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Fighting Traffic: U.S. Transportation Policy and Urban Congestion, 1955-1970

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Introduction

In 1960, Great Britain still had no urban freeways. But with the ownership of private cars becoming ever more common, the problem of congestion in British cities was unavoidable. Investigating the possibilities of freeways as alleviators of big-city traffic jams, the government-sponsored *Buchanan Report* was pessimistic:

> . . . the study shows the very formidable potential build-up of traffic as vehicular ownership and usage increase to the maximum. The accommodation of the full potential is almost certainly beyond any practical possibility of being realized. There is thus no escaping the need to consider to what extent and by what means the full potential is to be curtailed.1.

In the decades preceding this study, Americans faced much the same problem with transportation in their cities. But the American plan for dealing with urban congestion in the automobile age was very different. In 1954, President Eisenhower suggested that "metropolitan area congestion" be "solved" by "a grand plan for a properly articulated highway system." In 1956, the House Committee on Public Works urged "drastic steps," warning that otherwise "traffic jams will soon stagnate our growing economy."2.

Confronting the same problem--urban traffic congestion--the British and the American governments responded with radically different solutions. In Britain, congestion in cities was understood to mean an excess of automobiles entering cities. The problem, to British planners, was to reduce relative reliance on the private car in order to allow better movement of traffic. But in the U.S., planners interpreted congestion as a sign that roads were inadequate and in need of improvement. In the face of traffic jams, the British tended to say, "too many cars!" while the Americans would say, "insufficient roads!"

U.S. urban transportation policy was shaped by this tendency, from its origins in the 1940s until the mid 1960s. This essay makes a twin argument. First, the way in which U.S. urban transportation policy was formulated in the 1940s and 1950s precluded the British solution. Regardless of the relative merits of the British and American approaches, discouraging the use of the automobile was not an option American policy makers could consider. The American political culture could consider

large scale domestic projects only with the cooperation of the private sector, and in the U.S. this meant largely automotive interest groups.

The second point is that American urban transportation policy retreated from this position in the 1960s. By the 1970s U.S. policy was much more like Great Britain's. In 1975, official Department of Transportation policy recognized the automobile as "a major contributor to . . . congestion," and it urged "State and local communities to rethink some of the highway planning already done so as to determine if a particular highway still offers the best transportation alternative."3. But American cities had already been depending on a freeway-based transportation system by the mid 1960s, and the well established automotive trend was irreversable. The volume of motor vehicle traffic in U.S. cities in 1970 was more than two and a half times what it had been in 1950, while the number of passengers carried on urban rail systems had fallen by two thirds. City bus ridership was down by half over the same period. The establishment of the freeway as the principal transportation system in American cities--and of the private automobile as the primary mode--was an accomplished fact by the late 1960s.4.

The policy changes begun in the mid 1960s came too late to change the overwhelmingly automobile-based urban transportation system. One can deny the significance of the change on the grounds of its tardiness. But an important question remains unanswered: why did federal transportation policy reverse itself and urge a "rethinking" of planned freeway projects? How did planners get from the "insuf-ficient roads" interpretation of congestion to the "too many cars" perspective?

This essay suggests some explanations. In part, the "insufficient roads" view, once implemented, entailed its own demise. Promoters of urban highways acknowledged that "drastic steps" were necessary to allow relatively free movement of automobiles in cities. These steps, to be drastic enough to work, also had to be drastic enough to create controversy and opposition where little or none had existed before. If, as New York's great road builder, Robert Moses, suggested, planners would have to "hack" their way with a "meat ax" to build highways in cities, then they could expect highway opponents to become equally uncompromising in their opposition.5. After a great deal of hacking, local opposition, legal restrictions, and court decisions dulled the ax's edge.

Second, the decentralized organization of the U.S. political system allowed many points of access to policy-making forums for groups opposing specific highway projects, groups opposing the freeway-based urban transportation policy, and groups promoting other forms of urban transit. As early as 1959, San Francisco's city government, under pressure from its citizens, banned freeway projects within its city limits. Throughout the 1960s and into the 1970s, other cities followed San Francisco's lead, fighting projects that were politically threatening.6.

There is little record of state-level opposition to projects, though this is understandable in view of the high level of state control over highway planning. At the federal level, from which most urban highway money came, divergent agendas (such as aid to mass transit, highway beautification, and increased relocation assistance to residents displaced by highway projects) as well as outright opposition to highways on the part of a number of prominent congressmen and senators, served to weaken the original highways-only federal urban transportation policy of the 1950s.

Also important to the change was the increasing insulation of federal transportation policymaking in the 1960s from the interest groups which had virtually controlled it in the 1950s. When Eisenhower and Congress teamed up to create a well funded federal urban transportation policy, they asked private road-building interests to work out the details. Eisenhower's reluctance to expand the federal bureaucracy necessitated such a move. There was no federal agency concerned specifically with urban transportation. The government's highway agency--the Bureau of Public Roads--historically

concerned itself with rural roads, leaving urban routes to municipal governments. The BPR was underfunded and so it too resorted to the advice of industry. Highway industries therefore had a claim to expertise that no government agency could dispute.7.

Over the course of the 1960s this situation changed considerably. With the end of executive-branch reluctance to expand the bureaucracy, the federal government began to create its own instruments of transportation policymaking, independent of industry. In 1966, the recently created federal transportation agencies were brought together in the new Department of Transportation. With its administrators responsible to the president and with its own in-house expertise, the Department was insulated from the influence of highway industry.

The demise of the highways-only policy stemmed also from serious flaws in the policy itself. From the end of World War Two, the federal government began a significant intervention in urban transportation, one which had increased to enormous proportions by 1960. But the funds were provided exclusively for the construction of urban highways. Thus, urban transportation systems necessarily became imbalanced in favor of automotive transport, regardless of the relative merits of the various modes under various conditions. Even the automotive transport systems themselves were out of balance, because of the ways in which federal dollars were allocated. For example, while new freeways were providing automobiles unprecedented ease of access to cities, substantially less federal money was provided for the downtown streets that had to bear the increased load, and no money at all was available to provide the record numbers of cars with parking.

Even more basic, highway planners operated on the erroneous assumption that potential demand for highways could be sated if only the supply were sufficiently expanded. Eisenhower's stated goal was to build a system that would meet demand projections ten years after completion. But demand does not exist in a vacuum: By building a road to meet the demand of ten years later, one hastens the arrival of that projected demand, so that it might appear in three years instead of ten. This is not a speculative point. A Bureau of Public Roads document from 1953 estimated that "by 1990, it is possible that the number of motor vehicles will be almost double the present total." In fact the BPR's liberal estimate was overwhelmingly short of the true rate of increase: 336 percent. This is despite the fact that actual 1990 population was less than the agency had predicted. The harder road builders tried to increase supply (road capacity), the more they increased demand (the number of motorists). This fact may seem perfectly obvious in hindsight, but pro-highway documents from before the mid 1960s--both governmental and private--routinely urged a policy that would provide enough roads to exceed demand. "We can lick congestion," Robert Moses promised, if only enough highways could be built.8.

Finally, the highways-only policy, by massing federal transportation dollars in roads only, gave road transport a net subsidy over rail, the other important surface mode.9. An English planner commenting in 1961 on the advisability of American-style urban freeways in Britain put it simply: "the cause of excessive congestion in cities is the failure to charge road users the full urban freeways were not going to "lick congestion." Eventually, cost of their journeys." If he was right, then America's new urban transportation policy would have to adjust to that.10. If he was right, then America's new

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1. A Highways-Only Policy

It does not fall within the compass of this essay to explain the political, cultural, or intellectual origins of an urban transportation system that relied overwhelmingly on highways. Interested readers can consult other works.11. But to account for the eventual retreat from the highways-only policy, it must

first be understood. What follows is an attempt at a brief description of that policy in those aspects that relate to the eventual change.

