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NATIONAL  
COOPERATIVE  
HIGHWAY  
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**SYNTHESIS 292**

## **Innovative Practices to Reduce Delivery Time for Right-of-Way in Project Development**

*A Synthesis of Highway Practice*

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## NCHRP SYNTHESIS 292

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# Innovative Practices to Reduce Delivery Time for Right-of-Way in Project Development

## *A Synthesis of Highway Practice*

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### SUBJECT AREAS

Planning and Administration

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Systematic, well-designed research provides the most effective approach to the solution of many problems facing highway administrators and engineers. Often, highway problems are of local interest and can best be studied by highway departments individually or in cooperation with their state universities and others. However, the accelerating growth of highway transportation develops increasingly complex problems of wide interest to highway authorities. These problems are best studied through a coordinated program of cooperative research.

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## **PREFACE**

A vast storehouse of information exists on nearly every subject of concern to highway administrators and engineers. Much of this information has resulted from both research and the successful application of solutions to the problems faced by practitioners in their daily work. Because previously there has been no systematic means for compiling such useful information and making it available to the entire community, the American Association of State Highway and Transportation Officials has, through the mechanism of the National Cooperative Highway Research Program, authorized the Transportation Research Board to undertake a continuing project to search out and synthesize useful knowledge from all available sources and to prepare documented reports on current practices in the subject areas of concern.

This synthesis series reports on various practices, making specific recommendations where appropriate but without the detailed directions usually found in handbooks or design manuals. Nonetheless, these documents can serve similar purposes, for each is a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems. The extent to which these reports are useful will be tempered by the user's knowledge and experience in the particular problem area.

## **FOREWORD**

*By Staff  
Transportation  
Research Board*

This synthesis report will be of interest to department of transportation administrators, supervisors, and staff, as well as to the consultants that work with them in the project development process. It examines the delivery of right-of-way and property interests for project construction and mitigation activities, and reports on successful strategies employed by agencies to accelerate this process. It summarizes current experience through a survey of state transportation agencies in the United States. In this synthesis study, it is reported that many states are structuring the project development process to include earlier effective participation of all preconstruction activities, including right-of-way. The framework for accomplishing this takes various forms, but usually includes use of project development teams. Such teams affirm that project development is an interrelated set of professional disciplines that must work as one system.

Administrators, engineers, and researchers are continually faced with highway problems on which much information exists, either in the form of reports or in terms of undocumented experience and practice. Unfortunately, this information often is scattered and unevaluated and, as a consequence, in seeking solutions, full information on what has been learned about a problem frequently is not assembled. Costly research findings may go unused, valuable experience may be overlooked, and full consideration may not be given to available practices for solving or alleviating the problem. In an effort to correct this situation, a continuing NCHRP project has the objective of reporting on common highway problems and synthesizing available information. The synthesis reports from this endeavor constitute an NCHRP publication series in which various forms of relevant information are assembled into single, concise documents pertaining to specific highway problems or sets of closely related problems.

This report of the Transportation Research Board contains examples of innovative project management undertaken in the states of California, Florida, Iowa, Utah, and

Washington. This is in addition to an Appendix containing 13 tables of detailed survey response information.

To develop this synthesis in a comprehensive manner and to ensure inclusion of significant knowledge, the available information was assembled from numerous sources, including a large number of state highway and transportation departments. A topic panel of experts in the subject area was established to guide the author's research in organizing and evaluating the collected data, and to review the final synthesis report.

This synthesis is an immediately useful document that records the practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As the processes of advancement continue, new knowledge can be expected to be added to that now at hand.



# INNOVATIVE PRACTICES TO REDUCE DELIVERY TIME FOR RIGHT-OF-WAY IN PROJECT DEVELOPMENT

## SUMMARY

In recent years the project development process has become more complex and costly, with increasing emphasis on social, economic, and environmental concerns. This has encouraged state transportation agencies to search for methods to make the process more efficient and effective. The right-of-way function is an important element in project development. This synthesis examines the delivery of right-of-way and property interests for project construction and mitigation activities and reports on successful strategies employed by agencies to accelerate this process.

The primary source for this report is a detailed survey mailed to right-of-way managers of transportation agencies in all 50 states, Puerto Rico, and the District of Columbia. Thirty-six agencies responded to the survey. Important supporting information resulted from a literature review. In addition, right-of-way managers in five states (California, Florida, Iowa, Utah, and Washington) provided detailed information in structured interviews about innovative and successful approaches that their agencies have implemented to advance the delivery of right-of-way.

The synthesis reports that many states are structuring the project development process to include earlier effective participation of all preconstruction functions, including right-of-way. The framework for accomplishing this takes various forms, but usually includes use of project development teams. Such teams affirm that project development is an interrelated set of professional disciplines that must work as one system. The component functions can be optimally effective if they act collaboratively and in parallel, rather than independently and sequentially. The functions of planning, environment, design, law, and right-of-way should be positioned and tasked in relation to each other in a way that best advances common goals and the mission of the agency.

Survey respondents (right-of-way managers) identified several factors that contribute to success in expediting delivery of right-of-way by participating in a systems approach to project development:

- Include right-of-way in setting and revising project schedules.
- Perform right-of-way activity as much as possible in parallel with other functions, rather than wait for a “hand-off” from an upstream function.
- Delegate authority for project decisions to project personnel, rather than retaining authority at a more remote level.
- Encourage a collaborative atmosphere, where actions that affect more than one discipline would receive full consideration from all affected parties.
- Train in new project development roles and relationships that extend beyond their traditional core job competencies.

Chapter 2 of this report presents an overview of the current state of the practice in right-of-way. This includes discussion of impediments to timely delivery. It also includes discussion of organizational structures in use that advance right-of-way delivery and operational practices that accelerate acquisition of real property. Chapter 3 presents an overview of the influence of laws, regulations, and agency policy on right-of-way delivery. Chapter 4 presents summaries of five states (California, Florida, Iowa, Utah, and Washington), relating their use of innovative property acquisition practices and effective organizational frameworks for project development.

Right-of-way managers report effective use of streamlined and simplified property acquisition practices. This includes such methods as advancing full property acquisitions before delivery of detailed design plans or waiving appraisals on low value uncomplicated acquisitions. Streamlined operational practices are facilitated by recent supportive influences. For example, federal right-of-way regulatory controls have become more flexible over the past several years. This allows states to develop policies that address unique conditions and reduces the need for prior approvals and detailed documentation. On the state level, managers are encouraging risk management. This permits the use of practices that result in significant time and cost savings, or improved quality when applied within the bounds of applicable law and regulations.

Some effective operational practices can only be implemented with the cooperation of other functions in the process. For instance, the use of abbreviated title searches or the waiver of releases from minor liens has been effective in several states. However, they can be used only with concurrence of the agency's legal counsel. The collaboration that accompanies a systems approach to project development can secure the involvement of all stakeholders in improving the process in which there is shared responsibility.

Survey respondents identified a wide range of barriers or obstacles to efficient right-of-way delivery. Many of these conditions are resolved or are mitigated in states that implement streamlined acquisition practices or innovative organizational structures for project development.

Chapter 5 presents a number of conclusions. The most significant in terms of a respondent ranking of its potential beneficial effect for right-of-way delivery is the need for expanded training of right-of-way personnel. This includes training in core skills such as appraisal and relocation. It also includes training in expanded roles such as consultant contract administration, team participation, and project administration.

## INTRODUCTION

The project development process has become more complex, with increasing emphasis on social, economic, and environmental concerns. Also, more time is required to complete the functions necessary to bring a transportation project to construction. The right-of-way function, as a critical element in project development, can contribute to making the process more efficient. This synthesis is a review of successful practices used by transportation agencies to expedite the acquisition of real estate needed for project construction. It also reports on strategies employed by transportation agencies to effectively position and coordinate right-of-way within the project development process in a way that best accomplishes the mission of the agency.

Certain unique and sensitive characteristics of the right-of-way function guide development of more effective strategies. Real property acquisition is a human and a social endeavor, as well as an administrative and legal process. No possession is closer to the emotions of most citizens than land and home. Ownership and possession is entrenched in human longings, particularly in our Western culture, and is protected by the 5th and 14th Amendments to the U.S. Constitution. The taking of property for public use is also controlled by legislated law and by regulation. In addition, right-of-way is a very sensitive function. The agency obligations to appraise and negotiate in good faith, to pay owners before taking possession, and to relocate displaced occupants are priorities that are not subordinate to a project schedule. Perceptions about the fairness of an agency's real estate process can directly influence public confidence in the agency itself. Notwithstanding this, the public has a right to expect that approved transportation improvements be completed expeditiously and at reasonable cost. Adoption of more effective right-of-way acquisition practices and project development strategies can expedite delivery of real property as well as enhance the overall quality and public confidence in the right-of-way acquisition process.

### PURPOSE AND SCOPE

This report will assist transportation agency administrators in identifying those practices and organizational structures that promote the efficient delivery of right-of-way needed for project construction. The emphasis is on identifying innovative and successful strategies currently being implemented by transportation agencies. The scope includes operational practices, which are generally within the control

of right-of-way management, and organizational structures and processes, which generally affect right-of-way and other organizational units in the agency.

An underlying presumption in addressing this subject is that right-of-way is one element within the unified preconstruction phase of project development. Any organizational changes aimed at improving right-of-way delivery also affect the other functions in the process. Many right-of-way operational practices also affect other functions. Any proposed change in the manner of accomplishing right-of-way delivery must be compatible with the goals of associated functions and advance the mission of the agency. The synthesis addresses this by reporting on strategies that have been implemented and found effective rather than proposed concepts. In addition, methods are presented in the context of accomplishing project development, rather than a narrower view of right-of-way as a stand-alone function.

The survey (see Methodology) conducted for this synthesis guided responding agencies to discuss the following topics of right-of-way delivery:

- The present role of right-of-way in planning and project development,
- Impediments to effective delivery of right-of-way,
- Successful operational practices that accelerate right-of-way delivery,
- Innovative project management measures that have reduced delivery time,
- Positioning of right-of-way within project planning or operation, and
- Practices beyond management control that effect the efficiency of right-of-way acquisition.

### METHODOLOGY

The primary data sources for this report are responses to a detailed survey questionnaire mailed to right-of-way divisions in 50 states, the District of Columbia, and Puerto Rico. The survey questionnaire is provided as Appendix A of this report. To obtain in-depth information on strategies reported in the survey, right-of-way managers in five states were interviewed about their successful strategies. A review of the literature provided important information that supplemented and reinforced survey data, and provided contextual and background information.

Responses were received from 36 transportation agencies. The list of respondents is presented as Appendix B. There was no discernable geographic pattern to the responses, and they appear to be representative of the full range of agencies in terms of agency size and program, population, and centralized versus decentralized right-of-way organization. In most agencies, the right-of-way director prepared the response. Responses varied in the level of detail and completeness of discussion. Many respondents provided extended discussion, which was valuable in developing the synthesis.

The survey responses were reduced to the set of tables presented as Appendix C. The tabulations enabled responses to be categorized for comparative analysis and common methods and practices to be easily identified. It was necessary to abbreviate responses to their essential content for tabular presentation. In addition, judgment was applied in categorizing the responses.

The right-of-way industry does not have common definitions for some frequently used terms; each state has its own informal lexicon. Survey responses indicate varied interpretations of questions, but this is not considered to have significantly affected the findings and conclusions of this report.

Extended interviews with right-of-way directors in five states provide depth and detail about the successful strategies they employ to accelerate right-of-way delivery. The information from these discussions is presented in summary form as models of innovative project management. The selection of these states was determined by their

successful strategies and is representative of varied program sizes and types.

The literature review started with a topic search for sources using the Transportation Research Information Service. Most material relating to right-of-way delivery is from the following industry sources: The proceedings of the annual AASHTO/FHWA Right-of-Way and Utilities Conferences; project development and quality reviews performed by several DOTs; the International Right-of-Way Association magazine *Right-of-Way*; and various papers developed by the FHWA Office of Real Estate Services on right-of-way acquisition practices. The body of literature that exists on this topic is not extensive, but is sufficient to add background and reinforcement to conclusions drawn from the survey responses and interviews.

## **ORGANIZATION**

Chapter 2 provides a comprehensive discussion of current practice in acquiring property for highway projects. This includes identification of barriers to efficient delivery, an analysis of the range of operational practices identified by survey respondents, and discussion of organizational positioning of right-of-way within the project development process. Chapter 3 discusses the influence of policy, regulations, and laws on right-of-way delivery, as reflected in survey responses. Chapter 4 sets forth the five state models (California, Florida, Iowa, Utah, and Washington) detailing organizational placement of right-of-way and use of effective practices. Chapter 5 presents conclusions and proposals for further research.

## STATE OF THE PRACTICE

The position of right-of-way within the transportation agency and the practices used to acquire real property have changed in many states. This has been a gradual evolution, driven by several influences. Agencies have adopted Total Quality Management (TQM) concepts, which have enhanced relationships among all organizational units and generally moved decision authority, including right-of-way, closer to the project. There has been a trend toward more flexible federal regulatory control in right-of-way programs. This has provided state right-of-way managers with greater latitude for developing practices that streamline property acquisition. An important influence is the increased willingness of managers to adopt effective and efficient practices that are tolerant of an acceptable degree of risk. An example is waiver of lien releases on low-value acquisitions. Previously, standard conservative (zero error) practice required property title to be clear of all encumbrances, without regard to the cost of achieving this title status.

This chapter presents a view of the current state of the practice in right-of-way, with special attention given to the use of organizational strategies and operational practices that accelerate the delivery of right-of-way. Impediments to efficient right-of-way delivery are also presented. Every responding state reported right-of-way delivery barriers; however, the specific impediments vary widely. These impediments represent challenges to future progress in accelerating right-of-way delivery.

### ROLE OF RIGHT-OF-WAY IN PROJECT DEVELOPMENT

Right-of-way is a component of the project development process; however, its position in that process varies among the states. The survey (question I) asked right-of-way administrators to describe the existing status of right-of-way in project development. The narrative responses were categorized into the following five levels of participation:

- Full involvement, from project inception in all relevant activities (12 states);
- Full involvement on large projects or in some districts (6 states);
- Limited, but significant, early participation (9 states);
- Participation in environmental stage (5 states); and
- Participation only on special request or for a limited purpose (5 states).

Refer to Appendix C, Tables 1 and 2, for a more complete summary of survey responses.

It is noteworthy that 27 (75 percent) of responding states report significant current right-of-way involvement in early project development. This corresponds to the first three levels in the aforementioned bulleted list. Twelve states (33 percent) reported participation at the highest level (first bulleted item). In their narrative responses, these states generally convey that there is either a formal team or an informal partnership approach to project development, in which right-of-way participates with the other preconstruction functions to reach a common goal.

Participation in project development from its inception offers the potential to consider right-of-way needs in setting project advertising and letting dates. However, early involvement does not always assure optimum influence in project scheduling. Some states report that the right-of-way process is not well coordinated with the project schedule or inadequate lead-time is an impediment to the delivery of right-of-way, although right-of-way participates in planning from project scoping (Connecticut, Florida, Ohio, Colorado, Idaho, and Virginia).

In New Jersey, early involvement of right-of-way had a generally beneficial effect: “Design has become more and more sensitive to ROW (right-of-way) impacts and the effect upon scheduling.” The benefits of early involvement may be indirect and not easily quantifiable, but they are real and contribute to the acceleration of the project development process.

Survey respondents noted that the value of right-of-way early involvement went well beyond facilitating the timely purchase of property. The practical expertise in land use and land economics, and field knowledge of project locations, can provide valuable early input, which assists in the identification of social and economic impacts. For example, information on minority or low-income concentrations, housing availability, and business displacement can influence both location and schedule decisions. Right-of-way field personnel may assist in identifying the presence of underground storage tanks, places of potential hazardous contamination, the effects of access changes, or partial acquisitions on land use. Contributions may also extend to the evaluation of the need for land service facilities, noise barriers, or decisions on partial versus total property acquisitions.

