Capital District
Transportation Committee

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# Travel Task Force Report:
# Market Group Travel in a Changing Economy

## Introduction

One aspect of American society that is difficult to predict and always undergoing change is the economy. Advances in computer and other technologies, changing tastes and the changing political situation within the United States and throughout the world can all have an effect on the economy. Although the nation benefited from tremendous economic growth throughout much of the 1990's, a number of recent events have caused an economic slowdown. This slowdown has impacted the Capital District somewhat, but not nearly as great as in other areas of the state and nation.

Despite the uncertainties of the local, state, national and even global economy, the transportation profession must address the potential impact changes in the economy have on travel and the transportation system in the future. Of particular importance to transportation are the changes in how business is being conducted. What follows is a brief overview of the regional economy, a discussion of current trends, and a description of how market group travel may be impacted by changes in the regional economy.

## Background

### The Regional Economy

The Capital District's high quality of life and diverse workforce remain one of the best-kept secrets in New York State and perhaps the nation. The highlights of the region include its central location to major metropolitan areas in the northeast, tremendous recreational and tourism opportunities, relatively low traffic congestion and a wealth of historic homes and other historically significant sites and landmarks.

With respect to transportation, the region has an excellent, multi-modal system that offers good connections to local, state and regional destinations. Interstate highways such as the Northway, the Thruway and I-88 provide connections to larger metropolitan areas such as New York City, Boston and Montreal. Heavy rail lines offer both passenger and commercial service to a wide variety of destinations. The Port of Albany handles a variety of water-borne cargo to be transferred to other modes for distribution throughout the northeastern United States and Canada. The Erie and Champlain barge canals also provide access to the northern and western sections of New York State. Finally, the Albany International Airport, which has benefited from tremendous investment in both its passenger and commercial facilities, offers customers access to a wide variety of national and international destinations.

Historically, the three strongest sectors in the Capital District economy have been manufacturing, education and government. Government employment has been relatively stable in recent years,

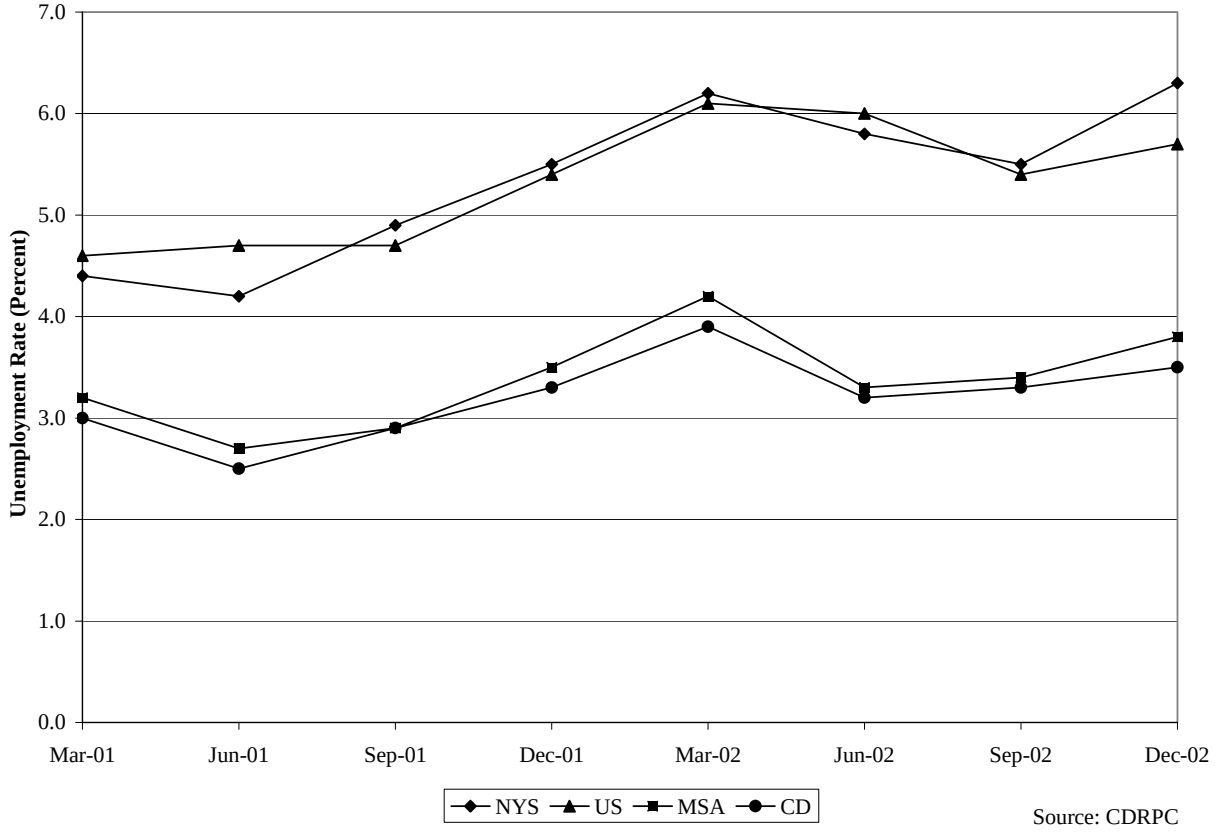
but politics and budgetary conditions can change that situation at any time. That is the case in 2003. With the State of New York facing significant revenue shortages, the Governor's 2003-04 budget proposal directs Executive agencies to reduce their workforces by an additional 5,000 over what the 5,000 positions originally approved in the 2002-03 budget. This reduction of 10,000 positions from the November 2001 level would represent the lowest number of state employees in 20 years [1]. The vast majority of these reductions are to occur through retirement incentive programs but the incentive program may not be extended in the 2003-04 budget. The Executive budget proposal does maintain the hiring freeze and supports continued attrition efforts. The negative economic impacts of this effort on the Capital District are likely to be larger than in other areas due to the concentration of state offices.

The education sector has strengthened in the Capital District, enhancing the region's superiority in providing quality educational opportunities to a wide range of students. There have been a number of recent investments into the SUNY system (including its community colleges such as Hudson Valley) and major contributions to RPI. There have also been investments made at Skidmore, Union, Siena and the College of Saint Rose. Along with those Universities, four Universities in the City of Albany are working together through the University Heights Association to create shared, state-of-the-art facilities that would benefit all the institutions. These Universities are the Albany College of Pharmacy, Albany Law School, Albany Medical Center, and The Sage Colleges. The complex includes the development of a shared Commons area where a central service core for the four campuses would be created, new buildings for additional class and research space and eventually the creation of an "academic inn" and conference center at the former New Scotland Avenue Armory [2]. It is likely that employment opportunities in education as a result of these efforts will increase in the future.

The manufacturing sector has been and continues to decline in the region and the loss of those high paying jobs has had the greatest impact on the regional economy. Many companies, including General Electric, have disinvested in the Capital District as other areas offer cheaper workforces, modern facilities, lower taxes and lower energy costs. Gains in other sectors of the regional economy including services, trade, and finance have somewhat offset the losses in manufacturing. Unfortunately, many of these jobs do not pay as well as the manufacturing jobs or even the government jobs they have replaced.

