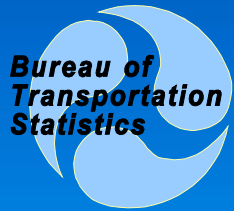


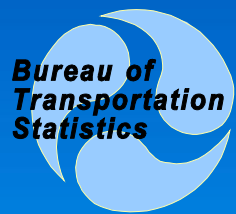
A Summary of State DOT GIS Activities

Presented at the
1999 AASHTO GIS-T Symposium
San Diego, CA

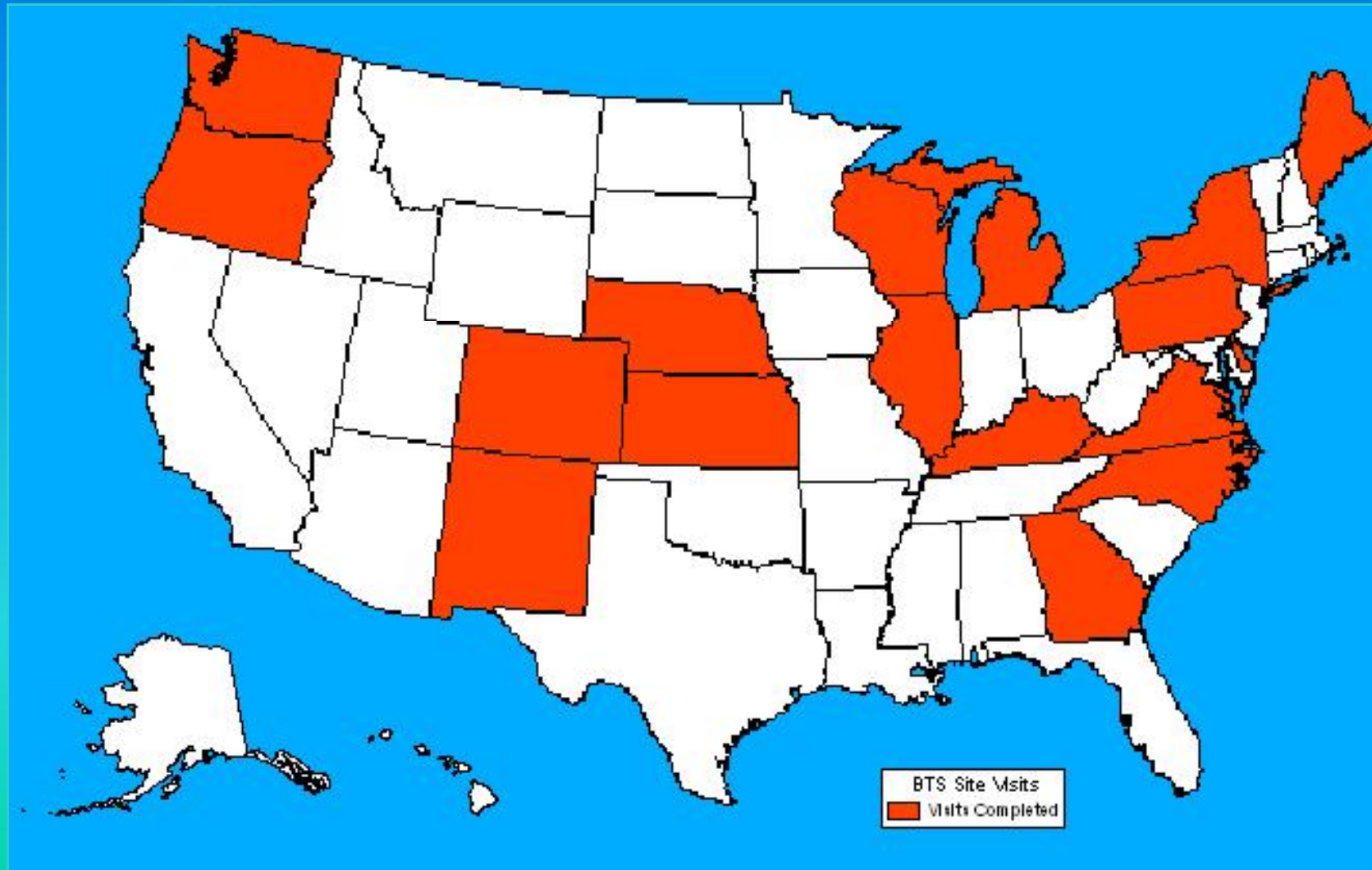


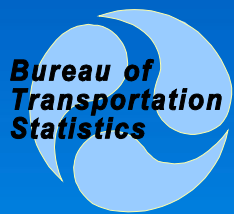
Information Sources

- Telephone survey of state DOT GIS managers
 - 49 State DOTs surveyed in 1999
 - Results compared with 1996, 97 & 98 surveys
- BTS state DOT site visits
 - More in-depth investigation of GIS activities and issues
 - 17 states visited through December 1998

