

Chautauqua County Bridge Program

*This report was prepared in partial
fulfillment of contract requirements for:*

*“Cost Effectiveness of
Consolidating Government Highway Services”
A New York State Department of
Transportation Research Contract*

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Cooperative Highway Services Case Study Report: Number 2

Chautauqua County Bridge Program

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Chautauqua County Bridge Program'

Overview and History

In 1988 Chautauqua County (population 141,895) initiated a new bridge policy. The policy was developed by the bridge subcommittee of the county legislature with the support of the county executive. The subcommittee included county legislators, town supervisors and town highway superintendents. George Riedesel, Director of the county Department of Public Works, drafted the written policy. The county has approximately 488 bridges and ranks fourth among New York's counties in the number of bridges over 20 feet in length. In 1988, 62% of the bridges suffered from deficiencies and 69 bridges were weight posted, closed or flagged by New York State DOT. A large number of the bridges were at or near the end of their expected useful life. The new policy, adopted by the county legislature, included: a history of the development of the bridge problem, a review of current bridge conditions, a commitment to a long term program of bridge repair and bridge replacement/rehabilitation, stepped up financial resources to support this program, and a proposed policy for town, village and city participation in the program. A copy of the policy is attached to this report.

Many county bridges were located on town roads or city and village streets. One facet of the program was to prioritize these bridges and develop a cost sharing and working approach with cities, towns and villages in the county. At that time, a five-year maintenance and rehabilitation planning system was developed to begin addressing the backlog of bridge deterioration in the county. Initially towns, cities and villages were asked to contribute 15% of rehabilitation and replacement costs for county bridges on local roads that were scheduled for work. Towns, cities and villages also retained legal responsibility for approaches, railings and wearing surfaces (bridge surface). In the cases where county crews performed the bridge work, all or portions of the 15% contribution could be in the form of in-kind services.

In 1993 problems began to surface with the portion of the bridge improvement program targeted to bridges on town roads, and city and village streets. Local officials had concerns that related to various aspects of the 15% cost sharing requirement. Some local officials felt that the 15% sharing was unnecessary and undermined the working relationship between county and local highway departments. Another source of concern was how the 15% sharing rate was established. Many local officials felt that county estimates for bridge replacement or reconstruction were too high. As a result the projected 15% match appeared to result in a higher percent, in cases as high as 30% when actual bridge work was completed at a lower than projected total expense. This and other

¹ This is one of six case study reports prepared under contract with the New York State Department of Transportation (NYSDOT). The report is intended to be useful for: relevant NYSDOT staff, local government officials and those who staff and advise local highway departments. A list of all project reports is at the end of this document. A draft of this report was reviewed for general content and accuracy by an involved local official.

factors led to the perception that municipalities were being charged different rates for participation in the bridge program. In some cases municipalities felt they were not given adequate lead time to budget for or plan for in-kind work to participate in upcoming bridge projects.

The bridge subcommittee of the county legislature opened up a discussion of these concerns. As a result of this effort the county legislature requested that the County Comptroller, Dennis Goggin, audit the actual costs of selected bridge contracts between the county and other municipalities in the county. The bridge subcommittee, which included town highway superintendents (representing the county's town highway superintendent's association), worked with staff from the County Public Works Department in 1994 to find adjustments to the program to improve its acceptability. These efforts resulted in two key changes to bridge policy that were adopted in May of 1994. First the fixed 15% match was dropped in favor of a contribution by towns, cities and villages in bridge projects mutually negotiated between the participating municipality and the county Department of Public Works. Possible participation was broadened to include: cash, in-kind contribution directly to the project or other in-kind services unrelated to the project (e.g. routine maintenance activities, snow and ice control, technical services, equipment and or/manpower exchanges, or other items mutually approved by both parties). Second, an annual review and adjustment of the Department of Public Work's proposed five year plan by a bridge subcommittee was established. This "active" bridge committee, appointed by the county legislature, is composed of two county legislators, two town supervisors (selected by the county association of town highway superintendents and public works directors), and two town supervisors (selected by the county association of town supervisors). The five-year plan is disseminated to all local officials for their review and budget planning.

