

I-40 Opens! . . . Now What?

A Case Study in Pro-Active Regional Planning

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The processes associated with the design and construction of major highways can cause divisive controversies with negative outcomes. These controversies arise from the anticipated impacts of proposed alternative highway locations before actual construction; however, much less attention is paid to the effects, predicted and unanticipated, of new roads after ribbons are cut. Once construction decisions are made, the short time period during construction and shortly after the grand opening provides a unique "window of opportunity" for communities to take positive actions to reap the full benefits of the highway while reducing its negative effects (Figure 1).

To those communities willing to adapt to their changing environment, action taken during this particular time period can effectively produce positive benefits. There is no uncertainty about some of the highway's direct effects, such as redistribution of traffic volumes; however, indirect impacts, such as economic development along highway interchanges will not be felt for some time and are therefore amenable to change.

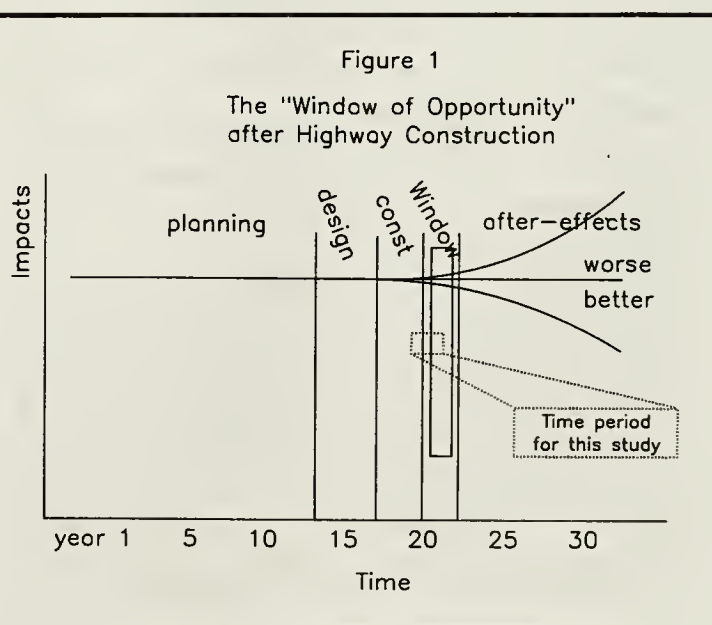
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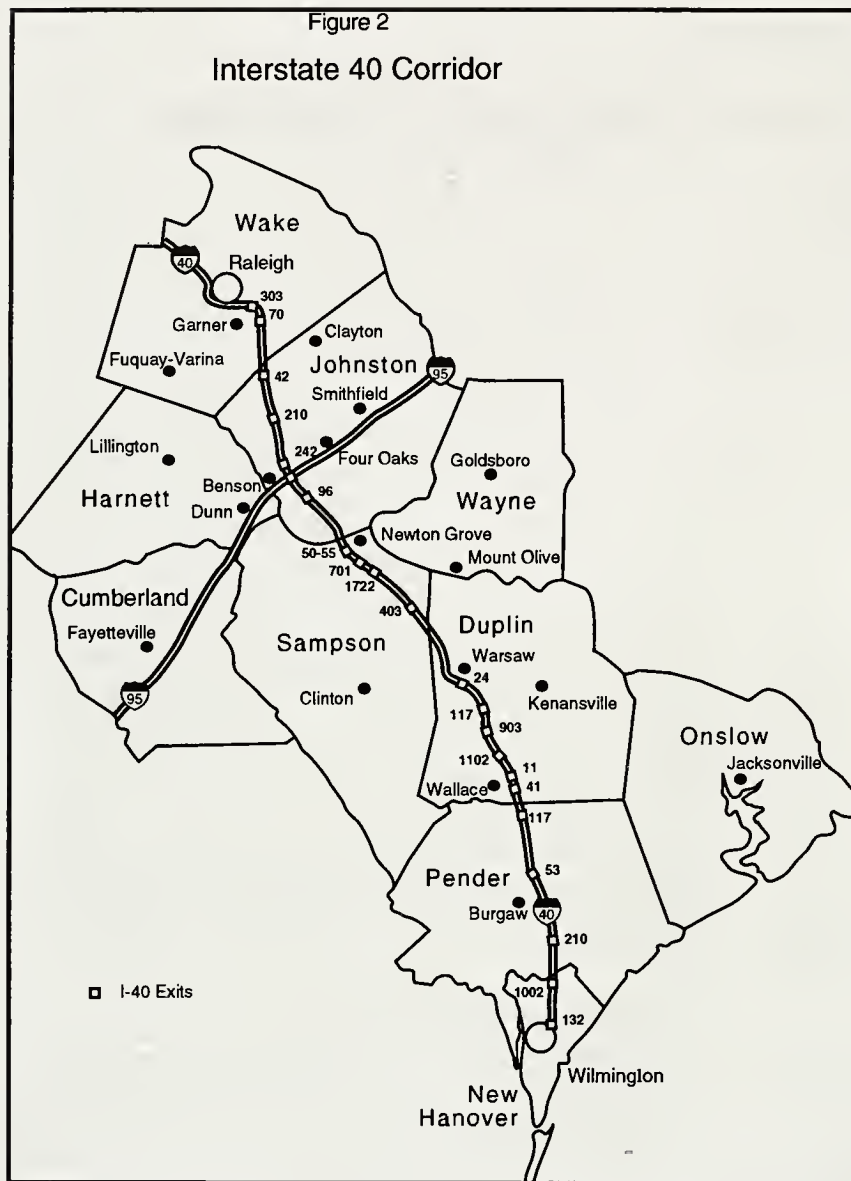
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The North Carolina Division of Community Assistance, in cooperation with local governments, other state agencies, and the private sector, has initiated a study of the newest portion of Interstate 40, a four-lane divided limited-access road running from Raleigh to Wilmington, North Carolina. The goals of the study are to identify the major impacts of the highway corridor, as constructed and opened; and to develop actions that governments and the private sector can take to reduce the highway's negative impacts and maximize its positive ones.

