate; 2) state support without mandate; and 3) informal state committee. Via case studies of three representative states – Florida, Ohio, and Michigan – he examines each of these regimes. Each state offers a unique level of commitment which in turn has its own set of objectives, supporters (stakeholders), and resources that have been and will be brought to bear to achieve a wide range of coordination goals. Schlossberg concludes that Florida, enabled by its state mandate and funding dedicated for coordination activities has been able to achieve a "very high" level of coordination. Unsurprisingly, Ohio with state support, but no mandate, coordinates efforts through grants and technical assistance to counties. Michigan's informal state committee has chosen to study the issue and act as a resource for information.[23]

Issues Affecting Feasibility

Literature looking at the issues of commingling ADA and non-ADA paratransit riders establishes several criteria to determine whether adding passengers is operationally or financially feasible. Gerty offers that planners must consider the question of available capacity.[24] Accommodating additional passengers may only enable increased efficiency if capacity exists. Where services are over utilized or close to capacity, adding additional riders may require transportation providers to make capital and operational changes that are likely to result in increased costs.

Those looking to add non-ADA paratransit riders to a transportation service need first to determine whether there exists sufficient commonality between the proposed transportation mode and the one considered being replaced. Specifically, planners must establish that there are comparable service areas, response times, and hours/days of service between the two modes.[24] Similarly, if regularly scheduled transit is to be considered a substitute, accessibility and travel time comparisons are warranted. In addition, if agencies are seeking to coordinate public fixed route services with paratransit services for human service consumers, they should also offer travel training to help ensure these often transportation disadvantaged consumers can learn how to safely and independently utilize public transportation services.

Costs can be evaluated from two perspectives. First, is the transportation mode being proposed less costly per trip (or by whatever measurement is being using to track costs) than that it may be replacing? If this condition cannot be satisfied, adding this population of passengers may still be advantageous, but not necessarily more cost efficient. Second, are the funds currently being used for transportation secure and sufficient to pay for the services required? Instigating dramatic changes in the transportation services

utilized by human service agency consumers will require considerable effort and consideration should be given to whether funding is secure.[24]

Beyond Compliance: Efforts by Other States to Address Costs and Augment Service

A small number of states exceed the mandated requirements for funding set forth by SAFETEA-LU and utilize additional means to achieve efficiency in human service transportation provision.

Puget Sound Regional Council (PSRC) in Washington State integrated its human service transportation coordination plan into its long-term regional planning efforts for 2040. This led to a much more detailed analysis of the issues and potential implementation strategies and exceeded the vague goals found in other planning efforts. For example, to further the goals of their coordinated transit-human service plan the PSRC created a competitive bidding system for JARC and New Freedom federal funds. The bids were assessed based on the goals and objectives laid out in the plan. All of these programs also tied back in to the overall regional long-range transportation plan for the four-county region.[25]

Minnesota Council on Transportation Access (MCOTA), a group created by Minnesota State Legislature in 2010 to study and oversee improvements to transportation coordination throughout the state, implemented coordination efforts through three programs designed to: 1) improve the efficiency of bus dispatching, 2) use travel training programs to shift rider reliance from paratransit to fixed route systems, and 3) address issues arising from reductions in state support for medical assistance transportation programs. MCOTA documented an annual cost savings of $12,000-$68,000, not factoring in quality of life improvements for participants.[26]

The Rainbow Rider Transit program exemplifies coordination efforts in Minnesota. Since 1995 Rainbow Rider Transit has provided transportation options to, first a five county, now a six-county region. Accessible transportation is available to all people in the region and has no income or age restrictions. Door-to-door service is provided for children, seniors, and persons with disabilities, and others in need. Rainbow is largely funded with federal grants for both operations and capital. Fares cover about eight percent of the budget. Transit fares are distance-based and a $1 surcharge is added for reservations with less than 6-hours' notice. Although the aim of this program is to provide additional travel options rather than efficiency, it is a model for transit coordination.[27, 28]

The Dakota Area Resource Transportation Services Vehicle Coordination Program also demonstrates effective coordination in Minnesota. Local providers share vehicles and maintenance programs with other area organizations to improve efficiency. The partnership includes municipal users, faith-based organizations, and private senior centers. Maintenance agreements help to lower the high cost of specialized vehicle maintenance by sharing the facilities and labor across 100 customers.[26]

Challenges to Coordination Implementation

Despite these examples, efforts to put coordination plans for human service transportation into effect have largely gone unimplemented throughout the United States. Though the 2005 SAFETEA-LU legislation created the requirement for states to plan for coordination, no requirement for action was made. The Federal Public Transportation Act of 2012 (part of MAP-21) extended some SAFETEA-LU requirements, including the development of locally coordinated public transit human service transportation plans serving seniors and people with disabilities and the coordination of transportation services funded by federal departments and agencies, to the maximum extent feasible, yet little support for implementation was offered.[29]

While most states, including New Jersey have successfully developed coordination plans, the second goal – that of coordinating services – has largely gone unrealized. This is in part because until recently, funding has not been specifically dedicated to coordination activities and thus is not tied to implementation. Thus many states have dedicated their limited resources to other transportation goals. While the Government Accountability Office (GAO) and others argue that human service agencies and organizations could save resources by working to economize their transportation expenditures, they do not make the effort.[7] Contributing to this is that transportation services are a small fraction of their overall budgets and their efforts to satisfy the mandated planning requirements for funding eligibility are adequate in most cases.[7] More recent funding, particularly the Federal Public Transportation Act of 2012 (authorized in 2014) provides support for short-range planning and projects for improving coordination among public transportation and other transportation providers but may still not address whether state and local human service organizations will actively implement coordination.[29]

In an effort to understand why the call to consolidate has gone unheeded, the GAO periodically examined the resources devoted to consolidation, the status of federal, state and local efforts, and the challenges meet by all levels of government.[7, 29-32] In 2012 the GAO found that federal agency officials cited a lack of buy-in from federal program officials that led to a lack of direction and visible activity as a key challenge to implementing successful coordination. Further they felt that this lack of direction may affect state and local coordination efforts. Specifically, they reported that formal commitment at the executive level was required for coordination improvements to take place. On the federal level, a lack of clarity about support for executive orders issued during previous administrations may have contributed to continued support for the federal Coordinating Council, the activity of which has declined since 2008.[7] Further, officials interviewed by the GAO found that many felt coordination of services was challenging due to differences in federal program requirements as well as a perception of regulatory or statutory barriers.[7]

One barrier to consolidation efforts is that most federal programs funding transportation activities are part of a larger mission and do not track transportation spending specifically. The GAO cites four reasons for this practice. First, transportation spending covered by some programs is deemed an optional service. As such, grantees are not asked to provide spending information. Second, some federal programs give grantees (states and localities) considerable flexibility in the administration of program funds and thus

allows for situations where transportation expenses are not closely tracked. Third, the GAO finds that some agencies qualify transportation services as administrative expenses, which are usually combined with other administrative expenses. Finally, when examining the potential benefits gained through coordination, the GAO cites that some federal agencies believe that requiring grantees to track and report transportation expenses would require additional effort. Federal officials offer that the resources necessary to track this information may outweigh the potential benefits.[7] This condition (lack of requirements to track transportation expenses) and this mindset (failure to see a payoff for tracking this information) most certainly contribute to a lack of detailed information on transportation services utilized by state and localities.

As part of its 2012 investigation, the GAO interviewed state and local officials about their efforts to coordinate services for the transportation disadvantaged. The GAO learned from these interviews that challenges arose out of three conditions: insufficient federal leadership, changes to state legislation and policies, and limited financial resources to meet growing needs.[7]

State and local officials said that, except for the US DOT, federal agencies did not encourage transportation coordination. Interviewees at the Texas DOT offered that there existed "a disconnect between human service and transportation agencies and that the general perception is other human service programs…are exempt from coordination". States and localities stated that they sought improved guidance on transportation coordination, especially about sharing costs across programs. Guidance was particularly needed so as to assure compliance with the use of Medicaid funds, as there were concerns about improper commingling of these funds with those from other federal programs.[7]

As the 2012 investigation reported, the GAO found that state and local officials lamented changes to state legislation and policies, particularly the expiration of executive orders and/or enabling legislation. A review of transportation coordinating councils documented a total of 26 such groups – 12 created by statute and 14 by executive order or initiative.[20] Counted among these councils was Wisconsin's Interagency Council on Transportation Coordination, since debanded, and the recently reconstituted New Jersey Council on Access and Mobility (NJCAM) Working Group, an informal network of human service and transportation managers, which continues to meet despite the expiration of the executive order calling for the NJCAM Executive Council's existence.[7, 20]

Changes in legislation and policy also affected states' ability to bring forth effective coordination programs. For example, Florida legislation signed in June 2011 mandated that Medicaid nonemergency transportation be administered by a private managed care system. Previously it had been under the purview of the Florida Commission for the Transportation Disadvantaged.[3] Officials interviewed expressed concern that this change may require these transportation services to be contracted with private brokers

[3] Despite this recent setback, the Florida Commission for the Transportation Disadvantage and the county-based system of coordinated transportation services provides a best practice example that may be useful for New Jersey coordination efforts.

operating outside the coordinated system. It was feared that the change would result in duplication of transportation services.(7) The officials interviewed by the GAO held the opinion that brokers typically work only with Medicaid-eligible client transportation and do not coordinate with other federally funded transportation programs. While experience in New Jersey suggested that this was not be a limitation, it was a significant concern to Florida officials.

Burkhardt and Garrity also cite lack of consistent information as one of the key difficulties to be addressed before sharing the costs of human service transportation.(33) While the kinds of cost sharing scenarios of interest to Burkhardt and Garrity extend beyond the scope of coordination efforts (or of purchasing arrangements typically utilized by the New Jersey agencies/divisions in question), the information they desire provides a good idea of the data necessary to bring coordination forward. They prescribe that the following be collected: total dollar costs, total vehicle miles, total vehicle hours, total passenger trips (unlinked), and total unduplicated number of people served. Total costs must also account for a range of expenses.[4] While Burkhardt and Garrity recognize that paratransit software can be used to track these data, it is unlikely that most human service providers – who primary function is human service and not transportation – are utilizing such software.

An issue not addressed in Burkhardt and Garrity's cost sharing methodology is variation in transportation services. Variation inherent in paratransit (and like services) can make it difficult to compare services and to make judgments about efficiencies. Lave and Mathias offer that to make such a comparison possible, it would be necessary to account for differences in geography, local traffic conditions, rules and practices (such as curb-to-curb, door-to-door, door-through-door), patterns of service, passenger assistance, and dwell and wait times. Further they advise that knowing this kind of detail is necessary to judge performance of services and to make adequate assessment of practices that could be used in other locations or situations.(34)

Conclusion

The review of existing literature reinforces a common belief that duplication and redundancy exists among transportation services that are funded by human service agencies, utilized by their consumers, and delivered by public transit agencies, community transportation providers, and myriad private transportation providers. Reasons for this lack of coordination among transportation services and the agencies utilizing services are numerous – some qualitative, some institutional, and some inertial.

Historically, transportation for human service consumers developed as support services, necessary to bring consumers to locations where they receive human service. As such,

[4] Burkhardt and Garrity list 13 categories of expenses to be tracked: labor, fringe benefits, purchased transportation, contracted services, materials and supplies, general administrative expenses, utilities, casualty and liability costs, taxes, miscellaneous expenses, leases and rentals, capital expenses, and depreciation and amortization.(33)

these services were neither rationalized within agencies nor provisioned in a systematic manner across agencies.

Additionally, the primary function of the human service agencies is not transportation, and thus it has not been a key concern. Human service agencies exist to serve the unique needs of their clients – a diverse group that includes the elderly, persons with disabilities, and low income individuals. What unites these different populations is that they all receive support from human service agencies and all are often transportation disadvantaged.

Funds devoted to human service transportation come from many different sources – with federal, state, and county governments each contributing to its support. Federal funds provide a majority of support for all human service activities, including transportation. Funds supporting transportation for the transportation disadvantaged come from at least 80 separate federal programs, each with its own policies for use and documentation requirements. New Jersey state funding comes primarily from the New Jersey Casino Revenue Fund, a resource that has been diminishing in value with changes to the state's gaming industry. County funds, supported by local taxes, primarily serve as match, allowing state agencies to access federal funding opportunities.

Still further challenges to coordination arise from insufficient information, due in part to differing federal reporting requirements and lack of expertise on transportation issues by the human service agencies. Institutional factors contribute to lack of progress. Locations without a variety of public and community transportation options also affect whether coordination is likely to occur. Without state mandates or legislative directives it can be difficult to move large-scale coordination efforts forward. Researchers have demonstrated that those states with a strong mandate are more successful in making coordination work. One reason is that without resources dedicated to specific coordination activities, plans tend to languish.

Others cite a lack of leadership among federal agencies as contributing to insufficient coordination. Still others lament what they view as a "disconnect" between human service and transportation agencies.

Despite these challenges, opportunities do exist for coordination and for improving the conditions that allow coordination to happen. One example is a New Jersey pilot effort between the nonprofit organization The Arc, NJ TRANSIT Access Link complementary paratransit service, and Gloucester County paratransit designed to reduce service duplication to a specific sheltered workshop site. Additionally, some NJ state divisions have long established purchase of service agreements with county coordinated transportation systems.

To increase the likelihood of successful coordination, early and frequent communication among partners is needed. To combat the abstract and elusive nature of coordination, potential partners should strategize and plan specific and tangible strategies to be pursued. If services are to be coordinated, a mapping effort that addresses detail on vehicle fleets, service hours in use, service territory covered, etc. should be undertaken. Issues including respective fare policies, driver and customer training as well as other

service components such as trip type (e.g. curb-to-curb, door-to-door, etc.) must also be discussed. Also, pursuing a coordination effort as a pilot study and implementation is a wise strategy to consider, since pilot efforts are typically time limited and generally impose fewer obstacles in securing funding support.

In addition, improving information collection can help move agencies toward the goal of sharing resources. Small scale coordination agreements can validate coordination concepts and provide insight for making more sweeping changes. These examples indicate that there exist opportunities for working together to provide more efficient, and perhaps, more advantageous transportation options that will benefit both the agencies serving human service consumers as well as the consumers themselves who receive support from human service agencies.

Much of the information presented in the following sections of this report can be used to identify operational changes and coordination and contracting opportunities that may result in improvements in the effectiveness and efficiency of mobility service delivery.

KEY STAKEHOLDER INTERVIEWS

Introduction

Interviews were held with representatives of the eight state divisions identified as stakeholders for the study. Initial telephone interviews were held with all stakeholder divisions to determine the usage of transportation services by their consumers; how these services are acquired; the funding utilized to support these services; and the availability of more detailed financial and travel data that could be utilized to further the investigation. Follow up interviews were conducted with all divisions that offered to provide more detailed financial and/or travel data. In-person interviews were held with personnel of four divisions including DoAS, DDD, DMHAS, and DVRS. The research team conducted several telephone conversations with the DCF to arrange for data use and discuss the nature of these data. A Memorandum of Agreement allowing use of DCF data was executed July 16, 2015.

Follow up telephone interviews were conducted with the remaining agencies in order to gain additional clarity about the scope of transportation services they support and other relevant information. These divisions include CBVI, DDS, and DFD. In all cases, questions for follow up interviews were customized and tailored for the subsequent conversations based upon the information shared earlier. A sample questionnaire is in Appendix A.

While these three divisions were able to supply some data about aspects of the transportation services they support, most do not acquire or maintain detailed information about the transportation modes utilized by their consumers or the origins of trips made by consumers.

Table 2 – Stakeholder agency interviews

Stakeholder agency	Interview type (initial and follow up)	Dates
Council for the Blind and Visually Impaired (CBVI)	Phone; phone	March 10, 2014; April 27, 2015
Department of Children and Families (DCF)	Phone; phone	December 2, 2013; July 29, 2015
Division of Aging Services (DoAS)	Phone, in-person	February 25, 2014; February 10, 2015
Division of Developmental Disabilities Services (DDD)	Phone; in-person	January 14, 2014; January 28, 2015; April 22, 2015
Division of Disability Services (DDS)	Phone; phone	March 11, 2014; April 16, 2015
Division of Family Development (DFD)	Phone; phone	March 11, 2014; March 13, 2015; April 30, 2015
Division of Mental Health and Addiction Services (DMHAS)	Phone; in-person	February 4, 2014; October 30, 2014
Division of Vocational Rehabilitation Services (DVRS)	Phone; in-person	March 11, 2014; October 21, 2014

Serving Their Unique Populations

Each of the divisions in this study is extremely mindful that it serves vulnerable and otherwise disadvantaged populations and that the services made available to consumers – including transportation services – are often life sustaining. For example, informants from DDD describe their consumers as the most vulnerable members of society – those with intellectual and developmental disabilities. DCF similarly describe their consumers as especially vulnerable – children under the care of and/or being monitored by the department.

Given this need for utmost care, most of those interviewed were especially cautious when discussing how changes can be made to the transportation services provided to consumers. Some informants did feel that exploring alternative forms of transportation and ways of purchasing transportation might hold promise for consumers, as it may give those consumers greater mobility and more discretion in determining ways to satisfy their trip needs. At least one division raised concerns about the need to assure that divisions (and hence consumers) are charged appropriately for the transportation services utilized. The divisions all confirmed that transportation is a relatively small component of their overall budget and thus, may not rank as a top concern.

Transportation Services Used by the Divisions

Six models of purchasing transportation exist among the eight divisions interviewed. How divisions acquire or support transportation services for their consumers affects how coordination might occur and what changes could take place in the provision of human service transportation. Most divisions engage in more than one model of transportation support. Generally most divisions report having only limited discretion in selecting transportation modes for their consumers as they do not usually make direct decisions about transportation providers or modes nor do they intervene in consumer decisions.

Indirect – Through Human Service Agencies

One way that divisions acquire transportation services for their consumers is through the public and non-profit human service agencies with which they contract. These divisions distribute transportation funds to private human service agencies that are responsible for the provision of transportation in support of the services they provide. Contracts with these agencies specify that transportation must be provided to consumers who utilize their services. The contracted human service agencies often provide transportation services in house, though some subcontract with transportation providers for these services. The divisions that fund transportation services in this manner include DDD, DMHAS, and DVRS. Both DDD and DMHAS are currently in the process of changing their contractual relationships with the human service agencies from a cost reimbursement to a fee-for-service model. Under the cost reimbursement system (which may have differed in details but not in concept among the divisions), human service agencies receive payment for the costs they incur while under contract. Allowable transportation related costs include personnel hours, vehicles, fuel, depreciation, etc. DMHAS cost-based contracts are structured as “deficit-funded” in that the DMHAS funds the deficit

after all other funding sources are attributed, including applicable third party insurance (including Medicaid).

Under the new fee-for-service model being implemented by DDD, human service agencies will still be contractually required to provide transportation services for those consumers who reside within a specified service zone. The difference in contracting, however, creates a new incentive for the human service agencies to minimize costs, as the difference between the funds received by contract and those spent to implement the services required will be retained by the agencies. Additionally, an opportunity will exist for some consumers to self-direct their transportation choices (*see below*). At the time of the interview, the fee-for-service model at DMHAS was still in its early planning stages. It is unknown how it will resemble or differ from that of DDD.

DVRS employs a cost reimbursement model. Specifically, DVRS reimburses persons on a quarterly basis for travel expenses to sheltered workshops administered by 28 vendors statewide. The human service vendor informs DVRS of the number of clients participating, number of trips made, and cost. DVRS then transfers funds to the vendor who in turn cuts a check to the consumer for those transport costs. Those costs are returned to the vendor by consumer endorsement. DVRS reports that the division's $5 million transportation budget does not meet the need, so consumers are typically reimbursed 90-93% of their transportation costs.

Self-Directed by Consumers

The change to the fee-for-service system provides another means for consumers of DDD to purchase transportation services. With contracting changes put in place by DDD in July 2015, their consumers have the ability to select their own transportation services, in addition to those specified by the human service agencies. If a consumer is not satisfied with the transportation services provided by the human service agency or wishes to utilize a different human service agency but one that is not located within the agency's service area, consumers can utilize some of their funds for transportation to those locations.

Similarly most DDS consumers are entitled to utilize their funds for transportation according to their own needs and wishes. About 15 percent of DDS consumers who receive Personal Care Assistant (PCA) services have opted to self-direct the purchase of transportation services. Those who self-direct are given a PCA budget and can purchase alternative services to meet their needs, when approved by a program manager. According to the interviewee, those who opt to self-direct tend to be younger and/or have profound disabilities.

Through Block Grants to Counties and Other Entities

Two agencies, DoAS and DFD, distribute a majority of their transportation resources through grant making activities. Through this process, the divisions fund transportation services that are designed to serve the needs of their consumers but are not directly tied to individual consumers. DoAS administers federal Older Americans Act as well as state funds to county offices on aging or to other organizations that have been desig-

nated through county-based area plan contracts. Funds distributed by the DoAS are utilized in two ways: in support of “mass-transportation” i.e. age-restricted bus or van services and for door-through-door transportation for those in need of assistance. Funding recipients determine how funds are utilized.

Similarly, DFD contracts with all 21 counties, through a transportation block grant. These funds are utilized by counties to support transportation services that enable low-income, transportation-disadvantaged individuals to travel to training and employment locations – often through the provision of shuttles or other community transit routes. Counties can also use part of their DFD funds to purchase transportation for consumers, typically bus passes.

One additional program of note is the Riverbank Transportation program, which DMHAS supports through a community services block grant (CSBG) program. For more than ten years, the Riverbank Transportation has operated in Burlington County, providing services for a nominal fee. This service is a consumer-created and operated program that helps members access an associated Riverbank Self-Help Center and other daytime activities, including employment and recreational activities.

Direct Contract with Transportation Providers

DDS maintain contracts with two transportation providers for a small number of their consumers, those served by the Traumatic Brain Injury (TBI) fund. Similarly, CBVI contracts with transportation providers for its consumers who are receiving training and/or other services as they transition to vision loss. Additionally some CBVI consumers continue to receive transportation services when no public transportation options exist. Since 2013 CBVI has coordinated transportation services with the New Jersey Veterans Administration.

Transportation by Division Staff

Both DMHAS and DCF transport some consumers in the service of meeting their other needs. For DMHAS consumers, a case worker may transport a consumer while conducting other business or when establishing the consumer at a day program. DCF case managers and program aides typically transport children in state-owned vehicles.

Reimbursement of Travel Expenses

Only DCF directly funds or reimburses consumers for transportation incurred for certain activities, which reimburses adult consumers for some of their travel. Consumers are directed to use public transportation and will only be reimbursed for other modes including use of consumer-owned vehicles and taxis when public transportation is not an option.

Table 3 - Human service division/department transportation models

Model	Description	Used by	Who makes transportation decisions
Indirect	Selection of transportation services by private human service agencies that receive funding from divisions	DDD DMHAS DVRS	Private human service agencies and county transportation system
Self-directed	Selection of transportation services by division consumers	DDD DDS	Consumer (often with advisement)
Block grants	Divisions fund transportation services designed to serve the needs of their consumers but not directly tied to individual consumers	DoAS DFD DMHAS (one program)	Grantees
Direct contract	Divisions select and fund transportation providers directly via contract	DDS CBVI	Human service divisions / departments
Division personnel	Division staff transports consumers, often concurrent with other therapeutic activities	DMHAS DCF	Human service divisions / departments
Reimbursement	Consumers receive payment for preapproved travel upon certain modes	DCF	Consumer, with limitations

Exploring Coordination Options

At least two state-wide models of coordination were discussed with division informants – statewide brokerage and county-based coordination. Consideration of these models were explored in part due to the successful models identified in the review of the literature, and because of the transportation coordination efforts experienced already for Medicaid trips in the state of New Jersey.

Statewide Brokerage

Several divisions offered that some of the contracted human service providers have experience with the state-wide brokerage for the provision of transportation for Medicaid consumers. Consumers regularly attending programs (for example, two or more times a week for partial care programs) received bus passes for their travel. Other transportation needs were satisfied by a variety of transportation providers.

Division interviewees reported some dissatisfaction among their consumers with the quality of the transportation provided when those services were administered through the statewide Medicaid brokerage. Among the issues raised include unpredictable wait times, unaccommodating drivers, and inconsistent transportation services. While the level of service and quality reflected the characteristics of the transportation providers contracted by the broker, interviewees directed these criticisms toward the statewide broker.

It was reported by DMHAS interviewees that as of July 1, 2015, human service agencies contracted by DMHAS will only be able to work through the statewide broker for

Medicaid transportation that occurs on public transportation. While this change was initially perceived as a negative, it also offered a chance for the division to explore opportunities for county transport services to meet the transport needs of their consumers seeking to access day programs and other trips not provided by public transportation services.

County Coordination

Another model of coordination was explored with the divisions, one where a system of county or multi-county coordinators could act as a centralized portal linking transportation providers with transportation consumers, the contracted human service agencies, and with divisions themselves. Conceptually having a more centralized portal for transportation information and transportation coordination had appeal among most of those interviewed. Some divisions expressed that while working through geographically based coordination would not be of use to the divisions themselves, it might help the contracted human service agencies have access to better information to serve consumers.

Other divisions observed that the manner in which they work may fit well into a county-based coordination model. Divisions such as DoAS and DFD organized their support of transportation services on a county level and informants at these divisions saw that such a system could have merit and be one way that services they support and consumers who they serve could connect more efficiently.

Informants at other divisions observed that a county-based system of coordination would not be useful as they work without regard to county borders. DDD, for example, placed no restrictions on its consumers to utilize services within the county where they reside and did not consider county boundaries as a geography that influences decision making or fund allocation. Offering contracted human service agencies serving DDD consumers the opportunity to coordinate under a county based system may be feasible if the provision of services across county borders were to be addressed.

Advanced Reservation Subscription Services

Another potential outlet to be explored for increasing efficiency in human service transportation is expanded use of subscription services for advanced reservation transport where the needs of consumers from different agencies could be served through a limited number of providers. Coordination of this kind has the potential to result in fewer overall trips and higher utilization of the trips provided.

The use of increased advanced reservations was raised with several divisions. Concerns about limitations or perceived limitations arose when discussing the adoption of advanced reservation services in lieu of current transportation practices where consumers had a good deal of discretion in making their own transportation decisions. For example, DDS offered that many of its consumers currently have considerable flexibility in how to utilize their entitlements, including their mode and usage choices when traveling. Informants at DDS felt that the substitution of advance reservations for car service or similar options would not be acceptable to their consumers, despite the likelihood of cost savings. The use of advanced reservations for these consumers was mostly seen

as a diminishment in the quality of the service and an imposition of limitations that would not be offset by financial tradeoffs. These informants also stressed the lack of flexibility inherent and a perceived lack of consistent service when using advance reservation transportation.

Informants at other divisions were more supportive of exploring this form of transportation for their consumers. Divisions with consumers who were largely receiving their transportation through human service agencies saw how advance reservation subscription services may mirror the services provided in house and might be better than providing transportation “in-house”. DDD noted that at least one of its contracted human service agencies already contracted with the local community transportation provider for advanced reservations subscription services. DDD informants believed that this model could be replicated by other human service agencies serving their consumers.

Additionally, as DDD implements its fee-for-service system of contracting, its consumers will have the option to purchase transportation service independent of the human service they will be receiving. For these consumers, advanced reservation subscription service might be a good option for traveling to programs that would not be required to provide transportation services.

Exploring Other Transportation Options

Division informants held a variety of opinions about the suitability of public and community transportation modes as appropriate means of travel for their consumers. Clearly consumers of several stakeholder divisions already were users of public and publically available community transportation, including consumers served by DFD and DDS. CBVI encouraged its consumers to take public transportation and aimed their programs at providing consumers with the skills needed to allow them to utilize transit given their newly acquired vision loss. However, CBVI consumers utilized other transportation modes while acquiring these skills and lived in locations not well-served by public transportation. Adult consumers of DCF also utilized public transportation.

Using self-directed public and community transportation was not an option for most consumers of DDD, DMHAS, and DVRS attending regularly scheduled activities such as day programs and supportive employment. Most consumers used transportation services directly provided by human service agencies operating day programs or those contracted by these agencies. However this relationship could potentially change with the adoption of the “fee-for-service” model by DDD. DMHAS was also exploring the adoption of such a model.

Interviewees offered that historically the human service agencies serving the consumers of DDD and DMHAS utilized public and/or community transportation for only a small number of cases. Some DVRS consumers were served by public and community transportation, but again these options were not fully realized for many consumers.

Informants at these divisions and others definitively agreed that using regularly scheduled transit options had the potential to enhance the lives of some of their consumers.

Many of the division stakeholders thought that using such options should be encouraged by the entities directly providing services to consumers.

A few informants raised concerns about the suitably of having some of their consumers utilize public and community transportation. The issues raised include: 1) whether consumers could competently and safely navigate the public/community transportation system, 2) whether these transportation resources could accommodate consumers' behavioral conditions, and 3) whether consumers could mix with other populations without incident – whether with consumers of other state divisions or with the general public.

Specifically regarding consumer behavioral concerns, some divisions opined that some consumer behavior was disconcerting to transportation providers and to transportation riders not accustomed to sharing rides with human service consumers. It was feared that the behaviors of certain consumers would not meet a level of decorum necessary for a public vehicle. They offered experiences of consumers that have been denied transportation due to what they felt might be insensitivity or unease with certain behaviors. Informants reported that some of their consumers have faced limitations on their use of transportation, having been affected by a "three times and you're out policy". Informants felt that these kinds of policies may limit the degree to which consumers can utilize other (more public) transportation modes.

Travel Training

A few informants cited a lack of knowledge and/or skills with using public transportation on the part of consumers. However, several divisions adhered to policies that encourage self-determination and training for the use of public transportation. These divisions served a diverse consumer base including CBVI consumers with recent sight loss and DDD consumers with developmental disabilities,

Discussion of travel immersion and travel training policies was undertaken to understand the potential for and the support of such efforts. Travel training/instruction has been employed since the 1970s and became more widely available with the passage of ADA in 1990.

As defined by the Association of Travel Instruction (ATI) in 2011, "Travel instruction is the array, continuum, or family of services offered to individuals with disabilities, seniors, and others who need assistance to increase their mobility and travel on public transportation independently. It includes a variety of plans, methods and strategies used by professional travel trainers to increase the independent travel skills of the people they serve".

Interviewees were asked to consider if and how travel training and other educational opportunities that would provide the skills necessary to more effectively use public transit services might help fulfill the needs of their consumers. Interviewees at several divisions agreed that not enough effort has been made to provide their consumers with the skills needed to utilize publically available transportation services.

At least one division, DDD, included training for the use of public transportation as an expense utilized by its consumers. Since the acquisition of travel skills was a designat-

ed expense, consumers were entitled to be trained in these activities, provided they wanted to attain these skills and were versed in how and who to ask for them.

DMHAS interviewees suggested that the human service agencies under contract could promote the use of public and community transportation more effectively through its educational programs and suggested outreach to that industry's trade organizations. DoAS maintained limited direct interaction with its transportation consumers. However, DoAS interviewees saw the benefit of travel training programs for their consumers and agreed to encourage the expansion of programs that offered these programs to older residents.

This relationship contrasted with that between CBVI and its consumers. One main objective of the programs offered by the CBVI was the successful mitigation of recently diminished sight. To achieve this goal, CBVI actively engaged in travel training activities that have the expressed purpose of providing consumers with skills to utilize public transportation in all of its forms. This clarity of purpose closely aligned with efforts that encourage greater use of public transportation.

Travel instruction can also provide a means through which consumer behavioral concerns on-board public transportation vehicles can be discussed and potentially addressed. Instructor work with a given client can instill and provide a forum to practice appropriate public transit travel skills and behaviors.

Limitations to Coordination

Data Availability, Inconsistencies, and Limitations

Interviews with the eight divisions serving transportation disadvantaged consumers revealed vast differences in what transportation data were collected and what data the divisions offered to the research team. Some of these differences stemmed from how transportation services were funded by the divisions – i.e. the difference between divisions that funded transportation services through grant making activities (DoAS and DFD); divisions that funded transportation services through contracts with human service providers (DMHA, DDD and DVRS); and the divisions that provided funding to their consumers for transportation purposes (DDS and DCF). Some differences stemmed from federal or state requirements and reflected the nature of the legislation, program requirements, etc.

Concerning trip information, only two of the eight divisions offered significant data on both origins and destinations of their consumers – DMHAS and DVRS. DDD provided information about the destination locations, but division policy prevented DDD staff from sharing information about where consumers originated from as this location is usually their homes. As the division was not able to provide origin information, researchers sought out surrogates and identified group home employment locations as a workable replacement for division data. See the Data Analysis section for more information.

DVRS provided the most complete transportation data among the divisions, since in addition to origin and destination data, DVRS required that contracted service providers

document the cost and frequency of consumer travel and provide some information about the mode or purveyor of transportation services. DVRS shared these data with the research team.

Understanding the nature of the research and the limitations of the data they normally collect, DoAS undertook an effort to document the most common destinations frequented by their consumers. At our request, DoAS queried transportation grant recepients about the top destinations requested by their riders and whether trip information was collected. All grant recipients provided information about their top destinations (though some responded only with general information about the type of destinations common among their riders, and not the specific location requested.) See Table 4 for a summary of the transportation and other data shared by the stakeholder divisions.

Table 4 - Human service divisions data

Division	Origins	Destinations	Other
Council for the Blind and Visually Impaired (CBVI)	Not available	Not available	Not available
Department of Children and Families (DCF)	Addresses of DCF reimbursements	Not available	Reimbursement costs
Division of Aging Services (DoAS)	None from DoAS Surrogate – addresses for age-restricted projects	Top 3 to 5 destinations served by entities that receive DoAS transportation funds	Financial info re. awards to counties and others providing transportation
Division of Developmental Disabilities Services (DDD)	Addresses of DDD consumers (small #) Surrogate – group homes from RefUSA	Addresses for partial day programs used by DDD consumers	Not available
Division of Disability Services (DDS)	Not available	Not available	Info about Traumatic Brain Injury Fund
Division of Family Development (DFD)	Not available	Not available	Annual transportation related expense payments for TANF, GA, and NJ-SNAP
Division of Mental Health and Addiction Services (DMHAS)	Addresses of DMHAS consumers	Addresses of programs attended by DMHAS consumers	Medicaid cost of trips
Division of Vocational Rehabilitation Services (DVRS)	Addresses of DVRS consumers	Addresses of programs attended by DVRS consumers	Cost of trips, mode, number of trips made

Most interviewees agreed that increased usage of fixed route and deviated fixed route services had the potential to increase mobility for their consumers while saving costs for

consumers and the divisions. This viewpoint was particularly offered with regards to those consumers who utilize transportation that is mostly or entirely provided through human service providers. Interviewees at several divisions added the caveat that not all consumers would be able to utilize fixed route and deviated fixed route services effectively, but that there existed the potential for far more consumers to utilize these services than those who currently do so.

Control over Transportation Decisions

Most divisions have little direct oversight of the transportation decisions made by, or on behalf of, their consumers. The divisions maintained an arms-length or greater distance between themselves and their consumers. This lack of oversight reflected the various ways transportation decisions are made and the party or parties who control decisions. Transportation service decisions for consumers of three divisions (DDD, DMHAS, DVRS) were the purview of the contracted human service providers.

Most divisions had little direct knowledge about the specific transportation needs of their consumers, the transportation services utilized by their consumers, and the transportation options that were available to their consumers. For most of the divisions, transportation represented a small, though essential, part of the constellation of services afforded to consumers – but was thought of nearly always in conjunction to or in support of these other services.

The divisions were removed from transportation decisions and knowledge of consumer transportation decisions. The new fee-for-service system recently adopted by DDD and similarly under consideration by DMHAS continued the policy of human service contractors acting as transportation decision makers for consumers within their service area. These human service agencies could optimize transportation services for consumers and minimize costs through a thorough vetting of available transportation options, and by promoting the use of public and community transit first and foremost.

A few of the divisions employed a policy requiring consumers consider public transportation options before all other modes. Only DFD and CBVI used public transportation as their first option. Generally divisions did not ask human service providers to consider public and community transit options first or to be knowledgeable about these options. Encouraging the private human service providers (agencies) that most state divisions contract with to consider public transit options for consumers, including county services, will require increased awareness of these options among said providers.

The research team asked division informants to provide information about the providers and/or to act as an initial go-between to establish contact to begin a conversation about changing transportation practices. Most were reluctant to act as liaison between the researchers and the human service providers.

Factors Influencing Human Service Agency Decisions to Maintain Transportation "In House"

Informants suggested that human service providers may wish to keep transportation services "in house" even when lower cost, more convenient, and/or more robust options exist. Divisions that contracted with human service providers explained that many human service providers were paid on a per diem basis. This meant that these providers only receive payment when consumers used the services provided. For most providers to be paid for services, consumers must attend scheduled programs for a minimum of two hours on a given day. When consumers attended programs for a shorter period of time or if a consumer did not attend the program, providers could bill for services. This contractual relationship implied that human service providers may have been incentivized to act in ways that encouraged consumers to attend programs on a regular basis. Controlling transportation may have been a means that providers used to encourage regular attendance at their programs.

