Moving People Lisa Moreland Nicole Sappé sponsored by the in cooperation with the Institute for Public Administration Delaware Department of Transportation College of Human Services, Education & Public Policy and the Office of State Planning Coordination University of Delaware on-line at www.ipa.udel.edu

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Preface

Dr. Jerome R. Lewis Institute for Public Administration

As the director of the Institute for Public Administration (IPA), I am pleased to provide this report on the 2000 Delaware Policy Forum "Moving People: Transportation Options for Delaware." Held in Newark, the forum was sponsored by the Institute in cooperation with the Delaware Department of Transportation and the State Office of Planning Coordination. The goals of this forum were trifold:

- Provide an expert overview, state-of-the-art examples, and outline of future directions for transportation options;
- Report on work in progress by the Institute for Public Administration to produce an
- Atlas of Transit Resources in Delaware that contains detailed listings, locations and service features of public, private and nonprofit transportation resources in the state; and
- Bring together representatives of agencies, firms, and groups who provide transit services and other interested officials, administrators and community and business leaders to interact and discuss steps and priorities to meet existing and emerging needs, thereby enhancing the efficiency, cooperation and coordination of Delaware's multi-sectoral transit resources.

I wish to acknowledge those who contributed greatly to this forum. My colleague, Dr. Robert Warren (School of Urban Affairs & Public Policy, University of Delaware) was principally involved in the planning of this forum. I would like to especially thank Secretary of Transportation Anne P. Canby for her introductory remarks as well as Representative Roger Roy for his ideas and support for the forum. I want to acknowledge our speaker, Dr. Robert Cervero of the University of California's Berkeley Department of City and Regional Planning, for his keynote address on Building Transportation Options: Current State and Future Directions. Herman Shipman (Federal Transit Administration), Ray Miller (Delaware Transit Corporation), and Representative Roger Roy (Transportation Management Association of Delaware) served on a panel of Best Practice Case Studies in the Coordination and Networking of Regional Transportation Options. Dr. Robert Warren and Christian Schlosser (Research Assistant, Institute for Public Administration) provided a detailed progress report on the Atlas of Transit Resources in Delaware. Anne Wassberg (American Red Cross of Delaware), Bonnie Hitch (Paratransit Services, DART First State), Charlene Benson (Supporting Services, University of Delaware), and Ronald Love (School Transportation, Department of Education) offered their insight on the panel *Public*, *Private and Nonprofit* Perspectives on Providing Transportation Services in Delaware. Gloria Wilkins provided exceptional staff support for this project.

I also want to recognize the valuable contributions of the following individuals involved in producing this report. Lisa Moreland managed and coordinated the overall effort to produce the final printed document. IPA Research Assistant Nicole Sappé demonstrated tireless energy while working to transcribe and edit the draft report. In addition, Dave Edgell made available his meticulous notes of the event and Mark Deshon provided the inspired cover design for the report. Copies of this report may be downloaded from the IPA website at: www.ipa.udel.edu/research/publications.

Building Transportation Options

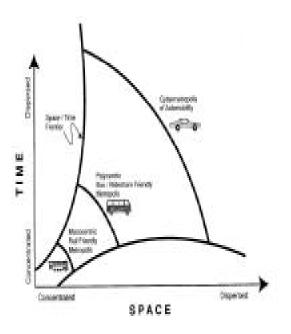
Dr. Robert Cervero, Department of City and Regional Planning University of California, Berkeley

In his presentation, Dr. Robert Cervero, University of California's Berkeley Department of City and Regional Planning, introduced a framework for thinking about building transportation options with a focus on making suburban transit work more effectively. The following is an edited transcript of Dr. Cervero's presentation.

Putting this discussion in a policy context, it is important to consider transit markets. Nationally, transit constitutes only 2.13% of all personal travel by mode while private vehicles account for more than 90%, but this is no reason to dismiss transit as a viable option in some circumstances. In urban markets, such as New York City for example, it is extremely important, accounting for over 50% of the travel along urban routes.

Nationwide vehicle miles traveled (VMT) is rising. In fact, recent reports have shown that the number of trips taken has increased by 18% and the length of those trips was increased by 35%. Two factors contributing to this include an increase in single vehicle occupancy as well as the decentralization of jobs to the suburbs, which have resulted in longer commutes. These outcomes are within the sphere of public policy influence. The suburban market is growing, but a recent a transit study revealed that those systems are not as effective as found in urban markets.

A landscape is being created where it is difficult for transit to compete with personal vehicles because activity patterns have scattered. A time and spatial dispersion has



resulted with many origins and destinations over a broad time span. The situation is a non-cooperative landscape for transit—a land of automobility (see figure left). Transit needs mass (density) to work, and these current trends destroy that mass.

However, our consumption habits are not sustainable. A large number of vehicles on the road produce both high emissions and congestion, yet a single bus can replace six eight-person vanpools, 15 three-person carpools and 45 single occupancy vehicles

(SOVs)—creating a much more efficient system. Other countries are strategically conducting land use planning to make transit function because they see the dangers of auto dependency.

The transportation marketplace is a mobility marketplace. Consumers are service and price conscious. People make rational decisions. They weight competing travel modes for time, cost, comfort and convenience. In terms of transit, its collection system must be integrated to get people from their homes to the station (collection) and from the main line to their end destination (distribution). Mixed land use provides an incentive to take advantage of transit. Without mixed use transit centers, an individual may take their bus to a suburban office park but be stranded mid-day with nothing to do for lunch.

Good reliable service is essential for transit. Service elasticity is 0.6, which means that people are sensitive to improvements in service quality. People perceive time-to-transfer as longer than it is because they are idle. On-time delivery is an integral component of this. We have found that if people have to wait long to transfer they will not use transit. People like to have some sense that they are continuously moving towards their destination. So, frequent headways and minimal waits are important aspects of transit service quality.

Safety is another issue that concerns people. Transit incidents are harmful to ridership, especially when they are widely reported in the press. Design is also important because places designed for cars are not appealing to transit riders. In order to get people out of their cars and use transit, we need to provide them with shelters need to be appealing so they have a nice place to wait and the interiors of the vehicles must be attractive.

Some innovations for transit include Bus Rapid Transit, which is a design incorporating several concepts including the following:

- Exclusivity or physical segregation
- Seamless Transfers
- Advanced Bus Technology: clean fuels, light-weight materials, advanced communications
- Supportive Armature: signal priorities, bus turnouts, curb realignments, AVL, automated routing and dispatching
- Expeditious Fare Collecting and Boarding: off-vehicle payment, smart cards

A pilot project of the Bus Rapid Transit system has been attempted in Eugene, Oregon.

