

**Federal Highway Administration  
Office of Real Estate Services**

**Research Results:**

2006 Strategic Vision for the  
Public Sector Real Estate Profession

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## Executive Summary

The Federal Highway Administration (FHWA) Office of Real Estate Services, in its role as the lead agency for the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act), initiated a research project to identify the future needs of public sector real estate (PSR). The purpose of this effort was to facilitate strategic and future oriented thinking by the public sector real estate community in terms of:

- Looking 30 years into the future and predicting the needs, role and environment of public sector real estate.
- Determining actions required today and in the near term to ensure that public sector real estate professionals are prepared for and positioned to take on the work that they will be required to do over the next 30 years.

FHWA research, in preparation for this study, suggested that combining forecasts from different methods and from independent experts improves accuracy. To this end, FHWA asked each of its three research contractors to conduct independent research projects, following a general scope, but utilizing its own independent research approaches. The work of the three research teams will be synthesized and integrated; and the best ideas will be carried forward. This report summarizes the work of one of the teams.

### Research Approach and Methodology

This team's research approach and methodology entailed:

- Identifying external and internal forces that affect Federal, State, and Local agencies responsible for planning, developing, maintaining, and operating infrastructure for the public benefit.
- Assessing the impact of these external and internal forces on the operations of the agencies.
- Identifying the resultant impact on the public sector real estate functions within these agencies and the private sector partners performing real estate activities for the agencies.
- Identifying the roles the public sector real estate community will need to perform to meet the needs and requirements of the various Federal, State, and Local agencies.
- Developing a mission statement and a set of strategic objectives in support of the anticipated role of the public sector real estate community.
- Defining an action plan consisting of a number of short-term and longer-term initiatives to prepare the public sector real estate community to achieve its proposed mission.

As its primary research vehicle, the study team conducted a series of brainstorming sessions with a team of ten (10) stakeholders who have substantial public sector real estate experience with FHWA, the Department of Housing and Urban Development, National Park Service, two state departments of transportation, the U.S. Army Corp of Engineers, and a large Local Public Agency. A detailed literature search jump-started and supplemented the brainstorming process.

## Visioning how anticipated trends over the next 30 years will affect public sector real estate

The research team identified a number of external and internal forces that could be expected to impact public sector real estate over the next thirty years. The team categorized the internal and external forces for planning purposes into several major trend areas as follows:

- World
- Community
- Technology
- Infrastructure<sup>1</sup> Development and Management
- Policy and Politics
- Project Development Process
- Human Capital

The team analyzed the impacts of each of these trends on public sector real estate in terms of 10 year and 30 year planning horizons.

Provided below is a summary of the findings from each of these trend areas and their anticipated impact on public sector real estate.

- **World** - The predominant trend in this category is the migration to a tri-polar world economy in which the United States is no longer the predominant force but one of three large players along with India and China, which will become the world's largest economy. The growth of China and India, along with other developing countries, will force the United States to compete for scarce resources globally. This will drive up the cost of projects and put more pressure on the public sector real estate function to help to find creative solutions to manage project costs, especially given that real estate and utilities cost continue to increase as a percentage of the overall project budget.
- **Community** – A number of research studies suggest that there will likely be more growth in urban and suburban areas, but with an increased emphasis on environmental sensitivity expected by citizens in developing projects to support this growth. This will require the public sector real estate function to engage early in the project development process and leverage its real estate acquisition and cost estimating experience to develop cost effective solutions that either minimize or mitigate real estate and utility impacts.
- **Technology** - Continued advances in information technology will allow public sector real estate to leverage technology to automate and streamline its processes, as well as to capture and share the intellectual capital of its existing work force. At the same time, advances in construction technologies may lead to new types of projects such as underground cities, in which the public sector real estate function will need to address new challenges.

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<sup>1</sup> The term “Infrastructure” refers to not just highways, but housing, parks, forest services, and all other public benefit improvements in the purview of real estate services.

- **Infrastructure Development and Management** - Trends in this area include aging of the existing infrastructure as the interstate highway system approaches its 80<sup>th</sup> birthday by the end of this planning horizon, massive development effort for the North American Free Trade Agreement (NAFTA) corridors, and increased multi-modal solutions that integrate transportation with parks, housing, and other elements. Another trend will be the use of concession agreements to build new infrastructure and operate existing infrastructure. The impact of these trends on public sector real estate will include the need to work effectively in large multi-modal and global teams and the need for more property management, business, and financial skills to support implementation of concession agreements.
- **Policy and Politics** - One trend in this area is a focus on managing government agencies as much like a business as possible. This will drive public sector real estate to develop performance measures and to focus on accountability to its customers. Another trend in this area is increased reluctance to use eminent domain for redevelopment projects, at least in the short term, because of fall-out from an adverse public reaction to the Supreme Court's decision in the Kelo case<sup>2</sup> that allowed the use of eminent domain to transfer land from one private owner to another to further economic development. In response, public sector real estate will need to develop education programs, which highlight for decision makers, the role and benefits of the Uniform Act, how the Uniform Act is different from the types of acquisitions envisioned in the Kelo case and the overall value proposition of public sector real estate.
- **Project Development Process** - Major trends in this category include increased use of innovative financing, greater use of design/build and non-traditional delivery approaches, and more Local Public Agency involvement in programming and managing projects. A primary impact on public sector real estate is the need to work with new customers such as consortium managers and Local Public Agencies, who may be less familiar with the role and function of public sector real estate and will need to be educated about the valuable role the real estate function can play.
- **Human Capital** - In the short term, the aging of the existing public sector work force presents a major challenge. This will require developing tools, templates, and job aids to leverage the intellectual capital of experienced workers while they are still in the workforce and the immediate establishment of aggressive recruiting programs to market public sector real estate as a profession of choice for potential candidates. Public sector real estate itself also faces challenges in maintaining recognition among its peers as a profession and being fairly regarded as an equal player at the table with other disciplines. Establishment of a strong Uniform Act certification program and on-going education programs about the role of real estate for policy makers and leaders in other disciplines can help to better position public sector real estate with its peers, as well as provide a mechanism to train new people quickly and effectively.

### **Developing a Mission Statement and Strategic Plan to Meet These Challenges**

In response to the various trends, challenges, and opportunities being envisioned over the next 30 years, it is anticipated that the public sector real estate function will shift from a support

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<sup>2</sup> *Kelo v. City of New London*, 125 S. Ct. 2655 (2005)

organization that is focused primarily on the core real estate transactions associated with a project, to one that is an integral partner throughout the project lifecycle from inception to completion and beyond to operation.

Public sector real estate's customers will change from primarily Federal, State, and Local entities to a broader mix of customers including large, multi-national consortiums, non-profit groups, and a wide range of Local entities. These new customers will have less experience with public sector real estate, especially initially, putting a premium on the role of the federal real estate community to educate these customers on the importance of the real estate function. Consequently, it will be paramount for public sector real estate to take a more proactive stance in defining its role, explaining and sustaining its value to the project development process, and stepping into a leadership rather than a supporting role.

In support of this transition, the research team has proposed the following mission statement for the public sector real estate community:

*“Public sector real estate will become a value-added partner that actively engages with customers through a world-class work force and effectively leverages technology to operate efficiently and provide effective customer service.”*

To implement this mission, the study team has proposed a number of objectives. These include:

- Develop and implement a service delivery model that provides the benefit of single point of accountability, while leveraging deep expertise in specialized situations.
- Develop model performance measures to provide a framework for greater accountability for the profession. This should include development of national acquisition and relocation statistics to help analyze what is working, as well as areas for continuous improvement.
- Enhance real estate and utility cost estimating methodologies and supporting tools by implementing state of practices and deploy use of these methodologies throughout all partner agencies.
- Implement an education program to help sell the role of public sector real estate as a valued business partner to decision-makers, as well as additional detailed training seminars for project managers, designers, and other stakeholders on real estate and utility considerations.
- Leverage technology to improve communication, collaboration, and information sharing among public sector real estate professionals, as well as developing practice aids, templates, and guides to further the sharing of knowledge across the profession.
- Develop and maintain a highly trained, multi-disciplinary work force that is sensitive to and representative of the communities they serve by:
  - Expanding marketing programs to attract new people to the profession.
  - Developing a model multi-disciplinary training program to train new public sector real estate staff, and expand and extend the skills of existing staff.

- Design, implement, and ultimately institutionalize a new public sector Uniform Act certification program, or strengthening existing certification programs available through International Right-of-Way Association (IRWA) and other organizations.
- Establish public sector real estate as an equal player at the table with other professions and as a value added partner for collaboration on multi-national teams for both domestic and international projects.
- Achieve greater flexibility within the Uniform Act legislation to allow more adjustments to be done through regulation and policy, allowing for a rapid response to changing conditions.
- Establish a comprehensive research program to develop cost effective solutions for current, evolving, and yet to be anticipated issues.

# I. Project Overview

This section provides an overview of research efforts to analyze and define the future role of Public Sector Real Estate including a brief summary of the current public sector real estate environment, the rationale for the research project, a discussion of the research objectives, and an outline of the methodology utilized to meet these objectives.

## A. Current Situation

June 29, 2006 marked the 50th anniversary of the passage of the Federal legislation creating the interstate system. One of the biggest public infrastructure initiatives of all time, the interstate system had significant impacts on our way of life including:<sup>3</sup>

- Putting most Americans within a few days drive of almost everyone else in the country.
- Fundamentally changing the way we move people and freight, including facilitating international trade and turning trucks into mobile warehouses.
- Helping to establish new suburbs that sprung up next to highways on the outskirts of our large cities.
- Creating a new linkage between urban and rural America.

These dramatic changes in our way of life also had a fundamental effect on the public sector real estate profession, creating a substantial increase in the workload for public sector real estate professionals in support of the development of the interstate system and causing public sector real estate acquisition and relocation activities to touch many more lives. This increase in public sector real estate activity itself became one of the catalysts for the Uniform Act, which serves as the backbone for the public sector real estate profession as we know it today.

Since the interstate highway system was initially developed, the population and vehicle travel demands in the nation have increased far beyond anyone's forecast. Our country's demographics in terms of ethnicity, age, size, and geographic location have changed dramatically. The movement of freight has exploded, and the volume and nature of international trade is far different and continuing to evolve every day. While the initial mission of the interstate system was to connect American cities to each other, the future interstate must clearly help connect America to the global economy at large.

Because of these dramatic and on-going changes, as part of the celebration of the 50th anniversary of the interstate system, the American Association of State Highway Transportation Officials (AASHTO) is sponsoring research through the National Cooperative Highway Research Program (NCHRP) on the future of the interstate highway

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<sup>3</sup> "AASHTO: The Interstate is 50" from <http://www.interstate50th.org/>



system. NCHRP Project 20-24 entitled, “Economic Analysis of the Future of the National System of Interstate and Defense Highways,” will analyze a number of issues including:<sup>4</sup>

- Demand forecasts for the next fifty years including rural/urban demographic changes, freight and passenger traffic, and the impact of factors such as changes to Federal size and weight laws, fuel prices, road pricing, international trade, etc.
- Analysis of the effort to maintain, support, enhance, and expand the existing infrastructure including such topics as asset valuation, rehabilitation requirements, reconstruction alternatives, and innovative capacity enhancements.
- Possible alternative roles for Federal, State, Local, and Public/Private partnerships including an evaluation of the on-going Federal role and the viability of numerous alternative funding options.

In addition to the NCHRP study, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) passed by Congress in 2005 authorized two study commissions including:

- National Commission on the Future of the Interstate Highway System that will “develop a conceptual plan with alternative approaches for the future of the interstate system for 15-, 30-, and 50-year horizons.”
- National Surface Transportation Policy and Revenue Study Commission which was directed to provide a conceptual plan – with alternative approaches – to ensure that the U.S. surface transportation system will continue to meet current and future needs, including specific recommendations regarding design and operational standards, Federal policies, and legislative changes.

Just as there is recognition that there is a need to take a step back and analyze the future role and mission of the interstate system, there is a similar need to look at how the changes in user needs and public infrastructure development will affect the public sector real estate profession. This analysis will provide an understanding of the changing infrastructure needs of our country over the next thirty years, the impact of these changing needs on public sector agencies in general, and the resulting impact on the public sector real estate function within these agencies. This analysis will then provide a blueprint or roadmap to the future roles that the public sector real estate function may be expected to play and the steps that must be taken by the profession now, and over the next thirty years, to prepare the profession to execute its changing mission.

Like the interstate system, the public sector real estate profession is at a crossroads of change, and this is therefore an excellent time for such an analysis. Currently, the public sector real estate profession is facing a number of business drivers. These include:

- An aging work force: A great number of the individuals working in the public sector real estate field are approaching retirement. Thus, there is need to attract new professionals to the field to keep up with the demand for work to be performed. Whereas in the past these new hires may have joined public agencies, a great majority of new hires into the field with increased government out-sourcing in the last 10 years

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<sup>4</sup> “AASHTO: The Interstate is 50” from <http://www.interstate50th.org/>

will likely be recruited by the private sector. However, it is often difficult to recruit new workers into the needed disciplines due to a lack of individuals with adequate background and training.

- An increasing emphasis on outsourcing of Uniform Act related work by public agencies resulting in:
  - A need for private sector partners to build staff capabilities: Initially, many private sector organizations relied on government employees retiring from or leaving public agencies to provide the staffing needed. However, many of these staff are now retiring for the second time from the private sector and the demand for services is becoming more than can be filled by simply relying on retirees from public sector agencies.
  - A need for public sector staff to develop new skills in contract and project management: Typically, public agency staff may have strong technical skills in their functional area such as appraisal or acquisition, but not necessarily project management experience.
- A changing customer base for public sector real estate services, which has less experience with public sector real estate issues: Work is increasingly being done either in large team environments such as in design/build projects where the prime contractor may have limited public sector real estate knowledge, or at the other extreme, more work is also being managed by Local agencies who have limited knowledge of federal public sector real estate requirements because of fewer Federal-Aid projects completed by them.
- A lack of understanding and respect for the roles, responsibilities, constitutional protections, and significance of real estate service activities within many Federal, State, and Local Public Agencies: This situation may be due, in part, to the absence of a system that recognizes public sector real estate service providers as professionals.
- A general anxiety within the public at large about the impact of eminent domain, a situation compounded by adverse public reaction to the Supreme Court's decision in *Kelo v. City of New London* 125 S. Ct. 2655 (2005) which allowed the use of eminent domain to transfer land from one private owner to another to further economic development. This is coupled with the public's lack of understanding about the protections and benefits afforded to them under the Uniform Act and the U.S. Constitution.

While the public sector real estate community faces a number of challenges, the profession also has an unprecedented opportunity to understand, plan for and prepare itself to be a value added business partner to its customers in the years ahead. Public sector real estate staff has a strong desire to elevate the standards of the public sector real estate profession to levels comparable with the engineering and architectural community with which they work. Likewise, public sector real estate professionals want to be viewed as a valued and equal team member who is engaged and contributing throughout the project lifecycle from inception to completion.

Being able to achieve these goals will require both careful planning now to establish a strategic vision and then precise execution of the supporting forward action. The strategic vision should provide enough structure to act as general guidance for moving the profession forward, while at the same time allowing substantial flexibility to react to the many changes that will occur over the next thirty years, some of which we cannot even imagine today.

## **B. Research Scope and Objectives**

To help establish this 30-year vision and supporting strategic plan for public sector real estate, the Federal Highway Administration (FHWA), in its role as the lead agency for the Uniform Act, initiated a research project to identify the needs and future role of public sector real estate. The purpose of this research effort is to facilitate strategic and future oriented thinking by the public sector real estate community in terms of:

- Looking 30 years into the future and predicting the role and environment of public sector real estate.
- Determining actions required today and in the near term to ensure that public sector real estate professionals are prepared for and positioned to take on the work that they will be required to do over the next 30 years.