Importance

Appropriately applied technical input and planning for the maintenance and construction of capital facilities (including roads and bridges) has the potential to greatly reduce the long term cost of providing these facilities to the public. Some observers believe that there are significant barriers or disincentives for smaller municipalities to invest in adequate technical inputs to road and bridge maintenance and construction. Not the least of these barriers is the persistent tendency of local officials to look at current rather than long term or life cycle costs. There are also a variety of potential organizational barriers for smaller governments to obtain this kind of technical input. Among them are: finding appropriate and trustworthy technical consultants, writing and monitoring contracts and agreements, changes in elected officials, and evaluating local liability and risk.

This bridge program represents a cooperative approach by county staff to bring needed technical input to bridge repair that may contribute to long term savings in maintaining bridge infrastructure. There are lessons and cost saving incentives that this example demonstrates that will be useful for exploring a similar sharing of expertise in road construction and rehabilitation

by county and town staff. There are 27 towns, 15 villages and two cities in Chautauqua County.

Key Issues: Evidence, Analysis and Conclusions

Information about this case was collected in four areas: (1) mutual benefits and costs, (2) local government capacity needs and resources, (3) leadership, teamwork and cooperation, and (4) legal and institutional barriers. Important information in each of these areas is discussed in a separate section below.

Mutual Benefits and Costs

Local governments and other organizations cooperate in, contract for or consolidate service activities because they derive mutual benefits. These organizations will weigh the perceived costs or disincentives to change against perceived benefits in making a decision to cooperate, contract or consolidate. What were the anticipated benefits for the Chautauqua County local governments entering into this contract? Have these benefits been realized? What were the presumed costs or disincentives? Have these been realized?

Achieve Needed Investment

Chautauqua County. The county initiated the joint bridge program to address a severely deteriorated bridge inventory. By investing in the bridge program the county expected to improve bridge condition and the operation of the local highway network. Beginning in 1982 efforts were made to begin addressing the problem. In 1988, when the bridge program was adopted, resources were committed to increase department in-house capacity to maintain, repair and reconstruct bridges. Annual budgetary resources were increased about ten fold over a period of years. At the beginning of the program over 55% of the county's bridges were deficient and needed additional repair. This deficiency rating put Chautauqua County at the upper end of county deficiency ratings in the late 1980s (Sturges, 1985). In 1996, a report evaluating a more limited set of 268 county bridges noted that Chautauqua's deficiency rate had dropped to 34%, at the low end of counties included in the report (Road Information Program, 1996:19). These figures indicate that the county has been successful in improving the condition of the county bridge inventory. While not measured explicitly this would in turn improve the quality of the road network to citizens in a variety of ways.

Cities, Towns and Villages. Cities, towns and villages are willing to participate in the county bridge program for the same reason, because it maintains or improves the quality and effectiveness of their local road network. The participation of cities, towns and villages in the program benefited the county by stretching available county dollars and increasing the amount of bridge work that has been completed. The policy for cost sharing and the involvement of cities, towns and villages in county bridge repair on their roads was not approved by all the local governing boards. However, selected local officials from these governments were involved in both initial development of the bridge policy and its refinement overtime. In this sense towns, cities and villages were involved in agreeing to the county policy. In a more specific way,

whenever the county proposes to invest in the rehabilitation or repair of a bridge on a municipal road or street, it enters into a specific agreement with that municipality.

Local road systems are a web of state, county and other local road mileage. Posted or closed county bridges on the local mileage impedes the transportation of people and goods across this network. Deficient bridges can hinder and make public service delivery more costly in a variety of ways, including: making it more cumbersome for local highway crews to maintain their own road mileage, increasing the difficulty for local fire companies to serve property owners, and increasing the cost to local school districts in transporting children to schools. Most city, town, and village officials in Chautauqua County acknowledge their responsibility to share in the cost of county bridges as a key component of the road network.