Following the events of September 11th, 2001 and the fact that the nation entered a recession in 2001, it was expected that the unemployment rates in the region would rise tremendously. In reality, the unemployment rate did rise but not to the extent expected. The rise in the unemployment rate was consistent with national trends although the overall rate was much lower in the Capital District than in the state and nation. This pattern continues through the early part of 2003 although preliminary data for January 2003 show an increase in the unemployment rate in the state and nation to over 6.5 percent and an increase in the Capital District to 4.1 percent [3]. Chart 1 illustrates the unemployment situation in the Capital District as compared with the entire Albany-Schenectady-Troy Metropolitan Statistical Area, New York State and the nation.

**Chart 1**
**2001-02 Unemployment Rates for the Capital District (CD), Albany MSA, New York State, and the United States***




* The Capital District includes the counties of Albany, Rensselaer, Saratoga, and Schenectady while the Albany MSA (the Albany-Schenectady-Troy Metropolitan Statistical Area) includes the Capital District together with the counties of Montgomery and Schoharie.

Despite low unemployment, it has been said that the region is too dependent on public entities for jobs. Private investment would far better stimulate the job market and could potentially lead to much more job creation than the public sector could ever provide. In recent years, the Capital District has been working toward creating a business friendly environment, especially for companies in technology and research and development. These companies can work with the wide variety of universities in the area to help keep young graduates working and raising families in the region.

## The Region in 2030

The challenge of the New Visions 2030 Plan is to consider a wide variety of potential travel futures in a thirty year time horizon. The direction and shape of the future regional economy is clearly beyond the ability of planners to predict with certainty, since economists present forecasts for the next quarter year with many conditions and assumptions. They are even more hesitant to forecast beyond a full year. As a result of the uncertainties in predicting future economic conditions, the New Visions 2030 Plan will need to address two possible scenarios: 1) that the

general trend of slow economic growth that has been seen in the region will continue over the next thirty years; and 2) that there could be significant changes in the economy that could transform the Capital District into a high growth region.

As has been hinted at, the general trend for the regional economy is one of slow economic growth. Although manufacturing jobs have been replaced by retail and other service type jobs, there has not been a tremendous investment in the region by companies without existing local ties or that are outside of the retail sector in many years. Another feature of the trend scenario is the disinvestment by private businesses in many older, urban cores of the region for greener areas in the suburbs, especially in Saratoga County. Recognizing the economic problems this has caused, New York State developed a plan to shift state workers to offices in downtown areas not only in the City of Albany, but also in Troy and Schenectady in an attempt to bring some much needed economic activity to these older, urban areas. Despite these efforts, what is largely occurring in the region is a shifting of employment centers from one place to another instead of investment into the region from outsiders. That, coupled with the recent retirements at the state and the hiring freezes currently imposed, is leading to relatively slow economic growth now and into the future.

That said, there are many reasons to believe that rapid economic growth is not out of the question in the next thirty years. One recent bright spot in the regional economy was the announcement that International Sematech, a computer chip consortium of which IBM is a key member, will be opening a major research and development center in Albany. The only other such center is in Austin, Texas, another state capital that has undergone tremendous growth over the last ten years. Although not all of Austin's growth can be attributed directly to the presence of Sematech (Austin has a large Mexican immigrant population, for example), the center did have tremendous economic spin-off effects in the area with companies like Dell Computer having headquarters there as well as several chip manufacturers. Although Austin's economy took off with the presence of Sematech, the economy of the late 1980's was vastly different than today's and there are no guarantees that the impact on Albany will be as great. However, local economic experts believe that even if the impact is slower and on a smaller scale, there will be an impact. One of the major beneficiaries could be IBM, a New York based company with headquarters in Westchester County and a new chip manufacturing plant in Dutchess County.

There are also many other initiatives in the region that are focussed on economic development as it relates to the small technology, biotechnology and research and development industries. Among these efforts are the Harriman State Office Campus redevelopment, the Saratoga Technology Energy Park and the Luther Forest Technology Campus. The plan for the state office campus involves turning most of the grounds over to private hands to create a research and development technology park. Full build-out of the proposed project could occur in twenty years and lead to the creation of 8,000 private sector jobs with a direct, induced, and indirect economic impact on the Capital District of more than $220 million [4]. The Saratoga Technology Energy Park is likely to be the nation's first tech park dedicated to clean energy technology. It will be located in the Town of Malta and could one day employ over 1,000 people [5].

One notable project with the potential to shape the regional economy in the near future is the Luther Forest Technology Campus. This campus is located mostly in the Town of Malta (with

some land in the Town of Stillwater) and currently has the potential to add over 8,000 jobs to the local economy. These jobs would be high-salary manufacturing jobs with tremendous spin-off impacts. The campus would house several nanotechnology manufacturing plants or chip fabs. According to the recently produced Draft Generic Environmental Impact Statement for the project, construction of the first chip fab could begin as early as 2005 [6]. Should the site ever achieve full build-out, the impacts on the surrounding transportation system could be tremendous and may even require large scale improvements such as an Exit 11A on the Northway.

The competition to attract businesses to fill these tech parks is high in New York State and around the country. However, the Capital District may win them over on the premise that the area is an attractive place to live and work without the traffic congestion of other metropolitan areas, especially high growth areas in the south and west. The efforts of the many economic development organizations in the area could lead to a dramatic increase in the number of firms locating in the region. There are also a number of existing firms, Plug Power being one of them, with the potential to become a major player in the national and global marketplace. Although it is unlikely (though not impossible) for any one company to have the impact on the region that General Electric once did, it is possible that several successful small companies in the technology sector could spawn other growth as it did in California and other areas around the country. If that were to happen here, the economic impact could be far-reaching and perhaps overwhelming. Many municipalities would find themselves unable to handle the growth.

The New York State Quality Communities initiative recognizes that without properly planned growth, the quality of life in communities statewide could be seriously compromised, especially if rapid growth were to occur. Therefore, economic development opportunities must be balanced with the needs and desires of local communities. In their report to Governor Pataki, the Quality Communities Task Force developed 41 recommendations on how the state could support the development of Quality Communities. A key message throughout that report is the importance and need for proactive comprehensive planning in communities throughout the state. Two recommendations directly linked to that message are the establishment of a state grant program dedicated to support comprehensive plan development and a proposal to amend state law to improve the guidelines for comprehensive planning [7]. The report also highlights a desire to encourage local governments to participate in comprehensive planning in recognition of the tremendous benefits that could result. Although the grant money has yet to be made available, the groundwork has been laid to support comprehensive planning when opportunities arise.

The 2030 Plan should prepare the Capital District for the possibility of rapid growth and the implications of that growth on quality of life. The impacts on the transportation system under such a scenario could be beyond what any one municipality could bare without proper planning. Yet the Plan should be flexible enough to support quality transportation, land use and development under a slow growth scenario. Whichever scenario may occur in reality, the Plan should be able to provide the necessary guidance on how to maintain and improve the regional transportation system in order to keep the region competitive economically and to continue to create an attractive area for business.

