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editor's note

In searching for responsive, innovative ways to provide capital facilities, public services, affordable housing, and other municipal needs made more pressing by new growth and subsiding federal aid, many towns have adopted or are investigating impact fee programs. Alternatively called cost recovery or development fee programs, impact fee programs aim to charge developers their fair share of the costs imposed by their developments. Widespread agreement on what is and is not "fair" has not been reached, and there are compelling arguments both for and against the use of such fee systems as expedient, equitable, legitimate service delivery conduits. Because development fees are increasingly the subject of both praise and criticism, much of this issue comprises discussion about them.

The first feature article by James Duncan and Norman Standerfer evaluates impact fees from a market perspective; the authors explore issues of efficiency, equity, and incidence from a theoretical standpoint. The second component of the impact fee evaluation, a piece by Charles Siemon, scrutinizes development fees on legal bases. Through a case study, the third article by Scott Shuford offers a hands-on approach to structuring a workable cost recovery system. Together, these three timely articles contribute to the greater understanding of impact fees planners ought to seek.

Jonathan Richmond's article and commentary depart from the discussion of impact fees and aptly assess the reasons planners and policymakers make inadequate decisions. Using theory and case studies of transportation planning to illustrate and probe these inadequacies, Richmond's articles are conceptually useful and practically helpful, especially in light of the abounding transportation-related debates surrounding impact fees.

This issue of *carolina planning* also presents a light-hearted bit of advice about preparing planning reports; a study emphasizing the applicability of one aspect of planning theory to park and recreation planning; and an interview with Sister Joan Kirby, Director of Homes for the Homeless. Sister Kirby offers insights into the causes and dimensions of the country's homelessness problem and she tells of the innovative way in which Homes for the Homeless is working toward resolving the problem in New York City.

In addition to expressing gratitude to all who contribute regularly to *carolina planning*'s continuation, I would especially like to thank Harold Wilson and Roger Deese for their suggestions regarding our journal's new layout; and Assistant Editors Heidi Walter and Irving Boykins, whose participation in this issue was vital and whose talent and energy will surely serve *carolina planning* well over the next two years.

Russell Berusch
Editor

carolina planning welcomes comments and suggestions on the articles published and will be happy to accept new material for future editions from interested persons. Such material should be submitted to the Editor typewritten and double spaced.

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In the Works

Of Ships and Seaweed

Glenn R. Harbeck, AICP

I walked into the office of the consensus All-State planning director the other day. I couldn't help but notice two signs pinned to the wall over his work table. One said "Seaweed" and the other "Ships." There were several reports and plans arranged under each sign. My curiousity aroused, I asked about the significance of the signs.

The planning director said: "It's really quite simple. We have two sections in our department, with quite different ways of doing things. The Seaweed Section gets all the assignments that are ill-conceived, undesirable, and that generally we would like to see fall by the wayside. . .You know, the special election-year report for Commissioner Fusspot and that sort of thing. The Ship Section, you may have guessed, gets our important work, the stuff we would really like to see get implemented and that will have a lasting, positive impact on the community."

I said, "Where did you come up with the section names? I don't recall seeing them in the Greenbook."

Planning Director: "Well actually, I'm a sailor, and have always admired the work of the ancient ship builders in particular. They had a way of crafting basic materials into seaworthy vessels. Their process was resourceful and their results admirable. These graceful ships had both a sound structure and a clear purpose. Thus, the reports prepared by our Ship Section have many of the same characteristics.

On the other hand, there is our Seaweed Section. Seaweed, unlike the artfully crafted ship, has little apparent organization and no obvious form. It looks monotonous, with no part more important than any other. It seems to drift aimlessly and does not support much of anything. From a sailor's point of view, seaweed generally just fouls up whatever gets into it. As you might imagine, the reports prepared by our Seaweed Section lead the reader into a directionless mishmash where analysis, recommendations, policies and budgets are thrown into a product more closely resembling, well. . .seaweed.

So you can see, the two sections really are quite different. In fact, since we are on the subject, why don't I call in my two section chiefs so you can talk to them yourself?"

(Break and introductions)

Planning Director: "Getting back to our discussion—gentlemen, why don't you share with our friend here a few things about your approach to plan and report preparation? Let's start with the subject of executive summaries."

Seaweed: "We never use executive summaries. If we did, our decision-makers might not read the whole report and could miss out on some of the best justifications for our recommendations. Besides, planning issues are far too complex to reduce to a few words. When we do provide a summary, we usually make sure it is sandwiched somewhere between the body of the report and the appendices. We also have a complicated page numbering system, and we don't provide page numbers in our table of contents. That keeps the decision-makers from turning directly to the summary and perhaps missing out on some of our important research."

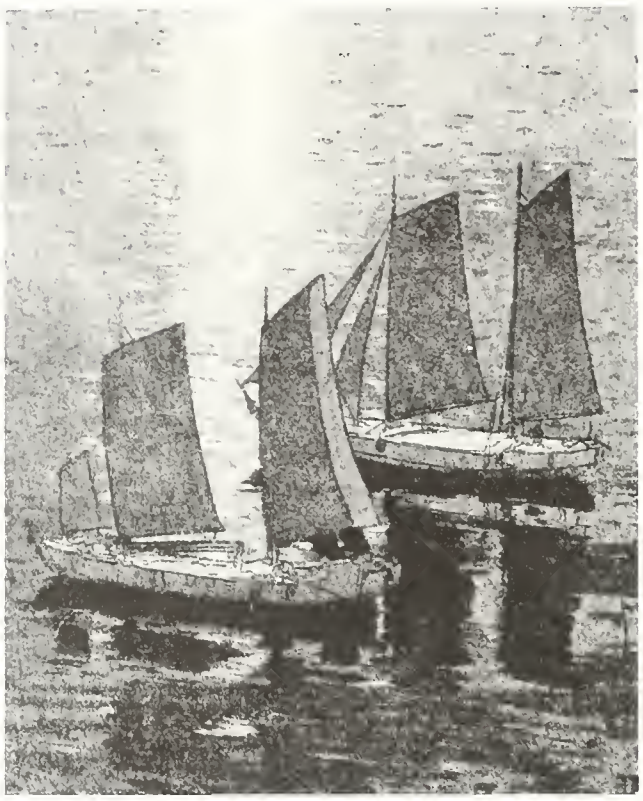
Ship: "We believe very strongly in the use of a Reader's Digest version. Right up front. No analysis, just the big picture. For the executive summary, our motto is, 'Tell me less of how it came to be and more of what it means to me.' We recognize that the report we have just spent three months on may get twenty minutes of attention, tops."

"How about report format?"

Seaweed: "We've always done our reports in the 8½" x 11" double-spaced format. It carried us through the 701 era just fine, and I see no need to change now. And because of its uniform appearance, we're able to plant our key findings at random points in the text, thereby requiring the decision-maker to read the whole report in order to get to its basic findings."

Ship: "We use the cluster development analogy for page layout. You know, groups of words in blocks of fairly dense type with plenty of open space between for visual relief. Key findings, recommendations and policies are often highlighted in extra wide page margins. If important points must occur within the text, we use bold type. We also repeat our major findings in the summary, of course."

"What about graphics?"



. . .a sound structure and clear purpose.

Seaweed: "Never use them. Graphics tend to break up the uniform appearance we try to achieve in our reports."

Ship: "We believe that a picture really is worth a thousand words. Sketches, maps, graphs, charts, and symbols make sense. After all, the planning profession is rooted in the design disciplines. We like to think about L' Enfant's plan for Washington. It's not his cogent written analysis that comes to mind, but rather his graphic vision of broad boulevards and expansive public spaces all in a grand radial design. Every time my people put their pens to the legal pad, they ask themselves, 'Could this be explained better graphically?' L' Enfant left a legacy and, in our small way, we hope to as well."

"What's your position on the use of photographs?"

Seaweed: "Professional photographers are way too expensive and pictures are awfully commonplace and self-evident. We like to keep our reports in the abstract, the theoretical, you know. A photograph or two might draw attention away from our critical research findings; worse yet, it might cause the decision-maker to just skim the report, perhaps missing a particularly strong statement. Then there's the hassle of possibly having to change our 8½" x 11" standard format. . .I could go on."

Ship: "Oh yes, we like photographs. My people always have a camera with them in the field. When we can't take pictures ourselves, we borrow them. Pictures of people doing what we are recommending. Candid action pictures of committee meetings, public hearings, neighborhood leaders, problem sites, you name it. The cost of film is a small expense compared to the benefits we get back. When our decision-makers get our report, we hope they will be able to see that the community involvement was real and that the benefits are tangible."

"What's your attitude on plan implementation?"

Seaweed: "It's not our job. If we had to get involved in implementing every plan we prepared, we would never get to the next plan, which could be even more important than the one we just finished. We assign follow up responsibilites to other departments. It's our way of letting the line people share in some of our success."

Ship: "We measure our success on how well the plan works as it is implemented. Conceptual and other general planning is an important first step, but we are not content to let our plans die on the vine. Our plans usually include a few practical examples; we call them the "show me how" element. This can mean the use of concrete examples to show how a particular policy can be implemented or it can mean a detailed planning report following immediately on the heels of the general plan. We see the two as inseparably linked."

Planning Director: "Thank you very much, gentlemen. That will be all for now."

(Section chiefs exit)

"I have just one last question for you, Mr. Planning Director. . .Where did you ever find the fellow to head up your Seaweed Section?"

Planning Director: "Oh, he used to be a writer for a major periodical. They had to let him go when his monotonous writing style fell beneath their standards."

"Which periodical?"

"The Federal Register." □

Glenn R. Harbeck is a planning consultant in the Wilmington, NC office of Edward D. Stone, Jr. and Associates, Planners and Landscape Architects. Harbeck is a 1978 graduate of the Department of City and Regional Planning, UNC-Chapel Hill, and a 1976 graduate of the State University of New York, College of Environmental Science and Forestry, at Syracuse.

Applying the Rational Planning Model to Recreation Planning in Soul City

Jon Lockman Mary Peloquin-Dodd

INTRODUCTION

In February 1987, Floyd McKissick, Sr., the developer of Soul City, the federally assisted Title VIII new community, approached the Department of City and Regional Planning at the University of North Carolina at Chapel Hill for assistance. Specifically, he requested that graduate students seek sources of funding for the Soul City Parks and Recreation Association (PRA). The PRA, which operated a pool and recreation complex for Soul City and the surrounding area, regularly sought money to cover deficit operating expenses. Without a long-term solution, the best alternative seemed to be the leasing of the facilities to Warren County.

During the preliminary stages of our investigation, the PRA Board of Directors voted to lease their recreation facilities to the County. Therefore the original direction of our study, namely to secure funds for continued PRA operation of the facilities, had to be modified. This paper describes the resolution of the PRA crisis in the spring of 1987, and suggests new roles and future directions for the PRA now that a lease has been arranged with Warren County. Finally, this paper looks at long term issues for the "post-lease period," including the possibility of the incorporation of Soul City.

Soul City Parks and Recreation Association in Crisis, 1987.

In the spring of 1987, the Soul City Parks and Recreation Association (PRA) found itself at a crossroads. Since the 1979 foreclosure of the Soul City New Community by HUD, the PRA had been responsible for the administration and maintenance of Soul City's recreation facilities. These include a pool and bathhouse; outdoor basketball, volleyball, and tennis courts; bicycle trails and common areas within the Green Duke Village; a lake with surrounding picnic tables and grills; and the eighteenth century Green Duke House. An entrance fee of one dollar per person was collected at the pool, while all other facilities were free and unmonitored. The PRA also was responsible for street lighting and mowing of common areas, and assessed fees from the Soul City homeowners at a rate of thirty seven and one half cents per one hundred dollars assessed valuation to pay for these particular services.

Because Soul City had grown to an estimated population of only two hundred, the PRA suffered a deficit of approximately twelve thousand dollars per year. Pool fees and assessments had not been nearly enough to cover operating costs of lighting, mowing, and maintaining the recreation facilities. The little maintenance that was performed was often done on a volunteer basis. Warren County had covered the deficit of the PRA for several years, since the pool and recreation complex had been used by the larger county community, and was the only such public facility in the County. The members of the PRA Board were not paid, and had little time to devote to management of the facilities.

A solution to the problem of restoring the Green Duke House was implemented in 1986. The first floor of the facility was leased for ten years to a Montessori school, the Creative Learning Center, with 501-C(3) non-profit status. The school then was able to receive a grant from the Mary Reynolds Babcock Foundation to restore the first level. Work has now been completed, but unfortunately the upper level remains unfinished and inaccessible to the community.

A long term solution to several other aspects of the financial problems of the PRA is now being formulated. At a Board meeting on March 18, 1987, the PRA voted to lease the pool and recreation facilities to Warren County. The details of the lease have yet to be determined. Two

Utilizing community facilities.

years ago, Warren County created a Recreation Commission; these Soul City facilities will represent the first recreation assets to be acquired by the Commission. Floyd McKissick, Sr., will represent the PRA in negotiating the terms of the lease. As of yet, there are no plans to lease the streetlights to the County, and the responsibility of mowing the common areas will remain with the PRA.

The anti-lease minority fears that leasing will be risky, since in the long term a future County Commission could close or curtail maintenance of the facilities. The pro-lease majority contends that once the Warren County Recreation Commission controls the area, political pressure from all of the county's citizens would prevent its closing. They also feel that the County government has the neccessary technical, financial, and administrative resources to manage the facilities properly, unlike the PRA Board.

When this proposed lease expires, Soul City may have an opportunity to once again regain control of its recreation facilties. This can only occur if, during the interim period, the Soul City PRA examines new roles for the future and redirects its efforts.

Defining a New Role for the PRA

With the leasing of the Soul City facilities to Warren County, the PRA has an opportunity to redefine its role and functions now that it has been relieved of major responsibilities. What follows are sets of specific recommendations for ways in which the PRA can work in several new directions.

Involvement in County and Regional Quality of Life Issues

- The PRA should strengthen its role in regional development through lobbying efforts at the county and state level to promote public investments in the area which will enhance the quality of life. The quality of education, recreation, and cultural facilities is becoming more important to industries seeking to decentralize or relocate. The PRA can adopt the role of activist and local government watchdog, following the activities of the School Board and County Commissioners to make sure that such services which improve the quality of life are enhanced in Warren County.
- The PRA should closely monitor the proceedings of the Warren County Recreation Commission, insuring that the PRA facilities which they have leased to the Commission are well operated and maintained. The PRA should support efforts to expand recreation opportunities anywhere in Warren County, which could serve to attract new employers to the area.
- The PRA Board should seek the appointment of one of their members to the Warren County Recreation Commission, to aid in the implementation of the above recommendation.
- The PRA Board should approach regional youth councils and the Recreation Commission about the possibility of a summer youth program at Soul City, to provide recreation opportunities for local children.

Management of the Fire Station Community Room and the Green Duke House

- The PRA Board should expand its role in managing and promoting the Green Duke House and Fire Station facilities. At this time it appears that Warren County will not lease the Green Duke House or the Fire Station Office and Community Room from the PRA. These remaining facilities can become the target of renewed efforts by the Board to provide more programs and services for the community.
- The Board should seek reorganization as a private, non-profit corporation under section 501-C(3) to increase its options for fund raising.
- The Board should consider changing the name of the PRA to the "Soul City Community Association," to better reflect the new roles of the organization.

Economic Development and Marketing Efforts

- The PRA should assume a more active role in promoting the physical and economic development of Soul City and the surrounding area.
- The PRA Board should work with the Agricultural Investment Fund and other owners of developable parcels

to create a joint marketing strategy. If all of the potential sellers in Soul City and the surrounding area joined forces, perhaps some effective marketing efforts could be designed. No one will develop land in Soul City if they are not made aware of the opportunity.

– Soul City has enough land and resources to support the establishment of a summer music festival or other outdoor cultural events with region-wide appeal. Such events could bolster awareness about the community, and aid other economic development and marketing efforts.

aid the Board during this period:

(1) Division of Archives and History
North Carolina State Historic Preservation
Department of Cultural Resources
Raleigh, NC 27611

(2) Division of Community Assistance
Department of Natural Resources and
Community Development
Raleigh, NC 27611

(3) Industrial Development Division (or)
Economic Development Division

Meeting recreation needs.

Application for Financial and Technical Assistance

– The PRA Board should only pursue outside funding sources after it decides on a course of action. It is difficult to apply for financial assistance with only a vague notion of the community's needs and goals.

– The PRA is fundamentally limited in its search for financial assistance, because Soul City lacks a governmental body or non-profit entity to receive funds. Most available federal and state grants are targeted to counties and municipalities. However, a variety of agencies provide grants and assistance in planning which could

North Carolina Department of Commerce
Raleigh, NC 27611

(4) Private Foundation Grants and Corporate Giving if the PRA obtains 501-C(3) non-profit status.

Until recently, economic development efforts and outcomes have depended on the infusion of funds from outside of Soul City. Now that several years have passed since the HUD foreclosure and no large single source supply of funds is in sight, the question for Soul City should not be "Where should the funds come from?" but rather "Where and how can we obtain technical assistance to help

us decide how to focus our economic development efforts?"

Toward A Rational Plan For Soul City

The PRA Board should not be satisfied with directing its energies to implement short term solutions only. The present situation presents an opportunity for the Board to step back and reassess its long term goals and objectives in an open and productive way. The following section illustrates how the Board can use the Rational Planning Model as a way to plan for Soul City's future, looking beyond the present crisis.

In its classic form, the Rational Planning Model contains five basic steps:

1. Inventory and Analyze Existing Conditions
2. Formulate Goals and Objectives
3. Identify Possible Alternatives to Achieve Goals
4. Choose the Best Alternatives
5. Evaluate the Success of the Effort

In the following passages, we have made a preliminary effort to take stock of Soul City's resources, define the PRA's goals, and suggest some long term alternatives. In a most basic way, the resources can be defined as what you have to work with, the goals are what you want to achieve, and the alternatives are possible courses of action to achieve the goals. It is up to the Board to elaborate on these efforts, discuss its goals with the community, and eventually make the long term decisions which will affect Soul City.

Rational planning for Soul City.

Taking Stock of Community Resources

The first step in the rational planning model is to inventory resources and analyze existing community conditions. The PRA should consider the following resources which it has at its disposal:

Infrastructure

- Well maintained roads (except for Pleasant Hills subdivision and AIF industrial road).
- Adequate water and sewer capacity.
- Fire station with two firetrucks, run by Volunteer Fire Department
- Community Room and PRA office in fire station.
- Health facilities.
- Large, serviced, vacant parcels zoned for industrial uses.
- Recreational facilities, with guaranteed maintenance by Warren County under the terms of the long term lease.
  - Pool
  - Bathhouse
  - Basketball Courts
  - Volleyball Courts
  - Tennis Courts
  - Lake
  - Picnic Tables and Grills
  - Bike Trails
- Green Duke House
  - Cultural, historic focus
  - Potential Community Room upstairs
  - Montessori School, directed by Janice Crump

Human Resources

- Human Resources of dedicated PRA Board members.
- With leasing of the recreational facilities to Warren County, PRA Board members will be freed to pursue new roles and directions.
- Visible PRA organization exists with established community respect and support.
- Baptist Church organization brings the Soul City community together, giving resdients a sense of belonging and fellowship.
- Soul City has a good track record, and has contributed

to the County tax base and enhanced regional development.
– Many of Soul City's residents are professionally skilled, and have much to offer the community.

Housing Stock

– Green Duke Village has an excellent stock of well kept single family homes.

Retail Space

– Four small retail spaces exist, with ample room to be enlarged into a major shopping center.

New Housing

– Fourteen elderly units are under construction, and will bring additional community residents and visitors and add to Soul City's social diversity.
– The Pleasant Hills subdivision has ninety one vacant housing lots ready for development, with complete infrastructure in place.

Industries

– The Purdue Company is constructing a new hatchery facility, and owns other land around Soul City.
– Swing Trucking, Owens Illinois, and Central Sportswear now have plants in Soul City.

Transportation Access

– Soul City is on US 1/US 158, and convenient to I-85. Railroad tracks cross the north end of the site.

Goals

The next step in the Rational Planning Model involves the formulation of goals and objectives. Goals are more general in content; objectives, however, should be specific and measurable. We have identified six goals for review by the PRA Board. The Board should discuss these goals with the community and develop a consensus. Additional goals may be desired, as we have only provided a first attempt here. We have not developed any measurable objectives; these should be set by the Board once goals are established.

Goals:

– Retain, as much as possible, the character and identity of Soul City as a "new community," carrying forward the vision of its origin.
– Promote economic development for Soul City and Warren County.
– Create a community with socio-economic, racial, and age heterogeneity; a truly balanced community offering new opportunities for its citizens.
– Expand the population of Soul City so that existing services can be delivered more efficiently and new services can be offered.
– Improve the management and administration of Soul City, so that residents can effectively participate in community life and control their environment.
– Improve the quality of Soul City's community facilities and recreational complex.

Alternatives for the Post Lease Period

The next step in the Model is the exploration of alternatives. These alternatives represent a few possible ways that the PRA Board could try to achieve its long term goals.

(1) *After the lease expires, dedicate the PRA facilities to the Warren County Recreation Commission.* Our prediction is that the County's behavior as an owner of the Soul City recreation facilities would hardly differ from its behavior as a lessee. The only difference is that, as a lessee, the County is bound to the terms of the lease. As an owner, the County would be free to manage the property as it sees fit, or even to dispose of it (an unlikely circumstance). After dedicating the facilities to the County, the PRA would be free of its responsibilities as an owner and would be able to focus its attention on other community concerns.

(2) *After the lease expires, the PRA retains the recreation facilities and operates them.* This alternative would return the PRA to the exact situation it was in during March 1987, before an agreement was made to lease the facilities to Warren County. Alternative 2 is only feasible if the PRA somehow comes up with adequate funding and management capabilities before it takes back the facilitiies. With this alternative, the PRA may again find itself stuck with an operating deficit. However, if the PRA could hire a paid manager or director, it is more likely that Alternative 2 could work.

(3) *Once the lease expires, the PRA works with the Warren County Commission to establish a County Service District for financing PRA recreation facilities.* It can be argued that one of the main reasons that the PRA ran a deficit is because it had too few residents to assess. A possible solution to this problem is the creation of a County Service District (CSD), which would be able to assess a broader base of residents for utiliz-

ing Soul City's recreation facilities. A CSD is an area within the county whose boundaries are set by the County Commissioners, within which the County levies a property tax additional to the countywide tax. It then uses the proceeds to provide one or more services that it either does not provide countywide or does not provide countywide at as high a level as the residents of the district desire. Establishing a CSD is totally within the control of the County Commissioners, and no petition or referendum of district residents is required (Lawrence 1982).