Efficiency

The purpose of the Chautauqua County Bridge Program was to restore the integrity of the county’s bridge network. In the short term, it was intended that this policy would increase, not decrease annual operating and capital expenditures on bridges. However, in the long term it is anticipated that bridge investment expenditures will level off and decline as investment and improved maintenance practice begin to take hold. The expenditure figures in Table 1, support this objective.

Figure 1

Total Chautauqua County Bridge Expenditures for Repair and Construction for 1989 - 1995*

Year	Number of Bridges	Total Expenditures
1989	25	\$2,386,153
1990	26	3,216,688
1991	19	2,167,321
1992	40	1,619,293
1993	55	2,232,103
1994	34	1,397,141
1995	39	1,403,246
Seven Year Total	149*	14,421,945
Seven Year Average	34*	\$ 2,060,278

*Source: Figures in this table were compiled by staff from the Chautauqua County Department of Public Works from department records. The “Seven Year Total” number of bridges is less than a full column total, controlling for bridges worked on in more that one year. The “Seven Year Average” is a column average.

Table 1 contains the total number of county bridges (including those on town, village and city roads) repaired or constructed annually for the most recent seven years of data and the total cost of repair and construction. The trend in these figures indicates that, in general, the combined capital and repair cost of the bridge program has started to decline, indicating that the heightened level of county investment through the 1980s may have begun to take effect by reducing the annualized cost of bridge upkeep. These figures are declining during a period when the condition of the overall inventory of bridges in the county has improved (see above).

As noted earlier, the Chautauqua county legislature requested that the county Comptroller audit the actual costs and cost sharing arrangements of county bridge projects on town roads for 1992 and 1993. The comptroller selected 5 county bridge projects on town roads for detailed analysis. After a number of months of work, the comptroller was unable to release a report. In part the comptroller's effort were stymied by inadequate cost records for analysis of the shared percentages. Project based recordkeeping practices proved inadequate by both parties, the county Department of Public Works and the cooperating towns. For these reasons, no project level cost analysis was conducted for the bridge projects. (It was initially hoped that some project level cost analysis could be done as a part of this case study and compared with alternative bridge construction options available to the municipalities).

Local Government Capacity Issues

Local governments need to *have* or be able to *access* the capacity to identify, evaluate and take action on potential, desirable highway service changes. Adequate management and governance capacity is required to evaluate possible changes in service delivery, select an alternative and then *revise* or *adjust* policy and service delivery arrangements. A deficit of management capacity can limit and frustrate the ability of decisionmakers to evaluate benefits, costs and other technical issues. Inadequate governance capacity may lead to indecision, deferral or neglect of important opportunities for service cooperation, contracting or consolidation. Once a new service arrangement is in place local capacity is required to manage and maintain the activity.

What advice, information and analysis was utilized in making decisions to move forward with this opportunity for service cooperation, contracting or consolidation? How did the process of decisionmaking and policy action unfold in relation to advice information and analysis? What kinds of decisionmaking help was desired but not available?

Maps and History. Several information factors helped get the bridge program off the ground. The county Public Works superintendent used a map that highlighted the number and location of closed bridges to communicate the level of need to the county legislature. This tool was effective in helping board members to grasp the extent and magnitude the bridge problem in the county. During development of the original policy the bridge committee, composed of county and town representatives, did some searching of county records. This activity looked at the development of road and bridge responsibilities as far back as the 1920s. Among other things this searching convinced the committee of the historical role of towns in helping share the cost of bridges and that the county was currently underinvesting in bridges given previous levels of investment and borrowing. Looking at the history of the program gave all the parties involved a

sense of how they got to the current situation, even if the current distribution of costs and responsibilities seemed unfair.

Cost Information. The 15% cost sharing arrangements spelled out in the initial policy for cities, towns and villages proved to be a difficult problem. Even though town officials were represented on the committee that drafted the initial policy, the local cost sharing became a difficulty from the start. Earlier we noted some of the concerns about cost sharing. It appears that the local capacity to maintain adequate cost sharing information was as big of an issue to cities, towns and villages as the fairness of paying part of the cost of county bridges. The county Department of Public Works also experienced difficulty in both estimating project costs and in summarizing project costs after project completion. The county has now upgraded its general bookkeeping and its project cost estimation capability.

