

Testimony of
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Presented before the
Senate Subcommittee on Transportation and Infrastructure

February 13, 1997

“It would be attractive to think that commuting will eventually become an activity of no particular personal or public policy interest and that it would be quick and effortless with no detrimental public side-effects. That day will not be arriving soon.”

- *Commuting In America II: The second National Report on Commuting Patterns and Trends*

It is an honor to be here at this first Senate hearing on ISTEA reauthorization to address important transportation trends in America today. I recall with great pride that I participated in the first Senate hearing in the advent of ISTEA six years ago, as well.

My focus today will be on commuting trends, their economic and demographic determinants, and their implications for our transportation future. This will be based, largely, on my recent study *Commuting in America II*. At the outset I want to thank the 14 sponsoring organizations and other agencies that assisted this effort, particularly the leadership of AASHTO.

The materials provided are in two parts: this testimony, and a set of supportive graphics. Copies of the complete report, *Commuting in America II*, have also been made available.

THE PERSISTENCE OF PAST THEMES

THE WORKER BOOM

Previous study has identified three factors operative in the worker boom of the seventies: large job increases, the baby boom, and the rapid increases in women's participation in the work force. Each of these three forces has diminished. The trends depict a clearly visible "bubble" of growth in both the labor force-age population and the actual labor force over the past period that explains the great commuting surge of the seventies and early eighties and its relative decline in the nineties.

Although the rates of change show a sharp drop, the total increase for the period is still substantial, over 18 million workers, actually about 300,000 more than

in the seventies, -- yielding two decades of very substantial increase with which our transportation system has had to deal.

There is substantial foundation for the belief that the 1990 census results may have signaled the closing of the worker boom. Future trends depict a period of relative calm -- low overall growth in total population and population of working age for the remainder of the decade and into the next century. Labor force growth rates will decline to about half of the rate in the eighties, but are still projected to produce an absolute increase in labor force of between 17 and 18 million for the decade, or only a little less than the number in the eighties.

Some key points:

*** The 1980-1990 decade saw the lowest rate of population increase in our nation's history, save for the depression decade, and the only other time that growth over a decade has been below 10 percent. Absent extensive levels of immigration that rate would have been much lower.**

*** There is a period of relative calm ahead -- about 10 percent overall growth in population and population of working age for the this decade moving in tandem with continuously declining rates of growth out to the year 2050.**

*** Women's labor force growth rate surged through the sixties and seventies and is just now tapering off, but still remains at high rates relative to men. Total labor force increase in the 1980-1990 decade was clearly down from the previous decade, for both men and women, with women contributing 11 million to the labor force in contrast to about 14 million in the previous decade.**

*** Women's share of total employment rose from below 30 percent in 1950 to 45 percent in 1990.**

*** It is expected that the 18 year old age group, the source of new workers, new commuters and new drivers will have declined to its nadir in 1995 and then slowly begin recovering; but will not reach 4 million again until 2008 under present projections.**

*** In many respects the fundamental unit of metropolitan travel is the household. There are about 100 million households in America today. The average household size in 1950 was 3.37 persons, declining rather dramatically to 2.63 persons by 1990, with the greatest changes occurring in the sixties and seventies.**

*** There continues to be a close parallel between household and labor force growth; the overall growth rate from 1950 to 1990 for the labor force was 200 percent and for households, 211 percent, indicating that labor force (or workers) per household changed little in the period.**

*** Seventy percent of workers live in households with two or more workers suggesting that trade-offs between home and work locations are critical.**

The effect of all this is to say “yes, but ---” to the question of the influence of the worker boom in the future of commuting. The strong growth rates characteristic of the boom period are over, but given the large size of our national work force resulting from the strong growth of the past, future growth will continue to yield large numbers of new commuters that will challenge our infrastructure and public policy.

THE AUTO BOOM

As in the worker boom, there is a qualified answer to the question of the persistence of the trend in private vehicle ownership and use.

Arrayed on one side is the astonishing fact that we added more vehicles than people to our population in the eighties. Beyond the surge in ownership is the fact that the private vehicle continued to absolutely dominate the choice of mode of transportation to work. All alternatives to driving alone to work by private vehicle declined between 1980 and 1990. The increase in the number of commuters in single occupant vehicles exceeded the total increase in commuters. About 19 million workers were added, and over 22 million single occupant vehicle drivers. Effectively, all new workers chose to drive alone and a few million additional workers shifted from other modes to the single occupant vehicle. Some alternatives, such as walking and carpooling, declined precipitously, while others, such as transit, declined less dramatically. Only working at home showed growth.

Arrayed on the other side, it is difficult to see continued shifts to the private vehicle, on average, across the nation beyond the present surge. A number of factors are involved in this:

- the shares of auto ownership by households show clear signs of stabilization at very high levels;
- the ratio of cars to workers has actually declined slightly;
- most significantly, the number of vehicles available exceeds the number of drivers; and there is apparent saturation, on average, of drivers licenses. The important exception to these points will be treated later.

The prospects for further shifts to the private vehicle seem minor if only because commuting travel is now so overwhelmingly oriented in that direction. It seems infeasible to believe that carpooling or transit levels could drop further -- fewer than one in ten cars has an occupant other than the driver, and transit is used by one in twenty commuters. On the other hand the precipitous declines in carpooling in the last decade were unanticipated as well.

