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# RAILROADING THE ARMY ENGINEERS: A PROPOSAL FOR A NATIONAL TRANSPORTATION ENGINEERING AGENCY

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The U.S. Army Corps of Engineers is a large agency doing the wrong things. It plans and builds expensive, environmentally destructive dams and reservoirs. At the same time our national transportation program calls for massive rehabilitation of intercity railway tracks and roadbeds. Why not reassign the Corps from dams to railroads?

## THE NEED FOR A COHERENT NATIONAL TRANSPORTATION POLICY

Since the beginning of the industrial revolution producers and consumers have become increasingly centralized. This tendency has enhanced our dependence on transportation systems which facilitated the centralization process: first waterways, then railroads and highways, and finally airways.

Government intervenes unevenly in these systems with subsidies and operating restrictions. In the past these actions were thought necessary to promote development of the several systems and to protect producers and consumers from system monopolies, and intramodal competitors from each other. However, as intermodal competition developed, *ad hoc* intervention in the separate systems reflected no comprehensive national transportation policy and gave little regard to factors such as the efficient allocation of total resources, energy conservation, and environmental protection.<sup>1</sup>

The inland waterway system, for example, is completely subsidized by the federal government. Through the U.S. Army Corps of Engineers the canal system, locks and dams receive a full one-third of all governmental transportation subsidies,<sup>2</sup> and the U.S. Maritime Commission provides low-interest loans for waterway equipment.<sup>3</sup>

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1. Coleman, *A Statement of National Transportation Policy*, at 11-20 (U.S. Department of Transportation, Sept. 17, 1975).

2. *Id.* at 17; Association of American Railroads, Economics and Finance Department, *Government Expenditures for Highway, Waterway, and Air Facilities, and Private Expenditures for Railroad Facilities*, Tables 5, 7, 10, 11 (1973).

3. A. Sebald, *Energy Intensity of Barge and Railroad Freight Hauling*, Tech. Memo. 20, Center for Advanced Computation, University of Illinois, Urbana (Apr. 1974).

Maximum subsidies are accompanied by minimal operating restrictions. Only about eight percent of inland waterway traffic (ton-miles) is federally regulated as to rates and routing.<sup>4</sup>

Motor vehicles enjoy the benefit of public highways connecting every village and metropolis in the nation. Some of the federal and state contributions to road construction and maintenance are recovered from users through vehicle fuel taxes. Large trucks and buses, however, do not pay in accord with the damage they inflict upon the highways and thus are subsidized.<sup>5</sup> Rates and routes of only about one-third of total truck traffic are regulated,<sup>6</sup> though restrictions upon intercity buses are somewhat more pervasive.

By contrast, the intercity railroad system until recently was entirely privately owned and operated. It received federal subsidies in the form of land grants more than a century ago to encourage development of a transcontinental transport system. Prior to last year railroad companies had received little additional public assistance except for the takeover by Amtrak of unprofitable intercity passenger service in 1971. For almost 100 years virtually all railroad rates and routes have been tightly regulated by the ICC, and even labor contracts have been the subject of special federal legislation since the 1930's.

For air carriers the extensive national electronic plane guidance system is provided by the federal government, and most runway and terminal facilities are provided by local governments which recover part of their costs from the federal government and part from users. Air traffic is controlled by the Federal Aviation Administration, and rates and routes of interstate carriers are regulated by the Civil Aeronautics Board.

Recent studies indicate that mechanized transportation as a whole requires, directly or indirectly,<sup>7</sup> approximately 42 percent of all energy consumed in the United States, of which about half is consumed by private automobiles.<sup>8</sup> Airplanes and automobiles are the most energy-demanding passenger modes, trains and particularly buses the least.<sup>9</sup> Planes and trucks are the most energy-intensive

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4. Hannon, *A Railway Trust Fund*, 8 Transportation Research 363 (1974).