The survey responses indicate that agency administrators recognize that the right-of-way function should be

fully integrated with other activities in the project development process. However, many agencies have not yet achieved the full potential benefits of this integration.

### **BARRIERS TO RIGHT-OF-WAY DELIVERY**

The survey asked respondents to identify and describe conditions that currently impede the speedy delivery of right-of-way (question II). Ninety-five comments were received from the 36 respondents. The survey evaluation grouped similar responses into 15 categories, as shown on Appendix C, Table 3, and the following list:

- Late design and right-of-way plan changes and revisions (36 states, 100 percent);
- Environmental impediments (16 states);
- Unrealistic project schedules (15 states);
- Coordination problems between divisions and between agencies (13 states);
- Insufficient or inadequately trained right-of-way staff (12 states);
- State, local, or federal requirements, or political priorities (11 states);
- Consultant problems (9 states);
- Appraisal delays (8 states);
- Funding of projects (7 states);
- Relocation obstacles (6 states);
- Title problems (4 states);
- Courts and condemnation processes (4 states);
- Releases and title certification (3 states);
- Effective use of technology applications (3 states); and
- Other (2 states).

Question II cast a wide net. Many of the conditions perceived as impeding right-of-way delivery are outside the direct or exclusive authority of right-of-way or agency management. All comments were made from the perspective of right-of-way. Respondents were not asked to balance their comments with the interests or perspectives of other functions. The intent was to show the range and variety of barriers to right-of-way delivery. Responses reflect the interdependent relationship that exists among all functions in project development, including design, environment, and legal.

Individual impediment categories discussed here were selected because they relate to one or more practices that agencies successfully employ to accelerate right-of-way delivery. These practices are described later in this chapter.

#### **Impediments Relating to Design and Plan Changes and Revisions**

Every responding state (36) reported on some aspect of right-of-way's relationship to the development or delivery

of plans as impeding right-of-way delivery. This is the most pervasive of the impediment categories and the only one cited by every respondent. The following list is a sampling of comments regarding design and plan changes selected from survey responses:

- Poor design or ever changing design (Connecticut),
- Plan changes not received in a timely manner (Delaware),
- Plan revisions that require supplemental cultural surveys (Iowa),
- Right-of-way maps not received as scheduled (Louisiana),
- Design changes that result in new right-of-way acquisition (Illinois),
- Too frequent design revisions (Mississippi),
- On-time plan delivery (Missouri),
- Plans/plats not delivered on schedule (South Dakota), and
- Design changes—consultants do not perform as agreed (Nebraska).

Receipt of timely and accurate plans, with minimal changes, after submission to right-of-way, would facilitate right-of-way delivery. However, the complexity of the process as a whole has to be considered. A dynamic capital improvement program often requires that the latter stages of the design process be performed in parallel with early right-of-way appraisal or acquisition activity. Designers refine the plans and add detail as the project progresses and input is received from affected parties. The consequent reappraisal, renegotiations, and delays frustrate right-of-way managers and field personnel. The increasing importance of the environmental assessment process and the public involvement process only intensify this condition. Design changes for environmental mitigation or to relieve concerns, expressed at public hearing and meetings, frequently arise at a late stage in design and, consequently, affect right-of-way delivery.

Closer and earlier coordination among the component functions in project development can assist in overcoming this obstacle. Agencies that have right-of-way participation on project development teams bring a partnership relationship to the process that can minimize right-of-way/design conflicts. In addition, some states, through the use of interdisciplinary teams, are enabling acquisition that is better coordinated with the stage of plan development.

#### **Environmental Impediments**

Sixteen of the 36 survey respondents referred to environmental considerations as being a barrier to speedy right-of-way delivery. The respondents referred to a number of specific concerns, as indicated in the following sample of responses:

- Permits (404 permit, delineating wetland impacts) (Iowa),
- Identification of wetland and environmental needs (North Carolina),
- Awaiting environmental information (Colorado),
- Last minute requests for the purchase of wetland mitigation sites (Georgia), and
- Unrealistic schedules for addressing environmental issues (Kentucky).

The influence of environmental considerations as a barrier to efficient right-of-way delivery has two aspects. The first is that the time lag perceived by right-of-way in securing permits and clearances reduces the time available to perform the right-of-way process. The second is that environmental avoidance or mitigation measures often require property acquisition. These may be fee takes, or easements, or may involve acquisition of property rights remote from the project alignment. The extent of such work may not be fully known when project schedules are established, staffing is assigned, and time allotted for performance of right-of-way. In addition, right-of-way staff resources may not be matched to the timing of environmental permits and clearances, or the work necessary to acquire wetland replacement sites.

Environmental impediments to right-of-way delivery ultimately relate to issues of scheduling, coordination, and communication with the environmental function. In these responses, right-of-way is calling for reliable advance notice when resources are needed to acquire replacement wetland. In addition, right-of-way needs to know in advance how its schedule will be affected by delays in securing permits from the regulatory agencies.

### Project Schedule Impediments

Assignment of sufficient useable lead-time to perform the right-of-way process is a long-standing and widely reported issue. Establishing the project schedule is a function about which right-of-way organizations in many states felt they had insufficient input and influence. In 15 of 36 states, survey respondents report that unrealistic project schedules are an impediment to right-of-way delivery. Typical reported conditions regarding this element are provided here:

- Other functions do not understand the complexity and time required by right-of-way (Arizona),
- Right-of-way process was not scheduled when the delivery date was set (Colorado),
- Schedule slippage in other functions effects right-of-way (Florida, Georgia, and California),
- Right-of-way needs are not fully considered by management (Nevada),

- Tight delivery schedule results in increased cost (Florida), and
- Changing construction schedule priorities (Georgia, Oklahoma, and Washington).

Early involvement of right-of-way does not assure influence in setting project schedules. Of the 12 states reporting early involvement, 6 (Arizona, Colorado, Idaho, New Jersey, Oklahoma, and Virginia) report that project schedules are an impediment to right-of-way delivery. Notwithstanding, project schedules may have significantly benefited from right-of-way early involvement, even while it remains a problem area.

On an overall basis, project scheduling is cited as a problem by fewer than one-half of all responding states. This ratio, although large, may improve over time, because survey respondents report that there is generally more sensitivity now to the needs of right-of-way in project scheduling.

In evaluating project scheduling as a problem for right-of-way, it should not be presumed that the right-of-way voice is not heard within the agency. Several states report that scheduling is driven by external influences, including funding availability, local priorities and decisions on equity in capitol improvements for local communities, and the priorities of legislative committees and elected officials. These factors are not assessed in this synthesis.

Overly tight project schedules sometimes cause construction projects to be awarded before the completion of right-of-way acquisition. Higher construction costs may result, because contractors increase their bids to reflect the potential unavailability of right-of-way.

The Florida survey response discusses the effect of restricted project schedules in terms of right-of-way quality and cost of resources:

... if a condition occurs which would be expected to impede project delivery time (such as late changes in plans or right-of-way maps), Right-of-way normally maintains schedule and adjusts by means of additional expenditures to consultants etc., to make rapid changes to appraisals, negotiations, law suits etc.

Several survey respondents (Florida, Georgia, and California) report that when slippage occurs in other functions it reduces the effective lead-time available to right-of-way. As the last link in the chain before construction, right-of-way managers often feel they do not have effective use or control of the assigned schedule time. This problem has been mitigated in some states with a collaborative relationship among the parties. An effort is made to perform functions in parallel rather than sequentially, while communicating to avoid conflicting actions or wasteful efforts.

The trade-off of quality in order to meet project schedules is a concern of right-of-way managers. Urgency to meet project schedules can increase pressure to settle with owners at higher than appraised value, or to cut negotiations short and file for condemnation when an amicable settlement is reachable. Such expedients tend to erode public confidence in the equity of the property acquisition program.

Right-of-way operational quality as related to project schedules is a process issue. The project development process must be examined in total to reach conclusions on right-of-way as one of its organizational components.

The statutory and regulatory requirements affecting right-of-way in the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (The Uniform Act) and corresponding state laws allow for little or no flexibility in meeting preset schedules. This includes requirements for relocation notices, bona fide negotiations, appraisal and establishment of fair market value, and condemnation notices. The need to comply with statutory mandates increases pressure to compromise on those cost and quality elements discussed previously.

#### **Funding, Laws, and Condemnation**

Fifteen respondents commented on a variety of impediments that are substantially or wholly external to the control of agency management. Results are shown in Appendix C, Table 3, in the categories of Funding (7 states), Laws and political impediments (11 states), and Condemnation (4 states). Several states reported in more than one category.

Some of the reported conditions are unique to the reporting agency or state. Others reflect conditions that are accepted public policy or are established in law. Although they impede right-of-way delivery, for the most part, they are accepted as part of the challenging legislative, judicial, or political environment in which real property is acquired for transportation projects.

#### **Operational Impediments**

Nineteen of the 36 responding states reported one or more of the right-of-way functional elements that are barriers to right-of-way delivery. These are summarized in the following four categories:

- Appraisal delays (eight states);
- Relocation obstacles (six states);
- Title problems, including lien releases (four states); and
- Consultant problems (nine states).

These items are operational barriers within the scope of the right-of-way function. However, a distinction must be made between items under management control and those that result from the constraints of law and public policy. Some reported barriers in this class referred to requirements of law and regulations, such as replacement housing availability or environmental studies.

#### **EFFECTIVE OPERATING PRACTICES**

Over the past several years state transportation agencies have initiated a wide range of innovative practices designed to improve the quality, effectiveness, and timeliness of right-of-way operations. This has been supported by a general relaxation in the formerly very structured and detailed federal regulations controlling right-of-way purchased for federal-aid projects. Most states have used one or more of these practices for a significant enough period of time to allow for conclusions to be reached about their effectiveness. The survey queried respondents on practices in use and asked them to rank their effectiveness in expediting the delivery of right-of-way within project operations. A list of nine specific practices was offered for ranking. The questionnaire provided four effectiveness levels, ranging from very useful to not useful. In addition to the nine specified practices, respondents were asked to include and rank other practices that they had implemented. Eighteen additional practices were addressed.

Table 1 is a summary of the results of the survey and the ranking of the effectiveness of existing practices. Each of the operational practices enumerated in the top part of Table 1 is discussed in the following paragraphs, in the order of their relative effectiveness in accelerating right-of-way delivery, as ranked by survey respondents.

#### **Staff Training**

Training is ranked as the most effective practice to accelerate right-of-way delivery. Thirty-four agencies responded to this item. No “not useful” (level 4) ratings were assigned. Fourteen respondents ranked training as “very useful” (level 1), 14 as “somewhat useful” (level 2), and 6 as “useful” (level 3).

The traditional training provided to right-of-way personnel has been concentrated in the core skill competencies of Appraisal, Relocation, Negotiations, and Property Management. Over the past several years there has been increasing recognition by right-of-way management of a need for training in project management, consultant contract administration, information technology, and team participation, in addition to the core skills. This is expressed



TABLE 1  
EFFECTIVENESS OF EXISTING PRACTICES IN ACCELERATING RIGHT-OF-WAY DELIVERY (SURVEY QUESTION III)

No.	Practice in Use	State																				Average	Relative Rank																																			
		Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Florida	Georgia	Idaho	Illinois	Iowa	Kansas	Kentucky	Louisiana	Michigan	Minnesota	Mississippi	Missouri	N. Carolina			N. Dakota	Nebraska	Nevada	New Jersey	New York	Ohio	Oklahoma	Pennsylvania	Rhode Island	S. Dakota	S. Carolina	Tennessee	Utah	Virginia	Washington	Wisconsin																			
1	Staff training	2	2	2	1	2	1	1	3	1	2	1	1	3	2	1	2	2	1	2	2	3		2	1	3	2	3	3	2		1	2	1	1	1	1	1.76	1																			
2	Expanded administrative settlements	2	2	1		2	2	1	3	2	2	2	1	3	2	1	2	1	1	2	1	3	2	1	1	3	2	2	3	3	2	2	1	1	1	3	1	1.83	2																			
3	Prequalification of consultants		2	1		2	1	2	3	1	2	1		3		2	3	3	1	3	1	3	3	1	3	3	3	3	3		3		1	1	1	2	1	2.07	3																			
4	Use of right-of-way consultants	3	3	4		2	3	2	3	2	3	1	2	3	1	2	2	3	1	2	1	3	3	1	3	3	2	2	2		3	1	1	1	2	2	2	2.18	4																			
5	Release waivers		3	1			4	3	3	1	3		4	3	2	1	1	2	3		1	2			1	3	3	2		3	2	2	2	1	2	1	2.18	5																				
6	Appraisal modifications	3	3	2	3		4	1	3	1	3		4	3	1	2	2	2	2	1	2	2		2	1	3	2	3		2	2	2	2	2	2	1	2.23	6																				
7	Appraisal review modifications	3	3	2	3		2	1	3	2	3		4		2		2	1	1	2	3		1	3	2	3		3	2	3	3	2	2	2	2	2	2.31	7																				
8	Public information programs		3	1	3	3	2	1	3	3	3	3	1	3		4	3	3	3	3	4	3		1	2	3	2	4	4	2		3	3	1	3	3	2	2.57	8																			
9	Mediation	4	4				4		3	3	3		4				3	2	2		1				3		3		3			4	1		3		2.94	9																				
<b>Other Practices</b>																																																										
A	Advance acquisition of total takes in corridor		1																																																							
B	Project teams												1																																													
C	Protective renting										1																																															
D	Minimal appraisal procedure											1																																														
E	Minimum damage assessment																																																									
F	Negotiation by mail																																																									
G	Contracting specific problem areas																																																									
H	Computer training																																																									
I	Comprehen. written apprais. assignments																																																									
J	Quality assurance																																																									
K	Document waivers---minor takings																																																									
L	Separate negotiator from reloca. personnel																																																									
M	Staff experience level																																																									
N	Early right-of-way involvement																																																									
O	Right-of-way estimates																																																									
P	Early utility involvement																																																									
Q	Exemption agreement with FHWA																																																									
R	Consultant resource manager																																																									
S	Pre-approved descriptions																																																									
T	Design/build																																																									

Lower Average is Better

Note: Key—1 = Very useful—reducing right-of-way delivery time by more than 6 months; 2 = Somewhat useful—reducing right-of-way delivery time by less than 6 months; 3 = Useful—good practice, but not significant reduction in right-of-way delivery time; and 4 = Not useful—no measurable impact on right-of-way delivery.

in a report prepared by the FHWA (1), and addressed at the 1999 AASHTO annual right-of-way conference (2). The comments of survey respondents indicate that right-of-way personnel are more involved in project teams, managing contracted services, and managing schedules, and are improving the quality of record keeping, communications, and decisions with new technology products. Some respondents note the need for training in various skills that extend beyond real estate topics. They consider it important that training include the full range of knowledge and skills now expected of right-of-way personnel. However, there is no less a need to maintain competency in the core skill areas. Correspondingly, states reported on the impact of recent losses of experienced staff through retirement and normal attrition. The replenishment of right-of-way skills is a constant need. It is also primarily an agency and an industry endeavor, because these subjects are not often on a college curriculum.

The primary sources of right-of-way training are the International Right-of-Way Association (IRWA); the FHWA, through its National Highway Institute; the Appraisal Institute; and AASHTO. Each has played an important role in maintaining the knowledge base of right-of-way personnel. Federal transportation acts have provided formula allocations to reimburse states for training of staff personnel. Training opportunities have recently been enhanced by a partnering agreement between the FHWA and the IRWA. This agreement will assist in coordinating training offered by both providers. It is also intended to make training more accessible and to embrace new and emerging technologies (3).