The forces that impel personal vehicle use continue. Among the factors that will govern private vehicle use for commuting in the future are these:

- continued dispersion of jobs and population to the suburbs and beyond;
- continued pressures of time on multi-worker households;
- continued low levels of vehicle operating and ownership costs.

Of these, the pressures of time, particularly on working women, has immense influence. The fact that 70 percent of commuting households have two or more workers, suggests that living near work is no longer a simple option, and the trip chain -- taking care of household needs on the way to and from work -- children, food, laundry, etc. -- is central in contemporary lifestyles.

Among the key findings were:

Vehicle Ownership

*** While population grew by less than 10 percent and households by about 14 percent between 1980 and 1990, total vehicles available to households jumped by over 17 percent. Nothing depicts better the scale of vehicle growth than that the number of vehicles added in the decade exceeded the number of people added.**

*** The majority of U.S. households have two or more vehicles, with an average vehicle availability of 1.66 vehicles per household, up from 1.61 in 1980. It is more impressive when it is recognized that these increases in vehicles per household are occurring against a backdrop of declining persons per household.**

*** The case for stabilization of vehicle ownership can still be made despite the significant growth numbers just cited; there has been a decrease in the share of households with three or more vehicles from 1980 to 1990**

*** It will not matter how many vehicles people own as long as the number of driver's licenses are stable.**

*** the proportion of all households that are without vehicles has been in continuous decline since at least 1960. In 1960 21 percent of households were without vehicles, dropping to just above 11 percent by 1990.**

*** In absolute numbers, the number of zero-vehicle (vehicle-less) households has remained roughly constant for thirty years at about 10 to 11 million.**

*** Census data indicate that about 5.3 million workers live in vehicle-less households. Thus at most half of the vehicle-less households have workers.**

*** The New York metropolitan area held about 20 percent of all zero- vehicle households in 1980. Despite the fact that New York lost zero-vehicle households in the 1980-1990 decade, it still obtained approximately a 20 percent share - a fifth of all such households.**

*** The American vehicle fleet is aging rather substantially. The present fleet's average age is approaching eight years, (7.7 years), in contrast to less than 5.6 years in 1969.**

* New cars typically have less than 20 percent of their travel allocated to commuting whereas older vehicles have upwards of 24-25 percent of their travel in commuting.

* Trends in the transportation cost index, composed of the cost trends in owning and operating private vehicles, and with proportional inputs from taxi, transit, and airline fares, as well as other transport costs closely track the general consumer price index, composed of a weighted “marketbasket” of all consumer purchase items.

* The cost of vehicles in terms of the number of weeks of median family earnings needed to pay for them showed a stable pattern throughout the seventies at about 20 weeks pay, rising to about 25 weeks pay, a 25 percent increase, by 1991. Thus, the average vehicle costs about half a years pay to the family earning the median national income.

* If improvements in vehicle fuel efficiency are added to declines in fuel costs the price of fuel per mile of travel has dropped substantially. Fuel costs have dropped from above nine cents a mile in the high cost 1980-1982 period to the five and one-half cent range in 1992.

Modal Shares

* The short description of the long term trend is that there is a continuation of the increasing orientation to personal vehicles for commuting. the number of single occupant private vehicle users increased by *over 22 million* between 1980 and 1990 exceeding the number of new commuters. The pattern is uniform across the nation by region, state, and metro area.

* The linking together of trips serving the household as part of the journey to work trip, so called work-trip chains, such as dropping children at child-care facilities, dropping off cleaning, picking up fast-foods, etc., is very much a family/household characteristic, and an increasingly important factor in choice of transportation.

* Auto use increases with age until the mid-fifties age group and then slowly tapers. This pattern is replicated when men and women are analyzed separately.

* There are only slight differences between men and women in mode choice that are still discernible; these differences have tended to diminish over time as women’s work characteristics have become more like men’s.

* The most evident effect of income is that driving alone increases from about 60 percent to over 80 percent with increasing income; correspondingly carpooling decreases.

* Central city renters, constituting about 17 percent of households are the least auto-oriented group, although still with a 70 percent private vehicle share; While all home owners are highly private vehicle-oriented, suburban home-owners are the most, with over 90 percent use of the private vehicle.

* The number of carpoolers has dropped from 19 million in 1980 to less than 15.4 million carpoolers in 1990 out of a total of 115 million - declining to 13.4 percent of commuters. A major factor in the decline of carpooling, accounting for two-thirds of the loss, is the decline in large carpools.

* Carpooling is increasingly a household activity.

* Public transit use remained relatively stable from 1980 to 1990 with almost exactly 6 million riders in 1980, declining by about 100,000 to roughly 5.9 million users in 1990. Transit shares of commuters declined from 6.3 percent to 5.1 percent.

* While bus, the major mode used in transit, lost ridership, other transit modes, specifically subway and commuter railroad gained riders. Much of the total increase, almost 40 percent of it, occurred in New York.

