Secondary Uses of ITS Data in Texas

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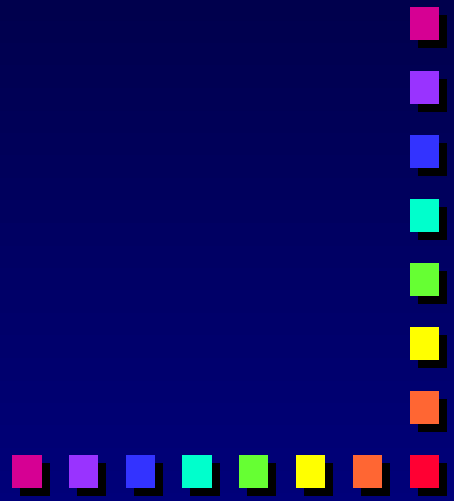
Case Study Examples

- Houston's TranStar
  - AVI Probe Vehicle System
- San Antonio's TransGuide
  - Loop Detector System

Houston Case Study Examples

- Quantifying HOV benefits
- Calibrating simulation models
- ITS Evaluations
- Developing O-D matrices
- Neural network algorithms



Houston's AVI System

- ✓Freeways, Tollways, and HOV Lanes
- ✓1 to 5 Mile AVI Reader Spacings
- ✓Real-Time Information

AVI Data Source

1994

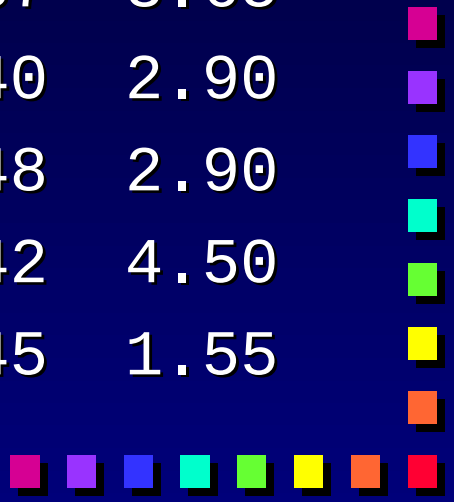
- 184 dir. miles of freeway/HOV coverage
- 35,000 daily travel time observations

1996

- 378 dir. miles of freeway/HOV coverage
- 150,000 daily travel time observations

