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CELEBRATING *FOUNDATIONS OF URBAN AND REGIONAL INFORMATION SYSTEMS AND GEOGRAPHIC INFORMATION SYSTEMS AND SCIENCE*

Abstract: *Foundations of Urban and Regional Information Systems and Geographic Information Systems and Science* is a 300-page book with 23 chapters commemorating URISA's 50 anniversary conference. This presentation celebrates the commemorative book by discussing the themes – tribute to Edgar Horwood, forces and ideas that spawned the field, previous benchmarking experience, institutional and organizational foundations, topical and visionary foundations, and concluding remarks – and then salutes the contributors and the book's contents. Tables on information system domains, URISA special interest groups, and URISA workshops are used to illustrate how URISA through forward-thinking and purposeful action has earned its place as the leading international organization in education, research, training, and applications activities involving urban and regional information systems and geographic information systems and science.

INTRODUCTION

When drafting this paper I entertained a number of words that could be used to characterize the production and publication of *Foundations of Urban and Regional Information Systems and Geographic Information Systems and Science* (Wellar, 2012b). The long story short is that while the book was produced over eight months, it took about eight seconds for "celebrating" and "saluting" to jump out for the purposes of this paper.

After due consideration I opted for celebrating as the word for today, and saluting is put on the back burner for another occasion.

As noted in the abstract, *Foundations of Urban and Regional Information Systems and Geographic Information Systems and Science* contains 23 chapters and more than 300 pages of text. However, this paper is a celebration not a critique, and an overview not a content analysis. Consequently, emphasis is on highlighting several aspects of the

book, and making the case that it deserves thoughtful attention by members of the urban and regional information systems and geographic information systems and science community.

In the next several pages I discuss the themes used to design the book, the authors of chapters, and the chapter titles, and then I present a selection of materials from the book to illustrate the scope and depth of subject matter covered.