Advocates of formal approaches to forecasting claim that an organization can supplement its effectiveness if it can forecast its environment, anticipate problems, and develop plans to respond to those problems. FHWA wants to look 30 years into the future to identify concepts, capabilities, and technologies that Federal, State, and Local agencies will require to remain efficient, relevant, and productive in the face of changing times. This also applies to the private sector firms that support these agencies to conduct real estate acquisition, relocation, and management activities.

This research effort has a number of objectives including:

- Identify opportunities for innovation for public sector real estate.
- Identify emerging technologies that will affect public sector real estate.
- Identify methods to reduce uncertainty and costs when making technology and new product investment decisions.
- Identify ways to expand professional skills by learning from individuals from a broad range of experiences, affiliations, and networks.
- Bring dynamic insights to public sector real estate to help with strategic planning and project development thinking.
- Create a forum for debate on issues concerned with future trends and needs for public sector real estate.

The scope of this research effort is by definition quite broad and includes:

- All public infrastructures (i.e. highways, airports, transit facilities, public housing, parks, flood control and water resources, etc.).
- The Federal, State, and Local agencies, and other Federal-Aid partners responsible for planning, developing, and maintaining this infrastructure and the public sector real estate function within these agencies, which supports development of this infrastructure.
- Private sector partners performing public sector real estate work in support of these government agencies.

Within the public sector real estate community, the research incorporates a variety of roles, functions and activities including:

- Real estate planning.
- Real estate's role in the human and natural environment including stewardship and oversight activities.
- Appraisal.
- Mapping, surveys, and legal descriptions.
- Acquisition.
- Relocations.
- Property management.
- Utility accommodations.
- Outdoor advertising control.
- Disposal.
- Eminent domain.

FHWA research in preparation for this study suggested that combining forecasts from different methods and from independent experts improves accuracy. One perfect model is seldom applicable in management and social sciences. A variety of perspectives, interests, and techniques is highly desired. Combining points of view helps assure forecast correctness by evening-out biases and including diverse information and outlooks.

To this end, FHWA asked each of its three research contractors to conduct independent research projects, following a general scope but utilizing its own independent research approaches. The work of each of the three research teams will then be synthesized and integrated and the best ideas from each of the three teams carried forward into the second phase of the research effort.

This report summarizes the research work performed by one of these teams.

## C. Research Approach and Methodology

The research approach included the following tasks:

- Identifying external and internal forces that affect Federal, State, and Local agencies responsible for planning, developing, maintaining, and operating infrastructure for public benefit.
- Assessing the impact of these external and internal forces on the operations of the agencies.
- Identifying the resultant impact on the public sector real estate functions within these agencies and the private sector partners performing real estate activities for the agencies.
- Identifying the roles the public sector real estate community will need to perform to meet the needs and requirements of the various Federal, State, and Local agencies.
- Defining vision statements that specified the anticipated roles of public sector real estate 10 years in the future and 30 years in the future.
- Developing a mission statement and a set of strategic objectives in support of the anticipated role of the public sector real estate community 10 years from now and 30 years from now.
- Defining an action plan consisting of a number of short-term and long-term initiatives to prepare the public sector real estate community to achieve its proposed mission.

More specifically, rather than extrapolating into the future from the past, the research will answer the following questions:

- What are the implications for the public sector real estate community given the continuing changes in the role of government and the private sector in how public infrastructure is designed, built, operated, and the methods used here in the United States and internationally?
- What is the preferred future role for the public sector real estate function from the perspectives of its customers including its peers, partners, and the public at large?
- What are the types of products and services that will be of most value?
- What is the continuum of likely program roles for the public sector real estate function in the future?
- What staffing, skill mix or other organizational changes will be required within the public sector real estate community?

The elements of the problem are described in more detail as follows.

- **Understanding the external forces affecting public sector real estate**

The public sector real estate community is impacted by the same general external or outside forces that have confronted government agencies and private companies of all types, as well as by a series of forces that are specific to the planning, design, construction, maintenance, and operation of infrastructure for the public benefit. These are economic, social, cultural, policy, and technology driven forces. Identifying these forces and determining their implications for the future role of public sector real estate is very important within the context of ownership, delivery, management, and operation of public infrastructure.

Examples of external trends include the demand for business-like or performance-oriented government. Other external forces include the tremendous growth in travel demand, the backlog of infrastructure needs, and the dramatic increase of real estate (right-of-way) cost as a proportion of project cost.

- **Understanding internal forces affecting public sector real estate**

Internal forces are impacts that are specific to the public sector real estate community. These internal forces include the age, structure or length of tenure of the work force, and the civil engineering-oriented values of transportation agencies and other customers with which public sector real estate staff often work. Other factors include on-going cost and environmental-driven changes in how transportation and other infrastructure projects are designed and built, on-going changes in the products and services the various Federal, State, and Local agencies provide, and personnel and other rules within the public sector which can limit the application of human resource and organizational development best practice.

- **Recognizing evolving business practices of agencies (FHWA, other Federal Agencies, State and Local agencies)**

Business practices of the agencies supported by the public sector real estate community are changing, and newer, varied roles are emerging. An example of change includes an increased emphasis on project management, and as a result, the engagement of the real estate function in project cost control and project cost management.

- **Identifying future roles for public sector real estate by identifying and understanding the impact of emerging requirements for customers' success**

By analyzing the following questions, the emerging roles of public sector real estate can be identified:

- What are the emerging business activities of the Federal, State, and Local agencies which public sector real estate supports?
- What are the business requirements for the real estate functions and disciplines to support these activities?
- What are the future opportunities or needs for the public sector real estate community to provide services through its programs that will enable government to be most successful?

Through this approach, the future needs for public sector real estate was identified from the perspective of determining what roles will add the most value for the partners, customers and the stakeholders. Put in a different way, what roles do the Federal, State, and Local agencies, their end customers, and the public at large need the public sector real estate community to play in order for real estate's customers and stakeholders to be most successful?

The research team worked with experienced public sector real estate stakeholders through brainstorming sessions to answer and analyze the above questions. This stakeholder team consisted of ten (10) individuals who represent a cross section of public sector real estate professionals. The members of the stakeholder team have a minimum of ten (10) years experience in public sector real estate and related fields. The stakeholder team members are either current employees and/or have prior experience with FHWA, the Department of Housing and Urban Development, National Park Service, two state departments of transportation, the U.S. Army Corp of Engineers, and large Local Public Agencies.

The stakeholder team met via web cast for three (3) two-hour meetings from December 2005 to March 2006 to provide input to the research effort. The stakeholder team also met for a fourth meeting via web cast in early April 2006 to review and comment on the initial draft of the research report.

A detailed literature search complimented the brainstorming sessions. The literature search, which was intended to develop topics and ideas to jump-start the brain storming process of the stakeholder team, focused on three areas:

- External trends or forces affecting the world and the nation generally, such as growth of developing nations, continued globalization of the economy, demographic changes in the United States population, and the expected role of technology.
- External trends affecting government agencies directly such as the new SAFETEA-LU legislation, potential changes in the Federal role for funding transportation projects, and the increased use of public/private partnerships to finance and develop infrastructure projects.
- Internal forces affecting parent agencies such as agency performance management strategic initiatives.

Appendix A provides a list of the various resource materials reviewed by the research team as part of the literature search. The literature search focused on research regarding potential future events. These future forecasts included those that are anticipated to occur in the near future – the next 10 years, to those that are expected to happen in the relatively distant future – the next 30 years, and the period in between.

Research conducted by various organizations, construction groups, and universities clearly identified activities anticipated to occur within the next 10 years. Activities 30 years out in the future consist of a mix of research by various organizations, and a lot of research conducted by professional futurists - people whose main work is to anticipate and detect early signals of change, and anticipate the outcome in the future.

The research team then utilized the input from the brainstorming sessions and literature search to identify the anticipated changes or impacts to the various Federal, State, and Local Agencies, and the resultant impact on the public sector real estate community supporting these agencies. While recognizing that any changes and the resultant impacts on public sector real estate will take place over a 30 year continuum, the research team, for ease of analysis, chose to look at two snap-shot points in time: 10 years in the future and 30 years in the future, and develop detailed vision statements for each of these timeframes.

Using these two vision statements, the research team then developed an overarching mission statement for the public sector real estate function designed to support its changing role across the 30-year period. The team then devised two specific actions plans:

- A short to intermediate term action plan designed to support the public sector real estate community in executing on the 10-year vision statement and meeting the near-term requirements of its customers.
- A longer-term action plan designed to support the public sector execution as it grows towards and begins to execute the 30-year vision statement.

Each of these action plans was then validated with the stakeholder team and adjusted based on their input and feedback.

The remaining sections of this report provide a summary of the findings and recommendations of this research project as follows:

- **Section II. Vision Statements.** Based on the stakeholder team brainstorming sessions and the literature search, this section documents the internal and external forces anticipated to affect the Federal, State, and Local agencies over the next 30 years and the resultant impact on the role and mission of the public sector real estate function.
- **Section III. Strategic Plan.** Based on the Vision Statements, this section proposes a mission statement for the public sector real estate function; a set of strategic goals to support this proposed mission statement and two action-plans to execute the strategic plan: a short to intermediate action plan and a long-term action plan.



## II. Vision Statements

To understand the role public sector real estate will be asked to play over the next thirty years and consequently, how the profession should best prepare to meet these challenges, the study team envisioned how external and internal forces will affect the needs of our customers and the resultant impact on public sector real estate.

The purpose of this visioning process was to:

- Identify impacts on our customers and the opportunities created by these impacts for public sector real estate.
- Establish strategies to position public sector real estate to best address these potential opportunities.
- Identify required actions to fully implement these strategies.

For purposes of this analysis, we have defined customers as follows:

- The government agencies supported by the public sector real estate function. This broadly includes all public sector organizations responsible for developing infrastructure for the public benefit.
- Private sector partners such as engineering firms, large design/build teams, and other private entities who may manage work on behalf of a public sector agency and have a public sector real estate component or engage public sector real estate expertise as part of the team.

The team accomplished our visioning process by:

- Identifying potential external trends that may affect our customers.
- Identifying potential internal trends that may affect our customers.
- Assessing the impact of these external and internal trends on our customers and their business objectives.
- Based on the changing needs of our customers, assessing the impact on the role of public sector real estate in supporting these customer needs.
- Anticipating any external or internal trends directly affecting public sector real estate and assessing the impact of these trends.

This section provides an overview of the results of the visioning performed by the study team.

To facilitate discussion of the various factors anticipated to impact public sector real estate, these external and internal forces have been categorized into several major trend areas as follows:

- World Trends.
- Community.
- Technology.
- Infrastructure Development and Management.
- Policy and Politics.
- Project Development Process.
- Human Capital.

Each of the trends area will be defined and examined broadly and then specifically analyzed for their impact on our customers and consequently to public sector real estate. This impact analysis has been done across two planning horizons, Years 0-10 and Years 11-30. The impact analysis for the first ten years should logically have the most predictability, with the analysis for years 11-30 being much more unpredictable.

## A. World Trends

World trends refers to general global trends and their impact our nation and people, and where and how they will live.

### 1. Summary of Key World Trends

The internet and other improvements in communications as well as the speed and ease of travel, have made the world an increasingly interconnected global village, and this trend will undoubtedly continue. As Glen Hiemstra writes in an excerpt from his letter written in 2049 to the people of 1999 on Futurist.com:<sup>5</sup>

*“Our house is tied into the global net all the time, and the wall screens in the rooms make it easy to see and talk to people anywhere in the world. Two of my best friends live in Korea and Russia. We have not met in person yet, but we talk all the time on the net. Sometimes I also like to just sit and skip around the global cameras, and see what is happening in different places...”*

While this shrinking of the globe means it is much easier to share ideas and to work together on global initiatives, it also means that problems in one part of the world can now become worldwide problems much more easily. Epidemics that may have once been isolated to one region, for example, can now spread across continents and across the globe.

The world economy is also going through, and will continue to go through, a tremendous transformation. For more than a century, the United States has had the largest, most productive economy in the world. In 2000, the United States was almost twice the size of the next largest economy, China, and about three times the third largest economy, Japan.

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<sup>5</sup> Hiemstra, Glen. “Letter Written in 2049 to the People of 1999,” Futurist.com

The fourth largest economy, India, was a little over one-quarter the size of the economy of the United States.

Major shifts, however, are already under way. Over the last thirty years, economic primacy has begun shifting from the United States and Western Europe to China and India. The wealthier countries of Europe have seen the greatest decline in global Gross Domestic Product (GDP) share, incurring a 4.9 percentage point decline, followed by the United States and Japan, with a decline of about one (1) percentage point each. At the same time, China and India have all experienced continued growth in global GDP share.

This trend is expected to continue over the next 30 years, resulting in a historic transformation of the world economy from uni-polar (meaning the singular economic dominance of the U.S.) to bi-polar with the emergence of China, and then ultimately to a tri-polar economy with the growth of India. Within 15 years, China is expected to become the largest economy in the world. China's economy is then projected to become 50 percent larger than the United States' economy by 2025, and almost double that of the United States by 2035.

As the share of the United States in world GDP falls (from 21 per cent to 18 per cent) and that of India rises (from 6 per cent to 11 per cent in 2025), India emerges as the third pole in the global economy. By 2025, the Indian economy is projected to be about 60 per cent the size of the United States economy. The transformation into a tri-polar economy will be complete by 2035, with the Indian economy only a little smaller than the United States economy but larger than that of Western Europe.<sup>6</sup>

This dramatic growth in the economies of China and India will multiply demand for public infrastructure and increase competition for scarce resources. Already, the demand for structural steel and other construction materials for Chinese projects have been identified as a significant cost driver for civil projects in the United States. Over the next 30 years, this can only be expected to become more significant as China continues to grow exponentially and is joined in this growth by India, potentially Brazil, and a number of other developing nations.

## **2. Impact Analysis of World Trends on Public Sector Real Estate: 0 to 10 Years**

### **Projected Impacts**

These world trends will have several major impacts on the public sector real estate function. These impacts include:

- Significantly increased cost pressure on projects as United States projects compete for and share scarce resources with more countries.
- Cost pressure will require more flexible and creative project solutions. Public sector real estate staff will need to play a major role in this process. Real estate staff should

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<sup>6</sup> Virmani, Arvind. "India a Giant Economy? Yes, by 2035!"  
<http://www.rediff.com/money/2005/jan/21guest.htm>

engage as early in the project planning process as possible and help as a key team member in designing a cost effective solution, weighing real estate and utility impacts in the comparison of feasible project alternatives.

- Given the amount of infrastructure development that will be occurring worldwide, it is essential that public sector real estate be an active contributor to a global knowledge transfer process. The lessons learned through this knowledge transfer must be efficiently communicated and shared with the field workforce to help leverage this intellectual capital as quickly as possible on projects.

### **Recommended Actions**

These impacts will drive a number of required actions on the part of the public sector real estate community. These actions include the following:

- It is essential that public sector real estate staff engage as an active partner as early as possible in the project development process to allow for maximizing real estate input into developing a more flexible, cost effective solution.
- Development and implementation of enhanced cost estimating methodologies, which accurately predict the real estate and utility cost elements, are essential, given the increased cost pressures likely to be faced by projects. Given that these components are becoming an increasingly larger percentage of project budgets, the criticality of this action is tremendous. The methodologies must incorporate the future value of money, risk identification and mitigation, and specific real estate market trends. The cost estimating methodologies must also have a process for review and adjustment as required on a regular basis through the project planning and design phase. The degree of certainty of the estimate will increase as the project proceeds.
- Acquisition processes need to be streamlined to the extent possible to reduce the potential for any delays and the associated cost impacts. Crisp execution of the acquisition process is essential to delivery of the real estate components of the project on budget. It will eliminate any potential cost increases due to delays in starting the construction phase of the project and should minimize labor hours required to deliver the real estate.
- Utility relocation efforts should be tightly and carefully managed to ensure that this effort is delivered within budget and does not become a critical path item that impacts overall project schedule and budget.
- Technology transfer programs should be continued and expanded as appropriate to facilitate all sharing of technical information and best management practices across real estate practitioners around the globe.
- There is a need to educate Local Public Agencies on the relocation assistance program required under the Uniform Act and explain how required legal notices impact the project schedule.