The Federal-Aid Highway Act of 1944 made a beginning at bringing highways to the city. It set aside 25 percent of federal highway funds for urban projects and called for the designation of a "National System of Interstate Highways." Although funding of these projects in the late 1940s and early 1950s was at more than two and a half times the prewar levels, total annual federal highway appropriations remained a half billion dollars or less.12.

The problem was that while government and industry both wanted highways, neither wanted to foot the bill. Industry opposed excise taxes and tolls, while government opposed special bond issues and debt increases. Divisions between pro-highway industries impeded their ability to lobby for an effective highway program.13.

Between 1953 and 1959, however, federal highway appropriations increased sevenfold. Fiscal 1959 appropriations totaled three and a half billion dollars.14. What had happened?

In essence, Eisenhower had won an interest group basis of support for a major highway program where none had existed before. Franklin Roosevelt had earlier pursued a major national highway program, and he submitted studies recommending such a plan to Congress, in 1939 and in 1944. These reports were prepared by or with the assistance of the Bureau of Public Roads, after considerable research. Neither, however, led to a well-funded program. In his second year in office, Eisenhower also commissioned a study for a proposed program. But--significantly--the president bypassed the BPR and handed the task to a committee of businessmen, chaired by a personal friend, General Lucius D. Clay. The Clay Committee conducted no major new research, as the BPR had done for its studies. Instead, the Committee consulted with state governors and with industries "interested in highway development" to propose a program that would have their backing.15. Within eighteen months of submitting Clay's report to Congress, Eisenhower had a bill on his desk that would launch the best-funded public works project of all time. Congress rejected the bond issue plan that the Clay Committee had recommended, opting instead for a trust fund into which the gas tax and other automotive excise revenues would go, and which could be used for federal-aid road projects only. Despite the change, the outcome pleased the president, Congress, and industry.16.

Eisenhower's political and economic philosophy had made this achievement possible. His administrative ideal, which historian Robert Griffith identifies as the "corporate commonwealth," helped the president to mobilize the private sector behind his agendas. By "forging cooperative relations between business and government," Eisenhower was able to launch a major national highway program without drawing on general revenues. Highway users, whose gas taxes would pay for the program, would in return exercise considerable control over it.17.

In his own words, Eisenhower believed that the "economy must . . . remain, to the greatest possible extent, in private hands." Eisenhower wanted to avoid a "domineering bureaucracy" in his highway program by turning to private industry.18. According to Griffith, by aligning industry support behind the highway program, the president also succeeded in insulating it from the vicissitudes of popular politics.19. Eisenhower's advisors were a great help to him in organizing this arrangement. Besides Clay, the president also benefited from the advice of his White House advisor Noorbar Danielian, who helped the administration get an acceptable bill through Congress. Danielian appreciated the importance of assembling a coalition of industry groups to back the legislation. He viewed the problem in purely practical terms. In August, 1955, he wrote in a memorandum to the president:

> The primary objective of a new program of highways must . . . be to hold together the natural friends of an expanded federal highway program. The acceptance of any additional levies on highway users must be motivated by the needs for revenue, but limited by the tolerance of the friends of the highway system . . . concessions to proponents of highways . . . tend to increase and consolidate the strength of pro-highway forces. The opposition of the railroads can still remain.20.

Eisenhower's coalition-building provided the highway program with a powerful basis of support. A government-industry partnership would build America's highways, not a New Deal style bureaucracy. Industry made an important concession to government: Road users would pay for most of the system with the gas tax and automotive excise taxes ("user fees"). (Most pro-highway industries had been holding out for a repeal of the federal gas tax.) Government conceded much to industry in return: The Highway Trust Fund would protect the user fees as in inviolable source of federal highway money, practically guaranteeing high funding levels. Just as important, in the absence of a major independent federal highway planning agency, industry's own in-house expertise would, virtually unchallenged, provide much of the basis of federal highway planning.21.

2. Keeping the Highways Urban

The highway system that the government-industry partnership built was, to a unique degree, urban. In other countries with extensive highway networks in the late 1950s--Great Britain, West Germany, France and Italy--the roads avoided urban centers. American roads steered for them. The difference stemmed from the unique degree of private participation in U.S. transportation policymaking, and a federal policy that treated all transportation problems as matters for highway engineers to solve.22.

Industry, not government, took the initiative in proposing that highways go downtown. Eisenhower's coalition was composed of industries "associated with the highway problem" and "interested in highway development," in the words of the Clay Committee report. Although the Clay Committee conferred with the American Railway Association in drafting its report, this group was the only one of twenty-two trade organizations consulted which had an interest in rail transport. Fourteen of the groups consulted were expressly concerned with roads.23. But these industries were not simply developing a highway policy. They were in fact drafting a national *transportation* policy.

The federal involvement in the other major mode of surface transportation, railroads, was almost purely regulatory. But the federal and state governments planned and funded American highways. The Bureau of Public Roads was the only policymaking agency in the federal government concerned with surface transportation, and the mission of its engineers was to recommend highway projects to solve transportation problems. Thus, to the extent that the U.S. had an active transportation policy at all, it was a highway policy; and vice-versa: America's highway policy was its transportation policy. By extension, federal urban transportation policy was a federal urban highway policy only.

Government concurred with industry in planning a major urban component to the highway program. The Clay Committee advised, in addition to the Interstate System, the construction of "additional urban feeder routes." The BPR professed that "the main highways will serve traffic best if they enter all but the smallest cities and skirt the area of the central business district." Robert Moses urged "modern expressways right through and not merely around and by-passing cities." The Ford Motor Company recommended "penetrating or bypassing" city centers. Such plans were firmly established amid the important negotiations of 1955. In September, the BPR issued its "Yellow Book," mapping the planned course of Interstate routes through the downtowns of more than a hundred cities (in addition to those urban Interstates previously planned).24.

Urban highways, according the government-industry partnership, would address--or even solve--a host of problems. According to the Clay Committee, among the benefits were those that would accrue "to the national economy as a whole, to interstate commerce, and to national and civil defense." A myriad of government and industry documents make similar claims. Safety was another purported benefit. Eisenhower liked to tell audiences that according to estimates of the Automotive Safety Foundation (a subsidiary of the Automobile Manufacturers Association), the Interstate System would "save four thousand American lives a year." Interest groups cited the claim that highways could be used for slum clearance or to serve as buffers between differing land-use zones. General Motors, back in 1939, suggested that "whenever possible" urban highways should be "so routed as to displace outmoded business sections and undesirable slum areas." Highways could also offer cities "abundant sunshine, fresh air," and "fine green parkways."25.

Pro-highway documents persistently identify improved *trans-portation* with improved *highways*. Transportation is clearly important to the economy, to defense, and to center-city vitality. Divided highways may be safer than city streets. But these claims always compared highways with existing roads: divided highways are safer than existing roads, highways can get people downtown faster than existing streets, and so on. Planners did not compare the relative merits of different modes (e.g. commuter rail vs. freeway), they compared only different forms of roads (i.e. city streets vs. limited access highways). Because federal transpor-tation policy was a highways-only policy, and because it was made in partnership with pro-highway industry, it was unable to make a rational comparison of the various transportation modes.