5. Oehman & Bielak, Allocation of Highway Cost Responsibility and Tax Payments, 1969 (U.S. Department of Transportation, Bureau of Public Roads, Federal Highway Administration, 1970).

6. Hannon, *supra* note 4, at 366.

7. Direct costs involve fuel for transport vehicles. Indirect costs relate to operation and maintenance of supporting equipment and facilities.

8. R. Herendeen, *An Energy Input-Output Matrix for the United States, 1963: User's Guide*, Document No. 69, Center for Advanced Computation, University of Illinois, Urbana (1973).

9. Hannon, *Energy Conservation and the Consumer*, 189 Sci. 95 (1975).

freight modes, while barges and especially trains are the least demanding.<sup>10</sup> Railroads generate far less pollution than motor vehicles and airplanes and, being in place already, do not threaten natural streams, wetlands and woodlands as does the construction and maintenance of the inland waterway system. Yet rail passenger and freight service never has been more depressed financially. Last year's takeover of the Penn Central and six other bankrupt Northeastern and Midwestern Railroads by the federally financed Consolidated Rail Corporation (ConRail) could mark the beginning of widespread nationalization by default if the competitive position of the railroad industry is not improved *vis á vis* the more subsidized but less regulated barge and trucking industries.

The need for a coherent national transportation policy never has been clearer. Fortunately, during the Ford administration the Department of Transportation and Congress finally began to address the matter. In an encouraging policy statement the department proposed, among other things, more equal competitive opportunity among modes through elimination of inequitable governmental intervention so that each mode can realize its inherent advantages; payment by users of the full cost of federally financed services and facilities except where the general public interest requires a subsidy; special short-term federal support to modernize and restore the operating viability of railroads; and reform of the economic regulatory structure.<sup>11</sup> Congress passed the Railroad Revitalization and Regulatory Reform Act of 1976<sup>12</sup> authorizing federal investment of \$2.1 billion in Conrail, \$1.8 billion in loans and loan guarantees to other railroads for rebuilding tracks and upgrading equipment, and \$1.85 billion in grants to improve Amtrak service, primarily through reconstruction of tracks in the northeast corridor from Boston to Washington, D.C. The act also relaxed to a limited extent ICC control over rail freight rates by permitting revision of some rates without Commission approval and by establishing new procedures for abandonment of local lines or discontinuance of unprofitable service absent financial assistance from governmental entities or other responsible persons.

#### THE NEED TO REDIRECT THE CORPS OF ENGINEERS

The Corps of Engineers presently constructs and operates water resources projects for flood control, irrigation, hydropower, recrea-

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10. Sebald, *supra* note 3.

11. Coleman, *supra* note 1.

12. Pub. L. 94-210 (1976), 45 U.S.C. § 801 *et seq.*

tion, municipal and industrial water supply, and water quality control, as well as our national system of inland and intercoastal waterways. Unfortunately the agency is in nearly total control of all phases of such programs, from determination of local needs or desires through promotional activities, cost-benefit justification, engineering and design, contracting, construction supervision, operation and maintenance. It is an early and obviously durable example of a vertically integrated public agency.

The 225 Army officers and 32,000 civilians comprising the Corps spend much of their time and budget, about \$2.5 billion per year, on increasingly controversial projects.<sup>13</sup> Achievement of multiple purposes is sought through construction of large reservoirs at geologically suitable sites on the nation's rivers. The purposes often conflict. For example, the storage of a flood behind a large dam raises the water level there to unprecedented heights. In dry periods normal reservoir levels are reduced to meet downstream navigation objectives or local water supply needs. The drawdown exposes much of the reservoir bottom, creating vast mud flats which, like high water levels resulting from flood retention are incompatible with claimed recreational purposes of boating, swimming, picnicking and hiking. While expenditures for such reservoirs have increased substantially over the years, so have national flood damages. This phenomenon stems from an inherent shortcoming of flood retention structures. No dam is designed or able to hold all floods, but the impression of permanent protection encourages development of downstream areas. When the uncontrollable storm hits, it must be passed through the dam and the developed flood plain is inundated with resulting high damages.<sup>14</sup>