Policy-making for the district would also remain in the hands of the Commissioners. Under this alternative, then, the PRA would give up ownership and once again relinquish control of their facilities. The advantage, however, is that the County Commissioners could justify providing higher quality recreation facilities in the Soul City District, since it would be collecting extra funds to provide such facilities from district residents. This alternative may prove attractive if, during the next several years, other Warren County residents complain that the Commission is giving Soul City residents preferential treatment by financing the Soul City recreation facilities from general revenues.

(4) *The PRA seeks municipal incorporation for Soul City, so that the residents can directly control the recreation facilities and other local government services.* If Soul City becomes incorporated, its residents will be able to directly determine the types and levels of municipal services delivered. Although this alternative is the most complex, it offers Soul City the greatest chance of achieving its goals in the long term. A summary of issues surrounding municipal incorporation follows, prepared with the help of Jake Wicker of the UNC Institute of Government, and the IOG publication, *Incorporation of a North Carolina Town*, by David Lawrence.

Municipal Incorporation Issues

Legal Procedures:

Under North Carolina law, a town may be incorporated only by act of the General Assembly. The decision to incorporate is essentially political, because the General Assembly is not bound to any set standards of population or tax base. If a community wishes to incorporate, it must enlist the support of its legislative delegation to the General Assembly. If the local legislators support the effort and introduce a bill to incorporate the community, it usually passes without difficulty. Effective July 1986, a new Joint Legislative Commission on Municipal Incorporations was formed for the purpose of reviewing local bills requesting new incorporations. However, such a review by the Commission is optional, since any legislator may introduce a bill of incorporation directly on the floor of the Assembly. Even if Soul City were reviewed for incorporation by the Commission in the near future, it would probably meet their criteria. On a practical level, the town must include with the bill a definition of the town's limits; the total value of taxable property; a charter establishing the method of governance of the town; and a preliminary budget. Usually, the local legislators wish to have some concrete evidence that a majority of the residents are in favor of incorporation, although strictly speaking, the approval of residents is not required.

Services Provided by a Town

Streets—Once a community is incorporated, its officials negotiate with the State DOT over which roads will become town streets and which roads will remain state streets. Once the town accepts responsibility for streets, it will become eligible for a share of state street aid, to help pay for maintenance (see below).

Enforcement—Sheriffs' departments usually do not operate in incorporated towns. Most new towns employ one or more police officers.

Fire Protection—Incorporation need not have any effect on the existing Volunteer Fire Department arrangements.

Water and Sewer Services—Once again, incorporation need not change existing arrangements.

Town Regulatory Powers

Any town in North Carolina has the full authority to adopt ordinances regulating zoning, subdivision, building code enforcement, etc.

Revenues Available to Towns

Property Tax—A new town usually contracts with the county to assess property values and collect property taxes within the town. These revenues provide the main funding for town services.

Sales Tax—The one percent county sales tax is collected along with the state's three percent, and proceeds are then returned to the county by the state. Part of those proceeds are shared by the county with the towns in the county according to the property values or population within each town.

Intangibles Tax—The state intangibles tax (stocks, bonds, etc.) is redistributed to the counties and towns according to property tax levies.

Beer and Wine Tax—About twenty-five percent of the beer tax and fifty percent of the wine tax collected by the State are returned to the counties and towns on a per capita basis.

Franchise Tax – Half of the state taxes on electricity, gas and telephone services collected within a town are returned by the State.

State Street Aid – One and three-eighths cents per gallon of the state gasoline sales tax is distributed to cities and towns for street maintenance. Municipalities receive about thirteen dollars per person and about 850 dollars per street mile annually from this source.

Revenue Sharing – In the past, the federal government has shared a portion of its revenues with state and local governments. It is unclear how recent cutbacks in the program will affect future communities.

It is obvious that incorporation creates new burdens on the community, but it also opens up tremendous possibilities for economic development, independence, and citizen involvement in Soul City's future. The PRA Board should consider these issues, as well as the short term solutions discussed earlier. □

Jon Lockman and **Mary Peloquin-Dodd** are 1987 graduates of the Department of City and Regional Planning at the University of North Carolina-Chapel Hill.

NOTES

Interviews:

Janice Crump, Chairperson, Soul City Parks and Recreation Association, Soul City, NC, 10:30 AM, March 30, 1987.

Jane Groom, Treasurer, Soul City Parks and Recreation Assoc., Soul City, NC, 5:00 PM, March 11, 1987.

Ms. Kirkland, Secretary, Soul City Parks and Recreation Assoc., Soul City, NC, 5:00 PM, March 11, 1987.

Evelyn McKissick, Soul City, NC, 3:30 PM, March 11, 1987.

Floyd McKissick, Sr., Developer of Soul City, presentation to Planning 239, a graduate course on New Towns, Department of City and Regional Planning, UNC-CH, 2:00 PM, March 3, 1987, 5:30 PM, March 25, 1987.

Warren "Jake" Wicker, Faculty member, Institute of Government, UNC-CH, Chapel Hill, NC, 3:30 PM, April 7, 1987.

Charles Worth, County Manager, Warren County, Warrenton, NC, 4:00 PM, March 25, 1987.

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Forum

Homes for the Homeless
An Interview with Sister Joan Kirby

Irving Boykins Heidi Walter

In recognition of 1987 as "International Year of the Homeless," and because Homes for the Homeless represents an innovative approach to a planning-related problem, **carolina planning** *interviewed Sister Joan Kirby, Executive Director of Homes for the Homeless.*

CP: We would like to discuss the homelessness problem from both a national and a local (New York City) perspective. First, who comprises the nation's homeless population?

KIRBY: The most recent survey that I've seen, which was a survey of 47 (U.S.) cities, reported that families with children make up the largest segment of the homeless population. They currently represent 35 percent of the homeless population. The federal government estimates that there are 250,000 homeless people in the country, and the Coalition for the Homeless estimates 3,000,000. This large discrepancy is due to the fact that the federal government is not looking for a big number. The federal government does not count the huge population of homeless people who are afraid to go to the shelters, or the many people who are doubled up and tripled up, or those in danger of homelessness. The Coalition gets such a large number by accounting for these individuals. The estimate is based on homelessness in the major metropolitan areas. The original number that I'm quoting (35 percent) is a figure that was published on March 31, by the Partnership for the Homeless, which also conducted a study in 47 cities. The Partnership conducted a survey among 741 public and private social service agencies. It concluded that there has been a substantial increase in homelessness between November and mid-March.

CP: What percent of homeless people have temporary or permanent employment?

KIRBY: A number of the people we serve hold jobs and live in the shelter. In fact, there are people working in our Family Inns who go to sleep in the shelter at night. Although some of these people have full-time employment, they can't find affordable housing in New York City.

CP: How mobile is the homeless population? What factors have contributed to migration patterns?

KIRBY: I have not seen any migration in terms of individual homeless; however, our organization works mainly with families. People move from one place to another in search of jobs, and then become homeless when they don't find the jobs.

CP: How available are shelter and low-income housing in New York City?

KIRBY: Currently, the City shelters 3,600 families a night, or about 25,000 people. We're looking at a net loss of 360,000 low-income apartments in New York City alone. This is due to the increase in homeless families. There's about a one percent vacancy rate in New York City. There was a report completed for the mayor by Michael Stegman last year which states that a five percent vacancy rate is healthy for a city. So when you get down to about one percent you know why we're housing so many homeless families.

CP: Is the low-income housing shortage due, in part, to the J-51 program?

KIRBY: Absolutely. It's directly related to that, as well as the 421-A program, which is a tax abatement on new

construction. The J-51 program is an abatement on the rehabilitation of apartments. It has really encouraged new construction of luxury apartments all over the city, and no construction of low-income apartments. Although it was originally intended to be an abatement for the renovation of low-income apartments, there were loopholes in the regulations that made it possible to get tax abatements from luxury rehabs as well. That's what the program has really been used for in this city.

CP: What role has the City played in your efforts? Has it tried to help alleviate the types of problems you've described?

KIRBY: We get a daily reimbursement rate from the crisis intervention services of the City. These monies are 50 percent federal emergency monies; 25 percent state; and 25 percent city. Although the HRA (Human Resources Administration) delivers the money, the state authorizes the use of that money. We therefore deal with the city and the state in order to get reimbursements for the services we provide.

CP: New York City has a large number of in-rem dwellings. How do you view this housing stock and its potential for rehabilitation, both as permanent and transitional shelter for homeless families?

KIRBY: New York City owns 6,000 buildings in East Harlem alone. The buildings that the City owns add up to hundreds of thousands of vacant apartments. The City has been selling them to the highest bidder, claiming that there is no money available to rehabilitate them as low-income units. I don't know of any initiative on the City's part to rehabilitate vacant buildings for low-income people; and I don't know of any programs – any tax incentives – to rehabilitate old buildings. The City claims, and rightly so, that it will cost $65–75,000 per unit to rehabilitate vacant buildings.

What the City has encouraged, and what we use in our programs, is the rehabilitation of vacant units in otherwise occupied buildings. The City's Emergency Assistance Rehabilitation Program (EARP), offers up to $10,000 for the rehabilitation of vacant apartments in otherwise occupied buildings. About a year ago, the City said it had run out of these apartments, and that EARP funding was running low. But UHAB (Urban Homesteading Assistance Board) identified 200 apartments. We are now working to get a line of credit from a bank because of a requirement to pay some costs up front. Until we have a family in a unit, the City will not reimburse us for the cost of rehabilitating that unit.

CP: Is this a part of the Family Inns program?

KIRBY: No. Our Family Inns program is what we call

Transitional housing for homeless families.

Phase I. Our goal is to service 1,000 families within the five boroughs. In Phase I, we purchase a hotel, a hospital, or other vacant building, to house homeless families for a temporary period of time. We've had about a forty percent turnover in the South Bronx. In fact, there are thirty-six families being placed in permanent housing in the next few weeks. We help these families locate permanent housing through EARP and UHAB, but also by working with the City's permanent housing program for homeless families.

CP: Describe the Family Inns concept.

KIRBY: It's a plan that provides certain services to homeless families. These services include on-site day care, meals, and an around-the-clock security group which we call the "peace keepers". We provide one worker per twenty-five families. The workers are the basic component in the Family Inns program. We'd like to offer more services. I think it's repeatable; in fact, we'd love to see it repeated.

CP: Which City agencies are most involved in this program?

KIRBY: We work with HRA on transitional housing, and with HPD (Housing Preservation and Development) on permanent housing.

CP: Has the City of New York shown any willingness to coordinate its efforts with non-profits and other neigh-

Provision of services contributes to the success of the Family Inns program.

borhood housing developers to provide housing, or does it work primarily through City agencies?

KIRBY: We are a not-for-profit, and we get our reimbursement monies from the City. But we're not a City agency by any means. We associate closely with the Emergency Alliance for Children, the Coalition for the Homeless, the Partnership for the Homeless, Catholic charities, and other not-for-profit providers in the field. We've had a wonderfully successful relationship with UHAB, at the Cathedral (of Saint John the Divine), and with a group called "Banana Kelly," in the South Bronx. They are a rehab construction company that has been providing us with permanent apartments for our families in the South Bronx. Our goal is to reach out to all of the local service organizations, and to get them to help us place families.

CP: New York City currently has a surplus of funds (from Municipal Assistance Corporation, Battery Park fees and World Trade Center payments in lieu of taxes). These funds are the basis of a ten-year "affordable" housing plan being touted by Governor Cuomo and Mayor Koch. Briefly describe the plan. Are you satisfied with this plan? Are you satisfied with its treatment of the homeless population?

KIRBY: I don't have much faith in that kind of initiative for the families we serve because most of those initiatives – they call them low-income initiatives – are targeted for families who earn $18–23,000 annually, and we serve people who live on $7–8,000 per year. Battery Park City is targeted for low- to moderate-income families, and the New York City Partnership also is initiating housing for low- to moderate-income families. But when they say "low," they're talking about $17,000 per year, at the low end of the scale. That doesn't help us at all. Ours are very low-income people who need to be serviced through public housing, through federal monies.

There is an initiative that has been very successful. It's a title demonstration program from the federal government called the Nehemiah housing program. It encourages low- to moderate-income homeownership. Again, this program will not service our people, but if there is enough on that level, maybe some will open up and be available for our people.

CP: Are many of the homeless families whom you serve former residents of welfare hotels?

KIRBY: The welfare hotels are the City's means for warehousing families. They are dangerous, fearsome, and the very worst places to house children. Our goal has been to put the welfare hotels out of business – that's why we became involved with the homeless. We get referrals from the welfare hotels. We also get referrals from the congregate shelters that the City runs. They're dormitory-like places where the beds are all lined up next to each other. We're trying to offer a more compassionate and humane solution to the welfare hotels. Granted, we have families living in one room. If there are older family members, or many children, we give them two rooms. It's not an ideal arrangement; it's transitional housing. That's why we work so hard to have a six-month turnaround to get our families into permanent housing.

CP: Has legislation been introduced to crack down on slumlords of welfare hotels? What sort of legislation might be effective in combatting this problem?

KIRBY: No legislation has been introduced that I know of. (Councilmember) Ruth Messenger has talked about getting the City to take them over through eminent domain. From time to time the City says, "we're not going to send any families to the Holland Hotel because it's such an incredibly bad place." But the City is really over a barrel because there's a 25 percent increase in homeless families, so it must place them somewhere. So the City makes big announcements that it won't use certain hotels, but then it uses them anyway. It's desperate for space.

CP: Can welfare hotel tenants file complaints with the New York City Housing Court?

KIRBY: The tenants in the welfare hotels are largely represented by legal aid or individual not-for-profit legal groups. They are not under Housing Court jurisdiction because they come under the hotel laws. Therefore, a group of tenants can't go to Housing Court to redress the evils in the welfare hotels.

CP: What is the Urban Homesteading Assistance Board's (UHAB) role—past and present—in New York City's housing crisis?

KIRBY: UHAB is a not-for-profit organization which is also a project at the Cathedral of Saint John the Divine. It has a fifteen-year track record. Originally UHAB provided technical assistance to homestead tenants. Later, it became more interested in training, tenant organizations in home maintenance, budgeting and management of their buildings. UHAB is responsible for the technical training for most of the low-income cooperatives in the city.

HPD has a program which I can speak highly of, and in which UHAB has played an important role. That is the Tenant Interim Lease (TIL) program, whereby a building that's owned by the City can be placed in an alternative management program. If the tenants can prove over a period of a year or two that they are capable of successfully managing the building, they can buy their apartment for $250 and continue to manage and run the building as a low-income cooperative. That's the best program in the city. UHAB has trained most of the TIL people in the city. It's in these TIL buildings—these low-income co-ops—that we are identifying the vacant apartments to be rehabilitated under EARP.

There have been negative aspects to using EARP monies, however. If you are financed by a private lender, after thirty-two months when the subsidy disappears or when the lender has been paid off for the rehab, the landowner doesn't have to keep the formerly homeless family. They're in danger of getting their rent raised on them after the thirty-two month time limit. So our goal has been to place as many as possible in a low-income tenant cooperative, where they will be admitted to ownership and absorbed into the tenant organization, to become low-income homeowners.

CP: Why is Homes for the Homeless an innovative approach to the homeless problem? How is it different from other shelters?

KIRBY: First, because of its funding: we have private monies for start-up purposes. That's innovative, but it is also empowering. Unless you have money to buy the facility and rehabilitate it, and buy the equipment and hire the staff in advance, you have no income stream. Innovative funding means we have loans from Chemical Bank which are 100 percent guaranteed by Leonard Stern of Hartz Mountain, so we have the money available to really perform—to really get into providing for homeless families.

Our programs are innovative because we're looking at empowerment of the families as a goal. Empowerment means not only moving them into a permanent apartment, but it means providing services. If one hasn't been through high school, we offer Graduation Equivalency Degree courses. If they're not ready for the G.E.D., then they get elementary education courses through a connection that we have with the City University of New York. They have elementary education and high school equivalency education available on-site at Homes for the Homeless.

I feel that is step one toward empowerment. When I spent time in Washington, I was seeking information about the welfare reform programs that are currently under discussion. My concern is that they're not serious enough about welfare reform. If we can get them to provide an interim period with support, in terms of health insurance, food stamps and continuing family support, then it becomes worthwhile for family members to take jobs.

CP: How did you work out the educational program through the City University of New York?

KIRBY: We had a contact with the president of City University who put us in touch with the department for high school education. Funding for a course was approved by the Board of Education. It's twice a week on-site, and a third time during the week at the University, in order to use the computer facilities. In the Queens Facility, which we call the Saratoga Interfaith Family Inn, and in which there are 220 families, including teenage kids, we're really serious about job training and job experience. We're developing a learning center there with computers and word processors. We've been given a donation of word processors, and we're pretty sure to get a grant for computers and a teacher so that people can be trained in secretarial skills and the use of computers.

CP: Do you receive any federal or state funding directly, or is funding received only through the reimbursements you spoke of earlier?

KIRBY: We do not have any separate funds or contracts at the moment. We are certainly going to be looking for those. I have a foundation that is practically committed to giving us the computers, and Xerox gave us the word processors. So we've had corporate gifts and foundation gifts. What we really need are waivers in the welfare system to allow our people who are now on welfare to work and be paid.

CP: Are you referring to the workfare program?

KIRBY: No, I don't like the workfare program because they send them out to clean the subway and pick up leaves in the park. That has no dignity attached to it, and it has no incentive attached to it. There's not even an economic incentive. On the workfare program, I believe one can make $80 every two weeks, in order not to violate one's

at home.

welfare payments. We're hoping to empower them to get off of welfare. We're not going to do that through workfare. I know of programs that have firm job offers – in law firms, in carpentry firms – in a lot of different skills and I want to have that kind of opening at the other end so we can have firm jobs for our people. That way, we're not just training them and then saying, "all right, go find yourself a job." The waivers would help in this transitional period.

CP: Could the HFH concept for housing the homeless be adapted or applied to other jurisdictions in the state or outside of the state?

KIRBY: Absolutely. The thing that's necessary is start-up monies. I believe that not-for-profit organizations should not have to rely on generous private donors. We have a donor, Leonard Stern, who gives us millions of dollars. But it's a government responsibility. The government should make money available. In New York City, only the Red Cross and we have start-up monies to get things going on a large scale. Women in Need has very large donors also, but they work with 20 to 30 families at a time. The way in which funding is currently structured requires organizations such as ours to form a public-private venture to get off the ground.

CP: What is shared housing? What are you doing to promote it?

KIRBY: Shared housing has been slow in starting. This is a model which we found in San Jose, California. It relies upon matching "overhoused" providers. These are families who have more space then they need and are in danger of losing their apartments because they are too expensive. We want to match these providers with seekers, or homeless families, who can contribute rent and possibly services, such as child care. We don't want this to be anything like a foster family. We don't want a superior-inferior relationship. We really take time to counsel, and to negotiate what each side is going to contribute.

CP: Have you instituted this program?

KIRBY: We haven't made our first match, but in running the ad for the first time, we got about 100 firm responses. The difficulty was in matching the seeker families with the providers. It is too risky for the seekers to give up their spots on the permanent housing list from HPD. A family must be in a shelter for 18 months before it qualifies for permanent housing. Our families are reluctant to lose their place on that list. If they're in one of our Family Inns, they're still eligible for permanent housing. We're negotiating right now with HRA to have shared housing considered as another form of transitional housing. It would cost them one-third as much money. Possibly after 18 months, the match has worked so well that they decide to stay together. The average match in San Jose is between 8 and 15 months. Some stay three years, but they keep renewing the contract. Our plan is, after a period of 18 months, to allow the families who want to stay together to drop their names from the permanent housing list and stay in a shared situation.

CP: What do you believe are the short- and long-term answers to homelessness? What do you believe is at the root of the homelessness problem?

KIRBY: The root of the homelessness problem is a cutback in federal funds for low-income housing. The HUD low-income budget went from 34 billion in 1981 to 9.9 billion in 1986, which means that there has been less money for new construction and for housing rehabilitation and for housing services on the federal level. This has been really devastating from the point of view of low-income housing. I see that as the primary cause.

In addition, in New York City, tax incentives have encouraged the building of luxury housing, without any real incentive to provide low-income housing. While we're coping with the crisis of homeless families, the only money available for homelessness is out of the federal emergency monies. Bill HR5020 is a proposal to use the federal emergency monies for permanent housing. Everyone is screaming that we're in our seventh year of emergency funding, and there's absolutely nothing available for permanent housing. □

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Comments on the Equity, Efficiency, Incidence and Politics of Impact Fee Methodologies

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Development impact fee systems are a controversial topic among developers and planners. This article proposes that the use of locationally-sensitive impact fee methodologies can have positive effects on the cost of development and the price of the final product. The authors caution local officials against jumping on the "development fee bandwagon," and using fees to raise new revenues rather than as a regulatory measure to meet growth needs.

Development impact fee systems provoke heated debate among proponents and opponents concerning the equity of cost-shifting, the incidence of who ultimately bears such costs, and the effectiveness or efficiency of marginal cost techniques in the provision of new infrastructure.

The recent publication of *Paying for Growth: Using Development Fees to Finance Infrastructure* by the Urban Land Institute, may cause opponents of impact fee systems to voice renewed justification for their positions, based upon the report's summary conclusions. But before every builder, developer and realtor heeds the clarion call of the report to rush to the steps of his statehouse in order to seek statutory prohibitons to impact fees, it would be well to remember the sad state of affairs surrounding the current infrastructure financing crisis. The continued rejection of local infrastructure bond tax initiatives; moratoriums; uncertainty, extortion and regulatory delay; and decreasing federal and state assistance are the very reasons that "surrogates" for infrastructure adequacy, in the form of fair share development fees, were originally conceived.

The authors of this article were among the first to caution against the perils and pitfalls of badly conceived development fee systems and poorly constructed impact assessment methodologies. Such systems can exhibit most of the serious defects and consequences alleged in the ULI report. However, properly conceived and designed methodologies may just as well have neutral to positive effects on the equity, incidence, efficiency and politics of impact fee systems.

The Trend Toward Cost-shifting

Simultaneously faced with deteriorating existing infrastructure and growth-generated requirements for expanded facilities, local governments have begun to focus upon development fees as promising alternatives to increased local taxes. As a result, the local development community has become the target of an array of new impact-oriented, cost-shifting techniques employed to permit each new development project to pay its "fair share" of new infrastructure demands. The early efforts to implement development impact fee concepts focused upon issues of legal defensibility. As a result of the pioneering efforts and litigative experiences of a variety of leading edge communities and practitioners, the converging base of judicial standards and tests upholding police power development fees has been established.