* Metro area size is a critical factor in transit use. Metro areas of over one million population, which account for half the national population, are responsible for 88 percent of the nation's transit use; areas over 5 million account for 61 percent. New York alone accounts for 37 percent. The concentration of transit use in the largest metropolitan areas has increased since 1980.

* Working at home was the only category, other than the single occupant vehicle, that increased in share. The overall gain was dramatic, over a 50 percent increase, growing from 2.2 million in 1980 to 3.4 million in 1990.

* Among the groups that are most oriented to working at home are women, home owners, older populations, non-metropolitan residents and the white non-Hispanic population. Non-metropolitan residents, with 20 percent of all commuters, constitute 30 percent of those who work at home.

Commuting Times and Travel Trends

* Overall, commuting travel time for all modes averaged 22.4 minutes one way in 1990, up by only about 3 percent, from 21.7 minutes in 1980 -- an increase of roughly 40 seconds.

* . Seventy percent of Americans reach work in less than half an hour.

* Metropolitan size is also a major factor in travel times, varying from an average of 17 minutes for those areas below 100,000 in population to over 27 minutes for those over 3,000,000 in population -- a ten minute swing. The average for the areas over 1 million is just above 25 minutes.

* Most states cluster around the national average with the greatest deviations being New York State (1.24 times the national average) and North Dakota at 13 minutes (58 percent of the national average).

* On average, a suburban resident commuting to the same suburb has a seven to eight minute travel time advantage over commuting to the central city of the same metro area.

* The central city oriented trip appears to increase in travel time far more rapidly as metro size increases than do trips to suburbs or to other central cities or suburbs. This suggests one reason for the growing significance of suburbs in large metro areas.

* Reverse commutes, at 23 minutes, take about three or four minutes less in the non-peak direction than does the inbound direction.

* Suburb to same suburb travel is almost completely explained by driving alone, walking and working at home.

* Suburban and non-metropolitan flows are very similar in regard to the dominant share of the private auto and two person carpools. After that, larger car pools are key in non-metropolitan to central city flows while transit plays a bigger role in suburb to central city flows.

* The flow between central cities shows a striking use of larger carpools and of railroads. This is a major role for commuter rail.

* The percentage of commuters with travel times beyond 60 minutes is just below 6 percent. The average for all metro areas over a million is 7.5 percent. Three areas have percentages over 10 percent; New York (16.5), Chicago (10.7) and Washington D.C.(10.7).

* the 60-or-more minutes travel time group, has the lowest drive alone share, while still significant, but with extensive use of large carpools and transit, especially commuter railroad.

* There is an even peak from 7:00 AM to 7:30 AM and from 7:30AM to 8:00 AM, consisting, of a male oriented worker peak and then a female oriented peak.

* Even in the peak period, the period from 7:30AM to 8:00AM, the majority of travelers have trip times of under twenty minutes. The half hour segment just before it has many more long distance (in time) travelers.

* The early morning hours are much more heavily oriented to long distance travelers. A high proportion of workers with trips longer than 60 minutes leave for work before 5:00AM.

Travel time changes support the changing flows patterns observed earlier. While both increased in average travel time the time advantage of suburb to suburb commuting over suburb to central city commuting has actually increased.

The average trends tend to imply that things are going relatively well in commuting and that is clearly not the case everywhere. Nothing is so distorted by averages as measures of travel time. Many areas, particularly those undergoing substantial growth, notably the metropolitan South and West, have seen sharp increases in travel times. One part of the explanation for the small increases in average travel times is provided by the shifts from slower modes to faster, e.g. from transit to carpooling or from car pooling to driving alone. This is obviously a one-time solution that will be available to only a few in the nineties. Neither will the surplus system capacity be available to absorb additional travelers. As a result the search for reasonable commuting times will likely lead to further dispersal.

THE SUBURBANIZATION BOOM

In regard to the geographic flow patterns of commuting the trends are unequivocal; the suburban boom continues. Because of Bureau of the Census definitional changes this trend requires some statistical manipulation to confirm.

Overall, the suburbanization of population and jobs not only continues but has accelerated in pace. Today the dominant commuting flow pattern is suburban, with half of all the nation's commuters living in suburbs and over 41 percent of all jobs located there, up from 37 percent in 1980.

Suburban areas, defined here as the balance of metropolitan areas after subtraction of the central city, are now the main destination of work trips. The suburbs were the location of 13 million of the 19 million new jobs created between 1980 and 1990; about a 70 percent share of all job expansion. This is an increase in share of job growth from the 1970 to 1980 period.

If the focus shifts to commuting within metropolitan areas only, and non-metropolitan areas are excluded, suburbs contain two thirds of all metropolitan workers and slightly more than half of metropolitan job destinations.

The flow patterns with a suburb as a destination account for substantial shares of growth in recent times. Suburb to suburb commuting accounted for 44 percent of metropolitan commuting flows in 1990. That share is destined to increase given that suburb to suburb commuting obtained more than 58 percent of all commuting growth from 1980 to 1990 as it did in the 1970 to 1980 period.

A substantial increase in growth share was also obtained by central city to suburb commuting, so-called "reverse commuting," rising from a 9 percent share of growth to over 12 percent. Its share of growth actually exceeded the share of central city to central city flows.