E-commerce

The rise of the computer age and the development of the internet for more than just information hold great promise for the future of all business activities. Throughout the 1990's, many established companies began developing their own web sites to sell products directly to consumers. At the same time, many internet start up companies (the dot-coms) were beginning to develop sites that would sell goods directly to consumers without having to go through traditional retailers. This period of exploration and experimentation led to some major successes including the sales of airline tickets, books, and other specialty goods. However, it also led to an oversaturation of the market, which then led to rapid declines and the outright failure of many dot-com start-up companies.

Some of what was learned during the e-commerce boom includes the following:

1. Business to business (B2B) transactions account for a much greater percentage of the market than business to consumer (B2C) transactions. Nearly 80% of the transactions are for B2B and 20% are for B2C [8].
2. Although the internet helped to change how consumers research goods, it has not changed how they purchase goods to any great extent. Most consumers continue to drive to the store to make purchases although they are far more educated about the item being purchased.
3. Trips that were reduced by shopping online have largely been replaced by delivery vehicle trips.
4. Privacy and security concerns about sending personal information over the internet prevents some people from shopping or conducting other personal business online. One recent nationwide survey indicated that 42% of the respondents make few, if any, purchases on-line due to fear of credit card fraud [9].
5. Specialty items such as collectibles, novelties and airline tickets (items that do not need to be tested or tried on) are generally easier to sell than clothing or cars.
6. E-commerce has largely been successful with wealthier consumers.
7. Established, brand name retailers have had a greater level of success in selling goods on-line than internet start-up companies.
8. For many, especially for those without access to a computer, catalog shopping remains popular and contributes to delivery trips.

Obviously, the shift to an electronic form of commerce is in its infancy as it accounts for less than one percent of total retail sales nationwide [10]. As a result, reliable data on the impacts of e-commerce on personal travel, aside from a few preliminary studies in specific areas, are few and far between. Some believe that on-line shopping will not replace a large number of shopping trips in the near future. The main reason is that shopping trips are often linked to other activities. As much as shopping is a chore for many people, it is also an opportunity for recreation, social interaction and simply a chance to get out of the house. That said, because so many vehicle trips are for shopping, any trip reduction as a result of on-line shopping could have a significant effect on the regional transportation system down the road. This is especially true if the B2C market grows at a faster rate than the B2B market, which has been predicted.

The potential of e-commerce becoming a long term revolution in business is simply not known, nor are the impacts to personal travel. As the e-commerce industry reconfigures itself with the lessons learned thus far, it is likely that travel patterns for shopping will change in the future. Some of the issues that must be addressed are on-line security, the user-friendliness of sites, and the need to provide a mechanism on sites where consumers can have questions answered quickly or even instantaneously. All of these improvements could lead to a significant increase in the market share of e-commerce. Greater acceptance and use of the internet for shopping could also reduce the need to live in close proximity to stores or in urban areas, as long as the area is accessible for delivery vehicles. The difficulty for delivery companies will be creating a system that can deliver goods to widely dispersed locations in the Capital District.

Goods Movement (Regional and International)

There are a number of innovations having a direct impact on goods movement around the world. The most significant of these innovations is the tremendous improvement in information technology, which is changing how business is being conducted by both shippers and manufacturers. Some specific examples are e-commerce, just-in-time delivery systems, sophisticated package tracking and even real-time location monitoring of freight. Other factors having an impact on freight transportation are the globalization of the economy, the increased importance of international trade, the shift away from traditional manufacturing to more high-tech and knowledge based industries, and the continued dispersal of businesses and residences away from urban centers [11]. All of this is putting tremendous pressure on the freight transportation system to meet society's high expectations for delivering goods as quickly and safely as possible.

In order to meet these high expectations, there have been significant changes in how goods are being delivered. Today, air cargo has become the most important freight transport mode around the world. The industry handles 42 percent of the value of world trade and has averaged nearly 20 percent annual growth since 1980 [12]. However, air cargo is limited by the location of airports and by the types of goods it can carry. For some product types, rail and water are far more practical and efficient modes. Between 1990 and 1998, national rail tonnage has grown at a rate of 0.6 percent per year while intermodal traffic (defined as the number of trailers and containers moved by rail and at least one other mode) has averaged a 6.0 percent annual increase. Water traffic is also critical in the national and global arena, especially in the port areas of California, the Pacific Northwest, New York/New Jersey and Montreal. Ultimately, nearly all cargo shipped via air, water and rail reaches its final destination via trucks. Intercity trucking ton-miles increased by 4.3 percent annually between 1990 and 1998 [13].

Aside from changes in the modes being used are the changes in how shipping companies and manufacturers are using the transportation system. The role of shippers is changing from that of simply moving goods from point A to point B via a single mode to multi-layered businesses that combine shipping via a variety of modes with warehouse management and even the final assembly of products. Shipping companies such as CSX are also changing their distribution techniques by relying more on intermodal activity (as noted above) and increasing their control over various modes within the freight transportation industry. However, the companies in the

best position to benefit from the changing economy, especially e-commerce, are companies like Federal Express and UPS.

According to the Federal Highway Administration, freight volumes are expected to double nationwide by 2020 [14]. With improvements in information technology and wider acceptance of e-commerce, more goods will be moved more frequently, in smaller shipments and to more dispersed areas than ever before. Increased freight shipments coupled with greater travel overall without a major shift away from the automobile will likely result in increased traffic congestion.

The sentiment from around the country is that society can not be expected to provide a new or parallel transportation system for goods movement. It is hoped that the transportation infrastructure will keep pace with demand but the reality is that funding limitations, environmental constraints and even community opposition are reducing the number of major capacity expansions nationwide. Therefore, the freight industry must find ways to use the existing transportation system more efficiently, including here in the Capital District.

*Water Ports*

With increased trade around the world and the globalization of the economy, water cargo continues to be a vital part of the goods movement system. Ports such as those in New York and New Jersey are overwhelmed with the volume of shipping occurring both nationally and internationally, resulting in their land side facilities being at or near capacity. Container shipping, in which a standard size box is used to ship goods, has largely become the standard in shipping products. This type of water shipping requires that land side facilities have the capacity to not only store containers, but also facilities for container loading and unloading from trucks and railcars.

The Port of Albany was once a thriving water port that linked shipping channels in the New York City area to the Erie and Champlain barge canals. After a long period of decline, the Port of Albany is once again growing as an essential part of the regional freight transportation system. The Port has been investing in new docks, cranes and other heavy machinery to meet the needs of the current container shipping industry in hopes of increasing its role in the market. In its recently adopted Master Plan, *Port 2000*, the Port outlined the major areas it should pursue in order to achieve this goal [15]. These areas include:

1. Continued use of the Port for marine shipping and other waterborne activities;
2. Development of a multimodal international freight logistics center (a staging point for local and through freight shipments by whatever mode is desired); and
3. Use of the Port as a feeder port for the New York/New Jersey area.