Having discovered the general formula for legal acceptance, far too many communities are leaping on the development fee bandwagon with only a minimal understanding of the operative effect and implication inherent in the mechanics of the endless variety of impact assessment and fee apportionment methodologies. The politics of preparation and public hearing related to a proposed new system are generally highly debated and controversial. The eventually adopted ordinance represents an uncomfortable compromise among political expediencies, methodological tinkering, urgent facility needs, and the perceived underlying urge to reform the way infrastructure was formerly locally financed.

The attendant public debate invariably centers on assertions by proponents that growth should pay its own way, that new development should pay its fair share of new costs, and that the new system will foster the growth management objectives of more efficient provision and utilization of facilities. Opponents counter-argue constitutional and statutory taxation and taking issues, intergenerational inequities, rising costs of development, housing unaffordability, and anti-business, non-competitive economic disadvantages which will result from such new fees.

There is no end to the availability of literature and advice concerning the judicial standards supporting the

new development exaction and fee systems now proliferating. However, until recently, very little serious research has been, or could have been, undertaken to provide a common basis of empirical evidence concerning the operative effects of marginal cost impact fee methodologies, because of their lack of longevity. Now a number of published surveys, case studies and similar research efforts are beginning to appear.

The ULI report has made a major contribution to a common framework for analysis by both proponents and opponents of the operative effects of impact fee methodologies. Based upon its summary conclusions, the report cannot be characterized as a level or neutral playing field for analysis, but more as the first significant effort to attempt to develop design standards for the location and construction of the ballpark. Tom Snyder, Mike Stegman and the ULI are to be commended for their significant efforts.

Equitable and Efficient by Whose Standard?

Traditionally, infrastructure at the local government level has largely been financed through the property tax on land and improvement values. From an equity standpoint, this means individual taxpayers bear financial responsibility for infrastructure according to their "ability to pay," not on the basis of use or impact, which is the "benefit" principle of equity. The benefit principle is similar to the private competitive market principles where individuals must pay specifically for the goods or services they consume. Development fees represent a political policy shift to the benefit principle, requiring new development to pay its "fair share" of new infrastructure: requirements on a proportional *impact* basis rather than on a *value* basis.

The private market theory of free competition suggests that price is the primary determinant of economic efficiency. In the public good and service finance arena, user fees, development fees and impact fees are most akin to the benefit principle of equity, while taxes on value represent the other end of the equity spectrum. Price, as represented by either taxes or fees, allocates resources most efficiently when price approaches or equals the marginal cost of producing an additional unit of infrastructure. Marginal cost pricing is said to occur naturally in the fantasyland of perfect competition. To the extent that market failures exist in the private sector or that the public sector is providing infrastructure at prices below marginal cost, infrastructure is allocated inefficiently. To the extent that the development of land imposes ability-to-pay costs on the community-at-large and the developer does not pay his proportional, fair share of such costs, there will exist inefficient spatial location of development and inefficient allocation of the costs to various land uses.

Opponents of marginal cost approaches to infrastructure financing argue that the benefit principle of equity results in a reallocation of former costs, previously borrowed or deferred by the community-at-large through taxes, to new fees to the development project which raise the cost of development and ultimately the cost of the end product. The next extrapolation is to argue that new businesses and new residents, without voice, are being treated unfairly in relation to established ones, raising new questions of intergenerational equity and incidence of burden. Equity, efficiency and incidence issues are debated hotly within the context of competing ability-to-pay and benefit views on equity, an extension of the traditional City Hall political debates relating to "them versus us," "neighborhood versus developer," etc.

A third view of equity, the horizontal equity principle, provides a more rational framework for such issues. The principle of horizontal equity holds that people in similar situations should be treated similarly, or that they should contribute the same amount to the financing of infrastructure. This view of equity is complementary to both other views, and most appropriate to planning, development regulation and growth management considerations of a spatial, geographic dimension. This view of equity permits assessment of financing techniques to be addressed compatibly with the more traditional concerns of the planner for location, timing and sequencing of infrastructure.

Horizontal equity permits public policy to concentrate first on the political values of capital programming, adequacy of facilities and the pattern of future land use and development as they affect the utilization of current excess capacity, the problems of existing deficiencies and the planning for needed new infrastructure in terms of reality, not just theory. Both the private sector and the public sector agree that the financing of new infrastructure should encourage economic efficiency, orderly development and the optimum use of public facilities. Debate remains polarized between the pros and cons of appropriate alternative financing techniques based upon the effects of "ability-to-pay" versus "benefit" approaches.

Equity, Efficiency and Incidence

The horizontal equity view can serve to level the playing field for debate. The crux of most debate centers on issues of intergenerational equity. Opponents of impact fees allege that they somehow apply differently to established versus new residents or businesses. The horizontal equity view totally destroys this argument because the financing of infrastructure will fall equally upon all res-

idents or businesses, new or existing, who chose to make a common or similar locational decision. It is immaterial whether a new development has financed its on- and off-site costs via a special taxing district or an impact fee system (both constitute forms of marginal cost-shifting). Those who purchase a home in a certain development are paying as a result of their locational decision. In reality, the largest market for new housing is not new, in-migrating residents, but existing residents desiring new homes. The intergenerational arguments dissolve when tested against horizontal equity.

The costs which new development may impose on a city for new infrastructure differ from location to location and vary by type of use. For development to be efficient, these costs must be considered in making either private or public capital investment decisions. All other externalities being equal, private development locating where costs are lowest is most efficient. However, private investment decisions to locate elsewhere, due to the private benefits of view, waterfront or similar amenities, reflect the incorporation of higher offsetting private benefits. To the extent that all development is required to assume its actual, locationally distinct marginal infrastructure costs, it can be considered efficient. The horizontal view of equity again reduces the efficiency test of development to the locationally sensitive price decision for the home buyer, whether new or current resident.

Achieving efficient provision and utilization of public infrastructure is believed to occur where use is equal to the marginal costs of provision and when benefits exceed costs in the provision of infrastructure. If orderly development and efficient use of public facilities are to be encouraged, we must recognize the limits of the pragmatic applicability of the various views of equity as they are assumed to operate in the pure, competitive market arena. Alternative financing techniques which shift costs further along the spectrum in the direction of more nearly equating actual marginal unit costing reinforce efficiency considerations.

With the property tax general obligation bond, we have the least financing technique. Then comes the geographically defined special taxing district, followed by the generalized, zonal approach to impact fees. The most equitable approach, however, embraces the use of highly locationally-sensitive computerized models for assigning impact fees.

Impact fee systems that are locationally precise and sensitive most completely define the truest off-site costs of a development. Such systems reflect lower off-site costs attributable to existing unused capacity within close proximity and conversely reflect higher off-site costs attributable to seriously deficient capacity problems in close

Transportation improvements.

proximity. To the extent that the form of financing of such costs represents the truest marginal cost, as do impact fees versus special tax district or general obligation bonds, the impact fee supports more efficient use and provision of public facilities than other alternatives.

Efficient production and consumption of housing are most directly affected by the price of land, costs of financing and the supply of buildable sites. The optimum allocation environment is the purely competitive free market. The real world for production and consumption of housing is the local political jurisdiction. A myriad of constantly changing factors distort the type and quantity of housing that is built and consumed in a local jurisdiction. This is also true for non-residential uses.

The most obvious distortion factors relate to the rate of growth being experienced at any point in time. Both production and consumption are affected by periods of rapid growth, slow or declining growth rates, the availability of and rates for financing, inflationary pressures on labor and material costs and the effects of speculation and inflation in land costs.

Property taxes, special assessments, exactions and impact fees have the effect of increasing the cost of housing relative to other goods, thereby lowering their consumption below efficient levels. Since infrastructure must be provided from one of these alternatives, the horizontal view of equity would support a marginal cost approach as the better alternative to make up these payments for infrastructure.

There is substantial agreement that local government attitudes toward growth reflected by their regulatory systems, their support or non-support of bond financing and

their pro-growth versus no-growth orientation have played a significant role in the provision or restriction of available supplies of developed land with respect to demand. The more time-consuming the regulatory process and the more growth-restricting the community's attitude, the less available are adequate supplies of developable land. Such factors similarly distort the production and consumption of housing in terms of economic efficiency.

The effects of the factors described above, taken alone or in combination, distort production and consumption. Furthermore, they affect the price of housing by dwarfing the absolute cost of locationally-sensitive impact fees. When sound planning, linked capital programming systems, streamlined regulatory procedures and locationally-sensitive, methodologically correct impact fees systems are well integrated, they can have a neutral to positive effect upon development costs and the price of the finished product. This is particularly true when the results of such integrated growth management systems remove artificial or theretofore unresolved political constraints on the supply of developable land.

The issue of incidence of burden, or who pays, is greatly affected by the methodological approach inherent in the chosen financing technique. Stegman and Snyder imply that the only "fair" methods are continued general obligation bonds or special taxing districts spreading the costs to all according to their ability to pay. The development community would argue that charging impact fees requires such costs to be added directly to the final price of its product, thereby raising the cost of housing to the new resident. This is similar to moving the incidence of who pays from the developer to the buyer of new homes, or forward shifting such costs.

Growth impacts.

Since property values reflect underlying economic usage, it is not unusual to find a typical single family house appraised at $60 per square foot while an office complex is appraised at $80 to $120 per square foot in the same locale. The developer of commercial property therefore can argue, under the ability-to-pay principle of taxes, that he is and has been paying up to twice as much or more per square foot than residential property developers.

In fact, when contrasted with a fair share peak hour road impact fee system, using the marginal cost benefit principle, office buildings usually generate only one-third of the peak hour traffic that the equivalent square footage in single family homes generate. Only in the rarest of conditions, when the uniform market value of office property equals three times the per square foot value of residential property, can the price of infrastructure under taxes be said to be fair or equal in the marginal cost sense, relative to impact fees.

Uniform fee schedules which incorporate overgeneralized zonal service areas provide no incentive for development to occur in one location or another. Precision systems incorporating high degrees of locational sensitivity, such as the pioneering Broward County, Florida TRIPS system, represent the leading edge of fair share marginal cost impact fee practice.

Such locationally-sensitive systems have two other significant attributes. They promote efficient use of currently existing capacity by providing a more accurate assessment of impacts and incentives in the form of lower fees to developers choosing to build in locations where capacity exists. The locationally-sensitive system similarly facilitates the truest incorporation of such impact fee costs into the total land improvement cost data upon which investment decisions are made, thus permitting both short- and long-term site acquisition decisions to incorporate said fees into land acquisition price negotiations. The result is a high propensity for such fees to be capitalized or offset in the price paid for land.

The Politics of Impact Fees

Impact fees find their legal base under the police power and as such are extensions of traditional planning and regulatory activities. They are integral components of policy decisions relating to the provision of adequate facilities and services, not unlike other regulatory minimum requirements found in traditional subdivision and zoning ordinances. There is a growing tendency, however,

of many local governments to view impact fees as a panacea for instant new revenues resulting in a distortion of the motives that should exist for their adoption. The raising of revenue becomes the objective, not the regulatory requirement that development provide adequate facilities both on- and off-site in a marginal cost, fair share manner.

Far too many planners and elected officials view impact fees as new sources of discretionary revenues. In fact, the rash of poorly conceived, overgeneralized, minimally locationally-sensitive methodologies sweeping the country promotes the revenue versus regulatory view of impact fees. The operative effect of these poor methodologies is to force the development community, through the police power ploy, to pay fees into local trust funds in order that local governments can expend such funds in a manner meeting the flimsiest benefit test and remain legal. The ULI report attempts to point out that among the shortcomings of impact fees is their loss of expenditure discretion. In reality, the benefit-expenditure test of impact fees is the paramount safeguard that the development community should be demanding from their fee payments.

It should come as no surprise that the proposed adoption of an impact fee ordinance should raise concerns on the part of the development community. Stegman and Snyder have articulated the abusive effects of poorly conceived, non-locationally sensitive impact fee methodologies. On top of ever-changing ordinance requirements and increasing processing delays, the development community understandably reacts to oppose impact fees as adding to its problems. On the other hand, the general taxpayer, particularly in high growth environments, feels compelled to reject ever-burgeoning taxes to subsidize new development and is supportive of any technique which purports to shift the costs to the developers or users of new development projects, regardless of the operative effect of the chosen methodology.

The more a chosen impact fee methodology looks and operates like a tax, the greater the likelihood that it will exhibit all of the serious consequences and defects alleged by Stegman and Snyder. The effects of such methodologies are incompatible with all three views of equity, and magnify the distortionary impacts upon goals of equity, efficiency and incidence. The more a chosen impact fee methodology seeks to emulate California's "impact taxes," the greater the likelihood that such fees will fall short of fair share, marginal cost objectives and benefit-expenditure tests.

Facility Type Methodologies

The concept of horizontal equity provides decision-makers with the most effective forum for consideration of infrastructure financing alternatives. Private market decisions and public facility costs share one common attribute which distinguishes one project from another, and which impacts successful market and financing decisions . . . location, location, location! To the extent that chosen methodologies can, within state-of-the-art professional and technical competence, isolate fair share, proportional impacts of site specific or locationally common impacts upon specific infrastructure capacities, it should be incumbent upon government to do so for all police power regulatory development fee systems. In so doing, the operative distinction between a tax and a fee are made apparent, and the best approximation of proportional impacts and fair share assessments can be achieved.

Fairness and equity in application among "development projects," large and small, is best demonstrated to potential payers of development fees when their "fair share" is clearly distinguished by their locational investment decision in relationship to adequate facilities. Private market development decisions are based upon the total estimate of acquisitions, development, and improvement costs, which vary among locations.

Development fees are in reality surrogates for the same project's off-site infrastructure costs and should vary in precisely the same manner to assure minimal methodological distortion of cost effects on development and housing. Facility type methodologies should express the proportionate relationships among location, facility service area, minimum accepted standards for facilities adequacy and costs for utilization or expansion of existing or needed capacity.

Facility type methodologies, to the extent possible, should reflect clearly articulated public facility and service standards and locational determinants in coordination with the community comprehensive plan. These standards should constitute the minimum level of service adequacy declared as public policy. Only with such declaration of measurable standards can existing excess capacity or deficiency be properly determined and further needs projected.

The ultimate political reality of properly conceived, locationally-sensitive fair share impact methodology is a new degree of regulatory certainty. Such systems serve to limit the developer's liability in comparison to the selective and arbitrary employment of negotiated exactions and extortionary practices which fall almost exclusively on the medium to large scale developer. □

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Who Bears the Cost?

Charles Siemon

Many municipalities in the United States, especially in rapidly growing areas, are considering or have adopted impact fee systems to help pay for the costs of new growth. Although such systems are a logical response to development pressures and the need for providing capital facilities, they may violate well-established planning law traditions. This timely article explores whether impact fee programs conflict with principles of planning and the due process of law, both of which have been integral to the development of modern planning law.

Introduction

> Raising expansion capital by setting connection charges not exceeding a *pro rata* share of reasonably anticipated costs of expansion, is permissible where expansion is reasonably required, *if use of the money raised is limited to meeting the costs of expansion.* Users "who benefit especially, not from the maintenance of the system, but by the extension of the system . . . should bear the cost of that extension."[1]

The concept of development exactions[2] for off-site capital facilities, that is, that new growth and development should pay a fair share of the cost of facilities needed to serve that growth has, in just a few years, evolved from an abstract theory[3] into a full-blown land use "fad."[4] In Florida, for example, where land use "fads" find fertile ground,[5] local authorities have been in a virtual fever to enact and enforce ordinances imposing impact fees for roads, parks, potable water, libraries, sanitary sewers, solid waste, police, fire, and emergency services.[6] More than forty local governments have enacted similar ordinances during the last two years.[7] In such diverse areas as San Francisco, Boston, and Aspen, developers pay a fee or provide for affordable housing.[8] Exactions are, in fact, a logical and reasonable response to the cost of sprawl.[9] Exactions are not, however, free of drawbacks. Their seductive attractiveness in terms of efficiency and expediency should not be allowed to overshadow what may be very serious conflicts with well-established planning law traditions. This article briefly discusses two aspects of those traditions and suggests several ways in which they conflict with exactions.

Contemporary land use law, albeit subject to much criticism,[10] is a reasonably balanced product of careful and effective evolution.[11] The rigidity of Euclidean districts has given way to process-secure flexible zoning districts. Generally, a fair balance has been established between public needs and private expectations.[12] The evolution of land use controls and the establishment of a reasonable balance between public and private interests is the result of two important influences – planning[13] and due process of law.[14] Because exactions may conflict with the principles of planning and may run counter to well-established principles of due process, a genuine basis for concern exists.

Planning

"If American land use controls are to work effectively and fairly, they must be based upon (a) an overall understanding of the needs for land in the community, and (b) a sense of direction – that is to say, upon *planning*".[15] Simply put, the reasonableness of land use controls depends upon planning for coherence, comprehensiveness, and consistency.[16] Otherwise, land use controls are nothing more than ad hoc exercises of public authority over private rights in a chaotic and often abusive process.

Unfortunately, planning, although influential in the evolution of contemporary land use controls, has not lived up to its theoretical promise. Indeed, many observers conclude that planning has been anything but successful.[17] Nevertheless, the overriding logic of planning as a basis for land use controls has been a powerful influence in the evolution of land use controls. In fact, Professor Haar's insightful article, *In Accordance with a Comprehensive Plan*,[18] served as a powerful force in molding the efforts of contemporary reformers like Babcock[19] and Sullivan,[20] despite the failure of the American Law Institute's Model

Land Development Code to mandate planning as a prerequisite for zoning.[21] Haar said:

> It is difficult to see why zoning should not be required, legislatively and judicially, to justify itself by consonance with a master plan as well. It might even be argued that any zoning done before a formal master plan has been considered and promulgated is per se unreasonable, because of failure to consider as a whole the complex relationships between the various controls which a municipality may seek to exercise over its inhabitants in furtherance of the general welfare.[22]

Although no one would claim that a clear judicial mandate for planning has been established, even a brief review of the Supreme Court's recent forays into the land use arena illustrates that planning is now a well-accepted element of a valid system of land use controls. In *Penn Central Transportation Co. v. City of New York*,[23] the Court rejected an attack on New York City's landmark preservation law in part because "[i]n contrast to discriminatory zoning, which is the antithesis of land-use control as part of some comprehensive plan, the New York City law embodies a *comprehensive plan* to preserve structures of historic or aesthetic interest. . . ."[24]

Similarly, in *Young v. American Mini Theatres, Inc*,[25] Justice Stevens noted that "the city's interest in *planning* and regulating the use of property"[26] is a substantial public interest. More importantly, in *Metromedia, Inc v. City of San Diego*,[27] Justice Brennan, a central figure in the Court's decisions regarding zoning law,[28] criticized San Diego's sign regulations because:

> [B]efore deferring to a city's judgment, a court must be convinced that the city is seriously and comprehensively addressing aesthetic concerns with respect to its environment. Here, San Diego has failed to demonstrate a comprehensive coordinated effort in its commercial and industrial areas to address other obvious contributors to an unattractive environment. . . .Of course, this is not to say that the city must address all aesthetic problems at the same time, or none at all. Indeed, from a *planning point of view*, attacking the problem incrementally and sequentially may represent the most sensible solution. On the other hand, if billboards alone are banned and no further steps are contemplated or likely, the commitment of the city to improving its physical environment is placed in doubt. By showing a *comprehensive commitment* to making its physical environment in commercial and industrial areas more attractive, and by allowing only narrowly tailored exceptions, if any, San Diego could demonstrate that its interest in creating an aesthetically pleasing environment is genuine and substantial.[29]

Due Process of Law

The other fundamental influence on contemporary planning law with which exactions may well conflict is due process of law—a group of rights derived from the fifth and fourteenth amendments of the Constitution.[30]

Reduced to simple terms, due process of law is a limitation on the manner in which government exercises power over individual rights and interests. As Justice Fortas once noted: "Due process of law is the primary and indispensable foundation of individual freedom. It is the basic and essential term in the social compact which defines the rights of the individual and delimits the powers which the state may exercise."[31]

Notwithstanding the accepted fundamental nature of due process, the precise meaning of the concept is undefined and has been the subject of "[m]any controversies."[32] " 'Due process' is an elusive concept. Its exact boundaries are undefinable, and its content varies according to specific factual context. . . [A]s a generalization, it can be said that due process embodies differing rules of fair play, which through the years, have become associated with differing types of proceedings."[33]

Due process requires that governmental powers affecting private rights and interests be exercised in a *fundamentally fair* fashion. " 'Due process' emphasizes fairness between the State and the individual dealing with the State. . . ."[34]

Paying for amenities.

This concept of fundamental fairness has shaped modern land use controls both substantively[35] and procedurally. The substantive nature of due process of law in relation to restrictions on land use was discussed by the Supreme Court in *Nectow v. City of Cambridge*.[36] The Court stated:

> [T]he governmental power to interfere by zoning regulations with the general rights of the land owner by restricting the character of his use, is not unlimited, and other questions aside, such restriction cannot be imposed if it does not bear a substantial relation to the public health, safety, morals or general welfare.[37]

This standard has, for fifty years, provided the substantive contours of land use controls. These contours have developed coincident with the clearly understood idea that the public welfare is not limited to protection from *offensive and noxious* activities and, therefore, the police power itself is broad enough to respond to the needs of a developing nation.[38]

Substantive due process is alive and well in the planning law context and provides clear jurisprudential support for Haar's planning thesis.[39] Haar believes that land use regulations should be enacted pursuant to a comprehensive plan because such regulations will bear a substantial relationship to the public health.[40] In other words, comprehensive planning ensures existence of a substantial relationship between the particular character, location or intensity of a land use and the public health, safety, and welfare.

The policy behind the due process clause is protection of rights through procedures that are fair. What is fair depends upon a host of factors, particularly the private rights involved. "Experience teaches. . . that the affording of procedural safeguards, which by their nature serve to *illuminate the underlying facts*, in itself often operates to prevent erroneous decisions on the merits from occurring."[41]

Notice to an individual of an impending decision that affects him, the information upon which the decision is to be made, and the opportunity to present opposing information and argument are examples of the kind of safeguards that ensure fundamental fairness. "The assumption is that by giving parties with sufficient interest in the outcome a chance to present evidence from their point of view, the government can best make an informed decision which considers all relevant factors."[42]

As the above illustrates, fundamental fairness encompasses a number of concepts. The first of these concepts is the notion that governmental decisions should be made on the basis of merit, not on the basis of personalities or self-interest: "The public has the right to expect its officers. . . to make adjudications on the basis of merit. The first step toward insuring that these expectations are realized is to require adherence to the standards of due process; absolute and uncontrolled discretion invites abuse."[43] There must also be an adequate opportunity for affected persons to find out what information will be used in the decision-making process and to offer information or argument in rebuttal.

