

## APPENDIX I

### INVENTORY OF COUNTYWIDE REGIONAL ROUTES

This appendix is concerned with the following issues:

- What is the physical condition of Kings County's regional routes?
- What volume of traffic is now, and will be, carried by the regional routes?
- How efficiently do the roads handle existing traffic?
- What sorts of improvements will help the regional routes efficiently serve present and future traffic?

To answer these questions, an inventory of the countywide regional routes is presented. For each road, various structural and functional characteristics are tabulated, and needed improvements are discussed. At the heart of each analysis are two important, closely related, measures of highways: capacity and level of service. This appendix is merely for informational purposes only and any projects listed are not to be considered specifically for programming purposes.

Highway Capacity is simply a measure of road's ability to carry traffic. For planning purposes, highway capacity is calculated for peak-hour traffic loads. Based on the Highway Capacity Manual and the Florida Tables, it is estimated that under ideal conditions, a two-lane conventional highway can carry up to 2,800 vehicles per hour with the default for the Florida Tables being set at 2,600 vehicles per hour. Several components must be taken into account when calculating the peak-hour capacity on any given roadway such as road condition, lane width, shoulder width, percentage of truck traffic, and traffic engineering judgment. However, when traffic volumes approach the road's capacity, operating conditions worsen. Therefore, traffic volumes must be kept below a road's capacity in order to maintain an adequate level of service.

Level of Service denotes a road's efficiency in handling its average and peak-hour demands. Level of service evaluations express the effects of road geometrics and traffic volumes on the driver's speed, safety, convenience, comfort, and economy. The most important factor is the average speed, followed by road geometrics and traffic factors. It should be noted that levels of service differ between rural and urban roads. Service descriptions are relative to their context. The following six levels of service are used:

- Level A: Free flow. Low traffic volumes and high speeds; few if any restrictions in maneuverability. This level is possible only if speeds of 60 mph or higher are maintained.
- Level B: Stable flow. Operating speeds and maneuverability only slightly restricted by traffic and/or road conditions. This is the desired level for state routes and rural roads.
- Level C: Stable flow. Operating speed and maneuverability are more restricted by increasing traffic. Drivers are limited in freedom to change lanes or pass, but reasonable operating speeds can be maintained. This is the desired level for urban roads.

Level D: Unstable flow. Fluctuations in traffic volumes result in operating speeds that are considerably restricted. Drivers have little freedom to maneuver. Comfort and convenience are low, but can be tolerated for short periods.

Level E: Unstable flow. Traffic volumes are at or near capacity. Very low operating speeds with momentary stops.

Level F: Forced flow. Zero or low operating speeds. Roadway becomes a storage area for idling cars. Also known as a traffic jam.

In the inventories that follow, two general factors affecting capacity and level of service are examined: road conditions and traffic factors. The information was gathered from state highway inventories and from county and city road maintenance programs. Where hard data was not available, estimates have been calculated with the help of local engineering staffs. Attached to each road's inventory is a discussion of its physical deficiencies, followed by a listing of candidate improvements to correct them. The most significant regional candidate projects are shown in the programming tables in Chapter 4: The Regional Highway System. The following factors are examined:

### ROAD CONDITIONS

Lane Width: Lane width is determined by the use of the roadway and design standards. Some narrower lanes are purposely built for traffic calming and to lower the travel capacity and speeds on a road – as an enticement to drivers select other routes.

Paved Shoulder Width: If the capacity and service level of a road is to be maintained, adequate shoulders are needed. They increase the width of the roadway thus enabling better maneuverability, and provide a place of refuge for disabled vehicles. A closely-related factor, lateral clearance, is also involved. If walls, poles, parked cars, or guardrails are closer than, say, 6 feet from the edge of the travel lane, the effective capacity of the road is diminished.

Pavement Distress: There are several general types of pavement distress conditions. These include: pitting and raveling; fatigue cracking; shrinkage cracking; rutting and shoving; and base failures. These conditions are expressed in terms of the extent of the roadway showing them, and their severity.

Other Factors: Highway alignment affects both stopping and passing sight distances. Grades and turns affect sight distances, stopping distances, and truck climbing speeds. Interruptions, such as traffic lights and stop signs, and railroad crossing devices, intentionally regulate traffic flow, and thus alter a road's capacity and level of service. During wet winters, flooding can occur in low areas of some regional routes.

Although no roadway is built inherently unsafe, drivers need to exercise caution in instances of flooding, sight restrictions, narrowed lanes, or other temporary roadway hazards.

### TRAFFIC FACTORS

Average Daily Travel (ADT) is an estimate of the average daily number of cars and trucks over a section of roadway. The adequacy of a road, however, is not judged according to the ADT, but according to how well the road carries its peak-hour demand.

Trucks: Over level Valley highways, large trucks displace about 2-3 cars each. This reduces the number of cars that can use the road per hour. In urban and in hilly areas, slow truck speeds even further reduce a road's capacity. In addition, trucks are major contributors to pavement deterioration.

Present Service Level: See Level of Service discussion above.

Present Peak-Hour Volume is the estimated average number of vehicles traveling during the peak hour of each day over a section of highway.

Peak-Hour Capacity is the estimated highest number of vehicles that can travel over a section of road in one hour. Traffic engineers use various formulas (see Highway Capacity), that include many elements discussed in this inventory, to calculate a road's peak-hour capacity.

Hour Volume/Hour Capacity: Also known as the volume-to-capacity (v/c) ratio, this figure shows how close to capacity a road operates during its peak hour.

(NOTE: The cities and the County of Kings recently completed a pavement and asset assessment throughout the region. The results are being assessed and the information for the roadways included in this Appendix will be updated in the subsequent RTP.)