Count Data

Scope

This appendix documents the process to complete traffic count database for the EO-WB project. The methodology used for gathering and summarizing traffic count data at the 272 locations with 101 locations including vehicle classification counts is summarized.

Methodology

CH2M HILL gathered traffic count data for 272 locations within the EO-WB study area. Data were gathered from 5 different sources: IDOT–HDM count database, Illinois Tollway, Regina Webster and Associates, ISTHA 2006 Lane Closure Guide, and from the IDOT Web site. Table C-1 summarizes the data collected from each of the different sources. The data were gathered for four different Functional Classifications of roadways: Expressways, Interstates, Major Arterials and Minor Arterials.

The data were extracted and processed in two steps. The first step was extracting the hourly counts from the raw data files. The second step was extracting the vehicle classification count data to obtain truck percentages.

TABLE C-1
Count Data Source

Source	Locations
Subconsultant	101
IDOT–HDM database	86
IDOT 2006 data	33
Illinois Tollway	30
IDOT Web site AADT data	22
Total	**272**

Hourly Count Data Extraction

Hourly traffic counts were extracted from the raw traffic data files. Since the raw data were gathered from different sources, the hourly count data were in four different formats. Count data provided from different sources was processed using Excel spreadsheets and Visual Basic for Applications macros. The following paragraphs summarize each data format.

Subconsultant Count Data

Regina Webster and Associates (RWA) gathered data from 101 Minor and Major Arterials. The data were gathered using HISTAR equipment, and processed using IDOT's Highway Data Management software program. RWA provided traffic data by direction in two Excel files for each location. The first file, referred to as the "speed" file, includes hourly traffic counts and AADT. The second file, referred to as the "class" file, includes hourly counts by vehicle classification.

The hourly counts from the class file were used as the basis for the master count database. The class file for each location was summarized in one Excel spreadsheet.

IDOT—HDM Count Database

IDOT provided data for 86 locations. These data were in the Highway Data Management (HDM) format. HDM reads, analyzes, organizes and displays data collected in the field using the HISTAR detectors. Data were exported to Excel, using the Details format, located under the Excel format options. The data were processed and summarized in one spreadsheet using a VBA macro.

IDOT 2006 Data

IDOT provided 2006 data for the interstate segments under their jurisdiction. The 33 files included directional data for I-290, I-90, and Elgin O'Hare Expressway. The Excel files contained daily-24 hour counts for the months of June, July, and August. The traffic counts for every Tuesday, Wednesday, and Thursday in June were selected to calculate the hourly counts. The 12 files were summarized into one spreadsheet using VBA macros. Each macro generated count data summaries including average values and standard deviation for each count location. The files provided information by direction from a starting point moving along the roadway, including merge and diverge information. There were few locations from the EO-WB project that had a direct count from the files. Most of the counts were obtained by adding or subtracting on-ramp and off-ramp volumes to either upstream or downstream mainline counts.

TABLE C-2
Not Reliable Count Data Locations

Count ID	Reference ID	Description
3003EB	I290_EB	US 12 (Mannhiem Rd) to 25th Ave
3005EB	I290_EB	I-294 Ramp to St Charles Rd
3007SB	I290_EB	US 20 (Lake St) to York Rd
3007NB	I290_WB	US 20 (Lake St) to York Rd
3009NB	I290_WB	IL 83 and I-355 Ramp
3011NB	I290_WB	Thorndale Ave and Biesterfield Ave
3014SB	I290_EB	IL 62 (Algonquin Rd) and Kirchoff Rd
5004EB	I90_EB	IL 43 (Harlem Ave) to Canfield Ave
5004WB	I90_WB	IL 43 (Harlem Ave) to Canfield Ave

Table C-2 provides more details on the count data locations that were not included as part of the master count database. Column headings COUNTID and REFERENCE ID are codes in the count data location shape file which are used to geographically link count station locations with links having identical REFERENCE IDs.