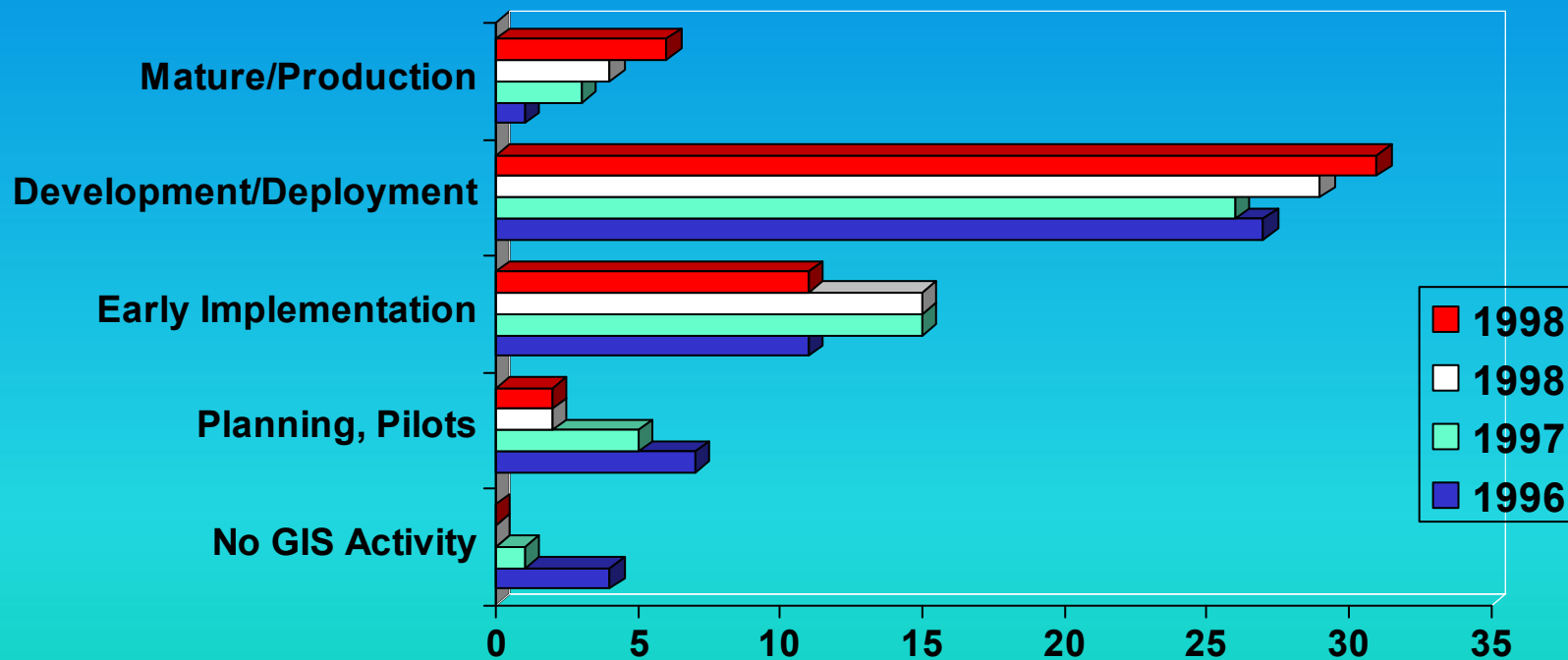


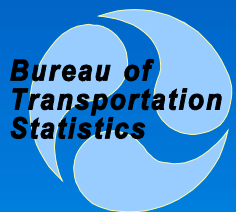
BTS Site Visits



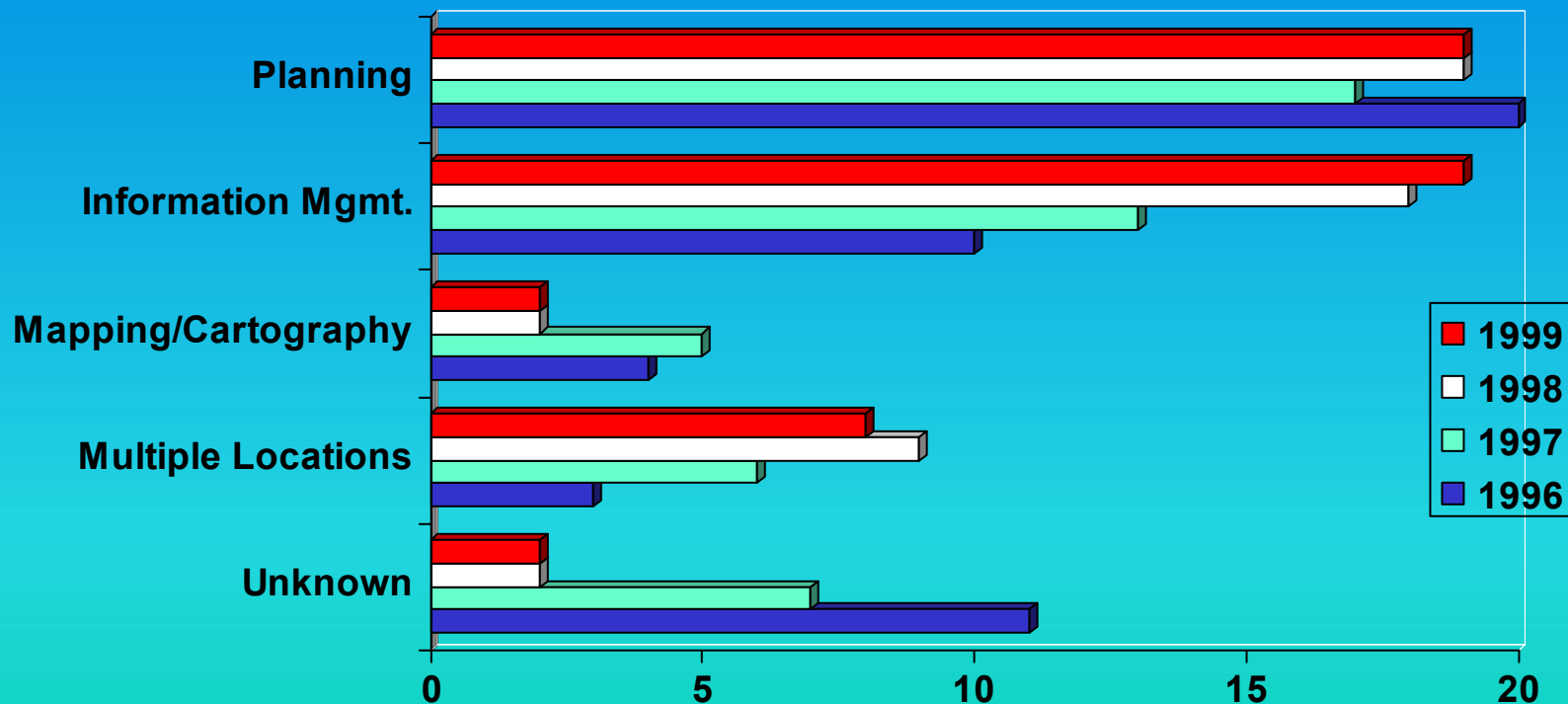


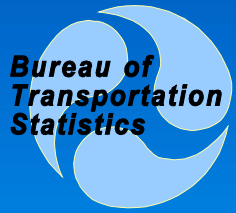
Stage of Development





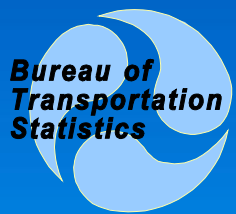
Location of GIS Unit



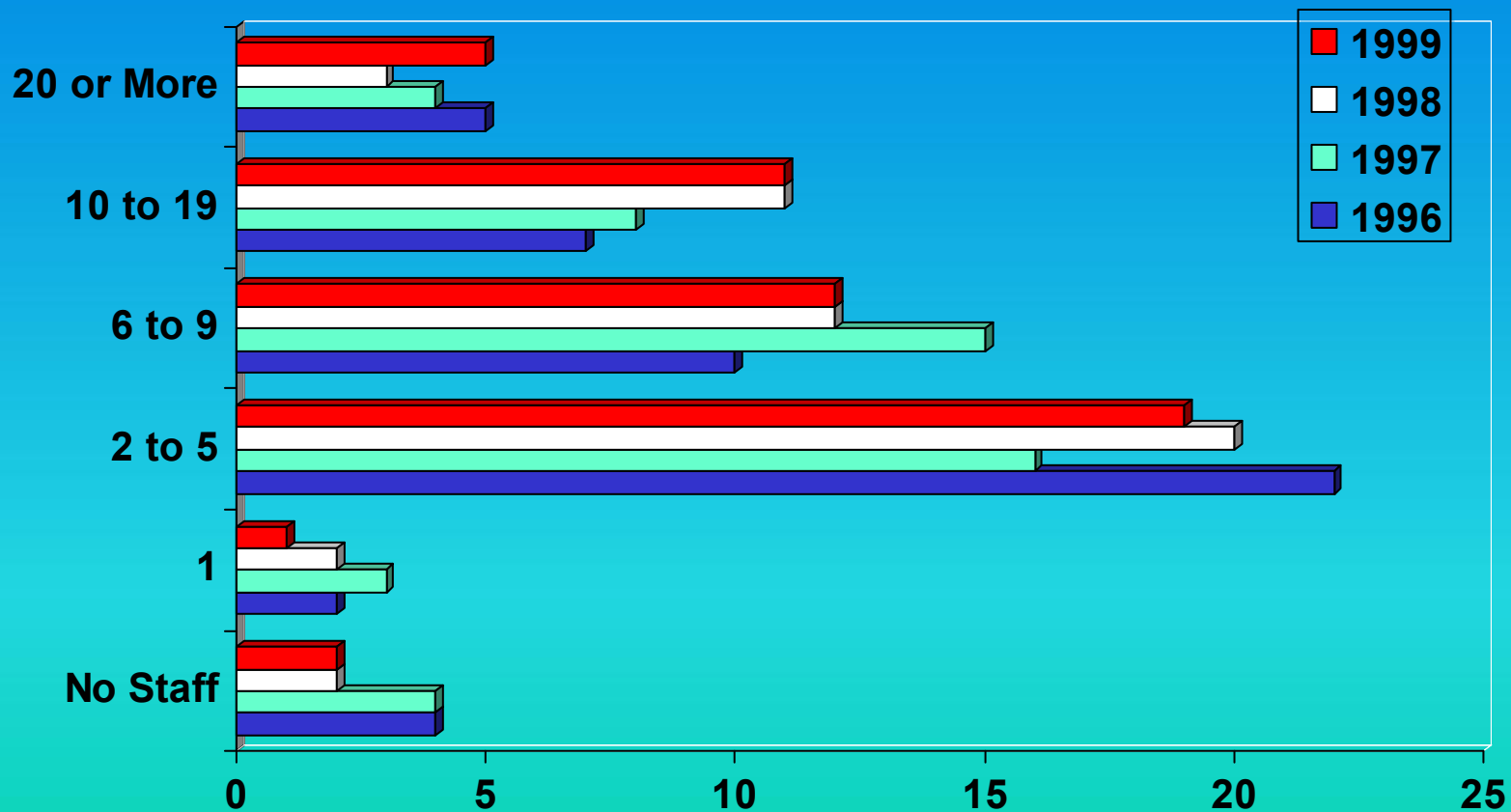


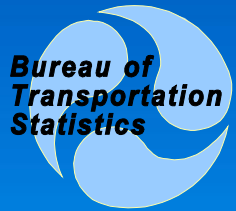
GIS Organizational Fit (BTS Site Visits)

- No apparent correlation between success of GIS unit and its location in the DOT.
 - More significant factor is support from senior DOT management.
- Many DOT's separate GIS and cartography functions.
 - Different organizational units
 - Often use different software



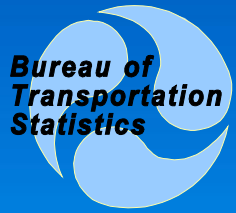
GIS Staff Size





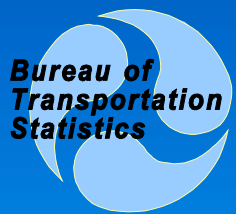
GIS Staff

- Average GIS staff increased from 7.1 to 8.2 since 1996.
- Larger GIS units typically include cartographic unit or application developers located in other DOT units.
- Major issue is developing relevant Position Descriptions for GIS Analysts within DOT personnel system.