Transportation services that are not provided or controlled by the human service providers may introduce an element of uncertainty that these providers would prefer to avoid. Informants at one division suggested that if consumers had greater flexibility (or discretion) in making and executing their travel plans, it might affect a human service provider's ability to bill for services and achieve revenue targets, and, thus, would affect their bottom line. Different transportation modes, particularly those that are self-directed, could provide consumers the option to leave programs early or may result in greater absenteeism, either through choice or as a result of increased difficulty in "navigating" the trip. Increased skill with using public transportation modes could ameliorate many difficulties that consumers might have in trip making, but it would also allow consumers greater autonomy. This greater autonomy, a stated-goal at some, but not all divisions, could potentially reduce attendance at day programs.

Informants also suggested the regularized nature of the transportation services that consumers received from the human service providers offered a therapeutic benefit. Many aspects of the service were predictable including a specific vehicle and consistent personnel. When changes needed to be made, they were accommodated in ways that addressed the emotional as well as transportation needs of consumers. Informants suggested that transportation services with more variation may be disconcerting to some consumers.

The viewpoint that compelling, consumer-motivated reasons for human service providers to run transportation in house, however, was not expressed widely. Indeed, even among those that raised these concerns was the acknowledgement that their concerns regarding consumer safe usage of public and community transportation options only applied to a small number of consumers.

Lack of Transportation Options

A greater concern among division informants was what they perceived to be a lack of available public and community transportation overall throughout New Jersey, especially in rural and suburban locales. Generally division informants were interested in ex-

panding the transportation options available to their consumers and consumers' abilities to utilize different forms of transportation. Most division informants lamented that in some instances, a lack of publicly available transportation options was their consumers' greatest concern. The research team observed that in some instances, a lack of awareness of existing transportation options, such as deviated fixed-route services, may have contributed to this perception.

Moving Forward

The stakeholder interview task was a critical and valuable component of this study. It served the multi-pronged purpose of better familiarizing the research team with the consumer populations and services offered by the departments and divisions under investigation; permitted those entities with an opportunity to understand the goals of the study; and enabled the study team to develop a working relationship with said entities so that needed data and information could be gathered for study team review and analysis.

While each of the divisions interviewed support different transportation disadvantaged populations and utilize differing approaches in providing or supporting consumer transportation, all expressed deep interest and commitment to supporting their respective consumer populations. That said, all were open to the study team's discussion of how transportation could perhaps be provided differently to best meet efficiency goals and to better serve consumers. However, hindering this effort in many cases was a current lack of control and in some cases awareness among these divisions over the transportation options being used by their consumers.

Most of the division representatives indicated that having better information about the geography of consumer travel and the availability of alternative travel modes would be beneficial to their division, to the human service and other service providers, and most importantly to the consumers themselves. Those that collected and shared data on consumer trips with the study team were eager to learn more detail on these trips and potential alternative transport modes that could be used to make the trips.

Interviewees offered the caveat that the data they typically collected would be limited and would curtail what could be offered to the analysis. In each conversation with division staff, the researchers explored ways that these data could be gained – discussing what records each division maintained, what records could be shared, what surrogates could be used to gain a clearer picture about the kinds of travel the divisions supported as well as how division consumers traveled.

Additionally, the divisions understood that the limited amount of data they collected made understanding the transportation needs of their consumers difficult. However most were not receptive to increasing their data collection efforts nor asking or requiring the human service providers to regularly deliver more data to their respective division.

Learning the limited involvement most of the divisions have over their consumer population's transportation, even though the divisions financially support these services, was surprising. Also unexpected was the limited data most of the agencies collect regarding their consumer transportation services. Both of these realities have shaped the study's

progress and in have limited team ability to conduct the robust analyses initially planned at the onset of this effort. However, even with these challenges, the cooperation offered by the majority of interviewees permitted the study team to explore opportunities to more efficiently provide transportation for at least some of their respective consumer populations.

Another concern raised through the interview task was the effect of arms-length or greater relationships on the process of making transportation decisions for consumers. Generally the divisions maintained arm-length or greater relations with their consumers, and also with those who made transportation decisions on behalf of consumers. As the relationship between divisions and their consumers was attenuated, responsibility for decisions diminished and the criteria for making transportation decisions became less clear. The nature of these relationships allowed for the possibility that the transportation decisions being made do not necessarily attempt to achieve the best use of services for consumers or the best use of division resources. Additionally, it may make effecting changes more difficult.

The interviews initiated a much needed process to increase communication within divisions and with their external partners, such as the human service providers with whom they contract to serve consumers. This communication was needed and needs to continue if the subject of consumer transportation is to be more fully explored. Only through improved communication about consumer transportation can innovative approaches to achieving and sustaining increased transportation efficiencies be identified and implemented.

DATA ANALYSIS

Introduction

The research team undertook three analyses to guage the viability of alternative transportation modes for human service consumers and the impact of using these modes on costs: 1) an evaluation of location to measure accessibility of public and community transportation to consumer origins (homes) and destinations; 2) an estimation of financial impact utilizing trip information and General Transit Feed Specification (GTFS) data; and 3) an assessment of available public and community transportation services to determine opportunities for alternative modes of travel to satisfy consumer need.

We sought detailed data from the eight divisions in question, including information on the origin, destination, mode, and cost of consumer transportation. We had limited success and received detailed data from five of the eight divisions taking part in this study (DoAS, DCF, DDD, DMHAS, and DVRS) though the extent and level of detail placed constraints on the analyses undertaken. Additionally we received information about the use of purchased transportation services by consumers of the remaining three divisions: CBVI, DDS, and DFD.

What follows is a description of the data shared, how the data were acquired by the division (when known), and any pertinent information on the use of these data.

Special attention was given to Burlington, Middlesex, and Sussex Counties as these counties operated community transit systems that provided information via GTFS and have been integrated in the Google Distance Matrix application program interface (API). Use of this application is detailed in the estimating transit use potential via Google Transit section of this document (page 46).

Division of Aging Services (DoAS)

DoAS acts as a pass-through agency in that its funds are distributed to county offices, Area Agency on Aging (AAA) office, for the implementation of Area Plans on Aging. The division uses the SAMS system to track data, and the system is also used to collect information from the grant recipients.

DoAS provided information about the overall cost of service, number of consumers served, number of units provided (one way trips), service classification as transportation (curb-to-curb) or assisted transportation (door-to-door), and transportation service provider. In 2014, 19 of 21 counties utilized DoAS funds for the curb-to-curb transportation services – only Morris and Somerset Counties did not. These 19 counties received nearly $6 million of DoAS pass through funds to support curb-to-curb transportation services and provided more than 450,000 trips. Some provided distinct trips by purpose (center, demand, fixed route, food shopping) though most did not. Overall the cost per trip to DoAS averaged $13.19. As no information about trip distance was provided nor any information on if the trips provided received other financial support, it would be inappropriate to single out agencies with especially high or low average trip costs.

To expand our understanding of the transportation services funded by DoAS, the division pursued additional data from the counties and, in some instances, the providers receiving funds. Each AAA was asked whether they, or the transportation providers, collected information on origins and destinations. Additionally, the AAAs, and their surrogates, were asked to determine the top three to five destinations requested by their riders. Most AAAs provided this information. These data were used to develop a list of destinations served by transportation providers funded by DoAS.

The research team also wished to identify a set of locations to serve as proxy for origins. Researchers evaluated a dataset compiled by the NJ Foundation for Aging that lists senior housing facilities supported by NJ HMFA funds. This dataset documented 161 senior housing locations in 17 counties but identified no facilities in Gloucester, Hunterdon, Ocean or Warren Counties. The NJ Department of Community Affairs prepared a list of affordable housing developments by county that classified properties that are age restricted or limited to senior residents. This dataset provided nearly 700 properties with nearly 70,000 housing units located in all 21 New Jersey counties.

Department of Children and Families (DCF)

Significant discussion resulted in confidential use agreement and access to origin data for DCF consumers requesting payment or reimbursement for transportation. No information about destinations was shared.

Division of Development Disability Services (DDD)

DDD contracts with service providers who, in turn, either provide or acquire transportation services for DDD consumers. DDD maintains oversight of all contracts with service providers, and thus holds financial information on the use of transportation and the number of consumers served by each provider. The division does not collect other transportation information.

However, to assist this investigation, the division undertook a data collection activity to audit the use of transportation of its consumers. In consultation with the research team, DDD sought information on the following:

- Origin – street address, town, zip.
- Destination – street address, town, zip.
- Number of one-way trips.
- Total miles per week.
- Purpose of travel.
- Total estimated cost of transportation.

The division's aim was to populate a dataset of at least 500 records documenting the use of transportation of individuals for a representative period. In order to collect these data, DDD communicated with multiple service providers throughout the state. Unfortunately, the division had limited success and only received information about transportation services used by two day programs that serve consumers from Bergen, Camden, and Passaic Counties.

The research team also sought data on the origin and destinations of all DDD consumers. DDD declined to share origin information for their consumers, citing confidentiality policies. In lieu of origins for consumers of DDD, we were able to identify a surrogate -- group home work establishments. A list of nearly 270 group home locations in NJ was identified using the NAIC code for “Other Residential Care Facilities” (623990). While the NAICS code for Residential Intellectual and Developmental Disability Facilities (623210) ostensibly would be the most pertinent code to use, data for that code is restricted. A review of the organizations operating the group homes indicated that those identified serve the target population, people with developmental disabilities. A limitation of using these data was that they were incomplete and only reported a portion of group home settings in the state. Additionally, the division supplied the addresses of all service providers that operate day programs throughout the state.

Division of Mental Health and Addiction Services (DMHAS)

DMHAS shared information from its Medicaid claim data, which was used to document payment for services rendered. The majority of DMHAS transportation services were for transport between home locations and facilities that operate partial day programs. Specifically the data provided information on:

- Origin address (home).
- Destination name and address (partial day program).
- Number of one way trips.
- Medicaid charges for trips.

These data were cleaned to remove nonphysical origin addresses – P.O. boxes, c/o addresses, etc. Destination address were confirmed or corrected to reflect physical rather than mailing locations.

Data were provided for four one-week periods, one for each quarter of 2011 (i.e., the third week of January, April, July and October). More than 3400 records were provided for consumers for January 17 to January 21, 2011. Of these records, more than 3300 were deemed usable for analysis and represent consumers residing throughout the state. Data indicated that consumers travel to 77 partial day programs located in 20 of New Jersey’s 21 counties; there were no facilities in Somerset County.

Six partial day programs were located in the three counties with GTFS data: in Burlington County –Twin Oaks Community Services in Mount Holly and Delaware House in Westampton; in Middlesex County – Medallion Care in Monroe Township and Community Care Behavioral Health in Piscataway; and in Sussex County – Bridgeway Rehabilitation Services in Sparta and Capitol Care in Stanhope.

Division of Vocational Rehabilitation Services (DVRS)

DVRS shared data generated from their administration of consumer services. For each consumer participating in its occupational workplace program, DVRS provided information on:

- Origin address (home).
- Destination name and address (occupational workplace facility).
- Number of round trips.
- Cost per trip.
- Distance of trip.
- Mode[5].

These data were cleaned to remove nonphysical origin addresses. Destination addresses were confirmed or corrected to reflect physical rather than mailing locations. More than 2450 records were provided for consumers served on April 1 to June 30, 2012 and approximately 1700 records were provided for consumers served on April 1 to June 30, 2013. Of these records, more than 2300 were deemed usable for analysis and represent consumers located throughout the state.

In all, consumers traveled to 29 occupational workplace facilities located in 19 counties – only Cape May and Passaic Counties lacked facilities. Four facilities were located in the three counties with GTFS data: in Burlington County – Occupational Training Center of Burlington County in Burlington Township; in Middlesex County – Edison Sheltered Workshop, Inc. in Edison and Raritan Valley Workshop in New Brunswick; and in Sussex County – Easter Seals Highlands Workshop in Franklin Borough.

Other Divisions

The remaining three divisions – CBVI, DDS, and DFD – were unable to provide detailed information about consumer transportation utilization or the specific transportation needs of their consumers. The data shared by these divisions provided an overall understanding of the magnitude of transportation services utilized by their consumers and the financial resources devoted to these consumers. See Table 4 for more detail (page 38).

Measuring Access to Available Public and Community Transportation (Transit Shed Analysis)

Introduction

In this section we measured the level of access that consumers have to public and community transportation. We examined accessibility from origins (homes) and destinations, typically day programs and supportive employment locations. We used geocoded origin and destination data for four divisions (DoAs, DMHAS, DVRS & DDD) and compared these locations spatially with services that NJ TRANSIT and community transpor-

[5] DVRS defined all NJ TRANSIT trips (rail, bus, and ACCESS Link) as a single mode.

tation providers offered throughout the state.[6] In this analysis we included the community transportation providers that provided regularly scheduled transit as well as deviated fixed-route services, but do not include advanced reservation services. Accessibility was measured at three distances – 1/8, 1/4, and 3/4 mile to gauge accessibility to traditional transit as well as to measure the viability of efficient advanced reservation group rides.

A list of providers and routes is available in Appendix B.

Methodology

For travel to/from transit stops, we were aware that many human service consumers may have limited mobility. A review of the literature provided guidance about appropriate distances.

Wang et al. investigated distances walked by older persons in five minutes and found that able bodied seniors traveled about a 1/4 mile while those with disability traveled slightly less than a 1/8 mile.*(35)* Bonhannon looked at men and women of different ages and found that the slowest group is women in their 70s, who traveled nearly a 1/4 mile in 5 minutes.*(36)* Examining reasonable walking distances, Lerner-Frankiel determined that 0.21 mi as the distance associated with completing tasks in the community.*(37)*

Using these studies as our basis, we ascertained that 1/8 mile and 1/4 mile were reasonable distances to measure accessibility to transit facilities. Additionally, community transit, which generally operated under a deviated fixed route model, provided a means to overcome this limitation. The distance deviated by these transportation modes varied from a "few blocks", to 1/8 mile, to 1/4 mile – the most frequent distance specified. Given these conditions, we measured accessibility assuming that origins and destination locations at both the 1/8 and 1/4 mile distances could be reached.

We conducted analysis at one additional distance – 3/4 mile. This distance matched that utilized by Access LINK, the paratransit service operated by NJ TRANSIT. This service operated on an advanced reservation, shared ride model.

Results

Looking at existing public and community transit systems, we identified the origins and destinations currently served. Served locations were defined as those located within 1/8 mile of a NJ TRANSIT bus stop and within 1/8 mile of any portion of a community transit route. The same analysis was completed using 1/4 mile and 3/4 mile distances.

Origins

In Table 5 we examined the potential to utilize public and community transportation at the minimum distance of 1/8 mile (660 feet) and found that more than half of DoAS origins (52%) and more than half of DMHAS origins (53%) would be considered served. A smaller share of DVRS origins (42%) would also be served, while less than a third of

[6] We also received origin addresses from DCF, but these were not included in this analysis.

DDD origins (30%) were served at this distance. At 1/8 mile, nearly 3200 identified origins were located within the service zone, while about 3500 were located more distantly.

We found that more than a third of the previously unserved population was served at 1/4 mile. The effect of expanding the potential service area to 1/4 mile had a greater impact on consumers at three divisions, DoAS, DMHAS, and DVRS, than upon DDD consumers. Of the DoAS, DMHAS, and DVRS consumers not located within 1/8 mile, a third were within 1/4 mile of public and community transportation services, while only 16 percent of previously unserved DDD consumers were located within a 1/4 mile service area. In total more than a third of previously unserved consumers at these four divisions were located within 1/4 mile of public and community transportation.

Expanding the service area to 3/4 mile had a considerable impact on access to service. Of the nearly 3500 origins not served at our minimum distance of 1/8 mile, 74 percent were served at the larger distance. Consumers at three divisions, DoAS, DMHAS, and DVRS, were more likely to live within 3/4 mile of public and community transportation services than those of DDD. Among those not served at 1/8 mile, 70 percent of DoAS consumers were served at 3/4 mile. Similarly 77 percent of DMHAS and 74 percent of DVRS consumers, who were not located with 1/8 mile, were located within 3/4 mile of public and community transportation services. A smaller share of DDD consumers (55%) were not served at 1/8 mile but are located within 3/4 mile of these transportation services.

Table 5 - Origins served and unserved at 1/8 mile, additional origins served at 1/4 and 3/4 mile distances, remaining origins unserved at 3/4 mile

Division	All	Served at 1/8 mile		Unserved at 1/8 mile		Additional Served at 1/4 mile		Additional Served at 3/4 mile		Remaining Unserved at 3/4 mile	
	N	N	%	N	%	N	%	N	%	N	%
DoAS	688	361	52%	327	48%	131	40%	230	70%	97	14%
DDD	312	93	30%	219	70%	36	16%	120	55%	99	32%
DMHAS	3316	1748	53%	1568	47%	602	38%	1206	77%	362	11%
DVRS	2340	991	42%	1349	58%	479	36%	998	74%	351	15%
Grand Total	**6656**	**3193**	**48%**	**3463**	**52%**	**1248**	**36%**	**2554**	**74%**	**909**	**14%**

Even at a minimum distance, nearly half of all consumers at these four divisions lived proximate to existing public and community transportation services. Of those not served at a minimal distance of 1/8 mile, more than a third were located within a 1/4 mile of existing services. This analysis indicated that consumers have a high degree of access to public and community transportation services that they could utilize on their own or with training and/or assistance. Additionally, of those not served at the 1/8 mile distance, 74 percent lived within 3/4 mile of existing services. These consumers could be served via advance reservation group rides.

Destinations

As shown in Table 6, a similar analysis examined the potential to utilize public and community transportation to reach destinations typical for human service consumers. Again the initial analysis examined accessibility of destinations at the minimum distance of 1/8 mile (660 feet). We found that half of all facilities serving DoAS, DDD, DMHAS, and DVRS consumers were located within 1/8 mile of transportation services. Among the divisions, the level of accessibility varied. About 60 percent of DoAS and 58 percent of DMHAS destinations were located with 1/8 mile of public and community transportation services, whereas 45 percent of DDD destinations and 43 percent of DVRS destinations were similarly located.

Expansion of the service area to 1/4 mile from public transportation facilities and community transportation routes indicated that nearly 40 percent of destinations previously unserved would be considered served, or an additional 90 destinations would be served by public and community transportation. Further expansion of the service area to 3/4 mile indicated that an additional 168 facilities utilized by consumers of these four divisions would be served. Overall, 14 percent, or 64 facilities, were located more than 3/4 mile from public or community transportation services.

Table 6 - Destinations served and unserved at 1/8 mile, additional origins served at 1/4 and 3/4 mile distances, remaining origins unserved at 3/4 mile

Division	All	Served at 1/8 mile		Unserved at 1/8 mile		Additional Served at 1/4 mile		Additional Served at 3/4 mile		Remaining Unserved at 3/4 mile	
	N	N	%	N	%	N	%	N	%	N	%
DoAS	93	56	60%	37	40%	17	46%	25	68%	12	13%
DDD	259	117	45%	142	55%	47	33%	99	70%	43	17%
DMHAS	85	49	58%	36	42%	15	42%	30	83%	6	7%
DVRS	30	13	43%	17	57%	11	65%	14	82%	3	10%
Grand Total	**467**	**235**	**50%**	**232**	**50%**	**90**	**39%**	**168**	**72%**	**64**	**14%**

Potential for Transport by Community Transportation

As Table 7 indicated the potential of fixed-route and deviated-fixed route community transportation to serve human service consumers can be seen in more detail when evaluation of origin and destination locations was observed at the county level, the geography at which community transportation operates.

Due to the nature of settlement patterns and to transportation networks, several New Jersey counties are especially well situated to provide transportation services to consumers of human services. These counties are typically more densely settled and/or have considerable public and community transportation services available.

Again using our criteria of 1/8, 1/4, and 3/4 mile distances to public transportation stops and community transportation routes, we examined accessibility from consumers' origin

and program services, i.e. destination, locations. Examining the potential to utilize public and community transportation at the minimum distance of 1/8 mile (660 feet), we found that more than half of all human service consumers of the four divisions (DoAS, DDD, DMHAS, and DVRS) were served. Half of all consumers in Atlantic, Essex, Hudson, Passaic, and Union Counties resided within 1/8 mile of a public transportation stop or community transportation route.

Expanding the service area to 1/4 mile provided considerable benefit to consumers in four counties. When accessibility was defined as 1/4 mile – a distance that can be accommodated by many independently or with some training – more than half of previously unserved consumers in Bergen (58%), Essex (60%), Passaic (64%), and Hudson (84%) were served.

Perhaps more significantly, when accessibility was defined by a 3/4 mile distance – applicable to the operations of deviated fixed route or advance reservation subscription services – the number of consumers potentially served grew to more than half in all but five NJ counties. In eight counties, more than 80 percent of those not served at 1/8 mile were served at 3/4 mile – Gloucester (80%), Atlantic (81%), Passaic (84%), Cape May (86%), Union (87%), Camden (89%), Essex (96%), and Hudson (100%). In all counties except Hunterdon County, at least half of all human service consumers resided within 3/4 mile of public and community transportation services. In six counties – Camden, Essex, Hudson, Mercer, Passaic, and Union – more than 90 percent of consumers resided within 3/4 mile of these transportation services.

Table 7 - Served and unserved human service consumer origins by county

County	All	Served at 1/8 mile		Unserved at 1/8 mile		Additional Served at 1/4 mile		Additional Served at 3/4 mile		Remaining Unserved at 3/4 mile	
	N	N	%	N	%	N	%	N	%	N	%
Atlantic	484	241	50%	243	50%	107	44%	197	81%	46	10%
Bergen	214	94	44%	120	56%	69	58%	94	78%	26	12%
Burlington	374	147	39%	227	61%	75	33%	160	70%	67	18%
Camden	661	238	36%	423	64%	149	35%	377	89%	46	7%
Cape May	50	15	30%	35	70%	8	23%	30	86%	5	10%
Cumberland	220	81	37%	139	63%	39	28%	92	66%	47	21%
Essex	857	659	77%	198	23%	118	60%	191	96%	7	1%
Gloucester	259	89	34%	170	66%	48	28%	136	80%	34	13%
Hudson	447	344	77%	103	23%	87	84%	103	100%	0	0%
Hunterdon	68	5	7%	63	93%	1	2%	8	13%	55	81%
Mercer	449	282	63%	167	37%	76	46%	132	79%	35	8%
Middlesex	371	110	30%	261	70%	74	28%	177	68%	84	23%
Monmouth	559	149	27%	410	73%	87	21%	267	65%	143	26%
Morris	129	27	21%	102	79%	12	12%	59	58%	43	33%
Ocean	490	214	44%	276	56%	98	36%	205	74%	71	14%
Passaic	200	124	62%	76	38%	49	64%	64	84%	12	6%
Salem	166	71	43%	95	57%	34	36%	45	47%	50	30%
Somerset	152	62	41%	90	59%	22	24%	35	39%	55	36%
Sussex	76	28	37%	48	63%	11	23%	19	40%	29	38%
Union	347	189	54%	158	46%	73	46%	137	87%	21	6%
Warren	83	24	29%	59	71%	11	19%	21	36%	38	46%
Total	**6656**	**3193**	**48%**	**3463**	**52%**	**1248**	**36%**	**2554**	**74%**	**909**	**14%**

Viability of utilizing public and community transportation services for human service consumer travel is predicated on the ability to reach desired destinations. As established in the above analysis, half of all destinations identified were located within 1/8 mile of public and community transportation services throughout the state. Counties well served by existing transportation services include Essex County, where 29 of 35 destinations were proximate to transportation and Salem County, where 9 of 11 destinations were located with 1/8 mile of existing transportation services.

Expanding the transportation service area to 1/4 mile increased the number of destinations served by 90 or by 39 percent of those previously unserved. At this distance, the number of unserved destinations was reduced by half or more in seven counties, Salem (50%), Burlington (56%), Union (60%), Passaic (64%), Cape May (67%), Essex (67%), and Hudson (86%).

Evaluating the proximity of destinations and transportation services within 3/4 mile established operational possibilities for deviated fixed-route and advance reserve subscription

services. By expanding the area served to 3/4 mile, all destinations in four counties would be considered served – Hudson, Essex, Cape May, and Union Counties.

Table 8 - Served and unserved human service consumer destinations by county

County	All	Served at 1/8 mile		Unserved at 1/8 mile		Additional Served at 1/4 mile		Additional Served at 3/4 mile		Remaining Unserved at 3/4 mile	
	N	N	%	N	%	N	%	N	%	N	%
Atlantic	18	6	33%	12	67%	3	25%	10	83%	2	11%
Bergen	31	16	52%	15	48%	7	47%	11	73%	4	13%
Burlington	30	12	40%	18	60%	10	56%	15	83%	3	10%
Camden	29	18	62%	11	38%	4	36%	10	91%	1	3%
Cape May	7	4	57%	3	43%	2	67%	3	100%	0	0%
Cumberland	8	5	63%	3	38%	1	33%	1	33%	1	13%
Essex	35	29	83%	6	17%	4	67%	6	100%	0	0%
Gloucester	27	12	44%	15	56%	7	47%	11	73%	4	15%
Hudson	21	14	67%	7	33%	6	86%	7	100%	0	0%
Hunterdon	5	1	20%	4	80%	1	25%	3	75%	0	0%
Mercer	19	5	26%	14	74%	5	36%	11	79%	0	0%
Middlesex	35	19	54%	16	46%	5	31%	9	56%	7	20%
Monmouth	31	9	29%	22	71%	8	36%	17	77%	5	16%
Morris	19	9	47%	10	53%	1	10%	2	20%	8	42%
Ocean	36	18	50%	18	50%	6	33%	16	89%	2	6%
Passaic	24	13	54%	11	46%	7	64%	7	64%	0	0%
Salem	11	9	82%	2	18%	1	50%	1	50%	1	9%
Somerset	24	12	50%	12	50%	2	17%	8	67%	4	17%
Sussex	11	6	55%	5	45%	0	0%	0	0%	1	9%
Union	24	9	38%	15	63%	9	60%	15	100%	0	0%
Warren	20	9	45%	11	55%	1	9%	5	45%	6	30%
Total	**467**	**235**	**50%**	**232**	**50%**	**90**	**39%**	**168**	**72%**	**64**	**14%**

Conclusion

This analysis presented evidence that the origins and destinations for many consumers of human service agencies were located within close proximity of existing traditional transit and community transportation resources. We estimated that about half of all consumers lived within a 1/8 mile of these transportation services and that about half of all identified destinations were similarly located within a 1/8 mile of public and community transportation. Further we found that 36 percent of origins and 39 percent of destinations more than 1/8 mile from transit were located within 1/4 mile of transit.

We examined the number of origins and destinations served within 3/4 mile as a surrogate advanced reservation services and found that all but 14 percent of origins and 14

percent of destinations were located within this distance. This investigation provided evidence of the accessibility of the current system.

This spatial analysis is represented graphically in a series of maps presented in Appendix C.

For each county, locations of origins (homes) and destinations (human service provider) were plotted and determined to be within 1/8, 1/4, and 3/4 mile of a NJ TRANSIT bus stop or community transportation route. Origins and destinations from all available data were included and consist of information shared or was gathered to represent consumers served by DoAS, DDD, DMHAS, and DVRS.

Estimating Financial Impact of Increased Public and Community Transit Use (Google Transit Analysis)

Introduction

In this section, we examine the potential savings that might accrue to New Jersey's social service providers by encouraging a portion of their consumers to use traditional public transit services, including NJ TRANSIT and fixed-route and deviated-fixed route community transportation services. We geocode origin-destination data from three Divisions and use a transit route-finding service provided by Google to estimate how well traditional transit currently serves a randomly selected subset of current trips. We then combine these transit travel time estimates with cost estimates to assess cost savings ranges under a variety of scenarios.

Methodology

In order to estimate the potential savings that might accrue to New Jersey's social service providers by switching at least partially to public and community transit services, we employed two distinct methodologies. First, for those agencies and divisions with access to origin-destination trip records for their consumers, we estimated cost savings with some precision using open-source public transit service data. For those agencies and divisions that do not have access to trip-level origin-destination data, we employed a case-study approach, examining the potential for conventional fixed-route transit to serve common origins and destinations.

This analysis used the trip-level origin-destination data (linked origins and destinations) provided by DDD, DMHAS, and DVRS. These records contained anonymized information on individual consumers' trips for which the department or division was financially responsible. These trips included journeys from home to sites of service provision, such as job centers, health facilities, partial day programs and other services.

For these departments and divisions, we used their trip-level origin-destination data to estimate the potential for a portion of their consumers to switch from their current mode of travel (for instance, taxis and shuttles operated by the service provider) to conventional fixed-route transit service, including (in some cases) county-operated transit service. We compared the estimated costs of using these services to the current costs of

using other transportation options such as van service or taxis operated by or contracted by service providers; the current costs associated with these options were obtained from the departments and divisions, where possible, or from service and/or transportation providers otherwise. Because the cost of current transportation services differed considerably by agency and trip, we used an average cost approach.

We estimated the feasibility of switching to conventional public transit by using GTFS data, an open-source data format used by a large and growing number of transit operators worldwide. This data format provided spatial information on transit routes and stops, as well as timetabling data on transit service to those routes and stops. We used the Google Distance Matrix API, a free but use-restricted tool that uses GTFS data supplied to Google by transit operators. The tool can estimate transit travel times from a given origin to a given destination at a user-specified time of day, and the total travel time includes wait times at stops for boarding and transferring. The API does not have complete coverage in New Jersey, though the coverage was extensive. The API had data on all NJ TRANSIT service, Port Authority Trans-Hudson (PATH) rail service, and the county transit operators in Burlington, Middlesex, and Sussex counties.

We sought to obtain a minimum of 500 origin-destination records from departments and divisions that had access to this type of data. We requested these data for representative periods (for instance, avoiding holidays and other days during which divisions might expect considerably lower use of human services). From two divisions (DVRS and DMHAS) we received a much larger set of origin-destination data, both of which provided more than a thousand records. Because the Google Distance Matrix API limits the number of data requests a user can make in a 24-hour period, and because increasing the sample size of such an analysis has diminishing returns beyond a few hundred records, we limited our analysis to somewhere between 500 and 4,000 records from each of these departments.

Figure 2 illustrates the “saturation effect,” by which increasing the sample size of our analyses provides diminishing returns. In this analysis, we estimate transit travel times for between 100 and 2,000 origin-destination records obtained from DMHAS, in 100-record increments. The horizontal axis shows the sample size while the vertical axis shows the change in the estimated mean travel time on transit between two increments. For instance, the first data point shows that by using 200 records instead of 100 records, the estimated mean travel time changes in absolute terms by 2.2 percent (from 91 minutes to 89 minutes). Beyond 500 records, adding more records to the analysis does not alter the mean travel time by more than 1.5 percent; we consider this to be a reasonable cutoff for “saturation” of our sample size.

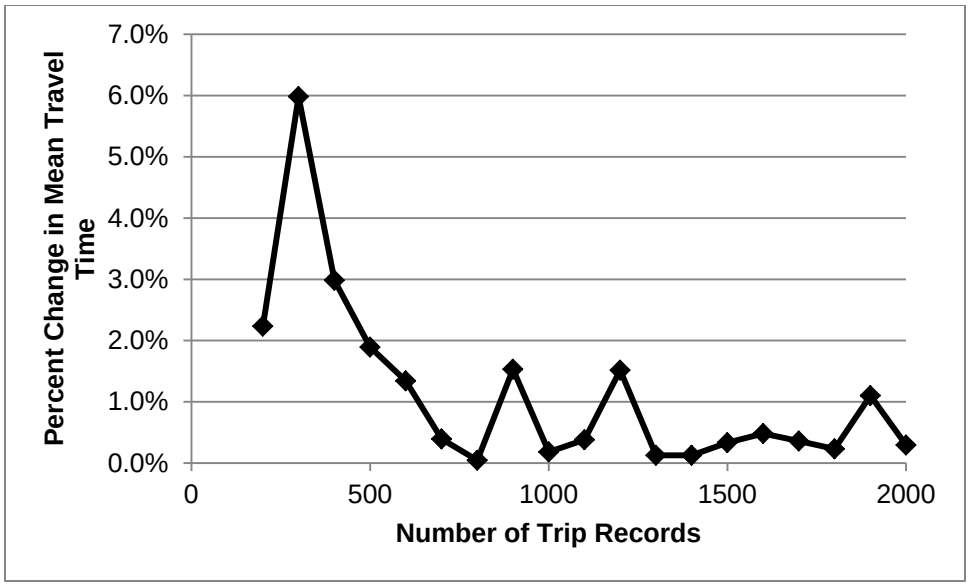

Figure 2. Sample size and saturation effect

Table 9 shows the number of trip records used in our analysis for each of the three agencies that provided us with origin-destination data. For instance, of the 1,730 cleaned records (excluding post-office box addresses and records with missing data for either the origin or the destination of the trip) entered into the Google Distance Matrix API, 1,402 records were geocoded successfully and transit travel time obtained, for a match rate of 81 percent. The records used were drawn randomly from a statewide database in each case.

Table 9 - Origin-destination data processed

Agency or Division	Records Attempted	Records Successfully Processed	Match Rate
DDD	190	175	92%
DVRS	1,730	1,402	81%
DMHAS	3,439	3,181	92%

We considered a trip on conventional transit to be a reasonable option to existing transportation services if the consumer could arrive by 10:00 am at the destination in fewer than 45 minutes, including wait times at stops and stations. We separately analyzed the percent of trips that could be switched to conventional transit service with relaxed trip time requirements, with “reasonable” cutoffs of 60 and 90 minutes.

The results are presented in the results section of this report.

Results

Ability to Switch to Conventional Transit

Table 10 shows the estimated maximum number and percent of trips that were provided by agencies or divisions (using a number of transportation modes such as in-house van service and taxi cabs) that could be accomplished using conventional public transportation. We stress that these figures are maxima, as some percentage of the social service consumers who used taxi cabs or van service were likely unable to use traditional public transportation due to physical or cognitive disabilities.

When using a 45-minute travel time cutoff for a "reasonable" transit trip, we found that, at most, between 30 and 42 percent of consumers would be able to use conventional transit. With more relaxed thresholds we found that, at most, roughly half (with a 60 minute threshold) or roughly two thirds (with a 90 minute threshold) would be able to switch to using conventional public transportation service.

Table 10 - Estimated number of current trips possible on public transportation

Agency or Division	Total Trips	≤45 Mins	≤60 Mins	≤90 Mins
DDD	190	80	106	128
		42%	*56%*	*67%*
DVRS	1,402	520	776	1,014
		37%	*55%*	*72%*
DMHAS	3,439	1,046	1,485	2,002
		30%	*43%*	*58%*

Table 11 produces estimates of the percentage of consumers who might be able to use conventional transit service under two separate scenarios: the first is the scenario in which half of all consumers are able to use conventional transit service, while the other half are prevented from doing so due to physical or cognitive disabilities. The second scenario uses a more conservative assumption that one third of all consumers are capable of using conventional transit service, while two thirds are not.

Table 11 - Percent able to switch to conventional transit under two scenarios

		Assumption: 50% Able to Use Transit			Assumption: 33% Able to Use Transit		
Division	**Number of Trip Records**	**Shift to Transit (45 minute rule)**	**Shift to Transit (60 minute rule)**	**Shift to Transit (90 minute rule)**	**Shift to Transit (45 minute rule)**	**Shift to Transit (60 minute rule)**	**Shift to Transit (90 minute rule)**
DDD	190	21%	28%	34%	14%	18%	22%
DVRS	1,402	19%	28%	36%	12%	18%	24%
DMHAS	3,439	15%	22%	29%	10%	14%	19%
Weighted Average		**16%**	**23%**	**31%**	**11%**	**15%**	**21%**

Cost Estimates

In order to estimate the cost savings associated with switching from private transportation to public transportation for a subset of consumers, we obtained current expenditures on transportation from four agencies. From DDD we received extensive data, including the average cost per client per day for transportation, the average cost per mile of client transportation, and the average cost per one-way trip. From DVRS and DMHAS, we received microdata allowing us to calculate the average cost per mile and per one-way trip. From a fourth agency, the Division of Aging Services, we received microdata allowing us to calculate the average cost per one-way trip. The average cost per trip ranged from just over ten dollars for DVRS to over twenty dollars for DDD.

Table 12 - Estimated average costs by agency

Division	**Cost per Client per Day (Roundtrip)**	**Cost per Mile**	**Cost per Trip**
DDD	$42.49	$2.17	$21.25
DVRS		$0.90	$10.89
DMHAS		$1.26	$16.59
DoAS			$15.35

We further estimated the costs of replacement trips on transit by using the National Transit Database (NTD).[(38)] Because fares were variable (more expensive for longer trips that cross zones), we used the average fare paid by NJ TRANSIT customers, according to the NTD's 2013 report for NJ TRANSIT. We inflated these fares by 9 percent to reflect a fare increase in October 2015. The NTD reported an average paid fare price of $2.41 in 2013, reflecting the much greater use of less-costly modes such as the bus and light rail systems (average cost of $2.13 per trip) versus more costly trips on com-

muter rail (average cost of $6.13). We thus used an estimated average fare cost of $2.63 for our calculations.