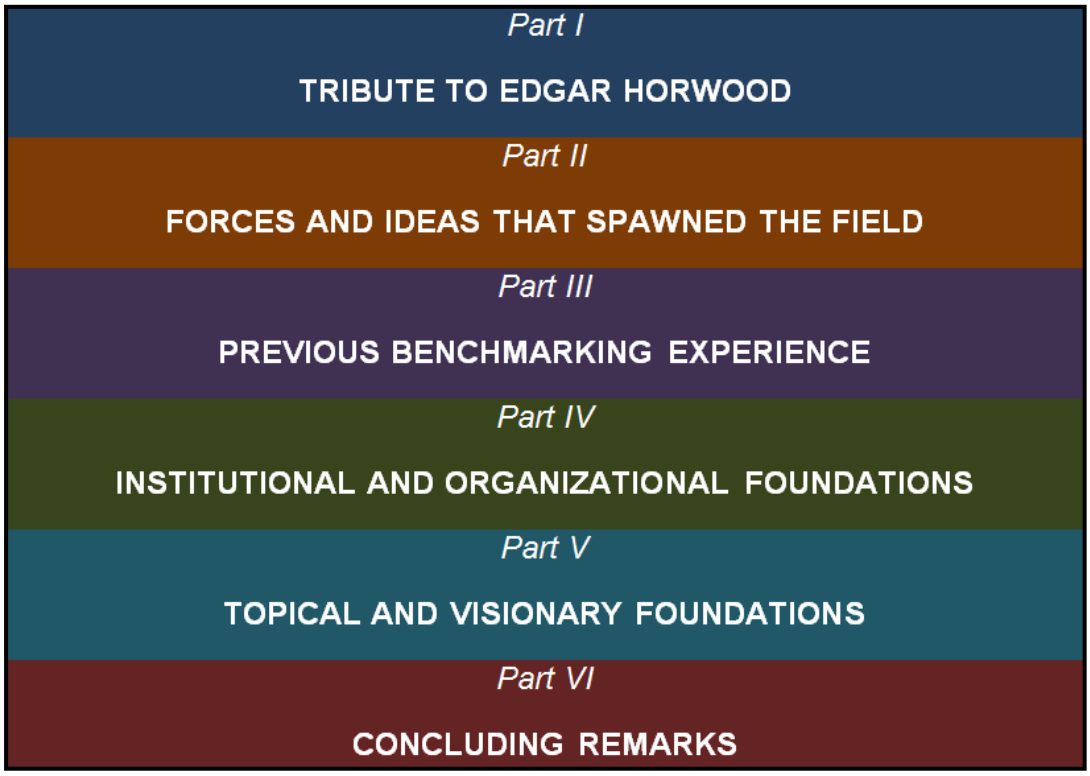
THEMES

Back in November when I began to design the book, a number of options made the long list of possibilities. However, we cut to the chase very quickly after reflecting upon the likelihood of overcoming the differences between what we might like to do, and the practical realities/constraints of producing a substantive text in short order and with limited funding.

And, of course, there are the daily reminders/downers associated with those wonderful words of wisdom and forewarning, “When all is said and done, very often more is said than done”.

The challenge, therefore, was to focus on what must be done, what should be done, and what could be done, in that order, while being ever-mindful of the human tendency to drift off onto tangents and distractions. The chosen themes are shown in Figure 1.

FIGURE 1. *FOUNDATIONS* THEMES



In the case of *Foundations,* it was a no-brainer to start off in Part I with a tribute to Edgar Horwood. In addition to providing an exceptional *persona* for the book opening, Edgar was also in my thoughts when I selected **foundations** as the theme of the book, and informed contributors that I was not interested in "blab" pieces. Edgar would not have accepted anything less, so how could I, or any contributor?

As for the other sections, the themes chosen seem natural to me, but others may have different opinions. I hasten to add that *Foundations* is properly regarded as an initial contribution rather than a final proclamation, so the door is wide open for other books with different start, end, and in-between points.

Following the tribute to Edgar, it seemed requisite to take into account URISA's shaky, exciting, eventful, and even tumultuous beginning, which provided the intellectual, methodological, political, technological, and organizational underpinnings of the field. We celebrate those achievements in Part II, and leave lots of room or more papers.

The bench-marking challenge is addressed in Part III, and recognizes the critical value of periodically taking stock of ideas, events, projects, trends, etc. In URISA's case it would be highly embarrassing, to say the least, if an association whose middle name is information had little or no comparative information on what it had been doing, why, and how over the years.

Part II and Part III provide a sweeping look at many of URISA's accomplishments over 50 years, and the next phase in the book design is to go from the sweeping mode to chapters which provide insights into some of the particulars on why and how education, research, training, and applications in urban and regional information systems and geographic information systems evolved or unfolded as they did over the past 50 years. And, of course, venturing into the future would be a welcome aspect of chapters.

It had been my experience that institutional and organizational relationships go hand-in-hand, and arm-in arm at all levels of government, in academe, in business, in society at large, and had been a constant theme in URISA throughout its history. Chapters in Part IV address these foundations.

Part V opens the discourse to foundations which are topical or visionary in nature, and invites detailed commentary on selected subjects, issues, events, processes, trends, etc., that are dealt with in any of the preceding chapters, or not. In effect, the phrase *carte blanche* aptly describes the terms of reference for authors: It's your call; take the shot you want, just make it.

To refresh memories, by its 50th conference URISA had generated more than 35, 000 pages of text, so the appropriate design decision in my opinion was to offload the choices to be made. In effect, give the highly-credentialed contributors *carte blanche*, so that they feel free to pick a topic, any topic, or share a vision, any vision, and do not feel compromised because of missed topics and visions. Simply put, any deemed missing

topics, or lost visions, can be elaborated by others in due course in other papers and/or books.

As for Part 6, the concluding remarks section was seen as an opportunity to overview the parameters of the *Foundations* project, connect the *Foundations* production to another highlight of the 2012 conference which is the induction of federal agencies into the GIS Hall of Fame, and suggest several implications of this project for future foundations-related projects, papers, course assignments, theses, dissertations, etc.