The mere existence of procedural safeguards is not enough to satisfy the requirements of due process. "A fundamental requirement of due process is 'the opportunity to be heard.' It is an opportunity which must be granted at a meaningful time and in a meaningful manner."[44] A meaningful opportunity to be heard also requires a realistic opportunity to participate, free of practical constraints that prevent actual participation.[45]

Due process also contemplates equal access and treatment. It "is secured when the laws operate on all alike, and no one is subjected to partial or arbitrary exercise of the powers of government."[46] This concept includes access to processes without regard to economic station. As Justice Black stated in *Griffin v. Illinois*, "[s]urely no one would contend that either a state or the Federal Government could constitutionally provide that defendants unable to pay court costs in advance should be denied the right to plead not guilty or to defend themselves in court."[47] In addition, he noted that "there can be no equal justice where the kind of a trial a man gets depends upon the amount of money he has."[48]

Another doctrine that is rooted in the due process clause is the doctrine of vagueness—the constitutional requirement that a government proscription be explicit enough that affected persons are on notice of those acts or omissions that will expose them to liability.[49] In the absence of defined standards that are uniformly applied there can be no equal treatment except by mere coincidence. Governmental power must be confined to the principles of due process if the salutory goals of the constitutional draftsmen are to be achieved.

The difficulty with exactions is that they are antithetical to the planning and due process principles stated above in a number of ways. They are inherently inconsistent with the established tenets that have defined planning and due process in the past.

First, exactions conflict with planning and due process principles because the idea of a fair share "pay as you go" exaction system creates the illusion that the character, location, and magnitude of land use is simply a matter of a developer's willingness to pay for the cost of new services required by new growth. Indeed, developers are often vocal supporters of reasonable exactions because they see them as a means of overcoming local concern about growth. Given that most growth management controls have been predicated on the capacity of available public

facilities,[50] the developers' perspective is understandable. The trouble is that the appropriateness of a particular land use at a particular location depends on far more than the developer's willingness to pay for needed infrastructure.

The intangible values, community character and quality of life, which lie at the heart of Justice Douglas' now often-repeated ode to community character in *Village of Belle Terre v. Boraas*,[51] are vulnerable to incompatible or undesirable land uses whether or not a developer is willing to pay for water, sewer, or roads. In other words, quality of life involves far more than fiscal efficiency. It is imperative that land use controls be capable of conserving community values even if a developer is willing to pay for the cost of needed improvements. Of course, imposition of an exaction system does not mandate abandonment of planning programs directed toward maintaining the community character and quality of life. Nevertheless, some legislators appear to accept that adoption of an exaction scheme results in abandonment of this type of program. For example, the Florida Legislature[52] has taken the view that change is inevitable and that the focus must be on how to accommodate that change. This position has upset dozens of local authorities that have comprehensive plans designed to protect important community values even though greater densities, higher buildings, or more coverage could be accommodated financially.

The antiplanning implications of exactions go beyond the political impacts just described. The reason is that quality of life and community character are concepts that are difficult to quantify and therefore difficult to reduce to simple regulatory equations, particularly in communities that are not large enough to support a sophisticated planning department. The inevitable temptation is simply to abandon the intangibles and to devote available energies to capital facilities planning—a *re*active rather than a *pro*active approach to the future.

As troubling as the antiplanning aspect of exactions are, the whole idea that permission to develop should be dependent on one's willingness to *pay* raises an even more odious implication that was rejected long ago as inappropriate—that zoning is or should be for sale. Most exaction ordinances contain a schedule of payments purportedly linked to the community needs occasioned by new growth and development. Most ordinances, however, also provide for an alternative fee calculation that responds to the imprecision of impact assessments. As will be shown below, this type of provision is unfortunate because the calculation is arrived at through negotiation, another contemporary land use "fad."

In plain terms, under this type of provision, the developer bargains for his zoning. He may agree to give the community a new road, ambulance, or whatever, if permitted to build at a higher density. Such a process ignores the merits of a particular land use at a particular location and focuses instead on the payment to be received. In other words, a six-lane road may solve the traffic needs of new growth and development, but it does so at a cost. Growth for its own sake cannot justify transforming neighborhoods, wetlands, parks, and waterfronts into freeways. Worst of all, the deal made usually depends on who the deal maker is, rather than what is proposed. This negotiatory process, which is increasingly being used to arrive at decisions relating to land use,[53] exacerbates the risk inherent in exactions. The reason is that negotiations are uncomprehensive and not standard- or process-oriented; they rely not on well-conceived policies but on ad hoc agreements that are usually private. The finely tuned tension between public and private interest, tempered by citizen involvement and participation, threatens to be replaced by negotiated deals, the fairness of which depends on the integrity of individuals in office at any given time.

After years of faithful adherence to the principles of fundamental fairness, it is difficult to understand why this nation would suddenly find salvation in an idea that has the potential for abuse and disparate treatment. Of course, the obvious solution is to eliminate the alternative fee calculation process from exaction ordinances, which would eliminate the possibility of abuse and manipulation. The trouble is that the so-called science of exactions is so imperfect that (understandably) few authorities feel comfortable relying exclusively upon a rigid preset schedule, which represents a strong condemnation of the entire concept of exactions. In the abstract, these concerns are manageable. The limited scrutiny applied to local regulations by courts, however, makes it difficult to believe that the abuses described will not flourish and heighten concern about the concept of exactions.

Once it is accepted that it is appropriate for a landowner to pay an exaction in order to exercise his constitutional property rights, judicial review of exaction standards is limited to a "fairly debatable" standard[54]—what Judge Goldberg of the Court of Appeals for the Fifth Circuit fondly refers to as the "anything goes" test.[55] Simply stated, a regulatory standard has to be outlandish before a court will intervene, a notion that has assuredly been confirmed by the Supreme Court's modern polestar of local economic regulations, *New Orleans v. Dukes*.[56]

Dukes was in fact an equal protection case, but the scope of judicial scrutiny implicit in the fairly debatable standard and the rational basis standard are virtually identical. The city of New Orleans had passed an ordinance prohibiting street vendors in the Vieux Carre. The city, solicitous of the interests of existing vendors (one vendor

Impact fees—where does the road lead?

in particular, reportedly a politically influential individual), exempted those vendors who had been active in street vending for more than six years.[57] A hot dog vendor with less than six years in the streets brought suit challenging the ordinance. The Fifth Circuit invalidated the ordinance on the ground that it was ludicrous to suggest that six years of experience selling hot dogs was distinguishable from five years on the job. The United States Supreme Court reversed, holding that judicial scrutiny of esentially economic regulations is limited, and that courts should not second-guess the judgment of elected officials:

> States are accorded wide latitude in the regulation of their local economies under their police powers, and rational distinctions may be made with substantially less than mathematical exactitude. Legislatures may implement their program step by step. . . in such economic areas, adopting regulations that only partially ameliorate a perceived evil and deferring complete elimination of the evil to future regulations. . . . In short, the judiciary may not sit as a superlegislature to judge the wisdom or desirability of legislative policy determinations made in areas that neither affect fundamental rights nor proceed along suspect lines. . . . In the local economic sphere, it is only the invidious discrimination, the wholly arbitrary act, which cannot stand consistently with the Fourteenth Amendment.[58]

The theory adopted in *Dukes* is an appalling invitation for abuse by local governments in the context of exactions. Because the judiciary is unwilling to interfere with economic regulations, municipalities are confident that developers will find it easier and cheaper to accept exaction fees rather than challenge the regulations in court.

An example, anonymous because the developer's travails continue, illustrates the potentially coercive character of the exaction process. The developer proposed to develop a parcel located at a boundary of a municipality. The municipality maintains a municipal sewage system that collects and transmits sewage to a regional wastewater treatment facility operated by the county. Pursuant to a sewer service agreement, the municipality collects for the county an impact fee for the fair share of treatment facility capacity used by each unit of development. Unfortunately for the developer, the municipality's collection system does not reach his property. He is therefore obligated to build a sanitary sewer that connects to another part of the county's system in an adjacent municipality. Worse still, because of a downstream infiltration problem, the developer is obligated to contribute an additional $250,000 to the repair of the downstream system. When he applied for a building permit, he was required to pay an impact fee that was three and a half times the amount due the county under the sewer service agreement, even though he had already constructed the sewer main and contributed $250,000 to support downstream remedial efforts.

The municipality's position is simple: it does not matter whether the fee is fair—no fee, no building permit. Given that litigation will cost thousands of dollars and last between nine months and one year (if the municipality does not appeal), the developer has no choice but to pay the fee. Worst of all, to some, the municipality's position may seem plausible because the cost levied against the developer is in fact a pro rata share of the cost of the village's system. This view, however, overlooks the simple fact that the developer does not actually use the village's system and is saddled with the fee only because his property is located within the village.

In other words, the impotency of judicial review exaggerates the potential for abuse outlined above, and explains why it is necessary to adhere strictly to the principles of fundamental fairness. The abuses inherent in exactions are inevitable and, in the face of years of experience directed to the fairness of the planning process, unacceptable.

Regretfully, the antiplanning and due process difficulties do not exhaust the potential problems with exactions. Implicit in the concept of paying for the right to develop is the reality that only those who can afford to pay are permitted to develop—a circumstance that offers a community a clever, but shameful, means of excluding those of an undesirable character. In fact, in my opinion, this insidious by-product of exactions earns it the label as the latest sheepskin for the wolf of exclusionary zoning.

The impact of public regulation on the cost of housing has been the subject of extensive treatment and it takes no significant imagination to appreciate that a carefully established exaction scheme can keep out undesirables. Indeed, an impact fee of $5,000 to $10,000 has a significant impact on the affordability of housing and could ensure that only those of substantial means locate in a community—all for the seemingly legitimate purpose of imposing a fair share of the costs on all new development, costs

Growth in downtown Chicago.

that are easily manipulated by elected officials through judicious planning. Consider a community, for example, that imposes a regulatory impact fee for a wide range of facilities, including many desirable but unnecessary facilities such as a cultural center or expansive recreation facilities. The pro rata share of such facilities is $15,000, a fee that is *de minimis* to the wealthy, but discriminatory against the less fortunate, not by classification but by effect.

One final aspect of exactions merits brief mention. The Constitution clearly proscribes the taking of private property for public use without payment of just compensation,[59] yet exactions amount to such a taking. Although courts have traditionally validated exaction systems, it is difficult to understand how a regulation that requires dedication of land or payment of a fee in lieu thereof does not violate the taking clause. Under an exaction scheme, private property, land or money, is taken for public use without just compensation. This paradox goes curiously unresolved.

Conclusion

Exactions are a viable means of ensuring that adequate facilities are available to serve new growth and development. It is imperative, however, that the draftsmen and public officials who develop such programs clearly understand that there are great risks inherent in any exaction system and that careful preparation is necessary to ensure that the system achieves true equity. □

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1. Contractors and Builders Ass'n v. City of Dunedin, 329 So. 2d 314, 320 (Fla. 1976) (footnote omitted), *reconsidered on appeal from unpublished remand*, 358 So. 2d 846 (Fla. Dist. Ct. App. 1978) (amended exaction held legal), *cert. denied*, 370 So. 2d 458, *cert. denied*, 444 U.S. 867 (1979).

2. "Development exactions" is a generic term used in this article to describe an assortment of techniques employed by local authorities to compel a developer, either by regulation, negotiation, or simple leverage, to exchange land, money, materials, or services for permission to develop.

3. *See, e.g.*, American Soc'y of Planning Officials, Local Capital Improvements and Development Management 57-59 (1977).

4. In rough order of their appearance, other notable land use "fads" include planned unit development, transferable development rights, land use controls, and performance zoning.

5. *See generally* Fla. Stat. Ann. ch. 380 (West 1974 & Supp. 1986). For a discussion of Florida's attempts to guide local decisions relating to growth and development, see Finnell, *Saving Paradise: The Florida Environmental Land and Water Management Act of 1972*, 6 Urb. L. Ann. 103 (1973).

6. *E.g.*, Home Builders and Contractors Ass'n v. Palm Beach County, 446 So. 2d 140, 141 (Fla. Ct. App. 1984) (discussing Palm Beach County's enactment of a comprehensive plan in response to its "unsual growth rate"); Hollywood, Inc. v. Broward County, 431 So. 2d 606, 612 (Fla. Ct. App. 1983) (discussing Broward County ordinance enacted to meet needs raised by new subdivision growth).

7. I have been involved in numerous impact fee programs either as a consultant or as counsel for a private sector interest and have compiled a substantial library of impact fee ordinances from around the country including ordinances from, for example, Lincolnshire, Illinois; Palm Beach County, Florida; Broward County, Florida; Sarasota County, Florida; and San Diego, California.

8. *See, e.g.*, Porter, *The Local Regulatory Scene: Overview and Outlook*, in Development Review and Outlook, 1984-1985, at 403 (1985).

9. For a discussion of the costs of sprawl, see Council on Envtl. Quality, The Costs of Sprawl (1974).

10. *See, e.g.*, R. Nelson, Zoning and Property Rights (1977); Krasnowiecki, *Abolish Zoning*, 31 Syracuse L. Rev. 719 (1980); Ziegler, *The Twilight of Single-Family Zoning*, 3 UCLA J. Envtl. L. Pol'y 161 (1982).

11. Much of the criticism leveled at zoning ignores the many practical and effective reforms accomplished by local authorities throughout the country. Indeed, it has been suggested by Ed Sullivan, dean of Oregon's planning lawyers, that the critics are out of touch with the current state of planning law. He believes that many of the concerns rehashed by the critics were long ago solved with clearly written, flexible ordinances that emphasize specific standards and define development review procedures. Personal conversation with Ed Sullivan, Partner, Sullivan, Josselson, Roberts, Johnson & Kloos (Oct. 26, 1985).

12. There are, of course, jurisdictions where the balance is tipped in favor of the public interest. The mainstream of American planning law, however, is far more reasonable than the critics of the excesses in California would have the world believe. *See generally*, Porter, *On Bemoaning Zoning*, Urb. Land, March 1983, at 34.

13. "Planning," as used in this article, describes a discipline in which a decision maker compiles information relative to his responsibilities, assesses the information, and then establishes abstract policies to be applied to individual decisions. As used in this article, planning represents the antithesis of ad hoc decision making.

14. "Due process of law" refers generally to a range of substantive and procedural principles that have evolved through the two due process clauses of the Constitution. U.S. Const. amend. V, XIV, § 1.

15. 1 N. Williams, American Planning Law § 1.01, at 2 (1974) (emphasis added). Williams goes on to observe that, "[u]nder a rational system of public action, the basic policy decisions should be made first on a coordinated basis (planning); and then the appropriate tools (including the various land use controls) should be selected to carry out these decisions." *Id.* at 3.

16. *See generally* F. Bosselman, D. Feurer & C. Siemon, The Permit Explosion, Coordination of the Proliferation (1976).

17. *See, e.g.*, Siemon & Larsen, *In Accordance with the Comprehensive Plan – the Myth Revisited*, 1979 Inst. on Plan., Zoning & Eminent Domain 105. Alan Jacobs has decried the failure of planning to mature as a profession and suggested that the profession of planning be abolished and that we start anew to establish the "profession of Olmstead." Address by Alan Jacobs, Professor of City and Regional Planning, Annual Meeting of the American Planning Association, Florida Chapter (Nov. 6-8, 1985). Jacobs of course, has much to be dissatisfied with, as Babcock and Siemon have observed:

> Planning has been scorned, mocked, disparaged, and disdained since the earliest days of land use regulation. Worse yet, it has been ignored. Oh, there have been millions and millions spent on planning (most of it lavished on local government by various agencies of the federal government), but the officially adopted, actually used planning instrument is a rare beast indeed. It was, for starters, a stepchild of land use regulation, sitting by the hearth while its more robust sisters, zoning and subdivision controls, were cavorting across the American landscape.

R. Babcock & C. Siemon, The Zoning Game Revisited 261 (1985).

18. Haar, *In Accordance with a Comprehensive Plan*, 68 Harv. L. Rev. 1154 (1955).

19. One of Babcock's principal works reflecting his philosophy on land use is R. Babcock & C. Siemon, *supra* note 17.

20. Sullivan discusses some of his views on land use planning in Sullivan & Kressel, *Twenty Years After – Renewed Significance of the Comprehensive Plan Requirement*, 9 Urb. L. Ann. 33 (1975).

21. *See* Model Land Dev. Code (1976). Professor Dan Mandelker, another strong advocate of planning, ably recounts the need for planning in his article, Mandelker, *The Role of the Local Comprehensive Plan in Land Use Regulation*, 74 Mich. L. Rev. 899 (1976).

22. Haar, *supra* note 18, at 1174.

23. 438, U.S. 104 (1978).

24. *Id.* at 1323 (emphasis added). The Supreme Court's preference for planning is also evident in Justice Douglas' majority opinion in Village of Belle Terre v. Boraas, 416 U.S. 1 (1974). In a footnote, Justice Douglas complemented the Court's refusal to limit the concept of the public welfare with a reference to Vermont's land use controls, which, according to Douglas:

> direct local boards to develop plans ordering the uses of local land, *inter alia*, to "create conditions favorable to transportation, health, safety, civic activities and educational and cultural opportunities, [and] reduce the wastes of financial and human resources which result from either excessive congestion or excessive scattering of population . . .

Id. at 5 n.3.

25. 427 U.S. 50 (1976).

26. *Id.* at 62 (emphasis added).

27. 453 U.S. 490 (1981).

28. *See* Williamson County v. Hamilton Bank, 105 S. Ct. 3108 (1985) (Brennan, J., concurring); San Diego Gas & Elec. v. City of San Diego, 450 U.S. 621 (1981) (Brennan, J., dissenting); Owen v. City of Independence, 445 U.S. 622 (1980); Monell v. Department of Social Servs., 436 U.S. 658 (1978); Penn Cent. Transp. Co. v. New York City, 438 U.S. 104 (1978).

29. 453 U.S. 490, 531-33 (1981) (emphasis added) (footnotes omitted).

30. U.S. Const. Amend. V, XIV, § 1.

Two hundred years ago, the founding fathers established a government of laws and not of men, in order to ensure that personal privilege would not supplant the rule of law. As James Madison said:

> If they [the ten amendments comprising the Bill of Rights] are incorporated into the Constitution, independent tribunals of justice will consider themselves in a peculiar manner the guardians of those rights; they will be an impenetrable bulwark against every assumption of power in the Legislative or Executive; they will be naturally led to resist every encroachment upon rights expressly stipulated for in the Constitution by the declaration of rights.

1 Annals of Congress 439 (J. Gales ed. 1789).

31. *In re* Gault, 387 U.S. 1, 20 (1967). Justice Harlan has also remarked:

> Perhaps no characteristic of an organized and cohesive society is more fundamental than its erection and enforcement of a system of rules defining the various rights and duties of its members, enabling them to govern their affairs and definitely settle their differences in an orderly, predictable manner . . .
>
> American society, of course, bottoms its systematic definition of individual rights and duties, as well as its machinery for dispute settlement, not on custom or the will of strategically placed individuals, but on the common law model. . . .Within this framework, those who wrote our original Constitution, in the Fifth Amendment, and later those who drafted the Fourteenth Amendment, recognizes *the centrality of the concept of due process* in the operation of this system.

Boddie v. Connecticut, 401 U.S. 371, 374-75 (1971) (emphasis added).

32. Mullane v. Central Hanover Trust Co., 339 U.S. 306, 313 (1950).

33. Hannah v. Larche, 363 U.S. 420, 442 (1960). Note also Justice Johnson's characterization of the due process principle:

> [A]fter volumes spoken and written with a view to their exposition, the good sense of mankind has at length settled down to this: that they [the words of due process] intended to secure the individual from the arbitrary exercise of the powers of government, unrestrained by the established principles of private rights and distributive justice.

Bank of Columbia v. Okely, 17 U.S. (4 Wheat.) 235, 242 (1819).

The due process concept evolved from English common law, and was incorporated in the Bill of Rights. It has continued to find amplification through the fourteenth amendment, legislative enactments (for example, the Administrative Procedure Act, 5 U.S.C. §§ 500-576 (1982)), and judicial interpretation. Unfortunately, or fortunately, depending on one's

perspective on judicial activisim, evolution has not yet produced a precise construction of the due process clause, a circumstance Justice Black has lamented in several dissents.

> The elasticity of that clause necessary to justify this holding is found, I suppose, in the notion that it [the due process clause] was intended to give this Court unlimited authority to supervise all assertions of state and federal power to see that they comport with our ideas of what are "civilized standards of law...
>
> This perhaps is in keeping with the idea that the Due Process Clause is a blank sheet of paper...

Boddie v. Connecticut, 401 U.S. 371, 393-94 (1971) (Black, J., dissenting) (quoting Williams v. North Carolina, 325 U.S. 226, 271-74 (1945) (Black, J., dissenting).

34. Ross v. Moffitt, 417 U.S. 600, 609 (1974).

35. After the era begun by the Supreme Court's decision in Lochner v. New York, 198 U.S. 45 (1905), the Court retreated from judicial scrutiny of the substance of economic regulations. G. GUNTHER, CONSTITUTIONAL LAW 462-75 (11th ed. 1985). Zoning law, however, has always and steadfastly been defined by a substantive requirement that a regulation must provide a minimum factual basis under the "fairly debatable" standard. For a discussion of this standard, see *infra* text accompanying notes 54-57.

36. 277 U.S. 183 (1928).

37. *Id.* at 188 (1198) (citing Euclid v. Ambler Realty Co., 272 U.S. 365, 395 (1926)).

38. Village of Belle Terre v. Boraas, 416 U.S. 1 (1974).

39. Haar, *supra* note 18; *see* text accompanying notes 18-22.

40. There is a second substantive limitation that arises from the due process clause that is not directly implicated by exactions, the so-called "taking" issue. In Williamson County v. Hamilton Bank, 105 S. Ct. 3108 (1985), Justice Blackman rehearsed without endorsing the argument that a regulation that is overly intrusive is a violation of due process. It is apparent, however, that the lengthy discussion, together with Justice Stevens' cogent concurrence, *id.* at 3125 (Stevens, J., concurring), suggests acceptance of this argument, a position that was also taken by Justice Holmes in Block v. Hirsch, 256 U.S. 135, 156 (1921).