Table 13 - Point estimate of per-trip savings from replacement trips

Division	Number of Trip Records	Cost per One-Way Trip by Agency	Cost of One-Way Trip on Transit	Savings per One-Way Trip ($)	Savings per One-Way Trip (%)
DDD	190	$21.25	$2.63	$18.62	88%
DVRS	1,402	$10.89	$2.63	$8.26	76%
DMHAS	3,439	$16.59	$2.63	$13.96	84%
DoAS	0	$15.35	$2.63	$12.72	83%
Weighted Average		**$15.18**	**$2.63**	**$12.55**	**82%**

Finally, Table 14 shows estimates of the overall savings that might accrue to the transportation budgets of agencies under six scenarios.

We used the weighted average of estimates of cost savings in conjunction with the weighted average of estimates of the share of trips that could switch to traditional public transportation presented in Table 11. The scenarios suggested that existing transportation budgets could be reduced by anywhere between **9 to 25 percent** through marginal switching to conventional public transportation service. For instance, under the assumption that one-third of all consumers were capable of using conventional transit, as well as the assumption that a maximum of 45 minutes travel time was considered a reasonable trip, 11 percent of consumers would likely be able to switch to transit, leading to a nine percent reduction in overall transportation budgets. With the assumption that 50 percent were capable of using transit (but keeping the 45 minute threshold), 16 percent of consumers would be able to use conventional transit service, leading to a 13 percent reduction in the overall transportation budget.

Table 14 - Estimates of overall transportation budget savings from replacement trips under six scenarios

	% Shift to Transit	% Savings to Overall Budget
Assumption: 50% able to use transit		
45 minute rule	16%	13%
60 minute rule	23%	19%
90 minute rule	31%	25%
Assumption: 33% able to use transit		
45 minute rule	11%	9%
60 minute rule	15%	12%
90 minute rule	21%	17%

Conclusion

This analysis presented evidence that social service agencies and their associated state divisions could reduce their expenditures on transportation services by encouraging a subset of consumers to switch to traditional public transit service, including NJ TRANSIT and county-operated services. We estimated that the savings potential could be significant, ranging from **9 to 25** percent savings overall. Additional savings could be realized through coordination with transit providers, discussed in the following section of this report.

Of course, the potential to reduce transportation-related costs vary by location and population served. In urban counties in New Jersey, transit services are plentiful and many consumers may have access to bus and rail routes that could meet their travel needs. In suburban and rural counties, the potential of transit to substitute for taxis and other services will be somewhat lower. And social service providers will need to assess for which consumers traditional transit service is a reasonable option. Some consumers have physical and cognitive conditions that may render transit trips cumbersome, dangerous, or impossible. For others, traditional transit and community transportation may be convenient and prudent alternatives that allow participation in division supported activities such as day programs as well as other pursuits that can enhance their lives.

Identifying Potential Route Locations to Serve Existing Need

The research team performed one additional analysis in its effort to identify more efficient means to provide transportation services to human service agency consumers. Analysis was undertaken to identify corridors with a high degree of usage by human service consumers as well as to identify the public and community transportation services available along such corridors. Be advised that these observations are advisory as our data on trips with linked origins and destinations were limited to that shared by

DMHAS and DVRS, and were informed by a review of the origin and destination data identified for DoAS and DDD consumer travel.

The purpose of this analysis is twofold. First, we identify the routes and services that show the most promise for serving the needs of the largest number of human service consumers. Evidence from this investigation can be used to prioritize particular locations and transportation services where opportunities exist and may provide guidance for transportation providers and human service providers to pilot new relationships and find new ways to provide transportation to human service consumers. The purpose is to highlight the intersection between where services are already in operation and where need for transportation serving human service consumers exists.

Second, we identify those corridors where there exists a preponderance of need, but is unserved by fixed route or deviated-fixed transportation. This second aim helps to identify locations where advanced reservation group rides could be implemented economically and where, if warranted, new deviated-fixed or fixed route service could satisfy documented need.

Method

Using the origin and destination data received from DMHAS and DVRS, we plotted the optimal path between each consumer's morning origin location (home) and destination (partial day program, supportive employment location, etc.) using the ARCGIS network analyst function and the existing street network. These paths were overlaid with existing public transportation services (bus stops) and community transportation routes. Paths were aggregated and categorized as high, medium, and low use – meaning we characterized those segments of any given path where a large number of consumers would optimally travel as a "high" use path when DMHAS and DVRS consumers made between 93 and 259 one-way trips per day from their points of origin to their destination. A path where there were fewer, but still substantial number of consumers (23 to 92 one-way trips per day) that would optimally travel was classified as a "medium" use path. These categorized paths were used to produce color-coded "heat" maps, with high as red, medium as orange, and low as yellow. These maps are available in Appendix D.

High and medium use paths received closer attention. An additional step was taken to confirm the existence of DoAS, DDD, DMHAS, and DVRS destinations near the path. High and medium use paths with known destinations that also coincide with existing transportation services were identified as were the transportation providers serving those locations and the routes available.

High and medium use paths with known destinations but lacking transportation services were also examined. Those high and medium paths that did not coincide with existing public and community transportation services provided some evidence of need. The lack of service combined with the demonstrated location of travel suggested that these paths were where advance reservation group riders could work well insomuch as a confluence of consumers could be served efficiently and/or where, if there existed sufficient need, deviated-fixed route service might be considered.

Results

As can be seen in Table 15, we identified in each county: 1) corridors where public and community transportation services existed that could be used by human service consumers and 2) corridors where need existed but were unserved by regularly scheduled public or community transportation services.

Each of these corridors should be considered corridors of “high opportunity”. Our evaluation identified corridors in 18 counties in the state where NJ TRANSIT bus service coincided with the optimal route paths that could be taken by human service consumers and that could be utilized to satisfy some transportation need. Additionally community (county) transportation providers in eight counties provided services that coincide with the routes identified and that could be of use to human service consumers, including in two counties where these routes were not served NJ TRANSIT. These county routes operated smaller buses that were identical to the types of buses currently used by many human service agencies for group ride services. Generally we observed that in dense, high-population counties, where considerable public and community transportation services existed, there were few locations where high use paths coincided with a lack of service.

We identified five corridors that had medium or high usage and known destinations but that were not served by regularly scheduled public or community transportation. These corridors were located in Cumberland, Hunterdon, Middlesex, Somerset, and Warren Counties.

Conclusion

This evaluation provides further evidence about the nature of the public and community transportation services operating throughout the state of New Jersey. Transportation providers should consider the potential of these routes to serve future consumers as these services should be of interest to human service providers seeking alternative ways to transport their clientele. Similarly human service providers should be aware of the potential of these services to meet the needs of a large number of their consumers.

Table 15 - High opportunity routes

County	Corridor	Level of Potential Usage	Transportation Provider	Service
Atlantic	US-30	Medium/High	NJ TRANSIT	NJT554
Atlantic	CR563	Medium	ATC	Egg Harbor Shuttle
Atlantic	CR633	Medium	ATC	Egg Harbor Shuttle
Atlantic	CR322	Medium	ATC	English Creek Shuttle
Atlantic	CR633/CR561	Medium	NJ TRANSIT	NJT508
Atlantic	US-40 / CR322	Medium	NJ TRANSIT	NJT553/NJT502
Bergen	CR56	Medium	NJ TRANSIT	NJT76, NJT162,NJT163, NJT164, NJT168, NJT762

County	Corridor	Level of Potential Usage	Transportation Provider	Service
Bergen	CR55	Medium	NJ TRANSIT	NJT76
Burlington	US130	Medium	NJ TRANSIT	NJT409
Cape May	GSP (local)	Medium	NJ TRANSIT	NJT552
Camden	US30 (White Horse Pike)	Medium	NJ TRANSIT	NJT403
Camden	US70	Medium	NJ TRANSIT	NJT406
Camden	NJ41 / Kings Hwy / CR551 Spur	Medium/High	NJ TRANSIT	NJT457
Camden	US130	Medium/High	NJ TRANSIT	NJT402/408/409/410
Camden	CR616 / Haddonfield Rd	Medium	NJ TRANSIT	NJT404/406 NJT404/450
Camden	NJ168	Medium	NJ TRANSIT	NJT400
Camden	CR610	Medium	NJ TRANSIT	NJT404
Camden	CR626	Medium	NJ TRANSIT	NJT405
Cumberland	Carmel Rd/CR608	Medium	*Currently unserved; Potential provide service*	
Cumberland	CR610	Medium	Cumberland County Office of Employment & Training	Millville Airport Route
Essex	Bloomfield Ave / CR506 / CR506 Spur	Medium	NJ TRANSIT	NJT11, NJT28, NJT29, NJT72, NJT94 Essex Wave 1
Essex	Broadway / CR667	Medium	NJ TRANSIT	NJT13
Essex	Centre St / CR648	Medium	NJ TRANSIT	NJT13
Essex	Franklin Ave (CR645)	Medium/High	NJ TRANSIT	NJT74, NJT92
Essex	Grove St / CR509	High	NJ TRANSIT	NJT27, NJT90
Essex	Park Av (CR658)	Medium	NJ TRANSIT Meadowlink	NJT41 Essex Wave 3
Essex	Sanford Ave / CR605	Medium	Meadowlink	Essex Wave 1
Essex	Springfield Ave CR603	Medium	NJ TRANSIT	NJT25
Gloucester	Delsea Dr / US47	Medium	NJ TRANSIT	NJT408 / NJT313
Gloucester	CR644	Medium	NJ TRANSIT	NJT 601, 410
Gloucester	CR551 / Kings Hwy	High	NJ TRANSIT	NJT501
Gloucester	US45 / Bridgeton Pike	High	NJ TRANSIT	NJT610
Gloucester	NJ44 / NJ130	High	NJ TRANSIT SJTPA	NJT402 Pureland Industrial Route
Gloucester	N Broadway / S Broadway / CR533ALT	High	NJ TRANSIT	NJT412
Gloucester	CR630 / Egg Harbor Road	High	NJ TRANSIT	NJT463
Gloucester	NJ42 / Black Horse Pike	High	NJ TRANSIT	NJT315, NJT400
Hudson	CR613/CR617/Summit Ave	High	NJ TRANSIT	NJT6
Hudson	CR663/Central Ave	Medium	NJ TRANSIT	NJT119, NJT88, NJT87
Hudson	Harrison Ave	Medium		NJT40
Hunterdon	US202	Medium	LINK Transit	LINK 16/19, 21, 23
Mercer	North Olden Ave	High	NJ TRANSIT	NJT603, NJT613
Mercer	Brunswick Tpke	Medium	NJ TRANSIT	NJT603, NJT613
Mercer	Hamilton Ave	Medium	NJ TRANSIT	NJT609, NJT619
Mercer	Bordentown Rd	Medium	NJ TRANSIT	NJT409

County	Corridor	Level of Potential Usage	Transportation Provider	Service
Middlesex	US27	Medium	NJ TRANSIT	NJT810
Middlesex	Suttons Lane / Metlars Lane (Piscataway)	Medium	*Currently unserved; Potential provide service.*	
Monmouth	US35	Medium	NJ TRANSIT	NJT832
Monmouth	US33	Medium	NJ TRANSIT	NJT836
Morris	US10	Medium	NJ TRANSIT	NJT880
Morris	US202	Medium	Parsippany Transit System	Rt2
Ocean	CR 528/Cedar Bridge Rd	Medium	Ocean Ride	OC4 Lakewood-Brick Link
Ocean	US70 – Jack Martin Blvd	Medium	Ocean Ride	OC3 Brick-Lakewood-Toms River
Ocean	NJ166 – Lakewood Rd	Medium	NJ TRANSIT	NJT559
Ocean	Old Freehold Road (Toms River)		Ocean Ride	OC2 Manchester
Passaic	Main Street (Paterson)	Medium	NJ TRANSIT	NJT74, NJT122/190
Salem	NJ45	Medium	NJ TRANSIT	NJT468, NJT401
Somerset	NJ28	Medium	NJ TRANSIT, Somerset County Transportation	NJT65, NJT114/117 CAT1, CAT2, SCOOT1, SCOOT2
Somerset	South Main St (Manville)	Medium	Somerset County Transportation	SCOOT1, SCOOT2
Somerset	US202	Medium	*Currently unserved; Potential provide service*	
Sussex	NJ23	Medium	Skylands	Skylands Connect
Union	US28	Medium	NJ TRANSIT	NJT113
	US22	Medium	NJ TRANSIT	NJT66, NJT114
Warren	NJ31	Medium	Warren County Shuttle	Phillipsburg to Washington and Back
Warren	NJ57 / CR517	Low/Medium	Opportunity exists to extend Phillipsburg-Washington Shuttle to serve 3 DoAS destinations	

Conclusion

Among the goals of this study was to demonstrate the potential of public and community transportation to provide services to human service consumers. The research team attempted to collect detailed data from New Jersey's human service divisions, with limited success. Data from four divisions (DoAS, DDD, DMHAS, and DVRS), supplemented with surrogate data when necessary, was used to gauge the capacity of public and community transportation to serve the needs of human service consumers in the state as well as the potential savings that could be achieved by utilizing different forms of transportation for these consumers.

We conducted three analyses to measure whether human service consumers had access to public and community transportation; to estimate what kinds of savings might be realized should a portion of human service consumers transition from taxi or other transportation modes to public and community transportation; and to determine the pub-

lic and community transportation routes that exist that could be used by human service consumers, where advanced reservation services might be a good fit, and transportation services might be wanting.

Our examination of consumer origins of the four divisions that shared data or for which we identified surrogates indicated that about half of all consumers lived within a 1/8 mile of public and community transportation services, the shortest distance investigated. Similarly about half of all identified destinations were located within a 1/8 mile of public and community transportation. This minimal distance represented a distance that can be traveled on foot in less than three minutes. By expanding our observation distance to 1/4 mile, we found that more than a third of those not served at 1/8 mile would be served. Overall 67 percent of consumer origins and 70 percent of destinations were located within 1/4 mile of public and community transportation.

To serve origins and destinations located further than a 1/4 mile from traditional transit, advanced reserve group rides should be considered. We determined the number of origins and destinations served within 3/4 mile to measure whether advanced reservation services could serve human service consumers. We found the vast majority of consumer origin and destination locations located within 3/4 mile of existing transit, with all but 14 percent of origins and 14 percent of destinations located within this distance. This suggested that nearly all consumers served by New Jersey's human service divisions could make use of traditional transit (public and community transportation) or advanced reservation services.

Having determined the viability of traditional transit to meet the needs of the majority of human service consumers, we investigated whether using these transportation modes could result in cost savings. We analyzed trip data that linked specific origins and destinations and considered trip duration to determine the number of trips that could reasonably be made via traditional transit. We found that the savings potential could be significant, ranging from 9 to 25 percent savings overall. In locations where traditional transit services were more readily available, savings could be larger and more easily realized. In more sparsely-settled suburban and rural counties with more limited transportation options, however, realizing savings through mode change may be more challenging to implement inasmuch as more costly transportation modes were more likely to be utilized than traditional transit.

We undertook one additional analysis in order to understand the variation of traditional transit provision throughout the state and to better understand the opportunities and limitations of using traditional transit and advanced reservation group rides for human service consumers. To do this, we examined the optimal routes that consumers would travel between their origin and destination and compared these routes with available transportation services. This investigation identified transportation services that should be targeted for additional use by human service consumers and locations where new transit service should be explored.

The transportation services identified should be of immediate interest to the private human service agencies looking to reduce their costs or to replace and/or supplement services. Concomitantly transportation service providers should view these routes as re-

sources to be marketed to the human service community and as assets to be leveraged and made more productive through additional ridership.

These analyses had limitations as we did not have a complete picture of the travel patterns of consumers across the range of human service divisions in the state. Several divisions did not collect the kinds of data that we sought, and others were unable to share detailed data with the research team. This suggested a need on the part of New Jersey divisions and the agencies that serve human service consumers to collect and share better transportation utilization data.

Even with these limitations, however, the analyses showed the potential that existed to reduce the costs of providing transportation to consumers and it indicated what the cost savings were likely to be. This level of significant savings should be considered by those making transportation policies and decisions within the state, especially in light of transportation funding constraints and increasing demand for mobility services.

EXPLORATION OF OTHER TRANSPORTATION DELIVERY MODELS

Introduction

This investigation has focused on identifying ways to more efficiently provide transportation services to the consumers of New Jersey's human service divisions. Specifically, we looked for better ways to meet the needs of human service division consumers, a group that collectively can be described as the transportation disadvantaged. Our earlier analysis demonstrated that one way to achieve this goal was to explore the suitability of using existing public and community transportation services to meet the needs of these populations.

However, simply identifying how consumers might utilize existing transportation services only partially addressed this need. To this end, the research team examined a broad range of practices that can be used to promote more efficient transportation services for human service consumers. The research team identified more than a dozen promising practices that have the potential to enhance transportation services for human service consumers and/or to reduce the costs of providing these services. Many of the promising practices discussed below attempt to address issues of coordination and to streamline service delivery in the human services and transportation systems.

Promising Practices

The promising practices identified for this research act on one or more "levers" that affect transportation delivery and acquisition by consumers and look toward making positive change at a variety of levels and among different actors. We identified four areas of change: operations and routes, purchase of transportation, consumer utilization of transportation, and relationships among stakeholders (see Figure 3).

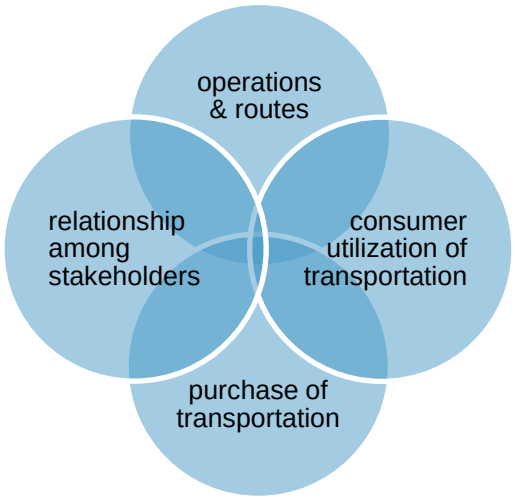

Figure 3. Types of promising practices

"How does the practice affect transportation service delivery?"

1. OPERATIONS AND ROUTES – These promising practices affect the processes used to provide and the location of transportation services delivered to consumers.

These promising practices change the ways that transportation services are operated, the routes that are available to serve consumers, and the means by which consumers can access traditional transit. The aim of several of the promising practices listed below is to address the difficulties of providing transit economically in low density locations or to bridge the distance between a consumer's origin/destination and where s/he can board a vehicle. These challenges occur in locations that are not walkable due to distance, lack of infrastructure, or consumer inability.

2. PURCHASE OF TRANSPORTATION – These promising practices affect the contractual connections between human service providers and transportation providers or affect how consumers identify and purchase transportation services.

These promising practices attempt to lower costs of providing transportation to human service consumers. One way to achieving this goal is to establishing new partnerships between human service providers and the transportation community through the purchase of transportation services. Contracts between human service providers who need to get consumers to their facilities efficiently and community transportation providers who have services available is a direct means toward accomplishing this goal. Other means to connect consumers with available transportation options include mobility management techniques and brokerage. In each, transportation decision making is done in light of individual needs and the overall transportation assets available. Vehicle leaseback is another form of contractual relationship that changes the nature of transportation provision and may affect the purchase of these services; vehicles are purchased by human service providers but operated by community transportation entities.

3. CONSUMER UTILIZATION OF TRANSPORTATION – These promising practices change how consumers travel.

These promising practices offer consumers alternative ways to identify transportation options, access traditional transit, or develop or refine the skills to utilize traditional transit. Many of the promising practices affecting changes in operations also entail changes in behavior on the part of the consumer and may require pursuit of additional skills and/or the adoption of new travel patterns. Willingness to make these kinds of changes is often a prerequisite to implementing more efficient transportation modes. A reluctance to adopt new practices can adversely affect success. While mode changes, particularly those that might require consumers to travel on more than one mode, are often made only when other options are exhausted, these changes can also provide consumers with previously unrealized opportunities. Consumers who typically travel via door-to-door transportation from their residences to program locations may benefit from familiarity with and competency with other nearby transportation options.

4. RELATIONSHIPS AMONG STAKEHOLDERS – These promising practices affect the coordination of information and services among stakeholders including human service divisions and providers, community transportation providers, and public transportation agencies.

Among the most difficult to achieve but powerful promising practices identified are those that alter the relationships between stakeholders. These changes have the potential to create new ways of working together, permit new forms of collaboration, and establish meaningful interaction between partners. Successful collaboration may allow stakeholders to share services, improve transportation options for consumers, and lower costs.

Being able to effectively collaborate can also have an impact on the success of other forms of promising practices. This implies that while such a newly adopted promising practice may be designed to influence operations or access, the success of such a change is dependent upon an ongoing exchange of information and sustained coordination of effort between two or more stakeholders.

Significant barriers exist to improving coordination between stakeholders. Among these is a lack of communication between stakeholders, adherence to vested or competing interests, and unwillingness to try unfamiliar practices. i.e., “fear of change factor.”

Table 16 provides a better understanding of the promising practices reviewed below and identifies the levers that might be employed to bring forth change in the provision of transportation services for human service consumers. Table 17, which follows, provides a description of the practice, a rationale for why it might be adopted, an example of where the practice is already been adopted, thoughts about where and how the practice might be employed in New Jersey, and reiterates the policy area(s) the practice affects.

Table 16 - Promising practices by type

Promising practice	Operations & routes	Purchase of transportation	Consumer utilization of transportation	Relationships among stakeholders
Adjust or expand existing transit to accommodate unserved locations	X			
Collect and share transportation usage and needs data				X
Consider public and community transportation access in location decisions			X	X
Contract with community transportation providers		X		X
Coordinate transportation services operating within similar geographies	X			X
Coordinate vehicle maintenance programs	X			X
Develop cooperative arrangements between municipalities and between municipalities and counties providing transportation	X			X
Establish transfer hubs	X		X	
Establish/expand mobility management and/or trip brokerage	X	X	X	X
Expand area served by route deviation	X			
Explore e-hailing services for first/last mile to traditional transit	X		X	
Explore flex-route / e-hailing technology to coordinate group rides (smart paratransit)	X		X	
Incentivize coordination between human service providers and counties				X
Offer travel instruction / travel training			X	
Use demand response feeder service to connect to tradition transit	X		X	
Use demand responsive collector strategies	X		X	
Use vehicle leaseback	X	X		X

Table 17 - Suggested promising practices

ADJUST OR EXPAND EXISTING TRANSIT ROUTES TO ACCOMMODATE UNSERVED LOCATIONS	
Description	Identify locations (e.g., congregate housing, partial day programs, vocational rehabilitation centers, hospitals, medical clinics, institutions of higher learning, government offices) that are currently unserved or underserved and determine how locations might be served via minor changes in existing transit routes.
Rationale	A prudent means of expanding transportation options for disadvantaged persons is to assure that high frequency destinations, and to a lesser extent, origins are well served by public and community transit.
Example	In 2015, NJ TRANSIT established a bus stop near a Paramus senior housing facility with the prime intent of serving residents. The agency is also exploring pursuing similar opportunities to accommodate unserved locations for older adults in communities including Trenton, Metuchen, Salem and Old Bridge.
Potential pilot	Our data analysis identified the following locations for potential transit routes: CR608 in Cumberland County, US202 in Hunterdon and Somerset Counties, Suttons Lane/Metlars Lane in Middlesex County, and an extension of current service along NJ57 in Warren County.
Policy area(s)	Operations & routes

COLLECT AND SHARE DATA ABOUT TRANSPORTATION NEEDS AND UTILIZATION	
Description	Detailed information about the locations of origins, destinations, mode of travel, and costs permits a better understanding of consumer transportation demand and is necessary to improve transportation delivery.
Rationale	Better data collection and information sharing allows for improved decision making and successful coordination. This investigation highlighted a need for detailed transportation data that was not universally available among the human service divisions.
Example	Data sharing is growing within the transportation sector. An example of this is Alert-a-Ride, proposed open-source access data of paratransit trips. Alert-a-Ride serves as an open-source prototype for local governments to open-up access to datasets about vulnerable populations in a way that protects personal identifiable information. See https://www.newschallenge.org/challenge/data/entries/alert-a-ride for additional information.
Potential pilot	Using the example from the most robust division data, divisions should consider requiring human service providers to supply the following information to enable coordination efforts: origin, destination, frequency of one-way trip, cost of trip, and mode traveled.
Policy area(s)	Relationships among stakeholders

CONSIDER PUBLIC AND COMMUNITY TRANSPORTATION ACCESS IN LOCATION DECISIONS	
Description	Siting housing, programs, and facilities in locations that are not served by public and/or community transportation places a burden upon transportation disadvantaged populations. If decisions about the locations of these facilities consider access to these modes of travel, consumers will be better served.
Rationale	Transportation services are less prevalent in rural and sparsely settled areas where it is more costly and more difficult to serve consumers. While short term land costs associated with locating in transit-accessible locations might be greater, savings can be realized in transportation costs over time.
Example	Inclusion of public transportation accessibility has been utilized in the development of veteran housing facilities in Highland Park (All Saints Apartments) and Jersey City (Ocean Avenue)

Potential pilot	Not applicable
Policy area(s)	Consumer utilization of transportation; Relationships among stakeholders

CONTRACT WITH COMMUNITY TRANSPORTATION PROVIDERS

Description	Human service providers contract for consumer transportation with county and community transportation providers.
Rationale	County and community transportation providers can consolidate transportation services across many contracts, consumers groups, and locations, thus providing an opportunity to provide transportation more efficiently. This can benefit the human service providers and consumers through lower costs. Additionally this can benefit transportation providers that can make intensive use of already established routes, vehicles, and services.
Example	Camden ARC contracts with Camden SCUCS to transport DDD consumers using DDD funds. Easter Seals in Middlesex, Passaic, and Sussex contracts with MCAT, Passaic County Paratransit, and Skylands Transport to transport DVRS consumers using DVRS funds.
Potential pilot	In Monmouth County, DMHAS human service providers have recently contracted with Monmouth County Transportation to transport consumers. By placing consumers on vehicles with unused capacity, the county transportation provider is able to provide service within existing financial constraints. Expansion of this relationship and duplication in other locations presents an opportunity to expand this pilot effort.
Policy area(s)	Purchase of transportation, Relationships among stakeholders

COORDINATE TRANSPORTATION SERVICES OPERATING WITHIN SIMILAR GEOGRAPHIES

Description	When two or more entities provide transportation within a given area, coordination of routes can eliminate duplicative services and result in cost savings. Additionally, cooperation between two or more transportation service providers can allow consumers better access to a larger transit network when stops served by more than one provider are strategically located and schedules coordinated to allow transfer trips.
Rationale	Geographic coordination of services can reduce the use of resources and allow for more intensive use of vehicles.
Example	Skylands Transport and Easter Seals of Sussex County have coordinated transportation services to allow for more efficient routing of vehicles serving consumers. Similarly Mercer ARC and Mercer TRADE have coordinated the services they provide within the county.
Potential pilot	Potential pilot exists that would align services provided by Cumberland County CATS, Cumberland OET, and Easter Seals.
Policy area(s)	Operations and routes, Relationships among stakeholders

COORDINATE VEHICLE MAINTENANCE PROGRAMS

Description	A major transportation cost is vehicle maintenance. Savings can be achieved through economies of scale when maintenance is coordinated.
Rationale	Coordinated services can lead to efficiencies and lower costs. Maintenance often requires specialized equipment and skills that smaller transportation providers are not able to provide inexpensively. These kinds of collaborations can lead to other areas of cooperation.
Example	ARC Mercer offers maintenance services to other non-profit transportation operators.
Potential pilot	County transportation providers with capacity can make maintenance available to human service providers in their area.

Policy area(s)	Operations and routes, Relationships among stakeholders

DEVELOP COOPERATIVE ARRANGEMENTS BETWEEN MUNICIPALITIES AND BETWEEN MUNICIPALITIES AND COUNTIES PROVIDING TRANSPORTATION

Description	Adjacent and nearby municipalities can pool resources to provide better and more comprehensive transportation services.
Rationale	Cooperation between municipalities and between municipalities and counties can allow for economies of scale and establish larger geographic areas where trips can be provided.
Example	Contract senior transportation services between Woodbridge and Sayreville with the Middlesex County Area Transit program
Potential pilot	Potential to implement such practice exists wherever municipality-operated transportation services overlap with those offered by county and public transportation providers. Municipal senior transportation often duplicates county-operated routes. Known examples of this practice can be seen in East Brunswick and Fort Lee.
Policy area(s)	Operations and routes, Relationships among stakeholders

ESTABLISH TRANSFER HUBS

Description	A transfer hub is a safe established location where consumers can transfer between traditional transit routes and/or demand responsive modes to complete a trip.
Rationale	A transfer hub can expand or extend the area where consumers are served. A transfer hub can also allow transportation providers to operate in a more economical manner.
Example	Freehold SCAT Transfer Facility is a FTA funded bus transfer facility that allows consumers from western parts of the county to transfer from a sheltered waiting area to routes servicing DVRS and DDD destinations in the eastern part of the county.
Potential pilot	Other county transportation systems that have the potential to establish transfer hubs include Middlesex County Area Transit (MCAT) and Ocean Ride (Ocean County Department of Transportation).
Policy area(s)	Operations & routes; Consumer utilization of transportation

ESTABLISH/EXPAND MOBILITY MANAGEMENT AND/OR TRIP BROKERAGE

Description	Mobility management uses a coordinated community-wide transportation service network with access to multiple trip providers. A mobility manager identifies the transportation options available and schedules trips for individual users. Brokerage offers many of these same services as it acts as a liaison between individual users and transportation providers.
Rationale	Mobility management and trip brokerage centralizes coordination and can enable better allocation of scarce resources. Having a single point of contact can streamline acquisition of transportation services and facilitate usage by consumers.
Example	Florida county-based mobility manager; also found in many Ohio counties
Potential pilot	Counties with substantial transportation service and capacity to coordinate services with consumer need offer an opportunity to implement mobility management programs, for example Skylands Ride in Sussex County.
Policy area(s)	Operations & routes; Purchase of transportation; Consumer utilization of transportation; Relationships among stakeholders

EXPAND AREA SERVED BY ROUTE DEVIATION	
Description	Route deviation combines aspects of fixed route and demand response transportation services by establishing a service route (or service area) and a timetable. Extending the geographic area served via route deviation may allow additional human service consumers to use community transportation.
Rationale	Expanded deviation may allow consumers to access community transportation without a transfer. This may be particularly helpful in rural and sparsely settled areas.
Example	National examples include Tillamook County Transportation District in Oregon, where route deviation is 1.5 miles (TCRP SYN 53).
Potential pilot	Expanded area coverage by greater route deviation has the most potential in locations that are relatively sparsely populated and have established community transportation networks. These conditions exist in many counties throughout the state and should be considered by Burlington County (Burlink), Cumberland County (CCOET), Middlesex County (MCAT), and Warren County (Shuttle) as well as other locations.
Policy area(s)	Operations & routes

EXPLORE E-HAILING SERVICES FOR FIRST/LAST MILE TO TRADITIONAL TRANSIT	
Description	The rise of ride matching services has created the opportunity to connect consumers living in unserved locations with traditional transit. While ride matching services such as Uber, Lyft, etc. is comparable to taxi and can be costly, using these services in conjunction with traditional and community transportation may be less expensive overall.
Rationale	E-hailing services can allow consumers to connect to traditional transit and thus can expand or extend service areas. Bridging the first-mile/last-mile can allow for greater use of traditional transit and more economical transportation operations.
Example	Uber pilot in Bergen County
Potential pilot	Consumers traveling to/from locations near well-established public and community transportation options, but who are otherwise unable to access those services, could benefit from e-hailing services. Uber pilot in Bergen County should provide additional information for future pilots.
Policy area(s)	Operations & routes; Consumer utilization of transportation

EXPLORE FLEX-ROUTE / E-HAILING TECHNOLOGY TO COORDINATE GROUP RIDES (SMART PARATRANSIT)	
Description	Using ride-matching software (like that used by Uber and others) to more efficiently facilitate group rides. Limited number of “regular” stops can be incorporated into service route.
Rationale	Transportation providers can streamline operations by using real-time ride-matching software, which can be lower cost than taxi or underutilized traditional transit. E-hailing trips may be attractive to consumers not accustomed to advanced reservation group rides. Real time scheduling of trips has the potential to eliminate late cancellations and no-shows.
Example	Examples of ride-matching and ridesharing software designed to serve human service consumers is a burgeoning field. Available software includes FlexRide / TapRide and TripSpark.
Potential pilot	As a new technology, e-hailing is a burgeoning field and the team does not have adequate information to suggest a pilot location at this juncture. However, this option should be considered by stakeholders going forward as additional promising practice examples nationwide become known.

Policy area(s)	Operations & routes; Consumer utilization of transportation

INCENTIVIZE COORDINATION BETWEEN HUMAN SERVICE PROVIDERS AND COUNTY TRANSPORTATION PROVIDERS

Description	Financial support to encourage coordination between human service providers and county
Rationale	Incentives can provide an additional inducement to stakeholders to move beyond conceptual cooperation and to implement active coordination of services
Example	Florida's Transportation Regional Incentive Program (TRIP) provides incentives for local governments and the private sector to help pay for critically needed projects that advance regional travel and commerce. TRIP projects advance concurrency management systems and support integrated transportation systems.
Potential pilot	Not applicable
Policy area(s)	Relationships among stakeholders

OFFER TRAVEL INSTRUCTION / TRAVEL TRAINING

Description	Through one-on-one and group training, teach persons with disabilities, seniors, and others to use public transit safely and independently.
Rationale	Providing safe travel skills to consumers allows them to utilize available public and community transportation modes successfully. Additionally, staff and others who make transportation decisions with consumers should be familiar with the traditional transit options available and could benefit from travel orientation instruction.
Example	NJTIP @ Rutgers offers travel instruction to persons with disabilities, older adults and low-income populations as well as to the professionals and families supporting these populations.
Potential pilot	Each of the divisions should consider contracting with NJTIP @ Rutgers for transit orientation training for their frontline staff so that these persons can better serve consumers who are seeking to utilize public transit. In addition, the divisions should support travel instruction for interested consumers.
Policy area(s)	Consumer utilization of transportation

USE DEMAND RESPONSE FEEDER SERVICE TO CONNECT TO TRADITIONAL TRANSIT

Description	Use demand response services to transport consumers to locations where traditional or community transportation services can be accessed through timed transfer first/last mile services.
Rationale	Using demand response services can increase use of traditional transit, reduces trip length of demand response trips, and increase the viability of traditional transit in rural and sparsely settled areas.
Example	Pearl Transit provides demand response feeder to NJ TRANSIT buses and to the Pureland shuttles and Cumberland County Office of Employment & Training (CCOET) routes.
Potential pilot	All counties that operate demand response and where fixed route services are available could be eligible to pilot this promising practice.
Policy area(s)	Operations & routes; Consumer utilization of transportation

USE DEMAND RESPONSIVE COLLECTOR STRATEGIES	
Description	In this promising practice, transportation providers enlist natural supports, such as family members or group home staff, to pick up and transport several consumers to coordinated pick up / drop off locations where consumers can board public or community transportation or a pre-arranged group ride.
Rationale	Low density locations are difficult and costly to serve. Bringing consumers to locations served by public and community transportation allows them to access these services. Using natural supports helps ameliorate difficulties experienced by some consumers when using multiple modes and transfers.
Example	Called a POD by ARC Mercer, the agency recruits family members to pick up 2-5 consumers and bring them to a regularly scheduled pick up point where they transfer to an ARC Mercer bus. Pickups and drop offs are coordinated with bus drivers. Family member drivers are trained and receive minor compensation. At some locations, family member drivers have been given access to vehicles to facilitate the group ride.
Potential pilot	Transportation providers that have identified consumer origins that are close but not within their service zone may wish to consider this practice to reduce reliance on group rides. Greater impact is likely in more sparsely populated counties with traditional fixed route transportation.
Policy area(s)	Operations and routes; Consumer utilization of transportation

USE VEHICLE LEASEBACKS	
Description	Vehicle purchase by local jurisdiction and operated by county or other jurisdiction operating over a large area.
Rationale	Vehicle leaseback enhances economies of scale for operations and route coordination as well as for vehicle maintenance. Adoption of this promising practice may also provide a transitional period while human service operators own vehicles but do not operate them.
Example	Jewish Family and Vocational Services of Middlesex lease a vehicle back to Middlesex County Area Transportation (MCAT). MCAT operates and maintains the vehicle. When the vehicle is not in service for Jewish Family and Vocational Services, MCAT can use the vehicle to serve other consumers.
Potential pilot	Most county transportation providers and many non-profit operators have the capacity to operate vehicles via lease. Human service providers that have vehicles that they do not wish to operate are potential partners.
Policy area(s)	Operations & routes; Purchase of transportation; Relationships among stakeholders

Conclusion

The research team identified a broad range of opportunities that can be used to promote more efficient and better ways to provide transportation to human service consumers and stand to benefit both the divisions and the consumers. Of the seventeen promising practices discussed, more than half attempted to negotiate the difficulty of taking consumers from their origins/destinations to where traditional transit was accessed. A major barrier to utilizing public and community transportation was the first-/last-mile of trips for human service consumers. Most of the promising practice strategies that addressed first-/last-mile aimed to modify transportation operations and, of course, how consumers ultimately used transportation services. Among the strategies that bridged this gap were: expanded route deviation, e-hailing, flexible routing, demand response feeder service, and demand responsive collector strategies.