To some degree the cost sharing record keeping problem for towns was both a management and a standard practices or “cultural” issue. In some towns record keeping practices were simply inadequate to be able to estimate project participation costs (i.e. did they contribute 15 or 30% to a county bridge project on a county road). This is a management issue. An equally important issue is that keeping track of traded or shared services seems to go against standard practices or highway “culture” at the operating level. For many highway superintendents the volume of informal trading, sharing and assisting one another is very high. The mere thought of starting to keep track of a portion of this activity and putting a dollar value on it for cost accounting purposes seems counter productive. “Where do we draw the line” and “it’s just a trust issue” are common responses. Attempts to improve or increase the level of cost accounting of contractual and shared highway relationships have to confront this “cultural” issue. Can reasonable lines be drawn below which the sharing is too insignificant to be tracked?

Accommodating Local Capacity & Planning. There are important local capacity issues reflected in the 1994 policy changes to the bridge program. First, broadening the kinds of “in kind” activities that towns could contribute for bridge construction greatly increase local flexibility. Smaller towns with more limited crews could contribute services totally unrelated to the bridge project (e.g. mowing or plowing county roads). Larger towns with adequate bridge building expertise could now bid to do the whole bridge and increase highway budgetary resources. This change greatly increased the flexibility of local participation to coincide with the varying capabilities and resources of local highway departments.

Second, instituting the annual county subcommittee review of the five year bridge program has led to a broader distribution of the plan and has improved the ability of localities to budget and plan for county bridge activities. Sharing in the cost of a single bridge project can constitute a major shock to a city, town or village budget. Knowing the county’s intentions at least several years in advance permits the town board and superintendent to develop a multiyear plan for arranging their cash or inkind match. This also allows the highway or public works superintendent to discuss the project in advance with the county, advocate for design change and plan his schedule of work to accommodate the negotiated “in kind” participation. Broadening the form of inkind contributions and having an annual committee review of the bridge plan were critical program changes that improve overall institutional capacity to make

investment and shape the bridge plan to varying city, town and village financial and organizational capabilities. The bridge sub-committee and its composition provides a forum for making needed program adjustments in the future as circumstances and conditions change.

Spinoffs of the Bridge Program Revision. The changes to the bridge program in 1994, outlined above, have resulted in several productive spinoffs. First, these changes seem to have freed up the relationships between the county and its cities, towns and villages for an enhanced level of cooperation. The activated county bridge committee and the work to find cooperative bridge solutions has resulted in a heightened level of communication and cooperation between all the highway departments.

Another related product of the bridge program was the adoption of a mutual aid agreement by all the highway agencies in the county. The mutual aid agreement has freed up local departments to respond more quickly to emergency and short term needs of other departments. The agreement provides a general legal umbrella for the broad spectrum of short term, small scale and one time cooperative assistance exchanges. It has reduced approval requirements and liability concerns for department heads and governing boards.

The heightened level of cooperation and communication have resulted in some current discussions of more significant changes among highway agencies in the county. The county Department of Public Works is discussing the potential to realign or swap highway responsibilities with a group of towns in the county. Several road officials agree that some town personnel seem to be best trained and equipped for road building and maintenance activities and are not prepared to handle bridge maintenance and construction. Changes are being considered to take advantage of these kinds of differences between the departments. One of the concepts being discussed is for the county to take on a greater role in all road and bridge capital projects on town roads in exchange for the group of towns increasing their level of responsibility for maintenance activities on county roads in their jurisdiction.

Leadership, Teamwork and Cooperation

Leadership is required to initiate concern over existing conditions, generate interest in beneficial change, engage others in service cooperation, contracting or consolidation, and pursue the opportunity through to a service delivery solution. The earlier and more active the involvement of operating personnel in service delivery considerations the higher the potential for the identification of successful service delivery changes involving other governments. Good working relationships between individuals from involved local governments will enhance the opportunity for cooperation.