Of further note is that the "traditional commute," the suburb to central city component of flows, decreased its share of growth, accounting for less than 20 percent of all increase in the 1980-1990 period, down from a 25 percent share in the previous decade.

Inter-metropolitan commuting has shown substantial growth. In both 1980 and 1990 the dominant part of inter-metropolitan commuting was "cross suburb commuting," that is commuting from one suburb to the suburb of a different metropolitan area. This flow pattern grew at more than twice the rate of suburban commuting growth in general.

As one measure of the suburban effect, the number of Americans who commute outside their county of residence has almost tripled since 1960.

Some key trends:

Population Patterns

*** If the geographic definitions that applied in 1980 are retained for 1990, central city population across the nation has actually declined, all of the metropolitan growth of 17 million therefore was in the suburbs. In this structuring of the data non- metropolitan areas gained 5.2 million. Some of the key points in the suburbanization trend are:**

*** In the 1980-1990 period, using 1980 definitions, central cities showed a slight decline of .7 percent, losing roughly half a million people.**

*** Central cities lost in the range of 2.5 to 3 million persons per year in net terms to the suburbs during the eighties. These flows were somewhat softened by foreign immigration to central cities in the range of 750,000 per year. Thus central cities continue to experience net outward population shifts, almost exclusively to suburbs, in excess of 2 million per year.**

*** The 1980 to 1990 growth pattern contributed to a further increase in suburban population share; the 1990 suburban share of metropolitan population now stands at over 60 percent.**

*** Metropolitan population growth rates have been highly variable from area to area. All of the high growth metro areas were Western or Southern, with the exception of Minn.-St.Paul. Conversely almost all of the low growth areas were Northeastern.**

*** As in the seventies, all areas losing population still show substantial overall worker growth and even more dramatic suburban worker growth, although not as extreme as in the earlier decade.**

*** Non- metropolitan areas are again experiencing something of a growth renaissance. Although less than half of the nation's non- metropolitan counties were growing in the eighties, almost three-quarters were gaining population in the nineties with a major factor being in-migration. Many of these growth areas seem to be recreational and retirement based.**

*** Actual domestic migration rates appear to have continued unslackened in the eighties, despite the aging of the population, with most moves remaining in the same area.**

*** There is evidence of a lessening of the shift to the sun-belt that has dominated national migration patterns since the 1950's. Taken together the South and West, with 52 percent of the nation's 1980 population, obtained 94 percent of population**



growth in the 1980-1985 period, dropping off to about 83 percent of growth in the 1985-1990 period. In the nineties the rate has dropped further to an estimated 76 percent of all growth by 1993, but their share of the nation's population still rose to 56 percent.

Job/Worker Patterns

- * Suburbs now house half of all workers in the country. Most of the workers reside within the heavily urbanized inner ring of the suburbs.
- * The data indicate that there has been a significant alteration in the location of jobs over the ten year period. Suburban areas constituted 42 percent of the job locations in 1990, up from 37 percent in 1980, obtaining a two-thirds share of national job growth in the period, (equivalent to 75 percent of metropolitan job growth). The remarkable point is the substantial share of growth taken by the suburbs and central cities outside the metropolitan area of residence of the commuter. One quarter of the growth was obtained by such areas.
- * Of 115 million commuters, about 90 million are in metropolitan areas, of which 80 million commute internally and 10 million leave the metropolitan area, often bound for other metropolitan areas.
- * The remaining 25 million commuters are non-metropolitan, for the most part remaining in non-metropolitan areas to work, with about 3 million entering metropolitan areas every day to work.
- * The tendency to work within one's home county declines as the size of the metropolitan area increases. 76 percent of all commuters work within their county of residence, with a remainder of somewhat more than 27 million who leave. This is almost triple the number who commuted beyond their county of residence in 1960. Intercounty commuting varies sharply by metropolitan area as a function of the local geography.
- * Central city residents are more home-area oriented with a percentage approaching 85 percent working in their home county, while suburbanites are much less so-oriented with slightly more than 71 percent remaining in their residence county. Those living in places of above 5,000 population in non-metropolitan areas, i.e. small cities and towns, are the most locally oriented, with 85 percent remaining in their county to work.
- * The dominant flow pattern is suburban, with half of all metropolitan commuters living in suburbs; and with suburb to suburb commuting accounting for 44 percent of metropolitan commuting flows. Suburban areas are now the main destination of work trips.

* The available data indicate that outbound flows to other metropolitan areas and to non-metro areas amounted to about 5.4 percent of all commuting in 1980 and rose to over 7.5 percent in 1990. Moreover, inter-metropolitan commuting increased at a rate more than double that of metropolitan growth.

* In both 1980 and 1990 the dominant pattern of inter-metropolitan commuting was “cross suburb commuting,” that is commuting from one suburb to a suburb of a different metropolitan area. It amounted to about 31 percent of all inter-metropolitan commuting in 1980 rising to almost 39 percent in 1990. This flow pattern grew at more than twice the rate of suburban commuting growth in general.

* Overall the national job/worker ratio for central cities is 1.36, i.e. 136 jobs for every 100 workers. The overall national job/worker ratio for suburbs is .83 and for non-metro areas .92. Review of national patterns suggests that something closer to balance is occurring in both central cities and suburbs.