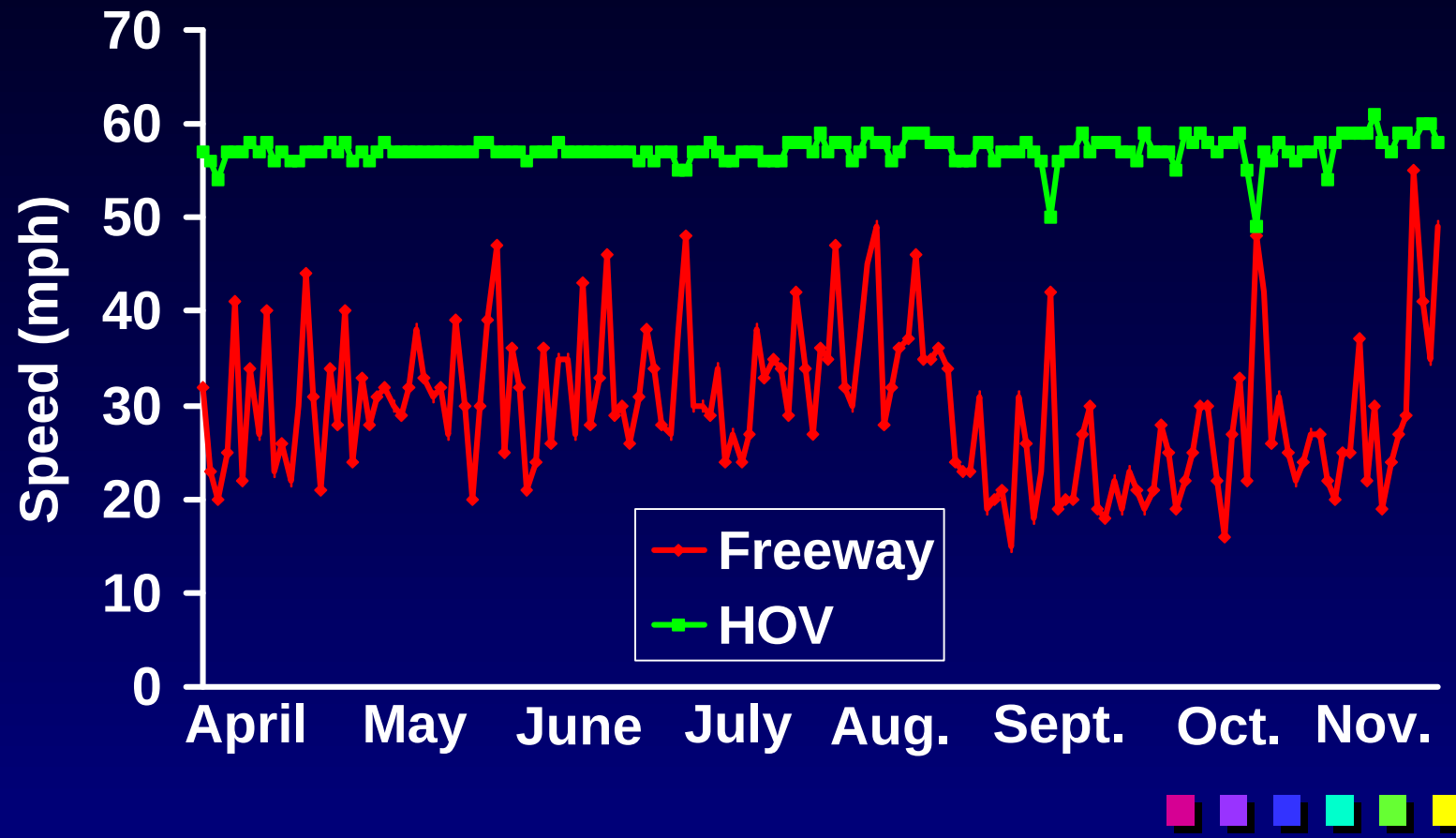
AVI Probe Vehicle Data

1	2	5:51:04	09/28/95	0:03:04	3.65
2	3	5:54:24	09/28/95	0:02:24	2.25
3	4	5:36:08	09/28/95	0:03:32	4.05
4	5	7:49:52	09/28/95	0:02:24	2.45
6	7	8:17:31	09/28/95	0:02:13	2.40
7	8	5:39:04	09/28/95	0:03:37	3.65
8	9	8:15:36	09/28/95	0:02:40	2.90
9	10	9:05:51	09/28/95	0:02:48	2.90
10	11	6:12:23	09/28/95	0:03:42	4.50
13	14	6:39:00	09/28/95	0:01:45	1.55

