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Building the Political Infrastructure for High Speed Rail in North America

In this paper we examine the institutional and political obstacles that have held back development of high speed rail (HSR) policies and projects in North America, and the prospects for overcoming them. We demonstrate how national level institutions in both the U.S. and Canada could sustain only weak and amorphous HSR policy networks. At the sub-national level, we identify three funding formulas for HSR that failed to win broad enough political support to get projects off the drawing board. We then assess the political risks and incentives that political leadership must consider in building a broader HSR coalition, and highlight the importance of crafting a distributive benefits formula to ensure that a broad range of new stakeholders will "buy into" HSR policy.

by James A. Dunn, Jr. and Anthony Perl

High speed rail policy initiatives in Western Europe and Asia have revitalized passenger railroads as both a competitive mode of transportation and as a manufacturing sector able to produce industrial jobs and exports of equipment and expertise. (Strohl, 1993) In a recent article we examined the institutional and interest group nexus that underlay this remarkable rejuvenation. (Dunn and Perl, 1994) Using Atkinson and Coleman's (1989) typology of policy networks, we found that "strong" policy networks were essential in formulating and implementing the policies that led to European successes with the TGV in France, and the ICE and Transrapid maglev in Germany. The institutional and political preconditions for strong policy networks are generally lacking in Canada and the U.S. where state deci-

sion structures are dispersed, where public officials lack autonomy, and where interest groups are highly mobilized.

It is not surprising, then, that North America lags well behind Europe and Japan in redeveloping its passenger rail sector. We maintain that the most serious barriers confronting high speed rail (HSR) policy initiatives in North America are not geography, high levels of auto ownership, airline competition, or even a shortage of public funds, but the lack of the political and organizational capacity to carry through a successful HSR policy initiative. And we are not alone in this position. A distinguished national panel of transportation experts concluded its assessment of the prospects for high speed rail by saying, "It is clear that the United States does not have the institutional and financial mechanisms

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to evaluate [HSR] alternatives within the context of a national transportation system... There is no mechanism for introducing a new mode based on the savings achieved by reducing the need for future capacity expansion in other modes ... nor is there an institution with responsibility for making critical assessments of these intermodal tradeoffs." (National Research Council, 1991: v, 3)

Yet interest in high speed rail as a policy option has not died out in many parts of the transportation policy community. Part of this interest is stimulated by the success of the European and Asian initiatives. But another part comes from the results of many evaluations of the benefits that would flow from the successful implementation of high speed rail projects in North America. The same National Research Council panel that bemoaned America's lack of institutional and financial mechanism to support high speed rail also concluded that HSR's "public or external consequences appear to be largely positive or beneficial." (National Research Council, 1991: 121) These positive externalities would include diversion of travelers from congested airports and highways, thereby avoiding costly capacity expansions in these modes. They would also include a reduction in petroleum consumption, improved air quality, and increased economic stimulation via new jobs for construction and operation of the HSR system.

Will HSR fare better at the sub-national level? This paper examines the prospects for HSR in states and provinces because we believe that North America's long equivocation over HSR policy at the national level can be explained by the lack of a critical mass of sub-national policy initiatives. From highways to airports to mass transit, Washington has used state activity as a barometer to gauge the desirability of venturing into transportation initiatives.

In Ottawa, regional concerns have been equally decisive. It is thus crucial to understand the political, organizational, and financial strategies that have been tried, along with those which might yet be attempted, to move HSR initiatives off the drawing board. Can new stakeholders be mobilized to create more effective coalitions for subnational HSR policies? Examples of such potential new stakeholders include airport authorities, real estate development concerns, construction firms, national and transnational equipment manufacturers, private freight railroads and rail unions. We conclude with an assessment of the prospects for putting together broad subnational coalitions to support HSR initiatives, and how HSR might fit into the broader patterns of transportation development and the trends on technology diffusion.

National HSR Policy in North America Ephemeral Alliances and False Starts

American and Canadian governments are no strangers to HSR policy initiatives. By the mid 1960s, both Ottawa and Washington had formulated HSR policies with similar objectives to those of France, Germany, and Japan. Government support for research, development, and production efforts would move fast train technology off the drawing board, after which operating subsidies would introduce high speed train services to the traveling public. But despite initial accomplishments that paralleled Europe's high speed rail renaissance, most North American experiments did not blossom into commercial success. The North American policy environment, characterized by short term initiatives and abortive experiments, failed to translate innovation into profit for either manufacturers or operators. National governments tried unsuccess-

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fully to build corporatist policy networks that allied rail operators, equipment manufacturers, and transport bureaucrats in HSR development. With one exception, these HSR initiatives yielded a string of aborted projects and an increasing tendency to pursue analysis as an end in itself.

Metroliner and the Northeast Corridor. North America's sole HSR success story, the New York to Washington Metroliner, deserves more attention than it has received because it illustrates how even a relatively weak and short lived corporatist policy network could make substantial progress toward HSR policy development. In contrast to the way in which HSR initiatives were launched by a bureaucratic alliance of nationalized railways and transport ministries in Europe, the Metroliner in the U.S. was launched by an opportunistic policy initiative from the Congress.