The Corps' nonreservoir flood control and navigation work on large rivers also serves to increase the peril of storm runoff. The Corps constructs permanent revetments into a river, at right angles to the banks, to increase the velocity of the normal streamflow so that the water will scour a suitably deep and wide channel for barge traffic. But the revetments decrease the river's cross-sectional area and thus increase flood levels. Similarly, construction of flood protection levees, parallel to the banks, on both sides of a river also causes flood levels to rise as the waters are forced down the constricted river bed. As the constriction increases due to additional levee construction, older levees must be raised to give continued

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13. Findley, *The Planning of a Corps of Engineers Reservoir Project: Law, Economics and Politics*, 3 *Ecol. L. Q.* 1 (1973).

14. Task Force on Federal Flood Control Policy, *A Unified National Program for Managing Flood Losses*, H.R. Doc. No. 465, 89th Cong., 2d Sess. (1966).

protection to the increasingly valuable property which they enclose. Ultimately, the levees are topped with disastrous consequences.<sup>15</sup>

Finally, it has been shown that construction projects of the Corps of Engineers demand more energy and create less jobs, directly and indirectly per construction dollar, than many other federal programs and than personal consumption.<sup>16</sup> In a case study the construction of a Corps reservoir was found to have a negligible effect on employment in a town with high unemployment levels only eight miles from the site.<sup>17</sup> The reasons appear to be that the specialized skills required for heavy construction are not found in smaller communities and that such projects actually involve few jobs.

The Corps is located inappropriately in the Department of Defense. Corps officials have indicated that this connection provides valuable military construction experience for its Army staff. Environmentalists argue that the pervasive presence of the Army's civil works projects suggests a relationship between allocation of the Corps' budget for such projects and political support for overall Department of Defense appropriations. The affiliation is probably a historical accident. Early U.S. military movements occurred on water. These operations required skills in river clearing, crossing and control operations which burgeoned into today's Corps of Engineers.

Because of the Corps' heavy involvement in water transportation and its experience in reconstructing railroad tracks and bridges dislocated by reservoir projects, we believe the agency to be peculiarly suited for a larger role in an effective national transportation program. Presently, however, it is engaged largely in a wasteful and environmentally destructive structural flood control effort. The Corps should be reorganized functionally to serve as the nation's transportation engineering agency for both waterways and railways. Such a restructuring also could serve as a model for modernization of other governmental agencies whose programs are similarly outdated.

#### REORGANIZATION OF THE CORPS OF ENGINEERS AS PART OF THE NATIONAL TRANSPORTATION PROGRAM

We propose that the Corps of Engineers be transformed from a vertically integrated planning, engineering, construction and operating agency, engaged in virtually all aspects of water resources devel-

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15. Belt, *The 1973 Flood and Man's Construction of the Mississippi River*, 189 Sci. 681 (1975).

16. Hannon & Bezdek, *The Job Impact of Alternatives to Corps of Engineers Projects*, 99 Eng'g Issues 521 (1973); Bezdek & Hannon, *Energy Manpower and the Highway Trust Fund*, 185 Sci. 669 (1974).

17. Hannon and Bezdek, *supra* note 16.

opment, to a more horizontally integrated water and rail transportation engineering agency, with some construction and operating responsibilities for navigation facilities and perhaps for railroad rights of way. Responsibility for flood control and other nonnavigational water-related purposes, and for the planning and evaluation of transportation projects, would be located in other agencies, and the Corps would be moved to the Department of Transportation.