Recently, the Port of Albany and the Port Authority of New York and New Jersey announced that Albany will be used as a feeder port for the downstate area. The goals of the project, called the Port Inland Distribution Network, are to ease some of the congestion occurring at Port Authority of New York and New Jersey dock facilities and to reduce some of the air pollution caused by in-land trucks in congested areas of New York and New Jersey. The container shipping began in March of 2003 and will be phased in over time to potentially involve the

shipment of 250,000 containers annually, leading to the creation of 100 jobs at the Port of Albany [16]. Once in Albany, the containers will be shipped via rail or truck across the rest of New York and the northeast, leading to increased rail traffic and trucks on Capital District roadways. Increased use of the Port of Albany could increase local freight traffic on the rails and interstate highways but may decrease the amount of truck traffic on roadways such as the New York State Thruway between New York City and Albany.

*Rail/Intermodal*

The rail industry has faced many years of disinvestment and remains the only mode to not receive significant subsidies from the federal government. Almost all the rail lines are owned by private corporations, which rely on their profits to cover the cost of rail maintenance and other equipment. In the Capital District, Norfolk Southern and CSX have been working to create a modern rail freight system that would help to reduce truck traffic on regional roadways. One issue that has held back the railroads was recently resolved when New York State passed the Rail Infrastructure Investment Act of 2002. This legislation reduces railroad property taxes by 45 percent and exempts the railroads from local taxation for 10 years [17]. The tax reduction will free up money for additional investment in rail infrastructure in New York State. It also ends CSX's major objection to double tracking the rail line between Rensselaer and Schenectady necessary for high speed rail investment. However, that project may not progress due to the financial crisis at Amtrak and in New York State.

As already stated, traditional rail shipping is not increasing a great deal and with some commodities, it is actually beginning to decline. However, the role of rail shipping is changing in the new economy with the rise in intermodal shipping. Intermodal shipping, which is made possible by the use of the same containers used in water shipping, has become one of the fastest growing segments of the freight industry in the last ten years. Containers account for 69 percent of the US intermodal unit volume on rail [18]. Deregulation and improved technology have made rail more competitive with trucks. The use of doublestack trains (where containers are stacked on top of each other) is commonplace and RoadRailers (vehicles that look like conventional tractor trailers but are equipped with both tires and steel wheels so they can be used on the rails or highway) are also gaining in popularity.

To remain competitive with trucks, the railroad industry may need some help from the federal government. First, there have been calls to reregulate the industry in order to improve competition and reduce rail haul rates. Many in the rail industry feel that more regulation would significantly reverse the gains that have been made. They also feel that some markets simply can not support more than one rail carrier due to the nature of the business. In the future, the rail industry is hoping that the federal government will create some grant programs or shift some federal transportation dollars to the rails in order to help rail companies maintain the existing infrastructure without going broke.

*Air*

Air cargo has seen the largest increases in market share of any mode and is a critical element in the e-commerce movement. In order to give customers the incentive to buy products on-line, the

delivery system has to be fast. Shipments by air are by far the fastest mode for delivering goods to widely dispersed locations in the nation and in the world. As the economy becomes increasingly global, companies are manufacturing, storing and distributing their products at various points around the world and using aircraft to ship the final products to customers.

At the Albany International Airport, air cargo facilities have been separated from passenger facilities in order to more efficiently process shipments. The Airport recently opened a 50,000 square foot Air Cargo Facility that provides shippers with easy access to the region's interstate system. The facility is currently served by Airborne Express, Federal Express, and UPS which are all capable of delivering products to customers via their multi-modal system of trucks and aircraft. These companies stand to gain the most from the changing economy because not only do they operate their own trucks and aircraft but they can also guarantee customers overnight delivery of packages and they have sophisticated package tracking systems already in place. However, many of the commercial airlines also carry "belly freight" services such as for the U.S. mail and other items. The Air Cargo Facility is currently underutilized in Albany and the Airport Authority has commissioned a study to determine which products shipped throughout the region could be funneled through the Airport.

*Trucks*

Although water, rail and air have their unique roles in the goods movement system, nearly every good shipped ends up on a truck to its final destination. With increased e-commerce, it will be necessary for trucks to provide access to all corners of the region. Giant corporations such as Wal-Mart, Target and Sysco have also set the stage for the future as several have invested in large distribution centers largely devoted to trucks. Planners are also working toward marketing the Champlain-Hudson Trade Corridor as a key corridor for international trade, a corridor which passes through the Capital District. An improved border crossing, larger rest areas and other improvements are being planned along the corridor, which encompasses I-87 between New York City and Montreal as well as the area between Montreal and Quebec City. All of these variables combined with the potential increase in truck activity at the airport and Port of Albany could lead to a great deal more truck traffic on Capital District roadways, especially the interstate system.

With congestion forecasted to increase in the region over the next twenty years, it is vitally important to the trucking industry to take steps now to maintain a fast and reliable transportation system. According to truckers, there are three primary areas that policy makers should focus on in order to preserve and enhance the transportation system [19]. These areas include:

1. **Operating Efficiency Improvements.** Options may include streamlining border crossings and weigh stations, reducing wait times at ports and distribution centers, and perhaps creating truck only access roads to ports or other terminals.
2. **Traffic Management Improvements.** Options may include traffic signal optimization, electronic pre-clearance systems at checkpoints, parking bans on some streets, and a database that tracks hazardous materials.
3. **Truck Priority on Urban Streets.** Options may include parking restrictions such as banning parking during designated time periods, traffic signal pre-emption, and dedicated lanes on arterials for trucks.

In the Capital District, the first two options are much easier and politically acceptable to implement than the third. Not only have plans been created for an improved Canadian border crossing and rest areas, but several truck access/bypass plans and projects have been or are being developed in the region. E-ZPass technology is being looked at to make truck monitoring more efficient and the Traffic Management Center is beginning to provide real-time traffic information to highway users which could help truckers avoid costly delays. The third option, truck priority on urban streets, may be viewed as being far too accommodating of trucks at the expense of other regional priorities such as transit signal pre-emption and community quality of life.

*September 11th, 2001*

The terrorist attacks of September 11th, 2001 showed everyone in the United States and throughout the world just how vulnerable the transportation system can be. Although the airlines were only grounded for a short time, with passengers shifting to highways and passenger rail to get home, the experience of that day created a new agenda for policy makers. The focus in Washington today is on homeland security, which is intrinsically tied to transportation and the economy.

One of the immediate changes as a result of September 11th was the passage of the Aviation and Transportation Security Act, which established the Transportation Security Administration within the U.S. Department of Transportation. One of the missions of this agency, as well as the President's Office of Homeland Security, will be to ensure the security of the nation's transportation system while maintaining free trade and the free movement of passengers. In order to accomplish this goal, new technologies must be developed and implemented quickly. Without advanced technology to track and screen freight shipments, the efficiency and reliability of the freight transportation system could become a significant problem. A concern to shipping companies is that the new security measures could increase the cost of shipping, resulting in a negative impact on the overall economy.