Exhibit II-1 summarizes the impacts of world trends on public sector real estate for Years 0-10.

**Exhibit II-1: Anticipated Impact of World Trends: Years 0 - 10**

| <b>Trend/Direction</b>  | <b>Impact on Public Sector Real Estate (PSR)</b>   | <b>Required Actions</b>   |
|---|--|---|
| <ul style="list-style-type: none"> <li>• World increasingly becoming a global village</li> <li>• Shifts in world economy, with China joining United States in a bi-polar economy</li> <li>• Expansive growth in developing nations</li> </ul> | <ul style="list-style-type: none"> <li>• Increased cost pressure on projects as sharing scarce resources with more countries</li> <li>• Need for more flexible, creative project solutions</li> <li>• Opportunity to share knowledge and experience on a world wide basis</li> </ul> | <ul style="list-style-type: none"> <li>• Earlier involvement in the project development process to allow for real estate input into developing a more flexible, cost effective solution</li> <li>• Improved cost estimating methodologies that include the cost of acquisition and relocation assistance under the Uniform Act</li> <li>• Streamlining of acquisition process to reduce potential for delays/associated cost impacts</li> <li>• Aggressive planning and management of utility relocation efforts</li> <li>• Expansion of programs to share technology and other knowledge with global partners</li> </ul> |

**3. Impact Analysis on Public Sector Real Estate: Years 11 to 30**

**Projected Impacts**

The impacts of world trends on public sector real estate anticipated in Years 11-30 include the following:

- Extensive cost pressure on projects from global supply/demand pressures as China passes the United States as the world’s largest economy, India becomes an equal player at the table and more developing countries begin to expand their infrastructure.

- Extensive cost pressure will further drive the need for flexible, creative project solutions.
- The need for greater multi-national project coordination as projects become global in character either as joint development efforts between various countries or as global teams made up of firms from many countries work together to deliver larger projects. These global project teams will also draw on varied expertise from around the world.
- Keeping up with cutting-edge techniques and best management practices will require a global orientation. Knowledge sharing on a global basis will be essential to successfully competing and delivering the most flexible, cost effective solutions.

### **Recommended Actions**

The required actions in Years 11 to 30 include the following recommended steps.

- Cost estimating methodologies and processes should be refined and continuously updated based on actual historical experience, improvements to technological tools, and changes in recommended techniques and best management practices.
- Public sector real estate staff will need to put more emphasis on a broad technical and inter-personal skill base to work effectively on multi-cultural, multi-language global teams.
- Proactive technology transfer programs must be implemented to foster sharing of technology/knowledge with the global public sector real estate community.

Exhibit II-2 summarizes the impacts of world trends on public sector real estate for Years 11-20.

**Exhibit II-2: Anticipated Impact of Community Trends: Years 11 - 20**

| Trend/Direction  | Impact on PSR  | Required Actions   |
|--|--|--|
| <ul style="list-style-type: none"> <li>• Tri-polar world: US, China, India</li> <li>• Even greater influence by other developing nations (Brazil, etc.)</li> </ul> | <ul style="list-style-type: none"> <li>• Extensive cost pressure on projects from global supply/demand pressures</li> <li>• Greater multi-national project coordination</li> <li>• Need for more flexible, creative project solutions</li> <li>• US sharing knowledge and experience on world wide basis</li> <li>• Greater opportunities to learn from other nations</li> <li>• Global project teams drawing on varied expertise from around the world</li> </ul> | <ul style="list-style-type: none"> <li>• Cost estimating processes fine tuned</li> <li>• Need for broader technical and inter-personal skill base to work effectively on multi-cultural, multi-language global teams</li> <li>• Very aggressive programs to foster two-way sharing of technology/knowledge with global partners</li> </ul> |

**B. Community**

Community refers to those trends impacting our nation and its fundamental character. This includes social, cultural, and demographic trends, as well as where and how we live.

**1. Summary of Key Community Trends**

Much of the growth envisioned over the next thirty years is expected to take place in urban areas and existing suburbs, with people seeking to reduce lengthy commutes. At the same time, it is anticipated that there will be a greater awareness of environmental issues, with infrastructure needing to be designed to better fit into and enhance the character of both the human and natural environment.

Research in the United Kingdom by David Rudlin and Dr. Nicholas Falk of the Urban and Economic Development Group (URBED) analyzed the anticipated influences of social and

demographic changes on future housing and how these should affect housing built today. Some of their key findings included:<sup>7</sup>

- More new housing will be built within existing settlements to reduce commuting. This will require models for sustainable urban neighborhoods using traditional urban forms at higher densities in a way that can compete with the attractions of the suburb.
- Most new housing looks to the past rather than the future. The research showed that a large segment of the public believes that much of the housing being built today is unsustainable environmentally and ill suited to changing household needs.
- Successful developers in the future in the public and private sectors will respond to increasing environmental concerns, changing demographic and social trends, and economic pressures.

Futurist.com predicts, “in the 21st century houses will go ‘back to the future’ and rapidly become centers for work, learning, entertainment, and even health care. This will have implications for community planning as profound as did the 20th Century move to the suburbs.”<sup>8</sup>

Glen Hiemstra, in his “Letter Written from the People of 2049 to the People of 1999,” continues:<sup>9</sup>

*“What else can I tell you? I really like our house. It's pretty old, built around 2015. The house is built like many other 21st Century houses, with solar orientation and a high-efficiency gas turbine to provide both the heat and the electricity we need. I guess as it got more crowded many people decided to cluster the houses together in small neighborhoods like this, and save more open space for things like our horse pasture. We get added winter heat from the solarium and some of our electricity from the PV (photovoltaic) cells on the roof.*

*We grow some of our food in the community garden and greenhouse. We use special biotech seeds that help the plants to grow faster and to use less water. I know you had biotech in the old days, but it is a really big business now. Some people say it will be bigger than digital industries soon, but the nano-technology people say they will get there first.”*

Balancing the projections of significant growth in existing urban and suburban areas is a belief on the part of some experts that there could be substantial migration and hence significant growth in population in rural areas, especially if concerns about terrorism and other security issues make people feel safer in rural or otherwise remote areas.

Likewise, the migration to the South and West is expected to continue. Cities like Las Vegas, Phoenix, Atlanta, and Charlotte are projected to grow substantially through 2035.

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<sup>7</sup> Rudlin, David and Dr Nicholas Falk. “Future influences on housing,”

<http://www.jrf.org.uk/knowledge/findings/housing/H8.asp>

<sup>8</sup>

[http://www.futurist.com/futuristnews/archive/thinking\\_in\\_the\\_future\\_tense/archive\\_tift\\_preparing\\_for\\_the\\_21st\\_century.htm](http://www.futurist.com/futuristnews/archive/thinking_in_the_future_tense/archive_tift_preparing_for_the_21st_century.htm)

<sup>9</sup> Hiemstra, Glen. “Letter written in 2049 to the people of 1999,” Futurist.com



Some areas in the Northeast anticipate only marginal increases in population. The population of New York State, for example, is expected to grow only 9.3 percent over the next three decades, and much of this growth is only as a result of a gain of 3.9 million people through net in-migration from abroad.<sup>10</sup>

Our population will also continue to become more diverse, as well as older. Some anticipated trends in the U.S. population include:<sup>11</sup>

- The U.S. population will grow larger. The Nation's population is projected to increase to 392 million by 2050 -- more than a 50 percent increase from the 1990 population size.
- The U.S. population growth rate is slowing. Despite the anticipated large increase in the number of persons in the population, the rate of population growth, referred to as the average annual percent change is projected to decrease during the next six decades by about 50 percent, from 1.10 between 1990 and 1995 to 0.54 between 2040 and 2050. The decrease in the rate of growth is predominantly due to the aging of the population and, consequently, a dramatic increase in the number of deaths. From 2030 to 2050, the United States would grow more slowly than ever before in its history.
- The U.S. population will be older. The median age of the population will steadily increase from 35.5 in 2000 to a high of 39.1 in 2035.
- The U.S. population is becoming more diverse by race and Hispanic origin. The race and Hispanic-origin distribution of the U.S. population is projected to become more diverse. By 2050, less than 53 percent of the U.S. population will be non-Hispanic White; 16 percent will be Black; 23 percent will be of Hispanic origin; 10 percent will be Asian and Pacific Islander; and about 1 percent will be American Indian, Eskimo, and Aleut. Non-Hispanic Whites, the slowest growing group, are likely to contribute less and less to the total population growth in this country. Although non-Hispanic Whites make up almost 75 percent of the total population, they will contribute only 14 percent of the total population growth between 2010 to 2030 and will contribute nothing to population growth after 2030 because this segment will be experiencing a net decline in size. Conversely, the Hispanic-origin population will be the largest growing group. The Hispanic-origin population will contribute 39 percent of the Nation's population growth from 2000 to 2010, 45 percent from 2010 to 2030, and 60 percent from 2030 to 2050.

Likewise, there is expected to be a continued rise in property values in both urban and rural areas and consequently an increase in housing costs in general. Some additional community trends may also surface and be more predominant in the second half of the planning horizon. For example, if the more dire projections concerning global warming begin to occur, there may be some migration inland, abandoning coastal areas. This could also occur if there continues to be a pattern of severe hurricanes as evidenced by

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<sup>10</sup> "Demographics Projections to 2025," New York State Office of Aging,  
<http://aging.state.ny.us/explore/projections/page1.htm>

<sup>11</sup> Cheesman, Jennifer. "National Population Projections," United States Census Bureau,  
<http://www.census.gov/population/www/pop-profile/natproj.html>

the likely abandonment of some of the most low-lying areas in southern Louisiana in the wake of Hurricane Katrina.

Changes in land use could also lead to new uses and needs for land including wind mill and solar panel farms. These new uses for land will likely introduce new issues for public sector real estate professionals to address.

## **2. Impact Analysis on Public Sector Real Estate: 0 to 10 Years**

### **Projected Impacts**

These community trends are expected to have several critical impacts on the public sector real estate function. These impacts include:

- The increasing complexity of the acquisition process as a result of the amount of work being done in urban and suburban areas including the need for more business and residential relocation activity.
- Continued increases in the cost of real estate acquisition as a percentage of the project budget due to the amount of work being done in urban areas and the general increase in land values.
- Need to shift public real estate resourcing geographically based on where population is increasing the most and thus driving the need for substantial infrastructure development.
- Requirements for more real estate work to take place in rural areas if migration away from the cities occurs due to terrorism threats and other concerns, spurring development in previously remote areas.
- Public sector real estate staff needs to be more attuned to public concerns. This is a direct result of the public being more engaged in environmental concerns as evidenced, for example, by the houses predicted by Glen Hiemstra with “solar orientation, high-efficiency gas turbines and community gardens with biotech seeds.” Likewise, public sector real estate staff needs to be more proactive in defining the real estate elements of solutions that preserve and protect the human and natural environment.
- There will be a need for more bi-lingual and multi-lingual staff and greater awareness of multi-cultural issues as a result of the changing demographic mix of the country.

### **Recommended Actions**

These impacts will drive a number of required actions on the part of the public sector real estate community. These actions will include:

- There will be an on-going need for highly experienced resources to address the increased complexity of projects, something that will conflict with the loss in the short and intermediate term of experienced resources that will be leaving the profession as

the result of the aging of the public sector work force. This will require both public agencies and private sector firms to expedite development and rollout of training programs and look for ways to leverage technology to develop tools to capture and better share intellectual capital.

- Earlier involvement in the project development process by public sector real estate staff is critical to allow for the impact of project designs on existing real estate and utilities to be avoided or minimized.
- Additional trained and experienced public sector real estate resources will be required in the South and West and in smaller, growing communities that may be impacted by increased migration from urban areas because of terrorism threats or other concerns.
- It is essential that the existing public real estate work force and those entering the profession develop Spanish and Asian language skills and greater cultural awareness as the demographics of their communities change.
- Recruitment programs for the profession should recognize anticipated changes in demographics and be designed to help recruit new staff who will be representative of the communities they serve.
- Public sector real estate staff must strengthen their soft skills in order to enhance working relationships with a sophisticated, better educated, environmentally aware, and more knowledgeable population. These skills are separate from the technical skills required by the public sector real estate staff. Targeted skill areas should include training in:
  - Communication.
  - Facilitation.
  - Negotiation.

Exhibit II-3 summarizes the impacts of community trends on public sector real estate for Years 0-10.

**Exhibit II-3: Anticipated Impact of Community Trends: Years 0 - 10**

| <b>Trend/Direction</b>  | <b>Impact on PSR</b>  | <b>Required Actions</b>   |
|---|---|---|
| <ul style="list-style-type: none"> <li>• Growth expected to continue in urban and suburban areas</li> <li>• Even greater emphasis and expectations on preserving environment and community character</li> <li>• Potential for some migration to smaller communities based on security concerns – could be widespread in event of significant/additional terror attacks</li> <li>• More multi-cultural society</li> <li>• Continued shift of population to the South and West putting pressure on and requiring rapid expansion of infrastructure in these areas</li> <li>• Aging population requiring new and innovative solutions</li> <li>• More knowledgeable and sophisticated public who have increased expectations concerning the environment and better access to information about what is possible</li> </ul> | <ul style="list-style-type: none"> <li>• New improvements in urban areas will impact existing infrastructure</li> <li>• Continued complexity in acquisition process</li> <li>• Continued complexity in business and residential relocation</li> <li>• Need for developing new infrastructure in smaller communities and rural areas</li> <li>• Real Estate becoming increasing percentage of project budget</li> <li>• Need for bi-lingual staff sensitive to a variety of cultural issues</li> <li>• Need for additional experienced staff in southern and western United States</li> <li>• Increased sophistication of public drives need for stronger community relations skills and capabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Earlier involvement in the project development process to allow for impact on existing real estate to be avoided or minimized</li> <li>• On-going need for experienced resources to address increased complexity</li> <li>• Additional trained and experienced PSR resources in smaller, growing communities</li> <li>• Developing Spanish language skills of existing work force</li> <li>• Recruiting new staff representative of the communities they serve</li> <li>• Developing/recruiting staff in faster growing areas of the country</li> <li>• Strengthening soft skills of work force</li> </ul> |

### **3. Impact Analysis on Public Sector Real Estate: Years 11 to 30**

#### **Projected Impacts**

The impact on public sector real estate for Years 11 to 30 is expected to involve a continuation and strengthening of the impacts predicted for the first ten years. In addition to those impacts identified above, two new areas of impact will include:

- Emergency response and the resulting need to define and institutionalize the concept of reverse condemnation as some land becomes unusable or dangerous to use as the result of natural forces such as global warming. What should or will be the government's role, for example, for property losses resulting from these types of natural events?
- Increased costs for healthcare as the population ages, which may impact the funding available for public benefit infrastructure development and improvement. This will put additional cost pressures on project budgets and drive the need for even more creativity on the part of the public real estate function, given that real estate and utility relocation are large elements of the project budget.

#### **Recommended Actions**

The required actions in Years 11 to 30 involve a continuation and institutionalization of the actions started in Years 0 to 10. In addition, the following actions will be critical:

- There will be a need to enhance any on-going training or continuing education programs to provide for training of staff on new and evolving impacts.
- There will be a need to proactively develop, modify, and quickly communicate policies to address new and evolving public sector real estate issues resulting from changes in land use patterns, public projects, and the impact of global warming and natural disasters.
- Cultural awareness training and types of language skills must become an essential part of real-estate education course work.
- Recruitment processes must ensure that public sector real estate staff is representative of the communities they serve and reflect the changing nature of the demographics of these communities.
- Cost estimating processes must be continuously refined to help public sector real estate teams develop creative solutions in response to increasing cost pressures.

Exhibit II-4 summarizes the impacts of community trends for Years 11-20.