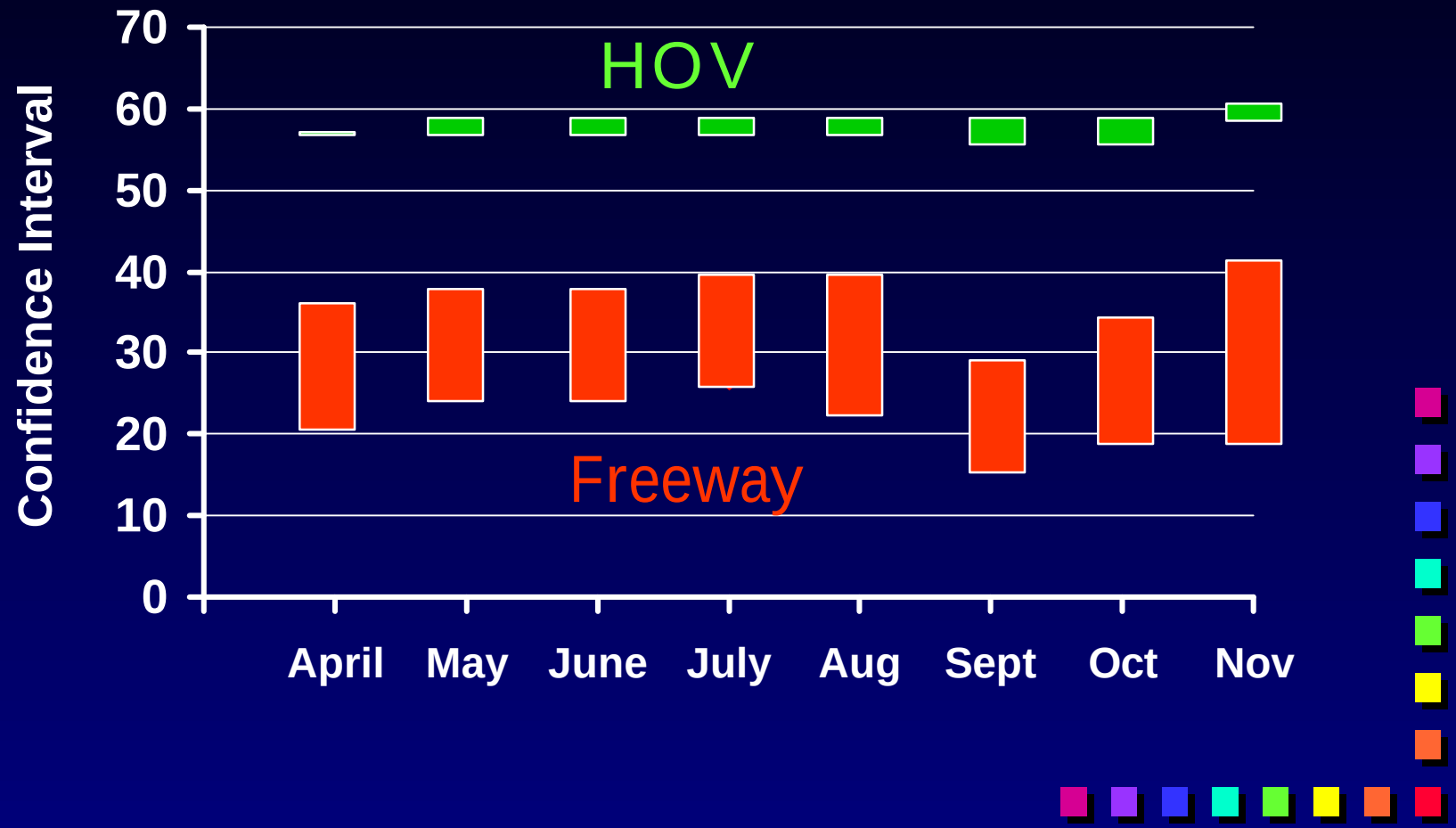


AM Peak Hour Speeds: IH-10

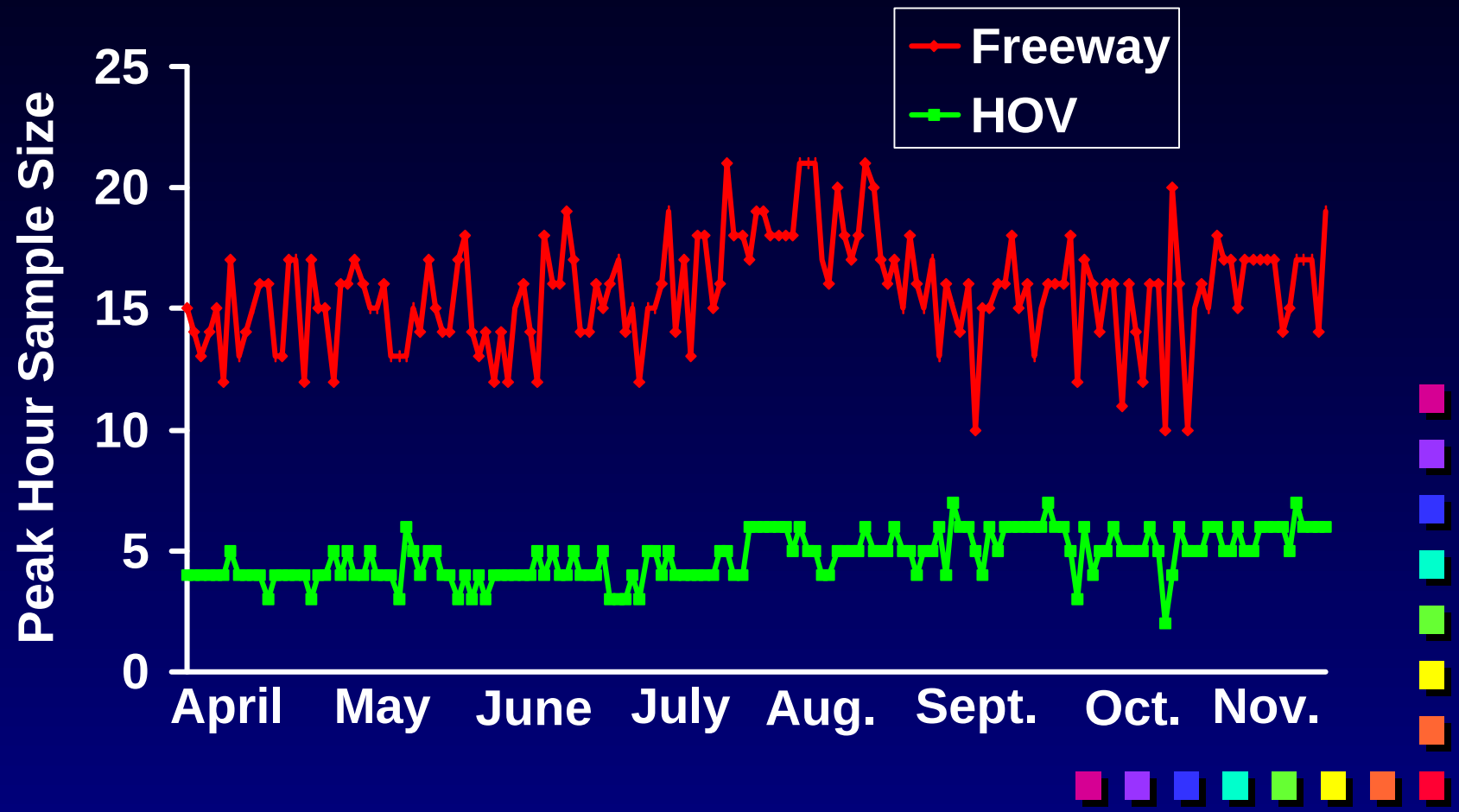
Daily Averages



Travel Speed Reliability: IH-10

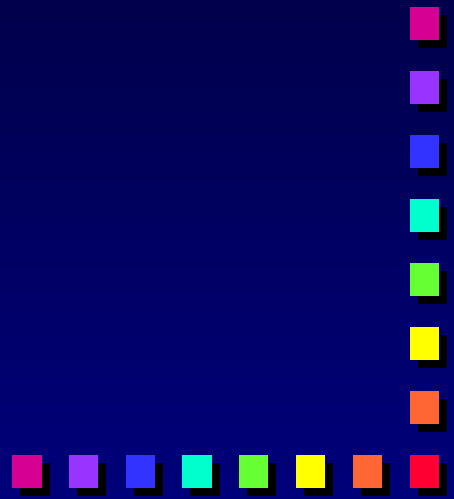


IH-10 Peak Hour Sample Sizes



Other Houston AVI Examples

- Calibrating FREQ simulation models
  - Evaluating alternative scenarios
- ITS evaluations
  - Ramp metering
  - Selected corridors
- Developing O-D matrices
- Neural network algorithms