A Profile of the I-40 Corridor

This 120-mile stretch of Interstate 40, under discussion and planning for almost twenty years, was finally opened to





traffic in June 1990 (Figure 2). It represents the last major component of interstate work to be done in North Carolina and in the nation. Interstate 40 is one of the longest highways in the country, running 2,455 miles from the North Carolina coast to Barstow, California.

Interstate 40 now connects the formerly isolated port city of Wilmington to the interstate system. The I-40 corridor is essentially rural in character, interspersed with small towns, agricultural communities and farming districts. Income levels and general accessibility in the central portion of the corridor are lower, compared with the corridor's ends. Interstate 40 has increased both local accessibility and regional interconnectedness. I-40 diverts truck and tourist traffic from parallel routes, reducing traffic congestion in nearby communities, but businesses relying on the diverted traffic may also be hurt. However, reduced air pollution and truck

noise, particularly at night, are some of the positive effects.

In the future, roads feeding the interstate may increase in traffic, and new development surrounding the interchanges will result. Recreational business is likely to benefit, since I-40 has the effect of opening up the central coast of the Carolinas, considerably reducing the travel time to Carolina beaches from the inland cities of Raleigh and the upper Piedmont. The resulting increase in the tourist trade will bring congestion to beach and coastal communities. Beach-front property prices may also rise. Business may be diverted from beach-related centers south of this area, particularly the Grand Strand region of South Carolina, and from the north, particularly the Outer Banks of northern North Carolina's seashore and southern Virginia. Essentially, the effect of the highway may be to "smooth out" the beach-front property development to raise economic levels and accessibility in the central part of the North Carolina coast, thereby producing a more uniform economic base along the coast of Virginia and the Carolinas.

Military access will improve, benefitting the major military installations at Jacksonville, Fayetteville, Cherry Point, and Goldsboro. As truck traffic increases, the Port of Wilmington may become more attractive to European trade than other ports, particularly for Carolina-produced commodities. Citizens along the corridor will now find themselves closer to area services, hospitals, community colleges, and shopping, expanding the markets for these and other regionally based activities. These residents will also find themselves closer in travel time to major metropolitan areas, thus increasing the attractiveness of those regions for jobs. Moreover, the corridor communities will become more attractive residential sites for people presently living in the urban areas.