Eugene, Oregon: Pilot Project

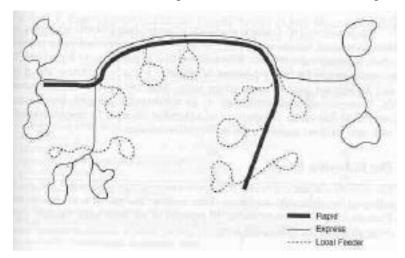
- Dedicated right-of-ways for buses
- Seamless transfers; advanced bus technology
- Fares are collected off the bus like at a subway station

Some communities have "Contraflow Bus Lanes" in which lanes going in the opposite direction of autos have been dedicated to buses. In these models cars are deterred from cheating and using these lanes in the wrong direction because they would not want to be run over by a bus!

Another type of innovation is adaptive, flexible transit through rubber-tired bus systems that incorporate some of the service features of a subway or other fixed rail systems.

Advantages of these systems are that they can carry passengers quickly (speed) along dedicated routes (dedicated right-of-way); trains and subways do not get stuck in traffic; fixed stations with efficient off-vehicle generalized fare collection systems are shielded from the weather; entry onto trains is often very convenient because the floor of the train is level with the loading platform; and these systems have predictable time schedules, which are not influenced by traffic conditions on surface roadways.

What about the disadvantages? Trains are limited to those very same fixed rails. They are also extremely expensive. Buses are much less expensive and they are free to circulate throughout suburban neighborhoods to pick-up riders from low-density suburban areas, something trains are unable to do (see figure below).



Ottawa, Canada

Ottawa Canada's adaptive, flexible transit is a good model of a transfer-free system. Ottawa has a regional government structure, which allows them to conduct planning on a scale that is not possible in the states. They define the location of regionally significant land uses and can override local

zoning decisions. Their regional government coordinates urban development. In their model, Ottawa used infrastructure to guide growth by first defining transit ways.

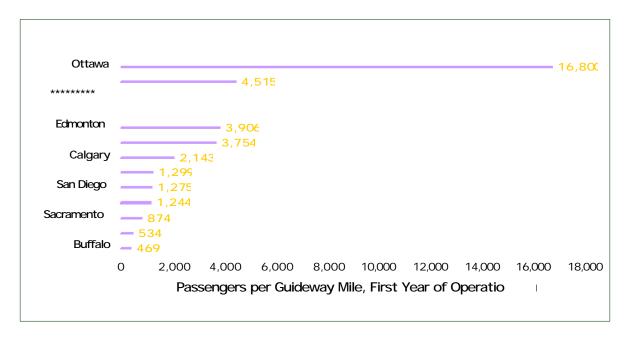
As an initial step, the planners asked citizens what they wanted. Their response was single-family homes, rather than dense, urban high-rise apartments. High-rise apartments would have been more compatible with rail transit. Designing a transit system for a low-density single-family housing environment is very challenging. Ottawa planners designed a system with compact work and shopping places, but many origins. They let the desired land use pattern define the transport system (see plan above).

The transit system design included a high-speed busway, which is a dedicated right-of-way for buses and cannot be shared with private automobiles. In their design, bus and transfer stations are like subway stations—enclosed from the weather with centralized fare collection and level boarding. Unlike a train, however, buses can get off the busway and circulate through the low-density suburban areas to for pick-up. The buses then return to the busway, unimpeded by traffic congestion.

Supportive initiatives of their system include real time transit passenger information with global positioning systems (GPS). In fact, all bus stops are wired and have phone numbers so transit users can dial up and get arrival information—extremely important in Ottawa, where freezing temperatures can be dangerous. The system also features

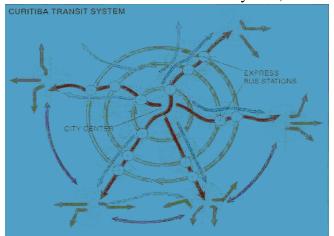
integrated fares and deep discounts for frequent riders. In addition, Ottawa mandated commercial-rate downtown parking, eliminating parking subsidies.

Ottawa differentiated bus services to meet different needs. They designed the transit system to meet the vision of how they wanted to grow. Their methodical design led to significant results in the overall transportation system. Thus, Ottawa's interlocking strategies have resulted in dramatically improved ridership productivity (see figure below).



Curitiba, Brazil

This model includes a radial transit system, with routes moving outward from the city



center. High-density land uses are channeled along these radial routes (see figure left). Their trinary system utilizes articulated express buses to achieve the volume of a metro system on a rubber-tired system at a fraction of the cost. They layered different levels of service on each corridor—express and local—and designed a circumferential bus system to link with the radial corridors.

Houston, Texas

Bus rapid transit makes sense for medium to large cities. For smaller areas, however, car and vanpools are a more viable option—empty car seats are a wasted resource. In Houston, they have defined their transit system as a HOV (High Occupancy Vehicle)

system. In an HOV system, certain lanes are designated only for use by vehicles with more than one rider, such as carpools and vanpools. Ninety-six percent of Houston's "transit" system is car pools, but buses use HOV lanes too.

Pre-requisites to a successful HOV system include:

- Metropolis with major centers and long mainlines
- Polycentric form: compact, mixed centers
- Large CBD of over 100,000 workers

Other factors that improve success are:

- Big networks with the critical mass to achieve "network effects"
- Hardware: direct ramps, park and ride lots, ramp meter bypass lanes, transportation management center with real time monitoring
- Software: marketing, ride-matching, guaranteed ride home programs, strong enforcement of HOV lanes
- Institutional coordination
- Market rate pricing for parking.

San Diego, California

San Diego has incorporated into its transportation system a concept called HOT Lanes, whereby a single occupancy vehicle driver can pay to be able to drive in the HOV lane. Of course, the tolls are relatively expensive. However, this strategy allows the system to exploit unused capacity. Choice is good; it is a differentiation of services. If you are running late to work, you can choose to pay more. But the cost is high enough so most people will not use it every day. Some people criticize this approach as "Lexus Lanes," suggesting that they are designed for the rich. However, studies show that most users of these lanes are working class folks running late to work.

