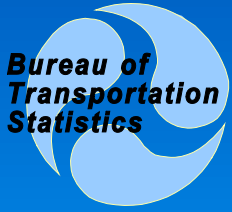


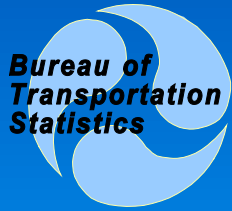
A Summary of State DOT GIS Activities

Presented at the
1998 AASHTO GIS-T Symposium
Salt Lake City, UT

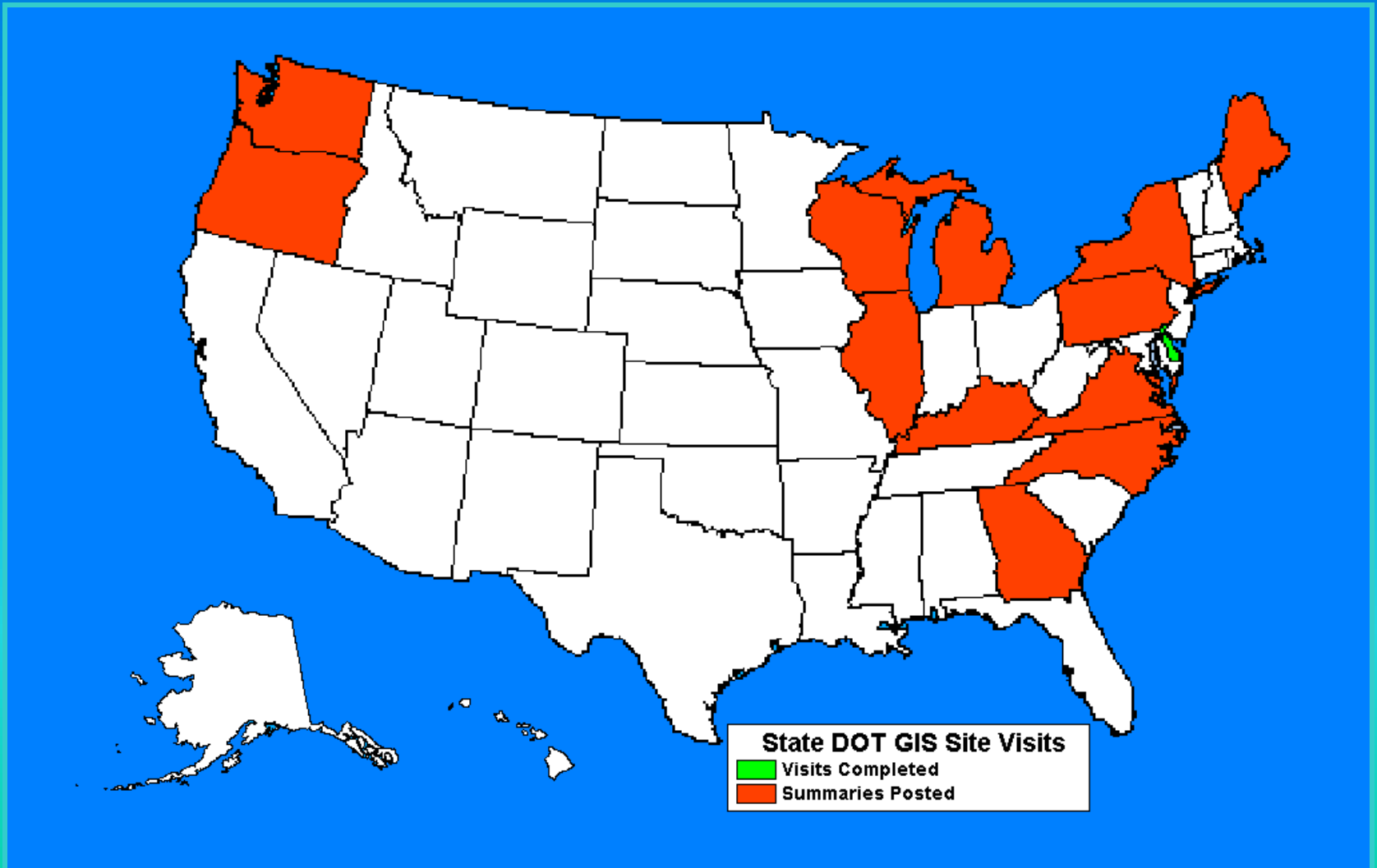


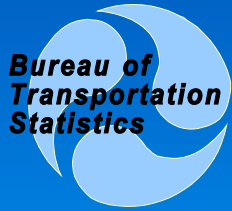
Information Sources

- Telephone survey of state DOT GIS managers
 - All 50 State DOTs surveyed in 1998
 - Results compared with 1996 & 1997 surveys
- BTS state DOT site visits
 - More in-depth investigation of GIS activities and issues
 - 13 states visited during 1997