SALUTING THE CONTRIBUTORS TO *FOUNDATIONS*

Obtaining chapters for the book on foundations was a very democratic process. URISA past presidents, GIS Hall of Fame inductees, and Horwood Award recipients received the first round of invitations to contribute a chapter, and deadlines were set out to separate those of the could and should mindsets from those who appeared to regard the chapter as a must do commitment. There was no need for round two, since almost 30 chapters were “pledged”. The odds were very good that at least 20 would be produced in accordance with format and schedule guidelines, and would be substantive pieces as opposed to “blabs”, so it was game on for the foundations project.

Scanning the titles, it appears fair to say that we nailed the assignment. Obviously there is more to be written about URISA’s record over the past 50 years, and about the many aspects of foundations. However, that is a challenge in waiting. Today we celebrate this production, and we salute the contributors to that production.

So, here’s to you, Bill Garrison, Edgar Horwood, Ken Dueker, Mike Kevany, Peter Van Demark, Gary Hunter, Dianne Haley, Will Craig, Shoreh Elhami, Mike Goodchild, Pete Croswell, Dana Tomlin, Martha Wells, Ed Wells, Jack Dangermond, Penny Baldock, Gary Maguire, Nick Lawrence, and Christopher Pettit for joining with me in writing chapters for *Foundations of Urban and Regional Information Systems and Geographic Information Systems and Science*.

SALUTING THE CONTENTS OF *FOUNDATIONS*

There are significant contents in every chapter, but I leave the joy of experiencing that observation to the reader. As shown in Figure 2, *Foundations* consists of chapters on important questions, issues, trends, achievements, challenges, opportunities, and so on, written by an outstanding array of thinkers and doers, and I expect that their reports will have a significant impact on the field.

FIGURE 2. *FOUNDATIONS* THEMES, CHAPTER TITLES AND AUTHORS

In the next several pages I present several tables, each of which has sufficient material to form the basis of an entire book of considerably greater scope and depth than *Foundations.* Fortunately, in view of time constraints, this is one of those occasions when only the most parsimonious of elaborations is required because the contents of the tables speak eloquently for themselves. Moreover, those who do crave elaborations can find them in the book.

We begin the peek into *Foundations* with the indicative list of domains (Table 1), which previously appeared in the May-June issue of *GIS Professional* (Wellar, 2012a).

TABLE 1. AN INDICATIVE LIST OF THE INFORMATION SYSTEM DOMAINS DISCUSSED IN URISA PROCEEDINGS PAPERS (FROM CHAPTER 1 OF *FOUNDATIONS*)

- access to data issues
- access to data policies
- access to information issues
- access to information policies
- applications of data systems
- applications of geographic information systems (GIS)
- applications of information systems (IS)
- applications of land information systems (LIS)
- assessing GIS benefits
- assessing IS benefits
- assessing management information system (MIS) benefits
- asset management systems
- attribute data
- automated cartography
- automated data processing
- automated mapping,
- automated vehicle tracking
- cartographic principles and practices
- census
- centralization/decentralization issues
- climate change monitoring system
- code enforcement information system
- community health information system
- community mapping/maps
- complaints-based municipal standard of care response system
- complaints-based inspector dispatch system
- computer-aided dispatch
- computer-aided mass appraisal
- computer-communications systems
- confidentiality and privacy issues and practices
- consultants and data conversion tasks
- consultants and IS/GIS/LIS design and implementation
- contour mapping,
- coordinate systems
- COTS – OSS/FS – Saas
- criminal justice information system
- data access control plan
- data acquisition alternatives
- data conversion processes
- data dictionary
- data generation techniques

TABLE 1 (CONT'D). AN INDICATIVE LIST OF THE INFORMATION SYSTEM DOMAINS DISCUSSED IN URISA PROCEEDINGS PAPERS
(FROM CHAPTER 1 OF *FOUNDATIONS*)

- data layers/overlays
- data maintenance
- data models
- data sharing issues/protocols
- data sources and data acquisition/transfer *caveats* and protocols
- data standards
- decision support information system
- development monitoring/tracking information system
- devolution impact on municipal government information services
- digital elevation model
- digital mapping
- digital terrain model
- dispatch Information system
- "Doomsday Map"
- economic development information system
- electronic data processing
- emergency response information system
- enterprise geographic information system
- environmental impact assessment information system
- environmental information system
- environmental technical information system
- evaluating information system performance
- exemplary systems/best practices
- expert and knowledge-based information system
- facility management system
- financial information system
- fiscal impact analysis
- fiscal information system
- geocoding
- geodatabase structures
- geographic base file
- geographically-referenced data storage and retrieval system
- geographic concepts defining GIS
- geographic information system (GIS)
- geographic knowledge system
- geomatics
- georeferencing
- geospatial technology
- geostatistics
- GIS planning and implementation
- GIS trends