Telecommuting

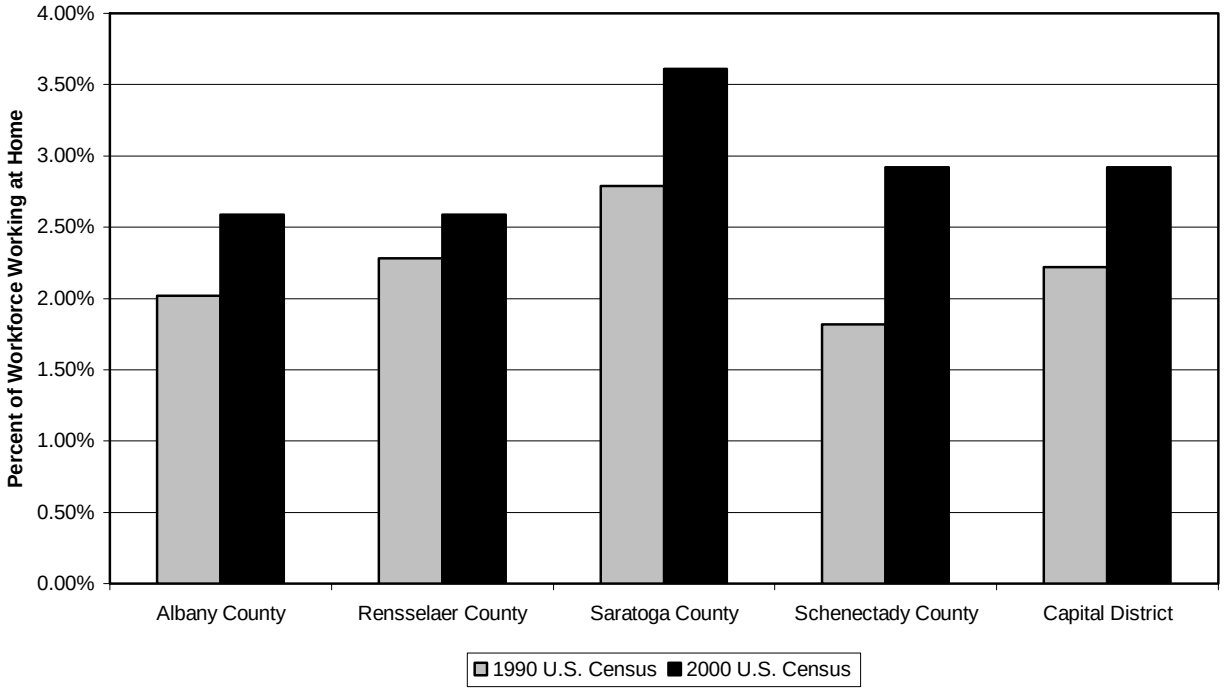
As with the impacts of e-commerce on transportation, there is not a great deal of research on the impacts of telecommuting. What is known comes from a limited number of studies or surveys at the regional and local level from various parts of the country. Also, the definition of telecommuting or telework can be very broad, artificially inflating the numbers. The group that seems to have the most information on telework is the International Telework Association and Council (ITAC). Their definition of telework includes those that work from home, on the road, at satellite offices or at telework centers. Using this broad definition, ITAC estimates that 28 million Americans are teleworking at least one day per week [20]. To be able to fairly analyze trip reductions through telework, however, researchers must focus on the telecommuters who only work at home.

Nationally, telecommuting has generally spread faster in the private sector than the public sector, unless there is a regional policy to aggressively promote telecommuting. In metropolitan Washington, D.C., the regional goal is to have 20 percent of the workforce telecommute by 2005. In a survey conducted in 2001 by the Metropolitan Washington Council of Governments,

it was found that 15 percent of the workforce is telecommuting at least one day per week [21]. These high numbers are directly related to the strong encouragement and financial support of telecommuting by the federal government for its employees.

Here in the Capital District, recent journey to work data from the 2000 U.S. Census provides some indication of how many workers are working from home (these figures not only include telecommuters, but also include those who work out of home offices or whose business is based in the home). Region wide, 2.92 percent of the total number of workers worked at home, up from 2.22 percent from the 1990 Census [22]. Saratoga County has the greatest percentage of its working residents working from home while both Albany and Rensselaer Counties are tied for the lowest percentage in the region. Chart 2 shows the percent increase in the number of workers working from home, which increased in all four counties between 1990 and 2000. Saratoga County may have the greatest number of workers working from home due to the perceived traffic congestion on the Northway and the distances that some workers have to travel to their jobs. That said, Schenectady County saw the greatest percentage increase of the four Capital District counties.

**Chart 2**
**Percent of Workforce Working at Home 1990 to 2000**




Source: U.S. Census Bureau

Telecommuting seems to work best in larger metropolitan areas where workers face long commutes and are also trying to balance the needs of work and family. Although some employers are still skeptical about the idea of telecommuting, many are offering telecommuting as an employee incentive. Those who have adopted telecommuting feel that their employees are happier and that they are often more productive. However, not all jobs are appropriate for

telecommuting and employers need to make choices about who would be eligible for such a program.

There are several reasons why telecommuting has not caught on more than it already has, aside from the fact that it is not appropriate for all job types. Workers are somewhat fearful that they would not have access to important job related information when working at home. Others are afraid that their reduced presence in the office may lead to animosity between co-workers and may also lead to missed promotional opportunities. From the employer point of view, some are concerned that not all employees have the necessary discipline to work from home, resulting in decreased productivity due to the increase in distractions [23].

As for travel, many feel that the reduction in peak travel that results from workers telecommuting is negligible. Other drivers would change their travel patterns to fill whatever road capacity would be opened up. What large scale telecommuting is more likely to effect is local travel. Workers may be more likely to run errands or arrange other work related meetings during the day, especially during the increasingly critical midday peak. This could lead to more short trips being made throughout the day that avoid the peak travel times but do not reduce overall VMT. Telecommuting could also potentially encourage sprawl development as the commute to work would be much less of a consideration in choosing a place of residence. Not only will it allow workers to live further from their jobs, but it could also allow workers to live further from basic services, increasing trip lengths overall.