A variety of people cooperated in the development of the Chautauqua County bridge program. The current Director of Public Works, George Reidesel documented the growing bridge deterioration problems and the need for something to be done to increase investment to maintain this important infrastructure component. Between 1985 and 1988, the county executive strongly supported increased investment and county board members, several town supervisors and town highway superintendents worked to draft a workable policy with an acceptable level of city, town and village participation. The bridge program has always had its detractors and critics,

but the existence of the program is due to a significant level of cooperation among county legislators, the county executive, the county public works department staff, and city, town and village officials.

Reidesel worked with town officials and county board members on the bridge committee to modify and re-energize the program in 1993 and 1994. The bridge sub-committee worked long and hard to clarify problems with the program and iron out changes to address those problems. A key to the success of these deliberations was agreement among committee members that the public would be the beneficiary of an effective bridge investment partnership between the municipalities.

During this time staff leadership at the operating level in the County Department of Public Works became an important factor in improving cooperation and communication with city, town and village personnel. Improved working relationships at this level with high accessibility to local highway personnel helped to turn a corner in the bridge program and in highway cooperation more broadly in the county. Ken Smith was often mentioned as a county DPW staff person who relates well at the operating level to town highway superintendents and public works staff. His accessibility, action and trustworthiness helped turn a corner in cooperation on the bridge program.

Legal and Institutional Barriers

Some observers believe that legal requirements and regulatory and institutional barriers exist which can hinder local government organizations from making changes needed to cooperate, contract or consolidate when mutual benefits exist which outweigh costs and other disincentives. No significant legal barriers were identified in the investigation of this case.

As noted above, local record keeping and cost analysis capability was an important issue. To some degree, the capacity and willingness of local highway officials to track and report costs was a barrier in developing a cooperative approach to bridge construction and maintenance. The pressure for this kind of information will increase for a number of reasons. Elected governing board officials are requiring increased accountability for public funds as public resources become more scarce. Second, management decisionmaking needs for cost information will increase to compare service alternatives as the consideration of cooperative service delivery arrangements increase.

Implications for Other Governments

The legal responsibility and management of bridges varies significantly across New York's counties. Because of this some of the operating details of this case will have limited applicability elsewhere. The key findings of this case relate to important lessons for working together. These insights should be helpful for a number of other counties trying to tackle problems that are inherently multijurisdictional.

Implications for Legislative and Regulatory Change

Evidence in this case points to the need for additional help for local governments to enhance their basic recordkeeping and cost analysis capability. Approaches are needed which minimize the administrative burdens of record keeping and improve the ability to of local governments to summarize project and service costs and estimate the costs of service changes.

In developing improved recordkeeping and costing approaches it is important to take into account the motivations and resistance to recordkeeping by local highway officials. A better understanding of their constraints and difficulties in estimating and recording activity and resource use is important.

Summary of Key Findings

1. **Flexibility to Accommodate Differences in Resources and Capacity:** Overtime adjustments have broadened what cities, towns and villages can use as “in-kind” contributions to county bridge projects on their roads. This flexibility, along with improved communication about project plans has made it easier for local governments to provide matching resources. This flexibility is also a tangible acknowledgment of the differences in resources and capabilities of local governments in the county.
2. **Costing Services:** There is a general need for improved cost analysis practices and tools for use by local governments. Assistance in this area would prove beneficial for local governments in assessing opportunities for cooperation and in developing costing approaches to guide contractual relationships. It is also important to help municipalities in effectively separating operating and capital investment expenditures.

In developing improved recordkeeping and costing approaches it is important to take into account the motivations and resistance to recordkeeping by local highway officials. A better understanding of their constraints and difficulties in estimating and recording activity and resource use is important.

Increasingly, as service delivery alternatives are considered, decisionmakers will want service based cost information to aid in choosing between alternatives. Any hope for greater efficiency through service cooperation and consolidation hinges on the ability and willingness of operating personnel to keep better cost records. It is also important for decisionmakers to understand what kind of cost information they need and how to work with operating personnel to lay a base for being able to develop needed information through improved personnel, equipment, and materials records and information management.