TABLE 1 (CONT'D). AN INDICATIVE LIST OF THE INFORMATION SYSTEM DOMAINS DISCUSSED IN URISA PROCEEDINGS PAPERS
(FROM CHAPTER 1 OF *FOUNDATIONS*)

- global positioning systems
- globalization impact on community information strategies
- Google (street view, etc.)
- hazard information systems
- health information system
- housing information system
- human resources management information system
- imaging systems
- impact assessment principles/practices/techniques
- indexes and other metrics for evaluating/grading/measuring performance
- informatics
- information and knowledge bases for decision-making
- Information interchange protocols
- information management systems
- information research services
- information science
- information society
- information system architecture
- information system functionality
- information system performance
- information systems and critical/essential infrastructure
- information system trends
- informational activity criteria
- informing and listening to the public
- infrastructure management and maintenance information system
- in-house/out-source principles and practices
- institutional and organizational factors
- institutional maxims and conditions
- integrating land records databases
- integrated municipal information system
- integrated system development
- interactive GIS
- interdependent infrastructures and information systems
- intergovernmental information system
- internet GIS
- land information system
- land market information system
- land parcel information system
- land records information system
- land registration information system
- land/structure/occupancy database

TABLE 1 (CONT'D). AN INDICATIVE LIST OF THE INFORMATION SYSTEM DOMAINS DISCUSSED IN URISA PROCEEDINGS PAPERS (FROM CHAPTER 1 OF *FOUNDATIONS*)

- land use classification systems
- legacy systems
- legal issues
- LiDAR
- management information system
- measuring information system return on investment
- mental health data system
- metadata
- methods and techniques of spatial analysis
- metropolitan information system
- mobile LiDAR
- motor vehicle accident records information system
- multi-jurisdictional geographic information system
- multimedia systems and applications in local government
- multipurpose cadastre
- multi-purpose land information system
- municipal information system
- national spatial data infrastructure (NSDI)
- natural resources information system
- needs analysis – data
- needs analysis – information
- needs analysis – policy information/knowledge bases
- object-oriented database
- online mapping
- open systems and architecture
- pedestrian-sensitive intersection traffic safety system
- plan, program, budget information system
- planning and evaluation information system
- planning information system
- planning research information system
- police management information system
- policy objective, formation, and evaluation system
- policy research information system
- privatization impact on public sector information services
- productivity measurement
- project performance information system
- property assessment information system
- property inspections information system
- property standards by-law enforcement system
- prosecution management information system
- public participation geographic information system

TABLE 1 (CONT'D). AN INDICATIVE LIST OF THE INFORMATION SYSTEM DOMAINS DISCUSSED IN URISA PROCEEDINGS PAPERS (FROM CHAPTER 1 OF *FOUNDATIONS*)

- public policy and IS/GIS/LIS inputs
- quality assurance for GIS
- quality control procedures and systems
- real estate information system
- regional information system
- regional management information system
- relational database-management system,
- remote sensing systems
- residential appraisal information system
- resource allocation models
- return on investment principles and practices
- routing systems (vehicles, utilities, etc.)
- school districting information system
- small area data needs/issues
- social indicators information system
- spatial analysis for business
- spatial analysis techniques
- spatial data infrastructures
- spatial data transfer standard (SDTS)
- spatial data warehouse
- standard of care information obligations
- standardization processes
- street addressing
- topology
- traffic management information system
- transferability concepts, principles, and practices
- transit planning information system
- transportation information system
- water and wastewater information system
- urban data models
- urban development information system
- urban information system
- Urban Information System Inter-Agency Committee (USAC) project
- zoning information system

In a word, I believe it is fair to say that the list of domains in Table 1 represents an extraordinary, accomplishment. By having a presence in virtually every foundation comprising the field of urban and regional information systems and geographic information systems and science, URISA is an organization that fully deserves being celebrated and saluted. That said, the invitation has already been extended to expand the list, and I look forward to seeing the additions.

