

# **Incorporating Transport Data Requirements in Housing Surveys**

Hussein Lidasan  
Professor/Dean  
School of Urban & Regional Planning,  
University of the Philippines  
ThoSL76@gmail.com

Rafael Rivera  
Ph.D. Candidate, School of Urban & Regional  
Planning, University of the Philippines  
Rivera.raffy@gmail.com

## **Abstract:**

Most surveys and data collections related to housing and census surveys have limited queries on information or data needed for transport planning and conduct of transport studies and travel behavior analyses. This paper attempts to provide a discussion on the intention to recommend inclusion of transport enquiries on households and members. These are relevant not only in providing proper understanding of their travel behavior and patterns but also in aid of travel demand estimation and analyses. This way, proper and responsive transport policies and corresponding strategies and measures can be formulated. Likewise, in the planning of transport facilities related to housing, information from households will be relevant and useful.

**Keywords:** household interview surveys (HIS), person trip information, travel demand, inclusive mobility, travel patterns, intermodal logistics

## **1. INTRODUCTION**

Surveys at the household levels provide vital information not only on the demographic profiles of the population. They also provide relevant data on the households' characteristics and behavior. Notable of these pertains to people's travel behavior and trip patterns. An attempt was initiated in 1996 to incorporate person trip survey in the Philippine census in a study, A Framework for Incorporating Person-Trip Survey into the Philippine Census of Population and Housing (D. Molintas, thesis, 1996). This study attempted to ascertain the feasibility of incorporating person-trip survey into the Philippine Census of Population and Housing (CPH). It suggested combining the person trip survey and the CPH instruments as tools for collecting vital information at the individual level in aid of decision making for travel choices.

This implied that almost a quarter of a century, the importance of incorporating trip information at the household levels is already recognized. Usually, the conduct of person trip surveys is through studies initiated by international organizations and at times by consultants. It is, perhaps, timely that these be incorporated in the regular household or housing surveys of

the government. This will ensure comprehensive and household-based data that will be beneficial for responsive transport research and studies.

Apart from person trip information, another type of transport data that are of importance are those related to intermodal logistics, where household decisions affect the commodity flows and demand. Countries, such as Japan and Japan, have commodity flow surveys included in their census. The Philippines has the regular expenditure surveys; however, these are not enough in understanding the behavior of commodity flows at the household levels. Having knowledge on the households' commodity choice decisions can provide better understanding of the commodity flow, physical distribution and supply chain and thereby strategies for intermodal logistics systems will be responsive and appropriate.

