or sectors assuming all zones within an area to have uniform changes), (b) adjust this by using appropriate factors (up 10-50 percent or down by a factor of 0.9 to 0.7), and (c) apply these factors directly to the existing Ps and A's (by purpose).

5. For areas outside the developed area, flag zones that will be developed by target year by percentage developed (e.g., 0, 25, 50, 75, 100 percent developed).
6. Apply average trip rate (by purpose) per developed unit area.
7. Sum the total Ps and A's, compare with the control total, and adjust as necessary.
8. Continue the distribution.

The procedure makes the following assumptions:

1. Newly developed areas will be similar in characteristics to the typical existing developed areas.
2. The error in trip rates is probably less than that introduced by a zone-by-zone 20-year forecast.

Abridgment

Procedure for Analysis of System Sufficiency and Deficiency

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This procedure was developed for use in the Portland, Maine, area comprehensive transportation study. It was designed to develop a statement of the sufficiency of the existing roadway system with respect to operating, physical, and safety aspects. Roadway elements evaluated include intersections, links, bridges, rail grade crossings, and high-hazard locations.

The statement of existing conditions identifies needs that are the basis for a remedial-action analysis that leads to the development of an improvement-implementation program.

A two-stage screening analysis is used. The first-level screening is based on broad performance criteria and separates roadway elements into two groups—those obviously adequate and those requiring closer study. The second level, which uses a limited number of specific analytical and quasi-subjective tests, serves two purposes; it further screens out elements that are adequate, and it identifies and quantifies the deficiencies of those elements found to be inadequate. (Locations for which planned actions have been developed in previous studies are not included in the screening analysis.)

The screening measures used for the various roadway elements are as follows:

1. Intersections: volume-to-capacity ratio, delays, number of accidents, and physical condition (lane width, sight distance, condition of traffic-control devices, and alignment and geometrics);
2. Roadway segments (links): volume-to-capacity ratio, midblock delays, average speed, number of accidents, signing, striping, condition of control devices, and physical conditions (width, drainage, wearing surface, structural, and shoulders); and
3. Spot locations (bridges, at-grade rail crossings, and curves): legal load capacity, vertical clearance (for through spans and under bridges), roadway width in relation to pavement width (on approach roadways), bridge-deck wearing surface, structural integrity, number of accidents, volume-to-capacity ratio on bridge compared with volume-to-capacity ratio on approach roadways, lateral clearance, drainage, vehicle delays at crossings, and road conditions.

Session Summary

The workshop participants identified 10 recommendations relating to system planning policy and application for small and medium-sized communities.

1. The planning process should be a grass-roots activity that addresses the transportation issues and problems as identified by local officials and implementing agencies. Thus, the identification of the problems should be a critical initial step in the planning process.
2. Flexibility in transportation planning should be encouraged. Appropriate and effective planning will vary from area to area in terms of both time frame and methodology. The traditional 5- and 10-year cycles for plan reappraisal and revision are not appropriate.
3. The procedures and techniques used in a technical analysis should reflect the complexity of the problem. Every effort should be made to use the simplest procedure or technique applicable. The time required to provide meaningful information to the decision maker should be considered in selecting the appropriate procedure or technique.
4. In small communities experiencing little or no growth, traffic engineering studies are all that is necessary.