

Los Angeles County Metropolitan Transportation Authority (Metro)

System-Wide On-Board Origin- Destination Study

Draft Final Report

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Executive Summary

This report documents the activities and findings for Phase II of the System-Wide On-Board Origin-Destination Study. PTV NuStats, and its subcontractors (GeoStats, Maroon Society, and Tempis Incorporated), executed this study on behalf of the Los Angeles County Metropolitan Transportation Authority (Metro). Phase I provided rigorous testing of the elements of user-completed paper surveys, the current state of the practice. Phase I also included the development of a new hybrid methodology which represents a significant advance in the state of the practice. This hybrid methodology is used for Phase II, a survey of Metro's entire bus and rail system. Both Phases I and II are partially funded through a Section 5339 Grant from the Federal Transit Administration (FTA)

During Phase I of this study, PTV NuStats tested multiple survey instruments of varying length and offered different incentives to ascertain which instrument characteristics minimized respondent burden while increasing participation. The results of Phase I indicated respondents were more likely to participate and provide accurate information via a Computer Assisted Telephone Interview (CATI). Further improvement was gained through the interviewers' use of a project-specific tool (TripTracer Transit) to collect travel patterns of Metro passengers. During the interview process, data were subjected to real-time quality control procedures to ensure respondents provided accurate information and to identify and correct illogical trips.

The paper data collection was streamlined by replacing the lengthy twenty-item questionnaire typically used in on-board surveys with a brief, four-question instrument. Teams of locally hired surveyors collected boarding and alighting data, in addition to a passenger's contact information, using a postcard-sized on-board survey card. The card used in this new approach offered two significant benefits. First, in previous survey efforts using the lengthy questionnaire, passengers traveling for a short period of time could not complete the questionnaire, resulting in missing data from this important group. In addition the card approach requires less of a passenger's time and significantly reduces the amount of critical missing data. The card data also made it possible to weight the data using transit passenger's on- and off-stops.

The contact information provided on the card was used to contact respondents for a lengthier follow-up telephone interview. Then, using Computer-Assisted Telephone Interviewing (CATI) and PTV NuStats' spatial tool, TripTracer Transit, a respondent's travel behavior was gathered while simultaneously providing real-time quality control measures to ensure the accuracy of the data.

A major focus of the study was to reach out to traditionally under-represented groups that constitute a large share of the Metro ridership. In a collaborative effort with Metro, PTV NuStats placed a premium on the ability for surveying teams to survey in Spanish. Not only did 50 percent of the surveyors speak Spanish, but also one-third of the counter/collector staff; as such, they were able to reach and assist this linguistically isolated demographic. The results of this concentrated effort were successful, specifically in assisting Metro with understanding this important demographic: approximately 41 percent of the bus sample was collected from the Spanish-speaking market. Most importantly, this methodology can be applied to other demographics—in future studies, Metro staff can identify geographic regions and apply a targeted sampling approach to match surveyors' linguistic abilities to specific markets.

Respondents were recruited on board the surveyed vehicle using a card, on which they recorded their contact information (name and phone number). Passengers were contacted within a two-week window to collect the remainder of their travel behavior and demographic information. Because passengers rely heavily upon Metro's service and could make multiple trips per day, the card captured the passenger's trip purpose, which the respondent verified at the beginning of the interview.

This hybrid survey was conducted among passengers of all Metro's directly-operated local, limited, and express service; shuttle and circulator routes; and rapid and rail service. Bus data collection took place from January 11 through June 24, 2011, while the rail data collection took place from September 26

through November 1, 2011. A total of 33,782 fully weighted questionnaires, as included in the final data files, were collected. In addition to the origin-destination (O/D) on-board study, boarding and alighting pairs (B/A Pair) were also conducted for all surveyed routes in the system and collected 89,491 usable cards. The B/A Pair data will serve as a marginal dataset to be used for future weighting and expansion purposes as deemed necessary by Metro.

Key Metro Bus Findings

The completed project yielded over 27,000 surveys from fixed local routes, express service, and metro rapid service. The objectives of the full study were two-fold: 1) examine and confirm the travel behavior characteristics of Metro passengers, and 2) obtain the socio-economic characteristics of Metro passengers. The data weighting and expansion provide an appropriate representation of the Metro system.

Important findings from the analysis of the Metro bus system ridership are presented below:

- Forty-one percent of Metro bus passengers completed their survey in Spanish.
- Eight out of ten Metro bus passengers are from households with an annual income of less than \$25,000.
- Over half (56 percent) of Metro bus passengers are transit-captive riders (i.e., they are from households that did not have a vehicle available to complete their one-way trip).
- Sixty-four percent of Metro bus passengers are employed, with 38 percent employed full-time.
- Three-quarters of Metro bus passengers do not possess a valid driver's license.
- Over two-thirds (68 percent) of Metro bus passengers reported their ethnicity as Hispanic and 17 percent listed Black/African-American.
- Eighty-eight percent of Metro bus passengers are between the ages of 18 and 64.
- Thirty-two percent of Metro bus passengers reported paying cash for their fare while thirty percent used a monthly pass.
- Travel behavior characteristics of Metro bus passengers indicate that home and work are the most prevalent trip origins and destinations.
 - ✓ Forty-three percent of trips originate from home, 30 percent of trips originate from work, and both school and social/recreational account for six percent of origin trip purposes.
 - ✓ The final destination for 44 percent of trips is home, whereas 28 percent end at work. Other popular destination trip attractions are social/recreational (eight percent of trips) and shopping (six percent).
 - ✓ Fifty-two percent of Metro bus passengers made home-based work trips.
- Overall, 94 percent of Metro bus passengers reported walk as their mode of access and egress.
- Forty-one percent of Metro bus passengers made one transfer to complete their one-way trip, whereas 38 percent did not transfer.

Key Metro Rail Findings

The Metro rail survey produced 6,528 complete and usable records from the five rail lines (Red, Blue, Green, Gold, and Purple) that service the Metro region.

- Twenty-three percent of Metro rail passengers completed their survey in Spanish.
- Sixty-four percent of Metro rail passengers are from households with an annual income of less than \$25,000.

- Thirty-six percent of Metro rail passengers are transit-captive riders (i.e., they are from households that did not have a vehicle available to complete their one-way trip).
- Sixty-seven percent of Metro rail passengers are employed, with 46 percent employed full-time.
- Fifty-four percent of Metro rail passengers do not possess a valid driver's license.
- Fifty-four percent of Metro rail passengers reported their ethnicity as Hispanic and 23 percent listed Black/African-American.
- Ninety-four percent of Metro rail passengers are between the ages of 18 and 64.
- Twenty-seven percent of Metro rail passengers reported paying cash for their fare and twenty-seven percent used a monthly pass.
- Travel behavior characteristics of Metro rail passengers indicate that home and work are the most prevalent trip origins and destinations.
 - ✓ Forty-three percent of trips originate from home, 31 percent of trips originate from work, and college/university and social/recreational each account for eight percent of origin trip purposes.
 - ✓ The final destination for 46 percent of trips is home, whereas 29 percent end at work. Other popular destination trip attractions are social/recreational (nine percent of trips) and college/university (six percent).
 - ✓ Fifty-one percent of Metro rail passengers made home-based work trips.
- Overall, three quarters of Metro rail passengers reported walk as their mode of access and egress.
- Thirty-seven percent of Metro rail passengers made one transfer to complete their one-way trip, whereas 26 percent did not transfer.

Introduction

PTV NuStats conducted the System-Wide On-Board Origin-Destination Survey (Metro Survey) of Los Angeles County Metropolitan Transportation Authority (Metro) passengers in 2011. This study provided information about transit passenger demographics and trip details. The Metro Survey was a system-wide study to permit an appropriate level of sampling to reflect all services, including new, expanded, and revised routes. In addition, a secondary survey collecting boarding and alighting pairs (B/A Pair) from all surveyed routes was conducted.

PTV NuStats recognizes the bias that exists with on-board surveys, and developed an approach that would establish on-to-off pairs of passengers who participated in the survey by accepting the card. Not only did this data set include passengers who provided their travel behavior for their one-way trip, but also those who declined to participate in the full study. The results of the marginal data set will be used in future weighting applications to better understand passenger flows in the Metro transit system.

The Metro Survey was conducted among passengers of fixed-route bus and rail services for Metro using a self-administered approach for recruitment and a Computer Assisted Telephone Interview (CATI) for retrieval. Data collection was conducted on weekdays (Monday through Friday) from January 11 through November 1, 2011. (To prevent seasonality effects, surveying was not conducted during summer months.) A total of 33,782 usable bus and rail questionnaires were collected for this study. The final bus data files incorporated a total of 113,380 eligible boardings for a response rate of 24 percent for the bus data set. The rail data set was comprised of 28,875 eligible boardings for a response rate of 23 percent.

This report summarizes the survey methods and 2011 Metro Survey findings, as well as the B/A Pair Survey. Chapter 2 provides a description of the sampling approach, survey instrument and procedures, project challenges and solutions, and weighting and expansion methodology. Chapter 3 provides detailed information for the variables collected during the Metro Survey.

Appendix A includes the English and Spanish survey instruments.

Survey Methods

Sampling Plan

A total of 166 Metro routes were sampled on weekdays covering all fixed-route bus and rail service. A sampling plan was designed at the route level and to provide a sample size adequate for analysis of weekday bus and rail service. The sampling goal was to collect 30,000 valid questionnaires for Metro routes, two percent of the average daily ridership. Survey data collection resulted in 33,782 valid questionnaires from Metro routes, or two percent of the average daily ridership.

The Metro Survey used a standard two-stage sampling approach that consisted of sampling passengers and sampling vehicle trips. Every passenger over the age of 16 (determined by visual estimation) who boarded the sampled vehicle received a card. If the surveyor was not able to determine whether a passenger's age was over 16 by direct observation (which is the standard procedure), the surveyor asked the boarding passenger if they were over 16 years old.

Approach to Sampling Bus Trips

Metro's consultant on this study, PTV NuStats, prepared a plan to sample weekday bus and rail trips to capture two percent of the average daily weekday ridership. The proposed sample plan was based on three main factors.

- First, the plan ensured that the sample adequately met data needs at the global level.
- Second, the plan ensured the collection of adequate samples at the various times of day. Times of day (TOD) are defined as AM Peak (6:00 a.m.–9:00 a.m.), Mid-day (9:01 a.m.–2:59 p.m.), PM Peak (3:00 p.m.–7:00 p.m.), and Evening/Early Morning (7:01 p.m.–3:00 a.m.).
- Third, the plan ensured that Metro staff would have the ability to segment the sample on key variables, such as route, day of the week, time of day, and direction.

The original sample plan was based on the average daily ridership from FY 2009 Metro's Automated Passenger Count (APC) system and was geared to capture 2 percent of passengers at the system level. The individual route goals are contained in Appendix A.

Bus Trip Selection

The number of sampled trips was calculated by assuming an average response rate of 15 percent, depending on service type and service period, of typical passenger loads by trip (this rate had to be lowered later in the study because of poor response rates on some routes). Thus, a route that had an average load of 500 passengers and made 10 trips a day was determined to have an average passenger load of 50 passengers per trip. Assuming the route had a sample goal of 50 valid questionnaires, it was determined that seven bus trips would need to be sampled to meet the requirements at an estimated 15 percent response rate ($500/10 = 50 \times .15 = 7.5$; $50/7.5 = 6.7$ or 7). The number of trips sampled was rounded up to the nearest whole number for trip selection purposes.

Trips were clustered by block for the purpose of efficient use of surveyor labor. The use of clusters had the further advantage of de facto stratification by direction (i.e., most runs consist of bus trips alternately traveling inbound, outbound, etc.), stratification by time of day, and by route, if multiple routes were contained in a block.

Surveyor Assignments

The final sampling task was uploading the sampled bus trips to a Web-based field management system to create surveyor assignment sheets. The selected clusters of trips were drawn based on the following criteria to produce surveyor assignments:

- Consecutive trips within the same block/run
- The cluster of trips starting and ending at the same location
- If trips within the cluster were unique to the cluster

Surveyor assignment sheets were printed from the Web-based management system and included the organized trips to be sampled, along with the division address from which the assignment originated. The assignment sheets were also bar-coded to link them to the field management system.

On-Board Survey Instrument

Cards were designed in a two-sided 6" by 5.5" card-size format and printed on heavy card stock for easy distribution and completion. The card was pre-printed with a unique serial number and bar-code, which linked each card to a specific trip and vehicle boarding and alighting locations. Text on the card invited passengers to register to win a monetary prize, one of 21 \$500 prizes, by providing their name and telephone number. The card was designed to obtain information in three major categories: O/D trip purposes, contact information (name and telephone number), and the best time to call. As noted in Table 1.1, some of the required data elements were captured by means other than a question on the card. This approach had multiple benefits: (1) the shorter card enhanced response rates and (2) data quality was improved by circumventing respondent-provided information. The card was available in two languages: English and Spanish.

On-board survey cards were developed such that they would be easy to administer, easy to comprehend, and, above all, collect data that supported the travel demand model. This type of card was used for the Metro Survey with great success. The simplicity of the card allowed for quick completion, particularly for those who rode a vehicle for a limited number of stops. In addition, the graphic instructions displayed the surveying steps for those who were not proficient in reading English or Spanish. Most importantly, the cards were serialized so that they could be traced back to the boarding and alighting location without having to ask the passenger. Each card was serialized, bar-coded, and packaged in bundles of 50 for ease of handling and tracking by the surveyors. See Appendix A for an example of the on-board survey card.

Table 1: Data Elements and Capture Method

Data Elements	Capture Method
Day of Travel	GPS-enhanced Palm device
Time of Travel	GPS-enhanced Palm device
Route	GPS-enhanced Palm device
Direction	GPS-enhanced Palm device
Boarding Location	GPS-enhanced Palm device
Alighting Location	Collector Provided (3 rd person)
Questionnaire Language	Card
Origin Trip Purpose	Card
Destination Trip Purpose	Card
Telephone Type	Card
Best Time to Call	Card

CATI Script

The survey instrument was designed as a CATI with 35 questions. Prior to data collection, Metro and PTV NuStats defined a complete interview as one with logical answers to the following questions: origin address, destination address, mode of access, mode of egress, trip purpose, and route sequence. Boarding and alighting information was also required for a survey to meet the definition of a complete. The boarding and alighting information was collected via the B/A Pair method of data collection: the boarding location was captured via PDA technology, and the alighting location was captured by the third person collector of cards on the vehicles (see CATI script in Appendix B).

Survey Procedures

Labor Recruitment and Training

Surveyors were required to have lived in the service area and were screened to ensure they had good work habits, and were personable, honest, mature, and attentive to details. Surveyors were trained to read and understand assignment sheets and were taught basic survey procedures, etiquette, and how to approach passengers. Counters were trained in the use of the hand-held Palm devices, the ride count program, and on-board etiquette. Collectors were trained on how to obtain cards as passengers alighted the vehicle and how to deal with frequently asked questions. Following completion of initial assignments, surveyor teams were required to return to the survey command center where field coordinators verified the accuracy of the surveyors' work. Assignments were then handed out for the next day.

O/D Study

At each stop, cards were distributed by the surveyor to all boarding passengers age 16 and older. Concurrently, a "counter" counted each boarding and alighting passenger. The Palm device recorded the location and time (arrival and departure) at each bus stop, and counters entered the number of passengers boarding and alighting. Then the surveyor would communicate with the counter to establish which cards were distributed at a specific stop by entering the top card number into the unit prior to arrival at a vehicle stop linked a sequence of cards directly to a vehicle stop (using Metro's digitized bus stop list). The data were uploaded daily into a Web-based field management system designed to manage surveyor assignments, provide progress reports and data summary tables, and monitor field staff performance.

Survey Administration

The full survey was managed by an in-field survey team comprised of PTV NuStats field coordinators. Initial trainings were conducted January 24, 2011, prior to the start of data collection. Additional trainings were held during the data collection to account for staff attrition.

As assignments were handed out, information was updated in the Web-based field management system. When teams returned from an assignment, the field coordinator(s) checked the assignment results (i.e., quickly reviewed the cards to spot any glaring performance issues) and downloaded the passenger count data from the Palm devices. Feedback and additional training were provided when errors were found in the data. If important errors persisted, staff would be relieved of their services. The field coordinator updated the assignment status in the Web-based field management system and then handed out the next assignment. Once the completed assignments were reviewed, the cards went through the in-field editing process for inspection and coding prior to being scanned.

Figure 2: Website Assignment Tool

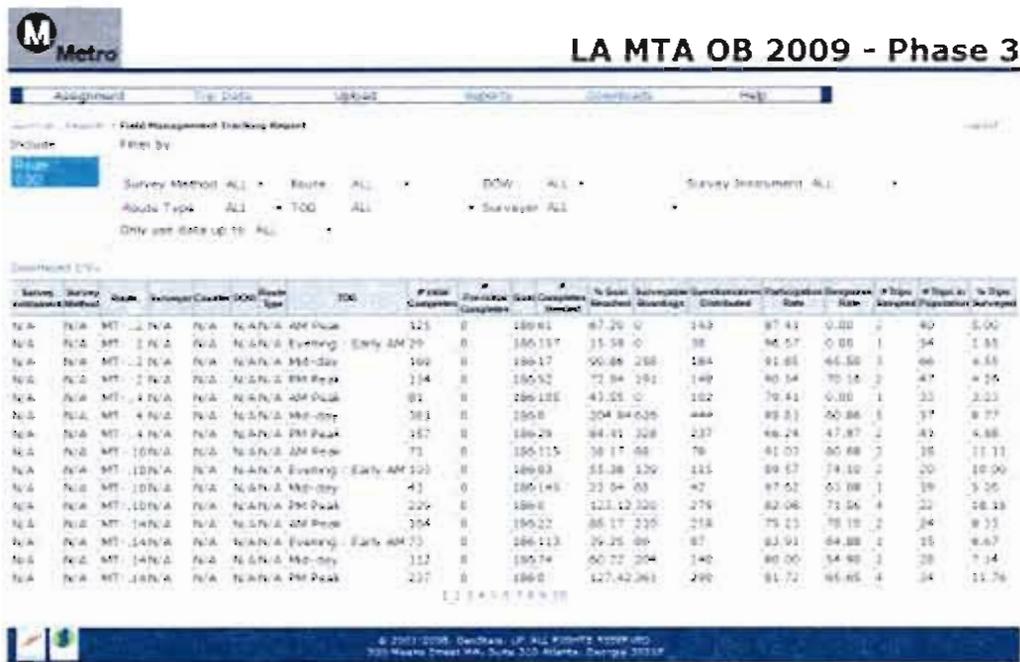
The screenshot shows the 'Website Assignment Tool' interface for LA MTA OB 2009 - Phase 3. At the top left is the Metro logo. Below it are navigation tabs: Assignment, Trip Data, Upload, Reports, Download, and Map. The main area displays filters for Routes, Directions, TODs, and Blocks, all set to 'All'. A 'Assign #' field with a 'Go' button is also present. Below the filters, there are three links: 'New Multiple Assignments (Works)', 'Download Returned Surveys', and 'Download Returned Assignments'. The central part of the screen is a large table with the following columns: Assign #, Survey Method, Total # Trips, DOW, Route, Direction, TOD, Block, Start Time, End Time, Survey Instrument Type, Surveyor, Surveyor Count, Assign Date, PRO ID, Start Survey (Assigned), End Survey (Assigned), and Done / Data downloaded. The table contains multiple rows of assignment data. At the bottom of the interface, there is a footer with copyright information: '© 2002-2008, Southern, LP. All rights reserved. 2008 Metro, Transit and Data, LLC. Metro, Southern, 2008.' There are also small icons for a printer and a refresh button.

Status Reporting

PTV NuStats uses a transparent project-specific Website to monitor all phases of the data collection effort. This critical management tool also allows PTV NuStats to share progress with Metro regarding line-level response rates, percentage of route goals completed, and surveyor-level response rates. The system integrates barcode technology to track each returned card with the specific “control file” information regarding a trip (boarding and alighting, route, direction, and time of day). The system also provides a means to track assignment completion to avoid unintentional over- or under-sampling of lines; this has proven to be a very effective schedule and cost-control mechanism. The Metro On-Board Survey project Website served as a central location for all assignment information. Reports were generated by the Website and disseminated by the PTV NuStats Project Manager for monitoring and for identifying surveying deficiencies for correction.

The surveyor manager prepared status reports from the Web-based field management system. This automated application conducted consistency checks, flagged problem records, and cleaned and purged flagged records. The field coordinator reviewed this information for accuracy in the status, response, and performance reports to the Web-based field management system.

Figure 3: Website Reporting Tool



In-Field Scanning

Following the team check-in, all returned cards were presented to the field coordinator for editing, correction, and scanning. Scanning in the field was introduced to reduce the time lag between when the card was administration and the first attempt at telephone follow-up. Prior to scanning, all cards were reviewed and sorted by language. Batches of 100 cards were created and scanned. All images were uploaded to a SQL Server located at PTV NuStats.

Sample Management, Loading, and Goals

Once sample was generated from the on-board effort, PTV NuStats` staff loaded the data into the VOXCO management software. This software allowed PTV NuStats staff to monitor specific goals using route lines, sample type, and other predetermined targets provided by Metro. The sample management software ensured strategic release of sample for dialing to maintain an acceptable freshness period for retrieving survey information, as well as manage the number of attempts made on each individual record. This level of sample management; which includes prioritization, daily assignments, and goal stratification, enabled PTV NuStats to collect the most representative trip information possible.

CATI Interview

After the card was processed, it was loaded into the CATI program to contact the respondent within 48–72 hours of administration. The personal interview allows the respondent to take the survey at their convenience, as call back times were established by the respondent if they were not available during the initial call. Additionally, the respondent had the opportunity to ask the interviewer questions, making the interviewing process transparent, which helped to put the respondent's mind at ease regarding confidential information.

PTV NuStats recognizes that interviewer training is one of the most important tasks associated with a study of this type. Interviewer training lasted 14 hours over a three-day period. The interviewer training was divided into four segments: general project information, geography training, software training, and

trip collection. At the conclusion of the training, interviewers practiced collecting travel data over 50 different mock scenarios using the CATI/TripTracer Transit program. Before an interviewer was allowed to dial on the project, they had to pass a project quiz to ensure they had a full understanding of the complexities they could encounter during the interviewing process.

Geocoding Tool

TripTracer Transit is PTV NuStats' proprietary software solution created specifically for transit on-board studies and used a transit network comprised of all transit providers and their lines in the Greater Los Angeles Region. This network was created for the Metro Survey using data provided by Metro. The transit network serves as a layer in the spatial TripTracer Transit program that allows for a rider's origin, destination, and all transit activity to be captured by assigning latitudinal and longitudinal coordinates to each location. The program allows the interviewer to validate the reasonableness of all transfer activities with the respondent-provided O/D information by calculating the distance between each point. Additionally, if the rider is unsure of the route used in his/her trip but can provide the place name, landmark, or intersection; the interviewer can research the location using the TripTracer Transit software, which was designed to display all routes at the intersection level.

Research Edit Check

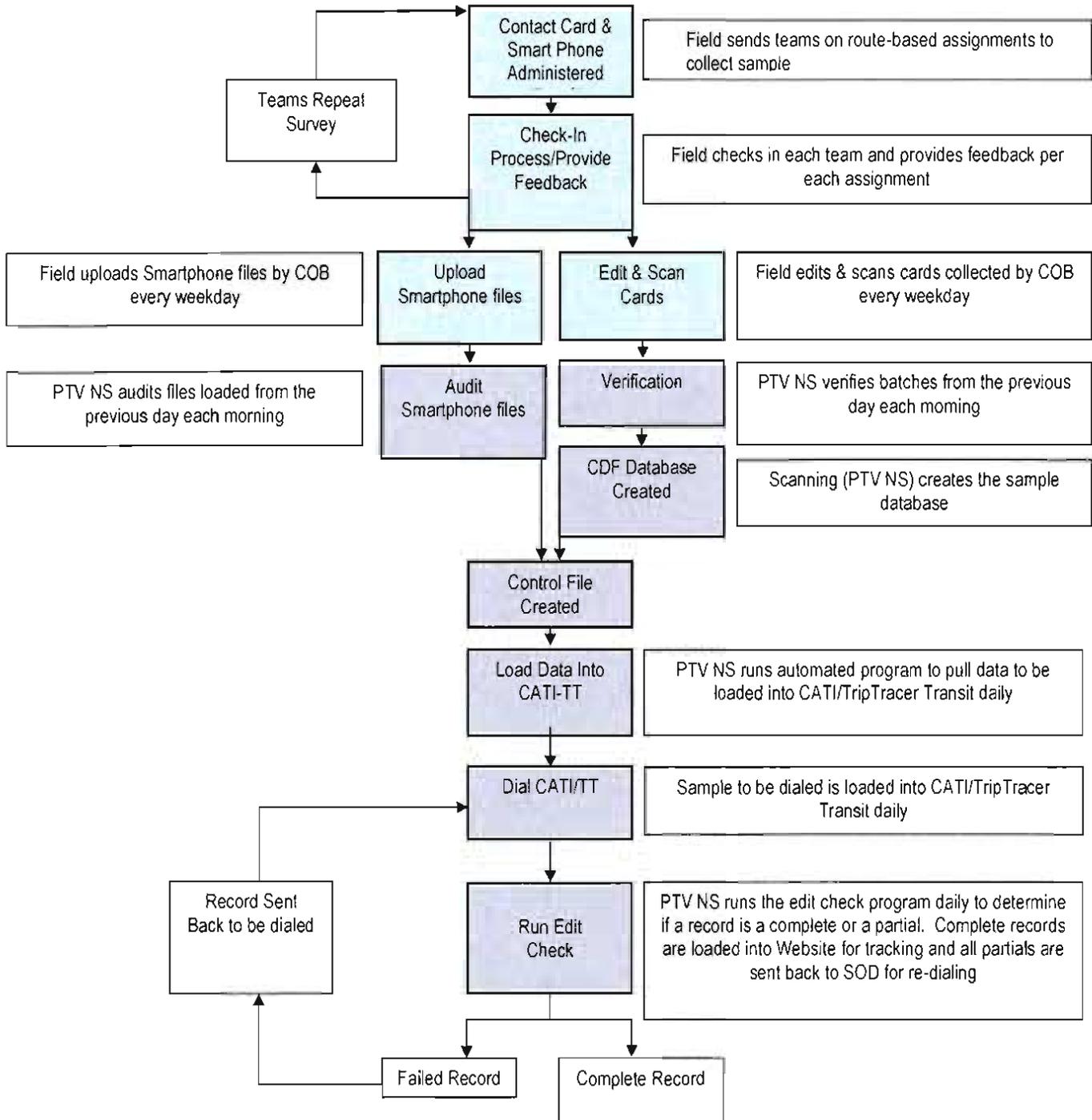
Data was required to pass both an automated and manual checks for data integrity before being delivered. Cases that did not meet the appropriate criteria were resolved prior to being delivered. The quality assurance (QA) department implemented these checks as an additional tool to ensure continued data quality.

- Interviewers are individually updated regarding each of their completed records that fail the edit check process, and receive additional QA support.
- Cumulative Edit Check results are used to determine problematic trends and initialize shift-based QA strategies to resolve them.
- Edit check statistics are used to provide the interviewer team with group-based feedback.

Survey Process Flow Chart

Figure 3 documents the various steps and conditions that occurred during the recruitment and retrieval stages of the Metro Survey.

Figure 3: Survey Process Flow Chart



KEY
 Blue – Field Work
 Purple – PTV NuStats (Austin)

Survey Issues

Surveying out of the garage caused some complications. Due to surveying out of different garages throughout the LA region, surveyors would sometimes arrive for work after the bus left due to traffic congestion. The surveyors would not know the amount of time needed to travel to a new location causing them to be tardy and miss their assignment.

Another issue that arose from surveying out of the garage was the time that bus drivers left for their shift. Assignments were created to follow driver paddles. By using the driver paddles, survey teams were scheduled to arrive 5 minutes prior to the bus driver report time. The driver report time is typically 15 minutes prior to the time the bus was supposed to leave from the garage. Throughout the project, some bus drivers would leave 30 minutes prior to the garage pull-out time. This would cause missed assignments because the survey team was not ready to be deployed.

Another issue was the need to return to garages, sometimes several times. If telephone surveying did not turn the collected card into completed surveys in a reasonable time frame, more cards had to be distributed and collected.

Transit Network Creation

One of the data elements needed to support the use of TripTracer in the collection of itineraries as part of the Metro Survey was a routable transit network that could be connected to boarding and alighting stop ids identified using the field collection procedures. Numerous agencies besides Metro operate transit service in Los Angeles County. Two sources of data were available for building the network: exports from HASTUS and a data extract from MTA's trip planner system, called TripMaster.

In order to combine these two sources of transit network data GeoStats generated non-overlapping unique stop identifiers for the TripMaster and HASTUS datasets and a uniform naming convention for the route names. This naming convention included a two letter abbreviation of the transit system followed by a dash and then a route number. The combined data set consisted of all TripMaster routes, stops, and schedules except for bus routes serviced by Metro. Data on the MTA bus routes was instead generated by processing data from the HASTUS scheduling system.

Challenges arose when using the route numbers from the HASTUS schedule as some of them consisted of "child" routes that were only known outside the scheduling system by their parents' numbers. GeoStats obtained a table from Metro that provided the mapping between child and parent route numbers and applied it to the Metro bus routes. This allowed GeoStats to generate data collection assignments that could be used in the field and also itineraries to which participants could relate.

As schedules changed through the data collection period GeoStats updated the combined network data as needed. It is worth mentioning that the majority of the updates were done through the use of "pinks". These consisted of routes and route trips that were dropped from Metro's active service. GeoStats used these to generate updated schedule files that were then used by NuStats to update TripTracer. Data from TripMaster remained stable throughout the field data collection effort and did not require updates.

Metro Bus Analysis

Table 2.1 documents the sample goals for the clustered routes that serve the Metro region.