Table 2 contains the second peek into *Foundations*, and the object of interest is the Special Interest Group (SIG) activity, which took root in URISA in the very early 1970s and has involved many of URISA's brightest and best over the past 40 years, and counting.

TABLE 2. SIGS WITH START AND END DATES
(FROM CHAPTER 10 OF *FOUNDATIONS*)

Name	**Start Date**	**End Date**
AI-SIG	1988	After 1994
Cadastre	1977	After 1980
Criminal Justice Applications	Before 1976	After 1980
Data Base Management	Before 1976	After 1980
Decennial Census	Before 1976	After 1980
Education and Technology Transfer	1988	After 1993
Education and Training	Before 1976	After 1980
End-User	1989	After 1990
Environment & Natural Resources	Before 1978	After 1997
Evaluation	Before 1976	After 1980
Facilities Management & Mapping	1985	After 1988
Federal Information Systems	Before 1976	After 1977
GBF	1971	After 1993
Human Service Systems	Before 1976	After 1980
Information Resources Management	1983	After 1989
Infrastructure Management	1987	After 1993
Integrated Systems	1989	After 1997
International	Before 1976	After 1980
Land Records Modernization	1983	After 1994
Low Cost Technology	Before 1978	After 1980
Mapping Lead Exposure	1993	After 1997
Metadata	Between 1993 & 1997	After 1997
Microcomputers/MacSIG	Between 1979 & 1983	After 1991
Minicomputer Technology	Before 1976	After 1980
Multi-Media	1993	After 1997
Privacy & Confidentiality	1977	After 1978
Private Sector	Before 1976	After 1977
Public Administration	1983	After 1991
Public Information Access	1986	After 1997
Public Safety	1989	After 1994
Public Works	1984	After 1988
Regional Agencies	Before 1988	After 1997
Remote Sensing Applications	Before 1976	After 1980
Small Cities & Counties	Before 1978	After 1980
Social Indicators	Before 1976	After 1980

TABLE 2 (CONT'D). SIGS WITH START AND END DATES
(FROM CHAPTER 10 OF *FOUNDATIONS*)

Name	**Start Date**	**End Date**
Spatial Decision Support Systems	1992	After 1992
Standards	1972	After 1977
State/Province	1989	After 1993
Student	Before 1976	After 1978
Systems Integration	1985	After 1989
Technology Transfer	Before 1976	After 1978
Tiger Census	1995	After 1997
Transportation	1977	After 1997
Urban & Regional Analysis	1987	After 1993
User Access	1977	After 1980
Water/Water Waste Public Works	1993	After 1997

The list of special interest groups points to an organization at the front end of education, research, training, and applications in many of the core aspects of urban and regional information systems and geographic information systems and science. Moreover, URISA was at the early front end, you might say, with special interest groups launched 40, yes, 40 years ago, although it does seem like yesterday that we got together to discuss topics such as GBF and standards.

The third and final table in the paper lists more than 200 workshops which URISA has made available to the urban and regional information systems and geographic information systems and science community.

TABLE 3. PARTIAL LISTING OF URISA WORKSHOPS IN ALPHABETICAL ORDER AND YEAR OF INITIAL PRESENTATION (FROM CHAPTER 11 OF *FOUNDATIONS*)