**Exhibit II-4: Anticipated Impact of Community Trends: Years 11 - 20**

| Trend/Direction  | Impact on PSR   | Required Actions   |
|--|---|--|
| <ul style="list-style-type: none"> <li>• Growth expected to continue in urban and suburban areas</li> <li>• Even greater emphasis and expectations on preserving environment and community character</li> <li>• Potential for some migration to smaller communities based on security concerns – could be widespread in event of significant/additional terror attacks, natural disasters, or epidemics</li> <li>• Global warming could result in increase in sea level, leading to migration of people to inland areas (Mid-west, etc)</li> <li>• Changes in land use, increase in windmill and solar-panel farms</li> <li>• Multi-cultural society</li> <li>• Significant changes in the ethnic mix, some minorities no longer a minority</li> <li>• Increased aging of population leading to higher healthcare costs</li> <li>• Information available easily and on demand, leading to a more knowledgeable and increasingly sophisticated public – higher expectations in terms of performance, accountability and transparency</li> </ul> | <ul style="list-style-type: none"> <li>• Projects continuing in urban areas further impacting existing infrastructure</li> <li>• Continued complexity of acquisition process</li> <li>• Continued complexity in business and residential relocation</li> <li>• Need for developing new infrastructure in smaller communities and rural areas at a relatively fast pace</li> <li>• New concepts, like reverse condemnation – new meaning to the concept of reclamation</li> <li>• Need for staff that is multi-lingual and sensitive to various cultural issues</li> <li>• Need for additional experienced staff at locations in accordance with migration patterns</li> <li>• Higher healthcare costs may lead to less funds for infrastructure projects</li> </ul> | <ul style="list-style-type: none"> <li>• Earlier involvement in the project development process to allow for impact on existing real estate to be avoided or minimized</li> <li>• On-going need for experienced resources to address increased complexity</li> <li>• Additional trained, experienced PSR resources in smaller, growing communities</li> <li>• Need for a program to facilitate additional training of existing staff when required – well defined continued learning curriculum</li> <li>• Need to develop and modify policies to address new and evolving PSR issues</li> <li>• Cultural issues/linguistic basics a part of real-estate education course work or orientation courses</li> <li>• Process to ensure that staff is a representative of the communities they serve</li> <li>• Developing staff in faster growing areas of the country</li> <li>• Adding communication, facilitation, and negotiation to a list of required skills to enter the industry</li> <li>• Cost estimating processes fine tuned; creative solutions to reduce cost</li> </ul> |

## C. Technology

Technology refers to advancements in information technology and innovation in construction tools and methods.

### 1. Summary of Key Technology Trends

The advances in technology that will most directly impact public sector real estate can be broadly categorized into three major groups:

- a. Improvements in information management and computer-based analytical tools.
- b. Potential uses of technology to aid in collection of user fees.
- c. On-going evolution of construction techniques.

Each group or trend is described in further detail below.

#### **a. Improvements in information management and computer-based analytical tools.**

Some of the more important improvements in the capturing, sharing, management, and analysis of information are:

- Growth in mobile computing and ease of access to the internet.
- Increased use of global positioning systems (GPS) technology and geographic information systems.
- Workflow and collaboration tools.
- Growth of the digital enterprise.

#### ***Growth of mobile computing and an enhanced availability of the internet.***

The number of proven technologies available for communicating and sharing information with one another continues to expand in depth and functionality. There is no reason not to expect this trend to continue. It is reasonable, with the increased capability of mobile computing devices, to expect that soon, high speed access to the internet will be available almost anywhere, thus allowing individuals to easily access information about just about anything from anywhere with portable, inexpensive devices.

#### ***Increased use of GPS and GIS technology.***

GPS (global positioning) technology will enable more precise locating of real estate, as well as other elements of the human and natural environment. GIS (geographical information)

technology will allow real estate professionals and other decision makers to more effectively identify, analyze and assess real estate and other impacts (such as wetlands, protected species, environmental justice) on potential projects. GIS will also facilitate “what if” analysis allowing the real estate impacts to be easily balanced and compared against other human and natural environmental factors among various project alternatives. The Florida Department of Transportation and its resource agency partners, for example, have developed a GIS-based application that performs this type of trade-off analysis. A similar application is currently in the planning stages in Tennessee.

### ***Growth of the Digital Enterprise.***

Just as many private sector organizations view data as a critical asset, public sector agencies will increasingly view their design data and other information about their infrastructure as vital tools that aid in managing a project over its entire life cycle. With this trend, the process of how a design is developed will become just as important as the set of plans at the end of the design process is today. The quality of the data will be very important as information is used across multiple phases of the project and beyond. For example, information can be passed to the construction contractor to be used as an input for setting up equipment or as a basis for populating an as built database to be utilized to help maintain the asset.

### ***Workflow and Collaboration Tools.***

The increased availability of powerful workflow and collaboration tools helps to facilitate the sharing of information within and across organizations. Two examples of these applications directly relevant to the project development process include:

- Project collaboration tools that allow team members to view, share and update design data. These tools allow the various partners on a project team, potentially both internal and external to the organization, such as designers, environment specialists, real estate specialists, and utility relocation specialists a common view of the latest design information at the same time.
- A GIS-based repository for utility design and as-built data which allows design information to be maintained and shared between numerous interested stakeholders including utilities, engineering firms, and construction contractors.
- Three dimensional and experiential modeling tools that can be utilized to help stakeholders better understand a proposed project and the impact of the proposed project on the surrounding community, including real estate impacts.

### **b. Potential uses of technology to aid in collection of user fees**

Transportation officials in the United States and the United Kingdom are both studying the use of satellites and ground positioning receivers (GPS) to determine and collect user fees for transportation facilities. Under the plans, the current gas tax would be reduced or



replaced in favor of a system where satellites would monitor the driving of individuals and charge fees based on use, collecting higher fee for use of facilities at peak times.

In the fall of 2005, the Oregon Department of Transportation began implementing a federally funded road tax pilot project. Twenty vehicles equipped with a GPS receiver will fill up at one of two special gas stations that download mileage information from the GPS device, charge the road tax and refund the amount of the gas tax automatically. Initially, the special black box will not record location data, just total mileage in-state and out-of-state, with the latter mileage being tax-free.<sup>12</sup>

### **c. On-Going Evolution of Construction Techniques**

A range of improvements to construction methods and techniques will help to significantly transform the nature and type of infrastructure developed for public benefit. These technology improvements could include among others:

- A wider use of techniques to develop man made or synthetic islands. This technology is being developed through the Palm Islands and World projects, which are currently under development off the coast of the United Arab Emirates. The Palm Islands, also referred to as The Palm Dubai and The Palms, are the world's three largest man-made islands and will increase Dubai's shoreline by 120km (72 miles) and create a large number of residential, leisure, and entertainment areas. The World is a series of 223 man-made islands, strategically positioned to form the shape of a map of the world. Located five kilometers off the coast of Dubai, The World will be 3.4 miles in both length and width, covering 60 million square feet, including 10 million square feet of beach.
- Tunneling techniques that make the building of underground cities and other infrastructure more practical and cost effective.
- Construction techniques that could make the development of cities in space more realistic and cost effective. These types of technologies are currently being deployed and perfected, for example, through the construction of the International Space Station.

## **2. Impact Analysis on Public Sector Real Estate: 0 to 10 Years**

### **Projected Impacts**

These technology trends are expected to have several impacts on the public sector real estate function over the first ten years of the planning cycle. These impacts include:

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<sup>12</sup> "US, UK Move Toward Per-Mile Driving Tax," Newspaper.com, June 6, 2005.  
<http://www.thenewspaper.com/news/04/442.asp>

- An opportunity for continued automation of public sector real estate business processes both in the office and on a wider scale in the field through the use of mobile computing and the internet and the increased power and cost effectiveness of Personal Digital Assistants (PDAs) and tablet computers.
- Collaboration software and tools allowing team members to more easily work and collaborate with each other will be developed and deployed to help increase the automation of the project development process and allow for more effective sharing of all project data. This will include more effective sharing of real estate related information by real estate staff with project designers and engineers and the increased access by real estate staff to overall project design information.
- Greater access to GIS-based planning and decision making tools to support trade-off analyses on project locations and alternatives, which will allow real estate impacts and costs to be better understood in the context of other human and natural environment issues.
- Visualization and simulation software will be increasingly used with citizens in the field to help explain the project generally, as well as the specific real estate and utility elements of the project.
- There will be a need for public sector real estate staff to be as knowledgeable and informed about the project and on real estate matters as possible since the citizens, because of the ready availability of information through the internet and other technologies, will be very knowledgeable and informed about project issues and their rights.

### **Recommended Actions**

These impacts will drive a number of required actions on the part of the public sector real estate community. These actions will include:

- The public sector real estate community should leverage investments in proven technologies to streamline business processes and improve the overall efficiency of the public sector real estate work force. These investments can include:
  - Automation of activities being performed by field staff.
  - Implementation of workflow and collaboration tools.
  - GIS-based repositories for capturing and tracking utility relocation information.
  - Greater use of visualization and simulation techniques to communicate project ideas and concepts to the public.
- Enhanced training should be developed for public sector real estate to improve the overall technological competence of existing and future public sector real estate staff.
- Soft skills of public sector real estate staff should be strengthened to allow them to better work with a more knowledgeable and informed public.

Exhibit II-5 summarizes the impacts of technology trends on public sector real estate for Years 0-10.

### **Exhibit II-5: Anticipated Impact of Technology Trends: Years 0 - 10**

| <b>Trend/Direction</b>  | <b>Impact on PSR</b>  | <b>Required Actions</b>  |
|---|---|--|
| <ul style="list-style-type: none"> <li>• Continued expansion of capabilities of mobile computing</li> <li>• Increased availability/access to information through the Internet</li> <li>• Continued automation of the project development process</li> <li>• More importance on project data and process besides the end-product (plans, NEPA document, etc.)</li> </ul> | <ul style="list-style-type: none"> <li>• Continued automation of PSR business processes in the office and on a wider scale in the field through use of PDAs and tablet computers</li> <li>• Collaboration software/tools to more easily work with other team members</li> <li>• Ability to use visualization/simulation software with citizens in the field</li> <li>• Need to be as knowledgeable and as informed about the project as possible since the citizens will be informed</li> </ul> | <ul style="list-style-type: none"> <li>• Investment in technological solutions to improve efficiency of PSR work force</li> <li>• Training to improve technological competence of existing and future PSR work force</li> <li>• Strengthening of soft skills to better work with a more knowledgeable and informed public</li> </ul> |

### **3. Impact Analysis on Public Sector Real Estate: Years 11 to 30**

#### **Projected Impacts**

The impact on public sector real estate for Years 11 to 30 is expected to involve a continuation and strengthening of the impacts predicted for the first ten years. In addition to those impacts identified above, two new areas of impact will include:

- A need to develop new cost estimating approaches that consider the real estate impacts of evolving construction techniques such as the development of underground cities and man made islands.
- A need to evolve policies and regulations to address new and evolving real estate issues including potential ownership interests in underground developments and space developments, as well as virtual negotiations with owners.

#### **Recommended Actions**

The required actions in Years 11 to 30 involve a continuation and institutionalization of the actions begun in Years 0 to 10. In addition, the following actions will be critical:

- Continual investment in technology to improve efficiency.
- Continual training of staff in the use of new technology.
- Strengthening of soft skills to better work with a much more knowledgeable public.
- Refining of cost estimating processes and looking for ways to use new technology to develop creative solutions to reduce cost
- Need for a continuing education program that will be able to quickly provide real estate staff with information about the impacts of new and evolving technologies on the public sector real estate function.

Exhibit II-6 on the page below summarizes the impacts of technology trends on public sector real estate for Years 11-30.

**Exhibit II-6 Anticipated Impact of Technology Trends: Years 11 - 20**

| <b>Trend/Direction</b>   | <b>Impact on PSR</b>   | <b>Required Actions</b>   |
|--|--|---|
| <ul style="list-style-type: none"> <li>• Mobile-computing and instant information access standard</li> <li>• Communication with rest of the world cheap and instant, resulting in very knowledgeable public with a broad perspective</li> <li>• Infrastructure elements that are luxuries at present becoming necessities</li> <li>• Space exploration – building space communities</li> </ul> | <ul style="list-style-type: none"> <li>• Use of technology to visually communicate options to citizens</li> <li>• Need to estimate relocation costs more accurately according to the changing needs and expectations</li> <li>• Who owns space?</li> </ul> | <ul style="list-style-type: none"> <li>• Continual investment in technology to improve efficiency</li> <li>• Continual training of staff in the use of new technology</li> <li>• Strengthening of soft skills to better work with a much more knowledgeable public</li> <li>• Cost estimating processes fine tuned; creative solutions to reduce cost</li> <li>• Need for a program to facilitate additional training of existing staff when required – well defined continued learning curriculum</li> </ul> |

## D. Infrastructure Development and Management

Infrastructure refers to those trends related to the planning, design, development and management of infrastructure for the public benefit.

### 1. Summary of Key Infrastructure Development and Management Trends

The study team has identified a number of trends related to the design, development, management, and operation of new and existing infrastructure. These trends include:

- Graying of infrastructure nationally, resulting in more emphasis by agencies on maintenance of existing infrastructure.
- Increased focus on leveraging existing infrastructure to generate revenue.
- Development of the NAFTA Corridors.
- Growth of the corporate aircraft market.
- Increased development of multi-modal and multi-use solutions.

Each of these trends is described in further detail below.

#### **Graying of infrastructure nationally, resulting in more emphasis by agencies on maintenance of existing infrastructure**

There is an increasing awareness on the part of policy makers that our infrastructure is aging and that we must consider ways to maintain and extend the life of these assets as opposed to simply building new infrastructure. At the end of this thirty-year planning horizon in 2036, the first components developed in the interstate highway system will be 80 years old. A number of state highway transportation agencies, for example, have recognized this change in mission in their statewide transportation plans. The North Carolina Statewide Transportation Plan, adopted in late 2004, for example for the first time in state history specifically called for increased investments in highway maintenance and modernization. The plan also required a higher level of investment in other strategies designed to increase the capacity of existing infrastructure such as alternative modes of transportation and Intelligent Transportation Systems (ITS).<sup>13</sup>

#### **Increased focus on leveraging existing infrastructure to generate revenue**

Agencies are no longer focused only on the construction of the asset, but are also now looking more at on-going operations and how an asset can be an on-going revenue source for an agency. During the 1990s for example, a number of state transportation agencies made arrangements with telecommunication agencies to allow fiber to be placed in highway

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<sup>13</sup> “Statewide Transportation Plan,” North Carolina Department of Transportation, September 2004, <http://www.ncdot.org/doh/preconstruct/tpb/statewideplan/>

right-of-way. In addition, SAFETEA-LU mandates a study on the feasibility of installing fiber optic cabling and wireless communication infrastructure along multi-state interstate system route corridors for improved communications services to rural communities along such corridors. Benefits envisioned by this SAFETEA-LU initiative include:

- Economic development.
- Intelligent Transportation Systems (ITS).
- Improvements to education and health systems.

Likewise, various cities and states are looking at opportunities to lease existing infrastructure to private consortiums to raise funds for other programs and initiatives. The City of Chicago in early 2005 completed negotiating a 99-year lease of the Chicago Skyway toll road with Cintra-Macquarie for \$1.83 billion. Cintra-Macquarie Consortium is composed of Cintra Concesiones de Infraestructuras de Transporte, S.A. (Cintra) of Spain and Macquarie Infrastructure Group of Australia. The Cintra-Macquarie Consortium must comply with detailed operating standards to assure safety in operations and high engineering standards during the term of the lease, as well as work within specified toll rate caps. The lease agreement, for example, was designed to ensure that the operator continues to maintain the structural quality of the Skyway for the duration of the lease.