Table 2.1: Bus Clustered Route Goals

Route	Lines	Names	Number of Lines	Goal	Cluster
MT-.2	2, 302	Pacific Palisades via Sunset Bl	2	214	MT-.2
MT-.4	4	Santa Monica via Santa Monica Bl	1	153	MT-.4
MT-.10	10	West Hollywood via Temple St & Melrose Av	1	153	MT-.10
MT-.14	14	Beverly Hills via Beverly Bl	1	153	MT-.14
MT-.16	16, 316	Century City via 3rd St	2	214	MT-.16
MT-.18	18	Montebello via 6th St & Whittier Bl	1	153	MT-.18
MT-.20	20	Santa Monica via Wilshire Bl	1	153	MT-.20
MT-.26	26, 51, 52, 352	Artesia Transit Center via Avalon Bl	4	255	MT-.26
MT-.28	28	Century City via West Olympic Bl	1	153	MT-.28
MT-.30	30	Indiana Station via Pico Bl & East 1st St	1	153	MT-.30
MT-.33	33	Santa Monica via Venice Bl	1	153	MT-.33
MT-.35	35	Washington/Fairfax Transit Hub via Washington Bl	2	214	MT-.35
MT-.37	37	Washington/Fairfax Transit Hub via Adams Bl	1	17	MT-.37
MT-.38	38	Washington/Fairfax via W. Jefferson Bl	1	153	MT-.38
MT-.40	40, 42	Galleria via King / La Tijera / Hawthorne	2	387	MT-.40
MT-.45	45	Rosewood via Broadway	1	153	MT-.45
MT-.48	48	Avalon Station via Main St & South San Pedro St	1	17	MT-.48
MT-.53	53	CSU Dominguez Hills via Central Av	1	153	MT-.53
MT-.55	55, 355	Imperial/Wilmington Station via Compton Av	2	214	MT-.55
MT-.60	60	Artesia Station via Long Beach Bl	1	153	MT-.60
MT-.62	62	Hawaiian Gardens via Telegraph Rd	1	153	MT-.62
MT-.66	66	Montebello via 8th & Olympic Bl	1	153	MT-.66
MT-.68	68, 84	Eagle Rock via Eagle Rock Bl	2	214	MT-.68
MT-.70	70	El Monte via Garvey Av	1	153	MT-.70
MT-.71	71	Cal State LA via Wobash Av & City Terrace Dr	1	153	MT-.71
MT-.76	76	El Monte via Valley Bl	1	153	MT-.76
MT-.78	78, 79, 378	Arcadia via Las Tunas Dr & Huntington Dr	3	234	MT-.78
MT-.81	81	Harbor Fwy Station via Figueroa	1	153	MT-.81
MT-.83	83	Eagle Rock via York Bl, Pasadena Av	1	153	MT-.83
MT-.90	90, 91	Sunland via Glendale Av/Foothill Bl	2	214	MT-.90
MT-.92	92	Ta Burbank Station via Glendale Bl/Brand Bl/Glenoaks Bl	1	153	MT-.92

Route	Lines	Names	Number of Lines	Goal	Cluster
MT-94	94	Sun Valley via San Fernando Rd	1	153	MT-94
MT-102	102	South Gate via Coliseum St	1	153	MT-102
MT-105	105	Vernon via La Cienega Bl & Vernon Av	1	153	MT-105
MT-108	108, 358	Pico Rivera via Slouson Av	2	214	MT-108
MT-110	110	Bell Gardens via Jefferson Bl / Gage Av	1	153	MT-110
MT-111	111, 311	Norwalk Station via Florence Av	2	214	MT-111
MT-115	115	Norwalk via Manchester, Firestone	1	153	MT-115
MT-117	117	Downey via Century Bl & Imperial Hwy	1	153	MT-117
MT-120	120	Whitwood Mall via Imperial Hwy	2	387	MT-120
MT-125	125	Norwalk Station via Rosecrans Av	1	156	MT-125
MT-126	126	Hawthorne Station via Manhattan Beach Bl	1	18	MT-126
MT-127	127	Dawney via Compton Bl & Somerset Bl	1	56	MT-127
MT-150	150, 240	Conoga Park - Universal City Station	2	214	MT-150
MT-152	152, 353	Woodland Hills - North Hollywood Station	2	214	MT-152
MT-154	154	Burbank Station via Burbank Bl & Oxnard St	1	72	MT-154
MT-155	155, 292	Burbank Station via Riverside Dr, Olive Av, Glenoaks Bl	2	255	MT-155
MT-156	156, 656	Van Nuys, Hollywood, Panorama City	2	214	MT-156
MT-158	158	Sherman Oaks via Devonshire St, Woodman Av	1	153	MT-158
MT-161	161	Warner Center via Westlake Village, Agoura Hills, Calab	1	153	MT-161
MT-163	163, 363	West Hills Medical Center - Sun Valley/North Hollywood	2	214	MT-163
MT-164	164	Burbank Station via Victory Bl	1	153	MT-164
MT-165	165	Burbank Station via Vanowen St	1	153	MT-165
MT-166	166, 364	Sun Valley via Nordhoff St, Osborne St	2	214	MT-166
MT-169	169	Sunland via Saticoy St, Sunland Bl	1	153	MT-169
MT-175	175	Hollywood via Hyperion & Fountain Aves	1	61	MT-175
MT-176	176	El Monte Station via Mission St & Mission Dr	1	96	MT-176
MT-180	180, 181	Pasadena via Los Feliz Bl & Colorado Bl	2	214	MT-180
MT-183	183	Glendale Station via Magnolia Bl	1	153	MT-183
MT-190	190, 194	Cal Poly Pomona via Ramona Bl & Volley Bl	2	214	MT-190
MT-200	200	Exposition Park via Alvarado St & Hoover St	1	153	MT-200
MT-201	201	Koreatown via Silver Lake Bl	1	99	MT-201
MT-202	202	Wilmington via Alameda St	1	31	MT-202
MT-204	204	Athens via Vermont Av	1	153	MT-204
MT-206	206	Athens via Normandie Av	1	153	MT-206
MT-207	207	Athens via Western Av	1	153	MT-207
MT-209	209	Athens via Van Ness Ave	1	69	MT-209
MT-210	210	South Bay Galleria via Crenshaw Bl	1	153	MT-210

Route	Lines	Names	Number of Lines	Goal	Cluster
MT-211	211, 215	Redondo Beach via Prairie Av, Inglewood Av	2	93	MT-211
MT-212	212, 312	Hawthorne Station via La Brea Av	2	214	MT-212
MT-217	217	Fairfax/Washington via Hollywood Bl & Fairfax Av	1	153	MT-217
MT-220	220	Culver City via Robertson Bl	1	41	MT-220
MT-222	222	Sun Valley - Hollywood	1	116	MT-222
MT-224	224	Sylmar Station -- Universal City Station	1	153	MT-224
MT-230	230	Studio City via Laurel Canyon Bl	1	153	MT-230
MT-233	233	Sherman Oaks via Von Nuys Bl	1	153	MT-233
MT-234	234	Sherman Oaks via Sepulveda Bl, Brand Bl	1	153	MT-234
MT-236	236, 237	Sylmar Station - Encino	2	214	MT-236
MT-239	239	Encino via Zeltah Av, White Oak Av	1	51	MT-239
MT-242	242, 243	Woodland Hills via Tampa Av & Winnetka Av	2	214	MT-242
MT-244	244, 245	Woodland Hills via De Soto Av/Topanga Canyon Bl	2	169	MT-244
MT-246	246, 247	Artesia Transit Center via Avalon Bl	2	213	MT-246
MT-251	251, 252	Lynwood via Soto St	2	385	MT-251
MT-258	258	Paramount via Fremont Av & Eastern Av	1	152	MT-258
MT-260	260	Artesia Blue Line Station via Fair Oaks Av & Atlantic B	1	152	MT-260
MT-264	264, 267	Duarte: Altadena / El Monte	2	213	MT-264
MT-265	265	Lakewood Center Mall via Paramount Bl	1	152	MT-265
MT-268	268	El Monte via Baldwin Av & Washington Bl	1	152	MT-268
MT-287	287	The Shops at Montebello via Tyler Av & Rush St	1	152	MT-287
MT-290	290	Sunland via Foothill Bl	1	79	MT-290
MT-305	305	Westwood, Leimert Park, Willowbrook	1	152	MT-305
MT-344	344	Palos Verdes via Hawthorne Bl	1	152	MT-344
MT-439	439	Culver City Transit Center via I-10 Fwy	1	78	MT-439
MT-442	442	Hawthorne Station via Manchester Bl.	1	38	MT-442
MT-445	445	Harbor Fwy	1	108	MT-445
MT-450	450	San Pedro via Harbor Transitway	1	65	MT-450
MT-460	460	Disneyland via Harbor Transitway & I-105 Fwy	1	152	MT-460
MT-485	485	Altadena via Fremont Av & Lake Av	1	152	MT-485
MT-487	487, 489	Sierro Madre Villa Station to El Monte Station	2	213	MT-487
MT-534	534	Washington/Fairfax Transit Hub via Pacific Coast Hwy	1	152	MT-534
MT-550	550	San Pedro via Harbor Transitway	1	152	MT-550
MT-577	577	Long Beach VA Medical Center via I-605 Fwy	1	152	MT-577
MT-611	611	Huntington Park Shuttle	1	152	MT-611
MT-612	612	South Gate Shuttle	1	152	MT-612
MT-620	620	Bayle Heights via Cesar Chavez Ave & State St.	1	59	MT-620

Route	Lines	Names	Number of Lines	Goal	Cluster
MT-645	645	Warner Center via Valley Circle Bl, Mulholland Dr	1	41	MT-645
MT-665	665	City Terrace Shuttle	1	69	MT-665
MT-685	685	Glassell Park via Verduga Rd.	1	52	MT-685
MT-687	686, 687	Alladena to Pasadena	1	152	MT-687
MT-704	704	Santa Monica via Santa Monica Bl	1	152	MT-704
MT-705	705	Vernon via La Cienega Bl	1	152	MT-705
MT-710	710	South Bay Galleria via Crenshaw Bl	1	152	MT-710
MT-720	720	Commerce via Wilshire Bl & Whittier Bl	1	152	MT-720
MT-728	728	Century City via West Olympic Bl	1	152	MT-728
MT-730	730	Pico/Rimpou via Pico Bl	1	152	MT-730
MT-733	733	Santa Monica via Venice Bl	1	152	MT-733
MT-734	734	Sylmar Station via Sepulveda Bl	1	152	MT-734
MT-740	740	Redonda Beach via Hawthorne Bl, & M. L. King Bl	1	152	MT-740
MT-741	741	Torzone via Reseda Bl	1	152	MT-741
MT-745	745	Harbor Freeway Station via Broadway	1	152	MT-745
MT-750	750	Universal City Station via Ventura Bl	1	152	MT-750
MT-751	751	Huntington Park via Solo St	1	152	MT-751
MT-754	754	Athens via Vermont Av	1	152	MT-754
MT-757	757	Crenshaw Station via Western Av	1	152	MT-757
MT-760	760	Artesia Station via Long Beach Blvd.	1	152	MT-760
MT-761	761	Westwood via Van Nuys Bl, Sepulveda Bl	1	152	MT-761
MT-762	762	Artesia Blue Line Station via Atlantic Bl	1	152	MT-762
MT-770	770	El Monte Station via Garvey & Cesar E Chavez Aves	1	152	MT-770
MT-780	780	Pasadena via Fairfax Av & Hollywood & Colorado Bl	1	152	MT-780
MT-794	794	Sylmar Station via San Fernando Rd	1	152	MT-794
MT-901	901	Metro Orange Line	1	152	MT-901
MT-910	910	Metro Silver Line	1	152	MT-910

Table 2.2 documents the sample goals and the number of completed surveys for the individual bus routes that serve the Metro region. Throughout the entirety of the bus system, 27,254 surveys were collected and processed.

Table 2.2: Bus Goals

Route Type	Route Group	Lines	Route Name	Goal	Completes
Bus	MT-.2	2, 302	Pacific Palisades via Sunset Bl	208	180
Bus	MT-.4	4	Santa Monica via Santa Monica Bl	188	162
Bus	MT-.10	10	West Hollywood via Temple St & Melrose Av	188	180
Bus	MT-.14	14	Beverly Hills via Beverly Bl	188	225
Bus	MT-.16	16, 316	Century City via 3rd St	208	192
Bus	MT-.18	18	Montebella via 6th St & Whittier Bl	188	363
Bus	MT-.20	20	Santa Monica via Wilshire Bl	188	207
Bus	MT-.26	26, 51, 52, 352	Artesia Transit Center via Avalon Bl	248	999
Bus	MT-.28	28	Century City via West Olympic Bl	188	245
Bus	MT-.30	30	Indiana Station via Pico Bl & East 1st St	188	198
Bus	MT-.33	33	Santa Monica via Venice Bl	188	214
Bus	MT-.35	35	Washington/Fairfax Transit Hub via Washington Bl	208	430
Bus	MT-.37	37	Washington/Fairfax Transit Hub via Adams Bl	20	133
Bus	MT-.38	38	Washington/Fairfax via W. Jefferson Bl	188	242
Bus	MT-.40	40, 42	Galleria via King / La Tijera / Hawthorne	376	341
Bus	MT-.45	45	Rosewood via Broadway	188	208
Bus	MT-.48	48	Avalon Station via Main St & South San Pedro St	20	251
Bus	MT-.53	53	CSU Dominguez Hills via Central Av	188	413
Bus	MT-.55	55, 355	Imperial/Wilmington Station via Compton Av	208	323
Bus	MT-.60	60	Artesia Station via Long Beach Bl	188	351
Bus	MT-.62	62	Hawaiian Gardens via Telegraph Rd	188	218
Bus	MT-.66	66	Montebello via 8th & Olympic Bl	188	223
Bus	MT-.68	68, 84	Eagle Rock via Eagle Rock Bl	208	283
Bus	MT-.70	70	El Monte via Garvey Av	188	148
Bus	MT-.71	71	Cal State LA via Wabash Av & City Terrace Dr	188	147
Bus	MT-.76	76	El Monte via Valley Bl	188	204
Bus	MT-.78	78, 79, 378	Arcadia via Los Tunas Dr & Huntington Dr	228	297
Bus	MT-.81	81	Harbor Fwy Station via Figueroa	188	327
Bus	MT-.83	83	Eagle Rock via York Bl, Pasadena Av	188	198
Bus	MT-.90	90, 91	Sunland via Glendale Av/Foothill Bl	208	186
Bus	MT-.92	92	Ta Burbank Station via Glendale Bl/Brand Bl/Glenoaks Bl	188	263

Route Type	Route Group	Lines	Route Name	Goal	Completes
Bus	MT-94	94	Sun Valley via San Fernando Rd	188	194
Bus	MT-102	102	South Gate via Coliseum St	188	336
Bus	MT-105	105	Vernon via La Cienega Bl & Vernon Av	188	330
Bus	MT-108	108, 358	Pico Rivera via Slauson Av	208	183
Bus	MT-110	110	Bell Gardens via Jefferson Bl / Gage Av	188	214
Bus	MT-111	111, 311	Norwalk Station via Florence Av	208	269
Bus	MT-115	115	Norwalk via Manchester, Firestone	188	192
Bus	MT-117	117	Downey via Century Bl & Imperial Hwy	188	182
Bus	MT-120	120	Whittwood Mall via Imperial Hwy	376	322
Bus	MT-126	126	Howthome Station via Manhattan Beach Bl	21	22
Bus	MT-127	127	Downey via Compton Bl & Somerset Bl	68	48
Bus	MT-150	150, 240	Canoga Park - Universal City Station	208	214
Bus	MT-152	152, 353	Woodland Hills - North Hollywood Station	208	208
Bus	MT-154	154	Burbank Station via Burbank Bl & Oxnard St	88	33
Bus	MT-155	155, 292	Burbank Station via Riverside Dr, Olive Av, Glenoaks Bl	248	209
Bus	MT-156	156, 656	Van Nuys, Hollywood, Panorama City	208	122
Bus	MT-158	158	Sherman Oaks via Devonshire St, Woodman Av	188	241
Bus	MT-161	161	Warner Center via Westlake Village, Agoura Hills, Calab	188	172
Bus	MT-163	163, 363	West Hills Medical Center - Sun Valley/North Hollywood	208	233
Bus	MT-164	164	Burbank Station via Victory Bl	188	198
Bus	MT-165	165	Burbank Station via Vanowen St	188	207
Bus	MT-166	166, 364	Sun Valley via Nordhoff St, Osborne St	208	243
Bus	MT-169	169	Sunland via Saticay St, Sunland Bl	188	264
Bus	MT-175	175	Hollywood via Hyperion & Fountain Avs	75	79
Bus	MT-176	176	El Monte Station via Mission St & Mission Dr	118	117
Bus	MT-180	180, 181	Pasadena via Los Feliz Bl & Colorado Bl	208	284
Bus	MT-183	183	Glendale Station via Magnolia Bl	188	114
Bus	MT-190	190, 194	Cal Poly Pomona via Ramona Bl & Valley Bl	208	237
Bus	MT-200	200	Exposition Park via Alvarado St & Hoover St	188	284
Bus	MT-201	201	Koreatown via Silver Lake Bl	121	219
Bus	MT-202	202	Wilmington via Alameda St	38	24
Bus	MT-204	204	Athens via Vermont Av	188	191
Bus	MT-206	206	Athens via Normandie Av	188	154
Bus	MT-207	207	Athens via Western Av	188	220
Bus	MT-209	209	Athens via Van Ness Ave	85	102
Bus	MT-210	210	South Bay Galleria via Crenshaw Bl	188	178

Route Type	Route Group	Lines	Route Name	Goal	Completes
Bus	MT-211	211, 215	Redondo Beach via Prairie Av, Inglewood Av	91	64
Bus	MT-212	212, 312	Hawthorne Station via La Brea Av	208	234
Bus	MT-217	217	Fairfax/Washington via Hollywood Bl & Fairfax Av	188	242
Bus	MT-220	220	Culver City via Robertson Bl	50	62
Bus	MT-222	222	Sun Valley - Hollywood	143	143
Bus	MT-224	224	Sylmar Station – Universal City Station	188	278
Bus	MT-230	230	Studio City via Laurel Canyon Bl	188	194
Bus	MT-233	233	Sherman Oaks via Van Nuys Bl	188	191
Bus	MT-234	234	Sherman Oaks via Sepulveda Bl, Brand Bl	188	230
Bus	MT-236	236, 237	Sylmar Station - Encino	208	260
Bus	MT-239	239	Encino via Zelzah Av, White Oak Av	62	67
Bus	MT-242	242, 243	Woodland Hills via Tampa Av & Winnetka Av	208	164
Bus	MT-244	244, 245	Woodland Hills via De Soto Av/Topanga Canyon Bl	207	233
Bus	MT-246	246, 247	Artesia Transit Center via Avalon Bl	207	105
Bus	MT-251	251, 252	Lynwood via Sota St	374	554
Bus	MT-258	258	Paramount via Fremont Av & Eastern Av	187	227
Bus	MT-260	260	Artesia Blue Line Station via Fair Oaks Av & Atlantic Bl	187	198
Bus	MT-264	264, 267	Duarte: Altadena / El Monte	207	197
Bus	MT-265	265	Lakewood Center Mall via Paramount Bl	187	259
Bus	MT-268	268	El Monte via Baldwin Av & Washington Bl	187	129
Bus	MT-287	287	The Shops at Montebrillo via Tyler Av & Rush St	187	101
Bus	MT-290	290	Sunland via Foothill Bl	97	119
Bus	MT-305	305	Westwood, Leimert Park, Willowbrook	187	224
Bus	MT-344	344	Polas Verdes via Hawthorne Bl	187	163
Bus	MT-439	439	Culver City Transit Center via I-10 Fwy	95	37
Bus	MT-442	442	Hawthorne Station via Manchester Bl	22	33
Bus	MT-445	445	Harbor Fwy	133	106
Bus	MT-450	450	San Pedro via Harbor Transitway	80	46
Bus	MT-460	460	Disneyland via Harbor Transitway & I-105 Fwy	187	196
Bus	MT-485	485	Altadena via Fremont Av & Lake Av	187	294
Bus	MT-487	487, 489	Sierra Madre Villa Station to El Monte Station	207	221
Bus	MT-534	534	Washington/Fairfax Transit Hub via Pacific Coast Hwy	187	210
Bus	MT-550	550	San Pedro via Harbor Transitway	187	192
Bus	MT-577	577	Long Beach VA Medical Center via I-605 Fwy	187	147
Bus	MT-611	611	Huntington Park Shuttle	187	244
Bus	MT-612	612	South Gate Shuttle	187	289

Route Type	Route Group	Lines	Route Name	Goal	Completes
Bus	MT-620	620	Bayview Heights via Cesar Chavez Ave & State St.	72	85
Bus	MT-645	645	Warner Center via Valley Circle Bl, Mulholland Dr	50	39
Bus	MT-665	665	City Terrace Shuttle	85	88
Bus	MT-685	685	Glassell Park via Verdugo Rd.	63	110
Bus	MT-687	686, 687	Alladena to Pasadena	187	151
Bus	MT-704	704	Santa Monica via Santa Monica Bl	187	252
Bus	MT-705	705	Vernon via La Cienega Bl	187	266
Bus	MT-710	710	South Bay Galleria via Crenshaw Bl	187	166
Bus	MT-720	720	Commerce via Wishire Bl & Whittier Bl	187	287
Bus	MT-728	728	Century City via West Olympic Bl	187	248
Bus	MT-730	730	Pico/Rimpau via Pico Bl	187	185
Bus	MT-733	733	Santa Monica via Venice Bl	187	169
Bus	MT-734	734	Sylmar Station via Sepulveda Bl	187	164
Bus	MT-740	740	Redondo Beach via Hawthorne Bl. & M. L. King Bl	187	163
Bus	MT-741	741	Tarzana via Reseda Bl	187	303
Bus	MT-745	745	Harbor Freeway Station via Broadway	187	235
Bus	MT-750	750	Universal City Station via Ventura Bl	187	216
Bus	MT-751	751	Huntington Park via Solo St	187	268
Bus	MT-754	754	Athens via Vermont Av	187	163
Bus	MT-757	757	Crenshaw Station via Western Av	187	197
Bus	MT-760	760	Artesia Station via Long Beach Blvd.	187	279
Bus	MT-761	761	Westwood via Van Nuys Bl, Sepulveda Bl	187	185
Bus	MT-762	762	Artesia Blue Line Station via Atlantic Bl	187	164
Bus	MT-770	770	El Monte Station via Garvey & Cesar E Chavez Aves	187	155
Bus	MT-780	780	Pasadena via Fairfax Av & Hollywood & Colorado Bl	187	290
Bus	MT-794	794	Sylmar Station via San Fernando Rd	187	202
Bus	MT-901	901	Metro Orange Line	187	210
Bus	MT-910	910	Metro Silver Line	187	171
Total				23,121	27,254

A cross-tabulation of line by time of day demonstrates the number of observations collected for the Metro bus routes. The bus system was evenly sampled by time of day with a two percentage point difference between AM peak period (32 percent) and PM peak period (34 percent). Twenty-four percent of all trips were surveyed during the Mid-Day period.

Table 2.3: Cross-Tabulation of Line by Time of Day

Route Group	Lines	Time of Day								Total
		AM Peak		Mid-Day		PM Peak		Eve/Early AM		
		N	%	N	%	N	%	N	%	
MT-.2	2, 302	47	26%	63	35%	62	34%	8	4%	180
MT-.4	4	25	15%	87	54%	50	31%	-	-	162
MT-.10	10	31	17%	16	9%	99	55%	34	19%	180
MT-.14	14	67	30%	46	20%	91	40%	21	9%	225
MT-.16	16, 316	49	26%	108	56%	35	18%	-	-	192
MT-.18	18	112	31%	131	36%	120	33%	-	-	363
MT-.20	20	46	22%	46	22%	95	46%	20	10%	207
MT-.26	26, 51, 52, 352	452	45%	291	29%	201	20%	55	6%	999
MT-.28	28	101	41%	55	22%	89	36%	-	-	245
MT-.30	30	75	38%	-	-	109	55%	14	7%	198
MT-.33	33	59	28%	95	44%	52	24%	8	4%	214
MT-.35	35	63	15%	210	49%	127	30%	30	7%	430
MT-.37	37	66	50%	-	-	52	39%	15	11%	133
MT-.38	38	73	30%	56	23%	106	44%	7	3%	242
MT-.40	40, 42	112	33%	70	21%	124	36%	35	10%	341
MT-.45	45	83	40%	-	-	121	58%	4	2%	208
MT-.48	48	80	32%	81	32%	64	25%	26	10%	251
MT-.53	53	180	44%	77	19%	126	31%	30	7%	413
MT-.55	55, 355	111	34%	79	24%	126	39%	7	2%	323
MT-.60	60	83	24%	78	22%	180	51%	10	3%	351
MT-.62	62	87	40%	86	39%	31	14%	14	6%	218
MT-.66	66	50	22%	24	11%	116	52%	33	15%	223
MT-.68	68, 84	86	30%	113	40%	80	28%	4	1%	283
MT-.70	70	33	22%	61	41%	39	26%	15	10%	148
MT-.71	71	49	33%	65	44%	26	18%	7	5%	147
MT-.76	76	65	32%	74	36%	62	30%	3	1%	204
MT-.78	78, 79, 378	81	27%	100	34%	108	36%	8	3%	297
MT-.81	81	142	43%	72	22%	113	35%	-	-	327
MT-.83	83	65	33%	28	14%	81	41%	24	12%	198

Route Group	Lines	Time of Day								Total
		AM Peak		Mid-Day		PM Peak		Eve/Early AM		
		N	%	N	%	N	%	N	%	
MT-90	90, 91	33	18%	54	29%	72	39%	27	15%	186
MT-92	92	88	33%	63	24%	68	26%	44	17%	263
MT-94	94	102	53%	17	9%	36	19%	39	20%	194
MT-102	102	79	24%	149	44%	70	21%	38	11%	336
MT-105	105	96	29%	100	30%	114	35%	20	6%	330
MT-108	108, 358	106	58%	26	14%	51	28%	-	-	183
MT-110	110	78	36%	93	43%	43	20%	-	-	214
MT-111	111, 311	81	30%	46	17%	111	41%	31	12%	269
MT-115	115	46	24%	46	24%	83	43%	17	9%	192
MT-117	117	32	18%	68	37%	82	45%	-	-	182
MT-120	120	77	24%	83	26%	113	35%	49	15%	322
MT-126	126	22	100%	-	-	-	-	-	-	22
MT-127	127	-	-	21	44%	27	56%	-	-	48
MT-150	150, 240	133	62%	34	16%	17	8%	30	14%	214
MT-152	152, 353	37	18%	130	63%	34	16%	7	3%	208
MT-154	154	-	-	12	36%	21	64%	-	-	33
MT-155	155, 292	91	44%	47	22%	58	28%	13	6%	209
MT-156	156, 656	47	39%	10	8%	54	44%	11	9%	122
MT-158	158	50	21%	82	34%	96	40%	13	5%	241
MT-161	161	65	38%	41	24%	42	24%	24	14%	172
MT-163	163, 363	36	15%	55	24%	107	46%	35	15%	233
MT-164	164	32	16%	45	23%	61	31%	60	30%	198
MT-165	165	54	26%	54	26%	56	27%	43	21%	207
MT-166	166, 364	59	24%	61	25%	93	38%	30	12%	243
MT-169	169	95	36%	84	32%	76	29%	9	3%	264
MT-175	175	54	68%	10	13%	15	19%	-	-	79
MT-176	176	37	32%	32	27%	41	35%	7	6%	117
MT-180	180, 181	92	32%	83	29%	82	29%	27	10%	284
MT-183	183	46	40%	16	14%	52	46%	-	-	114
MT-190	190, 194	83	35%	77	32%	69	29%	8	3%	237
MT-200	200	71	25%	42	15%	153	54%	18	6%	284
MT-201	201	74	34%	74	34%	61	28%	10	5%	219
MT-202	202	5	21%	-	-	17	71%	2	8%	24
MT-204	204	54	28%	21	11%	92	48%	24	13%	191
MT-206	206	110	71%	2	1%	16	10%	26	17%	154

Route Group	Lines	Time of Day								Total
		AM Peak		Mid-Day		PM Peak		Eve/Early AM		
		N	%	N	%	N	%	N	%	
MT-207	207	74	34%	28	13%	95	43%	23	10%	220
MT-209	209	18	18%	25	25%	54	53%	5	5%	102
MT-210	210	71	40%	64	36%	43	24%	-	-	178
MT-211	211, 215	34	53%	-	-	30	47%	-	-	64
MT-212	212, 312	52	22%	15	6%	115	49%	52	22%	234
MT-217	217	32	13%	80	33%	115	48%	15	6%	242
MT-220	220	23	37%	21	34%	16	26%	2	3%	62
MT-222	222	26	18%	14	10%	86	60%	17	12%	143
MT-224	224	77	28%	98	35%	58	21%	45	16%	278
MT-230	230	73	38%	39	20%	77	40%	5	3%	194
MT-233	233	19	10%	76	40%	93	49%	3	2%	191
MT-234	234	120	52%	53	23%	18	8%	39	17%	230
MT-236	236, 237	92	35%	47	18%	91	35%	30	12%	260
MT-239	239	33	49%	3	4%	31	46%	-	-	67
MT-242	242, 243	102	62%	-	-	46	28%	16	10%	164
MT-244	244, 245	45	19%	33	14%	94	40%	61	26%	233
MT-246	246, 247	27	26%	12	11%	44	42%	22	21%	105
MT-251	251, 252	193	35%	109	20%	193	35%	59	11%	554
MT-258	258	74	33%	69	30%	66	29%	18	8%	227
MT-260	260	57	29%	63	32%	36	18%	42	21%	198
MT-264	264, 267	62	31%	61	31%	72	37%	2	1%	197
MT-265	265	84	32%	57	22%	90	35%	28	11%	259
MT-268	268	42	33%	45	35%	34	26%	8	6%	129
MT-287	287	25	25%	35	35%	40	40%	1	1%	101
MT-290	290	-	-	42	35%	76	64%	1	1%	119
MT-305	305	72	32%	42	19%	88	39%	22	10%	224
MT-344	344	66	40%	11	7%	65	40%	21	13%	163
MT-439	439	19	51%	8	22%	7	19%	3	8%	37
MT-442	442	18	55%	-	-	10	30%	5	15%	33
MT-445	445	43	41%	14	13%	27	25%	22	21%	106
MT-450	450	29	63%	-	-	17	37%	-	-	46
MT-460	460	65	33%	82	42%	31	16%	18	9%	196
MT-485	485	99	34%	91	31%	92	31%	12	4%	294
MT-487	487, 489	78	35%	61	28%	70	32%	12	5%	221
MT-534	534	30	14%	40	19%	74	35%	66	31%	210

Route Group	Lines	Time of Day								Total
		AM Peak		Mid-Day		PM Peak		Eve/Early AM		
		N	%	N	%	N	%	N	%	
MT-550	550	72	38%	57	30%	40	21%	23	12%	192
MT-577	577	52	35%	41	28%	46	31%	8	5%	147
MT-611	611	116	48%	37	15%	56	23%	35	14%	244
MT-612	612	112	39%	115	40%	43	15%	19	7%	289
MT-620	620	15	18%	48	56%	16	19%	6	7%	85
MT-645	645	21	54%	7	18%	11	28%	-	-	39
MT-665	665	40	45%	3	3%	42	48%	3	3%	88
MT-685	685	29	26%	21	19%	54	49%	6	5%	110
MT-687	686, 687	46	30%	39	26%	60	40%	6	4%	151
MT-704	704	104	41%	54	21%	94	37%	-	-	252
MT-705	705	157	59%	36	14%	54	20%	19	7%	266
MT-710	710	27	16%	54	33%	59	36%	26	16%	166
MT-720	720	110	38%	63	22%	114	40%	-	-	287
MT-728	728	82	33%	60	24%	99	40%	7	3%	248
MT-730	730	98	53%	27	15%	49	26%	11	6%	185
MT-733	733	56	33%	10	6%	74	44%	29	17%	169
MT-734	734	67	41%	-	-	74	45%	23	14%	164
MT-740	740	64	39%	-	-	67	41%	32	20%	163
MT-741	741	61	20%	122	40%	114	38%	6	2%	303
MT-745	745	69	29%	29	12%	120	51%	17	7%	235
MT-750	750	84	39%	34	16%	80	37%	18	8%	216
MT-751	751	67	25%	50	19%	146	54%	5	2%	268
MT-754	754	78	48%	-	-	85	52%	-	-	163
MT-757	757	159	81%	14	7%	24	12%	-	-	197
MT-760	760	87	31%	54	19%	87	31%	51	18%	279
MT-761	761	20	11%	47	25%	91	49%	27	15%	185
MT-762	762	42	26%	33	20%	58	35%	31	19%	164
MT-770	770	66	43%	30	19%	56	36%	3	2%	155
MT-780	780	123	42%	59	20%	84	29%	24	8%	290
MT-794	794	93	46%	37	18%	40	20%	32	16%	202
MT-901	901	-	-	42	20%	164	78%	4	2%	210
MT-910	910	45	26%	35	20%	72	42%	19	11%	171
Total		8,974	33%	6,686	25%	9,335	34%	2,259	8%	27,254

Table 2.4 lists the cumulative response rates for the bus effort. The final response rate for bus collection was 24 percent. Route 202 (Wilmington via Alameda St) had the highest response rate at 89 percent, while route 901 (the Metro Orange Line) had the lowest response rate at 11 percent.