Pre-Study Phase

In August 1989, the North Carolina Division of Community Assistance (NCDCA) began to survey interest in conducting a study of the Interstate's economic impact. The effort was considered timely since local officials and the media had been predicting an "economic boom" and called the Interstate's completion "the single most important factor to affect development in southeastern NC for decades." Despite these claims and rising expectations, no objective research to quantify the expected development had been conducted. With the cost of the 120-mile stretch of highway at \$314 million, it seemed appropriate that there would be

support for a study to determine possible economic impacts and identify strategies to use in the corridor.

An important factor to be considered was the rural, predominantly agricultural nature of the corridor. Excluding the corridor starting point at Raleigh, and terminus at Wilmington, only two communities out of the thirty have populations over 5,000 and a majority have less than 1,000. To initiate this discussion, NCDCA organized a kick-off dinner sponsored by a large utility company. Over 100 persons representing 30 communities attended the October 1989 event. Speakers presented visions of what the study could offer and described how it would be directed by the community and results-oriented. Subsequently, many local governments requested and received special presentations to their governing boards. Eventually, 38 communities supported the study and agreed to participate in corridor-wide strategic planning. An I-40 Steering Committee was formed to guide this study.

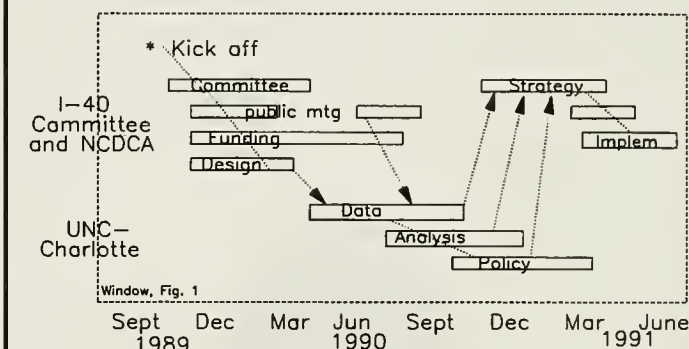
While gathering community support and involvement, NCDCA was also discussing the study design with the University of North Carolina at Charlotte. Since local government fees could only be expected to generate \$25,000 against an estimated total cost of over \$100,000, a draft of the study design was presented to potential funding sources. The corporate and agency sponsors took great interest in the study and made several suggestions for revisions to the design to ensure the results would be usable by smaller communities.

Funding

Along with reviewing and refining the study design, fundraising became a major focus for the steering committee. Telephone and electric companies, the North Carolina Rural Economic Development Center, and the North Carolina Department of Transportation responded quickly with generous commitments. The committee asked communities to contribute at a rate of three cents per capita (with a minimum payment of \$150 and a cap of \$3,000), to help fund the study. As the committee moved its meeting place to several small towns along the corridor, the public became interested, and citizen attendance increased. Positive media coverage resulted in numerous small, but extremely important contributions from financial institutions, rural electric membership co-ops, regional councils of government, tourism authorities and chambers of commerce. The challenging task of raising sufficient funds presented an opportunity for steering committee members representing ten counties to work together on a cooperative basis, as they will have to do to implement study findings.

The study is structured into two major efforts, one community-oriented, the other technically-oriented (Figure 3). The NCDCA, as the coordinating agency, has overall responsibility and leads the community involvement process. UNC-Charlotte, under contract to NCDCA, has primary responsibility for technical elements of the study and provides assistance to NCDCA on the community involvement por-

Figure 3
Proactive Planning Schedule



tion. The study consisted of development of the corridor-wide strategic plan addressing issues common to all communities as well as follow-up projects to address needs of individual communities. With an approved study design, the university began data collection in May 1990. This allowed for the steering committee to be briefed on the strategic planning process and to discuss the general economic climate of the region.

The overall goal of the technical work is to provide a sound base for communities to develop strategic plans that fit well with corridor objectives. A fundamental constraint of the technical work is that the time to plan, organize, gather and analyze data, make decisions and take action is short, two years at most. Therefore, a great deal of information needs to be compiled, organized and presented rapidly, so that development and implementation of strategic plans can occur *before* negative impacts result. This constrains the technical effort to a series of quick work sessions, each with preliminary and final findings. Preliminary findings are made available in rapid form for early discussion, and are followed up later by more detailed technical reports.