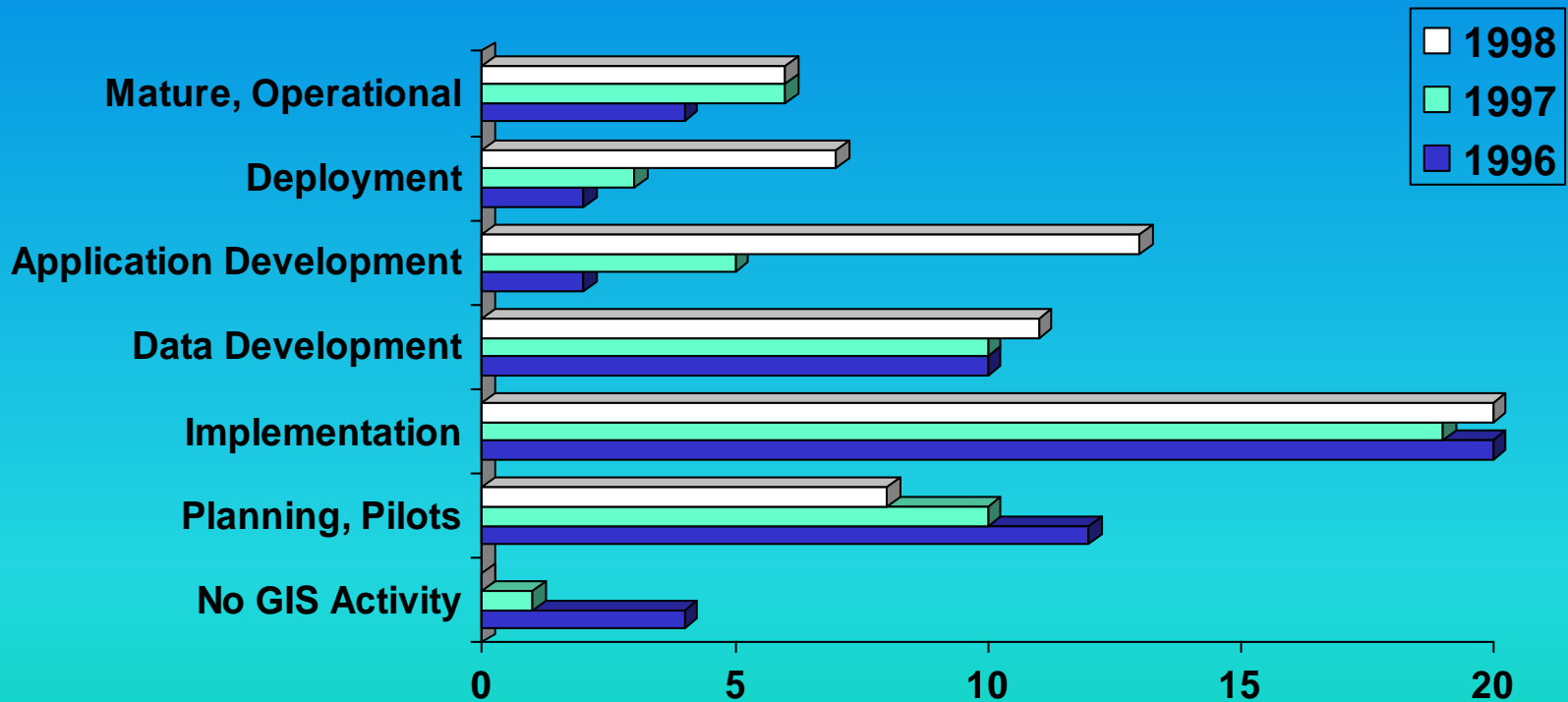


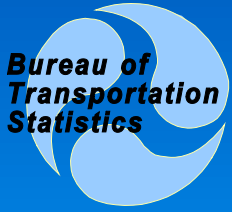
DOT Site Visits





Stage of Development

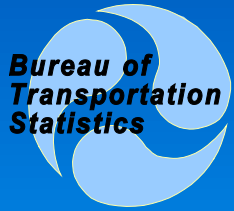




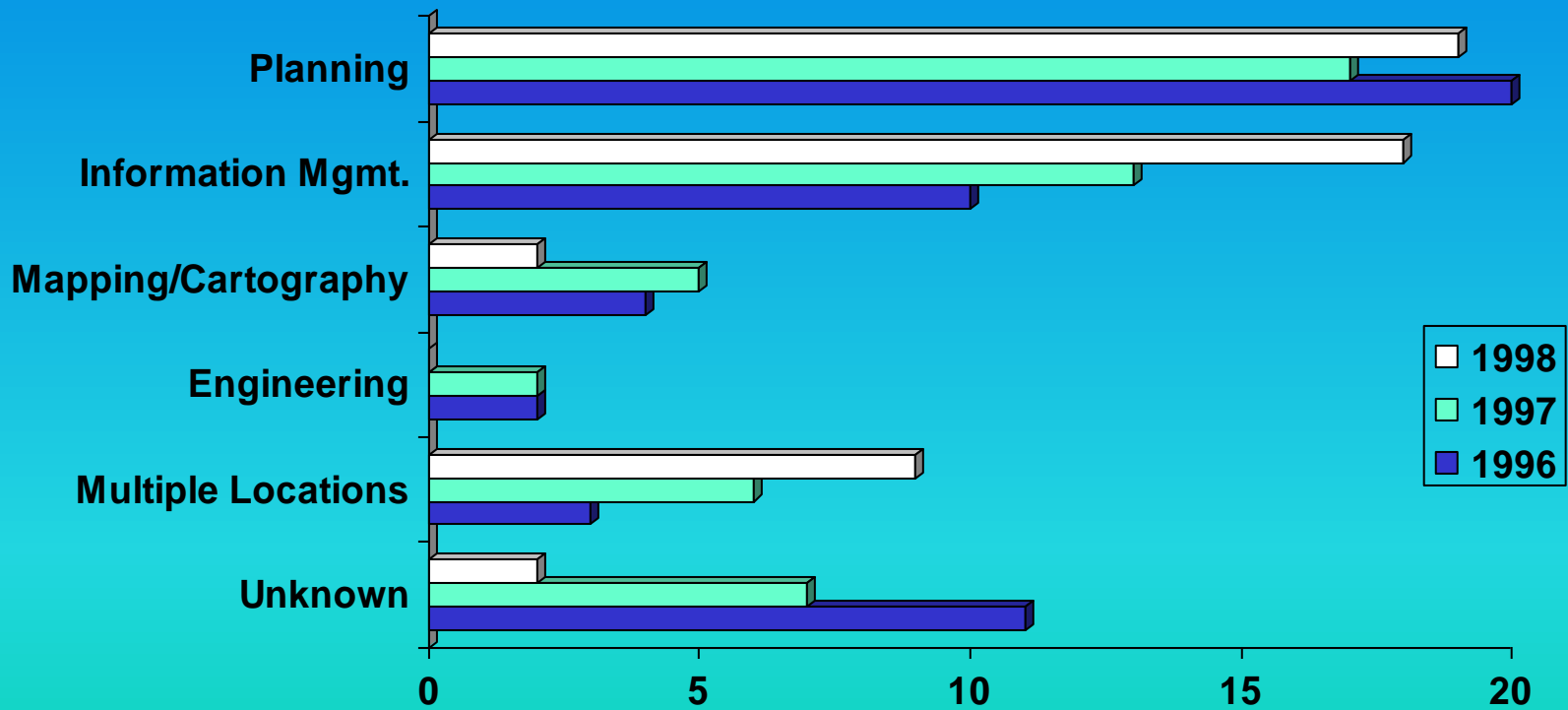
Program Evolution

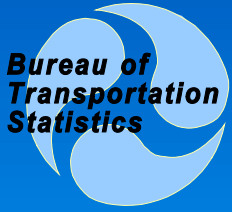
(BTS Site Visits)

- GIS activities typically preceded formation of a GIS unit within the DOT.
- Most states developed a GIS strategic plan.
 - Principal value was consensus building
 - Plans often made irrelevant by technology changes
- None of the states relied on enabling legislation to create their GIS program.