The mid-1960s were a time of experimentation and a receptiveness to new policy initiatives in a wide variety of areas. Prodded by groups of disgruntled rail passengers, and encouraged by the leadership of Senator Claiborne Pell of Rhode Island, the Congress passed and President Johnson signed the High Speed Ground Transportation Act of 1965. The bill authorized \$90 million for the creation of an Office of High Speed Ground Transportation which was to support research, development, and construction of a high speed demonstration project in the Northeast Corridor. The Office was initially housed in the Department of Commerce. After the U.S. Department of Transportation (DOT) came into existence on April 1, 1967, the High Speed Office was transferred to DOT. The new agency's Northeast Corridor Project was to test HSR's potential as an alternative to airport and highway expansion in the congested Northeastern states. DOT would sponsor the construction of a new high speed passenger train and

contract with the private Pennsylvania Railroad, America's largest rail passenger carrier and owner of the tracks between New York and Washington, to operate this service. (Itzkoff, 1985: 60-62)

On the economic side, the New York to Washington rail line served the nation's busiest travel market. Unlike the rest of country, there was no empty space for new airports or highways. But despite the Northeast's growing gridlock, the Pennsylvania Railroad's conventional trains had been losing riders since the mid-1950s. If fast trains could bring travelers back to the railroad here, an underused infrastructure could substitute for costly and controversial airport and highway expansion. Politically, Daughen and Binzen (1971,136) note, the Pennsylvania Railroad's executives were uncharacteristically anxious to accommodate the government, in the hope of securing approval for a merger with the New York Central Railway. In this cooperative atmosphere, the Pennsylvania Railroad and DOT became HSR development partners. Washington put up \$11.5 million to the Pennsylvania's \$44.5 million investment in the Metroliner. Bids were solicited from the major equipment manufacturers who, in the face of an increasingly bleak market for passenger train sales, had done little to modernize their pre-war designs. Rather than picking a single firm, a \$21 million rolling stock contract was awarded to three builders, General Electric, Westinghouse, and the Budd Company.

The Metroliner's specifications, a cruising speed of 120 miles per hour with a maximum of 160 mph, promised performance similar to the European and Japanese fast trains that were under development. But where the American effort far outpaced other nations was in its implementation speed. While the French perfected TGV prototypes over a decade and the German magnetic levitation train has been under development

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for twenty years, the Metroliner went from being a policy proposal to entering revenue service in under four years. Such a crash program yielded predictable shortcomings — equipment was rushed into production with many bugs still unresolved, and the train arrived before enough track work had been done to permit extensive 120 mph running.

Despite technical flaws, the Metroliner proved to be a success with the traveling public. Its three hour running time was fast enough to attract riders away from existing air service, and to capture a new clientele willing to pay a premium fare for speedy train service unavailable elsewhere. Arriving thirteen years before the French inaugurated their TGV, and twenty-four years before Germany launched its Inter-City Express, the Metroliner had a head start in the race to start reversing the decline of rail passenger service. An alliance of government, train manufacturers, and a railroad that appeared similar to the strong policy networks at work in Europe had demonstrated that a fast passenger train could attract large numbers of new riders and might even have been able to make money in the North American transport market. But unlike Europe, this community of interests proved to be very short lived.

While the Metroliner project sped toward ridership success, larger and more powerful, economic forces were pushing both traditional U.S. passenger train operations, and the entire Northeast rail network, into an industrial crisis (Weaver 1985). Penn Central's losses from traditional passenger and freight operations drove the railroad into America's largest bankruptcy. Among the many consequences was the end of the fledgling policy network that had produced the Metroliner. Neither the DOT, nor the Penn Central's successors, emerged from the reorganization of passenger and freight services capable of

advancing HSR policy much further.

Washington's rail policy was refocused, by necessity, on rescuing traditional passenger trains from extinction, and assuring continued rail freight service in the Northeast and Midwest. Unlike the high speed experiment, partisan differences, legislative-executive rivalry, and the high cost of potential solutions precluded much coherence in policy. Instead, as Weaver (1985:87) notes, "Innovation in policy instruments served as a substitute for innovation in policy...."

The Penn Central's passenger operations were taken over by Amtrak, which was also charged with running a profitable national train network, while its freight service was picked up by Conrail. These two privately incorporated, but government-subsidized companies, were dubbed "quasi-public" and epitomized Washington's preference for incrementalism when confronted with costly and controversial policy options. Amtrak's dependence on Congress for subsidies has sharply constrained further HSR development, because of the need to distribute public resources on a nationwide scale.

Nevertheless, Amtrak, backed by legislators from the New England and Mid-Atlantic states has been able to persuade Congress to fund a "Northeast Corridor Improvement Project," which has continued incremental upgrading to the original Metroliner route, with a pending extension of electrified trains to Boston. For several years it has been seeking some \$300 million to purchase 26 new European designed high speed trainsets to operate on the corridor. These new trains, in themselves, would be only a "down payment" on a truly high speed rail line for the Northeast corridor, but they could provide enough of an impetus to keep hope alive among HSR advocates. Of course, Amtrak is under strong pressure from the Republican majority in Congress to slash its need for government

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operating subsidies to zero as its contribution to balancing the federal budget. If Amtrak's new focus on profitability exemplified in its recent major cost and service reduction actions can persuade the Republicans to continue its funding, HSR might be a major ingredient in the passenger rail corporation's economic resurrection.