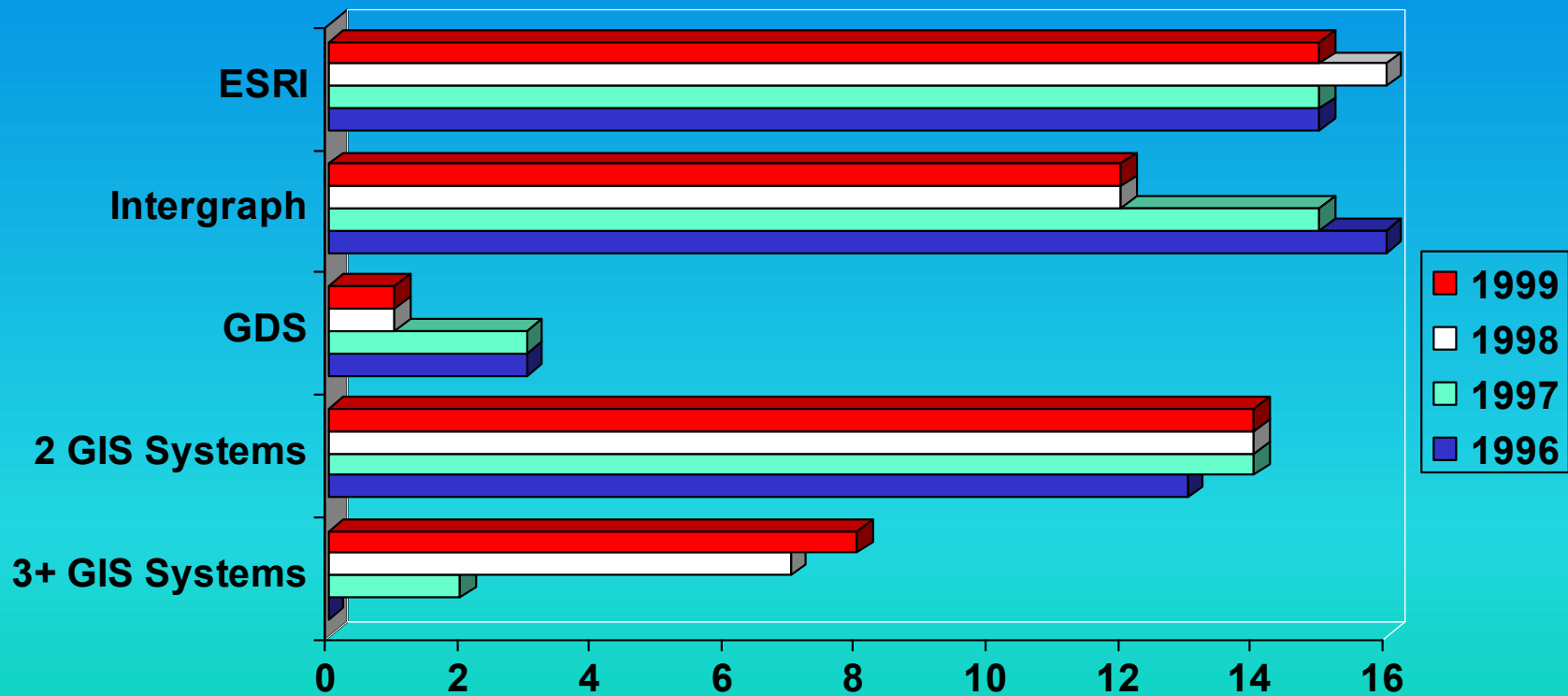


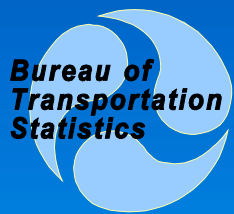
GIS Budgets

- Only 18 states reported an annual budget for the GIS unit.
- GIS Budgets are often split between DOT offices.
 - GIS unit covers staff salaries
 - Hardware, software purchase and maintenance are funded out of general IT budget.
 - Contracting may be funded either by GIS or IT