EMERGING TRENDS

In addition to the persistence, in varying degrees, of the trends of the past, new trends are emerging that will sharply modify commuting patterns into the future.

IMMIGRATION

The scale of foreign immigration has become prodigious; perhaps, the dominant factor in national population growth patterns. Total immigration to the United States in the 1980-1990 period was about 8.7 million persons; thus the foreign born share was almost 40 percent of total population growth. Recent data indicate the pace continues at that rate with 4.5 million arriving in the five year period from 1990 to 1994, twice the rate of the 1970's.

Foreign immigrants tend to go to where Americans are, but with a somewhat greater focus on central cities. It is the most populous states that receive immigrants.

The arrival of immigrants has affected the numbers of households without vehicles in the areas with major foreign immigration. Many sun-belt cities had greater percentage increases in population than in vehicles; all had significant increases in the number of households without vehicles. Even the suburbs of many of these areas saw large increases in households without vehicles.

In obvious contrast to new births most immigrants arrive at labor force participation age; they are instantaneous additions to the traffic scene. About 80 percent of immigrants were of labor force age.

Thus immigrants impact the commuting scene in many ways. They are a direct addition in population, and an even more substantial increment to labor force, equaling greater than a third of all new commuters, and their volatile modal patterns will affect future flows in several modes. Of acute interest will be the time frame in which they shift from initial patterns of behavior upon arrival to patterns more like the national average.

The fact that immigration factors can be altered by congressional action at any time tends to create additional uncertainties with respect to future commuting patterns.

ETHNIC AND RACIAL PATTERNS

Previous discussion has emphasized the tendency toward saturation in many areas -- vehicle ownership, driver's licenses, and the use of the auto to work. These tendencies can be overstated because of a failure to examine these patterns in sufficient demographic detail. Saturation is a characteristic almost exclusively among the white non-Hispanic population. There is still substantial room for growth in these characteristics among the Black, Asian, and Hispanic populations.

The key factor is households without vehicles. The proportion of all households that are without vehicles has been in continuous decline since at least 1960 dropping from 21 percent to just above 11 percent by 1990. In terms of absolute numbers, the number of zero-vehicle (vehicle-less) households has remained roughly constant for thirty years at about 10 to 11 million. The slight increase in this number from 1980 to 1990 is almost certainly attributable to immigrant population effects. Census data indicate that about 5.3 million workers live in vehicle-less households. Thus at most half of the vehicle-less households have workers.

In stark contrast, the black population averages over 30 percent non-vehicle owning households and in central cities the number is over 37 percent. Many individual central cities have extraordinary levels of black vehicle-less households - New York with 61 percent, Philadelphia 47 percent, Chicago and Washington D.C. 43 percent.

Hispanics, with an overall rate of vehicle-less households of 19 percent, have a rate of 27 percent in central cities. Among the central cities in metropolitan areas with very high levels of Hispanic vehicle-less households are New York with over 62 percent and San Diego with 37 percent

It is clear that central city renters are the predominant group of non-vehicle owning households; and as a general rule renters are more likely to be zero vehicle households than home owners. The New York metropolitan area held about 20 percent of all zero-vehicle households in 1990.

One of the most pertinent aspects of this is the variation among racial and ethnic groups with regard to availability of driver's licenses. The White, non-Hispanic population is near, or at, effective saturation, especially among men (circa 96 percent); whereas the rate among all other racial and ethnic groups of men is on the order of 80 percent.

The disparities among women -- women of different racial and ethnic groups -- and between women and men, are even greater. A point worth focusing on is that the sharp disparities between men and women among Hispanics and Asians, is considerably greater than that between either Black or White men and women.

All of these differences have effects on the opportunities for work locations, travel times, choice of mode, etc. A predominant part of the population that walks to work, or uses transit, and taxi are drawn from the households without vehicles.

These groups constitute the major sources of growth in vehicle ownership and use in the future. It cannot be assumed that the differences between these groups and the national average are racial, or ethnic, or gender-based in character. Rather, age, income level, household size, and the location and type of residence will be the governing factors in future commuting patterns. It must be assumed that as the socio-economic profile of these groups change there commuting behavior will shift accordingly. That is likely to mean an auto-oriented suburban-based working style.

Some key findings:

- * Black and Hispanic drive-alone commuters have very similar patterns, with White non-Hispanics exhibiting a similar pattern but with a higher overall utilization rate.**
- * A major difference is the exceptional use of transit modes by the black population. The pattern is similar in both suburban and central city locations.**
- * Black households lag both white non-Hispanic and Hispanic households in the use of bicycles, motorcycles and working at home.**

CLOSING

MODE CHOICE

There is little basis for adopting any view that suggests that there will be a significant reversal in the private vehicle orientation of commuters based on present patterns of behavior and demography. The dominant factor here is the continued dispersal of populations out from our metropolitan areas and the pressures of time on workers. As long as the private vehicle remains at all affordable to own and operate the pattern will continue. The shifts in age structure of commuters abets this trend.