Canada. In Canada, the federal government also primed the HSR development pump, but even though the country's largest railroad, Canadian National, was government-owned until 1995, and its passenger operator, VIA Rail, remains a public enterprise, HSR efforts have been disappointing. Ottawa subsidized the Bombardier company's creation of a "Light, Rapid, and Comfortable" (LRC) train. Designed to go 120 miles per hour on existing tracks, the LRC was supposed to offer speed at a bargain, since no costly track upgrading would be needed. But Cubukgil and Soberman (1984, 67) note that Bombardier's ten year LRC design program was carried out "in isolation from the rail passenger operating authority." Once completed, the LRC suffered from significant mechanical defects (Canadian Transport Commission, 1984). A lengthy and costly debugging process has succeeded in shortening the travel time of one of VIA Rail's Montreal - Toronto trains to four hours, more than twice the air travel time.

Acknowledging the LRC's failure to deliver a cheap HSR solution, Ottawa has funded studies of alternatives that require new or upgraded tracks. Pursued jointly with the provinces of Ontario and Quebec, these studies have yielded a report evaluating a \$10.5 billion, 1200 km, project forecast to carry 19 million passengers per year by 2005 (Transport Canada, et. al., 1995). According to the report, government would have to invest around 75% of project costs to attract private management and operators into

the enterprise. To date only the province of Quebec (where Bombardier is headquartered) has gone on record in favor of such a project. Ottawa and Ontario have taken no official position. In the aftermath of Quebec's close vote on pursuing independence, non-essential policy issues that could be divisive have been put on hold. False starts on both sides of the border demonstrate how national governments have repeatedly fumbled in their HSR initiatives. Where development efforts linked operators, builders, and transport bureaucrats, in ways reminiscent of Europe, success was possible. But when a single interest pushed HSR onto the policy agenda, the most that emerged was another study.

Subnational HSR Policy: Three Failed Funding Formulas

As state governments turned their attention to the HSR issue, they were confronted with complex opportunities and constraints. States which wanted HSR service could see three possible ways to bring it into existence. First, states could try to promote a federal-aid HSR program on the model of the other "cooperative federalism" transportation aid programs for highways and mass transit. This would require state matching funds, but the federal treasury would carry most of the costs. Second, states could fund the costs of an HSR program themselves, through annual appropriations, a dedicated tax, a bond issue, etc. Third, states could persuade private entrepreneurs to build and operate an HSR system, in return for an exclusive franchise, tax abatements, and other "innovative" economic development incentives. For fifteen years, the politics of state HSR policy development has revolved around numerous (and so far unsuccessful) attempts to find the right option or mixture of options from among these three

possibilities.

What prevented states from developing the kind of federal aid partnership for HSR that had long been established for highways and had been created for public transit by the early 1970s? Timing is important in launching new intergovernmental initiatives. Just as the success of the TGV began to attract interest in HSR programs in North America, the Reagan administration brought a hostile attitude toward new federal-aid programs. When the Republican administration was trying to slash or abolish an existing federal aid program for urban transit, it was not going to launch a new one for HSR. In the Democrat-controlled Congress, HSR got more sympathy but not much money. Potential HSR corridors are far more geographically restricted than the political base for public transit, a serious political flaw in the distributive politics of federal aid programs. Second, even in states where there was a real HSR possibility, there was only a potential constituency, not an actual, on-going operation with thousands of riders and employees, as was the case with transit. For state HSR projects, the operating entity would have to be created virtually *ex nihilo*, requiring advocates to confront a host of divisive questions about the new agency's mission: which towns would be bypassed, how much noise would the trains make, would it run through an environmentally sensitive area or a minority neighborhood, etc. Inevitably, there was a lack of unanimity even in states where HSR programs were under consideration.

The Clinton administration took office more favorably disposed to federal-aid for HSR, proposing at one point a five year program of \$1.3 billion. This initially created high hopes among HSR advocates. But the White House was not able to get even a Democratic Congress to increase HSR funding to that level. Competing priorities, balanced budget poli-

tics and changes in Congressional budgetary procedures have made it far more difficult to launch new spending initiatives than in the era when transit aid was created. (Vantuono, 1994) In the waning days of the 103rd Congress, a shadow of the administration's original plan was enacted as the "Swift Rail Development Act of 1994." (U.S. Congress, 1994) Sponsored by Rep. Al Swift, it authorized (not appropriated) up to \$184 million to be spent from 1995 through 1997 on HSR corridor planning and technology improvements. Perhaps more indicative of the congressional sentiment about the cooperative federalism prospects for HSR were several statements in Section 102 of the bill on "Findings; Purpose:"

"(4) new high speed rail service should not receive Federal subsidies for operating and maintenance expenses;

(5) State and local governments should take the prime responsibility for the development and implementation of high-speed rail systems;

(6) the private sector should participate in funding the development of high speed rail systems."