3. **Mechanisms for Monitoring, Adjusting and Maintaining Agreements.** Even well structured agreements require fine tuning and adjustment over time. Agreements should include mechanisms (a process for mutual agreement on annual statements of planned work, regular meetings, etc.) for board members and or operating personnel to communicate and accommodate the need for adjustment and change. Here the structure of the county bridge committee (with local governing board and highway personnel as members) and the annual

review of the county Department of Public Work's Five Year Bridge Plan by the county bridge committee has proven to be a key tool in helping to: adjust the plan with help from local officials, update the bridge policy as conditions and needs change, and help cities, towns and villages prepare for future financial and work responsibilities on bridges. The involvement of all key parties on the county bridge committee helps ensure that bridge planning is feasible and workable.

4. **The Value of Working Hard to Achieve A Cooperative Success:** A variety of local elected and appointed officials over a period of years worked to develop a cooperative bridge program that works for the benefit of taxpayers. The willingness of some local officials to pursue this goal and stick with this effort has produced working relationships, institutional mechanisms and a cooperative atmosphere that has led to a number of subsequent benefits and actions. It would have been easy for participants to back off from this endeavor claiming inadequate short term benefits. The ability to see the long term benefits for citizens kept key officials at the table to develop a workable solution.

Case Study Documents

Below is a list of all legal, budget and other documents collected for the case study. Documents marked with an asterisk in the list below are appended to this report.

**Bridge Policy for Chautauqua County.* George Riedesel, P.E., Director, Department of Public Works, Summer 1988.

**Chautauqua County Board Resolution No.256-88. Establish the Bridge Policy for the County of Chautauqua.* from Proceedings of the County Legislature.

**Chautauqua County Board Resolution No. 150-94. Amending the County Bridge Policy.* from Proceedings of the County Legislature.

Minutes: Bridge Subcommittee. Thursday March 24, 1993. 7:00 P.M. Gerace Office Building, Mayville, N.Y.

Minutes: Special Public Works Committee Meeting. October 28, 1988. 7:00 P.M. Gerace Office Building, Mayville, N.Y.

Letters from Dennis Goggin to Town Highway Superintendents Regarding Audits of County Bridge Projects. June, 1994. (Five)

Notes Taken from Never Released Report on Costs Sharing for County Bridge Project. by Dennis Goggin, 1994.

Report on State of Affairs, Chautauqua County Bridges. Dick Sturges, Chautauqua County Supervising Engineer. Staff report. 1985.

New York's Road and Bridge System: A Needs Report. Prepared by the Road Information Program. 1200 18th St., NW, Suite 314, Washington, D.C. 20036. January, 1996.

Series of Articles from Local Papers on County Bridge Subcommittee Meetings Concerning Bridge Policy Changes in 1994 (5 articles)

Tabular Summary of 1992 and 1993 County Bridge Program

Persons Interviewed

James Caflisch, Chautauqua County Legislator and member of the County Bridge Committee

Steve Fardink, Highway Superintendent, Town of North Harmony and member of the county Bridge Committee

Dennis Goggin, Comptroller, Chautauqua County

James Oakes, Highway Superintendent, Town of Pomfret, current President of the Chautauqua County Town Highway Superintendents Association

George Reidesel, Director of Public Works, Chautauqua County

George Spanos, Engineer, Chautauqua County Public Works Department, head of the county bridge program.

Gary Waid, Highway Superintendent, Town of Carrol - Member of County Bridge Committee

County Trend Profile

Other Project Reports

Overview of the Case Study Project

This report is part of a larger research project funded by the New York State Department of Transportation (NYSDOT). The Department sought proposals on the “Cost-Effectiveness of Consolidating Government Highway Services.” The issue of jurisdictional realignment, combining units of government, was not to be the focus of the study. NYSDOT was interested in identifying both service functions that are appropriate for consolidation and methods of achieving this consolidation. The Department wanted to identify the institutional and political barriers that adversely affect decisions based on economic factors and to suggest methods for dealing with such barriers (including recommendations for change in state laws and regulations).