Other Approaches

- Tokyo, Japan: multi-modal approach with mixed used developments (residential, commercial, and institutional) constructed at multi-modal centers (centers which have transfer sites for buses, trains, cars, pedestrians, etc.)
- Toronto, Canada: subway system with seamless intermodal connections, which includes transit service and fare integration reducing the psychological cost of mode change
- Kansas City, Kansas: MetroFlex system that allows drivers to deviate up to three quarters of a mile to provide front door drop-off during non-peak midday service. The system requires a reservation of 24 hours, but their goal is to reduce this time to a one-hour reservation period.

Lastly, innovative approaches and alternative vehicles are being used to provide specialized services. Examples include smart paratransit with demand response, geographic information systems (GIS) and GPS; shared-ride taxis using zone fare collection instead of a meter system, which allows riders to economize on trips; and vans and jitney feeder buses that collect riders and feed them into the main line system. Germany's Track Rubber-Tire Trams and Versatile Transit Track-Sharing are more

examples of adaptive, flexible systems whereby smaller trams share tracks with high-speed trains and can convert from slow speed intercity to high-speed rail.

In conclusion, the following is a summary of factors essential to building more efficient and sustainable transit systems:

- Market responsiveness
- Complementary and competitive
- Adaptive design and function
- Variety and choice

Only by rising to the challenge of these needs, will we be able to meet the ever-increasing demands for greater mobility, integrated services, good reliable and quality service, and improved safety and design.

Implementing Commuter Choice Programs

Mr. Herman Shipman, Deputy Administrator Federal Transit Administration

In his presentation, Mr. Herman Shipman of the Federal Transit Administration (FTA) described the U.S. Department of Transportation's adoption of the concept of "One DOT" whereby the Department is no longer isolated, nor a silo of information and services that pertain to highways on one side and mass transit on the other. The following comments by Mr. Shipman have been edited.

Under Secretary Slater, the Department has been charged with trying to interconnect across the various divisions. So, now FTA employees do not talk about transit, highways, rail or aviation but transportation as the umbrella strategy for moving people and goods. It is the mix that matters, and it is the choice that counts.

In this way, the focus must be on intermodalism. In these terms, transportation encompasses not just highways, mass transit, railways or any other transportation models, but also walking and cycling.

Congress, for its part, passed the Transportation Efficiency Act for the 21st Century, or TEA-21. This legislation is a driving force behind the Department of Transportation, particularly with respect to highways and mass transit. For mass transit, it represents a program running at about \$5 billion dollars annually. For highways, it is about \$6 billion dollars per year. The funding is split between formula and discretionary money. In terms of the transit program, about fifty percent is disbursed according to location, which is decided through a congressional formula. While the other fifty percent is discretionary in nature, whereby some money is put into community A and some into community B. The needs of specific communities will determine the amount of money received from the trust fund. These discretionary funds are almost 100% identified by Congress. This earmarking does not provide the FTA with much leeway to fund good projects with discretionary funds.

Job Access Reverse Commute Program

Augmenting these TEA-21 funds are the FTA's Job Access Reverse Commute (JARC) programs, which includes Welfare to Work. JARC represents a \$75 million dollar per year program reaching its fully authorized \$150 million in FY 2003. Congress has earmarked two-thirds of the funding. The last third is dedicated for a national program called "Job Access and Reverse Commute Competitive Grants." Improving mobility and advancing economic development are key strategic goals of the Department.

While two-thirds of all new jobs are in the suburbs, three-quarters of welfare recipients live in rural areas or in central cities. In metropolitan areas with extensive transit systems, studies have shown that less than half of the jobs are accessible by transit. Even fewer jobs are accessible by transit in areas with limited transit systems. Many entry-level workers have difficulty reaching jobs during evening or weekend shifts when transit services are frequently diminished or non-existent. Auto ownership among welfare recipients and low-income persons is low.

Transportation is clearly a key barrier to those moving from welfare to work. JARC has two major goals: to provide transportation services in urban, suburban and rural areas to assist welfare recipients and other low-income individuals, as well as the general public, in accessing employment opportunities, and to increase collaboration among the regional transportation providers, human service agencies and related service providers, employers, metropolitan planning organizations (MPOs), states, and affected communities and individuals.

Job Access projects implement new transportation services or extend existing services to fill the gaps that exist in many areas between where welfare recipients and low-income persons live and employment opportunities. Providing a variety of new or expanded transportation options will increase the likelihood that those workers will get and retain jobs. Shipman directed those persons desiring more information to the website: www.fta.dot.gov/wtw.

Commuter Choice Program

U.S. employers spend \$36 billion annually on employee parking, according to a KPMG Peat Marwick study. It is the most common commute benefit offered to employees and the most common fringe benefit of any kind. However, nearly all those eligible for free parking drive to work alone. Driving to work alone (SOVs) contributes more air pollution, wastes energy, and causes traffic congestion. These are some of the hidden costs that do not figure into the "free parking" equation. This country's tremendous investment in public transportation is not being fully used. To get more cars off the roads and commuters into efficient travel arrangements, the cost of commuting on public transportation is now offered by the FTA as a "tax-free" employment benefit. This benefit is called Commuter Choice because it gives employees an attractive alternative to driving to work alone.

Commuter Choice refers to recent changes in the Internal Revenue Code that permits employers to offer tax-free benefits to commute to work by methods other than driving alone—public transit or in vanpools. The goal of Commuter Choice is to make it as economical for employees to use mass transit as it is to drive. Under this statute, an employer can augment the transportation choices of employees within their organization by giving up to \$65 a month or up to \$780 a year, in actual eligible transportation costs tax-free to an employee. Participating employers lower their FICA and Federal income tax costs. In many areas, state and city taxes are lowered as well. Commuter Choice may be used on public transportation buses, trains, ferries, and vanpools. Options include Commuter Choice, Transit, Parking, and Vanpool benefits.

