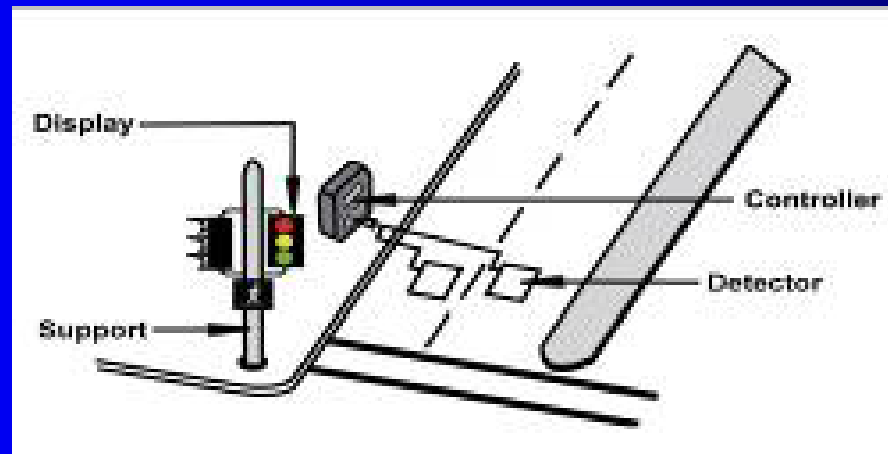


Overview of Traffic Signals



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Georgia DOT
August 2007

Things You Might Want to Know

- Myths and Truths about Traffic Signals
- Synchronization and the real challenges
- Why Access Management and Signals go together

Traffic Signal Myths

What a Board Member Might Hear

- It takes me 30 minutes to get through that intersection everyday
- I invested a lot of money in this development and without a signal the deal just doesn't work
- Traffic will slow down if you would install a signal (Traffic Calming)
- There have been X people killed at this intersection – when are you going to do something about it ?

Traffic Signal Truths

- Traffic Signals are intended to establish the vehicle right of way at intersections that have significant delay
- Traffic signals increase the overall delay
- Traffic signals do not reduce the number of crashes
- Development can survive without a traffic signal

More Signal Truths

- The state has over 8,000 traffic signals
- There are over 5,000 on state routes
- GDOT maintains over 2,000 statewide
- Local governments maintain the remaining 6,000
- The Department approved over 80 new signals last year



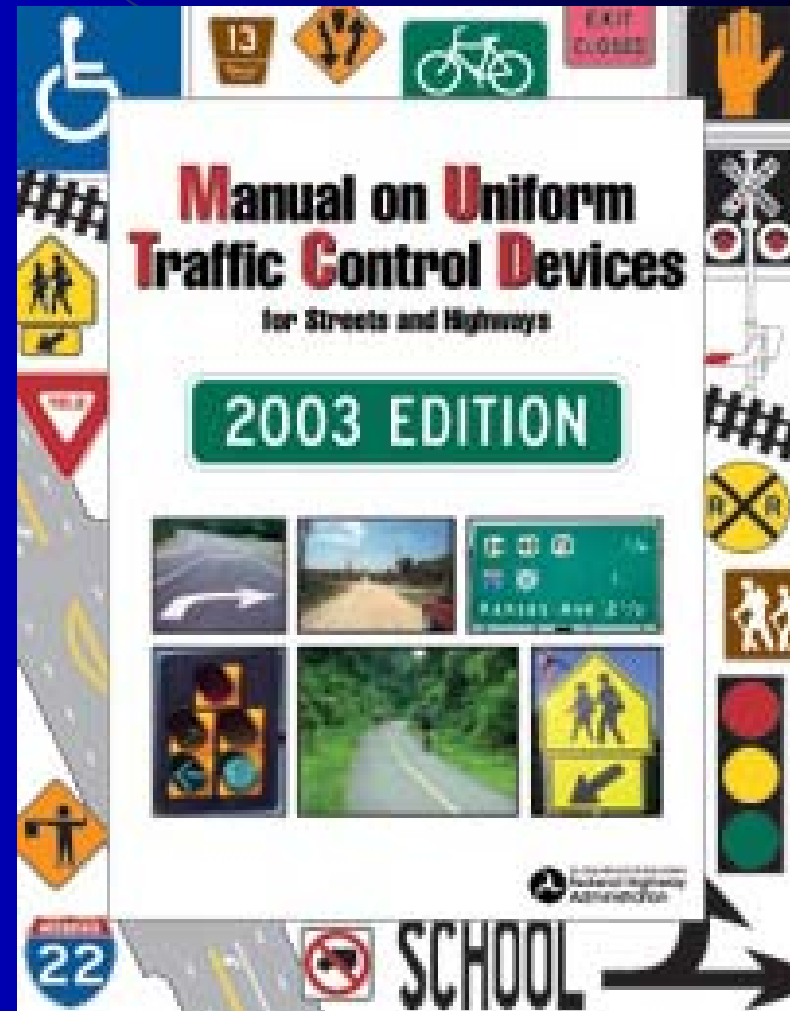
Board is Required in GA Code to Adopt the Standards