Planners, for example, used origin and destination surveys to determine where travelers wanted to go by car, without making any comparative estimate of modes. Drivers were not asked if they would consider alternate modes if such modes were improved. Riders of mass transit were not surveyed to find how their needs for service might better be met. Since U.S. transportation policy was a highways-only policy, the problem was simple: where should the highways be built?26.

Origin and destination surveys indicated that most motorists wanted to go into or near the urban center, and planners took this to mean that highways should therefore also go near the urban center. In 1954, the BPR commented:

> It is a popular idea that main highways should bypass the cities. A lot of traffic goes in one side and comes out the other, so why not take it around? Traffic studies of origin and destination reveal, however, that the vehicles coming out are not the same ones that go in on the other side. Many of them stay in the city, or at least stop for awhile, and relatively few go right through.

The unspoken assumption was that the city would have the capacity to accept the volumes of traffic that the freeways brought in. Cars the the BPR says "stay" or "stop" downtown take up road space and must have places to park. The British concluded in 1960 that "the accommodation of the full potential" of automotive traffic in cities would be "almost certainly beyond any practical possibility of being realized." In the late 1950s and 1960s, American cities were made the test of that hypothesis.27.

This problem, the capacity of cities to satisfy potential traffic volumes, relates to the one claim that highway advocates most consistently made for urban highways: that they would ease congestion. Until the 1960s proponents sometimes claimed that highways would end congestion altogether. Eisenhower suggested that the expanded highways program should be a "system that solves" the problem of "metropolitan area congestion." The designer of GM's famous "Futurama" at the 1939 New York World's Fair promised that "magic motorways" (as he called them) would make traffic jams

a thing of the past in the city of 1960. Robert Moses made similar promises, as did many other planners.28.

The problem with this view is hinted at already in 1939, at the Futurama exhibit. The "Voice" (as the exhibit's recorded narration was called) predicted that the number of cars on American roads by 1960 "may reach from between 35 million to 38 million." Taking the higher figure, that was a projected increase of 45% over the 1939 level. The actual number of automobile registrations in 1960 was 61.7 million, an increase of 235%. Although General Motors could not have foreseen the level of prosperity of the years 1945-1960, nevertheless it should be remembered that GM was interested in predicting as high a figure as it reasonably could in order to make its case for more roads. Indeed, forecasts made in the 1950s also fell far short of the mark, even though they were also made by groups urging a major program on the basis of a high predicted level of registrations.29.

Liberal forecasts of the growth in the numbers of automobiles consistently came up short. One of the reasons for this was the major postwar effort to end traffic congestion in cities. Congestion cannot be beaten by building roads to match existing demand, or by building roads to match future demand based on extrapolation of earlier demand figures. Congestion would end only when all potential demand is met. The alternative would be to limit demand with fees or restriction, as the 1960 *Buchanan Report* recommended for Britain.30. But American planners took no measures to restrict demand, or even to charge urban highway users the full cost of providing the urban highway. To the extent that American planners sought to satisfy existing highway demand exclusively by in-creasing the supply, they actualized potential demand. Congestion was remarkably stubborn.

Strong land-use planning can also reduce the acceleration of demand that a highway brings. In Great Britain, strict land-use regulation coordinated at the national level developed along with the system of motorways. American Interstate highways, by allowing no direct access to roadside development, also limit much of the traffic that they would otherwise have to handle. But the Interstates nevertheless service a great deal of roadside development indirectly, at the interchanges and along nearby urban arterial routes. Most urban highways had no access restrictions, and development along them increased traffic both on the unrestricted highways and on nearby Interstates. As late as 1970, after 13 years of Interstate construction, Interstates accounted for only 18% of urban highway mileage. Few urban primary routes Ñ the other 82% of urban highway mileage--were true limited-access highways. With the formulation and enforcement of zoning ordinances left in the hands of local planning boards and city councils, careful land-use planning along open-access urban highways was impossible.31.

Demand restrictions or tolls simply were not a feasible outcome of the policy matrix of the 1950s. First, the coalition of highway industries was opposed. The proliferation of toll roads in the 1940s and 1950s was indeed the common enemy against which the various highway industries had united. Second, the benefits of increased traffic--to roadside entrepreneurs and to automobile-related industries--were among the attractions of a major highway program. Shortly after leaving the White House, Eisenhower told Walter Cronkite why he thought highways were a good investment: "If you build a road," he said, "you make it possible for more automobiles to be used, and more oil and gas is used, and more hot dog stands are built along the road." The corporate commonwealth, which launched the postwar national highway program to meet demand, also insured that demand would constantly increase.32.

The elementary economic principle that an increase in supply leads to an increase in demand (barring a satiated market) was obviously common knowledge among planners. No doubt the promise of ending congestion was made in large part as a good public relations move. Besides, actualizing potential highway demand was not in itself a bad idea. There is at some point an optimum level of congestion, at which the ratio between the value of traffic moved per hour and the cost of the highway

is highest. Even at the optimum level of road supply, congestion would persist, at least at peak demand periods. With abundant provision of roads, however, some demand of little value is activated. In the 1950s, for the first time in automotive history, many high school students were driving to school. Chuck Berry sang of teenagers "cruisin' and playin' the radio/With no particular place to go." Of course, much of the untapped potential demand for highways *was* economically valuable. But much of that valuable potential demand was already being met by non-highway transportation modes, especially rail.33.

The statistics cited earlier, documenting the sharp decline since 1950 in urban mass transportation, tell this story. The lost ridership did not represent lost population in metropolitan areas. Passengers on the declining urban rail systems were potential highway users, and from 1950 on a great deal of that potential was actualized. Thus, while urban freeways may have substantially increased the numbers of *cars* entering cities, the number of *people* entering them was certainly much less augmented, if at all.

The irony here is that, in transferring riders from rail to road, the highways-only policy markedly reduced the possible population density that a city could reach without becoming severely congested. Since rail transport can move far more people per unit area,34. then a rail system at a given level of congestion will move more people than a highway system at an equal level of congestion. Thus, a highways-only attempt to reduce congestion will in fact *increase* it, by transferring passengers from a mode that is well suited to density of ridership to one that is not.

Public preferences, of course, are an important factor as well. It is clear that most Americans who could afford a car chose to have one. Whether we should understand this to mean that the typical traveler preferred the car under all circumstances is another question. A 1958 *Fortune* magazine survey found that most automobile commuters, facing home-bound drives at 20 or 25 miles per hour, would prefer a "new rapid transit system" to "new highways and expressways." 70% of drivers said they would "seriously consider switching to a first-class transit system"--given the choice.35.

But the highways-only policy precluded the possibility of a pure, market-based decision by travelers. The market choice commuters confronted was not simply, "would you prefer to commute by road or by rail?" it was really, "would you prefer to commute on roads funded by the federal and state governments at ten billion dollars per year or on trains with no such funding?" Commuters' alternatives were new expensive highways and aging mass transit. In 1958, most of the rolling stock of U.S. commuter rail systems was over twenty years old; 29 percent of it had been purchased before 1920. Even buses, which presumably would not suffer from a major highway program, were less and less appealing. In 1962 the average city bus was about ten years old. Public choice operated in a market that was highly distorted by an imbalanced federal intervention.36.