The second option, state funding of HSR projects, has had little success winning political approval by voters or state legislatures. Ohio, a "rust belt" industrial state which once had a thriving rail sector, was the first state to attempt a mainly state-funded project. It was attracted to HSR as much for its promise of bringing thousands of industrial and construction jobs to the state as for its transportation benefits. By being the first to get rolling with a real project, it hoped to nurture a whole production process and capture the high tech design, engineering and manufacturing jobs that would come with being the center of a new North American HSR industry. Later entrants might have to be content with just bolting HSR train kits together, but the first state to build an HSR system might capture an "early bird" fiscal divi-

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dend on the basis of its initial bold investment. (Netzer, 1991) But Ohio's plans were dealt a severe setback when, in a statewide referendum in 1982, the voters rejected a one percent sales tax earmarked for HSR. (Ohio Railway Organization, 1992) Since then no other HSR project based purely on state level public funds has been able to move beyond the preliminary planning stages.

The most notable attempt to use the third option, private sector-only funding, took place in Texas. In 1989, the state legislature passed the Texas High Speed Rail Act creating a state high speed rail authority, authorizing it to solicit proposals from private enterprises to build and operate an HSR system, but prohibiting any state funds from being spent on the project. In 1991, after spirited competition between two consortia representing the builders of the German ICE and the French TGV trains and their local partners, the Texas authority awarded a 50 year franchise to the group which came to be known as Texas TGV. Service was to connect Dallas-Fort Worth to Houston, San Antonio and Austin. A ridership study by Charles River Associates predicted that the high speed rail system would carry 14 million riders and generate revenues of \$618 million annually by the year 2010.

As the TGV company moved through the preliminary planning stages, it had to meet requirements for public hearings and an environmental impact statement; it was also required to raise \$170 million in equity financing by the end of 1992. While this was going on, public criticism and opposition mounted across the state. Southwest Airlines sought to stop the project in the courts. Farmers and small town land owners opposed the project in public hearings. A group calling itself DERAIL (Demanding Ethics, Responsibility and Accountability in Legislation) lobbied the legislature. The authority's executive director was forced

to resign under a cloud for having falsified her resume. Raising the required installment of \$170 million in private capital proved difficult, and the deadline had to be extended for another year. Finally, Morrison-Knudsen Corp., a major local partner in the TGV consortium admitted publicly that private funding could not carry 100 percent of the cost of building the system and eventually withdrew from the project. In August 1994 the high speed rail authority formally canceled Texas TGV's franchise, and the project came to an end, with the loss of some \$40 million to various stockholders. (Robey, 1994)

On the basis of a decade and a half of false starts and failed hopes, then, it is clear that none of the three major potential sources of funds for HSR — federal aid, state tax or bond money, or private investment — is going to be able to go it alone. If an HSR project is to be launched it will have to be based on a creative partnership mixing financing from these (and other) sources. Who will take the lead in forging this partnership?

Subnational Stakeholders: Possible Leaders and Potential New Followers

The federal level consensus that "State and local governments should take the prime responsibility for the development and implementation of high-speed rail systems," raises two vital questions: First, which organizations at the subnational level will have enough incentives to want to lead and enough authority to be able to lead? Second, which organizations will have enough incentives and enough resources to want to be active, contributing followers? In this section, we attempt to answer these questions by offering an overview of the incentives, resources, and constraints facing the major subnational stakeholders in HSR policy development. We be-

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gin our survey with the possible leaders.

Elected Officials. Ultimately, state governors, provincial premiers, and legislators will have to take some degree of political responsibility and political risk for HSR to move off the proverbial drawing board. The vision of a purely private sector North American bullet train has proved to be a fantasy. While many interests could gain from HSR implementation, public officials will have to approve spending substantial amounts of taxpayers' dollars in order to keep all the other stakeholders on board. Since the time between when an elected official publicly endorses an HSR project and when the trains actually begin to carry passengers will certainly be longer than his or her current term of office (and may be as long as a decade), a politician's prime concern will be to minimize the short term political risks of sponsoring such projects.

The most likely set of conditions which meet this requirement would be a bi-partisan legislative-executive coalition supported by a broad range of societal groups and local governments which was able to present a plan approved in the legislature and supported by public opinion. The plan's chances of success would be greatly strengthened if enacting it would bring a substantial amount of outside resources (federal aid, private investment) to the state. Ideally, legislative approval could be supplemented by positive popular vote in a referendum on the issue. The least likely condition would be one in which a governor took a strong pro-HSR stance in the face of partisan opposition with major societal groups strongly against the project.

Thus, the strategy of even the most pro-HSR politicians at the state level will tend toward taking a relatively low profile role and working behind the scenes as much as possible until the broad coalition is formed and public opinion has been persuaded to support the effort.

They will work indirectly through bipartisan or nonpartisan commissions, blue ribbon panels, interagency study groups, paid consultants and the like and wait for support to build before taking a public stand on the issue. Which of these venues will be most likely to aid political leaders in minimizing their premature political risk? We analyze three possible candidates.

Special High Speed Rail Commissions, Panels, and Boards. Special state High Speed Rail Commissions, composed of a relatively small number of politically appointed commissioners with very limited professional staff resources have shown themselves ill-suited for the "long march" of building a successful HSR coalition. Special commissions were the facile response that many states made in the first flush of enthusiasm in the 1980s. They were able, with technical help from consultants and state DOTs, to receive and to judge proposals from competing vendors. But as temporary, non-operating bodies, they were vulnerable to delays and to shifting political winds. Many have already been abolished (as in Pennsylvania and Texas) or gutted (as in Ohio).