- 32-6-50(a)

The department shall promulgate **uniform regulations governing the erection and maintenance** on the public roads of Georgia of signs, **signals, markings, or other traffic-control devices**, such uniform regulations to supplement and be consistent with the laws of this state. Insofar as practical, with due regard to the needs of the public roads of Georgia, such uniform regulations **shall conform to the recommended regulations as approved by the American Association of State Highway and Transportation Officials**

MUTCD Requirements

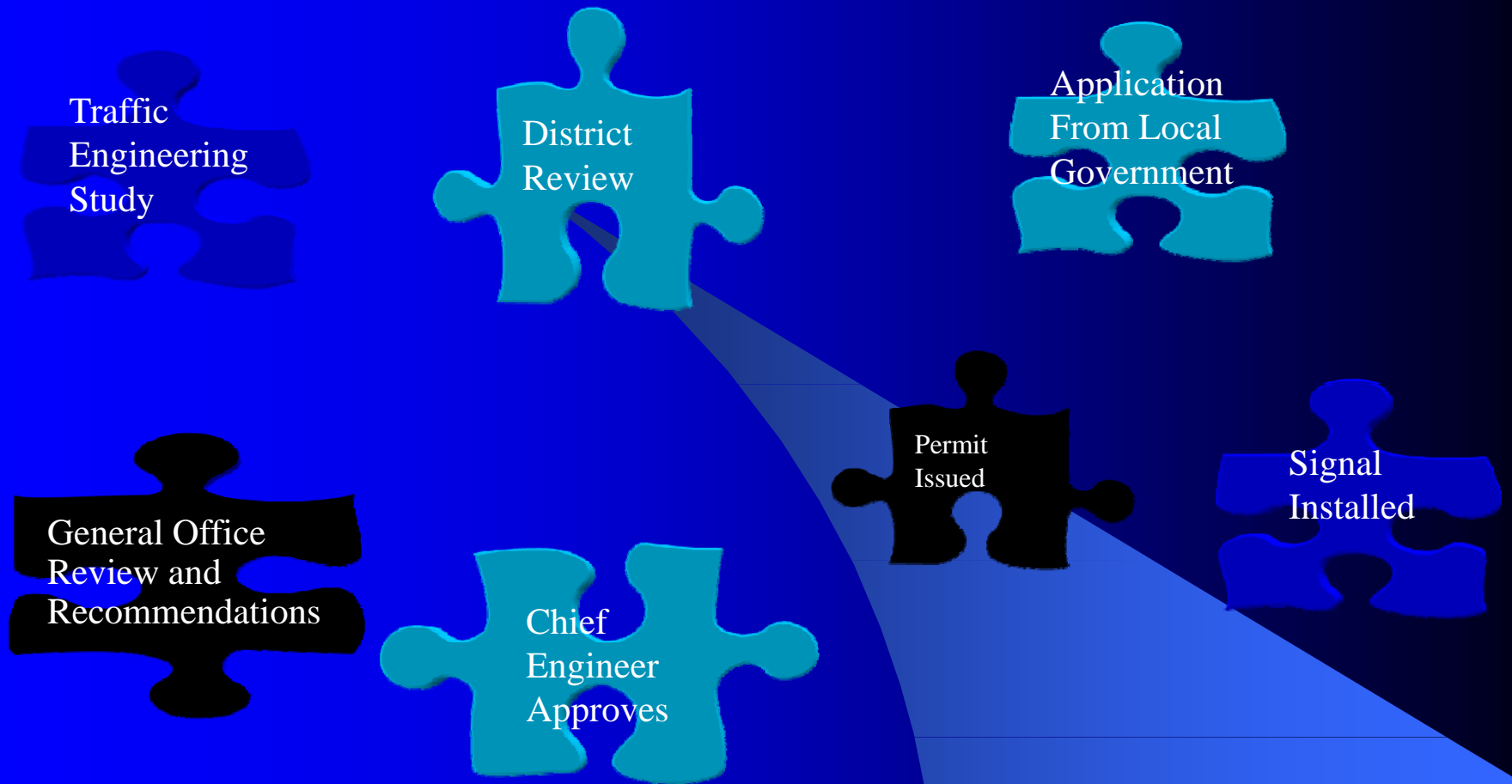
- Adopted by the Board as the official guidance for the State
- Establishes 8 Minimum Warrant Criteria
- Has Legal standing