The approach of the highways-only policy to fighting urban traffic congestion was flawed in still another way. A prominent city planner, Harland Bartholomew, warned in 1949, "to introduce large new volumes of traffic without attention to the parking problem is highly unwise." One of the problems Eisenhower wanted the expanded highway program to "solve" was the lack of adequate parking downtown. Parking was already seriously in short supply when he first proposed the program in 1954. But when the president's friend, General Clay, reported back to him in January 1955 with a plan of attack, the parking problem had been dropped from the agenda. The Clay report acknowledged that "offstreet parking for passenger cars and termini for buses and trucks are essential components of the highway transportation picture." But the committee recommended no action: "Federal funds should not be used for construction of offstreet parking facilities, or for the acquisition of land for such purposes," the report reads, despite the president's request. The committee cited a lack of precedent for such aid. "Progress in this field must continue without federal funds," it urged, but how this was to happen was anybody's guess.37.

We may never know exactly how the parking issue came to be dropped, but it is clear that the coalition that Clay pieced together was interested in keeping federal highway expenditures directed at the actual construction of roads, since they were funded by the gas tax and automotive excises. The coalition's success at this is evident in the 1956 act, which reserved federal dollars for right of way acquisition and highway construction only. Expanding the subheadings of the program would mean diluting the revenues from these excises. Most of the members of Clay's coalition actually had little need of publicly funded parking garages. Clay clearly had little possibility of forming a strong pro-parking coalition. If parking lots were kept private (or municipal), the result would then be a virtual subsidy of urban highways by those paying for parking (motorists and municipal parking authorities) accruing to those who benefited from the urban routes without paying for the parking (trucking, bus, and construction industries). By not paying for a necessary concomitant of urban freeways, some members of the interest-group coalition were realizing a cross-subsidy.38.

There should be nothing surprising about this. By definition, interest groups coalitions behave in their own best interest. Whether the above explanation has merit or not, the point is that somehow the investment in urban highways ended up being completely out of proportion to the investment in downtown parking facilities.

The consequences for the city were grave. Under pressure to accommodate the increased numbers of cars, but lacking funds for expensive, multilevel garages, city governments resorted to the cheapest available solution. Open, single-level lots spread in every city. Often these lots were made available as the result of local slum clearance projects. Sometimes urban renewal projects, funded at two-thirds by the federal government, opened up the land. Efforts to "coordinate" the urban component of the highway program with urban renewal, begun in the early 1960s, meant, in part, putting parking lots where low-cost housing had been. (More often it meant the acquisition of freeway rights of way through low-income neighborhoods.) The Futurama had envisioned the metropolis of 1960 as a garden city, with a third of the land used for parks. But where the GM model showed parks, the real city of 1960 had parking lots.39.

The lack of funds for parking in the presence of a major freeway program meant the exacerbation of congestion. Stationary vehicles crowded parking lots, which could not meet demand. curbside parking clogged city streets, by reducing usable road width. Motorists searching for a place to park added to the congestion among moving traffic. And with the decline in rail and bus systems, growing congestion did not mean that more people were being moved.

Fighting congestion was the main rationale for making American highways enter cities to a degree unmatched elsewhere in the world. The consequences of this experiment ultimately transformed U.S. urban transportation policy. It mobilized citizen involvement in the problem of transportation in cities to a degree unknown in the 1950s. Critics of the policy, in government and out, achieved broad bases of support by confronting this problem. Expertise in urban transportation matters, which had been the exclusive domain of highway industry, emerged in other institutions, both governmental and private. New federal agendas, some contradictory to the highways-only policy, emerged out of the political matrix of the 1960s. The road builders' promises--to end congestion, to keep downtowns vital--visibly failed to pan out. In brief, the vigor of the government-industry partnership that brought the freeways into the cities did not last.

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3. The Creation of Opposition

When the federal government began a large scale urban highways program, hardly anyone objected. As Eisenhower's advisor Danielian put it, "everybody wants better highways." Such opposition as

existed seemed provincial. Railroads were opposed, but they were an interested party. Virginia's Senator Harry F. Byrd spoke for some in Congress who feared that a big program put the country in danger from "the iron hand of the federal bureaucracy," but most such complaints were silenced by the Trust Fund arrangement worked out in the 1956 act. A few critics outside of Washington worried as Lewis Mumford did that supporters of urban highways "hadn't the faintest notion of what they were doing," but these were voices crying in the wilderness--and smacking of elitism.40.

Once construction began, however, some stood in wonder at the scale of destruction necessary to build a freeway through a city. Urban highway projects had been undertaken since the 1920s, but there was no remote precedent to the projects undertaken in the middle and late 1950s. The BPR stated frankly in 1954 that to build a freeway "it is often necessary to tear down block after block of buildings." But until the demolition reached a truly massive scale, opposition was hard to find.41.

Probably the earliest major battle was that waged by New Yorkers fighting the Cross-Bronx Expressway project in the mid 1950s. 1959 brought the opposition's first great success story: stopping--in the middle of its tracks--the elevated Embarcadero Freeway in San Francisco. The unfinished portion remained a monument to the freeway opposition until it was finally torn down in 1990, after suffering damage in the 1989 earthquake. In the 1960s resistance was commonplace in cities nationwide, and in several cases the freeway opponents won.42.

Most of the battles of the freeway revolt failed to stop highway projects. Nevertheless, by 1970, little new freeway mileage was being built. Today, the only unbuilt portions of the Interstate System as planned are urban routes. Citizen opposition does not by itself explain the trend against urban highway construction. Nevertheless, popular anti-freeway sentiment was significant in a number of ways.

First, the freeway revolt, and especially its successes, are symptomatic of the possibilities open to political minorities in a relatively decentralized federal system. "Multiple points of access," as David B. Truman refers to them, dramatically increase the opportunities of groups to affect political outcomes. A domestic federal program can often be challenged (or promoted) not only in Washington but in state capitals and city halls as well. This is true for the federal-aid highway program, in which the states play a pivotal role.43.

The successes of the freeway revolt, however, were not achieved at the state level. Of all levels of government, the states are the most interested in keeping the highway program on track, because states receive 50% funding for approved federal projects and 90% for Interstate projects. Until 1962, state indifference to the urban freeway opponents was exacerbated by the disproportionate representation of rural districts in state legislatures (which was largely corrected after the Supreme Court's decision in *Baker v. Carr*).44.

In city governments, however, the freeway revolt could not be ignored. Mayoral candidates who could tap the anti-freeway sentiment could realize a powerful political reward. When Robert F. Wagner, Jr., was campaigning for mayor of New York City, he promised voters he would oppose the Cross-Bronx Expressway as planned. Once elected, Wagner reneged. Robert Moses had prevailed upon the new mayor with the persuasive threat of a loss of state and federal highway money. In 1965, Mayor Wagner also endorsed the plan for a freeway cutting right through lower Manhattan. This time, candidate John Lindsay was the one to make political capital by opposing a project; he announced his opposition to the Lower Manhattan Expressway. He, too, once in office, backed away from his campaign promise by endorsing a modification of the original plan. But finally, in 1969, Mayor Lindsay, in the heat of a reelection campaign, helped stop the project. The Lower Manhattan Expressway was never built.45.

These dramas were reenacted in dozens of cities. Sometimes, as in the cases of San Francisco and New Orleans, the city council was the weak link in the chain, the point at which freeway opponents could score their successes. Aspiring city councilmen could boost their political careers by coming out against projects; Edward Koch and Michael Dukakis are two of the more successful users of this strategy. City government was the level of the federal order that was the most vulnerable to the freeway revolt.46.