While some citizens and policy makers were eager to see a significant amount of the proceeds from the lease agreement spent immediately, the City of Chicago has developed a plan to carefully allocate the proceeds from the lease arrangement. \$875 million is being set aside to establish a \$500 million long-term reserve fund and a \$375 million mid-term annuity the city can use to smooth the effects of economic cycles and stabilize the need for additional revenues. \$100 million will be invested over the next five years to improve quality of life in the city's neighborhoods. Approximately \$28 million of this will be used to fund "safety net" programs that will bridge the gap for Chicago's residents most in need. This includes a city homeless program, home heating assistance programs, assistance for the disabled to make home modifications, affordable housing and homeowner programs, job creation and training through re-entry programs for ex-offenders, a new Small Business Development Fund, and programs for children and seniors such as after-school programs, Meals-on-Wheels, and senior satellite centers. The remaining funds will be utilized to pay off \$463 million in Skyway debt.<sup>14</sup>

Independent financial analysis of the lease terms has suggested that the deal is win-win, for both the City of Chicago and Cintra-Macquarie. The City is able to get an infusion of cash to use in the short-term, while Cintra-Macquarie appears to have the potential for a strong positive return on investment over the term of the lease. The initial success of this transaction has spurred interest in other similar transactions. For example, the lease of the Indiana Toll Road was also just finalized to Cintra-Macquarie for \$3.85 billion. The State of Indiana plans to use part of the funds from this transaction to finance development of

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<sup>14</sup> "Chicago Skyway Handed Over to Cintra-Macquarie After Wiring \$1830m," TollroadsNews, January 24, 2005. <http://www.tollroadsnews.com/cgi-bin/a.cgi/d096tm5zEdmcEIJ61nsxIA>

other highway construction projects across the State. Likewise, there are on-going discussions on various alternatives for leasing the New Jersey Turnpike.

The Chicago Skyway and Indiana Toll Roads transactions are far from the exception. There are on-going discussions on various alternatives for leasing the New Jersey Turnpike. Likewise, many new toll facilities under construction around the world are being built by investors under government-administered concessions. Italy privatized its largest state toll business, Autostrade, a few years ago and the Ontario 407 Extended Toll Road (407ETR) in Toronto Canada was privatized after being constructed by the province of Ontario.

Airport operations are in private hands in many of the world's major cities, including London, Rome, Copenhagen, and Frankfurt. While only one airport in the United States, Stewart-Newburgh in New York State, is privately operated, other cities are interested in exploring this idea. Building on the Chicago Skyway transaction, the City of Chicago, for example, is studying leasing Midway Airport to a private operator.<sup>15</sup>

### **Development of the NAFTA Corridors**

The two priority segments of the NAFTA corridor system in the United States are the I-35 Corridor and the proposed I-69 Corridor, both of which will originate in Laredo, Texas and carry NAFTA freight all the way to the American Midwest. The I-35 Corridor will extend 1,600 miles north to the U.S./Canada border. The proposed I-69 Corridor will also originate in Laredo but will head northeast, serving Houston, Memphis, and Indianapolis, before extending to the U.S./Canada border at Port Huron, Michigan, a total of approximately 2,100 miles. The NAFTA corridors, when fully completed will be some of the largest engineering projects ever undertaken in U.S. history.

The NAFTA corridors will be up to 1,200 feet wide with separate lanes for passenger vehicles (three in each direction) sandwiched between truck lanes (two in each direction). The corridors will also contain six rail lines (three in each direction): two tracks for high-speed passenger rail, two for commuter rail, and two for freight. The third component of the corridor will be a 200-foot-wide utility zone. To accommodate the railways and underground utilities, the corridors will run at grade level and will require extensive bridging at crossovers and intersections. The current estimate is that a typical corridor section will require 146 acres of right-of-way per mile, making the anticipated land consumption for the NAFTA corridors 584,000 acres in Texas alone. Total land consumption in the United States for the NAFTA corridors could exceed 1 million acres. The Texas sections of these corridors (approximately 4,000 miles) alone will cost \$145.2 to \$183.5 billion, including right-of-way costs estimated at \$11.7-\$38 billion.<sup>16</sup>

These NAFTA corridors will be heavily utilized. Traffic projections for the year 2025 estimate 82,100 vehicles per day (including 18,100 trucks) on the busiest section of the I-35

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<sup>15</sup> "Researcher: Only Matter of Time Till Large U.S. Airport Embraces Private Ownership," Chicago Tribune News Service, March 4, 2006

<sup>16</sup> Vogel, Richard D. "The NAFTA Corridors: Offshoring U.S. Transportation Jobs to Mexico," Monthly Review, January 2006.

Corridor, and estimates for I-69 traffic are comparable. This volume traffic has the potential to create extensive pollution impacts throughout the corridor.

### **Growth of the Corporate Aircraft Market**

Rising dissatisfaction with commercial service, the need to reach smaller communities efficiently and the expanding alternatives for business travelers are expected to generate years of growth for the corporate aircraft industry.

The introduction of new and relatively inexpensive very light jets (VLJs) later this year could open jet ownership to more fliers. More companies seeking alternatives to commercial airlines also are gravitating toward the increasingly efficient, flexible and affordable options offered by charter air services and fractional jet ownership.

In its aerospace forecast for 2006 to 2017, the FAA reported the number of noncommercial aircraft hours flown is projected to increase by 3.2 percent annually, and much of the projected increase is attributed to increased flying by business and corporate aircraft. Jets are forecasted to account for most of the increase, as jet hours flown are expected to grow an average of 10.2 percent annually over the next 12 years thanks largely to VLJs and increases in fractional ownership.<sup>17</sup>

### **Increased development of multi-modal and multi-use solutions**

There is also an increased focus on the development of multi-modal and multi-use solutions. Most state transportation plans now recognize the need for developing integrated multi-modal solutions to transportation problems, and there is greater awareness of the importance of integrating transportation solutions with the development of housing, parks, utilities, and other infrastructure. Some of these initiatives include:

- Development of light rail in urban/suburban areas, and the integration of these light rail systems in an overall master urban development plan.
- Increased use of inter-urban trains for transportation as an alternate to domestic air transportation.

## **2. Impact Analysis on Public Sector Real Estate: 0 to 10 Years**

### **Projected Impacts**

These infrastructure trends will have several important impacts on the public sector real estate function over the next ten years. These impacts include:

- There is a need for public sector real estate to actively engage as a partner in developing creative solutions to extend the life of existing assets.

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<sup>17</sup> Tritto, Christopher, "The Sky is the Limit," St. Louis Business Journal on MSNBC.com, <http://msnbc.msn.com/id/12033576/from/ET/>



- Public sector real estate professionals will need to develop additional property management and business development experience in order to assist with designing and implementing many of the innovative business relationships being proposed with private sector partners.
- Public sector real estate professionals will work as part of more multi-modal, multi-agency teams, including in partnership with private sector organizations that may be performing operations and maintenance duties for a particular asset.
- Concessionaires will often have limited experience with, and will require education on, the Uniform Act, as well as the need to ensure that rights of the public are protected.
- Development of the NAFTA corridors will create substantial right-of-way acquisition and utility relocation work, but this work will be done in many cases through design/build consortiums or concessionaries and will be multi-modal in nature.
- Need for skills and capabilities to address a variety of complex project issues in long term leases for public infrastructure such as what can be located in easements, the definition and negotiation of air rights, and mineral rights and the applicability of the Uniform Act to these long term leases.

### **Recommended Actions**

These infrastructure impacts will drive a number of required actions on the part of the public sector real estate community. These actions will include:

- Earlier involvement in the project development process to allow real estate issues to be properly addressed in more complex, multi-modal projects.
- There is a need for experienced resources to help address the increased complexity in large multi-modal projects and the need for creativity to assist with designing solutions to extend the life of existing assets.
- There is a greater need for enhanced training on property management and other related business development skills for public sector real estate staff.
- Education programs need to be enhanced to increase the awareness of consortium and concession managers on the Uniform Act and the benefits of fully leveraging the public sector real estate function.

Exhibit II-7 on the following page summarizes the impacts of infrastructure trends on public sector real estate for Years 0-10.

**Exhibit II-7: Anticipated Impact of Infrastructure Trends: Years 0 - 10**

| Trend/Direction   | Impact on PSR   | Required Actions   |
|---|---|--|
| <ul style="list-style-type: none"> <li>• Graying of infrastructure nationally resulting in more emphasis by agencies on maintenance of existing infrastructure</li> <li>• Increasingly viewing assets as a potential source of revenue</li> <li>• Development of light rail in growing/expanding areas</li> <li>• Increased availability of inter-urban trains</li> <li>• Increased use and growth of smaller airports</li> </ul> | <ul style="list-style-type: none"> <li>• Need for PSR to be a partner in developing creative solutions to extend life of existing assets</li> <li>• Additional property management and business development experience</li> <li>• More multi-modal, multi-agency teams</li> <li>• New customers with limited UA experience to date</li> </ul> | <ul style="list-style-type: none"> <li>• Earlier involvement in the project development process to allow for impact on existing real estate to be avoided or minimized</li> <li>• Need for experienced resources to address increased complexity/need for creativity</li> <li>• More emphasis on property management skills for PSR staff</li> <li>• Education programs for new customers</li> </ul> |

**3. Impact Analysis on Public Sector Real Estate: Years 11 to 30**

**Projected Impacts**

Additional impacts on public sector real estate from infrastructure trends for Years 11 to 30 include:

- Growth in the need for public sector real estate services by smaller airports as travel by corporate jet, especially to smaller communities, continues to expand.
- Corresponding need to think through and address neighborhood and community issues resulting from the growth of traffic at smaller airports.
- Continued growth and expansion of multi-modal transportation solutions driving the need for public sector real estate services in support of development of initiatives such as inter-urban high-speed trains.
- Continued need for public resources to execute components of the NAFTA corridors plan.

### **Recommended Actions**

Actions recommended in Years 11 to 30 include:

- Focusing on education programs for new customers such as smaller airports and consortiums developing inter-urban trains.
- Continuing to emphasize recruitment of new staff to the profession and proactive training programs to meet on-going demands of the NAFTA initiatives and other large projects.

Exhibit II-8 on the page below summarizes the impacts of infrastructure trends on public sector real estate for Years 11-20.

### **Exhibit II-8: Anticipated Impact of Infrastructure Trends: Years 11 - 20**

| <b>Trend/Direction</b>   | <b>Impact on PSR</b>  | <b>Required Actions</b>   |
|--|---|---|
| <ul style="list-style-type: none"> <li>• Increased availability of inter-urban trains</li> <li>• Increased use and growth of smaller airports</li> </ul> | <ul style="list-style-type: none"> <li>• Growth in the need for public sector real estate services by smaller airports as travel by corporate jet, especially to smaller communities, continues to expand</li> <li>• Need for public sector real estate services in support of development of initiatives such as inter-urban high-speed trains.</li> <li>• Continued need for public resources to execute components of the NAFTA corridors plan.</li> </ul> | <ul style="list-style-type: none"> <li>• Focusing on education programs for new customers (e.g. smaller airports and consortiums developing inter-urban trains).</li> <li>• Continuing to emphasize recruitment of new staff to the profession and proactive training programs to meet on-going demands of the NAFTA initiatives and other large projects.</li> </ul> |

## E. Policy and Politics

Policy and politics refers to external forces impacting our public agency customers and the internal trends of these customers related to the management and operation of their agencies.

### 1. Summary of Key Policy and Politics Trends

The study team identified a number of policy and political trends. These trends included:

- A focus on managing government like a business, with increased emphasis on performance measurement and accountability.
- Increased policy maker reluctance to utilize eminent domain for redevelopment projects as a result of fallout from adverse public reaction to the Supreme Court's decision in *Kelo v. City of New London* 125 S. Ct. 2655 (2005) which allowed the use of eminent domain to transfer land from one private owner to another to further economic development.

Both of these trends are described in further detail below.

#### **Focus on managing government like a business, with increased emphasis on performance measurement and accountability**

Government agencies are consistently focused on managing themselves more like businesses with an emphasis on transparency and accountability through setting and meeting performance objectives. This trend was confirmed by a survey of the strategic plans of a number of Federal, State, and Local agencies that are significant customers of the public sector real estate community.

“The President’s Management Agenda,” for example, outlines a number of objectives including:<sup>18</sup>

- Manage human capital strategically.
- Compete a portion of inherently non-governmental work.
- Bring government closer to citizens through responsive technology.
- Improve financial performance.
- Ensure that the budget is integrated with performance expectations for improved accountability.

These principles can be found in agency mission statements and strategic plans as well. The Department of Housing and Urban Development’s annual performance plan, for example,

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<sup>18</sup> “The President’s Management Agenda,” Office of Management and Budget, [http://www.whitehouse.gov/omb/budintegration/pma\\_index.html](http://www.whitehouse.gov/omb/budintegration/pma_index.html)

is closely aligned with “The President’s Management Agenda.” It specifically includes a goal to continue to make measurable improvement in a number of areas including:<sup>19</sup>

- Improving the physical conditions of HUD’s assisted properties.
- Improving the performance of HUD program intermediaries.
- Improving key areas of risk management strategies and program controls.
- Advancing the strategic management of human capital.
- Improving financial performance.
- Integrating budget and performance.
- Advancing electronic government.
- Improving competitive sourcing; and
- Strengthening community performance reporting.

The mission of the U.S. Army Corp of Engineers, for example, calls for USACE to:<sup>20</sup>

- Provide sustainable development and integrated management of the Nation’s water resources in collaboration with others.
- Repair past environmental degradation and prevent future environmental losses.
- Ensure that projects perform to meet authorized purposes and evolving conditions.
- Reduce vulnerabilities and losses to the nation and the Army from natural and man-made disasters, including terrorism.
- Be a world-class public engineering organization.

This same emphasis on performance and accountability can also be found at the state level. The Virginia Department of Transportation (VDOT), for example, has implemented a series of performance measures for its project delivery process and tracks the agency’s performance against these metrics on a web site accessible on to the public. The Washington State Department of Transportation (WSDOT) has instituted a detailed performance measurement process that is tightly linked to WSDOT’s business objectives. Results are reported quarterly to policy makers and the public through a detailed briefing book known as “The Gray Notebook.”

### **Increased policy maker reluctance to utilize eminent domain for redevelopment projects as a result of fallout from Kelo case**

As a result of significant public opposition to the ruling in the Kelo decision in 2005, policy makers have become more reluctant, at least for now, to utilize eminent domain for redevelopment. In fact, Federal legislation has been proposed to bar the use of Federal funds for takings for private development, and 20 plus States are looking at legislation and possible constitutional amendments to restrict use of eminent domain authority for economic development.

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<sup>19</sup> Department of Housing and Urban Development Fiscal Year 2006 Annual Performance Plan, <http://www.hud.gov/utilities/intercept.cfm?/offices/cfo/reports/pdfs/app2006.pdf>

<sup>20</sup> Department of the Army Corp of Engineers, Civil Works Strategic Plan, 2004-2009, [http://www.usace.army.mil/civilworks/hot\\_topics/cw\\_strat.pdf](http://www.usace.army.mil/civilworks/hot_topics/cw_strat.pdf)

This reluctance is further complicated by confusion, on the part of some policy makers and the public on the protections afforded under the Uniform Act. There is also a great deal of confusion on the distinction between the taking of private property for clear public benefit such as the building of a new highway or the expansion of an airport runway and the taking of property to benefit private development. An example of the latter would be a city using its powers of eminent domain to condemn an area of low income housing and then selling this land to a developer to build a shopping mall and higher end condominiums to help improve the city's overall tax base.

With the increase of public private partnerships, the leasing of public assets to private entities, and other creative financing arrangements, this distinction may become even less clear going forward, further creating the potential for public confusion and anxiety for policy makers. In addition, there is the potential for increased pressure on policy makers due to the need to establish guidance and direction on evolving issues such as creation of new artificial lands, the development of underground communities and the impact of reverse condemnation in situations where land may be abandoned.