1. Addressing – 1995
2. Address Issues and IS/GIS Implementation – 1999
3. AI/Expert systems – 1988
4. AM/FM/GIS for Infrastructure Management – 1987
5. AM/FM/GIS for Public Works – 2000
6. AM/FM/GIS for Water/Wastewater – 1995
7. Assessment and Performance Measurement – 1977
8. Asset Management – 2004
9. Automated Data Processing –1968
10. Automated Mapping and Geoprocessing (Introduction) – 1985
11. Benefits for Small Cities (Establishing Information) – 1971
12. Bridging the Geo Spatial Knowledge Gap – 1999
13. Building Files (Master) – 1974
14. Business Intelligence – 2011
15. Cartography & Map Design – 1991
16. Census Data and Census Use – 1973
17. Census Data in Information Systems (Extending Use) – 1971
18. Census Data User Feedback and Interchange – 1971
19. Census Geography – 1998
20. Census TIGER Data – 1989
21. Census 1980 – 1977
22. Census 2000 – 1998
23. Civil Engineering and GIS/IT Integration – 2006
24. Clean Water Act – 1991
25. Communication Skills – 1997
26. Computer Graphics – 1983
27. Computers (Getting Started in) – 1983
28. Computers and Information Systems: A Financial Manager's Perspective –1980
29. Computers and Public Finance: Alternatives for the Future – 1976
30. Confidentiality – 1973
31. Consensus Building – 1993
32. Consultants and Vendors (Roles and Responsibilities) – 1977
33. Cost-Benefit Analysis in Municipal Information Systems – 1973
34. Crime Mapping – 2009
35. Curricula and Information Systems Programs (University) – 1977
36. Database Development and Conversion – 1999
37. Data Conversion – 1993
38. Data Distribution Policies, Costs, Indexes, Systems – 1999
39. Data Distribution Policies/E-Government – 1996
40. Data Generation Techniques – 1968
41. Data Management Systems – 1973
42. Data Standardization – 1973

TABLE 3 (CONT'D). PARTIAL LISTING OF URISA WORKSHOPS IN ALPHABETICAL ORDER AND YEAR OF INITIAL PRESENTATION (FROM CHAPTER 11 OF *FOUNDATIONS*)

43. Desktop Mapping (Beyond) – 1995
44. Digital Orthophotography: Production and Application – 1999
45. Digital Orthophotos –1994
46. Disaster Preparedness – 2000
47. Disaster Strikes – 1997
48. Document Imaging & Integrating documents with GIS – 1999
49. Document Retrieval in Information Systems – 1971
50. E-Commerce for Local Governments – 1999
51. Electronic Data Processing and Its Application to Planning – 1964
52. Electronic Data Processing Systems – 1965
53. Emergency Preparedness – 2012
54. Enterprise Information Modeling – 1993
55. Evaluation – 1974
56. Federal Actions (How to Bring About) – 1971
57. Field Automation – 2004
58. Financial Manager's Perspective (Computers and Information Systems) – 1980
59. Financial Management Systems (Modernizing) – 1995Fire Services – 1976
60. Freedom of Information – 1977
61. Functional Roles in Information System Design – 1976
62. Geocoding (User) – 1973
63. Geocoding (Techniques) – 1973
64. Geodetic Control – 1978
65. Geodetic Reference System – 1988
66. Geographic Base Files – 1975
67. Geographic Base File Developments – 1971
68. Geoprocessing – 1974
69. Geoprocessing (Advanced: A Database Approach) – 1985
70. Geoprocessing for Local Government (Introduction) – 1987
71. Geoscience Career Growth – 1998
72. GIS & Business – 1997
73. GIS & Document Imaging – 1994
74. GIS & Emergency Management – 1991
75. GIS & Geographic Imaging (Integrating) – 1999
76. GIS & Internet – 1995
77. GIS & Information Systems Integration – 1999
78. GIS & Natural Resource Management – 1989
79. GIS & Public Works – 1999
80. GIS & Real Estate – 1991
81. GIS & Transportation – 1989
82. GIS & Transportation: Introduction to GIS-T – 1992
83. GIS & Urban and Regional Planning – 1997
84. GIS (Advanced Topics) – 1987

TABLE 3 (CONT'D). PARTIAL LISTING OF URISA WORKSHOPS IN ALPHABETICAL ORDER AND YEAR OF INITIAL PRESENTATION (FROM CHAPTER 11 OF *FOUNDATIONS*)