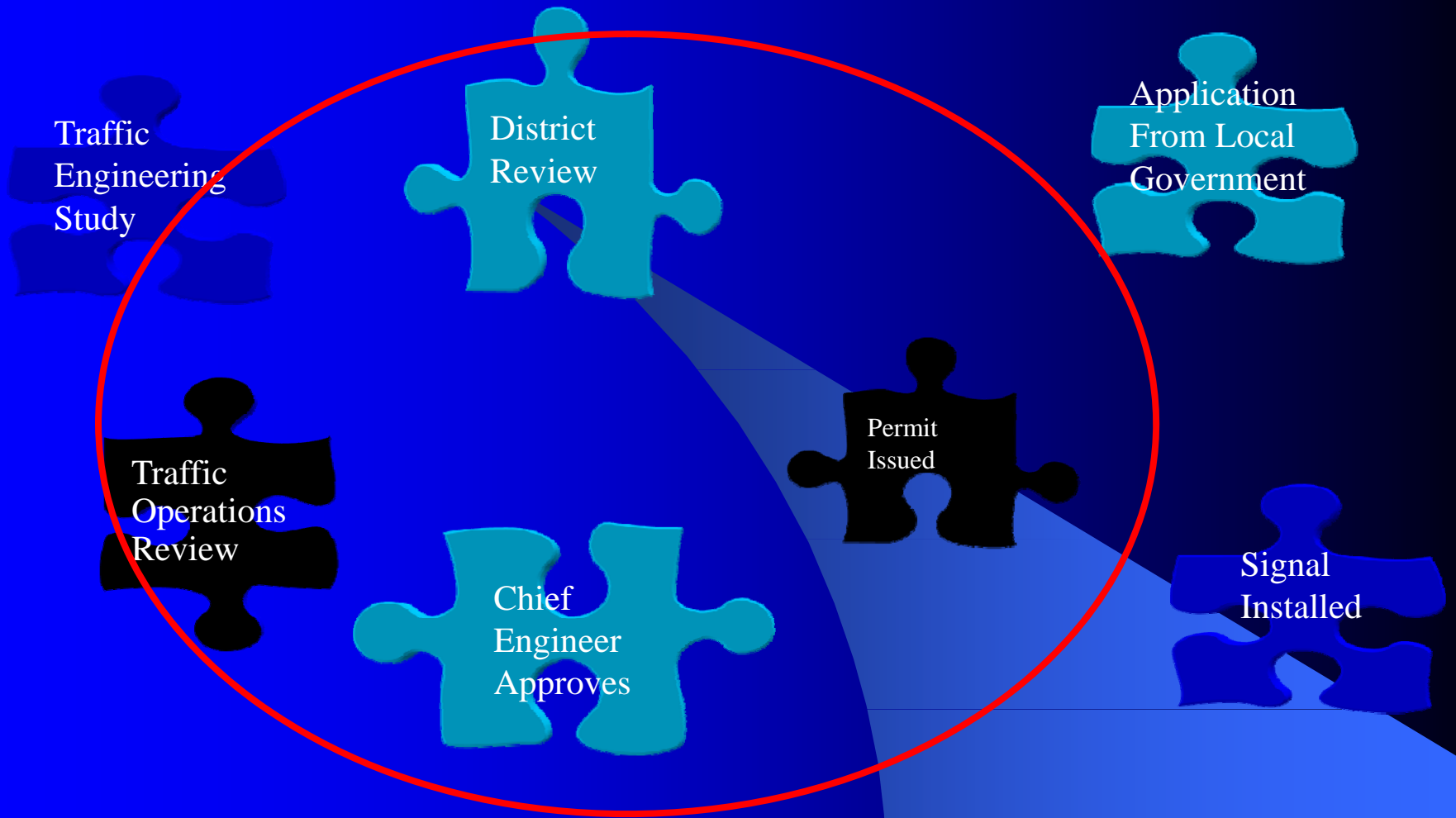
The 8 Warrants

- **Eight Hour Vehicular Volumes**
- **Four Hour Vehicular Volumes**
- Peak Hour
- Pedestrian Volume
- School Crossing
- Coordinated Signal System
- Crash Experience
- Roadway network