Gas Prices

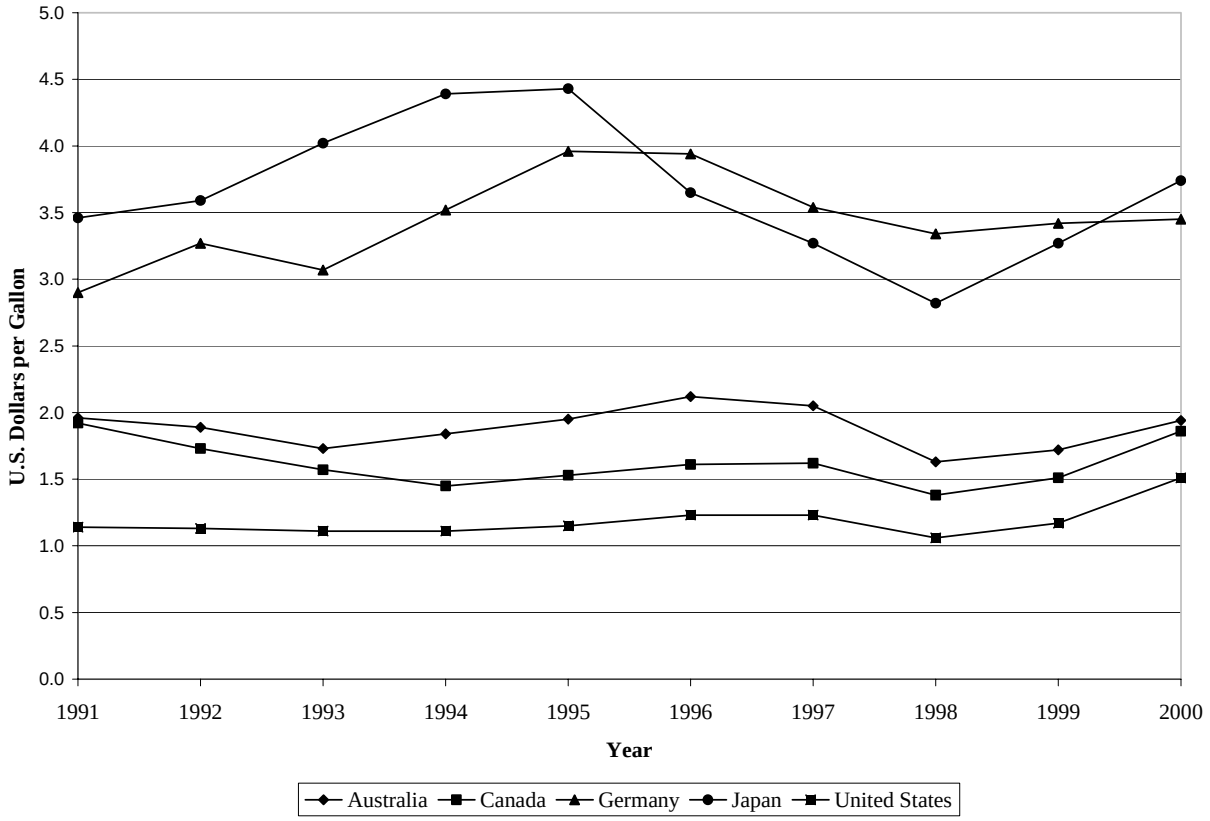
As with many commodities, the price of gasoline fluctuates based on a variety of factors. These may include the practices of oil producers domestically and around the world, the ability to refine and ship the finished product, the tax policies of the federal and state governments and the effects of seasonal demand. To illustrate this fluctuation, crude oil accounted for roughly 49 percent of the price of a gallon of regular gasoline in February 2003. However, in February 2002, the oil accounted for only 39 percent of the price, largely due to supply and demand discrepancies [24]. One of the major players in the U.S. oil supply is OPEC, which accounted for roughly 45 percent of U.S. oil imports in January 2003 [25]. By 2025, OPEC is projected to supply the U.S. with over 50 percent of its total oil [26]. The increase in gasoline prices in the early part of 2001 was largely as a result of OPEC policies reducing the supply of oil worldwide.

Locally, the price of gasoline is not as expensive as in other parts of the U.S., especially the midwest, but it is more expensive than areas near oil refineries such as in Louisiana. When the price of gasoline increased to almost $2.00 per gallon in 2001 and again in 2003, the media began to portray the escalating prices as a crisis. When one looked a bit closer, many Americans were complaining about the prices but the vast majority did not aggressively change their driving habits. In reality, it would take a long term increase in gas prices to well over $2.00 per gallon for there to be any real shift in driving habits. Unless there is a major shift in the global political situation, high gas prices are probably not likely in the U.S. under current policies.

One of the major components of the price of gasoline is taxes. Gas taxes vary from state to state and contribute to the widely varying gas prices at the pump in different parts of the country. In

February 2003, taxes represented roughly 26 percent of the cost of a gallon of gasoline on average in the U.S. [27]. In early 2001, the federal share represented 18.4 cents per gallon and the average state tax was 19.97 cents per gallon. In New York, the state tax represented 22.00 cents per gallon (exclusive of local and county taxes) [28]. Taxes on diesel fuel are higher than for automobiles although the overall price for regular gas is higher in many cases than for diesel. In other countries, the gas tax can represent a much higher portion of the price of a gallon of gasoline. Chart 3 compares gas prices including taxes in various industrialized countries throughout the world.

**Chart 3**
**Sample Global Gasoline Prices in U.S. Dollars**
**Between 1991 and 2000**




Source: www.eia.doe.gov, 2003

Although other factors such as the costs of delivery and distribution of gasoline contribute to the higher prices around the world, the most significant difference remains the gas taxes. In Germany, gas taxes represent the third largest revenue stream from taxes in the country [29]. In the U.S., it has been politically difficult to even suggest an increase to the gas tax as many view the tax as excessive and unfair, especially since not all of the revenues go to road improvements. Obviously, these opposing views on taxing gasoline have reduced the incentive of American drivers from living in more urban areas and using alternative modes for travel including transit and walking. That said, the high cost of the federal transportation program is leading to discussions at the federal level to increase the gas taxes, although they would not be increased to match what other nations tax. Another potential revenue stream for transportation may include

electronic tolls on existing roads, HOT (High Occupancy Toll) lanes or other user fees. These efforts could be critical as revenues from the gas tax could significantly decline down the road if the motor vehicle fleet radically improves its fuel efficiency overall or alternative fuels become more common.

Parking Prices

In the Capital District as in many communities around the nation, the issue of parking has become much more than an issue of supply and demand. It has become an essential component to the economic vitality of downtown areas and the marketability of historic urban housing. In a region where non-private motor vehicle modes capture less than a quarter of all trips, motor vehicle parking can overwhelm communities not designed for the car, especially in the older, urban cores. Clearly, urban areas can not be treated the same way as suburban and rural areas where parking is heavily subsidized, free to the user and abundant. However, the expectation that a parking space be available to anyone at any time in an urban downtown is high, an expectation that is frequently not met (or is perceived to not be met) and therefore causes some would-be customers or visitors to bypass the area entirely.

The most glaring conflict over parking in the Capital District is that in the City of Albany. Strong state worker unions have committed to a policy of having one space for each of their members available downtown. In an historic city constructed well before the car, this goal will be difficult to meet. Even with the construction of numerous garages to support new office buildings, the conflict over free on-street spaces continues between the neighborhoods and the state. Requests for a residential parking permit program have repeatedly failed in the state legislature and recently constructed parking garages for state employees have not eased the parking difficulties on neighborhood streets. Unfortunately, attempts by outside agencies such as the Capital District Transportation Authority to implement incentive programs such as preferential parking for carpoolers, discounted bus passes, parking cash-out programs and others have had limited results.