The Transportation Equity Act for the 21st Century (TEA-21) has significantly increased funding available for agency staff, including right-of-way personnel (4). One-half of one percent of a state's Surface Transportation Program (STP) funds may be used for payment not to exceed 80 percent of training cost, including travel and subsistence expenses. Previously, funding was limited to one-sixteenth of one percent of STP funds and did not include travel and subsistence. In addition, transportation agencies may now claim federal reimbursement for indirect training costs, including salaries (5).

Survey response comments identify insufficient and inadequately trained right-of-way staff as a serious impediment to speedy delivery of right-of-way. Training is a budget-constrained activity for many agencies. Training needs in all organizational specialties, including right-of-way, are balanced with course funding availability. The recent significant increase in available federal funding support and the new coordinated approach to right-of-way training between the FHWA and the IRWA are positive developments. Right-of-way managers also expressed, through their survey responses, a need for a

broader scope of training to support accelerated right-of-way delivery practices.

### **Expanded Use of Administrative Settlements**

An administrative settlement is any agreement to purchase that exceeds the agency's approved valuation of just compensation. This is a longstanding practice designed to encourage settlements. Generally, its use had been reserved for very exceptional cases, and was used late in the life of a project to avoid the appearance of inequitable treatment of owners. The survey indicates that agencies now use administrative settlement more routinely and find it a valuable practice that expedites acquisition. Thirty-five responding agencies addressed this method and cumulatively assigned it the second highest value rank of the nine practices offered for evaluation. There were no negative ratings (level 4, not useful) assigned. Twenty-eight of the 35 respondents ranked administrative settlements as either very useful or somewhat useful, with 13 assigning it the highest ranking (very useful). It is clear that this practice is widely used and highly regarded as effective in expediting right-of-way delivery.

The FHWA is supportive of the carefully considered use of administrative settlements. Its *Right-of-Way Project Development Guide* (6) recognizes that the expediency of project completion and/or cost savings is a justification for administrative settlements. The guide refers to the legislative history of the Uniform Act, which indicates that offers should not reflect a "take it or leave it position." Also, negotiations are emphasized in the Uniform Act, and this implies an honest effort by the acquiring agency to resolve differences with property owners. It is evident that the surveyed states share this position.

### **Prequalification and Use of Right-of-Way Consultants**

Eight respondents assigned the highest ranking of "1" (very useful) to the use of consultants in expediting right-of-way delivery. Thirteen respondents ranked consultant use at "2" (somewhat useful), 12 assigned a ranking of "3" (useful, but not significant in reducing delivery time), and only 1 ranked consultant use at "4" (not useful). The responses reflect divergent views, with the majority (21 of 34) gravitating to the two middle levels of effectiveness. It would be useful as follow-up research to identify the factors determining successful use of consultants.

When addressing the successful practice of prequalification, responses were equally varied, but with a higher average ranking. There were 30 responses, with 11 rankings of "1" (highest), 6 of "2," 13 of "3," and none of "4" (lowest).

It is evident that there is a great deal of ambivalence about the use of consultants and their value in accelerating right-of-way delivery. The comments suggest that right-of-way managers would prefer to have sufficient and adequately trained staff than to contract work to consultants. However, there is perceived to be a difference among states as to how they integrate consultant use into their program mission. Some agencies use consultants in relocation, acquisition, and appraisal review to accommodate workload peaks and temporary staffing inadequacies. Others use consultants on a routine basis to accomplish their mission. The latter group is more likely to have the capacity to select, direct, monitor, and evaluate consultants and thus use them in a more effective and productive manner.

A concern expressed in different ways by several respondents is that consultants do not have the desired level of experience and familiarity with state procedures. This relates to the need for training of consultant staff. Consultant firms have acknowledged such a need. At a 1998, AASHTO/FHWA conference, Connie W. Williford of Allen, Williford & Seale, Inc. (a right-of-way consultant firm) stated, "I believe it is incumbent on both the agency and consultants to pursue training opportunities for their personnel" (7). Williford goes on to encourage the use of existing training providers. In addition, he proposes that agency staff conduct 1- or 2-day in-house sessions designed around the procedures of that particular office (7).

As agencies increase their reliance on consultants to provide a broad range of right-of-way services, the skill level of consultant staffs will become a more urgent topic. In view of the acknowledged need for training by both agencies and consultants, agencies may find it beneficial to have some type of industry-wide exchange to develop methods of advancing the skill level of right-of-way consultant staffs.

The respondents' varied ranking of the effectiveness of the use of consultants, and the value of consultant prequalification, can be understood more clearly in relation to the impediments concerning staffing and consultant use that were discussed previously in this chapter. Twelve states reported right-of-way staffing inadequacies, and nine states reported consultant problems of various types (late delivery, poor preparation, etc.). It appears that there are common problems affecting right-of-way delivery with regard to both agency staff and consultant personnel resources. With increasing agency use of consultants there is a need for further examination of their qualifications, use, and performance evaluation.

#### **Lien Release Waivers**

In the past, transportation agencies had commonly taken a very conservative approach to assuring that the public

received clear and unencumbered title to property acquired for projects. This included the general practice of securing releases from mortgagees and other lien holders before accepting title, without regard to the value of the property or the risk exposure to the agency. This often involved time delays and increased acquisition costs, when lien holders were difficult to contact or reluctant to grant releases, and in some cases charged extraordinarily high fees. Many agencies are now more flexible and selective in requiring releases. On small partial acquisitions or low-value acquisitions releases may be waived as a cost-effective and a managed-risk measure.

Twenty-seven agencies evaluated the practice of increased release waivers. Eight assigned the highest (1, very useful) effectiveness ranking and two the lowest (4, not useful). Eight respondents ranked this practice as "2" (somewhat useful) and eight more ranked this at "3" (useful). Overall, this practice is considered very useful in reducing right-of-way delivery time. It is important to note however that agency policy on titles is usually a responsibility of agency legal staff.

#### **Appraisal and Appraisal Review Modifications**

In 1998, the FHWA invited states to request authority to increase the value threshold (from \$2,500 up to \$10,000) at which an appraisal would be required on federally funded projects. Thirty-six states have since received approval to modify their policies for appraisal waiver (8), thus reducing appraisals required on low-value acquisitions.

In addition to the appraisal waiver, many states have adopted levels of appraisal documentation, allowing for simplified appraisals on noncomplex or lower-value acquisitions. There have been changes in the appraisal review function as well, with some states having consultants perform appraisal reviews. California's appraisal process allows for very low-value properties to be evaluated on the basis of value findings, with a single agent responsible for establishing a minimal value, documenting the value, and for making the acquisition offer on nominal takes (see chapter 4).

Overall, appraisal and appraisal review modification practices received a positive ranking from 30 respondents. Only two agencies assigned either of these items the lowest ranking (level 4), and seven agencies assigned either or both the highest ranking (level 1). Nineteen responding agencies ranked appraisal and/or appraisal review modifications as somewhat useful (level 2), and 11 found them to be useful (level 3). The survey questionnaire assigned separate consideration to appraisal and to appraisal review, but the activities are closely related. The respondent rankings are, therefore, combined in this assessment. It is

concluded that simplified appraisal and appraisal review processes are, overall, effective practices in accelerating right-of-way delivery.

It should be noted that there was some ambiguity in the phrasing of this question element in the questionnaire. The word “modifications” is not used by all right-of-way organizations and may be interpreted in various ways.

### **Public Information Programs**

This practice received a relatively low effectiveness ranking from 32 responding agencies. Five respondents assigned it the highest ranking of “1” (very useful), 5 the ranking of “2” (somewhat useful), 18 the ranking “3” (useful), and 4 assigned it the ranking of “4” (not useful).

The significance of the rankings should be thoughtfully considered. Public information programs were not defined in the survey, leaving respondents to address a general concept. The various individual practices included in the concept might have received different evaluation rankings if considered separately. For instance, public meetings, mailings, the distribution of brochures, and surveys are distinct public information practices that might draw varying evaluations. Also, respondents were asked to address the value of public information programs as they relate to right-of-way delivery. Respondents who assigned such programs a low ranking may have assigned them a higher ranking if the question related to another objective, such as public support for the project.

In the past several years, right-of-way managers have used post-acquisition property owner and occupant mail surveys. Some of these have arisen from agency TQM programs. These have generally received positive reports from agencies that have used them. AASHTO conference panelist Rod Hill, Chief of Real Estate, Delaware DOT, commented that post-acquisition customer surveys are very effective provided that they are simple, have clear instructions, and be convenient to return (9).

### **Mediation**

Mediation is the most widely used alternative dispute resolution method for settlement of value issues with property owners. Agencies and property owners have found it helpful in avoiding the time and expense of litigation. The successful use of mediation has the important public benefit of reducing congestion in the courts. The FHWA encourages consideration of mediation in its program guidance (10) and the topic has been favorably reported in presentations at annual AASHTO Right-of-Way and Utility Subcommittee conferences (11,12).

The survey responses indicate that agencies generally do not consider mediation to be a valuable and effective tool in accelerating right-of-way delivery. Mediation drew the lowest response and the lowest ranking of the nine practices offered for consideration. Only 2 of the 17 responses assigned a high “very useful” rating (level 1). Two other respondents rated mediation as “somewhat useful” (level 2), and the remaining responses were in the lower two effectiveness ratings; 5 of the 17 respondents rating mediation as “not useful” (level 4) and 8 ranking this practice as “useful” (level 3).

A distinction is useful in interpreting the data on mediation. The survey addressed its value in advancing right-of-way delivery, which is the sole focus of this synthesis. It did not rank highly for this purpose. The survey did not address the value of mediation as a tool to resolve value disputes, to retain amicable relations with citizens, to avoid litigation costs, or to relieve court congestion. In addition, mediation should be assessed in the context of an agency’s acquisition process. Some states use mediation after the initiation of condemnation and after the agency has legal possession or title to the property. Sometimes the court orders pre-trial mediation to minimize the necessity for a trial. Use of mediation in this way does not affect right-of-way delivery, although it may result in other benefits. In addition, states that have “quick take” laws may take possession of property before vesting title if certain protections are met (such as full payment to the owner).

The relatively low ranking assigned by survey respondents to mediation is not considered a judgment on the overall value of the concept. However, it is clearly not highly regarded by most agencies in accelerating right-of-way delivery.

### **Other Practices**

Fourteen responding agencies proposed 21 additional practices as having value in accelerating the delivery of right-of-way. The following list identifies the practices and the agencies using each practice:

- Advance acquisition of total takes in corridor (Arizona and Utah)
- Protective renting (Georgia and Utah)
- Project teams (Iowa and Utah)
- Minimal appraisal procedure (Illinois, Pennsylvania, and Utah)
- Negotiation by mail (Louisiana, Rhode Island, and Utah)
- Minimum damage assessment process (Minnesota)
- Contracting specific problem areas (Mississippi and Utah)
- Computer training (Mississippi)

- Comprehensive written appraisal assignments (Missouri)
- Quality assurance (Missouri)
- Document waivers—minor takes (Missouri and Utah)
- Separate negotiations/relocation personnel (Missouri and Utah)
- Staff experience level (Nevada)
- Early right-of-way involvement (North Dakota and Utah)
- Early right-of-way estimates (North Dakota)
- Early utility involvement (Ohio)
- Exemption agreement with the FHWA (Pennsylvania)
- Consultant resource manager (Utah)
- Plan preparers do titles (Ohio)
- Pre-approved descriptions (Ohio)
- Design/build (Utah).

The broad range of practices in use indicates the high level of interest in flexible and innovative property acquisition methods. State DOTs are taking varied and positive actions to expedite right-of-way delivery. The list and survey comments suggest that states are simplifying their processes, improving coordination with other functions, and performing tasks earlier in the project development process.

These “other practices” were provided in response to an open question, as opposed to the nine practices that respondents were asked to specifically address and rank as to their effectiveness (see the upper portion of Table 1). It is likely that some practices are more prevalent than is reflected in the survey. For instance, members of the Synthesis Technical Panel agreed that protective rental of multi-tenanted property (such as apartment buildings) is a more common practice than identified by survey respondents. In addition, it is effective in preventing benefit eligible displacements before property is acquired. The list indicates the range of effective practices in use, rather than an exclusive list of the agencies that use the practices.

In survey questions IV-4, -5, -6, and -7, respondents were asked to identify their *most* effective, and *least* effective, right-of-way delivery techniques. They were asked to focus on techniques that effected acquisition delivery time, reducing right-of-way acquisition, and reducing right-of-way delivery time. The overlap of these topics with the above operational practices (survey question III) generated some repeat responses. However, it afforded some respondents an opportunity to extend their remarks on operational delivery and to provide some context and background. Responses also provided some insight into the relationship between operational practices and organizational relationships with other preconstruction functions. Appendix C, Table 9, presents a summary of these responses.

The responses on effectiveness of delivery techniques indicate that operational practices to accelerate right-of-

way are most effective where there is support of, and interaction and coordination with, the planning, design, and legal functions. For example, in Arizona, delivery has benefited from making total acquisitions before design completion. This is made possible by the design division setting right-of-way limits early and not changing them. Arkansas relates the importance of right-of-way participation in field inspections and early design sessions. This allows sensitive or critical tracts to be identified and acquired early. Georgia considers it important for right-of-way to attend the design field plan review. Virginia emphasized the importance of right-of-way involvement in project location and design. Many comments referred to the importance of coordination with design function. However, states also related the importance of flexibility in titles and securing lien releases. This is possible only if there is effective coordination with the agency’s legal division.

The respondents, in describing the operational practices they find valuable, emphasize the importance of teamwork, common agreement on goals, and coordination among all components of the project development process. Accelerated right-of-way acquisition is not achieved by right-of-way acting in isolation from other preconstruction functions.

#### **INNOVATIVE PROJECT ORGANIZATIONAL STRUCTURES**

Survey responses indicate that state transportation agencies have adapted to increasing program complexities by developing new, more effective, project development frameworks. Organizational changes are supported by reductions in federal regulatory controls, renewed discipline in prioritizing projects, emphasis on TQM concepts, privatization of services and functions, and reductions in agency staffing levels. All function managers, including right-of-way, have to get more and better quality results with the resources available. Organizational restructuring has helped the right-of-way units in many agencies accomplish on-time delivery of right-of-way. Timely delivery is increasingly important because contracts have penalty and incentive clauses, and scheduling and budgeting tools are becoming more precise.

Survey responses reflect the recognition that right-of-way and other project development functions cannot operate effectively in isolation, handing off their work product to the next downstream activity. Project development is accepted as a collaborative process. Many agencies have adopted a team approach to project development, in which all parties are full and equal partners working toward a common goal.

Transportation agency and right-of-way management respond to right-of-way delivery challenges with a variety

of organizational strategies. Coordination with other functions in the project development process is encouraged and communications strengthened. Improved project scheduling methods have allowed for meaningful and realistic dates to be set and reexamined at project milestones. Flexible, self-directed project teams have broad authority for project delivery. In addition, right-of-way managers are making more efficient use of project lead-time by using innovative operational practices, such as single agent appraisal/acquire, appraisal waiver, fast approval administrative settlements, and lien release waiver.

Innovative and effective organizational structures are being advanced by management reviews and programs based on the TQM concept. Right-of-way divisions in Florida, Louisiana, Oregon, Pennsylvania, and Wisconsin have each initiated a broad scope and ongoing formal process focusing on quality, best practices, and continuous improvement in their management systems (13). The survey response from California reports, "Implementing Total Quality Management has had the greatest impact on improving the processes relating to the acquisition of right-of-way."

Some right-of-way divisions have participated in departmental quality efforts that have resulted in effective right-of-way participation earlier in the project development process. Others have improved the level of coordination and communication with specific functions (planning, design, utilities, etc.) in the preconstruction process. The following discussion describes the range of organizational frameworks and methods that state transportation agencies are using to accelerate the acquisition of right-of-way or better synchronize right-of-way acquisition with the overall project schedule. The survey responses on which this discussion is based are summarized on Appendix C, Tables 4–7.