85. GIS Applications for Assessors – 1993
86. GIS Conceptual Data Model (Implementation) – 1993
87. GIS Database Construction (Advanced) – 1993
88. GIS for Data Processors – 1989
89. GIS Conversion Strategies (Optimizing) – 1990
90. GIS Database Design/Models – 1993
91. GIS Data Base Development – 1989
92. GIS Enterprise Architecture and System Integration –1994
93. GIS Implementation (Managing) - 1999
94. GIS (Introduction) – 1984
95. GIS Management – 1988
96. GIS Partnerships (Consensus Building Techniques) – 1993
97. GIS Procurement – 1999
98. GIS Program Management – 2004
99. GIS ROI – 2012
100. GIS Strategic Planning – 2008
101. Goals of URISA – 1971
102. GPS – 1994
103. GPS (Hands-on) – 1996
104. GPS, Imagery, and GIS – 1997
105. GPS (Introduction) – 1999
106. Hardware Alternatives for GIS and Office Automation (Understanding) –1992
107. Highway Inventory and Maintenance – 1997
108. Human Element in Information Systems – 1973
109. IGIS Technology (Low Cost) – 1974
110. Information at Your Fingertips – 1985
111. Information Benefits for Small Cities (Establishing) – 1971
112. Information Management – 1965
113. Information Systems Technology Transfer – 1976
114. Interactive Computer Graphics – 1982
115. Intergovernmental Relations – 1977
116. Integrated Information Systems – 1972
117. International Exchanges – 1977
118. International Information Systems – 1985
119. International Information Technology for Development – 1976
120. Internet GIS – 1998
121. ISO Geostandards – 2011
122. Land Classification Detection –1997
123. Land Management Systems – 1984
124. Land Records Modernization and the Multipurpose Cadastre – 1987
125. Law and Public Information Policy – 1999
126. Law Enforcement and Criminal Justice Information Systems – 1976

TABLE 3 (CONT'D). PARTIAL LISTING OF URISA WORKSHOPS IN ALPHABETICAL ORDER AND YEAR OF INITIAL PRESENTATION (FROM CHAPTER 11 OF *FOUNDATIONS*)

127. Leadership – 1988
128. LiDAR – 2006
129. Low Cost IGIS Technology – 1974
130. Low Cost Technology – 1977
131. Management Topics in GIS Development – 1988
132. Managing EDP Systems –1968
133. Map design: Making Better Maps – 1992
134. Mapping on the Macintosh – 1989
135. Marketing Information Services and Products – 1985
136. Marketing Management for Public Agencies – 1985
137. Metadata – 1998
138. Micros: How to Select and Procure – 1984
139. Microcomputer Issues (Advanced) – 1984
140. Microcomputers and Transit Management – 1984
141. Microcomputers for Local Government – 1982
142. Microcomputer Techniques for Growth Management – 1987
143. Minicomputer Applications – 1978
144. Minicomputers and Low-cost Data processing – 1976
145. Minicomputers and State and Local Government Data Processing – 1976
146. Model Cities Applications and Developments – 1971
147. Multimedia – 1991
148. Multimedia GIS and the Web – 1997
149. Municipal Information Systems Research – 1966
150. Municipal Mapping & Geoprocessing Systems – 1984
151. NASA/NSF Remote Sensing Forum – 2000
152. National Spatial Data Infrastructure framework – 1998
153. National Statistical Programs – 1977
154. Natural Resources/Environmental Assessment: The Minnesota Land Management Information System – 1982
155. New Directions in Urban Management: Geoprocessing and Data Base Management – 1982
156. 911 (Next Generation) – 2012
157. 1980 Census Data Processing – 1982
158. Object-Oriented GIS Technology (Introduction) – 1999
159. Object-Oriented Spatio-Temporal Modeling – 2006
160. Open Source GIS – 2005
161. Parcel Mapping Fundamentals – 1991
162. Parcel Mapping/GIS for Assessors – 1989
163. Permit Tracking and Development Monitoring – 1987
164. Photogrammetric Methods – 1986
165. Policy Processes – 1977
166. Positioning Accuracy Standards (New) – 2000

TABLE 3 (CONT'D). PARTIAL LISTING OF URISA WORKSHOPS IN ALPHABETICAL ORDER AND YEAR OF INITIAL PRESENTATION (FROM CHAPTER 11 OF *FOUNDATIONS*)