Location of GIS Unit

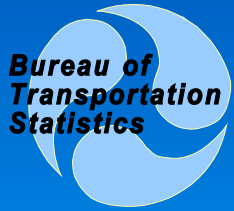




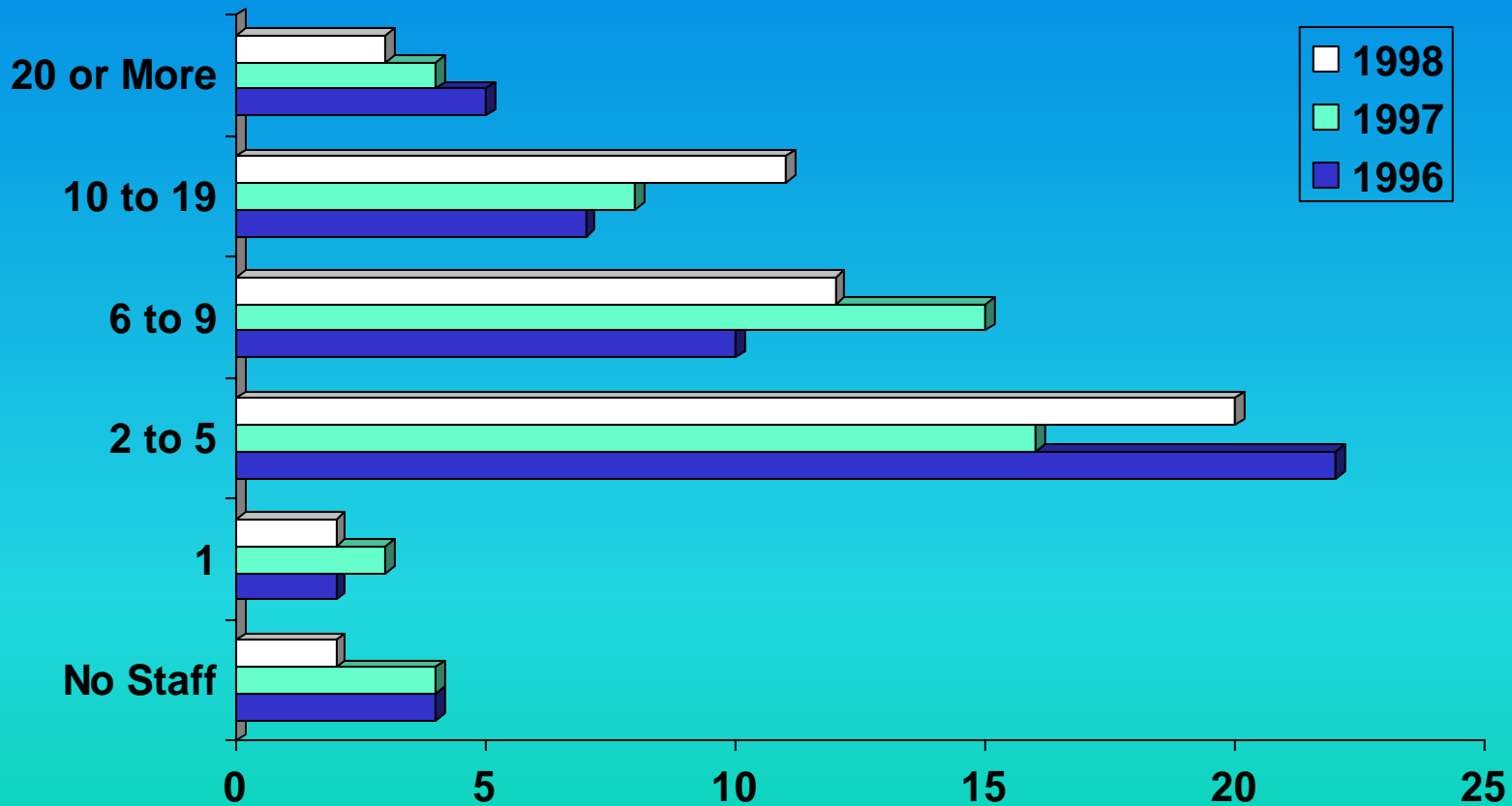
GIS Organizational Fit

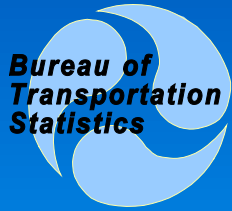
(BTS Site Visits)

- No apparent correlation between success of GIS unit and its location in the DOT.
 - GIS units located in planning emphasized early application development
- GIS unit is generally not located as a sub-unit of cartography.
 - Some DOTs have moved cartography under GIS



GIS Staff Size

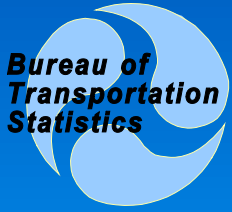




GIS Staff

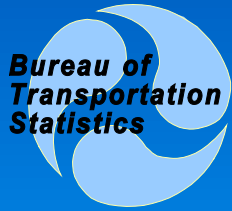
(BTS Site Visits)

- GIS units typically have a small technical core staff of 1 - 5 persons.
- Most GIS staff, including the GIS manager, were recruited from within the DOT.
- GIS units with larger staffs typically include pre-existing cartographic unit or application developers located throughout the DOT.