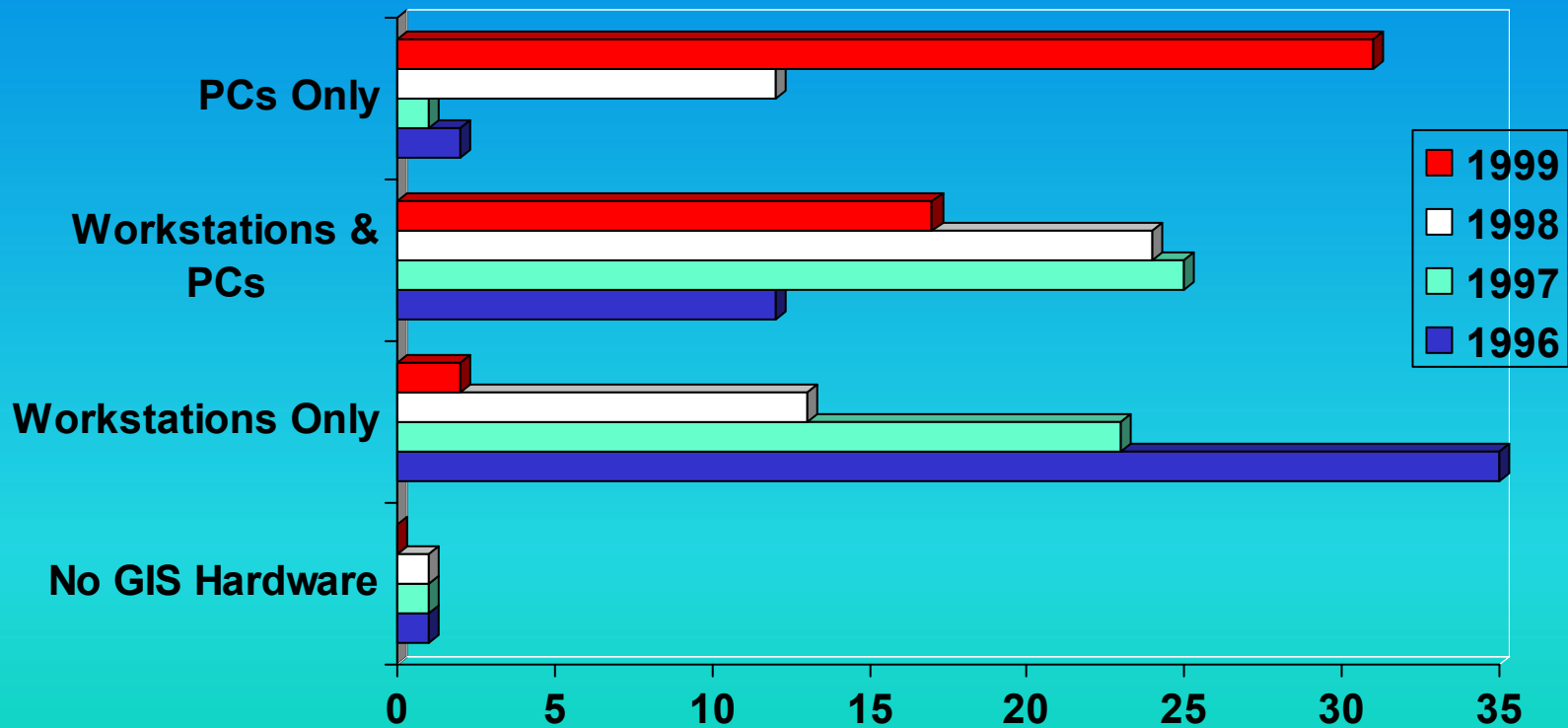


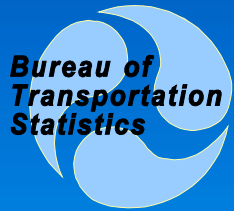
GIS Software





GIS Hardware

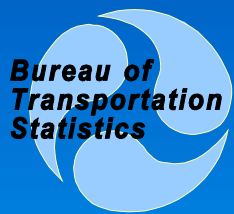




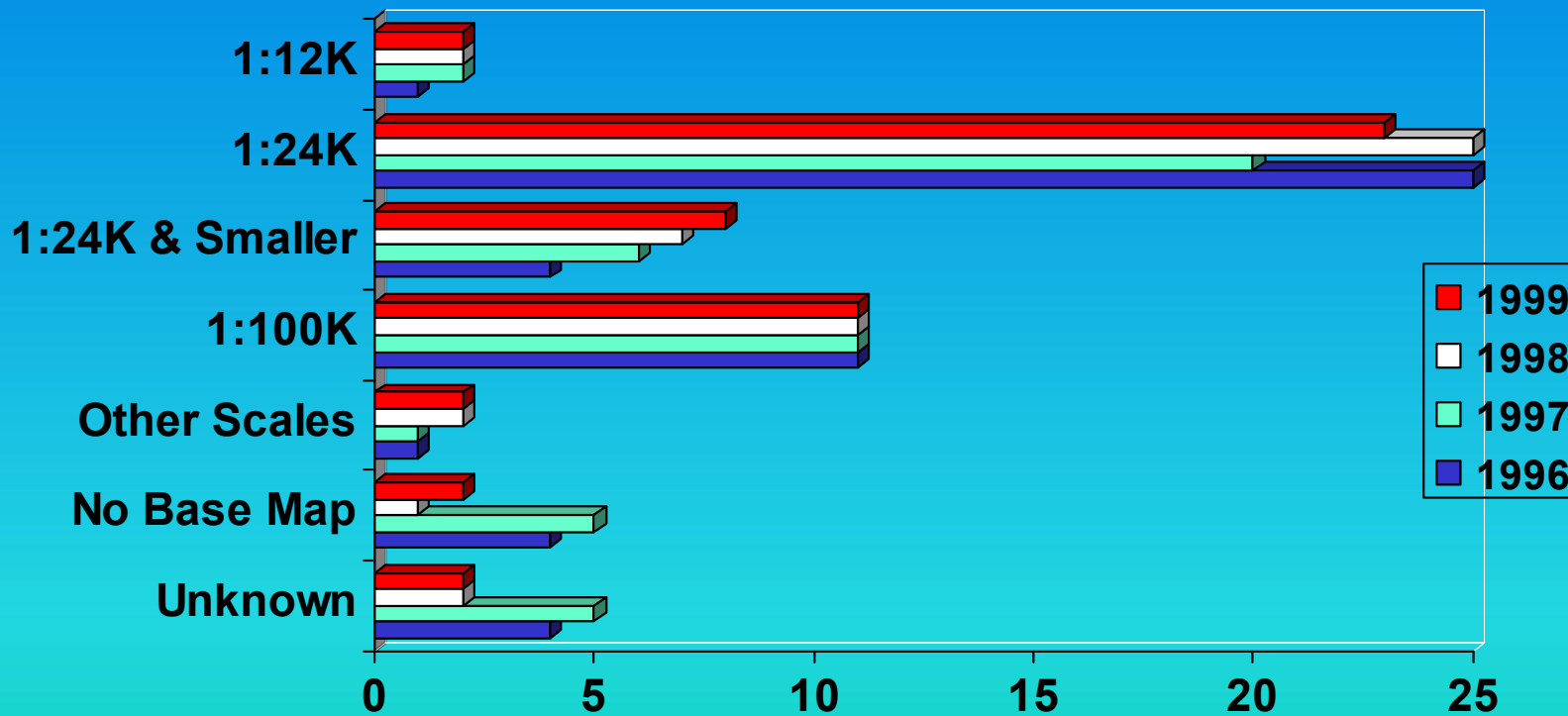
Hardware & Software

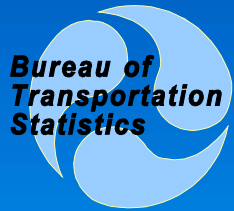
(BTS Site Visits)

- Continuing and rapid trend toward Windows NT operating system.
- Multiple GIS software used within the DOT.
 - Major issue is exchange of data between software packages.
- Increasing use of Internet and Intranet for data sharing and applications.



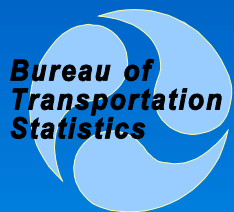
Base Map Scales





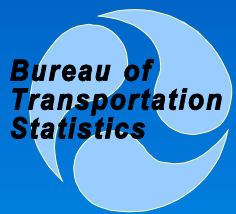
Spatial Databases

- DOTs generally settling on either 1:24K or 1:100K basemaps.
 - Use of multiple scales basemaps increasing.
- Many DOTs participate in statewide GIS coordinating councils for data sharing.
 - Currently 30 state GIS councils are officially recognized NSDI cooperating partners.
 - Several states have established statewide GIS data centers.