41. Silver v. New York Stock Exch., 373 U.S. 341, 366 (1963).

42. Sinaiko, *Due Process Rights of Participation in Administrative Rulemaking*, 63 CALIF. L. REV. 886 (1975).

43. Hornsby v. Allen, 326 F.2d 605, 610 (5th Cir. 1964). Implicit in the requirement that decisions be made on the basis of merit is a requirement that decisions be based on all relevant information. "The hearing required by the Due Process Clause must be 'meaningful'...It is a proposition which hardly seems to need explication that a hearing which excludes consideration of an element essential to the decision...does not meet this standard." Bell v. Burson, 402 U.S. 535, 541-42 (1970) (citations omitted).

44. Armstrong v. Manzo, 380 US. 545, 552 (1965) (citations omitted).

45. For example, in Vlandis v. Kline, 412 U.S. 441 (1973), the Court struck an irrebuttable statutory presumption that the residence of a university student would always be the location from where an application was sent "because [the presumption] provides no opportunity for students who applied from out of state to demonstrate that they have become bona fide Connecticut residents." *Id.* at 453.

Similarly, in a case challenging mandatory maternity leave for teachers beginning five months before the anticipated birth of their children, the Supreme Court struck the regulation and repeated its dislike for procedures that do not afford individualized consideration of the underlying facts in each case.

> There is no individualized determination by the teacher's doctor—or the school board's—as to any particular teacher's ability to continue at her job. The rules contain an irrebuttable presumption of physical incompetency, and that presumption applies even when the medical evidence as to an individual woman's physical status might be wholly to the contrary.

Cleveland Bd. of Educ. v. Le Fleur, 414 U.S. 632, 644 (1975).

46. Maxwell v. Dow, 176 U.S. 581, 603 (1900). Courts have found due process violations where procedures affect individuals disparately in a number of contexts: "Steadfast adherence to strict procedural safeguards is our main assurance that there will be equal justice under law." Anti-Fascist Comm. v. McGrath, 341 U.S. 123, 179 (1951) (Douglas, J., concurring).

47. 351 U.S. 12, 17 (1956) (footnotes omitted). In another Supreme Court case, indigent persons sought access to the divorce courts of Connecticut, but were denied because their indigency prevented them from being able to pay the filing fees. The Supreme Court struck the provisions and required the state to develop a procedure that did not disparately bar persons from the courts.

> [W]e conclude that the State's refusal to admit these appellants to its courts, the sole means in Connecticut for obtaining a divorce, must be regarded as the equivalent of denying them an opportunity to be heard upon their claimed rights to a dissolution of their marriages, and, in the absence of sufficient countervailing justification for the State's action, a denial of due process.

Boddie v. Connecticut, 401 U.S. 371, 380-81 (1971) (footnotes omitted). The court noted that the state had interposed itself into marital relations and by law had provided that marriages could be dissolved only through judicial process, and, having done so, had to make those procedures equally available to all persons. *Id.*

48. 351 U.S. at 19.

49. See United States v. Harris, 347 U.S. 612, 617 (1954), where the Court stated that "[t]he underlying principle is that no man shall be held criminally responsible for conduct which he could not reasonably understand to be proscribed."

50. *E.g.*, Construction Indus. Ass'n v. City of Petaluma, 522 F.2d 897 (9th Cir. 1975); Golden v. Planninag Bd., 30 N.Y.2d 359, 285 N.E.2d 291, 334 S.2d 138 (1972).

51. 416 U.S. 1, 9 (1974).

52. The Florida legislature, acknowledging that planning must occur along with population growth, passed the Local Government Comprehensive Planning and Land Development Regulation Act. ch. 85-55, 1985 Fla. Sess. Law Serv, 251 (codefied as amended at FLA. STAT. ANN. § 380.06 (15)(d) (West Supp. 1986)).

53. *See generally* MANAGING DEVELOPMENT THROUGH PUBLIC/PRIVATE NEGOTIATIONS (R. Levitt & J. Kirlin eds. 1985).

54. Village of Euclid v. Ambler Realty Co., 272 U.S. 365 (1926).

55. Arceneax v. Treen, 671 F.2d 128, 137 (5th Cir. 1982) (Goldberg, J., dissenting).

56. 427 U.S. 297 (1976).

57. A suspicious observer would undoubtedly suggest that the cut-off period had been set at six years because the politically influential vender had been in business for seven years. The record, however, contains no evidence on this point.

58. 427 U.S. at 303-04 (citations omitted).

59. U.S. CONST. amend. V.

Cost Recovery Fees: A Proposal for Wilmington, North Carolina

Scott Shuford

The City of Wilmington, North Carolina is on the threshold of phenomenal growth. Recent initiatives to expand and improve transportation networks serving the city are expected to attract a surge of new industry to the area. City planning officials, in an attempt to ensure that adequate infrastructure is provided to accommodate new development, are examining the feasibility of an impact fee system. This article discusses the guidelines and methodologies that were used in designing the cost recovery system.

FOREWORD

The City of Wilmington has elected to follow the example of most other North Carolina cities which have enacted impact fees by attempting to obtain special enabling legislation to authorize fee collection. The City's first effort, in the Fall of 1986, was postponed by local legislators who felt they needed more information on what the City was proposing in order to introduce this legislation.

The City subsequently prepared the Cost Recovery Fee report, which provides the information the local legislative delegation was seeking. City voters, on March 31, 1987, also illustrated their commitment to funding needed transportation facilities by approving a $20 million bond referendum primarily directed at thoroughfare improvements.

Despite this example of public concern regarding the City's transportation needs, and despite having received a report detailing the rationale and extent of the thoroughfare cost recovery fees, the local legislative delegation has exhibited some reluctance to introduce enabling legislation. Concern has been expressed that the fees are so high as to discourage new development.

The City staff is researching the financial effect that the fees may have on new development in order to provide a response to this concern. Given legislative scheduling, it appears that the earliest any enabling legislation can be introduced will be the latter part of 1987.

The City staff is also researching the possibility of using existing local authority, such as the subdivision process, for implementing the cost recovery fee system.

INTRODUCTION

The City of Wilmington, like many other communities across the country, is faced with an increasing gap between needed capital facility expenditures and the revenues which support these facilities as state and federal grant opportunities are phased out and local revenue sources are maximized. Like many other communities, Wilmington is re-examining its development policies in light of these fiscal realities.

Because Wilmington is undergoing a period of relatively rapid growth, much of the need for new capital facilities is created by new development. Many capital facilities are affected by new development. These facilities include: drainage, water and sewer, and streets. It is only fair that new development should absorb its share of the cost of providing these new facilities, since it is this development which creates the need for these facilities.

The technique used by other communities in North Carolina and other states to insure that new development pays its portion of capital facility costs is the cost recovery fee system. Cost recovery fee systems are known by many other names; most commonly they are called "impact fees" or "development fees." Properly implemented, a cost recovery fee system collects a fee from a new development which accurately reflects the level of service that the new development requires from existing or needed capital facilities. This fee is then used to improve the capital facilities utilized by the new development.

Some communities have established cost recovery fee systems for one or two capital facilities affected by new development. Other communities have chosen to examine the entire range of capital facilities affected by new development and design a cost recovery fee system which reflects the total capital costs involved in serving this development. The City of Wilmington has elected to use the former approach, concentrating on drainage and thoroughfare improvements. These two capital facilities represent the most significant development-related capital costs Wilmington will face over the next ten to twenty years.

This report describes the cost recovery fee system proposed for Wilmington. It first establishes the rationale behind the system—why Wilmington needs a cost recovery fee system. Legal considerations involved in designing and implementing the system are explored in the next section. A substantial amount of research into other communities' fee systems has gone into designing Wilmington's proposed cost recovery fee system. The cost recovery fee system is then examined as it affects the City's capital facilities. It is in this section that the proposed fee levels are discussed.

RATIONALE

Cost recovery fee systems have evolved from the failure of other local government revenue sources to adequately provide capital facilities to serve new development during times of rapid growth. Property taxes, the major source of revenue for local governments in North Carolina, are designed to provide a stable, long-term revenue source for public facilities and services based on the demand created by properties within the local jurisdiction. Undeveloped land, quite naturally, pays relatively less property tax than developed land. When large quantities of undeveloped land are converted into developed uses, as is the case in rapidly-growing areas like Wilmington, the increased property tax revenues are usually insufficient to cover the large, short-term capital costs a local government incurs in serving the new development. Property tax rates often rise as a result, creating a situation in which all property owners in a community partially subsidize new development. Developers may also face construction moratoria when there are insufficient funds to provide capital facilities to serve new development.

Other potential revenue sources available to local governments suffer similar shortcomings. The general obligation bond provides short-term funds, but requires that all property owners help subsidize new development. Special assessments and special service or taxing districts serve to isolate the beneficiaries of particular services, but do not distinguish between uses which utilize existing capital facilities and those which necessitate facility expansion.

Cost recovery fee systems may eliminate two of the major problems associated with using local government revenues to fund capital facilities which serve new development. First, the revenues are obtained at or about the time the facilities will be called upon to serve the new development; this may eliminate the problem with obtaining enough front-end money to fund the facilities. Second, there is a clear connection between the monies received and the services rendered: those who benefit, pay. This resolves the equity question regarding existing residents partially subsidizing new development. Furthermore, developers who contribute to the fee system are then correctly perceived to have a right to their share of the capital facilities which serve their projects.

The resolution of the equity question has an important benefit for developers. When they contribute to a cost recovery fee system, they find that many of the occasionally arbitrary and typically expensive "developer contributions" required by local governments to provide capital facilities to serve their projects will be eliminated. A single fee, which is also paid by each of their competitors, substitutes for many of the time-consuming negotiations and contracts which currently complicate the development process.

Cost recovery fee systems are therefore the most practical solution to shortfalls in revenues available to local governments for capital facility provision to new development during periods of rapid growth. Communities which have experienced rapid growth for an extended period have generally instituted cost recovery fee systems. Communities which are beginning to experience the effects of rapid growth are generally starting to consider cost recovery fee systems. Communities which are experiencing low rates of growth generally have not found the need for cost recovery fee systems.

The City of Wilmington is experiencing rapid growth. Disregarding recent large annexations, the City is expected to grow by more than ten percent between 1980 and 1990. Taking these annexations into account, the City's overall population growth between 1980 and 1990 could reach almost 30% (see Table 1). Given Wilmington's favorable climate, coastal location, strong economy and impending interstate highway link, this rapid growth can be expected to continue into the foreseeable future.

TABLE 1
CITY OF WILMINGTON
1980–1990 POPULATION PROJECTIONS

Year	"Old" City Population	City Population with Annexation Areas A&B
1980	44,000	–
1981	44,440	–
1982	44,884	–
1983	45,333	–
1984	45,786	–
1985	46,244	54,356
1986	46,706	54,900
1987	47,173	55,449
1988	47,645	56,003
1989	48,121	56,563
1990	48,602	57,129

Sources: City of Wilmington Planning & Development Department
U.S. Bureau of the Census (1980 only)

The City is making extensive preparations to program and budget for this new growth. The 1986–91 Capital Improvement Program budget totals $114,830,000 and consists of five categories of improvements:

Transportation Facility Improvements	$15,550,000
Streets and Drainage	16,445,000
Public Facilities	6,550,000
Water and Sewer-Rehabilitation	2,710,000
Water and Sewer-New Facilities	73,575,000

Most of the funding for these improvements is expected to come from the issuance of bonds. A $25,000,000 infrastructure bond referendum was passed by City residents in 1985. A $16,200,000 transportation facilities referendum (Recently increased to $20,000,000 by action of City Council; this brings the total 1986–91 CIP to $119,280,000.) is scheduled for 1986–87, and an $88,300,000 multi-issue referendum is anticipated for 1989–90.

The City Council has also recently adopted changes to its water and sewer policies which provide for new fees to be charged to new development. These fees are designed to reflect the costs incurred by the City in extending water and sewer lines, making capital facility improvements and absorbing new development into the City's water and wastewater treatment systems.

Unless similar fees to recover the other capital facility costs created by growth can be implemented, existing residents will be asked to foot most of the bill for these extensive improvements. While Wilmington has enjoyed considerable success in persuading its citizens to support much-needed capital facility improvements and expansions in the past, future reluctance on the part of the citizens to absorb new development's share of such projects may be encountered, and even expected.

Failure to receive citizen support for these bond referenda may result in Wilmington being unable to provide the capital facilities necessary to adequately serve new development. Given the large capital facility expenditures which are anticipated, it is therefore important for the City to institute a cost recovery fee system applicable to new development for financial, equitable and developmental reasons.

LEGAL CONSIDERATIONS

There are certain authorization and equity considerations which must be taken into account in designing a cost recovery fee system which can withstand legal challenge. The first of these considerations is whether the City has the authority to impose cost recovery fees. While numerous communities have simply instituted cost recovery fee systems under their police power authority (as a means of regulating the negative effects of new development), most communities in North Carolina which have enacted these fees requested special enabling legislation from the state legislature in order to resolve all questions regarding local authority to impose these fees.

Wilmington's effort to receive such legislative authority for streets and drainage facilities during the 1986 "short session" was postponed. The local legislators felt they needed further information before acting upon special enabling legislation. It is partially in response to this request for more information that this report has been produced.

Given City Council support of both the concept and the design of the proposed cost recovery fee system, it can be expected that a new request for enabling legislation will be forwarded to the legislature for action during the 1987 "long session". This report will accompany that request as an informational device.

The second main issue which must be addressed in any legally-defensible cost recovery fee system involves equity considerations. If developers or homebuilders are asked to contribute fees to cover the capital costs of providing public services to their developments or homesites, it is only reasonable for them to expect that (1) the fees represent an accurate assessment of the actual costs incurred by the city in serving their project, and that (2) the services for which the fees are contributed are actually provided by the city within a reasonable period of time after the fees are collected.

This means, first, that an accurate assignment of fees must be designed into the cost recovery fee system by not only correctly estimating the actual capital costs involved in providing the service, but also by giving proper credit for other capital cost payments which can be actually determined or reasonably anticipated from the project in both the present or the near future. For example, the City of Wilmington has embarked on a major program of improvements to its capital facilities through the issuance of bonds. Therefore, reasonably anticipated bond payments for various capital facilities by developers or individual property-owners must be taken into account in determining the appropriate cost recovery fee for a particular project.

These equity considerations also mean that the City has an obligation to actually provide the capital facilities for which the fees are collected. While certain public services are generally provided at the time a particular project is developed, such as water and sewer service or police and fire protection, it may be quite some time before other services, such as parks or roads, are provided. It is important for all services for which cost recovery fees are collected to be provided within a reasonable period of time after fee collection.

What constitutes a "reasonable" period of time depends greatly on the type of service and whether or not the service has been programmed into the local government's budget process. Regarding the type of service, ten years may be regarded as a reasonable time period in which to provide a major thoroughfare but may not be regarded as a reasonable time period in which to provide a neighborhood park. As to programming the service, if there is a publicly-acknowledged commitment to providing the service at a particular point in the future, such commitment greatly determines the time period regarded as being "reasonable". Therefore, most cost recovery fee systems include a link between the fee collection process and the local government's Capital Improvement Program.

COST RECOVERY FEE SYSTEM

This section of the report describes the City of Wilmington Cost Recovery Fee System. This description includes the system's general design, the fee calculations for the capital services identified as being eligible for inclusion in the fee system, and the fee schedule which lists the applicable fees for each land use type.

General Fee System Design. The following discussion summarizes both the general design of the proposed City of Wilmington Cost Recovery Fee System and the process by which the system is used to calculate the fees for particular development projects.

Prior to final design of the fee system, certain general guidelines for the system's development were determined, based upon the research efforts described in the preceding section. These guidelines were used to produce the Wilmington system.

General Guidelines For Cost Recovery Fee System Development

1. The cost recovery fee system should concentrate on the more pressing city facility needs. All growth related capital costs for these needs should be included.
2. The cost recovery fee system should result in a fair and accurate accounting of costs, using current costs to estimate fees and excluding operating and maintenance costs and capital improvements not related to new development.
3. The cost recovery fee system should "credit" new development for: (a) Existing and reasonably-anticipated bond indebtedness relating to projects for which fees are paid (to avoid the issue of "double taxation"); and (b) Pre-existing deficiencies in and depreciation of city facilities which might be corrected with funds collected from cost recovery fees.
4. The cost recovery fee system should be designed by professional staff who will be called upon to implement the system and whose operations will be affected by the system.
5. The cost recovery fee system should result in the long-term provision of services to the development(s) from which the fees are collected through separate service-specific capital improvement reserve funds linked to Wilmington's Capital Improvements Program.
6. The cost recovery fee system should be understandable, as well as inexpensive to apply.
7. The cost recovery fee system should be subject to periodic revision as conditions change (e.g., inflation).

THE OVERALL OBJECTIVE OF THE WILMINGTON COST RECOVERY FEE SYSTEM IS TO ACCURATELY IDENTIFY AND EFFECTIVELY RECOVER GROWTH-RELATED CAPITAL COSTS.

Once these guidelines were identified, each affected City Department was examined to identify capital facilities affected by new development. After considerable study, it was determined that the following major service categories contained identifiable growth-related capital facility costs: drainage, thoroughfares, and water and sewer services.

Among these identified services, growth-related cost recovery fees for water and sewer facilities have been calculated and addressed separately from this report. There are two primary reasons for separate consideration of water and sewer capital facilities. First, state statutory authority currently exists for Wilmington to initiate water and sewer capital facility cost recovery efforts. The second reason is that there are several short-term problems with the city's water and sewer facilities which demand expedient action.

Several other service categories have also been excluded from cost recovery consideration, but for different reasons than the water and sewer facilities. The Police Department anticipates no major capital expenditures for new buildings for the foreseeable future: expenses related to vehicle purchase, manpower, uniforms and equipment, etc. were generally regarded to be operating and maintenance costs, as opposed to capital costs. The Fire Department has made recent improvements which will provide adequate response time to all areas of the city for some time to come.

The city golf course operates in a self-supporting manner through user fees; although new development does place increased demands on the existing facilities, such demand is difficult to measure and there are no opportunities for expansion to accommodate this demand.

Improvements to parks and recreation facilities will be sought through different means. Other service categories which are primarily affected by new growth through increased demand for additional personnel were also excluded.

Once identification of the particular service categories to which the cost recovery fee system is to be applied was accomplished, attention was directed at measuring the growth-related costs which affect these service categories. Operating and maintenance costs and other capital facility improvement costs not related to growth were excluded. These costs are discussed in the following section.

It should be noted that the following discussion of drainage cost recovery fees is intended solely to serve as an example of how such fees are to be calculated and implemented. More data has to be obtained for each drainage basin and sub-basin prior to actual fee calculation and implementation. On the other hand, discussion of thoroughfare cost recovery fees presents a complete fee analysis and calculation, ready for implementation.

Drainage. The citizens of Wilmington voiced their support for a $7.6 million bond referendum for drainage improvements in the Spring of 1986. Some of the money approved through this referendum will be used to install drainage facilities in the Burnt Mill Creek watershed to solve one of the City's most important drainage problems.

A portion of the Burnt Mill Creek watershed improvement project has been utilized to calculate the cost recovery fees associated with the City's drainage facility needs. This section of the watershed represents a fairly typical watershed within the City with regard to both existing and proposed drainage facilities. Considerable study of its drainage needs has been recently undertaken by the Planning staff. This has led to a thorough familiarity with the existing and required drainage facilities in this area.

This is the only area of Wilmington in which such an analysis has been performed. Consequently, the following fee calculation exercise is undertaken to serve as an example of how similar calculations can be performed for other areas of the city when thorough analyses of drainage needs are prepared. Until such analyses are prepared, no drainage cost recovery fees can be calculated or imposed.

The fee calculation process involved first determining the existing "regional" drainage facilities which have been installed in the past; these are facilities which were designed with more than site-specific drainage needs in mind. Once these facilities were identified, their current value was determined, based upon estimates of what it would cost to install these facilities today. Their total current value has been estimated at $1,843,000.

The next step in calculating drainage cost recovery fees required determining the major improvements which are needed to bring the watershed area drainage system up to city standards (10 year, 24 hour storm event). These improvements, and their current value, are described below.

Calculating improvement costs.

Required Drainage Facilities for a Portion of The Burnt Mill Creek Watershed

Required Facilities	*Current Value*
Pipe	$2,284,000
Manholes	179,000
Ditches (w/rip-rap)	581,000
Creek Bank Improvements	1,572,000
Pond Improvements	1,648,000
Total	$6,264,000

Because fees paid by new development will be funding new drainage facilities, new development should not be liable for expenditures to correct the depreciation of the existing facilities. Any bond indebtedness incurred to provide facilities in the past, or that can be reasonably anticipated in the future, must also be credited to new development to avoid double taxation. Consequently, a "credit" must be given for both depreciation and bond indebtedness.

The methodology utilized in determining this credit was developed for the City of Raleigh by Drs. Michael A. Stegman and Thomas P. Snyder of the Department of City and Regional Planning at the University of North Carolina at Chapel Hill. (See source citation following Table 2.)

The depreciation portion of the credit is determined through the use of Table 2, a depreciation table which assumes a two percent real interest rate (that is, interest above the rate of inflation) for various replacement life cycles and growth rates.

TABLE 2
DEPRECIATION TABLE FOR A TWO PERCENT REAL INTEREST RATE

replacement cycle or facility life (years)	growth rate (percent) 0.5	1.0	1.5	2.0	2.5	3.0
3	0.494	0.493	0.491	0.490	0.489	0.488
5	0.490	0.488	0.485	0.483	0.481	0.479
8	0.483	0.480	0.477	0.473	0.470	0.467
10	0.479	0.475	0.471	0.467	0.463	0.458
12	0.475	0.470	0.465	0.460	0.455	0.450
15	0.469	0.463	0.456	0.450	0.444	0.438
18	0.463	0.455	0.448	0.440	0.433	0.426
20	0.458	0.450	0.442	0.434	0.426	0.417
25	0.448	0.438	0.428	0.417	0.407	0.397
30	0.438	0.426	0.413	0.401	0.389	0.377
35	0.428	0.413	0.399	0.385	0.371	0.358
40	0.418	0.401	0.385	0.369	0.354	0.339
45	0.480	0.389	0.371	0.354	0.337	0.320
50	0.398	0.378	0.358	0.339	0.320	0.302
60	0.378	0.354	0.331	0.309	0.288	0.268
70	0.359	0.332	0.306	0.281	0.258	0.236
80	0.340	0.310	0.281	0.254	0.229	0.207
90	0.322	0.289	0.258	0.229	0.203	0.180
100	0.305	0.269	0.236	0.206	0.179	0.156

Source: "Establishing Facility Fees in Raleigh: Issues and Alternatives"; Michael A. Stegman and Thomas P. Snyder; Department of City and Regional Planning; University of North Carolina at Chapel Hill; July 1, 1986; p. 47.