State Transportation Departments. State DOTs, as permanent operational departments, will have to provide the bulk of the administrative and technical expertise in the early phases of project evaluation and selection, and will have a continuing oversight role in later phases. State DOTs evolved out of and are still heavily influenced by their highway department past. Often they developed their non-highway planning, administrative and in some cases operational capabilities in response to federal grant programs rather than strong needs or spontaneous pressures. True to form, most of the HSR planning that states have done in the past decade has also been financed with federal grants. It seems likely that some federal HSR plan-

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ning money will continue to flow to state DOTs. But to move beyond the study stage, state DOTs will have to become truly intermodal agencies, not just a collection of single mode agencies under one bureaucratic roof. When intermodalism is accompanied by new resources, as in California where the public has supported increased rail spending by approving several bond issues, state DOTs will have incentives to take a more active role. In other states a zero-sum shift of funds will provoke instant opposition from other modes, and lead state DOTs to take a more neutral stance until the political dust has settled.

Consultants. During the 1980s and 90s, the only profits associated with North American HSR have gone to private consultants, and these have not been negligible. Firms of every size and scope have cashed in on national and subnational governments' desire to study fast train projects from many angles. Despite the growth in business, consultants have not moved beyond a single-client, single project, approach to studying HSR. There is a sort of symbiosis that takes root between consulting firms and governments considering HSR projects. Consulting firms subtly encourage governments to do more of the same arm's length, low risk, HSR project analyses. This makes money for consultants. By focusing government HSR projects away from the policy partnerships that have worked effectively elsewhere, consultants in their typical role have to be seen as a constraint on implementing policy. In other words, although consultants have worked with major HSR stakeholders (e.g., governments, manufacturers, and some railroads) they have done nothing to nurture the links between these groups, links that have proven crucial to project development in Europe. Consultants fill the political-organizational vacuum in North American HSR policy, but they are like an inert gas — incap-

pable of sustaining life (i.e., policy approval and implementation).

There are, of course, other stakeholders who might be expected to be helpful followers, or even play a limited leadership role in certain stages of policy development and implementation. The principal set of these followers includes the following:

Equipment Manufacturers. Foreign equipment manufacturers have been willing to invest seed money in planning, public relations, and lobbying while competing for contracts (e.g., the ill-fated Texas TGV). Their role in supporting the political and public relations side of the campaign for HSR is still vital. But for HSR projects to succeed using foreign-developed technology, the equipment manufacturers will likely have to provide as many good North American jobs as possible by making as much of the equipment as they can locally.

Major domestic electrical manufacturers like General Electric and Westinghouse (the companies which took part in the 1960s Metroliner experiment) have been conspicuously absent from North American HSR projects to date. But clearly GE (now Martin Marietta) is not averse to commercial alliances and partnerships with foreign companies. It allied with the French aircraft engine manufacturer SNECMA to create a product line of passenger jet engines, which has sold thousands of jet engines over the past decade.

It is also clear that European manufacturers realize they must produce in the North American market to have the best chance of securing public and private contracts. The GE-SNECMA partnership is part of a larger strategy that the European "Airbus" consortium used to break into the North American market during the 1980s. In order to sell their "European" planes in North America, Airbus diffused the supply of component parts widely among Canadian and U.S.

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manufacturers ranging from GE to small firms. On the average Airbus sold in North America, more than half the plane's value comes from domestic production of engines, avionics, seats, etc. In 1994, Airbus sold more civilian aircraft than either Boeing or McDonnell-Douglas, who have yet to broaden their manufacturing partnership as extensively. In bringing European aerospace products to North America, Airbus has shown that domestic manufacturing partners can allow foreign firms to overcome opposition from strong interests that are well entrenched, both politically and commercially.

The second, and more difficult contribution that equipment manufacturers may be called upon to make is to contribute some kind of equity investment in the public/private enterprise(s) that will operate the new high speed rail line(s). Foreign manufacturers are familiar with this kind of requirement. For example, in order to win cabinet approval for the construction of the new maglev line from Hamburg to Berlin, the German government insisted that Siemens, Thyssen-Henschel, et al. make an equity investment in the company which will operate their equipment in commercial service on the line. Politically, assuming this kind of commercial risk is likely to be indispensable in winning approval for a subnational project in North America.

Private Freight Railroads. Their cooperation will be essential for "higher speed rail" projects that would operate on existing right of way at speeds lower than TGV but higher than the 79 mph that is the limit for Amtrak intercity trains outside the Northeast corridor. Having gotten out of all financial responsibility for the passenger rail business when Amtrak was created twenty five years ago, the freight railroads are not going to do anything that would leave them with any financial exposure. They will cooperate on HSR projects, but they

will have to be well paid for it. Their requirements are already emerging: limitation of liability for accidents, required improvements in track and signals provided at no cost to them, scheduling that does not seriously interfere with freight shipments, and other incentives ranging from special tax write-offs to a favorable regulatory climate for mergers and acquisitions.