Table 2.4: Bus Response Rates

Route Type	Route Group	Lines	Route Name	Surveyable Boardings	Completes	Response Rate
Bus	MT-.2	2, 302	Pacific Palisades via Sunset Bl	449	180	40%
Bus	MT-.4	4	Santa Monica via Santa Monica Bl	954	162	17%
Bus	MT-.10	10	West Hollywood via Temple St & Melrose Av	612	180	29%
Bus	MT-.14	14	Beverly Hills via Beverly Bl	861	225	26%
Bus	MT-.16	16, 316	Century City via 3rd St	932	192	21%
Bus	MT-.18	18	Mantebello via 6th St & Whittier Bl	1,310	363	28%
Bus	MT-.20	20	Santa Monica via Wilshire Bl	869	207	24%
Bus	MT-.26	26, 51, 52, 252	Artesia Transit Center via Avalon Bl	3,717	999	27%
Bus	MT-.28	28	Century City via West Olympic Bl	1,183	245	21%
Bus	MT-.30	30	Indiana Station via Pico Bl & East 1st St	339	198	58%
Bus	MT-.33	33	Santa Monica via Venice Bl	697	214	31%
Bus	MT-.35	35	Washington/Fairfax Transit Hub via Washington Bl	2,216	430	19%
Bus	MT-.37	37	Washington/Fairfax Transit Hub via Adams Bl	575	133	23%
Bus	MT-.38	38	Washington/Fairfax via W. Jefferson Bl	1,099	242	22%
Bus	MT-.40	40, 42	Galleria via King / La Tijera / Hawthorne	1,435	341	24%
Bus	MT-.45	45	Rosewood via Broadway	786	208	26%
Bus	MT-.48	48	Avalon Station via Main St & South San Pedro St	935	251	27%
Bus	MT-.53	53	CSU Dominguez Hills via Central Av	1,268	413	33%
Bus	MT-.55	55, 355	Imperial/Wilmington Station via Compton Av	904	323	36%
Bus	MT-.60	60	Artesia Station via Long Beach Bl	1,266	351	28%
Bus	MT-.62	62	Hawaiian Gardens via Telegraph Rd	759	218	29%
Bus	MT-.66	66	Mantebello via 8th & Olympic Bl	919	223	24%
Bus	MT-.68	68, 84	Eagle Rock via Eagle Rock Bl	1,416	283	20%
Bus	MT-.70	70	El Monte via Garvey Av	782	148	19%
Bus	MT-.71	71	Cal State LA via Wabash Av & City Terrace Dr	512	147	29%
Bus	MT-.76	76	El Monte via Valley Bl	1,326	204	15%
Bus	MT-.78	78, 79, 378	Arcadia via Los Tunas Dr & Huntington Dr	2,033	297	15%
Bus	MT-.81	81	Harbor Fwy Station via Figueroa	1,488	327	22%
Bus	MT-.83	83	Eagle Rock via York Bl, Pasadena Av	900	198	22%
Bus	MT-.90	90, 91	Sunland via Glendale Av/Foothill Bl	937	186	20%
Bus	MT-.92	92	To Burbank Station via Glendale Bl/Brand Bl/Glenoaks Bl	840	263	31%

Route Type	Route Group	Lines	Route Name	Surveyable Boardings	Completes	Response Rate
Bus	MT-94	94	Sun Valley via San Fernando Rd	1,320	194	15%
Bus	MT-102	102	South Gate via Coliseum St	1,128	336	30%
Bus	MT-105	105	Vernon via La Cienega Bl & Vernon Av	1,223	330	27%
Bus	MT-108	108, 358	Pico Rivera via Slouson Av	734	183	25%
Bus	MT-110	110	Bell Gardens via Jefferson Bl / Gage Av	828	214	26%
Bus	MT-111	111, 311	Norwalk Station via Florence Av	1,058	269	25%
Bus	MT-115	115	Norwalk via Manchester, Firestone	641	192	30%
Bus	MT-117	117	Downey via Century Bl & Imperial Hwy	518	182	35%
Bus	MT-120	120	Whittwood Mall via Imperial Hwy	1,192	322	27%
Bus	MT-126	126	Hawthorne Station via Manhattan Beach Bl	46	22	48%
Bus	MT-127	127	Downey via Compton Bl & Somerset Bl	141	48	34%
Bus	MT-150	150, 240	Canoga Park - Universal City Station	1,016	214	21%
Bus	MT-152	152, 353	Woodland Hills - North Hollywood Station	1,105	208	19%
Bus	MT-154	154	Burbank Station via Burbank Bl & Oxnard St	191	33	17%
Bus	MT-155	155, 292	Burbank Station via Riverside Dr, Olive Av, Glenooks Bl	619	209	34%
Bus	MT-156	156, 656	Van Nuys, Hollywood, Panorama City	329	122	37%
Bus	MT-158	158	Sherman Oaks via Devonshire St, Woodman Av	920	241	26%
Bus	MT-161	161	Warner Center via Westlake Village, Agoura Hills, Calab	808	172	21%
Bus	MT-163	163, 363	West Hills Medical Center - Sun Valley/North Hollywood	1,261	233	18%
Bus	MT-164	164	Burbank Station via Victory Bl	1,323	198	15%
Bus	MT-165	165	Burbank Station via Vanowen St	1,049	207	20%
Bus	MT-166	166, 364	Sun Valley via Nordhoff St, Osborne St	1,058	243	23%
Bus	MT-169	169	Sunland via Saticoy St, Sunland Bl	1,184	264	22%
Bus	MT-175	175	Hollywood via Hyperion & Fountain Aves	312	79	25%
Bus	MT-176	176	El Monte Station via Mission St & Mission Dr	486	117	24%
Bus	MT-180	180, 181	Pasadena via Los Feliz Bl & Colorado Bl	986	284	29%
Bus	MT-183	183	Glendale Station via Magnolia Bl	392	114	29%
Bus	MT-190	190, 194	Cal Poly Pomona via Ramona Bl & Valley Bl	1,308	237	18%
Bus	MT-200	200	Exposition Park via Alvarado St & Hoover St	1,561	284	18%
Bus	MT-201	201	Koreatown via Silver Lake Bl	837	219	26%
Bus	MT-202	202	Wilmington via Alameda St	27	24	89%
Bus	MT-204	204	Athens via Vermont Av	877	191	22%
Bus	MT-206	206	Athens via Normandie Av	1,163	154	13%
Bus	MT-207	207	Athens via Western Av	1,355	220	16%
Bus	MT-209	209	Athens via Van Ness Ave	346	102	29%

Route Type	Route Group	Lines	Route Name	Surveyable Boardings	Completes	Response Rate
Bus	MT-210	210	South Bay Galleria via Crenshaw Bl	699	178	25%
Bus	MT-211	211, 215	Redondo Beach via Prairie Av, Inglewood Av	188	64	34%
Bus	MT-212	212, 312	Hawthorne Station via La Brea Av	1,124	234	21%
Bus	MT-217	217	Fairfax/Washington via Hollywood Bl & Fairfax Av	1,631	242	15%
Bus	MT-220	220	Culver City via Robertson Bl	106	62	58%
Bus	MT-222	222	Sun Valley - Hollywood	668	143	21%
Bus	MT-224	224	Sylmar Station – Universal City Station	1,155	278	24%
Bus	MT-230	230	Studio City via Laurel Canyon Bl	1,010	194	19%
Bus	MT-233	233	Sherman Oaks via Van Nuys Bl	695	191	27%
Bus	MT-234	234	Sherman Oaks via Sepulveda Bl, Brand Bl	594	230	39%
Bus	MT-236	236, 237	Sylmar Station - Encino	1,027	260	25%
Bus	MT-239	239	Encino via Zelzah Av, White Oak Av	178	67	38%
Bus	MT-242	242, 243	Woodland Hills via Tampo Av & Winnetka Av	368	164	45%
Bus	MT-244	244, 245	Woodland Hills via De Soto Av/Topanga Canyon Bl	1,117	233	21%
Bus	MT-246	246, 247	Artesia Transit Center via Avalon Bl	347	105	30%
Bus	MT-251	251, 252	Lynwood via Soto St	2,844	554	19%
Bus	MT-258	258	Paramount via Fremont Av & Eastern Av	703	227	32%
Bus	MT-260	260	Artesia Blue Line Station via Fair Oaks Av & Atlantic Bl	956	198	21%
Bus	MT-264	264, 267	Duarte; Alladeno / El Monte	785	197	25%
Bus	MT-265	265	Lakewood Center Mall via Paramount Bl	557	259	46%
Bus	MT-268	268	El Monte via Baldwin Av & Washington Bl	842	129	15%
Bus	MT-287	287	The Shops at Montebello via Tyler Av & Rush St	289	101	35%
Bus	MT-290	290	Sunland via Foothill Bl	723	119	16%
Bus	MT-305	305	Westwood, Leimert Park, Willowbrook	641	224	35%
Bus	MT-344	344	Palos Verdes via Hawthorne Bl	662	163	25%
Bus	MT-439	439	Culver City Transit Center via I-10 Fwy	126	37	29%
Bus	MT-442	442	Hawthorne Station via Manchester Bl.	82	33	40%
Bus	MT-445	445	Harbor Fwy	328	106	32%
Bus	MT-450	450	San Pedro via Harbor Transitway	146	46	32%
Bus	MT-460	460	Disneyland via Harbor Transitway & I-105 Fwy	674	196	29%
Bus	MT-485	485	Alladeno via Fremont Av & Lake Av	1,107	294	27%
Bus	MT-487	487, 489	Sierra Madre Villa Station to El Monte Station	868	221	25%
Bus	MT-534	534	Washington/Fairfax Transit Hub via Pacific Coast Hwy	1,152	210	18%
Bus	MT-550	550	San Pedro via Harbor Transitway	640	192	30%
Bus	MT-577	577	Long Beach VA Medical Center via I-605 Fwy	702	147	21%
Bus	MT-611	611	Huntington Park Shuttle	811	244	30%

Route Type	Route Group	Lines	Route Name	Surveyable Boardings	Completes	Response Rate
Bus	MT-612	612	South Gate Shuttle	825	289	35%
Bus	MT-620	620	Boyle Heights via Cesar Chavez Ave & State St.	131	85	65%
Bus	MT-645	645	Warner Center via Valley Circle Bl, Mulholland Dr	141	39	28%
Bus	MT-665	665	City Terrace Shuttle	258	88	34%
Bus	MT-685	685	Glaseell Park via Verduga Rd.	417	110	26%
Bus	MT-687	686, 687	Altadena to Pasadena	630	151	24%
Bus	MT-704	704	Santa Monica via Santa Monica Bl	906	252	28%
Bus	MT-705	705	Vernon via La Cienega Bl	1,226	266	22%
Bus	MT-710	710	South Bay Galleria via Crenshaw Bl	257	166	65%
Bus	MT-720	720	Commerce via Wilshire Bl & Whittier Bl	945	287	30%
Bus	MT-728	728	Century City via West Olympic Bl	1,246	248	20%
Bus	MT-730	730	Pico/Rimpau via Pico Bl	615	185	30%
Bus	MT-733	733	Santa Monica via Venice Bl	620	169	27%
Bus	MT-734	734	Sylmar Station via Sepulveda Bl	681	164	24%
Bus	MT-740	740	Redondo Beach via Hawthorne Bl, & M. L. King Bl	528	163	31%
Bus	MT-741	741	Tarzana via Reseda Bl	1,259	303	24%
Bus	MT-745	745	Harbor Freeway Station via Broadway	580	235	41%
Bus	MT-750	750	Universal City Station via Ventura Bl	956	216	23%
Bus	MT-751	751	Huntington Park via Soto St	1,214	268	22%
Bus	MT-754	754	Athens via Vermont Av	799	163	20%
Bus	MT-757	757	Crenshaw Station via Western Av	819	197	24%
Bus	MT-760	760	Artesia Station via Long Beach Blvd.	839	279	33%
Bus	MT-761	761	Westwood via Van Nuys Bl, Sepulveda Bl	1,318	185	14%
Bus	MT-762	762	Artesia Blue Line Station via Atlantic Bl	696	164	24%
Bus	MT-770	770	El Monte Station via Garvey & Cesar E Chavez Aves	749	155	21%
Bus	MT-780	780	Pasadena via Fairfax Av & Hollywood & Colorado Bl	1,077	290	27%
Bus	MT-794	794	Sylmar Station via San Fernando Rd	651	202	31%
Bus	MT-901	901	Metro Orange Line	1,892	210	11%
Bus	MT-910	910	Metro Silver Line	899	171	19%
Total				113,380	27,254	24%

Table 2.5 documents the usable route observations and the bus population; it was expanded based on ridership figures from fiscal year 2010. Bus data were weighted and expanded to a total population of 1,119,284 from the 27,254 pieces of sample collected.

Table 2.5: Expansion of Bus Route Data

Route Type	Cluster Group	Total Usable Records	Total Expanded Data
Bus	MT-.2	180	21,141
Bus	MT-.4	162	20,582
Bus	MT-.10	431	13,916
Bus	MT-.14	358	21,372
Bus	MT-.16	192	27,410
Bus	MT-.18	363	26,174
Bus	MT-.20	207	17,198
Bus	MT-.26	999	29,986
Bus	MT-.28	245	8,931
Bus	MT-.30	198	13,510
Bus	MT-.33	214	12,287
Bus	MT-.35	430	8,585
Bus	MT-.38	242	6,020
Bus	MT-.40	341	24,382
Bus	MT-.45	208	23,087
Bus	MT-.53	413	14,154
Bus	MT-.55	323	10,859
Bus	MT-.60	351	17,979
Bus	MT-.62	218	4,818
Bus	MT-.66	223	20,617
Bus	MT-.68	283	10,393
Bus	MT-.70	148	12,505
Bus	MT-.71	147	1,714
Bus	MT-.76	204	11,261
Bus	MT-.78	297	11,870
Bus	MT-.81	327	17,445
Bus	MT-.83	198	4,611
Bus	MT-.90	186	6,542
Bus	MT-.92	263	5,773
Bus	MT-.94	194	6,604
Bus	MT-102	336	1,663
Bus	MT-105	330	12,654

Route Type	Cluster Group	Total Usable Records	Total Expanded Data
Bus	MT-108	183	17,712
Bus	MT-110	214	10,087
Bus	MT-111	269	20,475
Bus	MT-115	192	17,445
Bus	MT-117	182	9,671
Bus	MT-120	322	4,520
Bus	MT-126	22	229
Bus	MT-127	48	666
Bus	MT-150	214	12,175
Bus	MT-152	208	13,972
Bus	MT-154	33	1,088
Bus	MT-155	61	584
Bus	MT-156	122	1,805
Bus	MT-158	241	2,430
Bus	MT-161	172	1,438
Bus	MT-163	233	10,784
Bus	MT-164	198	8,156
Bus	MT-165	207	9,505
Bus	MT-166	243	7,326
Bus	MT-169	264	2,578
Bus	MT-175	79	658
Bus	MT-176	117	1,093
Bus	MT-180	284	11,509
Bus	MT-183	114	2,379
Bus	MT-190	237	8,609
Bus	MT-200	284	15,599
Bus	MT-201	219	1,122
Bus	MT-202	24	253
Bus	MT-204	354	51,366
Bus	MT-206	154	13,682
Bus	MT-207	417	37,894
Bus	MT-209	102	1,035
Bus	MT-210	178	14,627
Bus	MT-211	64	694
Bus	MT-212	234	13,293
Bus	MT-217	242	9,687

Route Type	Cluster Group	Total Usable Records	Total Expanded Data
Bus	MT-220	62	268
Bus	MT-222	143	1,347
Bus	MT-224	278	10,124
Bus	MT-230	194	5,049
Bus	MT-233	191	12,683
Bus	MT-234	230	6,922
Bus	MT-236	260	2,767
Bus	MT-239	67	1,062
Bus	MT-242	164	2,413
Bus	MT-244	233	4,331
Bus	MT-246	105	3,311
Bus	MT-251	554	12,431
Bus	MT-258	227	1,722
Bus	MT-260	198	12,714
Bus	MT-264	197	4,135
Bus	MT-265	259	1,948
Bus	MT-268	129	2,371
Bus	MT-287	101	773
Bus	MT-290	119	1,216
Bus	MT-292	148	2,358
Bus	MT-305	224	2,522
Bus	MT-344	163	1,851
Bus	MT-439	37	434
Bus	MT-442	33	230
Bus	MT-445	106	1,289
Bus	MT-450	46	833
Bus	MT-460	196	4,350
Bus	MT-485	294	2,694
Bus	MT-487	221	4,066
Bus	MT-534	210	2,848
Bus	MT-550	192	3,076
Bus	MT-577	147	769
Bus	MT-611	244	2,024
Bus	MT-612	289	1,637
Bus	MT-620	85	313
Bus	MT-645	39	612

Route Type	Cluster Group	Total Usable Records	Total Expanded Data
Bus	MT-665	88	817
Bus	MT-685	110	684
Bus	MT-687	151	1,927
Bus	MT-704	252	11,938
Bus	MT-705	266	8,392
Bus	MT-710	166	7,942
Bus	MT-720	287	41,166
Bus	MT-728	248	7,469
Bus	MT-730	185	5,153
Bus	MT-733	169	13,338
Bus	MT-734	164	3,811
Bus	MT-740	163	8,739
Bus	MT-741	303	3,057
Bus	MT-745	235	7,853
Bus	MT-750	216	4,845
Bus	MT-751	268	6,568
Bus	MT-760	279	8,914
Bus	MT-761	185	11,111
Bus	MT-762	164	5,101
Bus	MT-770	155	9,293
Bus	MT-780	290	10,676
Bus	MT-794	202	5,305
Bus	MT-901	210	24,965
Bus	MT-910	171	8,538
Total		27,254	1,119,284

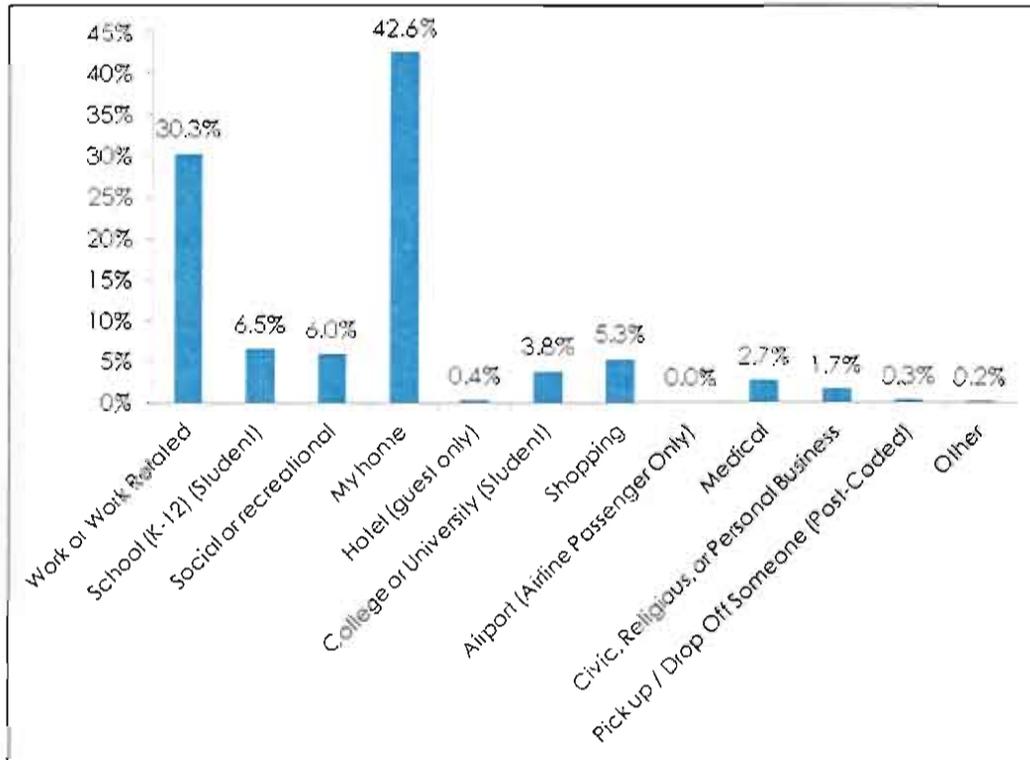
Table 2.6 shows the relationship between vehicle ownership and household income. Ninety percent of bus respondents who do not own vehicles have an average annual income of less than \$25,000. Forty-six percent of bus respondents with four or more vehicles have an average annual income of more than \$25,000.

Table 2.6: Cross-Tabulation of Vehicle Ownership and Household Income

Vehicle Ownership	Household Income									Total
	Less than \$5,000	\$5,000–\$9,999	\$10,000–\$14,999	\$15,000–\$24,999	\$25,000–\$34,999	\$35,000–\$49,999	\$50,000–\$69,999	\$70,000–\$134,000	\$135,000 or more	
None	28.6%	25.4%	19.9%	16.0%	5.8%	2.8%	0.8%	0.5%	0.2%	100.0%
One	14.8%	16.7%	19.9%	20.9%	13.3%	6.7%	4.5%	2.6%	0.5%	100.0%
Two	14.4%	12.3%	13.1%	16.8%	14.2%	14.9%	6.1%	6.2%	1.9%	100.0%
Three	14.2%	8.1%	10.4%	21.7%	11.8%	9.5%	7.3%	13.6%	3.6%	100.0%
Four or more	8.1%	10.0%	16.0%	19.5%	10.1%	17.7%	9.5%	4.0%	4.9%	100.0%
Total	22.6%	20.8%	18.7%	17.5%	9.0%	5.8%	2.8%	2.2%	0.7%	100.0%

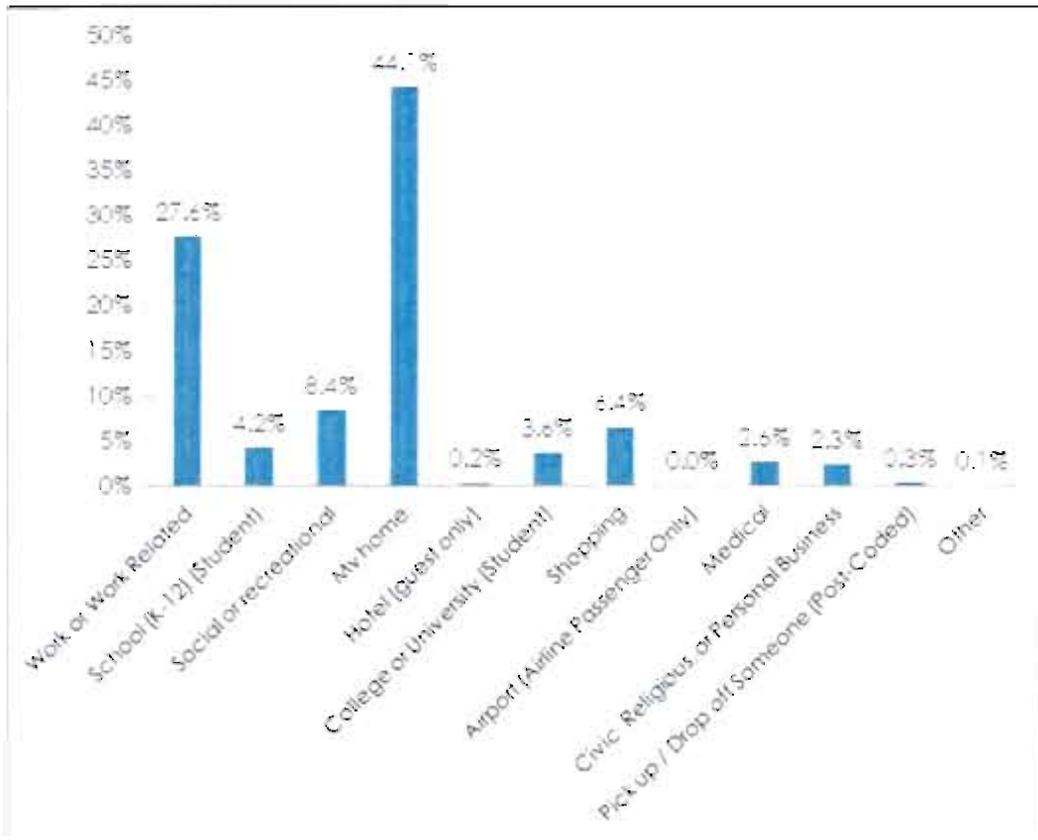
Figure 2.1 shows the distribution of origin trip purpose for bus passengers. Forty-three percent of bus passengers' origin location was home. Respondents who were coming from school, either university or K-12th grade, made up 10 percent of the bus population's origin purpose.

Figure 2.1: Distribution of Origin Trip Purpose



Forty-four percent of bus passengers' destination location was home, as illustrated in Figure 2.2. Social activities, shopping, medical, and civic activities made up 20 percent of passengers' destination purpose.

Figure 2.2: Distribution of Destination Trip Purpose



Ninety-four percent of bus passengers walked from their origin location to their first bus/rail and walked after their final bus/rail to their destination location, as described in Table 2.7.

Table 2.7: Cross-Tabulation of Egress Mode by Access Mode

Egress Mode	Access Mode									Total
	Walk/Wheelchair	Bicycled	Dropped off	Drove alone and parked	Carpooled and parked	Taxi	Dial-A-Ride	School Bus	Other	
Walk/wheelchair	94.3%	0.1%	2.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	97.0%
Bicycled	0.6%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%
Dropped off	1.3%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%
Drove alone and parked	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%
Carpooled and parked	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Taxi	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dial-A-Ride	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
School Bus	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	97.0%	0.4%	2.1%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Figure 2.3 presents how Metro bus passengers access transit. Three percent of respondents used an auto to get from their origin location to their first bus or train, while the majority of passengers (97 percent) walked or biked.

Figure 2.3: Distribution of Access Mode

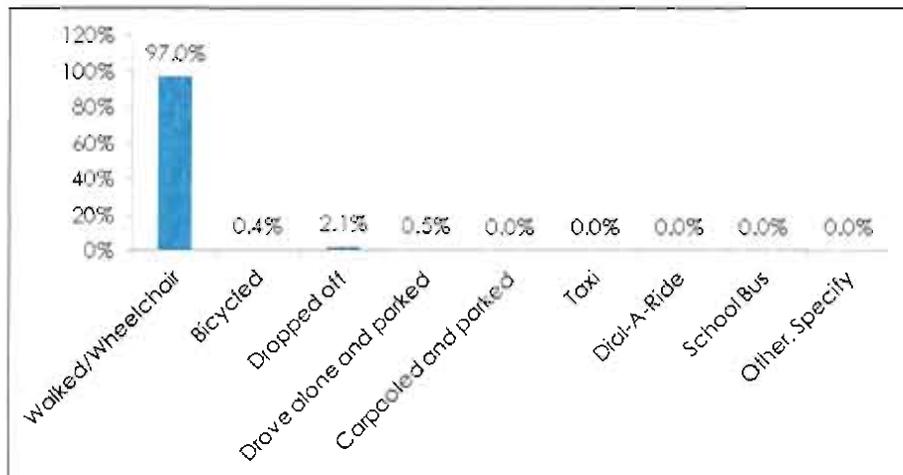


Figure 2.4 presents how Metro bus passengers egress transit. Two percent of respondents used an auto to get from their last bus or train to their final destination. The majority of passengers (98 percent) walked or biked to their final destination after their last bus or train. The egress mode results generally mirror those for the access mode.

Figure 2.4: Distribution of Egress Mode

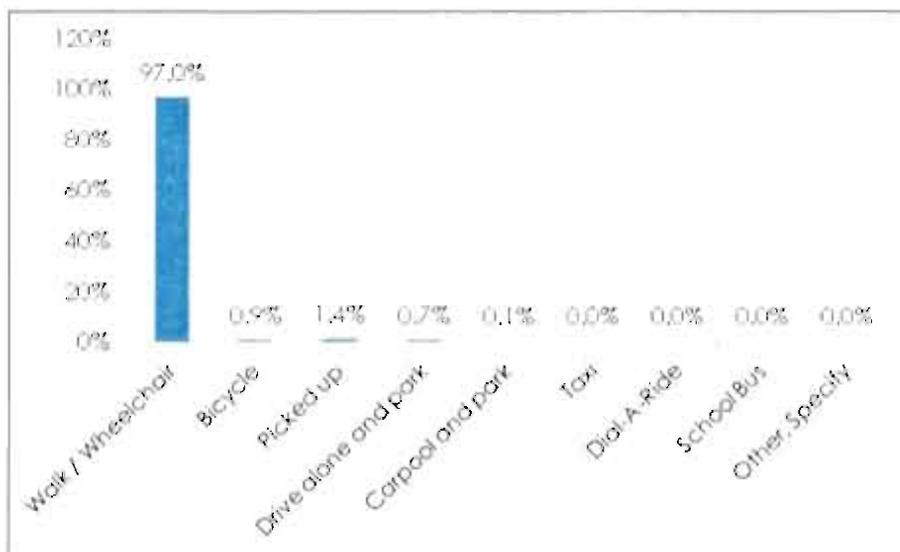


Table 2.8 illustrates the relationship between the bus route surveyed, and the total number of vehicles needed to complete respondents' one-way trips. Thirty-three percent of all bus passengers used a total of two vehicles, either bus or rail, to complete their one-way-trip. Forty-one percent of passengers used three or more vehicles to complete their trip.

