The Corridor Concept

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This paper attempts to articulate a fresh conception of the particular function of the transportation corridor, and will take pains to address and resolve the advantages, disadvantages, and problems that have and may arise in connection with the theory or the practical application of the phrase "transportation corridor," defined as a continuous strip of land of varying width, connecting two geographically separate points and containing two or more facilities for the conveyance of people, energy, information, or materials. For this paper such a definition covers railways, highways, pipelines, communications circuits and power transmission circuits.

What is meant by the word "corridor"? To the average individual the term has something to do with hospitals. The dictionary defines "corridor" as a covered passageway between two or more chambers in a building. But this definition fails to provide an adequate sense of the word's root meaning, which is "current"—from the Latin currere. If we apply this sense to the layman's conception of the hospital corridor, then we imagine the corridor serving an explicit function, carrying out a predesigned need for regular passage, and hence a kind of "current."

Throughout North America in recent years there has been keen attention paid to the subject of corridors. Terms ranging from combined transportation corridor, multi-use rights-of-way, integrated service corridors, sharing of rights-of-way, utility distribution corridors, joint use of right-of-way, energy corridors, to multiple occupancy of rights-of-way have served thus far to indicate a common need for a comprehensive solution to the problems encountered by everyone seeking rights-of-way.

Virtually all researchers agree that the common corridor is desirable and that more planning and direction is needed. Examples of corridors exist but have largely developed without the benefit of firm guidelines, regulations or legislation.

In urban areas, many streets are occupied by water lines, powerlines, gaslines, sewer lines, street railways, telephone lines, and sidewalks, in addition to the paved roadway. The right-of-way is provided by the municipal authority, which also operates and maintains most of the utilities, except where a franchise has been granted to a public utility company. In very congested streets "utilidors" are being built which consist of large, concrete box tunnels housing all utilities and which represent an advancement or refinement of the corridor concept in the urban environment.

The city street is a type of corridor, and presents a practical example. However, it differs considerably in size, scope, technology, and magnitude from the corridor concept with which we are concerned. Whereas the city street may involve several kilometres, the corridor concept in this paper is intended to provide as convenient a link as possible between two relatively distant and separate geographical points, not only to use land more efficiently, but also to reduce costs of construction and maintenance. As the corridor contains several modes of transportation that ordinarily would involve sophisticated individual planning, and must pass through a variety of geographic and social environments together with at least one other mode, it follows that such a corridor demands a new and more sophisticated approach.

In many instances the highway, railway, or some other mode of transport already occupies adjacent rights-of-way, and in essence forms a corridor. But each utility is largely planned, designed, constructed, operated, maintained and terminated independently. They occur in a corridor chiefly for convenience and practical considerations. These incidental corridors may well illustrate the workability of the corridor concept, yet the fact that these corridors are irregularly and haphazardly situated cogently argues for planning far in advance of present need.

The corridor concept recognizes that any application must first involve the general public. The maturing public attitude of preserving and enhancing the quality of our environment and quality of life has in recent years halted some large projects even after construction has started.

To best facilitate the implementation of the corridor concept, responsibility should rest with a single authority. To overcome difficulties, to resolve conflicts, and, most importantly, to do so without unnecessary delay, there must exist a central authority charged with the responsibility of assisting corridor occupants to deal with a corridor. This authority may be a single government agency, quasi-government organization or a corporation. To be successful it will require the power and funding to designate corridors, plan, design, acquire land, construct, incorporate existing facilities, operate, regulate, maintain and terminate the corridor either by itself or in partnership with others. In our ever increasingly complex society the *application of the corridor concept becomes almost an impossibility without the formation of single corridor authority backed by effective legislation.*

There must be interaction, dependence and responsibility between corridor occupants and the corridor authority, in addition to the usual interchanges and associations. Each occupant must have an appreciation and knowledge of all the facilities within the corridor, especially during the construction period. Though an occupant is forced to relinquish some measure of independence due to the corridor's presence, compensation for the loss is accomplished through improved economic efficiency in land acquisition, construction, maintenance and operation.

The desire to create a comprehensive network of utility corridors for whatever beneficial reason would necessitate identification of all major resource developments, their geographic locations, where the product would need to be shipped and a clear understanding of future technological development and economic conditions. Since such identification poses no easy task, the prospect of landowners, resistent to such designations, without a clear indication of need for lands designated as utility corridors, must be anticipated. To circumvent this problem it is clear that the corridor authority publicize a rationale for any prospective corridor.

The strength of the corridor concept resides mainly in its polymorphous flexibility. That is, it is defined simply as a means to an end without needing to know beforehand what specific end is required. For example, though a corridor includes one or more of a railway, a one- or two-lane highway, transmission lines, oil and gas pipelines, and a service road, practical considerations have already been examined to foresee the best possible plan to include these various transportation modes harmoniously. The addition or subtraction of any single mode cannot, by virtue of the concept's flexibility, change the essential purpose of the corridor's utility.

Planning and design will take into consideration many factors, such as: The number of transportation modes, environmental and social safeguards, engineering and design considerations, safety and security, topography, land use, economics, zoning, legal factors, future expansion, and the location parameters of the various modes of transport. The components and the design of a corridor may vary throughout its length, being dependent upon many determining factors.