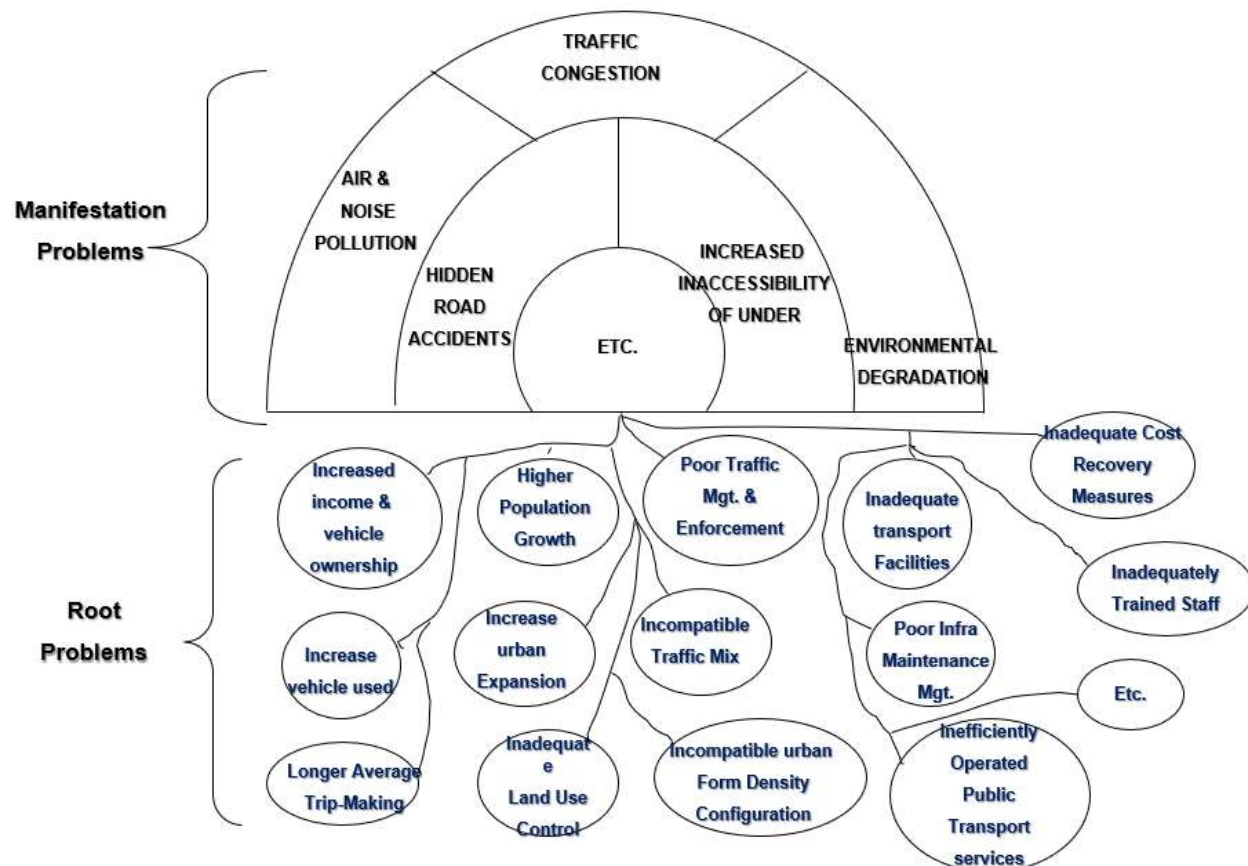
It is therefore being suggested that incorporating transport data in housing surveys, notably that of household surveys be proposed at the national level and preferably, as the Molintas study recommended, be in the Philippine census. This initiative is towards this direction.

## **2. THE IMPORTANCE OF HOUSEHOLD TRANSPORT DATA**

The importance of incorporating transport data at the household levels is best understood in looking at Figure 1 below, which is the transport policy framework. Figure 1 is an expanded version of that of Dr. Cal. The figure shows the need for data that truly reflect the behavior of the users of the intermodal transport system and at the same time how to address the impacts of transport initiatives, including land use developments.

Obtaining household and individual levels transport information and data will not only be helpful but also relevant in understanding the travel behavior of the people and how they come up with their travel or trip decisions. Similarly, with the advent of information technology, where transport apps are accessible, the travel behavior of those utilizing such apps will be analyzed and can be instrumental in coming up with transport policies that will draw responsive strategies in ensuring inclusive mobility, public transport measures, including the provision of efficient mass transit systems.