Table 2.8: Cross-Tabulation of Line by Total Vehicles Used

Cluster Group	Total Vehicles Used				Total
	1	2	3	4 or more	
MT-.2	39.6%	43.9%	10.9%	5.6%	100.0%
MT-.4	51.5%	36.3%	9.4%	2.7%	100.0%
MT-.10	60.8%	27.0%	10.3%	1.9%	100.0%
MT-.14	43.7%	38.4%	16.6%	1.4%	100.0%
MT-.16	43.5%	38.3%	14.8%	3.4%	100.0%
MT-.18	49.1%	32.9%	11.5%	6.5%	100.0%
MT-.20	40.2%	47.7%	9.1%	3.0%	100.0%
MT-.26	50.4%	36.3%	9.8%	3.5%	100.0%
MT-.28	40.2%	51.1%	7.5%	1.2%	100.0%
MT-.30	21.9%	56.1%	20.5%	1.5%	100.0%
MT-.33	57.4%	35.5%	4.4%	2.7%	100.0%
MT-.35	25.8%	53.4%	17.1%	3.7%	100.0%
MT-.38	36.1%	39.7%	20.4%	3.8%	100.0%
MT-.40	43.3%	43.1%	12.0%	1.7%	100.0%
MT-.45	40.3%	56.1%	2.8%	0.8%	100.0%

Cluster Group	Total Vehicles Used				Total
	1	2	3	4 or more	
MT-53	33.0%	52.6%	10.5%	3.9%	100.0%
MT-55	55.2%	33.1%	9.9%	1.7%	100.0%
MT-60	32.1%	52.0%	13.4%	2.5%	100.0%
MT-62	46.7%	41.4%	8.6%	3.3%	100.0%
MT-66	54.3%	33.8%	11.8%	0.2%	100.0%
MT-68	39.1%	34.3%	21.5%	5.1%	100.0%
MT-70	37.4%	47.9%	11.8%	2.9%	100.0%
MT-71	22.3%	59.7%	12.6%	5.5%	100.0%
MT-76	46.1%	36.7%	13.9%	3.3%	100.0%
MT-78	42.8%	46.1%	9.2%	2.0%	100.0%
MT-81	49.5%	37.2%	10.7%	2.5%	100.0%
MT-83	42.4%	40.6%	13.1%	3.9%	100.0%
MT-90	49.7%	35.3%	13.8%	1.1%	100.0%
MT-92	41.4%	39.5%	13.8%	5.4%	100.0%
MT-94	31.1%	50.0%	17.4%	1.5%	100.0%
MT-102	49.8%	34.4%	11.4%	4.4%	100.0%
MT-105	22.4%	52.3%	21.2%	4.2%	100.0%
MT-108	27.0%	53.4%	15.2%	4.4%	100.0%
MT-110	41.4%	42.1%	14.6%	1.9%	100.0%
MT-111	24.4%	49.3%	22.7%	3.7%	100.0%
MT-115	39.0%	37.6%	18.0%	5.4%	100.0%
MT-117	35.9%	44.9%	14.8%	4.4%	100.0%
MT-120	36.2%	44.2%	14.8%	4.8%	100.0%
MT-126	70.3%	7.6%	18.6%	3.4%	100.0%
MT-127	38.9%	44.5%	13.6%	3.0%	100.0%
MT-150	43.2%	32.4%	17.0%	7.4%	100.0%
MT-152	48.8%	37.2%	11.0%	2.9%	100.0%
MT-154	47.8%	27.4%	10.8%	14.0%	100.0%
MT-155	22.5%	36.6%	34.4%	6.6%	100.0%
MT-156	20.0%	38.8%	32.0%	9.2%	100.0%
MT-158	44.6%	42.5%	7.9%	5.0%	100.0%
MT-161	27.7%	42.3%	19.6%	10.4%	100.0%
MT-163	42.6%	44.7%	9.7%	3.0%	100.0%
MT-164	58.3%	31.2%	7.9%	2.5%	100.0%
MT-165	45.0%	35.2%	11.2%	8.6%	100.0%
MT-166	40.7%	43.1%	12.7%	3.4%	100.0%
MT-169	65.8%	23.6%	6.8%	3.9%	100.0%
MT-175	4.7%	67.6%	16.3%	11.4%	100.0%
MT-176	35.7%	45.7%	17.5%	1.1%	100.0%
MT-180	40.6%	39.1%	14.9%	5.3%	100.0%
MT-183	54.5%	27.3%	10.4%	7.8%	100.0%
MT-190	51.6%	31.0%	14.4%	3.0%	100.0%
MT-200	26.3%	49.7%	18.0%	6.0%	100.0%

Cluster Group	Total Vehicles Used				Total
	1	2	3	4 or more	
MT-201	49.6%	37.5%	8.6%	4.3%	100.0%
MT-202	55.2%	33.7%	11.1%	0.0%	100.0%
MT-204	44.3%	41.2%	11.7%	2.9%	100.0%
MT-206	28.9%	61.9%	6.5%	2.7%	100.0%
MT-207	32.8%	46.4%	14.7%	6.1%	100.0%
MT-209	35.9%	40.1%	15.8%	8.2%	100.0%
MT-210	30.9%	43.9%	20.0%	5.2%	100.0%
MT-211	56.6%	31.5%	9.9%	2.0%	100.0%
MT-212	26.9%	53.3%	17.3%	2.5%	100.0%
MT-217	38.1%	41.8%	14.9%	5.2%	100.0%
MT-220	28.7%	53.0%	16.1%	2.2%	100.0%
MT-222	28.7%	37.6%	21.6%	12.1%	100.0%
MT-224	28.7%	39.0%	25.2%	7.2%	100.0%
MT-230	40.2%	46.8%	7.7%	5.4%	100.0%
MT-233	38.7%	47.0%	10.0%	4.3%	100.0%
MT-234	42.8%	40.6%	11.9%	4.6%	100.0%
MT-236	25.4%	49.2%	14.5%	10.9%	100.0%
MT-239	68.0%	28.6%	3.4%	0.0%	100.0%
MT-242	39.6%	44.6%	8.9%	6.9%	100.0%
MT-244	45.1%	38.7%	9.0%	7.2%	100.0%
MT-246	61.3%	19.9%	9.0%	9.8%	100.0%
MT-251	47.0%	39.4%	9.2%	4.4%	100.0%
MT-258	47.0%	43.7%	8.2%	1.1%	100.0%
MT-260	32.5%	46.9%	17.3%	3.3%	100.0%
MT-264	51.3%	37.9%	8.1%	2.6%	100.0%
MT-265	36.9%	36.0%	13.5%	13.6%	100.0%
MT-268	46.3%	38.5%	10.8%	4.4%	100.0%
MT-287	46.7%	36.8%	15.5%	1.1%	100.0%
MT-290	52.3%	38.2%	6.6%	2.9%	100.0%
MT-292	50.1%	35.0%	13.2%	1.7%	100.0%
MT-305	46.9%	38.1%	9.7%	5.3%	100.0%
MT-344	26.0%	34.3%	31.7%	8.0%	100.0%
MT-439	28.2%	25.6%	40.7%	5.4%	100.0%
MT-442	49.5%	46.0%	4.5%	0.0%	100.0%
MT-445	22.1%	43.2%	21.6%	13.2%	100.0%
MT-450	32.1%	17.0%	35.3%	15.5%	100.0%
MT-460	32.9%	35.0%	22.0%	10.0%	100.0%
MT-485	41.2%	39.2%	15.2%	4.4%	100.0%
MT-487	43.5%	38.3%	15.5%	2.6%	100.0%
MT-534	11.9%	49.2%	31.0%	7.8%	100.0%
MT-550	46.6%	41.8%	8.5%	3.1%	100.0%
MT-577	15.6%	39.0%	35.0%	10.4%	100.0%
MT-611	38.2%	30.7%	19.0%	12.1%	100.0%

Cluster Group	Total Vehicles Used				Total
	1	2	3	4 or more	
MT-612	50.4%	26.9%	18.9%	3.8%	100.0%
MT-620	57.5%	33.7%	6.2%	2.6%	100.0%
MT-645	36.2%	31.9%	30.0%	1.9%	100.0%
MT-665	45.5%	41.8%	7.5%	5.2%	100.0%
MT-685	43.8%	32.0%	22.4%	1.8%	100.0%
MT-687	47.0%	28.5%	13.3%	11.1%	100.0%
MT-704	42.7%	40.2%	14.7%	2.5%	100.0%
MT-705	29.9%	40.3%	19.2%	10.6%	100.0%
MT-710	24.1%	42.3%	23.3%	10.3%	100.0%
MT-720	40.3%	40.1%	16.3%	3.3%	100.0%
MT-728	42.2%	43.7%	9.7%	4.4%	100.0%
MT-730	42.6%	32.8%	17.9%	6.8%	100.0%
MT-733	25.7%	56.1%	16.7%	1.5%	100.0%
MT-734	21.2%	56.3%	15.2%	7.3%	100.0%
MT-740	35.7%	42.3%	18.2%	3.8%	100.0%
MT-741	18.1%	44.9%	18.9%	18.1%	100.0%
MT-745	37.8%	47.9%	12.1%	2.2%	100.0%
MT-750	17.5%	44.4%	23.4%	14.7%	100.0%
MT-751	24.9%	51.9%	16.1%	7.1%	100.0%
MT-760	25.1%	48.9%	20.8%	5.2%	100.0%
MT-761	35.2%	35.3%	22.5%	6.9%	100.0%
MT-762	28.4%	49.0%	17.0%	5.7%	100.0%
MT-770	36.1%	45.3%	16.8%	1.8%	100.0%
MT-780	22.3%	43.6%	24.6%	9.5%	100.0%
MT-794	38.7%	43.5%	16.6%	1.2%	100.0%
MT-901	21.9%	37.2%	26.9%	14.0%	100.0%
MT-910	25.7%	33.4%	29.3%	11.6%	100.0%
<i>Total</i>	38.9%	42.3%	14.4%	4.4%	100.0%

Figure 2.5 details the number of working vehicles available to the passenger. Passengers with fewer than two vehicles in their household made up 81 percent of the bus passenger population. Passengers with more than two vehicles in their household made up five percent of the bus passenger population.

Figure 2.5: Vehicle Availability

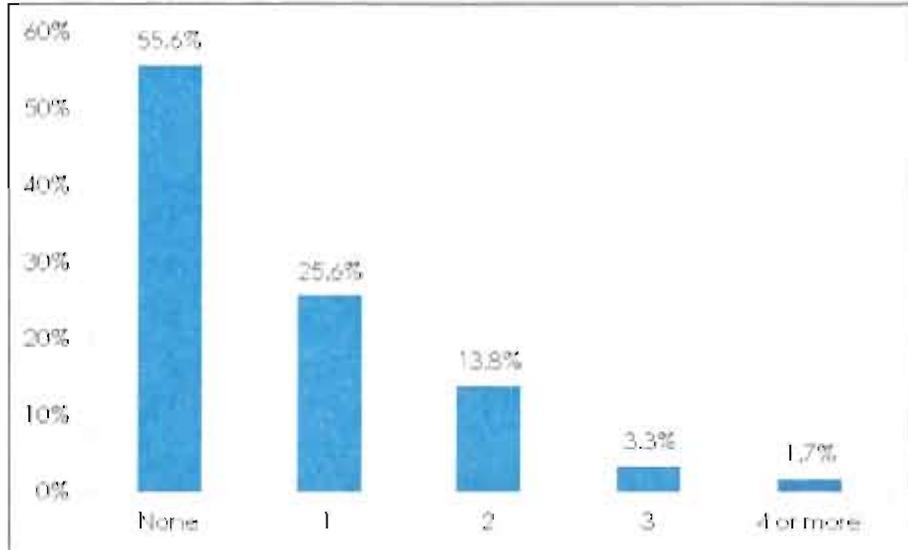


Figure 2.6 documents how bus passengers paid their fare. Fifty-three percent of bus passengers used day, weekly, or monthly passes to pay for their trip, while thirty-six percent of bus passengers paid their fare by cash or token.

Figure 2.6: Distribution of Fare

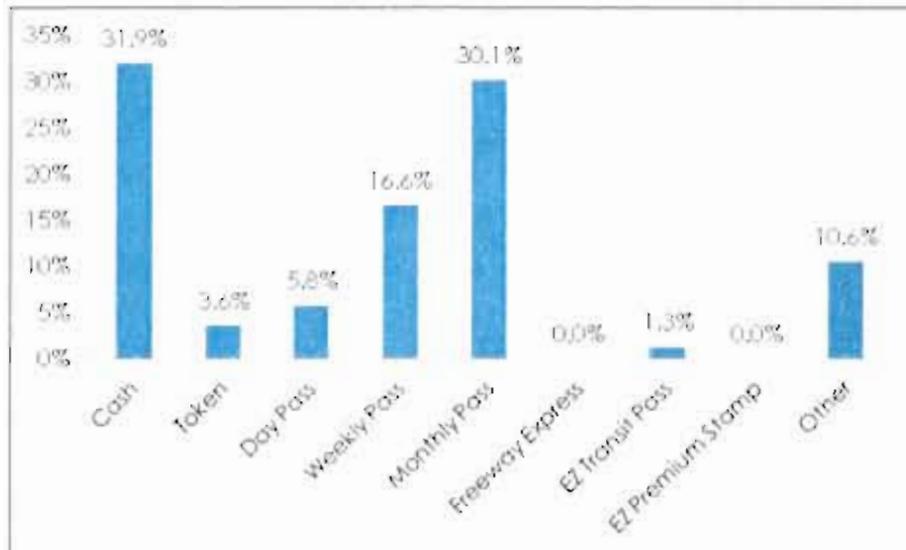


Figure 2.7 summarizes the number of full-time or part-time workers in a surveyed household. Eighty-one percent of bus passengers have two or fewer employed household members. Bus passengers living in households with four or more employed members make up seven percent the ridership.

Figure 2.7: Distribution of Household Workers

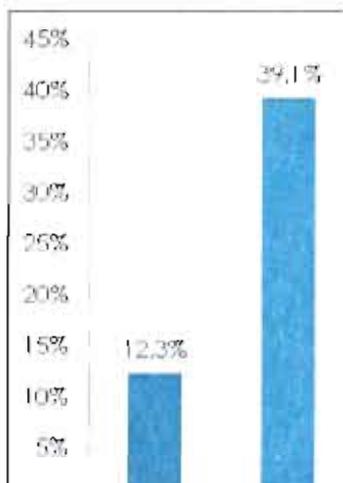
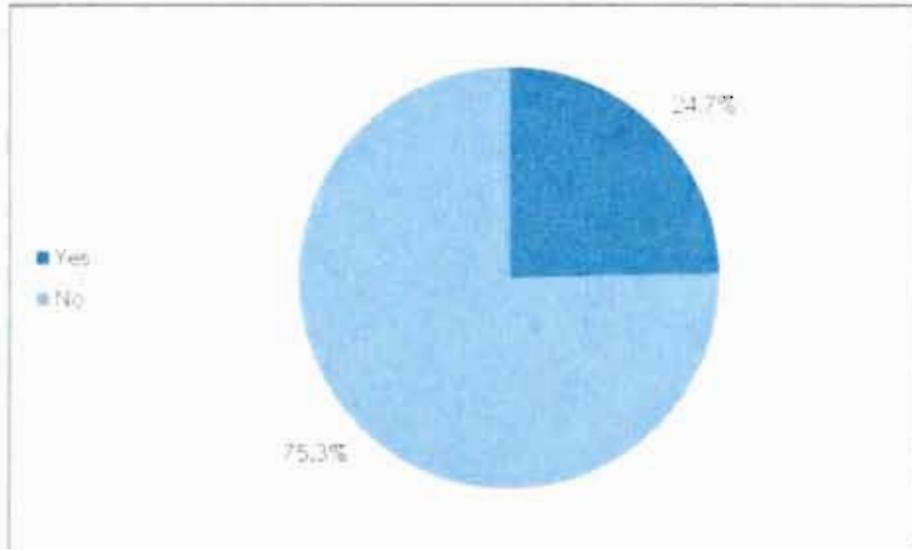


Figure 2.8 characterizes bus passengers' driver's license status. Seventy-five percent of bus passengers do not possess a valid driver's license. There is a direct relationship between the number of bus passengers with no vehicles in their households, reported at 55 percent, and the number of bus passengers, two-thirds of the ridership overall, who do not possess a valid driver's license.

Figure 2.8: Distribution of Valid Driver's License



Bus passengers who participated in the survey specified their employment status as reported in Figure 2.9. Sixty-four percent of bus passengers are employed either full- or part-time. Nineteen percent of bus passengers are students, while 10 percent of passengers are unemployed.

Figure 2.9: Distribution of Employment Status

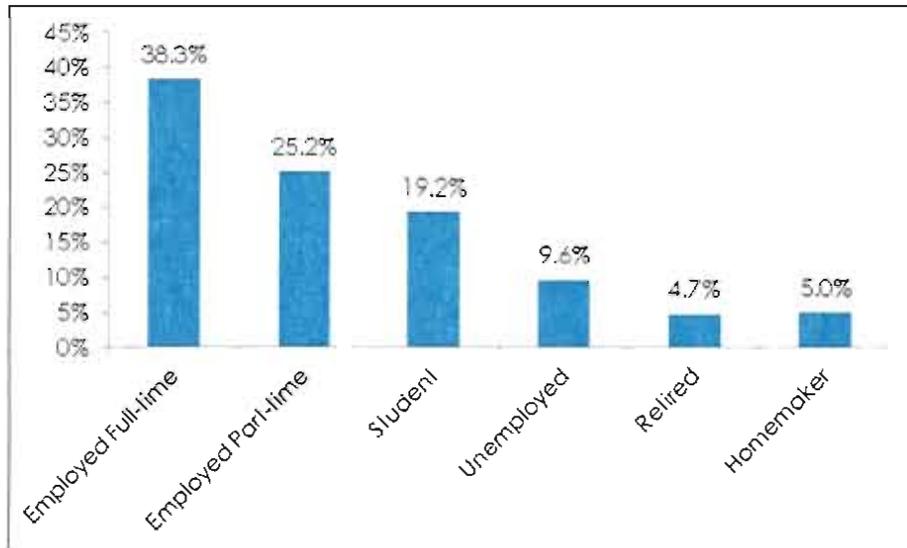


Figure 2.10 shows the age distribution of bus passengers. A plurality of bus passengers (28 percent) are between the ages of 35 and 49 years old. Forty-seven percent of bus passengers are younger than 35, and 25 percent of passengers are 50 years of age or older.

Figure 2.10: Distribution of Age

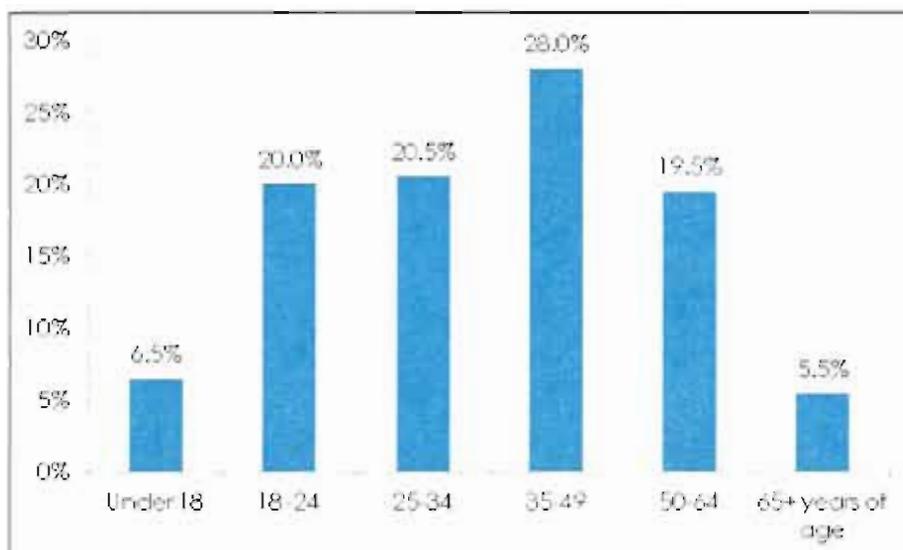
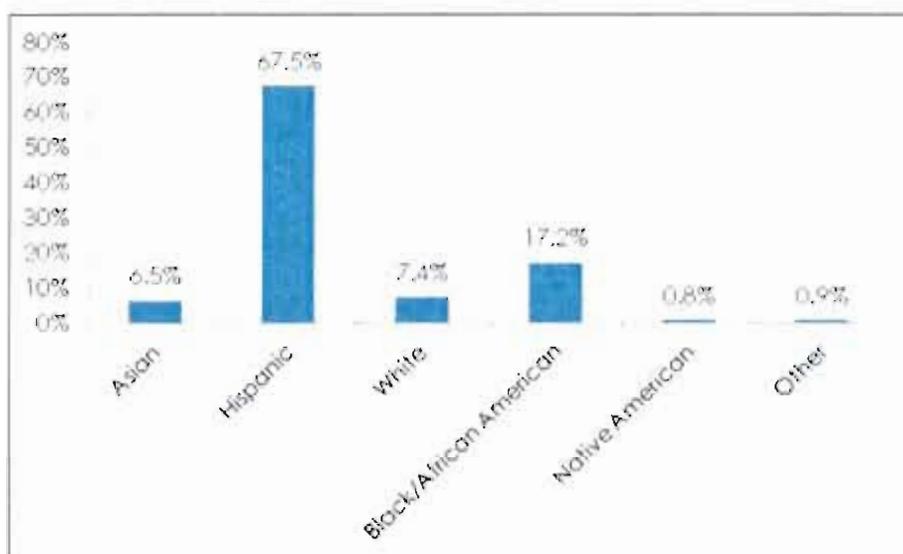


Figure 2.11 shows the distribution of ethnicity of Metro bus passengers. Hispanics, at 67 percent of the ridership, make up the majority of bus passengers; African American passengers make up the second largest group, at 17 percent of the ridership.

Figure 2.11: Distribution of Ethnicity



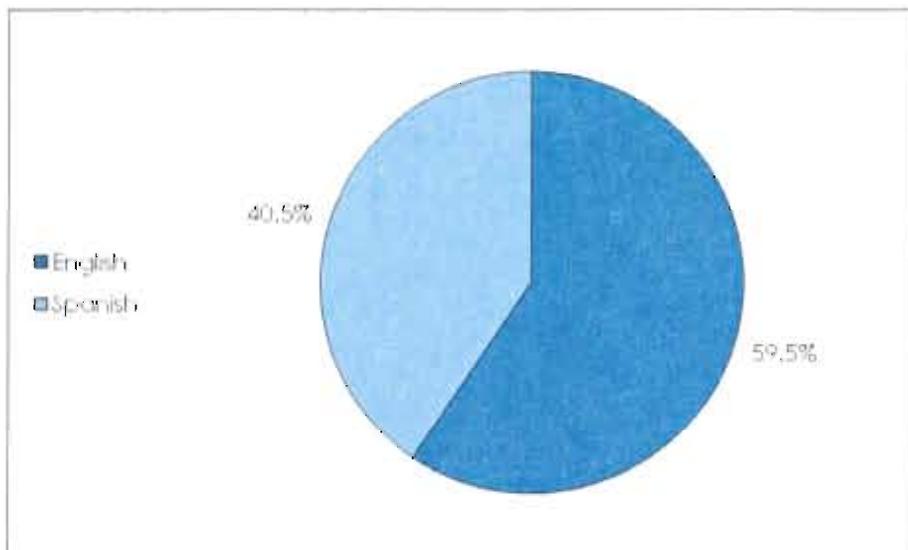
As seen in Figure 2.12, 80 percent of bus passengers' household income is less than \$25,000 annually, while 6 percent of Metro passengers make an annual income of \$50,000 or more.

Figure 2.12: Distribution of Household Annual Income



Fifty-nine percent of bus surveys were completed in English, which is 18 percent lower than the rail data collection, at 77 percent.

Figure 2.13: Distribution of Language



Metro Rail Analysis

Table 3.1 documents the sample goals and the number of completed surveys for the individual rail lines that serve the Metro region. As directed by the FTA and Metro, PTV NuStats oversampled the Gold Line to obtain travel behaviors from passengers who access or egress the Gold Line between Mariachi Plaza and the Atlantic station.

Table 3.1: Rail Goals

Route Type	Route	Route Name	Goal	Completes
Rail	801	Metro Blue Line	1,552	1,552
Rail	802	Metro Red Line	2,291	2,297
Rail	803	Metro Green Line	776	776
Rail	804	Metro Gold Line	642	642
Rail	804	Metro Gold Line (Oversample)	500	517
Rail	805	Metro Purple Line	739	744
Total			6,500	6,528

A cross-tabulation of line by time of day demonstrates the number of observations collected for the Metro rail lines. The rail lines were evenly sampled by time of day with a 3 percentage point difference between AM peak period (27 percent) and PM peak period (30 percent). Thirty-nine percent of total trips were sampled during the Mid-Day period.

Table 3.2: Cross-Tabulation of Line by Time of Day

Line	Time of Day				Total
	AM Peak	Mid-Day	PM Peak	Eve/ Early AM	
801	359	697	479	17	1,552
802	675	764	715	143	2,297
803	265	279	163	69	776
804	205	469	433	52	1,159
805	235	322	157	30	744
Total	1,739	2,531	1,947	311	6,528

The total response rate for the rail effort was 22 percent. The Green line had the highest response rate, at 27 percent, and the Purple line had the lowest response rate, at 11 percent.

Table 3.3: Rail Response Rates

Route Type	Route	Route Name	Surveyable Boardings	Completes	Response Rate
Rail	801	Metro Blue Line	6,161	1,552	25.2%
Rail	802	Metro Red Line	10,515	2,297	21.8%
Rail	803	Metro Green Line	2,926	776	26.5%
Rail	804	Metro Gold Line	4,733	1,159	24.5%
Rail	805	Metro Purple Line	4,540	517	11.4%
Total			28,875	6,301	21.8%

Table 3.4 documents the usable rail observations, which were expanded based on ridership figures from fiscal year 2010. The final rail observations were expanded to a total population of 297,167 from the 6,528 pieces of sample collected.

Table 3.4: Expansion of Rail Line Data

Route Type	Route	Route Name	Total Usable Records	Total Expanded Data
Rail	801	Metro Blue Line	1,552	76,908
Rail	802	Metro Red Line	2,297	113,501
Rail	803	Metro Green Line	776	38,442
Rail	804	Metro Gold Line	1,159	31,828
Rail	805	Metro Purple Line	744	36,488
Total			6,528	297,167

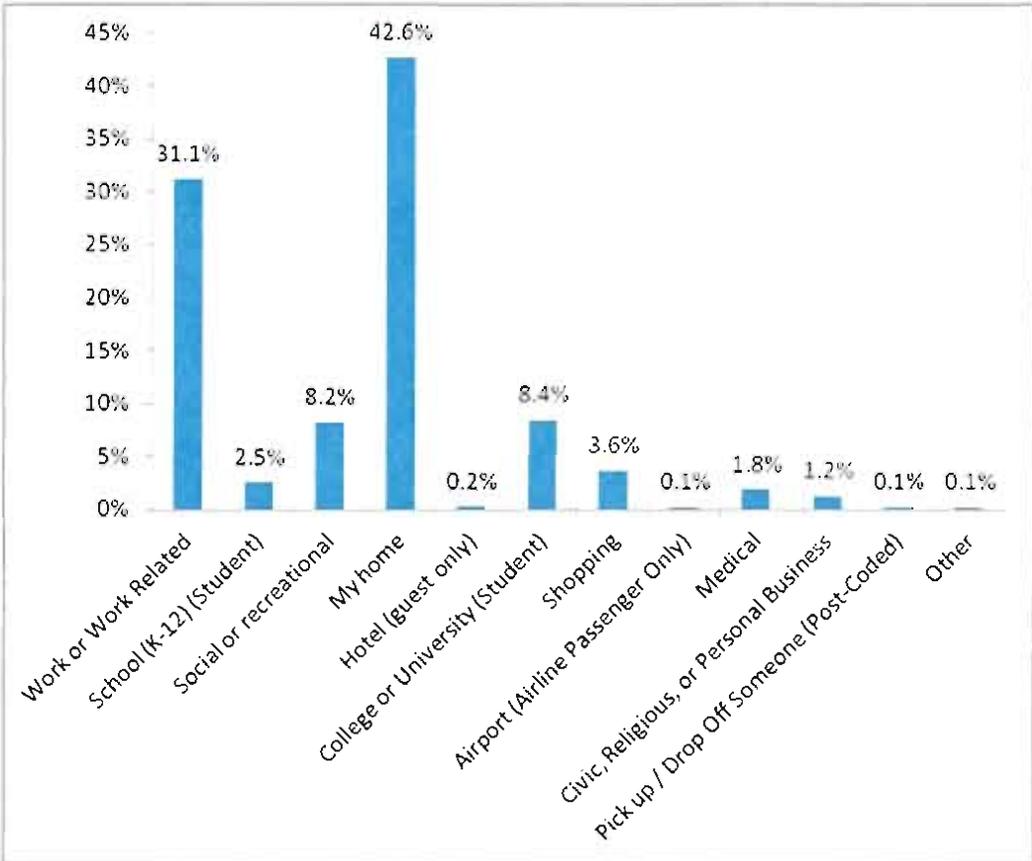
Table 3.5 shows the relationship between vehicle ownership and household income. Eighty-nine percent of rail respondents who do not own vehicles have an average annual income of less than \$25,000. Seventy-three percent of rail respondents with four or more vehicles have an average annual income of \$25,000 or more.