The Approval Puzzle



Focus on Customer Service Signal Permit Application-SPA



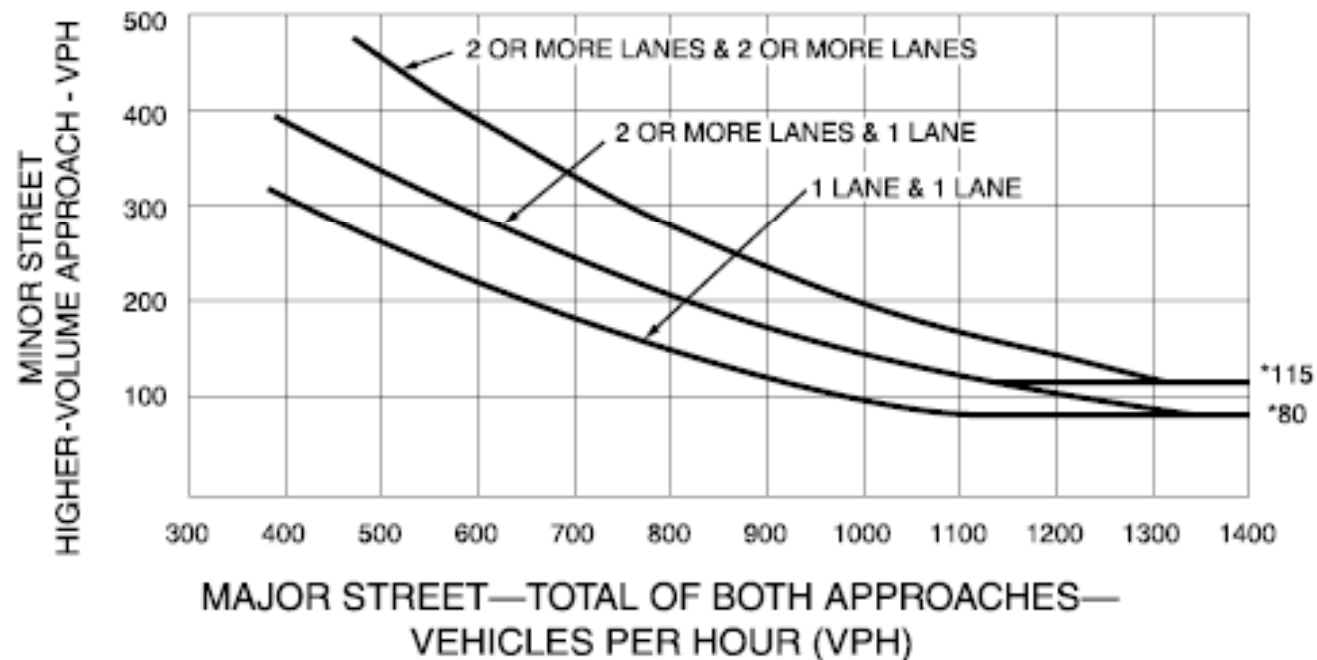
Things to Consider

- Traffic Engineering Studies are completed by GDOT, local governments, and consultant/developers
- Meeting one or more Traffic Signal Warrants does not require a signal be installed
- The Signal must improve operations or safety
- Traffic Engineering studies can easily be manipulated to achieve the desired outcome

Engineering Study

- Numerical Warrants...

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Engineering Study Info

- Study must include:
 - Numerical warrants analysis
 - Current and future conditions
 - Other factors related to safety & operation
 - Alternatives to signalization



Synchronization of Signals

- To the general public a signal is not synchronized unless it is green when they get there
- Synchronization or coordination of a system requires regular maintenance of the detection systems, the communication system, and regular traffic counting
- Other challenges include lack of predominant traffic flow, distance between signals and multi-jurisdictional issues

The National Report Card

National Traffic Signal

Report Card

Proactive Management	F
Signal Operation in Coordinated Systems	D-
Signal Operation at Individual Intersections	C-
Detection Systems	F
Maintenance	D+
OVERALL	D-

NTOC

Improving the GDOT Grade

The Good

- Fast Forward has over 140 million dollars directed towards this effort over 7 years
- Statewide and metro efforts are underway for major capital improvements

The Challenge

- Capital improvements can only be sustained with a significant investment in maintenance
- New development can outpace the minor gains from improved signal timing

Traffic Signals and Arterial Management Go Together

- GDOT has responsibility to protect the state's investment in new and existing capacity
- Duty to meet the expectations of the citizens for balancing safety and mobility in a corridor
- Balance mobility with economic development

Signals = More Travel Time

Signals Per Mile	~ Signal Spacing-ft	% Increase in Travel Time
2	2640	0
3	1760	9
4	1320	16
5	1056	23
6	880	29
7	754	34
8	660	39

Source
:TRB

Perspective

- 1 Mile State Route
- Existing 2 Traffic Signals for major cross roads
- Over time we add 3 signals
- Increase the travel time by 23 %
- Value of lost time alone could exceed \$3M annually



Today's Challenges in Real Terms

- Control of who maintains and operates the traffic signals
- Multi-jurisdictional Corridors
- Lack of financial and human resources for maintenance
- Developers are acquiring property that may have access challenges

Possible Solutions

- Identify Regionally Significant Corridors and the State maintain and operate
- Evaluate opportunities to expand contract maintenance and operations
- Consider funding maintenance of signals on state routes maintained by local governments
- Develop arterial management plans that include potential future traffic signal locations and promote inter-parcel access

Wrapping Up -



Every life counts...

Please drive safely!

Questions or Comments

- Contact Information

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