Gathering Information

County and Town Statistics

An extensive database containing about 400 economic and demographic variables describing the region is being prepared. Information consists primarily of census and similar items; community reports on education, health, and budgets; transportation statistics on mileage and services; labor force and wages by major SIC category; and population statistics by age and ethnicity. Where possible, several years of data are being compiled so that trends may be developed. The study is not waiting for final results of the 1990 census, although those statistics are available on a preliminary basis. Figures 4 and 5 show examples.

A modern transportation-oriented geographic information system, TRANSCAD, is being used as the computer data

base to store and display this information. TRANSCAD provides the ability to mix, match and combine a variety of statistics spatially and provides a unique environment to better understand complex relationships. It provides a full range of output graphics and transportation modeling features as well.

Traffic Data

Working with statistics provided by the North Carolina Department of Transportation, a complete traffic picture for the region is being developed using the TRANSCAD data base. Statistics are available on average daily traffic and peak hour loads, truck/tractor movements, speeds and capacities, as well as plans for future road improvements. Traffic counts collected since the opening of I-40 are being used to develop estimates of the diversion effect from major parallel streets and the increased traffic on major feeder facilities.

Interchange Growth

In order to better understand how growth at interchanges along I-40 is likely to develop, UNC-Charlotte researchers reviewed past growth at interstate intersections in rural North Carolina. They visited 103 interchanges and identified their growth patterns. Relating these patterns to availability of infrastructure, traffic, zoning patterns, visibility, sewer and water, and other regional and site-based parameters, the researchers developed a series of simple models of interchange growth. They then applied these models to characteristics of the I-40 interchanges to estimate growth potential.

Business and Citizen Surveys

UNC-Charlotte surveyed a representative sample of businesses along the I-40 corridor to determine their characteristics and to gauge opinion about improvements that communities should make to benefit from I-40. The TRANSCAD data system displays the geographic relationships between respondents' opinions and their reliance on I-40. Similarly, citizens completed a short questionnaire focusing on their opinions about potential local government strategies. This data was also displayed using the TRANSCAD system. As this information comes together, analysis is being prepared on a variety of substantive questions.

Analysis Phase

Traffic Forecasts

Using models that relate traffic to population and economic growth and activity, analysts are forecasting traffic on each section of I-40 and on major parallel and feeder routes. Adjustments are being made for route diversions or traffic reductions as a result of the Interstate.

Economic Activity at Exits

Researchers are analyzing exit characteristics and traffic forecasts to estimate the already increasing economic activity at each exit on I-40. For each exit, the development potential for new motels, sit-down and fast-food restaurants, gas stations, truck stops, residential development, and other services are being modelled. Most exits presently do not have utility service. Figure 6