### **Innovative Project Planning**

Survey responses indicate that right-of-way organizations are becoming involved in early project development as full partners with the traditional project development functions of planning, design, and environment and utilities. Right-of-way participation generally is by means of membership on a multidisciplinary team, which has responsibility for all development activities up to advertising for construction. Right-of-way contributes more fully in the development process within this framework. Traditional tasks such as developing property cost estimates and conceptual relocation studies are performed earlier. This enables right-of-way to align more closely with project goals and to consider the right-of-way impacts of the full range of transportation alternatives being considered. Early right-of-way involvement has other benefits: affected properties can be evaluated as to the sufficiency of remaining access, more

realistic project schedules and costs can be developed, and environmental issues involving property (wetlands or property contamination) can be resolved earlier. In addition, design modifications can be proposed that preserve utility or minimize damages to property. Public participation is enhanced when right-of-way representatives are involved with or have knowledge of the broad scope of project planning and the alternatives under study.

Responses from states that are using the team approach to project development suggest that it generates a sense of involvement toward a collective goal. This contrasts with the traditional approach in which right-of-way may perform property cost or relocation estimates of proposed alternate alignments on request, but is otherwise not involved in project planning. Under the traditional approach, the plans are "handed off" to right-of-way toward the end of project development. The right-of-way tasks of appraisal, acquisition, and relocation are performed with little or no input as to the setting of project schedules, the development of right-of-way plans, and early identification of critical parcels. These are elements important to the timely delivery of right-of-way and are influential in improving the overall quality of the project development process.

The survey questionnaire asked respondents to identify and discuss the use of a multidisciplinary team (with responsibilities for project development) to determine the best methods of project delivery (survey question IV-1). Related questions queried agencies on the use of a comprehensive management organization on projects, or new or innovative scheduling techniques (survey questions IV-2 and IV-3). Twenty-five states reported using one or more of these three approaches. A sample of the comments is presented here. Appendix C, Tables 5, 6, and 7 provide a detailed summary of agency responses on this topic.

- Delaware—Uses team approach to project scheduling. Dates for each function to be completed are mapped out. Resulted in right-of-way meeting 90 percent of advertised dates.
- Florida—Some districts have multifunctional project teams that are responsible for all phases of project development. Right-of-way participates fully. DOT embraces the concept, but the use is a district option on a pilot basis. Good reports have come from districts that have adopted the concept.
- Missouri—Project manager assembles a team at project initiation. Right-of-way is responsible for recognizing right-of-way issues and bringing solutions to the team.
- New Jersey—Interdisciplinary team includes right-of-way in scoping process; determines best alternative to progress toward construction.
- Pennsylvania—All functional specialties are on a multitask team. The approach is too new to have

measurable results, but is not expected to reduce right-of-way delivery time.

- Rhode Island—Being used for the first time. Includes engineering, right-of-way, project planning, and construction. Project is not complete.
- South Carolina—Management organization team is responsible for all aspects of the project.
- Tennessee—Management team concept under a project manager. Currently in proof-of-concept stage, with results expected in late 2000.

The survey responses indicate that respondents (right-of-way division directors) are positive and supportive of the team approach to project development or scheduling. However, six agencies report that the team concept has not been in effect long enough to provide a definitive evaluation of success. Delaware reports a positive outcome as to scheduling (see above). Florida has established teams in several districts and reports favorably:

Reports from right-of-way managers in districts using such teams are very favorable, in that, while additional time is spent in team meetings, significant benefits seem to be derived in improvement of right-of-way quality by having the proper functional experts available to comment on emerging problem issues and decisions made throughout project development.

The AASHTO Right-of-Way Committee addressed project development issues at their 1999 annual conference. The summary of panelist remarks noted, “Right-of-way should be involved in early project development process to identify property and business owner impacts. Milestone dates for project must be realistic and developed from early input . . .” (14).

The responses addressing the team approach should be evaluated in relation to agency responses to survey question I, which concerns the early involvement of right-of-way in project development and planning (not necessarily in a team approach). This topic, discussed earlier in this chapter, indicates that early right-of-way involvement in project development has not assured right-of-way influence in setting the schedule for construction contract award. It is too early to determine whether project development teams will be effective in giving meaningful input to right-of-way in project scheduling. Notwithstanding, survey responses reflect that right-of-way participation project development teams offer benefits beyond scheduling. Also, as the concept matures and participants gain experience in working together there may be opportunities for benefits to evolve and develop. There is, in general, a positive expectation by survey respondents.

### **The Right-of-Way Project Team**

As reported previously, states are developing more inclusive project development structures that involve right-of-

way in full partnership with other functions from project inception. A partnership or team concept is also being used within the right-of-way function during the active right-of-way project stage. The survey indicates that some departments are assigning all authority, responsibility, and accountability for delivery of the project to self-managed project teams. The teams may be exclusively comprised of the right-of-way functions of appraisal, acquisition, relocation and property management under a project right-of-way manager. Alternatively, right-of-way project operations may be combined with other early project development functions under an overall project manager. The purpose is to improve the operational efficiency of right-of-way and enhance coordination and communication among right-of-way, planning, design, environment, and construction during the active right-of-way stage.

The traditional structure for right-of-way acquisition has many limitations and shortcomings. The operational right-of-way staff receives work assignments from district level or central office management. Authority to make project decisions is retained at a level above project operations. Right-of-way becomes involved when the project is “handed off” by delivery of right-of-way plans, which right-of-way may have had little or no involvement in developing. Higher management determines the project schedule. There may be little opportunity for communication on the operating level between right-of-way and design. Coordination among the functions is at the management level and problem solving is thus more remote and less timely and responsive. Right-of-way delivery under the traditional approach suffers from the long chain of command, lack of personal accountability, and inadequate coordination.

Eight of 36 responding states report that right-of-way projects are delivered by multidisciplinary project teams that have broad authority for project delivery. Adoption is not total within these states. Most departments that use this structure are proceeding on a pilot program basis or use it in certain districts or on high-level projects. There are few formal evaluations; however, survey respondents report favorably on the concept.

A summary of the characteristics of each state’s practice is provided here (also refer to Appendix C, Tables 6 and 7). The comments are summarized from survey responses.

- Arizona—Project coordinators orchestrate and monitor right-of-way activities.
- California—The knowledge required to develop and deliver a completed project resides in the team. Eliminated formal “hand-offs.”
- Georgia—All activities are managed by a single level manager, which allows a better overall view and control of the project. Each team member participates in appraisal, relocation, and negotiations.

- Kansas—Team-approach pilot project within right-of-way only. Overall it went well. There was better communication between sections.
- Michigan—Included all right-of-way functions. Team was successful; no waiting for key people to do their tasks.
- Minnesota—Pilot self-directed work team included appraisal, relocation, legal, acquisition, and management.
- Ohio—All right-of-way disciplines are represented. Manager helps formulate work plans, but agents largely determine how to best clear a given project. Concept has been in use for 2 years.
- Utah—UDOT has project manager structure. A right-of-way lead person is assigned at the project development stage. The project team controls from inception through construction. It establishes responsibility and gives authority to achieve success.
- Virginia—Team includes relocation, appraisal, negotiations, good will, and legal (current owner rundowns only). Project manager knows scope, schedule, and resources, resulting in better planning operations and reduced time.

The use of self-directed project teams assumes that the staff members assigned to the teams have a level of knowledge, experience, and self-motivation that enables them to perform with minimal direct supervision. Under this concept, authority is delegated to the team level that had traditionally been held by district management or at the central office level. It is significant that none of the responding states reported that competence or motivation of assigned staff was a problem. However, Minnesota reported that “. . . a whole new organization and training would have to occur for complete success.” Employee training and experience was previously noted as a major impediment to right-of-way delivery by many respondents. This indicates that insufficient training may limit the extension of the concept to general program use. Responses suggest that right-of-way organizations recognize a need to support professional staff with sufficient and varied training including team participation, project management, and technology.

California found that the value of their team extended beyond the expeditious performance of right-of-way acquisition:

The advantage to right-of-way for working on this multi-skilled team is that it actually saved right-of-way work from being done, i.e., a right-of-way agent, designer, and survey person completed survey work together, thereby being able to perform design changes in the field during the survey and eliminating acquisition of property rights, and possibly redoing survey work after design was set in the office.

The experience of Kansas reflects the value of setting reasonable and reachable goals in the project team approach: “This group’s goal was to meet regarding delivery time. The goal was not to get done early, but on time. We did not reduce

the time, but delivered the product on time.” It is worthwhile for a state DOT to consider the value of setting achievable goals in implementing a new program concept. Standards and expectations can be set higher after a new concept has proved its basic worth on a pilot program or trial basis.

Several states related the reasons for the success of their project team approach. The California respondent made the following concluding observation:

Very successful because the right-of-way agent did not have to make hand offs to other right-of-way functional units, nor wait for approvals. It’s amazing how a day here and day there adds up to weeks and sometimes months.

In addition to delegating decision authority to teams, states are also empowering individual professional employees to make decisions that will advance settlement with property owners. Arizona has delegated this authority, but also emphasizes accountability, in a context of improving quality in right-of-way. This was expressed by Julie B. Burnside at the 1996 AASHTO Right-of-Way Conference: “At ADOT we have empowered our R/W (right-of-way) agents through delegation of authority to administratively, within set limits settle in the field. Please note that when you empower you are simultaneously making the employee accountable” (15). California has also delegated increased authority to individual right-of-way agents in implementing their Appraise/Acquire Single Agent concept (see chapter 4 for details about their process).

Increased delegation of authority to teams and to individuals, with consequent reduced supervisory control and oversight, necessarily implies confidence in the skill level of employees. Agencies that are successful with authority delegation will offer training opportunities commensurate to increased responsibilities.

### **Project Scheduling**

Project schedules have long been a challenge for right-of-way organizations. One problem has been that right-of-way needs are often not adequately considered in setting schedules. Transportation program priority, and thus scheduling, is a function of funding availability, statewide and local transportation priorities, and public demand, expressed through the political process. Time required to perform the right-of-way functions of appraisal, acquisition, relocation, titles, and eminent domain has always been a consideration. However, a standard “rule of thumb” period is often assigned, which does not reflect the complexities and unique characteristics of individual projects or the right-of-way staff resources available to meet the preset schedules.

In recent years, because there has been meaningful, earlier involvement of right-of-way in project development, project schedules have tended to reflect realistic time requirements



and unique project needs. Scheduling in many transportation departments involves participation of all functions, including right-of-way. Each function “buys into” or commits to performance on a schedule that takes into account reasonable needs of all parties. This is a sound concept that sometimes does not fulfill its promise and intent. Right-of-way is the most downstream preconstruction activity. When there is a delay in one of the upstream functions, there may not be a revision to the master schedule, and right-of-way may absorb the lost time. Alternatively, delays may occur from the premature hand off of plans that require modifications and corrections based on conditions discovered during the active right-of-way stage.

Survey question IV-3 asked for comments on new or innovative project scheduling techniques. Nineteen states reported on their scheduling practices. Responses are summarized in Appendix C, Table 7. The number of states reporting new administrative practices for scheduling reflects the high level of interest and attention this topic is receiving in state transportation agencies.

The following practices and methods are the more significant or innovative among those reported by agencies responding to survey question IV-3.

- California—Uses software products Primavera, MS Project, WPS, and WEN for scheduling and resource planning needs. The learning curve for these products has been difficult.
- Colorado—Status report for all 35 projects with monthly right-of-way unit meetings to track progress. Good detail provided to right-of-way and engineers.
- Connecticut—Continuous communication with design unit, with written reports to assure progress. Team atmosphere has reduced misunderstandings.
- Delaware—Team approach to scheduling advertising dates. All functions meet to map critical dates for each project: plans, appraisals, acquisition, etc. The approach has helped right-of-way meet 90 percent of scheduled advertised dates.
- Georgia—Concentrates resources at critical phases to avoid conflicts. Appraisal review and acquisition monitored to reduce wasteful effort. Results in faster delivery of product to customer.
- Iowa—Currently has team developing production scheduling system. Too early to assess value.
- Mississippi—Parcel tracking by personal computer requires extensive data entry. Benefits are offset by agent time required for data entry.
- New Jersey—Primavera software used for scheduling identifies critical path activities. Did not meet full expectations for more realistic schedules.
- North Dakota—Milestone Committee schedules and monitors deadlines of all DOT project functions. Projected and actual delivery dates are tracked.

- Oklahoma—Law permits consultant to administer right-of-way clearance and issue utility work orders based on anticipated legal entry; 2 to 3 months cut from right-of-way and utility clearance.
- Pennsylvania—Started using Welcom software for scheduling and workload management. No assessment yet.
- Utah—Program management system implemented. Elements are scope, schedule, and budget. Quality product delivered on time and within budget.
- Virginia—Developed multidisciplinary activities rather than linear. Not sufficient control in previous interdisciplinary areas. No assessment yet.
- Washington—“REACT” (Real Estate Acquisition Team) management review indicates opportunity to run more activities in parallel rather than sequentially. Not yet fully implemented.

The practices are in two broad categories, coordination strategies (Connecticut, Delaware, Georgia, North Dakota, Colorado, Oklahoma, Utah, Washington, and Virginia) and computer-aided scheduling (California, New Jersey, Mississippi, and Pennsylvania). The computer scheduling approaches have generally not met expectations (Pennsylvania has not yet assessed its outcome). Mississippi reports that the demands on staff for data entry are burdensome, with 10 to 15 percent of agent time occupied in maintaining the parcel data information. Although the overall assessment of computer-aided scheduling may presently be disappointing, benefits may arise over the long term, as states modify their systems and practices and improvements are made in software products.

The consultants for Boston’s Central Artery/Tunnel project use Primavera Systems, Inc., scheduling product to manage an integrated schedule containing more than 10,000 activities. Organized in 10 separate subprojects, the schedule matches design, construction, permits, right-of-way, and right-of-way remediation work with the appropriate responsible personnel. A Novell local network connected through a combination of T-1 (high speed) communications lines and frame relay circuits provides field office access throughout Boston and is a critical component of the cost and schedule system (16).

The survey clearly reflects the value of approaches based on enhanced communication and coordination among the organizational units involved in preconstruction. Activities such as team scheduling, status meetings, assigned accountability, and performing activities in parallel rather than sequentially are all successful practices. Although these approaches are not “innovative” in the general sense, it is clear that many transportation agencies are routinely using good management practices to improve the quality of project scheduling. The use of computer-based scheduling products may eventually yield similar

benefits with further advancement in software products or as staff familiarity with the technology improves.

#### EARLY PROJECT PRACTICES TO IMPROVE DELIVERY

Transportation agencies are using a range of methods to make the most productive use of time assigned for the performance of right-of-way activities. Productivity enhancement practices include evaluation of land uses in setting acquisition priorities, protective purchase, corridor preservation, early project planning, and more effective operating practices. These topics are addressed by survey questions IV-3f, -3g, and -3h, and IV-4. Appendix C, Tables 8 and 9, summarize the early acquisition practices reported by the 36 responding states.