Commuter Choice Benefits are defined as being:

- Purchased by the employer and offered to employees free or subsidized
- Transit passes or vouchers
- Vanpool passes or vouchers
- Parking spaces

Transit Benefits:

- Entitle person to transportation on mass transit or in vanpools
- Transit pass: pass, token, farecard or voucher
- Examples: MetroCheck (DC), TransitCheck (NY), Eco Pass (CO)

Vanpool Benefits are defined as:

- "Commuter Highway Vehicles" (not carpools)
- Seating capacity of at least six plus driver
- Transportation between residence and employment for 80% of the mileage
- Number of employees transported must be at least 50% of adult seating capacity

Qualified Parking Benefits are defined as:

- At or near place of employment
- At a location from which employees commute by public transportation, such as Park & Ride lot, transit station or facility, or vanpool staging area
- Not to include any parking on or near property used by the employee for residential purposes

These programs were designed by the FTA to save employers and employees money, provide a way for employers to attract and retain qualified workers in a competitive economy, reduce traffic congestion, improve air quality, conserve energy, and set an example for the industry to follow. Commuter Choice is a way to provide employers with a cost-effective, value-added benefit with the flexibility to create a program that works for their organization and employees. More information can be found at: www.fta.dot.gov.

Delaware Transit Corporation: DART First State

Mr. Ray Miller, Director

DART First State, Delaware Transit Corporation

In his presentation, Mr. Ray Miller described the history of the Delaware Transit Corporation and its present day services. The following is an edited transcript of Mr. Miller's presentation.

The Delaware Transit Corporation (DTC), established as the Delaware Coach Company in 1864, emerged in the early 1990s as an operating division of DelDOT, consolidating the state's various transit services. The mission of DTC is to design and provide the highest quality public transportation services that satisfy the needs of the customer and the community. As such, DTC operates over 320 buses over more than 60 routes, contracts commuter rail service between Delaware and Philadelphia, and runs a host of mobility programs. With DelDOT and other entities coordinating transportation options, DTC has followed a multimodal approach to promoting travel choice, traffic congestion reduction, and basic mobility and accessibility:

- Highways and roadways
- Rail and bus service
- Park & Rides
- Pedestrians and bicycles

Annually, 2.6 million SOV trips have been replaced by transit. Since 1994, Delaware has seen tremendous progress in terms of ridership. In fact, DART First State has experienced a 29% increase in system-wide ridership. Fixed route services have grown from six million riders to over seven million riders from 1994 to 1999. Paratransit Services has grown to over 400,000—an 80% increase. The rail service has shown significant ridership growth from 400,000 to over 600,000 per year (54% increase).

Ridership

In terms of rider demographics, our ridership in New Castle County (NCC) consists mainly of commuters traveling to and from work daily during peak period service. Most of these commuters are between the ages of 25 and 44 years old and are female. Of those riders, 33% are captive that is they do not have a personal vehicle available to them and may not have any other choice of transportation. Kent County has a higher captive rate at 52.1%. At this time, services are limited in Sussex County.

Rail service reaches a larger group of people who commute to work four or five days a week. Frequent riders hold 77% of the usage, with 73% commuting to and from work. This group has a smaller captive audience, which shows that a vast majority of our rail service customers have transportation options.

Transit Survey

In 1999, a survey was conducted in New Castle County that identified the percentage of the public who has used transit services. The survey measured use, service appeal, and value of service. Survey findings reveal that one in five adults residing in the county

have used transit services—showing a market share of 19%. In other words nineteen percent of respondents have used DART First State services within the past year. That figure is somewhat misleading because only 70% of New Castle County residents have access to transit—living within quarter mile of a bus route. If you factor that into the equation, the market share is closer to 29% of New Castle County residents.

DTC's potential commuter market was found to be 37%. Many in this potential commute market earn incomes over \$70,000. Attracting them to transit service will require high levels of service performance. The DTC offers a high level of service, which translates into convenience for our customers.

Rail Service

DTC contracts rail service with SEPTA operating from the Philadelphia Suburban Station to Newark. Its SEPTA R2 commuter rail stations include: Wilmington Amtrak, Claymont, Newark, and Fairplay Station at Churchmans Crossing Each operates 36 weekday and ten Saturday trips. This year, DTC will add three additional round trips between Newark and Wilmington. In addition, freight operations are run in Sussex County.

Intercounty Service

Intercounty service—Route 301 Wilmington to Dover and Route 303 Milford to Dover—was greatly improved with the introduction of vehicles designed for highway travel. DTC purchased six MCI coaches, and so far they are being very well received. It is a very comfortable mode of travel. With these improvements, DTC hopes to see a dramatic increase in ridership.

Resort Service/ Dover Downs "Race Express"

During the summer, DTC operates a resort service in the southern part of the state. These eight routes operate seven days a week from Memorial Day to Labor Day. A new route (Rt. 208) has been added for service to Ocean City, Maryland. In addition, DTC provides a major Park & Ride lot that has space for about 500 cars. Also, each June and September, DTC operates special "Race Express" shuttle service for the Dover Downs NASCAR Race Day events from the Park & Ride at the Blue Hen Corporate Center. That service has grown remarkably over the years.

Transit User Incentive Programs

- Get a Job, Get a Ride provides three weeks of free transit use for new hires. Over 420 employers are taking advantage of this program in Delaware. Through this initiative, the DTC has established a relationship with almost 6,000 employees—84% of whom have continued to ride transit according to a 1998 survey.
- *Job Works!* offers free transit service to and from job interviews. Currently, there are about 36 job placement agencies that are participating in that program and over 1,200 interviewees have taken advantage of the free transit.

- *Travel Training* is provided free to the community to help people learn how to use our services. The program features one-on-one or group training and emphasizes learning how to maximize mobility options.
- *RideShare Delaware* is DART First State's ridematching program, which is administrated under contract with the Transportation Management Association (TMA). Currently, over 3,200 individuals have registered for the program with 1,800 people matched and actively participating.
- Operation Lifesaver Delaware promotes Railroad Crossing and Right of Way safety awareness.
- Business Partners and Transit is a program whereby DTC builds partnership with businesses that encourage their employees to reduce SOV trips by using transit. The program promotes special transit programs that offer subsidies and other incentives such as: TEA-21, TraveLink, Transit User Incentive Programs, TMA Delaware, and Welfare to Work.

Lastly, several challenge areas faced by the DTC as the division looks to the future include employee recruitment, particularly for paratransit service. DTC is also looking to make improvements to its paratransit services. The demand for paratransit service is ever increasing, so we are looking at innovative ways to meet that demand. Enhancing access to jobs is another challenge area. The DTC is working with other state agency departments to improve mobility and access to jobs in suburban areas. In addition, suburban sprawl and land use are probably two of the biggest challenges that have long-term impacts on transit. When we address land use and how to serve a dispersed, low-density population, the state needs to think about its impact on transit and focus on designing our communities so that they are livable and walkable. The public's perception of transit is also an issue DTC encounters on a daily basis. DTC needs to challenge the perception or stigma that is out there that it is only those people who have no choice or transportation alternatives use transit. The public needs to know that all types of people in the community take advantage of transit services and that these services are comfortable, convenient and cost effective.