Figure 4 PER CAPITA INCOME

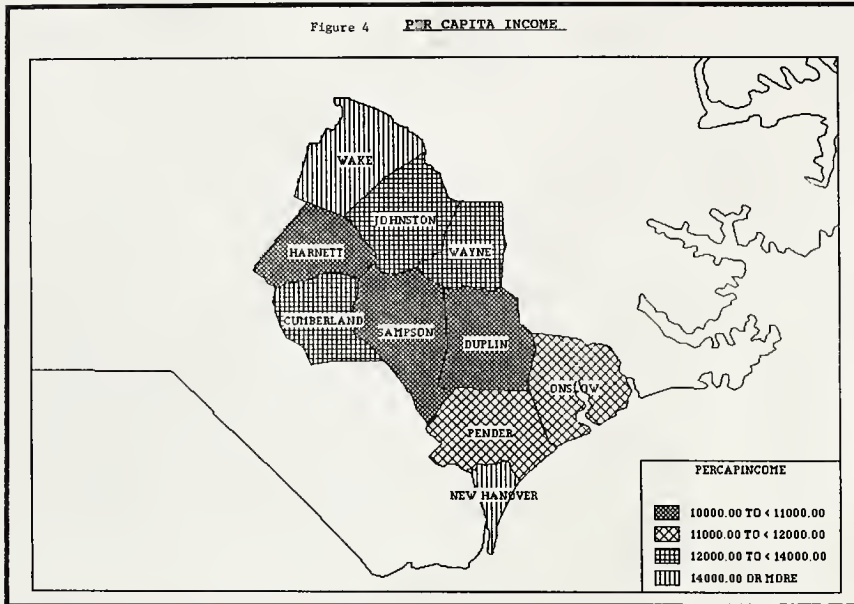


FIGURE 5. 1990 CENSUS POPULATION



shows the relative twenty-year development pressure at I-40 interchanges using these procedures.

Economic Forecasts

Economic forecasts, being prepared with a location quotient economic forecasting model, will identify those individual counties which are likely to enjoy employment growth as a result of I-40. This growth is being compared with growth rates of other groups of counties in North Carolina and South Carolina that have not had recent major improvements in accessibility.

Growth Points

Using a method known as successive overlays, a number of key locations in the corridor are being analyzed for their overall growth potential for retail and industrial sites. This method involves assessing each point for increases in accessibility, interchange development, traffic, population, employment, and spending power.

Port of Wilmington

The team is assessing the extent of changes in trade through the Port of Wilmington as a result of the increased I-40 trade. Accounting for recent events in Eastern Europe, the study will also look briefly at the effects of increased traffic to the Port of Wilmington, particularly the effects of truck and container traffic on the street circulation system of the city.

Community Participation

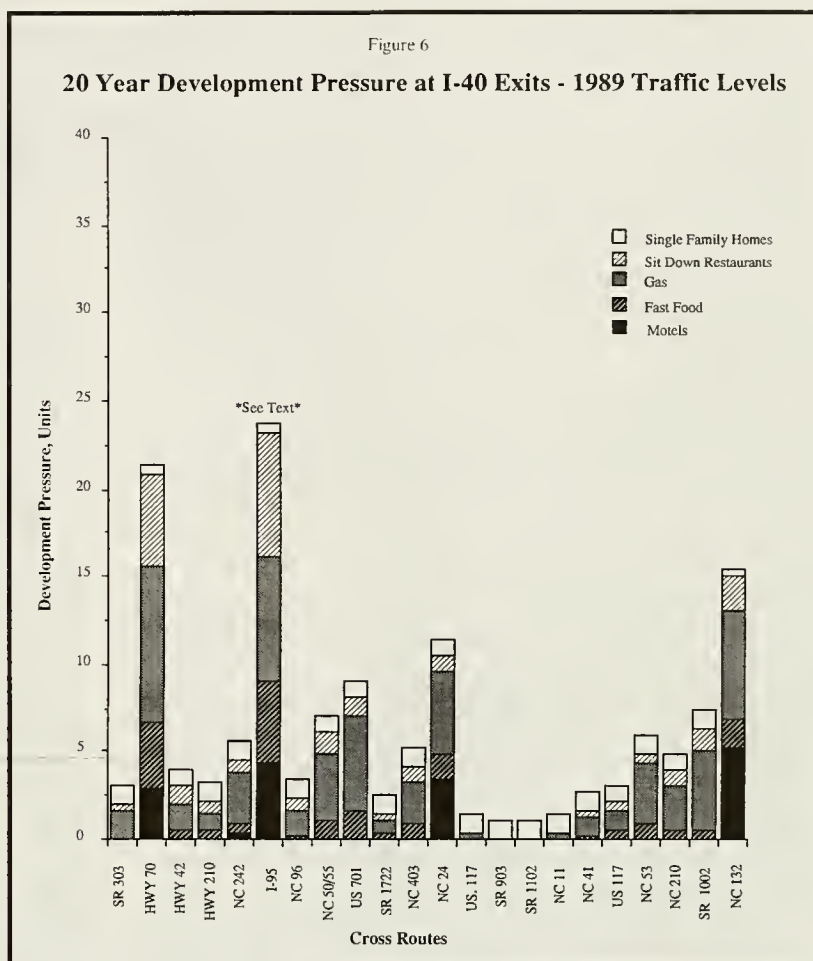
Community involvement is an integral part of the study and is largely responsible for its success. Community participation in the study is being ensured through a number of mechanisms.