The following is a listing of practices reported by 22 states:

- Arizona—Corridor preservation; coordinates with local agencies.
- California—Corridor preservation; works with Transportation Planning; uses a variety of means, including donations, dedications, and advance purchase.
- Colorado—Advance acquisition; use when possible.
- Connecticut—Corridor preservation; legislature authorized on one project.
- Delaware—Corridor preservation and advance acquisition; planning function.
- Florida—Advance acquisition and bond-financed corridor preservation fund. Mandated building setbacks under maps of reservation rejected in state court.
- Georgia—Protective purchase; use when development threatens corridor.
- Iowa—Protective and hardship purchase; early identification of issues sensitive to owners.
- Kentucky—Advance acquisition of parcels that are being prepared for development.
- Michigan—Corridor preservation; dedicated fund for corridor protection.
- Missouri—Protective and hardship purchase.
- Nevada—Advance acquisition; right-of-way corridors shown on planning maps.
- New Jersey—Advance acquisition based on circumstances; not used aggressively.
- North Carolina—Corridor map protection law; NCDOT has 3 years to acquire after a building permit application is filed.
- Ohio—Advance acquisition, if environmental assessment is advanced.
- Oklahoma—Corridor preservation; used on rural corridor to forestall housing development.
- Rhode Island—Access management; program now being developed.

- South Carolina—Advance acquisition.
- Utah—Corridor preservation; access management now being developed.
- Virginia—Protective purchase; use on limited basis.
- Washington—Protective purchase; dedicated \$10 million fund.
- Wisconsin—Advance acquisition; use on parcel basis.

The terms used by respondents to describe their practices were retained in this list. States that report corridor preservation do not use a common definition for this term. It may indicate an entire corridor purchase, but may, for some states, indicate advance purchases of one or more parcels on a proposed project. As promulgated by the FHWA, hardship and protective purchase are activities that support corridor preservation (17).

Advance acquisition is an important and often-used method to expedite right-of-way delivery. Although protective and hardship purchase has always been a program option, use had been restricted when federal regulations required case-by-case justification and pre-approval on federal projects. More states are now using advance acquisition as a program tool for efficient right-of-way delivery.

Three states have dedicated funds for advance acquisition and/or corridor preservation (Appendix C, Table 8). Washington State has a \$10 million fund for protective acquisition. Florida has a bond-financed fund that has been used to acquire right-of-way in advance of the normal acquisition schedule for corridor preservation. Michigan also uses a dedicated fund for corridor preservation. The experience of Florida in restricting development on identified highway corridors may be cautionary to other states considering an aggressive regulatory approach to corridor preservation:

Florida established maps of reservation by state law. These maps, when filed in the public records, established a mandatory building setback line from the project, thereby reserving a right-of-way corridor. This process was found to be unconstitutional by the Florida Supreme Court and has therefore, been discontinued. Therefore, the only effective FDOT means of corridor preservation is advance right-of-way acquisition. Effective comprehensive planning by local governments can also be useful for this purpose, but FDOT must be careful not to recommend that local government take actions which could constitute an unlawful regulatory taking since liability for such action would shift to FDOT.

Increasingly, state right-of-way divisions do formal early corridor evaluations and prioritize property acquisition based on land use. This can make effective use of a tight schedule by early allocation of the necessary resources to be directed at difficult or complex cases. In particular, identification of difficult relocation cases can provide the time required to implement replacement housing solutions.

Survey respondents report (Appendix C, Table 8) that early project land-use evaluation practices assist the acceleration of right-of-way delivery. Eight states (Arkansas, Florida, Iowa, Nevada, New Jersey, Rhode Island, Utah, and Virginia) involve right-of-way personnel in the evaluation of corridors. The more important activities are:

- Attend field inspections and early design meetings,
- Identify utilities and environmental concerns,
- Assess business and residential displacement,
- Inventory existing land use, and
- Identify advance acquisition opportunities.

Most right-of-way personnel are involved in corridor evaluations at a level beyond the traditional role of estimating property acquisition costs and reporting potential relocation cases. The involvement can be effective in assuring that right-of-way needs are adequately reflected in the project schedule, and that acquisition and relocation staff resources are assigned to deliver right-of-way within the schedule that is established. Perhaps more importantly, right-of-way involvement in corridor evaluations enables faster advancement of the project as a whole, because issues in all functions are addressed sooner in the process than would otherwise occur.

Few responding states commented specifically on the relationship of land use and project scheduling. However, the indicated strong use of advance acquisition practices (22 of 36 responses) reflects that land use is an important factor in the managing of the project schedule. In particular, advance acquisition is always in anticipation of a land-use change or development. It is reasonable to expect that right-of-way managers are alert to the potential effects of land use on schedules and attempt to prioritize and time acquisition.

#### **REPOSITIONING RIGHT-OF-WAY IN THE PLANNING OR OPERATION OF A PROJECT**

Surveyed agencies were asked if they had positioned the right-of-way function differently within the planning and operation of any project (survey question V). This question drew responses from 15 of the 36 states. It was aimed at identifying new or innovative organizational relationships that had a beneficial effect in accelerating right-of-way delivery on particular projects. Appendix C, Table 10, summarizes these responses. Significant measures taken by eight states are presented here:

- Illinois—Appraisal data collection is done before the appraisal authorization. Reduced appraisal time on a high-profile project.
- Kentucky—Right-of-way subcontracted under design contract on three rural fast-track projects; now proceeding successfully. Personnel and fees were approved by Kentucky DOT.

- Michigan—Purchased total takes in advance of plan completion on interchange project.
- Mississippi—Secured superior field surveys and saved months from acquisition because rework of instruments is not needed; saved 2 to 3 months.
- Ohio—Advance right-of-way acquisition to earlier stage of plan development. Useful on small noncomplex projects inasmuch as negotiator may not have all information on project effects.
- Oklahoma—All right-of-way elements privatized and administered by a consultant firm that manages subcontracts for right-of-way. Consultants have broader responsibility.
- Rhode Island—Close coordination with design enabled parcels to be identified for earlier acquisition. Also a project subcontracted under design for right-of-way.
- South Carolina—Right-of-way subcontracted under design contract. Penalties and bonuses for right-of-way costs exceeding or underrunning estimates.
- Utah—Right-of-way subcontracted under design.

None of the responding agencies reported major repositioning in terms of the organization structure of the agency. Repositioning took two paths. One was the contracting of right-of-way operations in a “turnkey” manner. Right-of-way was a subcontract under the design engineering contract. This would constitute a repositioning for the DOT right-of-way unit insofar as right-of-way operations had previously been performed and managed by agency staff. Kentucky, Rhode Island, and Utah reported subcontracting. Oklahoma has contracted for right-of-way project managers that subcontract performance of right-of-way functions

The second repositioning strategy is the closer association of right-of-way with the agency design division concerning specific projects. This took the form of a team approach in Florida and Tennessee and was a less formal association in Nevada, Rhode Island, and Ohio (see Appendix C, Table 10). In Illinois and Michigan, right-of-way appraisal data, or appraisals and/or acquisition were performed earlier in the process. Although not specifically stated, this may also have been the outcome of closer and more effective coordination. Mississippi benefited from highly accurate and timely survey work that allowed expedited acquisition on the project.

The responses to survey question V should be interpreted in reference to related survey question IV. In combination, they indicate a strong momentum toward integrating right-of-way in the project development process from the inception of planning.

Right-of-way is not a freestanding or isolated function. It is a component of a larger interrelated system. The survey indicates that the system is the entity that must be optimized

to benefit the mission of the agency rather than its individual components. The state responses indicate that close coordination among all participants in project development

and stronger integration of right-of-way with other project development units will be most effective in advancing the transportation mission.

## INFLUENCE OF LAWS, REGULATIONS, AND POLICY ON RIGHT-OF-WAY DELIVERY

Laws, regulatory authorities, and public policy on the federal and the state level control right-of-way acquisition and related practices. Law and regulation are generally outside management control, yet have great influence on right-of-way delivery. An assessment of these influences will be useful in defining the boundaries and limits of change in developing strategies to accelerate right-of-way delivery.

### FEDERAL LAWS

The Uniform Relocation Act is the primary federal legislation controlling right-of-way practice. Each state has a corresponding law, and some have provisions that are more restrictive on the administration of right-of-way than the Uniform Act. In addition, various federal environmental laws directly affect right-of-way practice in a way that presents challenges to right-of-way delivery. The following is a summary of salient features of federal laws and their effect on right-of-way delivery (18).

#### **Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (amended 1986) (CERCLA)**

Often referred to as the “superfund” law, CERCLA provides mechanisms for the identification of contaminated sites and responsible parties, as well as accountability and performance of cleanup and monitoring. The feature of CERCLA that affects right-of-way is the broad scope of liability for contamination of properties acquired. Acquiring agencies have added the Phase I Environmental Assessment as an initial step in the acquisition process. The purpose is to identify any potential contamination. The finding of significant contamination may require remediation, which can greatly increase property cost or cause the project to be redesigned to avoid contaminated property.

#### **Brownfield Legislation**

Enacted in individual states, “Brownfield” laws provide for U.S. Environmental Protection Agency acceptance of state standards for cleanup of contaminated sites. This has enabled redevelopment of contaminated property. Implementation has presented complexities in appraisal of property. These relate to the valuation of the “stigma” effect on remedied sites and the difficulty of finding local comparable

sales data for these sites. The presence of a “Brownfield” on a proposed alignment does not cause it to be avoided. In May 1997, FHWA Director of Right-of-Way Barbara Orski, speaking at an AASHTO right-of-way conference, stated: “FHWA will issue guidance to state and local planning bodies that contaminated property need not be excluded from location decisions solely on the basis of its contamination if the use of such property for a transportation improvement is consistent with and supports the goals and objectives articulated in ISTEA” (19). This represents a shift in FHWA policy from endeavoring to avoid contaminated sites to a risk management approach that considers the circumstances in each project situation. The later position is based on the premise that in some cases there is public benefit in the reuse of Brownfield areas if they can be remediated at reasonable cost.

#### **Resource Conservation and Recovery Act of 1976 (RCRA), Amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA)**

This law concerns currently produced waste, rather than past contamination. The acquisition of property is complicated and delivery for the project potentially delayed by the strict requirements for transport, treatment, storage, and disposal of hazardous waste.

The Hazardous and Solid Waste Amendments of 1984 require inspection, removal, and soil remediation and monitoring of sites containing underground storage tanks. The presence of underground storage tanks is pervasive and often not recorded in public records. Identification requires detailed field inspections, often performed by, or in cooperation with, right-of-way personnel during the environmental assessment.

#### **Clean Air Act (CAA)**

Under the Clean Air Act asbestos is regulated as a hazardous substance. Asbestos abatement has become an added step in the delivery of a clear right-of-way for construction.

A March 2, 1999, decision by the U.S. Court of Appeals for the District of Columbia Circuit relating to Clean Air conformity has been implemented by agreeing to discontinue right-of-way acquisition and design during conformity

lapse. Future construction activities can also be affected (20).

### **1996 Telecommunications Act**

The 1996 Telecommunications Act provided the potential for shared real property resources between the ground transportation and telecommunications industries. Important contributing factors to the new legislation included revised federal policies on utility accommodation on highway right-of-way and the AASHTO Board Resolution of 1995 (21). Partnering agreements often provide significant cash revenues or in-kind services for state use, such as phone airtime or optic fiber.

Partnering and real property resource sharing with telecommunications has increased state right-of-way staff workload. Richard Bennett, Assistant Director of Right-of-Way and Utilities Division, Virginia DOT, stated that “. . . the greatest burden upon VDOT has been manpower requirements—both in negotiating and reviewing the actual agreements, as well as the engineering time for site review” (22). Mr. Bennett follows this remark by acknowledging the overriding value to the state of the installed technology. However, it does have a right-of-way delivery impact insofar as it is a priority call on limited right-of-way staff resources.

### **Transportation Equity Act of 1998 (TEA-21)**

TEA-21 authorizes the federal surface transportation programs for the 6-year period, 1998 to 2003. This law provides states and local agencies with greater flexibility in acquiring and managing real property to support transportation systems.

TEA-21, Section 1303, allows states and local governments to retain income from the sale, use, or lease of property previously acquired with federal funds, if the income is used for Title 23 eligible projects. Also, TEA-21, Section 1301, permits states credit toward the non-federal share of project costs when state or locally owned lands are incorporated into a federally funded project. These provisions are opportunities for states to leverage their transportation investments in federally funded projects. In addition, the provision amending 23 USC 108 encourages the use of advance acquisition and corridor preservation. These practices contribute to the expeditious delivery of right-of-way needed for highway construction.

### **REGULATORY CONTROLS**

The federal and state regulatory structures controlling right-of-way are extensive, reflecting the influences described

in chapter 1. In recent years, there has been significant flexibility in the federal regulations controlling appraisals and acquisition. Previously prohibited or restricted practices subject to prior federal concurrence are now state options. Effective practices such as administrative settlements and appraisal waivers (see chapter 2) have been widely adopted, and there is a stronger consideration of innovative practices, such as California’s single agent appraise/acquire policy (see chapter 4). Changes in the federal and state regulatory environments are important influences enabling timely delivery of right-of-way to meet tight project construction schedules.

Strict state policies limiting the authority of field-level right-of-way personnel are being relaxed. Field personnel in some states now have more authority to resolve issues as they arise (California and Ohio). There is less emphasis on looking “in the book,” or sending the issue up for a supervisory, or central office, determination. States are applying principles of TQM in reviewing existing policies (including Iowa, Oklahoma, Washington, Arkansas, and Ohio). These reviews emphasize concepts of identification of goals, continuous improvement, devolution of authority to lower levels, and personal accountability.

Several DOTs operate under laws that require strict administrative rules, such as owner notifications, bona fide negotiations (New Jersey), or reimbursement for owner costs in adversarial actions with the agency (Florida). Such requirements are not regarded as advancing right-of-way delivery. Legislatures protect the broad public interest, welfare, and constitutionally protected private property rights. They look beyond agency program efficiencies to do so.

### **SURVEY RESPONSES ON LAW, REGULATION, AND POLICY**

Twenty-seven of the 36 responding state DOTs commented on laws, regulations, or formal policies that reduce right-of-way project activity (survey question VI and Appendix C, Table 12). Reflecting overlaps, 8 states commented on regulations, 13 commented on policy, and 15 discussed the influence of state or federal law. Comments addressed elements that aided or expedited program delivery, as well as impediments to right-of-way delivery. Several respondents also commented on right-of-way interactions with other functions. The relationship of right-of-way delivery to other functions involved in the process was addressed previously and is not developed further in this section.

### **State Laws Influencing Right-of-Way Delivery**

Four states reported recent laws, interpretations, or special provisions of law that assisted in the delivery of right-of-way. These are summarized here:

- Arizona—Advance funding of total takes; enabled accelerated acquisition in corridor.
- Connecticut—Authorized acquisition for the preservation of a highway corridor.
- North Carolina—Corridor map protection law; provides 3-year window for acquisition before a local agency may grant a permit to develop.
- Wisconsin—Contracting services under alternate chapter of law; districts will not have to bid every contract and can hire from a list of those qualified.

It is significant that three of the four references enable early acquisition or corridor preservation. The survey indicates that more legislatures are providing their transportation agencies with the authority to use corridor preservation.

In 1988, the FHWA recognized the benefits of this concept and encouraged approaches designed to preserve corridors and provide for earlier right-of-way acquisition (23). In 1990, AASHTO issued a report that identified several benefits and recommended the use of corridor preservation by its member transportation agencies (24). Recent legislative enactments and the use of advance acquisition in many states (see Appendix C, Tables 11 and 12) indicate a broad acceptance of early acquisition and corridor preservation in the industry.

Twelve respondents referred to state laws or court rulings that they perceived as barriers to reducing right-of-way delivery time. These covered a broad range of topics, as indicated in these selected items:

- Collection of taxes from out-of-state owners before payment for acquisition (Rhode Island);
- May condemn for highway purpose, but not for broader transportation purpose (Colorado);
- Maps of reservation for corridor protection ruled unconstitutional (Florida);
- Requirement that DOT pay owner's court costs and attorney fees (Florida);
- Employee starting salaries not competitive (Georgia);
- Requires 60-day notice before a complaint for condemnation is filed (Illinois);
- Replacement required for wetland on pre-existing highway right-of-way (North Dakota);
- Requirement for bona fide negotiations, with conservative legal oversight, requires cases to be in negotiations longer (New Jersey);
- Restrictive environmental requirements (Ohio); and
- Larger service contracts require bids by Department of Administration (Rhode Island).