Drainage facilities are assumed to have been provided at a rate similar to the City's growth over the life span of the facilities, which is estimated at fifty years. Over that period, the City's average annual growth rate has been 1.5%. Therefore, the appropriate depreciation factor is 0.358. This factor, when multiplied by the current value of the existing regional drainage facilities (from above), results in a facility depreciation estimate of approximately $660,000 (0.358 x $1,843,000).

Total current bond indebtedness for the City with regard to drainage facilities is $2.4 million. There is an additional approved bond debt of $7.6 million which must also be included in credit calculation, bringing the total bond indebtedness to $10 million. Adding the depreciation estimate to the $10 million in bond indebtedness results in an overall credit estimate of $10.66 million. This credit estimate must then be apportioned among the various land use types according to their assessed value.

Note: It will be necessary to modify the bond credit calculated herein to reflect estimated fee collections which will be applied to reduce the overall bond debt. See the following section on thoroughfare cost recovery fees which shows how this modification is performed. Such modification cannot occur without performing careful growth projections for each drainage basin, work which has not yet been done.

Because drainage cost recovery fees will be assessed on an acreage basis, it is necessary to convert the credit to an acreage basis in order to simplify fee calculation. This was done by first determining the percent of total City assessed value for each land use type and the total number of acres of the City's land area which are devoted to each land use type. The assessed value data was generated from information received from the New Hanover County Tax Administrator's Office, while the acreage information was derived from a recent (October, 1985) land use survey by the Planning and Development Department staff.

Multiplying the total credit estimate of $10.66 million by the percent of total City assessed value of each land use, and then dividing that figure by the total number of acres devoted to that land use, generates the appropriate credit per acre. This calculation process is shown below.

Residential:
$10.66 million x 49.8% ÷ 5,471 acres = $970/acre

Commercial/Office & Institutional:
$10.66 million x 45.1% ÷ 2,612 acres = $1,840/acre

Industrial:
$10.66 million x 4.9% ÷ 1,264 acres = $413/acre

The final step in determining the drainage facility cost recovery fee is to calculate the gross cost per acre for needed drainage facilities for each type of land use and to subtract the credit from that cost to produce the cost recovery fee per acre. This was done by determining the relative runoff rate for a number of land use types and prorating the total cost of all needed drainage facility improvements according to the relative impact of each land use type on the system. The basis for the relative differences between land use types are runoff coefficients (measures of the amount of runoff land uses produce – calculated by the City Engineering Department). The credit is then subtracted from that gross figure to generate the acreage fee. Table 3 provides this calculation.

Funds collected from drainage cost recovery fees will be placed into separate capital improvement reserve funds, segregated by drainage basins. Only funds collected from each drainage basin can be spent on drainage improvements for that basin.

TABLE 3
DRAINAGE COST RECOVERY FEES

Land Use Type	Runoff Coefficient	Gross Cost Per Acre	Credit Per Acre	Cost Recovery Fee Per Acre
Residential				
Low Density*	1.37	$2,367	$ 970	$1,397
Medium Density**	1.88	3,262	970	2,292
High Density***	2.25	3,897	970	2,927
Commercial	3.19	5,528	1,840	3,688
Office & Institutional	2.25	3,897	1,840	2,057
Industrial				
Light Manufacturing	2.74	4,735	413	4,322
Heavy Manufacturing	3.00	5,188	413	4,775

*≤ 5 units/acre
**> 5 units/acre but ≤ 17.4 units/acre
***> 17.4 units/acre

Thoroughfares. As identified by residents and officials, the solution to Wilmington's transportation problems constitutes the highest capital improvement priority over the next few years. In order to provide the funds necessary to help solve these problems, the City staff has developed, and the City Council has approved, a transportation bond proposal which will be taken before residents for approval in the Spring of 1987. The entire bond package totals $20 million. Of this amount, $16,821,000 is slated for thoroughfare improvements. These thoroughfare improvements are described in Table 4 below. (Note that the costs for utilities have been deleted from the S. 17th Street Extension, University Parkway, 41st Street/ Holly Tree Road Extension and Independence Blvd. Extension projects to avoid double-counting those utility projects to be funded by water and sewer facility fees. Where utility relocation is an integral part of the proposed thoroughfare project, such as the Kerr Avenue widening project, the utility costs have been retained.)

Each of these thoroughfare improvements is a component of the Wilmington Urban Area Thoroughfare Plan (adopted 1986). While there are other thoroughfare improvement projects on the Thoroughfare Plan, the selected projects are those of highest priority within Wilmington. These six projects also constitute the probable upper limit of Wilmington's financial ability to address its thoroughfare improvement needs over the next ten years (the time period in which these improvements are programmed to occur and for which this thoroughfare cost recovery fee system is designed).

These thoroughfare improvements, since they are based on a locally-adopted and state-approved Thoroughfare Plan, would eventually be constructed by the N.C. Department of Transportation based on the projects' priority ranking as compared with other local Thoroughfare Plan improvements across North Carolina. One option available to the City of Wilmington therefore is to patiently await state funding for these roadways.

Because the likelihood of such funding for most of these projects is virtually nonexistent over the short-term (0–10 years), Wilmington has opted to pursue local implementation of a portion of the Thoroughfare Plan by constructing five of the six Thoroughfare projects entirely with local funds and by purchasing portions of the right-of-way for Smith Creek Parkway to move that project into a higher priority ranking for eventual state construction. The reason for this local action can be traced to the rapid growth experienced by the Wilmington area since the early 1980's. When the City and New Hanover County updated the area's Coastal Area Management Act (CAMA) Land Use Plan in 1981, transportation was not regarded as a major issue; by the time of the 1986 update to the Land Use Plan, transportation was regarded as the primary local planning issue.

The Wilmington thoroughfare system is currently approaching its capacity to handle traffic in several city areas. However, if new development were to completely cease, Wilmington would be able to wait for state funding for its Thoroughfare Plan with minimal or negligible capacity problems. Therefore, the primary reason for the decision to pursue local funding of these thoroughfare improvement projects is to accommodate the impact of new development on the local thoroughfare system. It is therefore reasonable to expect this development to assume its fair share of the costs of providing these transportation facilities.

The proposed thoroughfare improvements are relatively evenly distributed across Wilmington. This distribution pattern, along with the generally similar cost estimates for each of the proposed improvements, results in the ability to consider the entire city as a single zone in the imposition of thoroughfare cost recovery fees. This contrasts with the drainage cost recovery fee system in which costs were expected to vary significantly for each drainage basin. The small size of Wilmington also supports this single zone concept. While several of the communities studied have used separate zones for thoroughfare fees, each zone typically exceeds the size of the City of Wilmington in area and population (the City of Raleigh, for instance, utilized three zones in its traffic development fee

TABLE 4
PROPOSED THOROUGHFARE IMPROVEMENTS

Project	Description of Project	From	To	Roadway Length (miles)	Current City Cost Estimate
Smith Creek Pkwy.	Right-of-way acquisition for future construction of 4 lane divided expressway	Eastwood Rd.	NE Cape Fear Bridge & N. Front St. (Dntn. Spur)	7.7	$ 2,000,000
S. 17th St. Ext.	Design & R/W for 4 lane roadway, construct 2 lanes	800' S. of Shipyard Blvd	2500' W. of College Rd.	2.5	2,900,000
Kerr Ave.	Design & R/W (90'), & construct 5 lane roadway w/relocated and installed W & S utilities	Market St.	Wrightsville Ave.	2.0	4,253,000
University Pkwy.	Design & R/W for 4 lane roadway, construct 2 lanes	Wrightsville Ave. @ Mercer Ave.	College Rd.	1.6	1,800,000
41st St./Holly Tree Road	Design R/W (60' where practicable), and construct 3 lane (36') roadway	Oleander Dr.*	Pine Grove Dr.*	1.8	2,118,000
Independence Blvd.	Design & R/W (100') for 4 lane roadway, construct 2 lanes	Shipyard Blvd.	Carolina Beach Rd.	1.9	3,750,000
				17.5	$16,821,000

*A section of this corridor between 300' S. of Lake Ave. and Shipyard Blvd. will be constructed by a private developer and is not included in bond issue.

system; each zone was significantly larger than Wilmington in both population and land area.)

The City's thoroughfare improvements, which are projected to be partially financed with cost recovery fees, will be constructed with funds obtained from the issuance of bonds, as indicated previously. The cost recovery fees obtained in any given year will be applied to the bond payment(s) scheduled for that year, thus reducing the contribution to bond repayment made by general property tax revenue by the amount of the collected fees.

It will not be feasible to utilize thoroughfare cost recovery fees to cover the entire thoroughfare bond repayments for two reasons. First, the fee system is designed to initially recover costs associated with that new development which occurs over a ten year period. The proposed thoroughfares will be designed to provide traffic handling capacity in excess of this ten year period. This excess capacity beyond the initial period will be paid for by cost recovery fees collected from the later development which consumes that capacity, not by development occurring at the present time. This means that although the cost recovery fee system is designed to recover the entire cost of the thoroughfare projects which are attributable to new development, the cost recovery process will occur over the entire effective life of the projects (i.e., until the Level-of-Service "D" capacity is reached), not just the initial ten year period.

Second, cost recovery fee generation is dependent upon the occurrence of new development. New development does not occur at a constant rate; therefore, the City is forced to reinforce its fee collections with the much more stable and predictable revenues derived from local property taxes.

With the exception of dividing the city into zones, the method used in calculating the thoroughfare cost recovery fees is similar to that utilized for the drainage cost recovery fees. First, the gross costs attributed to each type of land use are calculated based upon the proportional impact on the thoroughfares by each land use type. Second, the applicable credit for bonded indebtedness (both current and anticipated) and pre-existing thoroughfare capacity deficiencies is calculated. This credit is modified according to the anticipated contributions of the cost recovery fee system in retiring the bond debt. Third, the net cost for each type of land use in each zone is calculated by subtracting the gross cost figure from the applicable (modified) credit. Finally, the cost recovery fee is determined by multiplying the net cost by the relative distance of travel for each land use type. This process is described in greater detail below.

As indicated above, the first step in the thoroughfare cost recovery fee calculation process involves producing an accurate estimate of the thoroughfare costs which can be associated with various types of new development expected to occur over the next ten years. The NCDOT has prepared estimates of new vehicle trips which can be expected through the year 2005 for Wilmington. This estimate is performed as part of the state thoroughfare planning process, and provides an accurate estimate of the amount of impact new development will have on the local roadway network.

Because the NCDOT figures referred to in the paragraph above are based on the Wilmington urban area, an area somewhat larger than the Wilmington city limits, a correction factor must be introduced to adjust for the size difference between the state data base and the city limits. This factor has been determined based on the difference in total housing units between the Wilmington urban area and the Wilmington city limits for each of the three study periods (1982, 1990 and 2005). The adjustment factor has been computed as 0.57 for the period between 1982 and 1990 and as 0.54 for the period between 1990 and 2005. These factors are used in computing the 1987 and 1997 trips in the following paragraphs.

In order to calculate the total cost for thoroughfare improvements attributable to new development occurring over the next ten years, the following equation is utilized:

$$\frac{\text{1997 traffic volume} - \text{1987 traffic volume}}{\text{Added capacity from proposed improvements}}$$

The above equation is from the previously-cited publication, *Paying for Growth: Using Development Fees to Finance Infrastructure* by Thomas P. Snyder and Michael A. Stegman of the Department of City and Regional Planning at the University of North Carolina at Chapel Hill (ULI; 1986; p. 115). It produces a measure of the proportion of the total costs of thoroughfare improvements which should be applied to new development occurring over the ten year period.

For the Wilmington cost recovery fee system, the equation is:

$$\frac{262{,}065 - 218{,}995}{113{,}300^*} = 0.38$$

**Note:* See Table 5 for source of this figure.

This figure (0.38) is then multiplied by the total cost of the thoroughfare improvements, less any portion of the improvements designed to correct existing deficiencies (some $790,000 of the Kerr Avenue project is used to correct existing capacity deficiencies) and to accommodate through traffic (estimated at 10% for the city area). This provides the total cost of the proposed thoroughfare improvements toward which cost recovery fees should be directed. The applicable cost for the City of Wilmington is therefore $5.48 million (0.38 × $16,038.000 × .9).

TABLE 5
PROPOSED IMPROVEMENTS AND THEIR CAPACITIES

Proposed Improvement	ADT Capacity of Improvement*	No. of Peak Hour Trips**	City Cost of Improvement
Smith Creek Parkway	44,000	4,400	$2,000,000
S. 17th St. Extension	13,800	1,380	2,900,000
Kerr Ave.***	14,100(net)	1,410(net)	3,470,000
University Parkway	13,800	1,380	1,800,000
41st St./Holly Tree Rd.	13,800	1,380	2,118,000
Independence Blvd.	13,800	1,380	3,750,000
	113,300	11,330	$16,038,000

*Average Daily Traffic (ADT) capacity based on proposed number of lanes, Level of Service "D".

**Peak hour trips estimated at 10% of ADT capacity (from *Wilmington Transportation Study: Technical Report 2*; NCDOT; p. 16). Figure shown is total peak hour capacity, not 10 year peak hour estimates.

***Kerr Avenue is currently a two lane facility serving approximately 17,000 vehicles per day; proposed improvements will increase capacity to 31,100 vehicles per day; improvement costs reflect deletion of costs needed to improve existing ADT capacity to Level of Service "D".

This $5.48 million figure must then be allocated to the development anticipated to occur over the next 10 years according to that development's relative impact on the

thoroughfare system. The unit of measure selected for determining this relative impact is the peak hour trip. The peak hour trip is a measure of the amount of traffic generated by various land uses at the highest (or peak) hour of traffic generation. The Institute of Traffic Engineers provides standard estimates for peak hour trip generation for a wide variety of land uses.

For Wilmington, peak hour traffic is estimated to be 10% of average daily traffic (*Wilmington Transportation Study: Technical Report 2*; NC DOT; 1986; p. 16). The local gross cost per peak hour trip is therefore determined by multiplying the average daily traffic generated by new development (previously estimated as 43,070 trips) by 10%, and then dividing the total thoroughfare cost applicable to new development ($5.48 million) by the estimated number of peak hour trips (4,307). This provides a gross cost per peak hour trip of $1,270.

The gross cost must be further modified to reflect average median trip lengths anticipated for different land uses. This provides a further refinement of the relative impact created (and relative benefit received) by different land uses. Locally-derived average trip lengths were used to provide this modification (*Wilmington Transportation Study: Technical Report 1*; NCDOT; 1985; p. 17). These average figures were translated into relative terms by dividing the trip lengths for all nonresidential uses by the residential trip length. This provides a relative comparison which is shown in Table 6.

TABLE 6
AVERAGE TRIP LENGTHS AND RELATIVE COMPARISON TO RESIDENTIAL USE

Land use	Average Length (Minutes)	Relative Comparision
Residential	6.66	1.00
Commercial		
Retail	6.54	0.98
Other	6.54	0.98
Office & Institutional	6.84	1.03
Industrial	6.84	1.03

The relative comparison factor is then utilized in calculating the thoroughfare cost recovery fees.

The next step in the fee calculation process is to determine the credit which should be applied to the gross thoroughfare fee calculated above. This credit is a measure of three things: (a) The pre-existing capacity problems on the city's thoroughfares; (b) depreciated city-maintained thoroughfares; and (c) the city's bonded indebtedness (existing and reasonably anticipated) relating to thoroughfare improvements. Use of the credit is needed to avoid: (a) new development paying fees to correct existing deficiencies (both roadway capacity deficiencies and depreciated); and (b) new development paying more than its fair share by having to pay for both the cost recovery fee and a portion of the debt repayment coming from property taxes (thus creating a situation of "double taxation").

The credit must be modified to include the anticipated contributions of new development in the form of collected cost recovery fees, since these contributions will be applied to retiring the thoroughfare bond debt. Since new development is expected to generate approximately $5.48 million in thoroughfare costs over the next 10 years, and since the cost recovery fee system is intended to collect 100% of these costs, the credit must be adjusted downward by the amount of $5.48 million. Similarly, fee collections estimated for the remaining 10 years ($4.3 million) must also be subtracted from the credit. The total credit adjustment is $9.78 million, which represents the estimated fee collections over the life of the thoroughfare bond.

Pre-existing capacity deficiencies, not otherwise accounted for (i.e., Kerr Avenue), exist at only one location, the intersection of S. College Road and Oleander Drive. Intersection improvements at this location are estimated to cost $2 million, with the City's share of this State construction project being 30%, or $600,000.

The city-maintained thoroughfare depreciation is estimated using the depreciation table referred to in the drainage fee section (see Table 2). The city Engineering Department has estimated the cost of resurfacing all city-maintained thoroughfares at approximately $730,000. Utilizing a depreciation factor of 0.463 (from Table 2), the applicable depreciation credit is $340,000 ($730,000 $\times$ 0.463).

The thoroughfare bond is $16.82 million, from which $9.78 million must be subtracted to account for that portion of the bond retirement to be paid for by cost recovery fees. This provides the bond portion of the credit, which amounts to $7.04 million.

The total credit is therefore $7.98 million ($600,000+ $340,000+$7.04 million), which is divided by the current tax base ($1,612 million) to produce the tax rate necessary to retire a debt of this amount. This rate (0.0050) is utilized to determine an average credit used to modify the gross fee calculated above. The average credit is estimated at $350, representing an assessed valuation for residential uses of approximately $70,000 per unit and for nonresidential uses of approximately $70 per square foot.

Table 7 brings together the different factors discussed in the above paragraphs. Peak hour trips are shown for different land uses in this table. Also shown are net cost estimates for different land uses based upon the following factors: (a) peak hour trip estimates for each land

TABLE 7
PEAK HOUR TRIP GENERATION AND COST RECOVERY FEE CALCULATION

Land Use	Ph Trips*	Net Cost**	Trip Length Factor	CR Fee
Residential	(All figures per residential unit)			
Single Family	0.5	$460	1.00	$ 460
Multifamily	0.3	275	1.00	275
Mobile Homes	0.3	275	1.00	275
Commercial	(All figures per 1,000 gross square feet)			
Auto Dealership	2.3	$ 1,058	0.98	$ 1,035
Bank	8.4	3,864	0.98	3,785
Convenience Store	23.4	10,764	0.98	10,550
Fast Food Restaurant	15.8	7,268	0.98	7,125
Grocery Store	4.4	2,024	0.98	1,985
Restaurant	5.2	2,392	0.98	2,345
Shopping Center/ Retail (Small)***	3.0	1,380	0.98	1,350
Shopping Center/ Retail (Large)***	1.6	736	0.98	720
Office & Institutional	(All figures per 1,000 gross square feet)			
Government Bldg.	3.0/1000 GSF	$ 2,760	1.03	$ 2,845
Office	1.0/1000 GSF	920	1.03	950
Industrial	(All figures per 1,000 gross square feet)			
Industrial Park	0.5	$ 460	1.03	$ 475
Manufacturing	0.4	368	1.03	380
Mini-warehouse	0.1	92	1.03	95
Truck Terminal	0.4	368	1.03	380
Warehouse	0.8	736	1.03	760

*P.M. Peak Traffic/ITE estimate

**Includes average credit. Note: For commercial uses, a diversion factor of 0.5 is applied in calculating the net cost in order to adjust for the traffic already on the roadways which frequents commercial establishments. This factor approximates the diversion factor utilized by the City of Raleigh (0.49). (See *Paying for Growth: Using Development Fees to Finance Infrastructure*; Thomas P. Snyder and Michael A. Stegman; Urban Land Institute; p. 116.)

***Shopping Center/Retail (Small) refers to establishments under 500,000 square feet in size; Shopping Center/Retail (Large) refers to establishments of 500,000 square feet or larger in size.

use(Px); (b) gross cost per peak hour trip ($1,270); and (c) average credit ($350). The formula used to calculate the net cost is shown below.

$$\text{Net Cost} = (\text{Px}) \times (\text{Gross Cost} - \text{Average Credit})$$

or

$$\text{Net Cost} = (\text{Px}) \times (\$1{,}270\text{-}\$350)$$

or

$$\text{Net Cost} = (\text{Px}) \times \$920$$

The net cost is then multiplied by the trip length factor to determine the applicable cost recovery fee for each land use shown. Peak hour trip generation rates for several other land uses are shown in Table 8.

Funds collected from thoroughfare cost recovery fees will be placed in a capital improvement reserve fund, separate from other cost recovery fee funds or capital improvement funds. The collected funds will be utilized to retire the thoroughfare bond debt.

TABLE 8
PEAK HOUR TRIPS FOR OTHER SELECTED LAND USES

Land Use	Peak Hour Trips	Trip Length Factor
Commercial*		
Car Wash	55/site	0.98
Golf Course	0.2/parking space	0.98
Hotel/Motel	0.4/room	0.98
Marina	0.1/berth	0.98
Movie Theater	0.1/seat	0.98
Service Station	12.5/site	0.98
Office & Institutional		
Day School	0.1/pupil	1.03
Elementary School	0.1/pupil	1.03
High School	0.2/pupil	1.03
College	0.1/pupil	1.03
Nursing Home	0.1/bed	1.03

*Diversion factor of 0.5 to be applied to all commercial uses.

Coastal area near Wilmington.

Thoroughfare recovery fees.

Examples of Applying Thoroughfare Cost Recovery Fees

Example 1. What will be the thoroughfare cost recovery fee for a single family house? Table 7 indicates that the per unit cost recovery fee for a single family residential use is $460; the fee is therefore $460.

Example 2. What will be the thoroughfare cost recovery fee for a 100 unit garden apartment project? From Table 7, the per unit cost recovery fee for multi-family uses is $275. The total fee is therefore $27,500 (100 units × $275 per unit).

Example 3. What will be the thoroughfare cost recovery fee for a 20,000 square foot shopping center? Table 7 shows that the cost recovery fee for small-sized shopping centers (under 500,000 square feet) is $1,350 per each 1,000 gross square feet. The total fee for this use is $27,000 ($1,350 × 20).

Example 4. What will be the thoroughfare cost recovery fee for an office building containing 35,000 square feet? From Table 7, the cost recovery fee for each 1,000 gross square fee of office use is $950; this means that the thoroughfare cost recovery fee for a 35,000 square foot office building is $33,250 ($950 × 35).

Example 5. What will be the thoroughfare cost recovery fee for 75,000 square foot industrial park use? As Table 7 indicates, the cost recovery fee for each 1,000 gross square feet is $475. The fee for this use is $35,625 ($475 × 75).