A second important concomitant of the freeway revolt were the new sources of authority in urban planning that emerged from it. In the 1950s it was fairly easy for road builders to dismiss freeway protesters publicly as "selfish and short-sighted."47. In the 1960s, however, such bluntness played right into the hands of the growing ranks of a completely new class of transportation authorities. Unlike the roadbuilders, they could not claim the status of "engineer" or "technician." Some could claim to be "planners." But their self-proclaimed competence to pass judgment on complex transportation matters was endorsed by large numbers of people who were dissatisfied with policy as it was. The new environmental, anti-automobile sensibilities of the 1960s made an ideal atmosphere for the highway opponents. Lewis Mumford's lonely critique of the highway program in 1958 was belatedly seconded by a host of critics, who challenged the road builders' claim to expertise.

A few emerged straight out of the grassroots of the freeway revolt. Helen Leavitt, a resident of the Adams-Morgan neighborhood of Washington, D.C., was spurred into action in 1965 by the prospect of a "a freeway cutting through" her living room. Her 1970 book, outspoken in tone but thoroughly researched, was a minor bestseller. She popularized a revision of Parkinson's Law ("work expands to fill the time allotted to it"): "congestion rises to meet road capacity." The *New York Times Book Review* gave the book a warm endorsement on its front page, and she earned a popularly based claim to authority in transportation matters, despite her complete lack of credentials.48.

The titles of the new books of the freeway revolt are indicative of their tone. Leavitt's was called *Superhighway--Superhoax*. Others were *Highway to Nowhere, The Pavers and the Paved, Road to Ruin, and Autokind vs. Mankind*. Numerous newspaper and magazine articles cast the freeway revolt in a favorable light. Even *Reader's Digest* and the *Saturday Evening Post* published articles critical of the highway program.49.

Robert Moses had written off early critics of the urban freeway as "sideline kibitzers and backseat drivers." But as the ranks of critics grew, so did the numbers of respectable and prominent figures among them. A sort of pseudo-expert, lacking engineering credentials but able to persuade, emerged in the course of the debate. Some, like Daniel Patrick Moynihan (then a sociologist at Harvard), held academic posts; others, like William H. Whyte, Jr., were journalists or well known writers and social critics. Some could even carry weight at planning hearings. The "advocate-planner" could give the freeway opposition the authority it needed to influence a decision. By 1974 at least one of them, Bradford Snell, had even made it as far as a Senate hearing. His testimony planted the seed of a widely accepted conspiracy theory in which pro-highway industries combined to do in Los Angeles's commuter rail system.50.

By the middle or late 1960s, the anti-freeway position had gained a measure of national respectability. In the 1950s, there was no such thing as an important anti-freeway constituency in the electorate. A decade or so later, however, a number of members of Congress realized a political reward by tapping the growing hostility. A few wrote articles and even books on the problem. Once he began his career in elective office, Daniel Patrick Moynihan already had a list of writings opposing urban freeways to his credit. Senator Claiborne Pell of Rhode Island wrote the successful *Megalopolis Unbound* in 1966, urging a greater federal investment in railways in urban regions. Some in Congress backed specific

anti-freeway causes (among them Thomas P. O'Neill), while others (such as William Proxmire) criticized the highway program in general.51.

These trends bode ill for the government-industry partnership in road building. One basis of that alliance was being seriously eroded: the exclusive reliance on industry expertise in highway planning. By the mid 1960s, critics of highway planning had gained access to decision-making forums. Some of them had made claims of expertise which, if disputed, were widely endorsed. Political leaders at all levels had found new bases of support. The partnership endured, but the honeymoon was over.

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4. Toward "Multimodalism"

When Eisenhower left office, the vigorous program of highway construction that he helped to create must have seemed his most strikingly successful legacy in domestic affairs. But with his departure the nation lost the only president who had a keen, personal enthusiasm for highways. Eisenhower's faith in the value of road building went back 1919, when as a young Army officer he had participated in a study of the military value of U.S. roads. At the end of the Second World War he had been deeply impressed by the "superlative system" of highways in Germany. As president, Eisenhower built the coalition that vastly expanded federal aid to highways. However, Eisenhower's successors, though far from being critical of highways, were not so single-minded about them.52.

Just thirty-nine days into his term, President Kennedy urged Congress to keep the highway program on course as planned. But his administration and those that followed it began to tack new agendas to the program. Some were simply designed to ameliorate the worst side effects of urban freeways. Others were more fundamentally challenging. In his February, 1961 message, Kennedy urged relocation assistance to displaced residents (which had not been required before) as well as other, lesser additions to the highway law. In 1962 the president, again addressing Congress, urged "a long-range program of Federal aid to our urban regions for the revitalization and needed expansion of public mass transportation." The goal, the president said, was to achieve "balanced urban transportation."53.

Parallel developments were occurring in Congress in the early 1960s. There were hearings on Capitol Hill on the problem of declining mass transportation, and growing support among members for some sort of federal aid for mass transit. Significant was the rising use of the word "balance," both by lawmakers and by the president. Those who advocated "balance" were identifying the most basic problem with the highways-only policy: intervention in behalf of one mode of transportation affected other modes as well. Lawmakers' use of the word marked something else of great significance: they formulated policy without consulting the expertise of highway industry or of the BPR. "Balance" promoters, such as Senator Harrison Williams of New Jersey, sought a transportation policy that would aid the differing modes according to their differing characteristics. "We must have transit as well as highways," Williams argued, "using each to their greatest natural advantage."54.

The 1962 Federal-Aid Highway Act included the most significant alterations in federal urban transportation policy since 1944. The act sought to "encourage and promote the development of transportation systems, embracing various modes of transport." Urban highway planning was to be "properly coordinated with plans for improvement in other affected forms of transportation." After July 1, 1965, projects not "based on a continuing comprehensive planning process" were not to receive federal money. The act also provided federal matching grants for relocation assistance.55.

The 1962 act allotted no money for mass transportation. Furthermore, no city was denied funds for failure to comply with the comprehensive planning provision, as the measure proved unenforceable.

A trickle of aid was available under the 1961 Housing Act for loans for the purchase of buses and grants for planning and for research projects. No substantial federal aid for mass transportation yet existed.56.

The legislative barrage called the "War on Poverty" began to change that. One of the new programs passed as part of the antipoverty effort was the Urban Mass Transportation Act of 1964. Among its provisions, the act offered federal funding for up to two-thirds of equipment purchases. Modest by comparison to the highway program, it was nevertheless an unprecedented and permanent departure from the highways-only policy.57.

Other highway measures of the mid 1960s that were not specifically relevant to cities contributed to the proliferation of mandates that the highway administrators had to fulfill. The most important of these were new safety standards and highway beautification. The methods of the corporate commonwealth--business-government cooperation, insulated from popular politics--no longer determined federal transportation policy. Legislators found new bases of support for their political agendas, outside the highway coalition.58.

By far the most important federal-level development of the mid 1960s was the establishment of the new cabinet-level Department of Transportation in 1966. This large new bureaucracy brought together transportation-related agencies in an effort to coordinate planning. The modest Bureau of Public Roads was replaced by the new Federal Highway Administration, now housed in the Transportation Department. The Department kept its own staff of transportation experts who were responsible only to the Secretary, not to any private group.

Soon after its formation, the Transportation Department began the process of completely recasting federal policy. "Multimodalism" was their new guiding principle. To administrators, the new term meant relying on a balance of transportation modes, using each where it was best suited. They also conducted research in new modes of rapid ground transportation.59.

With respect to urban freeway planning, the new department's change of approach was marked. Without disavowing it altogether, the Transportation Department relegated the freeway to a far more modest role in its overall scheme of urban transportation. A 1968 DOT document, *The Freeway in the City,* made recommendations remarkably similar to those made by the 1960 *Buchanan Report* in Britain. For the first time, a U.S. transportation agency recognized what the *Buchanan Report* referred to as the problem of "the accommodation of the full potential" of automotive traffic:

> There is an absorptive capacity of a city for cars, just as there is of a building for occupants. This is determined by the capacity of all the streets together. When it is exceeded, health and safety as well as environmental quality are jeopardized, and the number of cars must be limited.60.

