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U.S. DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20590

REMARKS PREPARED FOR DELIVERY BY SECRETARY OF TRANSPORTATION,
ALAN S. BOYD BEFORE THE SOCIETY OF EXPERIMENTAL TEST PILOTS,
EMPIRE ROOM, BEVERLY HILTON HOTEL, LOS ANGELES, CALIFORNIA,
ON THURSDAY, SEPTEMBER 26, 1968, 7:00 P.M.

It's good to be here tonight, making my contribution
to the generation gap.

I hadn't realized how much aviation had changed until
I got your invitation and down in the corner, where it
should have said, "silk-scarf," it read, "black tie."

But that is the trend today. You take a new plane
out and load it down with G's. You iron out the wrinkles
and hand it over with all of its mechanical miracles in
perfect working order -- redundancy of back-up systems,
high-lift wing, high ratio by-pass engines. And then
they paint it purple and the stockholders give Pucci all
the credit for it.

But we are making progress. Silk scarf or black tie, you and the men who came before you have turned aviation from a chancy business to a functioning system, although you can still get into trouble if you're not careful. For example, the consulting engineer from Washington who had to go to a conference in Chicago and decided to save some money by using one of those "take me along" ticket plans for his secretary. How was he to know his wife would get a letter from the promotion department of the airline, saying: "We hope you enjoyed your trip to Chicago with Mr. Thompson." Or that the safety board investigators would file a report on his case, saying: "Probable cause, Mrs. Thompson."

There is not much the Department of Transportation can do for the Mr. Thompsons of America. But we believe we have made a good start in the past year and a half on the job that President Johnson and the 89th Congress asked us to do: To try to pull together the various subsystems of American transportation into a better coordinated, total system; to make it safer to travel, easier to ship cargo, and less frustrating to get from here to there.

Let me be absolutely clear about one thing. We have made no more than a start.

Our system of transportation is, by any standard, mammoth. It represents an investment of some \$500 billion. It meets the needs, with varying degrees of effectiveness, of 200 million people. It accounts for one of every six dollars in the economy; provides jobs for 9 million people; and unites a continent.

Yet the increasing demands on this system already strain its capacity in some areas and the growth to come - compounded by concentration of that growth - could bring it near collapse. Take the year 1975 as a yardstick of growth - a good year because it is so close you can almost reach out and touch it.

By then, the number of private aircraft will have nearly doubled. Commercial air travel will have tripled. Automobile traffic will be up by 40 percent. Railroads,

which now haul 750-billion ton miles a year, will be hauling one-trillion ton miles. Trucks, now carrying 400-million ton miles, will carry 50 percent more. In fact, if the demand for transportation continues to match America's economic growth, we will have to double in less than two decades the capacity of a system that has taken the lifetime of a nation to build.

President Johnson and the 89th Congress read the danger signals of increased delay, congestion and cost two years ago. They called for more intelligent planning, more research and development and more prudent investment of transportation funds. And they created the Department of Transportation and gave it responsibility for leading the effort to make this country's transportation system conform to the needs of the people rather than forcing the people to continue to conform to the system.

To do this has required starting virtually from scratch on the most complicated analysis of a system ever undertaken by anyone. We are involved in jobs never before attempted - trying to measure not only the efficiency of the railroads, for example, but to relate them to air and to set some criteria for future investment of transportation funds.

We are trying to establish a perspective that cuts across the various modes; the kind of perspective that says, for example: if we really want to reduce the hazards in experimental flying we should concentrate on the most dangerous phase of your work - the drive to the airport.

The growth in transportation demand is exerting great pressures today on aviation.

This country's airlines carried 70 million passengers in 1963 and will carry 150 million this year. Five years ago, everyone predicted a 28 percent growth for the period. It was actually 114 percent.

The number of scheduled passengers is doubling every five years, and by 1977 one million people will board commercial airliners every day. General aviation will grow even faster - from 100,000 aircraft today to an estimated 150,000 by 1973. Traffic control centers, which last year handled 15 million flights, will have to manage 30 million within five years.

This rate of growth severely challenges the Federal Government as operator of the airway system, and state and local governments as operators of the airports.

Clearly, we need more airports, better traffic control and more efficient terminals, and we need them yesterday.

In the next few years we must achieve better integration of surface and air travel.

We must improve the control of traffic and the precision of navigation. And this will mean computer control of landings and takeoffs at high-density airports; automatic detection and avoidance devices; and advance processing of flight plans in digital form.

But I think parts of the air transportation system will need radical redesign to take into account diminishing air and ground space and the increasing psychological and economic value of time in our industrial society.

And one element of this redesign will certainly be STOL and VTOL aircraft. Straight thinking in a few years may not be nearly as important as thinking straight up.

Nearly 80 percent of all commercial flights are made between cities less than 500 miles apart. This is not really an efficient distance for the use of many of today's jetliners; not to speak of tomorrow's so-called "elephant" planes. What we need are mid-range aircraft that can land where the action is and eliminate the long trips between the runway and the business district.

Today's 25-passenger helicopters - the ones used in Los Angeles and New York City and San Francisco - have proven a real need for this kind of service, even with relatively high seat mile costs and without precision landing aids at the stops away from airports.

There are also a few 10-20 place STOL craft available. These vehicles - such as the DeHavilland Otter, the Dornier Sky servant and the Helio Courier are characterized by low wing loading and high lift and drag devices. They have been employed for years by the military; in the bush; by entrepreneurs; and for special industrial purposes. Recently, high density passenger configurations have been marketed. The Sky servant is now flying a run between Dulles, National and Friendship Airports in the Washington area.