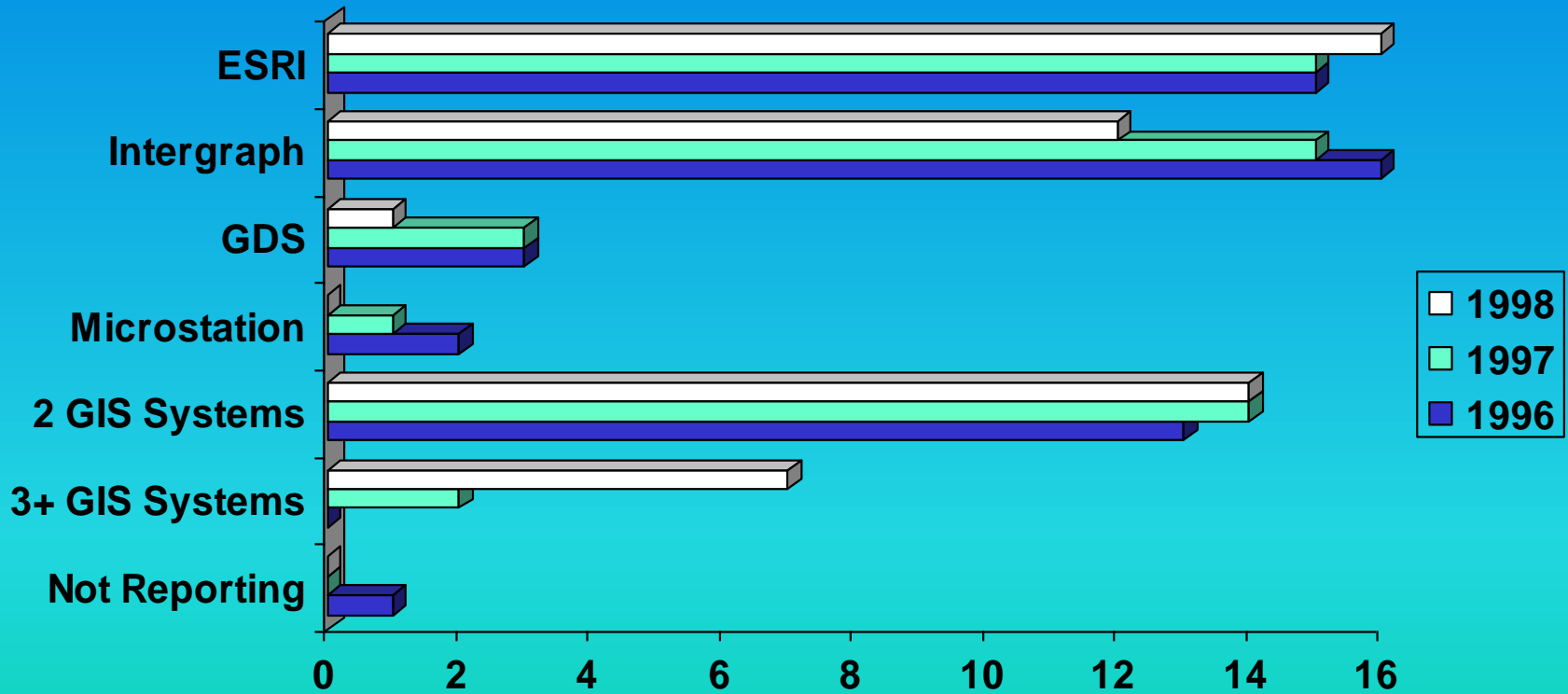


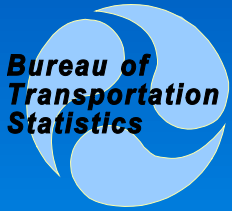
Budgets & Contracts

- 35 states did not report an annual budget for the GIS unit.
 - Many GIS budgets are not separated from that of higher organizational unit
- States are contracting for certain core activities.
 - strategic plan development
 - data warehousing
 - digitizing