This acknowledgement was a truly revolutionary departure for American transportation policy. In the 1950s, the cause of congestion relief had justified highway location near or through urban centers. By 1968, DOT was suggesting what amounted to the opposite conclusion: that in conditions of high congestion, "the number of cars must be limited." The conclusion of Britain's *Buchanan Report*--that there is a "need to consider to what extent and by what means the full potential" of automotive traffic "is to be curtailed" Ñ is strikingly similar. Over the years, U.S. urban transportation policy had moved from the "insufficient roads" interpretation of congestion to the "too many cars" view.61.

Through the middle 1970s, the Transportation Department continued to promote a multimodal approach to national transportation problems. It had a considerable measure of political support in this

area. A high-water mark of this effort was reached in the Nixon administration, when the Highway Act of 1973 allowed limited diversion of Highway Trust Fund money for mass transportation expenditures. The Department aided major new commuter rail systems in San Francisco, Washington, and Atlanta. Also in those years a new effort at improving national rail service culminated in the establishment of Amtrak (in 1971) and in making the first step (in 1973) toward the establishment of Conrail.62.

But the multimodal approach had limited possibilities. It was an utterly bureaucratic undertaking with little chance of winning voters' interest at the national level. A coalition-building campaign such as Eisenhower had waged in the mid-1950s was never attempted. Transportation was not so exciting an issue to Johnson or Nixon as it had been for Eisenhower. Even if they had wanted to take up the cause, the possibilities for creating a powerful coalition of pro-multimodalism industries were relatively slight. By 1970, furthermore, the freeways were largely finished and the transit systems remained weak.

In the end, it was not a groundswell of reforming spirit that changed U.S. urban transportation policy. Neither did the change originate in the new agendas of the Johnson and Nixon administrations. At its root, the cause of the change in policy was that the original policy had failed. Intended primarily to reduce or end traffic congestion, the urban freeways could only relocate it, easing traffic flow in some areas while hindering it in others. As a result, the government-industry partnership in highway building suffered.

Achieving conditions allowing the free movement of cars in cities was a goal that seemed more and more illusory, and government--in the new Transportation Department--grew less confident in the partnership's original highways-only plan. One federal planner told a reporter in 1968 that eventually "the whole damned country will probably be paved over." In 1970, Massachusetts governor Francis Sargent ordered a partial moratorium on freeway construction in Boston. Explaining his change of heart, Sargent said,

> Four years ago, I was the commissioner of the Department of Public Works--our road building agency. Then, nearly everyone was sure highways were the only answer to transportation problems for years to come. But we were wrong.63.

Ultimately, the only urban areas in which congestion was partly relieved were not cities at all, but "edge cities" (as a recent book calls them.)64. These places lack the population density and spatial compactness that have traditionally been part of the meaning of the word "city." In them can be seen the basic problem of the highways-only policy: cities (traditionally understood) are not compatible with a transportation system that is overwhelmingly automotive. To make the automobile function in the city, the city had to be transformed.

To a considerable degree, this has happened. Perhaps to a still greater degree, however, American cities have been left in limbo, not quite converted to the use of automobiles yet not adequately supplied with mass transportation. When policy makers backed away from their great experiment in the mid 1960s, they left the remnants of the pre-automobile cities with their traditional mode of transportation hobbled, and with the new mode unable to replace it effectively. Mass transit has made a modest recovery since its nadir in the late 1960s, but the legacy of the highways-only policy is that most Americans no longer rely on it.

Notes

1. Ministry of Transport, *Report of the Steering Committee* (1960). Quoted in Colin D. Buchanan et al., *Traffic in Towns: The Specially Shortened Edition of the Buchanan Report* (Harmondsworth, England, 1964), 140.

2. U.S. Congress, House, *National Highway Program*, 84th Congress, 1st Session, 1955, House Document No. 93, as quoted in Robert L. Branyan and Lawrence H. Larsen, eds., *The Eisenhower Years: A Documentary history* (2 vols., New York, 1971), I:538; U.S. Congress, House, 84th Congress, 2nd Session, 1956, House report No. 2022, as quoted in *Eisenhower Administration,* I:554.

3. U.S. Department of Transportation, *A Statement of National Policy by the Secretary of Transportation* (Washington, D.C., 1975), 5, 9.

4. U.S. Department of Commerce, Bureau of the Census, *Historical Statistics of the United States: Colonial Times to 1970,* 2 vols. (Washington, D.C., 1975), I:718, 721; U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1985* (Washington, D.C., 1987), 189. Actual figures: urban passenger-miles of motor vehicles, passengers carried, 1950: 184,476 million, 1970: 496,767 million; urban rail passengers carried, 1950: 6,168 million, 1970: 2,116 million; urban highway mileage (federal-aid primary system plus Interstate system), 1950: 15,153, 1970: 35,410; urban rail mileage, 1950: 10,813, 1970: 1,081. City bus passengers carried, 1950: 9,420 million, 1970: 5,034 million.

5. Robert Moses, *Public Works: A Dangerous Trade* (New York, 1970), quoted in Robert A. Caro, *The Power Broker: Robert Moses and the Fall of New York* (New York, 1974), 849.

6. A good (though sympathetic) comparative examination of the "freeway revolts" of c. 1959-1971 may be found in Alan Lupo, Frank Colcord, and Edmund P. Fowler, *Rites of Way: The Politics of Transportation and the U.S. City* (Boston, 1971), especially ch. 16, "The Conflicting 'Logics' of Transportation Politics," 204-235.

7. The best recent work on Eisenhower's political and economic philosophy is probably the one by the former chairman of his Council of Economic Advisors: Raymond J. Saulnier, *Constructive Years: The U.S. Economy Under Eisenhower* (Lanham, Maryland, 1991), see esp. 1-35, 71, 74, 86, 127, 233; the best treatments of the BPR and highway industry in the evolution of the Interstate Highway Program in the 1950s are Mark H. Rose, *Interstate: Express Highway Politics, 1939-1989*, revised edition (Knoxville, 1990), 29-94, and Bruce E. Seely, *Building the American Highway System: Engineers as Policy Makers* (Philadelphia, 1987), 192-223.

8. *Eisenhower Administration,* I: 537; President's Advisory Committee on a National Highway Program, *A Ten-Year National Highway Program: A Report to the President* (Washington, D.C., 1955), 1; U.S. Department of Commerce, *Bureau of Public Roads, Highways in the United States* (Washington, D.C., 1954), 18; *Historical Statistics*, I:716; U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, registrations, 1953: 56,217,400, 1989 est.: 188.700,000); Robert Moses, "We Can Lick Congestion," in Ford Motor company, *Freedom of the American Road* (Dearborn, Michigan, 1956), 46-48.