## **2. Impact Analysis on Public Sector Real Estate: 0 to 10 Years**

### **Projected Impacts**

These policy and political trends are anticipated to have several impacts on the public sector real estate function. These impacts include:

- Establishment of more transparent processes to improve the overall accountability of public sector real estate. This should include establishing performance measures for planning, managing and evaluating all aspects of its performance.
- Developing and implementing processes for establishing accurate estimates for the real estate and utility components of projects to ensure accurate information for customer decision-making about projects. The accuracy of these estimates should then be one measure of the performance of the public sector real estate function.
- A need to educate team members and customers on the processes protections and benefits of the Uniform Act and sell decision makers on the overall value proposition of public sector real estate.

### **Recommended Actions**

These policy and political impacts will drive a number of recommended actions. These actions will include:

- Develop model performance measures to evaluate the effectiveness of the public sector real estate function.
- Develop and deploy improved cost estimating methodologies for real estate and utility relocation.

- Be involved in the project development process to allow for impact on existing real estate to be avoided or minimized.
- Develop and market an education program for policy makers on the role and value proposition of public sector real estate.

Exhibit II-9 summarizes the impacts of policy and political trends on public sector real estate for Years 0-10.

### **Exhibit II-9: Anticipated Impact of Policy and Political Trends: Years 0 - 10**

| <b>Trend/Direction</b>  | <b>Impact on PSR</b>  | <b>Required Actions</b>   |
|---|---|---|
| <ul style="list-style-type: none"> <li>• Continued emphasis on managing government like a business</li> <li>• Emphasis on performance measurement and accountability</li> <li>• Budget pressures, while at the same time continued increases in cost of projects</li> <li>• Increased policy maker reluctance to utilize eminent domain – fallout from Kelo case</li> <li>• Reluctance to follow UA process – concerns about time and cost</li> </ul> | <ul style="list-style-type: none"> <li>• Management driven by performance measures</li> <li>• Need to have a more transparent process to improve accountability</li> <li>• Emphasis on developing accurate estimates for real estate components of projects</li> <li>• Need to sell/educate customers on UA process and benefits</li> </ul> | <ul style="list-style-type: none"> <li>• Improved cost estimating methodology for real estate</li> <li>• Earlier involvement in the project development process to allow for impact on existing real estate to be avoided or minimized</li> <li>• Education programs for new customers and policy makers</li> </ul> |

### **3. Impact Analysis on Public Sector Real Estate: Years 11 to 30**

#### **Projected Impacts**

The additional impacts of policy and political trends in Years 11 to 30 include the following:

- Clear accountability and performance measures will become integral to how public sector real estate staff works everyday.
- There will be a need to establish processes for handling new and evolving issues that can only be imagined today through learning and applying historical precedents and leveraging past experience.

### **Recommended Actions**

The following actions, which further extend and institutionalize action steps initiated in the first ten years, are recommended in Years 11 to 30 to address policy and political impacts:

- Institutionalizing performance measurement processes.
- Evolving and extending education programs for decision makers based on changing conditions.
- Establishing research programs and structured decision processes to handle evolving issues by learning from historical cases and applying these precedents to future decision-making.

Exhibit II-10 summarizes the impacts of policy and political trends on public sector real estate for Years 11-20.

### **Exhibit II-10: Anticipated Impact of Policy and Political Trends: Years 11 - 20**

| <b>Trend/Direction</b>   | <b>Impact on PSR</b>  | <b>Required Actions</b>   |
|--|---|---|
| <ul style="list-style-type: none"> <li>• Government consistently being measured by the same standards as corporations</li> <li>• Strong performance and accountability measures</li> <li>• Increased pressure on policy makers due to evolving issues such as creation of new land, tunneling, and reverse condemnation</li> </ul> | <ul style="list-style-type: none"> <li>• Clear accountability and performance measures will be integral to everyday work</li> <li>• Need to handle evolving issues through learning and applying historical precedents</li> </ul> | <ul style="list-style-type: none"> <li>• Earlier involvement in the project development process to account for policy changes or public push-back</li> <li>• Education programs for PSR staff and policy makers</li> <li>• Research by PSR staff to handle evolving issues like tunneling through learning from historical cases</li> </ul> |



## F. Project Development Process

This subsection describes those trends directly related to the project development process including project financing and mechanisms for service delivery.

### 1. Summary of Key Project Development Trends

A number of trends are expected to help to evolve and transform the project development process over the next thirty years. These trends include:

- Potential for the Federal government to have a reduced or reconfigured role in financing infrastructure projects.
- A substantial increase in the use of innovative financing techniques.
- Public sector real estate work increasingly performed as part of an integrated, multi-disciplinary team effort.
- Greater decision-making authority and accountability for Local Public Agencies.

Each of these trends is described briefly below

#### **Potential for Federal government to have a reduced or reconfigured role in financing infrastructure projects.**

There is a potential for changes in the Federal role in financing the development of infrastructure projects most notably highways, transit facilities and airports, with some consideration being given to the potential for some devolution of the current Federal system.

SAFETEA-LU established two study commissions to address different aspects of this issue. These are:

- The National Commission on the Future of the Interstate Highway System, which is directed to develop a conceptual plan with alternative approaches for the future of the interstate system for 15-, 30-, and 50-year horizons.
- National Surface Transportation Policy and Revenue Study Commission, which was directed to provide a conceptual plan – with alternative approaches – to ensure that the U.S. surface transportation system will continue to meet current and future needs, including specific recommendations regarding design and operational standards, Federal policies, and legislative changes.

#### **Substantial increase in the use of innovative financing techniques.**

More projects will clearly be built using a variety of funding sources other than straight government funding. For transportation projects, there will be a transition away from reliance on gasoline taxation to user fees, general taxes, specialized taxes, and other

specialized revenue sources. Other financing techniques could include land swaps, joint ventures, and a number of different types of public private partnerships.

SAFTEA-LU, for example, includes numerous bonding and tolling provisions that allow private entities to finance, build, own, and operate transportation facilities. It also includes provisions to establish pilot projects for tolling existing interstate highways to help with on-going enhancement of these facilities.

**Public sector real estate work increasingly performed as part of an integrated, multi-disciplinary team effort.**

Public sector real estate work will be performed more often as one part of an integrated, multi-disciplinary team effort as part of design/build initiatives or turnkey engineering services and construction management contracts.

SAFETEA-LU includes the Highways for Life program that seeks to enhance the ability of the private sector to save time and costs by delivering projects in innovative ways. This is just one example of the large number of innovative project delivery techniques that while still the exception today, will likely become standard operating procedure over the next thirty years.

Fewer projects will be built using the traditional design, bid, build approach. Likewise, real estate work may not be performed by the public agency itself or by consultants working for the real estate function. Instead, more real estate work will be performed by a consultant organization as a member of a large design/build project team who has responsibility for project implementation. Alternatively, the real estate function may be performed by a consultant acting as a sub-consultant to an engineering firm or construction management company driving the design process in the role of general contractor for the public sector agency.

In both of these delivery approaches, the role of the public agency real estate function will be more focused on project and contract management and quality assurance of the consultant's work versus actual service delivery, especially in regards to the acquisition and relocation assistance phases of the project. The current presumption is that the role of condemnation would still remain vested in the public sector agency but this may shift over time with the private sector partner playing a larger role as the agent for the public sector organization.

Over the course of the planning cycle, it is also likely that these teams will become more global in nature, with firms representing many countries teaming together to pool their specialized expertise developed around the world to provide the experience necessary to execute the larger, more innovative or more risky projects.

**Greater decision-making authority and accountability for Local Public Agencies**

More control of project programming decisions and the subsequent responsibility for managing these projects is currently being given to Local Public Agencies. Stakeholder team members reported that a number of states are giving Local Public Agencies more control of project decision-making, with California and Tennessee where there is a gubernatorial initiative underway to allow communities to take ownership of the execution of a number of transportation projects cited as two examples. In addition, the private sector

members of the stakeholder team reported a considerable increase in the number of smaller communities who are clients for projects that would have been previously been managed by state agencies. This trend is expected to increase in the future, with Local Public Agencies having considerably more control of project decision-making.

## **2. Impact Analysis on Public Sector Real estate: 0 to 10 Years**

### **Projected Impacts**

These project delivery trends are expected to have several important impacts on the public sector real estate function. These impacts include:

- A significant amount of public sector real estate work in the past was performed by an organization's real estate unit or by consultants directly responsible to the real estate unit. Going forward, a significant amount of public sector real estate work will be performed by real estate services firms, who will be one of several partners on a large, diversified team. In addition, the prime contractor or consortium leader may have limited experience with public sector real estate and will need to be educated on the value proposition of public sector real estate and the roles the real estate function should appropriately play on the team.
- Increased local responsibility for projects presents several challenges for public sector real estate. With Local Public Agencies having responsibility for executing a larger number of projects, there is a need to educate these agencies on the Uniform Act in general and the constitutional protections it provides for citizens. Likewise, for private sector real estate services organizations, marketing to these agencies becomes more difficult, since firms now have to reach potentially hundreds of Local Public Agencies as opposed to a smaller number of State-level agencies.
- The role of the staff working in the public agency real estate function will continue to become much less hands-on service delivery, shifting instead to contract, project management, and quality assurance of consultant work.

### **Recommended Actions**

These impacts will drive a number of required actions on the part of the public sector real estate community. These actions will include:

- Development of an education program on the Uniform Act and the value proposition for public sector real estate for use with new customers, including Local Public Agencies with limited public sector real estate experience and the managers of design/build teams, engineering and construction management firms, and other consortiums leading project efforts.
- Enhanced training programs for project management skills for most public sector real estate staff.

- Enhanced training programs on contract management for employees of public sector agency real estate units.
- Strengthening of the non-technical soft skills of the public sector real estate work force to help individuals work more successfully in a team-based, collaborative environment. These skill sets should include:
  - Communication.
  - Facilitation.
  - Negotiation.
  - Collaboration.
  - Team Building.

Exhibit II-11 summarizes the impacts of project development trends on public sector real estate for Years 0-10.

#### **Exhibit II-11: Anticipated Impact of Project Development Trends: Years 0 - 10**

| <b>Trend/Direction</b>   | <b>Impact on PSR</b>  | <b>Required Actions</b>   |
|--|---|---|
| <ul style="list-style-type: none"> <li>• Innovative financing</li> <li>• Public/Private partnerships</li> <li>• Design/Build</li> <li>• Turn-key projects led by architectural or engineering firm for the public agency</li> <li>• More programming decisions by Local Public Agencies</li> <li>• More projects managed at the local level</li> </ul> | <ul style="list-style-type: none"> <li>• Public sector real estate often a partner on a large, diversified team</li> <li>• Different customers (consortium manager versus agency)</li> <li>• Customers have limited Uniform Act experience</li> </ul> | <ul style="list-style-type: none"> <li>• Emphasis on project management skills</li> <li>• Earlier involvement in the project development process to allow for impact on existing real estate to be avoided or minimized</li> <li>• Strengthening soft skills of work force</li> <li>• Education programs for new customers</li> </ul> |

### **3. Impact Analysis on Public Sector Real Estate: Years 11 to 30**

#### **Projected Impacts**

The impact of changes in project development processes for Years 11 to 30 represents a continuation and strengthening of the impacts predicted for the first ten years. In Years 11 to 30, it is anticipated that:

- Performing public sector real estate activities as part of a larger, multi-disciplinary team will become the norm for most projects of any size or complexity, with many of these teams being global in make-up and composition.
- In performing their work, it will be quite standard for public sector real estate staff to have to work with different customers (for example the managers of engineering firms and design/build consortiums).
- Local ownership of projects will also continue to become very prevalent, again increasing the number of potential customers who have to be educated on the value proposition of public sector real estate.

### **Recommended Actions**

The required actions in Years 11 to 30 primarily involve a continuation and institutionalization of the actions started in Years 0 to 10. In addition, the following actions will be critical:

- Continuing to emphasize the team building skills to prepare public sector real estate staff to work effectively on global teams.
- Developing partnerships where appropriate to bring in specialized resources with specific expertise from other countries to work on multi-national teams.

Exhibit II-12 on the page below summarizes the impacts of project development trends on public sector real estate for Years 11-20.

### **Exhibit II-12: Anticipated Impact of Project Development Trends: Years 11 - 20**

| <b>Trend/Direction</b>  | <b>Impact on PSR</b>   | <b>Required Actions</b>   |
|---|--|---|
| <ul style="list-style-type: none"> <li>• Multi-national partnerships with global financing</li> <li>• Innovative financing standard operating procedure</li> <li>• More projects managed by multi-national teams</li> </ul> | <ul style="list-style-type: none"> <li>• PSR being a partner on a large, diversified team is standard operating procedures</li> <li>• Different customers very typical (consortium manager versus agency)</li> </ul> | <ul style="list-style-type: none"> <li>• Continued emphasis on team building skills to prepare public sector real estate staff to work effectively on global teams.</li> <li>• Partnerships to bring in specialized resources from other countries</li> </ul> |

## **G. Human Capital**

Human Capital refers to the organizations and employees responsible for delivering or managing the delivery of public sector real estate work. This includes both public agencies and private sector firms performing public sector real estate work on behalf of the public agency owners.

### **1. Summary of Key Human Capital Trends**

A number of anticipated trends involving the public sector real estate work force include:

- Aging of the work force. Over the next five to ten years especially, a large number of very experienced resources will be retiring and leaving the profession.
- Difficulty for some agencies to replace staff. Some agencies are not being allowed to replace vacant positions or encountering difficulty in recruiting qualified candidates to take positions they are allowed to fill.
- Increased outsourcing of work. Ultimately, most if not all hands-on delivery work will be done by private sector firms, with public agency staff performing policy setting and contract management roles. This work will often be performed as part of large multi-disciplinary teams, including multi-national teams.
- Like the work force in general, the public sector real estate work force of the future will be transient. While staff today, especially those working for public agencies, may have worked their entire career for one organization, workers tomorrow are more likely to shift between one private sector provider or another or exit the profession altogether based on increased compensation or better promotional opportunities. This trend will be accelerated by changes in the Federal and some State pension systems which make these pension plans similar to Section 401K pension plans in the private sector; allowing public employees to more easily transfer the government's share of the person's pension contributions if the person leaves government service.
- Public sector real estate has difficulty being recognized by its peers as a profession. This complicates the public sector real estate professional's ability to be viewed as an equal player at the table with other disciplines. Unlike the engineers or architects with whom they often work, for example, public sector real estate professionals, other than appraisers, do not have a widely recognized or defining credential or certification.
- This lack of a recognition as a profession on the same level as its peers is one of several factors that make it difficult for real estate to be viewed as an equal player at the table in some our agencies. Another reason is confusion on the part of many policy makers, as well as the managers of engineering and construction management firms, on the value proposition of public sector real estate.

## **2. Impact Analysis on Public Sector Real Estate: 0 to 10 Years**

### **Projected Impacts**

These organizational and human capital trends will have several impacts on the public sector real estate function. These impacts include:

- The loss of experienced resources will drive the need to find ways to leverage the existing knowledge and experienced of workers. This could include the creation of multi-agency pools of specialized resources that are available as SWAT teams to address complex issues or creation of a cross agency/cross functional government real estate center that has expertise on the Uniform Act and other public sector real estate issues.
- There is a need to capture the intellectual capital of retiring workers. This can be done through the development of templates, guidance materials and job aids, and by leveraging technology to establish web-based collaboration environments and project repositories to capture and to more effectively share information within and between project teams.
- To replace retiring staff, there need to be aggressive programs in place to recruit the best and brightest people to the profession and effectively train them. Whereas this staff may have previously worked for a public agency, most new hires to the profession will be by private sector real estate service companies.
- There is a need to define public sector real estate as a unique profession on an equal footing with its peer professions such as architecture and engineering.
- There is a need to establish a credential or certification process for public sector real estate staff that is recognized within the profession first, and then by peers, as indicative of a high level of quality and professionalism.
- Public sector real estate staff will need strong project management skills, and public agency staff will need excellent contract management skills.