I-40 Steering Committee

Early in the study, county and community representatives in the corridor were asked to participate in study design and planning and to join a steering committee. This committee consists of elected officials, economic development and chamber of commerce directors, private sector individuals, and government agency representatives of the region. The I-40 Steering Committee meets periodically to review study progress, provide guidance, and inform the general public.

Public Forums

Since the data collection phase provided a break over the summer months of 1990, the committee was faced with the possibility that the project might lose momentum. It was decided that this would be an excellent time to encourage community input. Public forums, sponsored by local chambers of commerce, were scheduled during July and August at



four locations along the corridor. Agricultural groups, the general public and merchants representing a variety of business interests were invited. Over 300 persons attended the forums and participated in a structured agenda aimed at uncovering issues as well as prospective strategies. Excellent media coverage helped to keep the project before the public and to emphasize the fact that the steering committee would use the forum information when their planning meetings reconvened in the fall.

Strategic Actions

As the study proceeds, task forces are being organized to review information for each sub-area of the entire corridor, and to respond to suggestions concerning strategies. These groups will focus on six key areas:

- Education
- Infrastructure
- Recreation and Tourism
- Community Services
- Economic Development
- Environment and Planning

The strategy development process involves both plans for various sub-areas of the corridor and corridor-wide strategies to be implemented by groups of counties working together. There will be overall steering committee review of the separate task force strategy meetings, since many issues are interrelated. As the project enters the policy phase, the study will produce a well-documented corridor development plan for the thirty-five communities in the region. Secondly, through the planning process, participants will develop a history of working together and gain understanding that the highway linkages can lead to corridor-wide benefits for all communities involved.

Results of this study should be available in September, 1991. While it is premature to identify specific actions appropriate for a variety of circumstances in the corridor, it may be useful at this point to list some of the items being considered.

Transportation Improvements

- Widen selected major routes that feed I-40 to four lanes.
- Accelerate completion of an urban loop around Wilmington.
- Upgrade unpaved roads to paved road status.
- Reconfigure truck route access through communities.

Interchange Development

- Provide sewer and/or water services to selected interchanges.
- Carefully zone the area around each interchange and between an interchange and its nearby towns for appropriate development.
- Encourage businesses to locate closer to I-40.

Signs and Advertising

- Pass sign ordinances limiting the number and size of signs visible from I-40. Establish corridor standards for sign appearance and size.

Development and Community Services

- Re-sign directions to hospital and community colleges.
- Advertise community college and training services in new markets.
- Coordinate real estate listings across the corridor.
- Establish a corridor association of chambers of commerce.
- Expand or merge school districts.
- Advertise the corridor in distant cities.

- Restructure the economic recruitment process to take advantage of the favorable I-40 business climate.
- Develop and maintain a database of land parcels for industry recruitment purposes.
- Assist existing businesses to attract new employees.
- Establish a corridor-wide planning district.
- Establish corridor-wide zoning ordinances and a cooperative zoning treatment of grandfathered parcels.

Cooperative Corridor-Wide Strategies

- Promote complimentary advertising of community services across a number of towns.
- Enact signing and zoning ordinances.
- Establish an I-40 business association.
- Prepare a long-range corridor development plan.

Summary

In the window of opportunity provided by the opening of a new highway, cooperative strategic planning is particularly charged. Efforts must be undertaken rapidly, data collected and compiled accurately and quickly, decisions made, and actions implemented. Numerous constraints and threats operate to undermine the probable success of the effort. Communities may not have available funds. They may not work well together. They may view each other as competitors rather than as cooperators or may simply not agree on what is best for the region. The narrowness of the time window increases the pressure.

On the other hand, the benefits of a successful cooperative effort are substantial. *Communities that can work together to find ways to participate in developing a positive future are in a better position to ensure that their plan succeeds.* The singular opportunity to direct the benefits derived from the accessibility provided by Interstate 40 may substantially affect the corridor for many years to come. While the stakes are high and the risks are great, there is no better alternative than to leverage the opportunities which have been provided. □

Acknowledgements

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