These items are concerns that are specific to each responding DOT. A dominant pattern is not evident.

Many perceived barriers to efficient right-of-way delivery arising from regulation or law reflect the public will acting through the legislative process. The respondents are addressing impact on right-of-way delivery, and not necessarily commenting on the propriety of laws or recommending change.

### Regulatory Influences in Right-of-Way Delivery

Eight state respondents commented on regulatory influences in right-of-way delivery. Four responses specifically identified the increased use of the appraisal waiver provision for low value and uncomplicated acquisitions as a positive influence on right-of-way delivery (many other states noted this as effective with no comment—see Appendix C, Table 3). Throughout the responses to several questions in the survey were comments reflecting innovative practices that are enabled by more flexible regulations. Among the items mentioned were:

- Waiving mortgage releases,
- Single agent appraise/acquire,
- Delivery of payment voucher when offer accepted by owner,
- Title search limited to last owner,
- Title review by agent rather than attorney title certificate,
- Title insurance rather than search and certification (reduces staff time),
- Increased use of modified appraisal formats, and
- Offers by mail with telephone and personal follow-up.

The survey shows that more expedited practices are gaining in acceptance in the industry and are moving into the mainstream of practice.

Five respondents noted regulatory provisions that they regard as inhibiting the delivery of right-of-way.

- Complex contracting process for right-of-way services;
- Required mortgage releases for low-value takes;
- Record of Decision before acquisition is authorized;
- Need to streamline relocation process; and
- FHWA requirement for purchase and removal, rather than relocating, nonconforming signs on proposed right-of-way (state interpretation).

The first two bulleted items refer to state regulatory restrictions. The remaining are federal or federal/state requirements. The several comments on regulatory impediments that do not refer to specific regulations may reflect a frustration with the complexity of the process, rather than an assessment of the value of a specific regulatory requirement.

The FHWA, in its role as Lead Agency under the Uniform Relocation Act, monitors implementation of 49 CFR 24. Regulatory changes or interpretations that would simplify or improve flexibility in implementing this regulation are considered. One important interpretive change, as reported in chapter 2, is to regularly approve state application for the waiver of the \$2,500 value ceiling above which a formal appraisal is required.

### Policy in Right-of-Way Delivery

There is overlap in making any distinction of policy from regulation. The characteristic that warrants separate consideration from regulatory requirements is that policies are the lowest level of controlling authority. They are generally within the power of the issuing office to modify, except insofar as they implement specific requirements in regulations or statutes. As regulatory requirements become more flexible and less restrictive, policies initiated within right-of-way organizations become more important. Effective policies align agency actions to its mission and legislative enactments and, therefore, are important in discussion of right-of-way delivery.

Survey respondents indicated that transportation agencies increasingly use the flexibility in regulations to establish policies that meet state needs. Respondents noted the following items as policies that accelerated the delivery of right-of-way.

- Raising appraisal waiver amount (range of \$2,500 to \$10,000 noted),
- Acquiring total takes before plans are complete,
- Coordinating with local agencies on controlling corridor development,
- Authorizing field personnel to initiate administrative settlements (range of \$1,000 or 15 percent to a maximum of \$5,000), and
- Requiring mortgage/lien releases only on higher value acquisitions.

The survey responses reflect that state DOT right-of-way units are delegating more decision authority to project level personnel and applying controls at higher cost levels (increased limits for appraisal waivers). This represents a broad acceptance and use of risk management principles to reach a balance between efficient right-of-way operations and the responsibility to protect public funds. States are reaching this balance in various ways and risk comfort levels.

Survey responses noted that some policies that influence right-of-way delivery are unique internal agency or state policies. These policies are not specifically noted in this review, because they are not seen as relevant except to the affected state.

### RECENT FEDERAL REGULATORY CHANGES

Amendments to the regulation controlling federally assisted transportation programs administered under Title 23, US Code, were published in the *Federal Register* on December 21, 1999, with an effective date of January 20, 2000. The survey for this report preceded the publication date of the final rule. However, the regulatory changes address right-of-way delivery issues previously identified by the states.

The amended rule (25) clarifies and reduces federal regulatory requirements and places primary responsibility for a number of approval actions at the state level. The key provisions are summarized here:

- Detailed federal rules are replaced by a provision that will allow states to describe their acquisition process in a state manual to be approved by the FHWA. Once approved, the state manual will be self-certified every 5 years.
- Provisions in the revised regulation reduce the level of federal oversight, required recordkeeping, and mandated reporting.
- Federal reimbursement is extended for acquisition costs beyond the present limit of “generally compensable” costs. This will allow reimbursement for costs mandated by state law or court decisions that are not compensable nationally.
- Air rights guidelines will be maintained on the Internet.
- Property disposals or other use of right-of-way on non-Interstate highways will no longer require federal concurrence. Instead, the state right-of-way manual will specify procedures for the leasing, maintenance, and disposal of property rights, including access control.
- The value of property acquired before federal project agreement, including locally owned property, can be credited to the non-federal share of project cost. Conditions relating to the environmental process must have been met.

The federal regulatory changes offer significant opportunity for expediting right-of-way delivery by increasing flexibility to states in how they use federal funds for right-of-way, and by reducing federal oversight and approvals.

### PROPOSAL TO STUDY ADEQUACY OF BUSINESS RELOCATION BENEFITS

The Uniform Act specifies ceiling amounts for certain residential and business relocation benefits. This act was last amended in 1986. The issue of the adequacy of business relocation benefits was raised at the 1999 meeting of the Right-of-Way directors. Forty-three states were



represented at the meeting. An FHWA representative also attended. In response to state's concerns, it was reported that the FHWA will start a study on adequacy of business benefits (26). The study was in progress at the time of the preparation of this synthesis report. Uniform Act benefits are very important in motivating acquired businesses to vacate right-of-way. A particular concern is the adequacy

of the \$10,000 limit for business reestablishment. Any change may require an amendment to the Uniform Act or revision of existing regulations, or both. It is inappropriate to speculate on the outcome of the ongoing study or any prospective amendment to the Uniform Act. It is reported here to provide a complete record of activities underway that affect right-of-way delivery.

## MODELS OF INNOVATIVE PROJECT MANAGEMENT

As related in chapter 2, many transportation agencies have put new and innovative management structures in service that advance project development and accelerate the right-of-way process. In addition, right-of-way divisions in these agencies have implemented operational practices that expedite real property acquisition and relocation, thereby enabling timely delivery of property rights needed for project construction. This chapter summarizes the organizational and operational measures undertaken by the following five states:

- California—Multifunctional teams control projects from inception through delivery. Teams are self-directed and empowered to make decisions.
- Florida—Project management teams, with structure determined by each district. Several teams have comprehensive responsibility for project management and inclusive multifunctional participation, including right-of-way.
- Iowa—Project management teams with right-of-way participation arose from a departmental review of project development. Streamlined “Can Do” process has improved scheduling, coordination, and information flow.
- Utah—Program management system focuses on scope, schedule, and budget. Right-of-way participates on the team that controls project from planning through construction.
- Washington—Real Estate Acquisition Team (REACT) comprehensively examined right-of-way process and included stakeholder review. This resulted in a better understanding by other disciplines of project development and inclusion in project scheduling and design process.

Each of the five states has developed specific, effective practices that enhance right-of-way delivery and support project development. The summaries that follow identify and discuss these practices, their benefits, and success, as well as remaining challenges.

### CALIFORNIA—INTERDISCIPLINARY TEAMS IN PROJECT DEVELOPMENT AND STREAMLINING THE APPRAISAL/ACQUISITION PROCESS

#### Summary

The California DOT (Caltrans) has established Multifunctional Project Delivery teams to guide projects through

the development process. Each team includes Right-of-Way, Design, Environment, Surveys, and Construction. The multiskilled team approach has been very successful. Preliminary indications show 50 percent savings in time and support costs to deliver a project to construction. In addition, one region has established Right-of-Way Project Delivery Teams, which encompass project coordination, appraisals, acquisition, relocation, and utilities.

Caltrans has streamlined and simplified its acquisition process for parcels under \$10,000 by eliminating multiple approvals and excessive supporting data for parcels that qualify. The practice, called the “Appraise/Acquire Single Agent Process,” limits involvement in the preparation, review, and approval process to a single Right-of-Way Agent and one senior Right-of-Way Agent. Further abbreviated measures are applicable to parcels with a value under \$2,500.

#### Multidisciplinary Project Delivery Teams

In 1994, California recognized that insufficient right-of-way involvement in early project development was impeding project delivery. To resolve this issue, project delivery teams were established to include all involved functions, including right-of-way. A right-of-way representative is designated at the initiation of a project and attends all project delivery meetings. Issues relating to relocation, property cost estimates, and damages are identified and addressed. Alternative alignments are examined for comparative cost and impact. The right-of-way representative directs the relocation studies and characterization of displacees for various project impact statements. Rights of entry are obtained for the purpose of environmental investigation.

Caltrans finds that their team approach significantly reduces planning time and results in cost savings. Prior to the team approach, information and activities passed from department to department, but were often dropped or miscommunicated. The team approach has resolved this difficulty, because it has the authority and accountability for the timelines and the quality of the process. Right-of-way input to the design phase has produced cost savings by preventing the need for redesign. The early contacts with property owners reported through the team also enables a better initial design, reducing design cost and increasing settlements.

A Right-of-Way Project Delivery Team has been established in one Caltrans region. The team takes ownership of

all right-of-way activities on the project, as opposed to the traditional structure of each function (appraisal, relocation, etc.) reporting independently to a separate supervisory office. The benefits realized by the team include increased productivity, more effective use of staff resources, better problem solving, and better quality product and services. However, Caltrans recognizes that the use of a team structure is a single project trial. This approach may not always be the most effective use of staff resources, particularly on projects involving complex appraisal issues or other complex demands.

### **Appraise/Acquire Single Agent Process**

The Single Agent Appraise/Acquire Process is realizing significant savings in operational costs and improved settlement rates, and is providing improved service to property owners. The concept is applicable to properties where the acquisition cost will be less than \$10,000, not including nonsignificant construction contract work. It is useful for the many small takings required by roadway widening, drainage, or noise wall projects. The process has been successfully used in over 400 acquisitions.

Under this concept one experienced agent researches title information, prepares the damage valuation (non-complex appraisal), negotiates, and settles with the owner. These activities are completed under the supervision and approval of a senior Right-of-Way Agent. Second level approvals are not required. Support for the value is provided and retained in the project file.

Where the acquisition value is \$2,500 or less, additional economies are included in the process. Current owner data are obtained from public records or a title company. Title is taken subject to any existing liens as a reasonable risk tolerance and cost saving measure. A brief narrative and photograph in the agent's log document the offer and settlement amount. The final valuation is sometimes deferred until after the owner contact, because the agent may be conferred authority to raise an initial offer with justification.

### **One Call Agent**

The One Call Agent process is a further extension of the Appraise/Acquire Single Agent process. It enables the agent to issue a check to an owner for compensation of up to \$500. The grantor can be paid during the initial call for very minor takings. The minimal value is documented in the same manner as described previously for Single Agent Appraise/Acquire. Pilot programs for the concept were undertaken in two locations for 6-month periods and proved to be very successful. The agents found that not only did it expedite the payment process, but it also saved a number

of trips. In addition, the process strengthened credibility and trust with the property owner.

The One Call Agent process was converted from a pilot program to statewide use in July 1999. Consideration is being given to increasing the ceiling amount to \$2,500 for a period of 6 months, in contemplation of further incremental increases to \$10,000.

These streamlined acquisition practices represent a risk tolerance that is justified by the economies and service quality improvement. Caltrans has worked closely with the Department of Finance and the Department of the Board of Control and has begun the process of modifying the applicable State Rule to implement the actions being considered.

The success of the expedited acquisition process is dependent on its implementation by a highly trained and experienced professional Caltrans right-of-way staff. The practices of Single Agent Appraise/Acquire and One Call Agent best use the skills and judgment of project personnel. Owners appreciate dealing with one agency representative who has the authority to commit, without having to make repeated visits.

### **The Bottom Line**

Caltrans finds that empowering its staff in the manner described here is cost-effective and provides improved customer service, as well as accelerates right-of-way delivery. Caltrans officials also report that implementing TQM has had a significant impact on improving the process relating to the acquisition of right-of-way.

## **FLORIDA—MULTIFUNCTIONAL TEAMS AND SUCCESSFUL RIGHT-OF-WAY PRACTICES**

### **Summary**

The Florida DOT (FDOT) has established some type of multifunctional project management team approach in each of its eight districts. Each district independently determines the form and structure of its management teams. Several teams provide inclusive multifunctional participation, with comprehensive responsibility for project management.

Florida is unique in the extent and nature of legislative requirements affecting the right-of-way process. The state reimburses owners' legal, appraisal, and court costs. Payments are made to qualified businesses for business losses that go beyond property damages. The mandatory formal notices, services, and reimbursements provided to owners and displacees limit the capacity to shorten or expedite right-of-way delivery time.

At the time of this report, the project team approach was in the pilot test stage and Florida had not formally evaluated the concept in use. However, right-of-way management has seen significant benefits even at this early stage, particularly in districts that have developed a strong multi-functional approach. The FDOT Right-of-Way Division is also refining its use of practices that streamline and simplify the right-of-way process. The goal is to improve right-of-way delivery where possible, but also to improve customer service, become more cost efficient, improve public confidence in the right-of-way process, and improve the overall quality of operations. The broad goals emphasizing cost and quality are important, because Florida Right-of-Way operates under legislative requirements that limit opportunity to further reduce the right-of-way delivery time.

### The Project Team Concept in Florida

FDOT is highly decentralized. The agency has embraced the team concept and allowed the districts to implement policy without requiring a preestablished form and structure. The approach is to encourage diverse pilot project teams and evaluate as to effectiveness after a full cycle of use. Teams taking a full multifunctional approach, including Design, Environment, Right-of-Way, Survey and Mapping, Eminent Domain, and Construction. The Right-of-Way Division has noted the following benefits of the project team approach, even at an early stage of implementation:

- There is a better awareness of the effect on right-of-way delivery of project schedule slippage in functions that are upstream of right-of-way. For example, there is sensitivity that a delay in the delivery of plans will cause corresponding delays in the acquisition of right-of-way.
- Significant quality improvements benefiting the right-of-way process have resulted from the active coordination among team participants. There are fewer plan revisions and fewer property claims from the unintended effects of minor design features.
- There is better control of the project schedule from the inception of the project. This contrasts with a previous pattern in which concern about the schedule is deferred until later stages of development.
- There is a better knowledge and awareness by participants from other development functions of the needs and concerns involved in securing and clearing right-of-way.
- The quality of public involvement activity improves from the early and coordinated participation of all functions including right-of-way. Input is solicited

from corridor residents and owners before plans are finalized. This improves the credibility of the public involvement process and results in fewer and lower property claims.

- Information provided to affected businesses has improved on such topics as access restrictions, traffic diversion, and other effects of construction.
- The team approach sets the best conditions for activities by various functions to be performed in parallel rather than sequentially. Although parallel actions had been encouraged in Florida, the isolation of functional specialties caused inefficiencies.
- The team approach has enabled earlier identification of critical parcels so that right-of-way can prioritize acquisition.