Individuals looking for information on the DTC and programs may visits its website: www.DartFirstState.com.

The Role of the Transportation Management Association in Delaware

The Honorable Roger Roy, Representative, Delaware House of Representatives Executive Director, Transportation Management Association of Delaware

In his presentation, Mr. Ray Miller described the history of the Delaware Transit Corporation and its present day services. The following is an edited transcript of comments by The Honorable Roger Roy.

Established in 1989, the Transportation Management Association (TMA) was originally known as the 141 Corridor Association and was made up of five members: Dupont Company, Hercules, HP, A.I. Dupont Hospital, and ICI. The TMA was formed to deal with the commuting problem along the corridor, which was the major link between those employers. Around that same time, the Clean Air Act was passed. The State approached the Association and asked if it could be expanded. The members agreed that they could if all employers worked together. With this full cooperation, the group could achieve better results in fulfilling the intent of the Clean Air Act. The organization then became known as the Transportation Management Association of New Castle County. It existed that way for quite a few years, but because of its statewide programs and partnership with the Delaware Department of Transportation (DelDOT) it is now called the Transportation Management Association of Delaware.

Seventy-five of the major employers are members of the TMA including the area's private chemical companies, Christiana Care, the University of Delaware, government entities such as the City of Wilmington, New Castle County, State of Delaware. The New Castle County Chamber of Commerce and the State Chamber of Commerce are also TMA members. Employers are represented in the non-profit, private and public sectors. While the federal mandates were eventually dissolved, the State still has to achieve its air quality goals under the Clean Air Act and transportation is a critical link to achieving those goals. Representatives of DelDOT thought that the best way to achieve those goals was to take the lead by putting resources and programs together to make transit more convenient, cost-effective and attractive to the public. To do this, the TMA has made commuter choice programs available through employers. We wanted to provide employers with tools that they could utilize to give their employees a better choice of transportation options.

Programs Provided for Employees via Employers

- RideShare Delaware DART First State's ridematching program administrated under contract with the TMA. The program is managed and monitored on computer software that was purchased by the State.
- Communicorner Table and rack display providing information on all of the options for alternative modes of transportation as well as bus schedules and other brochures.
 Transportation fairs showcasing Communicorner are held at major employment sites.
- HomeFree Provides a guaranteed ride home for RideShare participants if the event
 of an emergency or unscheduled overtime when bus service is not available. A cab or
 rental car service is used, depending on the situation. The program has been in place

for eighteen months and it has been used only twelve times. It works as a safety net and yet it is very inexpensive.

Transportation Programs for Schools

 SchoolPool – An outgrowth of the RideShare program, SchoolPool is pilot program for private schools.

Commuter Choice Programs

The TMA works with employers across the state to put together commuter choice transportation programs. Participating employers want to know that their employees are happy and productive when they arrive at work and that they are not sitting in traffic for hours without any recourse. Companies want transportation to and from work to be more convenient for their employees. The TMA works with employers to create programs specialized just for them.

The first step in creating a specialized program for commuter choice is working with DelDOT to map where the employees live. One plan recently completed for a Pennsylvania company involved about four thousand employees. The plan's chart identified the location of the company site and all the railway stations and Park & Ride facilities in the area. Each plan is unique. For instance, if all employees live within five miles of the company, a shuttle bus would not be appropriate. In the case of the Pennsylvania company, employees would be traveling up to fifty miles. Sixteen hundred people would be transferred to Delaware from Pennsylvania. When the plan was initiated everyone in the company received a commuter survey, which was very extensive. The survey gauged their attitudes, current behaviors, and what incentives might entice them to change their attitudes and behaviors. Employees were also asked if they planned to move after the company's relocation. About 80% said that they were not planning to move. The survey results show that a lot of people would be commuting about an hour to an hour and a half. So, the TMA worked with the employer to create a plan that would provide its employees with transportation alternatives to long commutes by SOVs.

Employers' Save on Transportation Expenses

The TMA keeps employers informed when new commuter choice programs become available. For example, employers were updated when TEA-21 was passed, which allows for deductions for transit use. This incentive benefits employers in cost savings by ultimately lowering their payroll.

Incentive points are another type of program that companies have implemented to encourage alternative modes to SOVs. Car and Vanpools are examples of these alternative modes. In this way, services are provided for carpooling such as preferred parking. The employer is provided with the information collections, mirror hanger and everything needed for preferred parking by the TMA so it does not cost the company a penny. It is yet another inexpensive program. Another program gives employees points for using transit that they can use to shop through a gift catalog. Another major company pays their employees twenty dollars a month to carpool. To further encourage transit use, some companies have put up bus shelters at employment pick-up locations.

Some people still complain about traffic, but there are a number of programs available to encourage people to use transit or carpools to alleviate the congestion. Employers are trying to do their share, but the public sector must also continue to make these programs convenient for the businesses and not a burden.

Public Outreach and Awareness Campaigns: Churchmans Crossing

The TMA has also been active in the public outreach campaigns for the reconstruction of both Churchmans Crossing and the I-95 Corridor. In the Churchmans Crossing model, construction began and, low and behold, traffic dropped. In other words, traffic got less congested even with less lane capacity. Why? DelDOT put together a massive awareness program for the project. Information was provided on alternative routes for commuters to use during construction. Employers in the area were kept informed on a daily basis. The TMA was directly involved in the communication with employers. During the construction, information was gathered and e-mailed to all employees in the area. Updates on which lanes were closed and on which days of the week were posted every Friday—hand-delivering some and e-mailing others. Employers would post the information where their employees could review it. If certain lanes were going to be closed, employees knew before they left on their Monday morning commute to work and found themselves in traffic jams. The system worked very well.

Public Outreach and Awareness Campaigns: I-95 Corridor

When the I-95 Corridor reconstruction was being planned, Secretary of Transportation Ann Canby assembled a committee of business and community people, which was called the I-95 Group. The group met every month to review the planning for the project, and determine the best way to facilitate the commute during reconstruction. They looked at all of the alternatives such as the shutting down the southbound lanes and keeping the northbound lanes open or keeping a lane open in each direction. What would it mean to shut down these lanes or keep one lane open in both directions? How would these changes affect travelers, communities, and businesses? The I-95 Group was formed to think about the alternatives and find the best approach possible. What resulted was an awareness campaign project that included a survival guide. It was mailed to community members to inform them of the many transportation alternatives for the I-95 closing.