Equally important, however, were practices that attempted to change the nature of relationships between stakeholders. Making operational changes or introducing new means of access did not result in significant change in behavior or in savings except when concomitant realignments occurred in stakeholder relationships. For example, coordination of transportation services within a given geography required operational changes and changes in stakeholder relationships as well as significant information sharing between/among interested parties.

One potential promising practice that has the power to reshape the way that transportation decisions could made for human service consumers would be the wholesale adoption of mobility management in the form of single-point clearinghouses for transportation allocation. This would entail the creation of offices of mobility management on a county or multi-county level. These offices would be tasked with the evaluation of individual consumer transportation requirements, the identification and evaluation of transportation resources within a region, and the matching of consumer requirements with transportation resources. Such an office of mobility management would be a repository of transportation information concerning consumer need and use as well as transportation services and may enable a higher level of coordination then might otherwise be possible.

Many of the practices/strategies reviewed above could be applied in conjunction with other strategies. For example, e-hailing most certainly is only appropriate for some portion of human service consumers and could be employed at the same time (and on the same vehicles) as using demand response feeders and/or demand responsive collector strategies. All three of these strategies seek to bring consumers together to “share” the ride. How they get to that ride is what varies.

Savings and related benefits could be achieved the more intensive use of vehicles and the consolidation of services across users. All of these strategies have at their core the desire to promote “mass” transit. Sharing group rides, using more transit through agency transit ticket purchase, coordinating routes to reduce duplication and enable greater coverage, all allow for more efficient, cost-effective use of the limited transportation assets available. While trite, the age of doing more with less is faced by those who provide transportation to human service consumers. These strategies attempt to address this real and difficult challenge.

CONCLUSION/RECOMMENDATIONS

Findings

This research sought to better understand ways that transportation for human service consumers could be provided more proficiently so as to allow the state's human service divisions to more effectively utilize their limited resources. The researchers explored and identified strategies for purchased passenger transportation services, which has the potential to yield benefits for many stakeholders.

If implemented, the coordinated approaches outlined earlier in this report and the recommendations explored below have the potential to improve transportation services for many New Jersey residents who are transportation disadvantaged. Lest ways to more effectively utilize existing transportation resources are identified and pursued, ongoing financial constraints may preclude transportation service expansion and result in reduced services for these vulnerable populations.

Literature Review

A common thread in the literature on this topic was the belief that duplication and redundancy existed among transportation services funded by human service agencies, utilized by their consumers, and delivered by public transit agencies, community transportation providers, and private transportation providers. Historic development of human service transportation as a support function – bringing consumers to locations where they receive services – was a primary cause of this lack of coordination. This ancillary role that transportation played among these entities led to a situation where transportation was neither rationalized within agencies nor provided in a systematic manner across agencies.

Challenges to coordination existed on many levels and in many forms. Human service agencies served diverse populations, each with distinctive needs. Funding for transportation came from many sources – federal, state, and local – each with its own policies for use and documentation requirements. Lack of leadership among federal agencies contributed to insufficient coordination. However states with strong mandates have experienced more success with coordination and used dedicated resources to move coordination plans forward.

Successful coordination required early and frequent communication among partners. Improving information collection was a key to moving agencies toward sharing resources. Using small scale coordination agreements validated concepts and provided insight for making more sweeping changes that resulted in coordination.

Stakeholder Interviews

Through the stakeholder interviews, the research team learned how each division supported transportation services for their consumers. All stakeholders expressed commitment to their respective consumer populations and were open to discussing how transportation could be provided more efficiently and to better serve consumers. Most of the

division representatives indicated that having better information about the geography of consumer travel and the availability of alternative travel modes could be beneficial.

Divisions that collected and shared data on consumer trips with the research team were eager to learn more detail on these trips and potential alternative transport modes that could be used to make the trips. However data collected by divisions and provided to the research team were often limited and made this kind of analysis more difficult.

The research team also learned of the limited involvement most divisions have over their consumer transportation decisions, despite the former's financial support. A concern raised through the stakeholder interviews was the effect of arms-length or greater involvement in the transportation decision making process. Divisions had little direct influence over the transportation decisions made on behalf of their consumers and there existed the possibility that the transportation decisions did make the best use of services for consumers or of division resources.

The interviews initiated a much needed process to increase communication within divisions and with their external partners, such as the human service providers contracted to serve consumers. This communication was needed and must continue should the subject of consumer transportation be more fully explored. Only through improved communication about consumer transportation can innovative approaches to achieving and sustaining increased transportation efficiencies be identified and implemented.

Data Analysis

To demonstrate the potential of public and community transportation to serve human service consumers, the research team collected detailed data from four of the eight divisions approached – DoAS, DDD, DMHAS, and DVRS. These data were supplemented with surrogate data when necessary and were used to gauge the capacity of public and community transportation to serve the needs of human service consumers in New Jersey and the potential savings that could be achieved by utilizing different forms of transportation for these consumers.

The research team conducted analyses that: 1) measured whether human service consumers had access to public and community transportation; 2) estimated the savings that might be realized should a portion of human service consumers transition to public and community transportation; and 3) determined the public and community transportation routes that existed that might be used by human service consumers.

An analysis of consumer origins indicated that about half of all consumers lived within a 1/8 mile of public and community transportation services, the shortest distance investigated. Similarly about half of all identified destinations were located within a 1/8 mile of public and community transportation. This minimal distance represented a distance that can be traveled on foot in less than three minutes. At a 1/4 mile, we found that more than a third of those not served at 1/8 mile would then be considered served. Overall 67 percent of consumer origins and 70 percent of destinations were located within a 1/4 mile of public and community transportation.

To serve origins and destinations located over a 1/4 mile from traditional transit, advanced reservation group rides should be considered. Our analysis found that all but 14 percent of consumer origins and all but 14 percent of consumer destinations were located within 3/4 mile of existing transit. This suggested that nearly all consumers served by New Jersey's human service divisions could make use of public and community transportation or advanced reservation services.

We also investigated whether using public and community transportation could result in cost savings. We analyzed trip data that linked specific origins and destinations and that considered trip duration to determine the number of trips that could reasonably be made via traditional transit. We found that the savings potential could be significant, ranging from 9 to 25 percent savings overall.

Finally we examined the availability of public and community transportation throughout the state to better understand the opportunities and limitations of using it for human service consumers. We identified optimal routes that consumers would travel between their origin and destination and compared these routes with available transportation services. This investigation allowed us to identify transportation services that could be targeted for additional use by human service consumers and to identify those locations where the possibility of new transit service chould be explored.

Promising Practices

Finally the research team identified 17 promising practices that chould be considered to promote better and more efficient ways to provide transportation to human service consumers. The majority of these practices attempted to negotiate the difficulty of taking consumers from their origins/destinations to where traditional transit can be accessed – a major barrier to using public and community transportation. The strategies that strived to bridge this first-/last-mile gap included expanded route deviation, e-hailing, flexible routing, demand response feeder service, and demand responsive collector strategies.

Practices that tried to change the nature of the relationships between and among stakeholders also held promise. Operational changes or adopting ways to connect consumers to public and community transportation were unlikely without changing relationships between stakeholders and improving data collection and information sharing practices but existing promising practices suggested these potential barriers can be overcome.

In order to promote improved efficiencies for human service division transportation we recommend that the following actions receive further attention:

Recommendations

Promote Increased Awareness and Utilization of New Jersey's Diverse and Accessible Public and Community Transportation Services

Awareness for Public Transit Services

As discussed throughout this report, it is vital that the both the state divisions and the consumers they serve are made aware of the accessible public and community trans-

portation options available in the state. The research team recognizes that these options will not be a feasible travel mode for every consumer due to issues including but not limited to residence locations, desired destinations, and the nature of an individual consumer's particular disability; however, many of these services could meet some to all of the transport needs of a percentage of the consumers served by the state divisions considered in this study.

Awareness for these accessible transport options is a critical first step to increasing usage. NJ TRANSIT is the third largest public transit agency in the nation, linking major points throughout the state and to New York and Philadelphia. NJ TRANSIT operates a fleet of over 2,000 buses serving over 200 bus routes and over 700 trains and 45 light rail vehicles. The agency provides over 200 million passenger trips per year.

Of these services, it is important to know which are ADA accessible. All of NJ TRANSIT's buses are accessible, all are lift-equipped, and all offer a kneeling feature. Kneeling means that the first step of the bus lowers several inches, making it easier to board and disembark. Regarding rail, 77 of NJT's 164 commuter rail stations are accessible. This means that these stations offer features such as elevators, ramps, mini high level platforms, detectable warning edges along platforms and bridge plates that span the gap between the platform and the train. There are three light rail systems in New Jersey. The Hudson-Bergen Light Rail in the north and the RiverLine in southern NJ are 100 percent accessible. The third system, the Newark Light Rail offers 11 accessible stations out of its 17 stations. Accessible features include elevators, ramps and level boarding, among others.

In 2010/11 VTC conducted a survey of working age New Jerseyans with disabilities who were seeking employment to learn about their transportation issues and concerns. Among those who reported using some of the accessible features and equipment described above on NJ TRANSIT's services, 89 percent were satisfied with the bus lifts, 84 percent with the bus kneeling feature, and 69 percent with the rail bridge plates. These relatively high transit accessibility equipment satisfaction findings demonstrated that since passage of the ADA NJ TRANSIT's commitment to making physical improvements to their fleets have worked and helped persons with disabilities successfully access public transit services.

NJ TRANSIT operates an ADA transportation service known as Access Link. The ADA requires public transportation systems to offer ADA paratransit service to individuals who are unable to use local bus service as a result of their disability. Access Link mirrors local bus routes (in terms of days and hours of operation) and provides curb to curb, shared-ride service to eligible riders. Access Link service is limited to origins and destinations that are in a 3/4 mile radius of the fixed route local bus service. Any individual interested in using Access Link service must first apply to be deemed eligible. The application process includes an in-person transportation assessment interview.

In New Jersey, community paratransit services are also available in each county through county community transportation providers. These providers serve an increasingly significant role in providing community-based transportation in the state, serving people with disabilities, the elderly, those with low-income, veterans, and the general

public. While the range of services and costs to consumers vary among each of the county providers, these providers, as discussed throughout this report, should be considered by the divisions as potential partners in helping to meet the transport needs of the former's diverse consumer base in a cost efficient and reliable manner.

Familiarity & instruction with public transit services

A key path to increasing awareness, familiarity, and increased usage of public transit services is through travel training/instruction. As defined by the Association of Travel Instruction in 2011, "Travel instruction is the array, continuum, or family of services offered to individuals with disabilities, seniors, and others who need assistance to increase their mobility and travel on public transportation independently. It includes a variety of plans, methods and strategies used by professional travel trainers to increase the independent travel skills of the people they serve." The core intent of travel instruction is to facilitate access to desired and needed sites – such as employment, education, medical, daily living and recreational/social destinations – by teaching students how to safely and independently utilize public transit services.

NJTIP @ Rutgers provides travel training, teaching persons how to use accessible public transportation in New Jersey. The organization began with a pilot in 2005 with NJ TRANSIT and operated successfully as a non-profit agency until it merged with Rutgers University in 2013. NJTIP has provided instruction in 14 different counties. The training offered is tailored based on need, ranging from seminars for professionals with on-board NJ TRANSIT bus demonstrations, to community workshops, to classroom-based instruction, to escorted group outings on buses, trains and light rail, and individual instruction.

Many of the consumers of the human service divisions considered in this study could benefit from individual travel instruction and/or group instruction. The former model includes customized one-on-one travel training implemented at a pace that best serves the unique needs and interests of the individual customer. Individual instruction includes on-board training and incorporates instructor assessment of customer acquisition of a set of travel skills. Group travel instruction is customized based on the needs of a particular group of older adults or persons with disabilities and typically includes both a classroom and field trip component.

In addition to benefiting consumers, many of the divisions' front-line staff as well as personnel at the human service agencies under contract by divisions – anyone who works directly with consumers – could also benefit from travel orientation/familiarization services so that they can better inform consumers of potential public and community transit modes to meet their needs.

In 2012 NJTIP @ Rutgers developed an instruction model called Connect to Transit (CTT) through a Medicaid grant that provided public and community transit orientation training for DVRS staff and social service staff who worked with job seekers with disabilities. Topics including trip planning guidance and tools, the universe of transportation options available in each participating agency's respective service area and ADA rights and advocacy related to transportation were covered in the CTT training.

The CTT model was piloted throughout 2011/2012 to five NJ DVRS offices in Paterson, New Brunswick, Bridgeton, Camden and Jersey City, with 49 staff participating. The model was successful and well received. All participants reported that the information taught via CTT was helpful/relevant and all reported that they planned to share the information with their consumers. Half of the respondents reported that their opinion of public transit as an option for their consumers changed because of what they learned at CTT. The CTT program expanded dramatically from the initial 2012 pilot and reached almost 700 professionals by 2015.

The study team recommends that the human service divisions support CTT training for their respective front-line staff employees who interact with and support division consumers as well as individual travel instruction for consumers who could benefit from such training.

Financial incentives for using public transit services

For the consumer:

Awareness of the financial benefits to using public transit services will help contribute to increased utilization of these services by division consumers. Specifically, consumers can experience cost savings through NJ TRANSIT's reduced fare program. Through this initiative, consumers can save one-half or more of the regular one-way fare. Persons with disability and older adults age 62 and older are eligible for the program.

Reduced fare can be used at any time on NJ TRANSIT buses, light rail, and trains. In addition, many private bus companies operating in the state also participate in the program. The reduced fare program is not eligible for trips using NJ TRANSIT's Access Link services.

A NJ TRANSIT reduced fare card or Medicare card is required of persons with disabilities who wish to utilize the reduced fare program. For adults age 62 or older, a NJ TRANSIT reduced fare card or any identification that shows their date of birth enables them to use the reduced fare program. Persons needing a reduced fare card can access and complete the application available on the NJ TRANSIT website and at various community sites throughout the state such as local banks and county offices on aging.

For the Divisions:

State divisions as well as county transportation providers can also purchase NJ TRANSIT tickets at a bulk-rate discounted price that never expire (even with fare increases) that they can give or sell to consumers. As of December 2015, no county transportation providers are purchasing these tickets, although Middlesex County Area Transit has done so in the past. Such action can benefit both parties, making efficient use of NJ TRANSIT's existing accessible transit infrastructure while providing cost savings to both consumers and divisions and/or county transportation providers who opt to purchase and distribute bulk NJ TRANSIT tickets. Entities interested in pursuing this option should contact NJ TRANSIT customer service at 973-491-7288 or via the email bulksales@njtransit.com. Over 20 percent of the Medicaid Non-Emergency Medical Transportation (NEMT) trips provided through the statewide Medicaid broker use pur-

chased tickets that are distributed to the customers by the broker. Use of NJ TRANSIT reduced cost tickets provides dramatic savings compared to the cost of taxi/livery and demand response trips provided by community transit.

Expand Practices that Improve Access and Use of Public and Community Transportation Service by Human Service Consumers

Several promising practices discussed earlier were aimed at improving the ways that human service consumers could identify and access existing transportation services. Providing better ways to connect human service consumers from their homes to the public or community transportation vehicle could be a significant step toward more efficient use of existing transportation services. Practices that addressed these first- / last-mile concerns and that better prepared consumers to utilize public and community transportation services helped address this condition.

Placing human service facilities and housing aimed toward human service consumers in transit accessible locations is one key practice that can support the use of public and community transportation services. When planning new facilities, decision makers would be wise to consider the long term costs of the transportation services necessary to convey consumers to otherwise unserved locations.

Practices such as e-hailing and mobility management could help address the issue of identifying alternative ways to reach one's destination. For consumers who might have difficulty reaching established public and community transportation stops and routes, several practices could be employed to bring them to the route. These include using demand response transportation to deliver consumers to traditional transit and employing natural supports to transport consumers from their homes to bus stops and/or group ride pick up locations.

Further, transportation providers could explore how expanded deviated fixed route transportation services and flexible route transportation modes could be employed to extend the reach of existing services to overcome distances that might be a barrier for some human service consumers.

Encourage Coordination among New Jersey Human Service Divisions and Between the Divisions and Public and Community Transportation Providers

Throughout this investigation, it was demonstrated that coordination between divisions, human service providers, and transportation providers was a cumbersome and often difficult process. Lack of information and the difficulties in sharing information among the various stakeholders made this even more burdensome. Data that could be used to more effectively understand where human service consumer travel occurs and the transportation services they use was difficult to obtain.

Successful coordination with the aim of providing better and more efficient transportation for human service consumers will require the divisions, human service providers, and transportation providers to better collect and share information about consumer transportation needs, including origin and destination data. Establishing mobility man-

agement practices is one compelling means to achieve this goal. Mobility management has the potential to centralize the transportation decision making process for many human service consumers and can coordinate the use of transportation of services across many divisions. Shared use of transportation services by human service consumers, regardless of which division those consumers might be served by, could allow for better allocation of scarce resources. Collecting information via a designated entity with the expressed purpose of coordinating the use of transportation services has the potential to more easily connect human service consumers in a user friendly manner with a wider range of transportation options, to enable more efficient use of existing public and community transportation services, and to yield cost savings to state human service divisions.

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APPENDIX A. SAMPLE INTERVIEW QUESTIONNAIRE

STRUCTURED INTERVIEW QUESTIONNAIRE

INTRODUCTION

The Alan M. Voorhees Transportation Center at Rutgers University has received funding from the New Jersey Department of Transportation to determine cost saving measures that state agencies providing human services programs can use when purchasing passenger transportation for their clients. Our conversation today will focus primarily on learning about your processes and what data you can provide that will help the research team better understand the passenger transportation utilized by state agencies and how that transportation is purchased so that these services might be acquired more efficiently. The aim of this research is to find ways to provide these services more efficiently in order to improve or expand services provided to human services clients and/or reduce costs.

(READ IRB consent)

General

- Introductions: Agency name; interviewee name, title, and tenure (time at agency)
- Please briefly describe the human services programs provided by your agency
  - What populations are served by your agency's program(s)?
  - What is the source(s) of funding for these programs? Does this funding include transportation services, or is transportation funded by another source?
- Please briefly describe the passenger transportation services purchased by your agency that support these programs.
  - In what geographic area are your clients who utilize transportation services located? Do your programs serve the entire state, specific counties or cities, or is the transportation provided to specific individual clients served?
  - What kinds of passenger transportation services are typically provided to your clients?
    - *Answers may include: door-through-door, door-to-door, curb-to-curb, station/stop-to-station/stop (public transit)*
    - *Answers may also include: demand response, subscription trips, fixed route, modified fixed route, group trips?*
  - What kinds of providers (or transportation) are typically utilized by your agency to provide transportation to your clients? [answers may include: agency-owned and driven vehicles, contracted services, taxis, pre-paid tickets distributed to clients]

1

Transportation Purchasing

- How does your agency determine what passenger transportation services will be purchased?
    - How are transportation providers determined?
    - How are rates charged or costs to the agency determined?
        - Overall, do you think the rates/costs charged are appropriate/fair?
- Have you ever attempted to negotiate alternate rates with your provider(s)? If yes, please explain.
- What information can you provide us with regarding passenger transportation services purchased by your agency over the past five years?
    - Do you have records of the number of clients served for each passenger transportation service purchased?
    - Do you have records of the origin (start) and destination locations served by each passenger transportation service purchased?

Improving Passenger Transportation Services for Clients of NJ Human Services Agencies

- How do you think passenger transportation for your agency's clients can be improved?
- Have you attempted any strategies in recent years to change how your agency/office handles purchased transportation for clients? If yes, please explain.
- What are the barriers to making changes to the passenger transportation services provided to your clients?
    - Do your clients currently share rides?
    - Do your clients currently utilize "regular" public transportation, i.e., bus and train?
    - Has your agency worked with other state agencies or organizations to cooperatively provide passenger transportation services to your clients?
    - Has your agency worked with a broker to find more cost efficient and/or effective passenger transportation services for your clients?

Further Data

One of the goals of this project is to document the costs and services of passenger transportation services for human service clients. To accomplish this task, we seek detailed information on costs and services provided for purchased passenger transportation. These data include:

- Costs and the nature of transportation services provided
- The origins and destinations of this transportation
- The name and contact information of the providers utilized
    - Can you provide these data or put us in contact with personnel who can provide these data?

Closing Remarks

- Are there any issues we did not yet discuss on this topic that you would like to bring up or think would be valuable for us to consider as we move forward in our research? Please elaborate.
- Given our need for a great deal of data to accomplish our research goals, we thank you for your participation in this interview and for your future assistance. Who should be our main contact at your office going forward regarding the data collection efforts?

APPENDIX B. FIXED AND DEVIATED FIXED ROUTE SERVICES

COUNTY	SHUTTLE	CONTACT INFO
Atlantic	Egg Harbor City Shuttle	SJTA Transportation Services Division 1-856-614-1072 www.sjta.com / www.driveless.com
Atlantic	English Creek-Tilton Road Shuttle	SJTA Transportation Services Division 1-856-614-1072 www.sjta.com / www.driveless.com
Bergen	Lyndhurst Corporate Shuttle (559)	EZ Ride (Meadowlink) 201-939-4242 info@EZRide.org
Bergen	Route 3 Shuttle (503)	EZ Ride (Meadowlink) 201-939-4242 info@EZRide.org
Bergen	Rutherford Shuttle (578)	EZ Ride (Meadowlink) 201-939-4242 info@EZRide.org
Bergen	Secaucus-Carlstadt/Moonachie (522)	EZ Ride (Meadowlink) 201-939-4242 info@EZRide.org
Bergen	The Monarch Shuttle (566)	EZ Ride (Meadowlink) 201-939-4242 info@EZRide.org
Burlington	B1 Beverly – Pemberton	South Jersey Transportation Authority 856-461-1806 www.driveless.com
Burlington	B10 Cinnaminson Rail Station – Taylor's Lane – Route 130 – Union Landing Road	South Jersey Transportation Authority 856-461-1806 www.driveless.com
Burlington	B2 Beverly – Willingboro – Edge-water Park – Westampton	South Jersey Transportation Authority 856-461-1806 www.driveless.com
Burlington	B5 Florence Rail Station to Haines Industrial Center	South Jersey Transportation Authority 856-461-1806 www.driveless.com
Burlington	B8 Riverside Rail Station to Hartford Crossing/Delran	South Jersey Transportation Authority 856-461-1806 www.driveless.com
Burlington	B9 Palmyra Rail Station – Cin-naminson – Moorestown – Moore-stown Mall – East Gate	South Jersey Transportation Authority 856-461-1806 www.driveless.com
Camden	Pureland North-South Shuttle	SJTA Transportation Services Division 1-856-614-1072 www.sjta.com / www.driveless.com
Cumberland	Greater Bridgeton Area Transit	Cumberland County Office of Employment & Training 856-451-8920 www.ccoel.org
Cumberland	Landis Avenue Xpress Route (LAX)	Cumberland County Office of Employment & Training 856-451-8920 www.ccoel.org
Cumberland	Millville Area Connectors (Air-	Cumberland County Office of Employment &

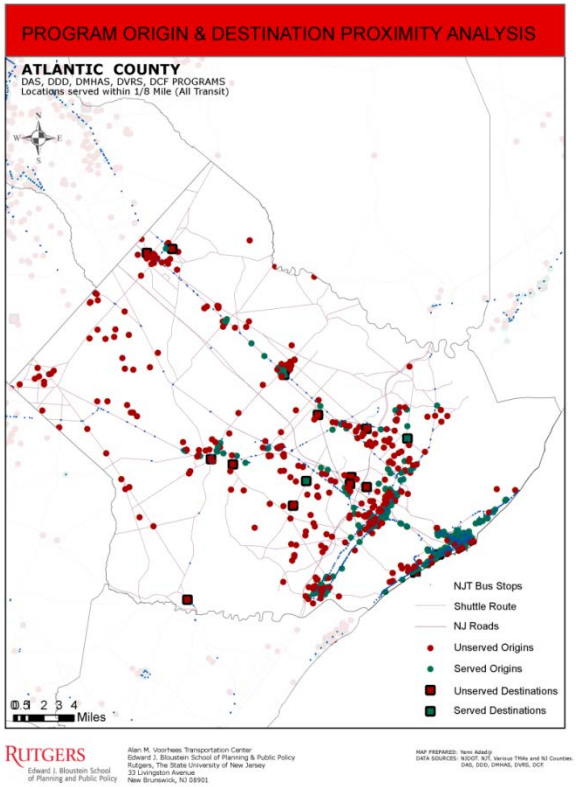
	port/Laurel Lake & Center City)	Training 856-451-8920 www.ccoel.org
Cumberland	Vineland Industrial Park Route (VIP)	Cumberland County Office of Employment & Training 856-451-8920 www.ccoel.org
Essex	Fairfield-West Caldwell Shuttle (646)	EZ Ride (Meadowlink) 201-939-4242 info@EZRide.org
Gloucester	Pureland-East-West Community Shuttle	SJTA Transportation Services Division 1-856-614-1072 www.sjta.com / www.driveless.com
Hudson	Harmon Cove Shuttle (268)	EZ Ride (Meadowlink) 201-939-4242 info@EZRide.org
Hudson	Harmon Meadow Shuttle (273/273X)	EZ Ride (Meadowlink) 201-939-4242 info@EZRide.org
Hudson	Kearny Avenue Line Shuttle (232)	EZ Ride (Meadowlink) 201-939-4242 info@EZRide.org
Hudson	North Bergen Shuttle (227)	EZ Ride (Meadowlink) 201-939-4242 info@EZRide.org
Hudson	Water's Edge Shuttle (293)	EZ Ride (Meadowlink) 201-939-4242 info@EZRide.org
Hunterdon	LINK 16/19	Hunterdon County Transportation 1-800-842-0531 www.ridethelink.com
Hunterdon	LINK 21	Hunterdon County Transportation 1-800-842-0531 www.ridethelink.com
Hunterdon	LINK 23	Hunterdon County Transportation 1-800-842-0531 www.ridethelink.com
Mercer	Route 130 Connection	Mercer TRADE / Greater Mercer TMA 609-989-6827 www.mercercounty.org / www.gmtma.org
Mercer	Z-Line	Greater Mercer TMA 609-452-1491 www.gmtma.org
Middlesex	M1 New Brunswick – Jamesburg-Exit 8A	Middlesex County Area Transit (MCAT) 1-800-221-3520 / 732-745-7456 www.co.middlesex.nj.us
Middlesex	M2 Brunswick Square Mall-Monroe – Jamesburg	Middlesex County Area Transit (MCAT) 1-800-221-3520 / 732-745-7456 www.co.middlesex.nj.us
Middlesex	M3 Brunswick Square Mall – Old Bridge	Middlesex County Area Transit (MCAT) 1-800-221-3520 / 732-745-7456 www.co.middlesex.nj.us
Middlesex	M5 Jersey Avenue – Commercial Ave Shuttle	Middlesex County Area Transit (MCAT) 1-800-221-3520 / 732-745-7456 www.co.middlesex.nj.us

Middlesex	M6 Jamesburg – Cranbury – Plainsboro Shuttle	Middlesex County Area Transit (MCAT) 1-800-221-3520 / 732-745-7456 www.co.middlesex.nj.us
Middlesex	M7 Brunswick Square – South Amboy	Middlesex County Area Transit (MCAT) 1-800-221-3520 / 732-745-7456 www.co.middlesex.nj.us
Monmouth	Long Branch Shuttle (301)	EZ Ride (Meadowlink) 201-939-4242 info@EZRide.org
Morris	Morris On the Move (M.O.M.) Mount Olive – Dover Shuttle	Morris County Transportation 973-829-8501 http://morriscountynj.gov/transportation/bus/
Ocean	OC 1 Whiting Express	Ocean Ride 732-736-8989 / 877-929-2082 http://www.co.ocean.nj.us/Transportation/
Ocean	OC 10 Toms River Connection	Ocean Ride 732-736-8989 / 877-929-2082 http://www.co.ocean.nj.us/Transportation/
Ocean	OC 2 Manchester	Ocean Ride 732-736-8989 / 877-929-2082 http://www.co.ocean.nj.us/Transportation/
Ocean	OC 3 Brick	Ocean Ride 732-736-8989 / 877-929-2082 http://www.co.ocean.nj.us/Transportation/
Ocean	OC 4 Lakewood	Ocean Ride 732-736-8989 / 877-929-2082 http://www.co.ocean.nj.us/Transportation/
Ocean	OC 5 Lacey	Ocean Ride 732-736-8989 / 877-929-2082 http://www.co.ocean.nj.us/Transportation/
Ocean	OC 6 Little Egg Harbor	Ocean Ride 732-736-8989 / 877-929-2082 http://www.co.ocean.nj.us/Transportation/
Ocean	OC 9 LBI – North & South	Ocean Ride 732-736-8989 / 877-929-2082 http://www.co.ocean.nj.us/Transportation/
Passaic	Wayne-Fairfield/West Caldwell (827)	EZ Ride (Meadowlink) 201-939-4242 info@EZRide.org
Salem	Salem City to Gateway Business Park	Community Shuttle of Salem County 856-514-220 x103 Wegrowpeople.org cssc@mascec.org
Salem	Salem to Pureland Industrial Park	Community Shuttle of Salem County 856-514-220 x103 Wegrowpeople.org cssc@mascec.org
Somerset	CAT 1R (Community Access Transit)	Somerset County Transportation 908-231-7115 www.co.somerset.nj.us/scootdash.html
Somerset	CAT 2R (Community Access Transit)	Somerset County Transportation 908-231-7115 www.co.somerset.nj.us/scootdash.html
Somerset	DASH 851	Somerset County Transportation 908-231-7115 www.co.somerset.nj.us/scootdash.html

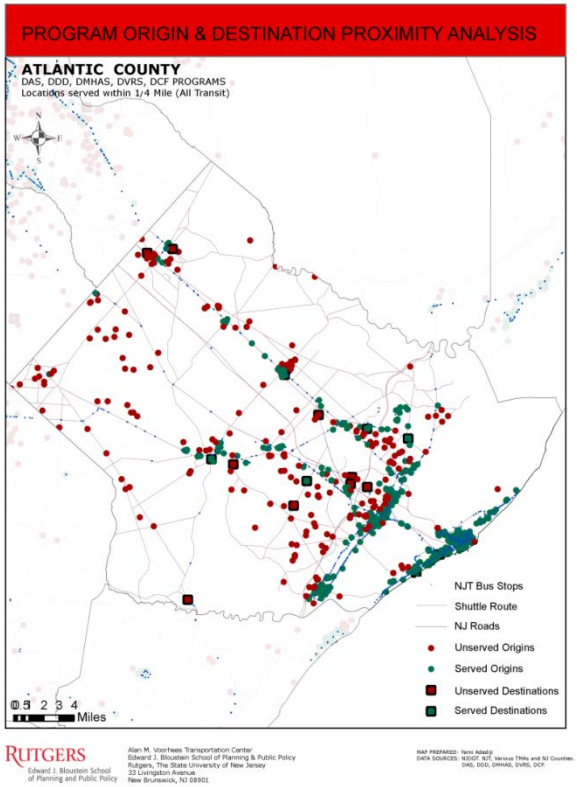
Somerset	DASH 852	Somerset County Transportation 908-231-7115 www.co.somerset.nj.us/scootdash.html
Somerset	DASH 853	Somerset County Transportation 908-231-7115 www.co.somerset.nj.us/scootdash.html
Somerset	SCOOT PEAK	Somerset County Transportation 908-231-7115 www.co.somerset.nj.us/scootdash.html
Somerset	SCOOT R1	Somerset County Transportation 908-231-7115 www.co.somerset.nj.us/scootdash.html
Somerset	SCOOT R2	Somerset County Transportation 908-231-7115 www.co.somerset.nj.us/scootdash.html
Sussex	Skyland Connect	Sussex County Skylands Ride 973-579-0480 http://www.sussex.nj.us/Cit-e-Access/webpage.cfm?TID=7&TPID=1565
Sussex	Skyland New Freedom	Sussex County Skylands Ride 973-579-0480 http://www.sussex.nj.us/Cit-e-Access/webpage.cfm?TID=7&TPID=1565
Union	Route 22 Shuttle	Union County Transportation 908-241-8300 http://ucnj.org/departments/human-services/route-22-shuttle/
Warren	Phillipsburg/Washington Shuttle	Warren County Transportation 908-454-4044 / 1-866-594-4044 http://www.co.warren.nj.us/humanservices/transportation.html
Warren	Washington/Hackettstown Shuttle	Warren County Transportation 908-454-4044 / 1-866-594-4044 http://www.co.warren.nj.us/humanservices/transportation.html

APPENDIX C. ORIGIN & DESTINATION PROXIMITY TO PUBLIC TRANSIT & COMMUNITY TRANSIT (1/8, 1/4, AND 3/4 MILES FROM NJT STOPS AND COMMUNITY TRANSIT ROUTES)