Illinois Tollway Count Data

The Illinois Tollway provided its *Lane Closure Guide* (March 2006), developed by Wilbur Smith Associates. The guide contains hourly count data for every day of the week for the interstate system under the jurisdiction of the Illinois Tollway. Thirty locations along I-88, I-90, I-294, and I-355 were extracted from this database.

Excel files were created for each of the count data location. The files contained hourly count data for every day of the week. Also, an average weekday column was available and extracted from each of the Excel files using a VBA macro. The data were summarized in one spreadsheet and translated to the master count database file.

IDOT Web Site Count Data

There were 22 locations where no traffic counts were available. Most of those locations were near other count data locations. Information was gathered from IDOT's Web site, so that the AADT value at each location could be determined.

The following Web site provides AADT information for IDOT routes:

http://www.gettingaroundillinois.com/default.aspx?ql=aadt

Once the two-way AADT for each missing location was determined, it was converted to directional AADT by applying the percentage directional split from the adjacent AADT count data. Similarly, the 24 hour count distribution was obtained from the adjacent segment. Each count data location has two hourly count data distributions for each direction. Table C-3 lists all the locations where traffic count distributions were calculated based on adjacent data.

TABLE C-3
Locations of Calculated Count Data

COUNTID	REFERENCE ID	AADT	Location
10004EB	StCharlesRd_EB	101,140	Wolf Rd to US 12 (Mannheim Rd)
10004WB	StCharlesRd_WB	101,140	Wolf Rd to US 12 (Mannheim Rd)
10023EB	IL20LakeSt_EB	15,107	Lombard Rd to Mill Rd
10023WB	IL20LakeSt_WB	15,483	Lombard Rd to Mill Rd
10035EB	FranklinAve_EB	6,960	US 12 to Rose St
10035WB	FranklinAve_WB	7,337	US 12 to Rose St
10042EB	IL19IrvingParkRd_EB	17,208	Church Rd to York Rd
10042WB	IL19IrvingParkRd_WB	14,410	Church Rd to York Rd
10063EB	LandmeierRd_EB	8,519	Tonne Rd to IL 83
10063WB	LandmeierRd_WB	8,696	Tonne Rd to IL 83
10098EB	IL62AlgonquinRd_EB	6,477	Elmhurst Rd to Mount Prospect Rd
10098WB	IL62AlgonquinRd_WB	5,921	Elmhurst Rd to Mount Prospect Rd
20003NB	PlumGroveRd_NB	8,913	Wise Rd to Nerge Rd
20003SB	PlumGroveRd_SB	8,928	Wise Rd to Nerge Rd
20006NB	MeachamRd_NB	15,845	IL 58 (Golf Rd) to IL 72 (Higgins Rd)
20006SB	MeachamRd_SB	15,826	IL 58 (Golf Rd) to IL 72 (Higgins Rd)
20009NB	MeachamRd_NB	11,571	Nerge Rd to Elgin-O'Hare Expwy Ramps
20009SB	MeachamRd_SB	11,959	Nerge Rd to Elgin-O'Hare Expwy Ramps
20014NB	WilkeRd_NB	11,450	IL 62 (Algonquin Rd) to IL 58 (Golf Rd)
20014SB	WilkeRd_SB	11,767	IL 62 (Algonquin Rd) to IL 58 (Golf Rd)
20018NB	ArlingtonHeightsRd_NB	14,877	IL 72 (Higgins Rd) to Oakton St