Shuttle Service

About the same time that construction was occurring at Churchmans Crossing, area employers introduced a shuttle project, which was created to alleviate congestion and motivate and encouraged people to use transit. The TMA and employers support the shuttle service. Shuttle service is part of a TMA plan for picking up employees at the Park & Rides along Route 202 with direct service into Wilmington. Currently, shuttle buses are being provided for MBNA, First USA and Greenwood Trust. JP Morgan is one company that subsidizes the shuttle and its employees use the service frequently. In addition, transit subsidies are offered when companies pay for the transit fares for their employees. There are quite a few major companies – First USA, AIG, JP Morgan, and MBNA – that are paying the transit costs for their employees to get to work. Other companies have instituted compressed workweeks. However, many people are still not aware of the commuter choice programs offered through businesses in this state.

Hotel-Motel Shuttles

A new idea called Hotel-Motel shuttles is being initiated. Hotels and motels in downtown Wilmington are struggling to retain employees. The majority of restaurant and hotel jobs are not known for paying the highest salaries on the market. Also, many of their employees do not have personal vehicles to get to work. Often, these employees have to work late nights or on weekends. The hotel and motel employers approached the TMA and, in partnership with the Delaware Transit Corporation (DTC), it was determined that buses were available for their employees' commutes to work but there wasn't bus service to take them home. However, as long as the TMA has the work schedules for the employees, it will work to design a program for interested employers. In fact, a pilot program is scheduled to start this spring with two downtown hotels in which the TMA will provide shuttle service for them at night and on the weekends. GIS (geographic information system) is being used in this program, so their shuttle service will be basically curb-to-curb service. If this pilot program is successful, the TMA hopes that it will be extended to all of the downtown hotels and perhaps expanded to the suburban areas.

Atlas of Transit Resources in Delaware

Christian Schlosser, Research Assistant Institute for Public Administration, University of Delaware

In his presentation, Mr. Christian Schlosser described the purpose of the *Atlas of Transit Resources in Delaware* and its major findings. The following is an edited transcript of Mr. Schlosser's presentation.

The purpose of the *Atlas of Transit Resources in Delaware* is to provide as complete an inventory of transportation resources available as possible in the state as alternatives to facilitate mobility. Data in the Atlas covers public transit and paratransit, school transportation, non-profit and community transportation services, and private commercial transportation providers. Each transit service provider is identified by name and location. When available, information is included about the extent and routing of the service. In addition, location and routing information is mapped so it is possible to see where transit services are located by number and type in the state. The maps generated through this research will be made available to the general public via the Internet.

The Atlas, an inventory of those services, is a work in progress that has as its long-term goal to bring together people from the private and public sectors to encourage better transportation coordination and efficiency. The data providers and locations were gathered from several data sources including the Delaware Department of Transportation, Delaware Transit Corporation's DART First State, Transportation Management Association of Delaware (TMA), Delaware Department of Education and the University of Delaware's Transportation Services, and Center for Consumer Studies.

The final step involved extensive mapping of the locations of all providers to give a geographical representation of the services for each of the three counties in the state.

Main Results

The starting point for the study was recognizing the differences in population densities of each of the three counties in Delaware. By far, New Castle County has the highest population density with 470,185 inhabitants and 179,822 households (1995). It is followed by Sussex County with 127,670 residents and 51,793 households. Kent County, which is slightly smaller, has 120,860 residents and 44,256 households.

As the Atlas data shows, there is a wide diversity of transportation resources available in Delaware. Their location reflects the spatial distribution of the population and economic activity that are highly concentrated in northern New Castle County, particularly in the area in and around Wilmington. In Kent and Sussex Counties, transit resources are more limited but there are a significant number of private and non-profit services.

Public Transportation Providers

The most well known services are the public transit systems that include the Department of Transportation's Delaware Transit Corporation (DTC) and its transit services. DART

First State has an active fleet of 321 buses with 175 providing fixed service routes and 146 dedicated to paratransit service by demand.

The majority of its fixed routes are in New Castle County where there are 35 routes as compared to 13 in Kent County and 9 in Sussex County. New Castle County also has two intercounty services. Services in New Castle County are concentrated in the Newark-Wilmington corridor. Most of the services in Kent County are directed toward Dover.

The University of Delaware's student transportation system and the Unicity bus services it operates with the City of Newark account for a substantial number of transit passenger miles.

School District Bus Service

School districts constitute the largest type of transit service in the state. Financed by the Department of Education, the system includes 1,586 buses that have a total annual vehicle mileage of 12.7 million. Student transportation is the most extensive transportation resource in the state, both in quantitative terms as well as geographic coverage. There is variation in how each district provide this service. New Castle County districts such as the Christina and Brandywine School Districts are the only districts in the state that run their own buses. In the remainder of the districts, three-quarters or more of the buses are operated by private contractors.

Private and Non-Profit Transportation Providers

Private and non-profit transportation providers are heavily concentrated in Northern New Castle County. Out of 152 identified providers, 96 are situated north of the C&D Canal. Twenty-eight are located in Kent County and 25 are in Sussex County. This pattern applies to almost all service categories mapped.

On the non-profit side transportation services are provided by senior and community centers, organizations like the American Red Cross, and a range of medical transportation providers that shuttle patients to doctor appointments and to the hospital. There are 27 senior centers and community centers in New Castle County, 7 in Sussex County and 3 in Kent County. The majority of non-profit organizations and medical transportation providers take people to doctor appointments or to the hospital. There are 6 in New Castle County, 2 in Kent County and 1 in Sussex County; again the concentration occurs in New Castle County. Christiana Care provides services between Wilmington and the hospital next to I-95. There are also shuttles in Sussex County that provide transportation for low-income persons without access to personal vehicles.

Delaware's private employee shuttles are located predominantly in northern New Castle County. A distinctive phenomenon in the Wilmington and Newark corridors are the various employee shuttles run by companies such as JP Morgan and MBNA. Private companies do not conduct the transportation services, but instead contract these services with bus and shuttle providers. Eagle Transportation is an example. Many are operated by limousine services and are partly financed by the TMA and DelDOT. Other private companies that provide services include Delaware Technical and Community College,

DuPont, and Provident Mutual. There are some employee shuttles in the Bridgeville area in Sussex County.