One of the primary reasons the conflict exists is the heavily subsidized parking fees in downtown Albany for the state workforce which keeps surface lots and garages full during business hours. State workers in even the most accessible lots only pay $36.72 per month or roughly $440 per year. Private businesses such as Fleet Bank have more limited employee parking and charge nearly $1,000 per year for the spaces [30]. The exceptionally low rate for the state workforce creates absolutely no incentive for workers to use transit or other modes to get to work. These rates also do not help to support the very reason state workers were returning to urban areas in the first place: to aid ailing economies. High rates of private vehicle use have led to a drive in/drive out mentality for most state workers in which they are not spending time or money in downtown. Although this mentality is certainly not limited to state workers, their tremendous numbers seriously influence the condition of downtown Albany.

The conflict over parking in residential areas will likely continue in downtown Albany without a major policy change by the state unions and government leaders. However, programs just getting off the ground may create new opportunities to influence workers to use non-auto modes for their commute to work. A pilot transit incentive program was recently implemented by

CDTC in cooperation with the New York State Department of Environmental Conservation (DEC). Discount bus passes for suburban commuters were offered to employees to get them used to commuting by transit. After six months, participating employees were asked to give up their parking spaces in order to continue to receive the subsidy. In return, the state set up several occasional use parking spots for those who on any one day may need to drive their car to work. The program appears to be well received by DEC employees and could serve as a model for other state agencies in the future. The state would not only benefit from reduced auto travel, but would also save a great deal of money from the reduced need for new parking facilities, especially if participation in the program is widespread.

**Market Group Impacts**

Technological advances have the ability to change how the economy operates at its most basic level: how to buy and sell goods. These changes can have far reaching impacts on the population when they become fully integrated into society. However, it takes time for technological advances to become mainstream as only a minority of the population embraces them at the beginning. Those most likely to be among the first to embrace new technology are the young and the wealthy. Their higher level of comfort with computers, their greater knowledge of the medium, and their willingness to try new things could lead to a greater amount of e-commerce, telecommuting and other advances in the future. However, as the population ages over the next 30 years it can be expected that the acceptance of some of the changes discussed above will be common place, with new unforeseen advances beginning to infiltrate the economy. The following discusses each of the previously identified market groups in the Capital District and how they may respond to changes in the economy.

<u>Couples and Singles without Dependents</u>

*E-commerce/Goods Movement*: Because the members of these groups are only responsible for themselves, they often have far more time to devote to shopping than other groups. Personal preference, not time savings may be a greater factor in the level of internet shopping conducted by these individuals. Many individuals view shopping as a social activity and are not likely to eliminate the vast majority of their shopping trips. Even for those who do use e-commerce for a greater percentage of their shopping, a significant reduction in overall travel is not likely. Shopping trips would simply be traded for additional delivery truck trips, which have a much greater impact on neighborhood roadways than passenger cars. Also, the free time generated by shopping online may encourage more involvement in other activities that require travel. This is especially true during peak times. However, other online activities such as e-government and banking may help to reduce the need to make special trips to businesses or government offices for personal business.

*Telecommuting*: It is conceivable that the members of this group will be the least likely to embrace telecommuting to any great extent. As a result of not having dependents, home life for these individuals can be more isolating than for those with dependents. Going to work everyday offers those without dependents additional social interaction that spills over into the evenings. Individuals who live in urban areas are also less likely to take advantage of telecommuting than those who live in suburban or rural areas. Here in the Capital District, those who travel great distances to get to work, especially on the interstate system, will be more likely to take advantage

of telecommuting work arrangements. However, it is unlikely that telecommuting will significantly reduce travel by the members of these groups unless traffic congestion were to significantly worsen at all hours of the day. Even with increased traffic congestion it is unlikely that telecommuters will work from home every day and those who do work from home may add to the amount of local or neighborhood traffic.

*Gas Prices*: Travel for the vast majority of the members of these market groups has not changed significantly with changes in gas prices in recent times. For those without financial constraints, higher gas prices have led to increased complaints but very little change in travel patterns, especially for everyday activities. Higher gas prices may have a greater impact on vacation and long distance trips. As stated earlier, recent experience with $2.00 per gallon gasoline demonstrated that prices would need to go far higher to significantly change the travel behavior of Capital District residents.

*Parking Prices*: Couples and singles without dependents are not likely to be seriously impacted by parking prices, unless affordability is a question. Due to the flexibility of not having dependents, these individuals may be more likely to take advantage of other incentives (especially CDTC Swiper Passes) to reduce their need to drive and save money. However, the regional inclination is to drive to most destinations and unless parking prices increase to much higher levels, it is unlikely that there will be major shifts in travel.

<u>Couples and Singles with Dependents (Children and Dependent Adults)</u>

*E-commerce/Goods Movement*: The presence of children or dependent adults in the household complicates a variety of daily activities, including shopping. E-commerce offers these individuals an alternative to supervising children while shopping or arranging for childcare to go shopping. Shopping on-line may not only be viewed as a way to save time to spend with dependents but it may also be viewed as an opportunity to make their everyday lives less complicated by eliminating some shopping trips. As a result, this group may be more likely than others to take advantage of on-line shopping opportunities. Despite the potential greater use of e-commerce by these individuals, travel overall is not likely to be tremendously reduced through e-commerce. As with those without dependents, personal shopping trips are likely to be offset by both delivery vehicle trips and trips for other activities.

*Telecommuting*: The members of this group are likely to continue to take the most advantage of telecommuting. As previously stated, the presence of dependents complicates the lives of the caregivers. Having the option to work from home one or more times per week creates additional free time to spend with children or dependent adults. The time saved is especially beneficial to those with long commutes. However, although working from home will reduce some work trips, travel overall is not likely to decrease. Work trips are likely to be replaced with a greater number of local trips for other activities.

*Gas Prices*: The presence of dependents often makes driving a car essential to completing daily tasks. For those without financial constraints, higher gas prices have led to increased complaints but very little change in travel patterns, especially for everyday activities. However, these

individuals may be less able to change their local driving patterns and are therefore impacted more directly by higher gas prices.

*Parking Prices*: As with gas prices, couples and singles with dependents are somewhat more sensitive to parking prices than those without dependents. Many of these individuals believe they are unable to use alternative modes to work due to the demands placed on them by dependents. The inability to take advantage of alternative modes results in greater out of pocket driving costs. Despite this, these individuals have not altered their driving habits to any great extent. As with those without dependents, parking prices would need to increase to much higher levels before major shifts in travel are seen in areas with limited free parking.

Independent Elderly

*E-commerce/Goods Movement*: Although the members of this group have largely retired from their career jobs, they remain active within the community. Currently, e-commerce has not been widely pursued by the elderly, largely due to their lack of comfort with computers and their treatment of shopping as a social activity. As they have the flexibility to conduct errands and personal business at off-peak times, they are generally able to avoid traffic congestion. In the future, the members of this group will be more comfortable with computers and may take advantage of e-commerce opportunities, especially for items such as prescriptions. This may help to reduce travel for shopping trips, especially as driving ability degrades with age. However, the reduction in shopping trips may be offset by an increase in other trip types in order to interact with other people and be involved in community activities. As with the other market groups, more shopping at home is also likely to lead to an increase in the number of delivery vehicle trips, potentially increasing midday traffic congestion.