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Mental Barriers to Learning and Creativity in Transportation Planning

Jonathan Richmond

Planners and politicians tend to render the complex in black-and-white. Technological metaphors play an important role in this process of self-delusion which results in impoverished planning. Analysts rely too much on quantitative techniques because they provide an illusion of science and certainty. Politicians are too easily swayed by the vivid imagery of technological solutions, ignoring the difficult, abstract questions of social values and goals which should be addressed before any technology is chosen. These themes are explored with the aid of a case study of transportation planning in Southern California.

> Two things fill the mind with ever-increasing wonder and awe the more often and the more intensely the mind is drawn to them: the starry heavens above me and the moral law within me.
>
> —Immanuel Kant
> *Critique of Practical Reason*

When Copernicus argued in 1543, that the earth rotates daily on its own axis and moves annually around a stationary sun, he was attacked by a Lutheran follower, Melachthan, since "the eyes are witnesses that the heavens revolve in the space of twenty-four hours" (Kuhn, 1957). Because we all see the world through the eyes of our own experience and values, each theory carries its own set of assumptions which gives it meaning. Only through awareness of the shortcomings besetting the way we receive and deal with information do we stand a chance of finding a more ready path to understanding.

But not only are we unaware; we do not seek to be more aware. We suffer, says Boulding (1968), from agoraphobia, "the fear of open spaces, especially open spaces in the mind." We identify with and are reassured by recognizable forms: we try to blot out the void and disorder of the unknown over which we have no control. Though one can only be wise, warned Harold Laski in 1930, "if he admits that his knowledge of the subject is mainly a measure of his ignorance of its boundaries," we delude ourselves into believing that we have successfully closed in on the essence of the subject under study in an effort to escape from the reality and consequences of our ignorance.

Thus, says Ackoff (1981), "we usually try to reduce complex situations to what appear to be one or more simple solvable problems. This is sometimes referred to as 'cutting the problem down to size.' In so doing we often reduce our chances of finding a creative solution to the original problem."

Pacey (1983) illustrates just this phenomenon by relating the problems associated with simple hand pumps used at village wells in India. While about 150,000 new pumps had been installed by 1975, as many as two-thirds of them were simultaneously out of order.

Engineers identified faults and corrected defects, but pumps continued to break down. "What at first held up solution of the problem," writes Pacey, "was a view of technology which began and ended with the machine... People in many walks of life tend to focus on the tangible, technical aspects of any practical problem, and then to think that the extraordinary capabilities of modern technology ought to lead to an appropriate 'fix.'"

Progress required the realization that this was more than just an engineering problem. A "breakthrough only came when all aspects of the administration, maintenance and technical design of the pump were thought of in relation to one another...Arrangements for servicing the pumps were not very effective. There was another difficulty, too, because in many villages, nobody felt any personal responsibility for looking after the pumps..." Without an adequate administrative system to keep the pumps in good working order, repairing a pump could provide no more than a short-term solution: without proper maintenance—something local people could provide if shown how—it would soon be out of order once more. "It was only when these things were tackled together that pump performance began to improve."

Schön (1983) emphasizes the need for "problem setting ...a process in which, interactively, we name the things to which we will attend and *frame* the context in which we will attend to them," but finds that "from the perspective of Technical Rationality, professional practice is a

process of problem solving." Our uncritical tendency to take problems as "given" and our failure to probe the alternative contexts in which they may be set, may not only lead us unsuspectingly down the wrong path, but also keep more productive avenues beyond sight. Thus, while the defective village pumps were automatically seen as a technological problem to be "solved," without inquiry into the context in which the defects existed, the key to curing the problem – which lay outside the technological domain – remained inaccessible.

"Our technology – the subject of our predictions"– says Schön (1967), "also helps to determine the theories under which we make predictions, since it provides the metaphors out of which our theories are made." This article will show how technological metaphors can tacitly frame the context in which professional analytic work and political decision-making are conducted, masking from view the more basic issues upon which both should depend.

Two different metaphors implicit in processes of analysis and decision-making will be made explicit. On the one hand, the tendency for the analyst to formulate and tackle a problem through the lens of the technique he uses – rather than reflect on the nature and context of the problem at hand before choosing any techniques – will be shown to give quantitative methods both a distorting and controlling power over his view of the world and the conclusions he reaches. A theory of action will be presented which is rooted in a desire for closure, for the mind to select simple but inadequate concepts to deal with conditions of complexity. Quantitative models are desired, it will be argued, because "it is comforting to imagine that someone in this topsy-turvy world has an *answer*" (Winner, 1975). Such models provide a determinate answer with the scientific appearance of authority, but they can distract us from exposing the fundamental problems we face.

On the other hand, the inclination for politicians to view questions of technology choice from the perspective of a superficially attractive technology, rather than from a discussion of social values and goals, will be shown to result not in the choice of a particular technology for its abilities to resolve a particular problem, but in the determination of both goals and solutions according to the symbolic appeal of particular technologies. While analysts find security in the apparent certainty of answers derived from quantitative techniques, politicians, it will be argued, draw on the comforting solidity of the physical and the obvious, focusing technology choice on a machinery brought into view not so often by our particularly human conceptual abilities as by our equally human emotions and fears. Technologies are thereby selected because of their intuitive appeal as cure-all solutions.

In a Southern California which demanded increasing mobility by car, it seemed only natural to build massive freeway systems. With hindsight we now question the wisdom of such narrow-sighted programs, but fall into a similar trap by assuming that all ills can be cured by building a network of railways. By failing to test our intuitions, we ignore the central value questions which might help us decide if the technology *should* have a place in our society, and are deflected from paths to potentially more creative solutions.

This article will start with several examples from outside transportation to develop a general theory which will be used to help explain the puzzles to be observed in the main focus of the article: a case study of transportation planning processes in Southern California. Examples will be given of both the reductionistic use of computer models by analysts, and the superficial intuition-led use of technological metaphors by politicians. Both a reliance on computational procedures and the promotion of a given technology as panacea provide easy ways out. But not only does the reductionism exhibited in both cases fail to make the "big questions" go away, but the abrogation of responsibility to confront the more basic questions may lead to decisions to whose consequences we are blind through the tacit imposition of an ethos which we would reject were we aware of it.

Patterns of the Mind

We have a paradox: the mind is more than a machine, but we increasingly deny the power of mind over machine by behaving in more machine-like ways.

Machines are determinate formal systems; they work on the basis of concepts programmed into them. A computer deals with information according to a set of rules encapsulated in its program. These rules form the boundaries within which the system operates.

Computers, says Searle (1985) are syntactical symbol processors: lacking the semantical content of a mind, they have no way of attaching *meaning* to symbols. A computer simulation may produce an "optimal" solution which involves destroying a low-income community, polluting the atmosphere or damaging areas of natural beauty to make way for a new freeway. But the computer has no way to inquire into its own system of inquiry, no way to judge that system unethical and move to a new way of looking at the world beyond the assumptions within which its program must operate.

The mind, in contrast, is directed by intentionality – "the beliefs, fears, hopes and desires" characteristic of "Free Will"– which the machine, locked into its program, can never possess. "If somebody predicts that I am going to

do something, I might just damn well do something else," says Searle. The planner's commitment "to serve the public interest" (AICP, 1981) may lead him to question whether it is *right* to perform certain acts on *people*, and from such an awareness challenge the tenets of the system of evaluation which led to such a "solution." Such reflection may guide him to alter his perspective; he thereby tears himself from a bounded view to better provide for the clients he is to serve.

The ability to escape from the constraints of a narrow system of inquiry, and to do so on the basis of a never-ending ethical debate, necessarily elevates mind above machine. Yet, in our yearning for simplicity, we fall easily into the steady rhythm of mechanical ways.

Consider the following problem: you are given the three numbers 2, 4, 6, and told they conform to a simple relational rule. You are to discover the rule by suggesting sets of three numbers, and being told the numbers conform or do not conform to the rule. You may try as many sets of numbers as you wish before announcing what you think the rule is.

The rule is, simply, "three numbers in increasing order of magnitude." But if you are like 23 of the 29 subjects tested in the experiment of Wason (1960) or like the two of three graduate students tested by this author in the transportation doctoral seminar at MIT, you will have got it wrong at first attempt. In nearly all cases, incorrect rules were sufficient, but not necessary: "increasing intervals of two," for example. "The point is not that most subjects failed to give the correct rule at their first announcement, but that they adopted a strategy which tended to preclude its attainment." By successively giving sets of numbers meeting the test of sufficiency, they confirmed their existing but erroneous beliefs, while success required "a willingness to test those intuitive ideas which so often carry the feeling of certitude."

Alexander (1965) asserts that designers, "limited as they must be by the capacity of the mind to form intuitively accessible structures," do not perform such tests. Quite the reverse, "the mind's first function is to reduce the ambiguity and overlap in a confusing situation" since "it is endowed with a basic intolerance for ambiguity."

The complexities of modern design problems, he suggests, are like the difficulty of complex arithmetic: they cannot be completed in one jump. "Complexity defeats us unless we find a simpler way of writing it down." Designers, he says, rarely confess their inability to solve the complex problems which confront them daily. "Instead, when a designer does not understand a problem closely enough to find the order it really calls for, he falls back on some arbitrarily chosen formal order. The problem, because of its complexity, remains unsolved" (1964).

Brewer (1973) demonstrates this phenomenon at work in planning practice in his account of modeling efforts for the community renewal program of the City of San Francisco. He shows how "arbitrary weights" were frequently applied without a theoretical basis for assigning them. Particularly disturbing was the unfounded use of analogies from chemical kinetics and physics. "The assumptions, built into the rent pressure relationship," for example, "are offensive to sense, common or otherwise. . . . If a model builder has never been sensitized to the details of a specific empirical context, one should not find fault with his great inferential leaps, from decaying isotopes to decaying houses or from expanding and collapsing magnetic fields to expanding and collapsing rentals."

It was not simply that a bad job had been done, as one operations researcher Brewer interviewed pointed out, but that the city planners wanted to ask detailed questions which the model could not address. But, says Brewer, "even though the model can't answer 'those kinds of questions' it was decided to build in so much detail that those questions nonetheless appear to be asked." It may thus be possible to provide the appearance of simple answers to complex problems; but such action does not make the problems go away.

Moen (1984), having studied economic growth potential due to oil shale development in Colorado, similarly states that while "an ideal population projection method would provide estimates of the numbers and characteristics of immigrants and outmigrants detailed enough to plan for community needs," the task is not only "formidable" but "impossible, since data on future employment may be withheld, misrepresented, or even unknown by industry. Consequently, projections may be highly unreliable not only in the long run but from day to day."

Despite the "For Sale" signs "now the local logo" resulting from the failure of oil-shale-fired growth in one area, Moen reports that "the response to the failure of forecasting in Colorado and elsewhere has been the development of increasingly complicated models that require more and more assumptions about future events, as well as about relationships among variables and the stability of these relationships—all of which may increase the possibility of error and illusion of precision." Such efforts, says Moen, are "high-tech quantitative answers to what is essentially a political and ethical problem."

Mathematical modeling, and especially computer modeling, has, however, become commonplace in all social endeavors of academia, consulting and government, so much so that according to operations researcher John Mulvey (1983), "many educated people treat computers and the ensuing recommendations as objective fact."

But while the apparent complexity of high-powered computer tools lends them authority, all quantitative models, however complicated, must simplify the complexity of the world they represent. To find patterns, "rules" are needed to decide both what is relevant information and what is to be rejected, and how the chosen information is to be processed. As Wachs (1982) says, "there is relatively little theory derivable from the social sciences to help one arrive at reasonable core assumptions." Such assumptions, which tend to unduly reflect what Godet (1979) refers to as the "better lit" aspects of reality are chosen subjectively, not determined objectively, but color the whole analysis of which they form the fabric.

A mathematical statement has no social content: it is correctly computed to the extent that it follows the rules of mathematics. But mathematical statements, though themselves empty, may powerfully *organize* information, and will do so through the assumptions under which they are set up. Just as Melachthan's eyes filtered information to form his picture of the universe, so mathematical algorithms form partial pictures of the world which lack *necessary* truth. Danger lies when, according to Hoos (1969), "in the absence of clearly specified limits and conditions, the assumptions and biases of the analyst are taken as representative of the real system under study."

Leamer (1983) finds that a regression of murder rate on variables thought to influence murder "leads to the conclusion that each additional execution deters thirteen murders with a standard error of seven. That seems like such a healthy rate of return that we might want just to randomly draft executees from the population at large." But the conclusion changes when the set of variables thought relevant to the model is altered. A result which looked convincing under one set of assumptions loses credibility when those assumptions are changed. "Individuals with different experiences and different training will find different subsets of the variables to be candidates for omission from the equation." So a right winger will look to the punishment variables and regard others as doubtful, while "an individual with the bleeding heart prior sees murder as a result of economic impoverishment."

So the conservative "finds" that execution has a strong deterrent effect upon murder, while the liberal "finds" that execution actually encourages further murder.

The death penalty case—"perhaps the single most important legal use of multiple regression thus far" (Fisher, 1980)—presents a two-fold problem: in the first place the outcome is most heavily influenced by the prior beliefs inculcated into the assumptions, rather than by the data they purport to analyze; but, secondly, and on a deeper level, not only are the assumptions employed in the procedure subject to "bias," but the procedure *itself* reflects a point of view—the implicit belief that the death penalty *should* be used if it will deter murder—which might be rejected were it to be brought to the surface and subjected to critical attention.

The use of statistical analysis thus distracts us from deciding whether society *should*—as a matter of principle—have the right to kill someone, a debate which is embarrassing because it exposes the roots of our ethical values, lays them open to criticism, and leaves us uneasy since there is no unique "sure" solution. It is tempting for those on both sides of the death penalty debate to stand behind the illusion of science provided by the apparent precision of econometric technique. But when opponents become entangled in technical arguments over the alleged deterrent effect of capital punishment, their case is weakened because the "right to kill" is tacitly (if unintentionally) presupposed by the calculus employed. (See Kelman, 1982 and Macintyre, 1977 for penetrating discussion of the assumptions of utilitarianism.)

The El Monte Busway...

Quantitative techniques, then, are not simply subject to abuse; their use for "honest" purposes may imply a set of beliefs which their users might reject were they aware of them. 'The quantitative approach tends to divert our attention away from the evaluation of the concepts and variables themselves...," says Young (1979). "We can therefore be drawn into an uncritical acceptance of the overall framework of theories and approaches to nature and society."

Passenger Rail in Southern California

Commuter rail thrives in many East Coast cities which depend on it to bring workers to town in the morning and send them home in the evening. Traditional urban centers —concentrated foci of employment activity—sit at the core of transportation networks branching out to suburbia.

But the low density and widespread distribution of both population and economic activity in Southern California generates a complex pattern of transportation demands between a myriad of origins and destinations. This pattern calls for service more similar to a telephone network (which connects anywhere to everywhere) than to rigid linear-based public transportation; this does not augur well for rail "solutions."

The train is being chosen in California in reaction to the era of road building and the cult of the car, now seen as selfish and wasteful. The train, moreover, not only avoids roads, but carries deep romantic connotations dating back to an era when we apparently travelled easily and in grace, and when congestion, pollution and energy abuse were neither terms in the vernacular nor discomforts to the senses.

Adriana Gianturco, Governor Brown's transportation administrator, was a champion of the rail cause. Under her aegis, new AMTRAK trains became part-funded by the State of California and plans were hatched for commuter rail operations throughout Southern California. One of them, connecting Oxnard, sixty-six miles northwest of Los Angeles, with Union Station near LA's central business district, started operation.

Oxnard Commuter Rail

Initial ridership forecasts for the proposed Oxnard commuter rail service were not encouraging and, under instructions from superiors, Caltrans (California Department of Transportation) staff "adjusted" the assumptions of their model to predict greater numbers of riders. Final projections of 1,286 daily passengers in each direction would never materialize: during four months of operation, ridership peaked at only 175 daily passengers in each direction and, in February 1983, the new Republican Deukmeijian administration moved to suspend service.

The obvious interpretation of this story would focus on the deliberate inflation of projections; but such a perspective allows more significant ethical issues to escape attention.

A more critical eye might complain that the computer model was wrongly employed even *before* "adjustments" were requested. The methodology failed to properly account for problems passengers would face getting between stations and their homes and places of work, and for the low frequency and poor timings of the proposed service. All of these factors would discourage people from using the train, and would provide a greater disincentive than the model allowed for. According to this view, more sensitivity should have been shown in setting up the model, or a better model should have been chosen or developed.

But the problem goes deeper when we appreciate that the model was not just inappropriate for estimating demand, but wholly inadequate to the task of inquiring into how transportation might be appropriately provided to serve society.

Analysis started with the assumption of a given technology—rail. There was no consideration of alternatives, nor even an attempt to define the objectives of the service, which might be more properly stated in terms of alleviating congestion and pollution, saving energy and providing mobility to those who might otherwise be denied it.

With demand as implicit surrogate for these objectives, the degree to which the ultimate goals might be achieved is obscured. The relations of the equations are allowed to influence outcome, regardless of whether they imply a socially justifiable theory. Arriving at such a theory is the most intractable and difficult problem; but the desire for a neatly-bounded problem definition makes for avoidance of such issues, and a supposedly value-neutral mathematical representation attractive.

We cannot blame the model for failing to ask the deeper social questions. The model is only part of a system of inquiry that excludes such debate. But the model diverts attention from such questions. Just as the death penalty modelling implicitly assumed that capital punishment *should* be used if a certain deterrent effect could be established, it is implicit in the Oxnard modelling that rail service *should* be provided if a certain "demand" can be established. The "fact" that we see demand projected satisfies us that the service can meet "need." We are therefore led to exempt ourselves from investigating both what "need" actually is, and alternative ways it might be provided.

"Few forecasters engage in blatant falsification in order to receive a commission or promotion," says Wachs (1982). "Many, however, are transformed in subtle steps from analyst to advocate by the situation in which they perform their work." In the Oxnard case the modelers *did*

respond to pressures for increased projections. We should be more concerned, however, about what they were doing before that pressure was applied. "Caught in a net of language of our own invention," says Alexander (1964), "we overestimate the language's impartiality." In their initially "honest" use of a standard approach, the Caltrans analysts were adopting a language which tacitly framed the debate, its assumptions unquestioned.

Los Angeles – San Diego Bullet Train

In March 1982, the newly-formed American High Speed Rail Corporation announced plans to provide high-speed rail service between Los Angeles and San Diego. The Corporation produced *findings* of demand forecasts by Arthur D. Little consultants which pointed to massive ridership and a profitable balance sheet.

The point, once more, is *not* that we need a better model. The sophisticated computerization was no more than a facade. If first we ask what transportation is *for*, the simplest of techniques enables us to realize that the bullet train – an import serving the densely concentrated population centers of Japan – is unsuited to meet the complex intra-regional needs of dispersed Southern California.

But to ask what transportation is for we have to do more than produce a model. Even if it were possible to predict *exactly* how many people would ride, it would not relieve us of the responsibility to ask why it is that they *should* ride on a bullet train rather than take another means of transportation and to investigate the spillovers, beneficial or otherwise, that might affect the region and economy as a whole. To ask these questions properly one should not start with the bullet train at all, but with the idea of social need.

Los Angeles' most successful transit project...

Without more than the consultant's assurances of profitability, the state legislature almost unanimously approved a bill to provide up to $1.25 billion in tax-exempt revenue bonds for high-speed rail. Subsequent examination of the Arthur D. Little demand projections shows that their sophistication lies only in their falsehood: the vast majority of the state Legislature had voted to support a project backed only by an impenetrable labyrinth of computerized distortion (Richmond, 1983).

The inherent appeal of the plan to the legislators is not difficult to see. To many Democrats, the plan meant more public transportation. It meant emptier freeways, a cleaner environment, and jobs in constructing and operating the enterprise. To Republicans, the bullet train shone as an example of capitalism working at its best: profitable private enterprise providing benefits without cost to the state. The technology itself was symbolic of those benefits: no attempt was made to probe beyond the bullet train's

shiny exterior to see if these outcomes would actually result. In this example we see interaction of the two forms of reduction under discussion: the power of a computer model to provide "verification" reinforced the politicians' untested and erroneous belief in the benefits to be derived from a symbolically compelling panacea, and stopped debate.

Light Rail in Los Angeles—A Problem of Politics or Mind?

The problem of politics is the need to form agreement on an agenda. Politics tends to both limit and fragment agendas to deal with a myriad of constituencies and the public at large. But the popular belief that "interests" are responsible for inadequate agendas ignores the more fundamental controlling mechanism: the language in which politics is conducted.

Voters would be puzzled if they saw on their ballots propositions asking if they approved of love or belonging, of fairness or equality. "Of course we do," they would reply, complaining that these were not issues.

Similarly, candidates of all persuasions agree on the need for "effective transportation systems," but are regarded with suspicion if they fail to declare just how they plan to attain such a lofty goal.

For politicians, like the people they serve, it is difficult to think and talk in terms of values and goals. They must instead use lower-order metaphors within the ready grasp of the mind: they must talk of the "need" for freeways or trains to do what Churchman (1979) calls "making polis," to make ground upon which to meet their electorate. Analysts are drawn to quantitative techniques because of the clean-cut certainty they appear to provide. Similarly, "it is undoubtedly simpler" for decision-makers "to deal solely with concepts for which there are physical referents than to try to relate abstract concepts such as security or belonging to the design of transportation systems" (Wachs and Schofer, 1969). So freeways and trains enter the political picture with all the connotations of history, aesthetic and symbolism with which they are associated. The technologies are only means, enabling us to get somewhere; they are not ends. But they become subjects of discourse without discussion of the goals that drive them to be there. There is no consideration of possible alternative transportation technologies which might be implied by such goals (were we to seek them); or of the basic values upon which these goals ultimately depend. Higher-order concepts—values and goals—of which we are unaware are nonetheless tacitly imputed and carried forward to return our sins.

For the following example we move from the computer room to the committee chamber to show that the affinity for closure on the part of the analyst is paralleled by the predisposition to technological reductionism on the part of the decision-maker. We shall see that the politician's tendency to take technology as given, and as an appropriate basis for choice without consideration of the underlying values represented by that technology, is similar to the analyst's desire to present problems as determinate, quantifiable, and soluble without investigation of the context in which they are set.

The transcript of the Executive Committee meeting of the Southern California Association of Governments on September 1, 1983 (SCAG, 1983a), presents a revealing illustration of this problem at work. At this meeting, Professor Melvin Webber of the University of California, Berkeley and Professor John Kain of Harvard University reviewed the agency's Regional Transportation Plan (SCAG, 1983b), a document which emphasized the development of a system of light rail ("trolley") lines to serve the Los Angeles region.

