

# A Road Traffic Survey Platform Application of “Reference Road Segments and Reference Intersections”

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## 1. Introduction

NILIM has developed a “Standard for Traffic Survey Unit” as a platform for traffic surveys. The standard was introduced into the FY2010 Road Traffic Census and is expected to have broad application in the future. Within the standard, reference road segments (hereafter “reference segments”) are established as the smallest survey units for various surveys. They are divided at the points shown in Table 1 to allow easy inter-application, analysis, and aggregation of survey results.

Table 1: Reference road segment division points

Division point	Purpose
1) Point of intersect with other arterial road	Minimum unit suitable for ascertaining traffic volume, deceleration, and traffic service
2) Point of access to major facility	Consideration of individual handling of zones with significant differences in traffic conditions
3) Point of change in road manager jurisdiction	Consideration of aggregation with road manager units
4) Start point of expressway	Consideration of differences in traffic characteristics and aggregation of expressway data only
5) Point of intersect with municipal boundary	Consideration of aggregation by municipality

## 2. Analysis by route, intersection, and network

Analysis of individual routes and municipalities can be performed easily by using route attributes in the reference segment. Moreover, analysis at the individual intersection and network level are also possible by using reference intersection data that are automatically generated using intersecting road connection information established for the start and end points of the reference segment (Figure 1).

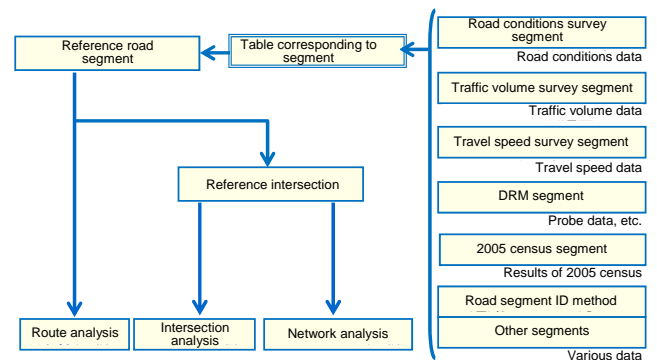


Figure 1. Analysis at the route, intersection, and network levels

## 3. Application in congestion analysis at the intersection level

Using reference intersection data, it is possible to conduct, for example, evaluations by aggregating congestion-caused losses in all directions from intersections that tend to be traffic bottlenecks. Figure 2 shows the results of a calculation of lost time due to congestion at specific intersections in the Kanto area.

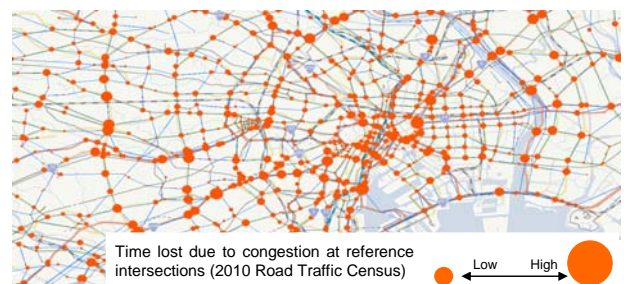


Figure 2. Congestion-caused time loss (intersection level)

Figure 3 shows calculated lost time for each intersection on National Route 6 in Ibaraki Prefecture. It can be seen that intersections having large lost times compared to surrounding intersections largely match with major congestion points.

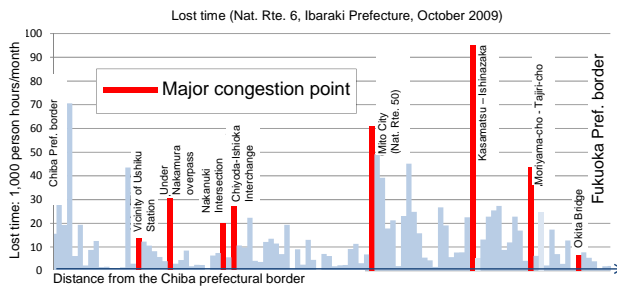


Figure 3. Congestion-caused time loss in Ibaraki Prefecture (intersection level)

#### 4. Division of roles in data updates

We will update traffic survey reference road segments each fiscal year and reflect them on the latest road network. To ensure work efficiency, regional development bureaus will update reference segments and NILIM will use the updated data they supply to automatically update reference intersections throughout Japan.