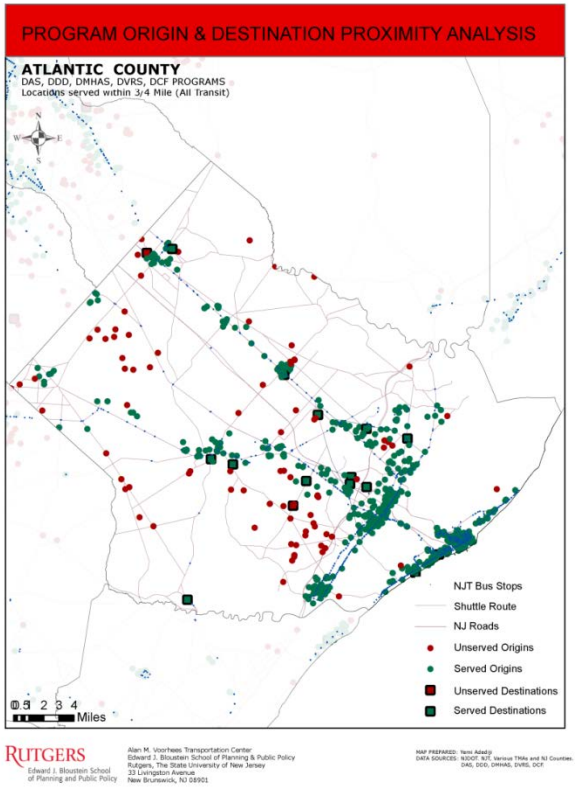
Atlantic County



Atlantic County Origins and Destinations within 1/8 Mile of Transit Facilities

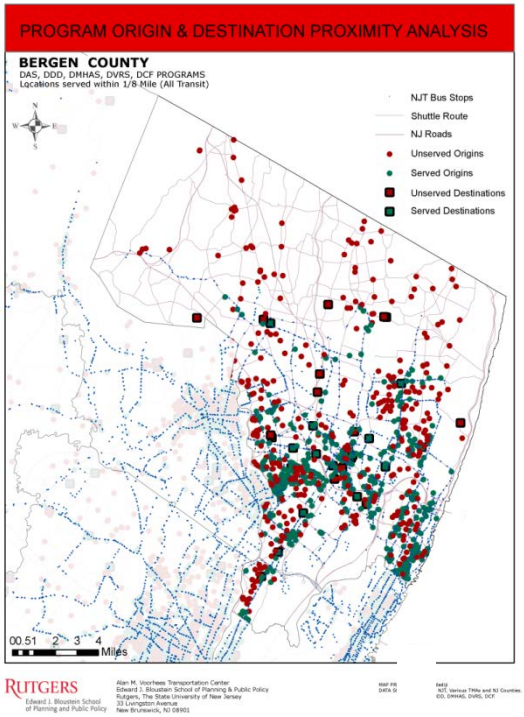


Atlantic County Origins and Destinations within 1/4 Mile of Transit Facilities

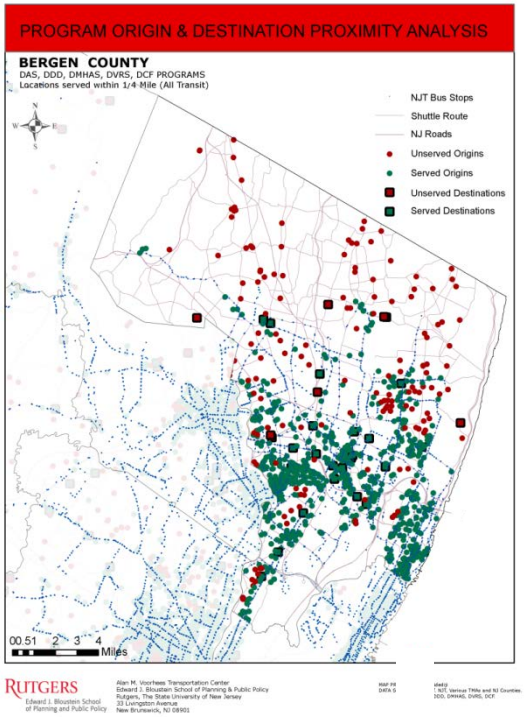


Atlantic County Origins and Destinations within 3/4 Mile of Transit Facilities

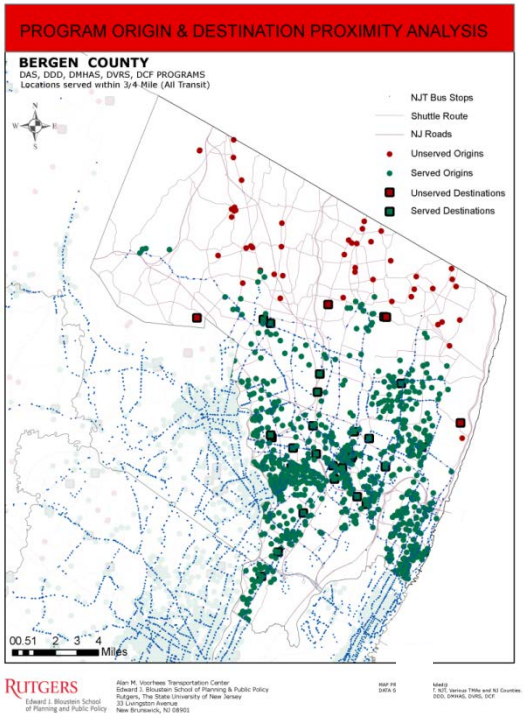
Bergen County



Bergen County Origins and Destinations within 1/8 Mile of Transit Facilities

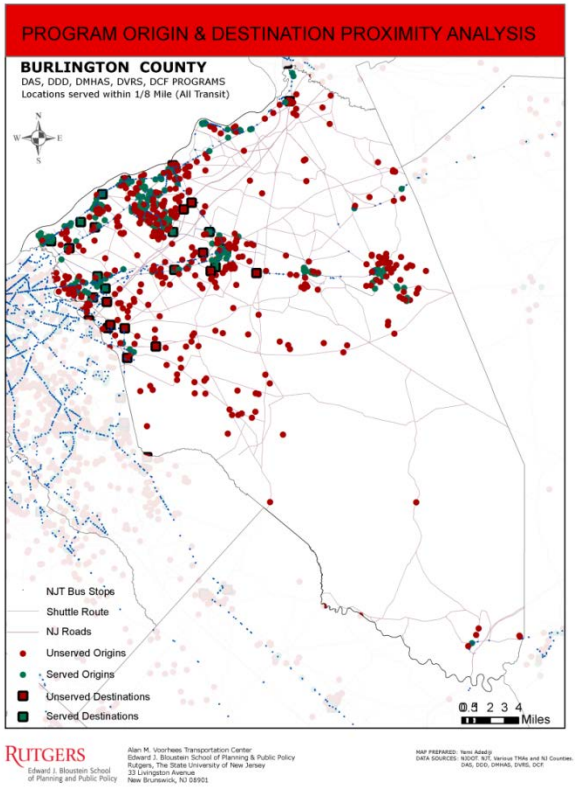


Bergen County Origins and Destinations within 1/4 Mile of Transit Facilities



Bergen County Origins and Destinations within 3/4 Mile of Transit Facilities

Burlington County



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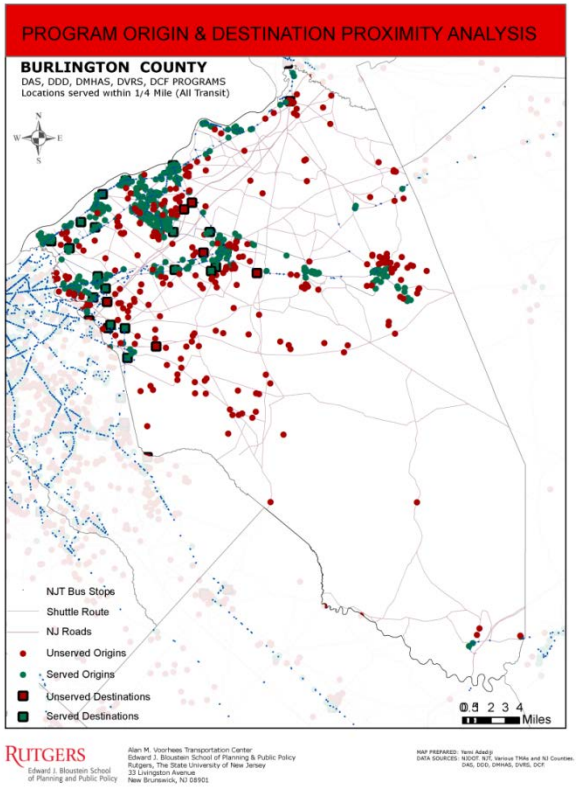
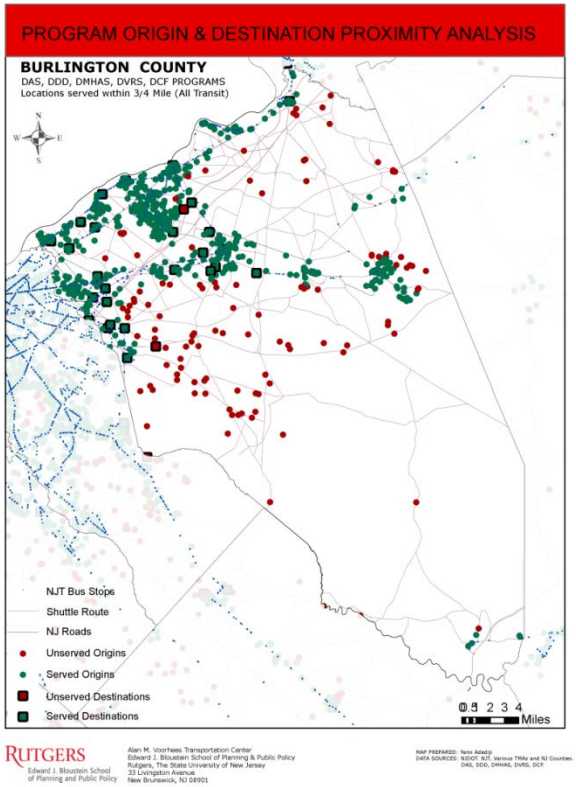
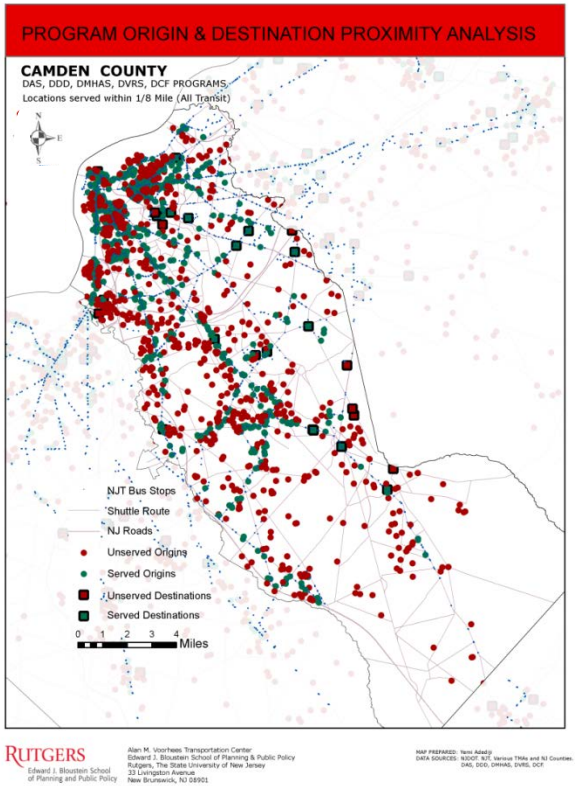