Using a corridor is not limited to transportation facilities in spite of this paper's primary concern with transmission lines, pipelines, highways, and railroads. Other specialized land uses compatible with a corridor's operation include hiking trails, hunting reserves, sports fields, golf courses, gardens, picnic sites, service centers, maintenance centers, agricultural uses, a wildlife habitat, etc. A corridor can accommodate, where feasible, any land use as long as there is no interference with any of the transportation facilities.

Location of a corridor will be limited by the transportation facility with the most rigid location parameters. For example, gradients are of primary importance in railway routing and so any corridor including a railway must recognize gradients as a major influence in locating the corridor, especially in rolling country. Quite simply, seeing that the corridor concept includes diverse transportation modes and technologies, design requires a vigorous interdisciplinary approach.

The technical design of the corridor must integrate and meet the requirements of all potential users. Each mode of transportation has its own design requirements, its own changing technology and new developments to minimize environmental impact. Therefore, when applying the corridor concept all potential users of the corridor must have input into the design. This input should come from the engineers, environmentalists, legal representatives, economists, etc., associated with each mode of transport along with input from potential specialized users, adjoining property owners and the general public.

Predicting future corridor users and the extent of their requirements will be the most difficult element in defining a corridor. The ideal corridor will not only meet presently foreseeable demands but also long term future transportation demands.

In urbanized areas the existence of a corridor is essential to efficient servicing and a necessity if future expansion is at all possible. The difficulty in approval and acquisition of a right-of-way is the most delaying and involving problem in the construction of any utility, and especially true near urban centres. Thus, one of the greatest incentives to a potential corridor user will be the availability of an approved route. If, then, the corridor concept is to be applied and to be successful, it must be planned with space allotted to the various utilities many years ahead of development.

W. Niebohr, in a recent paper on the advantages and disadvantages of utility corridors, places the issue in proper perspective:

> The advantage generally perceived to exist with utility corridors is that all these utilities are placed in a common strip of land, land which ideally is well suited for use as a corridor. This, it is argued, would eliminate the need for continually seeking new corridors. As new needs for rights-of-way from A to B arise, one uses the corridor which has already been designated and exists from A to B. At first glance this appears to be an attractive solution to the current problem of obtaining right-of-ways. Landowner resistance to the granting of facilities is well known and widely reported and thus the establishment of corridors would for a long time, if not all the time, eliminate the need for obtaining new right-of-ways [sic]. All present and perspective land-

owners would know from this point forward which lands are designated for corridor use. It is a wonderful panacea with a great deal of appeal to all of us, if only it could be done successfully.

Assuming the successful implementation of the corridor concept, what advantages and disadvantages can be foreseen?

The corridor conserves land and space. Not only would the proliferation of separate rights-of-way require more land, but they would increase the total environmental impact. Bringing all the facilities into a narrow strip of land limits the area disturbed. Furthermore, a corridor can be used positively in shaping land use in a given area. A corridor may even be used to separate incompatible lands or serve as a boundary for the development of communities.

On a regional scale the presence of a corridor may be used to encourage or inhibit development in certain areas. This possibility again argues for the owners and operators of the various utilities within the corridor to agree to a single authority to manage areas of common interest, and therefore avoid needless duplication of services. Though specialists associated with each utility would still be required, savings would result in diminished need for administration, general maintenance, inspection, and surveillance.

The general economic and social advantages of a single land acquisition program provide some of the most attractive qualities of the corridor concept. Due to an alarming escalation in the price of land, especially near urban areas, immediate purchase of a corridor for present and future utilities will most certainly represent a significant saving.

Among the easily resolved problems (or ones that already exist for the developer anyway) are: Increased hazards to workmen due to restricted construction conditions, possibility of tampering or sabotage, adverse effects on transmission, difficulty in establishing coincident routing, coordinating construction, providing for future enlargement, and even the possibility of increased costs.

Among major problems that deserve serious consideration is the apparently simple objection to the visual and psychological impact the corridor will inevitably have. While recognizing the provision made for the possible rehabilitation of land in the corridor concept, it must freely be admitted that the corridor is not likely to be much better than an indifferent view. However, in spite of the obvious visual disadvantage, there is no significant difference between the appearance of any single transportation facility and that of a combination of two or more. The presence of any transportation facility usually detracts from a landscape's particular aesthetic make-up, but it is arguable that a corridor would not mean a greater disruption.

One of the greatest detracting factors facing the corridor concept is the potentially higher intensity of environmental disturbance within a restricted area. With all modes of transport confined to a narrow strip of land, the environmental disturbance within this strip may be very high. The corridor will also increase public accessibility to the wildlife areas, and compound the threat. In addition, there would be a greater reduction of a habitat's winter carrying capacity due to depletion of cover and woody browse. In agricultural areas there would be a physical barrier to normal field operations, thus decreasing efficiency. One very definite disadvantage to the corridor concept is its increased vulnerability to major catastrophes resulting from landslides, floods, earthquakes, etc.

In spite of the potential problems that accompany any future corridor, there are none that cannot be resolved or, at least, mitigated. The advantages of the corridor concept far outweigh the real disadvantages; however, any successful implementation of the corridor concept must realize the assistance of government legislation, since action by an individual company or person, however commendable, would encounter too many obstacles. Hence, it is hoped that the corridor concept gains acceptance in principle by the government, participant transportation facilities, private business and the public.