### **Required Actions**

The impacts of the organizational and human capital trends will drive a number of required actions on the part of the public sector real estate community. These actions will include:

- Greater multi-agency collaboration and cooperation to leverage experience. This could include implementation of SWAT teams and other multi-agency pools of experienced resources to allow these resources to be shared across projects in different program areas.
- Implementation of web-based project development manuals, templates and collaboration tools.

- Implementation of project repositories to capture and allow easier access to history.
- Project management and contract management training.
- Design and implementation of a marketing program targeted to increase interest in public sector real estate as a profession of choice.
- Strengthening of existing certification programs or implementation of a new public sector real estate certification program.
- Positioning of the value proposition of public sector real estate through a marketing and education program targeting key decision makers in public sector agencies and private sector customers such as engineering firms.
- Developing training for line managers in other disciplines such as designers and environmental specialists on potential real estate, and utility challenges on projects and on the value proposition public sector can bring through early engagement to help address these challenges.

Exhibit II-13 summarizes the impacts of human capital trends on public sector real estate for Years 0-10.

**Exhibit II-13: Anticipated Impact of Human Capital Trends: Years 0 - 10**

| Trend/Direction  | Impact on PSR   | Required Actions   |
|--|---|--|
| <ul style="list-style-type: none"> <li>• Aging work force</li> <li>• Difficulty for some agencies to replace staff</li> <li>• Increased outsourcing of work</li> <li>• Continued growth of private sector capabilities</li> <li>• Difficulty for PSR to be recognized as a profession</li> <li>• Difficulty in being viewed as an equal player at the table in some of our agencies</li> </ul> | <ul style="list-style-type: none"> <li>• Need to effectively leverage remaining experienced staff</li> <li>• Need to capture intellectual capital of retiring workers</li> <li>• Need to have programs in place to recruit people to the profession and effectively train them</li> <li>• Requirement for project and contract management skills</li> </ul> | <ul style="list-style-type: none"> <li>• Use of SWAT teams</li> <li>• Greater multi-agency collaboration to leverage experience</li> <li>• Implementation of web-based project development manuals, templates and collaboration tools</li> <li>• Implementation of project repositories to capture and allow easier access to history</li> <li>• Project Management and Contract Management training</li> <li>• Marketing program to increase interest in PSR as a profession</li> <li>• New or strengthened certification programs</li> </ul> |



### **3. Impact Analysis on Public Sector Real Estate: Years 11 to 30**

#### **Projected Impacts**

Additional impacts of organizational and human capital trends in Years 11 to 30 include:

The impact on public sector real estate for Years 11 to 30 is expected to involve a continuation and strengthening of the impacts predicted for the first ten years. In addition to those impacts identified above, some additional impacts of organizational and human capital trends in Years 11 to 30 above include:

- The need for standardized processes and extensive uses of technology such as project repositories and collaboration environments to prevent loss of intellectual capital as a result of transient workers who may change private sector firms or exit the profession.
- The need for structured continuing education programs in place to provide training to staff on new rules, approaches, tools and methods, and other changes impacting the profession.
- The need for continued execution of recruitment programs to attract highly qualified candidates to the profession.
- The need to institutionalize the new certification program as a standard for all staff entering the profession.

#### **Required Actions**

The required actions in Years 11 to 30 involve a continuation and institutionalization of the actions begun in Years 0 to 10. In addition, the following actions will be critical:

- Expansion of the multi-agency SWAT teams to multi-national SWAT teams, designed to draw upon the relevant of resources globally.
- Greater multi-agency and multi-national collaboration to leverage experience.
- Continued institutionalization of knowledge sharing and collaboration processes.
- Development of a continuing education program to allow public sector real estate professionals to keep up-to-date on issues, opportunities, and challenges in the industry.

Exhibit II-14 summarizes the impacts of human capital trends on public sector real estate for Years 11-20.

**Exhibit II-14: Anticipated Impact of Human Capital Trends: Years 11 - 20**

| <b>Trend/Direction</b>  | <b>Impact on PSR</b>  | <b>Required Actions</b>   |
|---|---|---|
| <ul style="list-style-type: none"> <li>• Most, if not all hands-on delivery work done by private sector firms</li> <li>• Agency staff focused on policy setting and contract management</li> <li>• More transient work force</li> <li>• Use of multi-national teams for all aspects of a project</li> <li>• Proper recognition of PSR as a cutting-edge profession with excellent growth opportunities</li> </ul> | <ul style="list-style-type: none"> <li>• Need to have standardized processes and extensively leverage technology to prevent loss of intellectual capital of transient workers</li> <li>• Need to have programs in place to effectively train staff in new technologies on a continuous basis</li> <li>• On-going recruitment programs required</li> </ul> | <ul style="list-style-type: none"> <li>• Use of multi-national SWAT teams</li> <li>• Greater multi-agency and multi-national collaboration to leverage experience</li> <li>• Institutionalization of knowledge sharing and collaboration processes</li> <li>• Enhanced course curriculum and orientation to keep up-to-date on issues, opportunities, and challenges in the industry</li> </ul> |

### III. Strategic Plan

Based on the 10 year and 30 year vision statements, this section proposes a mission statement for the public sector real estate function, a set of strategic goals to support this proposed mission statement and a short to intermediate-term action plan and a long-term action plan to execute the strategic plan.

#### A. Mission Statement

In response to the various trends, challenges and opportunities being envisioned over the next 30 years, it is anticipated that public sector real estate function will shift from a support organization that is focused primarily on the core real estate transactions associated with a project to one that is an integral partner throughout the project lifecycle from inception to completion and beyond to operation.

Public sector real estate's customers will change from primarily Federal, State, and large Local entities, to a broader mix of customers including large, multi-national consortiums and a wide range of Local entities. These new customers will have less experience with public sector real estate, especially initially, putting a premium on the role of the real estate community to educate these customers on the importance of the real estate function. Consequently, it will be paramount for public sector real estate to be more proactive in defining its role, explaining and sustaining its value to the project development process and stepping into a leadership rather than a supporting role.

In support of this transition, the research team has proposed the following mission statement for the public sector real estate community:

*Public sector real estate will become a value-added partner that actively engages with customers through a world-class work force and effectively leverages technology to operate efficiently and provide effective customer service.*

An analysis of the 10 year trend line suggests the need for public sector real estate to immediately begin to transition from being a transaction focused organization, with its involvement primarily focused on the real estate acquisition process phase of the project to a flexible partner with a highly skilled staff that works closely with its peers and customers as an integral component of the project development process from project inception to at least completion and in many cases beyond this into the operations phase.

In support of this role, not all public real estate staff will need to have a broad range of multi-disciplinary skills. In addition to core technical skills in one or more specific disciplines such as acquisition, appraisal, and relocation, public sector real estate professionals will need to have a broad set of management and general business skills including, project management, cost estimating, relocation assistance, and property management among others. Typical public sector real estate professionals will also have to have strong oral and written communication skills, work well in teams and have proficiency in at least two languages.

Over the 30-year timeline, this evolution of the public sector real estate function continues with the real estate community institutionalizing many of the changes achieved during the initial 10 years. There will also be a trend towards increased globalization and greater overall complexity of projects, with public sector real estate staff actively participating as part of global teams and partnerships executing various infrastructure development projects.

## **B. Strategic Direction: Years 0 - 10**

To achieve the mission outlined above, the research team is proposing a number of goals or strategies and a supporting action plan to implement these strategies. As with the vision statements, this strategic plan has been segmented into 10-year and 30-year segments. The ten-year strategic plan represents actions that the profession should begin to implement immediately in order to prepare to address both current challenges and the anticipated changes in the role of public sector real estate over the next ten years. Because of the time required to both implement and gain the intended benefits from these goals and strategies, timing is of the essence in beginning to address and execute on these strategies.

### **Key Strategies: Years 0 - 10**

To support the proposed mission of public sector real estate, the research team is proposing several strategies to be implemented over the first ten years of the 30-year planning horizon. These strategies are as follows:

#### **1. Achieve recognition by our customers and our peers as a valued and essential business partner**

Public sector real estate should work towards achieving recognition by its customers and peers as a valued and essential business partner. This recognition can be achieved through a number of mechanisms including:

- Educating our partner agencies and/or our teaming partners on large projects on the Uniform Act, the role of real estate and the value proposition of involving real estate early in the project planning and project development process.
- Working with peers within our own organizations and other partners to ensure that the public sector real estate professionals are being regularly invited to engage earlier in the project development process to help better identify and manage project budget, schedule, and risk.
- Crisply executing acquisition phase activities. While it is important for public sector real estate to be more involved in the front end of projects, it is critical that this early involvement and wider engagement not be at the expense of on-time delivery of real estate acquisition activities.
- Developing more expertise in property management and operational issues to support our parent agencies as they begin to look for greater revenue opportunities from existing assets.

- Developing a set of performance measures that link to the strategic objectives and allow for timely evaluation of the effectiveness of the public sector real estate function.

## **2. Play a critical role as a team member in developing creative, cost effective project solutions for public infrastructure**

Integral to achieving this strategy is the early involvement of real estate staff in the project planning and project development process, establishment of predictable cost estimating methodologies for the real estate aspects of projects, and the education of other team members in the impact of real estate issues to allow engineers and architects to be more sensitive to real estate issues in their designs for projects.

Costs of projects will continue rise to as a result of global pressures on scarce resources such as steel. At the same time, more projects will be done in urban areas where there is a greater potential to impact high-priced and highly valued real estate or utilities, making both of these items a much higher percentage of the overall project budget. Thus, it is essential that the real estate and utilities functions actively engage early in the process to try and provide innovative solutions. These solutions should be designed first and foremost to avoid real estate and utility impacts if at all possible. If avoidance is not possible, then the team should work to design solutions that try to mitigate the impact on real estate and utilities, thus reducing overall project cost and risk.

In addition, it is essential that the real estate and utility cost impacts on projects be accurately estimated as early in the project lifecycle as possible. Accurate cost estimates will allow informed decisions to be made on tradeoffs between various alternatives or on whether to even proceed with the project at all. In addition, these estimates must be developed to consider the impact of future changes in real estate values and/or utility relocation in order to avoid unexpected budget issues when the project actually begins construction, potentially a number of years in the future.

## **3. Leverage and optimize the knowledge of existing resources to help manage a short to intermediate term knowledge gap in the profession**

The public sector real estate community has an aging work force. Over the next several years, a number of both public and private sector staff will be retiring. These staff have thousands of years of experience among them and substantial experience with developing solutions for a number of very complex issues. These retirements will have a significant impact both on the availability of resources to staff project work and the intellectual capital available to design solutions to difficult problems.

To address this resource challenge, the public sector real estate community needs to identify ways to effectively leverage and optimize the deep expertise and intellectual capital of the experienced resources remaining in the field. Some potential solutions in this regard include developing SWAT teams of resources with specialized experience in certain areas and contracting these shared resources across agencies within government, developing a center of public sector real estate expertise to act as an information clearinghouse,

implementing searchable project repositories and developing collaboration tools to improve information sharing across and between projects.

#### **4. Establish public sector real estate as a field of choice for people entering the work force or considering a job change**

To both help fill the short term to intermediate term resourcing gap and to help the profession execute its mission to become a highly value added part of the project development process, it is critical to ensure that public sector real estate continues to attract the best and brightest resources to the profession.

Public sector real estate over the next 10 years and beyond will offer a number of exciting career opportunities to potential employees. It is important that this story be told to both high school and college age students considering potential careers and early and mid-career individuals considering new opportunities.

#### **5. Develop a highly trained, multi-disciplinary work force**

To replace the existing resources approaching retirement and to most effectively prepare the current and future public sector real estate staff for the challenges envisioned over the next ten years and beyond, it is critical that the profession develop a highly trained, multi-disciplinary work force. The public sector real estate professional must not only have solid experience in one or more technical disciplines, but they must also have strong project management, financial management, team work and team building and communication skills. Given the increased diversity of the country, the ability to speak and work in at least English and Spanish is also likely to be an essential skill for public sector real estate staff.

Key to implementing this recommendation will be designing and implementing a broad based training program, which in addition to the core technical skills emphasized currently, focuses on the other skill areas needed to position the public sector real estate professional to perform their role in the years ahead.

#### **6. Achieve recognition for public sector real estate as a distinct profession among our customers and peers**

To both attract and retain a world-class work force and to position public sector real estate most effectively among its peer functions in our customers and partners, it is essential that public sector real estate achieve standing as a profession similar to that achieved by architects, engineers and accountants.

A critical step in this process will be the establishment of a set of standards of excellence to guide the profession from an overall perspective and a credentialing process to demonstrate mastery of these standards. While a credentialing, certification and licensing process exists for appraisers, private sector real estate salespeople and brokers, there is currently no such process for the public sector real estate generalist. This credentialing process could be achieved through either development and implementation of a public sector real estate certification program or by strengthening existing credentialing programs, such as the that offered by the IRWA.

## **7. Modify the Uniform Act to allow for more adjustments in benefits and processes to be made through regulatory and policy channels, allowing for a more rapid response to changing conditions**

The Uniform Act has really only had one significant modification since its initial passage in 1970. The world has clearly changed dramatically in the thirty plus years since the legislation was first passed and many more changes are anticipated in the years ahead.

Currently, it can be difficult to make adjustments to benefit caps. Allowing for changes to these caps to be implemented through the regulatory process, while preserving the overall intent and framework of the Uniform Act to ensure consistency across program areas, will allow for a more rapid response to changing conditions.

### **Action Plan: Years 0 - 10**

To implement these strategies, the following action steps are recommended:

#### **1. Implement a service delivery model that provides the benefit of single point of accountability, while leveraging deep expertise in specialized situations.**

This model would utilize a generalist Real Estate Project Manager or Negotiation/Relocation Agent as the primary service delivery agent. Specialist resources with in-depth experience in certain areas such as business relocation could then be drawn upon as a pool. This model could be implemented in state transportation agencies and large Local Public Agencies. It could also be adapted for use in smaller agencies by sharing or renting specialist resources from other agencies. To maximize the utilization of these specialist resources, for example, it may be appropriate to have these resources housed in the Lead Agency or shared among a number of agencies at the Federal level.

#### **2. Develop model performance measures to provide a framework for greater accountability for the profession.**

These performance measures can be developed by a multi-agency task force and provided to the profession at large for potential adoption within their own organization. The goal should be to create a set of measures that allow for evaluation of the performance of the public sector real estate function in meeting the needs of its customers.

#### **3. Develop and deploy for general use a real estate and utility cost estimating methodology and supporting tools to implement the methodology**

A structured cost estimating process and methodology for the real estate and utility cost components of project is urgently needed. This process must be based on early and continuous engagement of the public sector real estate discipline. It should incorporate the concepts of high growth contingencies and the time value of money and provide for updating of the estimates at predefined intervals based on an increased understanding of the project scope and any changing conditions in the surrounding environment (increased land

values, better understanding of acquisitions which will be required, increased understanding of utility relocation which will be required).

An NCHRP study of cost estimating in transportation is currently in progress. This study has now been extended to look specifically at real estate cost estimating. It is critical that this project be completed on an expedited basis. As follow-on to the NCHRP effort, tools will need to be developed to automate the methodologies and approaches recommended by the study and a training program initiated to share this information as quickly with public agencies and private sector partners to allow implementation of these concepts within their organizations. In addition, additional research will likely be needed to adapt some of the recommendations beyond transportation to cover the full spectrum of program areas supported by public sector real estate.

#### **4. Develop and implement an education program to help sell the role of public sector real estate as a valued business partner to decision-makers.**

This training program should explain the concept of the Uniform Act and stress the need for complying with the Uniform Act on projects that have or may have Federal funds. However, this training program must go beyond the fundamentals of the Uniform Act. It must explain the impacts that real estate and utility issues can have on project cost and risk. It must then define in clear terms the value proposition offered by public sector real estate in terms of the professions ability to helping lower risk, more cost effective project solutions.