Burlington County Origins and Destinations within 1/4 Mile of Transit Facilities

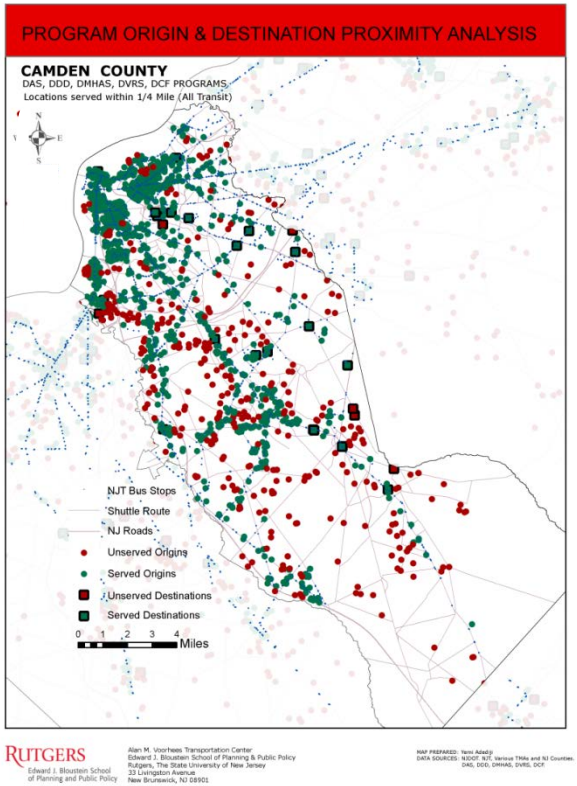


Burlington County Origins and Destinations within 3/4 Mile of Transit Facilities

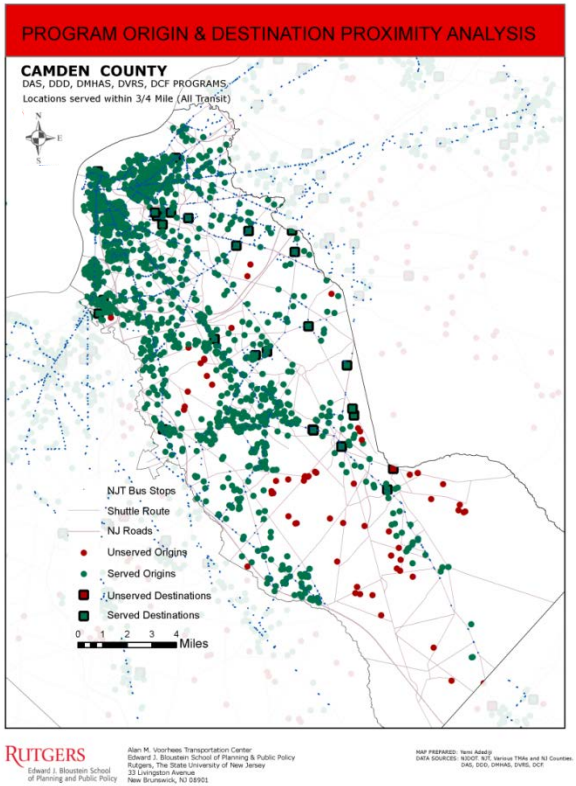
Camden County



Camden County Origins and Destinations within 1/8 Mile of Transit Facilities

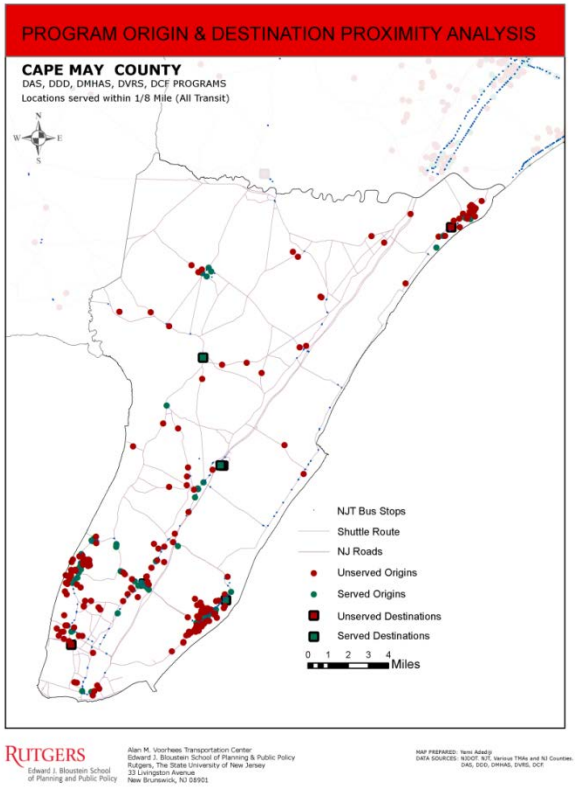


Camden County Origins and Destinations within 1/4 Mile of Transit Facilities

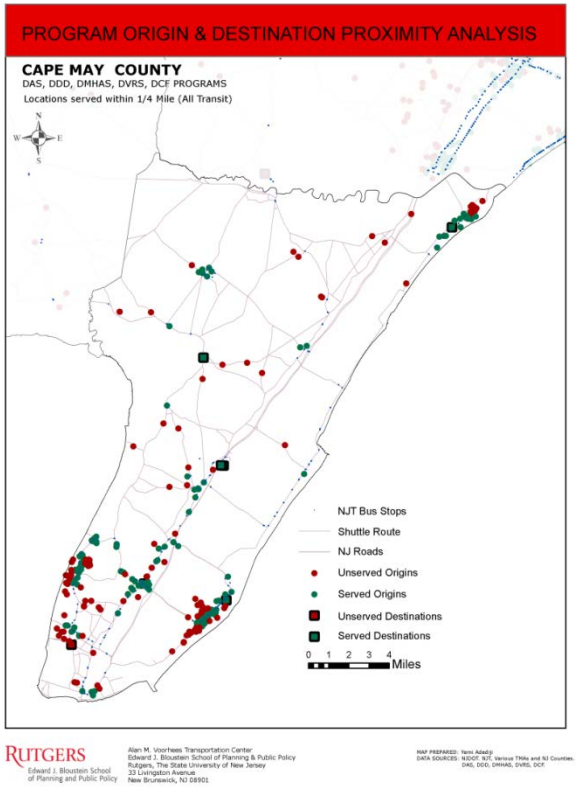


Camden County Origins and Destinations within 3/4 Mile of Transit Facilities

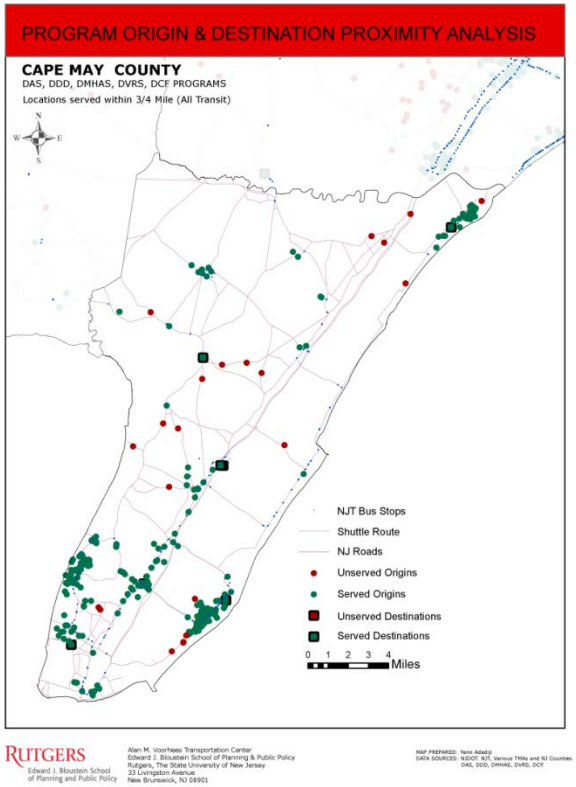
Cape May County



Cape May County Origins and Destinations within 1/8 Mile of Transit Facilities

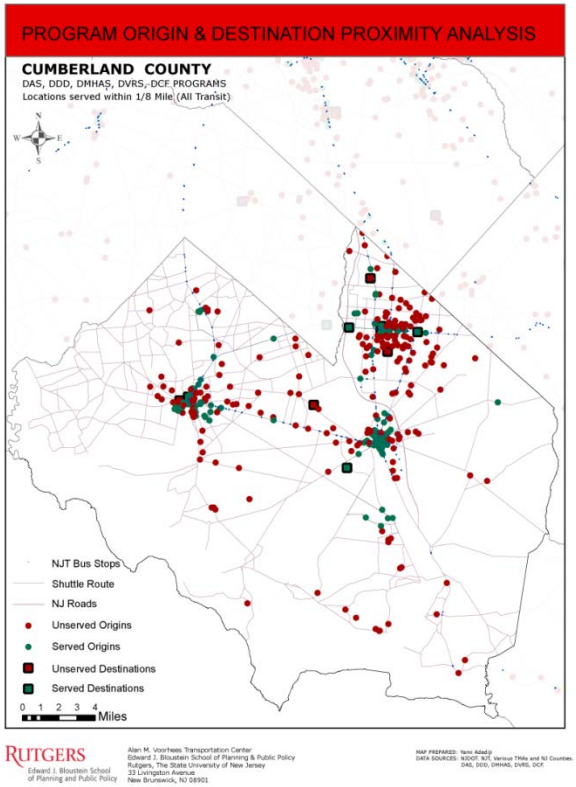


Cape May County Origins and Destinations within 1/4 Mile of Transit Facilities

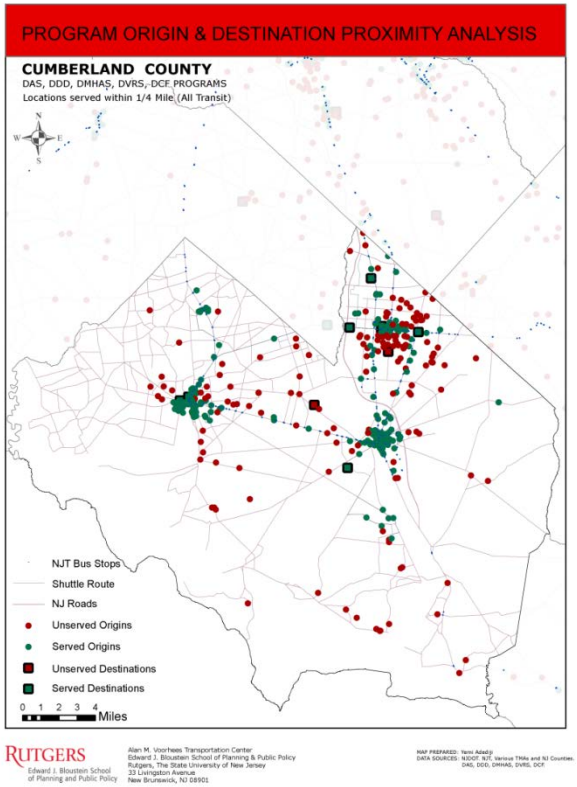


Cape May County Origins and Destinations within 3/4 Mile of Transit Facilities

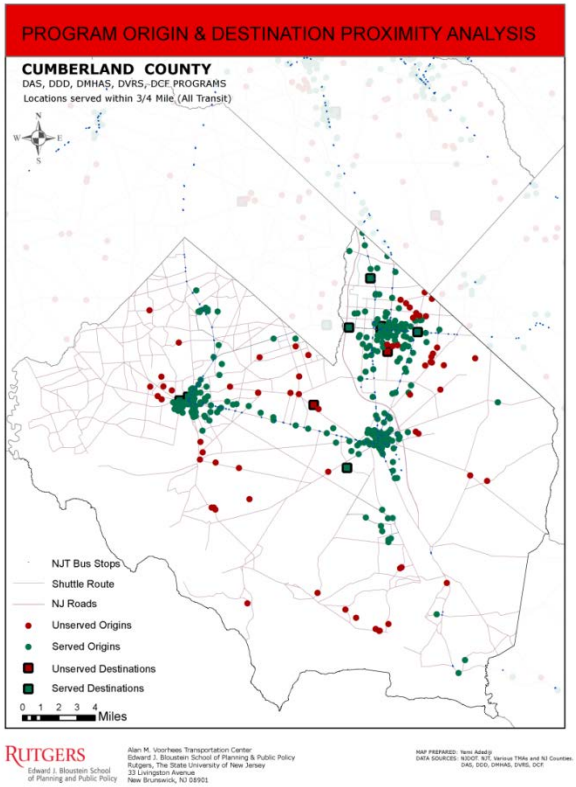
Cumberland County



Cumberland County Origins and Destinations within 1/8 Mile of Transit Facilities

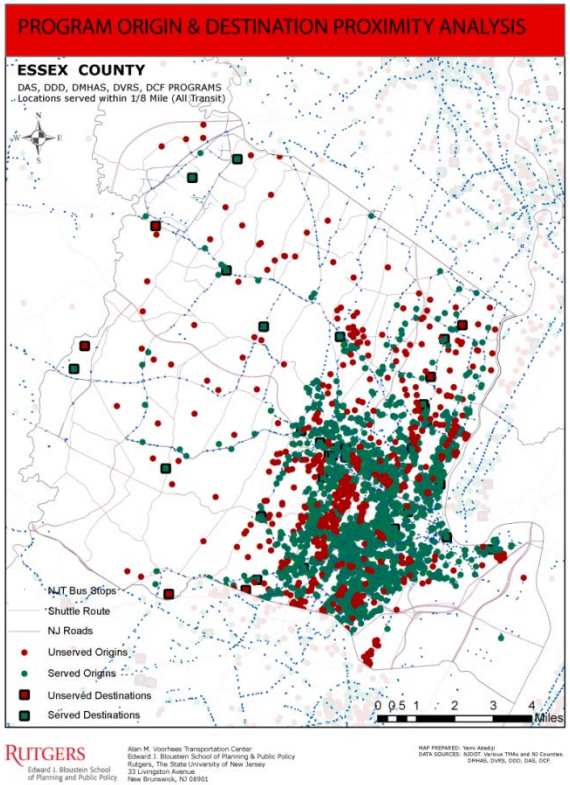


Cumberland County Origins and Destinations within 1/4 Mile of Transit Facilities

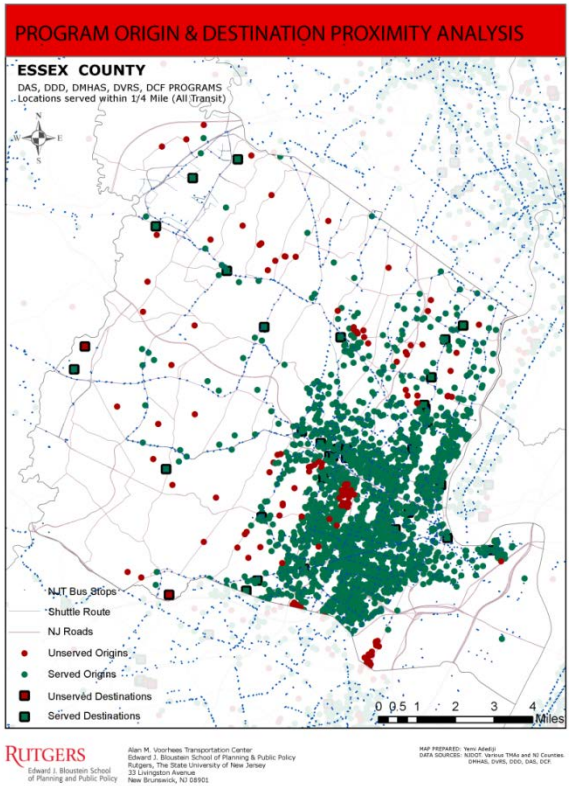


Cumberland County Origins and Destinations within 3/4 Mile of Transit Facilities

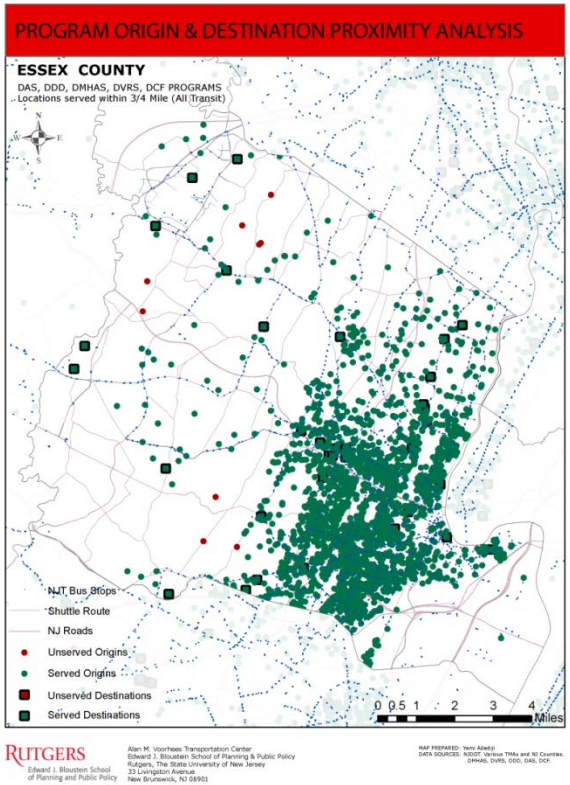
Essex County



Essex County Origins and Destinations within 1/8 Mile of Transit Facilities

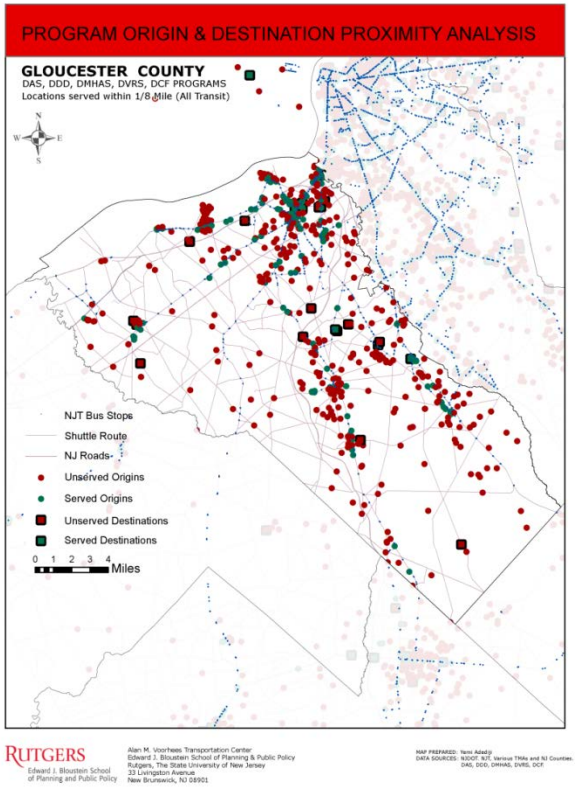


Essex County Origins and Destinations within 1/4 Mile of Transit Facilities

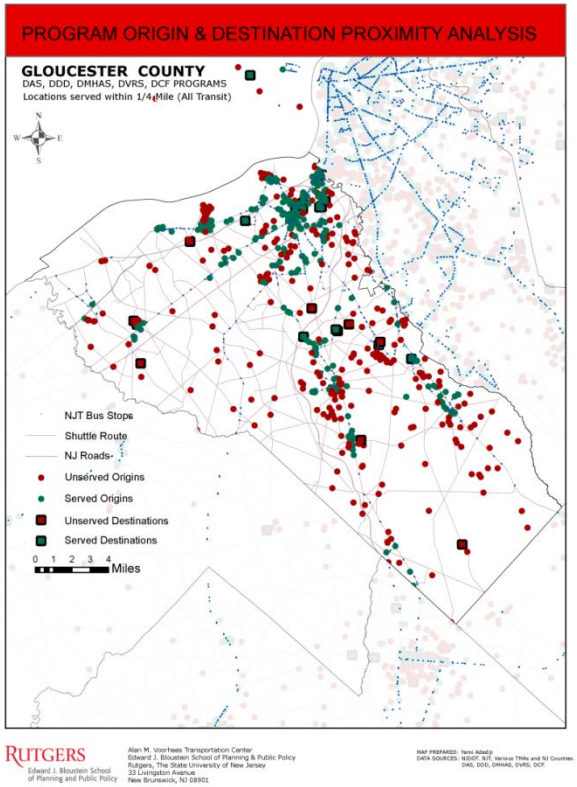


Essex County Origins and Destinations within 3/4 Mile of Transit Facilities

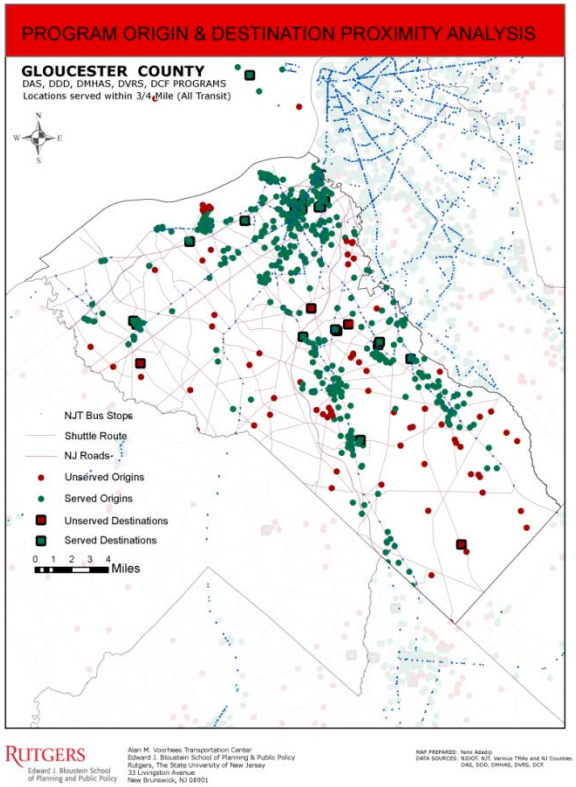
Gloucester County



Gloucester County Origins and Destinations within 1/8 Mile of Transit Facilities

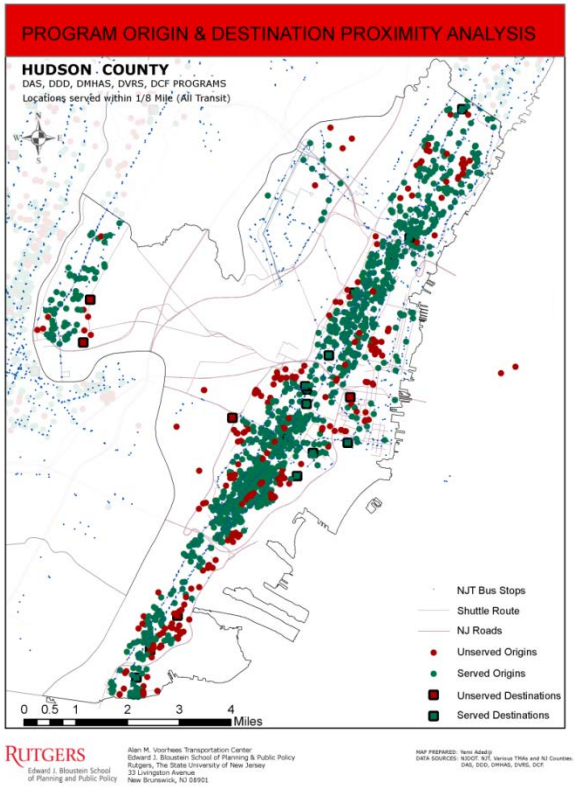


Gloucester County Origins and Destinations within 1/4 Mile of Transit Facilities

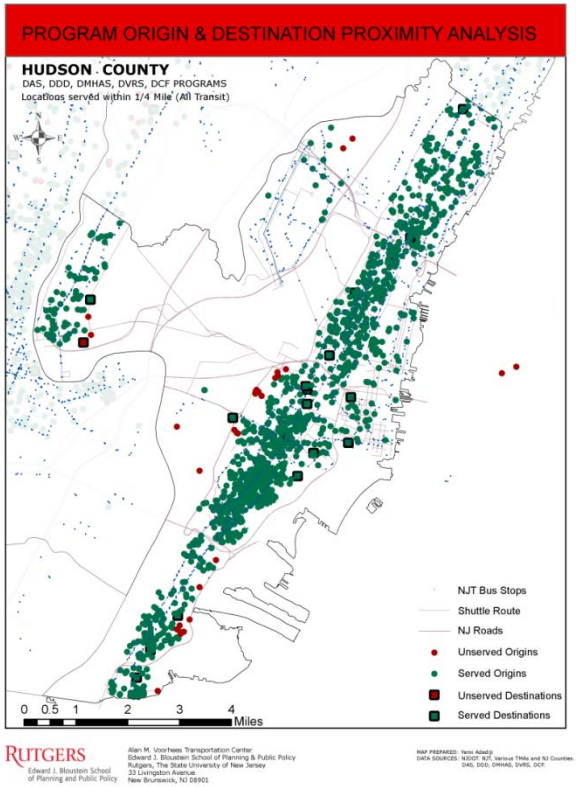


Gloucester County Origins and Destinations within 3/4 Mile of Transit Facilities

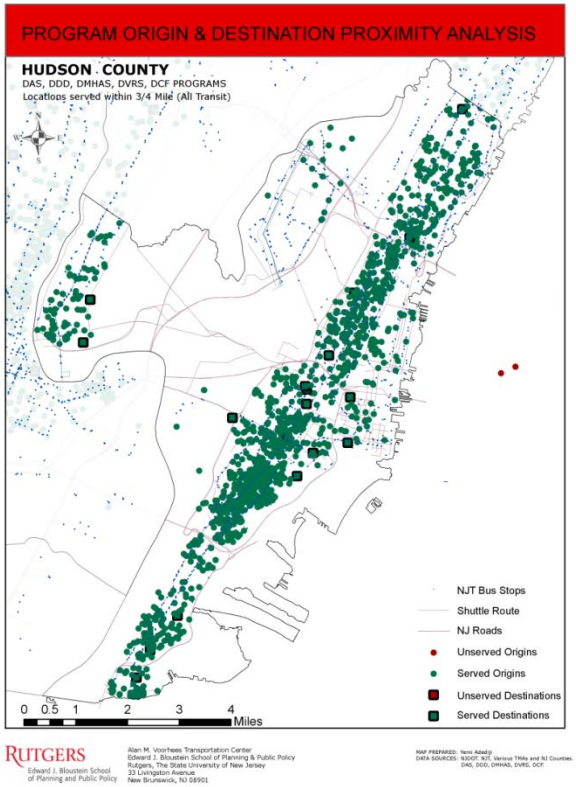
Hudson County



Hudson County Origins and Destinations within 1/8 Mile of Transit Facilities

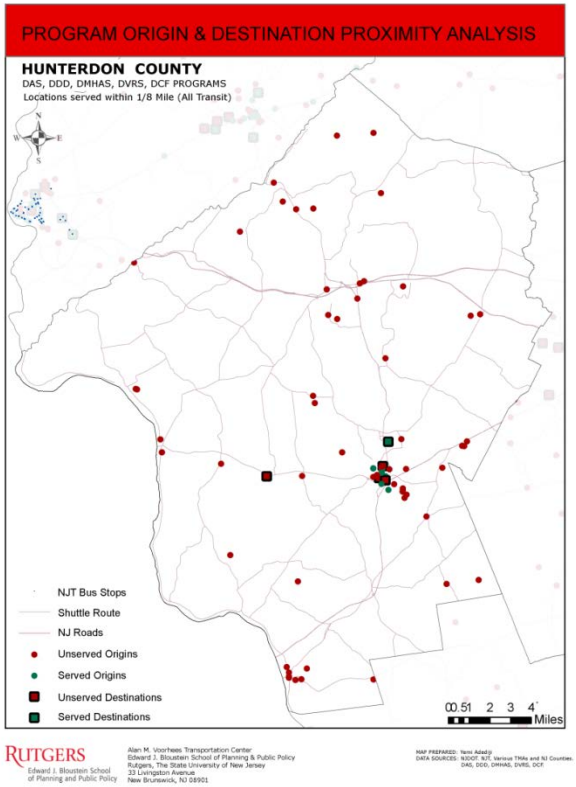


Hudson County Origins and Destinations within 1/4 Mile of Transit Facilities

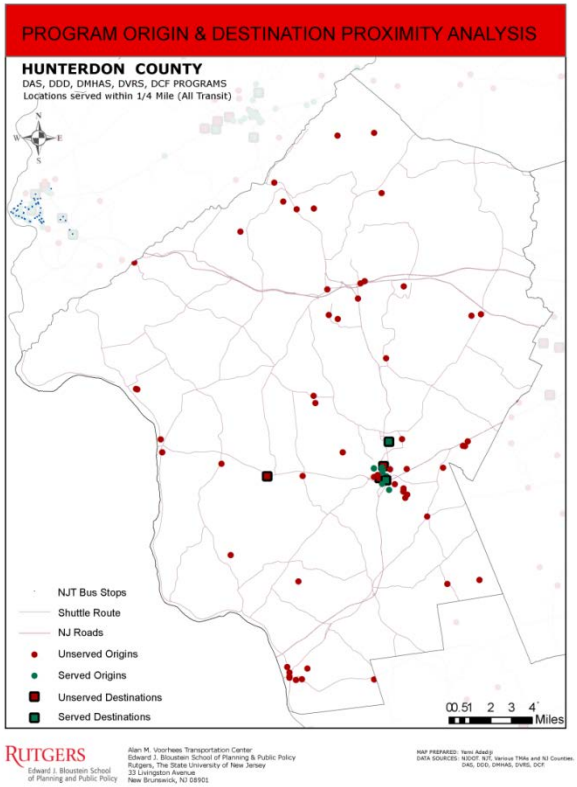


Hudson County Origins and Destinations within 3/4 Mile of Transit Facilities

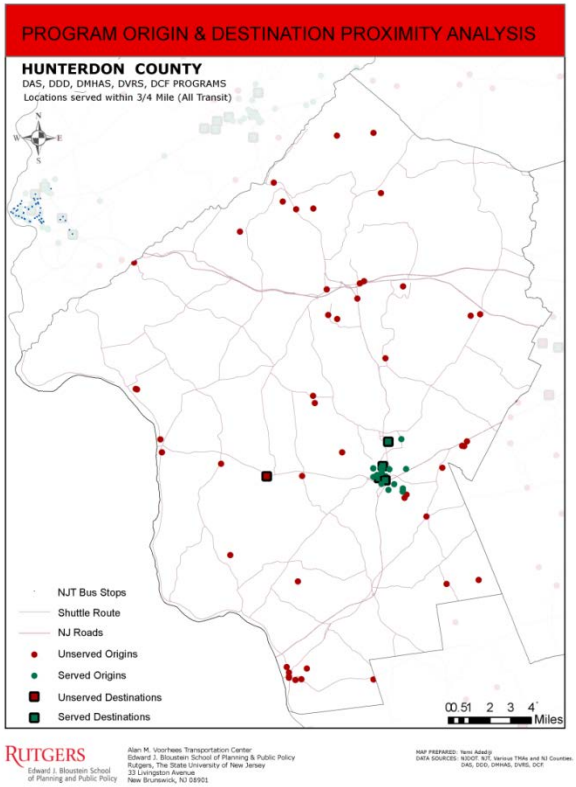
Hunterdon County



Hunterdon County Origins and Destinations within 1/8 Mile of Transit Facilities

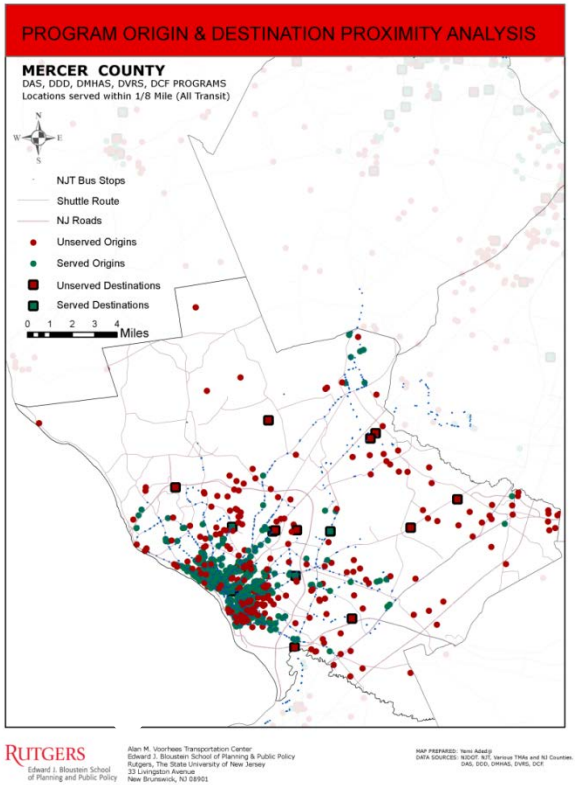


Hunterdon County Origins and Destinations within 1/4 Mile of Transit Facilities

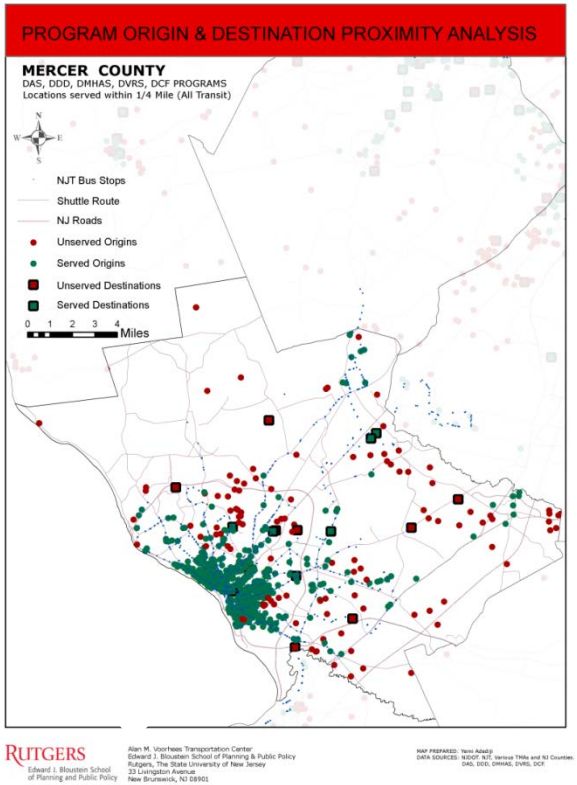


Hunterdon County Origins and Destinations within 3/4 Mile of Transit Facilities

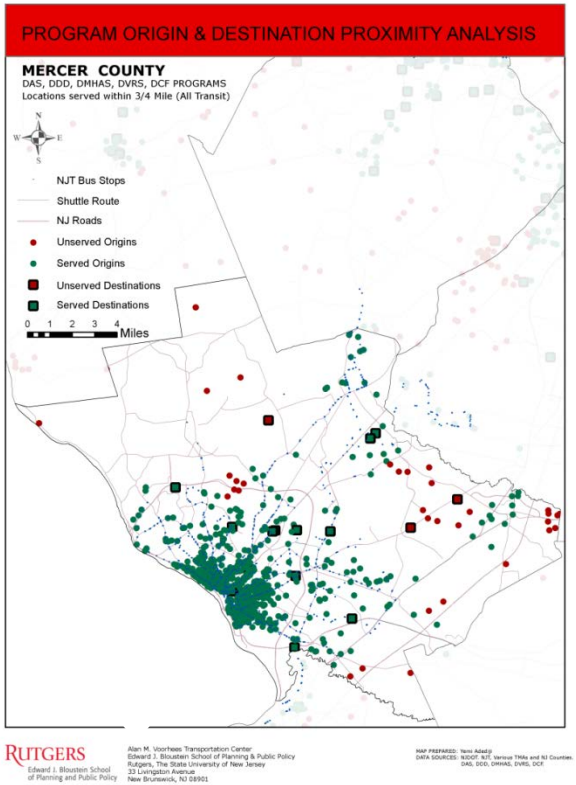
Mercer County



Mercer County Origins and Destinations within 1/8 Mile of Transit Facilities

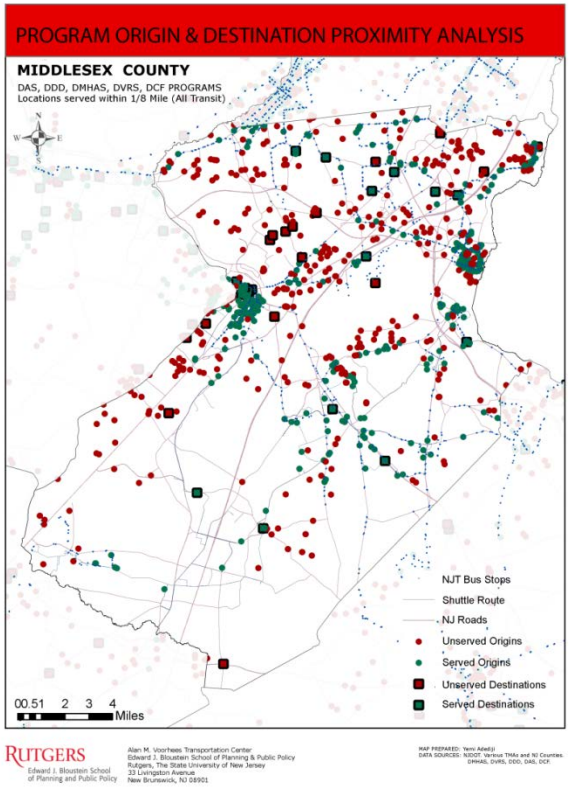


Mercer County Origins and Destinations within 1/4 Mile of Transit Facilities



Mercer County Origins and Destinations within 3/4 Mile of Transit Facilities

Middlesex County



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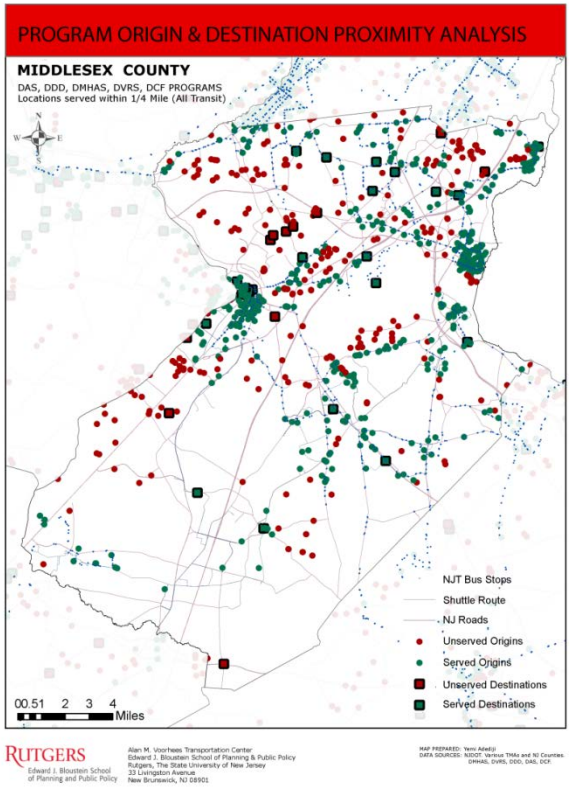

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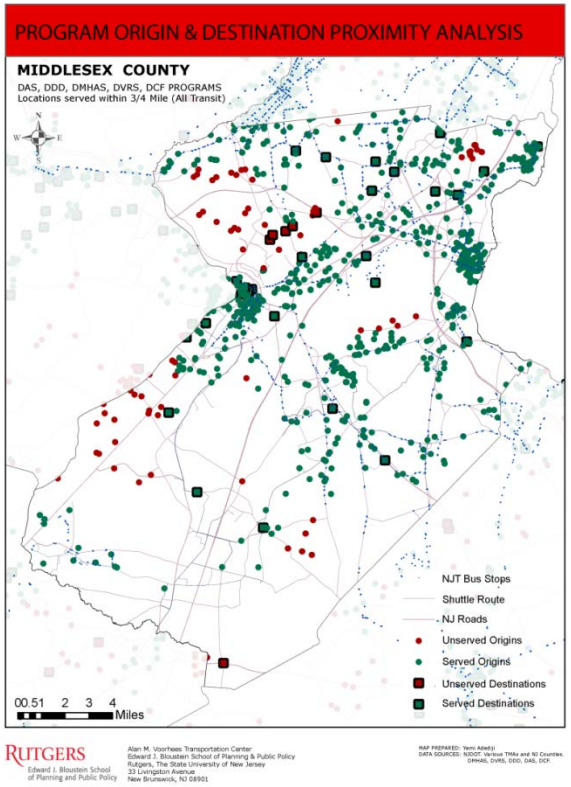
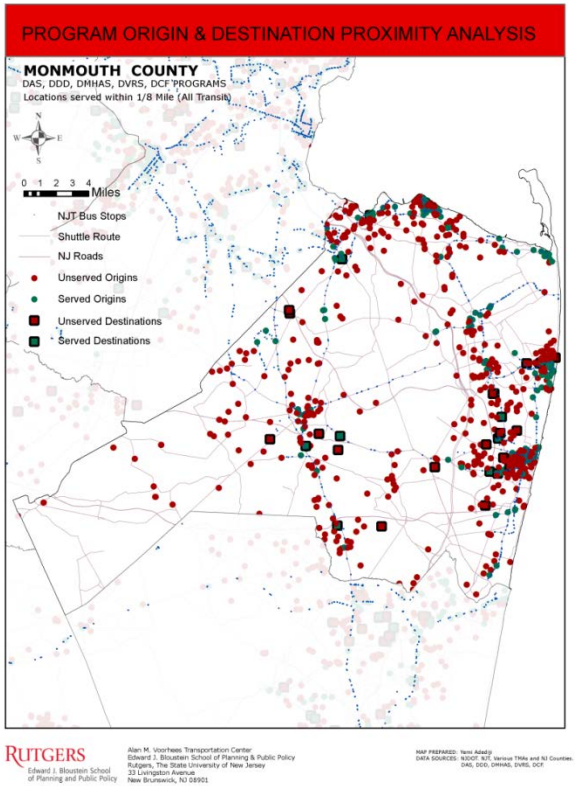
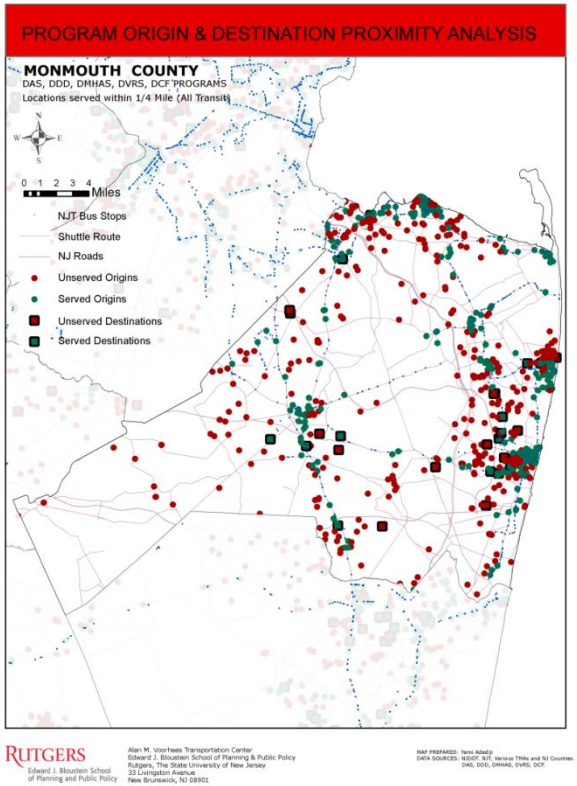


Middlesex County Origins and Destinations within 3/4 Mile of Transit Facilities

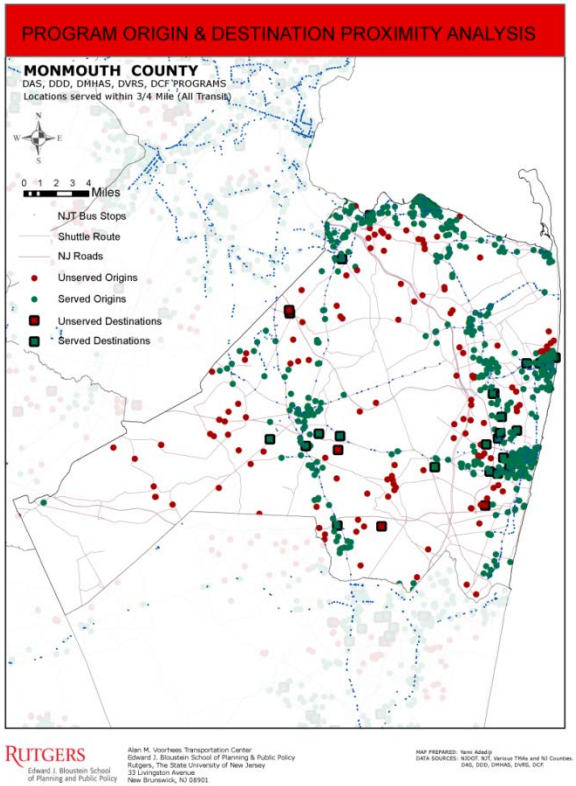
Monmouth County



Monmouth County Origins and Destinations within 1/8 Mile of Transit Facilities

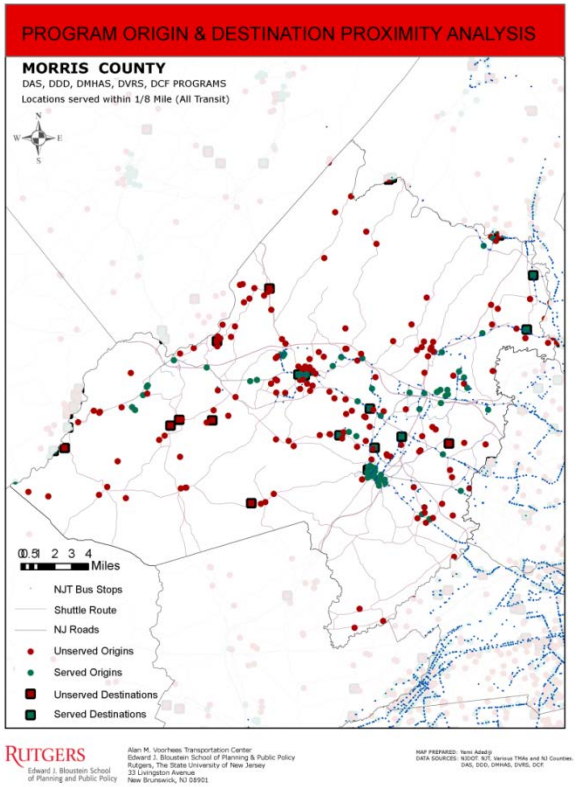


Monmouth County Origins and Destinations within 1/4 Mile of Transit Facilities

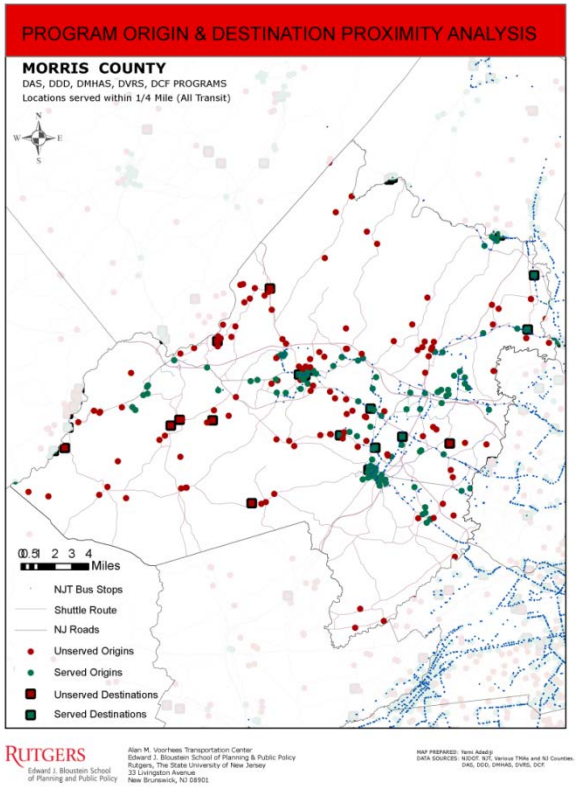


Monmouth County Origins and Destinations within 3/4 Mile of Transit Facilities

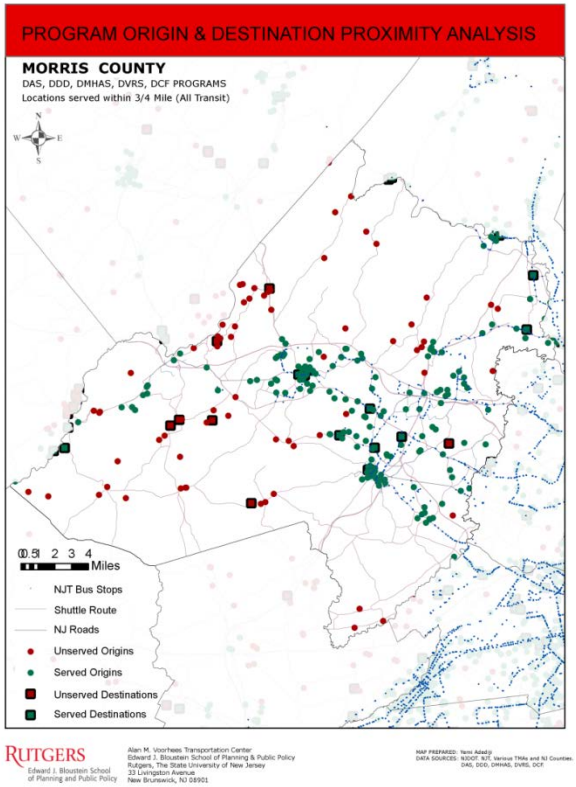
Morris County



Morris County Origins and Destinations within 1/8 Mile of Transit Facilities

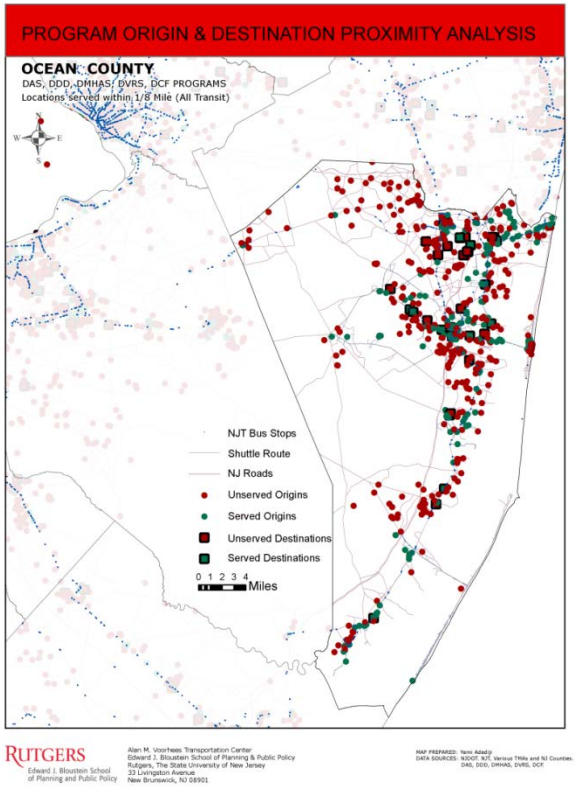


Morris County Origins and Destinations within 1/4 Mile of Transit Facilities



Morris County Origins and Destinations within 3/4 Mile of Transit Facilities

Ocean County



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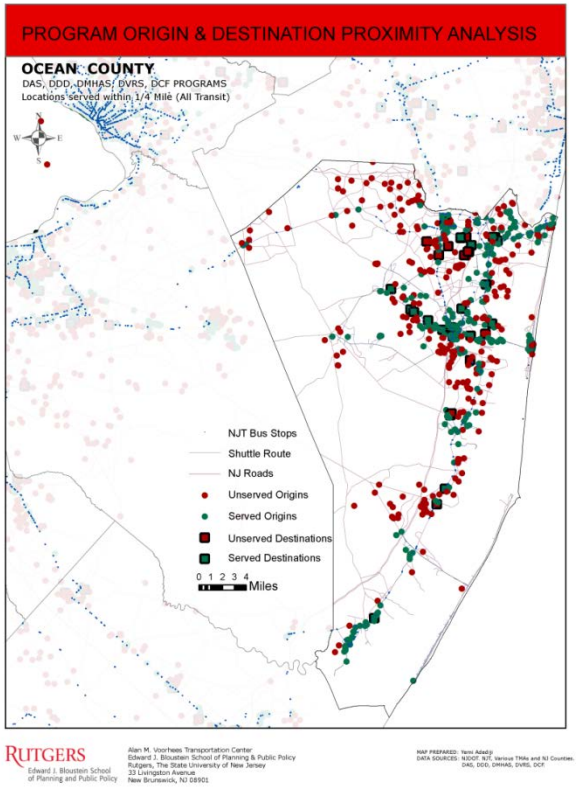
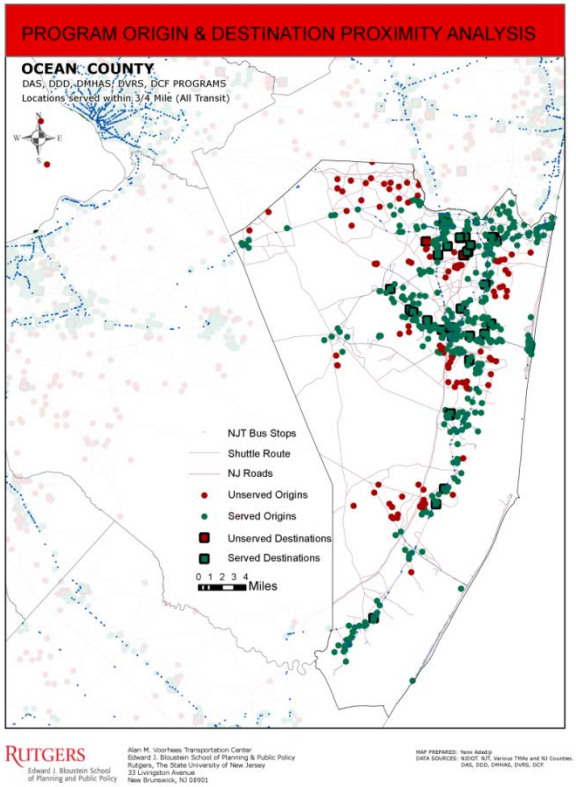
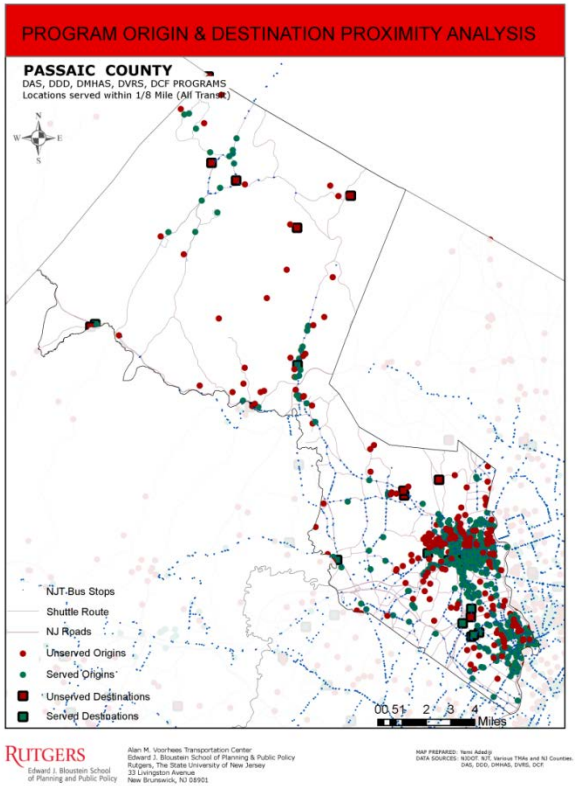