This does not suggest that all is lost for public transit or other alternatives. The cases where transit, carpooling, walking and biking have been successful need to be studied and clues found regarding the appeal to the commuters that have proven effective. Those areas where transit is a major factor, predominantly in the center of our major metropolitan areas, need to sustain and intensify services. Where transit use is significant, most users indicate happiness with the services provided, which is a sound starting point. This market needs to be preserved. Transit providers will need to be very innovative to sustain or gain in markets. Some of the innovative work responding to suburban demands in the Chicago, Philadelphia, and New Jersey areas may yield successful models.

It is difficult to be optimistic regarding a renaissance in carpooling. Most carpooling today is not carpooling in the sense we knew it just a few years ago - a voluntary arrangement among co-workers or neighbors. That is dying - most of the surviving "carpool" activity consists of family members with parallel destinations and timing. Maybe these need a new name - Fam-pools? The advantages in carpool lanes are significant where average traffic speeds are very poor, but there are time costs to carpooling as well. Thus it is a changing environment which needs continuous exertion, as jobs change, work patterns shift and travel times change.

DENSITY AND DISPERSAL

Continued dispersal toward the fringes of our metro areas seems a given for both jobs and population. Rapid growth on the metropolitan fringes has been masked by definitional changes. Census modified definitions shifted 6 million of the new population growth in the eighties from the suburbs to the central city and four million from non-metro to metro areas.

VARIATIONS ON A THEME

We are becoming increasingly conscious of a set of developments that add to the volatility of commuting. Simply described, this is a tendency for greater

variability in the location, path, time and mode of travel to work. It is difficult to say whether this tendency is increasing or that it has just become more evident to researchers in recent times. Our data collection approaches focusing on one day's travel by a set of selected individuals or households would typically not catch this kind of phenomenon. Surveys would have to track daily travel of an individual over the course of several weeks to establish some sense of the scale and character of variation.

ECONOMIC AND SOCIAL FACTORS

The nature of work is changing. More work can be done in small work units of a few people or even one. This adds to the potential for dispersal of jobs. It also adds to the greater freedom in many cases of people to set their hours of work to match their personal preferences.

Paralleling this factor is that many jobs are services oriented where workers must be available to customers, requiring odd hours of work and weekend schedules. This adds to the greater potential dispersion of jobs in time as well as space.

The powers of communications and data processing are only beginning to be felt. They are becoming ubiquitous. All of the power of telecommunications is focused unintentionally on permitting greater dispersal of populations and jobs. It fundamentally reduces the penalty of distance.

The effects of women in the work place has been unmistakable and will further influence trends in the future. There seems to be a greater understanding of people's needs to care for children, and to take time off for other family needs as well. This has led to greater work scheduling flexibility in many firms, both large and small. That flexibility supports variation in work arrivals, and departures, as well as work days. Certainly, part of this is the sharp competition among firms for highly skilled employees, many of them women.

It is to be expected that this willingness to be flexible on the part of management will only increase in the future as some skills become even scarcer and firms compete for the best. This also means that firms will tend to relocate where their scarcest resource, skilled employees, are located. Being a short commute away will be a benefit that firms can offer. This will tend to push firm locations to where people want to be, generally pushing employers toward higher income neighborhoods, and leading to longer commutes for lower income workers. Regionally, it means the outer edges of the metropolitan area; nationally, it means those areas that are pleasant and attractive to live in. This will keep national growth focused on the sunbelt and West. This could lead as well to increasing

growth in smaller areas, university towns, for instance, rather than in the very large metropolitan areas of the nation.

IMMIGRATION

The scale of immigration, and in some respects its character, is a product of a stroke of a pen in Washington. Immigration will be the dominant population factor in many areas of the nation, in the large population centers in general, and in particular in the centers of the West and South. Material presented earlier shows that immigrants are heavily oriented to the labor force years. Their bimodal distribution in education will create strange frictions in the national labor force, competing both at the highest and lowest skill levels.

Not surprisingly, their orientation to the private vehicle is less than that of other Americans. The question is how long will it take before their behavior patterns are symmetric with others of similar income and age characteristics. Or, are there substantial cultural variations that will manifest themselves?

THE DEMOCRATIZATION OF MOBILITY

The private vehicle has become the tool of mass mobility. While we tend to think of auto ownership as all-pervasive in this society, this study has shown that this is strongly skewed by race and ethnicity, and other factors. One has to believe that the expansion of opportunity in America to immigrants and those born here will expand ownership and use of private vehicles as well. This will provide the great sources of growth of private vehicle ownership and travel in the coming years.

The growth in vehicle travel in the remaining years of this decade and into the next century will be predominantly a product of new access to personal vehicle use on the part of young people, the older population, women in general and racial and ethnic minorities - the mobility "have-nots" of our society.

Just as we have cited the competition for skilled workers at the high end of the job spectrum, there will likely be more workers than jobs at the low end. This will mean workers traveling great distances for not particularly attractive jobs. The dramatic growth in intermetropolitan travel and in reverse commuting from the city out to the suburbs are both products of that reality.

Society then is faced with an unpleasant challenge. So much of current public policy in commuting is aimed at suppressing auto ownership and use. Those policies are unintentionally aimed squarely at those on the margin of the ability to own and operate a vehicle, particularly those policies aimed at increasing the cost of driving. It is clear that those most affected by such policies will be those on the lower rungs of the economic ladder. Often these people will be those who are most auto-dependent.

