

APPENDIX

DATA ANALYSIS REPORT FOR EXPEDITED REVIEWS

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**APPENDIX
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OVERVIEW

TRIPS GENERATED BY THE PROPOSED DRI

**TRIP LENGTH (DISTANCE) BY TRIP PURPOSE BY OCCUPANCY BY MODE OF TRAVEL
FOR ALL TRIPS**

**TRIP LENGTH (DISTANCE) BY TRIP PURPOSE BY OCCUPANCY BY MODE OF TRAVEL
FOR COMMUTE TRIPS**

POSSIBLE PROXY: TRIP TIME (MINUTES), ALL TRIPS

POSSIBLE PROXY: COMMUTE TRIP TIME (MINUTES)

NATIONWIDE PERSONAL TRANSPORTATION SURVEY (NPTS)

CENSUS 2000 SAMPLE (SF 3) DATA

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TRANSPORTATION MODELS AND ORIGIN-DESTINATION DATA

OVERVIEW

There are two possible criteria that an applicant can meet under the area of influence provision for expedited review. The first involves single occupant vehicle trip lengths and the other involves work-related vehicle trip lengths (both expressed in terms of distance).

There are few (if any) data sources that provide reliable data on trip lengths in distance. There are no data in published sources to assess the Single Occupancy Vehicle (SOV) trip length criteria specified in GRTA's Rule Section 3-102.

Commute time might serve as a proxy. For instance, a 20-minute commute time may appropriately serve as a proxy representing an approximate 6-mile distance. Stover and

Koepke (1988, 50) indicate that it is travel time (not distance) and trip purpose that are determinants of trip length. They find that maximum travel time is 10 minutes for neighborhood shopping trips (i.e., clearly within 6 miles of the site in question), 15-20 minutes for community shopping trips (i.e., perhaps most of them within the AOI), and 30 minutes for peak-hour residential trips (i.e., outside an AOI).

There are no known sources of data for means of transportation other than for work trips. Any attempt to try and infer from work trips to total trips would probably be unreliable for various reasons. This is a significant problem, considering that some 75-80% of all trips are not work-related. The data that are available only address approximately one quarter of the total vehicle trips.

TRIPS GENERATED BY THE PROPOSED DRI

Primary Data Source: Institute of Transportation Engineers. 1997. Trip Generation, 6th Ed. Washington, DC: Institute of Transportation Engineers.

TRIP LENGTH (DISTANCE) BY TRIP PURPOSE BY OCCUPANCY BY MODE OF TRAVEL FOR ALL TRIPS

Primary Data Source: No published data available.

TRIP LENGTH (DISTANCE) BY TRIP PURPOSE BY OCCUPANCY BY MODE OF TRAVEL FOR COMMUTE TRIPS

Primary Data Source: No published data available.

POSSIBLE PROXY: TRIP TIME (MINUTES), ALL TRIPS

Primary Data Source: No published data available.

GRTA's household travel survey may reveal this information in the future.

POSSIBLE PROXY: COMMUTE TRIP TIME (MINUTES)

Data are available for the means of transportation to work for workers 16 years and over for the area of influence, but not for the proposed DRI. These data for the AOI may be revealing in some respects, but they do not necessarily represent the characteristics of the proposed DRI.

Primary Data Source: Census 2000 Sample (SF 3)

GRTA's household travel survey may also reveal this information in the future.

NATIONWIDE PERSONAL TRANSPORTATION SURVEY (NPTS)

The Nationwide Personal Transportation Survey (NPTS) (now National Household Travel Survey) serves as the nation's inventory of daily personal travel. It is the only authoritative source of national data on daily trips including purpose of the trip, means of transportation, how long the trip took, day of week and month, number of people on trip, etc. Table 1 provides historic data on vehicle trip lengths in the United States.

Table 1
Average Vehicle Trip Length in Miles
By Purpose of Trip, 1969, 1977, 1983, 1990, and 1995
United States

Trip Purpose	1969	1977	1983	1990	1995
To/from work	9.40	9.02	8.55	10.97	11.80
For family and personal business	6.51	6.72	6.68	7.43	6.93
For shopping	4.36	4.99	5.28	5.10	5.64
For social and recreation	13.12	10.27	10.55	11.80	11.24
For all purposes	8.90	8.35	7.90	8.85	9.06

Source: Nationwide Personal Transportation Survey. Accessed via the World Wide Web 8/21/02. <http://ceq.eh.doe.gov/nepa/reports/statistics/tab10x4.html>

Nationally in 1995, work-related trips were almost twice the average length of the AOI standard of 6 miles or less.