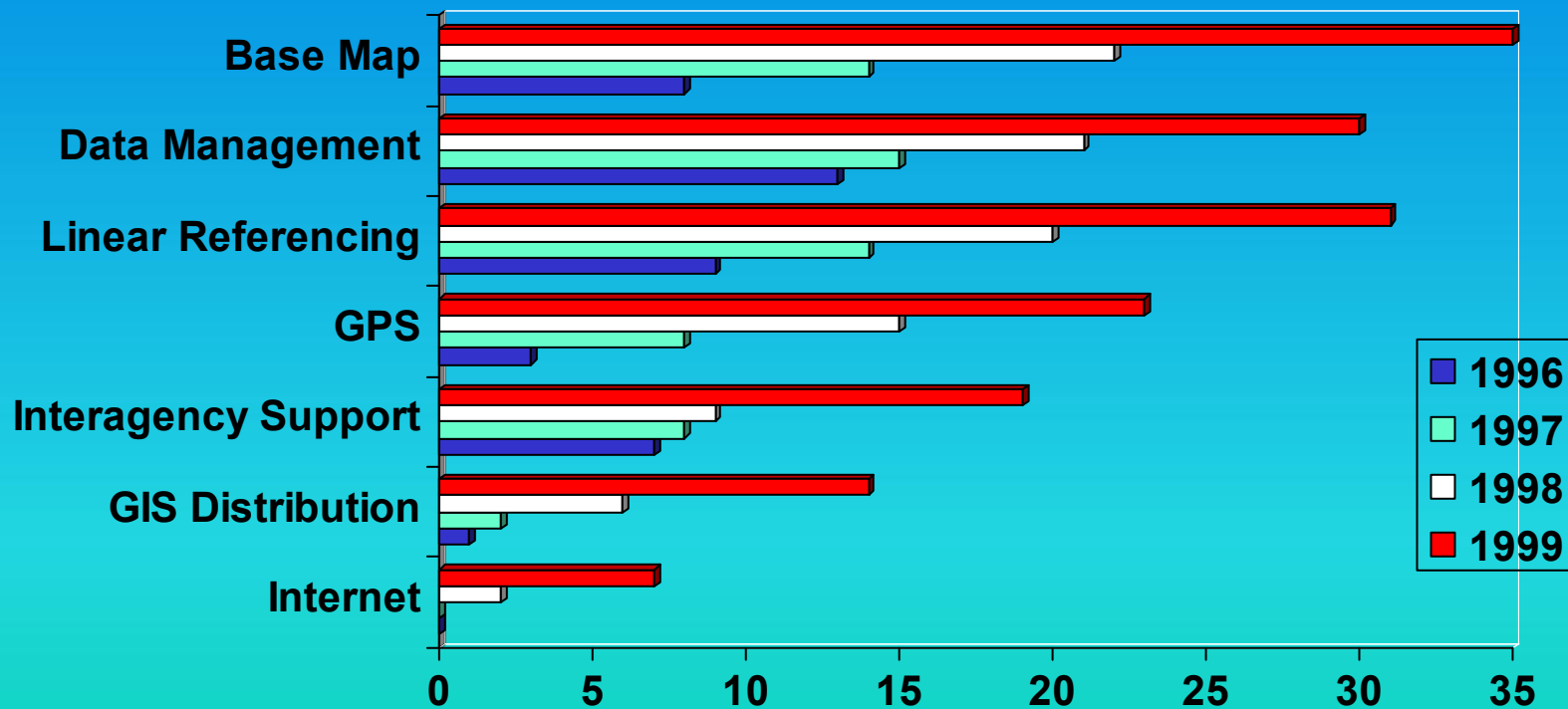


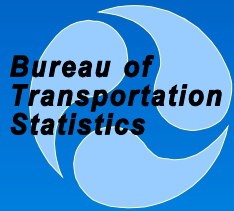
GIS Applications

- 268 percent increase in number of reported GIS applications from 1996 to 1999.
 - Nearly 80 percent increase from 1998 to 1999.
 - Unclear whether this reflects actual change or more extensive reporting.
- Similar increases across most application areas.