*Telecommuting*: As the members of this group have largely retired from their career jobs, telecommuting is not likely to be much of an issue. However, telecommuting may offer some elderly the opportunity to continue working on a part-time basis at more challenging and intellectually stimulating jobs. Telecommuting would reduce the need for work travel overall for this group and it would also prevent work related travel at peak times. With current trends indicating that seniors will continue working well into their later years, telecommuting could make job opportunities far more enticing.

*Gas Prices*: Independent elderly who can still drive but live on fixed incomes may be more sensitive to changes in the price of gasoline. Due to the flexibility in their every day lives, these individuals may be more likely to alter their driving habits when gas prices rise significantly. However, sustained high gas prices would reduce the independence of this group and would likely increase their level of isolation. Even with this group, gas prices would have to go higher than $2.00 per gallon for the independent elderly to drastically reduce travel.

*Parking Prices*: As with gas prices, the independent elderly are far more sensitive to parking prices than other market groups. This may lead to some elderly avoiding areas where they have to pay for parking, such as downtown areas. However, because there are only a limited number of places charging for parking and these group members generally do not have to go to these

areas, the prices are not likely to lead to a reduction in travel. Only if paid parking becomes more widespread and more expensive will there be any real shifts in travel.

Dependent Elderly

*E-commerce/Goods Movement*: The members of this group could benefit from e-commerce. Although many group members may lack the physical and mental ability to use a computer, those who can use it will likely take advantage of the freedom it can offer. Dependent elderly suffer from isolation due to their inability to drive, their limited opportunities to go shopping or to conduct personal business, and their lack of involvement in activities outside of the home or living facility. E-commerce could allow these individuals to shop for gifts, get prescriptions and purchase food without ever having to leave home. However, this would likely lead to a net increase in travel to these households due to delivery vehicle trips. Also, e-commerce can not compensate for the loss of social interaction that shopping typically provides.

*Telecommuting*: Telecommuting is no longer relevant as the members of this group are no longer able to work.

*Gas Prices/Parking Prices*: Both are no longer directly relevant as these individuals can no longer drive.

Mobility Impaired

*E-commerce/Goods Movement*: E-commerce is likely to offer the members of this group a tremendous amount of personal freedom by simplifying the process of shopping and conducting personal business. For many with mobility issues, it is often difficult and time consuming to simply go to the mall. By shopping online, many trips by car or by bus can be eliminated. However, personal business and shopping trip reductions are likely to be offset by the need for additional delivery vehicle trips. Also, due to the isolation of being at home, few will choose to conduct all of their shopping over the internet. Despite this, e-commerce holds the promise of improving the quality of life for the mobility impaired.

*Telecommuting*: Telecommuting also holds great promise for the mobility impaired who are more likely to take advantage of the option, if available. The mobility impaired may find telecommuting reduces some of the difficulties of commuting to work including the longer time needed for transport and a work environment that is not always well suited for those with mobility challenges. A telecommuter in this group may enjoy working from home a few days a week to save time for other activities. However, as with the other market groups, few are likely to adopt telecommuting as a full time practice due to the isolation of working from home.

*Gas/Parking Prices*: The travel impacts of changing gasoline prices and the adoption of more and higher parking prices have the same impact on this group as the others. Those with lower incomes will be far more sensitive to these changes and more likely to respond by changing travel behavior.

Low Income

*E-commerce/Goods Movement*: Capital District residents living in poverty often have limited or no access to computers. There are also limited low or no cost computer training courses through which this group can become familiar with computing. As a result, many individuals with low incomes are not able to be involved in e-commerce to any great extent. The growing gap between those who have access to computers and those who do not is a growing concern for policy makers both locally and nationally. As a result, these individuals will be continuing traditional shopping behavior, and therefore travel behavior, for the forseeable future. Until more resources are poured into areas where low income individuals can get training and access to computers, they will continue to be left behind. In the longer term, it is possible that prices for computers will decline further and will become more affordable and more accessible.

*Telecommuting*: As with e-commerce, not having access to a computer at home seriously limits telecommuting options. Even if these individuals manage to gain access to or purchase a computer, the vast majority of jobs for which low income individuals are qualified are generally not appropriate for telecommuting. For the lucky few who can receive assistance to work from home, it can be a tremendous time saver for those with children. However, due to the extremely low number of low income individuals able to take advantage of telecommuting, travel behavior is not likely to change. If in the longer term computers become affordable to low income groups, telecommuting could present an opportunity for this group. Alternatively, employers may be willing to provide computers for employee telecommuting.

*Gas/Parking Prices*: This group may be the most sensitive to changes in the price of gasoline or parking. Having a lower income makes owning and operating a motor vehicle more difficult, if not impossible. When the price of gasoline increases even a small amount, this group feels the effects first. Being the most sensitive group to the price of gas, they may also be more likely to quickly change travel behavior as a result of price increases, if changes are possible. For those who need cars to access jobs, the additional money needed for transportation must come from an already limited household budget, often at the expense of other vital household necessities. For many lower income households, public transportation remains vital for accessing jobs and other activities. However, if gas prices were to ever become so high that even the cost to ride the bus doubles or triples, it could have devastating impacts on the ability of this group to travel and even participate in the workforce unless significant assistance was offered.

Non-drivers

*E-commerce/Goods Movement*: For those who do not drive, e-commerce offers the opportunity to have greater access to shopping and an easier way to conduct personal business without burdening others. E-commerce allows these individuals to be more independent and less reliant on the bus or taxi's, if they are available, to shopping centers. The fact that these individuals can not drive means that their personal travel behavior is already somewhat lower than other groups and would likely not change significantly. As a result, additional delivery vehicle trips would increase the amount of travel related to these households overall.

*Telecommuting*: Telecommuting could potentially open up job opportunities that are currently not easily accessible for workers who do not drive. This may reduce the burden on others who are assisting these individuals with transportation to their jobs. However, overall personal travel is not likely to be significantly reduced through telecommuting as it is already somewhat reduced by not driving.

*Gas/Parking Prices*: Since these individuals can not drive and are not likely to own a motor vehicle, they are not likely to feel the impacts of rising gasoline or parking prices directly. They would more likely feel the impacts if prices ever approached a level that required increased bus fares. However, if they are a non-driver in a household that otherwise drives, the economic impact of high gas and parking charges would be felt negatively by the non-drivers in the household as the overall household expenses related to driving increase.

**Conclusion**

Predicting future changes in the economy is extremely difficult. There may be technological advances that are not even being tested yet that could completely change the way business operates and consumers buy goods. If privacy concerns erode, computer interfaces improve, and the trust of the public in timely deliveries increases, far more personal business and shopping will likely be conducted over the internet. However, the need for social interaction will not be replaced by technology and therefore, trips saved from having to run errands or commuting to work are likely to be offset by delivery vehicles and increases in other types of travel.

For the Capital District, an economy based more on technology and research and development could result in rapid changes for which the region is unprepared. Plans must now be put into place to preserve and enhance the valuable transportation system that helped to attract these businesses in the first place. Without these efforts, the region will not likely be successful in the economy of the future.

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