To achieve these goals a case study design was proposed by the investigator and selected by NYSDOT. A Project Advisory Group (PAG) was recruited to give advice on the selection of case studies. PAG members included a town highway superintendent, a county highway superintendent, a NYSDOT regional maintenance engineer, a staff member from a metropolitan planning organization, staff from the Cornell Local Roads Program, and a staff member from the New York State Legislative Commission on Rural Resources.

A mail survey with telephone follow-up was conducted in the fall of 1995 to identify cases of intergovernmental cooperation in the provision and production of highway services. A list of ten examples were selected for possible case study analysis and refined through consultation with the Project Advisory Group and the NYSDOT Consultant Manager. Six case studies were conducted and the final reports are included in the list of reports below.

A review of current reports and findings on existing statutory and regulatory barriers to service delivery cooperation was also conducted as a part of this project. The results of this review were combined with relevant findings from the case studies in a report on barriers and recommendations for change. See the summary report or executive summary listed below for a review of the projects overall findings and recommendations.

List of Project Reports

Case Study Report: Suggested Cases of Highway Cooperation and Consolidation for Further Study. Michael Hattery and David Kay. Local Government Program, Department of Agricultural, Resource, and Managerial Economics, College of Agriculture and Life Sciences, Cornell University. November 9, 1995.

Appendix to Case Study Report: Data Base of Cases Identified through the Interview Process. Michael Hattery and David Kay. Local Government Program, Department of Agricultural, Resource, and Managerial Economics, College of Agriculture and Life Sciences, Cornell University. November 9, 1995.

Case Design Report: Research Design for Cases of Highway Cooperation and Consolidation. Michael Hattery. Local Government Program, Department of Agricultural,

Resource, and Managerial Economics, College of Agriculture and Life Sciences, Cornell University. May 15, 1996.

Contract for Street Maintenance and Repair between the Town and Village of Bergen, Genesee County. Cooperative Highway Services Case Study Report Number 1. Michael Hattery. Local Government Program, Department of Agricultural, Resource, and Managerial Economics, College of Agriculture and Life Sciences, Cornell University. December, 1996.

Chautauqua County Bridge Program. Cooperative Highway Services Case Study Report Number 2. Michael Hattery. Local Government Program, Department of Agricultural, Resource, and Managerial Economics, College of Agriculture and Life Sciences, Cornell University. December, 1996.

Cayuga County Vehicle Maintenance Pool Service to the City of Auburn. Cooperative Highway Services Case Study Report Number 3. Michael Hattery. Local Government Program, Department of Agricultural, Resource, and Managerial Economics, College of Agriculture and Life Sciences, Cornell University. December, 1996.

Town of Esperance Contract with Schoharie County. Cooperative Highway Services Case Study Report Number 4. Michael Hattery. Local Government Program, Department of Agricultural, Resource, and Managerial Economics, College of Agriculture and Life Sciences, Cornell University. December, 1996.

Jefferson County Contracts With Towns for Major Improvements. Cooperative Highway Services Case Study Report Number 5. Michael Hattery. Local Government Program, Department of Agricultural, Resource, and Managerial Economics, College of Agriculture and Life Sciences, Cornell University. December, 1996.

Fostering Exchange with Local Governments: New York State Department of Transportation Region 7 Office of the Regional Maintenance Engineer. Cooperative Highway Services Case Study Report Number 6. Michael Hattery. Local Government Program, Department of Agricultural, Resource, and Managerial Economics, College of Agriculture and Life Sciences, Cornell University. December, 1996.

Recommendations for Legislative and Regulatory Change to Promote Highway Service Cooperation and Consolidation. Duane Wilcox, Michael Hattery, and Kevin Crawford. Local Government Program, Department of Agricultural, Resource, and Managerial Economics, College of Agriculture and Life Sciences, Cornell University. December, 1996.

Summary Report of Case Study Findings and Recommendations for Legislative and Regulatory Change. Michael Hattery. Local Government Program, Department of Agricultural, Resource, and Managerial Economics, College of Agriculture and Life Sciences, Cornell University. December, 1996.

Project Executive Summary. Michael Hattery. Local Government Program, Department of Agricultural, Resource, and Managerial Economics, College of Agriculture and Life Sciences, Cornell University. December, 1996

Appendix