Core Functions

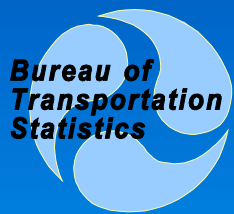




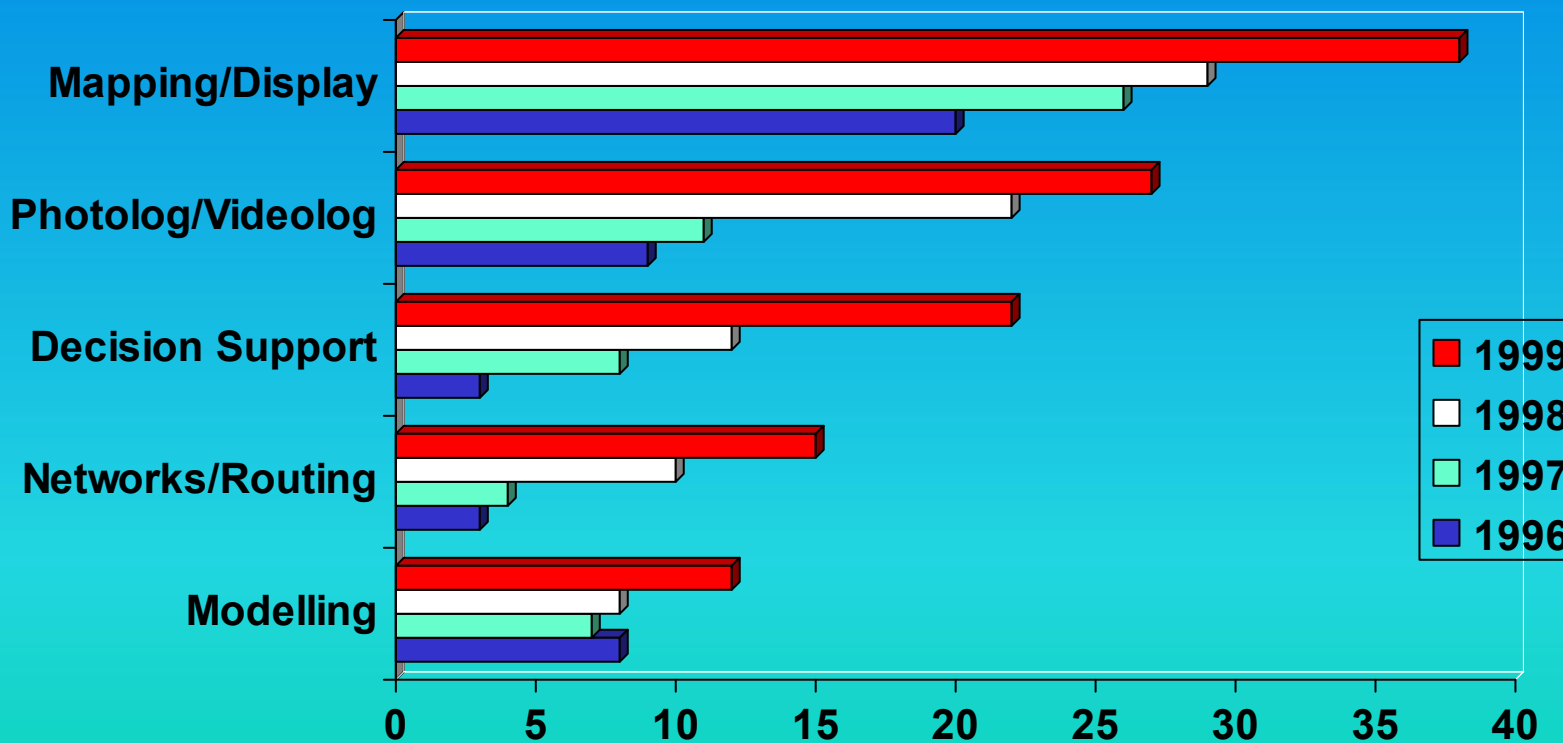
Core Functions

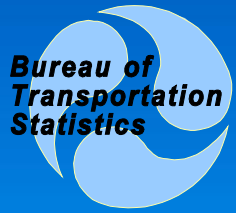
(BTS Site Visits)

- Continuing trend toward decentralizing GIS applications to DOT operational and field offices.
 - GIS staff provides technical support, coordination, and certain core functions
 - Increased use of desktop GIS applications.
- Internet applications increasing, but still far behind other core functions.



GIS Capabilities

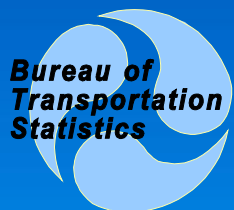




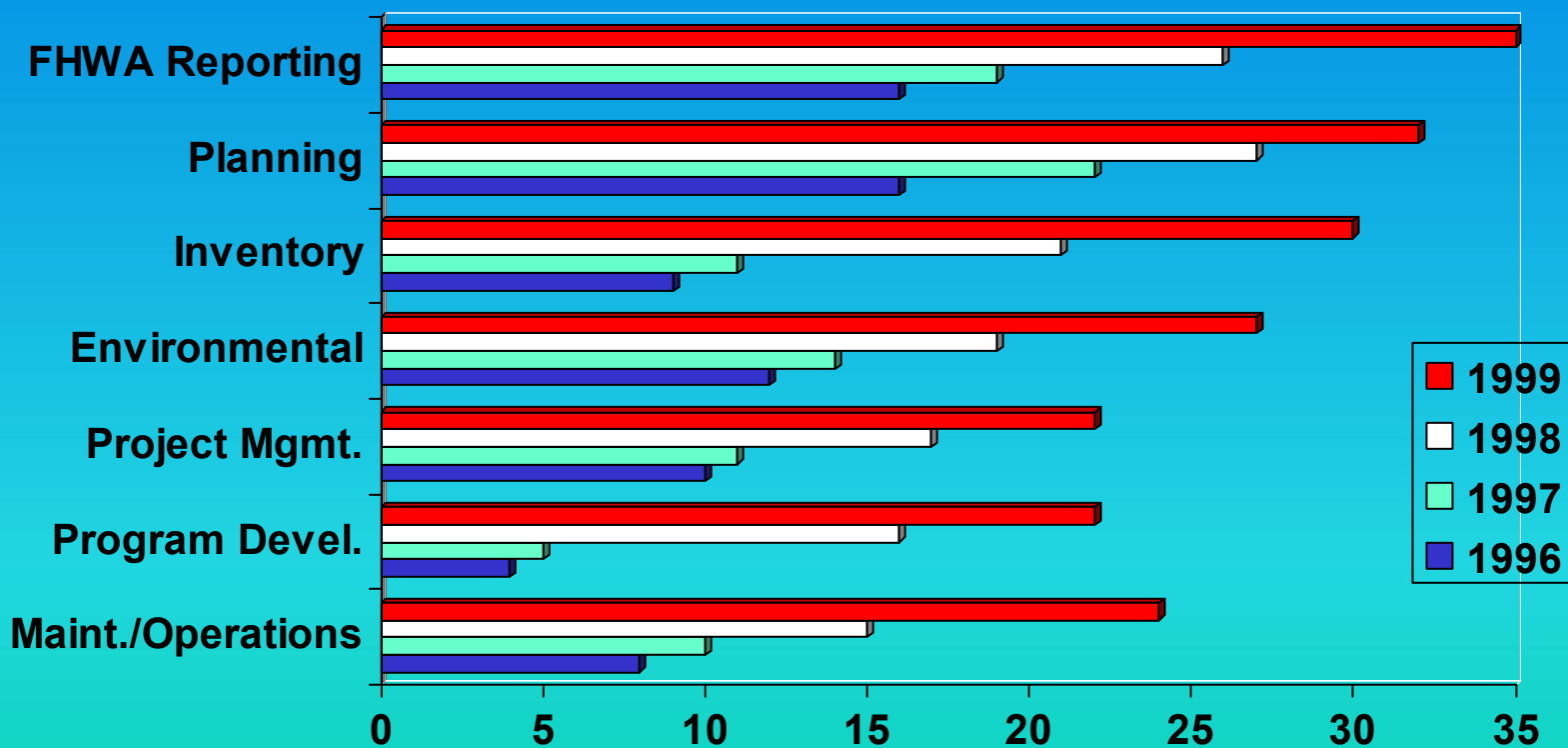
GIS Functionality

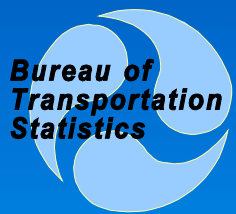
(BTS Site Visits)