Twelve providers of charter and fixed route services are located in New Castle County, while only five are located in Kent County and one in Sussex County. Limousine services located in Delaware show the same geographical pattern. Sussex County has seven, Kent County has 13, and 29 limousine service providers are located in New Castle County.

Of the bus operators that could not be categorized into one of the other groups, fourteen are located in New Castle County, three in Kent County, and six in Sussex County.

Finally, the last aspect of the research covers taxi companies providing services in Delaware. While the number of taxi providers is evenly distributed between the three counties with three in New Castle County and two in each of the other two counties, there is a sharp difference in the number of medallions cabs in service. Eighty-three medallions are in operation in the northern part of the state, but only 17 medallions cabs in Kent County and 8 in Sussex County are in service.

The main conclusion that can be drawn from the research project is that there are a wide variety of transportation providers and services in New Castle, Kent and Sussex Counties. With this diversity, there is a critical need for better integration and coordination between the various services available in the state. Increased cooperation between public agencies and private operators will eliminate the duplication of services and save financial resources.

Non-Profit Perspective: Providing Transportation Services in Delaware

Anne Wassberg, Administrator of Transportation Services American Red Cross of Delaware

In her presentation, Ms. Anne Wassberg described present day services of the American Red Cross of Delaware. The following is an edited transcript of her presentation.

The American Red Cross is the helping hand within our state's communities. The organization is composed of people helping people. Its programs—providing vehicles and volunteers to drive patients to and from doctors appointments—run statewide but have a much larger presence in New Castle County where four vehicles are operated by about 35 volunteers. Downstate, there are about 25 volunteers. Twenty volunteers are from Kent County and five are located in Sussex County. Vehicles are operated Monday through Friday from 8:00 a.m. to 12:00 p.m. A goal is to implement an afternoon program so that the vehicles are operated throughout the day during the week.

While the preference is to receive calls from medical service providers to schedule transportation rides for their clients, the majority of those offices do not want to be involved. In this way, the organization deals directly with the predominantly elderly population, which often has a difficult time navigating the medical system. The program can accommodate advanced scheduling and is set up for about two or three months out in advance. Once a call is received, the client is locked into their appointment. That works out great because a lot of the clients need to see their doctors every few months.

The American Red Cross of Delaware collaborates with the Cancer Society, Saint Francis Hospital, Christiana Care and is developing partnerships downstate with the Modern Maturity Center, Luther Towers, and RSVP. These are hub services. For instance, when the Cancer Society refers their cancer patients, operators logistically plan a route so four or five people are picked up within a given area, dropped off at their appointments and picked back up again after their treatment is completed. This system helps to maximize scarce resources. In Kent and Sussex Counties there is only one car each, which does not allow for an as effective system. In Kent County, the vehicle is allocated on Monday and Friday to Luther Towers for driving their residents to appointments. RSVP volunteers have begun transport people within the City of Dover. As for challenges, the organization's provision of transportation services has grown from 6,000 to 12,000 trips.

What is still needed is a maximization of resources, volunteer recruitment, and updated scheduling software. As the boomer population continues to age, transportation needs are going to continue to grow in the area of medical needs. This is especially true in rural areas where elderly persons have retired. Once their ability to drive is lost, they will need assistance getting to and from their appointments. In the future the American Red Cross of Delaware would like to become somewhat of a coordinating body, whereby medical professionals will visit a website and provide dispatchers with information about clients that need transportation. As a non-profit coordinating body, the Red Cross could partner with the other transportation providers in the area to provide better integration and coordination between the various services thereby eliminating the duplication of services and saving financial resources.

A Public Perspective on Providing Transportation Services in Delaware

Bonnie Hitch, Customer Relations Manager Paratransit Services, DART First State

In her presentation, Ms. Bonnie Hitch described present day services of DTC's DART First State Paratransit Services. The following is an edited transcript of her presentation.

Every citizen that uses public transportation has an opinion as to how public transportation should operate—where buses needs to go, where bus stops should be located, and what times they should run. At DART First State, these ideas are taken by customer service representatives and forwarded on to the planning department, which attempts to accommodate the suggestions.

DART First State's Paratransit Service is provided through a demand response system across the state. Paratransit Services was designed to act as a safety net for individuals who could not access public transportation. Categories are in place to determine who may use the Paratransit Service. One category includes individuals who are unable to use fixed rate services due to either a physical or mental disability. Another category includes those who need boarding assistance for wheelchairs. Lastly, there is a category for individuals who have specific impairments that prevent them from traveling to and from the bus stop. Other obstacles that we see impacting this safety net in Delaware include the lack of curb cuts, weather conditions such as snow and ice, and temporary architectural barriers that have been set up at major intersections for construction projects.

The Americans with Disabilities Act (ADA) provides certain criteria for paratransit service, but being a small state Delaware goes far beyond that minimum requirement. The ADA states that paratransit service must be provided to customers within a three-quarter mile radius of a fixed route. According to our fixed routes, that would eliminate a lot of transportation options for the disabled community. So, DART First State services the entire state and also provides transportation services to elderly customers. In addition, DART First State offers its services to Renal Dialysis customers and to those individuals with disabilities that do not fit in the traditional ADA guidelines.

The demand for paratransit service in the last five years has increased by 80% in Delaware and is ever increasing. Between July 1, 1999 and February 1, 2000, DART First State Paratransit Services received 1,198 applications for the service. Only 17 of those applicants were denied services. Currently, Paratransit Services has a customer base that is close to 5,000 customers. On a daily basis, Paratransit Services provides close to 2,000 trips. The average cost to provide those trips varies from county to county but is anywhere from \$18-20 per trip. Customers only pay \$2 for that same trip. Therefore, paratransit service depends very heavily on funding from the government. Similar to the American Red Cross, Paratransit Services does not operate on Sunday. This is an obvious problem for the disabled community. We also require that trips are booked at least one week in advance.

Paratransit Services is struggling to meet the demand that it is presently facing. One thing DTC is reviewing is a functional assessment that categorizes people in a slightly different way. We hope that the system will separate out those who really need service from those who are able to access a fixed route transit service available to them. DTC is also reviewing a "Flex Routing" system. The disabled community is very open to the idea of flex routing. DTC is also looking at gaining efficiency through automatic vehicle locators that provide information about the location of buses.