TABLE C-3
Locations of Calculated Count Data

COUNTID	REFERENCE ID	AADT	Location
20018SB	ArlingtonHeightsRd_SB	16,282	IL 72 (Higgins Rd) to Oakton St
20019NB	ArlingtonHeightsRd_NB	14,877	Oakton St to Landmeier Rd
20019SB	ArlingtonHeightsRd_SB	16,282	Oakton St to Landmeier Rd
20022NB	ArlingtonHeightsRd_NB	10,410	Biesterfield Rd/Morrison Blvd to Devon Ave
20022SB	ArlingtonHeightsRd_SB	12,120	Biesterfield Rd/Morrison Blvd to Devon Ave
20044NB	ElmhurstRd_NB	19,804	IL 72 (Touhy Ave) to Devon Ave
20044SB	ElmhurstRd_SB	19,831	IL 72 (Touhy Ave) to Devon Ave
20076NB	MountProspectRd_NB	6,244	Oakton St to Howard St
20076SB	MountProspectRd_SB	7,345	Oakton St to Howard St
20077NB	MountProspectRd_NB	6,244	Howard St to IL 72 (Touhy Ave)
20077SB	MountProspectRd_SB	7,345	Howard St to IL 72 (Touhy Ave)
20079NB	WolfRd_NB	7,311	Oakton St to Howard St
20079SB	WolfRd_SB	7,704	Oakton St to Howard St
20080NB	WolfRd_NB	7,311	IL 62 (Algonquin Rd) to Oakton St
20080SB	WolfRd_SB	7,704	IL 62 (Algonquin Rd) to Oakton St
20084NB	US12ManheimRd_NB	25,422	IL 72 (Higgins Rd) to I-190 Ramps
20084SB	US12ManheimRd_SB	23,762	IL 72 (Higgins Rd) to I-190 Ramps
20085NB	US12ManheimRd_NB	25,422	I-190 Ramps to Lawrence Ave
20085SB	US12ManheimRd_SB	23,762	I-190 Ramps to Lawrence Ave
20086NB	US12ManheimRd_NB	24,153	Lawrence Ave to IL 19 (Irving Park Rd)
20086SB	US12ManheimRd_SB	22,577	Lawrence Ave to IL 19 (Irving Park Rd)
20093NB	25thAveRoseSt_NB	5,344	Belmont Ave to Grand Ave
20093SB	25thAveRoseSt_SB	5,317	Belmont Ave to Grand Ave
20095NB	NRiverRd_NB	13,599	Devon Ave to IL 72 (Higgins Rd)
20095SB	NRiverRd_SB	14,195	Devon Ave to IL 72 (Higgins Rd)

Truck Percentages

The percentage of heavy vehicles was obtained from field data gathered by RWA, IDOT's Web site, and average estimates of field data by functional classification.

Subconsultant Count Data

Vehicles were classified by four types: passenger cars (PCs), single units trucks (SUs), multiple units trucks (MUs), and MUs more than 100 feet long.

The data gathered for 101 locations by subconsultant RWA consisted of two spreadsheets for every location. The spreadsheet called "class", contained hourly counts by vehicle classification. The "class" data were summarized in one spreadsheet using a VBA script in Excel. The summary workbook included a tab for each vehicle class.

IDOT Web Site Count Data

IDOT Web site provides updated AADT and truck counts information for major roads within the state. Daily truck counts for 51 locations were gathered from IDOT's Web site, and translated to truck percentages in the master count database. Table C-4 summarizes the locations were all the truck estimations were performed.

TABLE C-4
Locations of Truck Counts from IDOT Web Site

Count ID	Reference ID	Truck %	Functional Classification
164282NB	SchaumburgRd NB	3.50	Major arterial
1642825B	SchaumburgRd SB	7.30	Major arterial
164283NB	MeachamRd NB	3.50	Major arterial
1642835B	MeachamRd SB	7.30	Major arterial
20009NB	MeachamRd NB	3.50	Major arterial
200095B	MeachamRd SB	7.30	Major arterial
164303NB	ArlingtonHeightsRd NB	7.50	Major arterial
1643035B	ArlingtonHeightsRd SB	8.80	Major arterial
164305NB	ArlingtonHeightsRd NB	7.50	Major arterial
1643055B	ArlingtonHeightsRd SB	8.80	Major arterial
20018NB	ArlingtonHeightsRd NB	7.50	Major arterial
200185B	ArlingtonHeightsRd SB	8.80	Major arterial
20019NB	ArlingtonHeightsRd NB	7.50	Major arterial
200195B	ArlingtonHeightsRd SB	8.80	Major arterial
164307NB	ArlingtonHeightsRd NB	7.50	Major arterial
1643075B	ArlingtonHeightsRd SB	8.80	Major arterial
164308NB	ArlingtonHeightsRd NB	7.50	Major arterial
1643085B	ArlingtonHeightsRd SB	8.80	Major arterial
20022NB	ArlingtonHeightsRd NB	7.50	Major arterial
200225B	ArlingtonHeightsRd SB	8.80	Major arterial
16431 9NB	BusseRd NB	9.80	Major arterial
1643195B	BusseRd SB	9.80	Major arterial
164320NB	BusseRd NB	9.80	Major arterial
1643205B	BusseRd SB	9.80	Major arterial
164325NB	ElmhurstRd NB	8.70	State route—major arterial