9. The idea that there has been a federal "subsidy" of motor vehicle transport is controversial. Gary T. Schwartz, in his article "Urban Freeways and the Interstate System," *Southern California Law Review* 49 (March, 1976), 459, argued that the Highway Trust Fund "cannot possibly be called a 'subsidy to Detroit," at least if 'subsidy' is used in its conventional sense. Motorists contribute every penny that the Trust Fund distributes." Schwartz is right that the Trust Fund is not subsidized. Whether urban highways are subsidized is, however, another matter. Schwartz does not take into account: 1) Since no

mechanism comparable to the Trust Fund existed for other modes of transit, these modes were put at a comparative disadvantage. 2) A considerable portion of highway expenditures (especially for maintenance, but also for relocation of displaced persons, adjustment of the surrounding road net, provision of parking, and enforcement of traffic laws) was not funded with Trust Fund money. 3) The gas tax charges users the same amount for (very expensive) urban mileage as it does for (relatively cheap) rural mileage. 4) States, which continued to supply most of the money used to build roads,raised varying proportions of their road money from sources other than "user fees." 5) Travelers frequently contributed to the Trust Fund in a setting devoid of choice; that is, "user fees" raised on a given route might just as well have reflected an absence of modal choice as a true preference for roads. 6) Absence of modal choice grew worse over time as Trust Fund expenditures supplanted non-highway transport modes with highways; thus, the modal preferences of travelers and Trust Fund receipts became increasingly unrelated. By the mid 1960s, highway transportation was a virtual monopoly, in which the willingness of the motorist to pay "user fees" had less to do with any preference for that mode than with the absence of any alternative mode. This is especially true in cities, where population density otherwise favored the use of mass transit. A helpful examination of the subsidy question is found in John R. Meyer and Jose A. Gomez-Ibanez, *Autos, Transit, and Cities* (Cambridge, Mass., 1981), 290-95.

10. D.J. Reynolds, "Urban Motor Ways and Urban Congestion," *British Transport Review* (August-December 1961), in George M. Smerk, ed., *Readings in Urban Transportation* (Bloomington, Indiana, 1968), 191-202, 194.

11. See Rose, *Interstate*; Seely, *Building the American Highway System*; James B. Flink, *The Car Culture* (Cambridge, Mass., 1975); Mark S. Foster, *From Street Car to Superhighway: American City Planners and Urban Transit, 1900-1940* (Philadelphia, 1981); Kenneth T. Jackson, *Crabgrass Frontier: The Suburbanization of the United States* (New York, 1985); John B. Rae, *The Road and Car in American Life* (Cambridge, Mass., 1971).

12. Federal-Aid Highway Act, December 20, 1944, Public Law 84-627, in *Readings in Urban Transportation,* 231-234. Average annual federal aid appropriations 1936-1940: $157 million, 1946-1952: $414 million. *Highway Statistics* (1985), 115.

13. Readers interested in the details of the achievement of a well funded national highway program are referred to Rose, *Interstate,* 29-94. While Eisenhower was amenable to bond issues to pay for roads, Congress was not (*Interstate,* 78-80).

14. 1953 appropriation: $500 million, 1959 appropriation: $3,475 million. *Highway Statistics* (1985), 115.

15. U.S. Department of Agriculture, Bureau of Public Roads, *Toll Roads and Free Roads* (Washington, D. C., 1939); National Interregional Highway Committee, *Interregional Highways* (Washington, D.C., 1944); *Ten-Year National Highway Program* (the Clay Committee Report), 2, 32, passim. Members of the Committee were drawn from the following businesses: Continental Can Company (Clay), Bechtel Corporation, Bankers Trust Company, Allis Chalmers Manufacturing Company. The Teamsters Union was also represented by its president, David Beck. Organizations consulted were:
Directly Interested in an Expanded Highway Program
American Association of State Highway Officials
American Automobile Association
American Petroleum Institute
American Road Builders Association

American Trucking Associations
Associated General Contractors of America
Automobile Manufacturers Association
Automotive Safety Foundation (affiliate of preceding)
Independent Advisory Committee to the Trucking Industry
National Association of Motor Bus Operators
National Council of Private Motor Truck Owners
National Highway Users Conference
National Parking Association
Truck-Trailer Manufacturers Association
Indirectly Interested in an Expanded Highway Program
American Farm Bureau Federation
American Municipal Association
National Association of County Officials
National Association of Township Officials
National Grange
U.S. Chamber of Commerce
U.S. Conference of Mayors
Opposed to an Expanded Highway Program
American Railway Association

16. Federal-Aid Highway Act of 1956, Public Law 84-627, in *Readings in Urban Transportation,* 234-236.

17. Robert Griffith, "Dwight D. Eisenhower and the Corporate Commonwealth," *American Historical Review* 87 (February, 1982), 88, 100.

18. Eisenhower to George Sloan, March 1, 1952, in *Eisenhower Administration* I:25; *The Public Papers of the President of the United States: Dwight D. Eisenhower,* 8 vols. (Washington, D.C., 1954-1962), 3:22.

19. Griffith, "Corporate Commonwealth," 121.

20. Danielian to Eisenhower, August 16, 1955, in *Eisenhower Administration,* I: 550-51.

21. Federal-Aid Highway Act of 1956, 70 Stat 374.

22. For British highways, see George Charlesworth, *A History of British Motorways* (London, 1984).

23. *Ten-Year Highway Program,* 2,32.

24. *Ten-Year Highway Program,* 16; *Highways in the United States,* 7; Robert Moses, *Working for the People: Promise and Performance in Public Service* (New York, 1956), 203; *Freedom of the American Road,* 4; U.S. Department of Commerce, Bureau of Public Roads, *General Location of National System of Interstate Highways* (Washington, D.C., 1955).

25. *Ten-Year Highway Program,* 29; *Public Papers, Eisenhower,* 8:781, 815; General Motors, *Futurama* (a "memento" of the New York World's Fair GM exhibit, "Highways and Horizons," 1939), 19-20. Claims of the type cited here are abundant in government and industry highway documents.

26. On origin and destination surveys, see *Building the American Highway System*, 166-67, and Laurence I. Hewes and Clarkson H. Ogleby, *Highway Engineering* (New York, 1954), 28-33.

27. *Highways in the United States*, 7; *Traffic in Towns*, 140. See also *Toll Roads and Free Roads*, 91-93; *Interregional Highways*, 56-62.

28. *Eisenhower Administration*, I:538; Norman Bel Geddes, *Magic Motorways* (New York, 1940), 4, passim; Moses, "Congestion."

29. *Futurama,* 2; *Highways in the United States* 18; *A Ten-Year Highway Program*, 8.

30. *Traffic in Towns*, 238-240.

31. *Highway Statistics: Summary to 1985*, 189. Instructive case studies in American Zoning are found in Richard F. Babcock and Charles L. Siemon, *The Zoning Game Revisited* (Cambridge, Mass., 1985), see especially ch. 7, "Sioux City Iowa: Don't Tell Us Where to Build a Shopping Center," 119-133.

32. Rose, *Interstate*, passim; Eisenhower to Cronkite, in CBS News, *Eisenhower on the Presidency*, Part One (Gettysburg, 1961), videotape by by Ambrose Video Publishing (New York, 1991).

33. On High School parking, see *New York Times*, September 18, 1960, section 4, p. 9.

34. A 1946 American Automobile Association publication lists the area taken by a driver without passengers as 56 square feet, that used by a street car passenger as 6.7 square feet. American Automobile Association, *Parking Manual* (Washington, D.C., 1946), 159.

35. Francis Bello, "The City and the Car," in *Fortune*, *The Exploding Metropolis* (Garden City, New York, 1958), 78-80.

36. American Municipal Association, *The Collapse of Commuter Service: A Survey of Mass Transportation in Five Major Cities* (Washington, D.C., 1960), quoted in Lyle C. Fitch and Associates, *Urban Transportation and Public Policy* (San Francisco, 1964), 43-44. he five cities surveyed were New York, Chicago, Philadelphia, Boston, and Cleveland.

37. Harland Bartholomew, "The Location of Interstate Highways in Cities," *American Planning and Civic Annual* (1949), 77; *Eisenhower Administration*, 538; *Ten-Year Highway Program*, 12.