In the more rural areas of the state, particularly in Kent and Sussex Counties, it is more difficult to group people and transport them to their destinations in an efficient manner. The only solution is a collaborative effort. Paratransit Services will need to collaborate with other transportation service providers and educate the disabled and elderly community as to the different options that are available.

A Public Perspective on Providing Transportation Services in Delaware

Charlene Benson, Director of Supporting Services University of Delaware

In her presentation, Ms. Charlene Benson described present day services of the University of Delaware's Transportation Services. The following is an edited transcript of her presentation.

The University's transportation system is very different from most because it carries approximately 750,000 riders a year with just ten buses. The system includes five routes that run during the day. Our Monday-Friday services start at about 7:19 a.m. and finish at about 2:00 p.m. On four of the routes, there are two buses. On another route there is only one bus. Clearly, if something happens to one of those buses, there will be a problem. Fortunately, the University has two buses in reserve in the event of such a situation. With the failure of a third bus, for whatever reason, routes have to be cancelled. However, that seldom takes place. The primary objective of our transportation system is to get students to and from class. However, ridership on the buses also includes University personnel. Our customers do not pay fares.

One challenge of the system involves the 15-minute period of time when one class ends and another starts. Of course, this is when the majority of students want to get from one place to another. During the day, four of the bus routes are timed with at least one or two buses in the main section of campus, which is the South College area. The other two buses are generally en route to drop-off students. At times there are snags, but for the most part the buses get students where they need to be.

Another challenge is pedestrian traffic. There are crosswalks for pedestrians, but when students are worried about making it to class on time they do not always follow the rules of the road. Buses sometimes run late because they have to stop for illegal pedestrian traffic. Pedestrians need to be aware of their safety when crossing highly trafficked roads. Police officers tried to issue tickets to jaywalking students but that was nearly impossible.

In addition to the day routes, drivers also operate buses on two evening routes and one late night route. Evening routes and late night routes run seven days a week. The routes are diminished significantly on the weekend. We have a Saturday route that runs from 12:00 noon to 4:00 p.m. and goes to the local shopping centers. On weekend nights, the late route runs until 4:00 a.m. The University encourages students to use the late night route as an alternative to a drinking and driving situation. If students plan on having what they consider to be a "good time," the bus is there for their use and safety.

The University's buses are on a replacement schedule. Some of the buses are between eight and nine years old—imagine the wear and tear on the buses from 750,000 customers each year. The replacement schedule includes fleet replenishment.

University bus drivers are Union workers. There are full-time, permanent part-time and miscellaneous positions. Like many other transportation providers, recruitment of bus drivers has been difficult. The employment market is such that people have a lot of choices and driving a bus, though some choose it, is not the most popular career choice. However, drivers prefer to operate University buses rather than driving school buses. Unruly as the University's students occasionally may be, the situation is a little better than what goes on in the school districts' buses. So, that is an incentive to work for the University of Delaware.

Lastly, the University runs the Unicity public bus system for the City of Newark. In this way, the University provides the drivers for the buses and the City takes care of the maintenance. That system runs three routes that are set by the City. The Unicity system is also free, but it does not have nearly the number of clients as the University's buses. Students are encouraged to use the Unicity buses, but many of them do not.

In terms of the future, the University is looking at ways to notify students if and when a particular route is running late or has been cancelled. Notification of this kind would be especially valuable during bad weather.

A Public Perspective on Providing Transportation Services in Delaware

Ronald H. Love, Education Associate for School Transportation Department of Education, State of Delaware

In his presentation, Mr. Ronald Love described present day services of the Delaware Department of Education's transportation services. The following is an edited transcript of his presentation.

Delaware has 19 public school districts and each one of those districts has a transportation supervisor who handles transportation requirements and route schedules. In this system, there are about 275 contractors for the resources. Some districts may have three or four contractors. For instance, the Indian River School District runs about 89 contractors for about 134 routes.

Last year, the state budget for public school transportation was \$51 million and it increases each year to meet the demand. Included within that budget is non-public reimbursement. The state does not provide transportation for non-public schools, but has set aside an amount of money for eligible reimbursements. In 2000, that amount was \$3.3 million dollars. That figure is divided by the number of eligible reimbursements given to us by the non-public schools. That number happens to be about 15,000 students, which works out to about \$220 per family, per student for reimbursement.

The state employs about 3,400 licensed drivers to operate nearly 1,600 school buses serving our public schools. Two hundred and twenty-five of those buses are for special education students. The public education system includes 96,000 students. Some of those go to vocational schools and still some others are in special education. Last year, eight school buses were bought and designated for special needs students. For one district, buses travel 120 thousand miles on about 5,000 trips per day.

Safety is a big concern in school transportation. School administrators have been working with their transportation supervisors and real progress is being made. New equipment has been added to the public school buses. In an effort to educate people about bus safety, an education workshop was held at the State Fair in January. The most dangerous time during a bus ride for children is the loading and unloading at bus stops. Crossing control arms that swing out in the front of the buses have been added. These arms keep students away from the front of the buses where drivers might not be able to see them over the hood of the vehicle. Also, a focus has been placed on the educational "Safe Stop" program, which is designed to discourage people who illegally pass stopped school buses. "Safe Start" is a program that provides young children with materials promoting bus safety. These materials include coloring books and a bag of educational items.

There is a video camera on every bus that monitors student behavior. With this type of evidence, parents can see that yes, it was their child that "started it." Every school bus has an emergency CB or cellular phone for emergency communication should the need arise. Also, anti-skid brakes have been added in the last two years. The school bus is one of the safest means of transportation.

Driver recruitment and retention is always an issue. Drivers are trained with the hope that they will stay in the public school transportation system. As an incentive for completing training, they receive a commercial drivers license. However, some take their training to other jobs. A challenge is providing training opportunities throughout the careers of drivers.

Another challenge is the choice for charter schools. Some limits have been made on the transportation that can be provided for these schools as well as the responsibilities parents have for getting their student(s) to regular bus routes. Still, charter schools need more transportation as everyone wants access but there are only so many resources when it comes to drivers and buses. Parents may want to these charter schools to start at a luxurious 8:30 a.m., but transportation resources may not be available for at that time. Adjustments need to be made in order to accommodate demand.

As education reform proceeds, there may be an increased need for additional transportation during the regular school year and in the summer months. The Department of Education is working with each of the districts to define exactly what amount of transportation will be needed. Another related issue that we anticipate for summer school transportation is an increased need for air conditioning.