### Effective Practices to Improve Quality and Expedite Delivery

The Right-of-Way Division is continuously modifying its processes, with the primary objectives of improving quality, reducing operating costs, and improving public confidence in the integrity of the process. Reducing right-of-way delivery time is a desired but secondary effect. The following are practices that Florida has found to be effective in meeting its objectives:

- *District-Wide Consultant Contracts*—Florida can contract for expert services to be provided on a district-wide basis for a specific time period. This affords the flexibility to use consultants on projects when a special need arises. The initial qualification and selection of consultants is pursuant to a competitive process under provisions of state law.
- *Administrative Settlements*—Florida administratively increases offer amounts whenever reasonable and practical. Use is encouraged by the high cost of litigating just compensation. Project negotiators recommend department acceptance of settlement amounts and generally receive fast, same-day approval. Authority to approve is at the district level.
- *Mediation*—Mediation is a routine means to resolve disputed property value and is often mandated by the circuit court. Approximately 40 percent of all cases filed are settled through mediation. Although not required, owners are usually represented by an attorney. Owners are required to be present at mediation, which may be their first face-to-face contact with a right-of-way agent, because owners are frequently represented by counsel prior to the initial negotiations.

- *Improved Public Presentation Methods*—Public meetings are enhanced by the improved quality of visual presentations. In particular, computer-generated rendering of a completed project superimposed on aerial photos can be an effective presentation technique and can relieve owner concerns about such elements as access points in the completed project.
- *Appraisal Waivers*—Florida uses waivers (agent price estimates) to a limit of \$10,000. Currently, FDOT is conducting a pilot study of the use of agent price estimates to a limit of \$20,000 under authorization from the FHWA. Florida has found that the rate of amicable settlements increases with the use of agent price estimates.
- *Corridor Protection*—FDOT advises local governments of transportation plans and property needs, but is cautious not to recommend an action that would cause an inverse condemnation. Selective advance acquisition of individual parcels is undertaken for protective purposes. Florida has a bond-financed corridor preservation fund that has been used to acquire corridors in advance of the normal acquisition schedule.

### The Bottom Line

FDOT reports that it is committed to performance excellence and improved customer service through its formal department-wide Quality Improvement Program. The department's Right-of-Way Division uses the operational practices described here to refine and streamline acquisition in support of FDOT's continuous improvement objectives. Right-of-way participation on multifunctional project management teams is helping to achieve benefits of improved coordination. The goals are to assure timely delivery of right-of-way, reduce costs, and improve the overall quality of the right-of-way process.

### IOWA—PROJECT MANAGEMENT TEAM APPROACH

#### Summary

In 1997, the Iowa DOT undertook a comprehensive review of its project development process. A quality improvement team, which included right-of-way participation, developed a streamlined process, labeled the "Can Do Process." The team report states, "This team (the Project Development and Review Team—PDRT) successfully developed a streamlined process that reduces the development time from slightly over 11 years to about five and one-half years" (27). The essential element is the management of all high-level projects (requiring environmental documentation) through a project management team. The team is lead

by the Transportation Center (District Office) development engineer. Right-of-way participates on the team throughout the process. This has resulted in an earlier flow of information, better understanding of right-of-way scheduling needs, and better coordination of right-of-way acquisition with the overall project schedule.

### The Project Management Team

There are currently project development teams assigned to 27 projects. Participation on the team is determined by the functions that are relevant at particular phases of the project. Right-of-Way is initially represented by the manager of Right-of-Way Operations. As the project progresses, functional specialists, including appraisal and relocation, are brought into the team. Right-of-way is actively involved through project letting. Thereafter, involvement is on an on-call basis to resolve real property issues that may arise during construction. The team concept provides improved coordination and communication among the functions. More activities are conducted in parallel, rather than sequentially, thereby reducing overall development time.

### Factors of Success

The project development team concept is recent, and projects have not yet progressed through an entire cycle, from initiation through completion of construction. Therefore, a formal evaluation has not yet been made. However, in project management teams, the following significant benefits have been noted by right-of-way management from involvement thus far:

- Identification of right-of-way issues is accelerated, enabling earlier resolution.
- Parcels needed for archeological data recovery are acquired earlier in the process.
- Other functions in the process (Planning, Design, etc.) have come to better understand the time and resource needs of the right-of-way process.
- With improved coordination, more activities are being conducted in parallel, rather than sequentially. This shortens the overall process.
- Right-of-way has meaningful input in setting project schedules.
- Informal informational meetings are conducted with affected owners before design is complete. This results in design that enables the project to better conform to

adjacent land uses and secures property owner support that facilitates acquisition.

- Customer information and feedback is emphasized. Information meeting notices are detailed, yet written in plain English. Written comments on proposed projects are solicited and a response is provided by the department.

### Best Practices Support Right-of-Way Delivery

Iowa uses a number of acquisition practices that streamline and expedite the process as well as accommodate the needs of affected property owners:

- *Selective Waiver of Lien Releases*—Releases from mortgage holders or other lien holders are waived for minor acquisitions. This expedites and lowers the cost of acquisition.
- *Compensation Estimates*—The threshold for securing full appraisals is set at \$10,000. Acquisitions under this amount are acquired based on compensation estimates (CEs). Generally, CEs are based on project appraisal sales data to assure consistency in per acre land value. About 40 percent of acquisitions are under CEs.
- *Administrative Settlements*—Acquisition agents are open to information provided by owners, and reasonable settlements above the established value may be approved. All agents have notebook computers and modems, which enable administrative settlements to be confirmed within several hours.
- *Compensation Boards*—Iowa law provides for informal hearings at which compensation claims can be heard by a board consisting of six citizens appointed with the authority to increase compensation amounts. This does not prejudice the right of a property owner to subsequently sue for just compensation in state court. The compensation boards serve as an alternate means of resolving disputes on value.
- *Updated Procedures*—Iowa is in the latter stage of updating its right-of-way procedures manual. This will incorporate recent changes and be the basis for a common and comprehensive understanding by all personnel involved with Iowa's right-of-way process.
- *Early Acquisition*—Through its early involvement in the development process and participation at project information meetings, the Right-of-Way Division identifies sensitive and emotional issues with owners.

An effort is made to prioritize acquisition and relocation based on this information. In addition, advance acquisition is used for hardship and protection from development.

- *Production Scheduling System*—A right-of-way team is nearing completion of a computer-based system of production scheduling, which will project right-of-way workload and resource needs based on Iowa's Transportation Plan. This will help the division accommodate fluctuating workloads
- *Appraisal Disclosure*—A recent state law requires that the Iowa DOT provide its appraisal reports to owners. This step will focus negotiations on the value data and issues. Acquisition agents are being trained in the appraisal process to effectively explain appraisal content to owners.

### Challenges

Iowa recognizes the need for more of its staff to be cross-trained in other right-of-way specialties to accommodate changing workloads. Delivery of accurate, on-time, right-of-way plans for acquisition and property ownership data for information meetings is sometimes a problem.

### The Bottom Line

Iowa has reengineered its project development process to be inclusive, comprehensive, and collaborative from inception through construction. Right-of-way is a full partner in the process and gains time and resources to produce the needed property rights. Iowa reports that the process changes will significantly reduce total project development time. The quality of communication with the public, and particularly affected property owners, is improved.

## UTAH—PROJECT MANAGEMENT SYSTEM

### Summary

The Utah DOT (UDOT) has implemented a project management system, which involves team control of a project from inception through construction. A right-of-way lead person is a full and equal partner with representatives of other functions, working under an assigned project manager. The team is self-directed, sets schedules, coordinates work activity, monitors progress, and delivers the completed project. Right-of-way contributions to project completion are enabled by the use of acquisition "best practices," which facilitate property acquisition and streamline the right-of-way process.

## The Project Management Team

The project management team is comprised of representatives of all functions required to bring the project to completion, including Planning, Design, Environment, Right-of-Way, Utilities, Eminent Domain, Public Relations, and Engineering. The team operates under the direction of a project manager assigned at the region office. Right-of-way participation begins in the planning stage, is intensive throughout the project development phase, and continues through completion of construction on an as-needed consultative basis. The right-of-way lead person is sufficiently trained, and is delegated sufficient authority, to commit right-of-way resources, and participates in project scheduling decisions. The team has within its organization the expertise, multifunctional participation, and authority to make all decisions necessary to deliver the project. Decisions are collaborative; there is close coordination among team members.

## Factors of Success

Right-of-way participation in the project management process is strengthened and enhanced by the following factors:

- *Training*—Right-of-way professional staff has participated in a program of training that included team building, participative decision making, and project management.
- *Right-of-Way Production Study*—The UDOT Right-of-Way Division completed a time/motion analysis of common activities, such as residential relocation; residential, commercial, and industrial appraisals; and rural land appraisal. This allowed for the setting of realistic standards for contract costs, workload management, and project schedules.
- *Production and Schedule “Buy In”*—Project right-of-way personnel participate in setting production and schedule goals and are accountable for outcomes. Actual goals consider unique factors of each project, as well as standards established by the statewide time/motion study.
- *Acquisition “Best Practices”*—Utah right-of-way staff has the flexibility and practical expertise to expedite settlements with property owners. These practices include pre-agreements with owners for binding appraisals, administrative settlements, mediation, and initial offers by mail.
- *Flexible Hiring of Consultant Service Providers*—The UDOT Right-of-Way Division is able to hire fee

service providers informally without going through a complex and time-consuming procurement process. This provides the flexibility to quickly bring resources to meet project needs. Utah maintains lists of qualified providers in major functions and updates these lists continuously based on evaluation of timeliness, quality, and delivery performance.

- *Multiskilled Right-of-Way Staff*—The professional right-of-way staff is oriented to perform as project managers, but also skilled in operational functions of appraisal, acquisition, and relocation. An effort is made to cross train staff for competency in two or more right-of-way specialties.

## Organization Supporting Project Management Concept

The right-of-way function was restructured in the mid-1990s to conform to UDOT strategic goals and to accommodate significant year-to-year fluctuations in workload. The focus was to contribute to UDOT goals within scope, schedule, and budget. The following organizational changes resulted:

- Staff was reduced from 70 to 20 persons;
- Staff was converted from operational workers to primarily contract managers;
- Consultants were employed to appraise, negotiate, and relocate;
- Consultants and staff were held to budget, schedule, and production goals; and
- Communication with customers was improved.

These organizational changes resulted in reduced unit costs, reduced time to clear right-of-way, increased production levels, improved customer satisfaction, and better accommodation of changing workloads. The new structure generally improved right-of-way delivery and also supported UDOT’s Project Management System.

## Acquisition Best Practices

The following flexible and innovative acquisition practices have helped UDOT’s Right-of-Way Division expedite acquisition and meet project schedules:

- *Binding Appraisals*—In the event of an impasse in negotiations, UDOT and the property owner may commit, by contract, to a subsequent appraisal by a certified appraiser, who is selected by both parties from a list of qualified individuals provided by the state. The owner, or UDOT, may comment to the appraiser on the appraisal report before it is final. UDOT pays for the appraisal.

- *Mediation and Arbitration*—Utah has found these alternative settlement methods to be useful in avoiding eminent domain court proceedings. Mediation is used before condemnation.
- *Administrative Settlements*—The project acquisition staff is authorized to propose increases from the initial offer, but it is understood that the authority is used on an exception basis. Increases may be up to 10 percent, but are lower on high-value acquisitions.
- *Customer Consultation and Surveys*—The initial use of postacquisition surveys has confirmed their value, and Utah expects to make their use routine. Early project consultation with affected owners on design decisions and choice of state-qualified appraisers improve trust and confidence.
- *Offers by Mail*—Mail offers are used primarily on projects in remote areas, but also selectively on urban area projects. A follow-up phone contact is made shortly after owner receipt of the mail offer.

### Corridor Preservation

A fund, dedicated to corridor preservation, currently \$15 million, is supported by a bond issue paid by a one-eighth of 1 percent levy on rental vehicle receipts. Its first priority is to purchase land on firm alignments vulnerable to development. Secondary use is for the relief of medical or economic hardship. Acquisition is voluntary to the owner. The use of the corridor preservation concept has facilitated right-of-way delivery at a reasonable cost.

### The Bottom Line

Utah management reports that the project management system, supported by right-of-way restructuring and the use of flexible acquisition practices, has improved right-of-way delivery, decreased operating costs, and improved trust and confidence with both internal and external customers. It has established responsibility and given authority to achieve success. It has also helped higher management realize the importance of efficient right-of-way delivery to the project schedule and delivery of the completed project.

## WASHINGTON—IMPROVING THE RIGHT-OF-WAY PROCESS: THE REAL ESTATE ACQUISITION TEAM

### Summary

The Real Estate Acquisition Team (REACT) was established in March 1998. The team was chartered to examine

all aspects of the right-of-way process and to make recommendations to improve efficiency and effectiveness (28). Team members contributed expertise in all aspects of right-of-way, from the regional offices, as well as the Olympia Service Center (headquarters). The review identified customers, stakeholders, and process owners for each topic addressed. Recommendations and implementation plans were submitted to process owners for comment and formal approval.

Eighteen recommendations were adopted in the functions of right-of-way plans, right-of-way funding, appraisal/appraisal review, negotiations, relocation, and property management. Implementation plans for each of the adopted recommendations were approved in the period from November 1998 to August 1999.

### Process Improvements

Washington State management reports that a significant general benefit resulting from the study is a better understanding by other disciplines in the project development process of the time and resources required to perform the right-of-way process. The interdisciplinary team study approach resulted in stronger right-of-way input to project scheduling and influence in design decisions based on right-of-way considerations.

REACT decided to implement each recommendation on its approval, rather than wait until the completion of the entire process improvement effort. Thus, improvements could be forthcoming early in the process, and changes would be phased-in over a period of months. The following are several of the significant recommendations resulting from the REACT study:

- *Right-of-Way Plan Development*—Allow partial plan approval before the completion of full design and environmental approval. Begin development of right-of-way plan from the assessor's maps and information from the last conveyance. Use the assessor's information for area rather than independent calculation. Develop the "as acquired" right-of-way plan (pending) that is color-coded and tied to the geographic information system.
- *Appraisal*—Establish statewide "on call" appraisal consultant service agreements that could be used for each region. This will replace competitive bids on a project basis that cause delays between project authorization and starting the appraisals. Use the abbreviated appraisal report on all uncomplicated takes. Encourage the use of incentive and penalty clauses in appraisal contracts. Provide a complete copy of the appraisal to property owners on request.



- *Training*—Establish annual training workshops involving appraisers, agents, and consultants. Cross train senior appraisers and supervisors to perform appraisal review and rotate existing reviewers back to active appraising (voluntary). Develop courses for specific disciplines that will be added to the current training matrix.
- *Relocation*—Schedule relocation agents for joint inspection with appraiser and appraisal reviewer on commercial and industrial improved property.
- *Property Management*—Develop a possession checklist for property management. A lease will be signed at the same time as acquisition, rather than after the payment warrant is provided to the property owner.

### Success Factors

A guiding principle that contributed to the success of the study was the adoption of a risk management approach. Several action recommendations have the potential for significant savings in cost or accelerating right-of-way delivery, with the acceptance of minor risk. An example is the acceptance of partial plan approval before completion of design, as discussed previously.

The following important elements of success were built into the process:

- All adopted recommendations had buy-in of process owners and advance review of stakeholders. Several recommendations were dropped because of stakeholder comments.
- All accepted recommendations are backed-up by specific implementation plans that identify commitments, process changes, procedural changes, and responsible parties.
- The follow-up process is identified in the REACT report. Stakeholders will respond to a questionnaire to be distributed in April 2000. The team will address issues brought up in the responses at a meeting scheduled for May 17, 2000.
- REACT followed the principles of TQM in conducting the review, including the focus on customer service, continuous process improvement, and involvement of stakeholders in developing solutions.

- Several recommendations will allow for parallel performance of actions that had previously taken place in a sequential manner. This will directly translate to a reduction in the time required for right-of-way delivery.