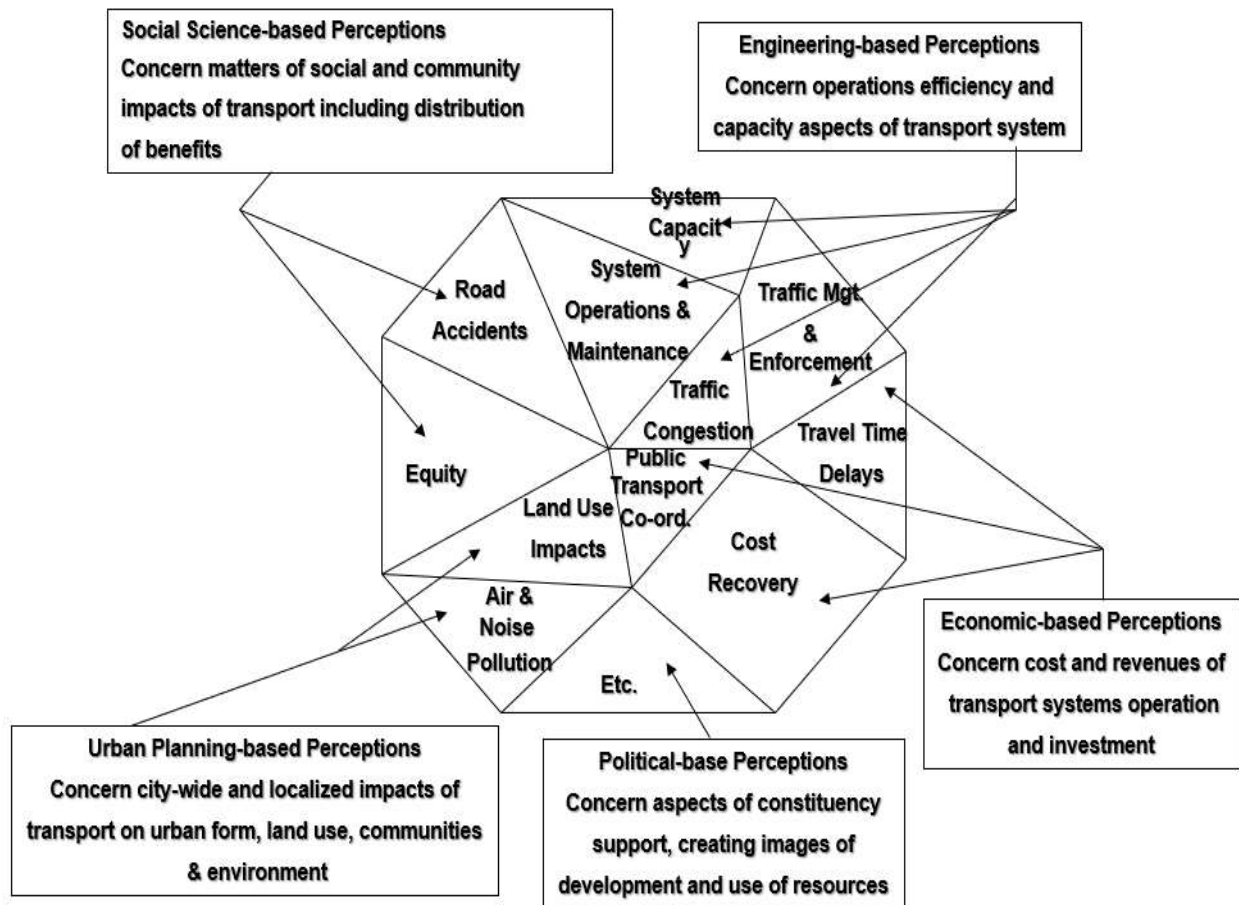




**Figure 2. Urban Transport Manifestations and Root Problems**

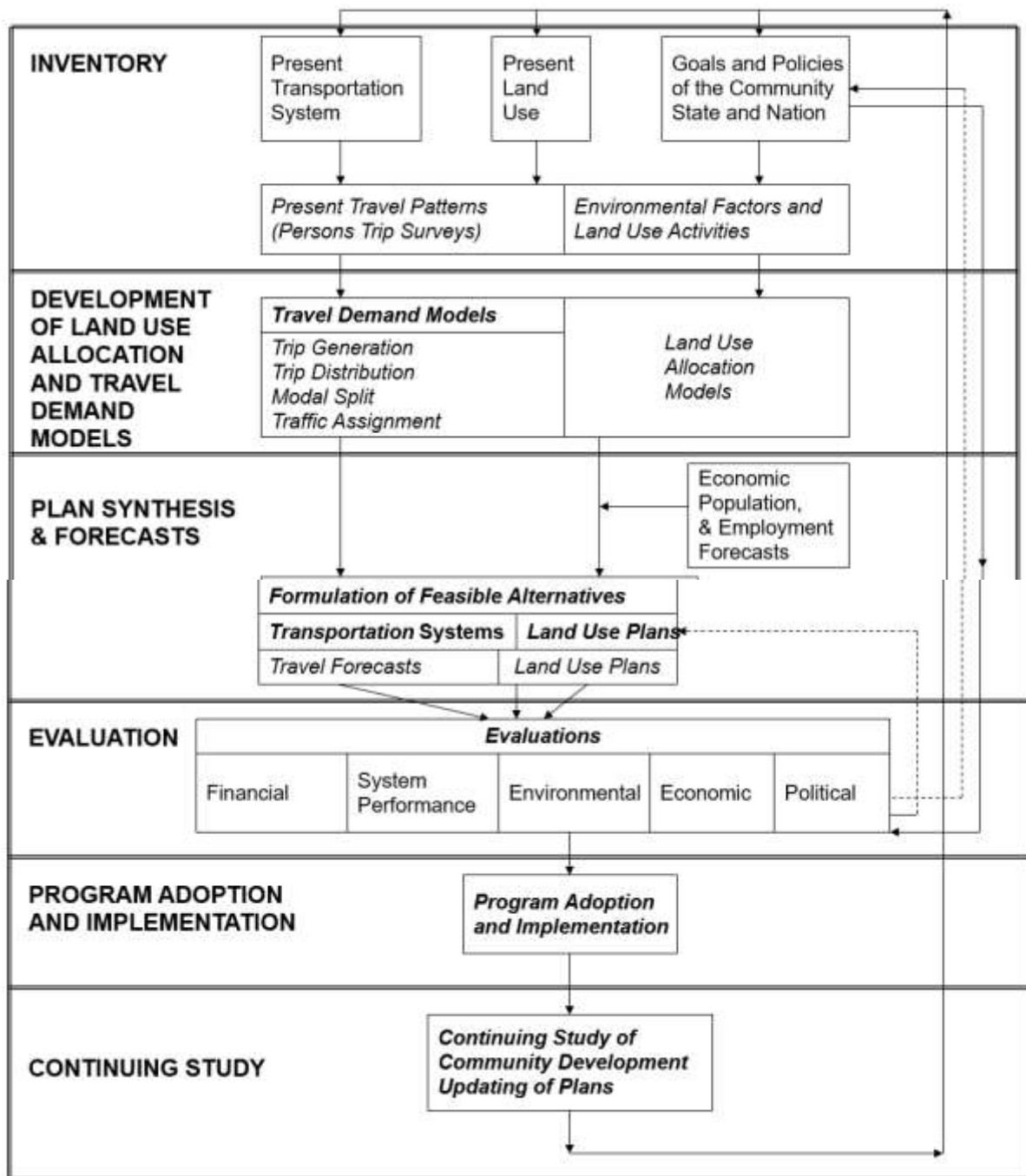
Data at the household and individual levels will ensure that the root problems are understood and as such appropriate and relevant transport initiatives can be formulated and enforced, particularly travel demand management schemes. Similarly, in transport planning, notably in planning and designing transport facilities and systems, properly decisions can be attained.

Same can also be mentioned on the need to collect and understand the commodity-related data at the household levels. The multiple perceptions and dimensions, coupled with the intertwining relationships of transport variables and factors indeed necessitate incorporating transport data in housing surveys, notably in the Philippine census. Understanding the commodity requirements and flow at the household will be relevant in formulating logistics policies at urban areas. Likewise, information on household commodity behavior will be helpful too in providing measures to not only regulate delivery apps but also to ensure road safety for modes being utilized for delivery, such as motorcycles.



**Figure 3. Multiple Dimensions and Perceptions of Urban Transport Problems**

At the outset, looking further at the comprehensive urban transport planning process that is anchored more on the land use-transport model, one can deduce that data at the household and individual levels are indeed important and obtaining these through census or similar instruments will be proper and right. The figure below shows the urban transport planning process and it is indeed clear at what phase of the process are household and individual data are required.



**Figure 4. The Urban Land Use-Transport Planning Process**

Figure 4 above showed that at the inventory phase of the transport planning process, person trip information, collected at the household level is vital for two reasons: a) the trip information will provide the socioeconomic profile of households (and the study area), b) the information or data related to the trips of the individuals will characterize the travel behavior and trip patterns of the members of the households. These are vital in the second phase, which is the

establishment of the land use-transport models. At the travel demand models, and in analyzing travel behavior, socioeconomic and trip characteristics, again obtained through person trip surveys are essential in predicting modal choices or shares. These are inputs to travel demand forecasting and also in transport policy formulation that will draw the transport strategies and measures. Consequently, they are also needed in assessing the effectiveness of travel demand measures. By obtaining these data through a comprehensive survey instruments like a census will be more responsive and increases the degrees of accuracy.