Real Estate Interests. How much would an HSR or maglev system change the shape and density of land use in the areas it serves? Will major rail infrastructure investments have a strong density enhancing impact on land use (offices, retail establishments, high rise housing, pedestrian malls, etc.) in the 21st century? In a built environment that has been adapted to and dominated by the automobile for at least 50 years, how many new high density central destinations along convenient feeder corridors is it possible to create?

Another way of looking at the issue is: Is there enough land development profit to be made to entice developers to become major political and economic partners in a pro-HSR coalition? From the point of view of real estate developers, is an HSR-related, controversial, and highly politicized project more attractive than a suburban office park, a golf-course community, or an in-fill housing development off an existing expressway? The initial answers to these questions would tend toward the negative. The challenge for political leadership is to work with development interests on a site-by-site basis to find specific situations in which the answers can be both positive and politically acceptable.

Environmental Groups. One would naturally assume that environmental, energy conservation, and anti-pollution concerns would lead "green" groups to be in strong support of railroads as a mode of passenger transport, and of high speed rail as the most likely means to

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attract large numbers of riders away from automobiles and airplanes. But the dynamics of environmental politics do not inevitably play out in favor of new HSR projects. While the energy savings and pollution reduction benefits of a successful HSR line are attractive to environmental advocates in principle (Lowe, 1994), that may not be sufficient to overcome citizen concern with the negative local environmental and amenity impacts of specific HSR projects.

Many semi-developed exurban locations will resist being turned into edge cities by a new HSR rail investment. A major infrastructure project tends to give a focus to anti-growth, NIMBY sentiments and to catalyze citizen resistance. Even in highly developed urban areas there could still be a great deal of citizen resistance to new HSR investments. Even more than limited access expressways, HSR lines will be perceived to (negatively) impact the amenity of many people all along the route, while providing direct land use profits to only a few clustered around the stations. Their broader benefits (congestion reduction on roads and airports, energy savings, air quality improvement, safer travel) are more generalized and hard to capture privately. The benefits are also more contingent, and more easily challenged by critical financial and ridership forecasts. If freeway revolts could cause communities to reject interstate highways paid for by 90 percent federal dollars, how much easier would it be to derail HSR projects that require significant amounts of state, local, and private funds?

Airlines and Airport Authorities. Some HSR supporters believe that airlines and/or airport authorities could be recruited into a pro-HSR political coalition, and perhaps even induced to actually invest in an HSR project. They note that enabling many more passengers to travel by rail between Boston and New York, Chicago and St. Louis, Los Ange-

les and San Francisco is a potential solution to the “winglock” of airport and airway overcrowding, and the tremendous difficulty of constructing new airport capacity. Joseph Vranich (1991) enthusiastically cites the trains Lufthansa ran between Cologne airport to cities as far away as Stuttgart as the forerunner of a truly integrated multimodal system that decongests the airways, and avoids costly new runway and terminal construction. But that experience involved a publicly-owned airline and a publicly-owned railroad, and as privatization of both entities proceeded the “train to the plane” experiment has been scaled back. After the bitter political battle Southwest Airlines waged against the Texas TGV, it is clear that regionally-based airlines will oppose HSR as a direct competitor. However, U.S. airlines with a global network like American, Delta, and United have yet to take a position on HSR development. It is possible that one or more of these giants might support a HSR project that fed passengers onto its long haul flights, while simultaneously undercutting their lower cost regional competitors like Southwest.

The Policy Cycle, Legitimation, and the Benefits Formula

Models of the policy process make a distinction between the stages of agenda setting, policy formulation, legitimization (formal public approval and adoption), and implementation. (Peters, 1993) The HSR policies adopted in France and Germany had the advantage of going through each of the phases within a stable and cohesive policy network of national railroad, transport ministry, and equipment manufacturers. (Dunn and Perl, 1994) Legitimation within the network was sufficient to carry policy from one phase to another, crossing the

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threshold where conflict or controversy have stymied all North American HSR efforts since the Metroliner.

During the 1970s and early 1980s, when European HSR moved across these policy development thresholds, parliaments and public opinion were acquiescent, willing to entrust bureaucrats and public enterprise managers with the means of revitalizing rail passenger transport. The success of fast trains like the TGV and ICE gave their creators the credibility and political support to expand further. This momentum has even spread across Europe's borders with countries from Finland to Spain moving to implement homegrown HSR projects, or importing and adapting HSR technology. But the obstacles to transplanting this policy experience across the Atlantic appear to have not been affected by this pan-European diffusion, and probably will not be in the future. The fact that Finland has bought Italy's HSR technology, or that Spain has purchased a TGV system from France, counts for next to nothing in Austin, Sacramento or Tallahassee, the state capitals where a North American HSR policy must be legitimated.

On this continent, legislative approval is imperative for substantial public spending associated with HSR. And unlike Europe, neither bureaucrats nor would-be public entrepreneurs can win the support of elected officials on the basis of expertise alone. Even legislators who back HSR studies, especially if such interest results in field trips to Asia and Europe, cannot be expected to resist pressures against spending public funds, or even granting private investors the needed regulatory and environmental approvals, on their own accord. In North America, HSR's opponents will always get a hearing amidst an institutional framework that discounts government initiatives and privileges input from existing private enterprises and organized citizen

protest groups.