- 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 modeling.
 - Many state DOTs leave travel demand analysis to local planning agencies

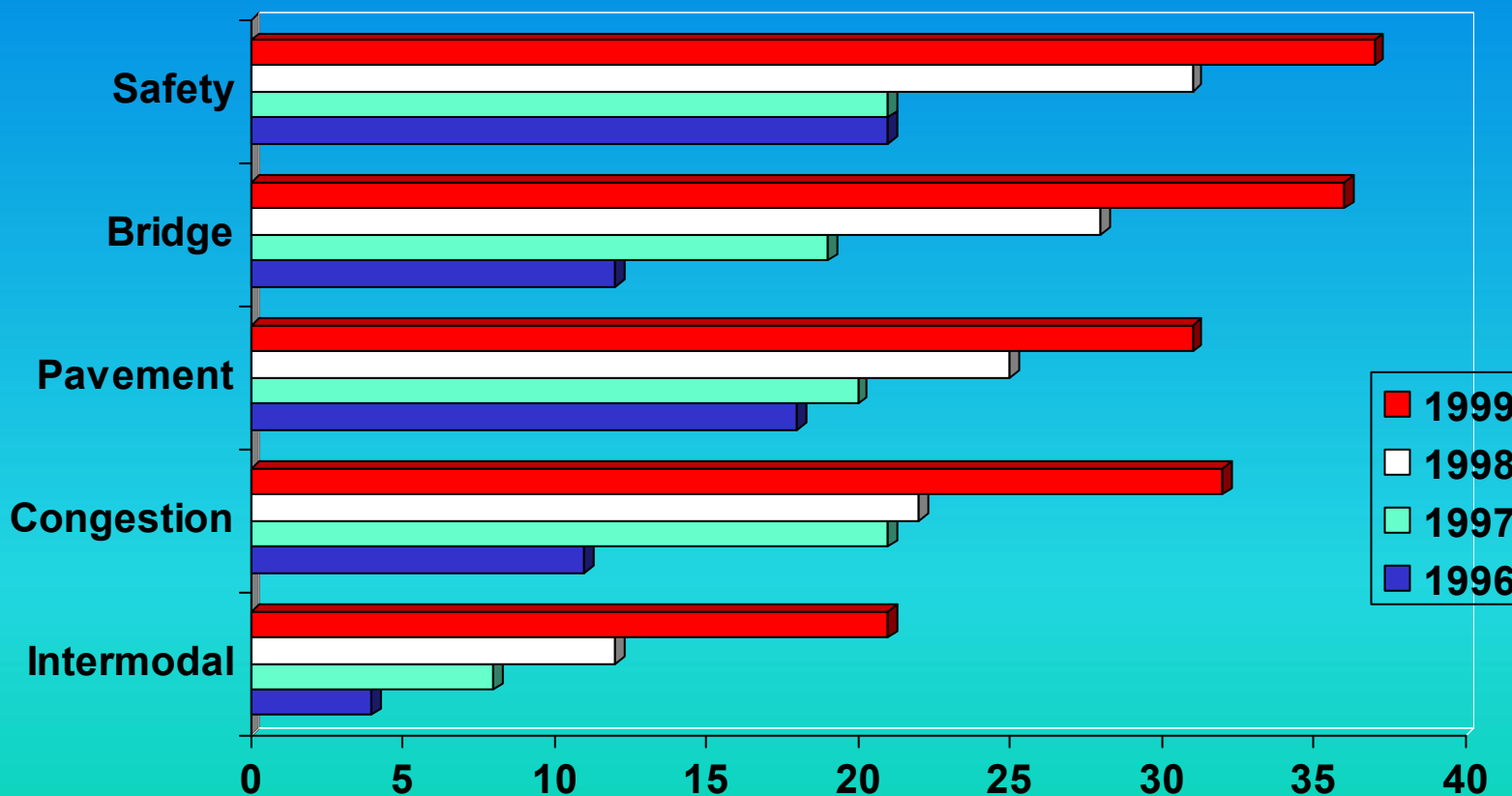


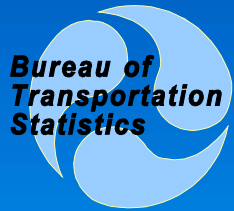
Business Functions





Management Systems

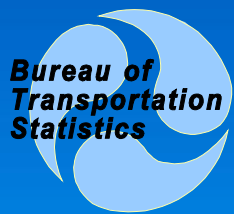




GIS-T Research Priorities

(BTS Site Visits)

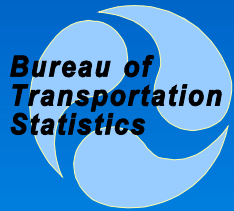
- Document and disseminate GIS-T applications from other state DOTs.
- Develop improved methods for conflating spatial data.
- Establish and maintain a directory of GIS-T contacts at state DOTs.
- Improve database interoperability between commercial GIS packages.



GIS-T Research Priorities

(continued)

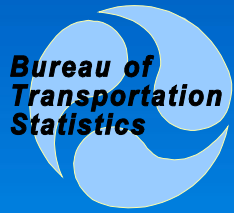
- Develop improved GIS-T training for DOT managers and technicians.
- Identify GIS-T skills required in state DOTs and create standard GIS position descriptions.
- Develop a library of GIS-T literature accessible via the Internet.
- Develop tools to better integrate GIS with other transportation models.



GIS-T Research Priorities

(continued)

- Develop improved LRS functionality in GIS software.
- Establish spatial data standards to facilitate data sharing among agencies.
- Develop improved procedures for using GPS measurements to improve basemap accuracy and locational references.



BTS GIS-T Resources

- 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
 - Host to FGDC Ground Transportation Subcommittee and TRB Spatial Data & Information Sciences Committee