Ocean County Origins and Destinations within 1/4 Mile of Transit Facilities

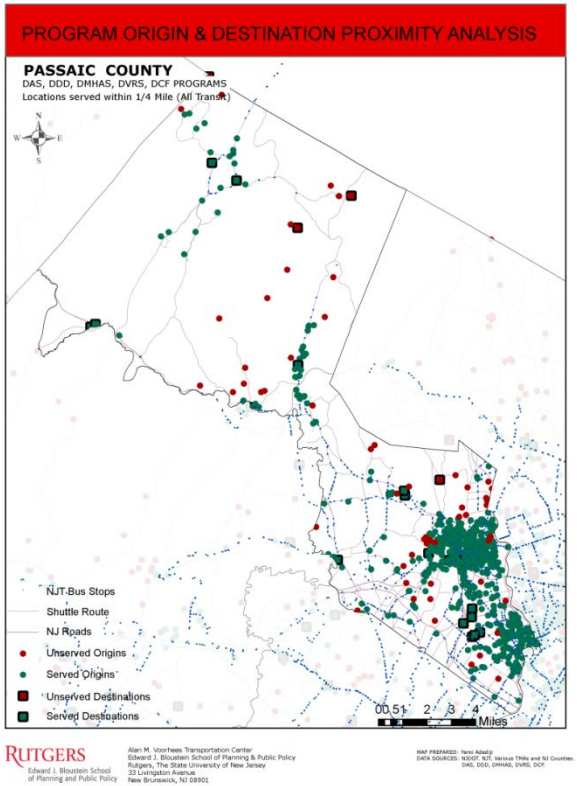


Ocean County Origins and Destinations within 3/4 Mile of Transit Facilities

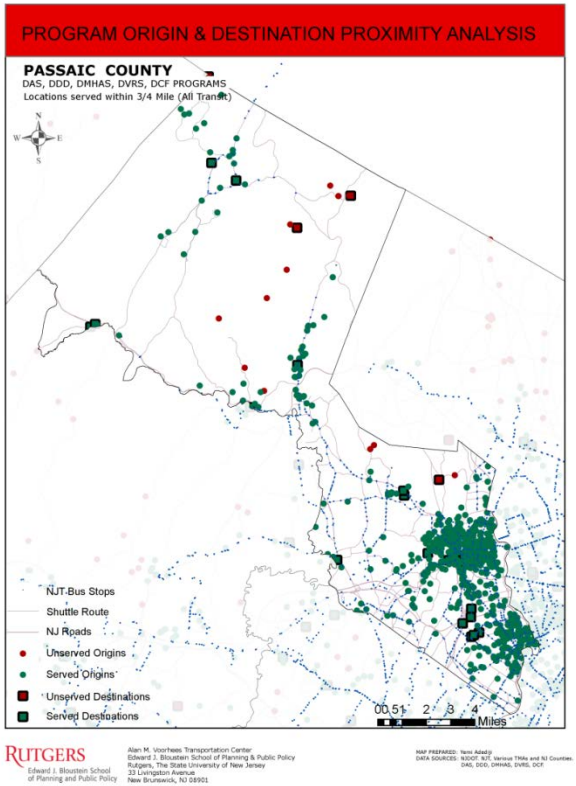
Passaic County



Passaic County Origins and Destinations within 1/8 Mile of Transit Facilities

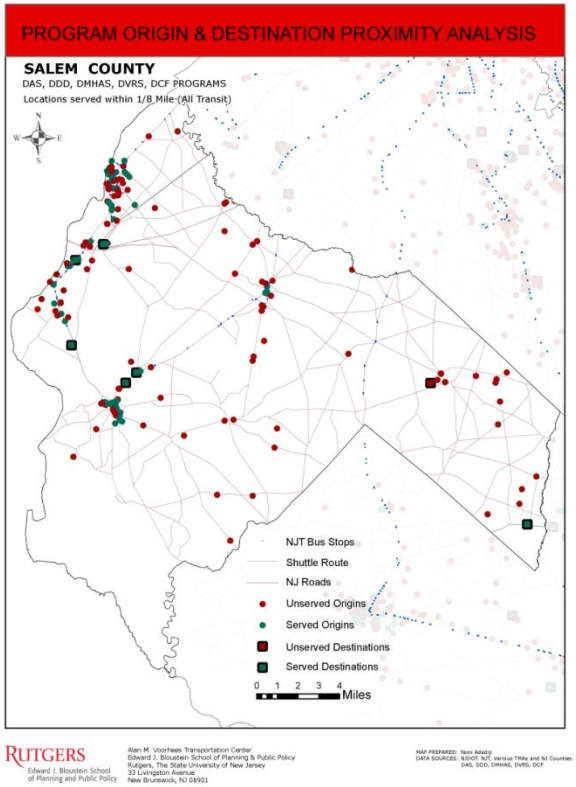


Passaic County Origins and Destinations within 1/4 Mile of Transit Facilities

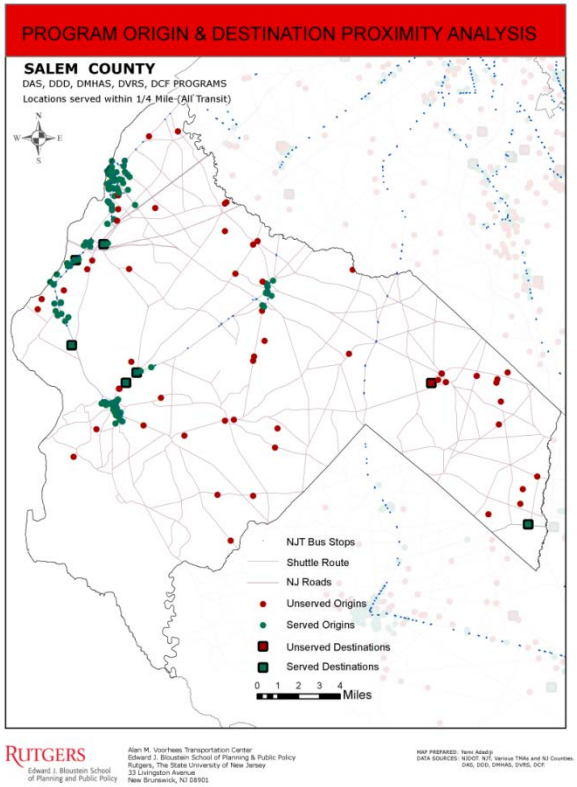


Passaic County Origins and Destinations within 3/4 Mile of Transit Facilities

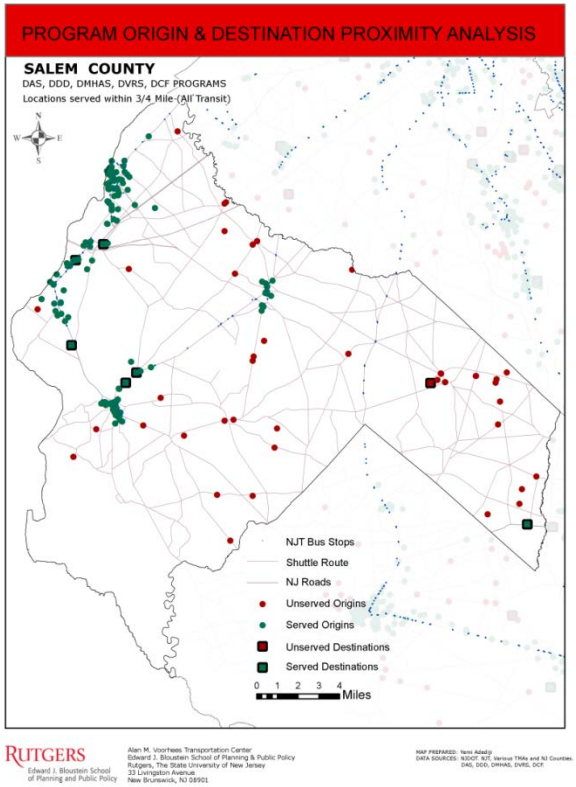
Salem County



Salem County Origins and Destinations within 1/8 Mile of Transit Facilities

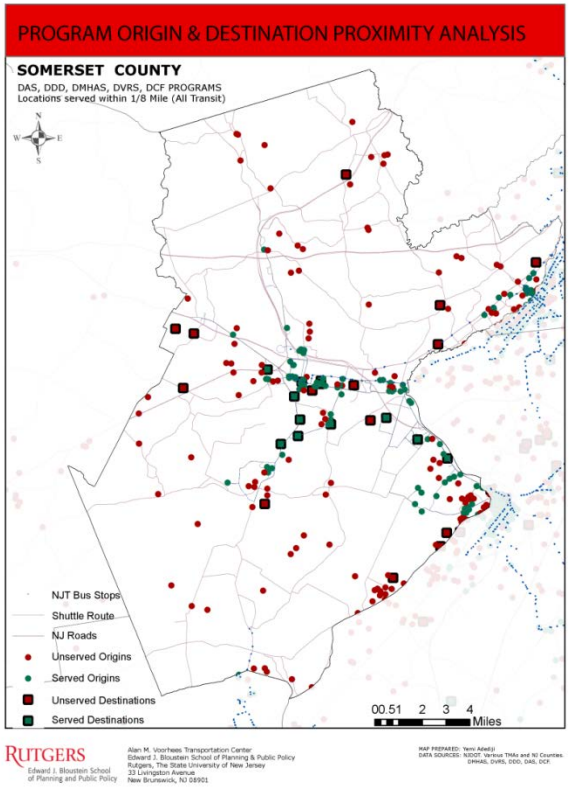


Salem County Origins and Destinations within 1/4 Mile of Transit Facilities

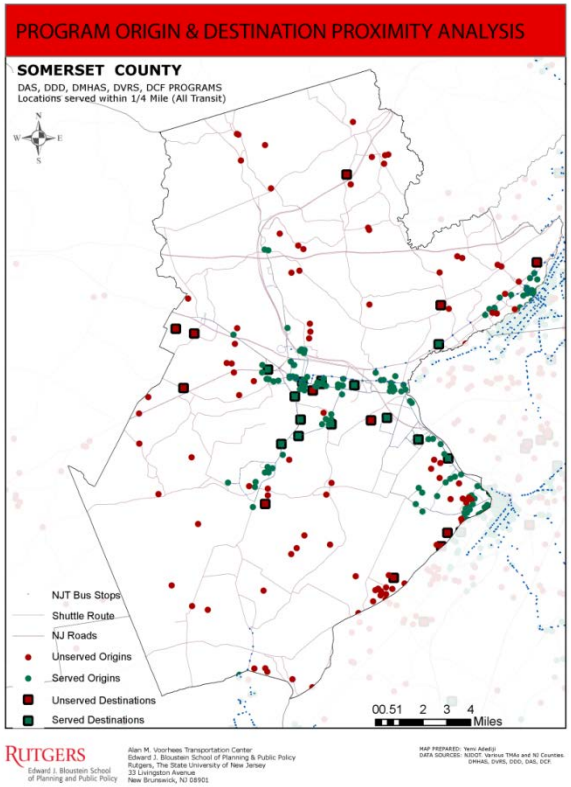


Salem County Origins and Destinations within 3/4 Mile of Transit Facilities

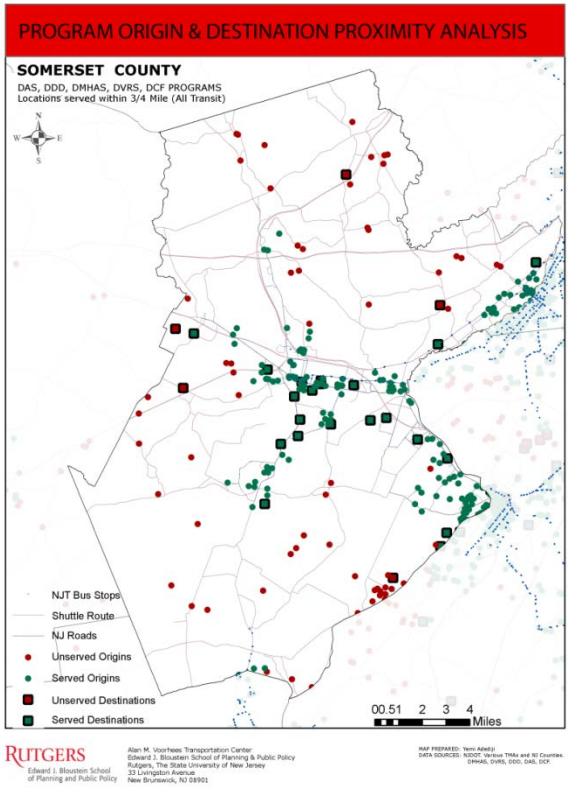
Somerset County



Somerset County Origins and Destinations within 1/8 Mile of Transit Facilities

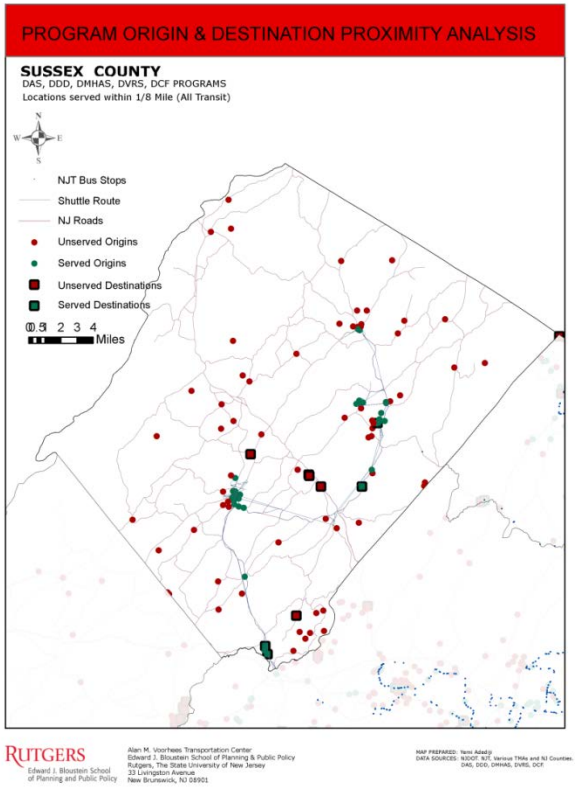


Somerset County Origins and Destinations within 1/4 Mile of Transit Facilities

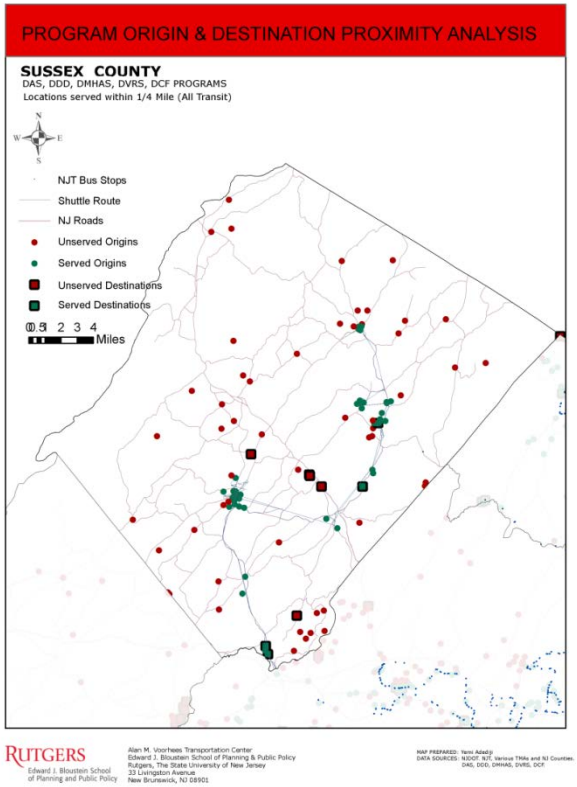


Somerset County Origins and Destinations within 3/4 Mile of Transit Facilities

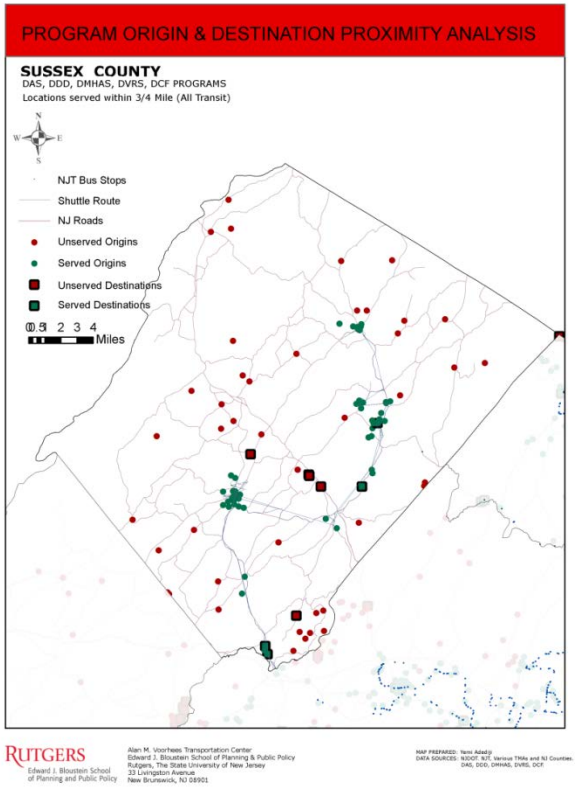
Sussex County



Sussex County Origins and Destinations within 1/8 Mile of Transit Facilities

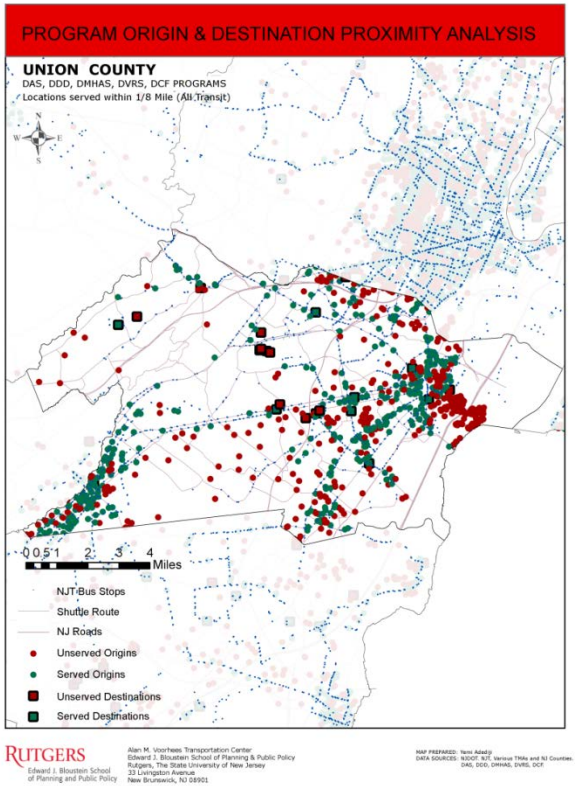


Sussex County Origins and Destinations within 1/4 Mile of Transit Facilities

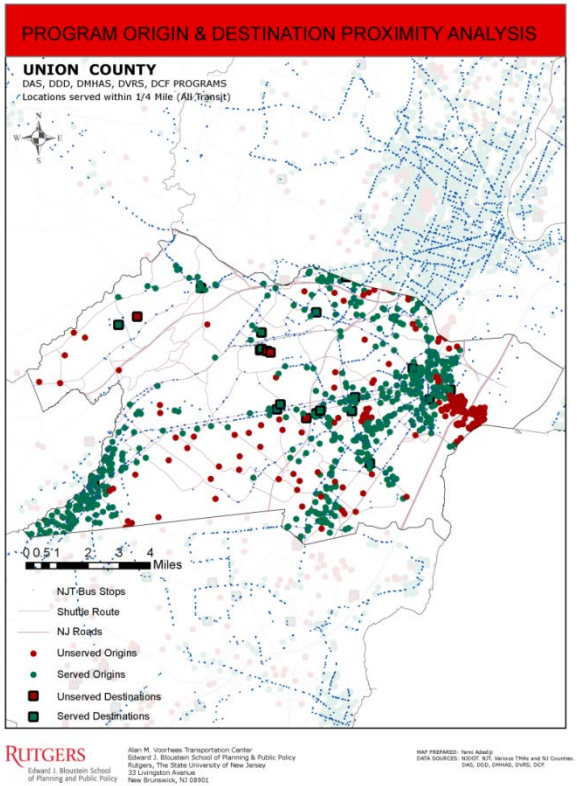


Sussex County Origins and Destinations within 3/4 Mile of Transit Facilities

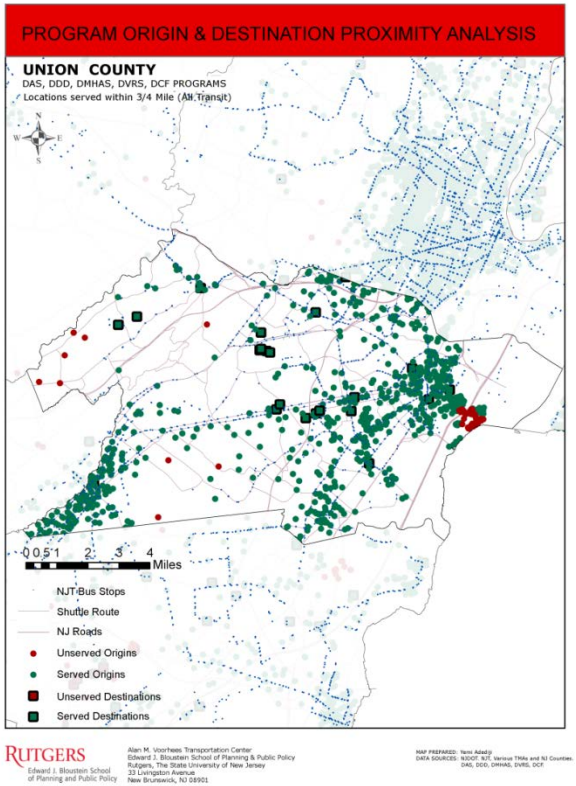
Union County



Union County Origins and Destinations
within 1/8 Mile of Transit Facilities

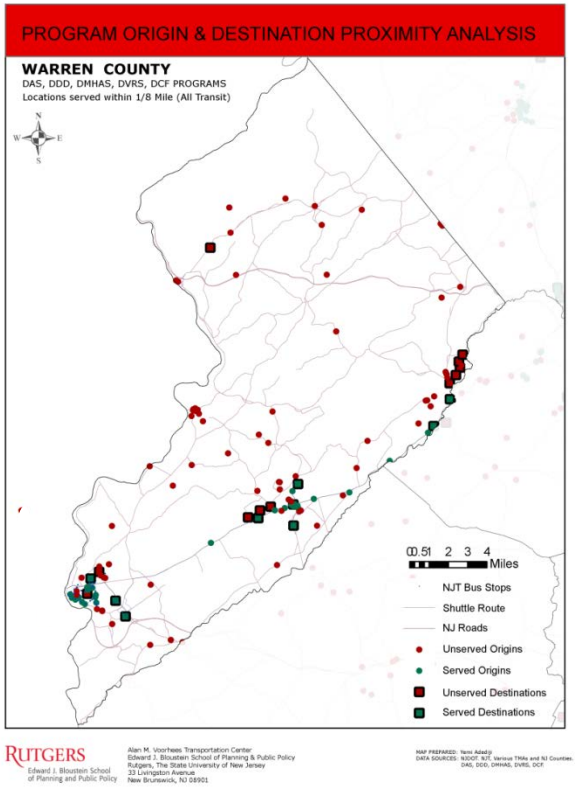


Union County Origins and Destinations
within 1/4 Mile of Transit Facilities

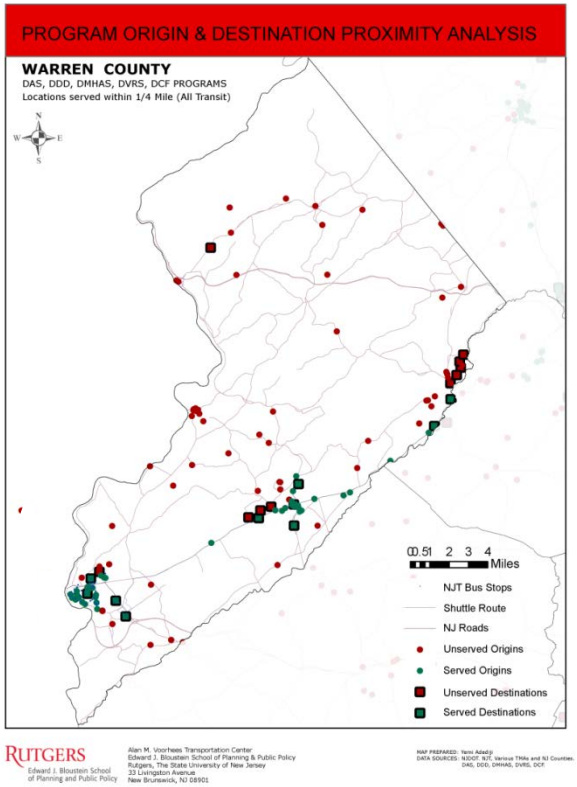


Union County Origins and Destinations
within 3/4 Mile of Transit Facilities

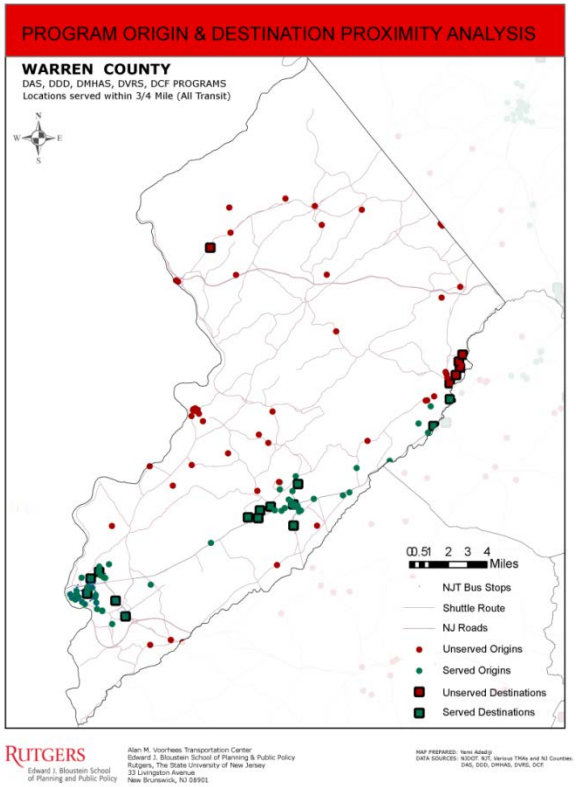
Warren County



Warren County Origins and Destinations within 1/8 Mile of Transit Facilities

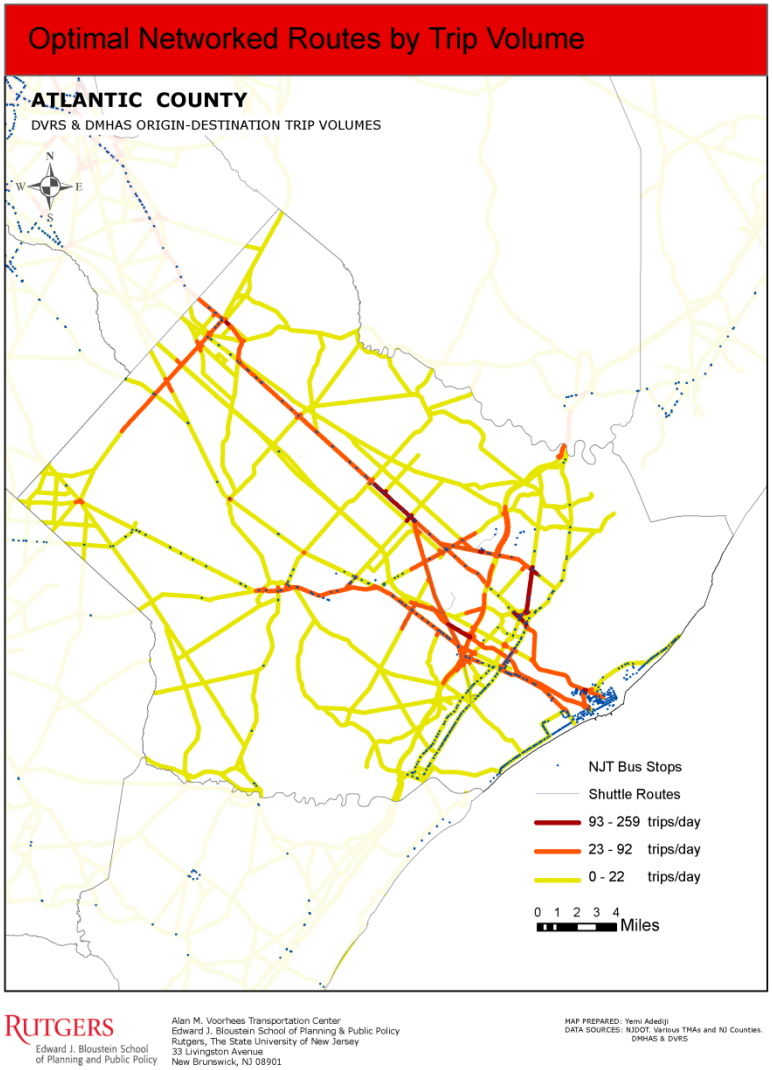


Warren County Origins and Destinations within 1/4 Mile of Transit Facilities

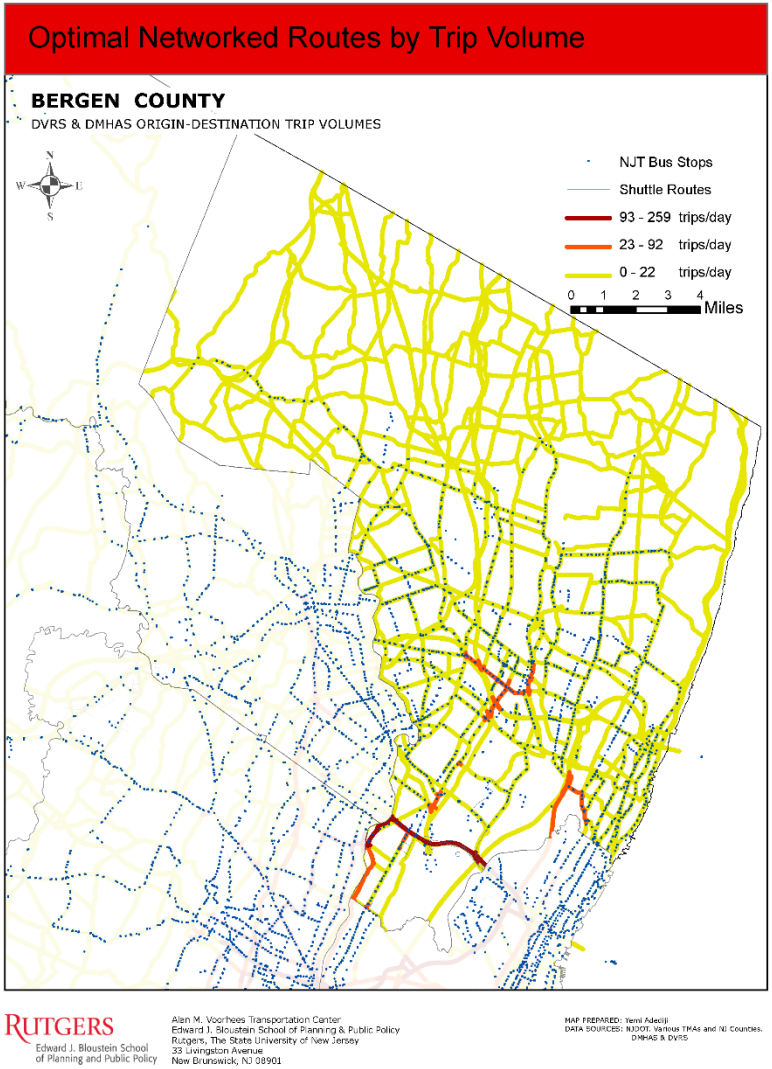


Warren County Origins and Destinations within 3/4 Mile of Transit Facilities

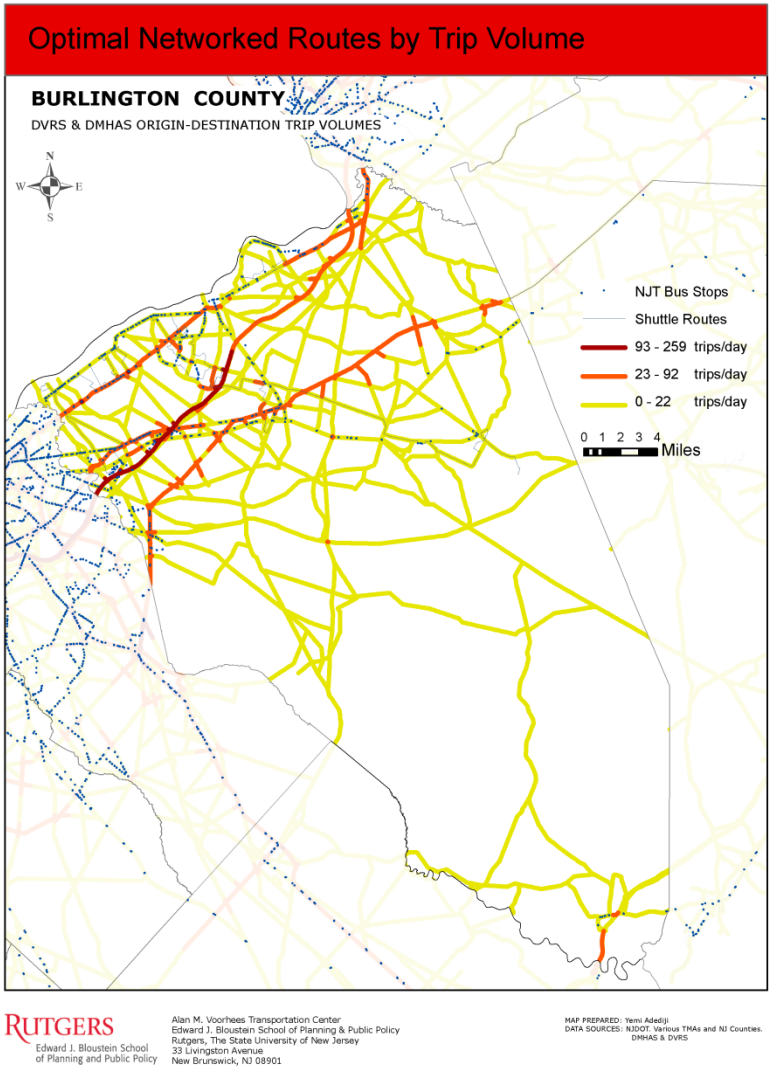
APPENDIX D. NETWORK ROUTE MAPS



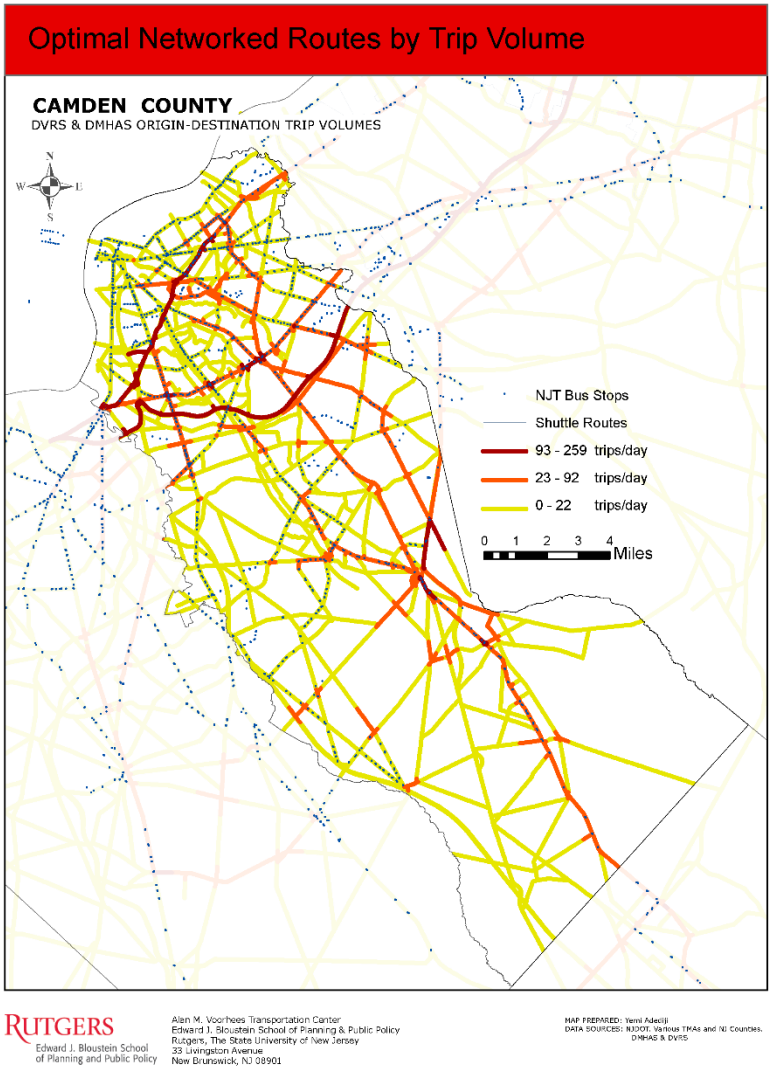
Atlantic County Networked Routes by Trip Volume



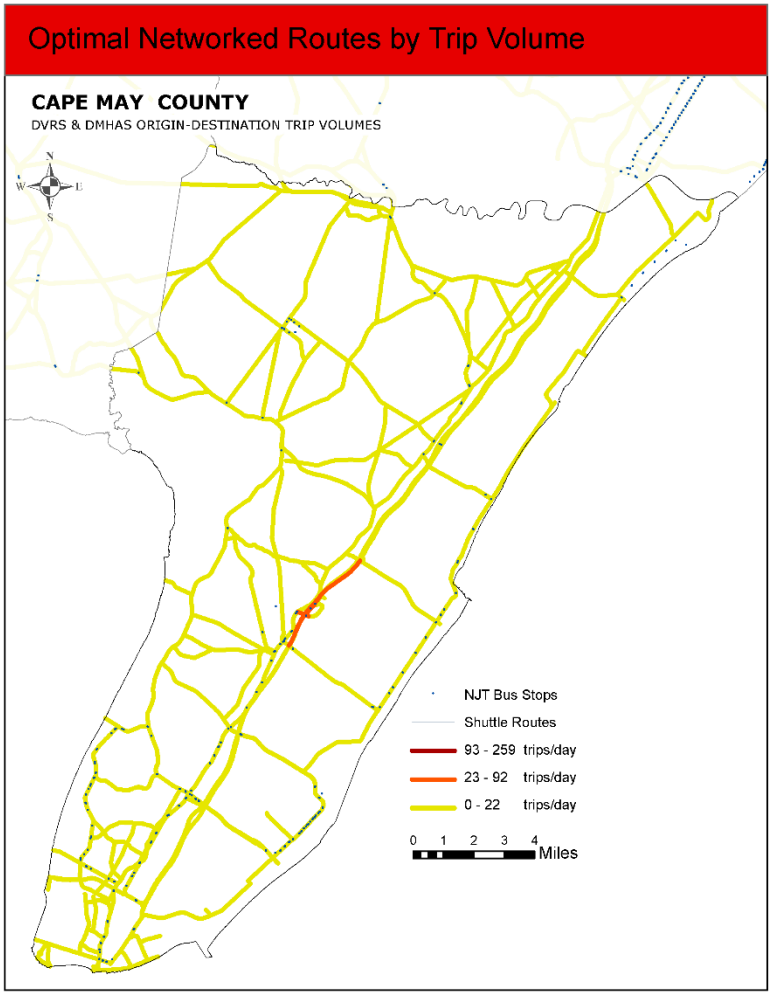
Bergen County Networked Routes by Trip Volume



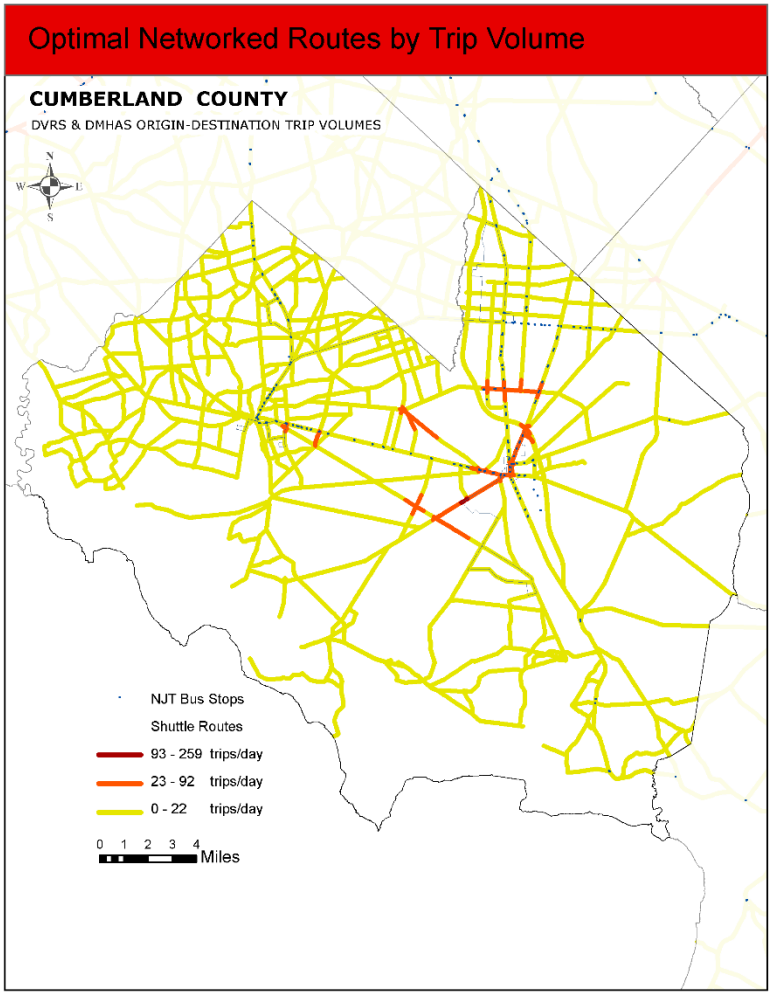
Burlington County Networked Routes by Trip Volume



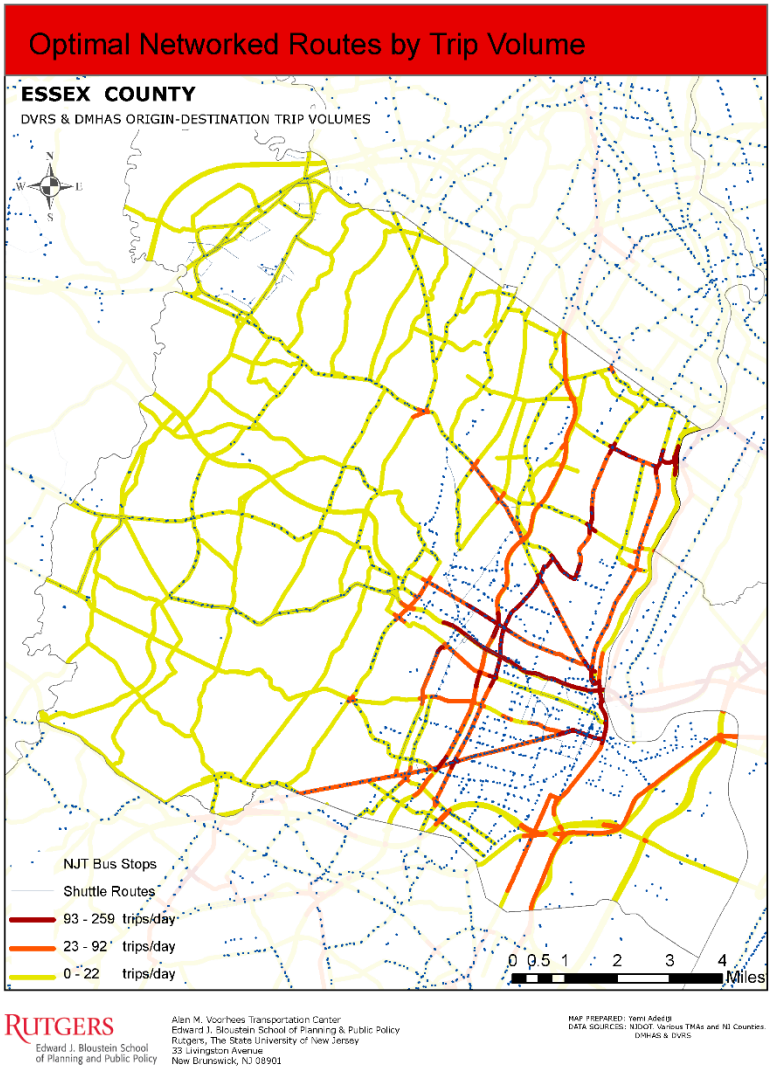
Camden County Networked Routes by Trip Volume