PUBLIC POLICY AND COMMUTING

Much of public policy today is focused on modifying societal behavior in commuting, specifically the preference for driving alone. These policies have proven at best dramatically ineffective. At worst they can be directly antagonistic to the goals they are intended to support.

It must be clear by now that the notion that there is an American “love-affair” with the automobile is missing the point. Those who promote this idea seem to imply that that love is some kind of aberration, and with enough psychiatrists we can solve America’s commuting problems. Americans love their automobiles about as much as they love their microwave ovens. They have them and use them because they are very efficient tools - they are time saving devices. The desire for the personal vehicle in other countries follows this same pattern.

The center of all of these issues is the burden of time pressures that most Americans feel. It is time pressures, particularly on women, that increases personal vehicle use trip chaining, and many of the other patterns we have examined. Decisions regarding household location and mode to work are not made frivolously. People have sound reasons for their choices.

Public policies that try to increase the costs of auto use or increase travel times and congestion to force behavioral shifts to more preferred modes of behavior or locational densities will simply force people to make painful decisions. Many of these will result in the shift of households and jobs to areas where congestion is less obtrusive and where other costs are less; inevitably this will mean greater dispersion of the population, not less. The American commuter is a resilient and innovative character.

Those who see the solution of so many of our present ills by reorganizing society into living at higher densities miss the point. People do not live “efficiently” in order to optimize some imposed societal goal, certainly not commuting. Residential density is one of the most fundamental of choices that households make. It is clear that most people, given the choice, opt for lower density living when income permits. As the society changes and choice patterns evolve, the market place must be ready to respond with development that is responsive to household choices. Any public policies that inhibit a market trend toward higher densities must be addressed. But the market place must be the final arbiter in a free society.

The focus of public policy in this area must be on improving commuting for all workers with better walking and biking opportunities, better transit, and better roads. My proposed goal would be to reduce commuting to an unimportant topic of conversation and public policy.

One effect that needs identification in closing is that many of these trends lead to room for greater optimism regarding commuting solutions. Technological responses increasingly respond effectively to energy and environmental concerns, and congestion, while still a major problem, in many areas is addressable in its new patterns. The beginning of the solutions lie in recognizing that the American public is in charge.

It would be attractive to think that commuting will eventually become an activity of no particular personal or public policy interest. It would be quick and effortless with no detrimental public side-effects. That day will not be arriving soon.

Monday, March 24, 1997

Ms. Abigail Kinnison
Sen. Comm. On Env. And Public Works

Dear Ms. Kinnison:

Attached are my responses to Senator Chafee's questions based on my Feb. 13 testimony.

If there are any questions or comments regarding this material please contact me. I would be happy to discuss it with you. Let me know if you need the diskette versions of this text.

I was honored to participate in this important process.

Sincerely,

Alan E. Pisarski

Q.1. RE WHAT INVESTMENTS WILL YIELD GREATEST RETURN IN THE FUTURE?

Q.2. RE (A) VMT TRENDS OVER NEXT 25 YEARS?

(B) IMPACT ON FUTURE INVESTMENT?

Q.3. TRENDS IN WORKING AT HOME OR TELECOMMUTING?

RESPONSE TO Q.1. RE INVESTMENTS YIELDING GREATEST RETURN IN THE FUTURE.

While there is a current tendency to believe that most of our high-payoff investments in infrastructure have already been made, The future holds great opportunities for investments in surface transportation with high economic and social yields. Overall our investment thinking will have to be "nimble," i.e. responsive to a rapidly changing world, and "smart" using well-trained people properly prepared with the necessary statistical data and analytical tools. Among my high pay-off list:

1. Safety-related Investments - The deaths on our nation's highways are unconscionable, particularly because investments can be made that can sharply reduce the toll. Of course, a large part of the causes of fatalities are linked to vehicle characteristics and driver behavior, but all contributory factors linked to the highway itself must be addressed including highway condition and design. Much of this needed investment will be on the National Highway System, and is related to non-geometric improvements.

The aging of the population will be another factor that contributes to increased traffic risk. The number of persons in their fifties will increase by 50% in the next ten years, equal to half of all population increase. We need to re-think and perhaps retrofit our highways, particularly the high speed facilities, to respond to the changing visual acuity, reaction times, etc. of our aging population.

It is frightening to think that we consciously accumulate highway trust fund revenues to artificially balance the budget and forego making safety investments that save lives. Couldn't we at least agree to spend-down the trust fund for safety projects? We must commit to a date certain in the future (10 years?) when these problems will have been addressed, with timely monitoring of progress. The public wants a menu for action which ISTEA lacks.