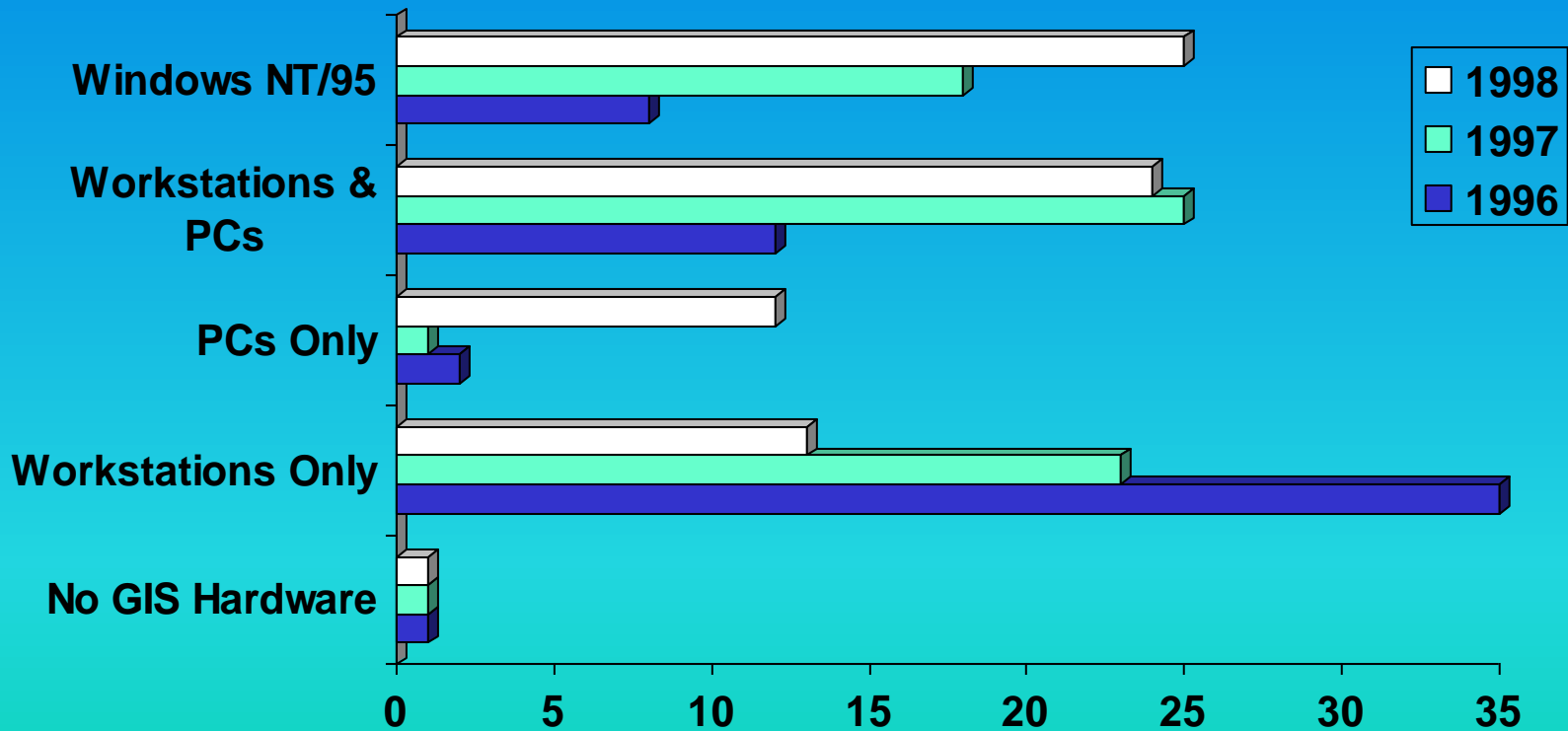


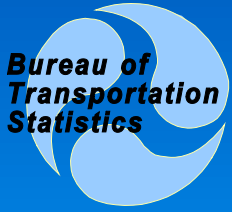
GIS Software





GIS Hardware

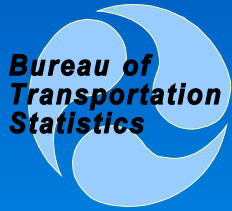




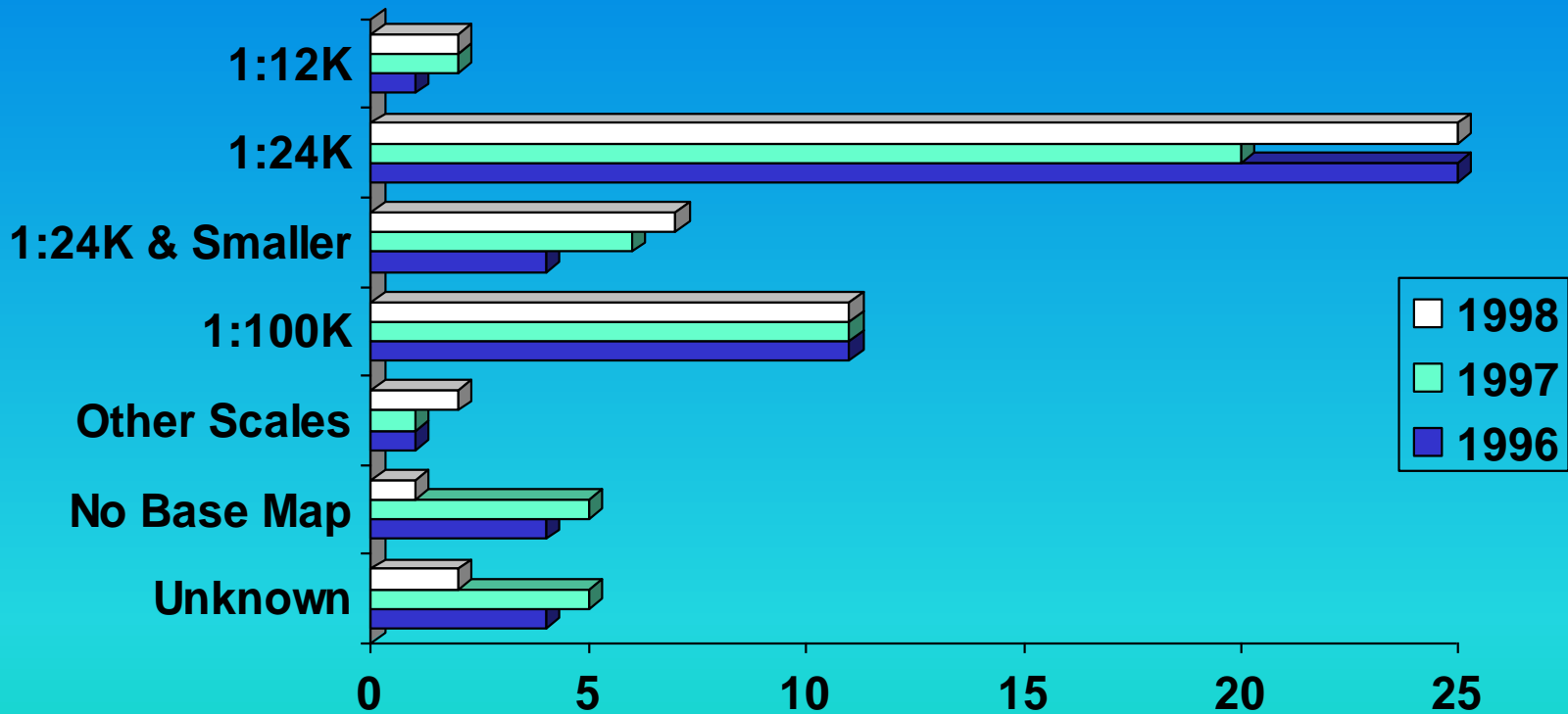
Hardware & Software

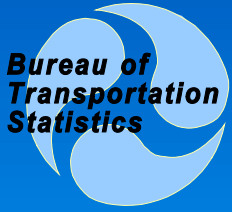
(BTS Site Visits)

- Strong trend toward desktop GIS deployment.
 - User-friendly PC software for other DOT offices
 - Higher-capacity LANs and statewide WANs
- Multiple GIS software within the DOT
 - Cartography vs. spatial or network analysis
 - Workstation vs. desktop applications
- Increased use of Internet and Intranet for sharing data and applications