Table 3.5: Cross-Tabulation of Vehicle Ownership and Household Income

Vehicle Ownership	Household Income									Total
	Less than \$5,000	\$5,000-\$9,999	\$10,000-\$14,999	\$15,000-\$24,999	\$25,000-\$34,999	\$35,000-\$49,999	\$50,000-\$69,999	\$70,000-\$134,000	\$135,000 or more	
None	25.3%	25.6%	22.2%	15.7%	6.3%	2.6%	1.3%	0.8%	0.2%	100.0%
One	11.8%	12.4%	16.4%	19.4%	11.5%	11.3%	8.6%	7.1%	1.5%	100.0%
Two	8.2%	7.9%	12.3%	15.9%	10.6%	9.0%	7.7%	19.4%	8.9%	100.0%
Three	4.1%	12.0%	8.1%	9.7%	11.7%	16.0%	9.6%	19.1%	9.8%	100.0%
Four or more	4.6%	4.5%	9.4%	8.2%	7.6%	5.5%	18.7%	25.4%	16.1%	100.0%
Total	15.2%	15.9%	16.8%	16.3%	9.3%	7.7%	6.1%	9.0%	3.7%	100.0%

Figure 3.1 shows the distribution of origin trip purpose for rail passengers. Forty-three percent of rail passengers' origin location was home, while 31 percent of passenger trips originated from work or a work-related activity. An additional 11 percent of passengers were coming from school, either university or K-12th grade.

Figure 3.1: Distribution of Origin Trip Purpose



Forty-six percent of rail passengers' destination location was home, as shown in Figure 3.2. Additionally, 29 percent of respondents used Metro's rail service to get to work or a work-related activity, while a combined 18 percent of passengers were traveling for social, shopping, medical, and civic activities.

Figure 3.2: Distribution of Destination Trip Purpose

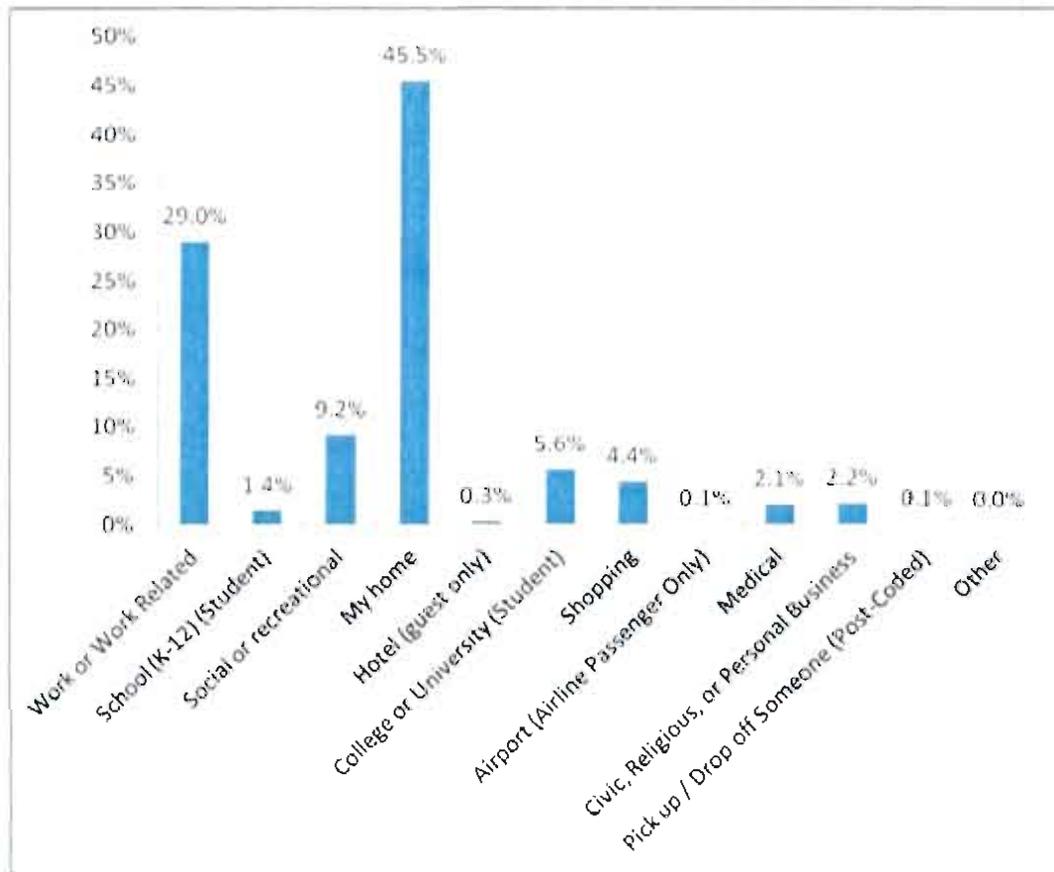


Table 3.6 examines the relationship of passengers' access and egress modes for their one-way trip. Seventy-five percent of rail passengers walked from their origin to their first vehicle and walked from their final vehicle to their destination. Other popular combinations were dropped off and walk/wheelchair, as well as walk/wheelchair and drive alone and park, at 6 percent, respectively.

Table 3.6: Cross-Tabulation of Egress Mode by Access Mode

Egress Mode	Access Mode									Total
	Walk / Wheelchair	Bicycled	Dropped off	Drove alone and parked	Carpooled and parked	Taxi	Dial-A-Ride	School Bus	Other	
Walk / Wheelchair	75.4%	0.4%	6.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.1%	86.9%
Bicycle	0.7%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%
Picked Up	3.7%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	4.1%
Drive alone and park	6.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	6.2%
Carpool and park	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Taxi	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Dial-A-Ride	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
School Bus	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%
Total	86.0%	2.1%	6.5%	5.1%	0.0%	0.0%	0.0%	0.0%	0.2%	100.0%

Figure 3.3 presents how Metro rail passengers access transit. The access mode statistics indicate that the majority of passengers (86 percent) walked/wheelchaired, while 12 percent of respondents used an automobile to get from their origin location to their first (transit) vehicle.

Figure 3.3: Distribution of Access Mode

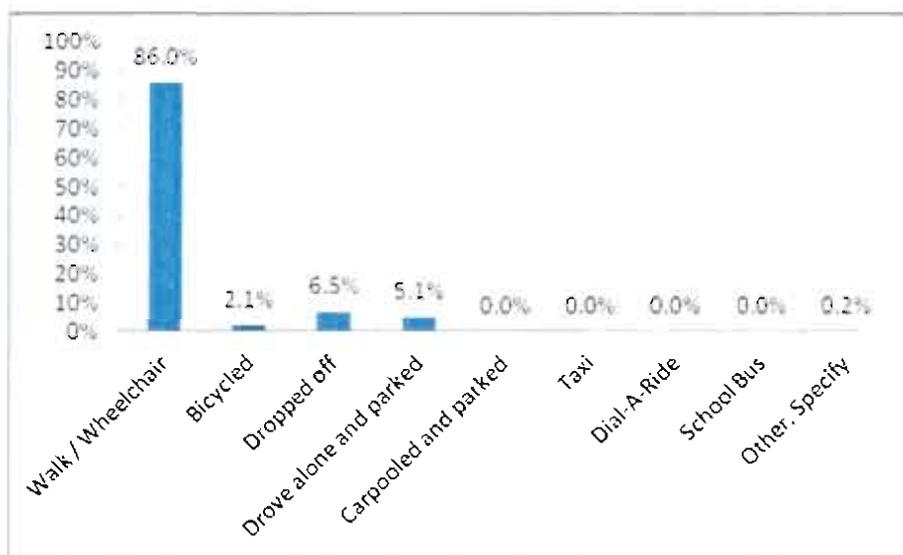


Figure 3.4 presents how Metro rail passengers egress transit. Egress mode use is similar to that for access modes, indicating that Metro rail passengers rely heavily on walking to access service. Eighty-seven percent of passengers reported they would walk/wheelchair to their final destination. One in 10 respondents used an automobile to get from their last transit vehicle to their final destination.

Figure 3.4: Distribution of Egress Mode

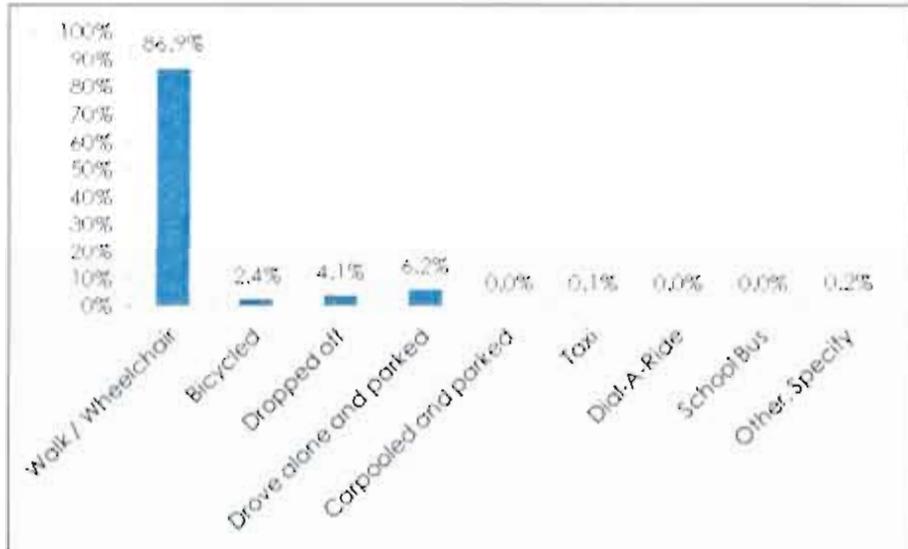


Table 3.7 illustrates the relationship between the rail line surveyed and the total number of vehicles needed to complete a one-way trip. Thirty-six percent of all rail passengers used a total of two vehicles, either bus or rail, to complete their one-way-trip. Thirty-eight percent of passengers used three or more vehicles to complete their trip.

Table 3.7: Cross-Tabulation of Line by Total Vehicles Used

Line	Total Vehicles Used				Total
	1	2	3	4 or more	
801	27.8%	37.0%	24.9%	10.3%	100.0%
802	25.6%	34.8%	24.0%	15.6%	100.0%
803	15.4%	36.0%	33.6%	15.0%	100.0%
804	39.8%	35.2%	17.8%	7.1%	100.0%
805	21.4%	38.2%	25.0%	15.3%	100.0%
Total	25.9%	36.0%	24.9%	13.2%	100.0%

Passengers with fewer than two vehicles in their household constitute 67 percent of the rail passenger population. More specifically, 36 percent of passengers reported not having access to a vehicle. Passengers with more than two vehicles in their household made up 10 percent of the rail passenger population.

Figure 3.5: Vehicle Availability

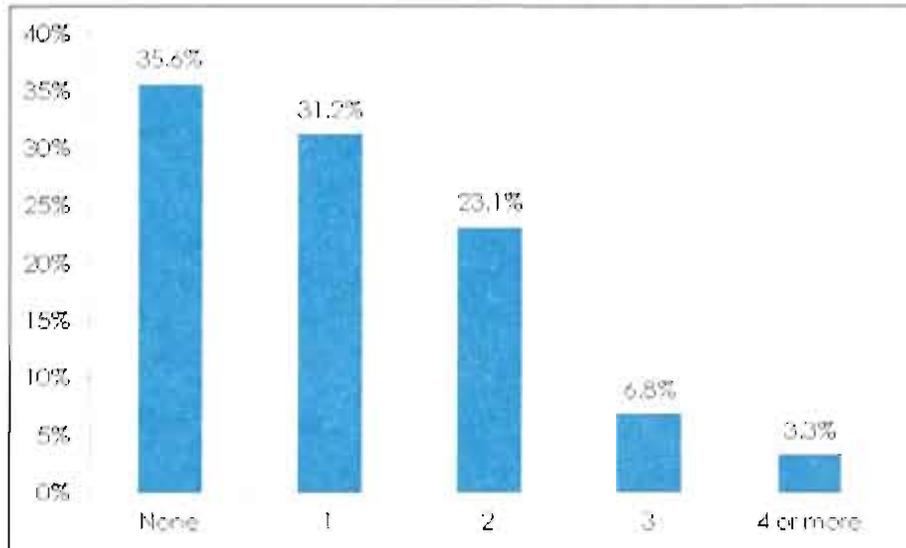


Figure 3.6 documents how rail passengers paid their fare. Fifty-three percent of rail passengers used day, weekly, or monthly passes to pay for their trip. Of these, the monthly pass was the most often used: 27 percent reported using a monthly pass. In addition, 29 percent of rail passengers paid their fare by cash or token.

Figure 3.6: Distribution of Fare

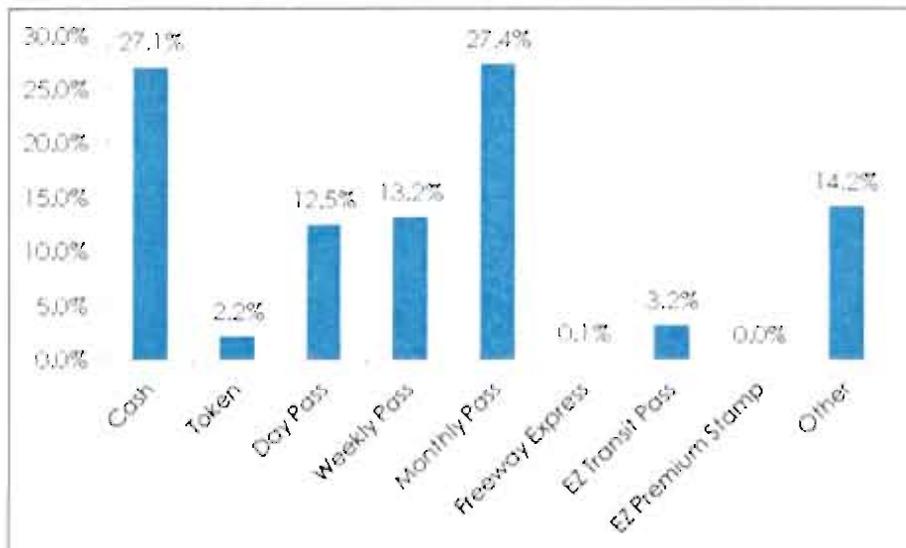


Figure 3.7 summarizes the number of full-time or part-time workers in a surveyed household. Eighty-one percent of rail passengers belong to households in which two or fewer members are employed. Nearly 4 in 10 passengers surveyed reported at least one household worker, while only 6 percent of passengers belong to households with four or more employed members.

Figure 3.7: Distribution of Household Workers

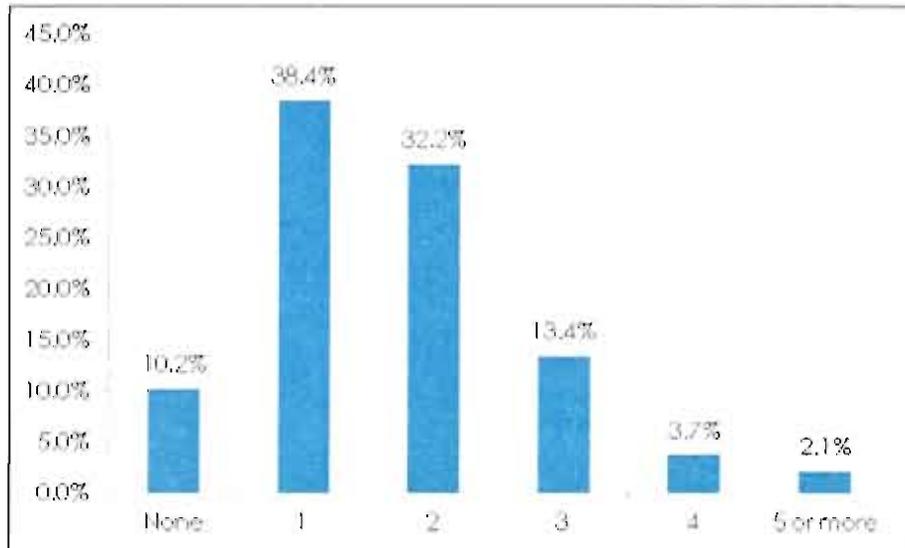
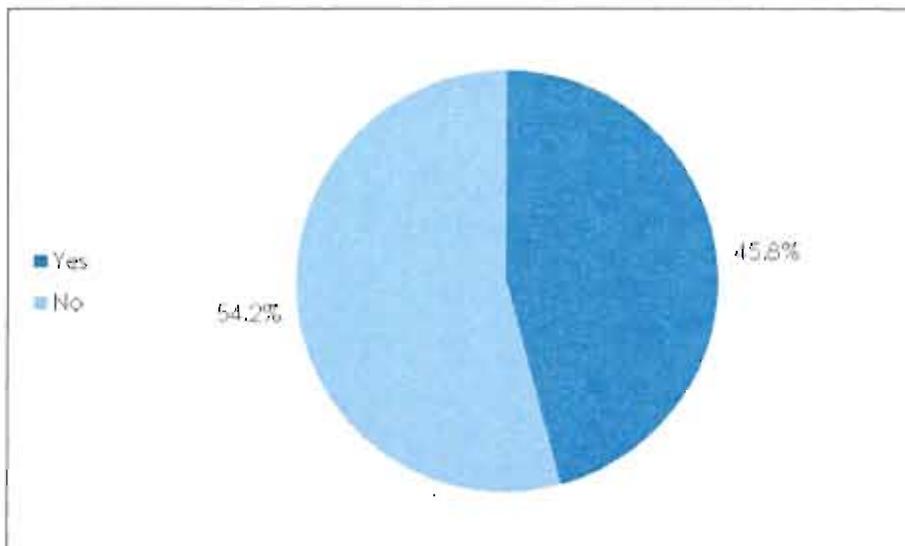


Figure 3.8 shows rail passengers' driver's license status. Fifty-four percent of rail passengers do not possess a valid driver's license. There is a direct relationship between the number of rail passengers with no vehicles in their households, reported at 35 percent, and the majority of rail passengers who do not possess a valid driver's license.

Figure 3.8: Distribution of Valid Driver's License



Rail passengers who participated in the survey specified their employment status as shown in Figure 3.9. Sixty-seven percent of rail passengers are employed either full- or part-time. Twenty percent of rail passengers are students, while 8 percent of passengers are unemployed.

Figure 3.9: Distribution of Employment Status

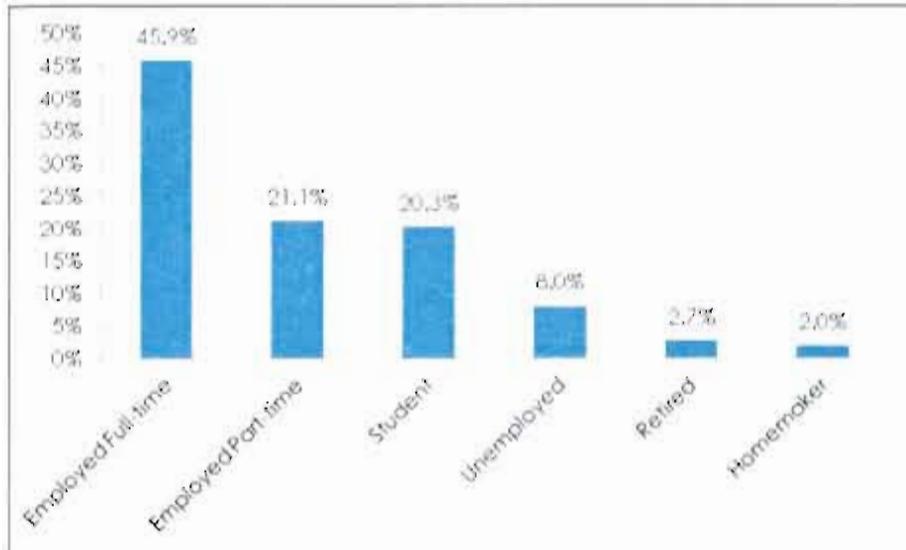


Figure 3.10 shows the age distribution of rail passengers. A plurality of rail passengers (27 percent) are between the ages of 35 and 49 years old. Fifty-four percent of rail passengers are younger than 35 years of age, and 19 percent of passengers are 50 years of age or older.

Figure 3.10: Distribution of Age

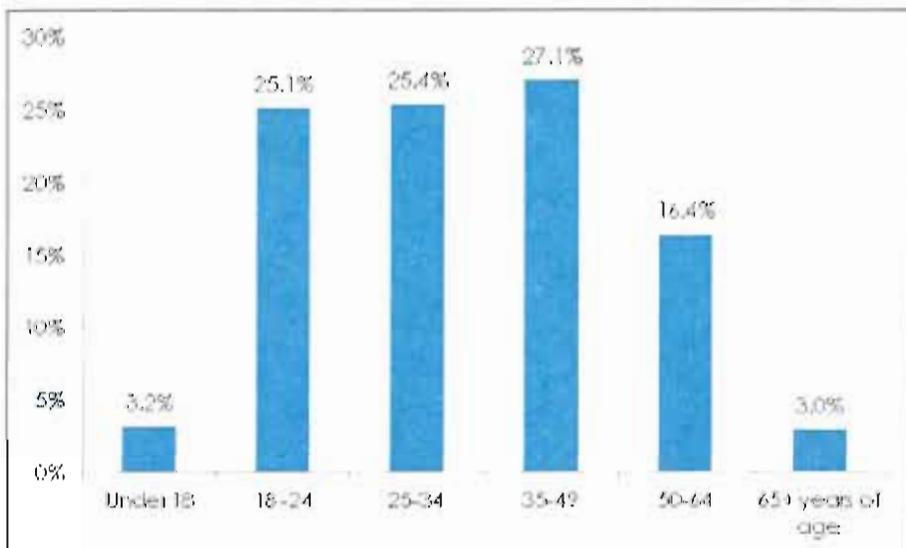
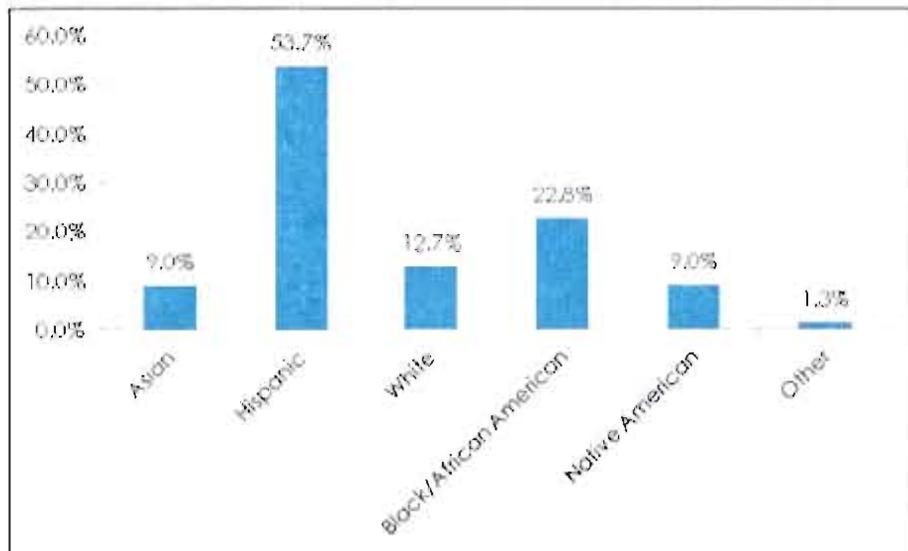


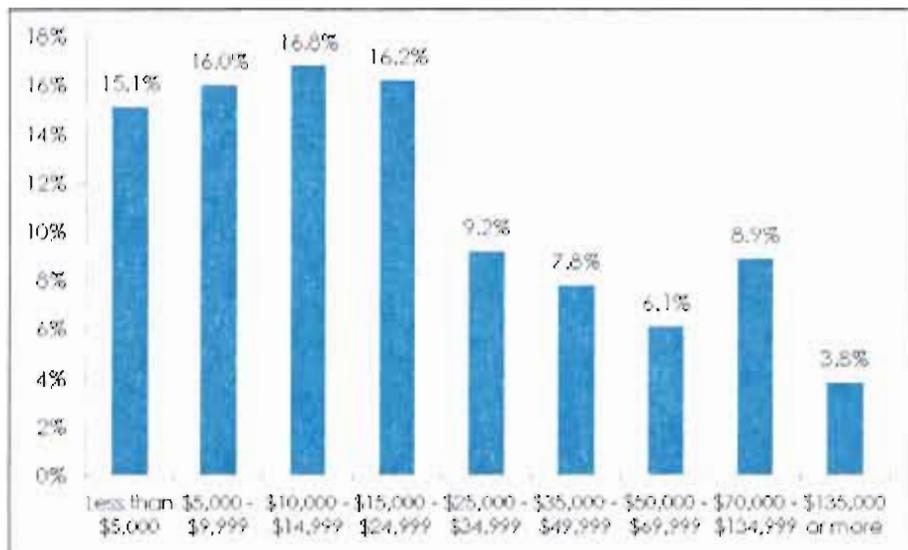
Figure 3.11 shows the distribution of ethnicity of Metro rail passengers. Fifty-four percent of passengers are Hispanic, while African Americans are the next largest group of rail passengers, at 23 percent.

Figure 3.11: Distribution of Ethnicity



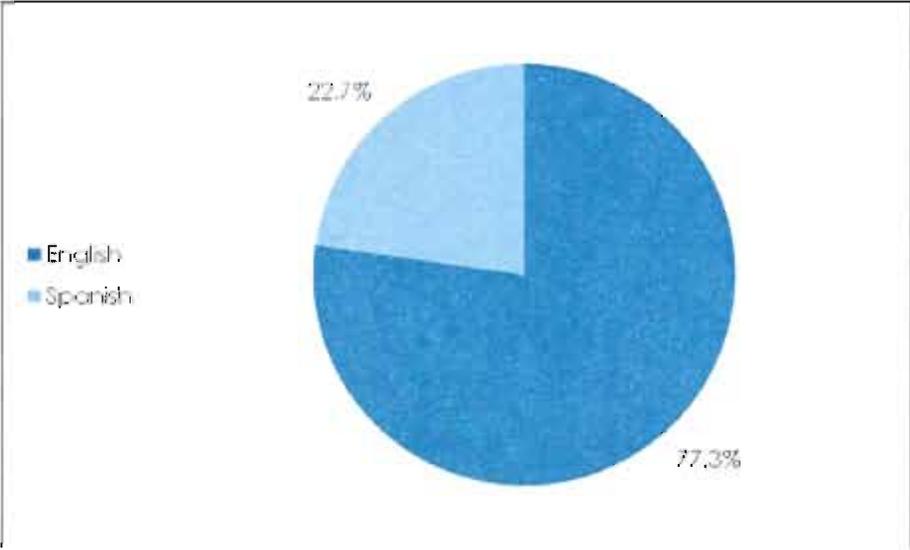
Sixty-four percent of rail passengers' household income is less than \$25,000 annually. Passengers with annual incomes of \$70,000 or more make up 13 percent of the ridership.

Figure 3.12: Distribution of Household Annual Income



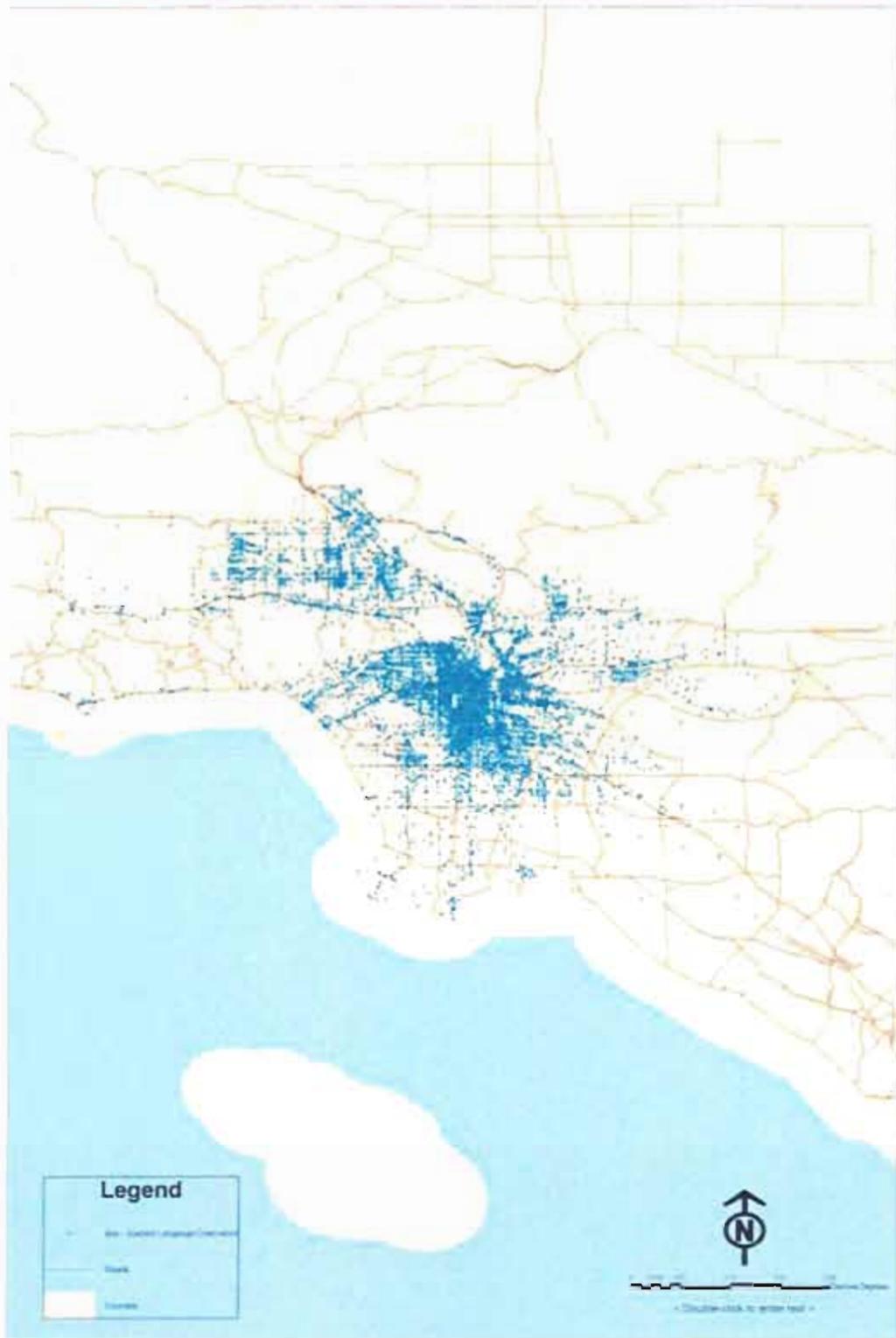
Seventy-seven percent of rail surveys were completed in English, which is 18 percentage points higher than those collected from the bus riders, at 59 percent.