### 3. IDENTIFICATION OF TRANSPORT DATA FOR INCLUSION IN HOUSING SURVEYS

Generally, following the usual person trip survey process, this includes collecting information at three levels: household, individual members of the household, and daily trip information of the individual members covered in the survey. Another form of information that is being collected is perception of individuals. The table below summarizes the pertinent information being collected at the respective levels of the person trip survey.

**Table 1. Information Obtained from a Person Trip Survey**

1. Household Level	<ul style="list-style-type: none"> <li>- Socioeconomic characteristics of the households that describe the profile of the households: structure, vehicle ownership, household income levels, license-held, places of residence, etc.</li> </ul>
2. Individual Member Level	<ul style="list-style-type: none"> <li>- Socioeconomic characteristics of the individual members, 5 years of age and over, such as age, sex, occupation, employment, work/school address, individual member income, etc.</li> </ul>
3. Trip Information	<ul style="list-style-type: none"> <li>- Characteristics of the weekday trips of the individuals interviewed. It is advised to include weekend trips, as these are becoming significant.</li> <li>- The data collected are: trip origin and destination (O-D), trip purpose, travel mode, transfers and time of departure and arrival</li> </ul>
4. Perception	<ul style="list-style-type: none"> <li>- Getting the views of household members interviewed on certain present conditions of traffic, public transport and strategies.</li> <li>- At times, perceptions on willingness-to-pay (WTP) and capacity-to-pay) on new public transport systems may be included.</li> </ul>

The data being collected from the person trip surveys are usually categorized as revealed preference and stated preference (RP-SP) information. Revealed Preference, RP, data are based on actual and current conditions and situations of households and individuals. On the other hand, Stated Preference, SP, data are asked given some scenarios and assumptions, such as various travel times with corresponding fares and which are the preferences of the individuals interviewed. These types of information are asked when new transport systems are

introduced or related to the effectiveness of transport initiatives or strategies. These are closely related to WTP/CTP surveys.

Information obtained the household and individual levels are usually employed in disaggregate models, in particular, discrete choice modeling, that are used in modal choice estimation and analyses and in travel behavior and trip pattern analyses. The strength of data from household and individual levels are related to the analyses of life cycles and life styles of households, which are crucial in understanding their travel decisions, including place of work and residence decisions and trip chain analyses. Collecting data on the same households over time, which are commonly known as either panel or longitudinal data, is more appropriate through the census. These data will be very useful and relevant in transport planning, transport policy formulation and assessment. Likewise, they will be of help in understanding the travel behavior of households over time.

As already cite earlier, collecting information on households on their commodity needs is of equal importance as this is relevant from the point of view of intermodal logistics and supply chain. Though household expenditure surveys are done regularly; these are not sufficient for the abovementioned purpose. Similar to person trip surveys, commodity surveys at the household level should also be incorporated in the housing surveys. Perhaps, the types of data being collected other countries are worth exploring-

- a. US: a) O-D, value, weight, transport modes, types of commodities, b) census on exports and imports, including household consumptions
- b. Japan: domestic and international passenger and freight surveys at the national levels

The data collected are used to analyze commodity traffic, calculate fuel consumption, location of stores and markets, logistics/transport facility improvements, and traffic congestion analyses.

#### **4. CONCLUSIONS**

This paper provided the justification in incorporating transport data collection in housing surveys; which is notably true for household surveys. It is further suggested that such data collection be incorporated in the regular census. A previous study in 1996 provided the framework for incorporating person trip survey in the Philippine Census. It is suggested that this be further looked at and if necessary updated so that it can be considered.

By incorporating transport data, including commodity flows, will be very relevant and useful. This will provide better understanding of the travel behavior and trip patterns of households and thus, responsive transport policies and corresponding strategies and measures will be formulated and enforced. Albeit this notion on incorporating transport data, it is further



recommended that a thorough assessment of this, from the point of view of sustainability and funding, be done.

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