One might infer, with adjustments, from data on work trips to the universe of total trips. For instance, we know from the Nationwide Personal Transportation Survey that single occupancy vehicles accounted for 83% of all journey-to-work trips in the United States in 1990 (Yee and

Neimeier 1998). However, such inferences may be unreliable, because work trips are considerably longer than many other types of trips, as shown in Table 1.

CENSUS 2000 SAMPLE (SF 3) DATA

The 2000 Decennial Census provides substantial data that can be used to inform DRI reviews. However, only a few of these variables are directly usable in DRI (AOI) compliance analyses for expedited review criteria.

The U.S. Census Bureau publishes on a decennial basis the means of transportation to work for workers 16 years and over (2000 Census SF 3 sample data, Table P30). Year 2000 data on means of transportation to work for Georgia were released in September 2002. Table 2 illustrates how decennial census data (available for census tracts and census block groups can be arrayed for AOI analyses (no numbers are shown).

Table 2
Means of Transportation to Work in 2000
Workers 16 Years and Over
Census Tract or Census Block Group Data

Means of Transportation	Number	Percentage of Total
Car, truck or van, drove alone		
Car, truck or van, carpooled		
Public transportation		
Motorcycle		
Bicycle		
Walked		
Other means		
Worked at home		
TOTAL		

Source: U.S. Bureau of Census. 2000 Census of Population and Housing, SF 3. Table P30. Accessed via the World Wide Web. <http://factfinder.census.gov/>

SOV trip lengths for census tracts and census block groups in the vicinity of a DRI, expressed in terms of travel time to work, might serve as a reasonable proxy for the trips generated by the DRI. However, the census data (and ITOS' Georgia 2000, which is based on census data) are severely limited in that they only provide trip lengths in minutes for *work-related* SOV vs. non-SOV trips, rather than for all household trips. Thus, census data cannot be used to satisfy the methods needed to analyze the trip length expedited review criteria.

HOUSEHOLD TRAVEL SURVEYS

Other possible data sources include the National Household Travel Survey (NHTS) (formerly known as the Nationwide Personal Transportation Survey, or NPTS) and the ARC/GRTA Household Travel Survey. Both of these sources provide estimates that allow the analyst to break down total trips into SOV vs. non-SOV. The ARC/GRTA Household Travel Survey provides trip length by minutes, but not by miles. It is possible to impute trip length in miles, since the origins and destinations of trips are geocoded (i.e., spatially referenced in a GIS system).

The 1995 NPTS found an average 4.30 trips/person, with 92.1% of the trips occurring by private travel. The ARC/GRTA Survey, which is based on actual travel patterns in the Atlanta metropolitan region, is preferred over the National Household Travel Survey, which is based on national averages. With both of these sources, the analyst might assume appropriately that the estimates apply to travel patterns for trips generated by the DRI.

Total trips include work trips and trips for all other purposes. Total trips can be further disaggregated by mode and purpose. For instance, a shopping trip may be by single occupancy vehicle, public transportation, or walking. As noted previously, there are no known sources of data for means of transportation other than for work trips. Any attempt to try and infer from work trips to total trips would probably be unreliable for various reasons. The unavailability of data by mode for total trips (not just work trips) is substantial, as some 75-80% of all trips are not work-related. Hence, if a DRI analyst focused only on work-related trips, he or she would be investigating only a small portion of the total trips.

TRANSPORTATION MODELS AND ORIGIN-DESTINATION DATA

Certain DRI applicants may have access to origin-destination data. Most often, origin-destination data are derived by survey sampling techniques. Such data show the origins of vehicle trips and their destinations, and they can be useful and reliable data on which to base a transportation model. Most origin-destination surveys are likely to focus on a major employer (i.e., commute trips only). Few origin-destination surveys are available that focus on other-than-commute trips. Since the census already publishes reliable work commute data, it seems as if

origin-destination studies would add only marginally to the mix of data used in AOI analyses (though at considerable additional cost). The ARC/GRTA Household Travel Survey, now being conducted as part of the SMARTRAQ project, is likely to yield substantial, reliable data with regard to origins and destinations of travel.

Transportation models use traffic analysis zones (TAZs) and assign a number of generators and attractors based on land use interrelationships (e.g., home to work, home to shopping, work to home, shopping to home, etc.). Model data can indicate the number of trips to and from each pair of TAZs. Thus, the number of trips can be quantified, and when those trips are geocoded (TAZ centerpoint data), a trip length in distance can be calculated. Reasonably accurate distances can be calculated on the present roadway network or the network as planned to be improved. Data can thus be compiled on trip lengths, and perhaps they can be disaggregated by trip purpose. Alternatively, trip length data may be imputed based on trip time. Theoretically, if reliable data on trip length (distance) can be revealed, the data can be applied in analyses for expedited review. Transportation model data are not considered appropriate for AOI analyses unless the work is approved by GRTA staff and sufficient documentation is provided.