Figure 3.13: Distribution of Language



Maps: Bus and Rail

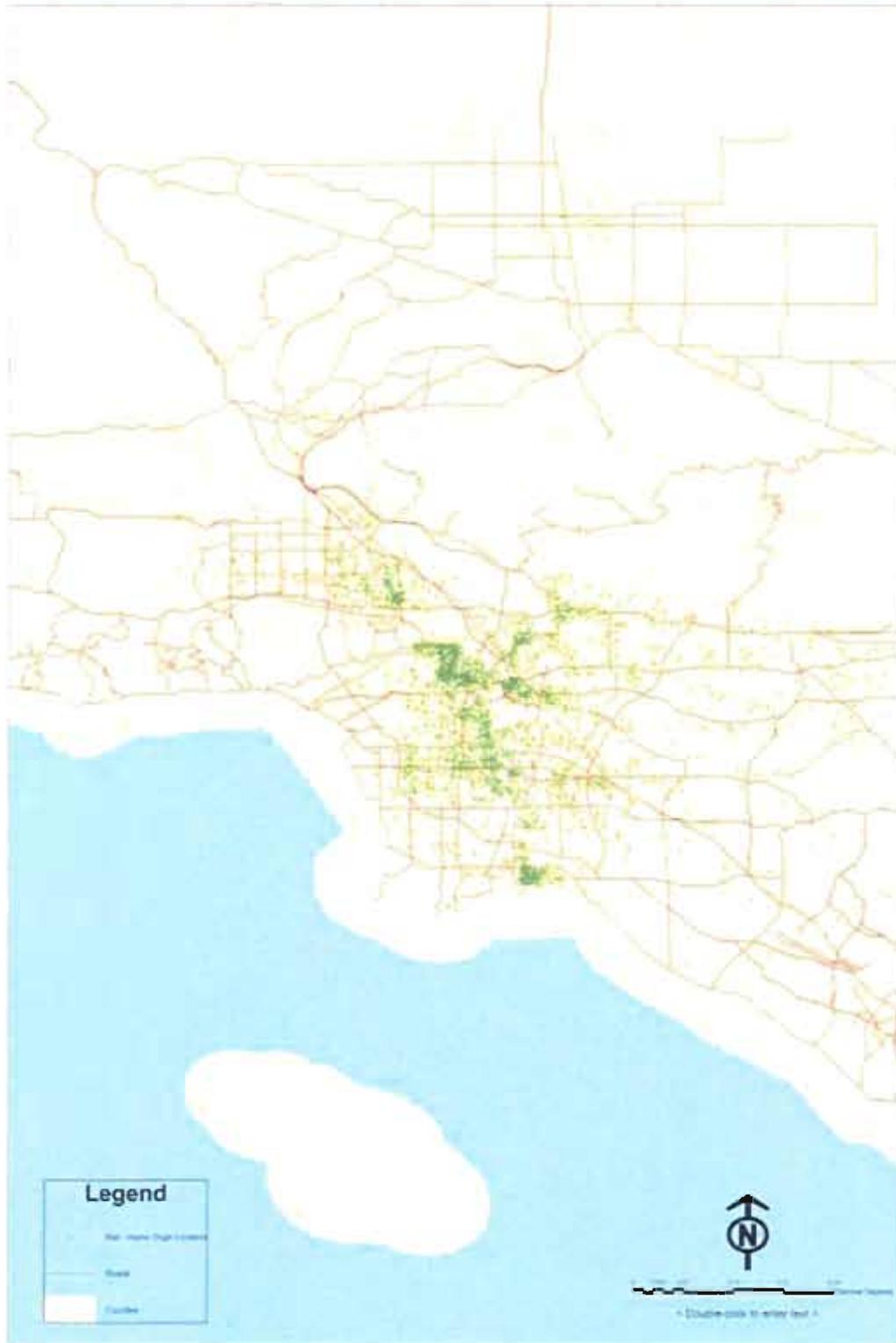
Bus - Spanish Language Destination



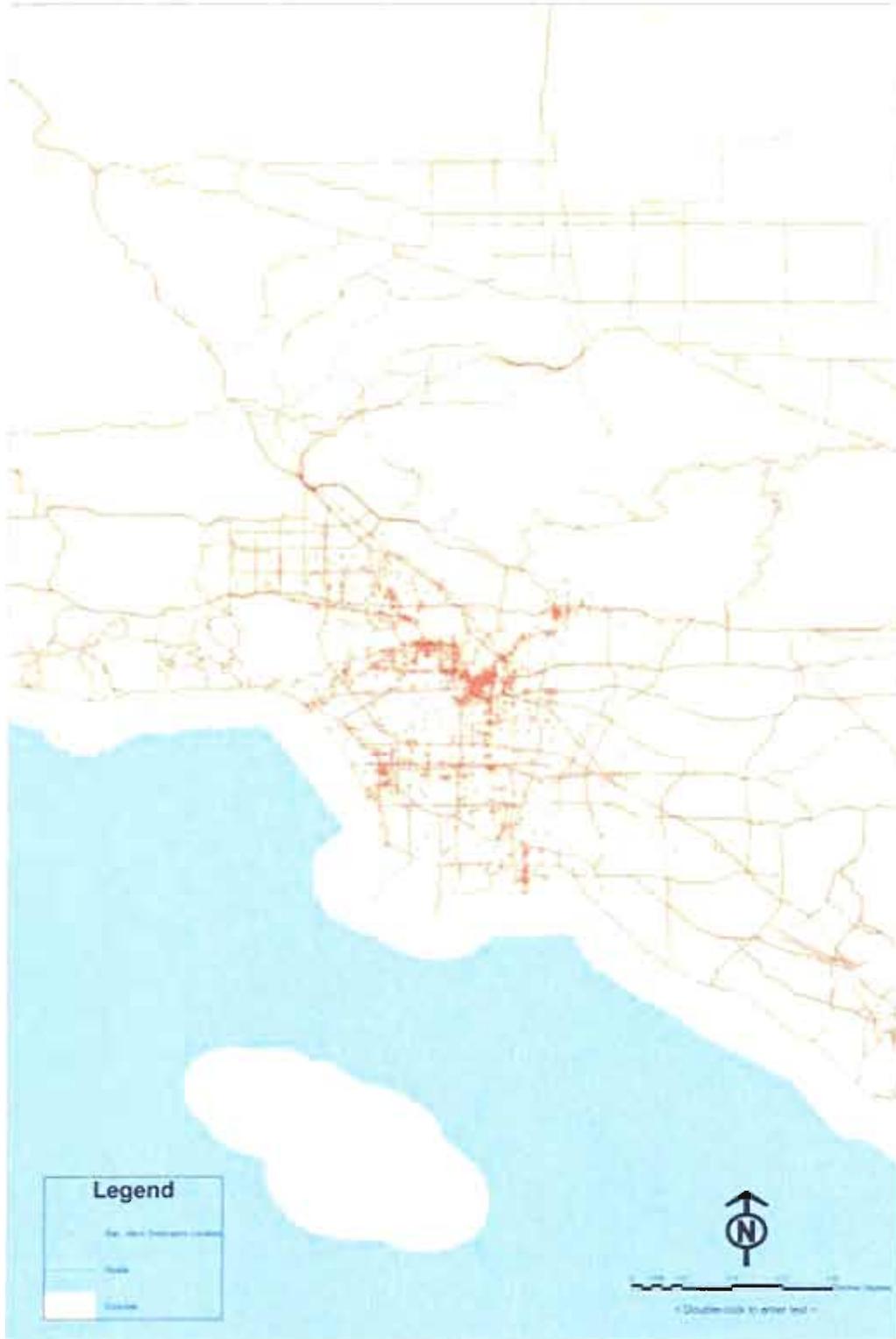
Rail - Work Origin



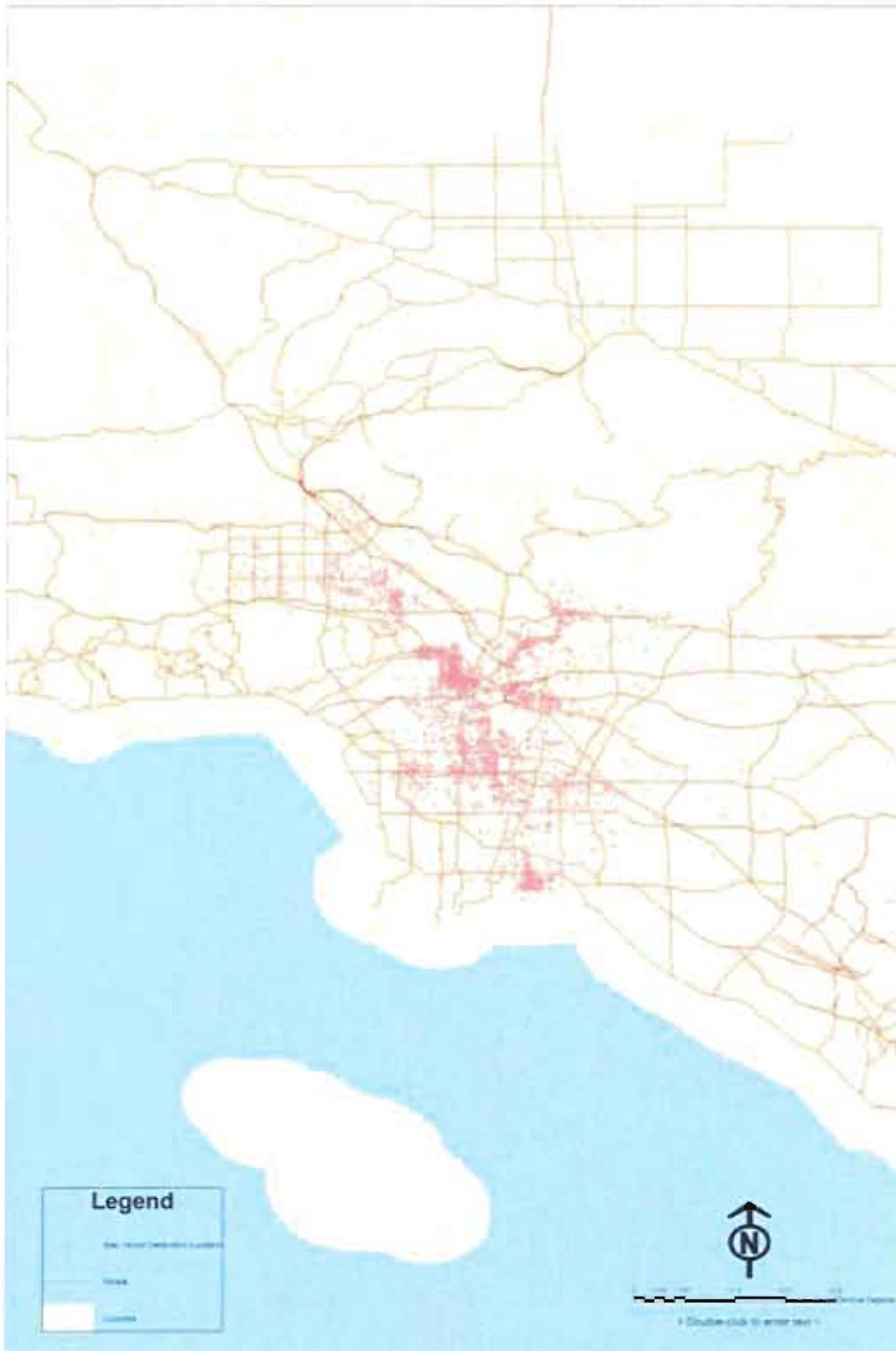
Rail - Home Origin



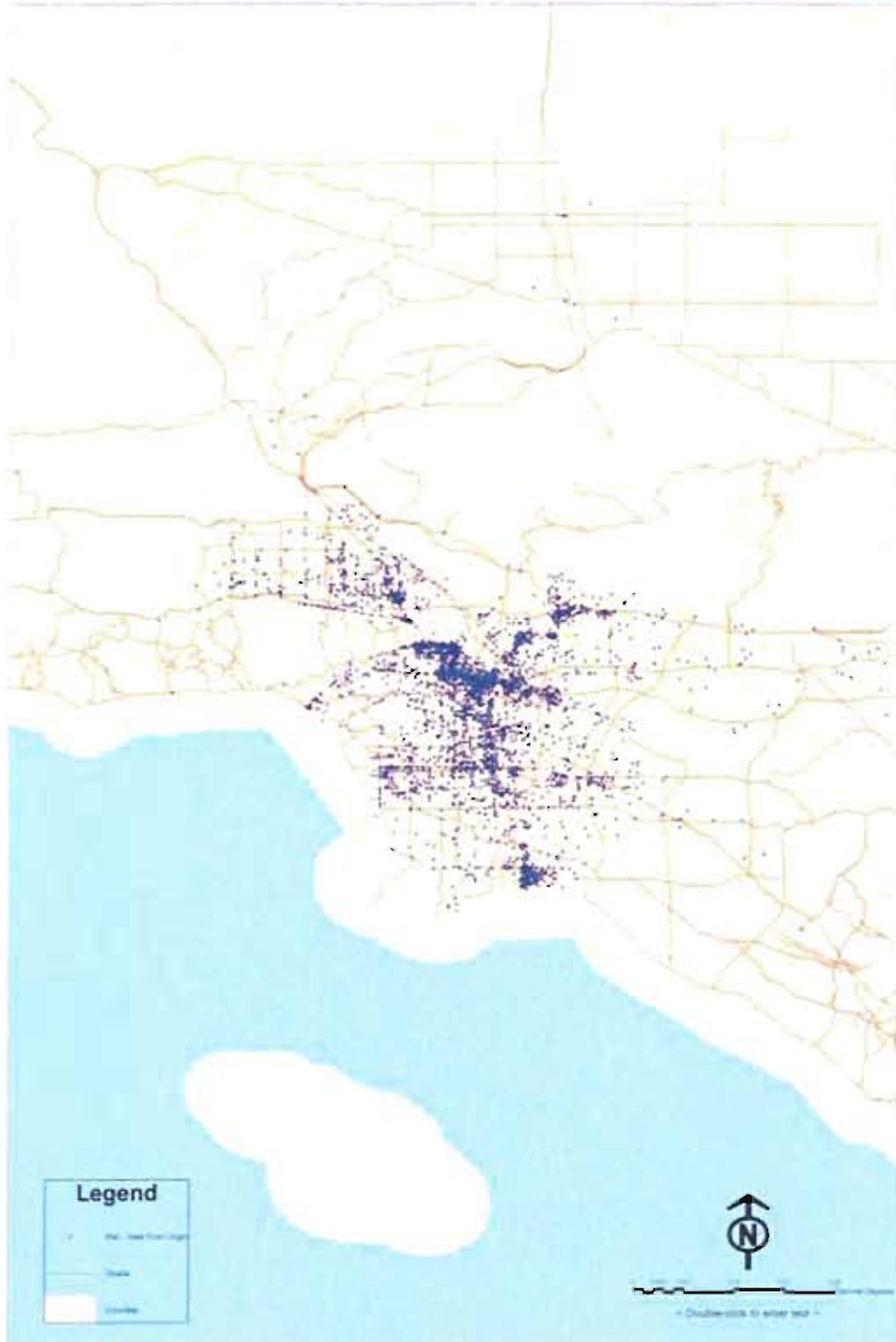
Rail - Work Destination



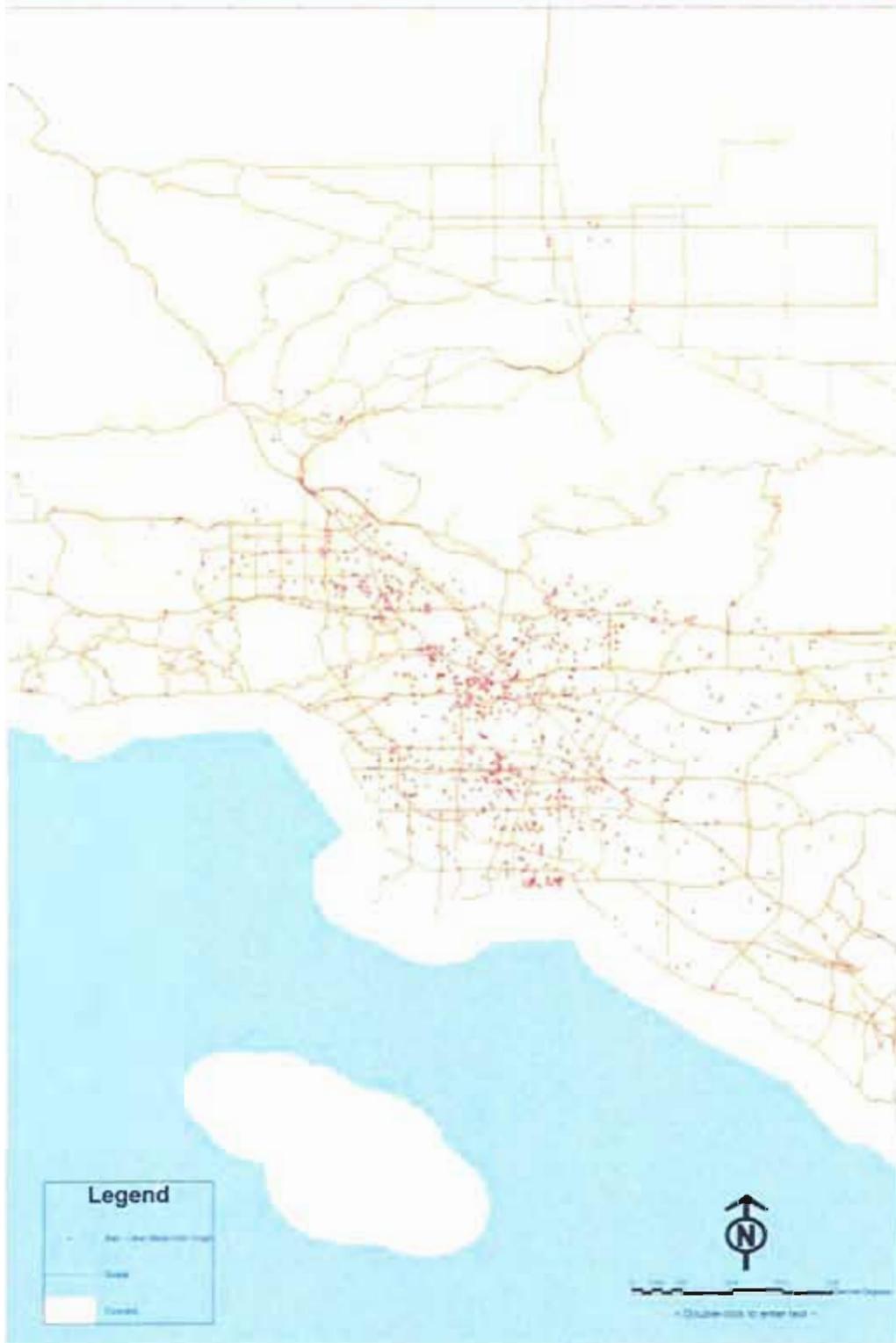
Rail - Home Destination



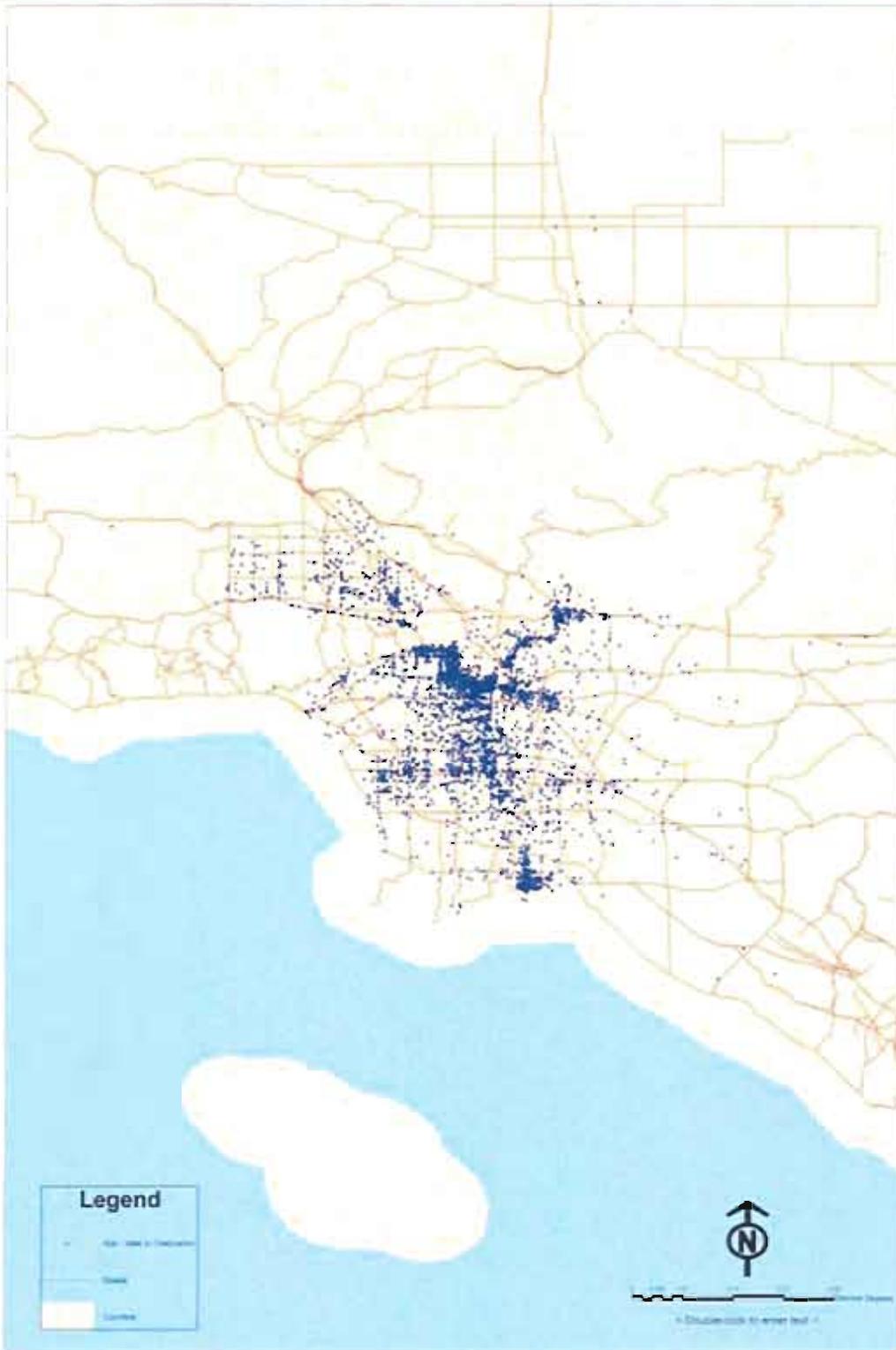
Rail - Origin Mode Walk



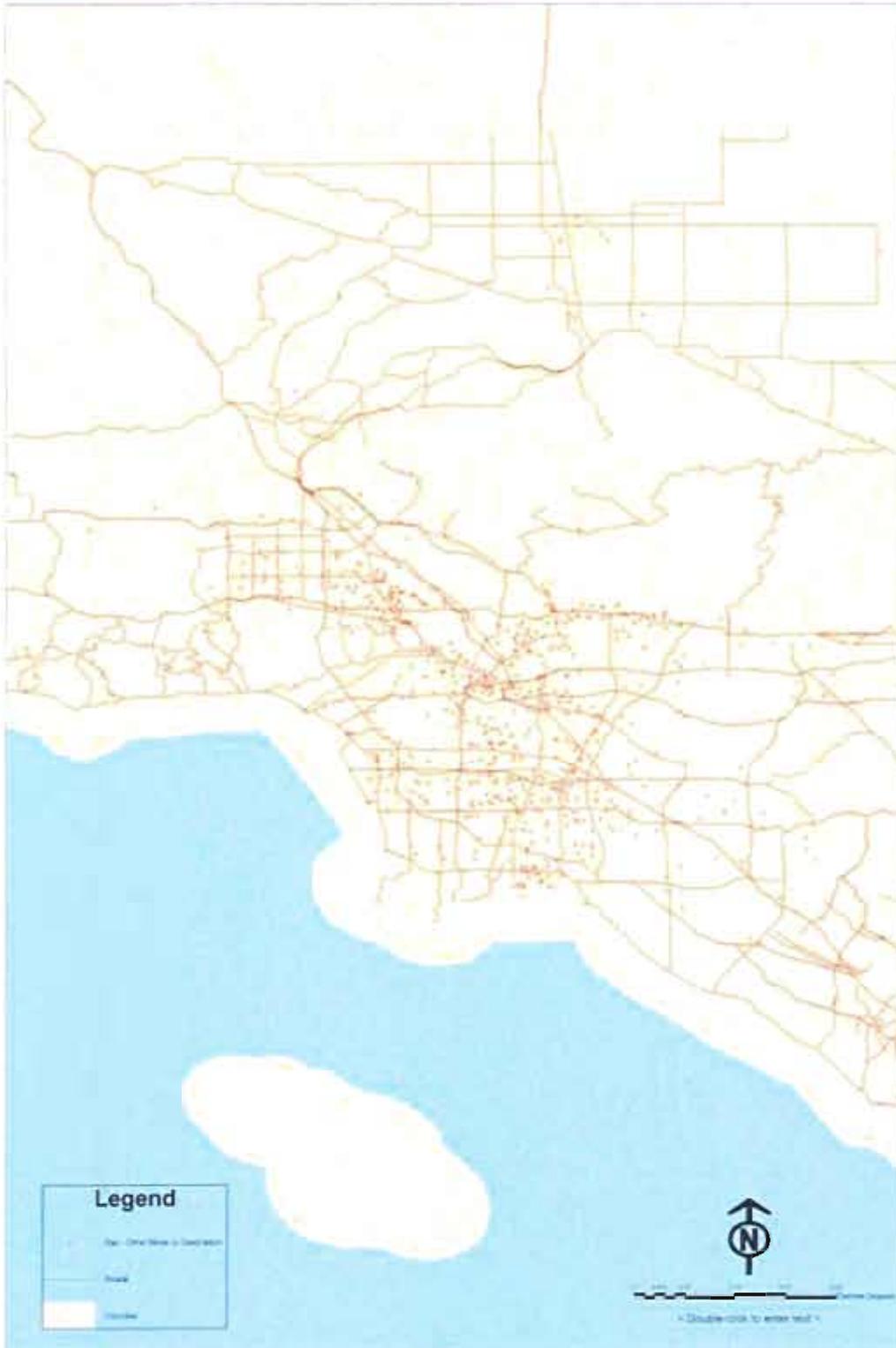
Rail - Origin Other Mode



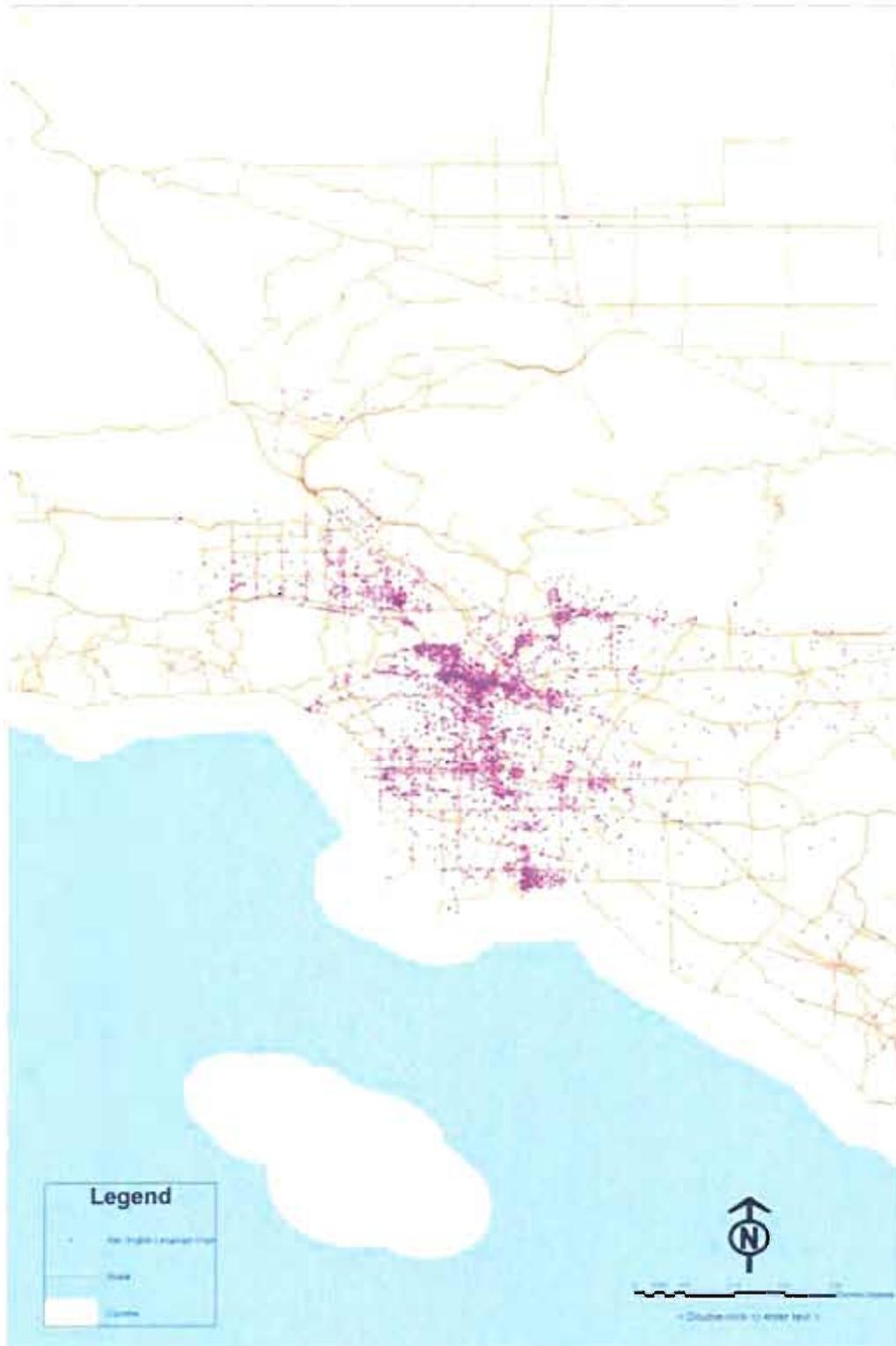
Rail - Destination Mode Walk



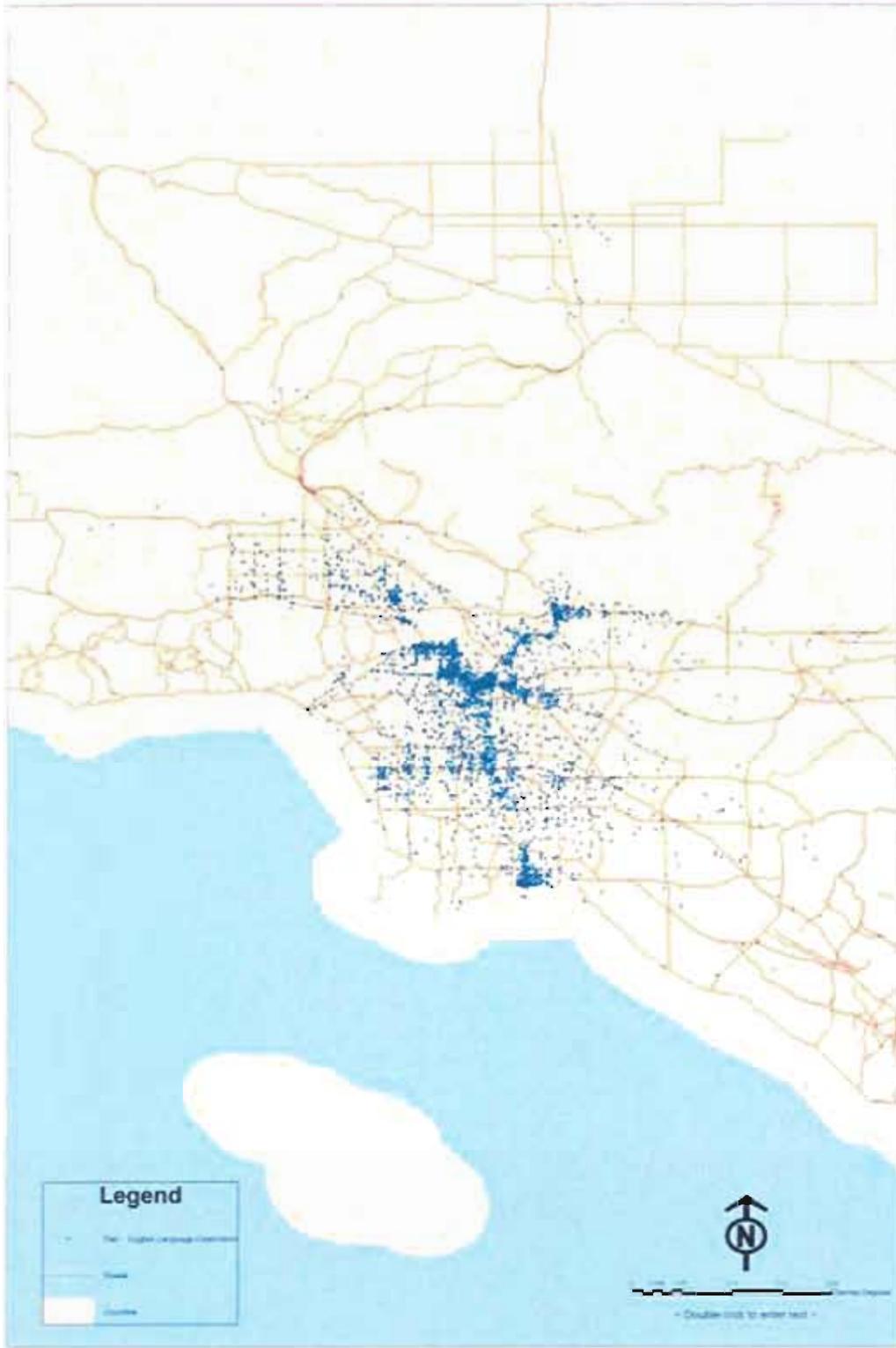
Rail - Destination Other Mode



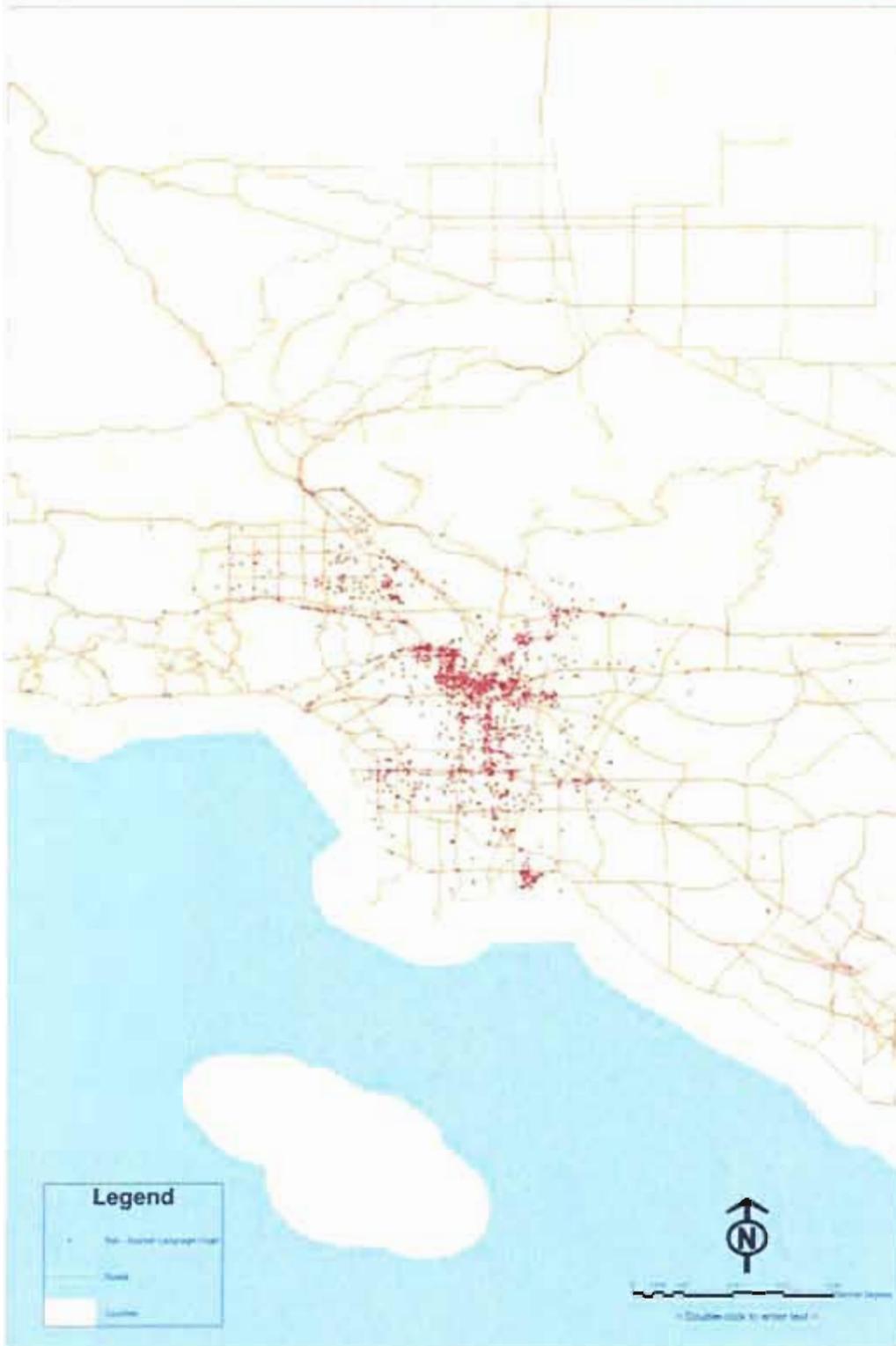
Rail - English Language Origin



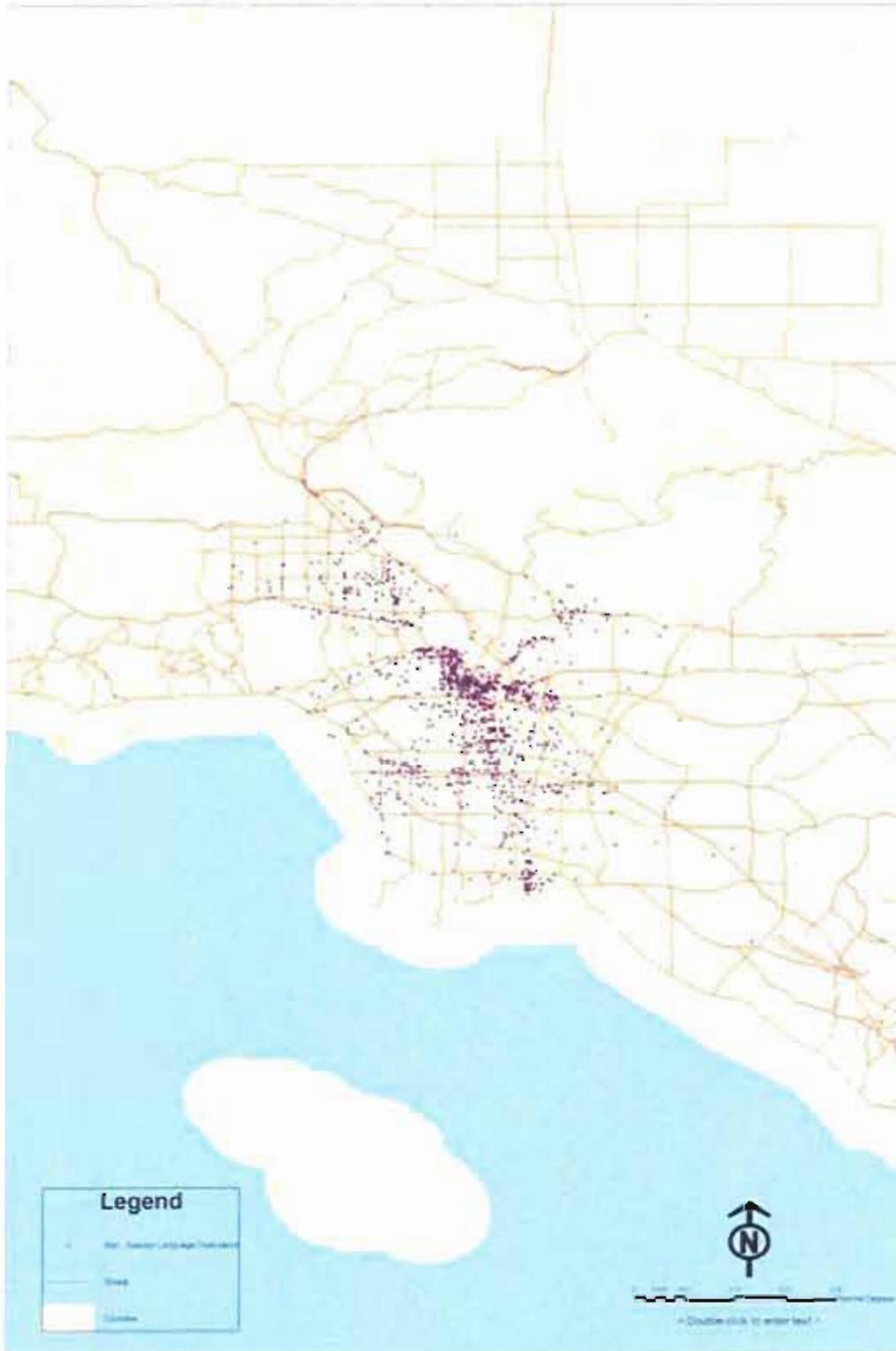
Rail - English Language Destination



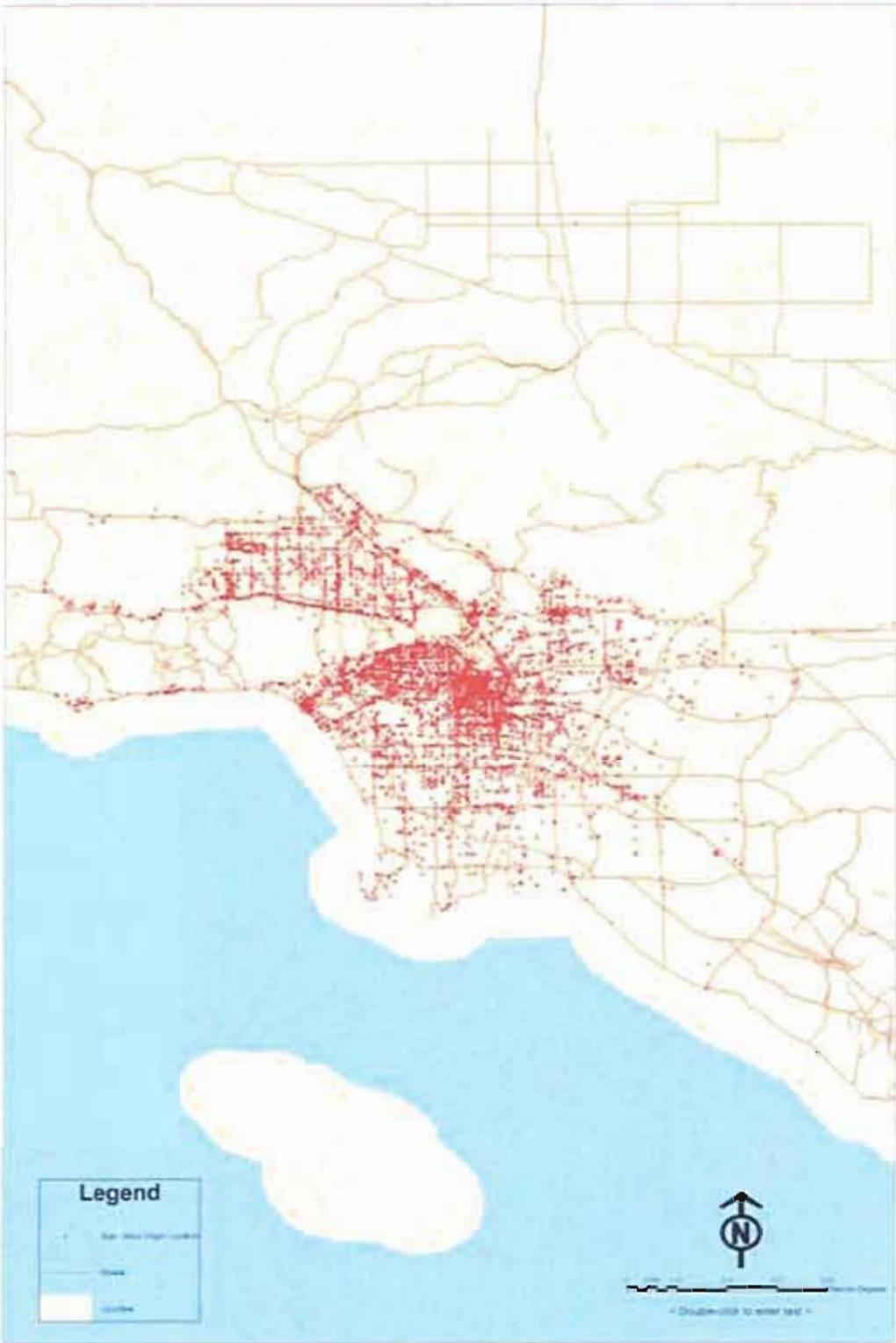
Rail - Spanish Language Origin



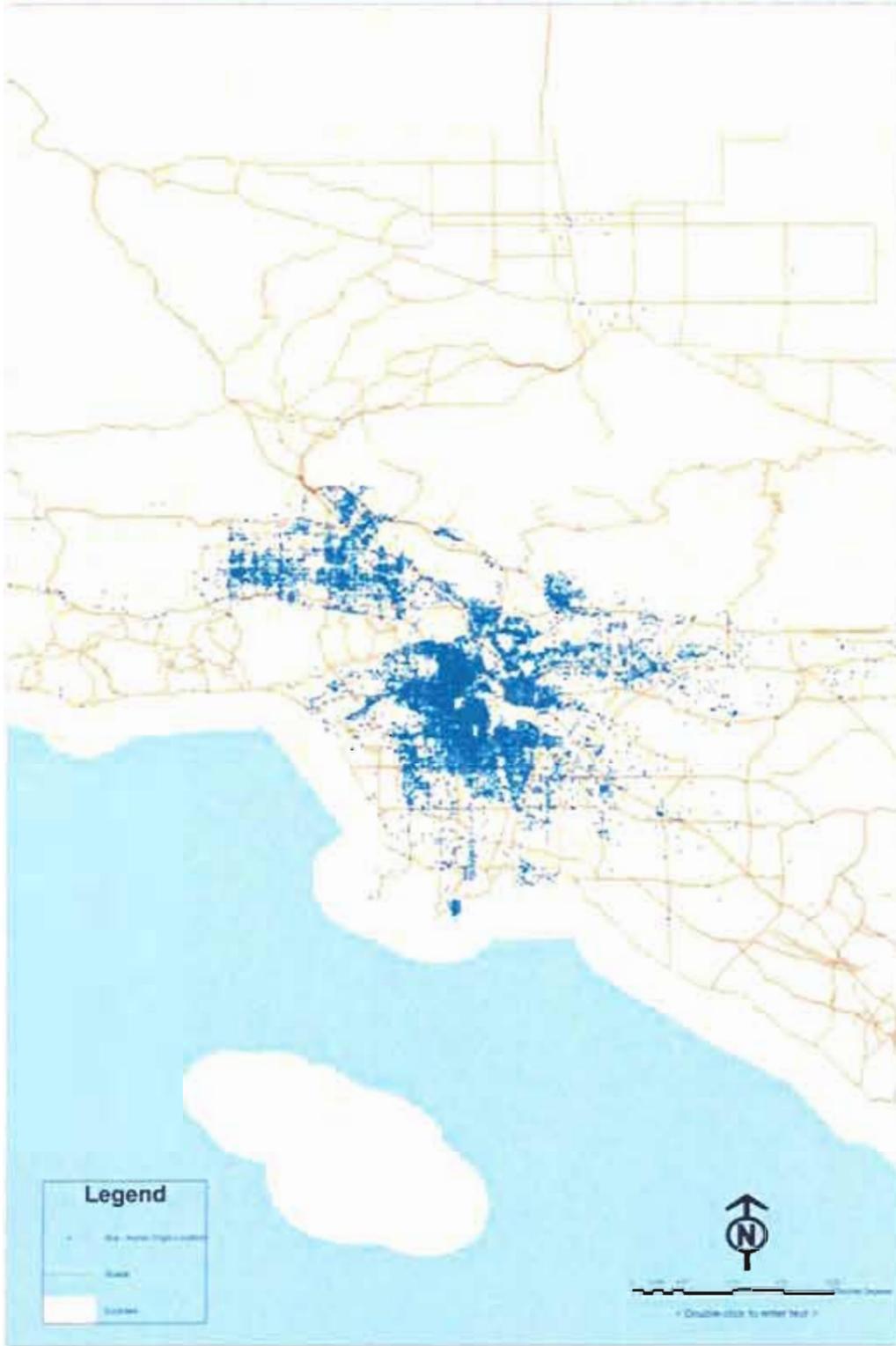
Rail - Spanish Language Destination



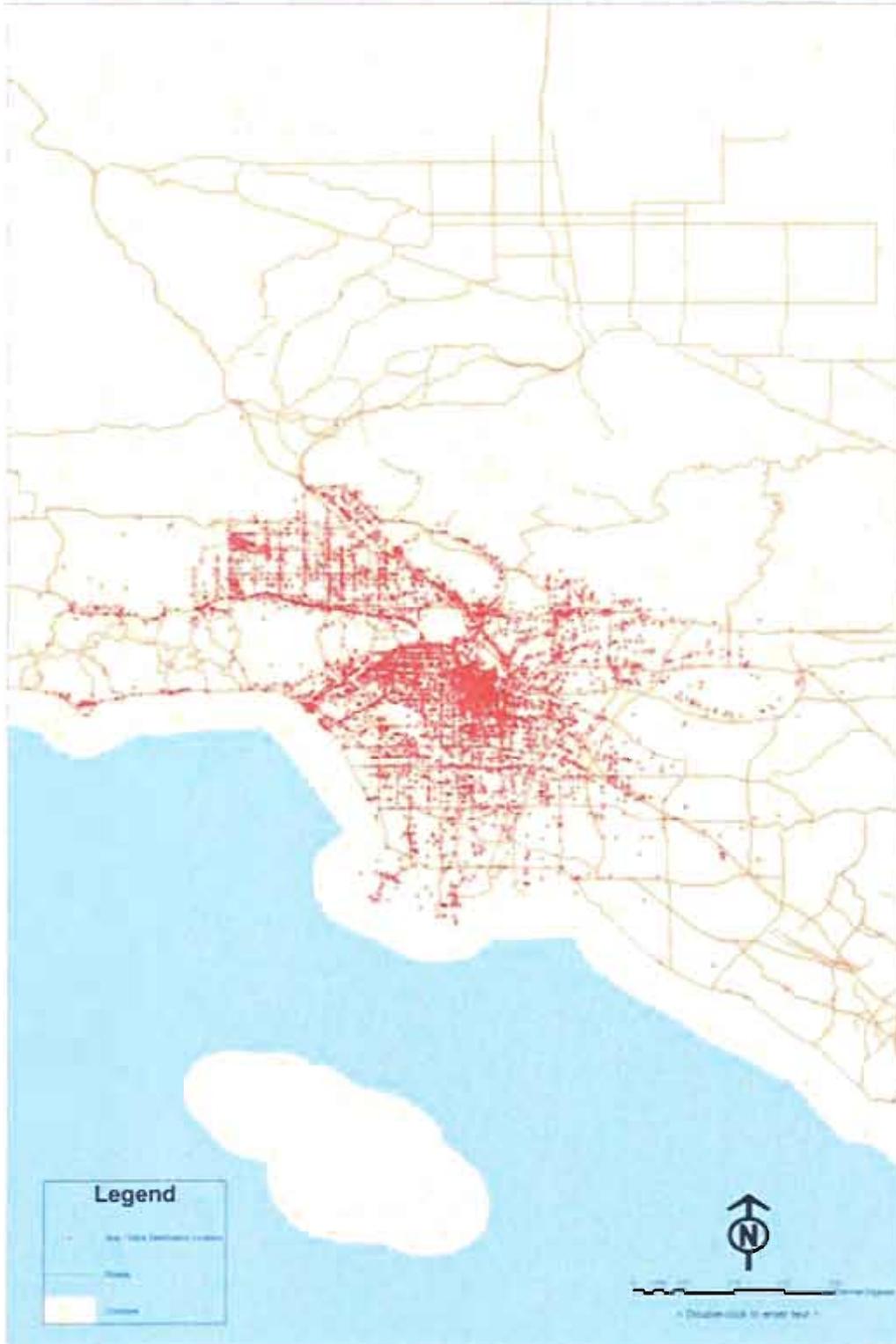
Bus - Work Origin



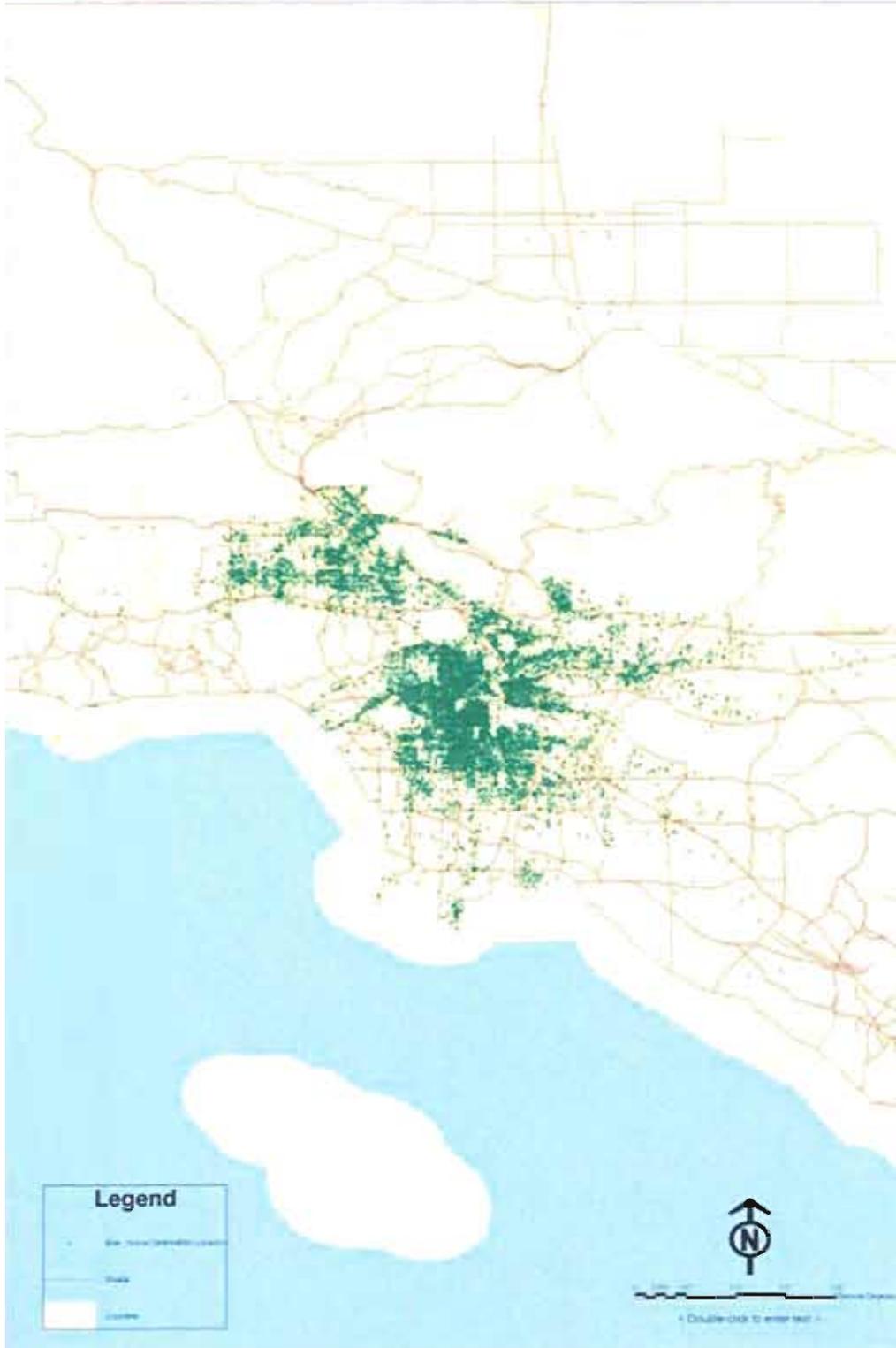
Bus - Home Origin



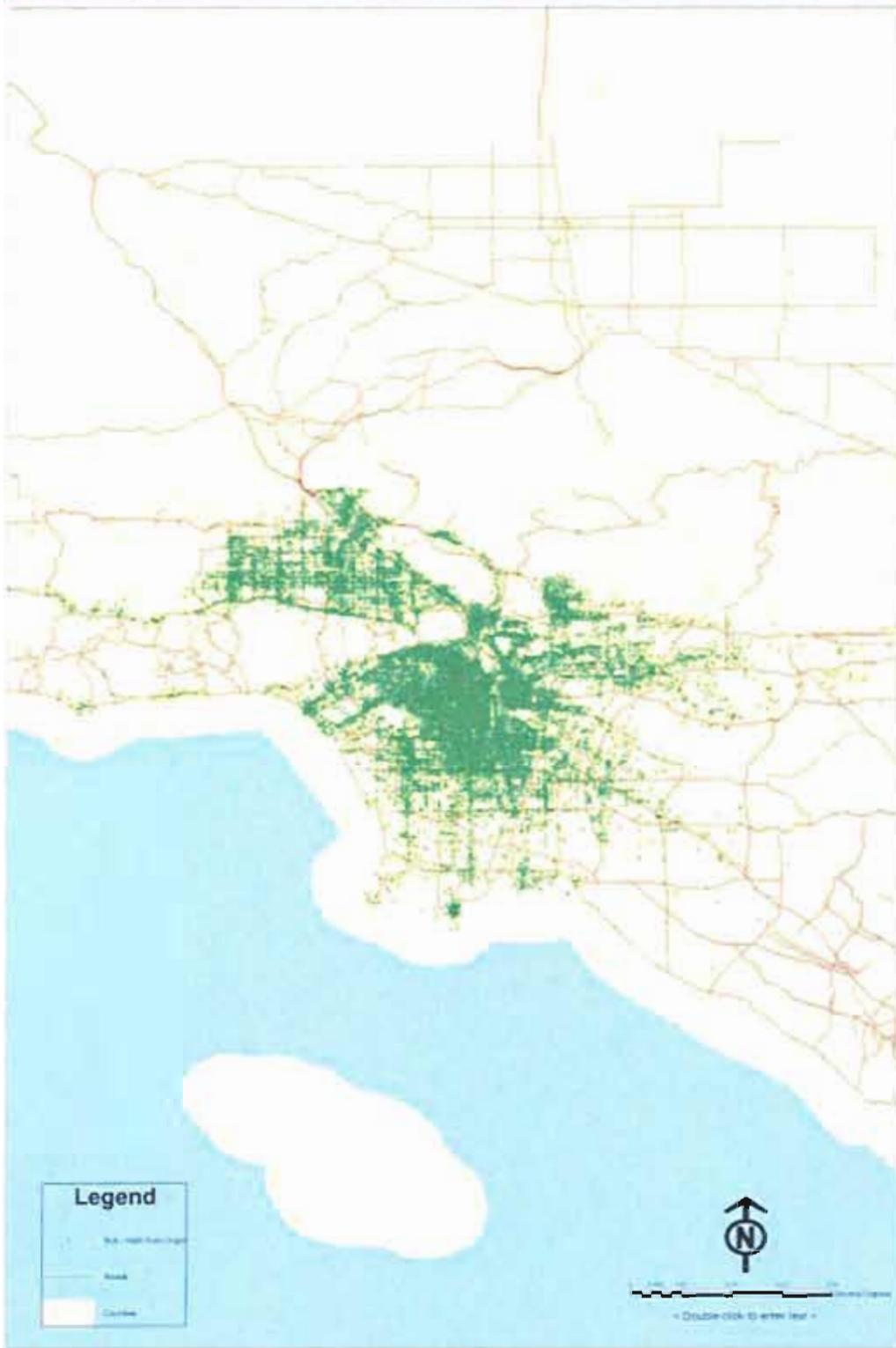
Bus - Work Destination



Bus - Home Destination



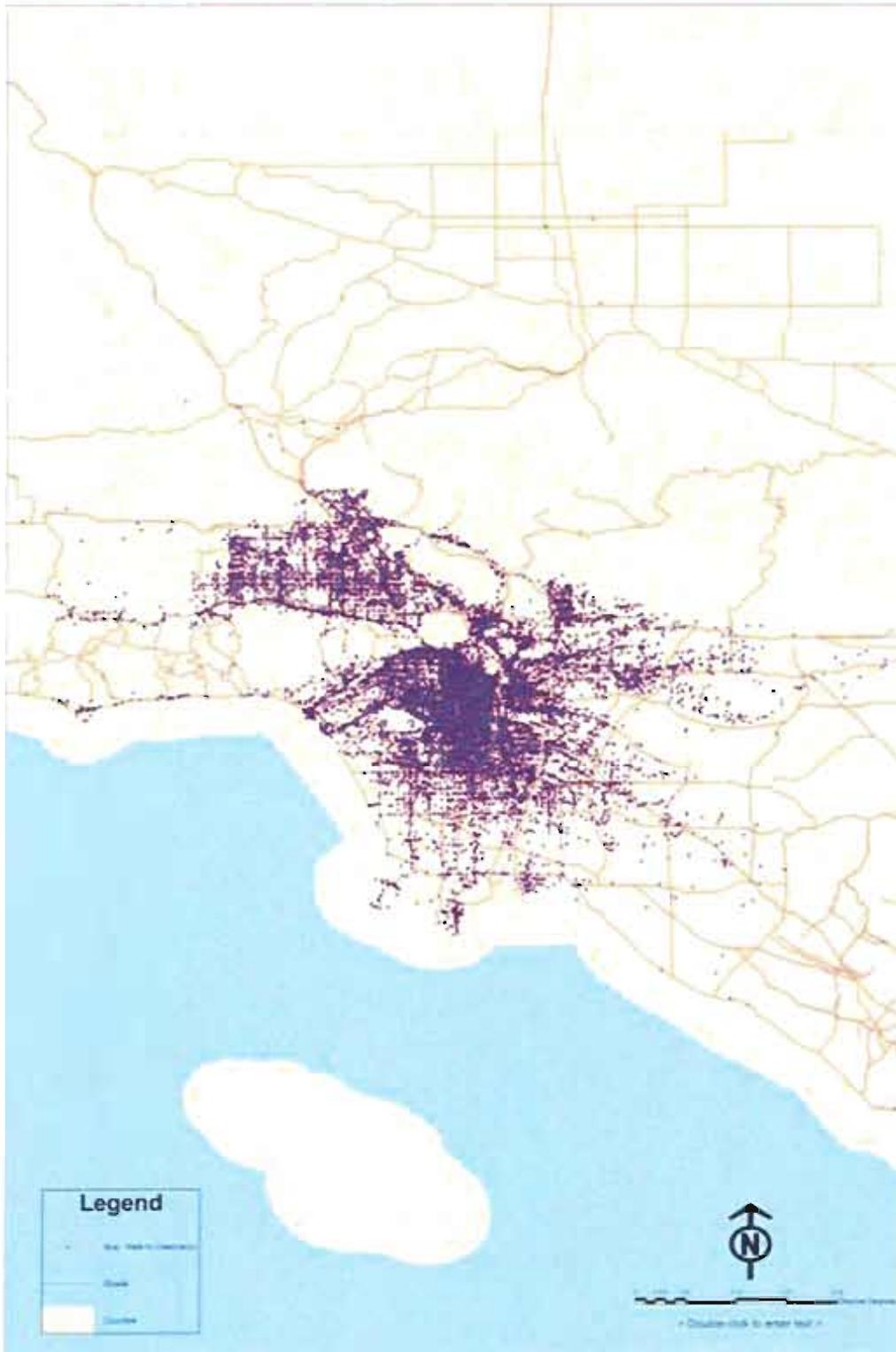
Bus - Origin Mode Walk



Bus - Origin Other Mode



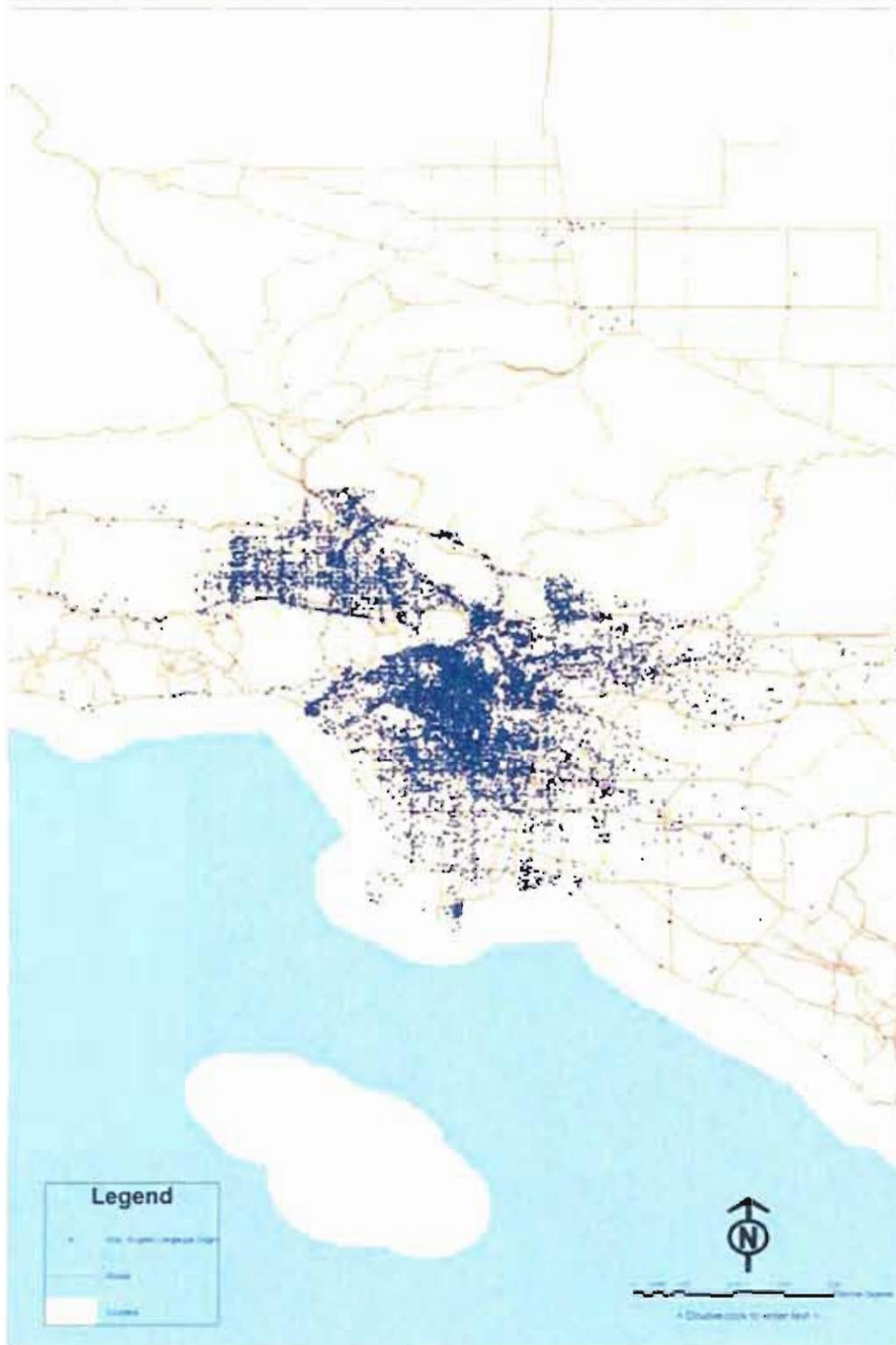
Bus - Destination Mode Walk



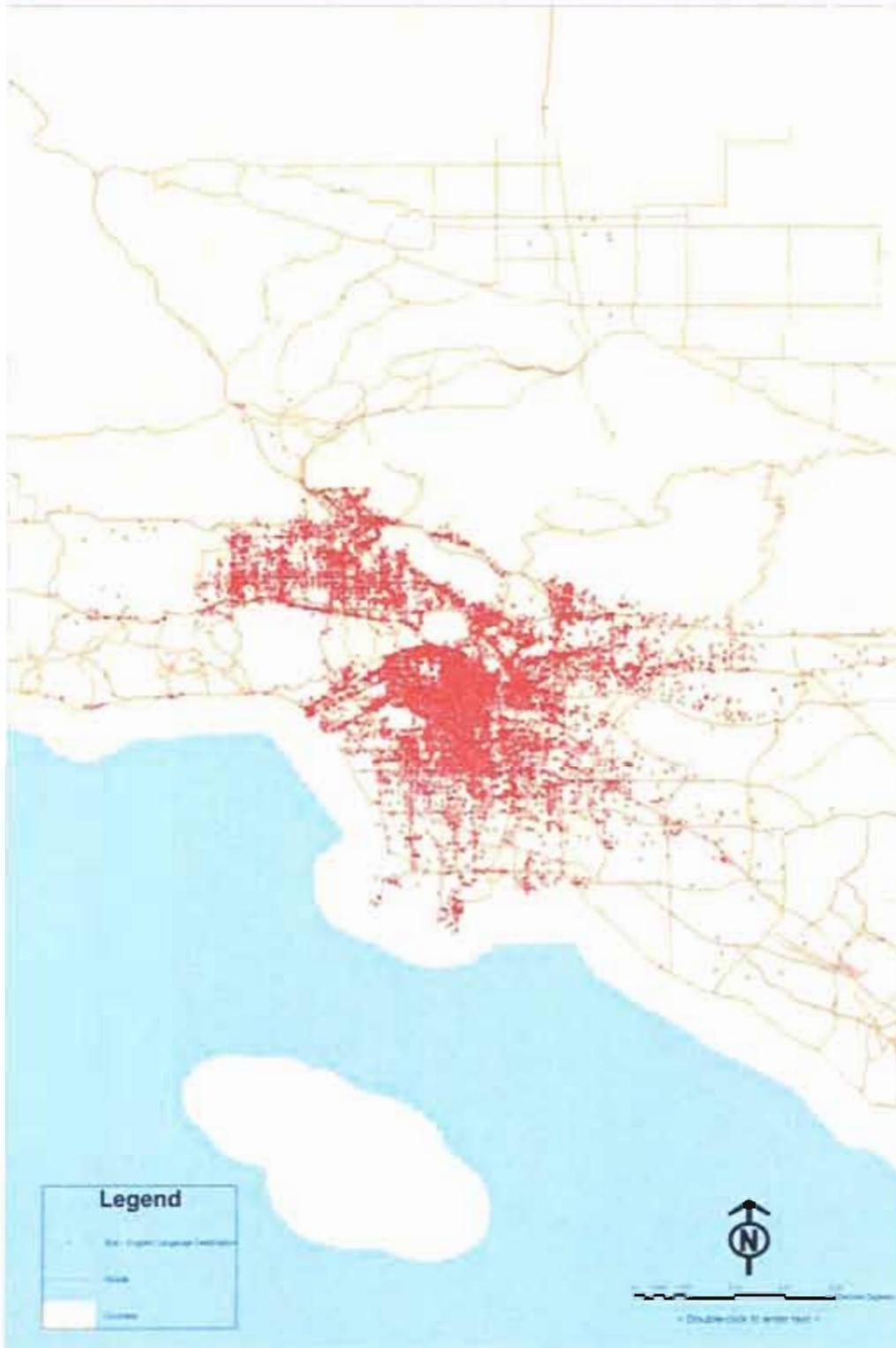
Bus - Destination Other Mode



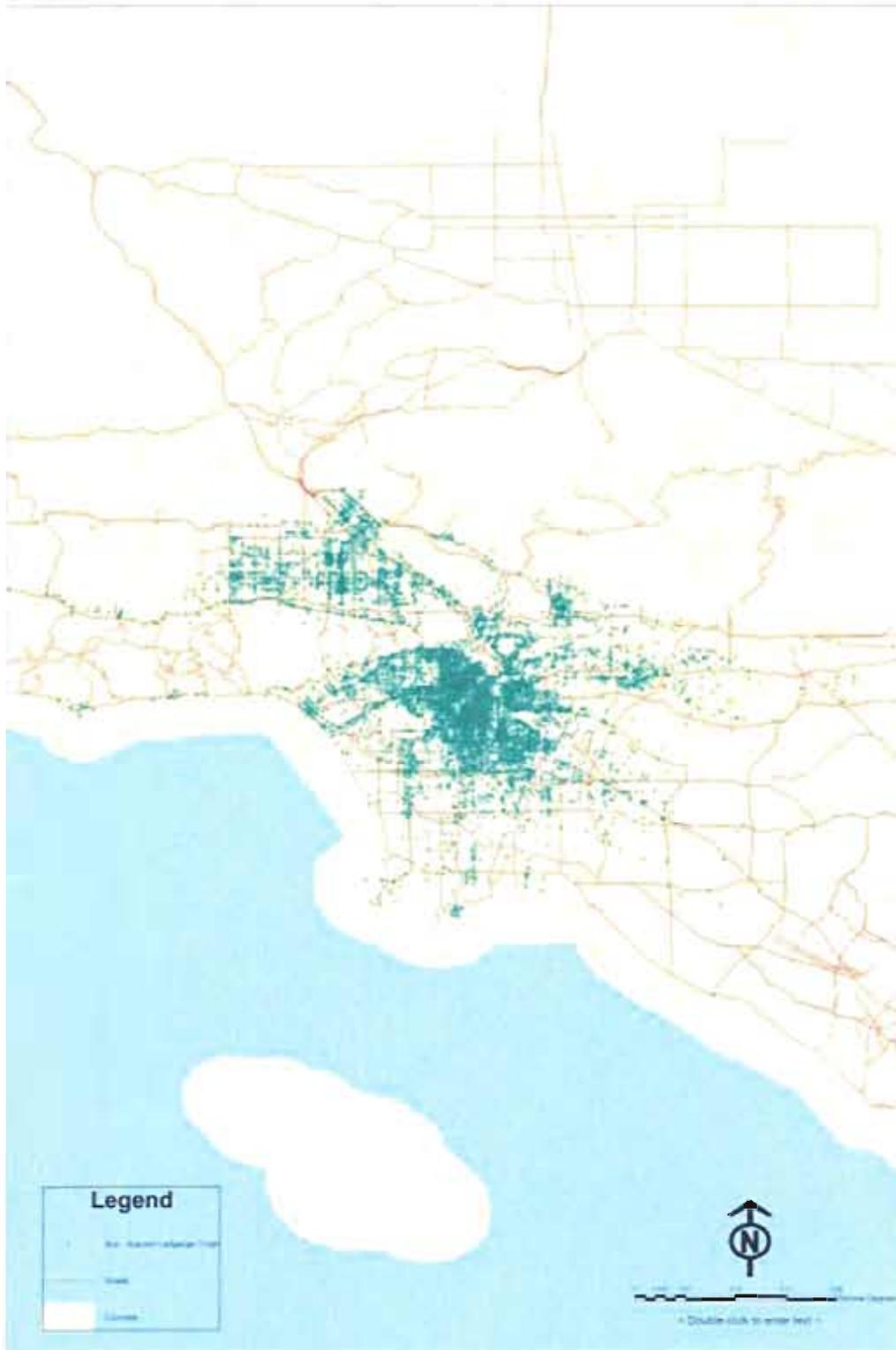
Bus - English Language Origin



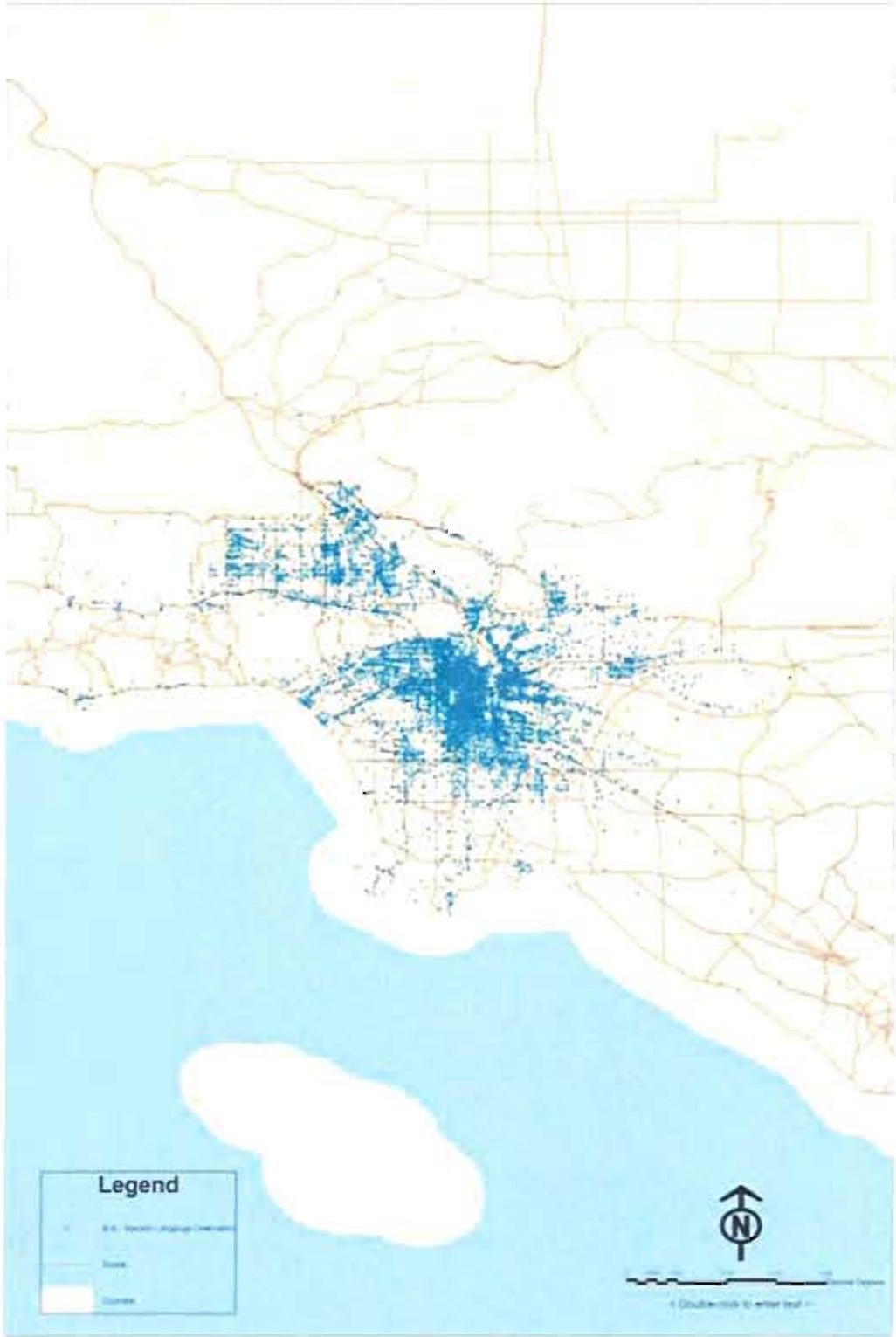
Bus - English Language Destination



Bus - Spanish Language Origin



Bus - Spanish Language Destination



Appendix A: Survey Card

Figure 4: English On-Board Survey Card (Metro Survey)

Why do you use the bus or train? Let us know to serve you better.

1. Where are you coming FROM now?

Work or Work Related Hotel (guest only)
 School (K-12) (student only) College or University (student only)
 Social or Recreational Shopping
 My Home Airport (airline passenger only)
 Other _____

2. Where are you going TO now?

Work or Work Related Hotel (guest only)
 School (K-12) (student only) College or University (student only)
 Social or Recreational Shopping
 My Home Airport (airline passenger only)
 Other _____

Please provide us with your name, phone number, and best time to call you. Once we complete the brief phone interview, you will be added to a drawing for \$500! Thank you.

Name _____

Phone () - -

Cell/Mobile Landline Home Landline Work

3. When is the best day/time to call you?

Weekday Weekend Daytime Evening

M Metro
Transit Survey

for office use only

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Barcode

Finished filling out this form? Please hold onto this card and return it ONLY as you get off.

1 Please take card

2 Fill it out

3 Give it back as you leave

Español →

Figure 5: Spanish On-board Survey Card (Metro Survey)

¿Por qué usa usted el autobús o tren? Háganos saber como servirle mejor.

¿Ha terminado de llenar este formulario? Favor de conservar la tarjeta y entregarla SÓLO cuando desienda.

1. ¿DE dónde viene usted en este momento?

<input type="radio"/> Trabajo o Relacionado con el Trabajo	<input type="radio"/> Hotel (huéspedes solamente)
<input type="radio"/> Escuela (K-12) (estudiantes solamente)	<input type="radio"/> Colegio o Universidad (estudiantes solamente)
<input type="radio"/> Social o Recreativo	<input type="radio"/> Compras
<input type="radio"/> Mi Hogar	<input type="radio"/> Aeropuerto (pasajeros solamente)
<input type="radio"/> Otro _____	

2. ¿ADÓNDE va en este momento?

<input type="radio"/> Trabajo o Relacionado con el Trabajo	<input type="radio"/> Hotel (huéspedes solamente)
<input type="radio"/> Escuela (K-12) (estudiantes solamente)	<input type="radio"/> Colegio o Universidad (estudiantes solamente)
<input type="radio"/> Social o Recreativo	<input type="radio"/> Compras
<input type="radio"/> Mi Hogar	<input type="radio"/> Aeropuerto (pasajeros solamente)
<input type="radio"/> Otro _____	

Favor de proporcionarnos su nombre, número de teléfono, y la mejor hora para llamarle a usted. Una vez que complete una breve entrevista por teléfono, usted será incluido/a en una rifa de \$500! Muchas gracias.