Base Map Scales

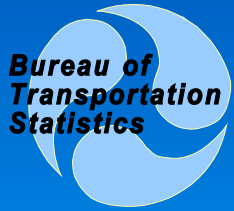




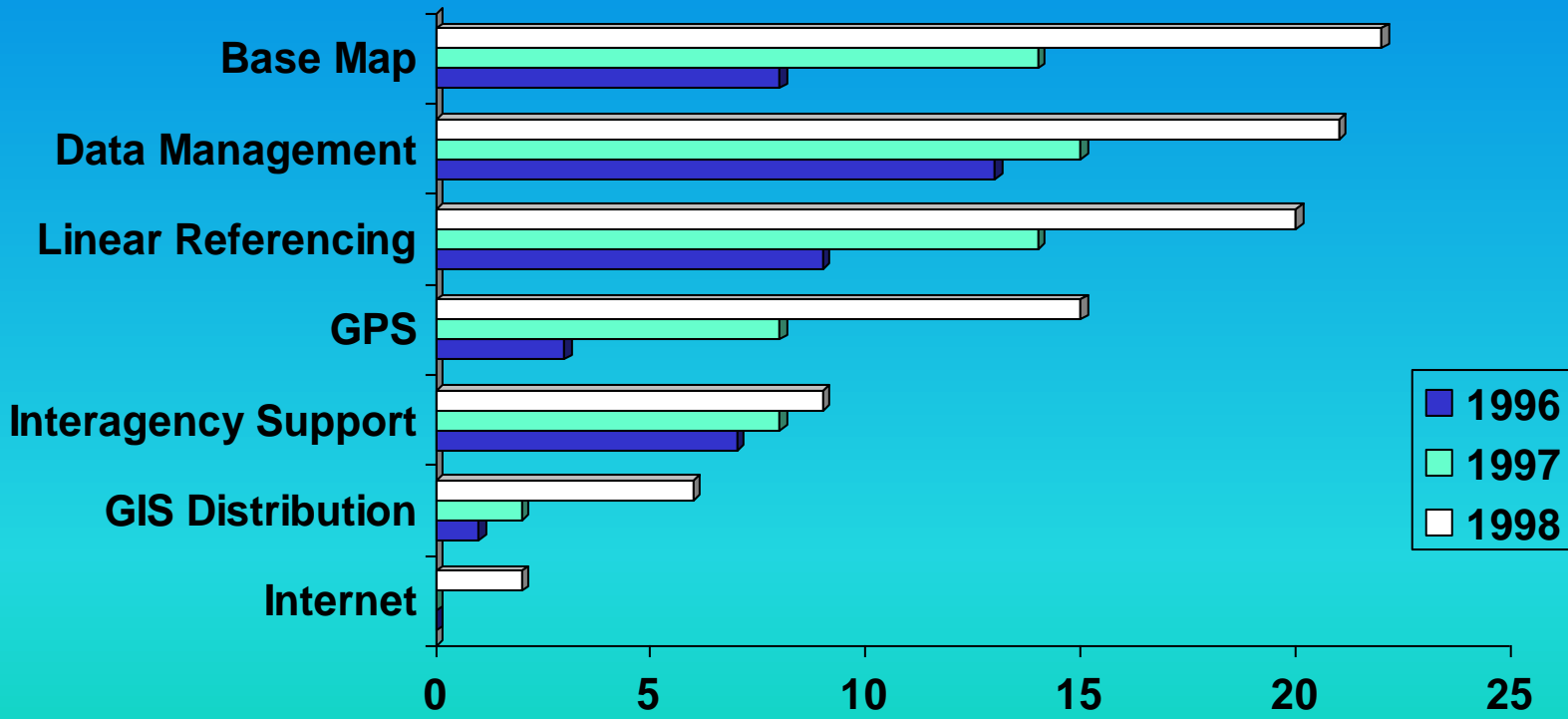
Spatial Databases

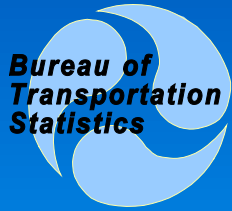
(BTS Site Visits)

- DOTs with good cooperation between GIS and mapping units are typically further along in basemap development.
- Many DOTs participate in statewide GIS coordinating councils for data sharing.
- Several states have established a statewide GIS service center to handle database development and clearinghouse functions.