This raised threshold of legitimacy is a major problem in itself, and it complicates matters in both the initial policy development phase and the subsequent implementation phase. Those involved in policy development must resolve not only the transport and technical issues, which are complicated in themselves, but also must anticipate the challenges to legitimacy that will arise once proposals leave the shelter of a government workshop (e.g., a state or provincial transport department or a special purpose commission). After the consultants who drafted an HSR study have banked their fees and moved on to the next project, the proponents seeking to launch that HSR project will be subject to the rough and tumble of an animated public debate, something that the TGV and ICE projects were more or less insulated from. Strong societal proponents will be needed to carry the pro side of any HSR policy debate in North America.

For HSR policy learning to commence in earnest, North American projects will require a policy coalition that can bridge institutional differences in both government and business that differentiate Canada and the United States from Europe. Because North American governance is far more open, decentralized, and contains many more veto points than its European counterparts, HSR policy proposals must command a winning coalition of political support before they reach the legitimization threshold (i.e., before an HSR study or project evaluation is put before government for legislative approval). The creative challenge for HSR policy development leaders is to forge a politico-financial framework that minimizes the uncertainty surrounding project benefits. Prospective stakeholders, who will need to expend considerable resources in moving an HSR proposal through a public debate, have to know the magnitude

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of the payoff that awaits them following ratification. Such distributive fiscal formulae were the glue that cemented America's highly effective postwar airport and interstate highway development coalitions, at both the state and federal levels (Rose, 1979, Seeley, 1987). The political leadership of the HSR coalition must create the instruments that foster such "institutional durability" (e.g., dedicated tax expenditures, earmarked public revenue streams, exclusive franchise arrangements, exemptions from certain costly regulatory requirements) before opening the public debate on specific HSR policy options. (Perl, 1991)

Creating the distributive formula for HSR will be an even greater challenge than for roads and airports, however. For example, while a single uniform national framework linking federal motor fuel taxes to 90 percent funding of interstate highway construction governed highway projects in all fifty states, it appears that an HSR distributive formula will have to contain a large element of unique and site-specific arrangements ("custom-tailoring" for HSR as opposed to the "off the rack" arrangements for highways). The key innovation is likely to be the ability to design projects that will permit different actors to contribute their resources and expertise at different stages of the project. States might take the lead in financing the early phases of design, environmental impact study, local permitting and legal approval by awarding major grants to a consortium of engineering and construction firms, consultants, and equipment manufacturers. Flexible federal infrastructure funds, newly available from ISTEA II, could then be used during the construction phase to upgrade track and signals, or improve safety equipment on freight railroads. Private funds would take the lead during operations to finance the creation of a for-profit operating company, for leasing or purchasing rolling stock, hiring

workers and the like. Local governments could contribute to new stations, grade-crossings, or special levels of service. Airport authorities might contribute to some of the cost of intermodal terminal connections.

Leading this type of orchestrated multi-phased project is comparable in its complexity to writing a symphony, founding a philharmonic, building a concert hall, selling tickets and then conducting the performance! Can North American HSR find the modern maestros capable of such a prodigious feat? Can it find not just individuals but organizations to manage the politics of the HSR policy development and approval process and to carry out the business of building and operating the system?

Institutional Capacity, Implementation, and HSR Prospects: Where is North America Headed?

While new fiscal and regulatory rules that reduce the uncertainty of HSR experimentation would stand a good chance of attracting the creative and powerful private sector partners that once embraced the automobile and jet aircraft, moving from the legitimization of HSR as a policy goal to its effective implementation will require the integration of public and private institutional capacities. Just as the automotive sector could not have reached its industrial apogee without an efficient and extensive public highway network, and the airline industry depends upon publicly financed and managed airports and air traffic control, HSR implementation will require an effective division of labor between infrastructure builders, equipment manufacturers, and train operators.

To plan, develop, and operate a safe and successful high speed rail operating system is an extremely complex task. And while the planning (routes, market-

ing campaigns, service schedules), development (new engines, brakes, signals, catenary lines and power stations) and operating (trains, repair facilities, tickets and reservations, payrolls and personnel) are analytically distinct and separable, it helps enormously if a single entity with deep practical rail experience, a steep learning curve, and a firm organizational commitment can take charge of the project, like the French National Railways did in developing the TGV. That advantage is not present in the North American environment. HSR implementation on this continent will certainly require a lead agency, but it will not be accomplished by a single agency.

It also helps implementation if the lead organization can count on the resources and financial borrowing capacity of government and industry partners who contribute in clearly defined ways. The lead agency will also require firm support from the political executive, and substantial autonomy from political interference and legislative micro-management to be able to stay the course for an expensive, decade-long process which, no matter how careful the ridership projections and financial plans, requires a willingness to gamble the first time around. This too, will be more complex in North America than it was in Europe, and require much greater efforts to integrate many different organizations into a smoothly meshing team.