Nombre _____

Número de teléfono: () -

<input type="radio"/> Teléfono Celular/Móvil	<input type="radio"/> Línea Fija de Casa	<input type="radio"/> Línea Fija de Trabajo
--	--	---

3. ¿Cuándo sería el mejor día/hora para llamarle a usted?

<input type="radio"/> Entre Semana	<input type="radio"/> Fin de Semana	<input type="radio"/> Durante el Día	<input type="radio"/> Por la Noche
------------------------------------	-------------------------------------	--------------------------------------	------------------------------------

M Metro
Encuesta de Transporte Público

Sólo para el uso de la oficina

--	--	--	--

Barcode

1 Por favor obtenga una tarjeta

2 Llévela

3 Entreguela cuando complete su viaje

English →

Appendix B: CATI Script

LACMTA Script 2011

Introduction

Hi this is ____ calling on behalf of Metro; may I speak with <RNAME>.

CONTINUE WITH <RNAME>: You completed a survey on board a MTA <VTYPE> on <DATE>. You were on <ROUTE> <DIREC> at approximately <BTIME> traveling from <OPURP> to <DPURP>. We need to ask you some specific information on the locations at which you started and ended your travel as well as any transfers you made to complete the survey process. This won't take but a few minutes of your time. Once all answers have been verified, you will be placed in a drawing for \$500.

[AGE16] Are you at least 16 years of age or older?

Questions

IF <OPURP> and <DPURP> ARE BOTH HOME OR EITHER HAVE MULTIPLE RESPONSES OR EITHER IS BLANK OR EITHER IS 97 WITH A MISSING PURPO/PURPD, OTHERWISE SKIP TO Q3.

[OPURP]

1. Let me start by confirming some information that you provided in the survey form. Which of the following best matches the type of place you were coming from?
 - 1 Work or Work Related
 - 2 School (K-12) (*STUDENT ONLY*)
 - 3 Social or Recreational
 - 4 Home (*RESPONDENT HOME*)
 - 5 Hotel (*GUEST ONLY*)
 - 6 College/University (*STUDENT ONLY*)
 - 7 Shopping
 - 8 Airport (*AIRLINE PASSENGER ONLY*)
 - 97 Other (Specify): _____

[DPURP]

2. And, how about where you were going to? [PROBE IF THE SAME TYPE OF PLACE]
 - 1 Work or Work Related
 - 2 School (K-12) (*STUDENT ONLY*)
 - 3 Social or Recreational
 - 4 Home (*RESPONDENT HOME*)
 - 5 Hotel (*GUEST ONLY*)
 - 6 College/University (*STUDENT ONLY*)
 - 7 Shopping
 - 8 Airport (*AIRLINE PASSENGER ONLY*)
 - 97 Other (Specify): _____

GO TO TT : SAY: For this survey, we will be using an interactive mapping tool to verify the origin and destination of the one-way transit trip you were surveyed on. In addition to this, we'll need to use the same tool to verify any additional bus or rail stops and parking locations you may have visited during

LAMTA 2010 TripTracer Short Sheet

Now, I want to collect the information about your travel to the <VTYPE> on which you were surveyed.

7. Earlier, you informed us that you were coming from <OPURP>. What is the name and address of this place?

INTERVIEWER NOTE: COLLECT LOCATION AS WAYPOINT 1 in TT

8. So when you left <OPURP>, did you travel directly to <BOARDING> or did you travel to a different bus, rail stop, or parking location before arriving at <BOARDING>?

- 1 DIRECTLY TO BOARDING- ASK Q9
- 2 DIFFERENT BUS/RAIL- SKIP TO Q10
- 3 PARKING LOCATION- SKIP TO Q14

9. What method of transportation did you use to get from <OPURP> to <BOARDING>?

INTERVIEWER NOTE: EDIT THE MODE ON THE BOARDING LOCATION WAYPOINT TO THE MODE SPECIFIED BY RESPONDENT, THEN SKIP TO ALITEXT

10. What is the system and route of the transit stop you traveled to?

INTERVIEWER NOTE- USE THE "LINE NUMBER" SEARCH FIELD IN THE TRANSIT LINE LOOK UP TAB TO SELECT APPROPRIATE SYSTEM-LINE

10a Was this a bus or train?

11. Thank you sir/ma'am and what are the cross streets of this transit stop?

INTERVIEWER NOTE- USE THE "TRANSIT STOP NAME" SEARCH FIELD TO SELECT THE CORRECT TRANSIT STOP- ADD AS ORIGIN IN TRANSIT LINE LOOK UP TAB

12. Alright, and what were the cross streets of the transit stop you got off on?

INTERVIEWER NOTE- USE THE "TRANSIT STOP NAME" SEARCH FIELD TO SELECT THE CORRECT TRANSIT STOP- ADD AS DESTINATION IN TRANSIT LINE LOOK UP TAB. TT WILL PROMPT YOU TO COLLECT THE METHOD OF TRAVEL USED TO GET TO THE TRANSIT STOP COLLECTED IN Q10