Now is the critical time to involve the Corps in the job of rebuilding the nation's deteriorated railway tracks and roadbeds. The Railroad Revitalization Act authorizes not only federal investment of over \$2 billion in ConRail but also more than \$3.5 billion in federal loans, guarantees and grants for other railroads, with the bulk of these funds to be used for track rehabilitation. The Amtrak Improvement Act of 1974<sup>18</sup> directed the Secretary of Transportation to consult with the Corps of Engineers in investigating the feasibility of developing a high speed rail system from Tijuana, Mexico, to Vancouver, British Columbia, via the major cities of California, Oregon and Washington. The Secretary's final report and recommendations were due to the Congress and President on January 30, 1977, but have not been submitted.<sup>19</sup>

Track maintenance by most railroad companies in recent years has been sorely deficient. Between 1930 and 1970 freight car speeds and wheel weights increased steadily while maintenance expenditures per ton mile declined by 80 percent.<sup>20</sup> Since 1960 accidents attributable to nonmaintenance of rights of way have increased by a factor of six.<sup>21</sup> Insurance premium payments and casualty reserves of all railroads increased by 235 percent from 1965 to 1971,<sup>22</sup> suggesting the possible substitution of those forms of protection for track maintenance—a seemingly terminal solution absent public intervention.

The Regional Rail Reorganization Act of 1973,<sup>23</sup> which provided for the establishment of ConRail, specifically authorizes the Corps of Engineers to consult with and assist ConRail in track rehabilitation. In response to this authorization the Corps has prepared a study elaborating its "extensive" capability to participate in both planning

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18. Pub. L. 93-496 (1974), 49 U.S.C. § 1643(b).

19. A preliminary report by the Secretary in March 1976 indicated that an entirely new system extending through large areas with sparse population would be too costly. The final report is likely to focus on shorter stretches where demand for service might be high, and upon rehabilitation of existing tracks. *Sacramento Bee*, May 5, 1976, at A5.

20. Hannon, *supra* note 10.

21. *Id.*

22. *Id.*

23. 45 U.S.C. § 712(a)(7) (1970).

and construction.<sup>24</sup> During the past twenty-five years, as a result of railroad relocations necessitated by reservoir construction, the Corps has been probably the largest railroad builder in the United States, having designed and constructed more than 1,500 miles of railways at a cost of over \$1.25 billion.<sup>25</sup>

With respect to railroads other than ConRail, track rehabilitation utilizing federal loans, guarantees and grants available under the Railroad Revitalization Act could be designed and supervised by the Corps under contractual arrangements with the private owners and Amtrak. The same could be true of new construction such as the high speed West Coast system contemplated by the Amtrak Improvement Act of 1974.

However, we see competitive and maintenance advantages in public acquisition and ownership of all intercity railroad rights of way. It would be a major step toward more equitable governmental intervention in and competitive opportunity among the several transportation modes. Publicly owned tracks, like public highways, waterways and airways, could be opened to a wider range of users. Not only could there be more competition among railroad companies on particular routes, but users might include shippers themselves, such as coal and steel companies, and perhaps even small operators analogous to "gypsy" truckers who haul much of the freight on our highways. In fact, the Detroit Edison Company is reported already to be operating its own unit coal trains in Ohio pursuant to agreements with the railroad companies which own the tracks. Existing railroad companies would have at least a temporary advantage over other users by virtue of the funds received from sale of rights of way and their accumulated knowledge of how to handle freight movements. All track users would pay fees based on wheel weights, velocity, and frequency and time of use, the fees being graduated according to damage caused and priority of use, and sufficient to cover all maintenance and replacement. The same fee rule should cover highway and waterway users, thus equalizing the opportunity for intermodal competition and enhancing the economic position of railroad operators.

A system of publicly owned tracks, of course, would require substantial revision of the ICC regulatory program and perhaps of railroad labor agreements. But changes in ICC practices are due in any event and were begun last year in the Railroad Revitalization Act.

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24. Department of the Army, Office of the Chief of Engineers, *Regional Rail Reorganization Act of 1973, Capability of the U.S. Army Corps of Engineers to Participate* (Jan. 1974).

25. *Id.* at 10.