Of course, once HSR operation has proven itself in North America, the threshold between project ratification and implementation will be considerably lower for subsequent projects, much the way that European HSR development gained momentum after its initial success. But the first time around, the "cockpit crew" piloting a North American HSR project must bring together the best available practices and be able to work together in overcoming the inevitable unforeseen problems. Within govern-

ment, prospective HSR development team members remain relatively inexperienced and behind the learning curve.

Amtrak operates the largest number of trains and the fastest trains in the U.S. It inherited the Metroliner and the Northeast corridor. It has gradually transformed itself from a marketing and scheduling intermediary which leased equipment and crews from the private rail companies into a real railroad. It recognizes the commercial possibilities for HSR, especially in its Northeast corridor. And it wants to be a major player, most likely the operator of the trains, in HSR corridors around the nation. But it is now under an enormous amount of political and financial pressure to reduce its deficit, and contraction, rather than expansion, is the order of the day. Under the circumstances, having to justify its existence in practically every budget cycle, it is unlikely that Amtrak will be able to do much HSR development outside of its Northeast Corridor.

A few states have entities which actually operate some commuter rail service (e.g., New Jersey Transit, Long Island Railroad). Most other states contract with Amtrak to operate whatever commuter service they require. (In fact, contracting with states to operate commuter service is Amtrak's fastest growing line of business). No state has, at present, the capability to implement HSR service within its border without a major effort to strengthen (or create) its institutional capacity in the passenger rail sector.

For the foreseeable future, state HSR projects will not receive massive assistance from Ottawa or Washington. National governments may continue to fund corridor studies, high speed safety research, and other planning activities. But a large program of federal aid for HSR project construction is simply not going to be forthcoming. Thus state HSR policy development leaders will have to address the difficult political and budgetary is-

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sues of how to find significant amounts of state funds to apply to HSR, and/or how to reprogram other federal aid transportation funds away from other modes toward HSR. They will also have to address the issue of creating enough fiscal and financial incentives to attract private capital and private expertise into HSR projects.

We have argued that it is unlikely that a highly salient national political deal, like the 1956 interstate highway agreement, would launch HSR in North America. The leadership, the coalition of stakeholders, and the formula for distributing the payoffs will, at least for the first few projects, be focused on and function at the subnational level. Reviewing the specific politico-economic status of each of the many subnational HSR projects that are still "in play" at this time is the subject of another paper altogether. But what can be said, by way of conclusion, about the very broad general trends that may impact HSR policy development on the North American continent?

There is no shortage of policy models, both generic and transport specific, that would predict a dead end for HSR development in North America. At the macro level, Richard Rose (1976) has sketched out a typology of policy development in which government's priorities progress from activities designed to define the state itself, to projects which mobilize resources for economic development, to programs which improve and enhance social welfare. In contemporary North America, HSR does not fit into any of these categories, and thus remains low or absent from public sector priorities. The great waves of public resource mobilization in transport, which funded 19th century rail infrastructure and postwar airports and superhighways, show no signs of picking up in today's climate of fiscal austerity, privatization, and deregulation. Neither would HSR be embraced by a post-industrial, let

alone a post-modern, conception of social welfare policy. The information highways and virtual reality that inspire futuristic social welfare visions make fast trains appear poky and anachronistic by comparison. Instead of moving large numbers of people over 100 to 600 mile distances, this worldview anticipates a greater substitution of communication for transportation, rendering HSR's prime attributes moot.

A related HSR scepticism emerges from those who study transport specific trends. Here the theme is that North America has led the world up the curve of individual mobility, in the quantity of both auto and air travel. Today, Americans, and to a slightly lesser extent Canadians, appear to have reached the summit of aggregate demand for mobility and are traversing a long plateau. Lave (1991) notes that the rate of U.S. auto ownership per capita has leveled off while others point to the fact that domestic air travel has also stopped growing. Thus, while Europe and Asia can expect continued travel growth as their societies catch up to North American mobility levels, and can accommodate part of that growth by building HSR into their transport infrastructure, many transport analysts conclude that it would be wasteful to invest huge sums in North American HSR projects.

Against these functionally oriented perspectives, pointing toward little or no prospects for North American HSR, a body of cognitive analysis suggests that new technology does diffuse across borders, and that few foreign innovations have failed to take root in North America. Both the automobile and the jet powered passenger aircraft were invented overseas and used by Europeans at a time when passenger trains and propeller driven planes were the norm in North America. What turned these exotic imports into essential means of North American transportation was a two-fold

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learning process, driven by a high-tech curiosity which Americans are known for.

First, each technology was re-focused and adapted to the North American environment. Cars had to be mass produced and redesigned to survive rugged early 20th century roads, while jets had to be given a greater range so that they could fly the long haul routes typical of North American air travel. Second, North American lifestyles and consumer behavior had to embrace the new opportunities opened up by these technologies. In their consumption patterns, Americans and Canadians have proven to be at least as innova-

tive as other societies. There are few foreign novelties, from illegal drugs to faster microchips, that North Americans have resisted sampling, and subsequently incorporating into their lifestyles simply because domestic alternatives existed. If Europe's and Japan's HSR pioneers persist in probing the North American market for the right situation, and if North American HSR advocates can work patiently to build the broad based coalition that will be essential, HSR policy may move from being a boondoggle for consultants to a boon for North American travelers.

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