2. International Competitiveness - Expansion of interstate trade corridors between and into our metropolitan areas that serve our international trading needs can sustain and extend our international competitiveness. Major choke-points in and around metropolitan areas need to be addressed.
3. Operations Improvements - Investment in and greater application of traffic engineering and ITS technologies to expedite traffic flows and increase capacity of our highway systems, reducing waiting times and delays, can pay big air quality and time savings dividends. We will need to invest in the research, the technologies, the data and the skilled operators to make these systems work.
4. Job Access - We need to invest in better ways to get inner city residents to jobs that are now more likely to be at highly dispersed locations in the suburbs. Rather than "big" transit projects we should invest in "small" jitney-like systems or van-pools, where, frequently, it will be inner-city entrepreneurs who become "small" bus company owners to meet these needs. This will take both some investment and some regulatory treatment. These are likely to be among the few successful transit strategies in responding to overall

metropolitan and suburban travel demands as well. Other high payoff transit investments are likely to be related to rehabilitating and upgrading many of the aging transit systems of the Northeast.

5. Metropolitan Capacity - Finally, we actually are going to have to build roads in the suburbs and the outer fringes of our metropolitan areas. There will be a search for capacity across America in the coming years - both highway and air capacity - for both passengers and freight. Unless we provide some of that capacity in our metropolitan areas, businesses and high skilled employees will disperse even farther afield. Such investment will help keep our metropolitan areas competitive and make the life-styles of a majority of our population more livable.

Q.2. RE (A) VMT TRENDS OVER NEXT 25 YEARS
(B) IMPACT ON FUTURE INVESTMENT

(A) The charts provided in my testimony summarize the point that there will be conflicting pressures on travel growth in the coming decade.

The keys are the following:

1. Lowest population increase since the depression; with immigration a key variable.
2. Slowed growth in new households; a major factor in producing new travel demand.
3. Saturation in drivers licenses and auto ownership among the vast majority of the population.

But, factors suggesting growth for the future include:

4. Our population is moving into the high travel-propensity years, i.e. 45-55 years of age, suggesting heavy tourism, etc.
5. After 2010 the world turns a big corner as the baby-boomers reach 65 with immense impact on all of transportation.
6. Racial and ethnic minorities increasingly will be joining the majority as we democratize our transportation system with broadly-based private vehicle ownership and use.
7. Continued dispersion of a wealthier population will make for increased trip making and greater average trip lengths.

In sum, this will lead to diminished rates of increase in overall highway demand with annual growth on the order of 2.5% or less per year, contrasted to the 3 plus% of the past twenty years - in short about a one percentage point difference. Transit will do well to hold on to its roughly 6 million daily users. The intercity modes, especially international air and the cruise modes, water and perhaps some scenic long distance rail, will see 5-6% annual growth levels.

(B) the good news in all of this is that we have largely passed through an extraordinary one-time event, a bubble, as the baby boomers marched through the life-cycle, frequently overwhelming our attempts to keep up with schools, roads and other public services. The decades of explosive growth in our metropolitan areas, particularly those of the Southwest, are largely behind us.

Our problems in the future will be much more operable. We will add 25 million to our population each decade for the foreseeable future. Our ability to respond to that growth will grow faster than that. Our investments won't be overwhelmed by dramatic growth and our resources should be greater, as well, to deal with the smaller scale of problems we will face. It would be tragic if our failures to keep pace with the astonishing levels of growth of the last few decades would weaken our resolve to deal with the problems of the future.

This will create the opportunity to make a shift from continuously playing catch-up in our investments to acting more strategically and focusing our investments where potential economic and social benefits are greatest. We can separate current needs from future prospective needs and respond to them individually.

3. Q.3. TRENDS IN WORKING AT HOME OR TELECOMMUTING

There has been considerable over-hyping of the long-awaited high tech boom in working at home with phrases like "30 million Americans work at home." These numbers typically count anyone who ever takes a brief-case load of work home.

The present reality is more modest, although still a significant, story. There were about 4.3 million people working at home full-time in 1990, up 56% from 1980, but still not back to the 4.7 million who worked at home in 1960. (Many of whom were likely to have been farmers.) A lot of the growth of the past decade was more mundane than booming high tech, with many of the work-at-homers often lower-income women engaged in daycare. A recent survey of work-at-home potential raised comic responses from airline pilots, hotel employees, firemen, etc.

But there is a story to tell about the future. Downsizing and outsourcing are creating mini home-based businesses in many areas. The availability of telecommunications technologies have broken down many of the distance and personnel barriers of the past. Small firms can be almost anywhere. Back-office functions are dispersing to low-cost areas. Many of the logistical needs of businesses are now ubiquitous, and skilled people can be where they would like to be, rather than where the jobs might be; jobs will follow the skilled. Self-employment has grown at roughly the same rates as overall job growth in the country over the last 10-15 years - roughly 20% per decade. This will continue and even accelerate. The year 2000 census should indicate continued extensive growth in working at home, with an increased share of all commuting.

True tele-commuting, where a person is an employee with a work site to go to usually, but on an occasional, or scheduled basis, works at home or at a local work site, is suffering from the negative reactions to some of the first stage over-enthusiasms. A lot of what was easily doable has been tried with varying levels of success. But the big future I foresee is that of working women, particularly working mothers, creating a strong force for more flexible working arrangements. In many instances increased pay will be secondary to better control of personal time. This will result in more flexible hours and days of work with some work being done at home. The key effects here are that these patterns will abet further dispersal of the population and further support orientation to the single-occupant vehicle. But small shifts here can take the edge off of peak hour travel demand and make for a more operable investment climate.