TABLE C-4
Locations of Truck Counts from IDOT Web Site

Count ID	Reference ID	Truck %	Functional Classification
1643255B	ElmhurstRd SB	6.00	State route—major arterial
164326NB	ElmhurstRd NB	20.50	Major arterial
1643265B	ElmhurstRd SB	19.90	Major arterial
20044NB	ElmhurstRd NB	20.50	Major arterial
200445B	ElmhurstRd SB	19.90	Major arterial
164346NB	MtProspectRd NB	9.20	Minor arterial
1 643465B	MtProspectRd SB	10.70	Minor arterial
20076NB	MtProspectRd NB	9.20	Minor arterial
200765B	MtProspectRd SB	10.70	Minor arterial
20077NB	MtProspectRd NB	9.20	Minor arterial
200775B	MtProspectRd SB	10.70	Minor arterial
20084NB	MannheimRd NB	6.20	State route—major arterial
200845B	U545 SB	11.50	State route—major arterial
20085NB	MannheimRd NB	6.20	State route—major arterial
200855B	U545 SB	11.50	State route—major arterial
20086NB	MannheimRd NB	6.20	State route—major arterial
200865B	U545 SB	11.50	State route—major arterial
164302NB	ArlingtonHtsRd NB	7.50	Major arterial
1643025B	ArlingtonHtsRd SB	8.80	Major arterial
164304NB	ArlingtonHeightsRd NB	7.50	Major arterial
1 643045B	ArlingtonHeightsRd_SB	8.80	Major arterial

Calculate Truck Percentages Using Field Data

The estimation of truck percentages for the remaining 120 locations that do not have classified truck counts was done by using averages for each truck type by facility class from the two datasets available:

- Truck Percentages based on IDOT Web site (Dataset 1)
- Classified hourly truck counts from field data provided by RWA (Dataset 2)

Calculating Percentage of Trucks at Locations without Classified Counts

Dataset 1 provides percentages of AADT by functional class that are trucks (not classified by truck type). Locations that came up with truck percentage of more than 25 percent were not taken into account for computing the average truck percentages by functional class. The average values for each functional class were calculated as shown below:

- Interstate/Expressway: 8.04 percent
- Major Arterial/State Route—Major Arterial: 9.82 percent
- Minor Arterial: 6.12 percent

More information would have provided greater statistical confidence, but this may not have changed the estimates significantly.

Dataset 2 provides truck counts by truck type. Truck data were available only for state route that includes principal roadways, major arterials, and minor arterials. It was assumed that interstates and expressways have similar characteristics as state route and major arterials. Average truck percentages by functional classes (State Route, major arterial, major arterial, and minor arterial) and truck type were calculated and summarized in Table C-5.

Dataset 1 aid estimating the truck percentage for the three roadway functional classes listed, and Dataset 2 was used to determine the breakdown by truck type.

By knowing the percentage of classified passenger cars for each time period, average percentage by facility class can be computed. This information was calculated and applied to each computed truck AADT

TABLE C-5
Truck Percentage by Truck class and Roadway Types

	% of Trucks
Light Trucks (Truck1)	
State route—major arterial	64.62
Major arterial	71.91
Minor arterial	75.21
Medium Trucks (Truck2)	
State route—major arterial	35.08
Major arterial	27.88
Minor arterial	20.58
Large Trucks (Truck3)	
State route—major arterial	0.31
Major arterial	0.22
Minor arterial	0.04