Webber attributed the failure of San Francisco's Bay Area Rapid Transit system (BART) to the difficulty of getting to and from stations: it was often faster to drive or to take the bus. Buses can collect passengers throughout residential areas, so they can complete the whole trip in one vehicle. Buses can therefore provide a journey which is in many cases quicker and more convenient than one which requires a separate trip to a BART station and a transfer to the train. Webber emphasized that people consistently chose to travel on the basis of trip time and cost, and not because of the quality or aesthetics of the ride itself.

> The reason we failed to eliminate traffic congestion is that the cost of accessing a rail system is high, and I think that's as true here as it was in the Bay Area or more so. The reason it's probably more so is that your land use pattern is not linear, you don't match a railroad's geometry.

Kain said his "overall impression of this is that your transportation planners are trying to impose a 19th century technology on a 20th or 21st century city." He told the politicians that rail transit worked in high-density residential corridors where people could either walk to stations or reach them by short high-frequency feeders. But in Los Angeles residential development is "far below" that in areas where rail rapid transit successfully operates, and the street system is more developed and parking both more available and less expensive.

Kain stressed the case for express buses, and the need to:

> use highways effectively. . .More importantly, I can't understand on any rational basis at least, the fascination with light rail. . .I think

> I have some sense of the reason for it; it has to do with the popularity of Lionel toy electric trains.

Light rail, he emphasized, is no more than a slow express bus system with the disadvantage that the route is fixed, while Los Angeles needs a flexible system.

> I don't see any merit to it other than kind of a romantic, non-rational attraction. It's more costly; it's slower, has lower line-haul speeds, has substantially inferior door-to-door capabilities, less capacity. I just cannot think of any merit to it; it's just incredible that it has the attraction that it has.

Following this, Councilman Snow asked Professor Kain if he had "thought about sub-regions for light rail. I live near a corridor that's highly impacted; the average peak-hour travel time is eleven miles per hour. I don't know what the costs of putting in an express busway would be, but if you add a bus, you slow down overall traffic."

Kain repeated that express buses are a much more flexible technology than light rail, which is "strictly a kind of combination of a sort of technical irrationality and a love affair with trains."

Mayor Pro Tem Longville now joined the conversation, expressing his skepticism over findings that "potential patrons find the buses to be equally attractive to rail... Just on personal experience and discussions with other people, I find that very hard to swallow."

Webber repeated that survey results indicated that:

> comfort and even safety were relatively low down the scale, but certainly the decor of the vehicle had nothing to do with their preferences. What mattered was overall door-to-door travel time and overall cost in money.

Kain added:

> I've come to these technological proposals with a very high level of skepticism that largely arises from my experiences over 20 years all throughout the world that people just have an incredible fascination with technology, an incredible hope and belief that somehow simple technologies are going to solve complex problems. Then, invariably, when you look at things carefully, it turns out that the technological solutions are not where it's at, that sort of nitty-gritty careful hard work in terms of management using appropriate technologies—what people think of as ordinary kinds of technologies—that's where you get your improvements. You don't get them out of some kind of simple technological fix.

But this did not stop Councilman Wagner from saying:

> I appreciate your comments regarding cost-effectiveness, or lack thereof, of a rail-type system. But I also have the same skepticism that was expressed earlier about the consumer acceptance of an extensive bus-type system.

The Councilman cited his readiness to use the rail system in England, where he would not be happy to take a bus.

> I don't know if that's a psychological problem or what, but in terms of a system it doesn't do any good to have the most cost-effective and most flexible system in the world if the ridership simply doesn't materialize.

Webber now mentioned that Golden Gate Transit's improved bus service was "attracting middle-class users in very large numbers," while Kain explained that bus service in London suffers from congestion and poor management. A well-run *express* system would do much better. Professor Webber opined that BART passengers could have been carried by express bus for one-fortieth of the total cost. "A large part" of the proposals in the SCAG Regional Transportation Plan were "just pure waste," offered Professor Kain.

Mayor Mikels asked how much capital investment would be put into rail under a market system, and Mayor Pro Tem Longville commented that the original "Red Line" light rail had been dissolved by a conspiracy of bus operators while "the grossly disproportionate wear and tear on the roadways caused by heavy vehicles such as buses, which is nowhere near captured by what they're charged to operate on those, has to be considered a substantial subsidy."

Commentary

The discussion between Professors Kain and Webber and the SCAG politicians was circular. The professors would present the case as they saw it, the politicians would make remarks indicating they had not absorbed the information the academics had presented, and the professors would repeat their message once more, increasingly forcefully.

The politicians were focused on the idea of a system of light rail lines. They felt sure that highways were problematic, remembered the supposedly successful "Red Cars" and encapsulated their values of what a transportation system should do in the symbol of a trolley car.

Repeatedly we see evidence of the politicians' "sense" experience of technology—the hard end-product of transportation. They had travelled on buses, and could not believe that buses could provide as effective—or more

The flexibility of the bus allows passengers to be collected from a large area...

effective—a service as rail. They saw buses as replicating existing poor patterns of operation, and could not appreciate that, if designed well, the express bus could be an effective answer. Irrelevant comments, such as complaints about wear and tear on roads (ignoring the cost of rail track maintenance) and "psychological" objections to bus use (which continued after repeated evidence had been offered in refutation) simply showed that the politicians were only looking at the surface of the problem. In the same way that the narrow technological approach failed to solve the problem of the village pumps because it ignored the context in which the problem was set, the SCAG politicians were ineffective in addressing Southern Californian transportation problems when they ignored the context in which those problems were set. In the same way that subjects failed to try to falsify intuitively-appealing—but incorrect—solutions to number-series problems and thereby kept themselves from finding the answer, the politicians resisted attempts to falsify their deeply-held beliefs. Light rail to them *represented* their ideals; there was no call in their minds for an attempt at falsification.

To have searched for transportation solutions on the basis of goals would have required them to drop the image of light rail as symbolic of higher-level objectives. It would have required them to reflect on the values they wished to invoke, and to inquire into the alternative contexts into which the problem might be set. Not only would an appreciation of the consequences of each technological option emerge from such a discussion, but the problem would come to be defined in non-technological terms. Technological choice would then be the end-product of more basic discussion of social issues: it would be part of a larger conception of design. But to act that way would require abstract thought, an admission of doubt and uncertainty. As Professor Kain pointed out, the bus was less glamorous, and required complex "nitty-gritty" work. Rail, in contrast, was a neat ordered concept, indeed a comfortable symbol of those deeper needs and values; direct exposure to and discussion of those needs would have made politicians vulnerable to an appreciation of limits and the unknown.

In refutation of this reading of events, it might be suggested that the politicians are doing no more than playing politics. If constituents are pleased by the provision of trolley cars, politicians will have a better chance at re-election. But when we ask *why* the politicians might think constituents would be pleased by such action, we realize that it is because there is no conception of possible alternatives. In Los Angeles, for example, the bus system—though well-run under the circumstances—is slow and unappealing. There is no awareness of the possible use of principles not currently in practice to create a supreme bus system, and such a conception is available to neither

politicians nor electorate. There is a dislike of congestion and pollution which did not exist when the "Red Cars" reigned. There *are* fond memories of the "Red Cars," which seemed to do such a good job, and the weight of those memories translates into decision-making.

Technologies are solid and identifiable. They provide something to grapple with where the more basic considerations of values and wants leave us vulnerable and perplexed. Technology is an effective language of "making polis." Yet as representative of our deeply-held values and related goals, it falls short. The failures of social choice are the failures of the human mind.

The Search for Churchman's Systems Approach

Imagine Kant under the night sky, looking out and achieving understanding within, two infinities—of endless reality and fathomless reason—converging in his self. From the spot where he stands the universe broadens out "into an unbounded magnitude of worlds beyond worlds and systems of systems and into the limitless times of their periodic motion, their beginning and continuance." But the "moral law," through which the interminable skies are understood, "begins from my invisible self."

While the world may exist independently of ourselves, Kant tells us, we can only perceive it—via our vision and other senses—as interpreted by our reason. As seen through our mind's eye, the world comes into existence by passing through the tacit filter of knowledge, experience and beliefs that go to make up our individual identities. As each of us is different, so will each of our views of the world be unique. If we seek understanding, we must therefore continuously question the way we look at phenomena and the way we bound our universe.

Churchman (1982) calls for "an 'unbounded' systems approach which must include a study of humanity, not within a problem area, but universally." Churchman is firmly a rationalist; he believes in the power of reason. But his approach does not consist of applying a narrow set of criteria to a given "problem;" rather, it involves opening up the boundaries of inquiry, guided by ethical principles. It regards all systems as part of larger systems, all parts given relevance only in relation to all other parts of all other systems. "Those of us who practice social science learn the hard way that there are no simple questions and that the process of addressing a specific question will eventually require answers to more and more questions." Thus "planners should search not for ways to make the prison or the hospital run more smoothly, but for the reasons why we have things like badly-run prisons and hospitals."

There is no place in Churchman's systems approach for the isolated modeling of "demand" for a commuter rail service. Such work, detached from the larger picture, is representative of a form of analysis with ethical assumptions of which we are unaware. We might not wish to conduct such analysis were those assumptions to be made explicit. There might be a place for quantitative modeling, but only when subservient to and informed by debate of the larger ethical questions which are not susceptible to quantification; the choice of a system of inquiry is itself central to such ethical discussion. Likewise, discussion of the case for a particular technology should only follow debate of the social goals to be served; the politicians should broaden their deliberations instead of focusing quickly on eye-catching and intuitively-attractive "solutions."

But with this systems approach, we quickly run into difficulties. The Southern California stories immediately become bound up in a criss-cross of complexity. The modellers who previously had a "black box" model they could take off the shelf, are now left perplexed, with no given place to start. They had a formula; now they face a void.

To the politicians, the trolley car formed a symbol of solidity on which to meet and hold political discussions. It was difficult even to make them evaluate light rail in comparison to the alternative of an express bus system. Such choice required reference to abstract notions of interaction patterns, demand and performance characteristics. There was a comfortable, dominant (though faulty) sense of what the physical technology was, and it was easier not to go beyond that.

More than this, though, the express bus system and the trolley each implies a set of values. These were touched on indirectly through mention of goals such as congestion and pollution reduction. Yet the conversation never really got behind the values implicit in the *agenda*—those of an elite middle class for whom *either* system would represent a greater subsidy per journey than the local buses used mostly by low-income residents who already pay, and would continue to pay, a larger share of operating costs than would the express bus or rail users.

The Long Beach trolley would pass through the low-income areas of Compton and Watts. But the systems approach asks why money should be spent on a symbolic transportation system rather than to provide for the more pressing needs created by poverty. While one view might regard the trolley as a messenger of hope for the area, another might point out that it was of irrelevance in meeting the real needs of community revitalization.

The discussion could expand to ask what kind of society we would like to have, what kind of city we would like to live in, how transportation related to other pressing needs, and what priority transportation planning should

be given relative to those needs. The problem becomes ever more complex, its solution more uncertain, and our yearning for a "quick fix" greater: we prefer to reject complexity.

Conclusion

Reality contains for us untold numbers of what Rittel and Webber (1973) call "wicked" problems: whereas a correct solution may be found to a mathematical equation which is thus "tamed," there is no one solution to a social problem, no one place to look, no one procedure to follow, not even a definition of success. If we have such difficulty in solving a number series problem for which there *is* a given solution, how much deeper is our trouble in facing problems for which there is no one "right" solution.

Our will for order and identity fool us into treating "wicked" problems as if they were "tame" ones. We don't have a "correct" theory of "the good," and even though we do have a capacity for moral thought—a capacity machines lack—we opt for more secure machine-like ways of dealing with information. We pretend we are being scientific by couching our social science in mathematical terms, by creating large models we see as "value-free." Technological choice, by the same token, rests on the intuitive appeal of a technological solution, rather than on what it can actually do for us.

Were we to look behind our metaphors we might see that they do not represent our ideals as we assume they do. Means to ends—be they equations or trolley cars—all carry assumptions which represent ethical perspectives. If we have not explicitly chosen these perspectives, we may not only be unaware of them but also allowing them to sketch the genetic blueprint of society uncriticized and perhaps unwanted.

The need for security makes our view small. Yet if we allow our minds to reject the complexity that is inevitable of human life, we will have an impoverished, futile planning process. Until we all—analysts, planners and politicians alike—begin to examine our assumptions and to see social issues as the "big" unbounded questions they are, we will produce narrow "answers" to tritely-defined "problems," and provide no solutions at all. □

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Consultants Index

Commentary

Moving Beyond Imagery

Jonathan Richmond

As motorists sit stuck in traffic, they dream of speeding into the horizon on bold new freeways or of being whisked to work in luxurious comfort on board futuristic-looking rail rapid transit. Experience elsewhere provides the imagery for what should exist here and now. Trips down uncongested rural interstates suggest an ideal for the city. Rides on the rapid transit systems of San Francisco, London or Paris provide the vision for cities not currently served by rail.

The Roadbuilder Myth

Our experience leads to the creation of myths of religious and potentially misleading persuasiveness. Perhaps the most prevalent myth is that congestion can be cured by building more roads. Driving the myth is the metaphor of a blood circulation system carrying a more-or-less stable volume of fluid. If a human artery becomes blocked, by-pass surgery might be prescribed. If successful, free-flow is restored. There is, similarly, the presumption that if more road space is created, traffic will once more breeze along at 55 mph. Unfortunately, however, a particularly iniquitious version of Parkinson's Law, "traffic expands to fill the space available," quickly comes into play and the road system returns to an equilibrium state of rush-hour congestion. Simple laws of supply and demand explain why: adding road space initially speeds up traffic, lowering the "cost" of using the system expressed in time. The lower cost leads to increased demand and also to a reorganization of demand: since it is now "cheaper" to travel during the peak, people who previously avoided these hours are no longer deterred. As the increased demand slows the system, it levels off at an equilibrium level of congestion.

The Railroader Myth

The circulation metaphor also contributes to the Railroader Myth: build new free-flowing (rail) pathways, and relief will be provided to the blocked (road) arteries. The myth's hold is strengthened by some intuitively-attractive attributes of railroad operation. Trains come in large units capable of providing the capacity of hundreds of automobiles. One railroad track therefore seems equivalent to several lanes of freeway. The right-of-way is, furthermore, seen to be controlled with space-age computerized precision, allowing trains to be shot along at high speed.

Several factors which appear to mitigate against the Roadbuilder Myth fortify the Railroader position. Electrically-powered rail rapid transit systems are seen to be energy-efficient and non-polluting. They also appear to provide a solution to the needs of those without access to cars. They even appear capable of catalyzing urban revitalization.

New rail transit systems are currently planned for several western cities of relatively low density. These cities have cultivated the car with particular ardor and the car's unique flexibility has allowed a dispersed urban form to develop. In these cities, rail advocates point at the worsening congestion often afflicting suburbs as much as business centers, and argue that an "alternative" is needed. But no matter how "futuristic" the trains they propose, nor how fast they might travel, the service cannot succeed if it is out of harmony with the economic and demographic landscape it is to serve. When travel patterns lack focus, linear-based rail transit fares badly: it is of little use to provide a high-speed

journey between two points if a roundabout trip is required to reach the departure station and a further transfer is needed to get to the final destination.

The train served the traditional core well; it continues to play a vital role in dense centrally-focused east coast cities. Rail transit cannot, however, succeed in attracting more than a tiny fraction of passenger trips in dispersed cities of the post-industrial West. Not only is it naive to expect that it can meaningfully reduce congestion, but because it can only handle a small part of the demand, it cannot make significant contributions to conserving fuel or improving the environment.

Advocates riposte that rail is required precisely because urban form has lost focus – rail can pave the way to reinvigorated central business districts and promote more orderly development, they say. But whatever rail's city-shaping influence in the past, its potential impact today must be seen in the context of the locational advantage presented by existing mature road systems. Not only would the rail systems fail to meet the majority of urban needs, their capacity compared to that of roads is tiny. Their potential impact on shaping economic development has therefore generally been vastly over-stated.

It is revealing to trace the symbolism omnipresent in the language of those who would claim otherwise. Political and business leaders see that cities with impressive subway systems often have thriving downtowns with active business districts, chic shopping areas, theatres and maybe even an opera house. As Los Angeles County Supervisor Kenneth Hahn said, "if you're going to have a great city, you have to have rail rapid transit." Decision-makers observe how smoothly transit-oriented cities seem to run, but don't test whether their visionary systems will work in the dispersed "autopias" of the American West. Nor, of course, do they reflect on the congestion which would be caused if they *did* stimulate growth in the urban core.

Finally, and perhaps most iniquitously, it is said that rapid transit will help the urban poor along with others lacking access to cars. The Los Angeles – Long Beach light rail service (which crosses Watts), for example, symbolizes relief from the isolation and despair from which the post-riot years have provided Watts no escape. The rail project will plug Watts into the rest of the region, open up new job opportunities and provide a means for children to get out: it would give them access to a better life and a brighter future I was told at a committee meeting of the community organization, Westminster Neighborhood Association.

But light rail has few benefits to offer depressed South-Central Los Angeles. The work trips of mid-corridor residents reflect the habits of the region as a whole: they are dispersed, with only nine percent working in downtown Los Angeles and one-half working outside the Long Beach corridor.

Twenty-six percent of workers from the mid-corridor live as well as work within that zone. But for only a minority of them would a rail station be close to both their homes and workplaces. For others a journey via connecting buses would be necessary, making for a more circuitous trip than is possible by direct bus service from each neighborhood. If the trolley is installed, local buses will be reconfigured to meet the needs of the trolley, rather than those of most passengers using public transportation.

What Should Be Done

While actions favored by politicians and the public are often associated with an aura of highly positive symbolic imagery, measures more likely to make a real contribution to the urban transportation problems of the 1980s generally have far less visceral appeal.

While people call for double-decking urban highways, less attention is focused on running existing roads more efficiently instead. Within cities there is great potential for taming the anarchy of street operation. The City of Los Angeles does now have plans to link 162 downtown intersections to a computer capable of monitoring changes in the ebbs and flows of different streets and adjusting the phase of signals to more efficiently accommodate traffic. One City official has said this promises to increase street capacity by ten percent. Control of on-street parking, one-way streets projects and reversible lanes also offers the prospect of smoother-flowing street systems. But to merchants, such proposals conjur up an image of less vehicles – and less business – going past their doors, and plans to implement these types of improvement have met opposition.

When too many vehicles occupy a freeway lane, speeds slow and throughput diminishes dramatically. While a lane can accommodate 1800 vehicles per hour at 55 mph, its capacity falls to 1200 per hour at 35 mph. Controlling access to freeways allows *more* people to use them and at higher speed. But the very word *free*way makes it seem repugnant to restrict usage in any way. Ramp meters evoke images of resentful motorists being held up at freeway entrances. Although Caltrans now wishes to meter all freeway ramps in Los Angeles, such spectacles do not sell very well politically.

Lanes reserved for high-occupancy vehicles (HOVs) on both major highways and surface streets offer a further opportunity for better management of roads. While planners have tended to be concerned with moving as many *vehicles* as possible, HOV lanes stress increasing the flow of *people* in less vehicles. But they are employed in too few instances.

The notorious Santa Monica Freeway diamond lane experiment demonstrated the heavy opposition likely to result from taking away an existing lane from general use. But it also takes more political courage than can normally be mustered to devote a newly-created lane to buses and carpools. The action is perceived as analagous to a baron extending the area of common land but only allowing favored villagers to use the new pasture. The total capacity of pasture available to the village might now be increased—with everyone better off than before—but it would be surprising if the less-favored farmers did not bear resentment towards their privileged neighbors.

Pricing presents another area where significant improvements are possible. People see the perceived price of an automobile trip as the cost of gasoline, while they perceive the cost of a journey by transit as the full fare. Peak road users impose the greatest marginal costs—without rush hour loads much smaller facilities could cope with the traffic, and major urban highways might not be needed at all. Yet, the current taxing systems charge peak motorists no more than those who travel at less congested hours. Peak-hour tolls would make those responsible for the greatest costs pay for them. They would make non-peak usage relatively cheaper, attracting those who could avoid travel at the times of highest demand to less congested periods of the day. The result would be faster journeys for those who chose to pay the peak-hour usage charges. Public transport would also become relatively more competitive.

Most employers currently provide parking free of charge, even though the land devoted to parking space clearly has a market rent. Such a subsidy helps make it cheap to drive to work, and inequitably favors motorists over transit riders. If all employees were given a salary increase equal to the market value of a parking space, but were charged that amount if they wished to continue parking, aggregate welfare would be increased. Those who most valued driving to work would continue to park, and would be no financially worse off than before. Other former drivers, presented with the choice of using the cash for either parking or transit would now opt for transit.

Public transport also suffers from aberrations in pricing. The practice of charging flat fares for whatever distance is travelled is one major source of inequity. In Los Angeles, for example, crowded urban bus lines transporting the city's poorest residents short distances cover almost all of their costs, while upper-income commuters from the suburbs receive subsidies of several dollars per day. One alternative use of the money Los Angeles is intent on squandering on rail would be to charge the poor no greater share of the costs of service than the wealthier pay. Much more could also be done to upgrade bus service to a decent level, to serve the many neighborhoods and majority of public transportation users rail would never reach, to provide custom service to a wider variety of destinations with a flexibility not possible with rail and to use freeways more efficiently to speed both buses and carpools.

None of the above suggestions are in any way original: they have all been proposed many times, particularly by academic transportation planners. They have often been dismissed because the distorting imagery associated with them gives a poor impression. While practice (on Los Angeles' El Monte Busway, for example) has shown that high-quality express bus service can be made attractive even to high-income professional workers, the imagery of buses is extremely negative. While rail evokes images of colorful vehicles laden with white-collar workers converging on flourishing downtowns, the bus is synonymous with poverty and crime. It is hard to imagine that such an apparently low-class vehicle has real advantages to offer. It is equally difficult to see how travellers can be made better off by controlling their access to highways or imposing tolls or parking charges.

It is naive to preach these changes from an academic armchair without appreciating the difficulties of implementing them. It is no excuse, however, to shrug one's shoulders and call for costly and ineffective measures simply because their superficial symbolic attraction is stronger.

The challenge is to move beyond imagery. This requires planners to expose and critique the assumptions underlying panaceas of visceral appeal and to avoid releasing any recommendations of their own without putting them to a similar test. It also means that planners must devise ways of communicating findings understandable by the laity. Since experience plays such an important role in interpretation, one option is to highlight the facts of our case using examples our audience can appreciate based on their personal experience. But, since that experience is of obsolescent ways, this presents many pitfalls.

Experience, however, produces the only threads we have to weave. Our task is to enable both our clients and ourselves to reinterpret experience and, through the displacement of concepts, allow old metaphors to be surfaced, seen as faulty and discarded, and new ones to be developed capable of leading us towards more effective planning. □

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