This education program should be targeted to:

- Policy makers in Federal, State, and Local Public Agencies.
- Executive decision-makers and program managers in large engineering, architecture and construction firms who would likely manage consortiums and integrated project teams.
- Manager and staff levels in Local Public Agencies who may be taking on their first project involving the Uniform Act.

It is recommended that FHWA as the lead agency for the Uniform Act and the National Highway Institute (NHI) as the training arm of FHWA take the lead in developing this program, with advice and input of a stakeholder group representing a cross section of public sector real estate personnel. This training program should be structured for use as part of a comprehensive national education program, as well as for tailoring by public agencies and private sector organizations nationally for use in particular project situations.

FHWA, in conjunction with other Federal Agencies and the Consultant council should also take the lead role in developing a marketing and communication plan to guide the rollout of this material. Appropriate audiences for example could include presentations at national meetings such as those for city and county managers and senior state highway officials.



Other target audiences could include meetings of national engineering, architecture, and construction management firms.

### **5. Develop a training seminar for project managers, designers and other stakeholders on real estate and utility considerations**

Complimenting the education program to be developed for decision makers, a training seminar should also be developed for project managers, designers and other stakeholders on real estate and utility considerations. The goal of this training course will be to provide a greater general awareness of potential real estate and utility issues on projects to other team members, educate team members on the benefits of involving public sector real estate and present examples of situations where the team members will want to involve staff with significant real estate or utility relocation experience.

This training course should be easily tailored for use in specific agencies or project situations. It should also be developed to allow it to be taught in a classroom or through a distance-learning environment.

While FHWA can also take the lead on initiating this education program, it is anticipated that examples and case studies specific to individual programs will need to be integrated into the course materials. Thus, the involvement of a number of other Federal agencies and other organizations seems appropriate.

A seminar of this type is currently being developed by the Louisiana Department of Transportation and may be available as a model or starting point for this recommendation.

### **6. Develop a model multi-disciplinary training programs to train new staff and expand and extend the skills of existing staff.**

This training program would extend beyond the training in technical disciplines (appraisal, acquisition, and relocation) that are generally available today to focus on the broader skill sets envisioned to be essential to the public sector real estate professional in the future. Elements of this training program could include:

- Gaining an understanding or overview of the project development cycle in the particular program area a person is working.
- Developing an understanding of the environmental process and impacts.
- Project management and contract management.
- Cost estimating and other project financial management.
- Property management and other skills that may be appropriate in the operational phase of the project lifecycle.
- Conversational Spanish and any other foreign languages that may be appropriate based on the particular geographic area of the country.
- Overviews of any cultural issues that may be relevant to particular parts of the country where a person is working.

- Oral and written communication skills.
- Negotiation skills.
- Team building and working effectively in teams.
- Relocation assistance skills.

This program should be developed to have different levels such as entry level, intermediate or advanced to allow training opportunities that are geared to specific experience levels. This will help to make available different training opportunities to public sector real estate professionals throughout their career.

### **7. Leverage technology to improve communication, collaboration and information sharing among public sector real estate professionals**

A number of tools could be implemented using existing, proven technology to capture, document and make existing information easier to access use. These tools can help to capture the intellectual capital of existing public sector real estate staff and make this information more easily available to new members of the profession. Examples include:

- Searchable project repositories to maintain documentation from previous projects.
- E-collaboration environments for sharing design information, project documentation and other project data. This type of environment will allow internal staff and consultants to share design data and documents for projects on which they are working together. It will also facilitate the electronic transfer of design information to reviewers, instead of today's time-consuming paper-based process.
- Increased use of GIS-based tools and subsurface engineering activities to enhance information available for developing estimates/assessing risk for utility relocation. This includes development of a GIS-based utilities database for archiving utility as-built, utility permit requests, and other information useful for conducting impact analysis.
- Greater use of parcel information and other GIS applications to help in early identification of real estate impacts and issues.

An example of one of these potential tools is a web-based collaboration environment, which has been recommended for development as an aid in capturing, documenting and sharing information about the Federal Land Transfer process. It is envisioned that this web-based portal will include:

- An updated procedures manual that pulls together guidance from multiple sources and provides links to forms and guides from the various Resource Agencies involved in the process.
- Templates for regional Memorandums of Understanding (MOUs) between various agencies involved in the process.
- Examples of deeds, which could be utilized as a model for a local deed template.

- Best practices examples and case studies (the FHWA's Community of Practice web site is another example of this technique).
- Capture and documentation of entire case files for particularly complex or specialized cases.
- Other relevant sample documents or templates.
- Discussion forums such as FHWA's Real Estate Exchange to allow a mechanism for open discussion and coordination.
- Agency contact lists with a way for these contact points to be easily maintained and updated.

FHWA should take the lead in documenting best practices in these tools and technology areas and making this information available to other organizations to assess the applicability of these techniques for use in their own operations. In addition, it may be appropriate to conduct research to develop a model set of requirements or the framework of a conceptual design for one or more of these solutions.

#### **8. Develop practice aids, templates and guides to further the sharing of knowledge across the profession.**

This can be especially valuable for sharing information and providing guidance on activities that occur less frequently and consequently staff would have less experience performing. Examples could include business relocations, the Federal Land Transfer process as described above and acquisition of easements over Native Lands among others. FHWA as the lead agency for the Uniform Act should take the lead on identifying guides and templates that may be appropriate and coordinating their development, in close cooperation with other agencies and functions within the public sector real estate community. These practice guides and templates should be easy to find and use through a public sector real estate portal.

#### **9. Design, implement and begin to institutionalize a new public sector certification programs or strengthen existing certification program available through IRWA and other organizations**

This recommendation involves either implementing the certification program defined in the recent Public Sector Real Estate Market Needs Study sponsored by FHWA or working with other organizations such as the Appraisal Institute and the IRWA to extend current certification programs to establish a more generalized public sector real estate certification. It is assumed that this certification program will:

- Require demonstration of a general level of understanding and competency of a number of skill areas integral to public sector real estate including management, financial, communication and core technical skills.
- Consist of both education and work experience requirements of at least 12 months, as well as an independently administered capstone examination.

- It is anticipated that this certification program would be administered by an independent foundation chartered by the numerous stakeholder groups involved in the public sector real estate community. This assumption is based on suggestions received from focus group participants during the recently completed “Uniform Act Certification Market Needs Study,” conducted by the FHWA Office of Real Estate Services. Participants in three focus groups conducted for this study suggested that using an independent foundation would provide for greater stakeholder buy-in for a certification program. The focus group participants also identified some potential legal and policy issues if FHWA directly oversees the certification program.
- It is assumed in the interim, however, that FHWA will continue to lead the immediate next steps while the specific composition and structure of an independent group is finalized and a plan for implementing this organization is established and initiated.

#### **10. Establish marketing programs to attract new people to the profession.**

This comprehensive marketing program should sell the benefits of a career in public sector real estate and be aimed at both individuals choosing their career such as high school or college students, as well as those considering career changes.

A key element of this program should include a careers package, including the brochure on the proposed certification program and several one-page case studies illustrating the work opportunities in public sector real estate. This information should be designed to sell the advantages of a career in public sector real estate, emphasize the forthcoming certification program, and be available via the web and also packaged for distribution to, and use by high school guidance counselors and career counseling centers at universities, colleges, and community colleges.

#### **11. Work with all of the Federal Agencies to advocate for changes to the Uniform Act to allow for increased flexibility**

This action step will involve multi-agency collaboration to determine the changes required, education of policy makers on the business case for this philosophy, and advocacy for the changes to help ensure passage by Congress. Once these changes are made, there will then need to be additional efforts to successfully implement this more flexible, expanded regulatory framework.

### **C. Strategic Direction: To Year 30 and Beyond**

The 30-year strategic plan builds off the 10-year strategic plan and in some cases is really an evolution from the 10-year plan. The goals and supporting actions in the 30-year plan represents actions which can in some cases begin now but which will continue over the entire 30-year planning horizon.

#### **Key Strategies: Years 11 - 30**

To continue implementing and expanding the proposed mission of public sector real estate, the research team is proposing several strategies to be implemented in years 11-30 of the 30 year planning horizon. These strategies are as follows:

### **1. Establish public sector real estate as a value added partner for collaboration with multi-national teams on domestic and international projects**

Public sector real estate will continue to expand its role as a value added partner from project inception through project completion and operation. The nature of this role will continue to evolve as diverse, multi-disciplinary, multi-national teams become more typical. Public sector real estate will distinguish itself as integral resources on these project teams who are extremely knowledgeable about real estate and utilities issues and their impact on project cost and risk. Using this knowledge, the public sector real estate professionals will continue to help to design creative, cost-effective solutions that seek first to avoid and then to minimize real estate and utility impacts.

### **2. Maintain and extend positioning of public sector real estate as a prestigious profession**

Public sector real estate will extend and begin to institutionalize its position as a prestigious profession, with other professions such as architects and engineers beginning to more readily recognize the distinct and specialized credentials and expertise of the public sector real estate professional.

Critical to institutionalizing the professional standing of public sector real estate will be the consistent delivery of proven, valued-add results by members of the community on day to day to basis, while working on a number of diverse projects. This institutionalization will be further accomplished through completing implementation of a strong public sector real estate certification program, attracting talented individuals to the profession and by training these professionals in a variety of skills integral to working in a team environment.

### **3. Establish a comprehensive research program to develop cost effective solutions for current, evolving and yet unknown issues**

The issues and opportunities facing public sector real estate will continue to evolve and change over the next 30 years. Opportunities that we cannot even imagine now will be critical drivers and keys to decision-making 30 years from now. To put this in perspective, all we have to do is look back 30 years to 1976 and think about how many people were thinking about the internet and the impact it would have on our lives today.

We do not know what all the changes will be over the next 30 years, but we know there will be many change agents. Thus, it is critical that public sector real estate has a strong and active research program. This research program should have two key objectives. First, this research program should be designed to continue to build on, grow and update existing research and bodies of knowledge such as providing for the on going updating of cost estimating methodologies based on actual history and field experience. Second, this research program must be designed with the flexibility to address new opportunities in a timely manner. If public sector real estate is going to remain a value added partner to its parent agencies, it must consistently be proactive and ahead of the curve, anticipating issues

and developing methodologies and approaches to address these opportunities as soon as they are needed for use on projects.

#### **4. Develop and maintain a highly trained, multi-disciplinary work force that is sensitive to and representative of the communities we serve**

Based on projections concerning the anticipated size and complexity of various public infrastructure programs in the years ahead, the need for well-trained and experienced public sector real estate staff is expected to continue to grow. At the same time, individuals will continue to retire and/or otherwise leave the field. Thus, it is essential that the public sector real estate field continue to proactively market itself to attract well-educated, highly skilled workers. This marketing program should also be targeted very broadly to ensure a diverse set of individuals is attracted to the profession that is representative of the communities we serve and the anticipated changes in the make-up of these communities over the next 30 years.

Complementing recruitment efforts, it is essential that the profession maintain an effective, on-going training program to ensure a pool of talented, well-trained and experienced professionals. In addition, it is essential to continue to update and enhance our training programs as the challenges and opportunities facing the field evolve over the next 30 years.

#### **Action Plan: Years 11 - 30**

To implement these strategies, the following action steps are recommended:

##### **1. Strengthen and further implement knowledge sharing and technology transfer programs on a global basis**

We must recognize that the intellectual capital, knowledge and experience base of public sector real estate will now be global in scope. As other countries continue to expand the pace of their infrastructure development, there will be much to learn from them in terms of tools, techniques and methods that can benefit public sector real estate and its customers.

In response, the public sector real estate community should work to establish and maintain active technology transfer programs between the United States and other countries. Whereas these programs have in the past typically been between the United States and other developed nations such as Western Europe (at least in terms of two way exchange), these programs should be developed and maintained as a regular two-way exchanges between the United States and many of the developing nations who will be doing much of the large infrastructure development. At the same time, programs should be extended and enhanced with other developed nations in so much as these nations will be addressing many of the same issues related to the maturing of the public infrastructure that the United States will be facing.

##### **2. Expand centers of expertise to provide for effective sharing of global intellectual capital**

The aging of the profession's workforce in the intermediate term, the continuous entry of new workers over the entire planning cycle drive and the anticipated on-going changes in the issues impacting the profession drive the need for centers of expertise in particular subject areas who have both the experience in a particular area and who are actively maintaining the research related to that subject.

To ensure that field staff has both access to the latest tools and methods for addressing particular issues, as well as other staff with hands-on experience resolving these specialized issues, the concept of shared pools of specialized resources initiated during the first ten years should be continued and expanded. To most effectively leverage the field staff, the Public Sector real estate community should continue to enhance and expand the centers of expertise on specialized issues within agencies or program areas or within FHWA as the lead agency for the Uniform Act and make these resources available to specific projects on an as needed basis to provide specialized subject matter expertise. These specialists' resources should bring to projects not only their own experience, but also the latest specific research relevant to a subject area, drawing upon all of the intellectual capital available on a global basis.

### **3. Institutionalize processes and tools to capture and share intellectual capital on a global basis and foster collaboration**

This action step has as its goal the growth, expansion and institutionalization of the tools and techniques that were initially implemented over the first ten years including e-collaboration environments, project repositories and various web-based templates and practice aids. These tools and processes will no longer be new innovations, but job aids that will be used every day and fundamental to how the profession does work. However, to continue to evolve and maintain the currency of these tools, it is essential that the public sector real estate community:

- Continue to update and maintain the knowledge capital contained within these tools to reflect changing conditions.
- Integrate and maintain global intellectual capital within these tools and practice aids.
- Continue proactive research on the benefits of new technologies to the profession and;
- Evolve these tools and techniques as new technologies become available and practical for use.

### **4. Institutionalize and continue to evolve best practices in cost estimation based on feedback and partnerships with multi-national teams**

This action step builds on the recommendation in the ten-year action plan to develop and implement real estate and utilities estimating methodologies. Critical to success of any estimating methodologies and tools is the ability to refine and enhance these tools based on actual field experience and history. This recommendation involves ensuring that implementation of processes to ensure that these estimating methodologies are refined

based on actual experience and updated to reflect changing conditions and these updates are provided to practitioners on a regular basis to ensure the cost estimating methods and tools remain current.

### **5. Continue marketing programs to attract new people to the profession**

This action step involves maintaining and enhancing the marketing plan people implemented in the first ten years. As appropriate, this program should be continuously modified and updated to reflect on-going changes impacting the field and to adjust target audiences as conditions warrant.

### **6. Institutionalize the public sector real estate certification program and evolve the certification program as appropriate to address the impact of new challenges, opportunities and technologies**

This action step builds off the design and initial implementation of the certification program during the first ten years of the planning cycle. It involves ensuring that the certification program is institutionalized and widely accepted as a credential tooling within the public sector real estate community. The goal of this recommendation is to ensure:

- Prospective employers adopt the certification as a job requirement for entry into and growth within the profession based on its being an indicator of the core skills and professional standards required to be successful in the profession.
- Employees entering the field recognize as a given the value of having the certification both in terms of being integral to their career growth and as an indicator of their knowledge and skills.

In addition, it is essential that the program be viewed as dynamic. Processes must be put in place to ensure the program and its requirements changes as appropriate to reflect changes in the role and function of the public sector real estate professional going forward.

### **7. Establish continuing education program that leverages technology to rapidly provide information on evolving trends to public sector real estate staff**

Change is eminent and it is essential that we are able to provide information on these latest changes to public sector real estate professionals as rapidly as possible. To this end, this action step envisions implementation of a continuing education program to provide mid-career professionals updated training on the latest tools and methods.

As is the case with many professions, a certain amount of continuing education credits or training on an annual basis should be established as a requirement for maintaining the public sector real estate certification. The continuing education programs required to meet these requirements could take many forms including seminars at national meetings, special topic distance learning classes and/or webinars. The key is the content must be current, adapt to, and provide information on the latest changes impacting the profession.



## Appendix A: Summary of Literature Search

This appendix lists the various resources consulted as part of the literature search for this project.

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