13. Did you travel to another transit stop after this, or did you travel directly to <BOARDING> from here?

- 1 TRANSIT STOP-ASK QUESTIONS 10-13
- 2 DIRECTLY TO BOARDING- SKIP TO ALITEX

14 What is the address of this parking location?

INTERVIEWER NOTE- ADD THIS AS A WAYPOINT IN TT

15 What mode of transportation did you use when you traveled to the parking location?

INTERVIEWER NOTE- ENSURE CORRECT MODE IS RECORDED IN TT

16. Thank you sir/ma'am, and what mode of transportation did you use when you traveled from the parking location to <BOARDING>?

INTERVIEWER NOTE- ADJUST MODE OF BOARDING LOCATION ACCORDINGLY

ALITEX Alright sir/ma'm, as we confirmed earlier, once you left <BOARDING> you got off at <ALIGHTING>

Now, I want to collect the information about your travel to your final destination.

17. After you got off at <TTALO>, what did you do next? Did you travel directly to <DPURP > or did you travel to a different bus, rail stop, or parking location before arriving at <DPURP >?

- 1 DIRECTLY TO <DPURP>- SKIP TO Q24
- 2 DIFFERENT BUS/RAIL-CONTINUE WITH Q19
- 3 PARKING LOCATION- SKIP TO PARKING

19. What system and route did you transfer to? PLEASE SPECIFY SYSTEM NAME INSTEAD OF ABBREVIATION (e.g., Metro for MT, Culver City bus for CC, etc.)

INTERVIEWER NOTE- USE THE "TRANSIT STOP NAME" SEARCH FIELD TO SELECT THE CORRECT TRANSIT STOP- ADD AS LINE/ORIGIN IN TRANSIT LINE LOOK UP TAB

20. Thank you sir/ma'am and what are the cross streets of this transit stop?

INTERVIEWER NOTE- USE THE "TRANSIT STOP NAME" SEARCH FIELD TO SELECT THE CORRECT TRANSIT STOP- ADD AS ORIGIN IN TRANSIT LINE LOOK UP TAB

21 Alright, and what were the cross streets of the transit stop you got off on?

INTERVIEWER NOTE- USE THE "TRANSIT STOP NAME" SEARCH FIELD TO SELECT THE CORRECT TRANSIT STOP- ADD AS DESTINATION IN TRANSIT LINE LOOK UP TAB. TT WILL PROMPT YOU TO COLLECT THE METHOD OF TRAVEL USED TO GET TO THE TRANSIT STOP COLLECTED IN Q21

22. Did you travel to another transit stop after this, or did you travel directly to <DPURP > from here?

BACK TO CATI

[DTRAN] Display of trip: route sequence, total buses, trains, and total vehicles, origin, destination, access, egress, and any additional TT notes

[BIKE]

27. Did you take your bike with you on the <VTYPE>?
1. Yes
 2. No
 9. DK/RF

I just have a few more questions for you.

[FARE]

28. How did you pay your fare for this trip?
10. Cash
 11. Token
 12. Day pass
 13. Weekly pass
 14. Monthly pass
 15. Freeway express stamp
 16. EZ Transit pass
 17. EZ Premium stamp
 97. Other (Specify): _____
 99. DK/RF

[O_FARE] Other Fare

[VEHAV]

29. How many working vehicles are available in your household?
NOTE DO NOT READ RESPONSE CATEGORIES IN CAPS
- 0 NONE
 - 1 ONE
 - 2 TWO
 - 3 THREE
 - 4 FOUR OR MORE
 - 9 DK/RF

[HHWRK]

30. How many of the people in your household are employed full-time or part-time?
- 0 NONE
 - 1 ONE
 - 2 TWO
 - 3 THREE
 - 4 FOUR
 - 5 FIVE OR MORE
 - 9 DK/RF

[LICSE]

31. Do you have a valid driver's license?

1. Yes
2. No
9. DK/RF

[EMPLY]

32. Are you...
01. Employed Full-time
 02. Employed Part-Time
 03. Student
 04. Unemployed
 05. Retired
 06. Homemaker
 99. DK/RF

[AGE]

33. What is your age? Is it....
1. Under 18
 2. 18-24
 3. 25-34
 4. 35-49
 5. 50-64
 6. 65 + years of age
 18. DK/RF

[ETHNC]

34. What is your ethnicity? Do you consider yourself....
1. Asian
 2. Hispanic
 3. White
 4. Black/ African American
 5. Native American
 97. Other
 99. DK/RF

[O_ETHNC] Other Ethnicity

[INCOM]

35. My last question is about your total household income in 2009. Into which of the following categories does your household fall? (IF NEEDED: Household income not only allows us to verify that we are including all types of households from the region, but it also has been found to be related to the types of trips households make.)

1. Less than \$5,000
2. \$5,000 to \$9,999
3. \$10,000 - \$14,999
4. \$15,000 - \$24,999
5. \$25,000 - \$34,999
6. \$35,000 - \$49,999
7. \$50,000 - \$69,999
8. \$70,000 - \$134,999

- 9. \$135,00 or more
- 99 DK/RF

Those are all the questions I have for you. Thank you very much for your time and for participating in this important survey. Have a great day!