San Antonio Case Study Examples

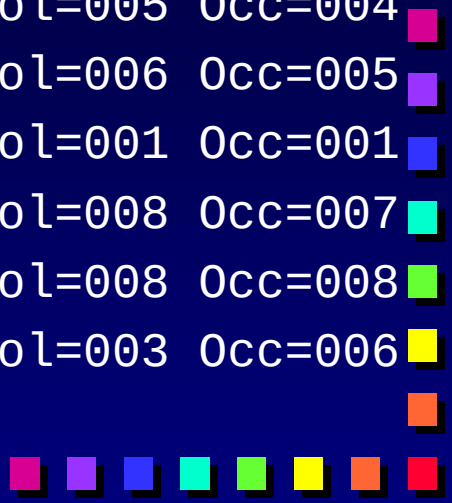
- ITS DataLink System
- ITS Before-After Evaluations
- Support Model Deployment database design
- Supplementing HPMS counts
- Free internet access = numerous uses and users

TransGuide Phase One, San Antonio

- Over 300 loop detector stations on mainlanes and ramps
- 20-second polling pattern
  - volume, speed, loop occupancy
- 120 megabytes per day

Loop Detector Data

```
07/15/97 07:00:03 L1-0L10E-568.241  Speed=75 Vol=009 Occ=007
07/15/97 07:00:03 L1-0U10E-568.248  Speed=64 Vol=007 Occ=005
07/15/97 07:00:03 L2-0L10E-568.241  Speed=63 Vol=006 Occ=006
07/15/97 07:00:03 L2-0U10E-568.248  Speed=72 Vol=006 Occ=004
07/15/97 07:00:03 L3-0U10E-568.248  Speed=57 Vol=006 Occ=006
07/15/97 07:00:04 EN1-0U10E-568.845 Speed=-1 Vol=006 Occ=018
07/15/97 07:00:04 EX1-0U10E-568.764 Speed=-1 Vol=002 Occ=003
07/15/97 07:00:04 L1-0L10E-568.802  Speed=67 Vol=005 Occ=004
07/15/97 07:00:04 L1-0U10E-568.807  Speed=62 Vol=006 Occ=005
07/15/97 07:00:04 L2-0L10E-568.802  Speed=67 Vol=001 Occ=001
07/15/97 07:00:04 L2-0U10E-568.807  Speed=60 Vol=008 Occ=007
07/15/97 07:00:04 L3-0U10E-568.807  Speed=46 Vol=008 Occ=008
07/15/97 07:00:04 EN1-0010E-569.671 Speed=-1 Vol=003 Occ=006
```



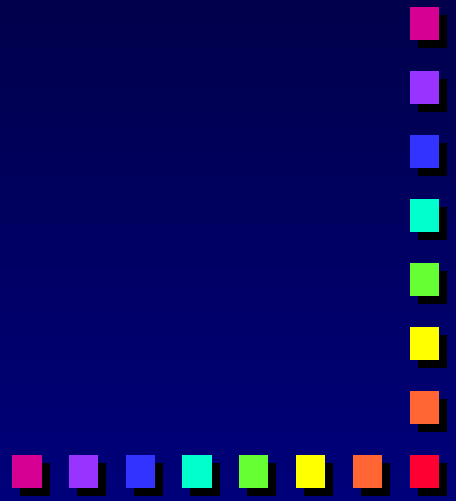
ITS DataLink System

- Oracle relational database (18 GB)
- Apache web server
- Gnuplot graphics software
- E-mail service

Data warehouse accessible through web browser

TransGuide Evaluations

- TTI Before-After Evaluations
  - Video from CCTV
  - Volume/speed data from loops
  - Travel time data from AVI
  - Incident repsonse data
- MDI Evaluations



Other San Antonio examples

- Model Deployment database design
  - Effects of rainfall on average speeds
- Supplementing HPMS counts
  - Data validity and comparability
- Internet access to archived data
  - http://www.transguide.dot.state.tx.us/statistics.html

ITS Data Management

"The challenge . . . will lie not in finding facts but in interpreting them: it will be to find patterns, trends, anomalies, and relevant information from large databases."

Jim Gray, Evolution of Data Management