Basic objectives of further changes should be to minimize total, private and public, costs and to recover the public costs through user fees. While expanded usage of the publicly owned tracks could complicate traffic control, the problems would be manageable. The Corps of Engineers deals with similar problems, though not of the same magnitude, at locks on inland waterways, and the Federal Aviation Administration handles much greater traffic control problems in the airways. An agency within DOT could control traffic for railroads. Even now, high priority coast-to-coast freight trains are given expedited scheduled by traffic control systems administered cooperatively by numerous private railroad companies. An FAA-type agency—conceivably the Corps—could auction off or otherwise establish use priorities for specific lines and peak hours.

Regarding track maintenance, we are not sanguine about leaving it to private railroad companies. Experience has shown these railroads and their parent corporations are often inclined to divert funds to other purposes.<sup>26</sup> While the U.S. Supreme Court recently held that the ICC may condition general freight rate increases on application of the additional revenue in part to deferred maintenance and delayed capital improvements where the railroads' petitions for the increases relied upon such items,<sup>27</sup> the ICC has no general power to control railroads' expenditures or to involve itself in their management.<sup>28</sup> Public ownership of the rights of way would permit the government, through the Corps of Engineers, to insure a high level of maintenance after rehabilitation. An important part of maintenance must be *enforced* limits on wheel weights and train speeds. In the United States it is reported that the average load per freight car axle ranges from 10 to 30 tons, depending on the type of car, one and one-half times that allowed by European standards.<sup>29</sup> Without reasonable limits, completely rehabilitated trackage will deteriorate rapidly despite constant maintenance efforts. Well maintained tracks are essential to efficient and safe railroad operation, particularly passenger operation. It is not practically possible to maintain existing tracks for the profitable operation of both 100-ton freight cars and 125 mile-per-hour passenger trains.<sup>30</sup> Given the present condition of

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26. See *U.S. v. Chesapeake & O. Ry. Co.*, \_\_\_ U.S. \_\_\_, 96 S. Ct. 2318 at 2320, 2325 (1976). Where railroad companies are components of conglomerate empires the purposes for which funds are diverted could be completely unrelated to the railroad business.

27. *Id.*

28. *Id.* at 2323, 2325.

29. *Rail Carload Cost Scales, 1972*, Statement No. 1C1-76, at 150 (Interstate Commerce Commission, Bureau of Accounts, Oct., 1974). See also: Union Internationale des Chemins de Fer, Code 700-OR, Classification of (rail) Lines.

30. Riestrup, *Amtrak: Its Present Status*, Statement before the Transportation Research Board, Summer Railroad Research Study, Woods Hole, Mass. (July 1975).

most intercity roadbeds, Amtrak has not had a fair opportunity to test the viability of modern rail passenger service in this country. Such an opportunity will require major rehabilitation plus either a combination of wheel-weight and speed limits with adequate maintenance, or dedication of some tracks exclusively to passenger and light freight traffic.

Assignment of railroad rehabilitation and maintenance responsibilities to the Corps should be accompanied by termination of its authority outside the transportation field. Continuation of the other authority would divert attention and resources from the railroad mission. Even more importantly, the Corps' other functions—flood control, recreation, water supply and other nonnavigational aspects of water resources development—reflect largely outdated national policies or could be performed more appropriately by other federal, state or local agencies. In addition, within the context of water and rail transportation the Corps' activities should be restricted to engineering, construction, maintenance and some operation. The planning and evaluation functions which it currently performs in connection with water resources projects should be reassigned to avoid the solution-in-search-of-a-problem approach so common with mission oriented planning and construction agencies.

Finally, consistent with its new focus on national transportation engineering, the Corps should be moved from the Department of Defense to the Department of Transportation. The Corps is essentially a civilian agency with the few hundred military officers spending brief tours of duty as figureheads for a bureaucracy of tens of thousands of nonmilitary personnel who in fact are the promoters, planners and builders of Corps projects.