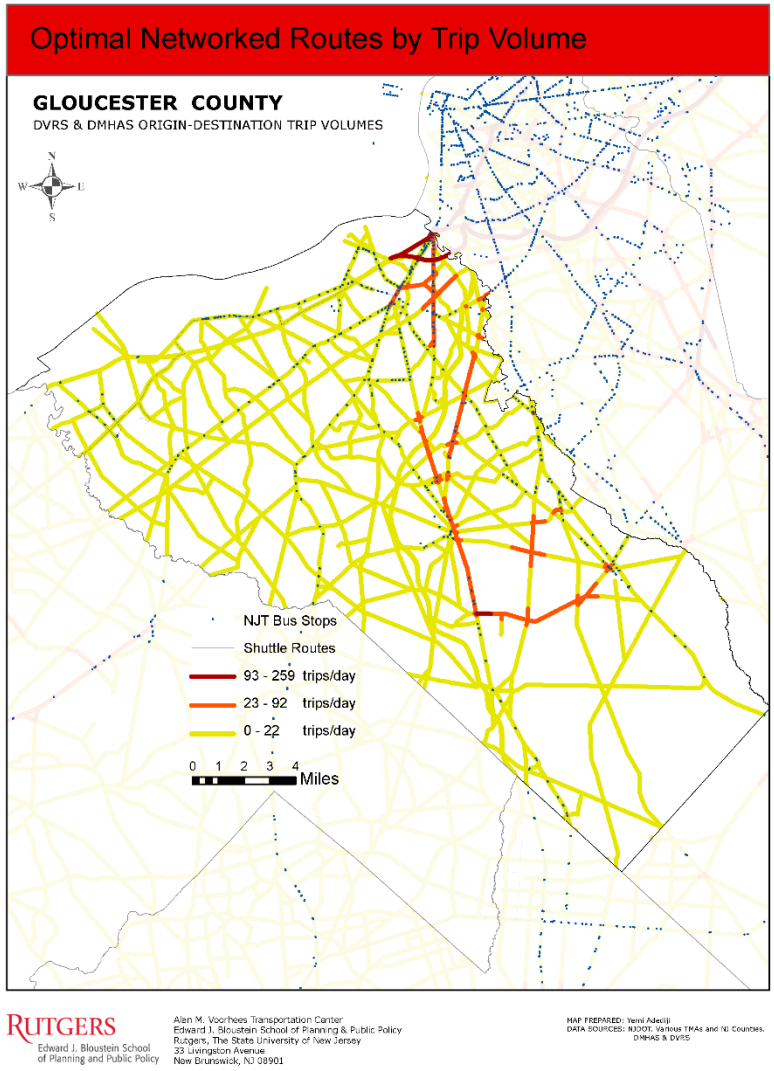
Cumberland County Networked Routes by Trip Volume



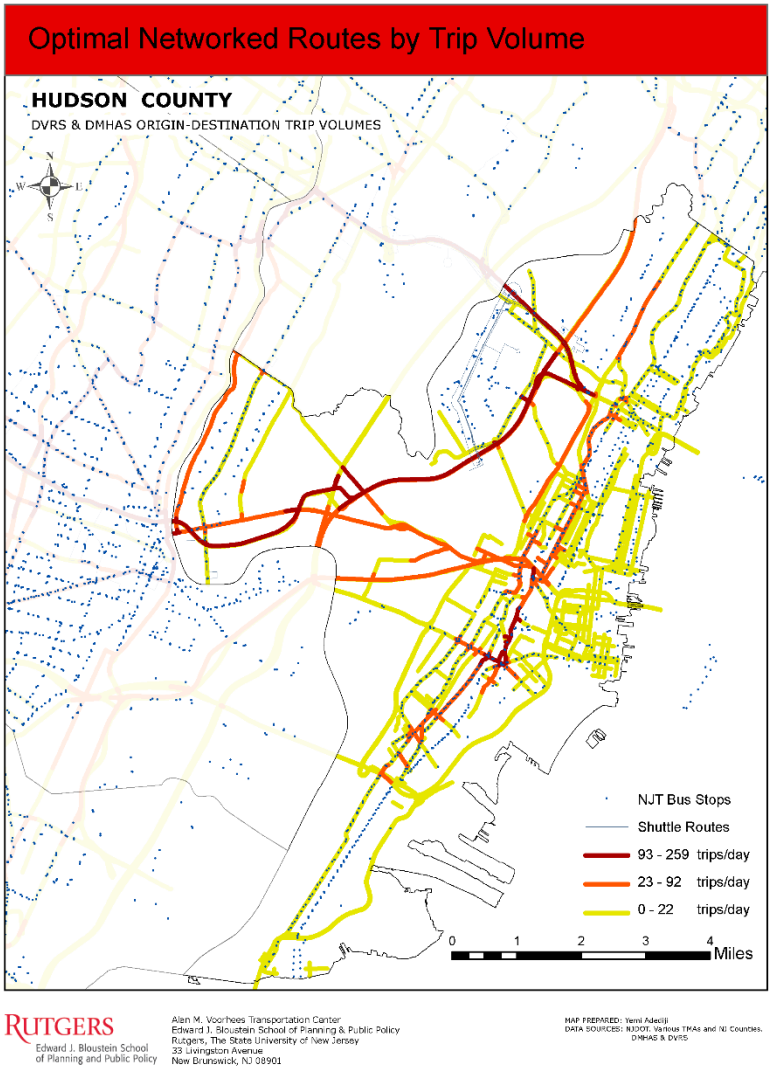
Cumberland County Networked Routes by Trip Volume



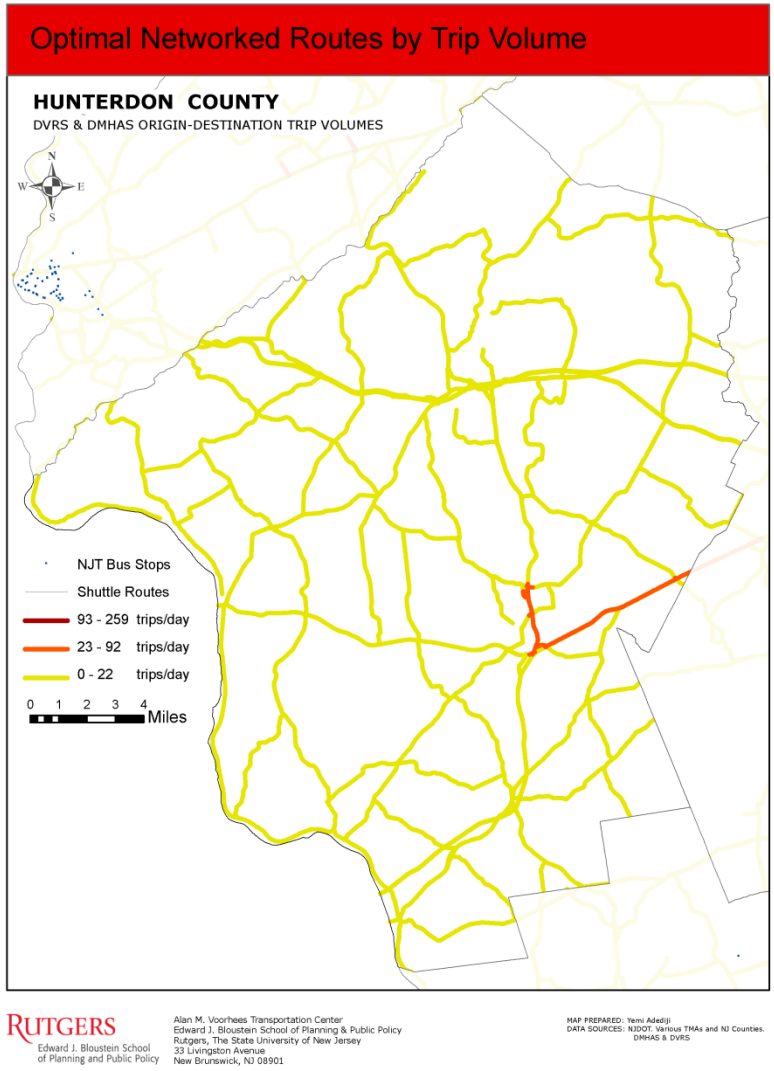
Essex County Networked Routes by Trip Volume



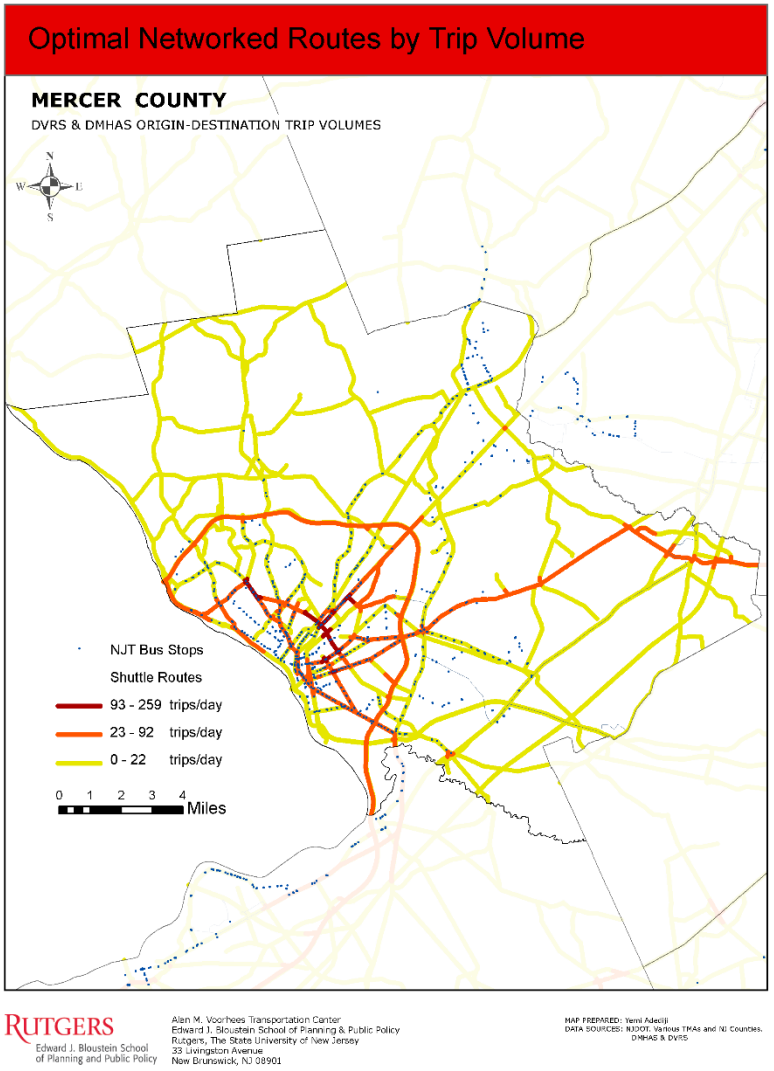
Gloucester County Networked Routes by Trip Volume

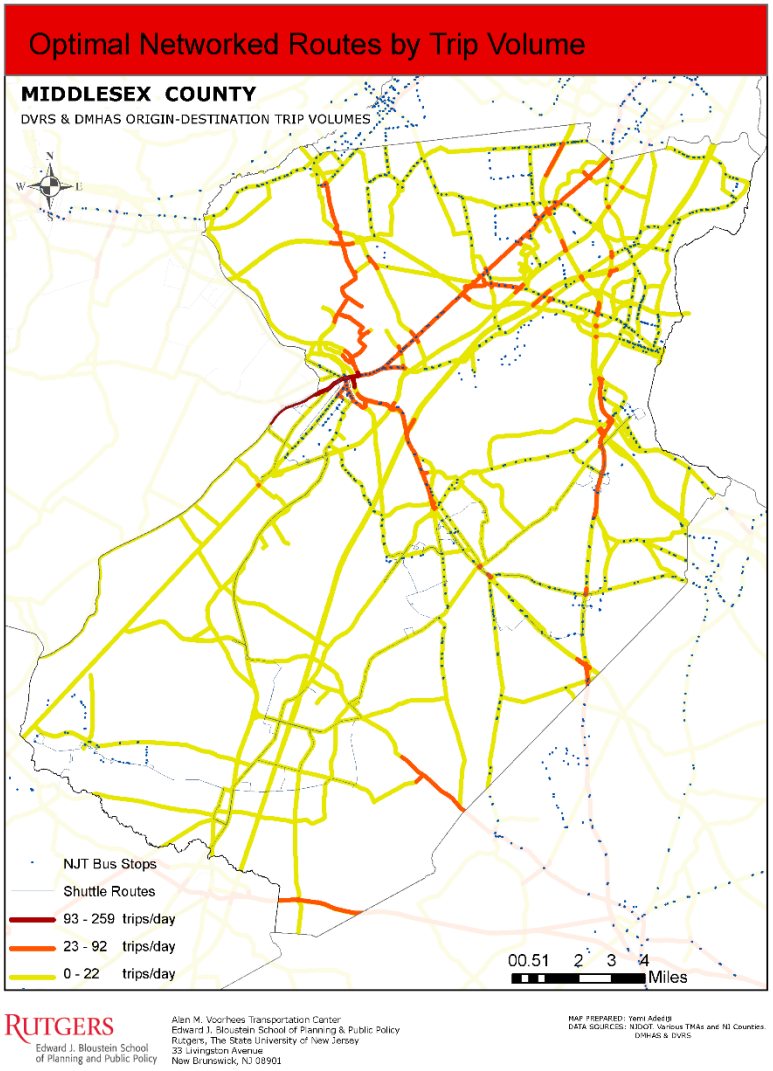


Hudson County Networked Routes by Trip Volume



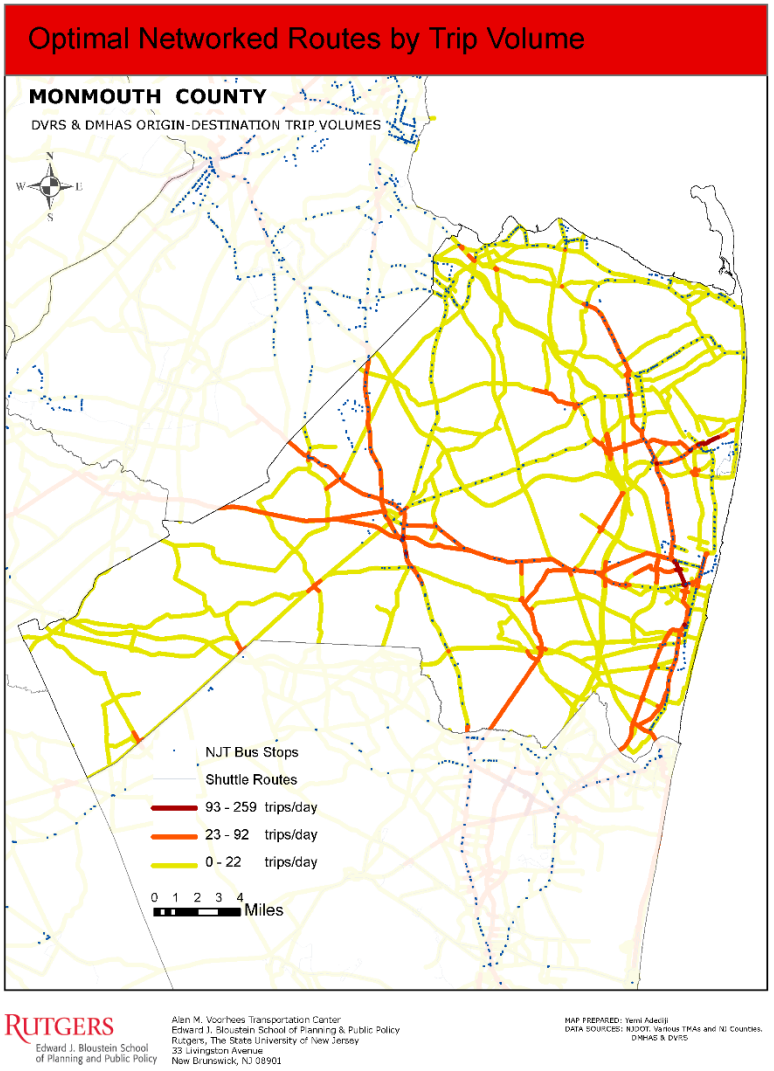
Hunterdon County Networked Routes by Trip Volume



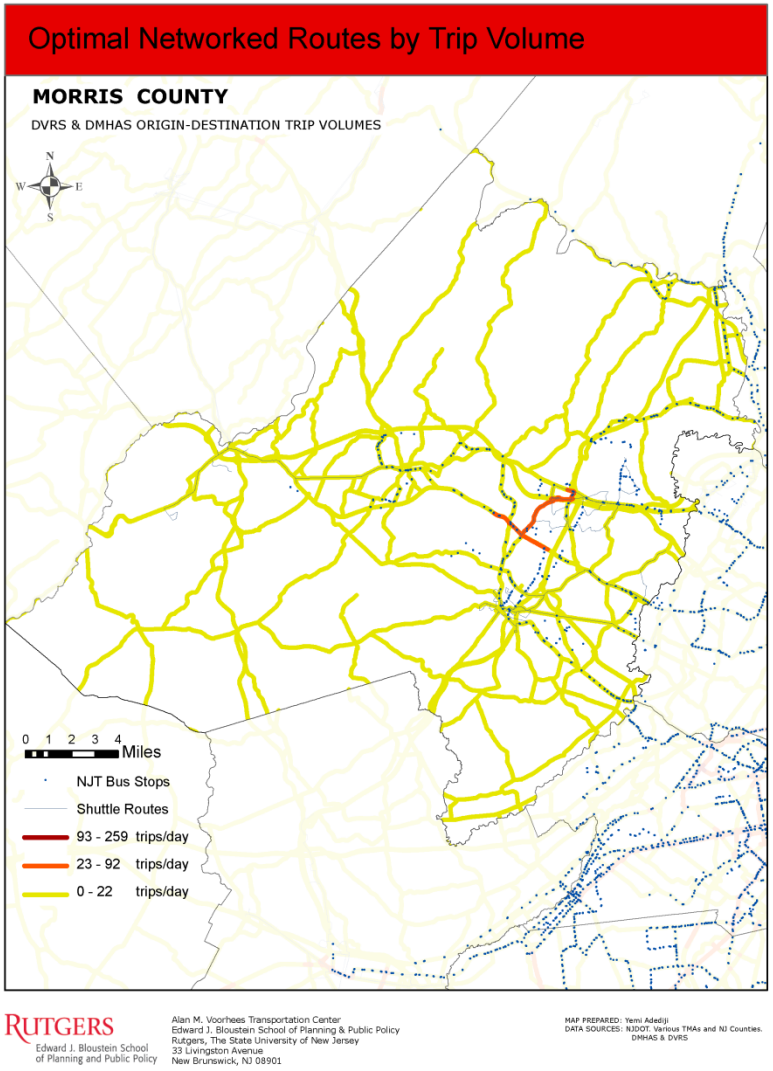


Mercer County Networked Routes by Trip Volume
Burlington County Networked Routes by Trip Volume

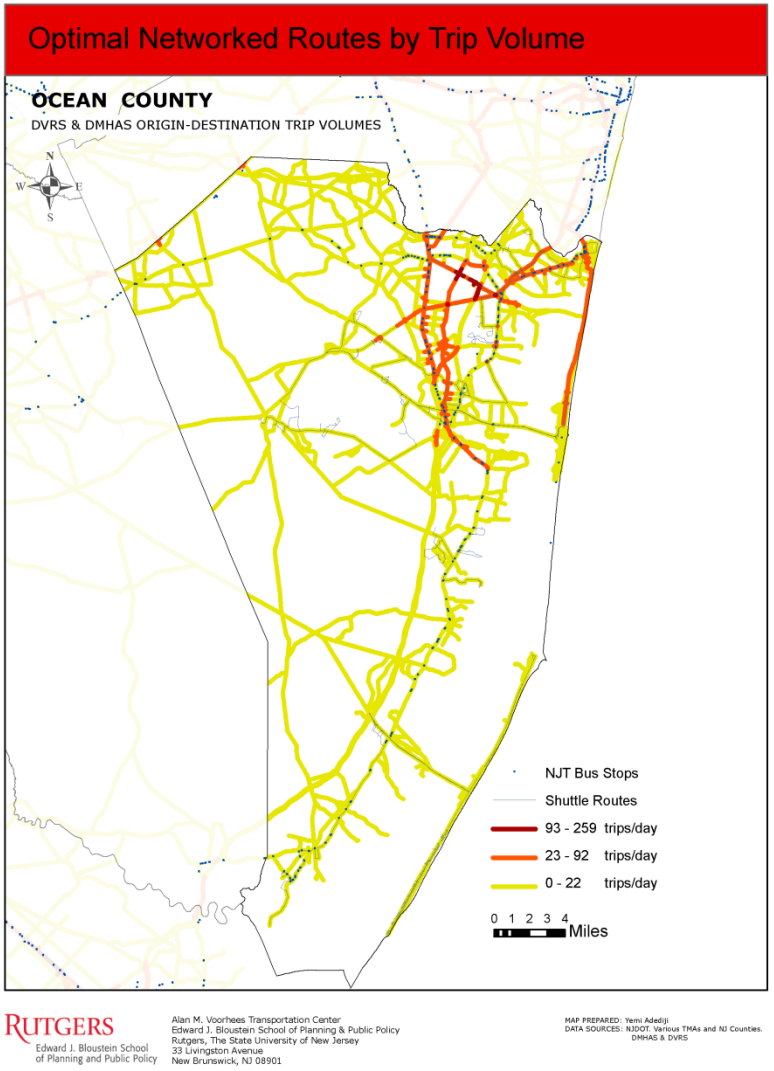
Middlesex County Networked Routes by Trip Volume
Camden County Networked Routes by Trip Volume



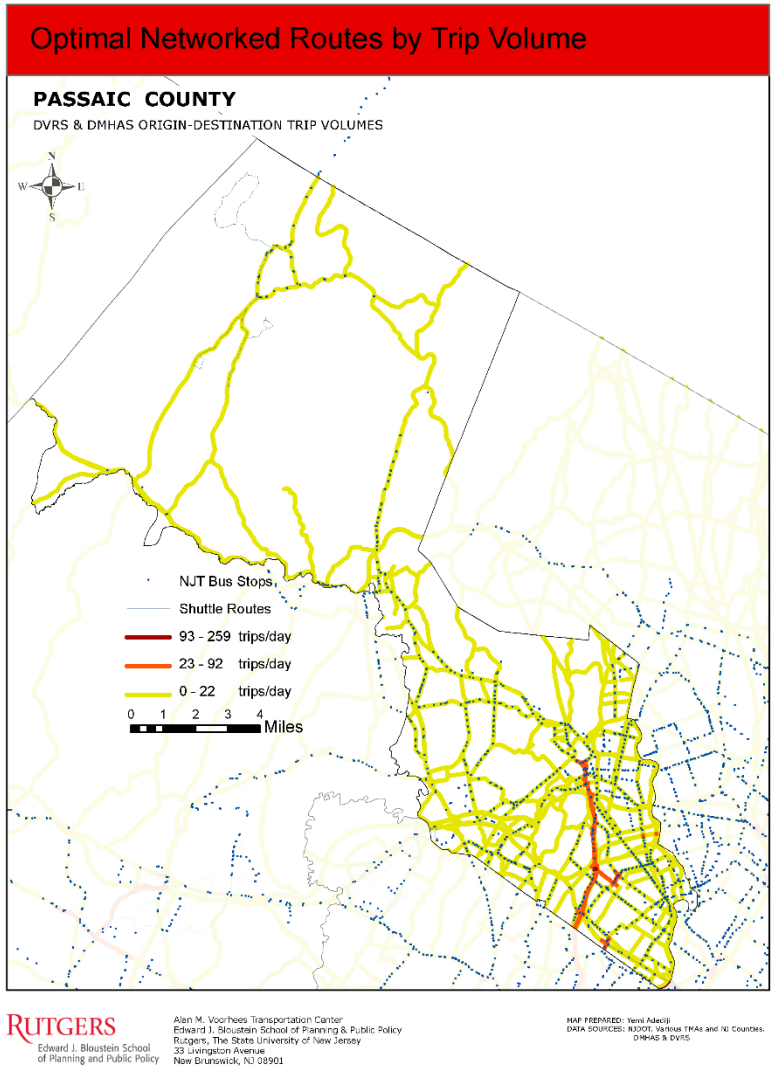
Monmouth County Networked Routes by Trip Volume



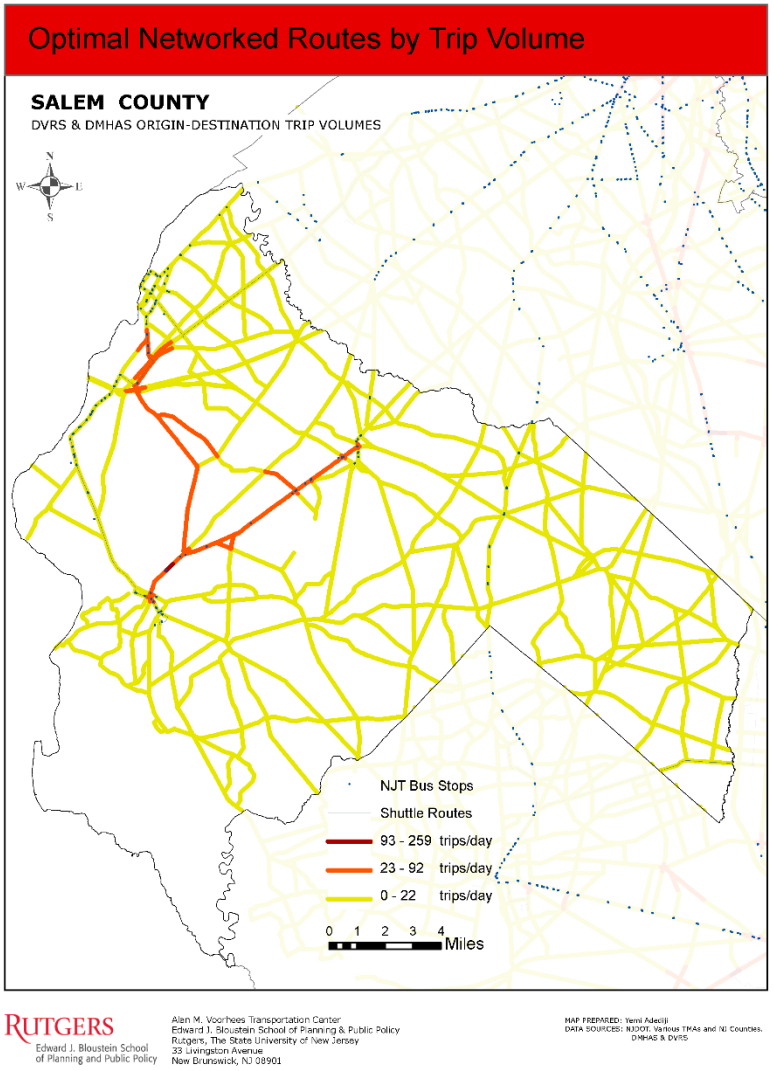
Morris County Networked Routes by Trip Volume



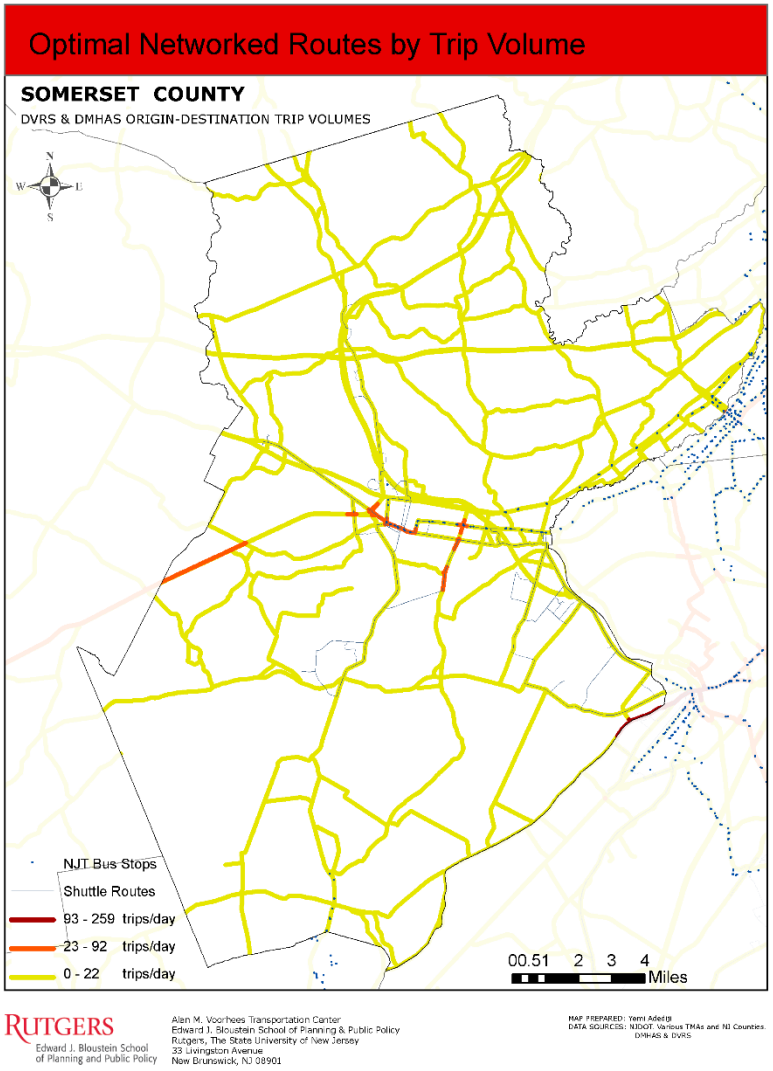
Ocean County Networked Routes by Trip Volume



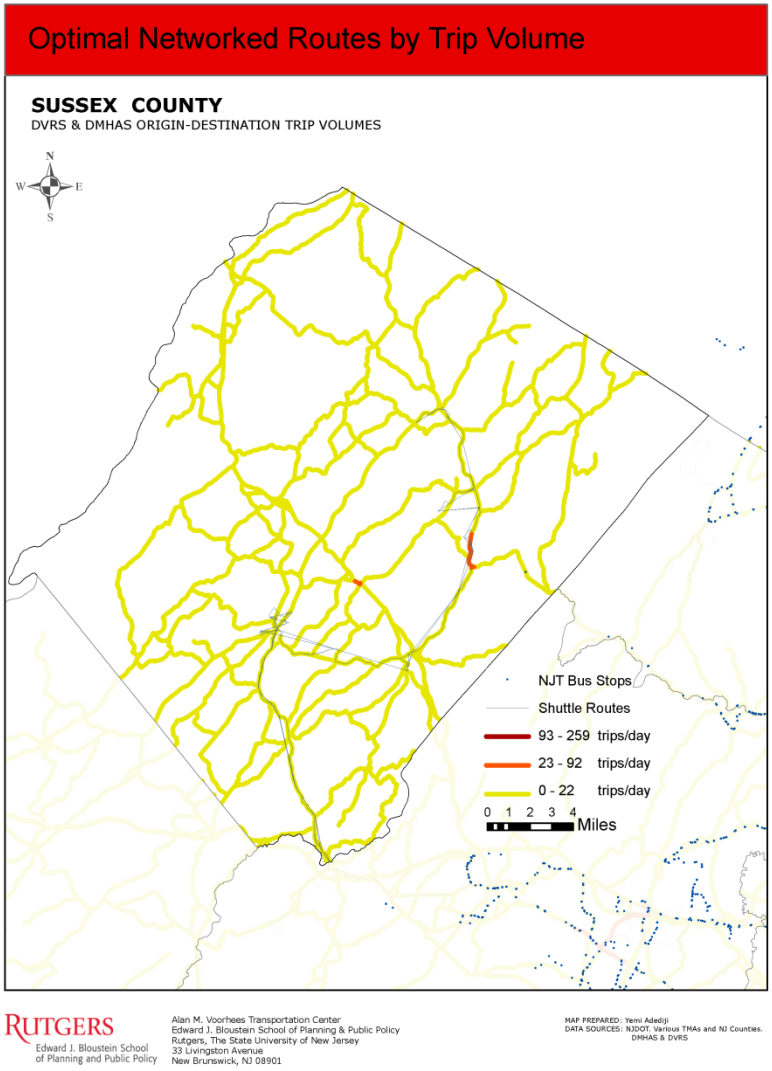
Passaic County Networked Routes by Trip Volume



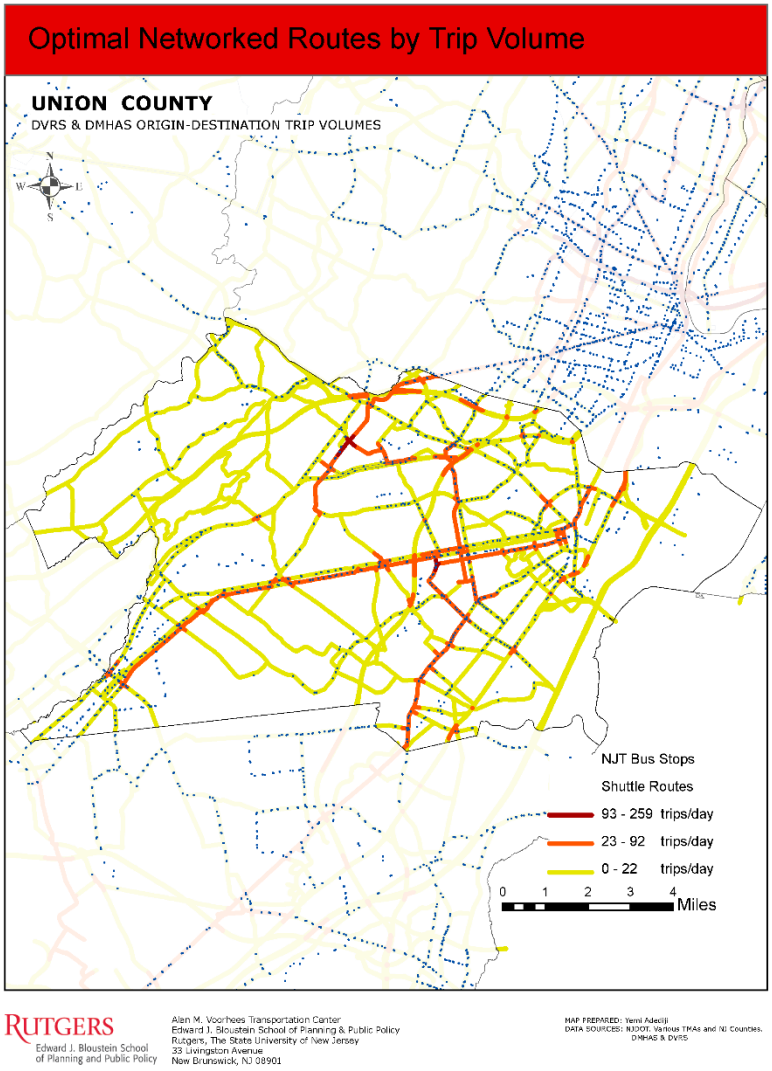
Salem County Networked Routes by Trip Volume



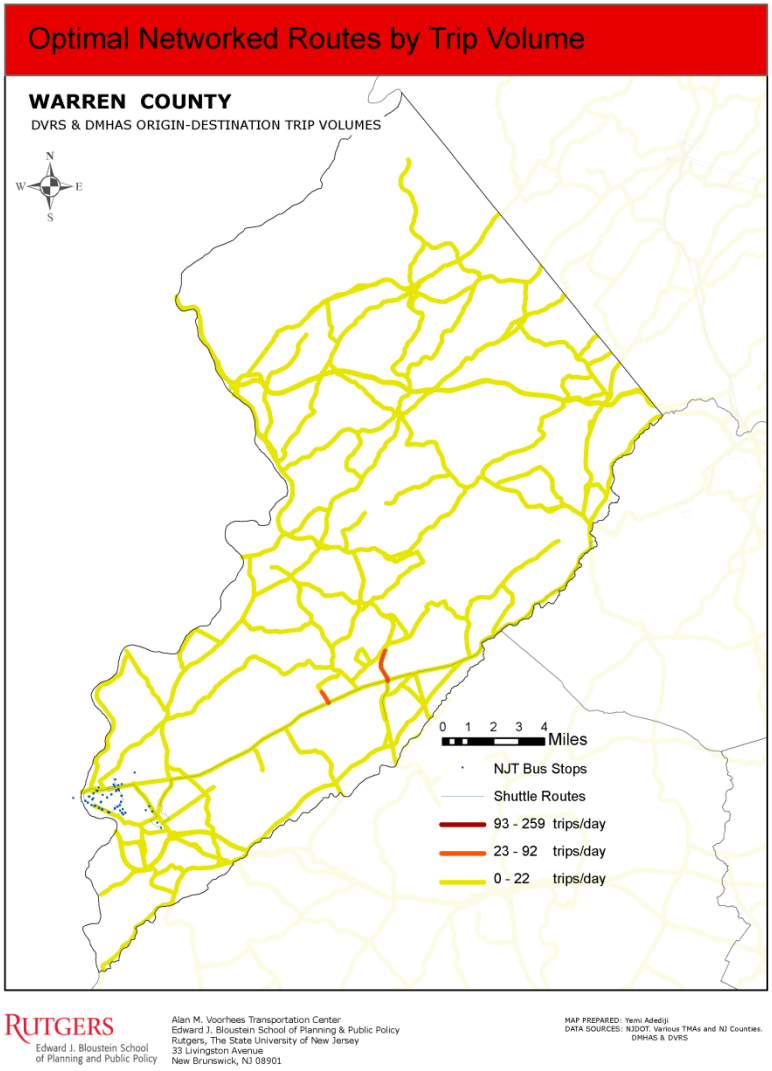
Somerset County Networked Routes by Trip Volume



Sussex County Networked Routes by Trip Volume



Union County Networked Routes by Trip Volume



Warren County Networked Routes by Trip Volume