38. Federal-Aid Highway Act of 1956. For a discussion of the allocation of parking costs, see D.J. Reynolds, "Urban Motor Ways," 196-98. For volumes of parking generated by various land uses, see Institute of Transportation Engineers, *Parking Generation,*second edition (Washington, D.C., 1987).

39. For a connection of urban renewal and parking, see Carol Hoffecker, *Wilmington: a Pictorial History* (Norfolk, Virginia, 1982), 199; On the coordination of urban highways and urban renewal, see *The Public Papers of the Presidents of the United States: John F. Kennedy*, 3 vols. (Washington, D.C., 1962-64), I:58.

40. *Eisenhower Administration*, I:549; *Virginia Municipal Review* (January, 1955), 10, quoted in Interstate, 78; Lewis Mumford, "The Highway and the City," *Architectural Record* (April, 1958), 179.

41. *Highways in the United States*, 7.

42. For the Cross-Bronx Expressway battle, see *The Power Broker*, 850-884; On the Embarcadero, see *Rites of Way*, 217, and Ben Kelley, *The Pavers and the Paved* (New York, 1971), 94-97, 133.

43. David B. Truman, *The Governmental Process: Political Interests and Public Opinion* (New York, 1951,1971).

44. Federal-Aid Highway Act of 1956. For a discussion of Baker v. Carr see Marian Lief Palley and Howard A.J. Palley, *Urban America and Public Policies* (Lexington, Mass., 1977).

45. *The Power Broker*, 870-75; *Working for the People*, 210. Helen Leavitt, *SuperhighwayÑSuperhoax* (Garden City, New York, 1970), 60-64.

46. *Pavers and the Paved*, 94-97, 133; Richard O. Baumbach, Jr., and William E. Borah, *The Second Battle of New Orleans: A History of the Vieux Carre Riverfront-Expressway Controversy* (University , Alabama, 1981), esp. 172. On Dukakis, see *Rites of Way*, 76, 81,103,105; on Koch, see *Superhighway-Superhoax*, 64.

47. *Working for the People,* 204-05.

48. *Superhighway-Superhoax*, 19, 9, plate 14, passim; A.B.C. Whipple, "Superhighway-Superhoax" (review), *New York Times Book Review*, May 17, 1970, p. 1, 22, 24.

49. Richard Hebert, *Highways to Nowhere: The Politics of City Transportation* (Indianapolis, 1972); A.Z. Mowbray, *Road to Ruin* (Philadelphia, 1969); Kenneth R. Schneider, *Autokind vs. Mankind: An Analysis of Tyranny, A Proposal for Rebellion, a Plan for Reconstruction* (New York, 1971); Whalen, "The American Highway: Do We Know Where We're Going," *Saturday Evening Post* (December 14, 1968), 22-27, 54-64. A brief but helpful list of popular works hostile to highways may be found in Schwartz, "Urban Freeways," 410 n. 14.

50. Moses, "Congestion," 48: Moynihan, "New Roads and Urban Chaos," *Reporter* (April 14,1960), 13-20,; Whyte, "Are Cities Un-American?" in *The Exploding Metropolis*, 23-52; Whyte, "Urban Sprawl," *Exploding Metropolis*, 133-156; Paul Davidoff, "Advocacy and Pluralism in Planning," *Journal of the American Institute of Planners* 31 (November 1965), 331-338; Bradford Snell, "American Ground Transport," in U.S. Congress, Senate Committee on the Judiciary, *The Industrial Reorganization Act: Hearings Before a Subcommittee on S. 1167*, 93rd Congress, Senate Committee on the Judiciary. For a hostile assessment of Snell, see Scott L. Bottles, *Los Angeles and the Automobile: The Making of the Modern City* (Berkeley, 1987), 1-4, 241,255 n. 2; For a more favorable treatment, see David J. St. Clair, *The Motorization of American Cities* (New York, 1986), 16-17, 33-34, 57. Snell's testimony has been widely influential, and served as a basis for a story on the television program "60 Minutes" and in the 1988 Hollywood movie *Who Framed Roger Rabbit?*

51. Moynihan, "New Roads and Urban Chaos"; idem, "Toward a National Urban Policy," *The Public Interest* (Fall, 1969), 3-20; idem, "Policy vs. Program in the '70's" *The Public Interest* (Summer 1970), 90-94; Claiborne Pell, *Megalopolis Unbound: The Supercity and the Transportation of Tomorrow* (New York, 1966); For O'Neill, see *Superhighway-Superhoax*, 57-58; Rites of Way, 56. For Proxmire, see Jerry L. Mashaw, "The Legal Structure of Frustration: Alternative Strategies for Public Choice Concerning Federally Aided Highway Construction" *University of Pennsylvania Law Review* 122:1 (November, 1973), 17 n. 74.

52. Dwight D. Eisenhower, *Mandate for Change, 1953-1956* (New York, 1963), 548.

53. *Public Papers of the Presidents: John F. Kennedy*, I:126-133, esp. 132; 300.

54. U.S. Congress, Senate Committee on Banking and Currency, "Statement of Harrison A. Williams, Jr., a Senator from the State of New Jersey," *Urban Mass Transportation: 1962*, 52-63. In Smerk, ed., *Readings in Urban Transportation*, 64-78, 69.

55. Federal-Aid Highway Act of 1962, in *Readings in Urban Transportation,* 236-37.

56. On the ultimate unenforceability of the comprehensive planning requirement of the 1962 act, see Thomas A. Morehouse, "The 1962 Highway Act: A Study in Artful Interpretation," *Journal of the American Institute of Planners* 35:3 (May, 1969), 160-168. For the mass transit provisions of the 1961 Housing Act, see *Readings in Urban Transportation*, 256-265.

57. For the Urban Mass Transportation Act of 1964, see *Readings in Urban Transportation,* 310-19.

58. Highway Beautification Act of 1965, 79 Stat 1028; Highway Safety Act of 1966, 80 Stat 731; Historic Preservation Act of 1966, 80 Stat 915. For a typical example of industry reaction to such measures, see "ARBA [American Road Builders Association] Targets: Beauty and Research," *Engineering News-Record* 176:9 (March 3, 1966), 14.

59. A good examination of the establishment of DOT is Herman Mertins, Jr., *National Transportation Policy in Transition* (Lexington, Mass., 1972), ch. 4, "The Department of Transportation," 77-103.

60. *Traffic in Towns*, 140; U.S. Department of Transportation, Urban Advisors to the Federal Highway Administrator, *The Freeway in the City* (Washington, D.C., 1968), 29.

61. *Freeway in the City*, 29; *Traffic in Towns*, 140.

62. Federal-Aid Highway Act of 1973, 87 Stat 250; Rail Passenger Service Act of 1970, PL 91-518; Regional Rail Reorganization Act of 1973, PL 93-226. For DOT's commuter rail projects, see Boris S. Pushkarev, *Urban Rail in America: An Exploration of Criteria for Fixed-Guideway Transit* (Bloomington, 1982); for a hostile assessment of them see Andrew Marshall Hamer, *The Selling of Rail Rapid Transit: A Critical Look at Urban Transportation Planning* (Lexington, Mass., 1976).

63. Whalen, "The American Engineer," 25; Lupo et al., *Rites of Way*, 106, 136.

64. Joel Garreau, *Edge City: Life on the New Frontier* (New York, 1991). For a more critical examination of the "edge city" phenomenon, see Robert Cervero, *Suburban Gridlock* (New Brunswick, New Jersey, 1986).