At the top of the list of functions to be transferred from the Corps is flood control. The Corps itself recognizes that there has been a remarkable change in national attitude toward the building of reservoirs to withhold flood waters. In the words of a former Director of Civil Works,

Only after we have thoroughly exhausted all other alternatives, in particular those labeled nonstructural solutions, will the public accept structural solutions. This is quite a change in the national attitude which existed just 10 or 15 years ago. As a result, I see the Corps role in flood control changing significantly.<sup>31</sup>

The Corps' responsibility for flood control should be turned over primarily to the Department of Housing and Urban Development.

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31. Morris, J., *A Time for Reflection*, 7 *Water Spectrum* 6 (1975).

HUD administers the national flood insurance program<sup>32</sup> and works most closely with state and local land use planning agencies whose involvement is essential in any floodplain management program. To some knowledgeable observers it has been clear for many years that the dam-and-reservoir approach to flood control has been not only expensive but counterproductive. It has encouraged human encroachment and development on floodplains without protecting against the largest and most destructive floods. The result has been constantly and rapidly increasing flood losses.<sup>33</sup> The only feasible way of reducing such losses is a comprehensive program of floodplain management, a fact finally recognized in the federal Flood Disaster Protection Act of 1973.<sup>34</sup> The act denies flood insurance and financial assistance to communities which fail to adopt and enforce adequate land use and control measures to protect new development against the so-called 100-year flood. Such measures, in addition to restrictive zoning, include elevating homes to safe levels, flood proofing commercial buildings, anchoring structures, and providing sufficient drainage. Where public flood control structures such as dikes and levees are needed, they should be provided by state or local governmental units with power to assess the costs against direct beneficiaries. Much of the political popularity of Corps reservoirs has stemmed from the fact that the nation's taxpayers, not the benefited landowners, pay the flood control bill.<sup>35</sup>

Reservoirs which are desirable for recreational, water supply or water quality purposes also should be built by states or their political subdivisions, not by the Corps or other federal agencies. Too often in recent years these purposes have been the real reasons for ostensible flood control projects built by the Corps and far too heavily federally subsidized.<sup>36</sup>

Irrigation and hydropower projects are built principally in Western states in which the Bureau of Reclamation is authorized to operate. Removal of such projects from the Corps' range of activities need not foreclose the possibility of federal construction in appropriate situations.

The new annual budget for the reorganized Corps of Engineers could be as high as \$1.2 billion, about \$600 million each for waterways and railroads. This estimate of railroad costs includes rehabilita-

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32. National Flood Insurance Act of 1968, as amended by Flood Disaster Protection Act of 1973, 42 U.S.C. 4001 *et seq.* (1970).

33. White, *Human Adjustment to Floods*, Research Paper No. 29, Dep't of Geog., U. of Chi. (1945); Task Force Rep., *supra* note 14.

34. *Supra* note 28.

35. Findley, *supra* note 13, at 43-45.

36. Findley, *supra* note 13.

tion of the tracks taken over by Conrail and comprising about one-fourth of all U.S. trackage.<sup>37</sup> It does not include such major needs as separated grade-road crossings.

### CONCLUSION

The net results of the organizational changes which we propose would be to facilitate adoption and implementation of a coherent and badly needed national transportation policy of essentially uniform governmental intervention in the different modes, to realign our national water resources programs in accord with current social priorities, to utilize more beneficently the Corps of Engineers' engineering and construction capabilities, and to establish a desirable precedent for functional reorganization of other federal agencies. The physical needs of the national rail transport system, both in absolute terms and in social importance because of energy, environmental and employment considerations, far exceed those of the non-navigational aspects of water resources development which for decades have occupied the Corps' attention and too large a piece of the federal budget. Now we should trim the fat and respond to more pressing matters.

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37. Brinegar, 1 Rail Service in the Midwest and Northeast Region, 4 (U.S. Department of Transportation, 1974); United States Railway Association, Executive Committee, *Final System Plan* (1975) for reorganizing the bankrupt railroads of the Northeast and Midwest Region.