Core Functions

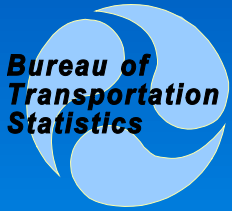




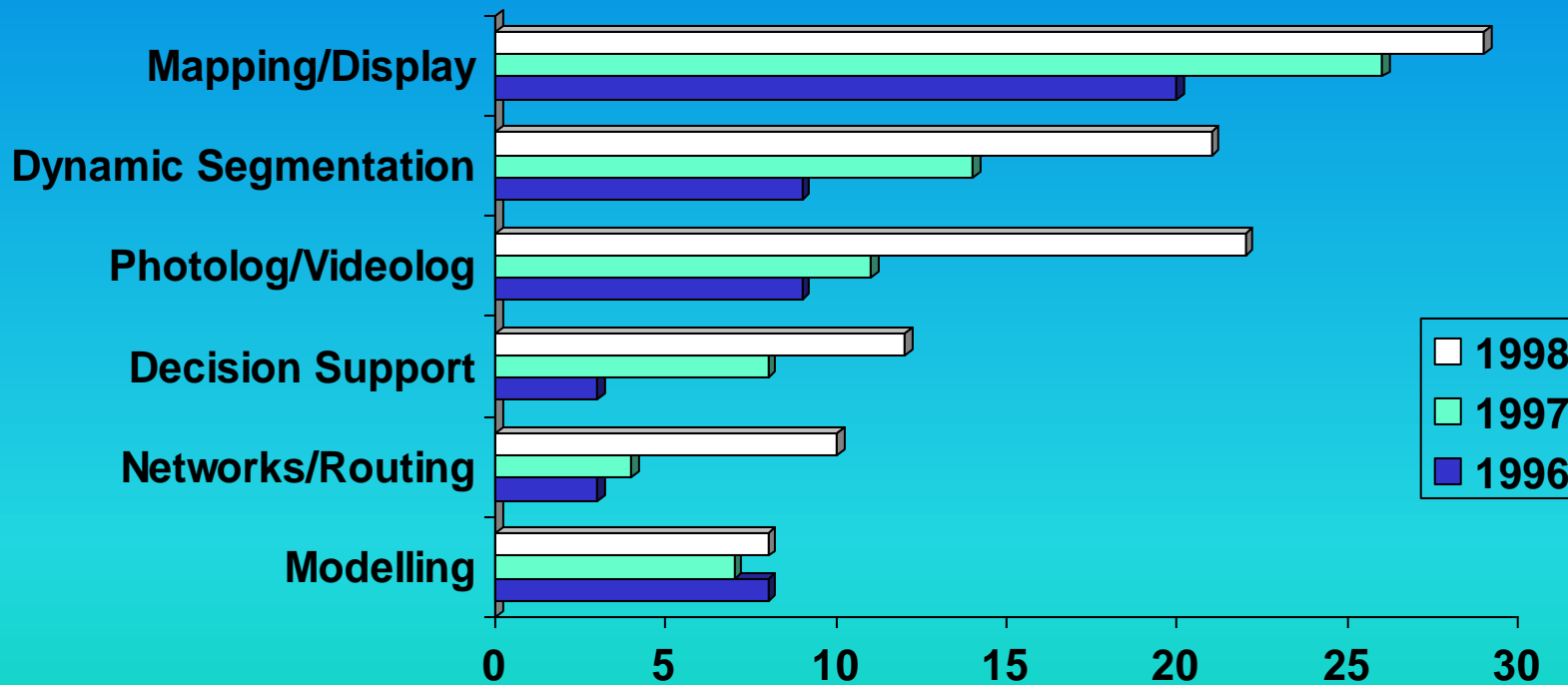
Core Functions

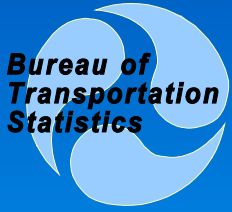
(BTS Site Visits)

- Few DOTs have tried to restructure their legacy databases to a common location reference.
 - GIS must support multiple LRMs
 - GIS sometimes seen as “bridge” to data integration
- Trend toward decentralizing GIS applications to DOT operational and field offices.
 - GIS staff provides technical support, coordination, and certain core functions



GIS Capabilities

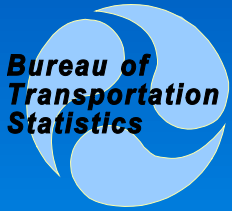




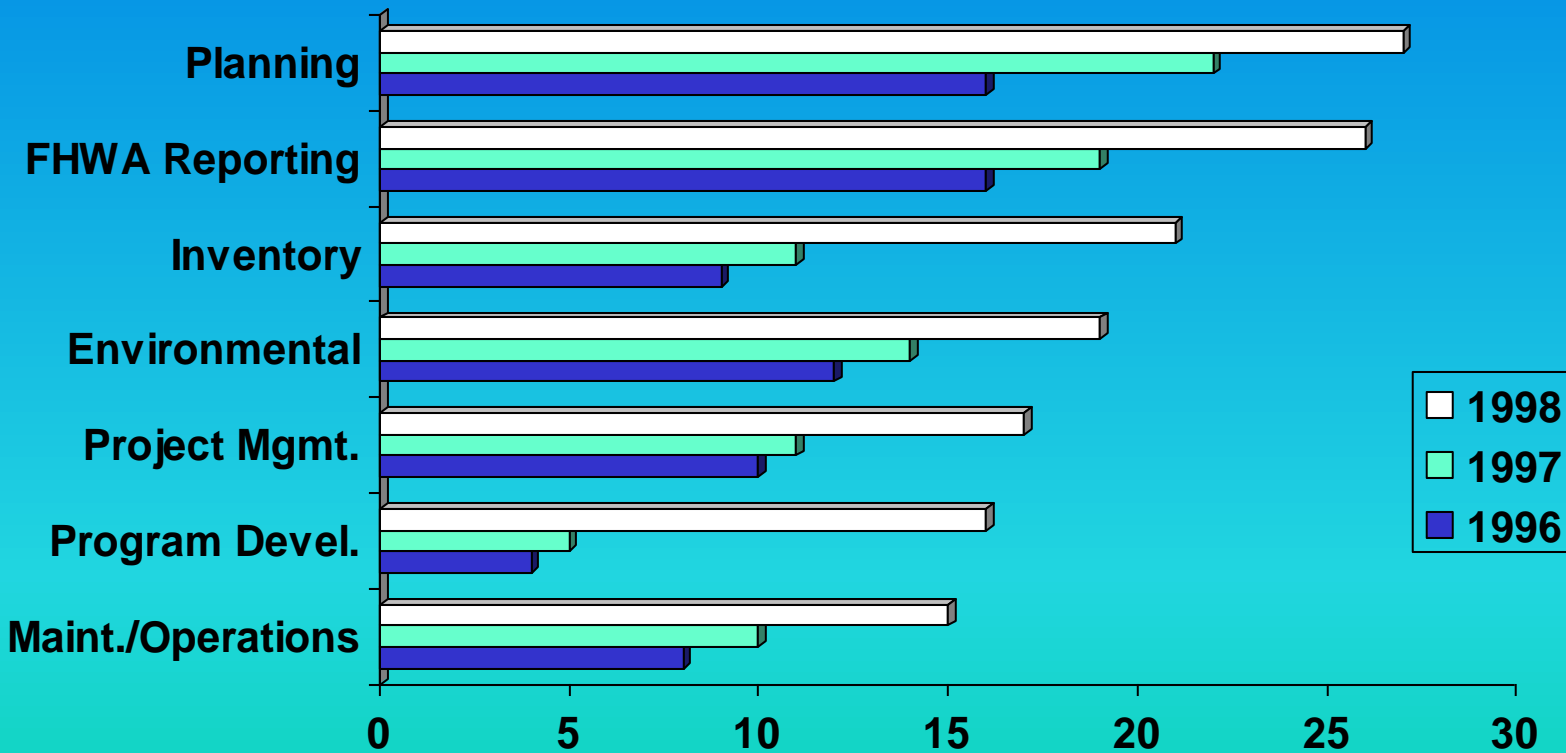
GIS Functionality

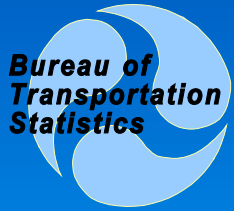
(BTS Site Visits)