167. Presentation Skills – 1986
168. Procurement and Contract Management – 1999
169. Project Management – 1999
170. Public Access and Privacy – 1985
171. Public Data, Public Access, Privacy, and Security – 2004
172. Public Information: Legal Issues – 1988
173. Public Finance – 1975
174. Public Information for the People: Issues about Access – 1985
175. Public Participation GIS – 2006
176. Public Safety – 1988
177. Public Works – 1976
178. Quality Management – 2007
179. Quality Spatial Data – 2007
180. Recreation and Parks – 1976
181. Re-Engineering Government – 1996
182. Remote Sensing for Urban and Regional Applications – 2000
183. Research Fundamentals – 2005
184. Role of Computers – 1967
185. Role of Models in Setting Values – 1966
186. Security – 1973
187. Small Area Data – 1965
188. Small Area Modelling – 1990
189. Social Indicators – 1973
190. Spatial Analysis (Introduction) – 1989
191. Spatial Data Transfer Standard – 1998
192. SQL and Relational Basics for GIS – 1991
193. Small Area Data – 1965
194. Standards/Geographic Base File – 1973
195. Statistics Canada 1996 Census – 1997
196. Systems Assessment and Performance Measurement – 1977
197. Telecommunications Strategies – 1987
198. 3-D Visualization – 2003
199. 3-D Geospatial – 2005
200. Transferability – 1972
201. Transportation Spatial Database – 2006
202. Urban and Regional Information Systems –1968
203. Urban Data Needs – 1966
204. Urban Geoprocessing: New Technologies – 1986
205. Urban Information Systems for Economic Development – 1989
206. Urban Simulation – 1965
207. USAC Transferability Accomplishments – 1971
208. Vertical and Horizontal Data Linkages – 1970 & Virtual Reality Nets – 1997

The list of workshops by name and time of inception, including those offered in 1964, 1965 and 1966, testifies to an organization at the leading edge of defining, designing, and implementing the foundations of education, research, training, and applications in many of the core aspects of urban and regional information systems and geographic information systems and science. For those who keep track of such things, I believe that in many cases the workshops put on by URISA are the first of their kind, and are accorded the highest form of flattery, that is, they are widely imitated in universities and colleges, as well as by government agencies and by firms in the private sector.

I suggest that putting up those kinds of "numbers" in regard to domains, special interest groups, and workshops could only be done through an organization boasting a tremendous pool of talent which is willing to share expertise and experience, and provide necessary and inspiring leadership to overcome challenges and expand opportunities.

It is therefore appropriate to close this section by saluting URISA in recognition of the role it played and continues to play in providing the venue behind the domains, special interest groups, and workshops, and the numerous other accomplishments which are identified in chapters throughout *Foundations of Urban and Regional Information Systems and Geographic Information Systems and Science*.

CONCLUSION AND IMPLICATIONS

There may be other organizations that might have considered undertaking a venture similar to the *Foundations* project had they thought of it, but none come to mind as being likely to pull it off. The sum of the matter as I see it, is that URISA has an amazingly rich history, and the right people were in the right place at the right time to prepare a book which delves into that record of achievement, and does considerable justice to the many individuals, agencies, ideas, initiatives, etc., that have made URISA the leading international organization in the field of urban and regional information systems and geographic information systems and science.

As for implications, every chapter in *Foundations of Urban and Regional Information Systems and Geographic Information Systems and Science* contains insights, ideas, suggestions, lessons learned, lessons to be learned, recommendations, and so on regarding information system education, research, training, and application. Moreover, *Foundations* itself represents a substantive stepping stone for elaborating more of the foundations of urban and regional information systems and geographic information systems and science.

Finally, URISA has a long and rich history of producing substantive documents, and I am optimistic that *Foundations of Urban and Regional Information Systems and Geographic Information Systems and Science* will be recognized as an important legacy of URISA's 50th anniversary conference.

With those remarks about celebrating and saluting *Foundations of Urban and Regional Information Systems and Geographic Information Systems and Science,* my work here is done.

For those who sign on to sustain what this project started, I take my departure by sharing these words of inspiration:

Relish the challenge, Seize the opportunity.

And, to end with a touch of flair in memory of Edgar Horwood, a combination of French and Latin,

Savoure le défi, *Oblatum occasionem tene.*

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