But what can we expect beyond STOL air cabs and the helicopters which have been hauling people commercially since the early 50s?

The question is complex. Other than the helicopter, there is no VTOL aircraft to build systems around. We only have a check list of interesting possibilities to be developed or tested.

But working with this check list government and industry are already starting to block out the components of a VTOL aviation system. Various aircraft concepts are being developed by industry, the military, and NASA.

Eastern Air Lines and McDonnell Douglas, with the help of local governments and the FAA, are experimenting with a STOL aircraft, the Breguet 941, in the Northeast Corridor to help work out STOL and VTOL operational problems.

The CAB is initiating a hearing on the usefulness of V/STOL in the Northeast Corridor and the result may be an authorized route in this heavily traveled region.

The FAA is studying the air traffic control problems and nav aids required for these aircraft. Industry and FAA are developing requirements for V/STOL airports. Local governments are trying to find good sites for V/STOL ports.

As these systems components are clarified, we will be able to see where action by the Department of Transportation can expedite one piece of the system or demonstrate the feasibility of complete systems.

The industry has had long experience with the helicopter, which has followed a steady curve of improvement. Adequate operational concepts and design standards, including FAA certification requirements, have been developed, so that we can now move toward more sophisticated V/STOL aircraft.

The designer of STOLs has now the proposed civil certification criteria for these aircraft. We hope to be able to define certification criteria for VTOLs in the near future. What they will look like; how fast they will travel; how many people they will carry; all of these are

questions that only time, design and testing can answer. All we can say for sure at this point is that it appears that STOLs and VTOLs will utilize similar airspace and operating procedures up to the point of touchdown.

One thing we do know - the popular concept of VTOL aircraft wheeling in the skyscraper canyons of our cities, maneuvering like flying bicycles, is valid mostly for comic books. True, these aircraft are more maneuverable than conventional aircraft and will approach at slower speeds, but they probably will operate into small airports or pads with clearly prescribed approach zones free of obstacles. Glide slopes of 6° to 9° will be utilized even for VTOLs that touch down vertically from a few feet above the pad.

The most serious problem, inherent in any technology on the horizon, is noise. The whole point of STOL/VTOL is to get in close for convenience. Yet the roar of jets and blades might very well be unacceptable in many downtown areas, where there is enough noise already.

Maximum noise tolerances will have to be established; VTOLs will have to operate in such a way as to minimize the nuisance; and the miniports themselves will have to be situated with great care - perhaps as aquadromes on bodies of water adjacent to business districts where feasible.

The full potential of vertical landing and take-off will not be realized until the total environment is acknowledged in system planning. If ignored, the noise factor could stunt the growth of an infant service that has already had a long gestation and a difficult delivery.

Finally, the price of the ticket will have to be acceptable if VTOLs are to be more than a silk stocking service. It costs up to 25 cents per seat-mile to operate transport helicopters but this is an intracity taxi operation. Studies indicate that an intracity VTOL bus service may cost only 3 to 4 cents per seat mile. Such costs would permit fares to drop low enough to attract a large percentage of medium distance passengers.

Our interest in STOLs and VTOLs stems from one of our basic responsibilities under the law that created the Department. It directs us to promote technological development with the objective of improving the nation's transportation system. During the past 16 months, our work has defined a number of gaps in the existing transportation complex. One of these is in what very generally can be called the corridor situation.

What we find in the U.S. is a trend to urbanization - but not the sort of urbanization that, in years past, congregated people in densely populated central cities. The new form of urban development is characterized by a wide dispersal of population within vast metropolitan regions. This is not simply a process of suburbanization. It is a process that leads to a pattern of many medium-sized communities, scattered about a large geographical area. The most famous of these is the Northeast Corridor, stretching from Richmond to Boston. Another is the band stretching from Chicago-Milwaukee east to Detroit, Cleveland, Pittsburgh and Buffalo. Still another is along the West Coast. And a fourth, with special properties, is in the Southeast, with its center at Atlanta.

In all of these areas there is intense urbanization, but the most rapidly growing centers of population and industrial development are not the big cities, they are the medium cities.

Translate these trends into transportation demands and it is apparent that we need better links among these dispersed corridor cities. The automobile has a role, of course, but it has limitations for trips of more than 150 miles. The present fleet of aircraft also has its advantages, but it does other jobs better than serving points that may be only 150 to 300 miles apart. Trains may have a much larger role to play than is commonly recognized, but their fixed roadbed inhibits their utility.

There, then, is where the STOL and VTOL aircraft may have a vital part to play in our future national transportation system. As I have indicated here today, the STOL is flexible and efficient; it can link up the scattered points that make up the sort of metropolitan region which is likely to be the distinguishing feature of the U.S. in the next decade. Recognizing this, we are prepared to do our part in working with industry to build STOL and VTOL in our transportation system.

The VTOL problem is one of the problems that come with growth and progress. They are actually opportunities in a society that is rapidly moving beyond affluence.

The story of VTOL and of aviation in general, to which your efforts have contributed so much, is paralleled by the progress we have made as a whole in this country during the last seven years.

Naturally, dramatic change can produce uncertainty, disorder, and even resentment. Some people cry and caterwaul for the good old days. They demand that the world be stopped so they can get off.

They forget the historic lesson that a society without growth and diversity and dissent is either a sick society or a dead one, and certainly not worth living in. They need moral courage as dauntless as the physical courage of a man who steps into an untested airplane and lifts it toward the sky with confidence in himself and his destiny.

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