- Little use of GIS spatial analysis functions.
 - Requires consistent spatial resolution across multiple data layers
- Less than expected use of GIS for network or travel demand analysis.
 - Many state DOTs leave travel demand analysis to local planning agencies
 - Most DOTs principally concerned with highway infrastructure management

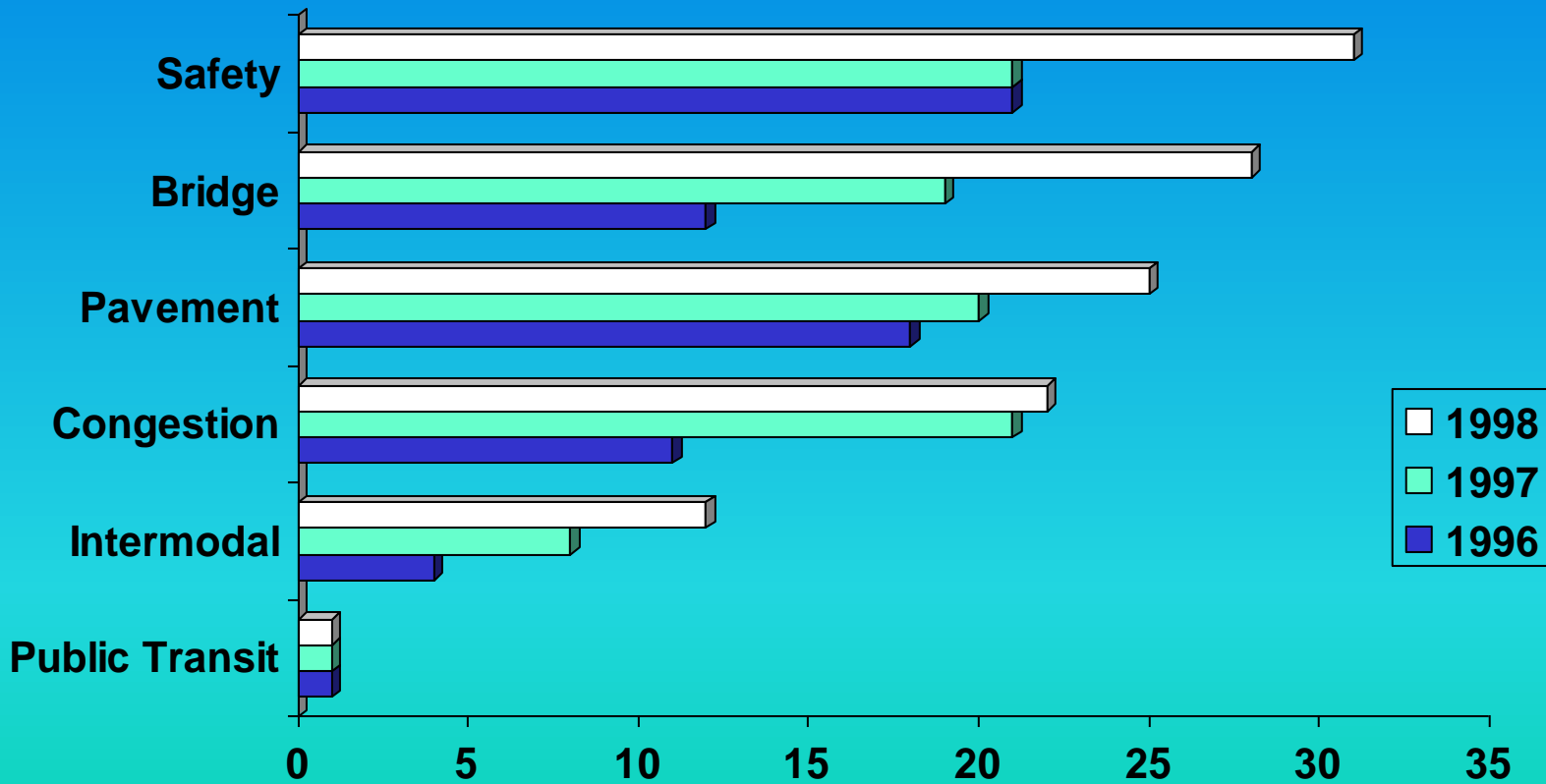


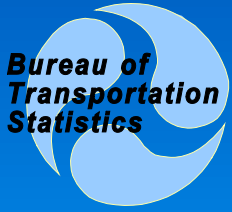
Business Functions





ISTEA Systems

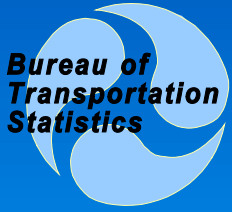




GIS-T Research Priorities

(BTS Site Visits)

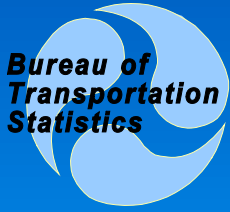
- Document and disseminate GIS-T applications from other state DOTs.
- Develop improved methods for conflating spatial data.
- Establish and maintain a directory of GIS-T contacts at state DOTs.
- Develop improved GIS-T training for DOT managers and technicians.



GIS-T Research Priorities

(continued)

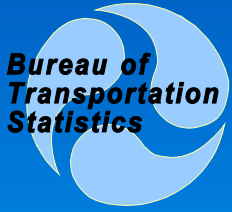
- Improve translation software between commercial GIS packages.
- Develop a repository of GIS-T literature accessible via the Internet.
- Develop tools to better integrate GIS with other transportation models, including land-use, networks, and travel demand.
- Identify GIS-T skills required in state DOTs.



GIS-T Research Priorities

(continued)

- Develop improved LRS functionality in GIS software.
- Improve understanding of interoperability issues and their potential for state DOTs.
- Identify and document effective organizational structures for GIS within state DOTs.
- Identify effective ways to convey the benefits of GIS to senior management.



BTS GIS-T Initiatives

- BTS GIS Web site: www.bts.gov/gis
 - Summaries of State DOT Site Visits
 - Links to State DOTs, State GIS, and other web sites
 - Reference library for GIS-T papers
 - GIS-T list server and news group
- LRS Resource Guide CD-ROM