### Best Practices

Washington State's efforts to advance program efficiencies and accelerate right-of-way delivery are aided by the following practices:

- *Appraisal Waivers*—Approximately one-third of all acquisitions are under the \$10,000 threshold for which appraisals may be waived. The authority to waive the appraisals is selectively applied, because they would ultimately have to be secured on all takings in condemnation regardless of value.
- *Mediation*—Washington State has an innovative approach in which mediation methods are applied internally before cases are filed for condemnation. A Mediation Acquisition Specialist in the Olympia Service Center evaluates all cases where negotiations have failed, and is able to reach amicable settlements more frequently than by court-ordered mediation.
- *Waiver of Lien Releases*—Title for acquisitions valued at less than \$5,000 are typically accepted subject to existing liens (releases waived). Higher values are considered for release waivers on a selected basis. Losses have been very low.
- *Corridor Preservation*—Washington State uses a revolving fund approach, which was initially funded by the state legislature for \$10 million. It has been successful in preempting development on critical individual parcels. Acquisitions are by voluntary sale. Preservation of entire corridors is not performed to avoid location preselection issues.

### The Bottom Line

REACT expressed a goal of reducing right-of-way delivery time by a range of 26 to 180 days, based on the average 10 parcel project (28). This goal will be accomplished by the implementation of the REACT recommendations and the continued application of the best practices discussed here.

## CONCLUSIONS

This synthesis draws from the experiences of 36 survey respondents, and a review of current literature, to develop a detailed view of the state of the practice on accelerating right-of-way delivery. Certain patterns and trends emerged that should interest and challenge transportation agency administrators concerning right-of-way resources, coordination of right-of-way with other disciplines, and effective organizational placement of right-of-way in the project development phase.

Each state transportation program is guided by its own laws, policies, and cultural characteristics. This review exercised due caution in identifying common problems or assigning “one size fits all” solutions to accelerate right-of-way delivery. There are also strong unifying factors in the surface transportation industry and among right-of-way divisions. They include national legislation and funding, a national transportation policy, and federal regulatory influence. Also, there are strong institutions that provide mutual guidance and support to member agencies. These unifying and common influences, as well as the opportunity for more efficient right-of-way practice, provide the incentive for administrators to seriously consider the conclusions presented in this chapter.

The need for right-of-way resources includes training and staffing. Cross training of personnel in more than one right-of-way function, as well as training in nontraditional subjects, including information systems and project development and consultant contract management, are suggested. Staffing needs are considered in the broad sense, to include both right-of-way employees and consultant service providers. There is a particular need to develop better methods to improve the quality of selection, performance monitoring, and the assessment of consultants.

The need for better coordination within right-of-way includes developing better systems for scheduling, data, and communications. It also includes improving the quality of interaction with other disciplines in the project development process. There is a need to develop and implement better information technology tools, to lessen the time devoted to paper management and improve the timeliness of decisions.

The proper structuring of the project development process, including placement of right-of-way, will enable optimum right-of-way delivery time, but will also assure that the department’s overall mission is accomplished expeditiously.

Several states, as shown in chapter 4, have restructured the project development process to place authority and responsibility in multifunctional project teams. The structure and scope of control of the teams varies from state to state. A shared element is that all functions, including right-of-way, participate as equal partners. In addition, the partners strive to perform their functions in parallel and to avoid sequential hand-offs that can have each function working in isolation and result in extended project lead times.

The following detailed conclusions reinforce the need for focus on resources, coordination, and organizational placement in accelerating right-of-way delivery:

- **Training**

States report that insufficiently trained and inexperienced staffs impede right-of-way delivery. In addition, effective right-of-way participation in the project development process and use of practices that accelerate property acquisition requires training outside of traditional core right-of-way competencies. Important training topics are consultant contract administration, team participation, and information technology. Increased federal funding is available for training, as reported in chapter 2.

- **Administrative Settlements**

Administrative settlements are ranked second only to staff training in effectiveness in accelerating right-of-way delivery. There are variations in how the practice is used. It would be beneficial for agencies to exchange techniques on timing strategies or other implementation factors that promote optimum results.

- **Consultant Contract Administration**

The increasing role of consultants in performing right-of-way functions is accepted. However, responses differ widely as to their effectiveness in improving right-of-way delivery. This suggests a need to identify successful practices on consultant selection, performance evaluation, and contract administration. Increased staff training in these topics would also encourage a more effective use of contract service providers.

- **Use of Information Technology Tools**

Several states cite a lack of technology tools and/or their effective use as an impediment to right-of-way delivery. Many other states note late delivery of products such as appraisals, titles, and reports as hindering advancement of projects. Right-of-way is a document-oriented function that would benefit from optimum use of such applications as electronic document transfers, electronic signatures, Intranet databases, and other information technology tools.

- **Computer-Based Project Scheduling Tools**

Several states have used off-the-shelf project scheduling and workload management software to manage right-of-way scheduling. Results range from moderately successful to disappointing. As a result, there is a need to develop and exchange information on effective scheduling products. This is an industry need and may be best performed under national sponsorship.

- **Delegating Authority to Project Development Teams**

States have found value in considering the project development process as an interrelated system, rather than a grouping of diverse components that conduct work sequentially. This systems approach to project development is put into practice by project teams having full participation by all functions, including right-of-way, with sufficient decisional authority to carry out its mission.

- **Delegating Authority to Project Level Right-of-Way Personnel**

States report that placing authority at lower levels has improved efficiency, promoted effective communication, improved coordination with other functions, and advanced the delivery of right-of-way. For example, some states authorize right-of-way agents to increase value offers within a particular range, or have a single agent determine value and negotiate settlements on minor value acquisitions. There is a need to have effective quality assurance methods accompany the devolution of authority. This was not addressed in the survey form or the responses.

- **Appraisal Waiver for Low-Value Acquisitions**

Appraisal waivers for low-value acquisitions were the most often cited operational practice in advancing right-of-way delivery. Nationally, 33 states have secured federal approval to increase the threshold level for appraisal

wavers above the \$2,500 limitation cited in 49 CFR 102(c). Use of the appraisal waiver is now in the mainstream of industry practice.

- **Coordination with Design Function**

In many states, right-of-way is involved in early project development activity. However, there remains the pervasive problem of securing plans that are of sufficient detail and quality to base appraisal and acquisition activity, and do so in a timely manner. A better connection between early right-of-way involvement and the delivery of products, such as plans that should flow from that involvement is needed.

- **Alternate Settlement Methods**

States are effectively using innovative acquisition practices such as the single agent concept and offers by mail with personal follow-up. However, there is a need to develop better methods to advance to settlement when an impasse is reached. Mediation is highly promoted, but not widely acknowledged, as accelerating right-of-way delivery.

- **Project Scheduling**

State responses indicate that project schedules are sometimes based on external factors such as funding, political priorities, or standardized “rule of thumb” time periods. Also, time delays occurring in an early activity may be passed along to “downstream” functions rather than having the schedule adjusted at the point of the delay. There is a need for realistic scheduling in initial project planning and readjustment at milestone points or at major delay events.

This synthesis had a broad scope, but limited depth. Some practices and organizational structures described in this report need to be tested and evaluated to confirm their effectiveness. Also, new approaches need to be developed that effectively resolve impediments to right-of-way delivery that persist in spite of the effective practices described in chapter 2. The following topics are priorities for further research:

- **Factors That Influence the Successful Use of Consultants**

Increased reliance on contract service providers needs to be supported by improved methods of selection, contracting, and performance evaluation. Successful practices in use in several states need to be studied in depth, and transferable elements promulgated to the industry.

- **Effective Use of Alternate Dispute Resolution Methods**

States report that mediation has not met its promise or potential for accelerating right-of-way acquisition. The factors that determine the effectiveness of mediation and other dispute resolution methods such as arbitration need to be identified.

- **Identify Effective Right-of-Way Project Scheduling and Management Tools**

States report that “off-the-shelf” scheduling and project management software has not brought anticipated benefits, or there are employee training and familiarity is-

sues that limit effectiveness. Effective products need to be developed or success factors in the use of existing products need to be better identified.

- **Factors That Optimize Participation in Project Development Teams**

States generally report that right-of-way participation on project development teams is effective in accelerating right-of-way delivery; however, problems persist in important related areas. The topics needing further study are: right-of-way considerations in the scheduling of advertising for project construction and in the timely delivery of plans that enable property acquisition.

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## APPENDIX A

### Survey Questionnaire

**NCHRP Synthesis Topic 30-04  
“Innovative Practices to Reduce Delivery Time for  
Right-of-Way in Project Development”**

**Questionnaire**

The placement and allocation of time for the Right of Way process in an overall project schedule has plagued highway agencies for years. “Best practices” can assist delivery of the product in less time, but they do not answer fundamental questions of how to best incorporate R/W within project development.

The Transportation Research Board has asked O.R. Colan Associates, Inc., to review practices and to identify scheduling approaches that involve R/W early in the process, provide adequate lead time, and insure adequate resources to produce an efficient, effective job. This is a significant undertaking and one that will require your assistance.

The enclosed questionnaire will assist us in determining what efforts states are presently pursuing, what efforts have worked, and conversely, what has not worked. We appreciate your time in completing the questionnaire. Please feel free to call Bob Merryman if you have any questions or need clarification.

We expect most of these questionnaires to produce answers that will call for further discussion. Please indicate the person within your operation who would best be able to further discuss the specifics of your R/W operation and project planning.

Agency: \_\_\_\_\_

Contact for Additional Information: \_\_\_\_\_ Phone: \_\_\_\_\_

This survey is being circulated to state and provincial right-of-way offices to identify those innovative industry plans, policies, and practices that have benefited project management in reducing delivery time for right-of-way acquisition. Those items may be internal scheduling, management or organizational adjustments, or may include external factors, such as the use of consultants, legal counsel, and changes in appropriations or public policy standards. This synthesis will examine both successful and unsuccessful examples of new procedures to accelerate right-of-way acquisition.

Thank you for completing this survey. Please provide the following information:

Agency: \_\_\_\_\_

Address: \_\_\_\_\_

Title: \_\_\_\_\_ Fax: \_\_\_\_\_

Telephone: \_\_\_\_\_ E-Mail: \_\_\_\_\_

Please return questionnaire and supporting documents by July 23, 1999, to:

Robert Merryman  
O.R. Colan Associates, Inc.  
727 North First Street, Suite 234  
St. Louis, MO 63102  
(314) 551-5065



**I. Current Standard Practices**

Briefly describe the standard role of right of way interest and operations as they currently exist during project development in your agency; for instance, at what point does right of way participate in project planning; what is right of way's role in the planning process.

**II. Impediments to Speedy Delivery of Right of Way in Project Management**

Please list and describe the conditions or situations that regularly impede efforts to gain speedy right-of-way during project development or project management. Designate these conditions or situations as either "managerial" (relating to the overall project planning and management organization) or "operational" (relating to specific right of way functions during the execution of the project):

**Managerial**

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

**Operational**

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

**III. Existing Practices**

The following list of practices have been used by various agencies to accelerate the efficiency of right of way delivery within project operations. Please indicate those practices you regularly use, and indicate if they are:

- a. Very useful (reducing right of way delivery time by more than 6 months)
- b. Somewhat useful (reducing right of way delivery time by less than 6 months)
- c. Useful (good practice, but not causing a significant reduction in right of way delivery time)
- d. Not useful (having no measurable impact of right of way delivery)

	Very Useful	Somewhat Useful	Useful	Not Useful
Right of Way Consultants:	___	___	___	___
Prequalification of Consultants:	___	___	___	___
Public Information Programs:	___	___	___	___
Appraisal Modifications:	___	___	___	___
Appraisal Review Modifications:	___	___	___	___
Release Waivers:	___	___	___	___
Mediation:	___	___	___	___
Expanded Administrative Settlements:	___	___	___	___
Staff Training:	___	___	___	___
Others:				
_____	___	___	___	___
_____	___	___	___	___
_____	___	___	___	___
_____	___	___	___	___
_____	___	___	___	___
_____	___	___	___	___

**IV. Innovative Project Planning or Project Implementation That Have Reduced Delivery Time of Right of Way Function.**

Where possible please include specific project situations. Attach additional pages if more space is needed to complete this question.

- 1. Have you used a multi-disciplinary team with special responsibilities to determine best methods for project delivery?  
 Yes     No

1a. What professional specialties were part of the team? How did the team function?

- 1b. Would you consider the multi-task team approach successful or unsuccessful in reducing right of way delivery time? Why?
  
2. Have you used a comprehensive management organization on projects? For example, has the delivery of a project been delegated to a specific group from various DOT departments or functions?  Yes  No
  - 2a. How did the comprehensive management organization operate?
  
  - 2b. Would you consider the comprehensive management organization successful or unsuccessful in reducing right-of-way delivery time? Why?
  
3. Have you used any new or innovative scheduling techniques?  Yes  No
  - 3a. What have been your experiences with innovative project scheduling?
  
  - 3b. What were your expectations for your new scheduling approach?
  
  - 3c. What were the practical considerations in creating your new scheduling approach?
  
  - 3d. What were the realistic outcomes of your new scheduling approach?
  
  - 3e. Please list the considerations incorporated into project scheduling.
  
  - 3f. If applicable, how have you considered existing land use to develop project schedules?
  
  - 3g. To what extent do you evaluate project areas prior to conceptual project development? What are the considerations reviewed in preliminary evaluations of project areas?

3h. What techniques, if any, have you used to preserve corridors for pending projects?

4. Please describe any other practices or innovations that you have found effective in reducing delivery time in right-of-way acquisition.
5. Please list the three elements or techniques that, in our experience, have been most effective in reducing right-of-way acquisition.
6. Please list the three elements or techniques that, in your experience, have been most effective in reducing right-of-way delivery time.
7. Please list the three elements or techniques that, in your experience, have been least effective in reducing delivery time in right-of-way acquisition.

**V. Has Your Agency Planned, Initiated, or Completed any Specific Road Project That Positioned the Right of Way Function Differently Within the Planning or Operation of That Project?     Yes     No**

If yes, please generally describe the project and the changed role of the right of way function within the project. Add additional pages if necessary, and where possible, include any reports or supporting documentation that relate to this specific project. A member of the research staff may be contacting you for additional information concerning this project.

**VI. Innovative Practices Beyond Project Control That Reduce Delivery Time of Right-Of-Way**

What concerns or practices beyond the control of your project management directly impact your efficiency in right-of-way acquisition (for instance, public policy concerns, appropriations, and regulatory or statutory changes)? In what ways would you recommend changes in these areas?

**VII. Other Practices**

Please describe any other examples of innovative practices you have employed in acquiring right-of-way that may be of interest or assistance to others in the industry.

## APPENDIX B

### List of Survey Respondents

The following 36 survey questionnaire responses were received from the mailing to right-of-way divisions in 50 states, the District of Columbia, and Puerto Rico:

Alabama	Idaho	Missouri	Pennsylvania
Arizona	Illinois	Nebraska	Rhode Island
Arkansas	Iowa	Nevada	South Carolina
California	Kansas	New Jersey	South Dakota
Colorado	Kentucky	New York	Tennessee
Connecticut	Louisiana	North Carolina	Utah
Delaware	Michigan	North Dakota	Virginia
Florida	Minnesota	Ohio	Washington
Georgia	Mississippi	Oklahoma	Wisconsin

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The National Academy of Sciences is a nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. Upon the authority of the charter granted to it by the Congress in 1863, the Academy has a mandate that requires it to advise the federal government on scientific and technical matters. Dr. Bruce Alberts is president of the National Academy of Sciences.

The National Academy of Engineering was established in 1964, under the charter of the National Academy of Sciences, as a parallel organization of outstanding engineers. It is autonomous in its administration and in the selection of its members, sharing with the National Academy of Sciences the responsibility for advising the federal government. The National Academy of Engineering also sponsors engineering programs aimed at meeting national needs, encouraging education and research, and recognizes the superior achievements of engineers. Dr. William A. Wulf is president of the National Academy of Engineering.

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